Volume 16 Issue 2

March 2021

Structural Engineers SENH of New Hampshire

Granite Columns

President's Letter

I am looking forward to all that is happening in 2021 locally with SENH and Nationally with NCSEA. There are a number of new things for 2021 that I would like to share.

First, the North East Coalition of Structural Engineering Associations (NECSEA), which includes the NCSEA member organizations from New England, New York and Pennsylvania, will be holding its first conference this spring. This will be hosted over two days and will be online. The NECSEA has assembled a great group of presenters and the topics will include snow loads, rain loads, concrete code items and temporary structures. I am grateful that this group was able to pool its resources and pull this together. There will be a small cost associated with attendance and I expect it to be a bargain given the content planned. Keep a look out for an announcement soon.

Second, we are fortunate enough to have the 2021 NCSEA summit relatively close to us this year. The summit is planned to be in person and online and will be hosted by SEAoNY in New York, New York. Like last year there will be an opportunity to attend virtually if you are not able to make the trip. This is a great opportunity to meet with fellow engineers. It is also a great opportunity to see other firm's work at the design awards and to get many professional development hours. If you have not attended this in person or virtually, I encourage you to do so for some or all of the event.

Third, I am thankful for the new sponsors and advertisers SENH has this year. This year it has been a challenge to balance the budget and we could not have done it without these. Advertisers and annual sponsors help us maintain free webinars for members, maintain scholarships and continue member engagement. Thank you to all of them. I encourage our members to use the advertiser section of our newsletter as a resource.

Last and certainly not least, I am happy that we already have a few new members for this year. Welcome new members: Ryan Brautovich, July Blaise Nganyi Imbembe, Grant Erickson, Karie-An James and Jacob Pouliot! We look forward to your involvement in SENH. If you are interested in getting involved contact me or any of the board members.

Inside this issue:

Special Points of Interest/ Reminders:

- *Mark you calendars! The next meeting is scheduled for March 29th—See inside for details!*
- *Excellence in Structural Engineering Awards Deadline has been extended!*
- *Turn to page 9 to learn more about our sponsors!*

Committee Updates

Excellence in Structural Engineering Awards Committee

submitted by Robert Durfee, P.E.

Chair: Bob Durfee

Co-Chair: Bob Champagne

Member: Fred Emanuel

Member: Josif Bicja

This committee has decided to extend the deadline for submissions to the 2021 annual SENH Excellence in Structural Engineering Awards Program. **The DEADLINE has been pushed back to 5:00 PM on Friday, April 2nd.**

This program identifies and recognizes outstanding structural engineering projects specifically designed by our Members and/or constructed in our State.

Award winners will be announced during the Awards Ceremony to be held during the May 2020 meeting.

Detailed information on the Awards Program, entry requirements, etc. is posted on the SENH website. Go to: Members/Excellence in Structural Engineering.

Enter one or more projects in the awards Program and be recognized for your outstanding Structural Engineering Achievements!!!!

SENH Scholarship Committee

submitted by Matthew Low, P.E.

SENH ANNOUNCES UNH SCHOLARSHIP WINNERS!

Structural Engineers of New Hampshire (SENH) is very pleased to announce that two University of New Hampshire (UNH) Civil Engineering student have been selected for the 2021 SENH Scholarships of $1,000 each. Students entering their senior year of studies with a focus on structural engineering are eligible. This year, **Mr. Logan Stevens** of the University of New Hampshire was named the winner of the Arthur W. Rose, Jr. Memorial Scholarship and **Ms. Alissa Reitter** of the University of New Hampshire was named the winner of the SENH Younger Member's Group Scholarship. A scholarship award ceremony will be held in the fall of 2021 at UNH to recognize these fine individuals for their achievements.

SENH is proud to support students as they pursue their undergraduate degrees, the first step in becoming tomorrow's engineers and problem solvers.

SENH is a not-for-profit organization established to pursue common interests of practicing structural engineers and others sharing an interest in the activities of structural engineers. For more information on the organization, please visit www.senh.org.

