

# REGINA CONFERENCE BOOKLET



2015 CSCE Annual Conference  
Congrès annuel de la SCGC

Building on Our Growth Opportunities  
Miser sur nos opportunités de croissance

May 27 to 30, 2015



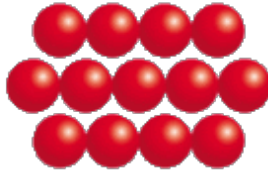
27 au 30 mai 2015

# 2015 CSCE Annual Conference

EXPECT THE UNEXPECTED

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Opening Reception



Thursday Lunch



Friday Student Award Lunch



Social Evening



Thursday Coffee  
Break A.M.



Inspiring sustainable thinking

Thursday Coffee  
Break P.M.



Friday Coffee  
Break P.M.



Friday Coffee  
Break A.M.



# Welcome to the 2015 CSCE Conference

## Co-chair Welcome

On behalf of the Conference Organizing Committee, we welcome you to the 2015 CSCE Annual Conference in Regina. We hope you enjoy the wonderful hospitality that makes Saskatchewan one of the best places to visit in Canada.

Saskatchewan is known as the volunteer capital of Canada. So expect the unexpected during this year's conference. The committee has organized an exciting program for you with both technical and social events to inspire you and to provide a dynamic atmosphere to establish new connections.

You have the opportunity to experience aspects of civil engineering and Canadian history that can only be found in Saskatchewan. Our keynote speakers will share world leading innovations such as the first commercial carbon capture and storage facility and the Canadian light source technology. The technical sessions will demonstrate how research and applied science is used in a field setting to advance the civil engineering practice. The social event at the RCMP Heritage Centre takes place on the grounds of Depot Division where every officer who has ever served Canada in its 143 history has been trained. Take in this year's historic site commemoration that marks Regina's adoption of coal fired electrical power generation, more than a 100 years in the making. And your technical tours demonstrate how Saskatchewan is building infrastructure to address a growing population and economy.

We are excited to have you visit our province and let you in on the secret. Regina is no longer the place to be from. It is the place to be. Enjoy!

## A note from the Technical Programs Coordinator

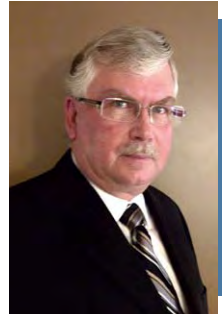
Kelvin T. W. Ng, PhD, PEng

Technical Programs Coordinator  
CSCE 2015 Regina

On behalf of the Technical Committee, I am delighted to welcome you to the CSCE Annual Conference at Regina. "Building on Our Growth Opportunities" is the theme of the 2015 conference. Our technical chairs of the specialty conferences, the CSCE division chairs, as well as our dedicated teams of industry experts and technical paper reviewers have joined forces to put together a very exciting technical program for you.

We have scheduled about 190 presentations in various disciplines of civil engineering over the next four days. In addition to our General Conference, we have specialty conferences to showcase the engineering challenges and recent advances in the following three specific areas of our profession: Engineering Materials and Mechanics, Disaster Prevention and Mitigation, and the Innovation in Engineering Practice. The Innovation in Engineering Practice stream allows our engineering practitioners and field experts to present case studies and to highlight the successes and engineering achievements of project implementation and technology development. In these presentations, we are going to hear many exciting stories on how theoretical work is being applied on site to solve practical engineering problems and overcome various technical challenges. To highlight the dynamic nature of our profession and to encourage multidisciplinary discussion, we did not provide separate sessions for any of the specialty conferences. Instead, the presentations are organized by their themes.

Regina is a truly beautiful city in which to spend time, especially under the warm prairie sun. I look forward to meeting you soon to hear your comments and suggestions on our program. I wish you a very successful meeting.



# Organizing Committee Members

## Conference Organizing Committee Members

Co-Chair	Cathy Lynn Borbely
Co-Chair	Harold Retzlaff
Treasurer	Viranga Tennakoon
Recorder	Stephanie Wourms
Technical Programs Coordinator	Dr. Kelvin Ng
On-Site Events Coordinator	Matthew Stephenson
Off-Site Events Coordinator	Jean-Philippe Blouin
Registration Coordinator	Dr. Andrew Liu
Volunteer Coordinator	Imteaz Bhuiyan & Gary Lee
Companion Program Coordinator	Nives Ambrosia
Marketing Coordinator	Cathy Lynn Borbely
Young Professional Coordinator	Katelyn Frecon
Website/Social Media Coordinator	Stephanie Wourms
National Office Events Liaison	Lois Arkwright
National Office Student Events Liaison	Amie Therrien

## Special Conference Chairs

Engineering Materials and Mechanics	Dan Palermo
Disaster Prevention and Mitigation	Raafat El-Hacha

## On The Cover

Painting of Regina by Jason Robins

2015 CSCE Conference  
CONFERENCE AT A GLANCE



# Conference At A Glance

## WEDNESDAY

### CSCE Meetings

- 8:00 AM - 4:00 PM University Heads and Chairs  
Campania B, Second Floor
- 9:00 AM- 4:00PM Operations Workshop  
Campania A, Second Floor
- 2:00 - 3:30PM CJCE Editorial Board  
Lombardy B, Second Floor
- 3:30 - 4:30 PM History Committee  
Lombardy B, Second Floor
- 4:30 - 6:00 PM Engineering Materials and  
Mechanics  
Lombardy B, Second Floor

### Technical Tour

- 8:15 AM - 6:00PM SaskPower Carbon Capture and  
Storage Facility

### Short Course

- 8:00AM - 5:00PM Design and Assessment of Buildings  
Subjected to Blast Loads, CSA - S850

### Young Professionals and Students

- 6:00 - 7:00 PM President's YP and Student  
Reception  
Ballroom Foyer, Second Floor

### Trade Show

- 7:00 - 9:00 PM Umbria, Second Floor

### Welcome Reception

- 7:00 - 9:00 PM Ground Engineering - Event Sponsor  
Umbria and Ballroom Foyer, Second  
Floor

## THURSDAY

### Opening Ceremonies Breakfast

- 7:30 - 9:15 AM Welcome from Dignitaries  
Keynote Presentation  
Michael Monea, SaskPower  
Tuscany/Trentino, Second Floor

### Trade Show

- 7:30 AM- 5:00 PM Umbria, Second Floor

### Technical Tours

- 9:45 - 11:45 AM Mosaic Stadium Tour
- 2:00 - 4:00 PM Global Transportation Hub Tour

### Luncheon and Keynote Speaker

- 12:00 - 1:50 PM Canadian Institute of Steel  
Construction - Event Sponsor  
Keynote Presentation  
Robert Lamb, Canadian Light  
Source  
Tuscany/Trentino, Second Floor

### Panel Discussion

- 4:00 - 5:00 PM Sustainability in Construction: are  
we doing enough?

### CSCE Meetings

- 2:00 - 3:30 PM CSCE Foundation Committee  
Milan, Main Floor
- 4:00 - 5:30 PM President's Advisory Council  
Milan, Main Floor

### Young Professionals

- 5:30 - 11:00 PM Social Event

### Social Event

- 6:30 - 10:00 PM CANAM - Event Sponsor  
RCMP Heritage Museum  
RCMP Depot, Regina West

# Conference At A Glance

## FRIDAY

### Breakfast and Keynote Speakers

7:30 - 9:00 AM Keynote Speaker  
Ronan Collins, IntelliBuild  
Tuscany/Trentino, Second Floor

### Trade Show

7:30 AM - 3:45 PM Umbria, Second Floor

### Student Awards Luncheon

12:00 - 1:45 PM SaskPower - Event Sponsor  
Tuscany/Trentino, Second Floor

### Historic Site Commemoration

2:30 - 4:00 PM Saskatchewan Science Centre

### CSCE Meetings

7:00 - 8:00 AM Outgoing Board of Directors  
Campania A/B

3:45 - 5:00 PM IAC Committee  
Novara, Main Floor

3:45 - 5:00 PM ER Committee  
Milan, Main Floor

### Panel Discussion

2:00 - 3:20 PM Flood Prevention and Mitigation in  
Canadian Prairies

### Young Professionals

9:10 - 10:30 AM Sustainability Workshop  
Lombardy A, Second Floor

5:30 - 11:00 PM Microbrewery Tour  
Off-site

### Students

8:00 AM - 5:00 PM Capstone Competition  
Lombardy C, Second Floor

### Honours and Award

5:30 - 6:30 PM Banquet Reception  
Foyer, Second Floor

6:30 - 9:30 PM Banquet  
Tuscany/Trentino, Second Floor

## SATURDAY

### Breakfast

7:30 - 9:00 AM Tuscany/Trentino, Second Floor

### Lunch and Annual General Meeting

12:00 - 2:15 PM Tuscany/Trentino, Second Floor

### CSCE Meetings

9:00 - 11:00 AM 2015 Conference Review  
Verdi, Main Floor

9:30 - 12:00 PM Honours and Awards Committee  
Novara, Main Floor

11:00 - 12:00 PM Young Professionals  
Verdi, Main Floor

2:30 - 5:30 PM ACC  
Novara, Main Floor

2:30 - 5:30 PM PCC  
Verdi, Main Floor

2:30 - 5:30 PM RCC  
Campania A, Second Floor

### Young Professionals/Student

5:30 - 7:30 PM Supper  
Roof Top Bar and Grill

8:00 - 11:00 PM Sask Roots Night

### Fellows Dinner

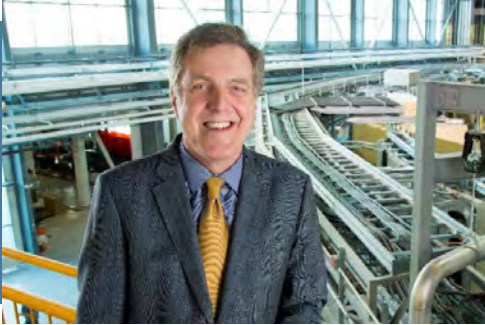
6:30 - 11:00 PM Royal Regina Golf Club



2015 CSCE Conference  
CONFERENCE INFORMATION



## i. Keynote Speakers



### **ROBERT LAMB**

Rob Lamb was educated at Melbourne and Cambridge universities, and subsequently held academic appointments in England, Germany, the United States, Hong Kong and Australia. Rob also held academic and government positions in senior administration. One of his major interests is how public and private sectors form relationships to translate science into technology. Along the way, Rob has also been involved in the creation of four companies, the most recent in Hong Kong, China.

