

Structural Engineers of NH

January 2005



Serving New Hampshire

Next Meeting

Wednesday

JANUARY 19, 2004

**NHDOT RAPID BRIDGE
CONSTRUCTION
&
RECENT CHANGES TO
NHDOT BRIDGE
STANDARDS**

Chen Yang Li Restaurant
Bow, NH

SENH PRESIDENT'S LETTER...

Happy New Year! It's hard to believe it's 2005 and Y2K is now a distant memory but time marches on. Speaking of the past, a law that protects the Construction and Engineering community is again under attack. A few years ago, SENH was asked to be one of several organizations to endorse a "Friend of the Court" brief defending the New Hampshire "Statute of Repose." Recently, a Superior Court judge ruled that this Statute, RSA 508:4b, is unconstitutional. SENH has again been asked to be one the organizations endorsing a "Friend of the Court" brief as this case is appealed to the New Hampshire Supreme Court. The Board voted to support this measure and we will keep you posted as the appeal progresses. To find out more about the Statute of Repose in NH check the web at <http://www.gencourt.state.nh.us/rsa/html/LII/508/508-4-b.htm>

January Meeting

The January meeting traditionally has a bridge theme and this year is no exception; we will be meeting in Concord and NHDOT will be presenting their recently completed Rapid Bridge Construction project as well upcoming changes for NH bridges. This promises to be an interesting topic as we hear about how the Department constructed a bridge in 8 days. Please read the meeting announcement later in the newsletter for full details.



March Meeting

Our March meeting will be held on 16th and will feature Mr. David Knowles, PE from FEMA Region 1 who will be speaking on the design of structures in the coastal environment. Mr. Knowles is responsible for revisions to the National Flood Insurance Program (NFIP) mapping in New England, assisting with the enforcement, and administration of NFIP regulations. He holds both Bachelor's and Master's degrees in civil engineering. Mrs. June Hammond Rowan from the State of New Hampshire Office of Energy & Planning will also be available for questions. June is a Water Resources Planner and works with Joanne Cassulo, the NH NFIP Coordinator.

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NCSEA Winter Institute (Separate Attachment)	

Other Meetings and Seminars

The Structural Engineers of Maine (SEAM) will be sponsoring a full day seminar on Wednesday, January 19, that will review the differences between the BOCA 1999 and the IBC 2003 structural design provisions, with emphasis on seismic design requirements. A review of seismic requirements for architectural, mechanical and electrical components will also be included.



Member of

Other Meetings and Seminars (continued)

SENH members are being offered a reduced cost of \$150 for the 7.5 PDH seminar. S. K. Ghosh, Ph.D. will speak and the seminar will be held at the Holiday Inn Express Hotel & Suites in Saco, Maine. If attending, payment must be received no later than January 12th by Joe Neville, P.E., SEAM Treasurer, 353 Megquier Hill Road Poland, ME 04274 (207 998-4086).

NCSEA's Winter Institute will be held February 18 and 19th in Scottsdale, Arizona. More information on this is attached at the end of the newsletter.

Dues Renewal

As we begin a new year, we also begin a new dues renewal period. The dues will remain unchanged in 2005 and the renewal form attached to this newsletter is the same as previous years with the exception of several check boxes at the bottom of the form. Check one of the boxes if you might have an interest in serving the organization. More information will be announced in the March Newsletter.

Addition to the Board of Directors

As noted at the last membership meeting, Roger Gayer has decided to step down from the Board. Roger has served on the Board of Directors since 2002 and we're sorry to see him leave. In accordance with the By-laws, the Board has appointed Robert (Bob) Busby to fill the remainder of Roger's term. Please join us in welcoming Bob to the Board of Directors.

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: November 18, 2004

PLACE: Red Hook Brewery, Portsmouth, NH

RE: Structural Wood Composites
(2.0 PDH Assigned)

