



CANADIAN INSTITUTE OF STEEL CONSTRUCTION  
INSTITUT CANADIEN DE LA CONSTRUCTION EN ACIER

THE CANADIAN STEEL CONFERENCE

# CISC TECHNICAL SESSIONS

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10 PDHs

SEPT 30 - OCT 2, 2019  
HÔTEL BONAVENTURE, MONTRÉAL, QC

*Quebec Steel Symposium is amalgamating with The Canadian Steel Conference*

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TECHNICAL SESSIONS | NETWORKING | PRODUCT SHOWCASE

# Technical Sessions Schedule

## Monday, September 30, 2019

	Montréal 6-8	St-Laurent 7	St-Laurent 8
10:00 AM - 11:00 AM	<b>1. Reconstructing Christchurch: A Seismic Shift in Building Structural Systems</b> <i>Michel Bruneau, University at Buffalo, Buffalo, New York</i>	<b>2. Lean Construction for the Structural Steel Industry</b> <i>Louis Parent, Bulthink Consultants</i>	<b>3. Shop Applied Intumescent Fire Resistant Material (IFRM) The Leading Supplier's Perspective</b> <i>Vadivelu Balasankar, Sherwin-Williams</i>
11:00 AM - 12:00 PM	<b>4. Échangeur Turcot</b> <i>Thomas Montiel, Kiewit, TBA, WSP, TBA, Supermetal, TBA, MTQ, TBA, Architect</i>	<b>5. Vibration Mitigation of a Refinery Building</b> <i>Matthew Tonello, Majid Maleki &amp; Huirong Min, HATCH</i>	<b>6. The Business of Non-Destructive Testing from a Management Perspective</b> <i>Bonnie Pankrantz, Axis Inspection Inspection Group Ltd.</i>
12:00 PM - 1:00 PM	<b>Lunch</b>		
1:00 PM - 2:00 PM	<b>7. Rainier Square Tower Speed Core System</b> <i>Amir Jamshidi, Supreme Group</i>	<b>8. Kâhasiniskâk footbridge - From Vibration Challenges to Parametric Design</b> <i>Pierre-Louis Cons &amp; Sébastien Côté, ARUP</i>	<b>9. Certification of Existing Crane-Supporting Steel Structures</b> <i>Bob MacCrimmon, HATCH</i>
2:00 PM - 3:00 PM	<b>10. Steel Tariffs and Duties</b> <i>Edward Whalen, CISC</i>	<b>11. Seismic Design of Steel Structures or New Seismic Resistance Systems</b> <i>Dr. Robert Tremblay, École Polytechnique de Montréal</i>	<b>12. The Art of Framing, The Detailer Point of View</b> <i>Benoît Rancourt, Conn-x</i>
3:00 PM - 3:30 PM	<b>Afternoon Break</b>		
3:30 PM - 4:30 PM	<b>13. CIBC Square: Connecting Toronto with Steel Solutions</b> <i>Andrew Voth, Benoît Boulanger &amp; David Ruggiero, RJC Engineers</i>	<b>14. Overview the Clause 27 of CSA S16-14 for the Design of Seismic Connections</b> <i>Elie St-Onge, Hydro-Québec</i>	<b>15. How and Why Use the CISC Code of Standard Practice for Structural Steel</b> <i>Hellen Christodoulou, CISC</i>

## Tuesday, October 1, 2019

	Montréal 6-8	St-Laurent 7	St-Laurent 8
10:00 AM - 11:00 AM	<b>16. Champlain Bridge</b> <i>Guy Mailhot, Infrastructure Canada</i>	<b>17. Seismic Assessment and Retrofit of Braced Frame Building</b> <i>Lucia Tirca, Concordia University</i>	<b>18. Industry 4.0 by FICEP</b> <i>Filippo Gremese &amp; Didier Bonnet, FICEP</i>
11:00 AM - 12:00 PM	<b>19. Structural Design of the Gerber Girder Cantilever System - Filling in the Knowledge Gap</b> <i>Andy Metten, Bush, Bohlman &amp; Partners LLP</i>	<b>20. Why is Steel Certification Essential? Why Should it Be Considered Mandatory?</b> <i>Hellen Christodoulou, CISC</i>	<b>21. Graitec Solutions for Finite Element Steel and Connection Analysis and Design: Break the limits of hand-calculations with CBFEM-based tools</b> <i>Farshad Pourshargh, Graitec Canada</i>
12:00 PM - 1:00 PM	<b>Lunch</b>		
1:00 PM - 2:00 PM	<b>22. The Amazing Grace of Steel</b> <i>Rob Third, George Third &amp; Son</i>	<b>23. Bolted Splice Connections for Steel Bracing Members</b> <i>Dr. Robert Tremblay, École Polytechnique de Montréal &amp; Alexandre Gélinas, WSP</i>	<b>24. Prompt Payment Provincial &amp; Federal</b> <i>Dan Leduc, Norton Rose Fullbright</i>
2:00 PM - 3:00 PM	<b>25. Steel Joist &amp; Deck in Composite Floor System - Solutions for multistory construction</b> <i>Suresh Jacob &amp; Dustin Gravelle, Nucor Vulcraft</i>	<b>26. An Overview of Ultrasonic Testing of Structural Steel Welds in Canadian Industry</b> <i>Paul Holloway, Holloway NDT &amp; Engineering Inc</i>	<b>27. Overview of Ductile Multi-Tier Bracing Design as per CSA S16-14</b> <i>Elie St-Onge, Hydro-Québec</i>
3:00 PM - 3:30 PM	<b>Afternoon Break</b>		
3:30 PM - 4:30 PM	<b>28. AESS UPDATE! It's Been 10 Years - Current Best Practices</b> <i>Terri Meyer Boake, University of Waterloo</i>	<b>29. Steel - Solution to Earthquake Resilience</b> <i>Dorian P. Tung, RJC Engineers</i>	<b>30. Structural Steel in Green Buildings: How to sell your EPD?</b> <i>Hugues Imbeault-Tréault, Groupe AGECO</i>

# CISC TECHNICAL SESSIONS

Sessions will be delivered in English or French. Interpreters will be available for each session.\* The language of delivery is indicated in the session's title line.

