



## Resources for Steel Educators: Tips and Treasures

*AISC Educator Webinar Series*

July 22, 2020



**Smarter.  
Stronger.  
Steel.**

## AISC Educator Webinar Series

**Today's live webinar will begin shortly. Please stand by.**

Today's audio will be broadcast through the internet. Please be sure to turn up the volume on your speakers.

Please type any questions or comments in the Q&A window.



## Upcoming Educator Webinar

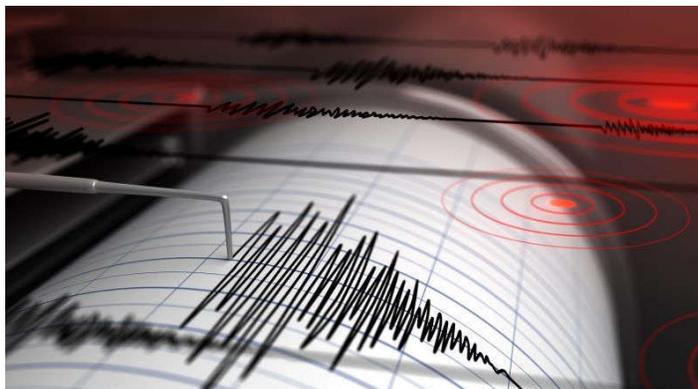
### Shake Things Up: Teaching Aids for Seismic-Resistant Design of Steel Building Structures

Thursday, August 20, 2020 at 1:00pm (Central)

Speakers:

Patricia Clayton, PhD  
University of Texas at Austin

Matthew R. Eatherton, SE, PE, PhD  
Virginia Tech



## Speakers



**Kristi Sattler, SE, PE, PhD**  
AISC  
Senior Engineer –University Relations



**Jeffrey Keileh, PE, SE, LEED® AP BD+C**  
Plant Construction Company  
Project Manager



**Judy Liu, PhD**  
Oregon State University  
Professor



**Tim Mrozowski, AIA, LEED® AP BD+C**  
Michigan State University  
Professor – Emeritus, Construction Management

## Agenda

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- Welcome and Overview
- Educator Resources
- Teaching Aid Library
- Student Programs and Resources
- Q & A

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## AISC University Programs

Our programs are intended to:

- Assist in the development of future professionals who are knowledgeable in structural steel behavior and design
- Foster career development of faculty members through support of teaching, research, and service

[aisc.org/universityprograms](https://aisc.org/universityprograms)

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## AISC University Programs Staff

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**Christina Harber, SE, PE**  
Director of Education



**Maria Mnookin**  
Education Program  
Manager



**Kristi Sattler, SE, PE, PhD**  
Senior Engineer –  
University Relations



**Eric Martin**  
Event Registration  
Coordinator



**Sean Faron**  
Education Assistant

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## AISC Partners In Education (PIE) Committee

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**\*Judy Liu (Oregon State University) - Chair**

Aaron Hill (United States Military Academy) – Vice Chair

Hans Herrmann (Mississippi State University)

**\*Jeffrey Keileh (Plant Construction Co.)**

Jason McCormick (University of Michigan)

**\* Tim Mrozowski (Michigan State University)**

Adam Phillips (Washington State University)

Carol Post (Thornton Tomasetti, Inc)

Brian Quinn (SE Solutions, LLC)

Patrick Tripeny (University of Utah)

Marci Uihlein (University of Illinois at Urbana-Champaign)

Katie Wheaton (Case Western Reserve University)

Ronald Ziemian (Bucknell University)

*\* Denotes special guest today*

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## Educator Resources

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## MEMBERSHIP

### AISC Educator Membership

Complimentary for educators currently employed full-time by an accredited university, technical school, or vocational school in the U.S.

