



Granite Columns



President's Letter



A belated happy Engineers Week to everyone! I recently had the privilege of visiting Governor Sununu's office. I joined many other NH engineering society representatives and the NH Engineer and Young Engineer of the Year award winners for the Governor's proclamation of Engineers Week. Governor Sununu is a fellow engineer and was interested in all the attendees' engineering backgrounds and interests. He was excited to share his experience as an engineer and as the son of an engineer, telling a few jokes and stories about punch cards and slide rules.

Inspired by this, and in honor of Engineers Week, I thought I would share a little bit about how I have come to be a structural engineer and president of SENH.

I grew up the son of an engineer too. My father was an electrical engineer for a NH based defense contractor for nearly 40 years. His fascination with how things worked and his insistence on fixing everything around the house himself sparked an interest in science and engineering for me.

In high school I took several engineering related courses and applied to colleges with engineering programs, but still unsure of what branch in the engineering field I wanted to pursue. This led me to Binghamton University's engineering program where I was able to get exposure to several engineering branches before officially declaring a specific major after my sophomore year. After attending an inspiring lecture by a structural engineer in this program and some careful thought, I decided to study Civil Engineering. This choice led me to transfer to the University of New Hampshire, where I later graduated.

While at UNH, I was fortunate enough to intern with a sole proprietor structural engineer. This and my interest in the structural engineering related coursework at UNH began to form my career in structural engineering. Upon graduation I worked for a large engineered lumber company based on the west coast, then a small consulting engineering firm in Boston and finally as an engineer at TFMoran where I still work today.

Through my coworkers at TFM, I have met many people in the structural engineering community of New Hampshire. After many years as a member and some encouragement from coworkers and colleagues I joined the SENH board of directors and more recently have found myself serving as president.

So that's my story, I hope to hear some of your stories, too. And I am most hopeful the I can be part of your story as an involved member in SENH.

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Special Points of Interest/ Reminders:

- *Mark you calendars! The next meeting is scheduled for March 25th—See inside for details!*
- *Final Reminder for Excellence in Structural Engineering Awards inside!*
- *Turn to page 4 for information on the Young Members Ski Outing on March 13th!*

Committee Updates

Public Relation Committee/ UNH Scholarship Sub-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 2020 SENH Scholarships of \$1,000 each. Students entering their senior year of studies with a focus on structural engineering are eligible. This year, **Ms. Hannah Miller** was named the winner of the Arthur W. Rose, Jr. Memorial Scholarship and **Mr. Garrett Puchalski** was named the winner of the SENH Younger Member's Group Scholarship. A scholarship award ceremony will be held in the fall of 2020 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.



Code Advisory Committee

submitted by Daniel Martel, P.E.

The Code Advisory Committee has been pursuing discussions on how the Special Inspections provisions of the IBC are inconsistently enforced across the state. We have also found that nationwide there is not uniform adoption of the provisions between jurisdictions. This has been a long-standing topic of SENH as a long-standing frustration from New Hampshire structural engineers. We do not know where these conversations will lead, but for now we are trying to understand the various experiences that structural engineers have on their design projects. We may soon engage in conversations with the NH Building Officials Association to gain their perspectives.

What are your experiences with Special Inspections in New Hampshire? What other thoughts do you have on this topic? Please email Dan at dmartel@myteamengineering.com.

Committee Updates

Excellence In Structural Engineering Awards Committee

submitted by Robert Durfee, P.E.

FINAL REMINDER !!

Excellence in Structural Engineering Awards

Project Entries for the fourth annual Excellence in Structural Engineering Awards is due by Friday, March 6, 2020 (less than two weeks away).

Do you have an interesting, challenging or unique structural project that was constructed in the last two (2) years? If so, then submit your project for recognition by your peers for your accomplishment!

Reminder: Projects submitted in 2019 that were not selected for an Award are **automatically eligible** for re-submittal in 2020 (resubmit updated application from 2019 with \$50 entry fee).