## VIBRATION MITIGATION OF A REFINERY BUILDING \*ENGLISH

Monday, September 30th | 11:00 a.m. - 12:00 a.m. | Room: St-Laurent 7

Speakers: Majid Maleki, Ph.D., P.Eng, Huirong Min, M.A.Sc., P.Eng,  
Matthew Tonello, EIT, HATCH

0.1 CEU / 1.0 PDH

Vibratory equipment supported by steel structures require proper design to avoid resonance. Neglecting resonance can result in excessive vibratory response in a structure causing premature equipment failure, fatigue failure of steel members, and lost time for the client. This presentation focuses on a case study where 12 vibratory screens working within a close frequency range resulted in excessive vibrations in the steel structure of a refinery plant. Upon completing a thorough vibration measurement and structural dynamic assessment, a cost-effective solution was devised to isolate the vibration sources by implementing structural steel framing modifications to reduce the vibration across the plant.



### MAJID MALEKI, PH.D., P.ENG, HATCH

#### Speaker Bio:

Majid has a Ph.D. degree in structural engineering with +15 years of experience in design and analysis of structures and equipment in the fields of oil & gas, mining and metal production. Majid has been involved in variety of design and fitness-for-service assessment of structures and foundations subject to both static and dynamic loads, off-shore equipment coming to contact with icebergs (soil-structure interaction), metallurgical equipment and refractory lining at elevated temperature (pressure vessel thermo-mechanical analysis), stacks under seismic and wind load (vortex shedding analysis), heat-exchangers (fluid-structure interaction), sea transportation, etc. Majid is proficient in numerical simulation and material modelling using implicit and explicit finite element analysis as the main numerical tool in above fields.



### HUIRONG MIN, M.A.SC., P.ENG, HATCH

#### Speaker Bio:

Huirong is a structural consultant with over 30 years of experience in the design of nuclear thermal/nuclear power plant structures, transmission and substation structures, mining, smelting and industrial structures. Huirong has extensive knowledge and experience in finite element analysis, structural dynamics, and seismic analysis/design for both nuclear and non-nuclear structures, systems, and components.



## **MATTHEW TONELLO, EIT, HATCH**

### *Speaker Bio:*

Matthew is recent graduate from the University of Waterloo and has been working with the structural engineering team at Hatch for the past two years. This keen, young engineer is ready to take on any tasks and challenges that are brought his way. In his short tenure at Hatch, he has been involved in multiple projects that involve the design of industrial steel structures, bridge load testing, finite element analysis, and vibrational analysis. Matthew looks forward to broadening his knowledge in the field of structural engineering by continuing to take on challenging design tasks under the mentorship of the experienced and diverse team of engineers at Hatch.

## **STEEL JOIST & DECK IN COMPOSITE FLOOR SYSTEM – SOLUTIONS FOR MULTISTORY CONSTRUCTION \*ENGLISH**

*Tuesday, October 1st | 2:00 p.m. – 3:00 p.m. | Room: Montréal 6-8*

*Speakers: Suresh Jacob, P.Eng, & Dustin Gravelle, P.Eng, Nucor Vulcraft      0.1 CEU / 1.0 PDH*

This session aims to highlight the construction advantages, cost and time savings of building composite floor with poured concrete on steel deck. It will touch upon the design and behavior, as well as selection and specifications of open web steel joist and deck in composite floor construction.



## **SURESH JACOB, P.ENG, NUCOR VULCRAFT**

### *Speaker Bio:*

Suresh has held Engineering and Management positions in manufacturing and construction related industries for over 35 years. His career has taken him across Europe, Middle East, Asia and North America, setting up and building engineering, manufacturing and construction related businesses. He has been in North American steel Joist and Deck industry for over 15 years. The last 7 years has been with Nucor Vulcraft, during which he has been instrumental in setting up and developing their Canadian operations. He is currently occupied with business development, technical marketing, training and special projects. In addition to his professional engineering status attained in 2005, he is also a Certified Welding Engineer.



## **DUSTIN GRAVELLE, P.ENG, NUCOR VULCRAFT**

### *Speaker Bio:*

Dustin joined the team at Nucor Vulcraft, Canada in 2018 as Engineering Supervisor. He previously held the position as Technical Lead at a consulting firm in London, Ontario, and as a connection designer at a structural steel fabrication company in the Greater Toronto Area. Dustin joins the team with an extensive background in the fabrication and construction of steel structures. He is currently involved with the technical design and analysis of roof and floor joists for all types of building projects. Other day-to-day responsibilities include on-site assessments, report writing, quality control, and team management. Dustin obtained a Bachelor's of Engineering Science from the University of Western Ontario in 2007.

## **AESS UPDATE! IT'S BEEN 10 YEARS – CURRENT BEST PRACTICES \*ENGLISH**

*Tuesday, October 1st | 3:30 p.m. – 4:30 p.m. | Room: Montréal 6-8*

*Speaker: Terri Meyer Boake, B.E.S., B.Arch., M.Arch., LEED AP*

*0.1 CEU / 1.0 PDH*

It has been 10 years since CISC launched the “new” suite of AESS documents. This presentation aims to bring a concise and highly visual update to what are now considered best practices to apply AESS to projects. The presentation will provide a brief overview of “the system” and place focus on connection detailing, in particular approaches to splices and field connections as they merge aesthetic considerations with issues of erection. The central AESS dilemma, the one that started this entire conversation – “to grind or not to grind (welds)” will be addressed. Innovative discreet and hidden connections can provide an effective alternate to excessive field welded splices.



### **TERRI MEYER BOAKE, B.E.S., B.ARCH., M.ARCH., LEED AP**

#### *Speaker Bio:*

Terri Meyer Boake B.E.S., B.Arch., M.Arch., LEED AP is a Full Professor at the School of Architecture at the University of Waterloo in Canada. She has been teaching building construction, structures, environmental design and film since 1986. She works with CISC, ACSA and AISC developing teaching resources for Architectural education specializing in AESS. She assisted CISC in producing the “Guide for Specifying AESS”. She has published three books for Birkhäuser: “Understanding Steel Design: An Architectural Design Manual” (2012), “Diagrid Structures: Systems, Connections, Details” (2014) and “Architecturally Exposed Structural Steel: Specifications, Connections, Details” (2015). “Complex Steel Structures: Non Orthogonal Geometries in Building with Steel” will be published in 2019. She is a board member with the Council on Tall Buildings and Urban Habitat and the CISC Education and Research Council. She is an avid photographer, documenting construction processes and completed buildings.