A synchrotron produces the world's brightest and most perfect source of light. This light is used to probe and

manipulate matter down to the atomic level. The technology has become a critical part of the "tool box" of analytical instrumentation available to scientists and engineers. Saskatchewan's synchrotron, the Canadian Light Source (CLS), of which Robert is currently the Chief Executive Officer, is located in Saskatoon. It plays an integral role in aerospace, pharmaceuticals, automotive, medical and materials science developments. This year will mark the 10th anniversary of the CLS's first user and this talk will showcase some of the most brilliant science that has come out of Canada's synchrotron in its first 10 years of discovery.



### **RONAN COLLINS**

Mr. Ronan Collins is currently the BIM Project Director with Intelibuild. He is an experienced Building Information Modelling (BIM) Project Manager and specializes in the production of detailed and accurate BIM models for the purpose of virtual design and construction co-ordination. Mr. Collins leads a team of experienced construction professionals and 3D modelling and virtual construction specialists that have collaborated with numerous clients from the Middle East to Southeast Asia. Intelibuild has worked with clients on such projects as the Marina Star Residential Tower in Dubai, the Qatar Education City Convention Centre, the

Disney Park in Hong Kong and the Mass Transit Railway (MTR) West Kowloon High Speed Rail Terminus.

Mr. Collins presentation is on how the MTR Corporation in Hong Kong adapted the use of BIM processes to review design and construction drawings for the West Kowloon High Speed Rail Terminus. Over 15,500 engineering drawings were assessed and modelled from eight different civil works contracts. The MTR BIM Process identified and resolved over 10,000 problems across all disciplines and used a web based RFI procedure for raising, responding and tracking the queries. The BIM process also used 4D techniques for planning the work and reviewing the contract interfaces.

## i. Keynote Speakers



### **MICHAEL J. MONEA, PRESIDENT OF CARBON CAPTURE AND STORAGE INITIATIVES, SASKPOWER**

Mr. Monea joined SaskPower in 2008 as Vice-president, Carbon Capture and Storage Initiatives and in September 2011 was appointed President of the division. Prior to his role with SaskPower, Mr. Monea was a senior Vice-president with Canada Capital Energy Corporation. He served as Executive Director of the Petroleum Technology Research Centre at the University of Regina and later was appointed Chairman of the Board. In 2008, he was appointed to the Society of Petroleum Engineers Distinguished Lecture program as an expert in enhanced oil recovery. In 1982, early on in his professional career, he created his own consulting oil company Nautilus Exploration and Associates Ltd., which is still an active Canadian oil and gas company. Mr. Monea holds professional engineer and geoscientist designations and is a member of the Canadian Institute of Corporate Directors.

Mr. Monea's presentation is on the Boundary Dam Integrated Carbon Capture and Storage (CCS) Project, SaskPower's flagship CCS initiative.

Through the development of the world's first and largest commercial-scale CCS project of its kind, SaskPower is making a viable technical, environmental and economic case for the continued use of coal. The captured CO<sub>2</sub> is transported by pipeline to nearby oilfields in southern Saskatchewan where it is used for enhanced oil recovery. CO<sub>2</sub> not used for enhanced oil recovery is stored in the Aquistore injection well at SaskPower's Carbon Storage and Research Centre. Aquistore is the Petroleum Technology Research Center's second world-class flagship project, following the International Energy Agency's Greenhouse Gas Weyburn-Midale CO<sub>2</sub> monitoring and storage project.



### **REG ANDRES**

Reg Andres, P.Eng, FCSCE, is Vice President of R.V. Anderson and Associates. He has been directly involved in the planning, design, construction, and management of infrastructure systems. He has also been actively involved in the development of asset management practices and policies, at all levels of government across Canada, with a focus on the planning and development of sustainability and life cycle assessment concepts.

Mr. Andres is also President of CSCE. He chaired the Steering Committee for Canada's inaugural Infrastructure Report Card published in 2012 and is currently involved in a national discussion group considering the development of a sustainability rating system for infrastructure.

CSCE is creating a policy for a sustainability rating system for infrastructure, and we want you to help us realize this goal. CSCE President Reg Andres will facilitate the discussion that has been organized as part of the Young Professionals Program at the conference. We highly encourage participation of all of our members.

## ii. Technical Tours Summary

### SaskPower Carbon Capture and Storage Facility at Boundary Dam

Tour Date: Wednesday, May 27, 2015 (9 hours 45 minutes)

The facility is the world's first and largest commercial-scale Carbon Capture and Storage project of its kind. The Boundary Dam Project near Estevan, Saskatchewan will be a long-term producer of 110 megawatts (MW) of base-load electricity and reduce greenhouse gas emissions by one million tonnes of carbon dioxide (CO<sub>2</sub>) each year. That's equivalent to taking more than 250,000 cars off Saskatchewan roads annually. The captured CO<sub>2</sub> is transported by pipeline to nearby oil fields in southern Saskatchewan or is stored in an injection well.



### Global Transportation Hub - CP Rail

Tour Date: Thursday, May 28, 2015 morning (2 hours)

It is the largest such project of its kind undertaken in the history of the province and is quickly gaining notoriety as Canada's premier inland port. Comprising 1,700 acres, the Global Transportation Hub (GTH) helps local, national and international companies connect to global markets through an efficient rail and road infrastructure.



### Mosaic Stadium at Taylor Field

Tour Date: Thursday, May 28, 2015 afternoon (2 hours)

The 33,000-seat open-air facility will be a comfortable home for the Saskatchewan Roughriders and local sports teams, along with their fans. The stadium will feature expandable seating and the option to add a roof at a later date. With enviable amenities and state-of-the-art features, this new stadium will attract world-class sports, concerts and events.

## iii. Panel Discussion

### 4th International Engineering Mechanics and Materials Conference Panel Discussion On Sustainability in Construction: Are We Doing Enough?

Time and Date: Thurs., May 28, 2015 from 4:00 to 5:00 PM  
Place: The Delta Hotel, 1919 Saskatchewan Drive, Regina, SK  
Verdi Room – Main Level

A discussion pertaining to methods to advance the level of sustainability in the construction industry, including recycling of construction and industrial wastes and extending service life of concrete

- Recycling of old concrete to be incorporated as aggregate in new concrete: testing and effects on long-term performance
- Use of industrial by-products: types of by-products and their effects on concrete
- Enhancing concrete durability to extend service life of infrastructure

Moderator:

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#### **Dr. Dan Palermo, PhD, P.Eng**

Dan Palermo is an Associate Professor of Structural Engineering in the Department of Civil Engineering at York University, Toronto, Canada and he is the Chair of the Engineering Mechanics and Materials Division of CSCE.

Panelists:

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#### **1. Dr. Medhat H. Shehata, PhD, P.Eng**

Medhat H. Shehata is a Professor in the Department of Civil Engineering at Ryerson University, Ontario, Canada. Dr. Shehata has 30 years of industrial and academic experience pertaining to construction material. His areas of expertise include properties, deterioration mechanisms, and long-term performance of concrete, development of test methods and standards, construction sustainability and green buildings, recycling of construction and industrial wastes, and development of innovative construction materials.

#### **2. Shahria Alam, PhD, P.Eng**

Dr. Shahria Alam is an Associate Professor in the School of Engineering at The University of British Columbia's Okanagan campus in Kelowna. His research interests include recycle/reuse of industrial wastes including repeated recycled aggregate, smart materials and their structural applications in bridges and buildings, seismic repair and rehabilitation, and performance-based design of structures.

#### **3. Dr. Mohamed Nagib AbouZeid, PhD**

Mohamed Nagib AbouZeid is a professor and the former chairman of the Department of Construction and Architectural Engineering at the American University in Cairo. Dr. AbouZeid's area of academic and research interests includes utilizing advanced and innovative materials, and by products in construction applications, repair and retrofitting of structures, micro structural analysis of materials, as well as green and sustainable construction. Dr. AbouZeid has published more than 150 papers and articles in the aforementioned domain.

### 4th International Conference on Disaster Prevention and Mitigation Panel Discussion On Flood Prevention and Mitigation in Canadian Prairies

Time and Date: Fri., May 29, 2015 from 2:00 to 3:20 PM  
Place: The Delta Hotel, 1919 Saskatchewan Drive, Regina, SK  
Milan Room - Main Level

A discussion about sciences behind the flood events and innovative engineering practices to manage, reduce, and mitigate flood hazards. Topics of discussion include, but are not limited to, the following:

- Flood Hazards and Risks in the Prairies
- Community Mitigation Elements: Flood Forecasting and Flood Mapping
- Flood event scenarios and post flood considerations
- Emergency Flood Damage Reduction Program and Disaster Assistance Program

Moderator:

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#### **R. S. (Ray) Pentland, M.Sc., P.Eng., FEC**

Mr. Pentland has over 40 years of water resource engineering experience, working extensively across western Canada and on several international assignments. Mr. Pentland is regarded by his peers as the pre-eminent hydrology expert in Saskatchewan.

Panelists:

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#### **1. Dr. Kevin Shook, PhD, P.Eng**

Dr. Kevin Shook, PhD, PEng, is a Research Scientist at the Centre for Hydrology. Kevin's research has included snowmelt modelling, fractal analysis of hydrological phenomena, flood modelling and extreme events analysis. He is particularly interested in prairie hydrological modelling, including the problems posed by sloughs in prairie landscapes.

