

# Structural Engineers of NH

## May 2005



*Serving New Hampshire*

**Next Meeting**

Wednesday

MAY 18, 2005

**The Leonard P.  
Zakim Bridge**

The Common Man  
Restaurant  
Concord, NH

### SENH PRESIDENT'S LETTER...

I recently saw a draft of a children's story that is being prepared by a contractor's publicity department. The story, about a bridge being constructed in Vermont, starts with the transportation agency hearing about the needs from the community, then goes directly to the courageous contractor stepping forward to take on the challenge of building the bridge. I was struck that the engineering on the project was not mentioned at all.

I believe we have all seen examples of structural engineering going unnoticed on projects whether it be the job sign with only the names of the owner, the architect and the builder, or a home improvement television program where the architect or contractor shows up to discuss the structural modifications to a building.

Recognizing this lack of public understanding, SENH is forming a Public Relations Committee to increase the visibility of Structural Engineering in New Hampshire. The committee will first look at ways to raise the public perception of structural engineering and better inform the public about what structural engineers do. More information will be provided at the May meeting.



### May Meeting

May is our annual membership meeting and it time again to elect members for the Board of Directors. As noted in the March newsletter, current Board members up for re-election, Steve Johnson, Alex Azodi, and Robert Busby have agreed to run for another term.

Our May business meeting will also include brief presentations by Vicki Arbitrio, Vice President of NCSEA, and Emile Troup from the Structural Steel Fabricators of New England. The technical presentation will focus on the Leonard Zakim Bridge in Boston.

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### Special Inspections Committee

The Special Inspections Committee has wrapped up their work. The committee organized a joint seminar with AIA in 2003 and has now produced a pamphlet and mailing which will be sent to the Code Enforcement Officers in the state. The pamphlet includes information on the requirements and reasons for special inspections. Copies of the pamphlet have been posted to the SENH website and printed copies will be available at the May meeting.

The Board wishes to thank Art Rose, Linda McNair Perry, and Alex Azodi for their efforts in informing our membership and the building community in the area of Special Inspections



Member of

**Legislative Liaison**

Art Rose has graciously volunteered to be the Legislative Liaison for SENH. In this capacity, he will keep us abreast of upcoming legislation that could impact our profession. Art is a consummate volunteer having served on a number of SENH committees and in key roles in other engineering societies throughout his career. In fact, Art recently celebrated his 40<sup>th</sup> year practicing engineering in New Hampshire. Please take the time to thank Art for his contributions to our organization and congratulate him on his 40<sup>th</sup> year in the profession.

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**New Members**

Please join us in welcoming the following new associate members:

Danielle Stone  
Charles Teale  
Timothy McKerley

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**Other Meetings and Seminars**

The 24th Structural Steel Seminar co-sponsored by SSFNE and AISC will be held at Worcester Polytechnic Institute on May 26<sup>th</sup> from 1:15 to 8:00 pm. The seminar will cover among other things a preview of the new ASIC 2005 manual, a case study of seismically braced frames, and curving steel. More information can be obtained from Emile Troup at [SteelStruk@aol.com](mailto:SteelStruk@aol.com).

S.K.Ghosh Associates Inc. is offering 90-minute telephone seminars on IBC Seismic Provisions on June 6th. More information on these seminars can be obtained at <http://skghoshassociates.com/>.

The Sixth International Bridge Engineering Conference on Reliability, Security, and Sustainability in Bridge Engineering will be held at the Westin Copley Place Boston, MA on July 17-20, 2005. More information can be found at <http://trb.org/Conferences/IBEC/>.

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**NCSEA Moments Magazine**

The latest version of the NCSEA Moments Magazine is now posted on the SENH website. We will update the website with the updated versions as they arrive. Please check the website occasionally to see the new editions.

As always, if you have any questions regarding SENH, what's planned for the future, or suggestions on how to improve our organization, please don't hesitate to contact any member of the Board of Directors.

Sincerely,  
Structural Engineers of New Hampshire  
Steve W. Johnson, P.E.  
President



