



Newsletter

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In This Issue

- 2 Message from the President – Succession Planning
- 8 Seismic Safety of Older High-Rise Buildings in Vancouver
- 10 Base Isolation Using Elastomeric Bearings
- 16 2014 Executive Board – Candidates for Election

Association News

- 2 Committee Reports
- 4 IStructE News
- 12 Recent Seminars and Events
- 18 Mark Your Calendar

Final Words

- 19 Editorial Information • SEABC Board of Directors • Advertising



Message from the President



Cameron Kemp, P.Eng.
SEABC President

Succession Planning

Time has an insidious habit of creeping up on you. If you don't pay attention to it significant amounts of it can pass without you even realizing it.

It doesn't seem all that long ago that I graduated from university, got married, started a career, started a family and just got on with life however the face looking back at me each morning, somehow, looks a little grayer and a little older than I remember him.

How did that happen?

As I look around the SEABC boardroom table each month it does seem that we are more heavily weighted to older Board members. We certainly have people at the intermediate level and even some recent graduates on our Board and Committees, but we are definitely "skewed to the right".

Succession planning is vital in any organization. While our current distribution is not a problem at this moment, it will be in the future if we don't start taking tangible steps towards succession planning by adding more young people to leadership positions within our Association. Succession planning is one of those "important but

not urgent" tasks that, more often than not, can get left until it's too late and then becomes a crisis.

The reasons I often hear from younger people when I ask them about volunteering for an organization like ours typically relates to the second paragraph in this message; busy career, young family, multiple demands on time, sandwich generation commitments, etc. I fully understand and, in fact, have lived all of these excuses. However, I still believe that it is important to give back to the profession that we all earn our livelihood from. Our profession is only as good as the training we received and the ongoing professional development we engage in throughout our careers.

SEABC fulfills, in part, that second component. Our volunteers are the lifeblood of our Association. We have a vibrant and strong association and we want to keep it that way.

As part of the AGM reporting package that was recently sent out, you will see a call for interested parties to consider joining one of our Committees or our Board. Within the SEABC you can get involved in one or more of three streams; technical, business and overall management/governance. There is a stream for any interest. None of the positions are particularly onerous from either an effort or time commitment. Based on my own experience I can attest to the fact that getting involved is both rewarding and satisfying.

Please seriously consider this request and get involved with your Association.

Committee Reports

Technical Committee



Renato Camporese, P.Eng.,
Struct.Eng.

Director SEABC

The Task group investigating the Seismic Design of Basement Walls is currently the only active task group. The task group have reviewed a paper based on the non-linear analysis performed by graduate students at UBC under the direction of Dr. Mahdi Taibat. The task group have provided comments and the paper has been submitted for peer review prior to publication. They are waiting for the paper to be finalized and published.

In November 2008, the Technical Committee prepared a proposal for Fire Rating requirements for Seismic Bracing. This proposal is available on the SEABC website and has been forwarded to the Building Code Committee of APEGBC. Once the committee completes its review of this proposal it is hoped that it would be published by APEGBC as a practice guideline.

Communications Committee



David Harvey, P.Eng., Struct.Eng.
Director SEABC

Take a good look at the newsletter – we are indeed fortunate that we continue to receive articles or photographs for publication describing the activities or interests of our members. We regularly include our President's message, reports from our committees, branches and groups, our IStructE News feature, and an article by our webmaster. We include news items we receive and event reports. You will also notice project descriptions, as well as up-to-the-minute technical articles and cutting-edge research reports. Informing readers about our engineering designs or research helps raise our profession's SEABC Newsletter • Volume 25 • February 2014

profile, so keep sending your submissions - we look forward to hearing from you. Kindly forward articles to: newsletter@seabc.ca – we'll include as many submissions as we can!

2014 Membership

Your SEABC membership expired on December 31, 2013. If you have not yet renewed for 2014, to retain your membership privileges you must do so at your earliest convenience. Your options are to renew online at:

www.seabc.ca/members/login.php

Or complete the application form at:

www.seabc.ca/documents/forms/Membership_Application.pdf

Corporations can submit a bulk application for all their staff members by mail. The membership fee for 2014 is unchanged at \$75, plus \$3.75 GST. There is no charge for student membership, but students must renew each year. Please remember to keep your contact information up to date in order to receive your SEABC communications.

