



SEABC NEWSLETTER

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ISSUE No.
010

May 2010

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- SEABC's Newsletter is both edited and managed by The Communications Committee. newsletter@seabc.ca
- Submissions to the newsletter are encouraged and all members of the SEABC are asked to actively participate in contributing to our newsletter. Submissions letters to the Editor, questions and comments can be sent to: newsletter@seabc.ca
- SEABC editing staff reserve the right to include or exclude submitted material and in some cases edit submitted material to suit overall space requirements. If submittals are not to be edited, please advise editor at submission time.

Message from the President

May 2010

By Dave Davey, P.Eng.;
SEABC Charter President



The Old Hobby Horse

Seems to me that I find myself frequently talking about the advantages of having volunteers and the need to recruit volunteers. This should not be surprising as SEABC is a volunteer-run organization.

Being a volunteer organization is a good thing as the lack of any bureaucracy keeps our operating costs down and makes us keep our focus. Membership is voluntary too, so it is important that we keep providing benefits to our membership, and to the structural engineering profession as a whole, at a cost that is recognized as being affordable and worthwhile. On the other hand, it means that we have to appeal to our members for volunteer help.

We do have a significant list of volunteers, whom we greatly appreciate, but volunteering is not a long-term commitment, nor should it be. New people, new ideas and new energy are essential to the life of an organization like ours.

Particularly amongst engineers, people move, functions change and time commitment to work projects varies significantly. This may appear to be a deterrent to volunteering. However, we do understand that people may have to withdraw their volunteer support for reasons of this sort. The old adage "Many hands make light work" is certainly true and any effort is appreciated and is worthwhile.

It is often said that what you get out of an organization is only as good as what you put in. I definitely believe this to be true. I know that when you are busy, it is difficult to make time for volunteering. But there are significant benefits to networking with your peers and being in the know about current activities and these provide a long-term personal advantage. I believe that most employers of engineers also recognize the advantages, both to the employees and the employers,

of having their employees participate in engineering activities outside the workplace.

We do receive expressions of interest from members at times and find that we cannot use their help for various reasons such as their location. For this I apologize. I can only say that we are continuing to try to reach members who are located outside our main areas of population. We would still appreciate their input, whether it be suggestions for improving services or an article of interest to be published in the Newsletter.

So I do ask all our members to consider offering some volunteer time to SEABC. Tell us what your area of interest might be. Contact one of our committees (see our website www.seabc.ca/governance.html for contact information).

IStructE News

By David Harvey, P.Eng, Struct Eng
Institution Representative in BC



Despite a devastating recession in the UK and across much of the world, the Institution is pressing on with business, if not quite "as usual". Importantly, the membership numbers are holding up, suggesting that the professional qualification afforded by IStructE is a core value and not an "optional extra". As a result the Institution continues to

function remarkably well.

On April 9, 2010, over 800 candidates from across the world sat the IStructE Chartered Membership examination in 57 regional centres. In Vancouver there were 23 candidates. While not a record, this number demonstrates healthy interest in both qualifying as a structural engineer and achieving an internationally-recognized qualification. Good luck to our local candidates.

Thanks to Icelandic volcano activity, I attended the most recent Board meeting by telephone and plans for further development were reviewed. In particular, the Institution continues to explore future options for accommodating the headquarters operation in London, UK. Another important area which is rapidly moving forward is development of on-line Professional

Development opportunities. These are now being made widely available via the Internet. Recently, IStructE uploaded six webinars and three presidential addresses onto its website. These are well worth checking out. For more information, go to:

www.istructe.org/knowledge/webinars/Pages/default.aspx

Members should be reminded that as a result of SEABC's Memorandum of Understanding with IStructE, SEABC members that are not also IStructE members, can obtain access to IStructE member facilities by contacting Darren Byrne, Director, Membership and Education, at:

Darren.Byrne@istructe.org

Education Committee Update

By Leslie Mihalik, M.S., P.E., P.Eng.
Chair, SEABC Education Committee



The education committee has had busy start to the year. We organized a very successful second Annual General Meeting that was held on March 17 at the Sutton Place Hotel. Our President, Dave Davie, P.Eng. gave a recap of the Organization's activities this past year to the 78 members

attending. Paul Fast, P.Eng. presented a very entertaining keynote presentation titled "Between Thrills and Sleepless Nights: Designing Unusual Structures".

On April 28 Carlos Ventura, Ph.D., P.Eng., Perry Adebar, Ph.D., P.Eng., and Rob Simpson, P.Eng., Struct.Eng, presented an evening seminar on the recent earthquake in Chile to a capacity audience at the Sutton Place Hotel. The presenters used photos of their visit to provide analysis of various buildings.

Our next event will be a seminar on May 28, presented by Constantin Christopoulos, Ph.D., P.Eng., titled

"Steel Castings in Buildings: Recent Developments and Applications". The seminar will be held at BCIT's Downtown Campus.

We are also proudly presenting a two day seminar at UBC on June 25 and 26 on Soil-Structure Interaction. I would like to thank the organizers in advance for the significant effort that has already gone into organizing this major event.

We are looking forward to seeing you at the future events.

Lastly, a reminder that we gladly accept comments and suggestions from our members for future events.

Communication Committee Update

By David Harvey, P.Eng, Struct Eng
Chair, SEABC Communication Committee

Your Communications Committee hopes that you are enjoying the excellent service we provide. Not only are you now reading your quarterly newsletter, you receive regular broadcast emails about upcoming events and professional development opportunities. We also look after the SEABC website which is constantly being improved and updated by our Webmaster, Stephen Pienaar. We hope that you, the members, are well informed, and enjoy this service.

Please take a moment to help us and your structural engineering colleagues. We would love to hear your stories about your projects, your research, or other matters relating to structural engineering. Kindly submit your material to newsletter@seabc.ca and help to keep us all better informed.

Structural Practice Committee Update

By Thor A. Tandy, P. Eng, Struct.Eng.;
Chair, SEABC Professional Practice Committee



Contact: Thor Tandy, P.Eng.,
Struct.Eng. (Chair)

Report Period: February to
May, 2010

**Review and Response by
Committee:** No items.

APEGBC Code Committee:
No items.

Consulting Practice Committee: The April meeting was cancelled. Next meeting is scheduled for May 25, 2010.

APEGBC Misc: The proposal to replace the current Schedules B1 & B2 format with a single Schedule 'B' is still, at this time, on-going.

Member Comment: Members are encouraged to submit any issues that affect their, or the general, practice of structural engineering. Contact one of the committee members in your area.

Contact: Thor Tandy P.Eng, Struct.Eng

Vancouver Island Branch

Thor A. Tandy, P. Eng, Struct.Eng.;
Chair, SEABC Professional Practice Committee

Mission: To provide a focal point for SEABC members on the Island to meet, discuss SEABC issues and to take benefit in the form of exchange items of technical interest.

Successful Presentation: Earthbound Hold Down System: Tuesday April 27th 2010: Earthbound Corporation is the designer and manufacturer of the Earthbound System, a continuous threaded rod hold-down system used in multi-story wood framing applications. They provide wood shrinkage compensation devices.

The Run Builder System: This is a website and online tool so a hold-down designer may simply specify stacking tension loads per story and generate all the components needed for this particular hold down run. Canadian Limit States will be imbedded in the online tool within three weeks.