## Structural Engineers of New Hampshire Meeting Attendance

**DATE:** March 16, 2005

**PLACE:** C. R. Sparks, Bedford, NH

**RE:** Design of Structures in the Coastal Environment  
(2.0 PDH Assigned)

NAME	ORGANIZATION	NAME	ORGANIZATION
Matthew Allen, P.E.	JSN Associates, Inc.	Stephen Kiss, P.E.	SAK Engineering
Alex Azodi, P.E.	Omega Structural Engineers	Dave Konieczny, P.E.	Pyramid Engineering, P.C.
Josif Bicja	Hoyle, Tanner & Assoc., Inc.	Kristofer Kretsch	Vanasse Hangen Brustlin, Inc.
Josh Bouchard	Appledore Marine Engineering, Inc.	Dennis R. LaBombard, P.E.	LaBombard Engineering, LLC
Jay H. Brown, P.E.	Structural Systems, Inc.	Aaron M. LaChance	Vollmer Associates
Robert S. Busby, P.E.	Kalwall Corporation	Josh Lund, P.E.	Vollmer Associates
John Byatt, P.E.	CLD, Inc.	David A. Macolini, P.E.	JSN Associates, Inc.
Normand G. Cote, Jr., P.E.	NGC Structural, LLC	Nathan Maher, P.E.	JSN Associates, Inc.
Tony Coviello, P.E.	JSN Associates, Inc.	Anthony P. Manzi, P.E.	
Cheryl W. Coviello, P.E.	Appledore Marine Engineering, Inc.	Kenneth G. Marshall, P.E.	Foley & Buhl Engineering, Inc.
Edward F. Decelle	Structural Systems, Inc.	Bruce Masse	Vanasse Hangen Brustlin, Inc.
Kathy J. Dougherty, P.E.	---	Donald F. Mayo, P.E.	Donald F. Mayo, P.E., Inc.
Robert H. Durfee, P.E.	Hoyle, Tanner & Assoc., Inc.	Raymond G. Morin, P.E.	Raymond G. Morin, P.E.
Noah J. Elwood, P.E.	Appledore Marine Engineering, Inc.	Wallace M. Mosher, P.E.	Vanasse Hangen Brustlin, Inc.
David F. Emanuel	Emanuel Engineering, Inc.	Keith F. Najjar, P.E.	Bedford Capital Corporation
Fred Emanuel, P.E.	Emanuel Engineering, Inc.	Larry O'Brien, P.E.	Gelinas Structural Engineering
George Fallet, M.S., P.E.	Consulting Engineer, Inc.	Linda McNair-Perry, P.E.	GV Engineering, LLC
Joel Fisher, P.E.	Fisher Engineering, P.C.	Tom Rigg, P.E.	SFC Engineering Partnership
Thomas A French, P.E.	Hoyle, Tanner & Assoc., Inc.	Richard E. Roberts, P.E.	Foley & Buhl Engineering, Inc.
Derek J. Gilbert, P.E.	TFMoran, Inc.	Arthur W. Rose, P.E.	Arthur W. Rose, P.E., PLLC
Martin Gorham, P.E.	JSN Associates, Inc.	Richard A. Rouleau, P.E.	Consultant
Bob Gould	Emanuel Engineering, Inc.	Dean Savramis	
Timothy L. Grant, P.E.	TL Grant Engineering Consulting	Peter Steffensen, P.E.	Steffensen Engineering Assoc.
Sally Gunn	Vanasse Hangen Brustlin, Inc.	Deb Strand	Appledore Marine Engineering
Marcus Hann, P.E.	SFC Engineering Partnership, Inc.	Charles Teale, P.E.	HTE Northeast, Inc.
Robert S. Hartford, P.E.	Kalwall Corporation	Jeffrey L. Tirey, P.E.	Tirey & Associates, P.C.
Steven M. Hodgdon, P.E.	Vanasse Hangen Brustlin, Inc.	Jeffrey S. Trexler, P.E.	Trexler Engineering
Steve W. Johnson, P.E.	Vanasse Hangen Brustlin, Inc.	Christopher M. Vick, P.E.	Concrete Systems, Inc.
James Karmozyn, P.E.	H.E. Bergeron Engineering	Andrew D. White	Tirey & Associates, P.C.
Roger Keilig, P.E.	HTE Northeast, Inc.	Sarah Zoni	JSN Associates, Inc.
Paul Kirby, P.E.	TFMoran, Inc.		

## SENH March 16th Meeting Minutes

### I. BUSINESS PORTION OF MEETING:

The meeting was called to order by Vice President, Alex Azodi, PE, at 7:15 pm, after the social time and dinner.

1. Treasurer, Jim Karmozyn, PE, reported that the SENH account had balance of \$11979 before tonight's meeting.
2. Alex A. announced new Associate Members: Robert Myers of Carroll Concrete and Aaron Lachance of Vollmer Associates.
3. PDC Committee announced upcoming SENH May meeting planned to be on tilt up construction along with regional SEA Rep. Location TBD.
4. Alex A. acknowledged Thomas A. French, P.E., who was honored as Young Engineer of the Year at last month's National Engineers Week Awards Banquet
5. Art Rose, P.E. has volunteered to be Legislative Liaison to replace the inactive Legislative Committee.
6. NH Statute of Repose Update: Superior Court has taken amicus brief under advisement, but oral arguments are not taken from outside parties. Oral arguments will be heard on April 5<sup>th</sup>.
7. Reminder: get in your dues and renewal forms.
8. Upcoming meetings of interest: American Wood Council Wood Solution Fair March 31, Danvers, MA; ACI - April 17-21 in New York, NY; AISI - May 17-19 in Washington DC; SEAM March 23 Portland Special Inspection.
9. Special Inspection Q & A trifold prepared by SENH Special Inspections Committee will be available soon on line.
10. Bob Durfee, PE, NCSEA delegate, informed members that NCSEA Structural Moments will begin to appear in SENH Newsletters starting in April.
11. Alex A. introduced the speaker.