SENH March Meeting Announcement

NEXT MEETING: Monday, March 29, 2021

PLACE: ONLINE
A Zoom link will be sent on the day of the meeting to those who are registered.

AGENDA:
5:00 pm – 5:15 pm Business Meeting
5:15 pm – 7:00 pm Presentations (See Below)

COST:
Member: $20
Non-Members: $40
Students: Free

RSVP: By Friday, March 26, 2021

Pay online using PayPal at http://www.senh.org/meeting-calendar or send a check payable to "Structural Engineers of New Hampshire" with list of attendees to:

TFMoran, Inc.
Attn. Cassi Beroney
48 Constitution Drive
Bedford, NH 03110
cberoney@tfmoran.com

Donations to the SENH scholarship fund are always welcome and appreciated.

NOTE: 2.0 PDHs have been assigned for attendance. Attendees are responsible for signing into the Zoom meeting with first and last name in order to receive PDHs.

PRESENTATIONS:

UNH Student Presentations

Time slots will be available for Senior Capstone Groups to present.

East Kingston Bridge Rehabilitation Using PBU's and UHPC

By Joshua Lund, PE

Josh has over 21 years of experience in the design, inspection, rating, and management of bridge projects throughout New England. Josh is a proud alumnus of UNH having earned both his Bachelor's and Master's degrees there. Josh is currently a Transportation Bridge Manager for McFarland Johnson working in their Concord, NH office. Josh primarily works on bridge projects in NH, MA and CT, and has developed significant experience and expertise in Accelerated Bridge Construction over the past seven years.

Description: This bridge rehabilitation project located on NH Route 107A in East Kingston, NH replaced a three-span superstructure over the Pan Am Railway and a residential drive in 25 construction days. The existing bridge was constructed in 1937 and consisted of shallow, closely spaced painted steel beams. Each of the three simple bridge spans are approximately 40 feet, totaling 120 feet. The bridge was structurally deficient based on the 'serious' condition rating of the deck.

The Pan Am Railway supports both freight cars and high-speed passenger rail, with up to 10 crossings per day. The high service volume railroad would require frequent intermittent work stoppages and was a challenge for this site. The limited allowable work windows would make conventional construction difficult and costly.

Meeting Announcement *(Continued from page 4)*

The recommended alternative was to utilize Prefabricated Bridge Units (PBU's) with Ultra High-Performance Concrete (UHPC) closure pours, representing the first use of these elements by the NHDOT. UHPC was selected for the closure pour material due to its superior bond strength and durability, as well as its ability to minimize joint widths. These characteristics of UHPC alleviated concerns of joint leakage and strength typically associated with the longitudinal closure pours on bare concrete decks.

Design and Construction of Blenheim Covered Bridge

By Josif Bicja, PE

Josif is a Project Manager/Associate with Hoyle, Tanner & Associates, Inc., has over 17 years of experience in the inspection, evaluation, rehabilitative and new design of numerous types of bridges. Josif has co-authored several historic bridge papers and in 2014 was selected as the NH Young Engineer of the Year. He holds a Bachelor of Science and Master of Science in Civil Engineering from the University of New Hampshire.

Description: The Old Blenheim Bridge was a single-span, double-barrel Long Truss wooden covered bridge built in 1855 located in North Blenheim, NY and destroyed by flooding of Tropical Storm Irene in 2011. The Long Truss was patented in 1830 by US Army Engineer Col. Stephen Long and is considered to be the first intentionally prestressed truss bridge.

The replacement bridge, constructed in 2018, is one of the longest single-span covered bridges in the world and one of only six double-barrel covered bridges in the country. The total length of the bridge is 228' with a clear span of 200' and includes three trusses, one of which utilizes a built-in timber arch.

The bridge was ultimately designed utilizing LRFD codes, however a full analysis was completed and compared utilizing both ASD and LRFD methods. The unique design included prestressing of the bridge through a detailed preloading sequence of the trusses with water-filled containers at approximately 64% of its dead load or 228 kips. Truss counter diagonals, which were installed after the preloading, were loaded in compression as the preload was removed from the bridge. The sustained compression load in counter diagonals was calculated to not exceed the expected tension loads from live load, as such members were not detailed to take any tension load. The bridge now stands as a testament to the original design and perseverance of the people of North Blenheim.

