Volume 13, Issue 2 Winter 2007-2008

The ChallEnge

THE NEWSLETTER OF THE WESTERN CANADA GROUP OF CHARTERED ENGINEERS

Message from the Chairman

Another year has passed so very quickly, another successful year, and a year of transition where we started to place more emphasis on involving younger members and on sustainability engineering.

On the program side, thanks to Arul Raja's hard work, our eclectic technical meetings have ranged from green homes, lean manufacturing, to the Panama Canal. In addition to our annual BBQ at the Price's residence in July we made a field trip to Washington Marine Group in Esquimalt. There we toured the dockyard, and renewed our friendships with our Vancouver Island members.

Since we numbered the President of the Institute of Structural Engineers, and the Deputy Chairman of the Canadian Chapter of the Hong Kong Institution of Engineers on our committee, younger members of these organisations have recently been a welcome presence at our technical meetings. Local graduate Structural Engineers were honoured to be personally congratulated and presented with their I Struct E accreditation by their president David Harvey, reminded of its utility and value to Canadian members in the international engineering community, and encouraged to join us.

The WCGCE continues to encourage and assist young Canadian engineering students at BCIT and UBC with student cash awards, and the I Mech E Commander S M Terry Award. We offer mentoring to those with ambitions to join the UK institution of their chosen specialty.

WCGCE Committee member Aria Ganesan travelled to Boston to represent us at the North American Networks Forum hosted by the IET (see related article). Thanks to his time and hard work, WCGCE is better known and connected with our sister North American institutions.

In April 2008 we will be honoured with visits by the new president of the I Struct E, Sarah Buck, and her chief executive, Dr. Keith Eaton, to reinforce our close relations with that institution.

The next event on our agenda is our Annual General Meeting set for Saturday February 16th, 2008, followed by a Valentine's dance for members and their guests at the Royal Vancouver Yacht Club. Please mark this date on your calendar and contact Alan Kay for tickets. Hurry, there is only a limited number of tickets available on a first come first serve basis.

We have an interesting technical program

In this issue

planned for 2008, mostly with a green flavour thanks to the collaboration of Alan Kay and Arul Raja. I hope to meet many of you there. Interested friends are always welcome to attend.

It has been my pleasure to serve the WCGCE members and their committee, whom I thank for their hard work and support. We are always seeking help from members who are willing to serve on the committee. If you are able to devote some time please contact James Canova who is the chair of the nomination committee.

Finally, I wish our members a very Happy New Year.

Wilma

Message from the Editor

I would like to thank everyone who has contributed reports on our technical meetings and other activities.

If you wish to contribute a report on a technical event, an article or an announcement, please contact me; my contact details are listed below.

Chris Richardson , C.Eng., MIET.
email: backwater@telus.net tel:(604) 879-9980

Technical Program Notes

THERMAL COMFORT IN HOMES

20th June, 2007

The Technical presentation was by Geoff McDonell, P.Eng, of Omicron, who talked about Thermal Comfort in Homes. Geoff outlined his talk with a Power Point presentation. He went over the basic requirements for comfort and the way the people feel cold or warm.

The main factors he said, are air temperature, mean radiant temperature and humidity. Heat is transferred by the means of radiation, conduction and convection. Radiation is where material at higher temperature conveys heat to a body at a lower temperature in the absence of any form of medium. Conduction transfers heat by direct contact between hot and cold objects. Convection is where air becomes less dense as it is heated and rises, with the colder air descending to replace the warmed air thus circulating the heat.

Geoff outlined various means of keeping heat in a building in winter and out in summer. He commented on such things as good insulation practices, glazing requirements, and shading for summer sun loads.

He then discussed various heating systems including warm air and hydronic hot water. He emphasized radiant panels using various piping systems to provide heat in winter and cooling in summer. Radiant floor systems were also discussed. Various controls for all the systems were also covered.

Heating/cooling pipes to be embedded into concrete floor with the rebar

The 28 members and guests had numerous questions for the speaker and he was busy for over 30 minutes answering them.

Wilma Leung thanked the speaker and presented him with one of the coveted WCGCE umbrellas.

Report by Bob Martin

Inspection of the Phonebox

28th July, 2007

The Summer BBQ/Technical program was attended by about 27 members and guests. Dinner was provided with a selection of vegetables to go with the barbeque meat selection of the guests, plus a cake to celebrate the fact that this was our 15th year having this get together at the Prices'. Ian and Jane were thanked for their hospitality.

Part of the Phonebox Inspection Team

This was followed by a review of the salvaged British Telephone phone box which was found to be in full working order, and the structural integrity of the Gazebo. This was seen to be in good shape and holding up well against the weather. It was found to be very

comfortable for those who made use of it as it has a working infra red heating system.

