



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

THE CANADIAN STEEL CONFERENCE

TECHNICAL SESSIONS AT A GLANCE!

SEPT 30 - OCT 2, 2019

HÔTEL BONAVENTURE, MONTRÉAL, QC

Quebec Steel Symposium is amalgamating with The Canadian Steel Conference

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CISC TECHNICAL SESSIONS

September 30 – October 1, 2019

VIBRATION MITIGATION OF A REFINERY BUILDING *(ENGLISH)

*Speaker(s): Majid Maleki, Ph.D., P.Eng, Huirong Min, M.A.Sc., P.Eng,
Matthew Tonello, EIT*

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.

*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.



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

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

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

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)

Speaker(s): Suresh Jacob P.Eng, & Dustin Gravelle P.Eng

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.

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SURESH JACOB P.ENG

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

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)

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

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.

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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)

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

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.

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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)

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

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.

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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)

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

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.

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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)

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

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.

KÂHASINĪSKÂK FOOTBRIDGE - FROM VIBRATION CHALLENGES TO PARAMETRIC DESIGN * (FRENCH)

Speaker(s): Pierre-Louis Cons ing., & Sébastien Côté ing., M.Ing

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.

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

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

Speaker bio:

Sébastien 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)

Speaker bio: DORIAN P. TUNG, PHD, PE, LEED®AP BD+C
RJC ENGINEERS, VANCOUVER, CANADA

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)

Speaker: Farshad Pourshargh Local Product Manager Graitec Canada

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)

Speaker(s): TBA: Amir Jamshidi, PhD, PEng, PE Director, Engineering Services

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.



SPEAKER(S): TBA: SUPREME STEEL & MAGNUSSON, KLEMENCIC & ASSOCIATES

Speaker Bio: coming soon!

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.

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CERTIFICATION OF EXISTING CRANE-SUPPORTING STEEL STRUCTURES (*ENGLISH)

Speaker bio: DORIAN P. TUNG, PHD, PE, LEED®AP BD+C
RJC ENGINEERS, VANCOUVER, CANADA

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

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)

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

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-TÉTREAU, ING., M.SC.A.

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)

Andy Metten, P.Eng., Struct.Eng., Partner: Bush, Bohlman & Partners LLP

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:

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.

RECONSTRUCTING CHRISTCHURCH: A SEISMIC SHIFT IN BUILDING STRUCTURAL SYSTEMS

Speaker: Michel Bruneau, Ph.D., P.Eng. University at Buffalo, NY

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)

Dr. Lucia Tirca PH.D.

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.

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 350 attendees from the Canadian steel construction industry.



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Contact Maricelle Ambat at (905) 604-3231 ext. 107 | mambat@cisc-icca.ca for more info.

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