DBMC 2026

Montreal, Canada
July 20-24, 2026

The 17th International Conference on the Durability of Building Materials and Components

National Research Council Canada
Conseil national de recherches Canada
Université Concordia University
Center for Zero Energy Building Studies
Centre d'études sur le bâtiment à consommation nulle d'énergie

WELCOME TO DBMC 2026

Dear Colleagues, Friends, and Sponsors,

On behalf of the DBMC 2026 Organizing Committee, it is our great pleasure and honour to welcome you to the 17th International Conference on the Durability of Building Materials and Components (XVII DBMC 2026), taking place from July 20 to 24, 2026, at Concordia University in Montréal, Canada. Hosted jointly by Concordia University and the National Research Council Canada, this international event brings together researchers, practitioners, industry representatives, policymakers, and students from around the world.

Since its inaugural edition in Ottawa in 1978, DBMC has become a leading international forum for advancing research, innovation, and collaboration in the durability and performance of building materials, components, and systems. Following the 8th DBMC, held in Vancouver in 1999, we are especially honoured to welcome the DBMC community back to Canada for the third time.

The international response to XVII DBMC 2026 has been exceptional. More than 540 abstracts were submitted, resulting in 320 accepted papers from 205 institutions across 43 countries and 6 continents. These contributions demonstrate the growing global commitment to addressing current and future challenges related to the durability, resilience, and sustainability of the built environment.

The conference program addresses critical and emerging topics, including the durability assessment of building materials and components; climate change adaptation and environmental resilience; decarbonization and the reduction of greenhouse gas emissions and other environmental impacts; and rapidly evolving technologies in construction. Participants can look forward to a rich and diverse program featuring five keynote lectures, ten oral presentation sessions, one poster session, four interactive panel discussions, seven workshops, two technical meetings, two special-topic talks, two laboratory tours, and other collaborative activities. International technical committees, including groups associated with CIB, CSA and ISO, will also convene in Montréal in conjunction with the conference.

The scientific quality of the program reflects the dedication and expertise of the Scientific Committee. All submitted papers underwent a rigorous peer-review process to ensure high academic and professional standards. Beyond the technical program, we hope the conference will provide valuable opportunities for networking, collaboration, and the exchange of innovative ideas that will help shape the future of buildings and infrastructure.

We are pleased to welcome more than 400 participants from academia, industry, government, and professional practice to the DBMC 2026. We extend our sincere appreciation to our sponsors, institutional partners, committee members, keynote speakers, panelists, session chairs, authors, reviewers, and volunteers. Their commitment and contributions have made this event a reality.

We wish you an inspiring and productive conference, as well as an opportunity to enjoy Montréal's distinctive architecture, multicultural character, cuisine, and vibrant summer atmosphere. We hope your time in Montréal will be both rewarding and memorable.

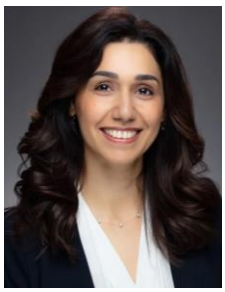
Welcome to XVII DBMC 2026, and welcome to Montréal!

With best regards,

Professor Hua Ge
Dr. Marzieh Riahinezhad
Dr. Michael A. Lacasse
Professor Liangzhu (Leon) Wang

