CONNECTIONS

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Newsletter of the Structural Engineers Association of Oregon

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2010 SEAO/OACI Golf Tournament
A Great Time for All
Sign up today!

This year's SEAO/OACI Golf Tournament is scheduled for Wednesday, July 28th. To help entice all you hardworking engineers away from your desks, we're offering more prizes and free stuff than ever before, so sign up now! If you have your eye on a win, place or show prize, you can increase your chances by buying *mulligan's* for 'do over's' on the course. There will be long drive and KP awards on several holes. Along with the same fun from past years, this year there will be new surprise to keep the tournament interesting. The raffle is back by popular demand and features an *Apple IPod*, *a gas BBQ, several golf related items, and a round back at Stone Creek for 4.* Complementary beverages both on the course and at the 19th hole should keep spirits up. If you don't have fun this year you have a bad attitude!

We are returning to *Stone Creek Golf Club* in Oregon City. Stone Creek continues to receive accolades from around the state and is a "must play" in the Portland area. Stone Creek is a great test of golf for accomplished players and a fun course for the less experienced. Everyone will be impressed by the variety of holes, speed of the greens (you've been warned!) and beauty of the scenery. The BBQ dinner and social hour promises good food and company, and with a shotgun start, all participants will be able to eat and celebrate the day together.

The shotgun start is at 1:00 PM. Come at least ½ hour early to check in, hit some balls and test the putting green. The social hour and awards start at 6 pm with dinner following. The menu includes BBQ Chicken, salad, baked beans, corn on the cob, bread & beverage.

Power carts, range balls are included in the golf fee. The tournament format is a 4-person scramble. The prestigious S.E.A.O. Trophy will be awarded to the low SEAO foursome (at least 3 members). Again this year, O.A.C.I. will be joining us for the tournament, allowing for some friendly competition with the concrete guys.

Come have some fun with your engineering pals. Get your foursomes in now. If this event is to continue the members need to participate!

Please send your entry in ASAP. If you need more info. contact Jane Ellsworth 503-753-3075 or Melissa McFeron 503-246-1250. Space is limited so sign up now! Stone Creek is located just off Route 213 in Oregon City. (see the entry form for directions)

CONNECTIONS is a monthly publication of the Structural Engineers Association of Oregon, published to disseminate current news to our membership and others involved in the profession of structural engineering. The opinions expressed reflect those of the author and, except where noted, do not represent a position of SEAO.

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PRESIDENT'S MESSAGE

By: Jennifer Carlson

A good friend of mine is an electrical engineer who retired from HP a couple years ago. She now teaches an Introduction to Engineering class at Union High School in Vancouver. In her quest to find interesting ways to present the field of engineering to 15 to 17 year old teenagers, she invited my daughter (the newly graduated geotech) to speak to the class about her chosen profession. When my daughter, Kolleen, came back to the Northwest for a visit in June, she agreed to meet with the class. Attendance at the presentation was voluntary since it had to be during lunchtime at the school. Being not far removed from the teenage years herself, Kolleen knew the sure way to attract attendees was through their stomachs. Kolleen brought 3 huge pizzas to distribute during the presentation and had a full house. The students were attentive and showed genuine interest in an academic field most of them had no idea existed prior to that presentation.

I participated in a program sponsored by Clark College and WSU Vancouver a few years ago called "Do the Math". 300 high school students who had expressed an interest in engineering were bused to the WSU campus in Vancouver for a day long program introducing them to a variety of fields of engineering. There were 36 different workshops the students could choose from, covering everything from electronic signaling to testing the axial load capacity of a cardboard core from a roll of toilet tissue in the busting lab. This took a huge volunteer effort and sponsorships from local companies which were admittedly easier to come by before the recession hit. The students found the workshops fascinating. Even if only a small percentage of those attending actually pursue careers in engineering, I count it well worth the effort.

David Nilles has volunteered his time every February for the past few years to represent SEAO at the Engineers Week High School Program. The purpose of this program is to generate interest in our profession by matching students with practicing engineers for dinner and discussions. Hopefully the students will get a glimpse of what engineering is all about and give it serious consideration. Organizations like ours are the source of funding for promotional events like this.