NAME	ORGANIZATION	NAME	ORGANIZATION
Dana Michael Adams, P.E.	Opechee Construction Corp.	Tom Kilrain	Kimball Chase
Matthew Allen, P.E.	JSN Associates, Inc.	Paul Kirby, P.E.	TFMoran, Inc.
Alex Azodi, P.E.	Omega Structural Engineers	Stephen Kiss, P.E.	SAK Engineering
Jose Balbuena	SEAM Member	Dave Konieczny, P.E.	Pyramid Engineering, P.C.
Jason Blais, P.E.	Opechee Construction Corp.	Kristopher Kretsch	Vanasse Hangen Brustlin, Inc.
Scott Blouvin	SEAM Member	Matthew J. LaBrecque, P.E.	PCI Architecture
Keith Brenner	SEAM Member	Thomas E. Lamb	Trus Joist, A Weyerhaeuser Bus
Jay H. Brown, P.E.	Structural Systems, Inc.	David M. Langlais	Rizzo Assoc./ A Tetra Tech Co.
Dan Burne	SEAM Member	Steve Long, P.E.	Opechee Construction Corp.
Robert S. Busby, P.E.	Kalwall Corporation	David A. Macolini, P.E.	JSN Associates, Inc.
Robert Champagne	Kimball Chase	Nathan Maher	JSN Associates, Inc.
Jeffrey P. Cicerello, P.E.	Louis Berger Group	Chad Michaud	SEAM Member
Tony Coviello, P.E.	JSN Associates, Inc.	Raymond G. Morin, P.E.	Raymond G. Morin, P.E.
Cheryl W. Coviello, P.E.	Appledore Engineering, Inc.	Wallace M. Mosher, P.E.	Vanasse Hangen Brustlin, Inc.
Greg Cuetara	SEAM Member	Cynthia A. Mrazik	Kimball Chase
Habib Dagher, Dr.	Univeristy of Maine	Keith F. Najjar, P.E.	Bedford Capital Corporation
Chris Daigle	Louis Berger Group	Jeffrey S. Nawrocki, P.E.	JSN Associates, Inc.
Robert H. Durfee, P.E.	Hoyle, Tanner & Assoc., Inc.	Todd Neal	SEAM Member
David F. Emanuel	Emanuel Engineering, Inc.	Ryan C. Nedwicke, P.E.	Trus Joist, A Weyerhaeuser Bus
Fred Emanuel, P.E.	Emanuel Engineering, Inc.	Joe Neville	SEAM Member
Walter Flanagan	SEAM Member	Dan O'Wril	SEAM Member
Roger W. Gayer, P.E.	Structures Unlimited, Inc.	Linda McNair-Perry, P.E.	GV Engineering, LLC
Daniel L. Gelinis, P.E.	Gelinis Structural Engineering, LLC	Jason Powell	SEAM Member
Derek J. Gilbert	TFMoran, Inc.	Chris Ray	SEAM Member
Paul Goldberg, P.E.	PCI Architecture	Richard E. Roberts, P.E.	Foley & Buhl Engineering, Inc.
Martin Gorham, P.E.	JSN Associates, Inc.	Richard A. Rouleau, P.E.	Consultant
Robert S. Hartford, P.E.	Kalwall Corporation	Kyle Roy, P.E.	Kimball Chase
Steve Hodgdon	Vanasse Hangen Brustlin, Inc.	Bill Saffian	
Sean James, P.E.	Hoyle, Tanner & Assoc., Inc.	Hossein Salehkhrou, P.E.	JSN Associates, Inc.
Steve W. Johnson, P.E.	Vanasse Hangen Brustlin, Inc.	Matthew A. Severson, P.E.	Parsons Transportation Group
James Karmozyn, P.E.	H.E. Bergeron Engineering	Jim Sturgis	SEAM Member
Thomas T. Kendrick, P.E.	Parsons Transportation Group		

SENH November 18th Meeting Minutes

I. BUSINESS MEETING:

The meeting was called to order by President Steve W. Johnson, PE, at 7:15 pm, after the social time and dinner.

