

Schedule for the 2017 CSCE/CRC Construction Specialty Conference

Updated: May 31, 2017

Tuesday, May 30, 2017

Construction Graduate Student Colloquium *chair: Mohamed Issa, Sara Rankohi*

Tue 09:30 - 17:30	(Grad01) Construction Graduate Student Colloquium	UBC Engineering Design Centre
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Wednesday, May 31, 2017

Construction Graduate Student Colloquium *chair: Mohamed Issa, Sara Rankohi*

Wed 09:30 - 17:30	(Grad02) Construction Graduate Student Colloquium	Seymour
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Thursday, June 1, 2017

CSCE Alan Russell Award Lecture *chair: Farnaz Sadeghpour*

Thu 09:30 - 10:30	(P001) Alan Russell Award	Stanley Park Ballroom 3
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Design and Construction Engineering *chair: Girma Bitsuamlak*

Thu 11:00 - 12:00	(193) Storage Tank Foundation Reinforcement During Construction <i>Jason Warners, Stantec; Geoff Ballard, Enbridge</i>	Thompson
	(33) Effect Of Fine Material On Penetration Resistance <i>Abdulrahman Hamid, University Of Waterloo</i>	
	(203) Local wind model in New York City <i>Elham Azimi, Nyu; Fletcher Griffis, Dept Of Civil And Urban Engineering, Tandon School Of Engineering, New York University</i>	
	(218) Finite Element Model based on subspace fitting displacement with damage localization <i>Mohamed Bouyahi, Enit</i>	

Project Delivery 1 - Infrastructure *chair: Linda Newton*

Thu 11:00 - 12:00	(247) Cost Overruns in Public Infrastructure Projects: Re-evaluating Procurement in an Era of Digitization <i>James Smith, Bond University; Peter Love, Curtin University; Michael Regan, Bond University</i>	Fraser
	(GC063) An Examination of Competition on Traditional and Design-Build Highway Construction Projects <i>Douglas Alleman, University Of Colorado, Boulder; Arthur Antoine, University Of Colorado, Boulder; Scott Stanford, University Of Colorado Boulder; Kelly Sheeran, University Of Colorado, Boulder; Keith Molenaar, University Of Colorado</i>	
	(20) Framework for Selection of International Financing Instruments for Infrastructure Projects <i>Mohamed Moussa, The American University In Cairo; Samer Ezeldin, Auc</i>	
	(63) Evaluating Stage Construction Approach As An Efficient Tool For Reducing Environmental Impacts Of Highway Projects <i>Mohammad Reza Heidari; Gholamreza Heravi, University Of Tehran; Asghar Nezhadpour Esmaeeli</i>	

IT 1 - Unmanned Aerial Systems *chair: Lloyd Waugh*

Thu 11:00 - 12:00	(3) Strategies to Model Complex Architectural Objects Using Unmanned Aerial Systems (UAS) <i>Xi Wang, University Of Kentucky; Gabriel Dadi, University Of Kentucky</i>	Stanley Park Ballroom 2
	(106) Evaluation of Computer Vision- and 4D BIM-based Construction Progress Tracking on a UAV Platform <i>Hesam Hamledari, Stanford University; Brenda McCabe; Ehsan Rezazadeh Azar, Lakehead University; Arash Shahi, University Of Toronto; Shakiba Davari, Georgia Institute Of Technology; Forest Flager, Stanford University, Department Of Civil And Environmental</i>	
	(252) Human Factors Considerations of First Person View (FPV) Operation of Unmanned Aircraft Systems (UAS) in Infrastructure Construction and Inspection Environments <i>Daniel Paes, Georgia Institute Of Technology; Sungjin Kim, Georgia Institute Of Technology; Javier Irizarry</i>	
	(113) Construction project control and monitoring with the Integration of unmanned aerial systems with virtual design and construction models <i>Azzeddine Oudjehane, Sait Polytechnic; Shahab Moeini, Southern Alberta Institute Of Technology (Sait); Tareq Baker, Sait</i>	

PM 1 - Project Performance *chair: Aminah Robinson Fayek*

Thu 11:00 - 12:00	(260) Exploring Innovation Influencing Factors in Construction Projects <i>Ahmad Alhomadi, University Of Calgary; George Jergeas, University Of Calgary</i>	Stanley Park Ballroom 3
	(16) Identifying construction organizational competency measures and performance indicator metrics <i>Aminah Robinson Fayek, University Of Alberta; Getaneh Tiruneh, University Of Alberta</i>	
	(112) Operationalizing Performance In Publicly Listed AECFirms: The Dominant Dimensions <i>Yousif Alhosani, University Of Sharjah; Sabah Al Kass, United Arab Emirates University; Constantine Katsanis, Éts (École De Technologie Supérieure)</i>	
	(80) Exploring and Assessing the Utilization of Best Practices for Achieving Excellence in Construction Projects <i>Sharareh Kermanshachi, University Of Texas At Arlington; Jennifer Shane, Iowa State University; Stuart Anderson; Elnaz Safapour, University Of Texas At Arlington</i>	

