NCSEA Annual Conference
Oct 23 – 25, 2003
Denver, CO

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CONFERENCE REPORT
Robert H. Durfee, P.E., SENH Delegate

The 11th Annual Conference was held in Denver. The conference was well attended with 33 of the 37 member organizations sending delegates. Three (3) new member organizations have been formed in the past year and joined NCSEA: Louisiana, New Jersey, and Ohio. For New England, all states were represented by delegates. Approximately 140 structural engineers attended the conference.

Thursday Evening, October 23rd

The opening reception was held from 6:00 to 8:00 pm. Twenty-three (23) exhibitors were present. Exhibitor booths covered numerous structural products and services including software, concrete, steel, timber, and anchoring systems.

Friday, October 24th

The theme for this year's conference was:

"Earth, Wind and Snow: Challenges from Mountain and Plain".

Numerous presentations were made throughout the day regarding structural engineering in Colorado and the western states. The following presentations were made:

- **Architecture and Engineering: A Narrative of Broad Experience and Insight**, by John Anderson, FAIA

- **Modeling in Three Dimensions – the Future Design and Construction Tools**, by Trailor Martin, SE and Jason Lien, P.E.

- **Heave and Plunge – 2 Case Studies of Failed Drill Shaft Foundations in the Denver Area**, by James R. Harris, PhD, P.E. & Robert W. Thompson, P.E.

Several technical presentations were made throughout the day that were of interest to structural engineers no matter what geographical area they practiced.

- **Steel Crazy After All These Years**, by Charles J. Carter, S.E. P.E.

  Mr. Carter is the Chief Structural Engineer for AISC Inc. Mr. Carter indicated that many of the AISC Steel Codes are now free and are available at the AISC website. Further, several steel references and steel guide documents are also available through the website. Engineers are encouraged to visit the website in order to download free information. The AISC website is www.aisc.org.

- **Wind Engineering Applications in Mountainous and Special Regions**, by Jon A. Peterka, PhD, P.E.

  Mr. Peterka discussed the need for wind tunnel testing of tall buildings and skyscrapers in urban settings as well as wind tunnel testing for snow drift on complicated structures.

- **A Guide to the Specification for Architecturally Exposed Structural Steel**, by Jack Peterson, P.E. and William G. Zimmerman, P.E.

  This presentation highlighted the intricacies of working with Architects and Fabricators to produce Architecturally Exposed Structural Steel (AESS). The AISC Code of Standard Practice (March 2000) includes provisions for AESS. The Structural Engineering Association of Colorado (SEAC) has put together engineering and architectural guidelines for AESS (see SEAC website at www.seacolorado.com). The Engineer is encouraged to clearly identify AESS requirements and all reference documents relative to AESS on the plans and in specifications.

  SEAC has prepared several documents/guidelines that are available to the engineering community:

  - Guidelines for the Specification of Architecturally Exposed Structural Steel.
  - Steel Pre-detailing Meeting Guidelines
  - OSHA Subpart R – Awareness Guide for Structural Engineers
  - Checklist for Structural Drawings
  - Valve Added to AISC Fabricator and Erector Quality Certification

- **Snow Load Panel Discussion**, by Robert J. Cunningham, P.E., Jeffrey L. Tirey, P.E., and David Grandpre, P.E.

  A three (3) person panel presentation of snow load issues was made.

  Robert J. Cunningham, P.E. (Colorado) – provided sources of existing snow load data for Colorado. Snow load data can be obtained through SNOTEL Automated Measuring Sites. Most of these sites are above 8,000' elevation and not directly applicable to populated elevations at 5,000' and below. Automated Measured Snow Load Data must be interpreted for use at lower elevations. It was noted that SEAC is developing a snow load map for the entire state.