Project Entry and Award Categories are:

- Buildings
- Bridge and Transportation Structures
- Special Structures
- Small Firm Project

The entry requirements are short and easy:

- Fill out the one page entry form
- Prepare an 800 word (or less) project description
- Assemble 4 to 8 color photos (8" x 10")
- Include 1 to 2 sketches or plan sheets (11" x 17")
- Send check for \$50 entry fee

It is that simple!! Visit the SENH website for eligibility requirements and complete details to submit a project: <http://www.senh.org/excellence>

We hope to see your project submission on or before **March 6th!!!!**

SENH Board of Directors
SENH Awards Program Committee

Committee Updates

Young Members Group

submitted by Sean Brown, P.E.

SENH Younger Members Group – Ski & Tubing Outing



Join the SENH Younger Members Group at a joint outing with the SEAMASS Younger Members Group at Pat's Peak on Friday, March 13! Enjoy an afternoon of skiing or snow tubing with your fellow YM's from 3pm to 6pm and meet up for some social time at the Sled Pub from 6pm to 8pm. Appetizers will be provided courtesy of SENH & SEAMASS. Skiing and tubing tickets are available so there will be something fun for everyone, and when 15+ members sign up we are eligible for discounted group rate tickets. Order tickets through Paypal by making a payment to Treasurer@senh.org and come when you can!



SENH YMG Ski Outing at Pats Peak
 686 Flanders Road, Henniker, NH 03242
 Friday March 13th 2020
 3pm – 6pm Skiing, Snowboard & Tubing
 6pm – 8pm Socialize at The Sled Pub at the Base Lodge

Ticket Type	Group Rate
Tubing between 3-9pm for 2 hours	\$17
Tubing between 3-9pm for 4 hours	\$19
Skiing/Snowboarding all Day & Night	\$37
Skiing/Snowboarding all Day & Night w/rentals	\$57

To Order Tickets:

- Send a payment request to Treasurer@senh.org using Paypal
- Add a note with your payment including; Your Name, Your Organization (SENH or SEAMASS), and the Ticket Type
- Receive your ticket via email and hit the slopes!!

For Questions Contact: Treasurer@senh.org



Committee Updates

UNH CEE Alumni Conference Announcement

submitted by Josif Bicja, P.E.



Registration for The 2020 University of New Hampshire, CEE Alumni Conference is now open!

<https://learnforlife.unh.edu/portal/events/reg/participantTypeSelection.do?method=load&entityId=24094624>

This year's conference will take place on **Thursday, April 2, 2020!!!**

Please see our website for more information: <https://ceps.unh.edu/cee>

We are still in need of presenters and panelists!

Presenting at the CEEAC is a great opportunity to share your firm's interesting experience and projects with both professionals and students, if you are interested in submitting an abstract for a talk or presentation you'd like to give, you may do so now by visiting the website link above.

Note: Please limit your abstract submissions to 200 words or less. If you would like to sponsor this event, please click on the website link above.

February NCSEA Webinar

submitted by Jonathan Sproul, P.E.

SENH provided a NCSEA recorded webinar to members on Wednesday, February 12th from 4:30pm-6:00pm. We had 17 attendees with a good mixture of SENH members and UNH students and faculty. At the conclusion of the webinar there was an open discussion between the students and the professional SENH members that attended. Since the students couldn't ask the presenter questions on the presentation (pre-recorded), the room was opened to questions to the current professionals. Jon Longchamp, of Daigle Engineers, did a great job of explaining the differences between "observations" and "inspections."

Webinar Topic:

Job Site Observations by Structural Engineers for New & Existing Buildings, Including Job Site Safety

Structural Engineers are usually required, as part of their Contract for Professional Services, to conduct on-site observations of the construction of a project. The usual stated purpose of these on-site observations is to "Observe the progress and quality of the executed work of the Contractors by an experienced and qualified design professional and provide a written report of the visit." This webinar will review the protocols and pitfalls of making these on-site observations including job site safety for the engineer performing these observations.

