



Granite Columns



President's Letter



It was great seeing you all at the last meeting on the UNH campus. Thank you to our presenters for sharing your time and interesting projects with us all.

As mentioned at the meeting, it was great to see SENH's founding Board of Directors (1994). From left to right: Jeff Trexler, Joel Fisher, Bob Durfee, Fred Emanuel, and Jeff Tirey. Thank you all for getting SENH started and for continuing to contribute throughout your careers.

Regarding our next meeting, I hope you will notice that the Board's commitment to reduce meeting costs. \$40 is a great deal for dinner, PDH(s), and structural engineering comradery! The Board hopes that this initiative will increase member attendance, so I expect to see you there.

Once again, Linda McNair-Perry has provided us with an important legislative update. I wanted to make sure that one part was highlighted, as it's coming up quick. Two public hearings were held a few weeks back regarding the NH Building Code and the Building Code Review Board. If you are especially interested in legislative changes to these items, find the legislative update in this newsletter, and read up.

A year ago, I presented the Board's 2018-2021 Strategic Plan. The Board has made a concerted effort to move on the action items for the outlined strategies, so we may achieve our goals and strengthen SENH. I'm pleased with the progress we have made, especially: the new free annual webinar(s) to provide additional benefits to our members, new reduced meeting costs to encourage active membership, a strong Younger Members Group to develop SENH's future leaders, and a reinvigorated Code Advisory Committee to keep SENH's unified voice heard. Of course, none of this is possible without our member's volunteer efforts. We still have a lot to do, so however you can pitch in it will be appreciated.

It's been a great six years serving you on the Board of Directors, I look forward to continuing to serve in other ways, following in the example set by our founding Board members.

The Board of Directors Nomination Committee will be announcing our nominee(s) for the open Board position shortly, via email. Stay tuned.

See you in May.

Christopher R. Fournier, PE, SECB



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Special Points of Interest/ Reminders:

- *Mark your calendars! The next meeting is May 16th--See inside for details.*
- *Nominees for the Excellence in Structural Engineering Awards are in! Check out the project poster boards and summaries inside!*
- *Want more info about the where the Update of Building Codes are in the Legislature? Just turn the page!*
- *In need of some structural engineering books/ materials to add to your library? Look for the "Reference Corner" page to see details of an entire library up for sale!*

SENH Committee Updates

Legislative Update on Building Code Related Bill

Submitted by Linda McNair-Perry, P.E., SECB

There are several bills regarding New Hampshire's building codes that are making their way through the legislature. These bills are a byproduct of last autumn's legislative study committee, which was created to consider changes to the laws that establish procedures of amending and/or adopting updated national building codes in our state.

Of the most interest to our members will be [HB 562](#). It is one of two bills introduced this year with the objective of updating the state code to the 2015 I-codes, as amended. HB 562, is very similar to HB 247, which the SENH Code Advisory Committee reviewed and provided a letter of support that was approved by the Board of Directors and sent to the House Executive Departments and Administration (ED&A) Committee. The [HB 562 docket](#) shows that the bill has passed the House and has moved over to the Senate ED&A where a hearing is scheduled. In addition to the 2015 code updates, HB 562 (if passed) will ratify all amendments approved by the BCRB through January of 2019. In HB 562, however, the list of amendments to 2015 *International Residential Building Code* (IRC) energy provisions promoted by the NH Home Builders Association will sunset in 2 1/2 years.

[HB 710](#), which is a bit wonky, also passed the House with amendments and is now in the hands of the Senate's ED&A Committee with an upcoming hearing appearing on [the docket](#). It is worth noting that some provisions relative to the Building Code Review Board (BCRC) in HB 710 will:

- permit the BCRB to recommend newer codes if they have been published for at least 2 years,
- require the previous year's amendments that have been approved by the BCRB to be brought forward to the legislature annually for ratification before taking effect, and
- require that the BCRB publish amendments adopted by municipalities.

It looks like many of the grievances that have prevented the updated code legislation from clearing the House over the last several years have been resolved. There is quite a bit of optimism that these bills will move quickly through the Senate. If they pass the Senate without amending further, the bills will be sent to the Governor. The bills may be amended at in this hearing process or even on the floor of the Senate, which would slow the process.