Young Members Group



Nick de Ridder, EIT
Young Members Group
Committee Member

The SEABC Young Members Group is pleased to announce Kate Thibert, EIT, as the new chairperson. Kate has been an active contributor and organizational committee member of the YMG since its inception and has been working in industry for six years. She currently works at Ausenco where she mainly focuses on the seismic design of institutional buildings.

Kate received her undergraduate degree from the University of Western Ontario in 2003 and her Masters Degree from UBC in 2008 where she specialized in seismic design.

Ilana Danzig, P.Eng, has chaired the committee for the previous three years and will remain with the group as an organisational member.



Kate Thibert

Vancouver Island Branch



Martin Turek, Ph.D., P.Eng.
Branch Chair

The Vancouver Island branch kicked off 2014 with a lunch seminar at the Victoria City Hall. Later in the year, we will follow up this presentation with a site tour of the Johnson St. Bridge replacement project, with the date to be determined at a time appropriate to the construction progress. We are hoping it will be in the summer.

We are in the planning stages of an Island Branch dinner event, which is tentatively targeting May of this year. This event is to be complimentary to the AGM, and more details will come soon.

We are excited about 2014 and look forward to interacting with the island members. We are always looking for new members so if you want to get involved, or even if you have any comments or suggestions for future VI Branch activities, please

contact island@seabc.ca. We look forward to hearing from you.

On the Web



Stephen Pienaar, P.Eng.
Webmaster

Trending topics on the SEABC website:

- Registration is open for the Annual General Meeting, Presentation and Dinner. This year's keynote speaker is Glenn Bell, CEO of Simpson, Gumpertz & Heger, Boston MA: **Developing the Next Generation of Structural Engineers**
Date: March 5
www.seabc.ca/agm
- February evening seminar: **Professional Practice Lessons from the Christchurch Earthquake**
Date: February 24
www.seabc.ca/christchurch
- Seminar recordings:
A video recording of the January evening seminar, **Base Isolation**, is now available to members. View this and other seminar recordings:
www.seabc.ca/seminar-recordings
- Be in the know:
Join our **Twitter feed**: announcements for SEABC events and other interesting structural engineering snippets.
www.twitter.com/seabc

Suggestions

We welcome your comments for improving the SEABC's website and other online services. Please send your suggestions to webmaster@seabc.ca.

IStructE News



Bill Alcock, P.Eng. Struct.Eng.
MStructE.

Director SEABC



Victoria Janssens, SEABC Young
Members Delegate

As your SEABC representatives on IStructE Council, Victoria Janssens and I again attended meetings in London on January 17, 2014, including the International Interest Group, Young Members Group, Council and the 2014 President's Inaugural Address.

Here are some highlights of our meetings and the Inaugural Address.

International Interest Group

Presentations on Professional Registration requirements in the China and Hong Kong were made by Zoe Zhou and Eddie Lam respectively. Information on these presentations will be added to the IStructE website.

Following the November meeting discussions about the Associate grade of membership in the Institution (AIStructE designation), the Institution has prepared a document clarifying its purpose and the required qualifications. Darren Byrne advised that the document is nearly ready for publication.

Council Meeting

Past President's Report

As the outgoing President, YK Cheng gave his a summary of his year in office. For YK, the highlights included:

- The significant strides in engineering presented at the Disaster Mitigation

Conference held in Beijing and Shanghai in October and November, 2013.

- The Institution's progress on a research journal to attract new young IStructE members.
- The purchase and renovation plans for the Bastwicke Street office.



Immediate Past President YK Cheng passes the baton to Nick Russell, the Institution's incoming president for 2014

Report by CEO Martin Powell

CEO Martin Powell began his address by stating the five key roles of the Institution:

- Raise the profile of structural engineering
- Maintain high standards of practice
- Improve support for IStructE members
- Increase the membership of IStructE
- Secure the future for structural engineers

In support of the above roles, the Institution is working on new publications, soon to be issued as part of the Confidential Reporting on Structural Safety (CROSS) newsletter, available at:
www.structural-safety.org/

Martin reported that the Bastwicke Street building renovation is scheduled to begin on February 17, 2014.

IStructE and the Washington Accord

Deborah Seddon, Head of Policy and Standards at the Engineering Council, UK, spoke about the Washington Accord and the educational equivalency implications for Chartered Engineer status for IStructE members. Some members feel that the equivalency requirements in the UK are

unfair compared to those for other western countries.

