



The Institution of Structural Engineers

SEABC NEWSLETTER

CONTENTS

ISSUE No.
006

MAY 2009

PAGE	TITLE
2	Message from the President
2	IStructE News
3	Professional Practice Committee – Startup of VI Branch
3	Communications Committee Update
4	Education Committee Update
5	Technical Committee Update
6	Young Members Group
6	On the Web
7	Vancouver Convention Centre
8	Guards: Making it Right
9	SEABC Seminar Series: Golden Ears Bridge
10	Seismic Design Guide – New Publication
10	Professional Practice Committee – May Report
12	Professional Practice Committee – Schedule ‘S’ Reminder
12	Professional Practice Committee – Steel Building Systems
12	Professional Practice Committee – Management of Schedules
13	Professional Practice Committee – Technical Guidelines
13	Ask Dr. Sylvie
13	Advertising
14	Mark Your Calendars

- SEABC's Newsletter is edited and managed by Robert Smith (smithco@axion.net)
- Submissions to the newsletter are encouraged and all members of the SEABC are asked to actively participate in contributing to our newsletter.
- 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.

Published by the
Structural Engineers Association of BC

Executives / Board of Directors

President: Dave Davey
Secretary / Treasurer: Surrinder Parmar
Other Directors: David Harvey, Cameron Kemp, Leslie Mihalik, Jim Mutrie, Andrew Seeton, Rob Simpson, Thor Tandy, Carlos Ventura
Communications Committee Chair: David Harvey
CSE Organizing Committee Chair: John Pao
Education Committee Chair: Andrew Seeton
Professional Practice Chair: Thor Tandy
Technical Committee Chair: Renato Camporese
Newsletter Editor: Rob Smith; smithco@axion.net
Assistant Editor: Clarissa Brennan; brennanc@ae.ca
Webmaster: Stephen Pienaar; webmaster@seabc.ca
Web site: <http://www.seabc.ca>

Message from the President

May 2009

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



Is the Practice of Structural Engineering a Level Playing Field?

The structural engineering profession has recently experienced a period of plentiful supply of work and is now starting to experience a slowdown. This happens in the construction industry. We can expect that when work tapers off, fees become more competitive. This has happened before and we can certainly expect it to happen again.

When we are really busy, it is sometimes difficult to find the time to provide a desirable service level. When we are not busy, and working on a tight budget, it becomes tempting to cut back on the level of service. Even in the best of times some complaints are aired about the difficulty of competing with others who do not appear to be going the full mile.

SEABC is not in the business of licensing and discipline and has no intention of interfering in the mandate of APEGBC. However, we are interested in ensuring that the quality of structural engineering in the Province is maintained at a high level. We will do our best to provide structural engineers with the knowledge and tools that they need to have in order to achieve quality work. And we will assist in the preparation and distribution of standards of practice so that structural engineers will know what is expected of them by both the public and their peers.

What we do not know is what the concerns of our members are. We do have the ability to publish these concerns in order to generate comments from others. We do have technical groups and committees with expertise in many areas that can review these concerns and provide assistance and advice. We do put on evening presentations and are working on recording these sessions so that they can be made available, through our website, to members outside the

Lower Mainland. We are planning a number of larger structural engineering seminars this Fall and next year.

So this is a plea to you to tell us what concerns you have, so that we can try to answer them.

IStructE News

The Institution
of Structural
Engineers

By David Harvey, P.Eng., Struct.Eng.;
IStructE BC Representative



As readers may have noticed, we are in the midst of a global financial crisis, which has certainly impacted structural engineers in British Columbia. Comparatively, we have fared better than many other parts of the world that have seen a massive reduction in activity. While the building sector has seen a general scaling down in new construction, locally, rehabilitation is holding firm and investment in infrastructure is strong. Furthermore, some economic indicators are showing signs that a recovery may be on the way.

For global organizations, and IStructE is certainly among them, these are turbulent times. So how is an organization with members in 105 countries faring? The answer is surprisingly well. While revenues from sources related to economic activity, such as advertising, are down, Institution membership is holding firm. In these recessionary times, there are indications of increased interest in professional qualifications to strengthen marketability. In addition, as a result of strategic initiatives, there is a significant upswing in membership in the emerging economies of China and India. This increase is largely in younger members with graduates up by over 10% and student members showing a 25% increase. These very strong gains bode well for the future. There is also strong interest in the Institution from the Gulf States, which can be expected to yield positive results when the region's economy recovers. In a parallel action, the staff at headquarters has been restructured following the retirement of former Chief Executive, Dr Keith Eaton. Holding firm through these significant challenges will ensure that IStructE emerges with greater strength for the future.