It is important to note that HB 562, which updates the I-codes, has an effective date of 60 days after passage. That date won't be known until the Governor signs the bill. Many of you will have lengthy design projects that will require you to consider where the effective date may fall relative to the date your project documents will be filed for permit.

You are encouraged to follow the bills on [nh.gov](#) and to reach out to the ED&A and/or your Senator to offer your opinions. Or if you prefer to present your opinions in person, the two bills have hearings scheduled back to back on same day in the Legislative Office Building (LOB) Room 101.

HB 710 (relative to the BCRB): Senate ED&A Hearing April 17th at 09:40 AM

HB 562 (relative to the Code updates): Senate ED&A Hearing April 17th at 10:00 AM

Thanks go out to Jeff Trexler, PE, for sharing information for use in this summary and for agreeing to serve as the Structural Engineer member for another 3-year term on the Building Code Review Board.

SENH Announces UNH Scholarship Winners!

Submitted by Matthew J. Low P.E.

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 2019 SENH Scholarships of \$1,000 each. Students entering their senior year of studies with a focus on structural engineering are eligible. This year, **Ms. Michelle Thibault** was named the winner of the Arthur W. Rose, Jr. Memorial Scholarship and **Ms. Jamie Fitzpatrick** was named the winner of the SENH Younger Member's Group Scholarship. A scholarship award ceremony will be held in the fall of 2019 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.

UNH Happenings

Submitted by Dr. Raymond Cook, Ph.D., P.E.



Erik Leger astride the experimental beam

At the University of New Hampshire, there are only about four weeks to go and the civil and environmental engineering seniors are working hard to finish up their capstone projects before the big Undergraduate Research Conference (URC).

The URC is free and open to the public, and the engineers present on Wednesday, April 24th at the Whittemore Center Arena on the Durham campus. The public is invited to attend the awards ceremony at 6 p.m. and the open house immediately following until 8:30 p.m.

As an example of one student project, team members Erik Leger, Ben Curcio, Jake Manning, and Justin Fiala, developed an idea for a new type of wooden beam using layers of short, 45 degree, web laminations in orthogonal directions. They also created a conventional glue-lam beam and secured an industry sample for comparison. They will be presenting their results at the conference.

SENH Meeting Announcement

NEXT MEETING: Thursday, May 16, 2019

PRESENTATION: **Introduction to Fiber-Reinforced Cementitious Matrix.** Simpson Strong-Tie® recently introduced their externally-bonded Composite Strengthening Systems™ (CSS) for reinforcement of existing reinforced concrete and masonry structural elements. Simpson Strong-Tie's new Fabric-Reinforced Cementitious Matrix (FRCM) system combines high-performance sprayable mortar with carbon-fiber grids that combine to create thin reinforced cementitious layers without adding significant mass or volume to an existing structure. FRCM is being used to retrofit, reinforce, and rehabilitate structural components of buildings, bridges, parking structures, chimneys, tunnels, tanks/silos, and pipelines. This Presentation will explore the fundamentals of FRCM, its applications, basic design criteria, installation, and quality control measures with specific references to provisions of ACI 549.4R, ICC ES AC434, ACI 562, ACI 318, and ACI 216.1. Developed in-house, as well as through acquisition, Simpson Strong-Tie's FRCM offers both uni- and bi-directional carbon grids. Following this training, attendees will comprehend the constituent components, installation, usefulness, and applications of FRCM reinforcement and repair of concrete and masonry assemblies, and cite industry design, test, and qualification standards applicable to this versatile material.



SPEAKER: **Mark Jarvinen** has been practicing structural engineering, concrete repair and strengthening, and exterior building envelope consulting for 30 years. His structural engineering experience ranges from adaptive reuse of historic structures to new building designs of structural steel, reinforced masonry, reinforced concrete, and wood. His exterior building envelope experience includes work involving above and below grade waterproofing, roofing, exterior cladding, masonry and building stone, windows, and doors. Mark's past project responsibilities include, structural investigation, report writing, structural design, specification writing, construction cost estimating, construction administration, and field testing and inspection.