Website Link (Flash enabled interactive website):
www.holddown.com

Earthbound Canada Limit States Information and to download Earthbound Canada Standardized Runs Information:

<http://richformconstructionsupply.com/seismic-restraint-systems/>

Slackjack Installation Instructions:
www.holddown.com/install.aspx

Successful Presentation: NEESWood Capstone Project: April 23, 2010

www.strongtie.com/about/research/capstone.html?source=hpnave

Between June 30 and July 14, 2009 a full-scale seven-story building was subjected to a series of earthquakes at the world's largest shake table in Miki, Japan, in what were known as the NEESWood Capstone tests. Configured to represent a mixed-use retail and residential structure, the first floor was a new type of innovative steel framing system providing the

openness needed for a retail area, while six stories of wood light-frame construction was used for the apartment areas above.

2010 Aims: Continue to provide reasonably priced CPD opportunities to the local membership.

The next formal meeting TBC. We encourage Island members to join us.

Contact: Thor A. Tandy P. Eng, Struct.Eng.

Technical Committee Update

By Renato Camporese, P.Eng. , Struct.Eng.; Chair,



The Guard Task Group has reported:

Purpose:

To publicize the design and construction-related issues pertaining to guards to design professionals and builders alike.

Priorities:

1. All guards should require P.Eng. signoff. This will require cooperation with authorities having jurisdiction and building officials (see also item #3 in activities).
2. A mechanism must be put into place to ensure that the base building engineer provides adequate backing for structural attachment of the guards. Interim solution will involve use of schedule S to facilitate cooperation between base building and specialty engineer. Longer-term solution is to modify the Schedule B-1 to include support for specialty structural items including guards (see item #4 in activities).

Activities/Progress:

1. Production of document, 'Design Guidelines for Designing Guards'. Document in progress by RDJ, TAT and LP. Production of sample calculations is still in progress and almost

complete. Note that the release of a draft version to the membership of SEABC of the guidelines is imminent and will take place in May 2010.

2. Educating engineers, architects and guard contractors about guard issues through APEGBC series of seminars, "Guards: Making it Right". Seminars are ongoing, more will be given by RDJ.
3. Push the need for P.Eng. signoff for all guards through the building officials association BOABC. Future activity by RDJ.

It was recently discovered that testing of aluminum guards by a leading testing agency has not been in compliance with the CSA standards for testing of aluminum. RDJ pointed out that the live load factor, alpha, must be divided by the material resistance factor phi, in computing required test load resistance. The agency acknowledged this error and will thus correct all their testing of aluminum guards across Canada. This will serve to achieve more consistent code compliance (has been to date a significant challenge for engineers designing aluminum guards to the code, and comparing these designs to "code-compliant" tested systems).

The Seismic Design of Basement Walls task group will be providing a report on the results of the FLAC analysis of basement walls in the upcoming Soil-Structure Interaction Seminar in late June.

A group of bridge engineers have expressed an interest in forming a Bridge Subcommittee. Members interested in participating are urged to contact Alfred Kao at kaoa@ae.ca.

Young Members Group

By Kevin Riederer, MSc, P.Eng., LEED AP



The SEABC Young Members Group has been very active over the past few months. The summaries below highlight two significant achievements for the group in the area of student outreach.

We are hard at work organizing the remaining events we have planned for the year including a professional registration seminar in to be held in June. Last year we held a similar event and this year we will use the feedback we received to provide members with improved and even more valuable seminar.

If you're interested in getting involved with the YMG you can reach us at ymg@seabc.ca and remember to visit our webpage www.seabc.ca/ymg for summaries of our previous events and information on any upcoming events.

Cal Poly Student Visit

By Michael Roberts, P.Eng

During the Week of March 22-27th, 2010, a Group of 11 students from Cal Poly San Luis Obispo, California held their first annual trip to Vancouver. In addition to a unique opportunity to visit the 2010 Winter Olympic city, the structural engineering students came with the intent to tour local engineering firms in Vancouver. Beyond the office tours, three events were also organized by the SEABC YMG for the group to partake in for an opportunity to network and a more casual interaction with our local SEABC engineers.

- 1) A "Canadian Curling Experience" event was held at the North Shore Winter Club. The group consisted of Cal Poly Students and a handful of local SEABC members. The event included a brief introduction to the history of the sport, the basics of sweeping and throwing the rocks. For most, it was their first time walking on the ice surface, (and using a broom), however, most picked the basics up fast and realized their new extracurricular calling! A local walk from the winter club venue over a historic steel truss bridge and a newer concrete bridge over Highway 1 to a restaurant to share stories of slipping and sliding followed this successful event. A good time was had by all.
- 2) A fabrication shop tour to Dynamic Structures in Port Coquitlam was highly educational, entertaining and inspiring which showcased some of the unique signature structures that the company is involved around the world. An engaging presentation by Nathan Loewen highlighted many impressive observatory dome structures and cutting edge entertainment rides and associated technologies that the company is very involved

in. A second presentation by Robert Gale of KWH Contractors showcased the new Coast Meridian Overpass structure. In addition to the presentation, Robert led the group on a guided tour to discuss the structure in place.

- 3) To conclude the week's events in Vancouver, the students were treated to an afternoon excursion and sightseeing along the recently upgraded Sea-to-Sky Highway. Of course, no tour would have been complete without a personalized tour of Howe Sound Brewing, a quick visit to the Vanguard Timber Squamish Outdoor Centre to see the giant woodsman, trying to spot eagles in Breckendale, and seeing Shannon Falls up close. A stop on Cypress mountain to overlook the "Olympic City" and the recent additions to the skyline followed by a visit to Ambleside Park to gain a Lion's Gate view completed the day's busy events and left all the students eager to return to our beautiful city. Who knows, perhaps one of our local SEABC firm's will hire one of these aspiring young Californian engineers one day!

The SEABC Young Members group wishes to thank SEABC for its important financial support of the day tour event and helping to ensure that the visiting group felt welcome. Through both these successful events, we believe that that we have established a great inter-chapter connection that has the potential to open many opportunities for future collaboration and event coordination between our SEA members on the West Coast.

Some photos of the events:





Greater Vancouver Regional Science Fair Award

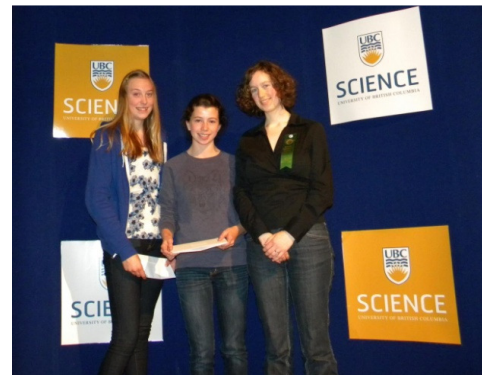
By Ilana Danzig, E.I.T.

To fulfill our dual goals of community outreach and raising awareness of the profession of structural engineering, the Young Members Group sponsored a \$250 prize in this year's Greater Vancouver Regional Science Fair. Given that this was our first time getting involved in the science fair, we had no idea what to expect or how well our field would be represented among the science projects. We were pleasantly surprised to find that there were a handful of projects that related in some way to structural engineering. From bridge design, to the importance of bracing, to earthquakes, these were students were thinking about important structural engineering concepts, most without realizing it.