[aisc.org/join](https://aisc.org/join)

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# MEMBERSHIP

## AISC Educator Membership

**Reminder of what's included:**

- Discounts on all AISC seminars, conferences, and publications
- Subscriptions to *Modern Steel Construction* and *Engineering Journal*
- Weekly AISC/NSBA Bulletin
- Online access to resources and downloads

[aisc.org/join](https://aisc.org/join)

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The screenshot shows the AISC.org website interface. At the top left is the 'aisc.org' logo. A navigation bar contains links for AISC, CERTIFICATION, MEMBERSHIP, MODERN STEEL, BRIDGES, WHY STEEL, and CONFERENCE. A search bar on the right contains the text 'enter search terms' and is highlighted with a red box and the text 'Be sure to log in!'. Below the navigation bar is a secondary menu with links for EDUCATION, PUBLICATIONS, AWARDS AND COMPETITIONS, TECHNICAL RESOURCES, and STEEL SOLUTIONS CENTER. The 'PUBLICATIONS' link is highlighted with a red box and a callout box listing: 'PUBLICATIONS', 'Design Guides', 'Engineering Journal', 'Historic Standards', 'Historic Manuals', and '... and so much more!'. Below this is a large blue banner with the text 'WHO MAKES THE SHAPES YOU NEED?' and a form with dropdown menus for 'SHAPE', '1ST DIMENSION', '2ND DIMENSION', and 'ALL GRADES', followed by a 'SUBMIT' button. The page number '12' is in the bottom right corner.



## NASCC: The Steel Conference

- 130+ Technical Sessions
- Exhibit Hall with 240+ exhibitors
- Workshops
- Networking

[aisc.org/nascc](https://aisc.org/nascc)



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"If you work in the steel construction industry, this is THE show to attend. Any resource you could ever want is here, all in one place!"

—Hexagon PPM

## NASCC: THE STEEL CONFERENCE

World Steel Bridge Symposium | QualityCon | Architecture in Steel  
SSRC Annual Stability Conference | NISD Conference on Steel Detailing

Louisville, Kentucky

Kentucky International Convention Center | April 14–16, 2021

[aisc.org/nascc](https://aisc.org/nascc)

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# NASCC: The Steel Conference

## Educator Session

Session includes:

- Presentation
- Discussion

Also eligible to receive travel assistance

[aisc.org/nascc](http://aisc.org/nascc)



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# Educator Forum

Collaborate, interact with, and gain insight from other members of the steel education community

## AISC Educator Forum

- Home
- File Sharing
- Practice Exams
- Photo Gallery
- Building Projects
- Videos
- Calendar
- Discussion
- Announcements
- Pre-Recorded Lectures
- Publications Corner
- Software
- Student Opportunities
- Contacts
- AISC Web Home
- AISC University Programs
- AISC Teaching Aids

**81**  
days until  
SteelDay 2020

**77**

## Welcome, Steel Educators!



Welcome to the AISC Educator Forum. This forum was collaboration amongst members of the steel education gain valuable insight from other steel educators teaching actively participate in using this website to garner knowledge providing a quality education to the engineers, architects. Feedback regarding this website is welcomed and can

Thank you for visiting the site, and best wishes to you!



### File Sharing

Share your PowerPoint presentation files and other documents.

Go Now



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# Educator Forum

Need access?

The screenshot shows the AISC website navigation. The top menu includes AISC, CERTIFICATION, MEMBERSHIP, MODERN STEEL, BRIDGES, WHY STEEL, CONFERENCE, EDUCATION, PUBLICATIONS, AWARDS AND COMPETITIONS, TECHNICAL RESOURCES, and STEEL SOLUTIONS CENTER. The main banner features the AISC logo and the text 'UNIVERSITY PROGRAMS'. Below the banner, a breadcrumb trail reads 'AISC > EDUCATION > UNIVERSITY PROGRAMS > EDUCATOR FORUM'. On the left, a sidebar menu titled 'IN THIS SECTION' lists various resources, with 'Educator Forum' highlighted. A red arrow points to this link. The main content area is titled 'Educator Forum' and contains a paragraph about the forum's purpose, a 'REQUEST ACCESS' link circled in red, and a note about email usage. The page number '17' is visible in the bottom right corner.

# Educator Forum

## File Sharing

- Case studies
- Articles
- PowerPoints
- Tip Sheets
- ... and more!

The screenshot displays the AISC Educator Forum interface. The top header reads 'AISC Educator Forum'. On the left, a sidebar lists navigation options: Home, File Sharing, Practice Exams, Photo Gallery, Building Projects, Videos, Calendar, Discussion, Announcements, Pre-Recorded Lectures, Publications Corner, Software, Student Opportunities, Contacts, AISC Web Home, AISC University Programs, and AISC Teaching Aids. Below the sidebar, a dark banner features a countdown: '81 days until SteelDay 2020' and '77 days since NASCC: The VIRTUAL Steel Conference'. The main content area is titled 'File Sharing' and includes instructions for uploading files and sharing links. Below the instructions, there are buttons for '+ Add file', '+ Add link', 'Add from Drive', 'Move to', and 'Delete'. A list of files is shown, including 'A Beginner's Guide to the Steel Construction Manual, 15th ed. by T. Bart Quimby, P.E., Ph.D., FASCE' and 'AISC Teaching Aids'. The page number '18' is visible in the bottom right corner.