Resilience, Disaster, Displaced Persons 1 chair: Kasey Faust		
Thu 11:00 - 12:00	(81) Public Perceptions Toward The Impact Of Displaced Persons In Germany On Water And Wastewater Systems <i>Kasey Faust, The University Of Texas At Austin; Felipe Araya, University Of Texas At Austin ; Jessica Kaminsky, University Of Washington</i>	Cowichan
	(11) Government Coordination in Providing Emergency Accommodation for Displaced Persons in an Urban Context <i>Miriam Hacker, University Of Washington; Jessica Kaminsky, University Of Washington; Kasey Faust, The University Of Texas At Austin</i>	
	(168) Managing wastewater during refugee crisis - comparing the lessons learned from Finland and Jordan <i>Heta Kosonen, University Of Washington; Amy Kim, University Of Washington; Heidi Gough, University Of Washington</i>	
	(151) Modeling Food Desert Disruptors: An Object Oriented Programming Approach <i>Kasey Faust, The University Of Texas At Austin; Kelsey Abel, The University Of Texas At Austin</i>	
Bridges & Structures chair: Adel Francis		
Thu 11:00 - 12:00	(98) The New Generation of UHPC bridges in Canada <i>Philip Loh, Facca Incorporated; Yen Lei Jackie Voo, Dura Technology Sdn Bhd; Jackson Lee, Facca Incorporated</i>	Coquitlam
	(30) Port-Said Single Leaf Bascule Bridge <i>Hussein Abbas, Ehaf Consulting Engineers, Cairo, Egypt</i>	
	(46) Design of Funicular Arched Truss Steel False-work <i>Mohamed Darwish, The American University In Cairo; Ahmed El Sayed, American University In Cairo; Khaled Nassar, American University In Cairo</i>	
	(66) Integrating Bridge Information Modeling (Brim), Bridge Sustainability Rating System (BrSRS), Bridge Environmental Performance Strategy Mapping (EPSM) and Cost Estimating at the Conceptual Design Stage <i>Aly Elgayar, University Of Ottawa; Ahmad Jrade, University Of Ottawa</i>	
Infrastructure 1 - Decision Analysis chair: Khaled El-Rayes		
Thu 11:00 - 12:00	(154) Multi-Attribute Utility Theory Approach to Value-based Infrastructure Asset Management <i>Zaid Alyami, University Of Waterloo; Susan Tighe, University Of Waterloo</i>	Oak1
	(173) Decision Making for the Construction of Cycling Infrastructure through Predicting Usage <i>Siroos Shahriari, University Of Calgary; Farnaz Sadeghpour, University Of Calgary</i>	
	(2) Assessing the Degree of Accessibility of Sidewalks for People with Disabilities <i>Ayman Halabya, University Of Illinois At Urbana-Champaign; Khaled El-Rayes, University Of Illinois At Urbana-Champaign</i>	
	(263) A Framework to Evaluate Urban Underground Utility Complexity Index Using the Delphi Method and Analytic Hierarchy Process <i>Dilipkumar Arvindkumar Patel, Sardar Vallabhabhai National Institute Of Technology Surat; Shantwna Dixit, Svnit</i>	
Sustainability 1 - Energy chair: Daniel Forgues		
Thu 11:00 - 12:00	(202) Experimental Field Study on Energy Comparison of Three Space Heating Systems <i>Alula Assefa ; Fitsum Tariku , Bcit</i>	Oak 2
	(110) Key Factors of Prioritizing Energy Resource Conservation Measures in a Portfolio of Buildings: A Literature Review <i>Lysandra Medal, University Of Washington, Seattle, Usa; Amy Kim, University Of Washington</i>	
	(217) Implementing Intelligent Planning Unit (IPU) Concept for Optimized Electricity Demand Management in the Complex Built Environment <i>Sayanti Mukhopadhyay, Department Of Civil Engineering, Purdue University; Soojin Yoon, Construction Engineering And Management, Purdue University; Makarand Hastak, Division Of Construction Engineering And Management, Purdue University</i>	
	(GC207) Well-Managed Environmental Compliance Program Supports Delivering Sustainable Energy from a Large Hydroelectric Development in Labrador <i>Diane Ingraham, Stantec Consulting Ltd; Wayne Tucker, Stantec Consulting Ltd.</i>	
Planning 1 - Scheduling chair: Tarek Hegazy		
Thu 14:00 - 15:30	(280) Do LEED Certified Homes Perform As Expected? A Case Study on Energy Performance Evaluation of LEED Homes in Manitoba <i>M Shokry Rashwan, Red River College</i>	Thompson
	(42) Efficient Repetitive Scheduling For Scattered Rehabilitation Projects <i>Ehab Kamarah, McMaster University; Tarek Hegazy, University Of Waterloo</i>	
	(130) Work Structuring Principles, Strategies and Tools: A Review of the Literature <i>Panagiotis Mitropoulos, San Diego State University; Kawalpreet Kaur, Sdsu</i>	
	(7) Influence of Delay Risk Score on Allocating Float to Activities in Network Schedules <i>Gunnar Lucko, Catholic University Of America; Yi Su, Catholic University Of America; Richard C. Thompson, Catholic University Of America</i>	
	(69) Lean scheduling of low income housing using cold formed steel <i>Dina Saad, Cairo University; Mohammed Masoud, Cairo University; Hesham Osman, Cairo University</i>	
Project Delivery 2 - Infrastructure & P3 chair: Yelda Turkan		
Thu 14:00 - 15:30	(188) Risk Reduction in Transportation Public-Private-Partnership (P3) Project Delivery through Integrated Quality Management <i>Venkata Vemana, Transed Partners; Smitha Koduru, Veracity Engineering & Risk Consulting Services</i>	Fraser
	(259) Identifying End Users' Expectations from Public Private Partnerships <i>Deepak Sharma, California State University Fullerton; Sathya Kondapalli</i>	
	(258) Identifying Factors that Influence People's Attitude Toward Public Private Partnership (PPP) Projects <i>Deepak Sharma, California State University Fullerton; Vandit Shah, California State University Fullerton</i>	
	(265) Financing of Public Private Partnerships: Six Australian Motorway Case Study Projects <i>James Smith, Bond University; Peter Love, Curtin University; Michael Regan, Bond University</i>	
	(47) Public-Private Partnership in Egypt <i>Muhammad Kamel; Ali Montaser, Ain Shams University; Ibrahim Abd El-Rashid, Ain-Sams University</i>	