### II. TECHNICAL PRESENTATIONS

**Dean Savramis, P.E., Regional Engineer (617-956-7564) with Federal Emergency Management Agency (FEMA) presented "Design of Structures in the Coastal Environment" with a focus on how structures fared during the recent spate of hurricanes in Florida with special attention paid to Hurricane Ivan that hit the Pensacola area especially hard.** The devastating effects of the combination of flood, wave action, sand, wind, tress falling, and debris were revealed in photo after photo.

The storm surge, which damaged bridges and buildings, appears to have exceeded 100-year storm expectations. The primary structural damage resulted from building envelope (siding and/or roofing) failure which then exposes the interiors of the building to water damage --- the costliest to repair. Roof sheathing pulls off due to the positive pressures, which are even greater if a door/window in a wall is breached as a result of wind and/or debris. OSB, which works well when dry, did not perform well when wet, shredding as a result of the glue failing. Styrofoam sheathing and MDO with stucco did not perform well either. Gable roofs, which experience higher wind pressures along the edges, failed as a result of poor bracing. Hip roofs performed extremely well.

Elevated structures on piers, posts, piles, and columns are required in V-zone (velocity waves greater than 3 ft) areas shown on Flood Insurance Rate Maps (FIRM) maps. A-zone (velocity waves less than 3 ft) requires the conventionally framed structure's lowest floor to be at or above the predicted 100-year flood elevation. Elevations are given most often in NGVD-29 but sometimes in NAVD-88. Location impacts insurance rates. Insurance is not available for new construction in coastal barrier zones. Digital Flood Insurance Rate Maps (DFIRM) have better horizontal control and are based on aerial photography. You can get FIRM/DFIRM maps at [www.fema.gov](http://www.fema.gov). FEMA is not regulatory agency, but to get flood insurance communities must agree to participate.

Round pressure treated piles on elevated structures performed the best especially when the cross beams were notched and then fastened to the pile. Beam splices proved to be weak points. Parallel shear walls on elevated structures (permitted by code) did not work well, especially in areas that had waves/sand/debris pressures acting at angles other than parallel to the wall. Properly designed and built breakaway walls, permitted on elevated structures (typically for cosmetic reasons), did moderately well. Extremely large amounts of sand was pushed landward which became mixed with debris. Code compliance of concrete slabs on grade under elevated structures is questionable and not surprising they sustained significant damage as a result of crashing waves and undermined sand. Mechanical and electrical equipment on elevated structures often were not adequately anchored and thus became wind borne debris.

Logically, older structures built for lower wind pressures than those required by later design codes and those incorrectly built did not perform well. If a structure was deemed to be 50% damaged the newly repaired structure is required to become code compliant.

Local National Flood Insurance Program (NFIP) coordinator, is Joanne Cassulo (603-271-2155) of the State Office of Energy and Planning located in Concord.

Respectfully submitted, Linda K. McNair-Perry, P.E., Secretary, SENH

**MAY MEETING ANNOUNCEMENT**

NEXT MEETING: Wednesday May 18, 2005

SUBJECT: **“The Leonard P. Zakim Bridge”**, Mr. G. Keith Donington, P.E., Bechtel/Parsons.

PLACE: The Common Man Restaurant, 25 Water St, Concord, NH.  
603-228-3463

DIRECTIONS: From the South, take exit 13 off I-93. Go left ... the restaurant is about ¼ mile ahead on the right From the North, take the same exit and make a right, and the restaurant is just on your right at the lights.

AGENDA: 5:30-6:30 Social Hour  
6:30-7:15 Dinner  
7:15-7:30 SENH Business Meeting  
7:30-7:45 Vicki Arbitrio, NCSEA representative  
7:45-9:00 Presentation, “Leonard P. Zakim Bridge”.

DINNER: Buffet, Chicken Cordon Bleu, Roast NY Sirloin.

COST: Member: \$35.00 Non-Member: \$40.00 Full Time Student: \$30.00

RSVP: by Wednesday, May 11, 2005

Please send check payable to “Structural Engineers of New Hampshire” with list of attendees to:

SENH  
P.O. Box 226  
Manchester, NH 03105-0226  
Contact: Deb Coon, Administrative Assistant, (603) 669-5555

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



**STRUCTURAL ENGINEERS  
OF NEW HAMPSHIRE**

P.O. Box 226  
Manchester, NH 03105-0226

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WE'RE ON THE WEB!  
[WWW.SENH.ORG](http://WWW.SENH.ORG)

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