# Educator Forum

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## Photo Gallery

- Steel framing
- Shear studs
- Connections
- Fireproofing
- Erection

**AISC Educator Forum**

- Home
- File Sharing
- Practice Exams
- Photo Gallery
- Building Projects
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- AISC Teaching Aids

81  
days until  
SteelDay 2020

77  
days since  
NASCC: The VIRTUAL Steel  
Conference

## Photo Gallery

This section of the forum is intended to house educational photo files.

**Uploads**  
To upload a file, click "Add file", select your file name, and click "Open". To file your upload under the appropriate folder, check the box next to your file, select "Move to", then select the appropriate folder, or create a new one.

To share a web link, click "Add link", enter the web address, name the website under "Text to display", and select "Add".

Please be specific with the titles and naming convention as this is used in the search criteria for the forum. If you have a photo depicting metal deck, make sure this is in the title of the file. Also if you have a photo associated with one another, please name the files similarly and provide this information in the title of the post.

**Disclaimer:** AISC is not responsible for the content, quality, or accuracy of any materials referenced on this Site. This forum is meant to foster a positive environment for information sharing and community building among steel educators. Please be mindful of the content and/or comments you post, and share them in the spirit of collaboration.

<input type="checkbox"/>	CHME_buildingoverall256.JPG (490k)	AISC University Programs, Mar 3, 2014, 12:52 PM
<input type="checkbox"/>	CHME_cladding_alumstuds183.JPG (482k)	AISC University Programs, Mar 3, 2014, 12:52 PM

# Educator Forum

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## Videos

- Construction time lapses
- LTB demos
- Steel failure mechanisms
- Bolt limit states

**AISC Educator Forum**

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## Videos

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**Uploads**  
To upload a file, click "Add file", select your file name, and click "Open". To file your upload under the appropriate folder, check the box next to your file, select "Move to", then select the appropriate folder, or create a new one.

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+ Add file
+ Add link
Add from Drive
Move to
Delete
Submit

<input type="checkbox"/>	Anaheim Regional Transportation Intermodal Center (ARTIC) <a href="#">View</a>	Online video showing the fabrication and erection of the unique diagrid framing for the Anaheim Regional Transportation Intermodal Center (ARTIC). Scroll down the webpage to see this short video.
<input type="checkbox"/>	CITRIS HD Time-lapse project <a href="#">View</a>	Time-lapse videos of the construction of the CITRIS building on the U.C. Berkeley

Copyright © 2020  
American Institute of Steel Construction

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## Educator Forum

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### Discussion

- Add a new post
- Contribute to existing discussion

**AISC Educator Forum**

- Home
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- AISC Teaching Aids

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Conference

### Discussion

If you would like to respond to a post, click on the post title and add your comments. If you would like to begin a new post, click "New post", add a title and write your comments.

Click on the title of any post to view additional comments and to contribute your own. The comments will appear at the bottom of the post's page, so be sure to scroll down to the bottom.

Please be specific with the titles and naming convention as this is used in the search criteria for the site. The more specific and complete the title, the better the search results.

***Disclaimer:** AISC is not responsible for the content, quality, or accuracy of any materials referenced on this Site. This forum is meant to foster a positive environment for information sharing and community among members. Please be mindful of the content and/or comments you post, and share them in the spirit of learning.*

New post

[Frequently Asked Questions about Online Learning](#)  
posted Mar 19, 2020, 3:51 PM by Pat T

Here is a list of question I have received from Faculty and Students having to do with the shift to remote learning. These questions are not specific to engineering, construction management or architecture but I think most apply.

