



The Canadian Society for Civil Engineering
The Canadian Geotechnical Society



London & District Section

2014/2015 Program

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GREAT PRICES!

Pricing to attend an individual meeting:

- *CSCE/CGS Member and Non-member* \$25
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Contact Trisha Wilbur @ (226) 268-7778, (Email: trisha.wilbur@csce-cgs-london.org) for more details.

Notes about Meetings

- *Events are held at Fox and Fiddle, located at King St. and Wellington St. (Citi Plaza).*
- *Parking validated for Citi Plaza lot.*
- *Cash bar is available.*
- *Networking opportunity starts at 5:45 pm.*
- *Dining at 6:30 pm*
- *Presentation at 7:15 pm, followed by Q & A.*

2014/2015 PROGRAM

Wednesday October 22nd, 2014

The Impact of a Changing Operating Environment on Commercial Wind

Presenter: Dr. Rupp Carriveau, P.Eng.; University of Windsor

Wednesday November 19th, 2014

East Bayfront Sanitary Sewer: “Wishing it into Place”

Presenters: Dr. Storer. J. Boone, P.Eng. and Dirka U. Prout, P.Eng.; Golder Associates Ltd.

Wednesday January 21st, 2014

Reinventing the Toilet to Address Worldwide Sanitation Challenges

Presenter: Dr. Jason Gerhard, P.Eng.; University of Western Ontario

Wednesday February 11th, 2015

Building Tall with Wood – A Six Storey Case Study

Presenters: Michael Baldinelli, MEng, P.Eng., Matthew Stead, M.Eng., and Dr. Mahdy Hamada; Strick Baldinelli Moniz

Wednesday March 11th, 2015

Toronto's Pan Am Games Athletics Stadium

Presenter: Brian Nourse, P. Eng.; Infrastructure Ontario

Wednesday April 15th, 2015

Historic Meadowlily Footbridge - A Life Changing Renewal

Presenters: Trevor Scott, M.E.Sc, EIT, John Pucchio, M.Sc., P.Eng.; AECOM

Wednesday October 22nd, 2014 Presenter: Dr. Rupp Carriveau, P.Eng. - University of Windsor

The Impact of a Changing Operating Environment on Commercial Wind

By the end of this year, the Province of Ontario will have installed 4,500 MW of wind energy, on par with the State of California. Unlike California, Ontario's farms are more similar in size, age, and type; which create more opportunities for comparison. An ongoing program is investigating long-term performance trends for commercial wind across single turbine, single farm, and multi-farm scales. This study has examined the historic capacity factors for 13 commercial wind farms from 2008 to present. Some early findings reveal that capacity factors have remained relatively constant since operations began. Seasonal, sub monthly, and daily climactic influences have also been exposed for all studied farms across the Province. A regional time scale signature is revealed for these variable patterns. Structural loading impacts of varied wind types have also been investigated in detail for a single turbine. High-turbulence, low-shear winds have been shown to coincide with increased numbers of loading cycles compared to low-turbulence, high-shear conditions for the same hub-height wind speeds. Loading cycle counts are also seen to generally increase with increasing hub-height wind speed. The objectives of this multi-scale monitoring program to gauge the impact of increased farm densities and long-term climate trends on wind energy production will also be discussed.

Wednesday November 19th, 2013 Presenters: Dr. Storer. J. Boone, P.Eng. and Dirka U. Prout, P.Eng. - Golder Associates Ltd.

East Bayfront Sanitary Sewer: "Wishing it into Place"

This presentation describes design and construction of a sewer through a historic urban district in Toronto. The late 19th century brick buildings already exhibited damage from historic settlement, building modifications and weathering. During design, other subsurface risks led to abandonment of trenchless methods and underpinning or conventional excavation support systems also presented unacceptable risks to the tenants and building owners. Use of novel cut-and-cover excavation support systems, close communication and cooperation between the sewer owner, designer, construction manager, geotechnical consultant, and contractor combined with detailed monitoring resulted in successful construction where displacements of the historic structures were controlled exceptionally well and the sewer was virtually "wished it into place" under difficult conditions.