Report by Bob Martin

WCGCE VISIT TO VICTORIA

15th September, 2007

The Vancouver Island members of WCGCE arranged for any member of WCGCE and their guests to tour the Washington Group shipbuilding facilities in Esquimalt to see the various stages of construction of the ORCA class training vessel. There are to be some 6 vessels constructed in total and they will be used to train deck officers in the Royal Canadian Navy in navigation and pilotage skills under real conditions.

The group of some 25 assembled in the meeting room on the site to hear a Power Point presentation of the background to the ships and the unique method of assembling them on dry land before having the vessels launched.

The vessels are constructed of steel with a hull length of 33 m, and beam of 8.34m with a draft of 2m, and having a displacement of 210 tonnes. The hull is based on an Australian design of hard chine hull form. They are propelled by 2 Caterpillar 3516B diesel engines rated at 1864 kW powering 2x1400 mm propellers. Electrical power is provided by 3 Caterpiller 3054T - 72kW generators. The maximum speed is 18 knots and cruising speed is 15 knots, with a range of 660 nautical miles.

Inverted Hull ribbing is welded into shape

The complement is composed of 4 crew and 16 trainees with 4 spare berths.

After numerous questions the group was divided into 2 and led to the sheds where the hulls are welded together in sections upside down, then assembled upright in the final configuration. The deck housing is completed as a unit before being attached to the hull.

James Canova thanked the members of the Washington Group for their interesting and informative presentation showing how the vessels are built.

Almost ready to launch

A coveted WCGCE umbrella was presented to our host and guide Mike Crone.

Report by Bob Martin

THE PANAMA CANAL

23rd October, 2007

The technical presentation was made by the Hon Sec of the Group, Bob Martin P.Eng. MIMechE. He and his wife had enjoyed a cruise through the Canal last April, and Bob provided a Power Point presentation of the history of the Canal and its future plans. He outlined the efforts of the French under De Lesseps the hero of the Suez Canal, to dig the canal in the late 1800's.

It was due to De Lesseps that a sea level canal was attempted over the protests of the Belgian engineer De Bressley who proposed a design very similar to what was eventually constructed. But due to the huge death toll on the workers caused by Malaria and Yellow Fever, plus massive site geological problems, the French attempt went bankrupt. After selling the value of their work and efforts to the USA at a discounted value the USA took over the project. There was serious political motivation for the US to take on the project as it reduced the sailing time of their naval vessels between the Pacific and Atlantic by at least 2 months.

The first act of the Americans was to upgrade the living conditions by providing better roads and sanitation facilities. In addition they had during the Spanish –American war in Cuba discovered that the mosquito was the carrier of Malaria and Yellow Fever, so that all still water around the living areas was drained or removed under the supervision of Dr. William Gorgas.

A railway engineer John Stevens was the first chief engineer and he made full use of the Panama Railway to facilitate the canal construction. In addition the rapid engineering developments in the US on construction machinery benefited the project greatly.

In 1907 Stevens left the project and Lt. Colonel Goethals took over the project and saw it through to its completion in 1914. The Canal is 51 miles long and takes a ship between 8 to 10 hours to transit between the Atlantic and Pacific. Bob also provided a number of other interesting statistics on the project.

Bob outlined the expansion of the canal currently underway to widen and add additional locks in parallel to the existing ones. These new locks would be larger in width and length to accommodate the new larger ships now sailing and being built.

The current Panimax size container ship can carry about 5000 containers whereas the vessels that would fit in the new locks could carry 12000 containers. In addition the new locks will have water saving basins in parallel to conserve some of the water that is flushed out each time a shippasses through a lock. This water will then be used to partially refill the lock for the next ship.

A tight squeeze

Bob also showed the potential effect of global warming on the Canal operation by the effect of the ice melting, allowing the North West passage over Northern Canada to be open to the world's shipping. This passage would reduce the current routes between Europe or the Eastern coast of North American to Asia by some 2500 to 5000 miles relative to using either the Panama or the Suez Canals.

Following the Power Point presentation Bob led the audience through an actual transit of the Canal showing the various locking procedures en route using a video he made at the time.

This video also illustrated the very narrow clearance current ships have as they enter each lock, and how the locomotives, the Mules tow the ships through the locks.

After the speaker answered a number of questions, the Group Chair, Wilma Leung, thanked him for his interesting presentation.

Report by: Bob Martin

LEAN MANUFACTURING

20th June, 2007

The technical presentation was made by Walter Wardrop, P.Eng, on the subject of Lean Manufacturing. Walter is an Industrial Engineer and he talked about the various companies he has worked for to assist them in operating more efficiently.