#### **2. Art Skibinsky M.Eng, P.Eng**

Art Skibinsky is an Instructor of Water Resources Engineering Technology at Saskatchewan Polytechnic and an Adjunct Professor at the University of Regina. His experience includes the area of hydraulics, hydrology and water resource planning. More specifically, it includes; flooding / floodplain modelling, hydraulic structure design, river engineering and municipal infrastructure design (water distribution, pumping, storm water management, and wastewater collection systems).

#### **3. Lee Heebner, P.Eng**

Lee is the Lead Civil Engineer at Walker Projects Inc., Regina. Lee Heebner has been heavily involved in providing field reviews, damage estimates, solutions, and costs of construction for municipal infrastructure flooding across the province over the last few years.

## iv. Other Information

### **Speaker Preparation**

A space is reserved in the Medici Room on the main floor to allow speakers to finalize and view their PowerPoint presentations.

The Conference Organizing Committee encourages all the session chairs and speakers to meet informally at the breakfast on the day of their presentations. Session numbers will be displayed on the breakfast tables.

Speakers must be in their session room 15 minutes prior to the start of the session. Volunteers and audio visual technicians will help transfer presentation files to the computer.

### **Prayer Room**

The Dante Room on the main floor has been reserved for those who choose to participate in prayers on Friday, May 29.



## v. Historic Civil Engineering Site

### Saskatchewan Science Centre (Powerhouse) – Friday, May 29 Commemoration Ceremony

The Powerhouse, a former coal-fired electrical generating station in Regina, originally opened in 1914 as the Powerhouse for the City of Regina. The building has been expanded and adapted over the years to serve as a research facility and science centre and is now owned by SaskPower.

The architecturally pleasing massive red brick structure was completed in 1914. Known as the Powerhouse, it was the main electrical power supply for the city of Regina and the first coal fired plant in the area. It is one of the oldest original buildings representing the adoption of coal fired electrical power generation in Canada.

### An ornament on Wascana Lake

The building's lakeside location was chosen because of the abundant supply of water needed to cool the boilers and to produce steam to drive the turbines. The city administration also wanted a building which "should be an ornament to the shores of Wascana Lake, which will one day be the beauty spot of the city."

### Transformation to a research facility and science centre

On May 1, 1965, the city sold the Powerhouse to the Saskatchewan Power Corporation (now SaskPower), which gradually phased the plant out of operation in October 1978. The Technical Services and Research division of SaskPower still uses the building for its high voltage research facility. With room to spare, SaskPower sought out a use for the remaining space and in July 1989 the Saskatchewan Science Centre officially opened to the public. In April 1991, a second attraction opened, the Kramer IMAX Theatre.



## vi. Social Event



### The RCMP Heritage Centre

Social Evening – May 28th, 2015

Experience the history of the RCMP! See where the story of the brave RCMP Cadets is told, where they are trained and the story begins.

Designed by world-renowned Canadian architect Arthur Erickson, the striking, 70,000 square foot RCMP Heritage Centre opened in May 2007. Working closely with the Royal Canadian Mounted Police, the RCMP Heritage Centre documents and shares the RCMP's past and present with the world. Permanent and temporary displays describe the critical role the Force has played in the development of western Canada, and continues to play in addressing contemporary crime issues. A unique mix of educational institution, museum and tourist attraction, the RCMP Heritage Centre engages visitors in this fascinating Canadian story.

Appropriately located on the doorstep of RCMP Academy, Depot Division, the only training academy for the Mounties in all of Canada, your evening will include the telling of the story of the RCMP through interactive exhibits, audio/visual tours, and programming; as well as trolley tours and live events. Visitors can experience the Force of yesterday and today. The fun doesn't stop there! This one of a kind evening will also include cocktails, appetizers, a seated buffet dinner and dessert. Free bus transportation will be provided to and from the Delta hotel.

It's a great Canadian story. It's our story. It's a story that is still being written.

We invite you to join us, and become a part of history!



**RCMP  
HERITAGE  
CENTRE**

**LE CENTRE DU  
PATRIMOINE  
DE LA GRC**

## vii. Young Professionals and Students Program

The Young Professionals and Student Program is offered in addition to the general conference programming. It is targeted at students of civil engineering or civil engineering technology programs as well as professionals under the age of 35 or within their first 10 years of work in the civil engineering industry.

### CONFERENCE AT A GLANCE

#### Wednesday, May 27, 2015

6:00 PM	President's Reception for YPs and Students - Tuscany Ballroom Foyer (Delta Hotel)
7:00 PM	Welcome Reception - Tuscany Ballroom Foyer (Delta Hotel)
9:00 PM	Pub Night - The Fat Badger (1852 Scarth Street)

#### Thursday, May 28, 2015

5:30 PM	Supper - Crave Kitchen & Wine Bar (1925 Victoria Ave) RSVP Required
8:00 PM	Amazing Race: Regina - Meet outside Crave Kitchen & Wine Bar (1925 Victoria Ave)
9:00 PM	Pub Night - Victoria's Tavern (1965 Hamilton St)

#### Friday, May 29, 2015

8:30 AM	Capstone Competition - Lombardy C (Delta Hotel)
9:30 AM	Interactive Sustainable Infrastructure Workshop - Lombardy A (Delta Hotel)
12:00 AM	Student Awards Luncheon - Tuscany Ballroom (Delta Hotel)
2:00 PM	Student Leaders Workshop - Lombardy A (Delta Hotel)
5:30 PM	Supper & Brewery Tours - Bushwacker Brewpub (2206 Dewdney Ave) & Rebellion Brewing (1901 Dewdney Ave) <b>Tickets Required for Brewery Tours</b>
After	Night Out on the Dewdney Strip - Eldorado, Habano's, McNally's, Gabbó's (Dewdney Ave)

#### Saturday, May 30, 2015

11:00 AM	Young Professionals Committee Meeting - Verdi (Delta Hotel)
5:30 PM	Supper - Roof Top Bar and Grill (1845 Victoria Ave) RSVP Required
8:00 PM	SaskRoots Night - The Exchange (2431 sth Ave) \$15 at the door

### DETAILED SCHEDULE

#### Wednesday, May 27, 2015

##### President's Reception

6:00 PM Tuscany Ballroom Foyer (Delta Hotel)

Join your fellow students and young professionals for this conference kick off event. There will be drinks and snacks as well as an official welcome from the CSCE President, Reg Andres and the Conference YP Coordinator, Katelyn Freçon. This is a good opportunity to learn more about the student and YP Programming.

##### Welcome Reception

7:00 PM Tuscany Ballroom Foyer (Delta Hotel)

Join the rest of the conference attendees for a welcome reception with drinks and snacks. This is a great opportunity to network with colleagues from all facets of Civil Engineering; from industry to academia.

##### Pub Night

9:00 PM The Fat Badger (1852 Scarth Street)

Get to know the other students and young professionals in a relaxed social atmosphere. Food and drinks will be for sale.

#### Thursday, May 28, 2015

##### Supper

5:30 PM Crave Kitchen & Wine Bar (1925 Victoria Avenue) RSVP Required

A hybrid restaurant located in downtown Regina, where everyday meets events. Supper at your own cost. Please RSVP to Katelyn at [kfrecon@walkerproject.com](mailto:kfrecon@walkerproject.com).

##### Amazing Race: Regina

8:00 PM Meet outside Crave Kitchen & Wine Bar (1925 Victoria Avenue)

Join us for a fun and challenging opportunity to explore downtown Regina. Bring your team or make a team once you arrive. A prize will be awarded to the winning team at the final location.

##### Pub Night

9:00 PM Victoria's Tavern (1965 Hamilton Street)

Built in 1923 and rebuilt in 2014 - Vic's offers classic comfort food, 20+ beer on tap, and a wide selection of liquors.

## vii. Young Professionals Program

Friday, May 29, 2015

### Capstone Competition

8:30 AM Lombardy C (Delta Hotel)

Students from schools across Canada will be presenting posters based on their final year projects. Posters will be on display for all conference attendees throughout the afternoon.

### Interactive Sustainable Infrastructure Workshop

9:30 AM Lombardy A (Delta Hotel)

CSCE is working on creating a policy for a sustainability rating system for infrastructure, and we want you to help us realize this goal. Join us and discuss:

- How you see sustainability being implemented in society;
- The challenges and barriers that sustainability faces, and practical solutions;
- The purpose or role of a sustainability rating system;
- The components of a sustainability rating system; and
- How such a rating system may be implemented.

This interactive workshop, led by CSCE President Reg Andres, will integrate education, collaboration in break-out groups, sharing of ideas and solutions, and discussion as a large group. The results of this workshop will be documented and made available.

### Student Awards Luncheon

12:00 PM Tuscany Ballroom (Delta Hotel)

This event celebrates the winners of various national student competitions held throughout the year as well as at the conference. It is included with your registration.

### Student Leaders Workshop

2:00 PM Lombardy A (Delta Hotel)

This session is to allow CSCE student chapter executives to meet and share information as well as to connect with representatives from National Office.

### Supper & Brewery Tour

5:30 PM Bushwacker Brewpub (2206 Dewdney Avenue) & Rebellion Brewing (1901 Dewdney Avenue)  
**RSVP / Tickets Required**

Join us at Bushwacker Brewpub for dinner (at your own cost) and a brewery tour. Then we'll head to Rebellion brewing as a group for a tour and some samples. Purchase your tickets online through the Conference registration page or RSVP to Katelyn at [kfrecon@walkerprojects.com](mailto:kfrecon@walkerprojects.com) if you wish to only attend dinner at

Bushwacker.

### A Night Out on the Dewdney Strip

Eldorado Country Rock Bar (2300 Dewdney Avenue)  
Habano's Martini & Cocktail Club  
(2288 Dewdney Avenue)  
McNally's Tavern (2226 Dewdney Avenue)  
Gabbo's Night Club (2338 Dewdney Avenue)

It's time to explore Regina's nightlife. Grab a group of friends and check out what Dewdney Avenue has to offer.

Saturday, May 30, 2015

### CSCE Young Professionals Committee Meeting

11:00 AM Verdi (Delta Hotel)

YP reps from across the country will gather to share ideas and discuss issues. All YPs are welcome to attend and to hear what the committee is up to.