IT 2 - Visualization & Imaging chair: Carl Haas

Thu 14:00 - 15:30	(68) Annotation Of Heavy Construction Videos Using Object Detection And Bayesian Networks <i>Ehsan Rezazadeh Azar, Lakehead University</i>	Stanley Park Ballroom 2
	(91) Optimal Nearest Neighbour Calculation for Automated Retrieval of Construction Elements from Cluttered Point Clouds <i>Mohamad-Mahdi Sharif, University Of Waterloo; Nicolas Jeanclous, University Of Waterloo; Caroline Kwiatek; Mohammad Nahangi, University Of Waterloo; Carl T. Haas, University Of Waterloo; Jeffrey West, University Of Waterloo</i>	
	(182) A Framework For An Integrated BIM-GIS Decision Support Model For Site Layout Planning <i>Ahmad Alsaggaf, University Of Ottawa; Ahmad Jrade, University Of Ottawa</i>	
	(53) The Effects of Spatial Cognition on Individual Wayfinding Performance <i>Sara Al-Haddad, University Of Colorado Boulder; Paul Goodrum, University Of Colorado Boulder; Antoine Verghote</i>	
	(56) Construction Safety Perception Analysis using Affecting Sensing Technology and Virtual Reality <i>Nipesh Pradhananga, Florida International University ; Hazal Ergun, Florida International Univrsity</i>	

BIM 1 - Construction, O&M, FM chair: Sheryl Staub-French

Thu 14:00 - 15:30	(139) Developing a BIM model for FM from handover documentation: A case study <i>Soojung Kim, University Of British Columbia; Sheryl Staub-French, University Of British Columbia; Erik Poirier,</i>	Stanley Park Ballroom 3
	(272) BIM Implementation in Facilities Management: an Analysis of Implementation Processes <i>Saratu Terreno, Penn State University; Chimay Anumba, University Of Florida; Somayeh Asadi, Penn State University</i>	
	(146) Trends, Benefits and Challenges in Utilizing Building Information Modeling Technology for Building Operation and Maintenance <i>Ahmed Atef, University Of Victoria; David Bristow, University Of Victoria</i>	
	(255) Framework of Automated As-built Photo Contents and Context Retrieval using 4D BIM <i>Hubo Cai; Jaehyun Park, Purdue University</i>	
	(18) Chronographic Space Planning: A Case Study For Construction Projects <i>Adel Francis, Ets; Stéphane Morin Pépin, Éts</i>	

Resilience, Disaster, Displaced Persons 2 chair: Zaid Alyami

Thu 14:00 - 15:30	(156) The Impact of Limited Resources on Asset Management and Infrastructure Resilience <i>Kristal Metro, University Of New Mexico; Susan M. Bogus, University Of New Mexico; Heather Himmelberger, University Of New Mexico</i>	Cowichan
	(31) Framework for Holistic Sustainable Disaster Recovery <i>Islam El-Adaway, The University Of Tennessee In Knoxville; Mohamed Eid, The University Of Tennessee, Knoxville</i>	
	(108) Assessment of Strain Capacities of Post-Disaster Critical Infrastructure with respect to Functional and Structural Stress <i>Juyeong Choi, Purdue University; Makarand Hastak, Division Of Construction Engineering And Management, Purdue University</i>	
	(143) How Pre-Disaster Construction Capacity Affects Post-Disaster Rebuilding Of Residential Housing <i>Erin Arneson, University Of Colorado-Boulder; Matthew Hallowell; Amy Javernick-Will,</i>	

Safety 1 chair: Simaan Aburizk

Thu 14:00 - 15:30	(145) A belief network model of resilient safety climate in the construction industry <i>Yuting Chen; Brenda McCabe; Douglas Hyatt,</i>	Coquitlam
	(95) Improved Data Storage For Better Safety Analysis And Decision Making In Large Construction Management Firms <i>Megan Coffland, University Of Washington; Amy Kim, University Of Washington; Hessam Sadatsafavi, Cornell University; Mindy Uber, Skanska Usa Building, Inc.</i>	
	(185) Effectiveness of applying a behavior-based safety program in industrial modular construction. <i>Simaan Abourizk, University Of Alberta; Estacio Pereira, University Of Alberta; Meimanat Soleimanifar, University Of Alberta; Ming Fung Francis Siu, University Of Alberta; Xingzhou Guo, University Of Alberta; Vawn Jeddry, Jv Driver</i>	
	(94) Dimensions of Construction Safety Climate <i>Wael Alruqi, University Of Colorado At Boulder; Matthew Hallowell</i>	
	(GC072) Using eye tracking technology to evaluate focal attention location and its effect on hazard recognition <i>Dylan Hardison, University Of Colorado At Boulder; Matthew Sears, University Of Colorado At Boulder; Paul Goodrum, University Of Colorado Boulder; Matthew Hallowell</i>	

PM 2 - Workforce Issues chair: Aminah Robinson Fayek

Thu 14:00 - 15:30	(34) The Comparative Experience in Multiskilling among U.S. Hispanic and non-Hispanic Construction Craft Workers <i>Mohammed Albattah; Paul Goodrum, University Of Colorado Boulder</i>	Cypress 2
	(96) Towards Deeper Understanding of Future Craft Shortages in The Construction Industry: Supply and Demand Sides <i>Farzad Minooei, University Of Colorado; Mohammed Albattah; Paul Goodrum, University Of Colorado Boulder; Timothy R.B. Taylor, University Of Kentucky</i>	
	(6) Understanding What Drives Young Individuals to Pursue Craft Careers in Construction: the Theory of Planned Behavior <i>Farzad Minooei, University Of Colorado; Paul Goodrum, University Of Colorado Boulder; Timothy R.B. Taylor, University Of Kentucky</i>	
	(105) Objectively Assessing Fatigue Levels among Construction Workers <i>Ulises Techera, University Of Colorado At Boulder; Matthew Hallowell; Ray Littlejohn, University Of Colorado At Boulder</i>	