A significant change for 2009, is combining IStructE's Annual Assembly, usually held in May, with the hugely successful Structural Awards program. This year there are over 140 entries, including some in multiple categories. All are high quality, reflecting increased interest in publicizing our most significant structural engineering projects. Further, many firms were submitting for the first time this year. This will pose a significant challenge for the judging panel, of which I am honoured to be a member. The program will culminate with a Gala Awards night to be held at the Natural History Museum, London, on October 9. Please look out your best projects and the call for entries in the 2010 awards program - we want BC to be well represented. In the meantime, good luck to those who have entered this year.

Start-up of Vancouver Island Branch

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



On May 13 at 7:30 am a small group of members met to discuss the formation of an SEABC Branch in Victoria.

Founding Attendees:

Steve Hoel, P.Eng, Struct.Eng (JSH Engineering Ltd)

Dave Bevan, P.Eng, C.Eng, MStructE

David Anidjar Romain, P.Eng, C.Eng (SPAR Consultants)

Thor Tandy, P.Eng, Struct.Eng (UNISOL Engineering Ltd)

Doug Kolot, P.Eng, Struct.Eng (Kolot Engineering Ltd)

Aim: 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.

Meetings: TBC. Formal meetings monthly +/-.

Location: TBC. At present Denny's on Finlayson & Douglas. Wednesdays 7:30 – 8:30 am.

Invitation: Please do join us and send me your contact information with preferred date, time, location and comment(s).

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

Communications Committee Update

By David Harvey, P.Eng., Struct.Eng.;
Chair, SEABC Communications Committee

As SEABC continues to grow in popularity, your Communications Committee is working to address the improved member services demanded in the area of communications. It is most important that the website keeps up with demand in a rapidly changing arena, and that the Newsletter contains new and improved features. Please give us your thoughts - we are delighted when our members contact us. To get better, we need your opinions and we want to hear from as many of you as possible. We welcome letters to the editor and are happy to publish them subject to editorial discretion. Kindly note that we are looking for readability and concise wording, and where possible, present a balance of viewpoints.

As you need to be informed about SEABC business, we routinely publish our committee reports; these describe the bulk of our Association's activities. In this issue we have included new features, including write-ups on our flagship event, SEABC's inaugural Annular General Meeting.

We are always looking for news items, reports on events, research updates, notes on projects, professional practice issues, interesting photographs, viewpoint articles, or short papers for publication. If an article is more than a few pages long, we would like you to prepare a summary report and provide a link to the main document for further reading. Our ongoing aim is to entertain and inform the membership.

We continue to offer advertising in our Newsletter and on the website. For up to 3 months exposure on the SEABC website and inclusion in one issue of the SEABC Newsletter our commercial rates are:

- 200 Word Employment: \$100
- Quarter page: \$270
- Half page: \$360
- Full page: \$450

All quoted rates are subject to GST. Note that we offer reduced rates for extending the exposure time of the same content. In addition, we publish at no cost public service announcements, and advertisements for unemployed structural engineers seeking employment.

We hope you enjoy the newsletters you receive, the ever expanding website content, and the broadcast email service. These are all intended to inform you and keep you posted with current opportunities. Thank you for your support of SEABC; please send us your news and help us to provide even better service for our structural engineering community.

Education Committee Update

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



The Education Committee's role is to organize and present seminars and special educational events with a view to fostering and encouraging the continued education and professional development of our SEABC members.

Since our last report to members we have had a busy start to 2009 and have hosted the following free evening seminars:

- Whistler Nordic Centre presented by John Sherstobitoff, P.Eng., Sandwell Engineering Inc.
- Whistler Sliding Centre presented by Laurenz Kosichek, MAIBC, LEED AP, Stantec Architecture Ltd.
- Design of the Golden Ears Bridge by Hisham Ibrahim, Ph.D., P.Eng., Buckland & Taylor Ltd.

We have also been tasked with arranging the first Annual General Meeting of the SEABC, held on March 25, 2009. The meeting included a keynote presentation by Rob Simpson of the Glotman Simpson Group on the Vancouver Convention Centre Expansion Project. We extend a special thanks to Andrew Seeton (Past Chair) and Fran Abbuhl (Secretary) of the Education Committee for arranging the event.

