

# Structural Engineers of NH

## January 2004



*Serving New Hampshire*

### SENH PRESIDENT'S LETTER...



#### **Next Meeting:**

Tuesday

January 27, 2004

#### **JOINT MEETING OF SENH & SEAVT**

A Fireside Inn & Suites  
West Lebanon, NH

Chesterfield-Brattleboro  
Steel Arch Bridge

**A**s we begin 2004, SENH's 10th year, SENH finds itself more in the public eye than ever before. Recent exposure in the media with respect to roof snow loads has prompted the question of "What is SENH's next step in public relations"? The Board of Directors recently began to discuss this issue. Our preliminary feeling is that the website will be the key to further opening the door of making SENH "approachable" by the public. To date, SENH's website has been primarily set up to serve our members, not the public. Obviously, if the website is to be our main connection to the public, this will have to change. Some ideas on how to accomplish this are as follows:

- Create separate "Members" and "Public" areas
- Add a membership directory categorized by specialty or discipline to aid the public in "shopping" for a structural engineer
- Definitions of structural engineering

As this issue is discussed further in the future, many more ideas are likely to surface. For now, the SENH Board will be discussing steps to take to help us achieve a better connection to the public and to be "the structural engineering society" in New Hampshire.



#### ***Certification Position Statement Approved.....***

By a vote of the NCSEA Delegates a Position Statement in favor of a certification program for structural engineers has been approved. This vote also authorizes the establishment, by the NCSEA Board, of a structural engineering certification program administrative body, as an independent organization.

By asking the Delegates to approve a Position Statement, the Board requested not a simple majority, but a two-thirds majority of the votes cast. This was received when 22 Member Organizations voted in favor of certification while 11 voted against. Four member organizations abstained from voting or did not submit ballots prior to the December 15th deadline. SENH Voted in favor of the certification program

As suggested in the ballot, the next step will be the establishment of a certification program administrative body. This body will likely be named at the January Board Meeting and will be identified by NCSEA in the future.

#### ***Dates to Watch.....***

- The NCSEA Winter Institute is in Scottsdale, Arizona from January 23-24, 2004. Visit [www.ncsea.com](http://www.ncsea.com) to register.
- Engineering Week is February 15-21, 2004. The annual Engineers banquet will be held on Thursday, February 19, 2004.

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Member of

**10 Years and Counting.....**

SENH has enjoyed tremendous success in its first 10 years of organization. The original board members should all be proud of this success. Some representative highlights of the first 10 years are as follows:

- 3 Engineers of the Year and 1 Young Engineer of the Year Award recipients (Ed Bergeron, Arthur Rose, Ray Cowan, Matt Low, respectively)
- Over fifty (50) technical dinner meetings, approximately ten (10) technical seminars.
- Hosted the 10th Annual NCSEA National Conference in Manchester in 2001.
- Nominated Ray Cowan, P.E. as the first structural engineer representative to the State Building Code Review Board.
- Membership has increased from 59 in 1995 to approximately 170 in 2003.

This is just a sampling of some SENH highlights, there are many others that could be mentioned. It is my feeling that in order to make the next 10 years as successful as the first, we must continually seek to hold the same high standards of professionalism and enthusiasm which drove the original members. That said, it will be important to provide opportunities to "new blood", such as committee work, event organization or as a board member. Should you wish to be more involved in SENH, let any current Board member know, there are always opportunities to help.

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**Financial Success.....**

Over the past few years, it has been a conscious effort of the Board of Directors to maintain the financial stability of the organization. Obvious benefits of financial stability include maintaining dues renewal rates, and providing seminars at reduced rates. From 2002 to 2003 SENH reduced administrative postage and copying costs by approximately \$500. This cost reduction has largely been due to the extraordinary efforts of Deb Coon, SENH Administrative Assistant, and the purchase of Adobe software to enable e-mailing of newsletters and other literature. We are proud of this accomplishment and will continue to work towards improved measures of efficiency.

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**ASCE Meeting.....**

A regional meeting of the local activities groups of ASCE's Structural Engineering Institute (SEI) took place at ASCE headquarters in Reston, Virginia on Friday, December 5, 2003. This meeting provides a forum for the local activity groups to interact and share information in an attempt to increase collaboration and accomplishment. Each local group representative shared information on their group's activities, successes, membership, attendance and partnering. SENH, at the invitation of ASCE, was represented by Director-at-Large Alex Azodi at this meeting. ASCE graciously paid for airfare and hotel expenses, leaving SENH to cover minimal expenses. We thank ASCE for the opportunity to be involved in this meeting and look forward to future opportunities where SENH and ASCE/SEI may collaborate.

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**January Meeting.....**

The January meeting is set for January 27th at A Fireside Inn & Suites in West Lebanon, NH. This is a joint meeting with SEAVT and will feature Cianbro Corporation presenting the construction of the NHDOT/VTrans Chesterfield-Brattleboro Steel Arch Bridge as a technical topic. A detailed meeting announcement is included in this newsletter.