Infrastructure 2 - FM <i>chair: Brenda Mccabe</i>		
Thu 14:00 - 15:30	(88) Strategies for Maximizing OpEx at K-12 Educational Facilities <i>Michael Beauregard, Arizona State University; Steven K. Ayer, Arizona State University</i>	Oak1
	(41) Enhanced Benefit-Cost Analysis for Infrastructure Corridor Rehabilitation <i>Dina Saad, Cairo University; Tarek Hegazy, University Of Waterloo</i>	
	(61) Early Involvement of Facilities Management towards Efficient Utilization <i>Mohamed El Deeb, Ain Shams University; Ali Montaser, Ain Shams University; Ibrahim Abd El-Rashid, Ain-Sams University; Walid Abdelal, Alexandria University</i>	
	(125) Window Wall vs Curtain Wall: An objective review <i>Patrick Marquis; Hiba Ali, University Of Toronto; Arash Shahi, University Of Toronto; Brenda Mccabe; Seyedfarid Mirahadi, University Of Toronto</i>	
	(230) Adoption of Computer Aided Facilities Management (CAFM) to Improve Service Quality <i>Mohamed El Deeb, Ain Shams University; Ali Montaser, Ain Shams University; Ibrahim Abd El-Rashid, Ain-Sams University; Walid Abdelal, Alexandria University</i>	

Sustainability 2 - Assessing Sustainability <i>chair: Nora El-Gohary</i>		
Thu 14:00 - 15:30	(213) How Are We Evaluating Building Performance? A Review Of Up-To-Date Practices For The iisBE Level II Protocol <i>Francisco Calderon, Ubc; Thomas Froese, The University Of British Columbia</i>	Oak 2
	(123) Development and Validation of a Methodology to Evaluate Indoor Environmental Quality in Green Residential Buildings <i>Joshua Akom, University Of Manitoba; Mohamed Issa, University Of Manitoba; Abdul-Manan Sadick, University Of Manitoba; Marten Duhoux, Ft3 Architecture Landscape Interior Design; M Shokry Rashwan, Red River College</i>	
	(13) Eco-efficiency analysis of recycled material based residential construction - A case study for Okanagan, BC <i>Piyaruwan Perera, University Of British Columbia (Okanagan Campus); Kasun Hewage, The University Of British Columbia; Rehan Sadiq, University Of British Columbia; Shahria Alam, University Of British Columbia</i>	
	(GC003) Modality of achieving sustainable affordable housing delivery within constraint of cost and quality during construction process <i>Imisioluseyi Akinyede, Faculty Of Civil Engineering Cape Peninsula University Of Technology South Africa; Julius Ayodeji Fapohunda; Rainer Hardwang</i>	
	(262) Mutual Effect of Building Sections On Energy Retrofit Planning <i>Farrokh Jazizadeh, Virginia Tech; Farnaz Khaghani, Virginia Tech</i>	

Planning 2 - Cost & Bidding <i>chair: Tarek Hegazy</i>		
Thu 16:00 - 17:30	(62) Quantifying the Impact of Architectural Design Features on Building Cost and Performance in Hot Weather Regions <i>Hassan Nasir, King Abdulaziz University; Tarek Hegazy, University Of Waterloo; Abdullah Al-Saggaf, King Abdulaziz University</i>	Thompson
	(24) Cost Factors Affecting Decisions for Recycling and Reuse of Concrete Residuals in North Carolina <i>Tara Cavalline, Unc- Charlotte; Nicholas Tymvios, University Of North Carolina Charlotte; Christopher Albergo, Rosendin Electric</i>	
	(32) A Bayesian Model for Improved Optimal Bid Price Estimation in Transportation Projects <i>Islam El-Adaway, The University Of Tennessee In Knoxville; Ibrahim Abotaleb, University Of Tennessee - Knoxville</i>	
	(186) Comparative study of Unifomat and Masterformat for construction cost estimating <i>Ming Lu, The University Of Alberta; Tarequl Hasan., University Of Alberta; Monjurul Hasan, University Of Alberta</i>	
	(102) Cost Schedule Forecasting Model for Nuclear Power Plant Projects <i>Samer Alsharif, Dte Energy; Aslihan Karatas, Lawrence Technological University</i>	

Project Delivery 3 - Approaches to Project Delivery <i>chair: Linda Newton</i>		
Thu 16:00 - 17:30	(233) Analysis of Utility Coordination Impact on Projects Delivered Using Alternative Contracting Methods <i>Douglas Gransberg, Iowa State University; Dominique Pittenger, University Of Oklahoma; Gary Chambers, Chambers Engineering</i>	Fraser
	(72) Defining a Resilience Framework for Project Delivery <i>Fei Han, University Of New Mexico; Susan M. Bogus, University Of New Mexico</i>	
	(21) A Decision To-Bid Model Based on Predicting the Amount of Winning Claims Using Artificial Neural Networks and Genetic Algorithms <i>Tarek Zaki, The American University In Cairo; Cherif Khalil, The American University In Cairo; Mohamed Elgindi, The American University In Cairo</i>	
	(285) Leveraging the Benefits of Lean Integrated Project Delivery for Public Projects <i>Shelly Switzer, Town Of Oakville; Arthur Winslow, Graham Construction And Engineering; David Dow, Diamond Schmitt Architects; Brian Watkinson, Strategies 4 Impact! Inc.</i>	

BIM 2 - Adoption & Practices <i>chair: Daniel Forgues</i>		
Thu 16:00 - 17:30	(284) Adaptation Of A BIM Policy Actions Model For Industry Associations <i>Vincent Carignan, École De Technologie Supérieure; Forgues Daniel, Ets; Sylvain Kubicki, Luxembourg Institute Of Science And Technology</i>	Stanley Park Ballroom 3
	(83) Perception of Industry Professionals about Mixed Reality for Electrical Prefabrication <i>Jad Chalhoub, Arizona State University; Steven K. Ayer, Arizona State University</i>	
	(38) Change Management in an architecture agency: The application of <i>Souha Tahrani, Ets; Forgues Daniel, Ets; Samia Ben Rajeb, Collaeb - Université Libre De Bruxelles</i>	
	(48) Study on BIM Capabilities Measurement and Improvement Strategies for AEC industry in China: a survey in Shanghai <i>Dan Tan; Daniel Castro-Lacouture, Georgia Institute Of Technology; Guangbin Wang</i>	
	(GC062) Integrating concepts and principles from Lean thinking and the Design for X to BIM. <i>Mathieu Fokwa Soh, Ecole De Technologie Supérieure; Forgues Daniel, Ets; Sylvie Doré</i>	