Between January and April the ever-popular Certificate in Structural Engineering Program delivered four courses as follows:

- Effective Structural Modeling
- Geo-Technical Aspects of Foundation Design
- Design of Earth-Supported Structures
- Applications of Dynamic Analysis for Seismic Design of Structures

We are currently working on the program for the remainder of the year and will appreciate feedback and suggestions from our members.

Initiatives that we are working on are:

- Making presentations more accessible to members outside the Lower Mainland.
- Increasing the frequency of longer (one and two day) seminars.
- Different formats for the monthly evening seminars.

We look forward to seeing you at our future events. If you are interested in giving a presentation, or getting involved with the Education Committee, please contact us by email through ed@seabc.ca. Your participation is welcome and indeed vital to the success of SEABC!

Technical Committee Update

By Renato Camporese, P.Eng., Struct.Eng.;
Chair, SEABC Technical Committee



A number of the subcommittees and task groups have been active lately as follows:

<i>Concrete Subcommittee - Chair:</i>	<i>CSA</i>	<i>A23.3</i>
		<i>Perry Adebar</i>

The subcommittee is reviewing proposed amendments to CSA A23.3 and in particular has been developing a new provision dealing with the seismic displacement demands on gravity columns.

They will also be focusing on the issue of how to account for dynamic magnification of shear in concrete walls as required by CSA A23.3 (no guidance is currently provided in the Concrete Design Handbook).

Masonry CSA S304 Subcommittee - Chair: Bill McEwen

The subcommittee was very active as the SECBC Masonry Committee but have not met formally since 2004.

Don Anderson and Svetlana Brzev have been involved in the preparation of the "Seismic Design Guide for Masonry Buildings" for CCMPA which has just been completed. What started out as a short document to explain the changes in seismic design requirements in NBCC 2005 and S304-01 became a 300 page detailed design manual for seismic design in masonry. This document is available as a free download from the CCMPA website: www.ccmpa.ca.

Guards Task Group – Chair: Robert Jirava

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 engineer of record provides adequate backing for structural attachment of the guards. Interim solution will involve use of schedule S to facilitate cooperation between engineer of record 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). We propose that the responsibility for guardrails be transferred from the Architect to the Structural Engineer.

Activities:

1. Production of document "Person Guard Design and Testing Guidelines for B.C. Building Code". Document in progress by Robert Jirava, Thor Tandy and Leonardo Pinalto.
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 Robert Jirava.
3. Push the need for P.Eng signoff for all guards through the building officials association BOABC.
4. Leonad Pinalto to table an agenda item at the next APEGBC Building Code Committee meeting to seek an amendment to the BCBC Letters of Assurance.

Fire rating of Seismic Bracing Task Group – Chair: Jim Mutrie

APEGBC Building Code Committee asked SEABC to review the question of whether seismic bracing is required to be fireproofed.

A draft proposal dated November 3, 2008 has been prepared and is available for review and comment on the SEABC website.

Discussion revolved around the issue of an appropriate design wind load to be applied concurrent with a fire. Sufficient bracing (which must be functional under fire conditions) required to provide stability of structure under gravity loading and resist a nominal wind load. 1/10 wind suggested.

Young Members Group

By Kevin Riederer, MASC, EIT
SEABC Communications Committee



In our last update, the SEABC Young Members Group highlighted that we would focus our efforts in several key areas including social events / networking, professional development, outreach, and communication. We also noted that providing professional registration assistance should be an important function of the group and we have organized our first event with this in mind. Many of you received the email advertisement for the "Professional Registration Information" seminar to be held on May 27th. The seminar will help EIT's and Foreign Trained Engineers better understand the registration process at APEGBC and will be tailored to people working towards a P.Eng in the Structural discipline. The presentation will have helpful hints and tips for all aspects of professional registration. More information can be found on the events page at www.seabc.ca. It is important to note that while this event is being hosted by the YMG, it is open to all members of SEABC.

