SEAC Newsletter

Structural Engineers Association of Colorado

JANUARY GENERAL MEETING

Schedule

Mark Your Calendar (2005)

General Membership Meetings
(Breakfast 7:30 a.m.)
January 20
March 17
May 19
July 21
September 15

Business Practice Committee Meetings
(Breakfast 7:30 a.m.)
February 10
April 14
June 9
August 11
October 13

SEAC Board of Directors Meetings
(7:30 a.m.)
January 6
February 3
April 7
June 2
August 4
October 6

Annual Dinner Meeting
November 3
6 - 9 p.m.

PROBLEM

An extremely hot fire occurred inside a metal coating facility causing serious structural concrete roof structure damage. The building was constructed in the 1950's using a conventionally reinforced concrete folded roof plate slab, designed at 3-1/2-inches thick. The roof span was 85 feet between supports. Significant testing, both destructive and non-destructive was utilized to determine the extent and boundaries of the fire damage. The testing also helped determine the size and location of reinforcing bars. Structural analysis and modeling of the roof plate stresses was completed. The stress distribution models and unique original design eliminated several conceptualized repair schemes. It was determined that partial depth hydro-demolition was required to insure the highest concrete bond strength and re-establish the concrete to reinforcing steel bond.

SOLUTION

A wet mix shotcrete was used as the repair material. Epoxy bonded composite materials were installed to assist the repaired roof section in flexure. Trial repairs and subsequent trial testing proved the repair scheme effectiveness. Code analysis of the structure determined that the 1950 code for shear was less stringent than the current code. This was evident as numerous shear cracks were found in the roof plate slab. Epoxy injection was completed to bond the shear cracks. Additional epoxy bonded composites were installed providing additional roof plate slab shear strength. The Denver Building department required a 4-hour fire rating of the epoxy bonded composites. This stipulation was met. After review of the trial repairs, the building department issued a permit and large scale construction started. Approximately 7140 square feet of concrete repair, 60,000 square feet of epoxy bonded composite and 3150 lineal feet of crack injection was completed.

Bruce A. Collins, with over ten years experience in the repair of structures, is a recognized authority on repair materials and systems as well as the economic analysis based on the net present cost of the repair and rehabilitation of a structure. He is responsible for the identification of markets and the expansion of the client base that Restruction Corp. services. Mr. Collins broad knowledge of structural repair systems and materials makes him a valuable resource for Architects, Engineers, and Owners to help identify solutions to their structural problems. Mr. Collins holds a degree in Chemical Engineering from the Colorado School of Mines, Golden, CO. He is a member of the Board of Directors for the International Concrete Repair Institute and the Sub-Committee Chair for the ICRI Guide for Surface Preparation for the Repair of Deteriorated Concrete Resulting from Reinforcing Steel Corrosion; Mr. Collins is a member of the American Concrete Institute and serves as a frequent lecturer for their Concrete Repair Basics seminars. He has also lectured on structural repair systems at technical meetings and seminars sponsored by ICRI and Restruction Corp. Mr. Collins has authored papers appearing in Concrete Repair Bulletin and Parking magazine.

Don't Miss Out

Date: Thurs. January 20, @ 7:30 am
Speaker(s): Bruce Collins
Location: Renaissance Denver Hotel
3801 Quebec Street (south of the I-70 and Quebec intersection)

Please e-mail your reservations to Caryn Bauer at: ***cbauer@martinmartin.com***.
Reservations MUST be made By 12:00 noon on Monday, January 17, 2005.

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Information for inclusion in the newsletter must be received one month prior to the next general meeting.

