



2nd International Conference on New Horizons in Green Civil Engineering (NHICE-02)

NHICE-02 Program¹

Workshops

Day 1 – Monday, 24 August 2020

1:00 PM – 3:00 PM ²	<p align="center">Workshop 1</p> <p>Workshop 1: What You Need to Know About Prefabrication Speaker: Guido Wimmers (University of Northern British Columbia)</p>	11:00 AM – 1:00 PM	<p align="center">Workshop 5</p> <p><u>Workshop 5</u>: Grid integration Speakers: Ajit Pardasani, Carsen Banister and Lexi Thompson (National Research Council Canada)</p>
9:30 AM – 04: 30 PM	<p align="center">Workshops 2, 3 & 4 (Presented as an integrated one-day seminar)</p> <p><u>Workshop 2</u>: Building Next Level Adaptation Speakers: Kari Tyler (Pacific Climate Impacts Consortium), Robert LePage (RDH Building Science) and Trevor Murdock (Pacific Climate Impacts Consortium)</p> <p><u>Workshop 3</u>: Adaptation of Existing Buildings Speakers: Iain Macdonald, Scott Shillinglaw, Suda Molleti and Lexi Thompson (National Research Council Canada)</p> <p><u>Workshop 4</u>: Piloting MBAR – Mobilizing Building Adaptation and Resilience Speakers: Wilma Leung (BC Housing) & Others</p>	10:00 AM – 12:00 Noon	<p align="center">Workshop 6</p> <p><u>Workshop 6</u>: Using the Wrong Numbers to Predict Building Envelope Performance Speaker: Laverne Dalgleish (Building Professionals)</p>

¹ Please note that the program is subject to change due to unavoidable circumstances.

² Time in Victoria, BC, Canada

NHICE-02 Program Conference

Time	Day 2 – Tuesday, 25 August 2020	Day 3 – Wednesday, 26 August 2020
	Session	
09:00 AM to 10:30 AM 90 minutes	Track A Welcome – 20 minutes Keynote Presentation 1 (40 minutes); Oliver Lang , Co-Founder and CEO, Intelligent City Inc., Winner of the Breakthrough Energy Solutions Canada competition 2 papers (6, 21) – 15x2=30 minutes	Track E Welcome – 5 minutes Keynote Presentation 4 (13) (40 minutes) – Thomas Tiedje , Professor, Fellow of Royal Society of Canada, University of Victoria 3 papers (20, 50, 34) – 15x3=45 minutes
10:30 AM to 10:50 AM 20 minutes	Break	
10:50 AM to 12:30 PM 100 minutes	Track B Keynote Presentation 2 - Michael A. Lacasse , Director (Acting), Construction Research Centre (CONST), National Research Council Canada 40 minutes	Track F Keynote Presentation 5 - Philip Rizcallah , CEO, Accessibility Standards Canada 40 minutes
	Track B1 4 papers (8, 41, 45, 49) 15x4=60 minutes	Track B2 4 papers (5, 14, 15, 16) 15x4=60 minutes
	Track B3 4 papers (38, 60, 76, 113) 15x4=60 minutes	Track F1 4 papers (17, 29, 65, 108) 15x4=60 minutes
		Track F2 4 papers (99, 101, 102, 104) 15x4=60 minutes
		Track F3 4 papers (52, 58, 09, 03) 15x4=60 minutes
12:30 PM to 01:00 PM 30 minutes	Break	
01:00 PM to 02:40 PM 100 minutes	Track C Keynote Presentation 3 – Chris Ballard , CEO, Passive House Canada 40 minutes	Track G Keynote Presentation 6 - Jennifer O'Connor , President, Athena Sustainable Materials Institute 40 minutes
	Track C1 4 papers (22, 23, 24, 25) 15x4=60 minutes	Track C2 4 papers (10, 11, 51, 112) – 15x4=60 minutes
		Track C3 4 papers (91, 92, 118, 103) – 15x4=60 minutes
		Track G1 4 papers (7, 30, 66, 107) 15x4=60 minutes
		Track G2 4 papers (77, 53, 116, 117) 15x4=60 minutes
02:40 PM to 03:00 PM 20 minutes	Break	
03:00 PM to 04:30 PM 90 minutes	Track D1 6 papers (37, 61, 78, 80, 83, 26) 15x6=90 minutes	Track D2 6 papers (36, 67, 72, 86, 90, 106) 15x6=90 minutes
		Track H1 6 papers (68, 73, 93, 97, 98, 39) 15x6=90 minutes
		Track H2 6 papers (27, 109, 110, 114, 115, 100) 15x6=90 minutes