### Supper

5:30 PM Roof Top Bar and Grill  
(1845 Victoria Avenue) **RSVP Required**

Moments Made Here. See you at the Rooftop! Supper at your own cost. Please RSVP to Katelyn at [kfrecon@walkerproject.com](mailto:kfrecon@walkerproject.com).

### SaskRoots Night

8:00 PM The Exchange (2431 8th Avenue)

Come out to hear some Saskatchewan folk bands (In with the Old, the Grid Pickers, and Great Plains). \$15 at the Door

PLACES TO GO AND THINGS TO DO

Places To Go and Things To Do

### Wascana Lake

South of Downtown  
4 km Walking Path

### Colour Me Rad 5K

Saturday, May 30 @ 9:00 am - 2405 Legislative Drive  
Registration Required: <http://colormerad.com/>

### Royal Saskatchewan Museum

9:30 am to 5:00 pm - 2445 Albert Street  
\$10 Admission

## viii. Companions Program

### Companions Event #1 - Wednesday, May 27, 2015

#### Tour of the Saskatchewan Legislative Building and visit to Henry's Café and Art Gallery

To start your Regina experience, you will take a historical tour of the Saskatchewan Legislative Building. On the tour you will learn about this landmark located on the shores of Regina's Wascana Lake.

After the tour, you will visit Henry's in downtown Regina. It's a café, boutique and art gallery all in one and it was established by a famous Saskatchewan artist and author Henry Ripplinger. After enjoying some delectable desserts with coffee or tea, you are invited to explore Henry's gift shop, clothing boutique and art gallery.

\*If you happen to arrive in Regina on Tuesday night or early Wednesday morning, visit Regina's outdoor Wednesday Farmers Market located next to Victoria Park in the downtown district, a short walk from the hotel. The market highlights various Saskatchewan producers selling products ranging from fresh fruit and vegetables, baking, clothing and jewelry.



### Companions Event #2 - Thursday, May 28, 2015

#### City of Moose Jaw Tour

Moose Jaw – A distinctive city with a distinctive name, originating from the Cree word “Moossegaw”, meaning “Warm Breezes”.

Your Moose Jaw experience begins in the famous underground Tunnels of Moose Jaw with the tour on the Passage to Fortune. You will learn about the early history of Chinese immigrants in Canada by observing first hand their living conditions as well as their personal successes. This tour is 50 minutes long, has one short flight of stairs which is equipped with a lift and is on one level for easy access.

After the tunnel tour, you will take a short walk to the Grant Hall Hotel, a newly restored landmark built in 1928, where you will enjoy a delicious lunch in a comfortable fine dining atmosphere.

Following lunch, you will end your visit to Moose Jaw with a stop at the Yvette Moore Galley, home of the exclusive art collection of Canadian renowned and awarded artist, Yvette Moore. The gallery exhibits her original paintings as well as other extensive collections including pottery and jewelry. Make sure you pass through the store to get your uniquely Saskatchewan gifts and collectibles.

### Companions Event #3 -Friday, May 29, 2015

#### Shopping and Leisure Day in the City

On this day, you are free to explore downtown Regina.

Start with a visit to the Cornwall Center Shopping Mall. It features over 95 stores and is connected to the Delta Regina conference hotel and Casino Regina.

Just across the street from the Cornwall Center, you will find Scarth Street Mall and Old City Hall Mall that feature several boutiques.

If after all that shopping you still have some time to explore the city, there are several self-guided walking tours in the downtown area. Information can be found in the companion bags or at the conference information desk.



## ix. Capstone Competition

Friday, May 29, 2015

Lombardy C and Umbria

Students from across Canada will be presenting posters based on their final year projects. Judging for the Capstone Competition will be held in the morning. The posters will be on display in the afternoon for all the conference attendees to view.

Event Sponsor - Clifton Associates

## x. Fellows Dinner

Jack Sutherland, P.Eng., will be hosting this year's Fellows Dinner. The event will take place on May 30, 2015, at the Royal Regina Golf Club. Mr. Sutherland has been a member of CSCE since 1955 and a Fellow since 2011.

Wayne Clifton, P.Eng., will be our guest speaker. Mr. Clifton has been a Fellow since 1994. Mr. Clifton's presentation will be on Regina's 'Big Dig', the revitalization of Wascana Lake in the heart of Regina.

We hope that the CSCE Fellows will enjoy this event and have an opportunity to visit with friends and establish new acquaintances.

2015 CSCE Conference  
TECHNICAL PROGRAM

## WEDNESDAY

### CSCE Meetings

- 8:00 AM - 4:00 PM University Heads and Chairs  
Campania B, Second Floor
- 9:00 AM- 4:00PM Operations Workshop  
Campania A, Second Floor
- 2:00 - 3:30PM CJCE Editorial Board  
Lombardy B, Second Floor
- 3:30 - 4:30 PM History Committee  
Lombardy B, Second Floor
- 4:30 - 6:00 PM Engineering Materials and  
Mechanics  
Lombardy B, Second Floor

### Technical Tour

- 8:15 AM - 6:00PM SaskPower Carbon Capture and  
Storage Facility

### Short Course

- 8:00AM - 5:00PM Design and Assessment of Buildings  
Subjected to Blast Loads, CSA -  
S850

### Young Professionals and Students

- 6:00 - 7:00 PM President's YP and Student  
Reception  
Ballroom Foyer, Second Floor

### Trade Show

- 7:00 - 9:00 PM Umbria, Second Floor

### Welcome Reception

- 7:00 - 9:00 PM Ground Engineering - Event Sponsor  
Umbria and Ballroom Foyer, Second  
Floor



2015 CSCE Conference  
TECHNICAL PROGRAM

## THURSDAY

### Opening Ceremonies Breakfast

7:30 - 9:15 AM Welcome from Dignitaries  
Keynote Presentation  
Michael Monea, SaskPower  
Tuscany/Trentino, Second Floor

### Trade Show

7:30 AM- 5:00 PM Umbria, Second Floor

### Technical Tours

9:45 - 11:45 AM Mosaic Stadium Tour  
2:00 - 4:00 PM Global Transportation Hub Tour

### Luncheon and Keynote Speaker

12:00 - 1:50 PM Canadian Institute of Steel  
Construction - Event Sponsor  
Keynote Presentation  
Robert Lamb, Canadian Light  
Source  
Tuscany/Trentino, Second Floor

### Panel Discussion

4:00 - 5:00 PM Sustainability in Construction: are  
we doing enough?

### CSCE Meetings

2:00 - 3:30 PM CSCE Foundation Committee  
Milan, Main Floor  
4:00 - 5:30 PM President's Advisory Council  
Milan, Main Floor

### Young Professionals

5:30 - 11:00 PM Social Event

### Social Event

6:30 - 10:00 PM CANAM - Event Sponsor  
RCMP Heritage Museum  
RCMP Depot, Regina West

**9:30 - 10:30 AM****01 STR1 - Lombardy A**

- 9:30 – 9:50 AM Analysis Of Rc Circular Bridge Columns Retrofitted With Fiber Reinforced Polymer Under Axial And Lateral Cyclic Loading  
*Anant Parghi, The University of British Columbia*
- 9:50 – 10:10 AM Structural Behavior Of Uhpfrc-Filled, Transverse C-Joint In Full-Depth, Gfrp-Reinforced, Precast Bridge Deck Panels Resting Over Steel Girders  
*Mahmoud Sayed Ahmed, Ryerson University*
- 10:10 – 10:30 AM Effectiveness Of Cross-Frame Layout In Skew Composite Concrete Deck-Over Steel I-Girder Bridges  
*Muhammad Kashif Razzaq, University of Windsor*

**05 MAT1 - Lombardy B**

- 9:30 – 9:50 AM Development Of Ultra High Performance Concrete As A Closure Strip Material In Prefabricated Bridge Applications  
*Mohtady Sherif, Ryerson University*
- 9:50 – 10:10 AM Comparing Lab And Field Data Of Concrete Affected By Alkali-Silica Reaction And Freeze-Thaw Deterioration  
*Matthew Piersanti, Ryerson University*
- 10:10 – 10:30 AM A Parametric Study On Temperature And Shrinkage Cracking In Reinforced Concrete Tank Walls  
*Dylan Matin, Ryerson University*

**09 CON1 - Lombardy C**

- 9:30 – 9:50 AM Bond Strength Of ECC  
*Bashar Mohammed, Universiti Teknologi Petronas*
- 9:50 – 10:10 AM Combining Experts' Decisions And Model Tree Analysis To Select The Optimum Bridge Superstructure Type  
*Yassin Al-Delaimi*
- 10:10 – 10:30 AM User-Updatable Municipal Benchmark Database For The City Of Regina  
*Nathan Bruce, University of Regina*

**13 NUM1 - Compania A**

- 9:30 – 9:50 AM A Computational Model For Large Eddy Simulation Of Dilute Bubbly Turbulent Flows  
*Mohammad Haji Mohammadi Sani Abadi, University of Minnesota*
- 9:50 – 10:10 AM Numerical Modeling Of The Stress Ribbon Terwillegar Park Footbridge  
*Nolan Rettie, Stantec Consulting*
- 10:10 – 10:30 AM Canadian Regional Energy Model Under Climate Change  
*Jiapei Chen, University of Regina*

**17 Case1 - Compania B**

- 9:30 – 9:50 AM Improved Sensitivity Analysis In Civil Engineering Design Using Statistical Design Of Experiment (Doe) Methodologies  
*Leonard Lye, Memorial University of Newfoundland*
- 9:50 – 10:10 AM A Quantitative Risk Analysis Tool For Safety Management Of Canada's Railway Grade Crossings  
*Liping Fu, University of Waterloo*
- 10:10 – 10:30 AM Innovation Pays Off! \$30 Million Reasons To Do Things Differently In Perth, Ontario  
*Trish Johnson, R.V. Anderson Associates Ltd.*