Caryn L. Bauer
SEAC Administrative Director

President's Message

Early last year I heard that the unofficial motto of a local contractor's organization was "Survive 'til 2005." Well, 2005 is here and hopefully their assessment of the construction industry's direction is correct and a return to the 'good ol' days' of the late 1990's is imminent. Even though many of us have not been as busy recently as in the past, it still seems there is never enough time to fulfill all of our work and home responsibilities, let alone volunteer our precious time to an organization like *SEAC*. That being the case, I want to recognize and thank the other members of *SEAC's* Board of Directors for the commitment that they have made to serve the organization. Retiring from the Board this year will be past-president **Jack Petersen** and director **Jim Ness**. Vice president/treasurer **J. R. Barker**, past-president **Natalie Mozer-Renn** and directors **Ron Stevens** and **Dave Henley** will be returning for another year of service. Joining the board this year will be secretary **Stan Neujahr** and director **J. D. Schafer**. I'd also like to recognize our Administrative Director, **Caryn Bauer**, for all of the work she does for *SEAC*. Finally, I need to recognize our committee chairs and committee members for their efforts – that's where the work really gets done. Thanks guys!

As you are aware, many things were accomplished by our organization in 2004. Natalie touched on some of these accomplishments, such as rewriting and publishing our Standard of Practice Guide and getting the SEERP Committee up and running, in the last newsletter. Additionally, progress was made on a number of other goals, including updating the Building Department Survey, improving our website, and continuing our effort to assist in the development of wind speed maps for the Front Range area.

In addition to continuing work on the above items, I have several other goals in mind for 2005. One of these is to continue to have timely, interesting programs that benefit our members who attend the general meetings. Another is to expand our outreach to the higher education community. National studies have predicted future shortages of engineers in many disciplines, so networking with and responding to the needs of our local engineering schools will hopefully help lead to more, better educated structural engineering graduates. I would also like to see *SEAC* provide another quality Fall Seminar this year – possibly focusing on a technical subject such as the new AISC ASD/LRFD Specification. Your comments on these ideas as well as your thoughts or suggestions on any *SEAC* related issues are always welcome, so please contact me or any of the other board members to express them. We are always looking for volunteers, so be forewarned that you may be put in charge of implementing your own suggestion.

In closing, I would like to mention that I appreciate the opportunity I have been given as this year's president of *SEAC*. It will be a challenge for me to live up to the accomplishments of my predecessors, but I'll give it my best shot. See you on the 20th.

THREE COLORADOANS SELECTED AS "TITANS" OF THE PRESTRESSED CONCRETE INDUSTRY

The year 2004 marked the 50th anniversary of the founding of the Precast/Prestressed Concrete Institute, PCI, the national organization that represents the prestressed concrete industry throughout the country and has membership throughout the world. Commemorating this event, the Institute paused to recognize and pay tribute to 50 individuals who have made a major contribution to the technology and advancement of prestressed concrete. Designated as "Titan of the Industry," these individuals are heralded for their pioneering spirit and determination in playing a vital role towards developing this major building product. The Titans chosen, who come from every corner of the United States, include Coloradoans Francis Jacques, Don Logan, and Jack Perlmutter.

Francis J. Jacques, P.E., or "Jerry" as he preferred to be called, was born in Kemmerer, Wyoming, and came to Denver in 1942 where he lived his entire life until passing several years ago. His education included an English Literature degree from Regis College, and a Bachelor of Science and Masters degree in Civil and Structural Engineering from the University of Colorado. For a period of 5 years Jerry worked for two consulting structural engineering firms in Denver, eventually migrating to Stanley Structures, one of the largest precast/prestressed concrete manufacturers, where he spent the next 14 years. While there he served as Sr. Vice President, responsible for the development and dissemination of design criteria for the engineering staff. During this time he developed several design aids in addition to analysis techniques, computer programs and procedures. A member of several PCI Committees as well as Committees of other national organizations, Jerry was awarded Fellow status in PCI and the American Concrete Institute, and became a featured speaker on seismic issues all over the world. He was a delegate to joint US –Japan and Bulgaria seminars on seismic safety sponsored by the National Science Foundation. He was the author of numerous design publications, some of them used throughout the world since nothing comparable existed at the time. In October of 1987 Jerry founded the consulting engineering firm of Jacques and Aswad where he spent his final days.