The recipients of our prize were Hannah Ker and Tara Bishop from Point Grey for their project, "Earthquakes: Testing how Buildings Withstand Disaster." The girls cleverly built a shake table powered by an electrical drill and three 5-story mini-buildings with three different lateral force resisting systems: mass damping, base isolation, and cross bracing. They then tested the behaviour of these three buildings against an identical 5-story structure with no lateral force resisting system. It was clear that Hannah and Tara learned a lot about how structures can behave in an earthquake.

It is inspiring to talk to students who are excited about their projects and are beginning to grasp structural engineering concepts, and this made judging such a great experience. This was a fun project for everyone involved, and we are eager to sponsor the award again next year.

Photo of the award winners:



SEABC UBC Jim Warne Scholarship

By Andrew Seeton, SEABC Education Committee



SEABC is pleased to offer annual scholarships to undergraduate students of Civil Engineering at UBC and BCIT. The award recipients are selected by faculty recommendation and are presented to students with demonstrated interest and achievement in structural engineering. The awards are funded through proceeds from the SEABC Certificate in Structural Engineering Program. In our November 2009 Newsletter we reported on BCIT student Brent Bergman who received the BCIT scholarship for the 2009/2010 academic year.

The UBC awards carry the name of former DSE contributor Jim Warne and a value of \$1000 each. Recipients from the 2009/2010 academic year are Mr. Spencer Thompson and Mr. Jarvis Autey. SEABC congratulates the winners on their achievements!



Items of Interest

By Thor A. Tandy, P. Eng, Struct.Eng.;
Chair, SEABC Professional Practice Committee

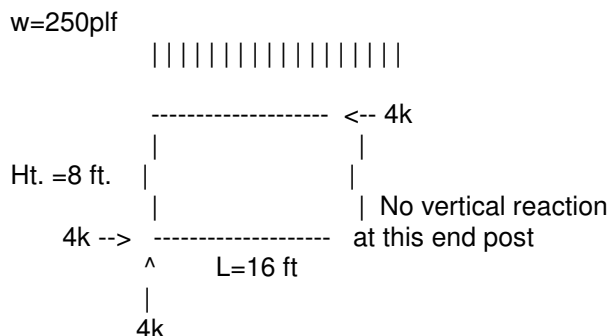
'Standard of Practice' for wood-frame earthquake retrofit tie-downs.

Q1: When should we start worrying about uplift forces in earthquake retrofits is? The best probable answer is, "It depends." This shows that we rely on engineering judgment rather than some arbitrary force level.

Q2: If tie-downs are used, what is the effect of slack in the tie-down system? In many home addition projects, where the only components that are not engineered lumber are three thicknesses of 2x plates, it may require more diligence and demanding shrinkage take-up devices.

Q3: A bigger question. Engineers often use the self-weight of the building to resist overturning in shear walls. As an example, consider a shear wall that just happens to have exactly the amount of dead load on it that is required to resist the overturning.

Say 4kips of seismic or wind force is acting from right to left at the top of an 8-ft tall, 16-ft long wall. We have a 4kip reaction at the midsill acting from left to right. To balance the overturning, we have 250plf dead load along the wall. This gives us an upward reaction of 4k at the left shear wall end-post, and zero reaction at the right end post (because that's how we originally defined the conditions....)



If you move the force vectors around on the above diagram, you get the same shear force diagram as you do for a cantilevered beam 16 ft. long, supported at the left end, carrying a uniform load of 250plf. The shear

distribution in a cantilevered beam is NOT uniform.... For the shear wall illustrated above, we have a shear of 500 plf at the left end and 0 plf at the right. When the earthquake forces reverse, the shear diagram is reversed. This results in "shear slosh" (the shear force diagrams look like water sloshing back and forth in a rectangular tank....) where the ONLY place the shear is 250 plf is at the middle of the wall.

For a shear wall with a loose tie-down system, something like the above will also occur; this could certainly lead to reduced capacity of the shear wall. Of course this is all "in theory," ignoring all kinds of things that occur in reality. But what IS occurring in reality? And what has the biggest effect(s)?

Anecdotal Tidbit: A code provision (in UK?) that allowed INCREASING the allowable shear in a wood panel shear wall if it had a uniform load on it. This seems to contradict the above discussion.

Watch the Bay Bridge Construction Time-Lapse

<http://bbi-video.s3.amazonaws.com/timelapse/full-timelapse-earthcam-underneath.m4v>

<http://bbi-video.s3.amazonaws.com/timelapse/full-timelapse-earthcam-tunnel.m4v>

'Structural Hot Topics' by SK Ghosh Assoc.

https://secure.bluehost.com/~skghosha/onlineorder/show_book.php?isbn=20081208007

#5: Diaphragm: Rigid or Flexible? - A flow chart is presented and explained so that, given any diaphragm situation, it's flexible, semi-rigid, or rigid classification according to the provisions of ASCE 7-05 can be determined conclusively and quickly.

Contact: Thor Tandy P.Eng., Struct.Eng.

Chile Maule Earthquake

February 27 2010 Magnitude 8.8 Subduction Earthquake
By Rob Simpson MBA, P.Eng., Struct. Eng. LEED AP FEC

Part 1



Lessons from the Chile earthquake offer engineers in Canada an outstanding opportunity to improve our practice and avoid simple errors that can be devastating in a large seismic event.

Our trip to Chile included one week of reconnaissance on the ground during nearly two weeks of total travel, covering a majority of the region affected by the earthquake and populated by significantly large buildings of current design methods. Landing in Santiago to an airport where the terminal building damaged and closed, effectively operating out of one older building and from tents in the parking lot, we had only anecdotal information about troubles travelling around the country. Overnight at the hotel with fellow team travelers provided a list of damage sites and quickly a plan came together. Comments from a Spanish speaking professor from Canada who was just returning from a whirlwind tour to Concepcion gave us confidence that the rumoured 14 hour trip had improved to just 6 or 8 hours. Our group of ten split into smaller teams and covered different parts of the affected areas, with myself travelling with Perry Adebar and Adrian Wightman. It makes me think of the joke; A professor, a geotechnical engineer and a building engineer were at the bar ... well, that's another story for another time. Oh, and it was a coffee bar too!

Structural engineers in Vancouver need to hear these viewpoints that were exposed by the ground shaking in Chile:

- Chile Maule M8.8 earthquake is very similar to what we can expect in BC soon, perhaps smaller than we are likely to experience.
- New buildings, bridges and roadways appeared to be more damaged than older structures.
- Thin columns (150 to 200 mm in width) rapidly deteriorate after 1% drift. Compression forces can then quickly destroy the column if not detailed for ductility. Heavy vertical reinforcing

does nothing to help. Single layer reinforcing would only be worse.

- Construction style in Chile is mostly all-concrete construction (bearing walls, exterior walls, etc. all in concrete) which can be great for redundancy but poor for seismic resistance under overload conditions.
- Ductility: Designers of these buildings in Chile appear to have attempted to solve seismic loading with strength in nominally ductile structures without ductility detailing.
- Asymmetry: Symmetrical buildings can be severely damaged without collapse but the same asymmetric buildings will fall over due to one sided yielding.
- Collapses of buildings with thin columns (and the number of lives lost) would have been ten-fold or more had these buildings been constructed without excessive redundancy. Buildings in Canada are normally not constructed with the same redundancy.
- 60+ seconds of strong shaking: The same buildings that survive a strong short crustal earthquake can fail during extended shaking, even at lower acceleration levels.
- The duration of BC's subduction seismic event is now estimated at 4 to 5 minutes of ground shaking.