We are also in the early stages of planning more events to meet the needs of young members and are looking for enthusiastic people who want to participate and help build on our early successes. Becoming involved in the YMG can have many positive outcomes for you. You will expand your professional network, improve your managerial skills, and organize events that are relevant to you at this stage of your career. Better yet, you have the opportunity to give a presentation yourself and strengthen your public speaking skills. Perhaps the greatest benefit you could receive from being active in the YMG is the opportunity

to positively impact the future of your profession and have fun doing it. We hope to see you at our upcoming event, and as always you are encouraged to contact us at ymg@seabc.ca

On the Web

By Stephen Pienaar, P.Eng;
SEABC Webmaster

The SEABC website did not have many visible changes in the last three months. However, there are some exciting new things in the pipeline:



Corporate members' directory: SEABC is gearing up for corporate membership, and we hope to have a searchable directory of members online soon. The purpose of directory will be to provide the public with a way of finding firms with specific fields of expertise.

Report discussions: The SEABC Forum will soon allow members to provide feedback on and discuss reports by the various committees. We hope that in time the Forum will become a popular medium for technical discussion.

Online Membership

Our online membership management system is our official database of members. If you have not done so yet, please activate your online account and verify that your contact details are up to date. Once logged in, you can also set your preferences such as email subscriptions. To log in to or activate your online account, please visit www.seabc.ca/members. (Tip: If you do not know your membership number, use the option to recover your account details.)

Website Feedback

The Communications Committee wants to encourage members to submit comments and suggestions for the SEABC website. One member recently commented that the pictures on the SEABC website are nice, but not necessarily representative of British Columbia. How about sharing some of you picture with us? We will give credit for all material used. Please send your submissions to webmaster@seabc.ca.

Staying Up To Date

The SEABC website has grown in popularity over the past year, not only among our members, but also among people elsewhere in Canada and the world. Our website is consistently getting over 2,000 unique visitors a month, and the number is growing. Kudos to the various committees for their valuable work and the new content they are getting published on the website. Please bookmark www.seabc.ca and check in regularly for upcoming events, seminars and courses.

Vancouver Convention Centre Expansion - Presentation Recap

By Martin E. Bollo, P.Eng., S.E.;
SEABC Education Committee



The SEABC AGM on March 25, 2009 featured a presentation by Rob Simpson, P.Eng., Struct.Eng., of Glotman Simpson Consulting Engineers on the structural design and construction of the Vancouver Convention Centre Expansion Project. This approximately \$883 million dollar project recently opened to the public, and is expected to recoup over three and a half times the construction costs in benefits to the local economy.

The convention centre is constructed on a 45,000 square meter marine deck designed by Westmar Worley Parsons, and features 1.4 million square feet of enclosed space on a 550ft x 1120ft footprint. The centre accommodates 15,000 occupants and 443 cars in interstitial parking under a 5 acre green roof, and is shaped around existing view corridors. Construction required 17,500 tons of structural steel comprising 21,250 pieces – all assembled with 246,000 bolts and

60 tons of welding wire. All structural steel shapes over 360 lbs/ft in weight were specified as high-strength 65ksi material.

The 300 ft x 745ft x 30ft high main convention hall required 90' and 120' structural spans. For sake of comparison, the hall could accommodate almost eleven ice hockey rinks. Parking is accommodated within the depth of vierendeel trusses supporting the structure above. The lateral force-resisting system consisted of eccentrically-braced frames (EBF), arranged to match the building mass distribution.



East Elevation of the completed Vancouver Convention Centre

Design of the structure required careful collaboration and cooperation between the entire design team. BIM (Building Information Modeling) was utilized in the project. Three-dimensional planes from a Revit model provided by the architect were used to develop a SAP analysis model. Interaction between the structure and the marine deck below was evaluated and found to not make a significant impact. Mr. Simpson showed a number of photos demonstrating the effective use of a 3D model as a visualization and solution finding tool, in which generated views compared well to actual construction photos. The software program Tekla Structures was used together with SAP2000 and Revit Structure for the design stage and all of the steel detailing – done by Dowco Consultants Ltd. – was then done using Tekla. The shop drawing review process was done electronically, again using Tekla.



East Elevation Steel Framing

The contractor – PCL Constructors Westcoast Inc. - imported the Tekla model into Navisworks to create a 4D (three spatial dimensions plus time) model. An engineering review of the model at different stages was then performed to identify temporary stability and bracing issues, and expedite glass and elevator installation.

Mr. Simpson's presentation included a discussion of the implications of BIM on the construction industry. The use of BIM really requires that everyone work together, because in this design and delivery scheme "your problem becomes mine". Also, there needs to be an understanding of how much detail is given in a "design" model by the engineer to the fabricator. Finally, the complexity of BIM will create a challenge in the future in terms of developing engineers, and the necessary 3D skills require a higher level of competence for all staff.