Don Logan, P.E., received his structural engineering degrees from Drexel University and the University of Pennsylvania, during which time as a student he witnessed the construction of the Walnut Lane Bridge in Philadelphia in 1950, the first prestressed structure built in the United States. Shortly after, in 1956, he helped start one of the first precast/prestressed plants in the country in New Jersey. In 1963 Don moved to Colorado and subsequently founded Stresscon Corporation in Colorado Springs, and where he still acts as Manager. He has been deeply involved in technical research, has authored numerous articles documenting his findings, and has been the recipient of several national awards honoring those efforts. Recognized internationally as a seismic authority, Mr. Logan has consulted on earthquakes in Alaska (1965), Northridge, CA (1994), Kobe, Japan (1995), and Izmit and Duzce, Turkey (1999), carefully documenting the performance of various structural systems. He is a member of numerous Institute Committees and recently was granted Follow status in PCI.

Jack H. Perlmutter, P.E., was truly one who could be awarded "pioneer" designation since he was key to the development of the very first precast/prestressed plant in the United States. Jack's parents, while they lived in Europe, were involved in producing precast concrete products such as roof tiles and septic tanks before the turn of the century. By the time they emigrated from Europe, the cement and concrete genes were already in Jack's blood. In the early 1950s Jack joined with well known engineers Orley Phillips and George Hanson to look into the possibility of using high strength concrete and high tensile strength wire, in a plant controlled environment, to produce a product that could be transported by truck or rail and placed in its permanent location. They made contact with the J.A. Roebling Co., who was then developing the 7-wire strand that could be bonded to the concrete. This led to the creation of long-line casting beds, a steam heating system that could accelerate the curing process, and the rest is history. This ingenuity eventually led to the development of the TWIN TEE, a shape that is still used to day all over the world. The first plant was located a 70 S. Galapago, and later moved to 5801 N. Pecos where it still is today. Jack left the prestressing industry to take up a consulting practice, and continued in this venture until his passing in 1997.

We should all be proud of these three Colorado Titans.

SUMMARY OF THE 2004 NCSEA CONFERENCE

September 23-25, 2004
New Orleans, LA

Respectfully submitted to the SEAC Board of Directors October 7, 2004

By: Street Schellhase (incoming President) and Ben Nelson (Delegate)

The conference was held in the Hotel Monteleone in the French Quarter in New Orleans, LA. Thirty-one of the 38 SEA member organizations were represented by a total of about 80 attendees. Ben Nelson represented SEAC as our official delegate and Street Schellhase attended as the incoming SEAC president.

Thursday

Thursday activities consisted of several afternoon structural vendor workshops and an evening welcome reception sponsored by all of the vendors in attendance.

Friday

The theme of the technical presentations for the Friday session was "Designing for the Coastal Environment." The keynote speaker was Lloyd Held, a local geotechnical engineer who spoke about driven pile foundations, which is the foundation system used for most buildings constructed in the New Orleans area. Christopher Jones, a local consulting engineer and chair of ASCE 7's Flood Load Committee, made a presentation on designing buildings that are in floodplains. He discussed recent code and standards developments, including the flood load requirements of ASCE 7 and the information contained in FEMA's *Coastal Construction Manual* (FEMA 55), as well as other FEMA publications, such as flood zone maps. Ian Chin of Wiss, Janney, Elstner made a presentation on preservation of structural elements, discussing corrosion protection strategies for metal structural components. Mark Levitan, director of LSU's Hurricane Center made a presentation on hurricane engineering, which is a multi-discipline field that includes elements of structural engineering, transportation engineering, emergency preparedness and emergency response. Clovis Morrison, a consulting engineer from Baton Rouge, discussed marine structures on inland waterways, focusing on the design and construction of docks and other cargo transfer facilities along the lower Mississippi River. Jim Delahay, a consulting engineer who sits on the Wind Load Committee for ASCE 7, chairs the IBC Structural Committee, is president of the ATC and is NCSEA's Code Advisory Committee Chair, closed out the technical presentations with a talk on calculating wind loads using the "simplified" method of ASCE 7-02.

Saturday

The NCSEA business meeting occurred on Saturday and mainly consisted of reports by the NCSEA committee chairs and liaisons to other engineering organizations on their activities in the past year. Written reports from most of the committees were provided in the conference binder if anyone wants to review them. Written reports from many of the SEA member organizations were also included in the binder.