1. Students are having a hard time focusing on my class. What do I do?  
First, be patient. This is a hard time for most people and your students are not the most self-motivated financially or socially. Many students left for a spring break and returned to a new world. Some are returning to work at the faculty but most of us are still getting paid and know how we will pay the rent or mortgage. I have heard stories from students whose job has been cut as restaurants and retail stores are closing. If you can, look toward the student service end of your campus for resources to help your students. It is important to have high standards for your students to meet but it is also important to be empathetic to their lives.
2. How do I maintain my standards set in my face to face class when I go online for the first time?  
If this is your first time to go fully or partially online, you probably won't match your face-to-face

## Desk Copy Program

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Complimentary desk copy is available to full-time faculty who are teaching steel design courses

Contact:  
[universityprograms@aisc.org](mailto:universityprograms@aisc.org)



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## Milek Fellowship

Non-tenured  
university faculty  
member

4 year award,  
\$50,000-per-year

Applications due:  
September 18, 2020

[aisc.org/milek](https://aisc.org/milek)



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## Educator Awards

Lifetime Achievement  
Award

Special Achievement  
Award

Early Career Faculty  
Awards

Geerhard Haaiger Award  
for Excellence in  
Education

[aisc.org/awardvideos](https://aisc.org/awardvideos)



W. Samuel Easterling, PE, PhD  
Iowa State University



Michel Bruneau, PhD, PEng  
University at Buffalo



Amit H. Varma, PhD  
Purdue University



Negar Elhami-Khorasani, PhD  
University at Buffalo



Julie Fogarty, PE, PhD  
California State Univ., Sacramento



Emily Baker, AIA  
University of Arkansas

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## Teaching Aids

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## Teaching Aid Library

- Case studies
- Photo library
- Videos
- AESS
- Seismic design
- Bolting & welding
- Bridge design
- *Manual* examples
- .... and many more!

[aisc.org/teachingaids](https://aisc.org/teachingaids)

The screenshot shows the AISC website's 'University Programs' page. At the top, there is a navigation menu with links for EDUCATION, PUBLICATIONS, AWARDS AND COMPETITIONS, TECHNICAL RESOURCES, and STEEL SOLUTIONS CENTER. The main header features the AISC logo and the text 'UNIVERSITY PROGRAMS' over a background image of a modern building with a glass facade and palm trees. Below the header, a breadcrumb trail reads 'AISC > EDUCATION > UNIVERSITY PROGRAMS > TEACHING AIDS'. The page content includes a 'Teaching Aids' section with a description: 'The AISC steel teaching aids have been developed to assist universities in preparing students to become professionals knowledgeable in the use of structural steel. Educators, students and others within the academic engineering community have the permission of AISC to download the steel teaching aids free of charge.' It also mentions that the aids are divided into three disciplines: architecture, civil & architectural engineering, and construction management. A sidebar on the left lists 'IN THIS SECTION' with links to Adopt-a-School, Educator Awards, Educator Forum, Faculty & Students at NASCC, Partners in Education, Scholarships, Steel Sculpture, Student Competitions, and Student Clubs. On the right, there are two promotional boxes: 'BECOME AN AISC MEMBER!' and 'STEEL EDUCATORS' TIP SHEET'.



## Teaching Aid Library

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- *Manual Examples*

[aisc.org/teachingaids](https://aisc.org/teachingaids)

### COMPANION TO THE AISC *STEEL CONSTRUCTION MANUAL*

#### Volume 1: Design Examples

For Use in First Semester  
Structural Steel Design Classes

Version 15.1



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## Highlights of the Teaching Aid Library

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*Tim Mrozowski*

- Digital Library Images
- Four Story Building Case Study
- Technical Topics

*Judy Liu*

- Introduction to Steel Buildings PowerPoint

*Jeffrey Keileh*

- Steel Frames: The Design Studio Case Studies

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## Teaching Aid Development Program

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*\* Now accepting proposals\**

- Videos
- Presentations
- Design examples
- Team-based project guidelines
- Instructions for hands-on demonstrations
- Handouts
- ... ???