A similar European accord known as the Bologna Framework has now been signed by 47 countries. There was some discussion about potentially abandoning the Washington Accord in favour of the Bologna Framework. After much debate led by Senior Vice President Tim Ibell, a “straw vote” indicated that most of Council were prepared to stay with the status quo.

Mandatory CPD

An Extraordinary General Meeting of Council was held on the afternoon of January 17, 2014 to amend Bye-Law 8 as follows:

8. Subject to Regulations, a member may be removed from membership without refund of subscription on failing to repay a debt to the Institution, on being in arrears of subscription, on resignation, (for the relevant grades of membership) ***for failing to comply with the Continuing Professional Development requirements of the Institution***, or for misconduct.

President's Address

An Institution for Everyone?

Following the first day of Council meetings for 2014, council members had the pleasure of attending the inaugural presidential address of Nick Russell. Each year the presidential address draws a large audience, including a number of prominent local structural engineers, and this year was no exception.

Nick began his address by recounting his somewhat unusual route into structural engineering. Educated outside of London, Nick was not afraid to admit that sport took priority over academia in his teenage years. Towards the latter end of his schooling, a careers advisor recommended that he pursue a career in civil engineering. Subsequently, Nick started looking into civil engineering and was enthused by what he found out. After completing his A-levels (High

School Diploma), Nick went on to study civil engineering at Thames Polytechnic (now the University of Greenwich). In 1979, he graduated with first-class honours: a notably better academic outcome than he had achieved at school. Nick used this example to emphasize that as an Institution, and as a profession, we need to ensure we tap into the hidden potential of individuals and we don't create barriers to entry into the profession.

Following graduation, Nick started to work with R Travers Morgan and Partners (now part of Capita Property and Infrastructure Ltd.). After six years with Travers Morgan he decided to move on and joined a much smaller consultancy, R H Thomason and Partners (now Thomasons), for which he is now Director of their Guildford office. Nick's work in consultancy has been complemented by various examples of charitable work and, in recent years, Nick has also become increasingly involved in expert witness work.

The final portion of Nick's address looked at the Institution's objectives for the coming year. In view of the relatively short presidency term of the Institution, Nick has worked together with immediate Past President YK Cheng and Senior Vice President Tim Ibell to develop a “thread” of interests which will be the focus of Nick's presidency, as well as that of successive presidents. Specifically, Nick identified the following three elements which will be the focus of his presidency:

1. Continuing the Institution's international outreach efforts (carrying on from the efforts of Immediate Past President YK Cheng).
2. Offering additional support to the Institution's members, with an emphasis on those in small practices.
3. Strengthening the Institution's relationship with academia, facilitating the development of students to meet future requirements.

In closing, Nick's re-emphasized the importance of the Institution's accessibility to individuals from all backgrounds. He acknowledged the strides made in recent years by the Institution with respect to reaching out internationally, setting a highly-regarded standard for professional qualification and providing support for its members. However, Nick pointed out that there is always more which can be done to improve the service provided by the Institution. Specifically, Nick stressed the

necessity of being more outward-facing and telling the world what we do as structural engineers.

A full version of Nick's address can be found in the February edition of 'The Structural Engineer' (available online at www.istructe.org).



IStructE President Nick Russell

Vancouver Visit of IStructE President and CEO

Planning is under way for IStructE President Nick Russell, and Chief Executive Martin Powell to visit Vancouver from Friday September 12 through Tuesday September 16, 2014.

Nominate a Colleague

By David Harvey

P.Eng, Struct.Eng

BC's structural engineers were delighted when SEABC Director Paul Fast was awarded the 2013 R.A. McLachlan Memorial Award – BC's top award for professional engineers. Paul has certainly been responsible for his share of noteworthy structures; however, as Paul will be the first to acknowledge, many other structural engineers do excellent work and volunteer much of their time for worthy causes.

Do you have a deserving colleague that has contributed strongly to the profession and/or the community? Is that person serving as a role model and inspiring others? If so, consider nominating him/her for the 2014 President's Awards, recently announced by APEGBC – B.C.'s premier awards for professional engineers. To nominate an individual, you will need to prepare a letter of nomination, or support for a nomination, outlining that person's outstanding achievements.