Renovation of the Historic Jewett Piano Case Factory, Located in Leominster, MA

By Tom Lamb, PE

Tom has over 17 years of experience in the engineering and construction industries. His diverse skillset includes experience in structural design, analysis, and construction administration of residential, public, and commercial buildings throughout New England. Tom has been an integral part of the TFMoran team working on projects across a broad range of building projects including retail, office, institutional, municipal, industrial, sustainable design, workforce housing, mixed-use, and historic re-use. Tom earned his Bachelor of Science in Civil Engineering from the University of New Hampshire.

Description: Conversion of this timber-framed mill building into Ivory Keys Apartments, a 43-unit affordable residential apartment building, included substantial structural upgrades and repairs for, among other things, a nearly 1-foot lean of the building, water damage, flood plain elevation and lateral instability issues. The project plans included foundation work and incorporating steel frames into the building to correct the lean, lateral instability, and years of neglect. In addition to structural repairs, a significant effort was made to preserve the nature of the historic mill. This included preserving the aesthetics of the exterior which included many windows.

February Meeting Attendance List & Meeting Minutes

NHDOT Bridge Program Update & NH's First Slide-in Bridge (2.0 PDH's)
Virtual Meeting Online via Zoom
February 10, 2021

Name	Name	Name	Name
Aaron Lachance	Jared Peterson	Kevin Carme	Richard Rouleau
Adam Stockin	Jay Brown	Kim Armstrong	rlandry
Ailish Bozzo	Jennifer Reczek	Linda McNair-Perry	Robert Durfee
Bryson Welch	Jillian Semprini	Lisa Martin	Ross Wood
Chris Fournier	Jody Trunfio	Mark Richardson	Ryan McMullen
Dan Martel	John Byatt	Martin Gorham	Sage Cawthern
David Scott	John Stockton	Matt Low	Sam Brandt
Domenic Capulli	John Stockton	Michael Richard	Sam White
Ed Weingartner	Joseph D O'Neill	Neil Rapoza	Sean Brown
Eric Caron	Josh Lund	Nevin Gomez	Sean James
Eric Ohanian	Josif Bicja	Nicholas Caron	Shannon Beaumont
Fred Emanuel	Karie James	Raymond Cook	Steve Langevin
Geoffrey Aleva	Katelyn Welch	Rebecca Lubrano	Tim Polson
Grant Erickson	Kathryn Dziadowicz	Rich Rooney	Tom Lamb
Jaime French	Kayla Hampe	Richard J. Driscoll	Tyler Kuehl

Business Portion of the Meeting

BUSINESS PORTION

· SENH Excellence in Structural Engineers Awards now open.
  ◊ Project nominations due March 5th.
  ◊ Submissions that were made in 2020 that were not selected are encouraged to re-apply.
  ◊ Application forms are in the January Newsletter.
· Advertisers welcomed and encouraged to help support SENH.
  ◊ The annual sponsor is new. Logo will be displayed at each meeting, mentioned at each meeting, and in the newsletter. $200 for members, $300 for non-members.
· SENH Scholarship program – no raffle this year
  ◊ Encourage members to make donation to scholarship fund (checks can be mailed to Cassi).
· This will be the last 'free' meeting. Remote bi-monthly meetings will be $20 for members.
· Northeast Coalition of SEAs will be hosting an online conference, early April: ACI 318, Temp. Struct, ASCE 7-22 Snow, ASCE 7-22 Rain Shooting for 11:00 AM – 1:00 PM
· PDC Updates (Kayla Hampe)
  ◊ Wednesday 2/17/2021 Mass Timber Webinar 1:30 PM to 3:00 PM
· Special Inspections Seminar Update (Dan Martel)
  ◊ Building Inspectors annual meeting – Wednesday, March 10, 2021
  ◊ Morning will be ICC on Special Inspections
  ◊ Round-table discussion in the afternoon for state of special inspections in NH