All AGM attendees will view the Vancouver Convention Centre with an increased degree of understanding and appreciation when they see it next.

Guards: Making it Right

**By Robert Jirava, P.Eng, Struct.Eng
SEABC Technical Committee**

For many years engineers and builders alike have all too often cringed at the topic of guardrails, or simply "guards" as they are termed in the BC Building Code.

No doubt many readers of the SEABC newsletter have had their own harrowing experiences with guards. This is because the industry has many engineers and builders who are not either (a) familiar with the issues that must be overcome to build safe guards or, (b) aware of the simple solutions that exist for common guard problems.

The guard industry all too often finds itself trapped in a vicious cycle of lack of knowledge and shirking of responsibility on the parts of design professionals, contractors and guard manufacturers that makes it difficult for guard installations to meet simple code requirements.

In response to this dilemma the SEABC created the Guard Task Group (GTG) to educate the players in the industry, be they aluminum guard installers, building inspectors, architects or engineers, on simple and effective solutions to common guard problems.

The GTG was first brought into the spotlight during last year's APEGBC CPD seminars "Guards: Making it Right" presented by Robert Jirava, P.Eng, Struct.Eng. These well-received seminars were attended by engineers, aluminum railing manufacturers, guard installers, architects, contractors and building officials alike.

Although the GTG is concerned with guards of all types, the focus has been on aluminum guards which seem to comprise the majority of guard systems on new construction projects in the Lower Mainland over the last several years.

Some major issues of the aluminum system include the weakening of aluminum when it is welded and lack of sufficient anchorage for guardrail fasteners due to omitted structural support behind wood frame sheathing. Another important but separate guard issue has been lack of a proper top rail on glass guards in projects designed under Part 3 of the Building Code.

Aside from a general lack of awareness there are also significant inconsistencies within the Building Code pertaining to the proper design and execution of guardrails. First, the Letters of Assurance (LOA) list the item of guard design responsibility under the purview of the architect. As the majority of design issues surrounding guards are structural and significant structural knowledge must often be called upon to solve guard-related problems, the GTG aims to shift the design responsibility from the architect to the

structural engineer. Secondly, there is at present no mechanism in place for ensuring the support structure for guards has been designed and construction reviewed. In wood frame projects support structure for guards typically consists of several (usually two or three) layers of 2x blocking secured to the underlying wood framing. The responsibility for support design has been entrusted (implicitly) to the building engineer of record (EOR). Due to confusion from the guards design being listed under the architect's Schedule B-2 purview, and due to the support not being part of the guards, design of guard support but is all too frequently neglected by the EOR and "slips through the cracks". The GTG aims to add the item of design of support for permanent parts of the building (such as guards) to the LOA under the EOR's structural purview, to clearly define the responsibility for the first time. The latter issue has confounded and frustrated many specialty design engineers after their client, the aluminum guard installer, arrives on site with a properly engineered product and is greeted by a mere ½" thick oriented strandboard sheeting for anchor bolt attachment. The GTG believes the responsibility of the specialty structural engineer should stop at the railing anchor bolts and not continue on to areas where he or she can have no influence. It has been shown in the seminars that, by following a few simple procedures, the best person to carry responsibility for providing proper structural support is the EOR. A combination of standard framing details and minor coordination by the site supervisor is usually all that is required for the proper implementation of structural support for guards.



Glass-infill guards highlight the side of a seaside hotel

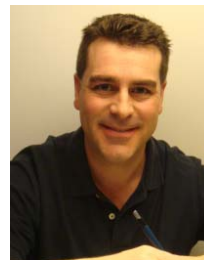
By continuing its role in educating the industry, and by changing the way guards are dealt with by contractors, manufacturers, architects, engineers, building officials and by the codes the GTG aims to help "level the playing field" of the guard industry so that safe guards are designed by the right people as well as constructed and installed properly. As a part of educating the industry the GTG also plans to produce a set of guidelines for the proper design, testing and construction of guard systems and structural support for the guard anchorage points.

SEABC Evening Seminar Series

Design of the Golden Ears Bridge, April 29, 2009

Presentation by Hisham Ibrahim, Ph.D., P.Eng. and Terrence Davies, P.Eng.

Summary by Joel A. Hampson, P.Eng.