The President's Awards include Meritorious Achievement; Community Service; Professional Service; the Young Professional Award; and the R.A. McLachlan Memorial Award. Nominations must be received by Friday April 12th 2013. Full details of the awards and the submission requirements are available at:

www.apeg.bc.ca/services/awards

For further information or assistance on any aspect of the APEGBC President's Awards, contact Laurel Buss at: lbuss@apeg.bc.ca

UBC Research in Progress

Seismic Safety of Older High-Rise Buildings in Vancouver



Perry Adebar, Ph.D, P.Eng.
Director SEABC

Jeff Yathon
Dept. Civil Engineering UBC



Ken Elwood, Ph.D, P.Eng.
Dept. Civil Engineering UBC

A recent news story in the *Los Angeles Times*: www.latimes.com, which caught the attention of some local structural engineers, told about researchers at the University of California releasing data on nearly 1500 older concrete buildings across Los Angeles as “a key step in the city’s efforts to improve earthquake safety.” The article indicates researchers estimate that about 75 of the 1500 buildings (5%) would “collapse during a huge quake.”

The California researchers have very limited information on the 1500 LA buildings and it appears that the main criterion for making the list was pre-1976 reinforced concrete construction. Without access to the structural drawings, the list necessarily includes everything from old buildings that may meet modern building code requirements, old buildings that have been retrofitted, and very vulnerable buildings. The next step for the LA buildings is to have individual preliminary assessments done for each building, which the *LA Times* reports could cost “from \$4,000 to \$20,000, depending on the size of the building.”

Like the City of Los Angeles, the City of Vancouver has a significant stock of buildings that were built before the advent of modern seismic design requirements. A current collaborative research project between the University of British Columbia and the City of Vancouver involves examining the

seismic vulnerability of reinforced concrete buildings with seven or more stories, constructed prior to 1980.

Figure 1 shows some of the high-rise buildings that existed in Vancouver in 1964, while Figure 2 shows the West End of Vancouver in 1970. The good news is that most of these buildings are shear wall buildings, which have some definite advantages over the typical pre-1976 concrete frame buildings in the US.

The bad news is that many of the pre-1980’s high-rise buildings have characteristics that we now know makes them more vulnerable to collapse. Some examples include: very thin shear walls with one layer of reinforcement and no boundary reinforcement at the ends of the wall; large discontinuities in the shear walls such as openings or overhangs (wall above overhanging wall below), which are known to cause a concentration of inelastic demands, and; gravity-load resisting frames that do not have structural integrity reinforcement in the flat plate slabs supported on columns to prevent complete collapse if a punching shear failure should occur.

In order to quantify the risk posed by these buildings, the characteristics that make these buildings vulnerable must be identified and the frequency of occurrence measured. In a recently completed first phase of this project (Yathon, Elwood and Adebar 2014), detailed information was collected from the structural drawings of 343 buildings to define typical characteristics such as year of construction, number of stories, location, which is directly related to the local site conditions, occupancy, information on the seismic-force-resisting system, and information about the gravity-load-resisting system. Characterizing this important subset of buildings is an important step in quantifying the seismic risk to the entire region.

As many of the buildings have very similar characteristics, the research project will involve nonlinear analysis of archetypical pre-1980 Vancouver high-rise buildings with the common undesirable characteristics. When structural engineers combine the information from this study about the nonlinear behaviour of these typical buildings with simple strength and stiffness assessments of the individual buildings, and an assessment of local soil conditions, they will be one big step closer to identifying the 5% of pre-1980 Vancouver high-rise buildings that may “collapse during a huge earthquake.”



Figure 1. Vancouver high-rise buildings circa 1964: West End near Stanley Park in foreground, Downtown in background (from www.windsorstar.com).



Figure 2 – Aerial photograph of Vancouver West End circa 1970 (from www.windsorstar.com)

Further reading: Yathon JS, Elwood KJ, & Adebar P. Seismic characteristics of pre-1980 tall reinforced concrete buildings in Vancouver. *Proceedings of the 10th National Conference in Earthquake Engineering*, Earthquake Engineering Research Institute, Anchorage, AK, 2014.

Base Isolation Using Elastomeric Bearings

By David Harvey,
P.Eng, StructEng.

In areas of high seismicity, a valid approach to seismic design is base isolation. The advantage of isolating structures from their foundations is to change the fundamental period of the structure from short period to a less damaging longer period where the earthquake energy is much lower. While seismic isolation works well on firm-ground sites, it is traditionally less effective on soft-soil sites where the longer-period ground motions are amplified by the seismic response of the soft soil. A major advantage of base isolation is that seismic damage can be minimized and well-designed isolated structures are potentially available for immediate post-seismic occupation or use.