We visited numerous building sites and viewed many different types of failures. Perhaps the more instructive were those that illuminated problems that could happen in any building project anywhere in the world. Here are two examples:

Mall Plaza Norte

A modern shopping mall in northern Santiago, Chile suffered collapse of an upper floor level due to the following:

- A new mall addition was added to the side of the existing older mall. The existing mall was a very large three level older concrete building. The addition was constructed in steel and connected to the side of the building with drilled anchors set in epoxy.
- Failure occurred at the connection of 3rd floor beams to the side of the existing mall. The beam connections were required to carry both gravity loads and seismic tie forces. Failure of the connection lead to separation of the building and collapse of the floor after failure of the epoxy anchors by pullout.

- While many anchors appeared to be poorly installed, failure also occurred at anchors that were well set, demonstrated by the concrete spall at the pullout of the anchor.
- Supporting gravity beams on connectors that must take seismic tie forces is a poorly conceived structure.
- Redundant columns would have sustained gravity support and avoided failure.

Construction Company Owned Building

A new building in a newly developed business district in northern Santiago, Chile suffered the loss of the roof above the atrium:

- Ten storey office building with bar-bell shaped floor plates showed only slight distress except at the atrium where complete collapse of the roof slab together with all atrium fixtures occurred.
- Evidence of flexing of the necked diaphragm indicates that movement of the two ends of the floor plate caused a concentration of tie force at the roof over the atrium. Not being able to sustain the force, one end of the roof gave way, ripping away from the opposite end and falling the full height of the atrium taking out all glazing, handrails and wall finishes along the way.
- Diaphragm design forces appear to have been underestimated.

Part 2 in the next edition of the SEABC Newsletter will provide examples of other building failures from which we can all learn.



Questions and comments are welcome
rsimpson@glotmansimpson.com

SEABC AGM 2010

By Andrew Seeton, SEABC Education Committee

On March 17, 2010, a gathering of eighty SEABC members filled the Sutton Place Hotel ballroom for the Association's second Annual General Meeting.

The business portion of the evening was carried out while the members enjoyed a 3-course plated dinner. SEABC President Dave Davey gave a summary of the Association's membership base (currently 542 members plus 109 student members) and presented a financial report which was approved by the members in attendance. He also summarized the activities of the Association's committees and noted that a new Vancouver Island Branch was established in 2009. The election of board members followed, and Dave thanked all directors and committee members for their volunteer efforts over the past year, with special mention to directors Jim Mutrie and Leslie Mihalik who are stepping down from the board.

John Pao, Chair of the SEABC Certificate in Structural Engineering Program (CSE) reported on the success of the program, which has served 651 students since 2001. John also presented a Certificate to Dr. Mehdi Elmi to recognize his completion of the program. This achievement requires passing of 12 courses, and Dr. Elmi is the third graduate of the CSE program.

SEABC Webmaster Stephen Pienaar gave a brief introduction to the new SEABC Forum page (<http://forum.seabc.ca>) and encouraged all members to give this new communications tool a try.



The Keynote Presentation for the evening, *Between Thrills & Sleepless Nights: Designing Unusual Structures*, was delivered by Paul Fast of

Fast+Epp. Paul's talk was lively and engaging, offering up many personal anecdotes from his engineering career and inspiring the audience with refreshing

perspectives on the thrills, risks, and rewards of being a structural engineer. The presentation drew upon numerous project case studies, illustrating the innovative problem solving that resulted in remarkable structures, including the occasional design that did not make it from the drawings to fruition. Overall, Paul's talk was highly thought-provoking and was the entertaining highlight of the evening.

Minutes of the meeting are available on the SEABC website.

SEABC is pleased to recognize the sponsors for this year's AGM:

Associated Engineering
Glotman Simpson Consulting Engineers
Canadian Wood Council / WoodWORKS!
Masonry Institute of British Columbia
Berris Magnan Chartered Accountants
UNISOL Engineering Ltd.

Letters of Appreciation from SEAOC Cal Poly

Submitted by Michael Roberts, P.Eng
Speciality Structural Engineering

Dear Mr. Davey,

Thanks for your support during our trip to Vancouver. The tour bus that you sponsored us with was very helpful, for we were able to see and do things that would not have been possible without SEABC and Michael Roberts' help.

As a token of our appreciation we would like to place you SEABC logo on our website alongside a few companies that have sponsored us in the past. I will wait to hear back from you before I put your logo up.

We had a very good time in Vancouver; we learned a lot and experienced some kind Canadian culture.

Thanks again for the hospitality and if any of your people ever come out to California don't hesitate to reach out to us.

Sincerely,
Michael Spangenthal
Cal Poly SEAOC/AEI (Vice President)

California Polytechnic

Dear Mr. Roberts,

First of all I must thank you greatly for all your efforts, before and during our visit to B.C. Curling was a great Canadian experience that we Americans might not experience again. The tour day was a well balanced trip. Dynamic Structures was a good company to visit and some of our students are actually thinking of perusing roller coaster design. The bridge presentation was also a hit, for the majority of us didn't know of that push out process and being able to see the structure right after made the presentation that much more effective. The afternoon made getting up very early worth it. Everyone had positive comments and feelings about the day.

Thanks,
Michael Spangenthal
Cal Poly SEAOC/AEI (Vice President)

Some selected excerpts from feedback from the students.

"I felt that the tour was very informative and there is much we would have lost if SEABC did not generously fund it. The stop at Dynamic gave us a taste of other areas of engineering and the presentations on the work they did with Disney and observatory stations were very insightful. I also enjoyed learning about the technique of pushing a bridge and then seeing one of the bridges built in that fashion afterward and being able to ask questions all along the way. The rest of the tour was a nice break and change from the beginning of the tour. We really got to see the true beauty of BC and parts that many visiting Vancouver would never see. I have never before been to a brewery and so the

tour was something new for me and I really enjoyed it! Overall, it was a great experience and we had an exceptional guide, Michael, as well as driver and I wouldn't have changed a thing!"

"The SEABC-assisted events were fantastic. It was great to meet Michael and the other guys and talk with them about the structural engineering industry in Canada. Visiting the UBC campus and taking a tour of their testing facilities allowed us to compare our own educational opportunities with those of a different educational system. Curling with them was amazing fun (if not a little embarrassing!). It's unfortunate that we couldn't try our hand at broom-ball, but considering that it was the only missed event, things worked out pretty well. The bus and brewery tours were a good way to wind down after a week of nonstop activity and let us see a rural side of the Vancouver area. Please send my thanks to Michael Roberts and SEABC for having us"

Sustaining a Profession

By Melanie Fung
Events Co-ordinator for SEABC events



When we hear the word "sustainability", our brains will likely flash images of renewable energy sources rather than structural engineers.

A decade ago, Dr. Carlos Ventura, P.Eng, Professor and Director of the Earthquake Engineering Research Facility at the University of British Columbia (UBC), was inspired to pursue this concept. As a professor, he realized that a Bachelor of Applied Sciences in Civil Engineering did not necessarily provide students with a complete set of the tools needed for working as a structural engineer. For a young graduate, taking seminars and graduate courses at UBC was not sufficient and did not always fit into the schedule of a practicing professional. There was a serious lack of practical continuing education options available.