Mark has been a member of the Simpson Strong-Tie Company's Field Engineering Team since 2007. As an employee of Simpson Strong-Tie Company, Mark's primary responsibilities include educating and supporting design professionals and specifiers relating to Code-compliant specification, design, installation, field inspection and testing of post-installed anchor and repair products for concrete and masonry. Mark also provides design and specification support and technical training related to Simpson Strong-Tie's FRP Composite Strengthening Systems (CSS) and pile repair system (FX-70).

Mark has been professionally registered as a Structural Engineer in the Commonwealth of Massachusetts since March 9, 1995, an active member of the International Concrete Repair Institute (ICRI), and certified as an ACI/CRSI Adhesive Anchor Installer.

PLACE: The Derryfield Restaurant
625 N. Mammoth Road
Manchester, NH 03104
(603) 623-2880

AGENDA: 5:30 pm – 6:30 pm Registration/Social Hour/Review Posters
6:30 pm – 7:15 pm Dinner
7:15 pm – 7:30 pm Business Meeting
7:30 pm – 8:00 pm Awards Program
8:00 pm – 9:00 pm Presentation

SENH Meeting Announcement *(Continued)*

DINNER: Buffet with choice of Bistro Steak served with horseradish demi or Chicken Picatta with lemon and capers served with a white wine sauce

Please include any food allergies or dietary restrictions to be accommodated.

COST: Member: \$40.00 - Non-Member: \$45.00 - Student: \$15.00

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

RSVP: By Thursday, May 9, 2019. 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.

March Meeting Attendance List & Meeting Minutes

Various Presentations (2.0 PDH's)
University of New Hampshire—DeMerritt Hall Room 112
9 Library Way, Durham, NH 03824 March 27, 2019

Andrea Plourde	University of NH	Kathryn Dziadowicz	Student at UNH
Barbar Khan, P.E.	Concord Engineering Consultants, PLLC	Katie Welch, E.I.T.	Hoyle Tanner & Associates, Inc.
Bob Henry	University of NH	Kayla Hampe, P.E.	Hoyle Tanner & Associates, Inc.*
Christopher Fournier, P.E.	HEB Engineers, Inc.	Kyle Roy, P.E.	TFMoran, Inc.
Chuck Tinkham, P.E.	JSN Associates, LLC	Luke Mueller	University of NH
Daniel Martel, P.E.	Team Engineering	Mark Beroney	Atlantic Prefab, Inc.
Dzijme Ntumi	Summit Engineering, PLLC	Matt LaBrecque, P.E.	ProCon, Inc.
Earl Sandford, P.E., LLS	Sandford Surveying & Engineering	Matt Perm	University of NH
Eric Caron	University of NH	Matthew Allen, P.E.	JSN Associates, LLC
Erin Bell	University of NH	Nevin Gomez	WSP USA
Fred Emanuel, P.E.	Emanuel Engineering	Nicholas LaBrecque	Student at UNH
Jack McCartney	University of NH	Richard Rouleau, P.E.	University of NH
Jay Brown, P.E.	Structural Systems, Inc.	Robert Busby, P.E.	Kalwall Corporation
Jeff Karam, P.E.	Evergreen Structural Engineering	Robert Champagne, P.E.	Summit Engineering, PLLC
Jeff Trexler, P.E.	Trexler Engineering	Robert Durfee, P.E.	Dubois & King, Inc
Jeffrey Tirey, P.E.	Tirey & Associates, P.C.*	Robert Schmacher	University of NH
Jill Semprini, P.E.	Hoyle Tanner & Associates, Inc.	Ross Wood, P.E.	Hoyle Tanner & Associates, Inc.
Jim Hall, P.E.	Dubois & King, Inc.*	Sean Brown, P.E.	Hardesty & Hanover
Joe Ripley, P.E.	Hoyle Tanner & Associates, Inc.	Shokonfeh Zargan	University of NH
Joel Fisher, P.E.	Fisher Engineering, P.C.	Steve Langevin, P.E.	Green-Pedersen, Inc.
John Wichert	University of NH	Tim Murray	University of NH
Jonathan Sproul, P.E.	ProCon, Inc.	Tim Polson, P.E.	WSP USA
Joseph Sievente	University of NH	Tom Lamb, P.E.	TFMoran, Inc.
Josif Bicja, P.E.	Hoyle Tanner & Associates, Inc.	Zachary Zavalianos, P.E.	Dubois & King, Inc.