Base isolation is most commonly used as a retrofit technique to improve the seismic performance of an existing and possibly vulnerable structure. Good examples include the parliament buildings in Wellington, New Zealand, and the Granville Bridge truss spans in Vancouver. Bridges are generally easier to isolate than buildings because they are commonly discretely supported at accessible locations and can readily tolerate the relative displacements. However, buildings need to be separated from the surrounding ground, and special arrangements must be made at access points and with utility connections to accommodate the relative displacements.

Various types of base isolators can be used, including laminated rubber bearings, lead core rubber bearings, friction pendulum bearings, and seismic isolation disk bearings. The systems have different characteristics, cost implications, and requirements for use, which need to be carefully considered when selecting the appropriate system. Lead cores are added to elastomeric bearings to increase the damping ratio from about 5%, to 15% or more. This is achieved by shear strains in the lead cores during cyclic displacements, which dissipate energy and reduce the energy applied to the structure. Damping can therefore enhance seismic performance, which is an important attribute when seismically retrofitting existing structures.

Isolation is therefore often used in bridge retrofitting. Both complete superstructure isolation, such as on the Granville Bridge steel spans, and partial isolation, currently planned for the Alexandra Bridge, can be used to good effect. New construction is well suited to partial or complete isolation; however, all bearings for fully isolated structures need to be proof-tested to ensure that a reliable seismic load path exists.

Ideally, non-isolated components of isolated bridges, such as substructure elements, remain elastic during earthquakes, but this is not always realistic in longer return-period earthquakes where minor plastic deformation may be acceptable. Key is that any inelastic behaviour is recognized, modelled, and the affected components are detailed accordingly to eliminate post-seismic damage.

Superstructure isolation in new construction can be inexpensive and achieve multiple benefits. A good example is the Fraser Heights Bridge in Surrey, which is supported by 232 laminated elastomeric isolation bearings. In this application the superstructure is lightweight, which limits the bearing size to 520 mm square. There was no performance advantage to be gained by adding lead cores, which would have significantly increased the cost of the bearings.



Fraser Heights Bridge – elastomeric isolation bearing.

Although isolation of the superstructure reduces inelastic seismic deformation of the substructure, the main benefit is that thermal cycles are mostly accommodated by shear strains in the elastomer. By completely supporting the superstructure on elastomeric bearings, longer superstructure lengths of up to 250 m could be used on the stiff low-height support bents, minimizing the need for expansion joints. The use of isolators reduced the flexural demand on the 112 supporting steel pipe

piles, which helped to limit the required diameter. The result was 762 mm diameter piles instead of the anticipated 914 mm, which reduced the environmental footprint and the bridge construction cost.



Fraser Heights Bridge – bearing shear / compression test.

Each laminated elastomeric bearing supporting the Fraser Heights Bridge was vulcanized to upper and lower steel plates. The bearing assemblies were bolted to base and sole plates, which were later field-welded to the adjacent steel pile caps and steel plate girders. Other benefits of the isolation bearings included simplified fabrication (only two types of isolator were required), ease of construction (no lack of fit with the welded connections) and minimized maintenance (there are no moving parts). A performance advantage of laminated elastomeric bearings is that they are seismically and thermally self-centering.



Fraser Heights Bridge – twin isolation bearings

The Tynehead Pedestrian Bridge in Surrey also is supported by laminated elastomeric isolation bearings. For this bridge the laminated bearings are connected to the superstructure and substructure by pintles, which engage with steel plates embedded in the elastomer. The pintled connections preclude sliding under light vertical loads. The superstructure is extremely light and seismic forces are manageable, but isolation shares the seismic effects of the three simple arch spans among all substructure elements and enhances seismic performance.

A key advantage of the increase in fundamental period of vibration resulting from the using isolation bearings is the reduction in the effects of vibration. Lightweight pedestrian structures have little damping and vibration induced by pedestrian footfalls can be experienced by other pedestrians. Increasing the fundamental period of vibration and enhancing system damping improves user comfort by reducing induced vibration to acceptable levels.