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**Emile Troup Wins Award.....**

Congratulations go out to Emile Troup, P.E. for recently receiving the AISC Lifetime Achievement Award. This is a distinguished award and well deserved. Congratulations Emile!

Hope to see you all at the January meeting!

Sincerely

**Structural Engineers of New Hampshire**



Matthew J. Low, P.E.  
President



## Structural Engineers of New Hampshire Meeting Attendance

**DATE:** November 11, 2003

**PLACE:** Red Hook Brewery, Portsmouth, NH

**RE:** Synthetic Structural Fibers for use in Concrete  
(2.0 PDH Assigned)

<b>NAME</b>	<b>ORGANIZATION</b>	<b>NAME</b>	<b>ORGANIZATION</b>
Alex Azodi, P.E.	Emanuel Engineering, Inc.	Dave Konieczny, P.E.	Pyramid Engineering, P.C.
Scott Babbidge	WR Grace & Co.	Matthew J. LaBrecque, P.E.	PCI Architecture
Josh Bouchard	Appledore Engineering, Inc	Ryan Lawler	JSN Associates, Inc.
Timothy L. Brown	Lakeside Engineering, Inc.	Eric Levesque	Appledore Engineering, Inc
Lou Cote	Steffensen Engineering Assoc., Inc.	Matthew, J. Low, P.E.	Hoyle, Tanner & Assoc., Inc.
Normand G. Cote, Jr., P.E.	NGC Structural, LLC	Robert D. Madore	WR Grace & Co.
Cheryl Coviello, P.E.	Appledore Engineering, Inc	Nathan Maher	JSN Associates, Inc.
Tony Coviello, P.E.	JSN Associates, Inc.	Dick Martin	WR Grace & Co.
Robert H. Durfee, P.E.	Hoyle, Tanner & Assoc., Inc.	Daniel W. McCarthy	Consultant
Fred Emanuel, P.E.	Emanuel Engineering, Inc.	Linda McNair-Perry, P.E.	Hexaport International Ltd
JoAnn Fryer, P.E.	CLD Consulting Engineers, Inc.	Stephen Richard	Steffensen Engineering Assoc., Inc.
Jason L. Gallant, P.E.	Jesseman, Gallant & Associates	Jason C. Ross	H.E. Bergeron Engineering
Roger W. Gayer, P.E.,	Structures Unlimited, Inc.	William Saffian	
Paul Goldberg, P.E.	PCI Architecture	Hugh Scott	Appledore Engineering, Inc
Carl L. Goldknopf, P.E.	GV Engineering, LLC	Deb Strand	Appledore Engineering, Inc
Martin Gorham, P.E.	JSN Associates, Inc.	Eric Truebe	Lakeside Engineering, Inc.
Timothy L. Grant, P.E.	TL Grant Engineering Consulting	Johnathan B. Truebe, P.E.	Lakeside Engineering, Inc.
Yong Hong	Hexaport International Ltd	Andrew Walters	GV Engineering, LLC
Steve W. Johnson, P.E.	Vanasse Hangen Brustlin, Inc.	Edward Weingartner, P.E.	McFarland-Johnson, Inc.
James Karmozyn, P.E.	H.E. Bergeron Engineering	Ed Wiles	WR Grace & Co.
Thomas T. Kendrick, P.E.	Parsons Transportation Group	Russ Wood	McFarland-Johnson, Inc.
Paul Kirby, P.E.	TFMoran, Inc.	Sarah Zoni	Daigle Engineers, Inc.

## SENH November 11th Meeting Minutes

### I. BUSINESS MEETING:

1. Matt Low, president opened the meeting at 7:15 p.m.
2. Jim Karmozyn presented the treasurer's report. The current balance in the SENH account is \$7,941. We have an anticipated expense of \$1,500 for a conference so the end of the year balance will be about \$6,400.
3. Matt Low stated that the Board is looking to subsidize a seminar next year with a portion of the outstanding balance.
4. Bob Durfee, our NCSEA delegate, reported on the NCSEA conference that was held in Denver.
  - 34 of the 37 member organizations were represented. 3 new organizations joined NCSEA this year and 5 more are in the works.
  - There was a discussion at the conference on Special Inspections. Most organizations have set up a subcommittee on Special Inspections.
  - A Structural Engineer Emergency Response Program was presented. Bob suggested that we invite the national group when we have a committee formed.
  - Jeff Tirey, an SENH member, participated in a presentation on Snow Loads that was well received at the conference.
  - The NCSEA certification program was discussed. Currently 3 states have a "practice act" with separate licensing requirements for structural engineers. 11 states have a "title act" with certain requirements for "Structural Engineer" to be listed on the stamp (the requirements vary from state to state). NCSEA's preference is to have a "practice act" in every state; however, this would require passage of legislation in the other 47 states and based on feedback from the member organizations, there is not enough legislative support for this to occur. Therefore, NCSEA has looked at a Certification Program that is similar to the certifications for Doctors or CPAs. Professional Engineer licensing would still occur through the states, but structural engineering certification would occur through an independent national organization. Similar to CPA certification, it is expected that national recognition of certification could take 20 years.