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Paper ID	Title	Affiliation	Authors	Session
03	Optimizing building form for energy-efficient school design	UAE University, UAE	Meriem Rahmani, Khaled A. Al-Sallal	Track F3
05	Economic and energy impacts of adaptive reuse building construction	University of Waterloo, Canada	Jacky Chan, Chris Bachmann, Carl Hass	Track B2
06	Canada's Green Construction through Wood Program	Natural Resources Canada, Canada	M. Mohammad, Dana Pothier, Julie Tourrilhes, Richard Coxford, and Miranda Williamson	Track A
07	Application Research of Integration Vacuum Insulation Panel (IVIP) in New Building	Nanjing University of Aeronautics and Astronautic, China	Zhaofeng Chen, Min Li, Shahzad Asim, Yuanhao Li, Duanyin Zhang, Qianbo Zhou	Track G1
08	Seismic performance of timber connections for sustainable tallwood building	Queen's University, Canada	Gabriella Vojtila, Colin MacDougall	Track B1
09	Northern Ontario air transportation: infrastructure resilience and community well-being	University of Toronto, Canada	Dimayuga, Pia, Ohlrogge, Erik, Widener, Michael, Galloway, Tracey, Saxe, Shoshanna	Track F3
10	Synthesis of green cement from incinerator residues and carbonation activation	McGill University, Canada	Yixin Shao, Zaid Ghoulch	Track C2
11	Influence of steam curing parameters on concrete strength and optimization at 28 days	University of Khartoum, Sudan	Radad Azhari Elsir Elnour	Track C2
13	Cost and limiting efficiency of silicon solar panels past and future	University of Victoria, Canada	T. Tiedje	Track E
14	In-situ Envelope Performance and Actual vs Modeled Energy Consumption of a Passive House Certified Research and Testing Facility in Northern BC	University of Northern British Columbia, Canada	A. Conroy, G. Wimmers	Track B2
15	Hygrothermal Performance and the Effect of an Exterior Air Barrier on High-Performance Building Envelope Assemblies	University of Northern British Columbia, Canada	Alison Conroy, Guido Wimmers	Track B2
16	Pros and Cons of Different Strategies and Levels of Prefabrication and the Influence of the BC Energy Step Code on the Manufacturing of Buildings	University of Northern British Columbia, Canada	G. Wimmers, L.Wimmers	Track B2
17	Fiber Holder to Assist in Sputter Deposition of Optical Fibers	University of Victoria, Canada	C.A. Vail, G. Burton, P.M. Wild, H.L. Buckley	Track F1
20	Simulation of wind-driven rain exposure of a heritage façade using future climate weather data	Swiss Federal Institute of Technology ETH, Zurich, Switzerland	John Bourcet, Aytaç Kubilay, Dominique Derome, Jan Carmeliet	Track E
21	Why Wood – Building the case for more wood education	Canadian Wood Council, Canada	Reed Kelterborn	Track A
22	Morphing Weather Data for Climate Resilient Building Design: A Study on Lifetime Thermal Comfort, Energy Demand and Energy Consumption	RJC Engineers Ltd., Canada	M. Fakoor	Track C1