## **THE AMAZING GRACE OF STEEL \*ENGLISH**

*Tuesday, October 1st | 1:00 p.m. – 2:00 p.m. | Room: Montreal 6-8*

*Speaker: Rob Third, President, George Third & Son, Burnaby, BC*

*0.1 CEU / 1.0 PDH*

Canadian steel fabricators have always stood out for their ingenuity and passion in building structures and art displays that push the boundaries. This presentation will showcase the most remarkable and innovative architectural structures that Canadian fabricators have build in steel in the recent years.



## **ROB THIRD, PRESIDENT, GEORGE THIRD & SON, BURNABY, BC**

### *Speaker Bio:*

Rob has over 30 years of steel construction experience. The close links Rob's has established with personnel within the steel construction community has allowed him to leverage his many years of experience in design, project management and construction, with proven manufacturing capabilities existing in-house at George Third and Son. Rob's industry connections have open doors to facilitate Joint Venture partnerships with some of the largest steel fabricators in North America.

He is past Chairman of the Canadian Institute of Steel Construction (CISC), past Member of the CISC Board of Directors, past Chairman of the Steel Structures Education Foundation, past Member of the Board of Directors for the Canadian Welding Bureau and past Chair and Honorary Board Member of the Endeavour Charity Society.

## **LEAN CONSTRUCTION \*ENGLISH**

*Monday, September 30th | 10:00 a.m. - 11:00 a.m. | Room: St-Laurent 7*

*Speaker: Louis Parent, P. Eng., MBA, PMP, SSLBB,  
President Builthink Consultants*

*0.1 CEU / 1.0 PDH*

The Canadian industry always innovates, and fabricators have benefited from Lean manufacturing to face some of its many challenges. From the architectural design concept through engineering, detailing, fabrication and installation. The presentation will show how Lean Construction principles can improve safety, quality and performance by increasing productivity.



## **LOUIS PARENT, P. ENG., MBA, PMP, SSLBB, PRESIDENT BUILTHINK CONSULTANTS**

### *Speaker bio:*

Louis Parent is the founder of Builthink, a firm that assists and advises construction industry stakeholders in project management, organizational performance and quality.

Louis has more than twenty years of experience in steel structure. From project manager, he rose through the ranks as general manager then V.-P. His professional background includes many achievements of commercial, industrial and even water park structures around the world. Among his greatest accomplishments, Louis was responsible for the design of one of North America's most advanced steel structure plants at JV Driver in Alberta.

Louis is a graduate engineer from the ÉTS in Construction Engineering, earned his MBA from the University of Alberta in International Business, is a PMP Certified Lean Six Sigma Black Belt.

## SHOP APPLIED INTUMESCENT FIRE RESISTIVE MATERIAL (IFRM) THE LEADING SUPPLIER'S PERSPECTIVE \*ENGLISH

Monday, September | 10:00 a.m. - 11:00 a.m. | Room: St-Laurent 8

Speaker: Vadivelu Balasankar, Senior Fire Protection Engineer, Fire Engineering and Estimation Team, Sherwin-Williams Canada inc.

0.1 CEU / 1.0 PDH

FIRE is often devastating and sometimes catastrophic, sometimes fatal – above all else let's remember that this is a life safety issue. Sherwin-Williams created shop applied fireproofing technologies that gave the steel industry what it needed.



### VADIVELU BALASANKAR, SENIOR FIRE PROTECTION ENGINEER, FIRE ENGINEERING AND ESTIMATION TEAM, SHERWIN-WILLIAMS CANADA INC.

#### Speaker bio:

Vadivelu Balasankar is a Mechanical Engineer and is currently working as a Senior Fire Protection Engineer for the Fire Engineering and Estimation Team at Sherwin-Williams Canada Inc. He is responsible for designing the thickness of intumescent fire resistive material in both commercial and oil & gas projects. He prepares the specification of fire-protection reports based on simple and complex calculations, as well as inputs from Building Information Modeling (BIM) software. Velu has more than 10 years of experience in the fireproofing industry.

## THE BUSINESS OF NON-DESTRUCTIVE TESTING FROM A MANAGEMENT PERSPECTIVE \*ENGLISH

Monday, September 30th | 11:00 a.m. - 12:00 a.m. | Room: St-Laurent 8

Speaker: Bonnie Pankratz, President, AXIS Inspection Group Ltd.

0.1 CEU / 1.0 PDH

Non-Destructive Testing is a complex topic. It is important for people to understand the basics to assist with appropriate cost estimation, project time movement, and fabrication scheduling. To understand Non-Destructive Testing, one must first learn the key terms and requirements, a task that can seem daunting by many. This presentation will help those who work with Fabrication by outlining the Canadian Code Requirements and key information regarding Inspection and Non-Destructive Testing (NDT). In addition, the types of NDT methods will be explained and an understanding of the purpose and application of each will be explored.

This presentation is for a general audience and will be delivered from a business management perspective. After attending this presentation everyone Engineers, Project Managers, Estimators, and Shop personnel will gain a better understanding of the purpose of Inspection and NDT in both the Quality Control and Quality Assurance applications.



### BONNIE PANKRATZ, PRESIDENT, AXIS INSPECTION GROUP LTD.

#### Speaker bio:

Bonnie Pankratz is the President and founder of AXIS Inspection Group Ltd, based in Winnipeg, Manitoba. Bonnie has over 20 years of experience in the industrial welding industry and has spent the past 15 focusing on Welding Inspection and Testing. Bonnie's experience includes business development and management with ASME, CSA and various Welding procedure and quality requirements, Industry Facility Maintenance Inspection planning and execution, Various Welding inspection and NDT methods and the implementation and maintenance of ISNET, COR Safety, ISO 9001 and other quality and safety requirements for industrial applications.