  Jeffrey L. Tirey, P.E. (New Hampshire) – highlighted three (3) snow load area issues: snow load failure survey, prefabricated roof trusses, and snow load case studies. Jeff discussed and presented the informal roof snow load failure survey that was conducted by SENH in 2001. This survey shows that eighteen (18) buildings failed. The primary types of buildings that failed were pre-engineered metal buildings and wood roof trussed buildings. The primary causes of the failures were improper construction and improper design. Jeff went on to discuss the pre-fabricated roof truss industry and the problems that previously existed with their designs/software meeting current codes, but which have now been updated. Jeff encouraged his fellow engineers to thoroughly check wood truss shop drawings and computer modeling output for proper load application. Finally, Jeff summarized the work of the SENH Snow Load Mapping Committee in developing case studies (CS) for blacked out areas of the building codes snow mapping. A recommendation was made for NCSEA, ASCE, CASE and other professional organizations to pool resources and fund further case studies through CRREL to eliminate all blacked out snow load mapping areas in the country.

  David Grandpre, P.E. (Rhode Island) – presented numerous case studies of recent roof failures in New England. He attributed roof failure to three (3) general categories: poor design, poor construction and substandard materials. He noted that the majority of roof failures appear to be caused by the inattention to sliding or drifting snow

especially when these occur after additions have been made to existing buildings (i.e. new higher roof added to adjacent lower roof). Another consistent area of roof failure was ponding in combination with snow load and snow drift load.

The snow load panel discussion was clearly the best presentation of the day. After the presentation, numerous delegates and structural engineers came up to the podium to congratulate Jeff and Dave on their presentations and stayed for an additional 15 or 20 minutes for an impromptu question and answer period. No other presentation on Friday gained so much attention of the audience.

- **Coors Field Tour**

  The delegates and attendees were treated to dinner at Coors Field (home of the Colorado Rockies Baseball Club). After dinner, a tour of the facility was made. This $235 million dollar stadium was completed in 2000 and consists of precast slab elements supported by a painted steel frame.

Saturday, October 25th

The conference agenda on Saturday morning consisted of several technical presentations.

- **Modeling, Analysis, Design, and GA Drawings Under a Integrated Building Information Management System**, by N. Parikh.

  The New Staad.Pro software was presented by Research Engineering Inc. (REI). This software covers all structural materials (steel, concrete, timber, steel cable, and cold formed steel). REI is now partnered with Larsa (Bridge software) to provide analysis features for bridges.

- **IBC and NFPA Code Developments**, by Melvin Green and Jim Delahay

  Melvin Green – Discussed the new IBC and NFPA codes. Both codes have substantially expanded upon existing building retrofit requirements. IBC Chapter 34 and NFPA Chapter 15 cover existing buildings.

  Jim Delahay – Discussed recent developments with the NCSEA Code Advisory Committee. The committee is working hard to try and make the IBC and NFPA codes seamless. In order to accomplish this both codes will be adopting by reference other design documents (ie, ACI 318, AISC Steel Structures Manual, etc.) Currently, only California has adopted NFPA. Thirty-five (35) other states have adopted or plan to adopt IBC. It was noted that a supplement to the IBC 2003 Code will be issued in late 2004 and a new full version of the IBC Code will be issued in 2006.

The conference agenda on Saturday afternoon consisted mostly of NCSEA Committee reports and the NCSEA Business meeting.

- **Applied Technology Council (ATC) Report**, by Chris Rojahn

  The Applied Technology Council is developing a wireless inspection and data collection mode capability for the ATC-20 Report (Post-Disaster Evaluation of Buildings). This wireless mode will enable post earthquake building assessments to be completed using a palm pilot intergraded with a laptop computer. This will enable field

data to be recorded directly into the palm pilot and downloaded onto a data base on a laptop. New software will be developed as document ATC-20i and will be available soon.

- **National Building Design Collation Report**, by Michael Tylk

  The goals of the NBDC is to review the results of the World Trade Center Collapse Study and recommend improvements and disseminate information for the design of buildings to better resist terrorists attacks.