**21 GEO1 - Novara**

- 9:30 – 9:50 AM Corrections Effect On Shear Strength Parameters Of Loose Sands  
*Tarek Omar, Western University*
- 9:50 – 10:10 AM Fluidic Drag Evaluation Of Pipes Installed Via Horizontal Directional Drilling Using Slot Flow Approximation  
*Montazar Rabiei, University of Alberta*

**11:00- 12:00 PM**

**02 STR2 - Lombardy A**

- 11:00 - 11:20 AM Response Of Liquid Storage Steel Tanks Under Wind Load  
*Maryam Rafieeraad, Ryerson University*
- 11:20 - 11:40 AM Experimental Investigation On The Bond Behaviour Of GFRP Bar In High Performance Concrete  
*Jennifer Lu, Ryerson University*
- 11:40 - 12:00 PM La Crete Biomass Power Facility  
*Gledis Dervishhasani, Ryerson University*

**06 MAT2 - Lombardy B**

- 11:00 - 11:20 AM Advances In Mechanistic Methods For Road And Mine Applications "Mechanics For The Masses"  
*Curtis Berthelot, College of Engineering, PSI Technologies Inc.*
- 11:20 - 11:40 AM Effective 3D Imaging Framework For Building Inspection  
*Sever Sorin Busuioac, SCDS Corp.*

**10 CON2 - Lombardy C**

- 11:00 - 11:20 AM Superstructure Replacement And Substructure Modifications To The Fort Nelson River Bridge In Northern BC  
*Ken Rebel, Mcelhanney - Victoria*
- 11:20 - 11:40 AM Design Of Steel Truss Cantilevered Formwork  
*Mohamed Kasbar, The American University in Cairo*
- 11:40 - 12:00 PM Permanent Fall-Arrest System For Low-Rise Residentials During Service Life  
*Kasra Modares, University of Toronto*

**14 NUM2 - Compania A**

- 11:00 - 11:20 AM Calibration Of An Mps Model By Simulating A Pool-And-Weir Fishway  
*Tibing Xu, University of Regina*
- 11:20 - 11:40 AM Non-Linear Finite Element Analysis To Predict Ultimate Pressure Capacity Of A Nuclear Power Plant Containment Structure  
*Ima Tavakkoli Avval, Ryerson University*

**18 Case2 - Compania B**

- 11:00 - 11:20 AM "An Innovative Technology For Accelerated Bridges - From Concept To Implementation - The Owner-Designer Dilemma - Catch-22"  
*Vic Perry, Viconsult Inc*
- 11:20 - 11:40 AM Construction Costs Forecasting Model For Apartments Building  
*Othman Alshamrani, University of Dammam*
- 11:40 - 12:00 PM Real Time Control Of Combined Sewer Overflow In Edmonton  
*Hongliang Wang, City of Edmonton*

**22 GEO2 - Novara**

- 11:00 - 11:20 AM Foundation Design For An Mri Machine In Regina Clay  
*Katelyn Frecon, Walker Projects Inc.*
- 11:20 - 11:40 AM Review Of Stability Analysis Of Gravel Pad Foundations For Steel Firewater Storage Tanks  
*Ali Roshanfekar*
- 11:40 - 12:00 PM 3D Discrete Element Modeling Of Mechanical Lab Tests For Unsaturated Granular Material  
*Hazzar Lassaad, Université de Sherbrooke*

**2:00 - 3:30 PM****03 STR3 - Lombardy A**

- 2:00 - 2:20 PM Design Of A Two-Span Semi-Integral Abutment Bridge With Continuous Curved Steel Girders  
*Armando Chocron, Ryerson University*
- 2:20 - 2:40 PM Hodder Avenue Underpass – An Innovative Modular Construction Approach With Ultra-High Performance Fibre-Reinforced Concrete  
*Philip Murray, Hatch Mott MacDonald*
- 2:40 - 3:00 PM Cracking Serviceability Limit State For Precast Concrete Tunnel Segments  
*Mehdi Bakhshi, AECOM*
- 3:00 - 3:20 PM The Bridges Of Saskatoon  
*Cal Sexsmith, Saskatoon Water*

**07 MAT3 - Lombardy B**

- 2:00 - 2:20 PM The Effect Of Circumferential Flaws On The Strain Capacity Of Pressurized X52 Pipelines  
*Diana Abdulhameed, University of Alberta*
- 2:20 - 2:40 PM Surface Reinforced Concrete Masonry Units: An Introduction To The Future Of Concrete Masonry Construction  
*Adrien Sparling*
- 2:40 - 3:00 PM An Experimental Investigation On The Strength And Durability Of Self-Healing Bacterial Concrete  
*Sini Bhaskar, Ryerson University*
- 3:00 - 3:20 PM Seismic Strengthening Of Reinforced Concrete Squat Walls Using Externally Bonded Cfrp Sheets  
*Joshua Woods, Carleton University*

**11 CON3 - Lombardy C**

- 2:00 - 2:20 PM An Innovative Accelerated Bridge Construction Approach Using Precast Panels, Fibre-Reinforced Polymers Bars And Ultra High Performance Concrete  
*Behnam Safarinia, Ryerson University*
- 2:20 - 2:40 PM High Rise Building Health Monitoring  
*Shirin Ahmad, Ryerson University*
- 2:40 - 3:00 PM Probability Of Ignition Model For Rupture Of Onshore Gas Transmission Pipeline And Its Application In Pipeline Risk Assessment  
*Chio Lam, The University of Western Ontario*
- 3:00 - 3:20 PM Selection Criteria For Tunnel Construction  
*Reem Aboali*

**15 ENV1 - Compania A**

- 2:00 - 2:20 PM Descriptive Statistical Analysis On Paper, Plastic, And Glass Recycling In Ontario, Canada  
*Asma Chowdhury, University of Regina*
- 2:20 - 2:40 PM Recycling Concrete Construction And Demolition Wastes: A Proposed Financial Feasibility Model  
*Omar Farahat, American University in Cairo*
- 2:40 - 3:00 PM Life Cycle Assessment To Compare Different Types Of 'Green' Concrete  
*Karina Seto, University of Toronto*

**19 Case3 - Compania B**

- 2:00 - 2:20 PM Managing Big Data On A P3 Project  
*Jacqueline Miller, ISL Engineering and Land Services*
- 2:20 - 2:40 PM Small Hydro: North America's First VLH Hydro Plant  
*Paul Kemp, Canadian Projects Limited*
- 2:40 - 3:00 PM Planning, Design And Construction Of The St. Albert Pump Station  
*Barry Raynard, ISL Engineering and Land Services*
- 3:00 - 3:20 PM Cherry Street Stormwater Facility – Toronto's Most Advanced Stormwater Management System – Evolution Of The Project From Servicing One Precinct TO Servicing Three Precincts  
*Peter Langan, R.V. Anderson Associates Limited*

**23 HYD1 - Novara**

- 2:00 - 2:20 PM A Dual Inexact Fuzzy Two-Stage Model For Agricultural Nonpoint Source Pollution Management Under Uncertainty  
*Qiangqiang Rong*
- 2:20 - 2:40 PM Controlling Of Sedimentation At Oblique Spur Dike By Numerical Model  
*Abolfazl Nazari Giglou, Azad University*
- 2:40 - 3:00 PM Detailed Field Measurements Of Red River Flow Characteristics  
*Masoud Goharrokhi, University of Manitoba*
- 3:00 - 3:20 PM Investigating The Groundwater Hydraulics In Shiraz Plain Using Analytic Element Method  
*Taha Namazi, University of Minnesota*

## 4:00 - 5:20 PM

## 04 STR4 - Lombardy A

- 4:00 - 4:20 PM Bridge Engineering And Construction With Ultra High Performance Concrete  
*Paul White, Lafarge Canada Inc.*
- 4:20 - 4:40 PM Canada's First Hybrid-Composite Beam Bridge  
*John Hillman, HCB, Inc.*
- 4:40 - 5:00 PM Best Practices For Design And Construction Of Aluminum Structural Plate Structures  
*Anna West, Atlantic Industries Ltd*

## 08 MAT4 - Lombardy B

- 4:00 - 4:20 PM Effect Of Steel Fibers On Flexural Response Of Recycled Concrete Material  
*Sadegh Kazemi, WSP*
- 4:20 - 4:40 PM Size Effect On The Shear Strength Of High-Strength Concrete Continuous Beams Reinforced With GFRP Bars  
*Karam Mahmoud, University of Manitoba*
- 4:40 - 5:00 PM Interaction Of Superabsorbent Polymers And Admixtures On The Properties Of Engineered Cementitious Composites  
*Mohamed Sherir*
- 5:00 - 5:20 PM Stress-Strain Behavior Model Of FRP-Confined Concrete: A State Of The Art Review  
*Anant Parghi, The University of British Columbia*

## 12 CON4 - Lombardy C

- 4:00 - 4:20 PM Using Earth Materials And Simple Techniques For Low Cost Housing  
*Mireille Kirolos*
- 4:20 - 4:40 PM A Framework To Quantify The Impact Of Cold Weather On Neighborhood Road Development Schedule  
*Monjur Panna, University of Alberta*
- 4:40 - 5:00 PM Evaluation Of Factors That Affect Budgeted Cost Through Communication During Production Process In South Africa Construction Industry  
*Imisioluseyi Akinyede, Department of Construction Management And Quantity Surveying Cape Peninsula University of Technology Bellville Campus South Africa*
- 5:00 - 5:20 PM Augmented And Virtual Reality In Combination With Unmanned Aerial Vehicles: A Literature Review  
*Laird Ferguson, University of New Brunswick*