*Speaker

Business Portion of the Meeting

President Chris Fournier opened the meeting recognizing the attendance of the original Board of Directors of SENH at the meeting.

The Treasurer Provided an Update:

- 140 members have signed up or renewed their membership
- Some members still have not renewed
- The PDC plans to reduce the cost of future SENH meetings

The Younger Members Committee provided an update:

- A Resume review day was held at UNH
- The younger members group plans to hold a panel discussion for UNH students. People interested in being on the panel should contact the younger members group.

Bob Durfee Provided an NCSEA update:

- NCSEA will organize the first annual Timber construction competition in conjunction with AITC

Presentations

Technical Presentations:

UNH students presented their capstone project, a study of site and building development for a 10 story building in Haverhill, MA. Features in the theoretical project included a parking garage at the buildings' lower levels, commercial and residential spaces. Students modeled the building in Revit and explored LEED certification for the project.

Jeff Tirey, PE presented on two projects:

Kingswood High School, Lincoln, NH

While visiting the site and observing the roof for another project Mr. Tirey discovered a localized sag in the roof filled with water. Further inspection of the wood framed roof from below uncovered that the roof sheathing and 2x roof rafters had rotted and failed in many places. Mr. Tirey worked with town officials to ensure safety in the building and protect the public after this was discovered and throughout repair construction. It was discovered that the roof framing was rotted as a result of a condensation/venting issue. This issue was also fixed as part of the repair.

Historic Barn Collapse

Mr. Tirey was hired after a partial collapse of a historic barn structure at a private residence during construction. The structure had shifted 3 feet in each direction during foundation/post repairs due to improper shoring. Further review of the structure uncovered many failed members and connections in the structure. It was determined that the structure was not salvageable and recommendations for demolition were made.

Jim Hall, PE of Dubois and King Inc. presented on the Route 113 bridge over the Bearcamp river in Tamworth, NH.

The existing 3 span bridge was replaced with a new 124ft span 28ft wide bridge. Several options for construction were considered including rehabilitation. A concrete box girder bridge was chosen as the best solution. Accelerated Bridge Construction was used including pre-cast concrete footings and abutments. The construction schedule was 28 days. Several construction issues were presented including issues with camber and concrete cracking.

Kayla Hempe, PE of Hoyle Tanner & Associates presented on the analysis of the Vila Bridge between Bellows Falls, VT and Walpole, NH.

The bridge is a two-span open spandrel deck arch bridge of cast in place concrete construction. It was constructed in 1930 and closed in 2009 to all traffic. The bridge spans 108 feet each side of a central pier. Hoyle Tanner & Associates was hired to provide a load rating on the bridge including a future widened sidewalk. This created asymmetrical loading on the bridge which needed to be considered. Midas Engineering software was used to model and analyze the bridge structure. Arches in the bridge were found to be adequate while spandrel columns were not. The information has been presented to the department of transportation.

Excellence in Structural Engineering Award Nominees

Awards Category: **Bridge Structures**



Completed bridge



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 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 228,000 pounds. Under the weight of this load, the bridge only deflected approximately $\frac{3}{4}$ ". Truss counter diagonals, which were installed after the preloading, were loaded in compression as the preload was removed from the bridge. The new Blenheim Covered Bridge stands as a testament to the original design and perseverance of the people of North Blenheim. This iconic structure's importance to the community is shown by images of the bridge emblazoned on Town-owned trucks and equipment. The bridge replaces a key piece of the Town's history and culture which was previously identified as a National Historic Landmark. In addition, it demonstrates the role that engineering plays in our infrastructure.

Old Blenheim Bridge Replacement

Owner: Schoharie County, NY

Entering Firm:



Hoyle, Tanner & Associates, Inc.



Construction of timber trusses on level ground



Lifting of timber trusses during construction



Prestressing of the bridge with 228,000 pounds of water-filled containers



Historic sign indicating bridge's span length significance



Sliding of the new covered bridge over the new abutments

Project Name: Old Blenheim Bridge Replacement

Project Location: North Blenheim, New York

Structural Design Firm: Hoyle, Tanner & Associates, Inc.; Manchester, NH

Project Highlight:

The Old Blenheim Bridge was a single-span, double-barrel Long Truss covered bridge built in 1855 located in North Blenheim, NY and destroyed by flooding of Tropical Storm Irene in 2011. 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 bridge utilizes Long Trusses which is considered to be the first intentionally prestressed truss bridge type.