Tynehead Pedestrian Bridge – supported by twelve elastomeric isolation bearings

The superstructure of the Nelson Flyover, which crosses Highway 91 in Richmond is supported by four elastomeric bearings at the abutments and six fixed pot-bearings at the intermediate piers. The bearings stiffnesses were included as translational restraint at the abutments, and rigid connections were modelled at the piers. As a result, the seismic effects were spread between the 18 support piles instead of the 12 pier piles, which reduced demands on the piles, increased support redundancy, and significantly enhanced torsional control of seismic behaviour. The laminated bearing size was adjusted to “tune” the abutment and pier support stiffnesses. Sliding risk was eliminated by detailing pintled bearing connections. Overall costs were reduced by the more efficient seismic response while seismic robustness is improved.



Elastomeric bearings at the Nelson Flyover abutments are 800 mm square and are key seismic load path components

Recent Seminars and Events

Johnson Street Bridge Replacement Project Lunch Seminar



Martin Turek,
Ph.D. P.Eng. Branch Chair

Vancouver Island Branch Event Report

The Vancouver Island Branch recently hosted a lunch seminar at Victoria City Hall on the Johnson Street Bridge Replacement Project. The Johnson Street Bridge (the 'Blue Bridge') is a critical transportation link between downtown Victoria and the western communities, and a well-known iconic lift bridge for the region. The new structure will become the largest single-leaf Bascule bridge in North America.



The Johnson Street Bridge

Joost Meyboom, Dr.Sc.Tech, P.Eng, from MMM Group presented an excellent overview of the entire project with a focus on structural challenges. Joost is the longest serving member of the project team, and has been through most stages of the process from the initial design concepts to the currently ongoing construction phase. He was introduced by Dwayne Kalychuk, Director of Engineering of the City of Victoria.

The presentation was well received by the audience, with a lively question and answer period afterwards. The audience of nearly 50 was made up of more than fifty percent of non-members from the local engineering community. Afterwards, several attendees expressed interest in helping out with our Island activities.

We at the island branch appreciate the participation of our speaker, the City of Victoria staff including Bridget Frewer, and our members and non-members who came and made this event a great success.



Joost Meyboom addresses a captivated audience

Engineering for the Cold Regions



Tejas Goshalia, P.Eng., S.E.
Director SEABC

Two-Day SEABC Short Course

On November 29 and 30 of 2013, SEABC organized a two day short course on Engineering in the Cold Regions. SEABC invited Professor John Zarling and Professor William Nelson, both from the University of Alaska, to present this course together with Adrian Gygax, P.Eng., Struct.Eng., SEABC Director and founding Principal of GEA - a local Vancouver based structural consulting firm.

The course presented comprehensive geotechnical and structural aspects of engineering along with invaluable everyday considerations uniquely vital for successful completion of projects in the permafrost regions of North America. In summary, the course comprised of following topics:

- Introduction, definitions, geography, climate data, whiplash curves, etc. describing the characteristics of the cold regions
- Understanding the science of snow and ice
- Physical and thermal behaviour of frozen ground
- Theory and practical consequences of ice formation and decay
- Thermal aspects of geotechnical engineering – determining & significance of active layer depth
- Parameters for foundation design, construction techniques, common devices and materials for permafrost sites
- Building design considerations - insulation, windows, walls, roofs, floors, and doors
- Cold regions construction materials – their composition, behaviour, etc.
- Building envelope, air infiltration and water vapour concerns
- Practical lessons learnt

The instructors commenced by first clarifying the various terms and relationships that define characteristics of ice formation, its behaviour and influence on structures. The concept of cold degree days and whiplash-trumpet curves helped

put in perspective the fundamental reasons and techniques necessary for choosing to maintain or preventing permafrost effects. Common geotechnical foundation designs employing raft slabs, piles and other more sophisticated techniques such as thermosyphon were described in detail. Practical examples were presented to determine length of snow drift, height and distance of snow fence that are seldom essential pre-construction design requirements. Formulations were presented to determine the minimum thickness, temperature and other parameters necessary for computing deflections and stresses of ice roads.



Professor John Zarling summarizes the influence of material composition on structural steel and related lessons learnt for model performance in permafrost regions.

In-depth scenarios were presented with numerous examples of structural damage and failures resulting from inexperience and/or deficient designs. Case studies included: unsightly building settlements caused by the thawing of its permafrost in warmer conditions, the tilting of lamp-posts and fences due to heaving forces, polygonal grounds created by intersected ice wedges, thermokrast cavities, thaw weakening of pavement structure etc. Comprehensive discussions also included the importance of mitigating thermal bridging and building envelope integrity. Practical considerations for material selection, construction technics and testing methods reminded engineers of the attention to specifications necessary for cold regions.