Co-Chairs, XVII DBMC 2026

Hua Ge



Marzieh Riahinezhad

Michael Lacasse

Liangzhu Leon Wang

WEEKLY SCHEDULE OVERVIEW

Time	July 20	July 21	July 22	July 23	July 24
8:30		**OPENING** 8:30 - 9:15	**Keynote, Marianne Armstrong** 8:30 - 9:15 | MB 1.210	**Keynote, Ana Silva** 8:30 - 9:15 | MB 1.210	**Keynote, Kefei Li** 8:30 - 9:15 | MB 1.210
9:00		**Keynote, Christer Sjöström** 9:15 - 10:15 | MB 1.210	**Keynote, Menghao Qin** 9:15 - 10:15 | MB 1.210	**Panel 3** 9:15 - 10:30 MB 1.210	**Panel 4** 9:15 - 10:15 MB 1.210
9:30					
10:00	**Workshop 1** 8:30 - 12:00 MB9-EFG	**COFFEE BREAK** - 10:15 - 10:45	**COFFEE BREAK** - 10:15 - 10:45	**COFFEE BREAK** - 10:30 - 10:45	**COFFEE BREAK** - 10:15 - 10:45
10:30					
11:00		**Parallel Sessions** 10:45 - 12:15	**Parallel Sessions** 10:45 - 12:15	**Parallel Sessions** 10:45 - 12:00	**Parallel Sessions** 10:45 - 12:15
11:30		**Workshop 2 (I)** 10:45 - 12:15 MB9-CD	**Workshop 3** 10:45 - 12:45 MB9-CD	**Workshop 6** 10:45 - 12:15 MB9-CD	Invited Special Topic 1 10:45 - 11:45 MB9-AB
12:00		**ISO TC59/SC14** 10:45 - 12:45 MB9-AB			Invited Special Topic 2 11:45 - 12:45 MB9-AB
12:30	**REGISTRATION** 8:30 - 18:00 MB Atrium	**LUNCH** 12:15 - 13:30 LB Atrium	**LUNCH** 12:15 - 13:30 LB Atrium	**LUNCH** 12:15 - 13:30 LB Atrium	**CLOSING** 12:15 - 12:45
13:00					**Lunch** 12:45 - 14:00
13:30		**Panel 1** 13:30 - 14:30 MB 1.210	**Panel 2** 13:30 - 14:30 MB 1.210	**Parallel Sessions** 13:30 - 15:00	**Workshop 7** 13:30 - 15:45 MB9-CD
14:00					
14:30	**CIB W080/W086** 13:30 - 16:00 MB 10.121			COFFEE BREAK 15:00 - 15:30	
15:00		**Parallel Sessions** 14:45 - 16:15	**Parallel Sessions** 14:45 - 16:00		
15:30		**Workshop 2 (II)** 14:45 - 17:30 MB9-CD	**Workshop 4** 14:45 - 17:30 MB9-CD	**Parallel Sessions** 15:30 - 17:00	**Poster Session** 16:00 - 17:30 MB9-EFG
16:00		**CSA S478** 14:45 - 17:30 MB9-AB	**Workshop 5** 14:45 - 17:30 MB9-AB		
16:30		COFFEE BREAK 16:15 - 16:30	COFFEE BREAK 16:15 - 16:30		
17:00	**Steering Committee Meeting** 16:30 - 18:00 MB 10.121	**Parallel Sessions** 16:30 - 18:00	**Parallel Sessions** 16:30 - 18:00		
17:30					
18:00					
18:30		**Concordia Lab Tours (Downtown)** 18:30 - 19:30		**Concordia Lab Tours (Future Buildings Lab, Loyola Campus)** 18:00 - 20:00	
19:00	**Welcome Reception** 18:30 - 20:00 MB9-ABCD		**Gala Dinner (Maison Alcan)** 19:00 - 22:00		
19:30					
20:00					

SCHEDULE OVERVIEW

Monday, July 20

Time		
8:30 - 12:00		**Workshop 1** **Hygrothermal Performance of Mass Timber Envelopes: Response to Wind-Driven Rain Exposure and Uncertainties in Material Properties (CIB W040)** 8:30 - 12:00 | MB9-EFG
12:00 - 13:30	**REGISTRATION** 8:30 - 18:00 | MB Atrium	
13:30 – 16:00		**Technical Committee Meeting** **CIB W080/W086** **Durability of building materials and components** 13:30 - 16:00 | MB 10.121
16:00 – 16:30		
16:30– 18:00		**Steering Committee Meeting** 16:30 - 18:00 | MB 10.121
18:00 – 18:30		
18:30 – 20:00	**WELCOME RECEPTION** 18:30 - 20:00 | MB9-ABCD	