All of the above are great programs and deserve our support. Reaching out to high school students who are making choices for their futures is critical to the future of our profession. So I encourage all of our members to participate in these activities whenever the opportunity arises. But it is important to plant the seeds of interest in math and science long before the high school years. When children are learning their ABC's and counting to 10 is the time to begin nurturing their math and science genes. Of course this takes more effort than planting the kids in front of the Xbox, but it is well worth it in the long run. Simple things like including your children in planning what groceries to buy, how much items cost, and where the food comes from can be fascinating to children, besides the benefits of just spending time together. There was never a Nintendo, Gameboy, or any other electronic game other than Windows Solitaire in our house while my daughters were growing up, and my daughters never missed it. They never even asked for a game. We solved math problems while we ate dinner! They certainly mastered all the electronic games at their friends' homes, so hopefully it did not have an adverse effect on their social lives. Encouraging math and science from a very young age proved very successful for both of my daughters. I highly recommend all parents with young children consider this and hope all our members do what they can to encourage children of all ages to do the math.

The sun is shining, I may have to fire up the air conditioning to get a good night's sleep, and it seems half of our staff is on vacation. All of which is not conducive to staying inside and getting the work done! Even though I don't golf, when the sun is out, I think about trying it. My husband spends a good portion of every weekend at Stone Creek- rain, shine, or frost delay, so it must be a good place to golf. Now that we have an empty nest, I am considering the old adage, if you can't beat 'em, join'em. I may break down and take golf lessons. I hope those of you who already play, in whatever capacity, plan to join the tournament on the 28th. We are currently planning the dinner meetings for the fall and working diligently on overhauling our website, which we hope to launch early in 2011. Keep your eyes on this newsletter for updates.

COMMITTEE UPDATES

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Snow Load Committee Report

REVISED INTERIM GUIDELINES FOR SNOW LOAD DETERMINATION FOR THE STATE OF OREGON

A white paper is under development to provide interim guidelines for the use of the 2007 Ground Snow Load Map that is part of the Snow Load Analysis for Oregon - Third Edition Dec 2007. The snow load committee has been working to develop an electronic version of the snow load map and as part of these efforts other issues have come to light as described below. We are currently working on providing a white paper in the next several weeks (after edits from the committee and the SEAO Board) that will have additional information and interim guidelines for determining ground snow loads at mid elevation and high elevations for the design of projects in these areas. This is a preliminary notification for SEAO members and other manual users about the upcoming changes.

1. BACKGROUND

The Snow Load Committee of the Structural Engineers Association of Oregon (SEAO) is in the process of reviewing and updating of the Ground Snow Load Map published in December of 2007 as part of the SNOW LOAD ANALYSIS for OREGON, third edition. This document was a venture between SEAO and The Oregon Climate Services, at Oregon State University. The winter of 2007/2008 saw record snowfall in NW Oregon. The SEAO Snow Load Committee began reviewing the data in early 2009 for effect of the record snow and several anomalies became apparent. After researching the snowfall from that winter we found that the 50-year predicted snowfall for a number of mid-elevation ground snow loads exceeded those predicted on our map. We also realized that the station values for some locations on the map were much lower than the surrounding snow load contour lines.

The snow load committee has since performed a thorough review of the methods used to develop the 2007 published map to see if the 2007/2008 storm was a more severe storm than our 50-year mean recurrence interval (MRI) map would predict. After this analysis, we have concluded that there were other factors used in developing the map that also are contributing to these differences. The first is the snow density used in converting snow depths to snow loads. The density used for our 2007 project was 8.32 pcf for Eastern Oregon and 11.34 pcf for Western Oregon and was consistent with the conversion used in development of ASCE 7-05 for 12" of snow depth which gives 8.19 pcf as noted on page 3 of the document. This was proposed by the Oregon Climate Services group and agreed to by the SEAO Snow Load Committee. Based on research of the densities used in the development of other studies, we have concluded that this density should increase with elevation and we have modified the density conversion used in this revised study as will be explained in more detail in the full white paper.

It was the Snow Load Committee's understanding that the statistical model used in the development of the 50year MRI station input data for the 2007 Map was the log normal extreme value distribution. After reviewing the input data in some detail it appears that a normal distribution was used. In addition, we thought that the dependent variable used in the original map development was elevation and we now know that snow fall was used as the dependent variable. We believe the statistical model for this revised analysis should be the log normal distribution. We have received data plotting snow load vs. elevation, and snow load vs. snow fall and concur that snow fall is a better fit as the dependent variable.