IT 3 - Simulation in Construction <i>chair: Yelda Turkan</i>		
Thu 16:00 - 17:30	(195) Simulation-based contingency estimating for Helical pile installation <i>Ming Lu, The University Of Alberta; Chaojue Yi; Baocheng Li; Chaoyu Zheng</i>	Cowichan
	(278) Data-Driven Scenario Generation For Enhanced Realism Of Heavy Equipment Training Simulators <i>Faridaddin Vahdatikhaki, University Of Twente</i>	
	(37) Towards Agent-based Modeling for Operational Clash Detection through BIM <i>Mazdak Nik-Bakht, Concordia University; Osama Moselhi, Concordia University, Bcee; Abdelhady Hosny, Concordia University</i>	
	(271) Simulation-Based Constructability Analysis of RCC Dams <i>Hosein Taghaddos, University Of Tehran; Mohammad Saleh Dashti, Iran University Of Science And Technology</i>	
Safety 2 <i>chair: Baabak Ashuri</i>		
Thu 16:00 - 17:30	(GC117) Developing a Maturity Model to Evaluate the Health and Safety of Sustainable Building Projects <i>Orogun Bezalel, University Of Manitoba; Mohamed Issa, University Of Manitoba</i>	Coquitlam
	(GC121) Leveraging Telematics and Real-time Sensor Data to Increase Safety of Equipment- Intensive Construction Operations <i>Joseph Louis, Oregon State University</i>	
	(GC148) Impact of Flaggers on Safety and Mobility of Highway Work Zones <i>Ahmed Abdelmohsen, Langan Engineering And Enviromental Services; Khaled El-Rayes, University Of Illinois At Urbana-Champaign</i>	
	(GC081) The Effects of Spatial Cognition on Individual Wayfinding Performance <i>Sara Al-Haddad, University Of Colorado Boulder; Antoine Verghote; Paul Goodrum, University Of Colorado Boulder</i>	
(215) Sustainable Safety in Labor-Intensive Operations: An Innovative Perspective <i>Nipesh Pradhananga, Florida International University; Nirajan Mani, Fitchburg State University; Sudip Subedi, Florida International Univrsity</i>		
IT 4 - Buildings & Energy <i>chair: Girma Bitsuamlak</i>		
Thu 16:00 - 17:30	(181) Smart Disaster Management System for Tall Buildings <i>Seyedfarid Mirahadi, University Of Toronto; Brenda Mccabe; Arash Shahi, University Of Toronto</i>	Chehalis
	(242) Wind Safety Assessment During High Rise Building Construction <i>Kimberley Adamek, Western University; Girma Bitsuamlak, Western Univeristy; Abiy Melaku; Farnaz Sadeghpour, U Of Calgary</i>	
	(163) Deep Learning for Building Energy Consumption Prediction <i>Kadir Amasyali, University Of Illinois At Urbana-Champaign; Nora El-Gohary, University Of Illinois At Urbana-Champaign</i>	
	(116) Finite Element Method based Jerk-Energy for damage localization of dynamic response <i>Mohamed Bouyahi, Enit</i>	
	(65) Fuzzy Life-Cycle Assessment Approach for Quantifying Environmental Impacts of Highway Projects under Uncertainty <i>Mohammad Reza Heidari; Gholamreza Heravi, University Of Tehran; Asghar Nezhadpour Esmaeeli</i>	
PM 3 - Managing Projects <i>chair: Brenda Mccabe</i>		
Thu 16:00 - 17:30	(115) Identification and Classification of the Resilient Structural Dimensions and Contingency Factors of Project-Based Organizations in Construction Industry <i>Ardalan Hosseini Naveh, University Of Tehran; Gholamreza Heravi, University Of Tehran</i>	Cypress 2
	(120) Forecasting construction staffing needs for state transportation agencies <i>Timothy R.B. Taylor, University Of Kentucky; Ying Li; Paul Goodrum, University Of Colorado Boulder</i>	
	(74) Assessment of Construction Projects' Impact on Internal Communication of Primary Stakeholders in Complex Projects <i>Sharareh Kermanshachi, U Of Texas At Arlington; Jennifer Shane, Iowa State University; Stuart Anderson; Shirin Kamalirad</i>	
	(8) A MCDA-C Application to evaluate the Approval Sectors Management <i>Luana Siewert Preto, Joinville City Hall; Antônio Edésio Jungles, Federal University Of Santa Catarina; Romualdo França, State University Of Santa Catarina; Estacio Pereira, University Of Alberta</i>	
	(124) Evaluation of Tall Building Construction Permitting Process in Toronto <i>Kamellia Shahi; Brenda Mccabe; Arash Shahi, University Of Toronto; Richard Lyall, Residential Construction Council Of Ontario; Paul De Berardis</i>	
Infrastructure 3 - Water/Wastewater <i>chair: Mohamed Attalla</i>		
Thu 16:00 - 17:30	(49) Leak Detection Model For Pressurized Pipelines Using Support Vector Machines <i>Samer El Zahab, Concordia Univeristy; Tarek Zayed</i>	Oak1
	(157) Human-infrastructure interactions: Statistical modeling of bottled and filtered water use in U.S. shrinking cities <i>Kasey Faust, The University Of Texas At Austin; Euijin Yang</i>	
	(273) Complex network analysis of municipal water main system incorporating the reliability of individual pipe <i>Hieu Chi Phan; Ashutosh Dhar, Memorial University Of Newfoundland; Rehan Sadiq, University Of British Columbia</i>	
	(198) Locational and demographic drivers of perceived water conservation efforts in Austin, Texas <i>Kasey Faust, The University Of Texas At Austin; Khalid Osman, University Of Texas At Austin</i>	
Sustainability 3 - Assessing Sustainability, LCA <i>chair: Jeff Rankin</i>		
Thu 16:00 - 17:30	(52) Evaluating the Sustainable Performance of Public Infrastructure Projects <i>Mike Benson, University Of New Brunswick; Jeff Rankin, Unb</i>	Oak 2
	(194) A major transportation project: A case study on the implementation of a sustainable rating system for a Vancouver municipality <i>Tiffany Kirk, UBC; Thomas Froese, UBC; Cheryl Nelms, City Of Vancouver; Jimmy Zammar, City Of Vancouver</i>	
	(126) A Knowledge Map Based on Network Analysis to Support Energy Decisions on the Construction Phase <i>Rodrigo Aragao, University Of Toronto; Tamer El-Diraby, University Of Toronto</i>	
	(205) A Comparative Life Cycle Assessment of Tall Buildings with Alternative Structural Systems: Wood vs. Concrete <i>Maryam Abolghassem Tehrani, University Of British Columbia; Thomas Froese, University Of British Columbia</i>	
(60) Sustainability Performance Assessment: A Life Cycle Based Framework For Modular Buildings <i>Mohammad Kamali, Ubc; Kasun Hewage, The University Of British Columbia</i>		