- **Committee Report: Structural Engineering Emergency Response Plan (SEERP)**, by Gus Domel and Mike Tylk

  The SEERP plan, which is a generic emergency response plan for structural engineers, was developed based on the information learned and practices used after the World Trade Center Collapse. The plan is complete and was issued in August 2003. The plan provides instructions for assembling Structural Engineer response teams. The primary goal of the teams will be to provide post disaster response and structural evaluations. The secondary goal will be to provide structural assistance to search and rescue teams. A copy of the SEERP plan has been provided to the SENH SEERP Subcommittee.

  It was noted that the SEERP plan was prepared for a response to building disasters. It does not cover bridge disasters.

  The committee will develop and coordinate nation-wide SEERP teams and provide seminars and training to certify structural response teams. Training will revolve around two (2) publications:

  1. ATC –20 - earthquakes (currently available)
  2. ATC- 45 – wind/flood (in final draft form)

  The committee also created model legislation for a “Good Samaritan” legislation for adoption in all states.

  The committee is available to make presentations on the SEERP plan to member organizations. Contact Gus Domel for more information on a presentation.

- **TISP – The Infrastructure Security Partnership Report**, by Jon Schmidt

  The Infrastructure Security Partnership (TISP) mission is to minimize the effects of terrorism on infrastructure. TISP will act as a clearinghouse for information. They currently have a website (www.tisp.org) and issue a newsletter that is distributed electronically. Individuals may sign up on-line to receive the newsletter.

- **Advocacy Committee**

  The NCSEA Advocacy Committee has developed “How to Deal with the Media” guidelines for structural engineers to use on high profile projects. These guidelines can be found on the NCSEA website.

The committee is working on a public relations campaign to contact high schools throughout the country and encourage students to pursue a career in structural engineering. The committee is working on a Power Point presentation and a promotional poster for structural engineering. These tools will be made available to member organizations or individual structural engineers who are willing to take on the task of promoting their profession in local high schools. These tools are in the development stage and when completed will be made available through the NCSEA website. The committee is also creating a clearing house for engineering competitions for high school students (bridge and building competitions, etc). When completed, these tools will be posted on the NCSEA website. The committee will then be contacting each Member Organization to identify a local contact who will be responsible for disseminating information within each member organization.

The committee continues to pursue member organization development. To date, 37 organizations have been formed and joined NCSEA. The goal is to have a member organization in each of the 50 states and 5 US territories/jurisdictions.

Structure Magazine continues to do well. Structure magazine currently had a readership of 29,000. The magazine continues to look for articles and announcements from the Member Organizations and individual structural engineers for publication.

- **Structural Engineering Association of Washington (SEAW)**

  SEAW has prepared a report for ATC (Applied Technology Council) on wind loads. The Wind Handbook (ATC No. 60-1) and Wind Commentary (ATC No. 60) is available from Don Scott (253-383-2797).

- **Efficient Concrete Structures**, by David W. Bilow, S.E., P.E.

  Mr. Bilow from PCA, made a presentation on “Green Building Certification” requirements (LEED) and how concrete buildings satisfy these requirements. More information on Green Building Requirements can be found at the website (www.cement.org/building).

- **NCSEA Partnering Organization Report**

  SEI has over 8,000 members, provides numerous technical activities which is coordinated with NCSEA.

  CASE has over 300 structural engineering firm members. CASE recently developed several new guidelines. These guidelines are available at a member discount through ACEC or NCSEA.

- **Structural Engineering Certification Program**

  An organized discussion and debate of the National Structural Engineering Certification Program was made.