Excellence in Structural Engineering Award Nominees

Awards Category: **Bridge Structures** *(continued)*

Project Name: Route 107A Accelerated Bridge Construction

Project Location: East Kingston, NH

Structural Design Firm: McFarland Johnson Inc., Concord, NH

Project Highlight:

This Accelerated Bridge Construction (ABC) project consisted of the superstructure replacement of a three-span steel girder bridge carrying NH Route 107A over PanAm Railways and a private residential drive. The project utilized innovative materials and structural systems including Ultra-High Performance Concrete (UHPC) and modular Prefabricated Bridge Units (PBU's), both being the first use of these technologies by the NHDOT. The bridge superstructure was replaced during a 25-day bridge closure, minimizing impacts to the traveling public.

McFarland-Johnson, Inc. (MJ) recently partnered with the New Hampshire Department of Transportation (NHDOT) to develop an innovative rehabilitation solution for a structurally deficient bridge located in East Kingston, New Hampshire. This Accelerated Bridge Construction (ABC) project consisted of the superstructure replacement of a three-span steel girder bridge carrying NH Route 107A over PanAm Railways and a private residential drive.

This project utilized innovative materials and structural systems including Ultra High Performance Concrete (UHPC) and modular Prefabricated Bridge Units, both being the first use of these technologies by the NHDOT. UHPC is a cementitious, concrete material that has a minimum specified compressive strength of 21,000 pounds per square inch, and provides exceptional durability, tensile ductility, and bond strength. UHPC is revolutionizing the way bridges are constructed by allowing more of the structural elements to be prefabricated offsite and later connected at the project site with small field-cast closure pours. Because of the unique properties of this high-performance material, the connections between elements are no longer the weakest link, and increased service life can be expected for bridges using UHPC.

Prefabricated Bridge Units (PBUs) are modular prefabricated superstructure systems consisting of two steel beams connected by a cast-in-place deck. These units were designed and detailed by MJ for this specific project, and they were constructed offsite on temporary supports well in advance of the planned onsite construction. These modular units were transported to the site using normal flatbed trailers and lifted into their final position using a single 275-ton high capacity hydraulic crane. In recognition of the innovative solutions, this project was awarded more than \$600,000 by the Federal Highway Administration as part of the Accelerated Innovation Deployment (AID) demonstration program.

The design team listened to the needs of the owner and responded by developing an engineering solution fulfilling the stated project goals. The use of prefabricated modular elements in combination with high performance concrete materials provided a durable structural system that will last for many generations. Additionally, the special federal demonstration funding secured for this project reduced the financial burden for the State resulting in a wise investment for the citizens of New Hampshire. Through reuse of the existing abutments and implementing Accelerated Bridge Construction methods, the project greatly minimized impacts for all project stakeholders by completing the majority of the construction during a short 25-day roadway closure period. This project successfully tested and implemented two new technologies, and the knowledge gained will undoubtedly be utilized on future bridge improvement projects throughout New Hampshire.



Route 107A Bridge

EAST KINGSTON, NEW HAMPSHIRE



Excellence in Structural Engineering Award Nominees Awards Category: **Bridge Structures** *(continued)*

TAMWORTH, NH – ROUTE 113E over the BEARCAMP RIVER



DuBois & King (D&K) provided design, assistance in the public involvement process, and associated environmental and cultural services for replacement of the bridge carrying NH Route 113 over Bearcamp River in the town of Tamworth. The existing bridge was constructed in 1955, is a 3-span bridge with a total length of 123 ft. The center span is steel girders and a concrete deck, while the end spans are concrete slabs.

D&K designed the replacement bridge (substructure and superstructure), which was constructed using Accelerated Bridge Construction (ABC) techniques in a compressed 28-day timeframe in August 2018. The new bridge design consists of butted precast/prestressed concrete on precast concrete abutments with spread footings. The replacement bridge is expected to be the longest single-span of its type in New Hampshire with a span length of 133'-0" between bearings.



Project: Rte. 113E Over Bearcamp River ABC Bridge Construction

Location: Tamworth, New Hampshire

Design Firm: Dubois & King, Inc.