Walter outlined a number of examples of how simple changes can increase the flow rate of finished product dramatically. His examples included operations at Michelin Tire, Coca Cola, National Sea Products and others.

Before: area was cluttered and ineffective

He noted that often a company thought it needed a larger building to accommodate more machinery or staff to increase their production when all that was needed was to change the speed of a machine, or relocate the workers in a more efficient pattern to increase the work flow, sometimes by 100%.

Some companies thought that because of the increased value of the Canadian dollar that only by outsourcing overseas could they compete, whereas some simple changes in material handling solved the problem. You have to visualize the flow of material and see where the bottlenecks are and what is causing them, and then work out a better work pattern to overcome the bottlenecks. Sometimes these bottlenecks are not in the line but in the supply chain of the raw material needed for the product or process.

After: streamlined production

Walter referred to a number of publications that he felt would be of value to the audience and had copies available on a table for anyone to browse after the presentation. Questions from the audience took a further 30 minutes after the formal presentation was finished.

The Group Chair, Wilma Leung, thanked the speaker for his interesting presentation and presented him with a coveted WCGCE umbrella.

Report by: Bob Martin

Current News

North American Networks Forum

7-9 September, 2007

WCGCE Committee Member Aria Ganesan P.Eng. FIET represented us at the North American Networks Forum in Boston, Massachusetts, hosted by the IET New England Network. Nineteen representatives of the eight IET North American Networks (New England, South California, North California, ***Montreal, Ottawa, Toronto, Canadian Prairies Group and Western Canada Group***)

and two of the six International Professional Registration Advisors were treated to New England hospitality at the this summit which featured presentations and participation by these representatives and by IET CEO and Secretary Robin McGill and IET Regional Coordinator for North America Lisa Miles.

Dr. Charles Rubenstein (Pratt Institute – NY; IET New England Chair) chaired the Forum with the help of an arrangements team led by Dr. Tony McGrail (National Grid – MA; IET New England Vice Chair), Ruth Kirkwood-Azmat (MCCo – MA; IET New England Treasurer) and Sunder Mirchandani (ICS - CT; IET New England Secretary) which began with a Friday evening registration reception and a Tastes of New England 'Clam Bake' buffet dinner. No one left hungry!

Saturday's sessions were kicked off with a keynote presentation by Robin McGill who shared his vision of the future look and feel of the IET, including a major effort to grow the IET in North America. Other major topics of the forum included updates on issues discussed at the 2005 Forum, a review of the IET resources available to Network officers, breakouts on officer duties and best practices, and a review of topics for ongoing discussion

Saturday evening the Forum hosted IET CEO McGill in an open "Town Meeting" where he made a presentation on the new IET to about 37 IET NA Leaders, spouses, guests and members. After the Q&A session that followed, Mr. McGill assisted Chairman Rubenstein in a presentation to outgoing IET New England Treasurer Ruth Kirkwood-Azmat thanking her for her years of service as Treasurer, and to Ms. Neelangi Gunasekera (Officer for Development) representing the British Consulate in Cambridge for Consul Stefan Winkler and the Consul's support of local IET New England programs.

We were also honored to have Mr. and Mrs. Ron Tabroff attending as IEEE representatives. Ron is a past Chair of the IEEE Boston Section, currently the IEEE Region 1 Membership Chair.

On Sunday morning the Forum was delighted to accept the offer of the IET Toronto Network to host a North American Network "Chairs and IPRAs" Forum in Fall 2008 and that of the California Networks to be considered for the next full Forum to be held in 2009.

Additional photos and downloadable presentations and materials from the 2007 NA Forum are available at:

http:/www.SolutionsMall.com/07NAForum/index.htm

From reports by:

- Charles Rubenstein, Chair – 2007 NA Forum

- Aria Ganesan, (WCGCE representative)

SUPPORT FROM LONDON

The WCGCE is funded by participating institutions from the UK. Besides the excellent support received when needed from specific institutions, our main point of contact in the UK is Maria Taylor at IMechE in London. It is she who handles the UK side of our administration and who ensures a warm welcome and prompt attention for whomever of our committee is visiting London.

Bob Martin Hon. Sec. and Maria Taylor - IMechE

Coming Events

ISTRUCTE PRESIDENT AND CHIEF EXECUTIVE TO VISIT VANCOUVER

Sarah Buck, President and Dr Keith Eaton, Chief Executive of the IStructE will visit Vancouver **between April 21st and April 27th.**

IStructE Presidency is passed from David Harvey to Sarah Buck

They will attend the ASCE/SEI 2008 Structures Congress, which is co-sponsored by IStructE.