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COMMITTEE UPDATES

Continued from page 3

2. SCOPE OF THE NEW PROJECT

The current project consists of an effort to develop an electronic version of the snow load map. We are working with the Prism group at Oregon State University to develop the new map and after completion they will be hosting the map for public access similar to the seismic maps now available to determine the Ss and S1 values. We are finalizing an agreement for the project to be partially funded by the State of Oregon Building Codes Division. An enormous volunteer effort has been under way (and is near completion) to recreate the available snow load data and determine new station values for 50 year MRI ground snow loads to input into Prism to develop the new map. This methodology will be described in more detail in the completed white paper.

3. CONCLUSIONS AND RECOMMENDATIONS

3.1. CONCLUSIONS

The 50 year return ground snow loads for each station used in the creation of the 2007 ground snow load map have been updated for the current project. The loads have been updated to account for a change in the snow density model, a change in the statistical model, and the new snow data available since the map was published. The loads at a majority of the stations increased, with about 30% of the stations experiencing a load increase of more than 20%. Most of the stations with significant load increases are at relatively high elevations, where the effects of the modeling changes and the new data are significant and all three effects are additive.

3.2. RECOMMENDATIONS

SEAO recommends that users of the 2007 ground snow load map use caution when determining ground snow loads for mid-elevation and high elevation projects. Data from earlier editions of the Oregon snow loads should be considered along with new calculated 50-year MRI values at stations near the project (this will be included in the tables attached to the white paper). For projects starting in the next two weeks, please contact a snow load committee member and we can forward data from stations near your project. We will be posting the completed white paper on the SEAO Website as well as sending it to the membership and anyone who has purchased the Manual. We will also work with the Building Codes Division to provide distribution to their contacts.

Vintage Building Committee Report

The Vintage Building Committee filled a table at last month's all-committee meeting. The VBC discussed several topics related to current and upcoming activities. The highlights of the topics are summarized below:

1. SEAO recently submitted 18 recommended code changes related to the 2009 International Existing Building Code (IEBC). The changes are similar to the adopted changes to the 2006 IEBC, which is an alternate provision to Chapter 34 OSSC existing building requirements. Future work of the VBC is to get the revised 2009 IEBC adopted as a mandatory requirement for all existing buildings, statewide.

2. It was reported at the VBC meeting that the Oregon Seismic Safety Committee was just awarded $50 million to improve seismic safety, statewide. Amit Kumar will be serving on the Seismic Rehabilitation Grant program Committee to represent SEAO. The VBC would also like to see if we can be an aide to the program as well.

3. Wade Younie, the Vintage Building Committee chair, recently attended an ASCE Standards Committee on Seismic Rehabilitation of Buildings (SC) meeting in San Francisco. The SC is in charge of developing and maintaining national standards for evaluating and rehabilitating existing buildings. The SC's duties will include revision to both **ASCE 31-03 Seismic Evaluation of Existing Buildings** and **ASCE 41-06 Guidelines for the Seismic Rehabilitation of Existing Buildings.** There was talk of possibly combining ASCE 31 and ASCE 41. VBC will be involved in the process, which is on a 3 year cycle.

4. Public outreach, related to existing buildings, was another topic brainstormed. VBC will explore sharing seismic safety ideas thru the local media. With the new SEAO website, VBC will develop some "white papers" related to existing building issues. Some of the white paper topics include:
   A. Requirements for shared walls in renovated buildings
   B. Phasing of mandatory seismic upgrade requirements
   C. Seismic upgrade requirements of fire damaged structures
   D. Fires escapes

MEMBER OF THE MONTH

Ciera Speer has been named SEAO Member of the Month for May for her efforts in promoting and planning the SEAO YMF events and activities. Last year, Ciera was instrumental in the success of the SEAO/AIA Tram Tour and this year she has been the driving force behind the monthly YMF Social Hours that many of our members have attended. Most recently, Ciera has organized a Habitat for Humanity work party for SEAO young members, which will be coming up on July 31. Ciera embodies everything that is good about volunteerism and SEAO and the YMF Committee are lucky to have her as a member.

Ciera graduated in June 2005 from the University of California, San Diego with a Bachelor of Science Degree in Structural Engineering. After graduating, she worked for a year at Simon Wong Engineering in San Diego where she was a member of the Bridge Engineering Division, working on girder, abutment and retaining structure design. Since joining James G. Pierson Inc. she has worked on a variety of commercial, residential, and educational projects. Ciera is licensed as a Civil Engineer in California and Oregon.