Jim Delahay gave the Code Advisory Committee (CAC) report. The goals of this committee are to have one set of structural provisions for the entire country, to clarify the provisions and to have multi-level provisions that match the complexity of the solution to the problem. The committee has been through the process of comparing the 2003 IBC and NFPA codes, determining differences and proposing changes to make them the same. To this end, a proposal to replace most of the environmental load provisions in the 2006 IBC with references to ASCE 7-05 has been made. Other proposed changes to the 2006 IBC include modifications to Chapter 17 and several of the "material" chapters. Changes have also been proposed for the 2006 IEBC. The proposed changes have been posted on the NCSEA website.

The Advocacy Committee report was given by Stan Caldwell. The purpose of the committee is to promote the structural engineering profession. Current projects include creating a press release distribution system, developing a database of technical experts trained to work with the media, a media guide and conducting and publishing a survey of structural engineers relating to their interactions with their clients. The committee, in association with SEI, has created a poster promoting structural engineering as a career. The intent is distribute the poster to guidance counselors at high schools and

colleges across the country. Several copies of the poster were given to the conference attendees for distribution. The committee is seeking new members.

Mike Tylk gave the Continuing Education Committee report. The 2004 NCSEA Winter Institute was held January 23-24 in Scottsdale, AZ. The 2005 Winter Institute will be held on February 18-19, 2005, also in Scottsdale. The program will be geared toward business-related issues.

The Member Organization Development Committee reported that they assisted in the creation of the newly formed SEA-Montana. Carol Pivonka of AISC was also involved in this effort. They are targeting the Carolinas, Maryland, West Virginia, Wyoming and the Dakotas as candidates for future SEA's. They are also seeking new committee members. ***Action Item for SEAC: perhaps we should consider offering our help with regards to Wyoming, possibly by hosting or helping to organize a meeting in Cheyenne or Laramie.***

Craig Cartwright of the Publications Committee reported that *Structure* Magazine became a 12 issues per year publication in 2004. Goals for 2005 are to publish a pamphlet on SE certification and a special inspection training manual.

Jim Delahay reported that the Applied Technology Council (ATC) has reorganized its board of directors, giving 3 seats of 15 to NCSEA. Jim Harris will fill one of the new NCSEA seats. Jim Delahay and Ron Hamburger have agreed to give a series of joint wind/seismic seminars in association with ATC and NCSEA. New ATC publications include a field manual for evaluating buildings for wind and flood damage (ATC 45) and a commentary on the wind provisions of ASCE 7 and the IBC written by SEAW (ATC 60).

The NCSEA Licensing Committee reported on its work relating to separate licensing for SE's. As part of this report, the liaison to the NCEES reported that NCEES will offer an SE Records Program beginning in January of 2005. The format of the Structural I exam will not change for 2004. The new format for the Structural II exam has been set: solutions to 2 problems in both the morning and afternoon sessions must be provided. Each of the 4 problems will deal with a different material with two of them stressing seismic design and detailing. An attempt to obtain separate SE licensing in Alabama recently failed. The move was opposed by NSPE and by civil engineers sitting on the state board of registration. Oregon's recent success in obtaining SE licensing was discussed. A panel discussion with audience participation was then held. It seemed like the prevailing opinion in the room was that separate SE licensing was desirable but not going to happen anytime soon in most parts of the country. An immediate goal of the committee (and the NCSEA) was stated to be the identification of a state that seemed to be ripe for SE licensing and to concentrate the organization's efforts and financial support to make it happen there. It is the NCSEA Board's opinion that most of the states will follow suit once the first few states approve separate licensing.

Nils Ericson reported on CASE activities. CASE has created the Risk Management Program, which is a program designed to reduce the cost and frequency of claims against SE's. They will hold a two day RMP seminar on November 5-6, 2004, at ASCE's headquarters in Reston, VA. They are also starting an RMP newsletter and website.