23	Future Context for Retrofitting Existing Buildings: Impacts of A Changing Climate on Energy Conservation Measures	RJC Engineers Ltd., Canada	M. Fakoor	Track C1
24	Towards Net-Zero Energy Ready: Where Passive House Lies on the High Performance Staircase of the BC Energy Step Code	RJC Engineers Ltd., Canada	M. Kennedy-Parrott, M. Fakoor	Track C1
25	Towards Net-Zero Carbon Buildings: A Comparative Study Between Operational and Embodied Carbon Emissions	RJC Engineers Ltd., Canada	L.Polovina, M. Fakoor	Track C1
26	Designing Buildings for a Warming Climate	Integral Group, Canada	L. Westerhoffa, S. MacDougall, C. Dedels, S. Shepherd	Track D1
27	Experimental Study on the Thermal Performance of Green Roof Substrates as a Function of Temperature and Moisture Content	University of Victoria, Canada	Bohan Shao, Caterina Valeo, Phalguni Mukhopadhyaya, Jianxun He	Track H2
29	Identification of model pioneer bacteria used to test biofouling on reverse osmosis water treatment membranes and related protocol	University of Victoria, Canada	A. Curtin, M. Thibodeau, A. Piper-Arroliga, H.L. Buckley	Track F1
30	In-Situ Temperature and Moisture Monitoring of a High-Performance Tiny House with Vacuum Insulation Panels	Carleton University, Canada	C. Campbell, S. Bucking, C.A. Cruickshank	Track G1
34	Feasibility study of integrating carbon capturing and utilization in building level natural gas heating systems	University of British Columbia, Canada	Don Rukmal Liyanage, Kasun Hewage, Hirushie Karunathilake, Rehan Sadiq	Track E
36	The physics of the outdoor urban climate	EMPA (Swiss Federal Laboratories for Materials Science and Technology), Switzerland	Jan Carmeliet, Aytaç Kubilay, Andrea Ferrari, Dominique Derome	Track D2
37	Modeling wood performance? The challenge of using natural materials.	EMPA (Swiss Federal Laboratories for Materials Science and Technology), Switzerland	D. Derome, M. Chen, C. Zhang, A. Shomali, B. Coasne, J. Carmeliet	Track D1
38	Impact of Climate Change on Energy Demand of a Mid-Rise Office Building	Indian Institute of Technology Roorkee, Roorkee, India	Chinmay Jha, Shweta Lall, E. Rajasekar	Track B3
39	Parametric Design of Balconies in Multi--Unit Residential Buildings	Ryerson University, Canada	Terri Peters, Ted Kesik	Track H1
41	Optimizing mass timber-concrete composite floor systems with respect to embodied carbon	University of Alberta, Canada	T. Joycea, H. Daneshvar, Y.H. Chui, L. Zhang	Track B1
45	Recent developments in engineered wood products for green building constructions	University of Laval, Canada	Marc Oudjene,	Track B1
49	Coastal resiliency of Canadian low-rise light wood frame buildings against climate change	University of Alberta, Canada	H. Daneshvara, T. Joyce, Y.H. Chui	Track B1
50	Mapping of the Renewable Energy Generation Potential in India	University of Calcutta, India	Nimai Sundar Manna, Binoy Krishna Choudhury	Track E
51	Microscale Characteristics of New Bitumen-Based Carbon Fibers (BBCF)	University of Victoria, Canada	Maryam Monazami, Rishi Gupta	Track C2