At the time, Dr. Ventura also served on the board of the Vancouver Structural Engineers Group Society

(VSEGS). The main purpose of the VSEGS was to facilitate the professional development of structural engineers in the Lower Mainland by offering technical seminars to its members. It seemed natural for them to pioneer a continuing education program whose goal was to provide structural engineers with practical design skills. Dr. Ventura, together with John Pao, P.Eng, Struct.Eng, VSEGS president, and VSEGS directors, Dr. Robert Schubak, P.Eng, and Jeff Corbett, P.Eng, initiated the Certificate in Structural Engineering (CSE) Program Organizing Committee.

Addressing an Industry Need from the Ground Up

Schubak was motivated to join the CSE Organizing Committee as a result of his years of practice that included investigating structural failures. He noticed that the growth in technology produced “a shift in design methodologies towards advanced numerical methods”, often applied by new design engineers without a thorough understanding of how to practically apply the fundamentals. In some instances, the application of these fundamentals was overlooked even by engineers with years of experience.

By the 1990s, the structural engineering profession as a whole was also beginning to see some differences in the skill sets of new graduates. In the opinion of many practitioners, a BASc was no longer sufficient - the new standard was a MASc or MEng. However, not every new graduate looks forward to returning to school immediately after graduation, if at all. This evidence, along with an admitted decline in the mentoring and training of new engineers by the principals of firms, proved that the need for change in order to sustain a viable structural engineering industry was vital.

The CSE Organizing Committee also identified that Canada's immigration policy of attracting highly trained professionals from other countries had resulted in a large pool of foreign trained engineers in British Columbia, many of whom found it difficult to gain employment in their trained profession. The CSE Program could be the bridge needed to start their careers in Canada.

The benefits of the CSE Program looked to be many, but the Committee had a long road ahead. There was nothing for them to reference as no similar program existed anywhere for structural engineers or for any other profession. They were literally starting from the ground up.

“I was just hoping to have a healthy, but modest program with about 60 students per term and a rotation of 16 courses”, were Schubak's thoughts as planning began.

As their target audience took shape, a business plan was written and the VSEGS provided them with seed funding and initial support. Ventura also brought UBC on board as they agreed that this type of program would serve the target audience differently than a MEng degree. The committee realized that in order for the Program to be sustainable, strong support from industry leaders and consulting firms was essential. To spread the word, the committee held a meeting attended by principals of most of the medium to large consulting firms in the Lower Mainland.

Once the plans for the CSE Program were laid out, Schubak recalls that, “The support flowed freely. Everyone agreed that it was a great idea and that their employees would benefit”, thus obtaining assurance that there would be a student body after all.

The committee also understood that the course content had to be a healthy mix of reinforcing the engineering principles learned in undergraduate studies, along with a practical approach to problem solving. Hence, the courses were designed to be taught by instructors from both academia and active practice. This defines the Program as the courses are both technically advanced and practical. The needs and interests of the students balance out the course offerings. This valuable student input continues to be a guiding principle when considering new course offerings.

While there was clear support for what they were attempting, the task of making it a reality was arduous.

“The biggest challenge was to identify a number of individuals in our community who would share our goals and desire to increase the quality of structural engineering in B.C.”, noted Ventura. With only an executive secretary and the instructors on payroll, an enormous amount of volunteer effort and dedication was required to bring this Program to fruition.

In January 2001, the CSE Program began offering courses. Over 100 students registered in that first term with a total of 272 in the first year, making the Program financially sustainable within its first year of operation. With 25 courses currently being offered and continued high enrolment, the committee's original plans have been greatly exceeded.

Instructors and Students

The Program is now managed by six very compatible members on the CSE Executive Committee; now joining Ventura, Pao and Schubak are Dr. Svetlana Brzev, PEng, Dr. Steven Kuan, PEng, and, until recently, Martin Bollo, PEng. It is administered by their executive secretary, Mrs. Fran Abbuhl, with help from the UBC Civil Engineering Department. Together they are responsible for everything from the finances to course content and sourcing instructors.

As accessibility is a high priority, classes are held twice a week, two per evening, at a downtown Vancouver location with most of the courses now being available via web cast for those outside the Lower Mainland. One of the biggest challenges of the committee has been to find suitable instructors whose experience is in line with the Program's requirements. The committee recognized that the busy schedules of practising engineers and professors would produce a natural reluctance to participate due to the time commitment preparation and teaching would necessitate. To help minimize instructors' required time commitment, the committee appoints a Course Coordinator for each course, allowing the instructing to be done by the coordinator and/or by multiple instructors. The coordinator can manage up to three or four instructors per course, allowing guest speakers to join the mix with ease. This technique reinforces the Program's commitment to providing both academic and practical education. In addition, principals of engineering firms are approached to recommend young senior or intermediate engineers as instructors. The exposure afforded by teaching has provided these engineers with a career boost and provides high quality professional development for them as well.

For structural engineering professionals, agreeing to teach has presented challenges other than just the time commitment. Andy Metten, PEng, StructEng (Partner, Bush, Bohlman & Partners), Course Coordinator and instructor of the E4 Structural Steel Design course, admits that, as an engineer, he was not accustomed to public speaking.

"During the first sessions I'd hold up a steel handbook and show which tables were being used, but suddenly realized this could be shown much clearer by using a Power Point slide".

Another challenge was providing students with course notes. Although the organizing committee provides a course syllabus, the instructor has the option of giving it added depth. Metten wanted to include topics not

typically taught in a steel course, but which he found to be useful in order for someone to be competent in steel design. The notes, originally 300 pages long, have grown to over 400 pages.

Taking a course can mean more than simply acquiring knowledge and skills. As registrants include recent graduates, PhDs, new immigrants, seasoned professionals (one with almost 40 years of design experience), and principals of firms, a wide range of knowledge and experience is represented within the student body. Interaction within the group has been very helpful for the students, with some finding their first jobs through contacts made while taking these courses. Karen Huang, (Structural Design Engineer, Bogdonov Pao,) who received her initial training at HuaQiao University and worked as an engineer for 15 years in China, enrolled in the CSE Program to learn how she could integrate into the engineering profession in Canada and to expand her ability to communicate in English professionally. While accomplishing her goals, she notes that the self-confidence she gained by taking these courses has been one of the most valuable assets gained.

Twelve courses are required to successfully complete the entire program, six of which must be core courses. While the passing mark is 68%, students are encouraged to achieve at least 75%. The program is challenging and has, to date, produced three graduates. Liliana Dapcevic (Structural Engineer, Klohn Crippen Berger) is one of the graduates, although she originally wanted to only refresh her knowledge after immigrating to Canada.

"I found most of the courses very interesting and practical. I didn't plan to finish the whole program - I just liked the offered courses." She was fortunate that her firm was very supportive and found herself dedicating most of her free time to working on assignments.

With the benefits of the CSE Program unfolding in so many different directions, the future lies in, "how can we make this better and who else can we help?"

British Columbia and Beyond

Over the years, the Program has received recognition from the Association of Professional Engineers and Geoscientists of BC (APEGBC). APEGBC has recommended the CSE courses to help some applicants meet the requirements needed to become a

P.Eng, or to fulfill professional development requirements.

A few years ago, spearheaded by Dr. Ventura's always in demand (C4) Earthquake Engineering and Seismicity course, the committee experimented with offering the course via the Internet. The lectures were broadcast in real time. The experiment revealed a strong interest from practicing engineers in many regions other than Metro Vancouver. As the number of courses offered via web cast has grown, students have enrolled from various regions of B.C., other provinces in Canada, Europe, Africa, and New Zealand.