1. Treasurer, Jim Karmozyn, PE, reported that the SENH account had balance of \$8633 before tonight's meeting.
2. New Member Applications Approved: Anna Giraldi, EIT (Associate Member)
3. Steve Johnson asked members to contact board members if they had any ideas for enhancing the image of structural engineers such as putting a fresh face on the web page or the High School poster effort undertaken by Bob Durfee.
4. Paul Goldberg, PE, of the Professional Development Committee reported that the January 19 meeting to be held at Chen Yang Li (former Grist Mill) in Bow will be on NHDOT's experience with the recent fast track bridge project.
5. Alex Azodi reported on ASCE/SEI Licensing Workshop in New Orleans attended by him on behalf of SENH. Day 1 focused on SEI organization activities and issues of import to the structural engineering community. Day 2 focused on establishing separate licensing for structural engineers that must be done at the state level. The national organizations are interested to financially supporting viable state initiatives to obtain Structural Licensing. This is different from the National Certification program that Bob will be talking about.
6. Bob Durfee, PE, our NCSEA delegate provided an overview of recent NCSEA National Conference attended by himself and Fred Emmanuel, PE. 30 of the 38 state SEA's attended. (A written summary is posted on the SENH website). Some highlights:
 - a. IBC is now adopted in 42 states. California may switch from NFPA to IBC. In the future IBC changes will take place at 5 year cycle, with ASCE-7 also going to a 5-year cycle (not in the same year as IBC).
 - b. NCSEA's Advocacy Committee is the one distributing the Structural Engineering posters. Let Bob know if you want to take a poster to a High School that is not already covered by others.
 - c. The focus of the NCSEA Winter Institute will be professional liability insurance and business practice issues.
 - d. *ATC-45 Field Manual: Safety Evaluation of Buildings after Wind Storm & Floods* is available for purchase for \$25.
 - e. The NCSEA Certification Board, now formed, has established the guidelines for grandfathering structural engineers that are currently PE's and is trying to raise \$100,000 to start. Information and applications were sent in the SENH November newsletter. Soon guidelines for membership (non-grandfathered) will be establishing that will likely be based on the SE-I and SE-II exams. They currently have 200 member applications and are asking structural engineers to prepay a total of \$350 (\$250.00 initial application fee plus + \$100 first year certification fee) with the annual renewal certification fees to be \$100. If members have questions Bob invited them to go to the NCSEA Certification Board website www.secertboard.org and they may contact Bob for more discussion.
7. Walter Flannigan of SEAM announced a Seismic Design Seminar tentatively scheduled for January 19 in Saco, ME.
8. SENH has a board vacancy resulting from the resignation of Roger Gayer. Roger's term extends to May of 2005. If you are aware of anyone whom you would consider to be an asset to the organization please notify a board member.
9. Steve J. introduced the speaker.

II. TECHNICAL PRESENTATION

Dr. Habib Daugher, PE, of University of Maine's Advanced Engineered Wood Center (AEWC) presented an overview of "Structural Wood Composites" including Fiber Reinforced Polymer (FRP) Glulams, FRP OSB panels for use in shear walls and roof diaphragms, extruded wood/plastic composites and examples of other applications for this technology.

In 1996 UMaine established the interdisciplinary research and educational AEWC program with industry partnerships and collaborations that lead to commercial applications for the products that are designed, manufactured and tested at UMaine facilities.

The FRP glulam beams are analogous to reinforced concrete beams: the wood is weaker in tension than in compression therefore a layer of FRP (tensile element) is added to the bottom (tension face of the beam) to improve the load carrying capacity of the beam. The addition of the FRP allows for ductile failure mode as opposed to brittle failure without the FRP.

The FRP consists of 60 to 70% fiber to 30 to 40% resin. The fiber reinforcement can be glass and/or carbon fibers that are often oriented in one direction via a pultrusion process. Carbon fibers are stronger and drastically more expensive than the fiberglass. Unidirectional glass FRP has Modulus of Elasticity (E) of 6,500 ksi and tensile strength of 140 ksi while unidirectional carbon FRP has E of 20,000 ksi and tensile strength of 200 ksi. The critical process is bonding the FRP to the wood due to the hydrothermal expansion of the wood (perpendicular to the grain) causing shear and peeling stresses thus requiring an adhesive that is hydrothermal compliant. In fatigue applications, partial length of FRP is not recommended. To avoid trapping moisture in the wood the FRP applied to the bottom face of a beam has breathing holes incorporated. In a composite concrete deck application, a membrane is placed on the top of the beam to isolate the concrete and wood. After much research, epoxy coated rebar proved to be the best connector for developing the composite action between the wood beam and concrete deck.

Other recently developed FRP products include OSB panels with FRP layer added to the edges which improves edge tear capacity and nail head pull through. This product, developed with prodding from the insurance industry, was just patented and is not yet available in lumber yards.

Extruded wood/plastics composites consist of 60 to 70% sawdust to 30 to 40% thermoplastic resin (made of recycled soda/milk bottles). The sawdust is encapsulated by the plastic resin, therefore the wood is protected from the fungi that caused wood to rot. The composite wood plastic material is temperature sensitive and is generally weaker than a similarly sized piece of lumber. Adding FRP can improve the strength capacity. The product is recyclable.