Friday, June 2, 2017

Construction Industry Forum chair: Sheryl Staub-French

Fri 09:00 - 10:30	(P002) Construction Industry Forum	Stanley Park Ballroom 3
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Construction Industry Forum chair: Sheryl Staub-French

Fri 11:00 - 12:00	(P003) Construction Industry Forum	Stanley Park Ballroom 3
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IT 4 - Simulation and Spatial Applications chair: Saeideh Razavi

Fri 14:00 - 15:30	<p>(177) Automated construction materials data acquisition using digital imaging and RFID Farzaneh Golkhoo, Concordia University; Osama Moselhi, Concordia University</p> <p>(29) Productivity improvement for positioning industrial modules using GPS technology and scheduling data. Amin Amiri Khafri, University Of Alberta; Simaan Abourizk, University Of Alberta; Ulrich Hermann, Pcl Industrial Management Inc.; Hosein Taghaddos, University Of Tehran</p> <p>(240) Proposed framework for the use of energy simulation tools in an integrated design process Alexandre Daoust, Ecole De Technologie Supérieure; Forgues Daniel, Ets; Danielle Monfet, Ecole De Technologie Supérieure</p> <p>(142) Spatial Interpolation of Weather Data for Occupational Health and Safety Research in Construction Wonil Lee; Ken-Yu Lin</p>	Stanley Park Ballroom 1
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BIM 3 - Interfaces & Integration chair: Farid Vahdatikhaki

Fri 14:00 - 15:30	<p>(55) Analysis of Bottlenecks in BIM-based Building Design Coordination Process and Benchmarking State of the Art BIM Tools Sarmad Mehrbod, Department Of Civil Engineering, University Of British Columbia; Sheryl Staub-French, University Of British Columbia; Yunpiao Bai, University Of British Columbia</p> <p>(50) An overview on integrating Interface Management and Building Information Management Systems Ekin Eray; Carl T. Haas, University Of Waterloo; Derek Rayside, University Of Waterloo; Behrooz Golzarpoor, University Of Waterloo</p> <p>(152) BIM and PLM : investigation on the different possibilities of deploying a PLM platform in the AEC industry Estelle Grialou, Ecole De Technologie Supérieure; Forgues Daniel, Ets; Iordanova Ivanka, Pomerleau</p> <p>(190) Investigating BIM's Potential to Proactively Address Project Delivery Issues Achintya S. Bhat, The University Of British Columbia; Erik Poirier, ; Sheryl Staub-French, University Of British Columbia</p> <p>(45) Proactive Construction Claims Analysis using BIM Ahmed Othman, Faculty Of Engineering - Cairo University; Mohamed Marzouk, Cairo University; Mohamed Enaba; Mohamed Zaher</p>	Stanley Park Ballroom 3
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Education 1 - Sustainability & Design chair: Mani Golparvar Fard

Fri 14:00 - 15:30	<p>(135) Rainwater supplied concrete laboratory – An interdisciplinary approach to sustainability education Heta Kosonen, University Of Washington; Amy Kim, University Of Washington</p> <p>(93) Engineering Competencies Developed through Construction Management Education: Student Perceptions Mihai Robu, University Of Calgary; Farnaz Sadeghpour, University Of Calgary</p> <p>(128) Advancing Construction Students' Sustainability Competencies Using Online Tools Moatassem Abdallah, University Of Colorado Denver; Caroline Clevenger, University Of Colorado Denver; Melissa Beauregard, University Of Colorado Denver</p> <p>(137) Using the DACUM Process to Develop an Industry-Directed Construction Education Curriculum Parya Nickbeen, Unm; Vanessa Valentin, University Of New Mexico; Susan M. Bogus, University Of New Mexico; Amy Ballard, School Of Applied Technologies</p>	Cowichan
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Risk 1 chair: Baabak Ashuri

Fri 14:00 - 15:30	<p>(17) Evaluation of heterogeneous levels of expertise in expert risk assessment in construction Aminah Robinson Fayek, University Of Alberta; Natalie Monzer, University Of Alberta; Nasir Siraj, University Of Alberta</p> <p>(26) Weather Derivatives As A Risk Management Tool For Construction Projects Mohammad Ammar Al-Zarrad, The University Of Alabama; Gary Moynihan , The University Of Alabama; Stephanie Vereen, The University Of Alabama</p> <p>(175) Risk Assessment in Fast-Track Construction Projects: A conceptual model Claudia Garrido Martins, University Of New Mexico; Vanessa Valentin, University Of New Mexico; Susan M. Bogus, University Of New Mexico</p> <p>(214) Severe Weather Preparedness Cody Bradley, Unb; Lloyd Waugh, Unb; Jared Mcginn, New Brunswick Department Of Transportation & Infrastructure</p> <p>(207) Geotechnical Risk Management in Design-Build Infrastructure Projects- A Case Study on Seismic Risks Ziyad A. Elkhatib, Cal Poly Pomona; Ricardo M. Tapia-Pereira, Iowa State University; Ghada Gad, Cal Poly Pomona; Douglas Gransberg, Iowa State University</p>	Coquitlam
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Planning 3 - Value, Lean & Planning chair: Mohamed Issa