The committee is now leading the way by continuing to develop Internet-based delivery of courses and has caught the attention of the Institution of Structural Engineers (IStructE). Based in the United Kingdom, it is the world's largest structural engineering association. To become a member, one must pass rigorous exams and continue to meet IStructE's standards of excellence. They have recognized the uniqueness of the CSE Program and have included CSE courses in their professional development offerings.

The committee's goal is to continue the development of web cast courses, to discover what is needed by the students, and to pursue high quality instructors.

Surviving Sustainable Innovation

In 2008, the VSEGS, the Division of Structural Engineers (APEGBC), and the Structural Engineering Consultants of B.C., amalgamated to form the Structural Engineers Association of B.C. The VSEGS became the Education Committee of the SEABC. The CSE Program is now offered under the auspices of this committee and provides the structural engineering industry in British Columbia with a way of securing its future by carefully cultivating its young professionals and continuing to bring the newest developments to its most experienced members. Like the profession itself, it is relying on technology to raise its awareness in how to further evolve and be of benefit to an ever-widening target audience.

After almost ten years, the CSE Program has built a solid foundation. With the potential of a worldwide audience, the opportunities are multiple for this uniquely Vancouver Program to grow as a valuable resource for technical information in the field of structural engineering.



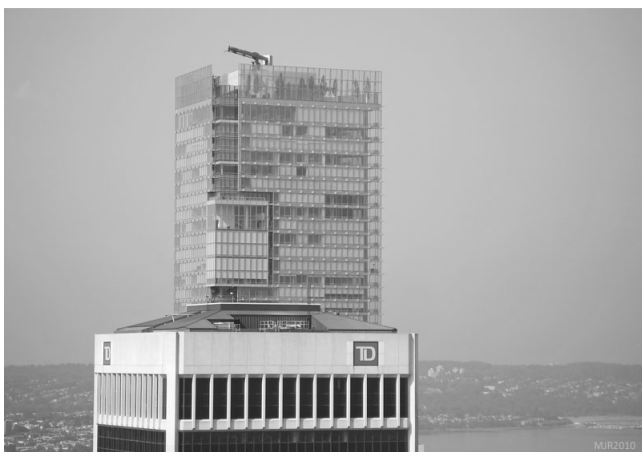
John Pao, P.Eng Chair, CSE Program Graduate, Dr Mehdi Elmi (right) with a certificate at the 2010 SEABC Annual General Meeting.

Photography

By Michael Roberts, P.Eng
Speciality Structural Engineering



Michael Roberts has provided the SEABC newsletter with some of his photography.



The New Shangri-La Building Rises Above Vancouver's Previous Towers.



Parr & Fee Architects 1912 Vancouver Block Commission at 736 Granville Street.



The West Side public plaza space of the new Vancouver Convention Centre.



Flyover of the new Vancouver Convention Centre.

On the Web

By Stephen Pienaar, P.Eng;
SEABC Webmaster



The SEABC website remains a valuable resource for upcoming courses and industry seminars. The Communications Committee's current focus is to encourage interaction and knowledge sharing between members — the SEABC Forum was recently launched for this very reason.

SEABC Forum

The SEABC Forum kicked off with great fanfare at the AGM in March. There was great enthusiasm among members initially, but this has dwindled a bit in the weeks since.

Members are encouraged to actively participate in the Forum (as time allows, of course). Forum participation has many benefits:

- Interesting technical topics are raised on a regular basis. You can share in your experience and learn from your colleagues, and help build a knowledgebase in the process.
- The Forum facilitates discussion on SEABC technical guidelines and other publications. Be in the know, and provide you insights.
- With your active participation, you will be expanding your professional network.

Note: You can view discussions on the SEABC Forum without needing to log in. You have to be logged in to the Forum, however, to post a message. To be able to log in, your SEABC membership must be in good standing.

ASCE Interactive Webinars

The Communications Committee is notifying members of ASCE webinars on a regular basis. Feedback from members suggests that the webinars maintain a high standard, but a common criticism has been the relative high registration fee on an individual basis. Fortunately, a site registration option is available, allowing a single registration fee with unlimited attendees at that site.

To help SEABC members to get together and share the expense, we are making the SEABC Forum available to post invitations. If you want to open your

boardroom doors for a webinar, have another venue in mind, or want to join a get-together organized by another member, please look no further than the SEABC Forum. For more information, see www.seabc.ca/asce-webinars.

Call for Assistant-Webmaster

The Communications Committee is looking for an member that can assist with online communications. Volunteer tasks will include weekly updates to the website and email broadcasts. Experience with HTML and/or programming is desirable, but not a requirement. For more information, please contact webmaster@seabc.ca.

Feedback

Please bookmark www.seabc.ca and visit regularly for upcoming events, seminars and courses. Please continue to send you feedback and suggestions to webmaster@seabc.ca.

Sincerely,
Stephen Pienaar, P.Eng.
SEABC Webmaster

Forum Digest

By Stephen Pienaar, P.Eng, SEABC Webmaster

In the two months since launch, the SEABC Forum has recorded several interesting discussions among members. Topics range from highly technical to issues of general nature.

Current Forum Topics

Recent topics in the **General Technical Discussion** forum include:

- Eric H. has questions regarding horizontal bracing distribution in a building with irregular layout of moment columns and shear walls. [Read more >](#)
- Thor T. inquires about the evaluation of an as-built anchor system using CSA-A23.3 Appendix D. [Read more >](#)
- Brian M. has an interesting design challenge with a high-rise shipping container project. [Read more >](#)
- Tejas G. is posing a number of questions on rock anchor elongation. [Read more >](#)

- Tarek A. has questions about the continuity of steel deck diaphragms in a pitched roof. [Read more >](#)
- Tejas G. inquires about handy rebar locators. [Read more >](#)
- Michael R. has questions about the design of a mezzanine addition to an existing "shell" structure. [Read more >](#)
- Adrian G. requests comments on the design of flexible diagrams. [Read more >](#)
- Paul M. raises the issue of registering as S.E. or P.Eng. in the USA. [Read more >](#)

Ongoing discussion in the **SEABC Technical Discussion** forum:

- James M. requests comments from members on a Draft Proposal for Fire Resistance of Seismic Bracing. [Read more >](#)

Forum Tips

If you want to submit a topic anonymously, (e.g. raise a sensitive issue, or ask a question that you feel may cause you embarrassment), you are welcome to do so by sending an email to techforum@seabc.ca. A Forum moderator will then post your message on your behalf.

For additional tips on improving your Forum experience, please see www.seabc.ca/forum-tips. Feel free to contribute your own tips.

Not using the SEABC Forum yet?

Your Forum membership is automatically included with your SEABC membership. Log in today at www.seabc.ca/forum — please participate and enjoy!

Ask Dr. Sylvie

To access Dr Sylvie's information, and to read the current or earlier issues of Advantage Steel, click on the following link:

www.cisc-icca.ca/content/publications/publications.aspx

Advertising

If you would like to advertise in our newsletter and our website, our pre-paid rates per edition are \$270, \$360 or \$450 for a quarter, half, or full page advertisement, respectively.

50-word "Available for Employment" ads are free.