SENH March Meeting Announcement

NEXT MEETING: Wednesday, March 25, 2020

PLACE: University of New Hampshire
DeMeritt Hall Room 112 (large lecture hall on the first floor)
9 Library Way
Durham, NH 03824

DIRECTIONS: From the West: Take Rt. 101 to Rt. 125 North. At the Lee traffic circle, take Rt. 4 East to Exit for 155A (Main St.) Go right to 155A (Main St.), pass UNH Field House, take next right onto College Rd. Veer left onto College Rd. DeMeritt Hall is the second building inwards from the second large building on the left.

From the East: Take Rt. 16 North to Rt. 4 East towards Durham. Exit Rt. 4 onto Main Street and follow directions from above.

PARKING: Park in the visitor section of Lot H (before 9:00 pm it's "pay and display" parking by the hour, and then after 9:00 pm this lot is free). Lot A and Lot B are free after 6:00 pm, or use "pay and display" spots around campus. Please be careful to read all parking lot signs and hours before parking and see the attached parking map.

AGENDA: 5:30 pm – 6:30 pm Registration/Social Hour/ Dinner
6:30 pm – 6:45 pm Business Meeting
6:45 pm – 8:45 pm Presentations (See Next Page)

DINNER: Pizza, Assorted Sodas and Water.
Please include any food allergies or dietary restrictions to be accommodated.

COST: Member: \$20.00 - Non-Member: \$35.00
Student: FREE

"No-shows" will be billed at full amount. Refunds will not be issued.

RSVP: By Monday, March 23, 2020. There will be a \$5.00 late fee for anyone wishing to RSVP past this date.

Pay on line using PayPal at <http://www.senh.org/meeting-calendar> or send 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

NOTE: 2.0 PDHs have been assigned for attendance. Attendees are responsible for ensuring their check-in on the attendance list upon arrival at the meeting.

Meeting Announcement *(Continued from page 6)*

PRESENTATIONS:

6:45 pm—7:15 pm

Two time slots will be available for Senior Capstone Groups to present.

7:15 pm—7:45 pm

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.

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.



7:45 pm-8:15 pm

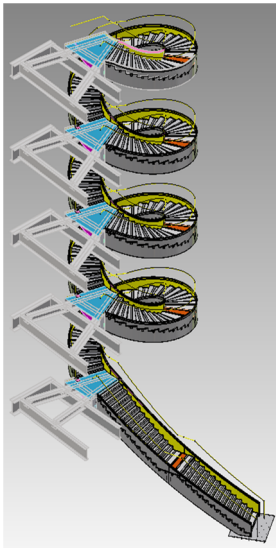
Northeastern University Spiral Stair

By Robert Champagne, PE, LEED AP, and Daniel Bard, PE

Mr. Champagne's background is in structural engineering. He holds a B.S. in civil engineering from the University of New Hampshire and has over twenty years of experience in structural design and analysis for a variety of institutional, commercial, industrial and residential projects. Bob is a LEED® Accredited Professional and member of the United States Green Building Council – NH Chapter. He has worked on numerous LEED accredited projects and specializes in the design of concrete and steel structures ranging from small stair designs to complex multi-story buildings. In addition to design, Bob has extensive experience with forensic investigations including wind, flood and insurance claims. Bob lives in Rye, NH with his wife Janet. Away from the office Bob can be found with a golf club, fishing rod or ski poles in his hands.

Meeting Announcement *(Continued from Page 7)*

Mr. Bard's background is in structural engineering, steel connection design and detailing, and miscellaneous metals design. Dan has provided structural design and analysis on a variety of institutional, commercial, industrial, residential, and environmental projects. Dan has been a team member on multiple state and national award-winning projects. He holds a master's degree in Civil Engineering (Structural) from the University of New Hampshire, dual bachelor degrees in Mathematics and Physics from Keene State College; and an A.A.S. in Civil Engineering Technology from Hudson Valley Community College. Prior to joining Summit, Dan performed structural steel connection calculations, vertical and horizontal structural erection and fabrication modeling, and project management assistance for a steel fabricator in NY. Dan also has experience in materials testing for concrete and asphalt. While not working, Dan can be found taking his family on adventures, hiking a mountain, road/trail running, sailing, skiing, or reading.