Fri 14:00 - 15:30	<p>(257) A Case Study of Site Layout Planning within an Operational Airport Andrew Leonard; Farnaz Sadeghpour, University Of Calgary</p> <p>(19) Integrated AHP - Value Engineering Decision Making Model Ahmed Montaser, Ain Shams University; Ali Montaser, Ain Shams University</p> <p>(281) Estimating Contract Times for Transportation Projects: Creating a Statistical Model to Estimate Times Using Bid Quantities Guillermo Nevett, University Of Colorado Boulder; Paul Goodrum, University Of Colorado Boulder</p> <p>(79) Utility Company Practices to Expedite Utility Adjustments on Highway Projects Ernest-John Ignacio, University Of Illinois At Urbana-Champaign; Khaled El-Rayes, University Of Illinois At Urbana-Champaign</p> <p>(GC094) Implementation of Lean Principles in Construction: A Literature Review Phuong Nguyen, University Of Kansas; Brian Lines, University Of Kansas; Dan Tran , University Of Kansas</p>	Chehalis
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Sustainability 4 - Green Projects <i>chair: Kasun Hewage</i>		
Fri 14:00 - 15:30	(229) Methodology for improving the net environmental impacts of new buildings through product recovery management <i>Benjamin Sanchez Andrade, University Of Waterloo; Carl Haas, University Of Waterloo</i>	Oak1
	(59) Financial Incentives For Green Residential Buildings In Canada : A Review From A Regulatory Lens <i>Anber Rana; Rehan Sadiq, University Of British Columbia; Kasun Hewage, The University Of British Columbia; Shahria Alam, University Of British Columbia</i>	
	(171) Barriers and incentives for affordable green building construction in California <i>Reza Akhavian, Cal. State University East Bay; Ali Arabshahi, California State University East Bay; Cristian Gaedicke, California State University East Bay</i>	
	(274) Case application of PaveNext to achieve sustainable pavement design <i>Qingbin Cui, University Of Maryland; David Choy, University Of Maryland; Xiaoyu Liu, University Of Maryland</i>	
	(209) Influence Of Geographical Location On The Optimum Insulation Thickness <i>Christopher Palimaka, University Of British Columbia; Thomas Froese, University Of British Columbia; Belgin Terim Cavka, Ubc</i>	

Planning 4 - Resources & Productivity <i>chair: Stephanie Vereen</i>		
Fri 16:00 - 17:30	(15) Framework for measuring overall productivity in construction projects <i>Aminah Robinson Fayek, University Of Alberta; Selam Yazew Ayele, University Of Alberta</i>	Thompson
	(28) Time-Driven Activity-Based Costing To Optimize Crew Configurations Of Linear Repetitive Projects <i>Mohammad Ammar Al-Zarrad, The University Of Alabama; Gary Moynihan, The University Of Alabama; Stephanie Vereen, The University Of Alabama</i>	
	(227) A Modified Ant Colony Optimization Method for Solving the Single Tower Crane Allocation Problem <i>Carlos Trevino, University Of Texas Rio Grande Valley; Mohamed Abdel-Raheem, University Of Texas Rio Grande Valley</i>	
	(220) Optimizing Construction Productivity and Resources in Building Projects under Uncertainty <i>Nathee Athigakunagorn, Kasetsart University; Charinee Limsawasd, Kasetsart University</i>	
	(GC206) Resource Optimization Using Genetic Algorithm in the Simulation-Based Project Planning Method <i>Payam Hadavi; Mehdi Tavakolan</i>	

Project Delivery 4 - Procurement <i>chair: Carl Hass</i>		
Fri 16:00 - 17:30	(57) Intelligent Supply Chain Visibility for Risk Management in Pipe Spool Manufacturing <i>Hani Ahmed, University Of Waterloo; Carl T. Haas, University Of Waterloo; Tarek Hegazy, University Of Waterloo</i>	Fraser
	(131) Uncertainty Analysis of Procurement Phase Performance Indicators Using Extreme Bounds Analysis (EBA) <i>Sharareh Kermanshachi, University Of Texas At Arlington; Bac Dao, The University Of Nebraska-Lincoln; Jennifer Shane, Iowa State University; Stuart Anderson</i>	
	(122) Critical Analysis of Alternate Design/Alternate Bid Contracting for Highway Pavement Types <i>Douglas Gransberg, Iowa State University; Ilker Karaca, Iowa State University; Ashley Buss, Iowa State University</i>	
	(GC046) Evaluation & improvement of construction materials procurement in developing countries <i>Mohamed Abdel-Aziz</i>	
	(199) Examination Of Transportation Program Delivery: Preliminary Analysis <i>Dan Tran, University Of Kansas; Anushree Upare</i>	