## KÂHASINÎSKÂK FOOTBRIDGE - FROM VIBRATION CHALLENGES TO PARAMETRIC DESIGN \*FRENCH

Monday, September 30th | 10:00 a.m. - 11:00 a.m. | Room: St-Laurent 8

Speakers: Pierre-Louis Cons ing. & Sébastien Côté ing., M.Ing, ARUP

0.1 CEU / 1.0 PDH

The Kâhasinîskâk footbridge will open soon near Downtown Edmonton. The 60-metre-long through bridge is part of the new Valley Line Light Rail Transit. On each side of the orthotropic slab, two box girders feature weathering steel; their variable height helps improving the dynamic performance of the structure as well as the visual quality of the bridge. Still, due to stringent vibration requirements, the bridge had to be fixed at one abutment. A parametric optimization helped managing the complex geometry of the signature bridge, and the automation of the design process facilitated BIM integration.



### PIERRE-LOUIS CONS ING., INGÉNIEUR SENIOR PONTS ET OUVRAGES D'ART, ARUP

#### Speaker bio:

Pierre-Louis joined Arup in January 2017 after working 5 years with COWI North America (formerly Buckland & Taylor). He graduated in 2011 from the EPFL, Swiss Institute of Technologies in Lausanne, with a Master's Degree in Structural Engineering.

During his career, Pierre-Louis has worked on a variety of bridge projects, including design and analysis of cable-stayed bridges, bridge inspections and more recently he was involved in the construction of the new Gerald Desmond cable-stayed bridge in Long Beach, California.



### SÉBASTIEN CÔTÉ ING., M.ING INGÉNIEUR PONTS ET OUVRAGES D'ART, ARUP

#### Speaker bio:

Sebastien has worked for Arup for 5 years now. He graduated in 2017 from Polytechnique de Montreal with a Master's Degree in Project Management for the Construction Industry.

He has helped on the construction and the design of multiple bridges on the New Turcot Interchange project and followed the New Champlain bridge from the reference design phase to its construction. His most important involvement in bridges design has been the new Kâhasinîskâk footbridge in Edmonton.



## STEEL – SOLUTION TO EARTHQUAKE RESILIENCE \*ENGLISH

Tuesday, October 1st | 3:30 p.m. – 4:30 p.m. | Room: St-Laurent 7

*Speaker bio: Dorian P. Tung, PhD, PE, LEED®AP BD+C, RJC Engineers, Vancouver, Canada*

0.1 CEU / 1.0 PDH

There is no doubt that steel construction is fast and sustainable. When it comes to post-earthquake recovery, steel structures can be resilient. This is attributed to the stable and controllable behaviour of steel when properly designed and detailed. To promote the use of steel, an energy-based design procedure is presented. This procedure expedites the design process and is suitable for consulting offices. It is also applicable to retrofit structures with steel allowing designers to incorporate innovative steel technologies. A variety of structural steel projects is presented to illustrate the use of the design procedure to achieve earthquake resilience.

### Outline

- Discussion of steel as structural fuses in the context of earthquake engineering
- Introduction of equivalent energy design procedure (EEDP)
- Illustration of EEDP for earthquake resilient fused structures via example steel projects
- Application of EEDP to retrofit existing structures
- Illustration of EEDP retrofit via example projects



### **DORIAN P. TUNG, PHD, PE, LEED®AP BD+C RJC ENGINEERS, VANCOUVER, CANADA**

#### *Speaker bio:*

Dr. Dorian Tung is currently working at RJC in Vancouver as a structural consultant specializing in performance-based earthquake engineering. He obtained his Ph.D. in Structural and Earthquake Engineering from the University of British Columbia in 2017. His thesis focuses on developing earthquake resilient structural steel components and systems. He has expertise in numerical simulations and experimental testing, and has written many papers on the related topics. Prior to returning to school for his Ph.D., Dorian practiced in the States of Florida and Texas for 9 years, and is a certified LEED AP. He has designed many LEED certified steel structures over his career.

## GRAITEC SOLUTIONS FOR FINITE ELEMENT STEEL AND CONNECTION ANALYSIS AND DESIGN: BREAK THE LIMITS OF HAND-CALCULATIONS WITH CBFEM-BASED TOOLS \*ENGLISH

Tuesday, October 1st | 11:00 a.m. – 12:00 p.m. | Room: St-Laurent 8

*Speaker: Farshad Pourshargh Local Product Manager Graitec Canada*

0.1 CEU / 1.0 PDH

There is a growing divergence in tools used for structural design and code-check of steel structures. For frame elements (i.e. global models of structures), adoption of finite elements has been wide and successful. For steel connections and joints, on the other hand, toolkit of an engineer or fabricator is still predominantly based on hand-calculations following templated examples from design handbooks.

In this presentation, we will investigate available solutions provided by Graitec to engineers, their drawbacks and benefits and demonstrate them on practical examples. Special focus will be paid to Graitec Advance Design for General FE analysis and Component-based Finite Element Method (CBFEM), also we will present Advance design Connection software enabling thousands of engineers to break the limits of steel members and connection design.



## **FARSHAD POURSHARGH LOCAL PRODUCT MANAGER GRAITEC CANADA**

### *Speaker bio:*

Mr. Pourshargh joined GRAITEC family in September 2015 as a Senior Structural Engineering Application Specialist. His duties included technical consultations and solutions on modeling and design of different types of structures for structural engineering firms and contractors in North America who use GRAITEC Solutions. He also monitors the new updates for the associated and relevant structural design codes and standards to be incorporated in software.

Before 2015, Mr. Pourshargh worked in Structural Engineering industry for Canadian, French, Malaysian and Iranian consulting offices. He is now on the final stages of Ph.D. degree from Sherbrooke University. His thesis was about: "Non-linear analysis and modelling of transmission line structures".

He also has several years of training and field supervision on Civil engineering. Mr. Pourshargh won several awards and scholarships including the scholarship from Research chair Hydro Quebec-RTE and MITACS Accelerate. Currently, he is the Local Product Manager for the Structural Engineering Solutions of GRAITEC in North America.

## **RAINIER SQUARE TOWER: FABRICATION TECHNIQUES AND CHALLENGES \*ENGLISH**

*Monday, September 30th | 1:00 p.m. - 2:00 p.m. | Room: Montréal 6-8*

*Speaker: Amir Jamshidi, PhD, PEng, PE Director, Engineering Services, Supreme Group*

*0.1 CEU / 1.0 PDH*

A new revolutionary game-changer composite shear wall system has been introduced in the design and construction of tall buildings and is now being put into practice in constructing of Rainier Square Tower in the center of Seattle's retail district. The system comprises of two steel plates connected by steel spacing anchor rods with the cavity between the plates filled with concrete. Developed by MKA with in-kind support provided by Supreme Group, this cost-saving system provides faster and safer construction and schedule. This presentation will shed lights on the steel fabrication techniques used and challenges being faced with.