Please address advertising enquiries to newsletter@seabc.ca

Mark Your Calendars

APEGBC Annual Conference at Structural Stream: October 22, 2010

Article by Andrew Seeton, SEABC Education Committee

The following presentations will be given at the Structural Stream technical session of the APEGBC Annual Conference in Whistler, BC, on October 22, 2010. The Structural Stream presentations are coordinated by SEABC. For more information please visit www.apeg.bc.ca/ac2010



Whistler/Blackcomb Peak-to-Peak Gondola

Warren Sparks, P.Eng.

Executive VP & GM, Doppelmayr CTEC Ltd.

The new Peak 2 Peak 28-Passenger Gondola at Whistler, BC surpasses several world records. This talk will present and explain the project and its many challenges and features.

- 3S Facts and Figures
- Installing the Ropes
- Terminal Designs
- Technical Highlights
- Rescue System
- Aircraft Warning System

Art Gallery of Ontario - Timber Connection & Erection Engineering

Robert Malczyk, MSc, P.Eng, StructEng, MStructE, MBA
Principal, Equilibrium Consulting Inc.

This 180 metre long, 14 metre high glass and glulam façade wall is the main feature in Architect Frank Gehry's rejuvenation of the Art Gallery of Ontario. Equilibrium Consulting was retained by Structurlam Products, the glulam supplier, to develop concepts and carry out the detailed design and engineering for the hundreds of complex and geometrically different connections. The contract required that all connections be essentially concealed from view. In addition to the considerable challenges in geometry, many connections were also required to carry large axial and bending forces along multiple axes in combination, while accommodating stringent construction tolerances and aesthetic requirements. Over 5,000 engineering hours were required to complete this work.

Lessons Learned From the 2010 Chile Earthquake

Sharlie Huffman, P.Eng

Bridge Seismic Engineer, BC Ministry of Transportation

Dr. Perry Adebar, P. Eng.

Professor of Structural Engineering, UBC Department of Civil Engineering

Chile and Canada have much in common – modern structural codes, high-rise buildings, busy coastal cities and ports, well developed emergency response plans and public expectations of engineering quality. The Canadian Reconnaissance Team drove thousands of kilometres observing what worked and what didn't for buildings and bridges in Chile following their 8.8 subduction earthquake on 27, February, 2010. Dr. Perry Adebar and Sharlie Huffman will present observations from this trip and some lessons learned that we can apply to our own codes and practices.

Design of Piles in Liquefiable Soils

Dr. Mustapha Zergoun, P.Eng.

Senior Geotechnical Engineer, Thurber Engineering Ltd.

Pile foundations are the most common form of deep foundations that are used both onshore and offshore to transfer structural loads into competent soil strata. The design of pile foundations in liquefiable soils will be discussed, with reference to observed case histories, failure mechanisms, design criteria & methods, and recent empirical and analytical research. This presentation will make reference to the book on Pile Foundations in Liquefiable Soils published in 2009 by Gopal Madabhushi (University of Cambridge, UK), Jonathan Knappett (University of Dundee, UK), and Stuart Haigh (University of Cambridge, UK).

Seminars

Live Interactive Web Seminar : Wind-Tunnel Modeling of Pressures for Cladding Design

This webinar will help you gain an understanding of storm events that are modeled in the wind tunnel, assessing cladding pressures via a physical model and how flying debris or missiles impact the façade in an extreme storm event. It should allow the structural engineers, architect and curtainwall designers to better specify what is required from a wind-tunnel study to generate peak design cladding pressures, what is physically doable, and when to venture from the code approach to obtain design pressures. **The seminar is co-sponsored by ASCE's [Structural Engineering Institute](#) and ASCE Continuing Education.**

Members: \$249 Non-members \$299

Date: Monday 21 June 2010

Time: 12.00-1.00 PM Eastern Time

Design of Building Foundations: Practical Basics

The webinar begins with a brief overview of the modern foundation systems and proceeds to the discussion of soil-related issues. Since the foundation is only as good as the soil underneath, anyone who attempts to design a foundation should first become familiar with the soil at the site. At least a rudimentary understanding of geotechnical engineering is required. With the soil basics explained, the discussion moves to the design of shallow foundations – wall and column footings and mats. After working through design examples involving simple foundations, the participants examine some situations where complex shallow foundations can be useful. These complex shallow foundations include combined, cantilever, and eccentric footings. Some relevant code provisions are also discussed. The next topic is deep foundations: deep piers (caissons), piles and minipiles. The instructor explains how each system works and shows some actual designs. **The seminar is co-sponsored by ASCE's [Structural Engineering Institute](#) and ASCE Continuing Education**

Members: \$299 Non-members \$349
Date: Wednesday 02 June 2010
Time: 11.30-1.00 AM Eastern Time

Site Registration Option: Use the [SEABC Forum](#) to arrange a get-together with other SEABC members and share the costs of a single site registration fee.

SEABC Seminar: Steel Castings in Buildings - Recent Developments and Applications

The seminar will provide an overview of the advantages of cast steel elements over standard fabrication as well as examples of the use of castings in building and bridge construction. SCBF bracing systems will be discussed in more detail, with a focus on the intricacies of conventional SCBF connection design on how these can be improved using seismic-resistant cast steel connectors.

Date: May 28, 2010
Time: 3:30 to 5:00 pm
Venue: BCIT Downtown Campus, Room #282, 555 Seymour Street, Vancouver
Presenter: Dr. Constantin Christopoulos, Ph.D., P.Eng.
Associate Professor and Director of Structural Testing Facility, Department of Civil Engineering, University of Toronto
Event Sponsor: **Cast ConneX**
Registration: [Online registration](#)

Soil Structure Interaction Seminar

A technical seminar about modeling soil-structure interaction in the analysis of buildings and bridges, and how the design of structures is affected by the incorporation of SSI effects. This seminar is sponsored by the UBC Department of Civil Engineering and the Canadian Society for Civil Engineering (CSCE).

Date: June 25 and 26, 2010
Venue: University of British Columbia, Vancouver, BC
This seminar will also be available via webcast
Seminar brochure: www.seabc.ca/ssi-seminar
Registration: Online registration is open or see details on the three pages following this newsletter.

Soil-Structure Interaction

A technical seminar about modeling soil-structure interaction in the analysis of buildings and bridges, and how the design of structures is affected by the incorporation of SSI effects.

**Friday and Saturday,
June 25 and 26, 2010**

**University of British Columbia
Woodward 2, IRC Building
2194 Health Sciences Mall
Vancouver, BC**

*Presented by:
Structural Engineers
Association of BC
(SEABC)*



*Sponsored by:
UBC Department of Civil Engineering
The Canadian Society for Civil Engineering,
Vancouver Section*



Synopsis:

This seminar offers a guided tour through the various ways of accounting for soil-structure interaction (SSI) from analysis of the total soil-structure system to analysis of various approximate models of the system. The focus is on buildings and bridges, with both shallow and deep foundations. The seminar will highlight the benefits of including SSI analysis, from the perspective of improved understanding of actual system behaviour as well as improved efficiencies in structural designs that can be achieved.

When analysis of the total soil-structure system is carried out, the effects of soil-structure interaction (SSI) are implicitly included in the analysis and reflected in the results. However this type of analysis, while feasible, is rarely practical in practice because the structural analysis programs used by structural engineers cannot handle the nonlinear soil continuum directly.

Modeling the effects of soil-structure interaction for practical design means developing reliable simple models that include the flexibility of the soil and foundation system; the dissipation of energy from the soil-structure system through radiation and hysteretic soil damping; and the modification of the ground motion transmitted to the structure by soil-structure interaction.