The seminar could not have been complete without the practical structural engineering considerations shared by Adrian Gygax. From challenges posed by project scheduling and

material transportation, to being prepared for unconventional construction skills, means and methods, Adrian presented many project photographs to prepare structural engineers for the unique challenges inherent to the Great White North.

The course was attended by over 50 attendees with approximately 30 present in-class and the remaining joining via live-webcasting from places as far as Victoria, Kelowna, Yellowknife, Calgary, and Edmonton. The success and appreciation received for this seminar has affirmed our membership's need and interest in the topic.



Adrian Gygas summarizing what can go wrong with buildings and structures in permafrost regions and how structural engineers can successfully resolve the issues.

SEABC Plaque at UBC Structural Engineering Teaching Laboratory



A plaque was recently unveiled to honour SEABC and recognize its commitment to the UBC Structural Engineering Teaching Laboratory. At the Grand Opening Ceremony, held in April 2013, UNC staff and students demonstrated the new Reconfigurable Testing Frame and the new Small Scale Shaking Table Facility.

Photo courtesy of Tony Yang

Tour of CIRS Building



Paul Smolarz



Matthew Wong

Young Members Group Tour

On January 21, 2014, a group of civil engineering students were taken on a tour around the CIRS (Centre for Interactive Research and Sustainability) building, located on West Mall of UBC-Vancouver campus. The tour was held by the CSCE student chapter with collaboration from the SEABC YMG.



The award winning CIRS building is a benchmark for sustainable design in Canada and is widely regarded as one of the most sustainable buildings in North America.

Presentations by Brian Gasmene (Intern Architect) of Perkins + Will and Nick de Ridder, EIT, of Fast + Epp were given about the inner workings of some of the components that make the CIRS building a

frontier for sustainable building design. The students were guided through the CIRS building by Nick de Ridder, who pointed out the exposed solid-wood roof structure in the atrium, the elegant use of glulam-moment frames in the office bars, and the large glulam-stringers used for the stairs in the main atrium. These are just a few of the features that make this LEED Platinum building functional, yet highly aesthetically pleasing.

As the entire building structure is exposed, the CIRS building is able to cater to interested parties who can view and admire the unique structure. Thank you to Brian Gasmene and Nick de Ridder for their insightful presentations and tour, and all those students who could attend.



Brian Gasmene (left) and Nick de Ridder (right) explaining the design of the stair system located in the main atrium of the CIRS building.



Nick de Ridder explaining some of the design choices to the group of civil engineering students at UBC.

2014 Executive Board – Candidates for Election

Perry Adebar, Ph.D., P.Eng.



Professor in the Department of Civil Engineering at the University of British Columbia, Perry has served as a Director of SEABC for one year. If elected, he will continue to serve in that capacity.

Bill Alcock, P.Eng. Struct.Eng.



Bill is Vice President, Engineering and Quality Management for Sacré-Davey Engineering, and a former director and chair of the Division of Structural Engineers. Bill has served as a Director of SEABC for three years and if elected, will continue to serve in that capacity.

Renato Camporese, P.Eng., Struct.Eng.



A Principal with Read Jones Christoffersen Ltd., Renato was a founding Director of the SEABC and currently chairs its Technical Committee. If elected, he will continue to serve as a Director.

David Davey, P.Eng., SE (Past President)



Formerly with the company he founded, Sacre-Davey Engineering, David was the founding President of SEABC, and served in that position for two years. He is the current Past President and if elected, will continue to serve in that capacity.

Paul Fast, P.Eng., Struct.Eng.



Managing Partner with the firm he founded, Fast + Epp Structural Engineers, Paul has served as a Director of SEABC for four years and if elected, will continue to serve in that capacity.

Tejas Goshalia, P.Eng.



A Senior Associate with Stantec, Tejas has served as a Director of SEABC for one year and currently chairs its Education Committee. If elected, he will continue to serve as a Director.

Adrian Gygax, P.Eng, Struct.Eng.



Principal with his own firm, Gygax Engineering Associates Ltd., Adrian has served as a Director of SEABC for four years and if elected, will continue to serve in that capacity.

David Harvey, P.Eng., Struct.Eng.



A Principal with Associated Engineering, David was a founding Director of SEABC and currently chairs its Communications Committee. If elected, he will continue to serve as a Director.