A report on the SEI was given by Rawn Nelson. SEI will be hosting a seminar on separate SE licensing on November 13 in New Orleans. They are creating a database of Powerpoint presentations that have been given at previous Structures Congresses.

Vicki Arbitrio gave the NCSEA Treasurer's report. Actual income and expenses to date were $327K and $268K, respectively. However, annual conference expenses were not included in the expense total.

Tim Slider, the chair of the newly formed Structural Engineering Certification Board, reported on the board's progress in implementing the new certification program. Subcommittees of the new board have been established and filled. A sample "grandfather" application for certification was distributed. It will posted on the new certification board website, www.secertboard.org , along with other board news and information. Submitting an NCEES Record in lieu of the grandfather application will probably be acceptable. To be grandfathered, one must meet the eligibility requirements by June 19, 2005. The title to be associated with certification has not been determined yet. There will be no application cutoff date for those eligible to be grandfathered to apply for certification; however, the application fee will increase over time to recover any renewal fees that were avoided by delaying the application and CEU's will also be required. Requirements to apply by other than grandfathering

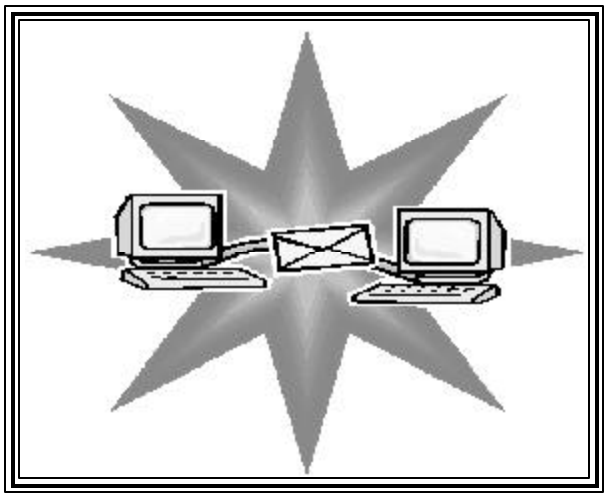
have not been determined, but will probably be the same as for the new NCEES SE Records program – an accredited degree with appropriate structural coursework, 4 years of experience and passing the Structures I and II exams. It was reiterated that certification has little immediate benefit, but is the first step in an effort to ultimately put SE licensing under the control of the profession. A panel discussion with audience comment and questions was held. In general, the discussion was apparently not as contentious or lengthy as in the past.

No issues were brought to the floor that required a vote of the delegates.

At the closing banquet, the Excellence in Structural Engineering Awards were presented for the winning project submissions and the 2005 officers and new board members were introduced. The president will be Ron Hamburger, the president-elect will be Vicki Arbitrio, the secretary will be Robert Paullus, and the directors will be Kirk Harman and Ed Huston.

Next year's conference will be October 27-29 in Kansas City, MO.

Reminder



If you have a change of address, phone, fax, or e-mail. Please e-mail Caryn Bauer at

cbauer@martinmartin.com

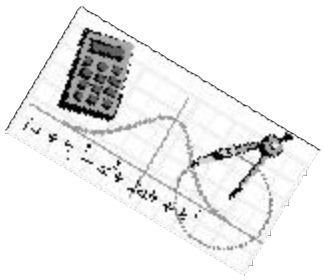
Transitioning From The 1997 UBC To The 2003 International Building Code

Full Day Seminar
February 9, 2005

Structures and Codes Institute, in cooperation with the International Code Council, SEAC, and NCSEA will present a full-day seminar in Denver, CO on February 9, 2005.

SEE ATTACHED PDF FILE FOR INFORMATION AND REGISTRATION FORM.

Employment Opportunity



Neujahr and Gorman, Inc, Consulting Structural Engineers is seeking experienced Structural Engineers and AutoCad operators. Requirements for both positions are three to five years experience working on commercial and residential building projects, preferably in a small to medium sized consulting firm.

Visit the OPPORTUNITIES section of our website www.neujahrgorman.com for more information on our firm.

Interested and qualified applicants can email, fax, or mail resumes to:

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