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52	Smart Buildings – A Road Map: Where we are, where we are going, and how we get there	Integral Group, Canada	N. Hodge, A. Crosson	Track F3
53	A Comparison of carbon capturing technologies for community energy systems: A techno-economic assessment	University of British Columbia, Canada	Ravihari Kotagoda Hetti, Hirushie Karunathilake, Kasun Hewage, Rehan Sadiq	Track G1
58	Critical road network recovery in the District of North Vancouver	University of Victoria	Andrew Deelstra, David Bristow	Track F3
60	What are the extent and opportunities of Sustainable Development in the Construction Industry?	University of British Columbia, Canada	Suzana C N L. Espindola, Thomas M. Froese	Track B3
61	A neural network metamodel for predicting hygrothermal performance of wood framed envelopes under future climatic loads	Concordia University, Canada	Lin Wang and Hua Ge	Track D1
65	A New Sensing System to Detect Liquid Water Penetration through Water Resistant Barriers	University of Victoria, Canada	Wenqin (Sarah) Qi, Caterina Valeo, Phalguni Mukhopadhyaya	Track F1
66	Impact of Insulating the Rough Opening Gap on the Total Heat Flow at the Window to Wall Interface	BCIT Building Science Centre of Excellence, Canada	Edward Lau and Fitsum Tariku	Track G1
67	Quantifying overheating in highly glazed buildings and evaluating glazing films as a mitigation strategy	University of Toronto, Canada	Shengbo Zhang, Jamie Fine, Marianne F. Touchie, William O'Brien	Track D2
68	Insulation and energy performance of metal exterior curtain wall including thermal bridges	Research & Development Center, LOTTE Engineering & Construction, South Korea	Jin-Hee Song, Dong-Yun Lee, Bo-Hye Choi, and Seung-Yeong Song	Track H1
72	Development of assessment criteria for overheating risk analysis in buildings	National Research Council Canada, Canada	A. Laouadi, M. Bartko, M.A. Lacasse	Track D2
73	On the implementation of thermal bridge calculations in the Belgian building code	Ghent University, Belgium	N. Van Den Bossche, L. Landuyt, A. Janssens	Track H1
76	A Review of Definition and Classification of Heritage Buildings and Framework for their Evaluation	Concordia University, Canada	A. Al-Sakkafa, T. Zayed, and A. Bagchi	Track B3
77	Operational energy use versus LCA: case study The Mobble for the Solar Decathlon Europe 2019 competition	Ghent University, Belgium	L. Landuyt, S. De Turck, S. Lauwerys, N. Van Den Bossche	Track G2
78	Effect of rendering properties on moisture risk of internally insulated masonry walls	EMPA (Swiss Federal Laboratories for Materials Science and Technology), Switzerland	Xiaohai Zhou, Jan Carmeliet, Do minutesique Derome	Track D1
80	Hygrothermal performance of cross-laminated timber wall assemblies in future climatic conditions	Tallinn University of Technology, Estonia	Villu Kukk	Track D1
83	Hygrothermal response of tallwood building enclosures to climate change in different climate zones in Canada	National Research Council Canada, Canada	Maurice Defo, Michael Lacasse	Track D1
86	Assessment of summertime overheating conditions in vulnerable buildings in Montréal	Concordia University, Canada	Liangzhu (Leon) Wang, Chang Shu, Hua Ge, Radu Zmeureanu, Michael Lacasse, Sylvie Leroyer, Stephane	Track D2