The NCSEA committee has put together a business plan and financial plan for the certification program and the next step is to create an independent organization (which would be separate from NCSEA) to administer the program and set up standards and requirements. A Ballot was sent to every member delegate to vote on whether to move forward with this program. The SENH Board asked for a straw poll by those present at the meeting to determine how we should vote on continuation of the certification program (based on the straw poll, SENH will vote to continue the program).

  - The Slate Covered Bridge, an SENH sponsored entry, won an award of merit at the conference in the "under 150 foot bridge" category.
5. Michael Branley, with Simpson Strongtie is a new associate member.
6. The next regular business meeting will be in January with the date to be announced later.

### II. TECHNICAL PRESENTATION

A presentation on Synthetic Structural Fibers was given by Rob Madore and Ed Wiles from W.R. Grace Co.

Typical methods to control cracking of concrete include: modifying the water/cement ratio; using a larger aggregate; and temperature control. Concrete additives to reduce cracking include: water reducing agents; shrinkage reducing agents; corrosion inhibitors; synthetic microfibers; and synthetic macrofibers.

Fiber reinforced concrete (FRC) is addressed in ACI 544. Two types of fiber are included in 544:

- Steel Fiber Reinforced Concrete (SFRC)
- Synthetic Fiber Reinforced Concrete (SnFRC) - synthetic fibers are further differentiated as Microfibers or Macrofibers depending upon the aspect ratio (length/equivalent diameter). General aspect ratios are 20-100 for steel fibers, 50-100 for microfibers, and 700-1200 for macrofibers. Microfibers can consist of monofilament, fluid dispersed, or fibrillated (most common). Macrofibers consist of monofilament, blends of steel and synthetic, or blends of macro and micro fibers. The primary differentiation between micro and macro fibers is there

Microfibers are used primarily to control plastic shrinkage. They work while the concrete is still plastic and add little to no toughness to the cured concrete. Typical dosages are ½-1½ pounds/cy.

Macrofibers are used to control plastic shrinkage, drying shrinkage, thermal cracking, structural loads (design loads, reflective cracking, and creep), and resist chemical cracking (corrosion, and ASR). Dosage rates are generally 3 to 5 pounds/cy for slabs and up to 10 to 15.5 pounds/cy for other elements. Very high dosage rates can cause problems. The engineer should consult the fiber supplier and ACI544.1R for dosage rates.

There are several testing procedures for fiber reinforced concrete including ACI 1018, JCI-SF4, ASTM C1399 and ASTM C1550. The ASTM C1399 test is the easiest to run and gives the average residual strength after cracking. ASTM C1550 tests a round disk (32" dia x 3" thick). The engineer should specify the  $f_{es}$  value for the fiber in order to have an accurate comparison between fibers..

Typical applications for macrofiber SnFRC are overlays and slabs. The cost of SnFRC is approximately the same as the cost of mesh reinforcing. U.L. and SDI approval for elevated slabs are currently in process. In addition, a slab-on-grade computer program for SnFRC is currently being developed by W.R. Grace and will be available on request early in 2004. SnFRC can be placed and finished like normal concrete. On formed finishes, the fibers do not show. More finishing on a top surface will push the fibers into paste. A soft bristle broom should be used for a broom finish.

The program ended at 9:10 p.m.

Respectfully submitted, Steve W. Johnson, P.E., Secretary, SENH

**JANUARY MEETING ANNOUNCEMENT****JOINT MEETING OF SENH & SEAVT**

NEXT MEETING: Tuesday, January 27, 2004

SUBJECT: Joseph Foley, P.E. from Cianbro Construction will speak on the construction of the Chesterfield-Brattleboro Bridge over the Connecticut River. This bridge, which was designed by NHDOT, replaces an existing steel arch bridge with a modern steel arch, an unusual structure in New Hampshire. Mr. Foley will speak on some of the unique challenges in construction of this type of structure.

PLACE: A Fireside Inn & Suites, 25 Airport Road, West Lebanon, NH

DIRECTIONS: Take I89 to Exit 20, At the end of the ramp take Rt. 12A south. Take the first left (Airport Road) and the Fireside Inn is 0.2 miles on the left.

AGENDA: 5:30 Social Time  
6:00 Dinner  
7:00 Business Meeting  
7:15 Presentation and Discussion  
8:15 Adjourn

DINNER: Entrée choices: Baked Breast of Chicken stuffed with cornbread stuffing, **or** Baked Stuffed Sole stuffed with scallops & crabmeat and served with a newburg sauce. With potato, rice, seasonal vegetable, and salad bar.

COST: Member: \$35.00 Non-Member: \$35.00

RSVP: January 23, 2004  
Please send check payable to "Structural Engineers of New Hampshire" with list of attendees **and entrée choices** to:

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

NOTE: 2.0 PDH's 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.

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