Description: Summit Engineering was contracted by the steel fabricator DeAngelis Iron Works of Easton, MA on the design of this multi-level spiral stair. Payette, the architect of record, and Lemessurier Consultants, the engineer of record, were involved the overall building design. The stair design was provided as a deferred design submittal. Limited graphical information was shown on the original design drawings and was the basis of design for the completed structure. Summit Engineering provided all the design, modeling and calculations submittal packages for approval by the design team.

Design of the spiral stair initially began with an examination of the geometry. Each flight, from floor-to-floor, comprised an interior and exterior radial steel plate stringer with steel bent plate treads and multiple intermediate landings, trapezoidal in plan, and supported at each level by an A-frame cantilever frame element. Steel tubes were introduced beneath the bent plate treads to provide increased rigidity and to serve as primary frame elements to transfer forces between the two stringers. The steel tubes provided the additional benefit of increased stiffness, and allowed the adjacent treads to act independently, thereby reducing cost associated with fabrication and erection. Additional design elements include finite element analysis (FEA) of radial glass guards and the design of steel railings, the A-frame support structure at each floor level, connections for all elements of the stair, and rigging support structures for the stair lowest flight.

8:15 pm-8:45 pm

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

By Tom Lamb, PE

Tom has over 13 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.

January Meeting Attendance List & Meeting Minutes

NHDOT Bridge Program Update & The Repurposing of One Milk St., Boston (2.0 PDH's)

Grappone Conference Center

70 Constitution Avenue, Concord, NH 03301

January 16, 2020

Name	Company	Name	Company
Aaron LaChance, P.E.	Hoyle, Tanner & Associates, Inc.	Kyle Roy, P.E.	TFMoran, Inc.
Adam Stockin, P.E.	WSP USA	Lily Beyer, P.E.	Summit Engineering, PLLC
Allison Christie	Hardesty & Hanover	Loretta Girard Doughty, P.E.	NHDOT
Andrew Lawrence	Quantum Construction Consultants	Lucas Talbot, P.E.	Jay Steel
Anna Giraldi	Quantum Construction Consultants	* Michael Richard, P.E.	Simpson Gumpertz & Heger
Bill Saffin	NHDOT	Nevin Gomez, P.E.	WSP USA
Christian Rainey	Quantum Construction Consultants	Nick Caron, P.E.	HDR, Inc.
Christopher Fournier, P.E.	HEB Engineers	Paul Lefebvre, P.E.	HDR, Inc.
Darren Blood		* Rebecca Lubrano	Simpson Gumpertz & Heger
DJ Ntumi	NHDOT	Rich Rooney, P.E.	McFarland Johnson
Eric Caron	WSP USA	Richard Driscoll, P.E.	Richard J. Driscoll, Consulting Engineer
Fred Emanuel, P.E.	Emanuel Engineering	Robert Champagne, P.E.	Summit Engineering, PLLC
Jamie French	Fuss & O'Neill	Robert Durfee, P.E.	Dubois & King
Jared Peterson	HDR, Inc.	* Robert Landry, P.E.	NHDOT
Jill Semprini, P.E.	Hoyle, Tanner & Associates, Inc.	Ross Wood, P.E.	Hoyle, Tanner & Associates, Inc.
Joe Ripley, P.E.	Hoyle, Tanner & Associates, Inc.	Sam White, P.E.	McFarland Johnson
Joel Fischer, P.E.	Fischer Engineering	Sean Brown, P.E.	Hardesty & Hanover
John Byatt	Fuss & O'Neill	Sean James, P.E.	Hoyle, Tanner & Associates, Inc.
John Stockton, P.E.	HDR, Inc.	Steve Boyington, P.E.	HDR, Inc.
John Watters, P.E.	GPI	Steve Langevin, P.E.	GPI
Joseph O'Neill	Summit Engineering, PLLC	Thomas Lamb, P.E.	TFMoran, Inc.
Josif Bicja, P.E.	Hoyle, Tanner & Associates, Inc.	Thomas Levins	GM2 Associates, Inc.
Katelyn Welch, E.I.T	Hoyle, Tanner & Associates, Inc.	Tim Polson, P.E.	WSP USA
Kathryn Dziadowicz	Hoyle, Tanner & Associates, Inc.	Tom French	HDR, Inc.
Kayla Hampe, P.E.	Hoyle, Tanner & Associates, Inc.	Tom Kendrick, P.E.	McFarland Johnson
Kenneth G. Marshall, P.E.	Foley Buhl Roberts & Associates, Inc.	Trevor Knott, P.E.	
Kim Armstrong, P.E.	GPI	Zachary Abbott	WSP USA