They will be meeting with APEGBC to sign an Agreement to continue the use of the Chartered Membership exam for registration as a designated Structural Engineer.

They will also be meeting with SEABC [The Structural Engineers Association of British Columbia which has just commenced operations] to sign a sponsorship Agreement.

The visitors will meet with local IStructE members.

They will also be arranging meetings with the WCGCE Committee and local members.

The Structures Congress site is:

http://content.asce.org/conferences/structures2008

BC ENERGY EFFICIENCY & GREEN BUILDING CODE

When — Wednesday January 16th, 2008

Where — Metrotown Holiday Inn, Burnaby

Presenter - Mr. Andrew Pape-Salmon, P.Eng., MRM Acting Director - Alternative Energy Policy Branch Ministry of Energy, Mines and Petroleum Resources, Government of British Columbia

Mr. Pape-Salmon's presentation will focus on energy efficiency for new and existing buildings, highlighting achievements from the 2005 Energy Efficient Building Strategy and new policy actions under the 2007 Energy Plan and Speech from the Throne. He will outline the key components of the Province's market transformation strategy for energy efficient products and buildings, and provide an overview of proposed energy efficiency standards for the BC Green Building Code.

FUEL CELL RESIDENTIAL CO-GENERATION SYSTEM

When - March 12th, 2008 7pm

Where - Metrotown Holiday Inn

Presenter - Evelyn Lai from Ballard (bio pending)

(Members will be notified by mail)

AGM AND DINNER DANCE

The **Annual General Meeting** will take place at the **Royal Vancouver Yacht Club.**

Date: Saturday 16th February 2008
Time: 5:45pm

The **Dinner Dance** will follow at **7pm.**

Guest and spouses of members attending the AGM may join an informal reception prior to the dance.

Contact **Alan Kay** for tickets at 604-922-6150 or alan.akay@shaw.ca

-SEE ENCLOSED FLYER-

Tim Walwyn C Eng.

We note with great sadness the death of Tim Walwyn, a founding member of the Western Canada Group of Chartered Engineers, and a past chairman.

Born August 10th, 1935, he passed away peacefully on November 13th, 2007. leaving his wife Margaret, son Christopher (Michelle), daughter Catharine Turner (Brock), grandchildren Megan, Keith, Sam and Claire, brother-in-law Peter Shepard (Beckie), nieces and nephews and many friends.

For many years, Tim chaired or sat on C.Eng. interviewing panels, assessing local candidates who were members of the IEE, and advised the Institution's membership committees in London on his findings and recommendations.

Prior to his employment with BC Hydro Tim was chief engineer at BC Transformers.

Born in Norwich, England he grew up in Egypt prior to attending Framlingham College School in Suffolk. He graduated from Cambridge University (St. Catharine's College) attaining his Masters in Engineering. After a successful career in electrical engineering he retired from BC Hydro in 1993.

A great athlete and accomplished racquets player, Tim especially enjoyed squash and tennis. He was a kind, decent and gentle man who will be remembered for his wisdom, dry sense of humour and life long love of learning.

A service was held at St. Mary's Kerrisdale Anglican Church, Vancouver.

Other Business

Dr David Peelo

Congratulations are due to IET Fellow **Dr. David Peelo,** the recipient of the 2007 IEC 1906 Award in recognition of exceptional contribution to the work of Technical Committee 17 Switchgear and Controlgear in the field of inductive load switching. The 1906 Award commemorates the founding of the IEC by Lord Kelvin in that year.

Dr. Peelo is a past IEE Council Representative for Western Canada and a past Committee Member of the Western Canada Group of Chartered Engineers. Formerly with BC Hydro, he is now an independent consultant and teaches power electrical engineering courses internationally and at the University of Wisconsin Madison.

The Commander S M Terry Award

Congratulations are due to **Joshua Nelson** of Black Creek, BC, the recipient of the Commander S M Terry Award for 2007. Joshua is a student of Mechanical Engineering at the British Columbia Institute of Technology.

The Book Prize (Mark's Handbook for Mechanical Engineers) is presented by the Institution of Mechanical Engineers annually to the top student in Mechanical Engineering Design on the recommendation of the faculty at BCIT.

WCGCE Student Cash Awards

The following students are recipients of the WCGCE student awards:

Mr. Ivan Y.H. Leung in Chemical Engineering

Mr. Ted Haywood-Farmer in Mechanical Engineering

Mr. David Hung in Electrical Engineering

Mr. Chris Bazett in Civil Engineering

The editor and executive of the WCGCE extend their hearty congratulations to these four recipients and wish them every success in their future careers in engineering.