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			Belair, Lili Ji, Xuechen Bai, Lin Wang, Mohammad Mortezaadeh, Ali Katal	
90	Cold thermal energy storage for buildings: A feasibility study	National Research Council Canada, Canada	Mehdi Ghobadi, Aziz Laouadi, Anca Galasiu	Track D2
91	Research on Quantitative Evaluation of Road Slope Risk by using Sensor Network with 3-axis Acceleration Sensors	Kyushu University, Japan	Hisatoshi Taniguchi, Yasuhiro Mitani, Ryu Muraoka, Hironobu Katsuki,	Track C3
92	Basic study on development of decision support system for evacuation instructions	Kyushu University, Japan	Kohei KAWANO, Kenichi TSUKAHARA, Yasuhiro MITANI, Hisatoshi TANIGUCHI, Tatsuro SATO	Track C3
93	Thermal Bridging: Methodologies, Tools, and Advancements in Mitigation	Morrison Hershfield Ltd., Canada	V. Gretka, P. Roppel	Track H1
97	National Energy Code of Canada reference thermal resistance calculation methods compared to a validated 3D heat transfer simulation for framed walls containing thermal bridges	National Research Council Canada, Canada	H. Schreiber, T. Moore, M. Ghobadi	Track H1
98	The Thermal Effects of Adding a window to a Wood Stud Wall Assembly	National Research Council Canada, Canada	Mehdi Ghobadi	Track H1
99	Research for Detecting Relationship Information Between Point Cloud Data and Plan of Completion Drawing	Kansai University, Japan	Y. Umehara, K. Nakamura, Y. Tsukada, S. Tanaka, K. Nakahata	Track F2
100	Identify the common challenges in the green building practices	ETS University, Canada	Zahra Alaghehmandan, Christiane Papineau, Gabriel Lefebvre	Track H2
101	Research on Improvement of Road Maintenance Using Point Cloud Data with Feature Information	Setsunan University, Japan	Y. Tsukada, K. Nakamura, R. Imai, S. Tanaka, Y. Umehara	Track F2
102	Research for Detection and Positional Analysis of People in Construction Fields using Multiple Cameras from a Single Viewpoint	Kansai University, Japan	W. Jianga, Y. Yamamoto, S. Tanaka, K. Nakamura, C. Tanaka	Track F2
103	Fundamental Research concerning Personal Identification for Safety Management of Construction Sites Using Deep Learning	Osaka University of Economics, Japan	R. Imai, D. Kamiya, H. Inoue, S. Tanaka	Track C3
104	Survey Research on Mobile Recognition Technologies using Deep Learning for Application to Traffic Census	Osaka Institute of Technology, Japan	R. Imai, D. Kamiya, Y. Yamamoto, S. Tanaka, M. Nakahara, K. Nakahata	Track F2
106	Field Survey on Indoor Overheating in School and Hospital Buildings in Montréal	Concordia University, Canada	Chang Shu, Lili Ji, Lin Wang, Xuechen Bai, Michael Lacasse, Hua Ge, Radu Zmeureanu, Liangzhu (Leon) Wanga	Track D2
107	Performance of dynamic shading systems based on non-deterministic algorithm	Princeton University, USA	V. Charpentier, F. Meggers, S. Adriaenssens, O. Baverel	Track G1
108	Mechanical behavior of a new type of flexible, pressurized storm surge barrier under hydrostatic loading	Princeton University, USA	J. Goodglass, A. Niewiarowski, S. Adriaenssens	Track F1
109	Global bioretention cell guidelines: a review and recommendations to meet hydrological performance targets	York University, Canada	M. Bacys, U. T. Khan, J. Sharma, T. R. Bentzen	Track H2

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110	The Low Impact Development Demand Index: a geospatial framework to identify LID demand for three Canadian cities	York University, Canada	S. Kaykhosravi, K. Abogadil, U. T. Khan, A. Jadidi	Track H2
112	Assessment of Feasibility of Hollow Core Slabs in Building Construction Considering Cost, Energy, and Carbon Imprint	Concordia University, Canada	A. Noman, A. Bagchi,, A. Athienitis	Track C2
113	Post Occupancy Evaluation in Canada: Challenges, Potential Improvements and New Frontiers	University of Victoria, Canada	I. Tripathi, T. Froese	Track B3
114	Stormwater Management by Bioretention Mesocosms – the Dynamic Role of Vegetation and Media in the Performance	University of Calgary, Canada	A. Skorobogatov, J. He, A. Chu, C. Valeo, and B. van Duin	Track H2
115	Thermal behaviour of an extensive green roof in a cold and semi-arid climate	University of Calgary, Canada	M. Akther, J. He, A. Chu, B. van Duin	Track H2
116	Municipal Natural Asset Management as a Climate Resiliency Strategy	Morison Hershfield Limited, Town of Gibsons, Canada	Al Strang, Emanuel Machado	Track G2
117	Metro Vancouver’s Application of the Envision Sustainable Infrastructure Framework	Morison Hershfield Limited, Metro Vancouver, Canada	Al Strang, Marcel Pitre, Don McCallum	Track G1
118	Kalman Filtering Applied to Sensor Fused Data to Deliver Accurate and Rapid Environmental Feedback of an Occupied Space	Delta Controls Inc., Canada	G. Mustapha, D. De Vaz, K. Batdorf	Track C3