## **AMIR JAMSHIDI, PHD, PENG, PE DIRECTOR, ENGINEERING SERVICES, SUPREME GROUP**

### *Speaker Bio:*

Dr. Jamshidi is currently working at Supreme Group as the Director of Engineering Services. He obtained his Ph.D. in Structural Engineering from the University of Alberta in 2016 focused on progressive collapse of steel structures. Amir has worked on many prominent projects in North America including the Rainier Tower, SeaTac Airport, Waterdale Bridge, The Leaf at Canada's Diversity Gardens, Regina Bypass, and the Southwest Calgary Ring Road. Amir is heavily involved in the technical and engineering communities through the Steel Centre, ASCE, AISC and NSBA. He is a Steel Centre Industry Advisory Council, CISC Education and Research Council, and chair of the Education and Research subcommittee for the Alberta region.

## CERTIFICATION OF EXISTING CRANE-SUPPORTING STEEL STRUCTURES \*ENGLISH

Monday, September 30th | 1:00 p.m. - 2:00 p.m. | Room: St-Laurent 8

Speaker: Bob MacCrimmon, P.Eng, HATCH

0.1 CEU / 1.0 PDH

There are several situations where, for instance, a change in use or compliance with regulations would warrant certification of a crane-supporting structure by a Professional Engineer. Owners often consider upgrading overhead crane capacities and adding other types of lifting devices. Problems with crane operations may lead to an evaluation of the supporting structure. The certification process often uncovers deficiencies not previously identified. These scenarios could result in a need for modifications to the crane-supporting steel structure. This presentation focuses on the above topics, offering strategies for evaluation, modification and rehabilitation.



### BOB MACCRIMMON, P.ENG, HATCH

#### Speaker bio:

Bob is a Senior Civil/Structural Specialist with more than 35 years' experience in management, design and construction of a variety of work associated with the civil engineering profession and multi-discipline projects. His experience includes design of light and heavy buildings; crane carrying steel structures; site works; bridges; dry docks; and wharfs. He is a past member of the CSA committee that authors the Canadian Standard for Design of Steel Structures, a past member of the AIST subcommittee that authors the recommendations for design of steel mill buildings, a member of the AISC Task Group on Industrial Buildings and Non-Building Structures and co-author of several papers and a CISC sponsored Design Guide for Crane Supporting Steel Structures. Since 2009 he has been a lecturer on a cross-Canada course on design of steel industrial buildings, sponsored by the Canadian Institute of Steel Construction. For the Halifax Shipyard Modernization Project, Bob was the Principal Structural Engineer for the Assembly Hall and Ultra Hall buildings and foundations.

## STRUCTURAL STEEL IN GREEN BUILDINGS: HOW TO SELL YOUR EPD? \*ENGLISH

Tuesday, October 1st | 3:30 p.m. - 4:30 p.m. | Room: St-Laurent 8

Speaker: Hugues Imbeault-Tétreault, ing., M.Sc.A., , Groupe AGEKO

0.1 CEU / 1.0 PDH

The Canadian structural steel fabricators who participated to the CISC environmental product declarations (EPDs) have access to several green building projects since EPDs are recognized by green building certifications, such as LEED. Come learn how to sell the EPDs to building professionals and be part of green building projects.



### HUGUES IMBEAULT-TÉTREULT, ING., M.SC.A., GROUPE AGEKO

#### Speaker bio:

Hugues Imbeault-Tétreault joined Groupe AGEKO in 2018 as a senior analyst. An engineer physicist by training, he earned a master's degree from the International Reference Centre for the Life Cycle of Products, Processes and Services (CIRAIG), Polytechnique Montreal (Canada). He then worked as an LCA analyst for over six years and acquired extensive expertise in environmental life cycle assessment (LCA). He conducted and participated in more than 15 LCA projects in several sectors including construction products, packaging, wood products, pulp and paper, chemistry and automotive products.

## STRUCTURAL DESIGN OF THE GERBER GIRDER CANTILEVER SYSTEM – FILLING IN THE KNOWLEDGE GAP \*ENGLISH

Tuesday, October 1st | 11:00 a.m. – 12:00 p.m. | Room: Montréal 6-8

Speaker: Andy Metten, P.Eng., Struct.Eng., Partner: Bush, Bohlman & Partners LLP 0.1 CEU / 1.0 PDH

The Gerber Girder cantilever system is a popular roof design system for steel buildings in Canada. The system produces material savings and reduces deflections and is popular for the design of roofs in many big-box retail stores. With cantilever girders the system has stability issues that are not present in roof framing systems containing only simple span members. The talk presents simple ways of looking at and addressing the stability issues in design and how the important knowledge of this system design is now being passed on and how S16-19 will include provisions to cover Gerber framing system.



### ANDY METTEN, P.ENG., STRUCT.ENG., PARTNER: BUSH, BOHLMAN & PARTNERS LLP

#### Speaker bio:

Andy Metten a practising structural engineer and partner in the Vancouver-based structural engineering firm of Bush, Bohlman & Partners LLP. Over the past 35 years, he has been the design engineer on several buildings and bridges, including the Vancouver International Airport and the U.S. Terminal in Nassau, Bahamas and the Skytrain Fraser River crossing at New Westminster. Andy is still closely involved in day-to-day design of structures from conceptual design through field services. Andy Metten has practised structural engineering since graduation from the University of British Columbia with a bachelor's degrees in Civil Engineering in 1978 and a master's degree in structural engineering in 1981. He is currently a member of the Standing Committee for Seismic Design for the National Building Code of Canada and a member of the S16 structural steel design committee for Canada. Since 2002, he has also taught an evening structural steel design course offered by the Structural Engineers Association of BC (SEABC) the notes from that course have now evolved into the textbook Structural Steel for Canadian Buildings which is used by both EIT's and an undergraduate textbook at several universities

## RECONSTRUCTING CHRISTCHURCH: A SEISMIC SHIFT IN BUILDING STRUCTURAL SYSTEMS \*ENGLISH

Monday, September 30th | 10:00 a.m. – 11:00 a.m. | Room: Montréal 6-8

Speaker: Michel Bruneau, Ph.D., P.Eng., University at Buffalo, NY 0.1 CEU / 1.0 PDH

After the 2011 earthquake, much of downtown Christchurch was demolished and a new city has emerged in its place, with a variety of structural forms, an extensive amount of steel structures, and some more resilient structural systems. Data collected has made it possible to identify some of the drivers that have influenced decisions about the selection of structural material and systems used.