Cameron Kemp, P.Eng., LEED® AP (Serving President)



A Principal and Chairman of Omicron Canada Inc. Cameron was a founding Director of the SEABC. Currently serving as President, Cameron has served in that position for three years and if elected, will continue to serve in that capacity.

Surinder Parmar, P.Eng., PMP



Manager - Portfolio Capital Projects with BC Hydro, Surinder was a founding Director of SEABC and has served as Secretary/Treasurer since its inception. If elected, he will continue to serve as a Director.

Andrew Seeton, P.Eng.



A senior structural engineer with Glotman Simpson Consulting Engineers, Andrew was a founding Director of the SEABC and former chair of its Education Committee. If elected, he will continue to serve as a Director.

Kate Thibert, EIT



A structural engineer with Ausenco Sandwell, Kate is the incoming chair of SEABC's Young Members Group. If elected, Kate will serve as a Director.

Human Resources Support Business Success in Engineering Companies



Wilma Marais, M.A., CHRP

One of the biggest drivers of business success in engineering companies is reputation. Reputation is built on the ability of the company to maintain a high level of client satisfaction through the delivery of quality and cost effective services.

How will the company ensure a high level of client satisfaction? How will the company deliver quality and cost effective services? Through its people...

In short, companies need to make sure that they hire and retain employees that

1. Have the appropriate level of technical skills to deliver quality work and complete projects in a timely and cost effective way;
2. Have the ability to deal effectively with clients (external and/or internal) – listen, understand and respond to clients' needs, build client relationships and deliver on promises.

Having a management team that knows how to effectively select, guide, support, motivate and develop employees is critical to a company's ability to create a well-balanced, motivated and engaged workforce.

Human Resources can support your company's business success through:

- attraction & recruitment programs
- onboarding programs
- mentoring programs
- employee development & training programs
- leadership development programs
- employee retention programs.

Wilma has 20 years of HR experience helping companies with their human resources and people development needs. In the past few years she has helped several engineering companies to improve their business results through the design and implementation of a variety of HR programs and employee and leadership development initiatives.

Feel free to call Wilma today to discuss your HR and people development needs.

Phone: (778) 279 5370 wilma_marais@shaw.ca

Mark Your Calendar

Upcoming SEABC Seminars

So You Think You Can Give A Seminar?

Third annual Young Members Presentation Competition

Date: February 19, 2014

Special Guest Presenter: J. Eric Karsh

Venue: Theatre C100, UBC Robson Square, 800 Robson Street, Vancouver

Time: Refreshments 6:00pm to 8:30pm

Registration: www.seabc.ca/competition2014

Professional Practice Lessons from the Christchurch Earthquake

Monthly evening seminar

Date: February 24, 2014

Presenter: Dale H. Turkington

Venue: Theatre C300, UBC Robson Square, 800 Robson Street, Vancouver

Time: Refreshments 6:00pm Presentation 6:30pm

Registration: www.seabc.ca/christchurch

AGM Meeting, Dinner and Presentation: The Next Generation of Structural Engineers

Date: March 5, 2014

Presenter: Cameron Kemp and Glenn Bell

Venue: Sutton Place Hotel, 845 Burrard Street, Vancouver BC

Time: 5:30pm

Registration: www.seabc.ca/agm

Upcoming Industry Events

APEGBC: Sea to Sky Branch Meeting and Technical Presentation

Date: February 27, 2014

Presenter: Donna Howes, Elizabeth Croft

Venue: Gordan Smith Gallery of Canadian art, 2121 Lonsdale Avenue, North Vancouver, BC

Time: 5:30 – 9:00pm

Registration: www.apeg.bc.ca/Events

Final Words

Editorial Information

The SEABC Newsletter is published by the Structural Engineers Association of British Columbia. The current and past issues are available on the SEABC website at www.seabc.ca.

The Newsletter is edited and managed by the SEABC Communications Committee.

- Committee Chair: David Harvey
- Newsletter Editor: Catherine Porter
- Webmaster: Stephen Pienaar

Submissions are welcomed and all SEABC members are encouraged to actively contribute to the Newsletter. Submissions, letters to the Editor, questions and comments can be sent to: newsletter@seabc.ca.

The Committee reserves the right to include or exclude submitted material and in some cases edit submitted material to suit overall space requirements. If content is not to be edited, please advise so at submission time.

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