Project Highlights:

DuBois & King provided design services for the replacement of the bridge carrying NH Route 113 over Bearcamp River in the town of Tamworth. The existing bridge was a 3-span 123-foot bridge. D&K designed the replacement bridge using Accelerated Bridge Construction (ABC) techniques in a compressed 28-day timeframe. The new bridge design consists of butted prestressed concrete on precast concrete abutments. The replacement bridge is the longest single span of its type in New Hampshire.

Excellence in Structural Engineering Award Nominees

Awards Category: **Building Structures**

Medicus Healthcare Solutions

Windham, New Hampshire

Project:
Medicus Office Building

Location:
Windham, New Hampshire

Design Firm:
TFMoran, Inc.

Project Highlights:
Medicus Healthcare Solutions office building complex, located in Windham, NH, is a newly constructed three building complex. The buildings contain approximately 100,000 square feet of office space and are all connected by enclosed pedestrian bridges at the second floor. Each building is framed of a hybrid system of insulated concrete formed (ICF) walls and steel open web floor joists, beams and columns. The building is founded on concrete spread footings.



3-PHASED STEEL AND INSULATED CONCRETE FORM CONSTRUCTION



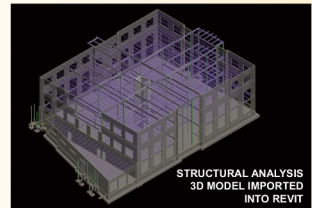
Rendering courtesy of Bernard Martel Architecture, Inc.

Medicus Healthcare Solutions office building complex, located in Windham, NH, is a newly constructed three building complex. The buildings contain approximately 100,000 square feet of office space and are all connected by enclosed pedestrian bridges at the second floor. Each building is framed of a hybrid system of insulated concrete formed (ICF) walls and steel open web floor joists, beams and columns. The building is founded on concrete spread footings.

ICF walls at the exterior were chosen as an economical

and energy efficient solution in lieu of the typical steel frame and metal stud curtain wall system used on most office buildings. The wall systems provided several benefits including a robust lateral load resisting system, ICF formed brick shelf, increased flexibility with façade material installation, and simplicity of connections between buildings.

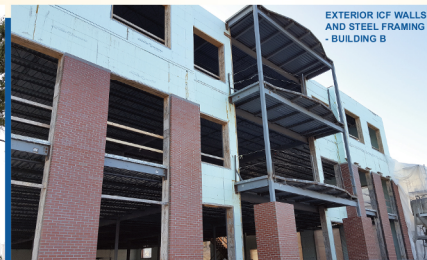
A three-dimensional structural model was produced for the design of the buildings. The model was then imported into Building Information Modeling software to produce the structural drawings for the project.



STRUCTURAL ANALYSIS 3D MODEL IMPORTED INTO REVIT



EXTERIOR ICF FRAMED WALL WITH BRICK SHELF



EXTERIOR ICF WALLS AND STEEL FRAMING - BUILDING B



CONCRETE PLACEMENT - BUILDING C



INTEGRAL BRICK SHELF FORMED WITH ICF



WALL FRAMING 8" ICF WALLS ABOVE GRADE 10" ICF WALLS WITH BRICK SHELF BELOW GRADE



COMPOSITE FLOOR JOIST FRAMING - BUILDING C



Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists

CONTACT:
Robert Duval, PE, LEED AP – Chief Engineer
Paul Sbacchi, PE – Chief Structural Engineer
TFMoran Inc., 48 Constitution Drive, Bedford, NH
(603) 472-4488 www.tfmoran.com