### MICHEL BRUNEAU, PH.D., P.ENG., UNIVERSITY AT BUFFALO, NY

#### Speaker bio:

SUNY Distinguished Professor, Department of Civil, Structural and Environmental Engineering. Michel Bruneau has received several national awards and recognitions for his work on the design and behavior of steel structures subjected to earthquakes and blasts, and has recently been inducted as fellow of the Canadian Academy of Engineering. He is also an ASCE Fellow, an SEI Fellow, and a member of various AISC and CSA committees developing design specifications for bridges and buildings. He has conducted numerous reconnaissance visits to disaster-stricken areas and has served as Director of MCEER. He has also participated in various expert peer review panels, project advisory committees, and special project design teams

## SEISMIC ASSESSMENT AND RETROFIT OF BRACED FRAME BUILDINGS \*ENGLISH

Tuesday, October 1st | 10:00 a.m. - 11:00 a.m. | Room: St-Laurent 8

Speaker: *Dr. Lucia Tirca, PH.D.*

0.1 CEU / 1.0 PDH

Prior to 1990, various definitions of seismic demand were provided in building code editions and design approaches released in steel design standards were not capacity-based. Thus, the pre-1990 building stock is prone to exhibit severe seismic damage due to lack of lateral resistance and ductility. Recent research and seismic retrofit design examples of braced frame buildings are presented.



### DR. LUCIA TIRCA, PH.D.

#### Speaker bio:

Dr. Lucia Tirca joined the Department of Building, Civil, and Environmental Engineering at Concordia University in 2008 after she pursued post-doctoral work at Polytechnique Montreal and five years of professional practice in consulting companies in Montreal. Her main research interest is related to seismic design of steel building structures, assessment of structures, and retrofit design. Her work focuses on developing innovative earthquake resistant systems and detailed numerical models able to capture the failure mechanism. Current research topics include the development of building vulnerability curves for life-cycle cost using data from fragility analysis. She participated in post-earthquake investigations in Italy (2012) and New Zealand (2016). She is an active member of "Centre d'études interuniversitaires sur les structures sous charges extremes" (CEISCE), a member of SEI-ASCE Technical Council on Life-Cycle Performance, Safety, Reliability and Risk of Structural Systems and a member of International Advisory Committee at STESSA conference.

## CIBC SQUARE: CONNECTING TORONTO WITH STEEL SOLUTIONS \*ENGLISH

Monday September 30th | 3:30 p.m. - 4:30 p.m. | Room: Montréal 6-8

Speakers: *Andrew Voth, Ph.D., P.Eng.,*

0.1 CEU / 1.0 PDH

*Benoit Boulanger, M.A.Sc., P.Eng., Ing., David Ruggiero, Ph.D., RJC Engineers*

A discussion of the innovative steel solutions employed in the design of CIBC Square in Toronto, a first-of-its-kind development integrating approximately 2.9 million square feet of office space, a transit terminal, a 1.4 acre elevated park above Canada's largest train station and pedestrian bridges to the surrounding area.



### DAVID RUGGIERO, PH.D., RJC ENGINEERS

#### Speaker bio:

As a member of RJC's Toronto office, David applies the technical expertise gained as a researcher to the practical challenges of large scale construction projects. David's background includes international and local design experience and extensive investigation of the shear behaviour of reinforced concrete structures and seismic design and assessment of buildings. He is a frequent reviewer for the Journal of Earthquake Engineering and Engineering Structures.



## ANDREW VOTH, PH.D., P.ENG., RJC ENGINEERS

### Speaker bio:

Andrew Voth is a structural engineer at RJC Engineers in Toronto specializing in design and performance of unique steel structures. He has gained local and international design experience working on a wide range of residential, retail, commercial, and entertainment structures including London's 20 Fenchurch Street office building, Square One Shopping Centre South and West Expansions and the Canadian Museum for Human Rights in Winnipeg. In addition to delivering the over one-acre elevated pedestrian park and adjoining pedestrian bridge as a part of the CIBC Square project, he is currently leading the design of the innovative 30 Bay Street Development in Toronto's south core area. Andrew received his doctorate from the University of Toronto with focus on the behavior and design of connections to round hollow structural sections. He has been a reviewer for the Journal of Constructional Steel Research and is currently an associate member of CSA S16 Design of Steel Structures - Standards Development Technical Committee.



## BENOIT BOULANGER, M.A.SC., P.ENG., ING., RJC ENGINEERS

### Speaker bio:

After completing his Bachelor and Masters at Université de Sherbrooke, Benoit joined RJC Engineers and its tall building group in Toronto. Having worked on numerous residential and commercial projects with significant technical challenges across Canada, he combined his earthquake engineering technical background with his hand-on design experience to advance RJC's lateral design procedures. In addition to CIBC Square, select projects Benoit has worked on include Calgary City Center, Toronto's Eglinton Crosstown and Waterpark Place Phase III.

## AN OVERVIEW OF ULTRASONIC TESTING OF STRUCTURAL STEEL WELDS IN CANADIAN INDUSTRY \* ENGLISH

Tuesday, October 1st | 2:00 p.m. - 3:00 p.m. | Room: St-Laurent 7

Speaker: Paul Holloway, President, Holloway NDT & Engineering Inc.

0.1 CEU / 1.0 PDH

Recent changes to CSA W59-18 now permit use of a DAC/TCG which is commonly accepted in many other codes used worldwide. As well, phased array ultrasonic testing is now accepted in the code for manual scanning which provides improved defect imaging and discrimination.