Hisham Ibrahim and Terry Davies, from Buckland & Taylor Ltd, presented the design and construction of the Golden Ears Bridge, at the BC Hydro Dunsmuir Auditorium. Hisham focused on the design aspects for his part of the presentation. Some of the unique design aspects are as follows: a mixed structural system of cable stays and extradosed deck; flexible piers with steel hinge plates that are tuned to a 2500 year seismic event; and "jacking" piers that can be raised to accommodate future settlement. Terry focused on the construction aspects for his part of the presentation. Some of the unique construction aspects are as follows: pile caps made with a template, assembled close to site, instead of using a traditional coffer dam; the heavy amount of rebar congestion around the hinge plates; and working through unusually high waters and levels of ice. There were many questions from the audience, and they were particularly interested to hear about the international sourcing and fabrication of materials. Buckland & Taylor will be giving a similar presentation on the Golden Ears Bridge as part of the Structural Stream of technical presentations at the upcoming APEGBC Annual Conference in Victoria, BC (October 15 – 17, 2009).

Seismic Design Guide for Masonry Buildings

New Publication

By Don Anderson, PhD, P.Eng. and Svetlana Brzev, PhD, P.Eng.



SEABC members Don Anderson, Civil Engineering UBC, and Svetlana Brzev, Civil Engineering BCIT, have recently authored a comprehensive state-of-the-art guide on seismic design of masonry buildings in Canada. This 300-page publication outlines key seismic design provisions in the NBCC 2005 and the CSA S304.1-04 standard for masonry design, and provides a commentary explaining the underlying theoretical background and design rationale.

The Guide contains twelve design examples that illustrate seismic load calculations, distribution of forces to building elements and the design of masonry shear walls. A simple and user-friendly presentation facilitates the application of seismic design provisions and cross-referencing of code clauses.

The Guide was written for practicing structural engineers, but it can serve as an excellent teaching resource for academics and civil engineering students. Development of the publication was sponsored by the Canadian Concrete Masonry Producers Association and it can be downloaded free of charge from the web site www.ccmpa.ca. A series of seminars are being planned to present an overview of the Guide to engineers in the Lower Mainland and Okanagan regions of BC.

Professional Practice Committee Update

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



May Report

The Professional Practice Committee is due for a review of its make-up and mandate. We have decided to re-visit the terms of reference and define its place in the space between APEGBC and SEABC. As SEABC has developed into a functioning association, many of the issues that originally came across the desk of the DSE, and now the PPC, can now be handled by the various committees and Task Groups within SEABC. At present the PPC briefly reviews the many issues that are received by APEGBC, and passed through to PPC. The PPC then decides if the respective issue should be forwarded to the SEABC Board or whether it can/should be handled within PPC for response to APEGBC. We plan to have the review and any revision to status complete by the end of summer.

Structural Checking Guidelines: These are in the final stages of review and acceptance by APEGBC and are expected to be issued for reference sometime in the Fall.

Guardrails: This Task Group is now under the Technical Committee. Contact - Robert Jirava P.Eng, Struct.Eng.

APEGBC Code Committee: Part of the PPC liaison with APEGBC is to stay in touch with the APEGBC Code Committee. Leonard Pianalto P.Eng continues to attend those meetings and report on those code issues that are being dealt with by the committee and that may have an impact on professional practice.

Some of the on-going issues are:

- **Fire Rating of Seismic Elements:** This is now being handled by the Technical Committee of SEABC.
- **Structural Capacity of Fire-Rated Assemblies:** This is a separate issue that comes out of the proposed changes to the 2010 code and questions the existing published rated assemblies. This also is now being handled by a task group within the Technical Committee of SEABC.
- **CAN/CGSB-12.20-M89: "Structural Design of Glass for Buildings".** This initiative from the industry (in particular, IGMAC) to substitute this standard with ASTM E1300 is still on-going. That standard is a working stress design document and may not be compatible with Limit States Design in Canada. The PPC has not been notified about any resolution to date. Contact – Leonard Pianalto P.Eng.

Consulting Practice Committee: The Consulting Practice Committee is made up of members from various disciplines of engineering and geosciences. They deal with issues that primarily concern the business end of initiatives that APEGBC is planning to roll out but they also review all the guidelines that APEGBC wants to publish for member readership. We maintain the presence of a structural engineer on the committee. Fadi Ghorayeb, P.Eng, Struct.Eng of JKK is the current member.