## 16 ENV2 • Compania A

- 4:00 - 4:20 PM Brewery Wastewater Treatment By Anaerobic Membrane Bioreactor  
*Richard Chen, University of Guelph*
- 4:20 - 4:40 PM Comparison Of The Costs And Ghg Emissions Of Different Treatment Methods For Ctmp Pulp And Paper Wastewater  
*Najmeh Abedi*
- 4:40 - 5:00 PM Performance Of Membrane Bioreactor Versus Activated Sludge At A Domestic Wastewater Treatment Plant In Oman  
*Mahad Baawain, Sultan Qaboos University*
- 5:00 - 5:20 PM Pilot-Scale Biofiltration Of Iron- And Manganese - Contaminated Groundwater At Low In-Situ Temperatures At A Water Treatment Plant In Saskatchewan  
*Sandeep Raja Dangeti, University of Saskatchewan*

## 20 Case4 • Compania B

- 4:00 - 4:20 PM Le Nouveau Projet Du Canal Suez Et Son Impact Sur L'environnement  
*Hussein Abbas, Ehaf Consulting Engineers*
- 4:20 - 4:40 PM Campbell Collegiate Underpinning Project  
*Brett Willis, WSP*
- 4:40 - 5:00 PM The Economic Rationale For R&D Support And Productivity Gains In The Canadian Construction Industry  
*Rasool Mohammadian, Canada Revenue Agency*
- 5:00 - 5:20 PM Mobile Lidar Scanning For Engineering Design For Highway Infrastructure Projects  
*James Ferguson, Tulloch Mapping Solutions Inc.*

## 24 HYD2 • Novara

- 4:00 - 4:20 PM A Simulation Gaming Model For Integrated River Basin Management  
*Kai Wang, University of Alberta*
- 4:20 - 4:40 PM Improved Forecasting Of Persistent Deep Slab Avalanches With A Decision Support Tool  
*Michael Conlan, University of Calgary*
- 4:40 - 5:00 PM Hydraulics Of River Groynes/Spurs And Their Application To The Bow River After The June 2013 Flood  
*Andrew Oosting, Golder Associates*
- 5:00 - 5:20 PM Development Of Alberta Lake Level Index: A Simple Approach  
*Zahidul Islam, Alberta Environment And Sustainable Resource Development*

2015 CSCE Conference  
TECHNICAL PROGRAM

## FRIDAY

### Breakfast and Keynote Speakers

7:30 -9:00 AM Keynote Speaker  
Ronan Collins, Intelibuild  
Tuscany/Trentino, Second Floor

### Trade Show

7:30 AM- 3:45 PM Umbria, Second Floor

### Student Awards Luncheon

12:00 - 1:45 PM SaskPower - Event Sponsor  
Tuscany/Trentino, Second Floor

### Historic Site Commemoration

2:30 - 4:00 PM Saskatchewan Science Centre

### CSCCE Meetings

7:00 - 8:00 AM Outgoing Board of Directors  
Campania A/B

3:45 - 5:00 PM IAC Committee  
Novara, Main Floor

3:45 - 5:00 PM ER Committee  
Milan, Main Floor

### Panel Discussion

2:00 - 3:20 PM Flood Prevention and Mitigation in  
Canadian Prairies

### Young Professionals

9:10 - 10:30 AM Sustainability Workshop  
Lombardy A, Second Floor

5:30 - 11:00 PM Microbrewery Tour  
Off-site

### Students

8:00 AM - 5:00 PM Capstone Competition  
Lombardy C, Second Floor

### Honours and Award

5:30 - 6:30 PM Banquet Reception  
Foyer, Second Floor

6:30 - 9:30 PM Banquet  
Tuscany/Trentino, Second Floor



**9:10 – 10:30 AM****29 CON5 - Lombardy B**

- 9:10 - 9:30 AM Performance Of Metakaolin Concrete  
*Mohamed Abou-Zeid, The American University In Cairo*
- 9:30 - 9:50 AM Team Gushue Highway Extension Using Techspan Concrete Arch For River Crossing  
*Thomas Brunet, Reinforced Earth Company Ltd.*
- 9:50 - 10:10 AM Automated Construction Progress Monitoring Using Thermal Images And Wireless Sensor Networks  
*Mehdi Pazhoohesh, Xi'an Jiaotong-Liverpool University*
- 10:10 - 10:30 AM Provide A Model To Select An Optimum Mass Housing Method  
*Esmatullah Noorzai, University of Tehran*

**25 STR9 - Campania A**

- 9:10 - 9:30 AM Effect Of Bar Type On The Punching Shear Behaviour Of GFRP-RC Interior Slab-Column Connections  
*Ahmed Gouda, University Of Manitoba*
- 9:30 - 9:50 AM Fatigue Behavior Of A Developed UHPC-Filled Precast Deck Joint In Bulb-Tee Bridge Girder System Reinforced With Sand-Coated GFRP Bars  
*Imad Eldin Khalafalla, Ryerson University*
- 9:50 - 10:10 AM Behaviour Of Unstiffened Wide-Flange Members Subjected To Torsional Moment Through One Flange  
*Muhammad Ahmad, University of Alberta*
- 10:10 - 10:30 AM Predicting Load Deflection Response Of Wood I-Joists With Flange Notch  
*M. Shahidul Islam, University of British Columbia*

**33 INV1 - Campania B**

- 9:10 - 9:30 AM Innovative And Sustainable Applications Of GFRP Reinforcing In Concrete Structures  
*Gene Latour, V-Rod Canada*
- 9:30 - 9:50 AM Construction Risk Mitigation Using Subsurface Utility Engineering  
*Lawrence Arcand, T2 Utility Engineers*
- 9:50 - 10:10 AM Tools To Evaluate The Vulnerability And Adaptation Of Infrastructure To Climate Change  
*Guy Felio, Engineers Canada*

**37 ENV3 - Novara**

- 9:10 - 9:30 AM An Assessment Of The Waste Diversion Programs In Ontario, Canada  
*Asma Chowdhury, University of Regina*
- 9:30 - 9:50 AM Evaluation Of Using Recycled Glass As Concrete Aggregate - Asr Test Results  
*Solomon Asantey, Fanshawe College & Lafarge Canada Inc.*
- 9:50 - 10:10 AM Quantitative Assessment Of Residential And Non-Residential Solid Waste Generation In Alberta And British Columbia  
*Aklima Zerlin Asha, University of Regina*
- 10:10 - 10:30 AM A Hybrid Life Cycle And Fuzzy Interval Linear Programming Approaches For Mitigating Environmental Impacts Of Pulp And Paper Production Under Uncertainty  
*Yanpeng Cai*

**40 STR5 - Verdi**

- 9:10 - 9:30 AM Circular Concrete Columns Reinforced With Steel And GFRP Under Simulated Earthquake Loads  
*Shamim Sheikh, University of Toronto*
- 9:30 - 9:50 AM Seismic Performance Evaluation Of Steel Plate Shear Wall Buildings Using Modal Pushover Analysis  
*Anjan Bhowmick, Concordia University*
- 9:50 - 10:10 AM Reliability Analysis For Fatigue Life Prediction Of Welded Connections In Steel Highway Bridges  
*Ahmed Mostafa Farag, Hingeneering Consulting*
- 10:10 - 10:30 AM Experimental Study Of Fatigue Behaviour Of Cracked Steel Plates Repaired With High And Low Modulus Carbon Fibre Reinforced Polymers  
*Syed Mobeen, University of Alberta*

**54 CON9 - Milan**

- 9:10 - 9:30 AM Observations Of The Wind Damage In Angus, Ontario Following The June Events  
*Emilio Hong, Uwo*
- 9:30 - 9:50 AM A Distributed Temperature Sensor Network To Measure And Infer Frost Penetration.  
*Robert (Bob) Mcleod, Faculty of Engineering, University of Manitoba*
- 9:50 - 10:10 AM Cost-Benefit Analysis Of Winter Road Maintenance Standards – A Case Study  
*Liping Fu, University of Waterloo*

**11:00 – 12:00 PM**

**30 CON6 - Lombardy B**

- 11:00 - 11:20 AM Selection Criteria For Dam Construction Methods  
*Mohamed Darwish, The American University in Cairo*
- 11:20 - 11:40 AM Selection Criteria For Large Caissons  
*Mohamed Darwish, The American University in Cairo*
- 11:40 - 12:00 PM Selection Criteria For Elevated RC Tank Construction  
*Reem Aboali*

**26 STR10 - Campania A**

- 11:00 - 11:20 AM GFRP-RC Columns Under Reversal-Cyclic Loading  
*Mahmoud Ali, University of Manitoba*
- 11:20 - 11:40 AM Implementation Of Simplified Design Method For Energy Dissipating Devices In Retrofitting Of Seismically Isolated Bridges  
*Seyyed Behnam Golzan*
- 11:40 - 12:00 PM Seismic Study Of Flexible Rectangular Containers Isolated By Different Outstanding Isolation Bearings  
*Shamsedin Hashemi, Yasuj University*

**34 INV2 - Campania B**

- 11:00 - 11:20 AM Best P3 Practices For The Delivery Of The Regina Bypass  
*Reg Ball, CIMA+*
- 11:20 - 11:40 AM Integrated Project Delivery  
*Mike Moffatt, RJC*
- 11:40 - 12:00 PM The New Edmonton Downtown Arena  
*Mark Upton, Thornton Tomasetti, Inc.*

**38 ENV4 - Novara**

- 11:00 - 11:20 AM A Province-Wide Comparison Of Non-Hazardous Waste Generation And Recycling Rates  
*Nathan Bruce, University of Regina*
- 11:20 - 11:40 AM One-Year Performance Evaluation Of Municipal Concrete Sidewalks Using Coarse And Fine Recycled Concrete Aggregate  
*Ahmed El-Baghdadi, Lafarge Canada Inc.*
- 11:40 - 12:00 PM Design Principles And Regulatory Requirements Of Msw Landfill Gas Management System In Western Canada  
*Meherun Nesha, University of Regina*

**41 STR6 - Verdi**

- 11:00 - 11:20 AM Shear Behaviour Of Z-Shape Steel Plate Connectors Used In Concrete Sandwich Wall Panels  
*Nabi Goudarzi, University of Alberta*
- 11:20 - 11:40 AM A Proposed Precast Concrete Deck Extension System For Semi-Integral Bridges  
*Reza Sadjadi, AECOM*
- 11:40 - 12:00 PM Analytical Solution For A Multi-Span, Prestressed Concrete Stress Ribbon Bridge.  
*Shahab Ahmed, Stantec Consulting Ltd.*