STANDARD LH SERIES FLOOR JOIST CONSTRUCTION - BUILDING A



FLOOR DECK CONSTRUCTION - BUILDING B

Excellence in Structural Engineering Award Nominees

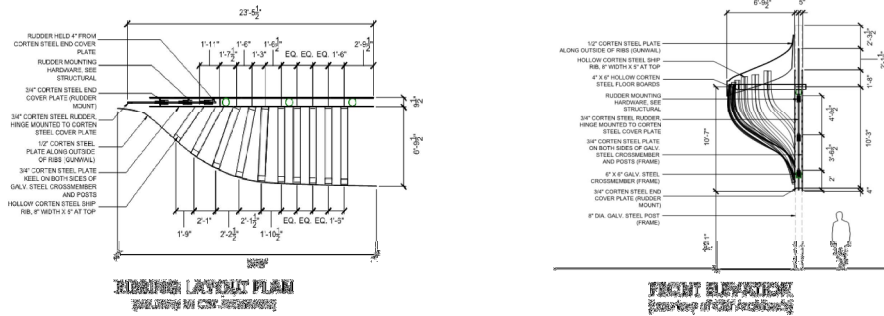
Awards Category: Special Structures



2019 SENH EXCELLENCE IN STRUCTURAL ENGINEERING AWARDS SPECIAL STRUCTURES



Harbor Way Ship Sculpture



Summit Engineering, PLLC of Portsmouth, NH performed the structural design for the Harbor Way Ship Sculpture located at 121 Seaport Boulevard, Boston, MA. This sculpture was derived from overall measurements taken of a two-masted schooner found during excavation for a new building. Structural design included a breakdown of existing elements to determine how each would react for gravity and lateral loading analysis. Member design included horizontal and curved steel girders, rubber plates, base plate, mechanical base support structure, cross beams of the steel posts, analysis of the steel posts and connections for all elements. Weathering steel was used to simulate the historic wood color of the ship members.

Project Challenges:

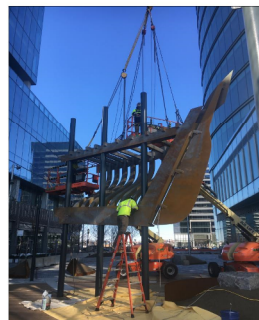
- Exposed steel and connections requiring slender elements and connections for a sleek look
- Simplification of framing and connection analysis to reduce design costs
- Determining best connection methods to transfer forces across atypical connection boundaries to simplify connection methods and reduce fabrication costs



FABRICATION ASSEMBLY
(courtesy of DeAngelis Iron Work, Inc)

Project Team:

- Summit Engineering (delegated design engineer)
- DeAngelis Iron Work, Inc (fabricator)
- Atlantic Steel Detailing Services (steel detailer)
- CBT Architects (architect)
- McNamara-Salvia (engineer of record)
- Skanska USA (prime contractor)
- Copley Wolff Design Group (landscape architect)



ERECTION
(courtesy of DeAngelis Iron Work, Inc)

Project Name:
Harbor Way Ship Sculpture

Project Location:
Seaport District of South Boston, MA

Structural Design Firm:
Summit Engineering, Portsmouth, NH

Project Highlights:
Summit Engineering was contracted by the fabricator to provide the structural steel design for this sculpture, with particular focus on maintaining the slender appearance of the curved weathering steel plate members and connections while providing sufficient strength under gravity and multi-directional wind loads. The sculpture, fabricated by [DeAngelis Iron Works](#) of Eaton, MA, was inspired by [the discovery of a portion of the two-masted schooner's hull](#) during the excavation of a new building in 2016.

Reference Corner

After 45 years of working in the structural engineering field, Jeffrey Tirey, P.E. will be retiring and placing his entire library of structural engineering references up for sale!

The library of structural engineering books including codes, engineering guides, textbooks, seminar publications, manufacturer's product information, etc., from nearly 40 years of work is being offered for sale by Tirey & Associates, PC, with the impending retirement of business founder, Jeff Tirey, PE. If you wish to jump start an engineering library or expand your current library holdings, this is a terrific, one time opportunity. Any interested parties can request a listing of the 700± publications that are available. Preference will be given to anyone who wishes to purchase the entire library. The sale will be made to the highest offer received. You will need to pick up the publications in Littleton, NH no later than May 25, 2019. Send an email requesting the spreadsheet of publications to: jeff@tireyandassociates.com. You can also contact Jeff Tirey, PE at 603-444-6211 if you have any questions.

Happy Retirement, Jeff!

Thank you for all you have done for SENH!



Do you have reference material for sale, for free or have a need for something specific? Contact Cassi at cberoney@tfmoran.com with descriptions and/or pictures you would like included with your contact info and it will be listed on this page in the next newsletter released!

**For obtaining references, please contact the individuals directly. This section is only intended to be a forum to serve the membership, SENH is not responsible for the references or the negotiations between parties.*

Employment Opportunities



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