Guideline for Design in Existing Buildings: This has taken a small step forward. Steven Kuan P.Eng of Building Safety Standards has initiated a discussion group made up of Structural Engineers and representatives from several Government Ministries. The aim is to develop consistent approaches/rules for the seismic risk assessment of existing buildings. This may have a future association with the present on-going development of seismic assessment and upgrade of schools in BC. Steven will forward updates to PPC as it develops. Contact – Thor Tandy, P.Eng, Struct.Eng or Steven Kuan, P.Eng.

NBCC 2010 Part 9 and Associated Timber Frame Engineering Guide: During 2009, significant work was done by a number of volunteers from the profession on Part 9 seismic design inclusions in the 2010 NBCC. Similar effort was applied to the Timber Frame Engineering Design Guidelines. Public and committee reviews are now complete and the

coordination of content is nearing completion, in time for issue to the proposed NBCC 2010.

Quality Certification for Steel Buildings: CSA-A660 prescribes what constitutes certification for manufacturers of steel buildings. The PPC received a query regarding the issue of manufacturers not appropriately certified supplying steel buildings to the market place. PPC was of the opinion that EOR's be made aware of this and that engineers be urged to ensure that if they are involved in the assurance of steel buildings or any part thereof, that they check that certification has been satisfied.

Letters of Assurance: The issue of Schedule 'S' for specialty designs has been emphasized for some time now and there is some evidence that EOR's and CP's are starting to recognize the conditions for the issue of Schedule 'S'. EOR's should be aware that Schedule 'S' may require further review of any specialty item to ensure that primary structure is adequate for the attachment thereof. With respect to Schedules 'B1', 'B2' and 'C' there seem to still be occasions where the complete process has not been followed through. PPC has decided that engineers should be made aware of the importance of following the intent of the respective Schedules and also to satisfy the intent of Bylaw 14b. Even where the AHJ does not, for some reason, call for some/all the schedules to be issued, the engineer must ensure that any project that has Schedules 'B1' and 'B2' issued in his/her seal/signature has the appropriate site reviews carried out. This can be carried out by a second engineer for the purpose of issuing Schedule 'C'.

Committee:

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

David Harvey, P.Eng, Struct.Eng

Marian Podlovsky, P.Eng

Jim Mutrie, P.Eng

Mazeed Abdulla, P.Eng

Andrew Watson, P.Eng, Struct.Eng

Leonard Pianalto, P.Eng LEED AP
(Code Committee Rep)

Peter Mitchell, P.Eng
(Director APEGBC Professional Practice)

Tim O'Meara, P.Eng
(Associate Director APEGBC Professional Practice & Ethics)

Schedule 'S' Reminder

Engineers doing "specialty" work are faced with various issues, such as inadequate backing or support at the primary structure. One of the ways that the specialty engineer can emphasize the limits to any perceived responsibility is to use the Schedule 'S' which is the specialty engineer's commitment to the EOR or CP that the specialty item has been dealt with correctly.

The APEGBC Guidelines for Structural Engineering Services for Building Projects contains the definitions as given in Bulletin 'K', which further describes in detail the intent and reason for Schedule 'S'. Refer to the link at:

<http://www.apeg.bc.ca/resource/publications/ppguidelines/bulletink.pdf>

"Steel Building Systems" BCBC 2006 4.3.4.3:

Members are reminded that this clause is now in effect. While it refers to steel building systems, Engineers of Record should make sure that any prefabricated steel building system, or its component thereof, that they may be involved with, complies with the Code.

It has been drawn to our attention that local companies dealing with pre-engineered steel building packages may be acquiring these structures from non-certified facilities and/or from companies that don't make anything; just re-sell packages made by someone else.

The membership must take notice that all manufacturing facilities that want to sell steel building systems in Canada must be A660-04 certified in order to be code compliant. If an engineer allows (or is involved with) a non code-compliant building to be erected they may be deemed professionally responsible and bear liability if the building system should fail, even if the failure is a result of someone else's negligence.

Some insurance companies say they will pursue the engineer of record and the building (including occupancy) permit issuer in the event a building is not code compliant and/or fails.

If you are the EOR for such a system, make sure you closely examine any pre-engineered building system and confirm the CSA-A660 certification. If the manufacturing company isn't on the Quasar list of approved companies, of which, we believe, there are only 29 at the moment, then consider not working on the project.

CSA-A660 can be found at
<http://www.cssbi.ca/Eng/pdf/SBSletter.pdf>

Management of Schedules

It was recently reported by a Member that there was an issue of occupancy being granted on a project that had started out with the services of a structural engineer, including issue of Schedules 'B1/B2' but no follow-up with site reviews and subsequent Schedule 'C'. With respect to the proper management of Schedules 'B1', 'B2' and 'C' there seem to still be occasions where the complete process has not been, or is not being, followed through to completion.