IT 5 - Knowledge & Integration <i>chair: Mohamed Attalla</i>		
Fri 16:00 - 17:30	(119) Industry Foundation Processes (IFP) – A Unique Approach to Improve Process Conformance and Interoperability <i>Behrooz Golzarpoor, University Of Waterloo; Carl T. Haas, University Of Waterloo; Joel Gray, Coreworx Inc.; Derek Rayside, University Of Waterloo; Seokyoung Kang</i>	Stanley Park Ballroom 1
	(140) Ontology-Based Data Integration for Supporting Big Bridge Data Analytics <i>Kaijian Liu, University Of Illinois At Urbana-Champaign; Nora El-Gohary, University Of Illinois At Urbana-Champaign</i>	
	(164) Representation and Management of Project's Knowledge - A linked data approach <i>Pouya Zangeneh, University Of Toronto; Brenda Mccabe; Murray Pearson, Hatch; Nick Mason, Hatch</i>	
	(70) Framework for Measuring Process Interoperability in Construction Management <i>Seokyoung Kang; Carl T. Haas, University Of Waterloo; Behrooz Golzarpoor, University Of Waterloo</i>	
	(118) Web-Based Integrated Progress Monitoring and Reporting <i>Ahmed Montaser, Ain Shams University; Ali Montaser, Ain Shams University</i>	

BIM 4 - In Design <i>chair: Sara Rankohi</i>		
Fri 16:00 - 17:30	(161) Measuring the embodied energy of construction materials through building information modelling <i>Ahmad Odeh, University Of Ottawa; Ahmad Jrade, University Of Ottawa</i>	Stanley Park Ballroom 3
	(147) Modeling Spatial and Operational Interdependencies Among Building Systems Using Building Information Modeling <i>Ahmed Atef, University Of Victoria; David Bristow, University Of Victoria</i>	
	(GC999) Bim Technology In Datacenter Design And Construction <i>Jeong-Han Woo; Glenn Banks; James Murphy; Chris Ingalsbe</i>	
	(GC106) Integrating Building Information Modeling (BIM) with Sustainable Universal Design Strategies to Evaluate the Costs and Benefits of Building Projects <i>Bader Alsayyar; Ahmad Jrade, University Of Ottawa</i>	
	(286) NANAIMO MEMORY CARE: A CASE STUDY OF A MULTI-RESIDENTIAL CONSTRUCTION PROJECT <i>Sara Rankohi</i>	

Education 2 chair: Mohamed Issa		
Fri 16:00 - 17:30	(235) Energy storage and microgrid construction education <i>David Riley, Penn State; Parhum Delgoshaei, Penn State</i>	Cowichan
	(40) Assessment Strategies for Building Information Modeling Skills in Problem-Based Learning Pedagogics <i>Rahimi A. Rahman, Arizona State University; Steven K. Ayer, Arizona State University</i>	
	(165) Comparative Study Of University Courses On Construction Safety At Undergraduate Level <i>Zia Din, Arizona State University; Rahimi A. Rahman, Arizona State University; G. Edward Gibson, Arizona State University</i>	
	(246) The philosophy of Performance Measurement Research in Construction Management: A philosophical framework for designing Performance Measures <i>Saad Bin Saleem Ahmad, Norwegian University Of Sciences And Technology; Hyeon Yong Park, University Of Texas At Austin; Nils Olsson, Norwegian University Of Sciences And Technology; Olav Torp, Norwegian University Of Sciences And Technology; Amund Bruland</i>	

Safety & Risk chair: Saeideh Razavi		
Fri 16:00 - 17:30	(92) An Investigation of the Distribution of Mobile Crane Loads for Construction Projects <i>Meng Lin, University Of Alberta; Lijun Deng, University Of Alberta; Ulrich Hermann, Pcl Industrial Management Inc.; Samer Adeeb, University Of Alberta; Zhen Lei; Travis Zubick, Pcl Industrial Management Inc.; Nguyet Duong, University Of Alberta</i>	Coquitlam
	(253) Analysis of Construction Accidents Using Fault Trees <i>Ingrid Arocho, Oregon State University; Rebecca Yang, Skanska</i>	
	(100) Study on the Dynamic Safety Risk of Struck-By-Equipment Hazard: Risk Analysis, Prediction and Safety Performance Evaluation <i>Jun Wang, Mcmaster University; Saideh Razavi, Department Of Civil Engineering, Mcmaster University; Ioannis Brilakis, University Of Cambridge</i>	
	(279) A Framework for Risk-augmented 4-D Visualisation of Construction Projects <i>Faridaddin Vahdatikhaki, University Of Twente</i>	

Infrastructure 4 - Transportation/Pavement chair: Zaid Alyami		
Fri 16:00 - 17:30	(178) Cross-Asset Management for Transportation Infrastructure Systems <i>Zaid Alyami, University Of Waterloo; Seyedata Nahidi, University Of Waterloo; Cristina Torres-Machi, University Of Waterloo; Susan Tighe, University Of Waterloo</i>	Oak1
	(169) A data analytics solution for predicting the pavement condition index of roads using the most affordable attributes <i>Sayed Madeh Piryonesi, University Of Toronto; Tamer El-Diraby, University Of Toronto</i>	
	(155) Quantifying the Risk of Pavement related Foreign Object Damage <i>Kamran Rafiei, Tetra Tech Canada; Gary St Michel, Tetra Tech; Zachary Berglund, Saskatoon Airport Authority</i>	
	(86) An Enhanced Framework for Dynamic Segmentation of Pavement Sections <i>Ahmed Abdelaty, Iowa State University; H. David Jeong, Iowa State University</i>	
	(87) Radar Chart Tool For Evaluating The Performance Of Pavement Rehabilitation Treatments <i>Ahmed Abdelaty, Iowa State University; H. David Jeong, Iowa State University; Omar Smadi, Iowa State University</i>	

CRC Roebing lecture chair: 0		
Fri 16:00 - 17:30	(P004) CRC Roebing lecture	Marine

Saturday, June 3, 2017

CRC Meeting, Peurifoy and Halpin Awards chair: Baabak Ashuri		
Sat 09:00 - 10:30	(P005) CRC Meeting, Peurifoy and Halpin Awards	Stanley Park Ballroom 2

CRC Meeting, Peurifoy and Halpin Awards chair: Baabak Ashuri		
Sat 11:00 - 12:00	(P006) CRC Meeting, Peurifoy and Halpin Awards	Stanley Park Ballroom 2