## PAUL HOLLOWAY, PRESIDENT, HOLLOWAY NDT & ENGINEERING INC.

### Speaker bio:

Paul Holloway is a Professional Engineer in Ontario. He is certified CGSB UT3, MT2, PCN PAUT Level 2 and CSA W178.2 Level 2. He is the President of Holloway NDT & Engineering Inc., a company specializing in ultrasonic testing field services, NDT training and consulting, and Mechanical Engineering services. Industries served include offshore petrochemical, power generation, chemical, construction, manufacturing, automotive and aerospace sectors. He received his Master of Applied Science degree in Mechanical Engineering from the University in Waterloo in 2004. He is also an active member of the CSA W59 committee. Paul drinks Starbucks French Roast, black.

## INDUSTRY 4.0 BY FICEP \*ENGLISH

Tuesday, October 1st | 10:00 a.m. - 11:00 a.m. | Room: St-Laurent 8

Speakers: Filippo Gremese & Didier Bonnet, FICEP

0.1 CEU / 1.0 PDH

In this presentation, FICEP GROUP, the principal supplier of CNC machines and software for steel fabrication in the world market will showcase that it is ready for Industry 4.0. This current trend of automation and data exchange in manufacturing technologies includes cyber-physical systems, the Internet of things, cloud computing and cognitive computing. Industry 4.0 is commonly referred to as the fourth industrial revolution.



### FILIPPO GREMESE, EXECUTIVE VICE PRESIDENT, FICEP CORPORATION

#### Speaker bio:

Master Degree in Engineering Management  
Executive Manager with 15 years of experience in reinforcement and structural steel business domains for diversified markets with prominent international background in: Sales Management, Business Development, Projects Management, Operations Management



### DIDIER BONNET, PRESIDENT, STEEL PROJECTS - FICEP SOFTWARE DIVISION

#### Speaker bio:

Engineer from ECAM engineering school  
Executive manager with 26 years of experience in production management software development, including 11 years in structural steel business worldwide with background in: Structural steel production management, Software design and development, Projects management, Operations and sales management

## STEEL TARIFFS AND DUTIES \*ENGLISH

Monday September 30th | 2:00 p.m. - 3:00 p.m. | Room: Montréal 6-8

Speaker: Ed Whalen, P.Eng., President & CEO, CISC

0.1 CEU / 1.0 PDH

This presentation will provide an update on present and future steel related tariffs and duties and the potential impacts for the steel construction industry.



### ED WHALEN, P.ENG. PRESIDENT & CEO, CANADIAN INSTITUTE OF STEEL CONSTRUCTION

#### Speaker bio:

Ed Whalen is an engineer and President & CEO of the Canadian Institute of Steel Construction (CISC). Prior to joining the CISC, as President in 2009, he rounded out his steel expertise in the welding certification, ISO registration, engineering consulting and steel fabrication.

Ed Whalen is active on many national and international standards relating to steel and steel in construction which include the National Building Code of Canada, CSA, ASTM, ISO and IIW. He is the current Chair of CSA G40.20 & 21, and ISO TC167 Working Group 3 for Steel Fabrication.

Ed has been in the steel industry for 34 years and is a passionate advocate for Canadian steel construction.

## HOW AND WHY USE THE CISC CODE OF STANDARD PRACTICE FOR STRUCTURAL STEEL \*ENGLISH

Monday, September 30th | 3:30 p.m. - 4:30 p.m. | Room: St-Laurent 8

Speaker: Hellen Christodoulou, PH.D., P.Eng., B.C.L., LL.B., M.B.A., CISC 0.1 CEU / 1.0 PDH

The CISC Code of Standard Practice for Structural Steel is a compilation of usual industry practices relating to the design, fabrication and erection of structural steel.

The presentation summarizes the duties and obligations of stakeholders, illustrating the critical importance of the Code, its application and use to prevent and/or resolve project disputes.

## WHY IS STEEL CERTIFICATION ESSENTIAL? WHY SHOULD IT BE CONSIDERED MANDATORY? \*ENGLISH

Tuesday, October 1st | 11:00 a.m. - 12:00 p.m. | Room: St-Laurent 7

Speaker: Hellen Christodoulou, PH.D., P.Eng., B.C.L., LL.B., M.B.A., CISC 0.1 CEU / 1.0 PDH

The CISC-ICCA "Steel Bridge Certification Standard, 3rd Edition, for Complex Steel Bridges and Simple Steel Bridges" and the "Steel Structures Certification" are standards that address the special processes and specific requirements of steel fabrication for quality of the steel fabrication industry. Mandatory certification ensures compliance with Codes and Standards and guarantees the best overall return of \$ value for projects.



### HELLEN CHRISTODOULOU, PH.D., P.ENG., B.C.L., LL.B., M.B.A. QUEBEC REGION MANAGER, CANADIAN INSTITUTE OF STEEL CONSTRUCTION CISC- ICCA

#### Speaker bio:

Dr. Hellen Christodoulou brings over 35 years of experience in bridges and major bridge structures across Canada and the US, in the conceptualization, design, rehabilitation and supervision of major bridge projects, superstructure and infrastructure design. She is considered a leading court expert in the field of forensic analysis of bridge and large infrastructure projects.

Dr. Christodoulou holds a PhD in Civil Engineering with specialization in bridges, degrees in civil and common law and a master's in business administration. She is currently the Quebec Region Manager for the Canadian Steel Construction Institute and is an active member of several technical and industry committees for setting industry standards and updating of codes used for design.

The Senate Sesquicentennial Medal was conferred to Dr. Hellen Christodoulou, in commemoration of the hundred and fiftieth anniversary of the Senate of Canada and in recognition to her valuable service to the nation, by Senator Rosa Galvez.



## OVERVIEW OF THE CLAUSE 27 OF CSA S16-14 FOR THE DESIGN OF SEISMIC CONNECTIONS \*FRENCH

Monday, September 30th | 3:30 p.m. - 4:30 p.m. | Room: St-Laurent 7

Speaker: *Elie St-Onge, ing., M.Sc. A, Structural Engineer, Hydro Québec* 0.1 CEU / 1.0 PDH

This session will overview the clause 27 of CSA S16-14 for the design of seismic connections. What information should the designer provides on his drawings for the detailer, for the design of connections under seismic loading. The intent of the session is to inform both designers and detailers about the design reality of both parties.