  Marc Barter (Certification Committee Chairman) made a presentation on what the national status is to date regarding structural engineers. As of October 2003 only 11 states of the 55 states/territories have a Structural P.E. Licensing Act (Title Act). The remaining 44 states and territories do not have any such act. Only 3 states have a

Structural P.E. Practice Act. In 1999, NCSEA authorized an Ad-hoc Committee to research practice acts and to achieve the goal of passing a practice act in the remaining 44 states and territories. With the participation of the member organizations (including SENH) it was determined that a practice act was unachievable due to the difficult and expensive political process at the national level and in each state (this also held true for NH). The committee, with approval and support of NCSEA, began formulating a National Structural Engineering Certification Program. There is currently no uniform set of standards for structural qualification in the US nor is there a uniform definition of a Structural Engineer, Structural Profession Engineer (SE) or Professional Structural Engineer (PSE).

Several speakers made presentations on the pros and cons of a certification program as follows:

Cons

- Certification will confuse the public, and will be in addition to existing P.E. licensure.
- Certification will not raise the public awareness of structural engineers.
- The certification program will duplicate existing programs.

Pros

- Other professionals have a National Certification Program (CPA for Accountants, BAR Association for Attorneys, Medical Board Certification for Doctors, and Veterinary Certification for Veterinarians). These professional organizations set and monitor uniform certification standards for their profession.
- Certification will provide uniform qualification requirements and examination for applicants in all states/territories.
- Certification program will encourage separate uniform licensing for structural engineers.

Letter ballots will be issued to the Delegates in early November. Delegates will vote on whether to continue with the certification program and to organize a certification program administrative body. Completed ballots are due at NCSEA by December 15, 2003.

- **Awards Banquet**

Evening activities included a cocktail hour social and a dinner/awards banquet. NCSEA presented awards for outstanding projects in 5 categories as follows:

- Small Bridges (Under 150 Feet)
- Large Bridges (Over 150 Feet)
- Small Buildings (Under 5 Million Construction)
- Medium Buildings (5 Million to 25 Million Construction)
- Large Buildings (Over 25 Million Construction)

The Slate Covered Bridge Replacement Project in Swanzey, NH, by Hoyle, Tanner & Associates, Inc., of Manchester, submitted by SENH, was presented

with a Merit Award in the small bridge category. Congratulations to Sean James, P.E. and Hoyle, Tanner & Associates, Inc. for winning this award.

- **Other Topics**

  - Special Inspections

    I had an opportunity to talk to numerous Delegates about Special Inspections. It appears that most states are facing the same difficulties as New Hampshire in instituting Chapter 17 Special Inspections of the IBC Code. Common problems in many of the states include:

    - Lack of awareness of special inspections by clients (architects, developers, etc).
    - Lack of enforcement of special inspections by building officials.
    - Competition by testing companies who provide special inspection services above and beyond their current expertise (i.e. steel connections, anchor bolts, etc.).

    Numerous member organizations have created Special Inspection Subcommittees to address these problems and issues. Information obtained from the conference will be disseminated to the SENH Special Inspections Committee.

  - Structural Engineering Winter Institute

    The annual Structural Engineering Winter Institute will be held on January 23 – 24, 2004 in Scottsdale Arizona. A preliminary program includes structural design for steel, wood, concrete, and masonry for fire under the IBC Code and the NFPA 500 Building Code. A review of IBC Chapter 17 Special Inspections will also be presented. More information on the program and registration requirements can be found at the NCSEA website.

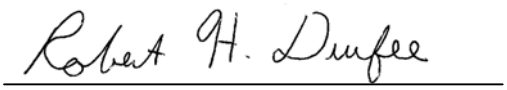
  - 12th Annual NCSEA Conference

    New Orleans, Louisiana has been identified as the host of the 12th Annual Conference which will be held September 23 – 25, 2004.

- **Acknowledgements**

  I would like to thank SENH for paying all travel expenses for me to attend this conference as your delegate from New Hampshire. I'm pleased to inform you that my total expenses are under budget. I would also like to thank my employer, Hoyle, Tanner & Associates, Inc. for giving me the time off with pay to attend the conference.

Respectfully Submitted,



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