Proposals Due:  
**August 31, 2020**

Send to Kristi Sattler  
**(sattler@aisc.org)**

[aisc.org/teachingaids](https://aisc.org/teachingaids)

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## Teaching Aid Development Program

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**\* Sneak Peek! \***

- 3D Web-based Connection Viewer [*September 2020*]
- Interactive Online Figures Demonstrating Key Concepts in Steel Design [*October 2020*]
- “Days of Steel” Videos [*January 2021*]
- Steel Connections: A Teaching Aid for Design Considerations [*January 2021*]
- Structural Fire Engineering Curriculum for Undergraduate Education [*January 2021*]
- Conceptualizing Steel Gravity Design [*May 2021*]



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## Education Archives

Searchable collection:

- Recorded webinars
- NASCC sessions
- Conference proceedings
- Articles

[aisc.org/learn](https://aisc.org/learn)

EDUCATION PUBLICATIONS AWARDS AND COMPETITIONS TECHNICAL RESOURCES STEEL SOLUTIONS CENTER

### CONTINUING EDUCATION

aisc > EDUCATION > CONTINUING EDUCATION > EDUCATION ARCHIVES

#### Education Archives

The AISC Education Archives contains a collection of recorded webinars, conference proceedings and articles that can be accessed at any time.  
TIP: SEARCH BY PDH CREDIT TO FIND COURSES WHERE CONTINUING EDUCATION CREDIT CAN BE EARNED.

Just want to browse by the most popular topics? Check out our [Education Archives Index](#), where you can find all resources (2017-present) organized by keyword!

SEARCH

PDH CREDIT: SELECT PDH TYPE: SELECT TYPES YEAR: SELECT YEAR

SEARCH

2111 RESULT(S) FOUND

Course Name	PDH	Date	Author/Speaker	Type
Students Connecting with Industry Sessions: Virtual Edition	0	May 2020	Bradley J. Dillman, PE; Shelley Finnigan, SE; Benjamin Harber, AIA, PMP; Brian Quinn, PE; Natalie Tse, SE	Webinar

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## Prototype Projects

### Steel Solutions Center

Conceptual Solutions Examples:

- Healthcare
- Multi-Story Residential
- Office – Conventional Steel Framing
- Parking

[aisc.org/steel-solutions-center/conceptual-solutions](https://aisc.org/steel-solutions-center/conceptual-solutions)



Office  
Conventional Steel Framing Study



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### Loading Summary

Criteria are based on the 2012 International Building Code (IBC) etc.

**Gravity Loading**

- Office: 65 psf including 15 psf partition loading
- Roof Deck: 100 psf
- Roof Snow: 50 psf

**Wind Loads**

- Typical Floor: 46 psf D in metal deck with 3/4 in. LW Gypsum
- Roof: 4 psf D in metal deck

**Superimposed Dead Loads**

- Office: 10 psf (CMER, etc.)
- Occupied Roof: 45 psf (CMER, pavers, roofing, etc.)
- Unoccupied Roof: 20 psf (CMER, roofing, etc.)

**Cladding**

- Brick Facade: 770 psf

**Wind Loading**

- Basic Wind Speed: 115 mph
- Exposure Category: C
- Drift Limit: H/500

### Project Information

- Minneapolis, Minn.
- Four-story office building
- Conventional composite steel beam-gravity framing
- Steel ordinary braced frames and moment frames
- Typical floor-to-floor height: 14.0'

### Architectural Floor Plans

### Fourth Floor Framing Plan

Notes:

- Each member is marked with the estimated member size for wide-flange (W) beam and the designation for column. If present, the designation "C" indicates an assumed lumber floor 3/4 in. to 2 in. The estimated number of studs for each member is not indicated; a total estimated number of studs is provided in the quantities.
- Columns indicate lateral frames. The wide-flange beams are moment-connected to the columns in the moment frames and pre-connected to columns in the braced frames. NO special base plate detail is assumed for the columns.
- indicates the direction of the estimated floor slab, which consists of 3 in. composite metal deck with 3/4 in. lightweight concrete topping.
- See the Column and Frame Layout Plans and the Column Schedule for gravity column sizes.
- All beams are W12x14, unless noted otherwise.

### Steel Quantity Takeoff

Suspended Steel Floor Areas		Total Area
		Typical Floor
		Roof
<b>Estimated Steel Quantities</b>		
Gravity Columns	W14s	63 tons
Gravity Beams	Wide Flange	535 tons
		10,722 studs
Lateral Frames	354 Beams, cantabene	
	38 tons	
	44 tons	
	13 tons	
	35 tons	
		<b>728 tons</b>

**Notes:**

- The quantities are based on centerline dimensions.
- Steel not indicated in sketches accounts for framing not included on previous members eliminated for simplification. It does not include facade attachments.