Wednesday January 21st, 2015 Presenter: Dr. Jason Gerhard, P.Eng. - University of Western Ontario

Reinventing the Toilet to Address Worldwide Sanitation Challenges

Access to adequate water, sanitation, and hygiene remains a critical challenge for much of the developing world. 60% of the world's population does not have access to toilet facilities that provide any treatment of the waste before it is returned to the environment. This represents a significant pathway for pathogens to enter surface water and groundwater, leading to disease, disability, and death. In 2011, the Bill and Melinda Gates Foundation launched the Reinvent the Toilet Challenge: to develop a household toilet that requires no water infrastructure, no sewage pipe network, no connection to an electricity grid, disinfection of the waste within 24 hours, and a cost of less than 5 cents per person per day. Western, in collaboration with University of Toronto and University of Queensland, has been developing an innovative toilet prototype since 2012. This toilet concept has the potential to meet all the challenge objectives, using a central premise of separating and burning the feces, capturing the energy, and recycling it to sterilize the urine. The team is currently creating a working prototype for future field testing. This talk, provided by the lead academic on the project at Western, will cover the evolution of the reinvented toilet from design to proof of concept to prototype, and the evaluation steps by the Gates Foundation in Seattle, Delhi India, and finally Beijing China.

Wednesday February 11th, 2015

Presenters: Michael Baldinelli, MEng, P.Eng.; Matthew Stead, M.Eng;
and Dr. Mahdy Hamada - Strick Baldinelli Moniz

Building Tall with Wood – A Six Storey Case Study

Light-weight wood framed construction has gained significant popularity over the past decade as a sustainable, cost-effective solution for low-rise multi-residential buildings. More recently, the push has been to extend the use of light wood framing to mid-rise construction for increased density on urban infill projects. In 2009, British Columbia amended their building code to allow five and six storey residential wood-framed buildings, and in early 2014 the Province of Ontario passed legislation to permit wood-framed buildings up to six storeys in the next Ontario Building Code amendment. In conducting a detailed literature review, SBM found that little research has focused on 3D analysis of these structures. This case study outlines the internal research conducted to analyze a six storey wood building under lateral loads for the purpose of developing a 3D “whole-building” modeling tool that will allow engineers to assess and optimize shearwall and diaphragm design, connections between structural elements, hold-down hardware, and building drift.

Wednesday March 11th, 2015

Presenter: Brian Nourse, P.Eng, Infrastructure Ontario

Toronto's Pan Am Games Athletics Stadium

The Pan Am Games are the third largest international multi-sport games in the world and occur every four years. World class athletes represent countries throughout the Americas in 36 sports over 16 days of competition. In July and August of 2015 Toronto will host these games for the first time ever. In the lead up to the games, Toronto has been building several new state of the art facilities.

The CIBC Pan Am/ Parapan Am Athletics Stadium, located at York University's Keele Street Campus, will be the host venue for the track and field competitions. The stadium is designed for certification by the International Association of Athletics Federations (IAAF) as a Class 1 track, suitable for hosting Olympic and other top-tier competitions. The presentation will overview some of the highlights of the project and discuss challenges in building to Class 1 Track standards.

Wednesday April 15th, 2015

Presenters: Trevor Scott, M.E.Sc., EIT.; John Pucchio, M.Sc., P.Eng. -
AECOM

Historic Meadowlily Footbridge - A Life Changing Renewal

The Meadowlily Bridge is a three span, riveted steel-truss structure over the south branch of the Thames River in the City of London Ontario. The main span of the bridge is a rare surviving example of a double-intersection Warren Truss that was popular at the turn of the 20th century and the two shorter pony trusses on the south side are comprised of very common Warren Trusses. The current bridge was constructed in 1911 during the first era of metal bridge building in Ontario. In 1965, the bridge was closed to vehicular traffic but remained open to pedestrians. Based on the Bridge Assessment Report and Municipal Class Environmental Assessment completed by AECOM in 2011, it was concluded that Meadowlily Bridge had significant heritage value and importance to the local community and was designated as a historic structure under the Ontario Heritage Act in 2012. Rehabilitation was recommended using contemporary materials and techniques that were respectful of the heritage and aesthetics of the structure and was completed in 2013. This presentation will include a brief history of the bridge, the previous condition of the structure and the strategies utilized for the bridge rehabilitation to ensure the structure met current structural standards while still respecting the heritage and aesthetics of the bridge.