**55 CON10 - Milan**

- 11:00 - 11:20 AM Kinematic Positioning Using Online Services  
*Mike Mustafa Berber, California State University Fresno*
- 11:20 - 11:40 AM Short And Long-Term Slip Resistance Of Metallized Faying Surfaces Used With High Strength Bolted Connections  
*Maxime Ampleman, Université Laval*

## 14:00 – 15:20 PM

## 31 CON7 - Lombardy B

- 2:00 - 2:20 PM Capacity Of Hybrid Reinforced UHPC Beams In Flexure And Shear  
*Alameer Alameer, University of Ottawa*
- 2:20 - 2:40 PM Panorama-Based Change Detection Process: A Pilot Study On Challenges And Solutions  
*Sara Rankohi*
- 2:40 - 3:00 PM Value Engineering Applications To Improve Value In Residential Projects  
*Amr Fathy*
- 3:00 - 3:20 PM A Unified Knowledge-Based Contractor Prequalification Methodology For The Egyptian Construction Industry  
*Ibrahim Abotaleb, The American University in Cairo*

## 39 SIM - Novara

- 2:00 - 2:20 PM Design Of A Green Roof Concrete Units  
*Mohamed Abou-Zeid, The American University in Cairo*
- 2:20 - 2:40 PM LEED Embedded Web Application For Lifecycle Sustainability Assessment  
*Cheng Zhang, Xi'an Jiaotong-Liverpool University*
- 2:40 - 3:00 PM Thermal Comfort Assessment Of A University Office Served By Central Air Condition  
*Mehdi Pazhoohesh, Xi'an Jiaotong-Liverpool University*
- 3:00 - 3:20 PM Indicators Of Social Sustainability In Mass Housing Construction  
*Ali Karji, Iran University of Science And Technology*

## 27 STR11 - Campania A

- 2:00 - 2:20 PM Effects Of Interfacial Gaps On The In-Plane Behaviour Of Masonry Infilled RC Frames  
*Chuanjia Hu, Dalhousie University*
- 2:20 - 2:40 PM Timber Beams Post-Tensioned With Hardwire Sheets  
*Dagmar Svecova*
- 2:40 - 3:00 PM Natural Forms: Overcoming The Structural Limitations Of A Polercoaster Complex  
*Laila Amin, The American University in Cairo*
- 3:00 - 3:20 PM Central LRT Rehabilitation In Edmonton, Alberta  
*Mark Scanlon, Associated Engineering*

## 42 STR7 - Verdi

- 2:00 - 2:20 PM Prediction Of Strength Properties Of Engineered Cementitious Composites Using Artificial Neural Network  
*Shirin Ghatrehsamani*
- 2:20 - 2:40 PM Finite-Element Modelling Of Bridge Barrier Walls Reinforced With GFRP Bars And Subjected To Equivalent Transverse Impact Loading  
*Hamidreza Khederzadeh, Ryerson University*
- 2:40 - 3:00 PM Bond Strength Of GFRP Bars In Concrete At High Temperature  
*Mark Green, Queen's University*
- 3:00 - 3:20 PM Bond Behavior Of Ribbed-Surface, Headed-End, GFRP Bars Embedded In High-Strength Concrete  
*MD Sirajul Islam, Ryerson University*

## 35 INV3 - Campania B

- 2:00 - 2:20 PM Use Of Geographic Information System (GIS) Technology For Optimized Landfill Site Selection In Regina, Canada  
*Syed Ahmed, DST Consulting Engineers Inc.*
- 2:20 - 2:40 PM Interactive Inexact Optimization Methods For Environmental Management And Planning Under Multiple Uncertainties  
*Hua Zhu, Institute For Energy, Environment And Sustainable Communities*
- 2:40 - 3:00 PM Snye Sustainability  
*Juliana Tang, Associated Engineering*
- 3:00 - 3:20 PM Nitrogen Reduction For Decentralized WasteWater Treatment Systems  
*David Lepre, Orenco Systems, Inc.*

**15:45 - 17:05 PM**

**32 CON8 - Lombardy B**

- 3:45 - 4:05 PM Freeform-Based Construction Site Layout Optimization  
*Ibrahim Abotaleb, The American University in Cairo*
- 4:05 - 4:25 PM Selection Criteria For Short-Span Bridges Construction Methods  
*Mohamed Kasbar, The American University in Cairo*
- 4:25 - 4:45 PM Selection Criteria For Long-Span Bridges Construction Methods  
*Mohamed Afifi*
- 4:45 - 5:05 PM Selection Criteria For Construction Methods Of Multi-Storey Underground Buildings  
*Mohamed Afifi*

**28 STR12 - Campania A**

- 3:45 - 4:05 PM The Effect Of Overload Of A Bolted Connection On Its Fatigue Life: A Case Study  
*Leon Wegner, University of Saskatchewan*
- 4:05 - 4:25 PM Analytical Model To Determine Long Time Multipliers For Fully Cracked And Uncracked Sections  
*Andrew Scanlon, Penn State University*
- 4:25 - 4:45 PM Damage Identification Using Frequency Sensitivity Functions  
*Ayman Thabit, The American University in Cairo*
- 4:45 - 5:05 PM Effect Of The Design Resistance Of Towers On The Extent Of Transmission Line Cascading Failures  
*Sébastien Langlois, Université de Sherbrooke*

**36 INV4 - Campania B**

- 3:45 - 4:05 PM Fate Of Polycyclic Aromatic Hydrocarbons (Pahs) In Soils: Effect Of Environmental Factors And Performance Of Enhanced Remediation Processes  
*Chunjiang An, University of Regina*
- 4:05 - 4:25 PM Production Of A Biosurfactant By Bacillus N3-4p Isolated From The Atlantic Ocean And Its Application In Soil Washing  
*Baiyu (Helen) Zhang, Memorial University*
- 4:25 - 4:45 PM Short-Term Rehabilitation Of A 90-Year Old Reservoir  
*Matthew McGrath, R.V. Anderson Associates Limited*
- 4:45 - 5:05 PM Disaster Assistance In Saskatchewan  
*David Wing, WSP Canada Inc.*

**43 STR8 - Verdi**

- 3:45 - 4:05 PM Pilot Study Of Blast Performance Of Reinforced Concrete Reservoir Walls  
*Dan Palermo, York University*
- 4:05 - 4:25 PM Size Effect Of Ultra-High Performance Fiber Reinforced Concrete Beams In Shear  
*Luaay Hussein, Ryerson University*
- 4:25 - 4:45 PM Resistance Of Concrete Slab Reinforced By Hybrid GFRP & CFRP Rebars  
*Hesham Haggag, Helwan University, Cairo, Egypt*
- 4:45 - 5:05 PM A New Repair Material For Concrete Pavements  
*Ahmed Ghazy, University Of Manitoba*

2015 CSCE Conference  
TECHNICAL PROGRAM

## SATURDAY

### Breakfast

7:30 - 9:00 AM Tuscany/Trentino, Second Floor

### Lunch and Annual General Meeting

12:00 - 2:15 PM Tuscany/Trentino, Second Floor

### CSCE Meetings

9:10 - 11:00 AM 2015 Conference Review  
Verdi, Main Floor

9:30 - 12:00 PM Honours and Awards Committee  
Novara, Main Floor

11:00 - 12:00 PM Young Professionals  
Verdi, Main Floor

2:30 - 5:30 PM ACC  
Novara, Main Floor

2:30 - 5:30 PM PCC  
Verdi, Main Floor

2:30 - 5:30 PM RCC  
Campania A, Second Floor

### Young Professionals/Student

5:30 - 7:30 PM Supper  
Roof Top Bar and Grill

8:00 - 11:00 PM SaskRoots Night

### Fellows Dinner

6:30 - 11:00 PM Royal Regina Golf Club

**9:10 – 10:30 AM****44 CON9 - Lombardy A**

- 9:10 - 9:30 AM Learned Lessons From Adelaide Desalination Project  
*Tarek Omar, Western University*
- 9:30 - 9:50 AM Infrastructure Inspection Via Rope Access  
*Steven Stanley, LEX3 Engineering Inc.*

**46 STR13 - Lombardy B**

- 9:10 - 9:30 AM A Thermodynamic Framework For Constitutive Models Of Concrete Incorporated Of Plasticity And Damage Property  
*Duoxin Zhang, Tongji University*
- 9:30 - 9:50 AM Investigation Of The Behaviour Of Pipe Elbows Due To The Bourdon Effect For Different Boundary Conditions  
*MD Abdul Hamid Mirdad, University of Alberta*
- 9:50 - 10:10 AM Modal Pushover Analysis Of Ductile Eccentrically Braced Frames  
*Anjan Bhowmick, Concordia University*
- 10:10 - 10:30 AM The Preliminary Exploration Of Underground Ant Nest Materials And Structure  
*Wei Zhou*

**48 STR15 - Lombardy C**

- 9:10 - 9:30 AM An Analytical Method For Dynamic Analysis Of Base-Isolated Flexible Rectangular Fluid Containers  
*Shamsedin Hashemi, Yasuj University*
- 9:30 - 9:50 AM Effects Of Ground Motion Characteristics On Damage Of RC Buildings: A Detailed Investigation  
*Mohamed Elassaly, Fayoum University*
- 9:50 - 10:10 AM Effect Of FRP External Retrofitting On Axial Capacity Of RC Column When Subjected To Blast Load  
*Bessam Kadhom, University of Ottawa*
- 10:10 - 10:30 AM Incorporation Of Lightweight And Recycled Aggregates For Concrete Curing  
*Mohamed Abou-Zeid, The American University in Cairo*