Engineers should be aware of the importance of following the intent of the respective Schedules and also to satisfy the intent of Bylaw 14b. Even where the AHJ does not, for some reason, call for some/all the schedules to be issued, the engineer must ensure that any project that has Schedules 'B1' and 'B2' issued in his/her seal/signature has the appropriate site reviews carried out. Of course this can be carried out by a different engineer for the purpose of issuing Schedule 'C', however, it is important that the original design engineer ensures that the site reviews are handled as indicated in the Schedule 'B' document.

Technical Guidelines

Development of Guideline for the Seismic Assessment and Retrofit of BC Schools

This is a description and brief report on some of the interesting items and issues that are a part of the development of guidelines primarily intended for the seismic assessment and upgrade of BC schools. This program has been under way since 2004 when original preliminary assessments were carried out on a select number of schools considered to require upgrade. Since that time significant research has been done on the behaviour and capacities of existing structural elements. Recently there have been several tests on specimens of existing construction and on upgraded construction. These tests give the promise of refining how we address elements judged to require seismic upgrade. SEABC has requested the author to attend in SEABC's capacity and to report items of interest and keep the Board apprised of the on-going work.

History:

2004: Preliminary assessments of schools using a generic set of indicators for the purpose of identifying school needing various levels of upgrade.

2004 to 2008: Guidelines (Version 2 – replace the assessment prescriptions of the 2004 guidelines) developed through research at UBC to provide tabular and graphical representations that could be applied to the various structural elements to arrive at more accurate assessments and articulate the developed prototypes of upgrade elements. The progress in research and development of upgrade prototypes has generated a library of solutions that can be used by design engineers. The results show promise of these guidelines being useful for the assessment of any existing structures.

2009: Development of Version 3 of the guidelines, now called the "Technical Guidelines".

Prototypes have been expanded. Research into soil-structure interaction and the nature of the current soil classifications has turned up some surprising results. Work on innovative upgrades and the associated testing of conceived details has started and the first results are being analyzed. A "Seismic Risk Calculator" has been developed and is undergoing review and refinement.

General:

This program is possibly unique and promises new insights into the assessment and retrofit of existing buildings. The work being done by the Peer Review Committee together with UBC, APEGBC and the Ministry of Education is exciting and should be of interest to all engineers involved in the retrofit of existing structures.

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:

<http://www.cisc-icca.ca/content/publications/publications.aspx>

Advertising

Employment Opportunity advertisements in our newsletter and also on our website are available. If you would like to advertise, 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 will be free. Advertisements will be available for purchase through the SEABC website.

Mark Your Calendars



SEABC Young Members Group Meeting

- Date:** May 27, 2009
- Time:** 6:00 p.m., Refreshments will be provided
- Venue:** BC Hydro Building, 333 Dunsmuir St., Vancouver
- Topic:** Professional Registration Information - What you need to know to become registered with APEGBC as a Structural P.Eng, and as a Struct. Eng.
- Presenter:** Jacques Granadino, P.Eng., Associate Director, Internship & Licensing, APEGBC
- Abstract:** There are a number of particular requirements and expectations for Structural Engineers looking to become licensed as a P.Eng with APEGBC. This seminar will help EIT's and Foreign Trained Engineers better understand the registration process and will be tailored to people working towards a P.Eng in the Structural discipline. The presentation will have helpful hints and tips for all aspects of Professional registration including the interview process which is often required for Structural Engineering applicants. Information will also be presented on the process and requirements for becoming registered as a Struct. Eng. A Question/Answer period will follow the presentation.

Ninth U.S. National & Tenth Canadian Conference on Earthquake Engineering: Reaching Beyond Borders



9th US National and 10th Canadian
Conference on Earthquake Engineering:
Reaching Beyond Borders

toronto

July 25-29, 2010

9ième Conférence Nationale Américaine et
10ième Conférence Canadienne de Génie
Parasismique: *Au delà des Frontières*

- Dates:** July 25-29, 2010
- Venue:** Westin Harbour Castle Hotel in Toronto
- Website:** <http://2010eqconf.org>

Convened jointly by:



Earthquake
Engineering
Research
Institute



The Canadian Association
for Earthquake Engineering
L'Association Canadienne du
Génie Parasismique