For some cases, the results of the analyses of approximate models are compared with "best model" solutions and recorded response data. The comparison provides insight on the more important features of soil-structure interaction and guidance on the selection of approximate models.

Program:

FRIDAY, JUNE 25, 2010

07:30-08:00	Registration
07:50-08:00	Welcome & Introduction (Carlos Ventura)
08:00-09:00	Overview of SSI (Liam Finn)
09:00-09:45	Visualization of SSI effects (Carlos Ventura)
09:45-10:30	SSI effects on seismic demand (Craig Comartin)
10:30-11:00	Coffee Break
11:00-11:45	SSI with rocking foundations (Don Anderson)
11:45-12:30	Stiff and flexible soil anchors (John Sherstobitoff)
12:30-01:30	Lunch
01:30-02:15	Retaining and basement walls (Ernie Naesgaard)
02:15-03:00	SSI of piled foundations for buildings (Blair Gohl)
03:00-03:30	Coffee Break
03:30-04:30	SSI of piled foundations for bridges (Anoosh Shamsabadi)
04:30-05:15	Lions Gate bridge case study (Bruce Hammersley)

SATURDAY, JUNE 26, 2010

08:30-9:30	Selection and processing of ground motions for SSI (Adrian Wightman & Carlos Ventura)
09:30-10:30	Dealing with liquefaction related problems (case studies) (John Sherstobitoff & Upul Atukorola)
10:30-11:00	Coffee Break
11:00-12:30	Round table discussion on discussion on interactions between geotechnical and structural engineers and on effective communication between them. (Moderator: Ron DeVall)

Speakers:

- Donald Anderson, Ph.D., P.Eng.
Professor Emeritus of Civil Engineering
University of British Columbia, Vancouver, BC
- Upul Atukorala, PhD, PEng.
Principal
Golder Associates Ltd., Burnaby, BC
- Craig Comartin, S.E.
President
CDComartin Inc., Stockton, California
- Ron DeVall, Ph.D., P.Eng.
Senior Consultant-Structural Engineering
Read Jones Christoffersen Ltd., Vancouver, BC
- Liam Finn, Ph.D., P.Eng.
Professor Emeritus of Civil Engineering
University of British Columbia, Vancouver, BC
- Blair Gohl, PhD., P.Eng.
Senior Associate
AMEC Earth and Environmental, Burnaby, BC
- Bruce Hammersley, P.Eng.
Principal
Klohn Crippen Berger Ltd., Vancouver, BC
- Ernest Naesgaard, P.Eng.
Principal
Naesgaard Geotechnical Ltd., Bowen Island, BC
- John Sherstobitoff, P.Eng.
Manager, Structural
Ausenco Sandwell, Vancouver, BC
- Anoosh Shamsabadi, Ph.D, P.E.
Senior Bridge Engineer
California Department of Transportation,
Sacramento, California
- Carlos Ventura, Ph.D., P.E., P.Eng.
Professor of Civil Engineering
University of British Columbia, Vancouver, BC
- Adrian Wightman, M.Sc., P.Eng.
Principal Consultant
BGC Engineering Inc., Vancouver, BC

Registration Fees:

Attendees may registration online at:

www.seabc.ca/ssi-seminar

or use the mail-in form attached.

Registration fees include lunch on June 25, coffee breaks both days, and handout materials.

The registration fees vary depending upon the registrant's membership status within SEABC or one of the other sponsoring or co-sponsoring organizations, as listed below. GST at 5% will be added to all fees.

SEABC Member	\$350
Member of Sponsor & Supporting Organizations: CSCE, CAEE, CSRN, CGS, VGS, IStructE, and WCSEA.....	\$375
Non-member	\$500
SEABC Student Members	\$110

Fees listed also apply to on-line attendance.

Discounts:

An "early bird" discount of \$25 is available for those registering on or before June 7, 2010.

A "group" discount of \$25 per attendee is available to firms or organizations registering 3 or more attendees.

These discounts are not available to students and those registering after June 7, 2010.

SEABC Membership:

Non-member registrants who wish to take advantage of the substantial discount offered to SEABC members may complete the membership application form and enclose it along with the a cheque for \$425+GST (includes \$350 seminar fee plus \$75 membership dues for 2010).

Students: please note that SEABC Student Membership is free for full-time students.

Handout Materials:

Each seminar participant will receive a handout containing the presentation slides. Certain presentations will include complementary notes.

Professional Development Credits:

Upon successful completion of the seminar, participants will receive a certificate showing a credit of 11 Professional Development Hours (PDH).

Finding your way to the seminar:

The seminar will be held in the Instructional Resource Centre (IRC), Woodward 2 theatre, 2194 Health Science Mall. The IRC is located east of Health Sciences Mall and north-west of the UBC Hospital.

Convenient parking is available at the Health Sciences Parkade (2250 Health Sciences Mall). Additional Parking is available at the Thunderbird Parkade (6085 Thunderbird Blvd). From either parkade, walk north on Health Sciences Mall and turn right at Woodward Biomedical Library. The IRC Building adjoins the Woodward Library.

Additional details and maps are available at:

www.maps.ubc.ca

Additional Information:

Additional information about this event is available on the SEABC website:

www.seabc.ca/ssi-seminar

For further questions please email:
seminars@seabc.ca

or contact Carlos Ventura:

phone: 604-822-6946

e-mail: ventura@civil.ubc.ca



Structural Engineers Association of BC
Mail-in Registration Form:
Soil-Structure Interaction Seminar
June 25-26, 2010

You can also register online!
www.seabc.ca/ssi-seminar
(secure credit card payment via PayPal)

Contact Information:

Name of Firm,
Organization or Individual _____
(Receipt will be issued in this name to email provided below)

Mailing Address _____
Street Address City, Province Postal Code

Other Information _____
Telephone Fax E-mail (receipt will be issued to this email)

Registration Fees:

Name(s) of Attendees(s)	Check if Attendance by Webcast*	SEABC Membership No. (Required for SEABC discount)	SEABC Member \$350	Newly enrolling SEABC Member - \$425**	CSCE Member \$375	CAEE Member \$375	CSRN Member \$375	CGS Member \$375	VGS Member \$375	IStructE Member \$375	WCSEA Member \$375	SEABC Student Member \$110	No membership \$500	Fees
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Check one box per attendee

Number of Attendees: _____ SUBTOTAL: \$ _____

Group Discount: (this discount is not available to students or after June 7, 2010) deduct
Firms/Organizations registering 3 or more attendees
deduct \$25 per attendee No. of attendees _____ x \$25 = \$ _____

Early Bird Discount: (this discount is not available to students or after June 7, 2010) deduct
PAID registration postmarked on or before June 7, 2010
deduct \$25 per attendee No. of attendees _____ x \$25 = \$ _____

SUBTOTAL FEES \$ _____

ADD 5% GST \$ _____

TOTAL (PAYMENT ENCLOSED) \$
Cheque payable to SEABC

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Registration will be confirmed via e-mail. Registration closes June 22, 2010 and cannot be guaranteed if received after June 22.
An administration fee of \$75 will apply to all cancellations received before June 22, 2010. No refunds given after June 22, 2010.

* Instructions on how to access the webcast will be sent by e-mail prior to the seminar.

** Fees of \$425+GST for newly enrolling SEABC Members include 2010 SEABC Membership Dues of \$75+GST. Please include a completed Membership Application form (attached) if you are selecting this option.