## OVERVIEW OF THE DUCTILE MT-BF DESIGN AS PER CSA S16-14 \*FRENCH

Tuesday, October 1st | 2:00 p.m. - 3:00 p.m. | Room: St-Laurent 8

Speaker: *Elie St-Onge, ing., M.Sc. A, Structural Engineer, Hydro Québec* 0.1 CEU / 1.0 PDH

This session will overview the new provisions for ductile steel multi-tiered concentrically braced frames (MT-BF) in which braces meet at columns between diaphragms. First introduced in CSA S16-09 for Limit ductility (LD) only, now CSA S16-14 extended MT-BF for Type MD also. The presentation goal is to introduce Engineers to the design of ductile MT-BF, as per CSA S16-14.



### ELIE ST-ONGE, ING., M.SC. A, STRUCTURAL ENGINEER, HYDRO QUÉBEC

#### Speaker bio:

Graduated with a bachelor's degree in construction engineering from the École de technologie supérieure de Montréal (2006), and a master's degree in earthquake engineering at the École Polytechnique de Montréal (2012), Mr. St-Onge worked for several years for a steel fabricator as a frame and connection designer. In his career, he has designed several light commercial and industrial buildings. Today he works for Hydro-Québec as a seismic and steel structure specialist engineer. He supervises several construction and rehabilitation projects, including post-disaster building of substations, hydroelectric power stations, bridge of spillways, and crane structures. In recent years, he has designed a portion of the steel structure of the new Romaine 4 hydroelectric power station. Mr. St-Onge is known for his rigour, his technical knowledge and his dedication for the steel industry.

## THE SAMUEL DE CHAMPLAIN BRIDGE – A NEW CANADIAN LANDMARK \*ENGLISH

Tuesday, October 1st | 10:00 a.m. – 11:00 p.m. | Room: Montréal 6-8

Speaker: Guy Mailhot, ing., M. Eng., FCSCE, FEIC, Chief Engineer –  
Samuel De Champlain Bridge, Infrastructure Canada

0.1 CEU / 1.0 PDH

This presentation will expose some of the key design and construction milestones that have been achieved and will highlight several of the innovative engineering design aspects as well some of the sophisticated construction techniques which were implemented in order to satisfy both the demanding technical requirements and scheduling challenges (in the context of a rapidly deteriorating original bridge) in order to endow Montreal with a highly durable (125-year design life) and elegant structure serving as the premier gateway to Montreal.



### GUY MAILHOT, ING., M. ENG., FCSCE, FEIC, CHIEF ENGINEER – SAMUEL DE CHAMPLAIN BRIDGE, INFRASTRUCTURE CANADA

#### Speaker bio:

Guy Mailhot is a member of the Ordre des Ingénieurs du Québec. He is a graduate of McGill University with a B. Eng. Civil in 1982 and an M. Eng. Structures in 1984. Guy Mailhot is also a fellow of the Canadian Society for Civil Engineering (FCSCE) and has also recently been honoured with a fellowship from the Engineering Institute of Canada (FEIC).

Employed by The Jacques Cartier and Champlain Bridges Inc. (a Federal Crown Corporation) since 1999, Guy has been on loan to Infrastructure Canada since 2012, where he holds the position of Chief Engineer – Samuel-De Champlain Bridge.

Guy's career has focused on the design, inspection, evaluation and rehabilitation of bridges. For over 30 years, he has contributed to the inspection and major rehabilitation of several of the Montreal's important bridges as both consultant and owner. His last 7 years have been devoted to the Samuel De Champlain Bridge, a world-class signature bridge currently under construction.

## STEEL STRUCTURAL CONNECTIONS – POINTS TO WATCH WHEN DESIGNING PROJECTS\* \*FRENCH

Monday, September 30th | 2:00 p.m. – 3:00 p.m. | Room: St-Laurent 8

Speaker: *Benoit Rancourt, Vice President, Conn-X Inc.*

0.1 CEU / 1.0 PDH

This presentation provides an opportunity to review various consideration when developing specifications and details on engineering plans.

- Beam support reactions (evenly distributed load vs. core shearing)
- Bolted/welded connections
- Rigid bracing and connections
- Costs associated with complex connections

Special attention will also be paid to seismic connections. Considerations and suggestions regarding structural elements and details will also be discussed.



### **BENOIT RANCOURT, VICE PRESIDENT, CONN-X INC.**

#### *Speaker bio:*

Steel Structural Engineer and Vice President of Conn-X.

He spent 10 years as a project manager on several steel structure projects across North America. Over the past 20 years, he has specialized in steel construction and design. During this time, he has completed several assembly projects in Canada and the United States. He has extensive experience in all types of commercial, institutional and industrial buildings. He also has extensive expertise designing seismic connections.

Occasional lecturer for the Canadian Institute of Steel Construction and part-time professor at Ahuntsic College for the last 10 years.

University degree from the École de Technologie Supérieure and college diploma in architecture.

# MORE TO COME! - UP TO 30 SESSIONS WILL BE LINED UP | 2019

*Over the course of three days, we'll be hosting multiple business development, technical and social networking events for over 300 attendees from the Canadian steel construction industry.*

## **BOLTED SPLICE CONNECTIONS FOR STEEL BRACING MEMBERS**

*Tuesday, October 1st | 1:00 p.m. - 2:00 p.m. | Room: St-Laurent 7*

*Speakers: Dr. Robert Tremblay, École Polytechnique de Montréal & Alexandre Gélinas, WSP*

Session & speaker bios coming soon!

## **PROMPT PAYMENT PROVINCIAL & FEDERAL**

*Tuesday, October 1st | 1:00 a.m. - 2:00 p.m. | Room: St-Laurent 8*

*Speaker: Dan Leduc, Norton Rose Fullbright*

Session & speaker bios coming soon!

## **SEISMIC DESIGN OF STEEL STRUCTURES OR NEW SEISMIC RESISTANCE SYSTEMS**

*Monday, September 30 | 1:00 p.m. - 2:00 p.m. | Room: St-Laurent 7*

*Speaker: Dr. Robert Tremblay, École Polytechnique de Montréal*

Session & speaker bios coming soon!

## **ÉCHANGEUR TURCOT PROJECT**

*Monday, September 30th | 11:00 a.m. - 12:00 p.m. | Room: Montréal 6-8*

*Speaker: Thomas Montiel, Kiewit, TBA, WSP, TBA, Supermetal, TBA, MTQ, TBA, Architect*

Session & speaker bios coming soon!