*Speaker

Business Portion of the Meeting

President Tom Lamb made a few announcements:

- SENH will be sponsoring webinars every other month (generally opposite bi-monthly meetings).
- SENH has received six applicants for the two SENH scholarships. Applications are currently being reviewed – scholarship winners will be announced during Engineer's Week in February.
- Reminder that SENH Excellence in Structural Engineering Awards is open to receive applicants – more information on the SENH website.

Treasurer Sean Brown made a few announcements:

- Renewals are due by January 31st.
- SENH will be awarding two - \$1000 scholarships to UNH students.
- Kayla Hampe announced that the scholarship raffle raised \$300.

Kayla Hampe gave a presentation on her attendance at the NCSEA conference as a scholarship winner.

Presentations *(continued from page 9)*

Robert Landry, PE – NHDOT Bureau of Bridge Design Administrator presented his annual **NHDOT Bridge Program Update**.

- o Overview of the Department's Draft 10 Year Plan
- o The state met 23 of 23 of the FHWA metrics in 2019.
- o In 2019, 1,324 state bridges were inspected.
- o Current focus is reduction in red list bridges.
- o Bob will be retiring from NHDOT at the end of the month. Josif Bicja presented Bob with a gift from SENH to thank him for his years of service.

Dr. Michael Richard and Rebecca Lubrano of Simpson Gumpertz & Heger (SGH) made a presentation titled “**Old Bones – New Purpose: The Repurposing of One Milk Street, Boston**”. Located in the heart of Downtown Boston and part of Boston's Historic Newspaper Row District, One Milk Street is composed of three adjoined buildings: The Boston Transcript Building (circa 1873); The Boston Post Building (circa 1874); and a connector infill building dating from the 1930s. The project encompassed a full gut renovation of all three buildings with structural alterations to create mixed-use upper floor office space and ground floor retail. As EOR for the base building structure, SGH evaluated the existing structural components of the building (composed of multiple historical masonry, timber, and cast iron systems) as part of an initial building code feasibility study to determine the level of structural upgrades triggered by code, developed a test procedure for in-situ proof load testing of the existing heavy timber floors for the building owner, and designed new structural components such as new CMU elevator cores, structural steel egress stairs, a two story mechanical Penthouse, a new entrance canopy, and new concrete sidewalk vaults.

Messages from your Admin

-There will be a survey put together by the Board of Directors sent out within the next few days, so please watch your email for it! The survey will be sent via SurveyMonkey.com, and should have my email address associated with it. Please feel free to contact me with any questions.

- Did you know that you can access your NCSEA account? Go to the NCSEA website—in the upper-right hand corner click on “Member Login” (in green). Or click on the link below:
<https://netforum.avectra.com/eweb/DynamicPage.aspx?WebCode=LoginRequired&Site=NCSEA1>.

All SENH Members already have an account. If you have never logged in, use the email provided to SENH and the password: **Ncsea1234***

If this process does not grant Member Portal access, please contact NCSEA. After logging in, you can update your info with NCSEA. This can help ensure that you will continue to receive the monthly edition of Structure magazine.

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