**Material Specification**

- Wide flange shapes are ASTM A992.
- Rectangular HSS sections are ASTM A500 Gr. C.

# Virtual Reality

## Mill Tours

Can be viewed using:

- VR Headset
- Phone Viewer
- or -
- YouTube

[aisc.org/vr](http://aisc.org/vr)

Atlas Tube  
Virtual Reality Tour

VIRTUAL REALITY TOUR | NUCOR-YAMATO STEEL

Nucor-Yamato Steel  
Virtual Reality Tour





## Student Programs and Resources

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## Student Membership

- Free!
- Access to technical information and downloads on AISC website
- Complimentary pass to NASCC: The Steel Conference



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## NASCC: The Steel Conference

### Students Connecting with Industry Sessions

- Presentation
- Lunch
- Direct Connect

Also eligible to receive travel assistance and to attend Conference Dinner

[aisc.org/scis](http://aisc.org/scis)



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## AISC Scholarships

Scholarships for Juniors,  
Seniors, and Masters  
Students

Over \$138,000 for  
2020-2021  
Academic Year

Funded by:

- AISC Education Foundation
- Local Steel Associations

[aisc.org/scholarships](http://aisc.org/scholarships)



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## Student Steel Bridge Competition

- Must span approximately 20ft, carry 2,500 pounds, and meet project specifications
- Timed construction
- Load tested and weighed
- Also judged on aesthetics

[aisc.org/ssbc](http://aisc.org/ssbc)



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## ACSA/AISC

### Steel Design Student Competition

- Explore design issues related to use of steel in design and construction
- Steel must be used as primary structural material
- At least one space must require long-span steel structure

[www.acsa-arch.org/programs-events/competitions/2020-steel-competition](http://www.acsa-arch.org/programs-events/competitions/2020-steel-competition)



Image Credit: Students: Xiao Wang, Hanwei Fan & Yifeng Guo, Iowa State University | Faculty Sponsor: Thomas Leslie, Iowa State University | Project: *Miami S Stadium* | 2014-2015 Steel Competition: 2nd Place Winner



## AISC Student Clubs

- Exchange steel-related knowledge
- Engage in educational activities
- Network with peers and industry representatives

[aisc.org/studentclubs](https://aisc.org/studentclubs)



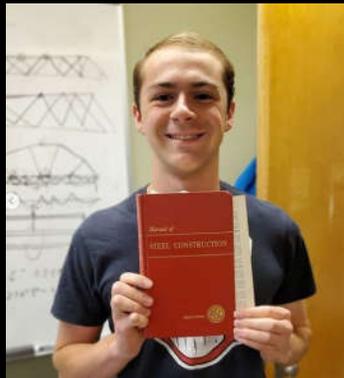
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## Student Contests

### Previous events:

- Photo contests
- Online trivia

*\* Stay tuned for  
SteelDay 2020  
contest! \**



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## Concluding Remarks

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## Upcoming Educator Webinar

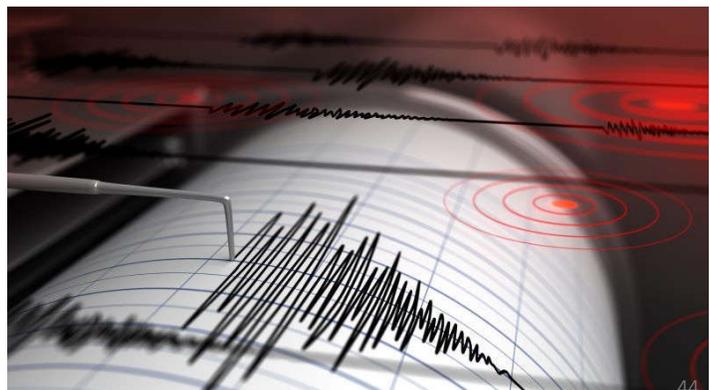
### Shake Things Up: Teaching Aids for Seismic-Resistant Design of Steel Building Structures

Thursday, August 20<sup>th</sup> at 1:00pm (Central)

Speakers:

Patricia Clayton, PhD  
University of Texas at Austin

Matthew R. Eatherton, SE, PE, PhD  
Virginia Tech



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# How to Contact Us

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email: **universityprograms@aisc.org**

website: **aisc.org/universityprograms**

social media:     @aisc



# Q & A