**50 TRA1 - Campania A**

- 9:10 - 9:30 AM Effects Of Traffic State On Freeway Incident Duration  
*Moggan Motamed, The University of Texas at Austin*
- 9:30 - 9:50 AM Compatibility Analysis Of Travel Time Prediction On Freeway Using Loop Detector  
*Lu Mao, University of Alberta*
- 9:50 - 10:10 AM Schedule Reliability Of A Bus Route Under Bus To Bus And Bus To Infrastructure Connectivity  
*Willem Klumpenhower, University of Calgary*

**52 HYD2 - Campania B**

- 9:10 - 9:30 AM Projections Of Rainfall Intensity-Duration-Frequency (IDF) Curves Through A Regional Climate Modeling Approach  
*Xiuquan Wang, IEESC, University of Regina*
- 9:30 - 9:50 AM Uncertainty Quantification For Hydrologic Prediction  
*Y.R. Fan, University of Regina*
- 9:50 - 10:10 AM A Systematic Approach To Estimating The 300-Year Runout For Dense Snow Avalanches  
*Bruce Jamieson, University of Calgary*
- 10:10 - 10:30 AM Transient Thermal Analysis Of A Concrete Spillway  
*Ali Nour, Hydro-Québec*

**11:00 - 12:00**

**45 HYD1 - Lombardy A**

- 11:00 - 11:20 AM Surface Water Management Challenges In Northern Alberta Oilfield Sites  
*Ali Roshanfekr*
- 11:20 - 11:40 AM Potential Impact Of Climate Change On Water Availability Of Brahmaputra River Basin  
*Zahidul Islam, Alberta Environment and Sustainable Resource Development*

**47 STR14 - Lombardy B**

- 11:00 - 11:20 AM The Relationship Between Strength And Porosity Of SCC With Fine Materials  
*Samira Abonwara, University of Tripoli*
- 11:20 - 11:40 AM Effect Of Lateral Deformations On Vertical Stiffness Of Rubber Bearing Isolators With Rectangular Cross Section  
*Moein Ahmadipour, The University of British Columbia*
- 11:40 - 12:00 PM Flow Of Foam Mixtures On Inclined Flumes And Surfaces  
*Amir H. Azimi, Lakehead University*

**49 STR16 - Lombardy C**

- 11:00 - 11:20 AM Effect Of Different Curing Compound Applications On Concrete Pavements  
*M. Tiznobaik, University of Manitoba*
- 11:20 - 11:40 AM Durability Of Concrete Containing Sulphide-Bearing Aggregate: Assessment Of Test Methods  
*Bassili Guirguis*
- 11:40 - 12:00 PM Thermal Storage Concrete  
*Mohamed Abou-Zeid, The American University in Cairo*

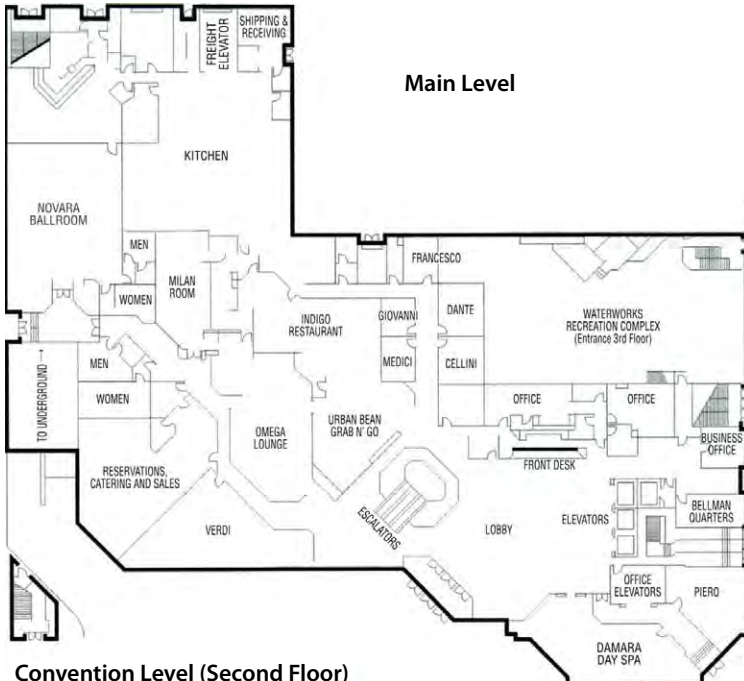
**51 TRA2 - Campania A**

- 11:00 - 11:20 AM A Truck Trip Generation Model For Williamson County, Texas: Survey Analysis  
*Mubassira Khan, The University of Texas at Austin*
- 11:20 - 11:40 AM A Model-Based Evaluation Of An Eco-Driving System Using Connected Vehicle Technologies  
*Matthew Muresan, University of Waterloo*
- 11:40 - 12:00 PM A Large Scale Field Test For Snow And Ice Control Of Parking Lots, Platforms And Sidewalks (SICOPS)  
*Liping Fu, University of Waterloo*

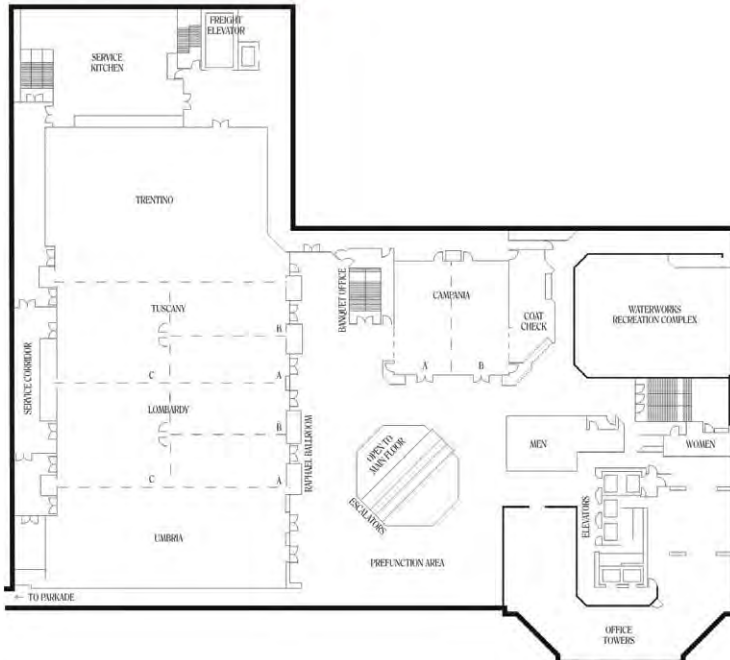
**53 ENV5 - Campania B**

- 11:00 - 11:20 AM Degradation Of Bisphenol A Using Advanced Oxidation Processes  
*Gopal Achari, University of Calgary*
- 11:20 - 11:40 AM Application Of Rhamnolipid And Microbial Activities For Improving The Sedimentation Of Oil Sand Tailings  
*Catherine Mulligan, Concordia University*
- 11:40 - 12:00 PM Surrogate Models For Fate-And-Transport Modeling Of Contaminants In The Environment: A Design Of Experiment Approach  
*Leonard Lye, Memorial University of Newfoundland*

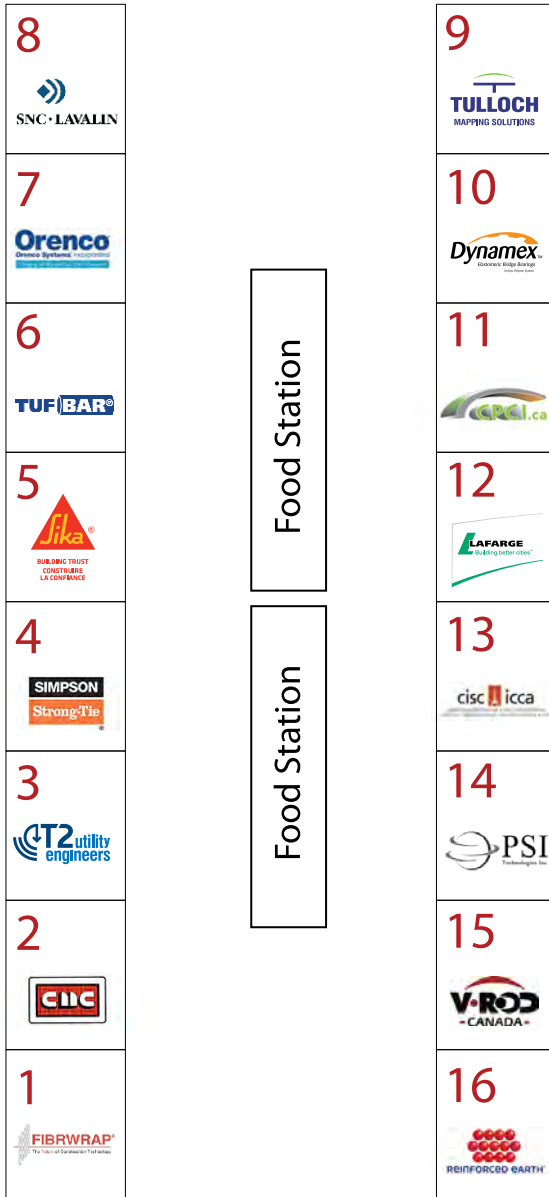




**Convention Level (Second Floor)**



# Exhibitor Map



Food Station

Food Station

FIRE EXIT

FIRE EXIT

UMBRIA

- Exhibitors**
- 1 Fibrwrap Construction Services Ltd
  - 2 Contractors Materials Company
  - 3 T2 utility engineers
  - 4 Simpson Strong Tie
  - 5 Sika Canada
  - 6 BP Composites Ltd.
  - 7 Orenco Sytems Inc
  - 8 SNC Lavalin
  - 9 Tulloch Mapping Solutions
  - 10 Dynamex Inc
  - 11 Canadian Precast Prestressed Concrete Institute (CPCI)
  - 12 Lafarge Canada
  - 13 Canadian Institute of Steel Construction (CISC)
  - 14 PSI Technologies Inc.
  - 15 V-ROD Canada
  - 16 Reinforced Earth

# Exhibitors



BUILDING TRUST  
CONSTRUIRE  
LA CONFIANCE