Ciera and her husband, Chris, enjoy various outdoor activities including hiking, running, kayaking, and rock climbing. They volunteer in the Big Brother/Big Sister program for a young boy named Colby.

Thanks for being such a stellar representative of SEAO, Ciera! Your efforts are appreciated.

Significant Changes to the 2010 Oregon Structural Specialty Code and the 2009 International Building Code (Structural Provisions)- PART II

By Amit Kumar

In part I of this article, provided in the May newsletter, we discussed the significant changes to chapter 16 of the 2010 OSSC. In this final half of the article we will highlight the significant changes to the Special Inspections (Chapter 17), Soils and Foundations (Chapter 18), Material sections (Chapters 19 through 23) and Existing Buildings (Chapter 34).

Chapter 17 : Special Inspections

There are no substantial changes in this chapter. However, some of the notable changes include: :

1. Section 1704.1 now clarifies that the engineer of record can provide special inspections without being in conflict.
2. Special inspections are required for all anchors cast in concrete that are designed in accordance with Appendix D of ACI 318.
3. Continuous special inspection is now required for cast-in-place bolts in concrete where strength design is used (Table 1704.4), while periodic special inspection is required for post installed anchors in hardened concrete. It should be noted that if an ICC report associated with the post installed anchor requires continuous special inspections, then the report overrides the minimum requirement of periodic special inspections required by code.
4. New requirements have been introduced for special inspection of restraint/bracing (both temporary and permanent) of Cold formed Steel trusses (section 1704.3.4) and Metal-plate-connected wood trusses (section 1704.6.2) with clear spans 60 feet or greater.
5. Special inspection requirements for the design and installation of helical pile foundations are now specifically addressed in Chapter 18. (section 17.10)

Chapter 18: Soils and Foundations

This chapter has been completely reorganized and reformatted**.** Although most of the changes are editorial, some technical changes were made to resolve conflicting code requirements.

1. General requirements related to the design of all founda tions and the specific requirements related to the design of shallow foundations (footings) were reorganized.
2. Foundation walls, retaining walls and embedded posts and poles were consolidated into one section.
3. Deep foundation (piles and piers) requirements were reorganized in order to eliminate redundancy, resolve conflicting definitions, and simplify the provisions wherever possible. Deep foundations are now classified into two categories:
   A. driven-deep foundations
   B. cast-in-place foundations.
4. Most of the Oregon amendments that were part of 2007 OSSC have been carried forward without modification into 2010 OSSC . The most significant of the Oregon amendments are in section 1803.2 and 1803.3.2 which require that site specific seismic geologic hazard investigation be conducted for essential structures, hazardous facilities and major structures as defined in ORS 455.447. Section 1803.2.1 of 2010 OSSC provides restrictions on construction in Tsunami inundation zones.

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Significant Changes to the 2010 Oregon Structural Specialty Code and the 2009 International Building Code (Structural Provisions)- PART II

Chapter 19: Concrete

The concrete provisions of chapter 19 were coordinated with the ACI 318-08. Many of the amendments to ACI 318 in Section 1908 were deleted in the 2010 OSSC because these provisions were incorporated into the 2008 edition of the standard.

Sections 1902 through 1907 reference sections within ACI 318 chapter 2 through 7 with a few amendments. The remainder of ACI 318-08 is adopted by reference subject to amendments listed in 1908.

One of the more significant amendments that has been introduced in this code is section 1908.1.9. This amendment modifies some of the provisions of ACI 318 appendix D . ACI 318 appendix D requires that when anchor design includes earthquake forces, the anchors shall be designed to be governed by the steel strength of the ductile steel element. The 2009 IBC has added exceptions to this provision. Non-structural elements designed according to ASCE 7 section 13.4.2 and anchorage for out-of-plane forces designed using ASCE 7-05 are not required to meet this provision of appendix D. Oregon has added a third exception. In this exception, exception 3, the anchorage of sill plates to concrete for loads parallel to grain (shear loading) using a maximum 5/8" dia. bolts, can be determined from values obtained from AF&PA NDS Table 11E and does not have to satisfy the ductility requirements of appendix D . The specific provisions are in section 2305.1.2 of 2010 OSSC.