More applications for structural wood composites include strengthening utility poles, as truck beds resulting in weight savings, in wood pier repair that using layers of FRP similar to onion skin and grouting between the wood pier and FRP and as stay in place concrete forms for arches.

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

JANUARY MEETING ANNOUNCEMENT

- NEXT MEETING:** Wednesday January 19, 2005
- SUBJECT:** Rapid Bridge Construction Project - Pete Stamnas, P.E. with the NHDOT Bureau of Bridge Design will present a case study of NHDOT's first Rapid Bridge Replacement Project, completed recently in Epping, NH.
- Recent Changes to NHDOT Bridge Standards - Mark Whittemore, P.E. with the NHDOT Bureau of Bridge Design will speak on issues of common concern between design, construction and maintenance bureaus and resulting changes to NHDOT bridge design standards.
- PLACE:** Chen Yang Li Restaurant, Bow, New Hampshire.
- DIRECTIONS:** I-89 to Exit 1, Logging Hill Road, Bow, NH. East on Logging Hill Road, the restaurant entrance is opposite the Mobil Station, right off the exit. (This is the site of the former Grist Mill restaurant.)
- AGENDA:** 5:30 pm-6:30 pm Social Hour
6:30 pm-7:15 pm Dinner
7:15 pm-7:30 pm Business Meeting
7:30 pm-9:00 pm Presentation
- DINNER:** Chinese Buffet
- COST:** Member: \$35.00 Non-Member: \$40.00 Full Time Student: \$20.00
- RSVP:** Wednesday, January 12, 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 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.



SENH 2005 Dues Renewal Notice



Member of

Renewal dues are as follows:

Member: \$ 40.00

Associate Member: \$35.00

Student Member: \$20.00

Please make check payable to SENH, and send with completed bottom portion of this form to:

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

BY January 31, 2005

**If sending one check for more than one person, please fill out a slip for each person.*

**PLEASE FILL OUT BOTTOM PORTION COMPLETELY, THIS FORM IS USED FOR
CONFIRMING AND UPDATING LISTS!**

.....
Please check one:

Member

Associate Member

Student Member

NAME _____

FIRM _____

ADDRESS _____

PHONE _____ **FAX** _____ ****E-MAIL** _____

P.E. YES NO **WHICH STATE(S)** _____

Check # _____ **Check Amount \$** _____

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Please indicate below if you would like to serve on one or more of the following committees.

Professional Development Committee

SE Image Promotion

Code Committee

Other (Please Specify) _____

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**Our newsletters are now delivered via e-mail. In order to receive your newsletter via US Postal Service you must check the box below.



Please send my newsletter via regular mail.

FOR IMMEDIATE RELEASE
December 21, 2004

CONTACT:
Cecile Baldassara
(603) 647-8700

**NATIONAL ENGINEERS WEEK AWARDS BANQUET AND EXHIBITION
TO BE HELD FEBRUARY 24, 2004
AT THE RADISSON HOTEL, AT THE CENTER OF NEW HAMPSHIRE**

The New Hampshire Society of Professional Engineers and the New Hampshire engineering community are preparing for National Engineers Week: February 20-26, 2005. The highlight of this year's event will be an award banquet and exhibition held on Thursday, February 24, 2005 at the Radisson Hotel at the Center of New Hampshire located in Manchester.

The evening will begin at 5:30 pm with an exhibit display of vendors and social gathering, followed by dinner at 7:00 pm. The program continues with the Engineer-of-the-Year and Young-Engineer-of-the-Year award presentation, the introduction of the 2004 Mathcounts winner, and keynote speaker Mr. Paul DeMeo, Senior Program Manager for the \$2.0 billion Downtown NY Restoration.

If you would like to help plan this year's activities, plan an exhibitor's display of your own, or just ask a question, please contact George Fredette at SFC Engineering Partnership, Inc. at (603) 647-8700 ext. 215, or visit www.nhspe.org to download the New Hampshire Engineers Week Awards Banquet and Exhibition Reservation Form.



**STRUCTURAL ENGINEERS
OF NEW HAMPSHIRE**

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

WE'RE ON THE WEB!
WWW.SENH.ORG