Presentations

NHDOT Bridge Program Update:

David Scott, PE, In-House Design Chief at the New Hampshire Department of Transportation (NHDOT) provided an update on the current state of affairs at the NHDOT Bridge Program and a look ahead at the draft 10 Year Transportation Improvement Plan. The state continues to see a decrease in the number of 'Red Listed' bridges (bridges in poor condition) (14 bridges removed in 2020, 7 bridges added); however, the inventory of bridges in 'fair' condition continues to increase. The state continues to prioritize bridge preservation work and rehabilitation work to help extend the service life of the state's bridges.

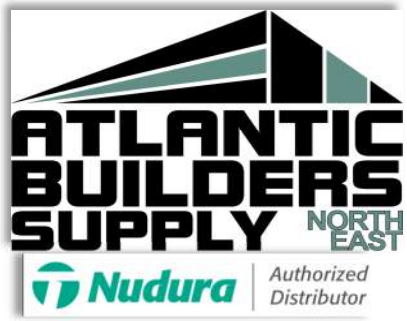
New Hampshire's First Slide-In Bridge

Jennifer Reczek, P.E., Project Manager at NHDOT provided an overview of New Hampshire's first lateral slide-in bridge replacement. The Bearcamp River Bridge & Bearcamp River Relief Bridge, which carry NH 16 & 25 over the Bearcamp River, were replaced using the Accelerated Bridge Construction (ABC) method known as Lateral Slide-in. The two bridges were preassembled on site, immediately adjacent to the existing bridges. During a weekend closure, the Bearcamp Relief Bridge was demolished and the new bridge was pulled into place, sliding the new bridge on rollers from its temporary abutments and piers onto the permanent substructure. During a second weekend closure, the Bearcamp River bridge was replaced using the same methodology. The presentation provided an overview of construction details, schedules, and lessons learned.

Employment Opportunities

Summit Engineering is seeking a motivated building structural engineer to join our award winning team in Portsmouth, NH. Candidate will be responsible for the structural design, drafting and project management of building projects located throughout New England, Florida and the United States Virgin Islands. BSCE required (PE preferred) with 4+ years' experience. Proficiency with Autodesk REVIT required. Candidate should be familiar with the design and detailing of building structures and components constructed of steel, concrete, masonry and timber. Excellent benefits package that includes a retirement plan with employer matching and health insurance coverage provided. Please contact Bob at 603-319-1817 or bob@summitengineeringinc.com.

Our Sponsors



www.atlanticbuilderssupply.com

www.atlanticprefab.com

www.atlastube.com

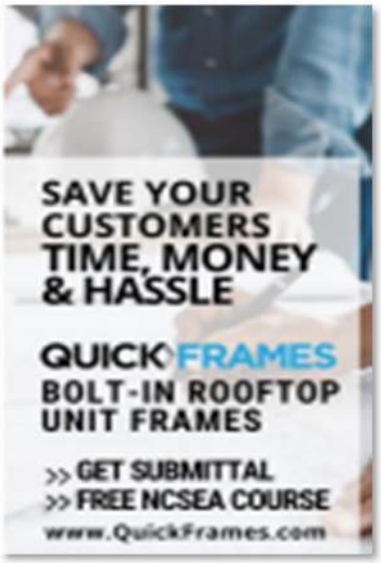
www.boisecascade.com

www.dubois-king.com

www.emanuelengineering.com

www.euclidchemical.com

www.ndtcorporation.com



www.quickframes.com

www.tfmoran.com

Want to see your Company's Business Card listed here?

Contact Cassi at CBeroney@TFMoran.com to find out how!

P.O. BOX 226
MANCHESTER, NH 03105-0226

WWW.SENH.ORG

Member of

Board of Directors

President	Thomas Lamb, P.E.
Vice President	Josif Bicja, P.E.
Secretary	Timothy Polson, P.E.
Treasurer	Sean Brown, P.E.
Director at Large	Jeffrey Karam, P.E.