Most of changes engineers will encounter when designing in concrete are contained in the ACI 318 standard itself. It might be worthwhile to list some of the more significant changes to ACI 318. These include :

1. Design requirements for earthquake design are written in terms of Seismic Design Categories (SDC's). The seismic detailing requirements are now presented in order of ascending SDC's following a similar format to that in ASCE 7-05. The old terminology of regions of low, moderate and high seismic risk has been discontinued.
2. Chapter 8 has added information on effective stiffness to be used in determining lateral deflections.
3. In chapter 11, requirements for use of headed stud assemblies as shear reinforcement in slabs and footings have now been incorporated into the code..
4. Chapter 12 has new provisions for development of headed and mechanically anchored deformed bars in tension. Use of headed deformed bars in heavily congested areas might be an attractive alternative.
5. Chapter 21 dealing with Earthquake provisions has a number of revisions. For one, the code now allows use of 100,000 psi steel as confinement reinforcement. Extensive revisions have been made to coupling beam requirements. Where diagonal bars are used in coupling beams under ACI318-05 diagonal bars were required to be enclosed in transverse reinforcement. The new provisions now provides an alternate detailing method wherein the entire beam cross section is confined with stirrups. Here individual sets of diagonal bars are not required to be confined. This provides for less congestion and ease of placement.
6. Appendix D : New provisions now allow use of reinforcing to transfer shear and tension load from the bolts into the concrete (See sections D5.2.9 for tension loading and D6.2.9 for shear loading for the specific requirements).

Chapter 21 Masonry

Most requirements associated with masonry were removed from the code, which now adopts requirements by reference to the MSJC Standard (TMS 402-08/ACI 540-08/ASCE 5-08). Modifications were made to coordinate the requirements in Chapter 21 with the provisions in the 2008 MSJC code. Masonry Seismic Provisions from IBC 06 Section 2106 are mostly now in Section 1.17 of the 08 MSJC.

Some highlights of changes in the MSJC include:

1. In design of shear walls using the strength design provisions, the requirement that shear strength of walls exceed the shear corresponding to 125% of the nominal flexural capacity, but not greater than 2.5 times the required strength is now applicable only to Special Masonry shear walls. The corresponding requirement of increasing the shear loads by a factor of 1.5 when using ASD provisions are now in section 1.17.3.2.6.1 of the MSJC
2. Seismic design coefficients and limitations were added for autoclaved aerated concrete (AAC) masonry (ordinary reinforced) shear wall systems that extend the use of these systems to Seismic Design Categories B and C.
3. Prescriptive detailing requirements for masonry columns, pilasters and beams supporting discontinuous elements that are part of the seismic force resisting system in SDC C thru F are now spelled out in section 1.17.4.3.2.5 of the MSJC
4. For flexurally dominated Special reinforced Masonry Shear walls designed using ASD, a limit on maximum flexural reinforcement used to resist in-plane loads is introduced in section 2.3.3.4 of the MSJC
5. Minimum prescriptive reinforcement to be provided perpendicular to the shear reinforcement in masonry have been reduced from one half to one third of provided shear reinforcement.
6. Maximum vertical spacing of veneer ties has been increased from 18" to 25"

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Significant Changes to the 2010 Oregon Structural Specialty Code and the 2009 International Building Code (Structural Provisions)- PART II

Chapter 22 Steel

Other than updating reference standards no major changes appear to have been incorporated in the 2010 OSSC . Code language was added for cold-formed steel trusses similar to requirements for wood trusses

Chapter 23 Wood

1. Substantial portions of Section 2305 and 2306 were deleted because they are included in ANSI/AF&PA NDS Supplement *Special Design Provisions for Wind and Seismic* (SDPWS) standard and a reference to SDPWS was added to Section 2307 for LRFD of wood structures.
2. Chapter 23 now includes a reference to ICC-400 *Standard for the Design and Construction of Log Structures*
3. A new table for selecting wood structural panel wall sheathing to resist component and cladding wind loads was added to Section 2304.
4. Language regarding floor-to-floor and stud height limitations has been clarified.
5. Changes were made to the prescriptive wall bracing provisions to clarify that the connections apply to braced wall lines instead of the braced wall panel portions of a braced wall lines.
6. Manufactured trusses : This section was introduced in the last code cycle. In this code cycle the role of the structural engineer of record and temporary bracing requirements are clarified. In addition parallel requirements for light gage steel were also introduced.
7. The 2010 OSSC has introduced two amendments to the base code. Section 2305.4 modifies the provision in AF &PA SDPWS section 4.3.3.3 by deleting the exception that allowed summing the sheathing capacities of dissimilar materials in shear walls sheathed with gyp. board on one side and dissimilar material on the other side. The capacity of this type of shear wall is restricted to two times the smaller nominal capacity of the sheathing or the larger unit capacity of the sheathing, whichever is larger. The second amendment modifies section 2305.1.2 anchorage of sill plate in concrete using appendix D which was discussed under the Concrete chapter of this article.

Chapter 34 Existing Structures

Chapter 34 has undergone a major reorganization and clarification

1. A clause has been added to Chapter 34 requiring lateral upgrade triggered by repair of substantial damage
2. Provisions have been added for evaluation and upgrade of structures undergoing alterations, additions, repairs and change of occupancy. Provisions address both gravity and lateral loading.
3. Permit use of International Existing Building Code as alternative means of compliance. The State of Oregon is currently in the process of adopting an amended version of the 2009 IEBC.
4. OSSC has adopted several amendments to this chapter. Most, if not all, of the amendments deal with requiring all new construction to meet current code standards as opposed to rebuilding or repairing to standards that were in force at the time of original construction.

Over the last two articles we have outlined the significant changes to the 2010 Oregon Structural Specialty Code and the 2009 International Building Code (Structural Provisions). This however is not an exhaustive list of all the changes. The goal of the article was to alert the SEAO membership to the most significant and the most used changes.

As stated in the first part, the 2010 OSSC goes into effect July 1, 2010 with a statewide grace period ending September 30, 2010. During the grace period, designers can choose to comply with either the 2007 or the 2010 editions of the OSSC. Because this is an integrated code, designs should follow the codes from either 2007 or 2010, but not from both cycles. Projects submitted for plan review after September 30, 2010, are required comply with the 2010 edition of the code.

EMPLOYMENT OPPORTUNITIES

Otak, Inc. is seeking an Engineer for our Vancouver, WA office to become an integral part of our Portland metro-area Bridge/ Structures team. Qualified candidates must have 3-5 years of current experience in designing bridges of various types and sizes, including seismic design, and contract document preparation in accordance with the AASHTO / ODOT - WSDOT bridge design guidelines. Must be proficient in typical structural analysis (understand free-body diagrams) and use of design software; AutoCAD 2007/Civil 3D/LDD and/or Microstation/Inroads desired. Good written and oral communication skills required. MSCE, PE license, and/or registration as a structural engineer a plus. If you are interested in working on a variety of structure types, like being involved in multidisciplinary projects and enjoy working as a team, send your resume. We look forward to hearing from you! Otak is an Equal Opportunity Employer – M/W/D/V Please apply to: www.otak.jobs

WCSEA MEETING NOTICE

2010 Western Round Up - October 21 and 22 - Whistler Conference Centre, Whistler, BC

Registration is now open for the 2010 Western Round Up which will be at the APEGBC Annual Conference. The conference structural stream has been organized by SEABC and will take place on Friday 22 October. Join us for some excellent presentations and spend some time in scenic Whistler, home of the 2010 Olympic Alpine Events. Visit the Whistler Olympic Park; travel the scenic and beautifully upgraded Sea To Sky Highway; ride the Peak To Peak Gondola, the world's highest. Bring along a guest or two - there is an excellent program for accompanying persons.

The technical program is comprehensive - take your pick from a smorgasbord of professional development opportunities. The structural engineering stream is hosted by SEABC and takes place on Friday October 22. You can register for the conference on-line which helps with currency conversion. As a non-member of APEGBC you will need to set up a password for registration purposes and provide full contact information. Register soon to obtain the best rates and choice of accommodation.

Useful conference links are:

Invitation:
http://www.apeg.bc.ca/ac2010/index.html

Brochure:
http://www.apeg.bc.ca/ac2010/documents/ac10_delegate_brochure.pdf

Program:
http://www.apeg.bc.ca/ac2010/prodev.html

Schedule:
http://www.apeg.bc.ca/ac2010/prodev/schedule.html

Social Events:
http://www.apeg.bc.ca/ac2010/social.html

Partner Events:
http://www.apeg.bc.ca/ac2010/partner.html

On-line Registration:
https://secure.apeg.bc.ca/iMISpublic_Live/AsiCommon/Controls/Shared/FormsAuthentication/Login.aspx?ReturnUrl=https://secure.apeg.bc.ca/AGMReg/Default.aspx

Accommodating and Travel:
http://www.apeg.bc.ca/ac2010/accom.html

We look forward to meeting you in Whistler this October; travel safely, enjoy your stay, and don't forget your passport!