Tuesday, July 21

Time			
8:30 – 9:00	**OPENING** 8:30 - 9:15		
9:00 – 9:30			
9:30 -10:00	**Keynote - Christer Sjöström | Climate change and Energy shift – expectations on building and construction sector and industry** 9:15 - 10:15 | MB 1.210		
10:00 – 10:30			
10:30 -11:00	**COFFEE BREAK** 10:15 – 10:45		
11:00 – 11:30	**Parallel Sessions** **Session 1A-1F** 10:45 - 12:15| MB3.210-3.445	**Workshop 2- Part I** **BIPV in Practice: Products, Integration, and Performance** 10:45 - 12:15 | MB9-CD	**Technical Committee Meeting** ISO TC59/SC14 10:45 - 12:45 | MB9-AB
11:30 – 12:00			
12:00 – 12:30			
12:30 – 13:00		**LUNCH** 12:15 - 13:30| LB Atrium	
13:00 – 13:30			
13:30 – 14:00	**Panel 1 - Resilient Standards: Designing for a Non-Stationary Future** 13:30 - 14:30 | MB 1.210		
14:00 – 14:30			
14:30 – 15:00			
15:00 – 15:30	**Parallel Sessions** **Session 2A-2E** 14:45 - 16:15| MB3.210-3.445	**Workshop 2 - Part II** **BIPV Technical Guide, Standards and Codes** 14:45 - 17:30 | MB9-CD	**Technical Committee Meeting** **CSA S478** 14:45 - 17:30 | MB9-AB
15:30 – 16:00			
16:00 – 16:30	**COFFEE BREAK** 16:15 – 16:30		
16:30 – 17:00	**Parallel Sessions** **Session 3A-3E** 16:30 - 18:00| MB3.210-3.445		
17:00 – 17:30			
17:30 – 18:00			
18:00 – 18:30			
18:30 – 19:30	**Concordia Lab Tours (Downtown)** 18:30 - 19:30		

Wednesday, July 22

Time			
8:30 – 9:00	**Keynote - Marianne Armstrong | Strengthening Canada's Buildings in a Changing Climate: A Journey from Research to Resilience** 8:30 - 9:15 | MB 1.210		
9:00 – 9:30			
9:30 -10:00	**Keynote - Dr. Menghao Qin | Metal–Organic Frameworks for Energy-efficient and Low-carbon Building** 9:15 - 10:15 | MB 1.210		
10:00 – 10:30			
10:30 : 11:00	**COFFEE BREAK** 10:15 – 10:45		
11:00 – 11:30	**Parallel Sessions** **Session 4A-4E** 10:45 - 12:15| MB3.210-3.445		**Workshop 3** **BIM-Based Digital Twins for Building Performance and Decarbonization** 10:45 - 12:45 | MB9-CD
11:30 – 12:00			
12:00 – 12:30			
12:30 – 13:00	**LUNCH** 12:15 - 13:30| LB Atrium		
13:00 – 13:30			
13:30 – 14:00	**Panel 2 - Building Materials for a Changing World: Durability, Resiliency, and Sustainability** 13:30 - 14:30 | MB 1.210		
14:00 – 14:30			
14:30 – 15:00			
15:00 – 15:30	**Parallel Sessions** **Session 5A-5F** 14:45 - 16:00| MB3.210-3.445	**Workshop 4** **Evaluating Surface Radiative Performance of Building Envelope Materials** 14:45 - 17:30 | MB9-CD	**Workshop 5** **Overview of CSA standard - CSA S478 - Durability in Buildings** 14:45 - 17:30 | MB9-AB
15:30 – 16:00			
16:00 – 16:30	**COFFEE BREAK** 16:15 – 16:30		
16:30 – 17:00	**Parallel Sessions** **Session 6A-6E** 16:30 - 18:00| MB3.210-3.445		
17:00 – 17:30			
17:30 – 18:00			
18:00 – 18:30			
18:30 – 19:00			
19:00 -22:00	**GALA DINNER** **Maison Alcan, 1188 Sherbrooke O.** 19:00 - 22:00		

Thursday, July 23

Time			
8:30 – 9:00	**Keynote - Ana Silva | Use of Artificial Intelligence in service life prediction and maintenance planning** 8:30 - 9:15| MB 1.210		
9:00 -9:30			
9:30 - 10:00	**Panel 3 - Building Engineering in a Global Context: Education, Collaboration, and Future Directions** 9:15 - 10:30 | MB 1.210		
10:00 – 10:30			
10:30 – 11:00	**COFFEE BREAK** 10:30 – 10:45		
11:00 – 11:30		**Workshop 6** **A Primer about Publishing Technical Papers in International Journals: Sharing an Editor's Experience** 10:45 - 12:15 | MB9-CD	**Invited Special Topic 1** **Strong Homes, Strong Future: Building Sustainable and Resilient Canadian Homes** 10:45 - 11:45 | MB9-AB
11:30 – 12:00	**Parallel Sessions** **Session 7A-7E** 10:45 - 12:00| MB3.210-3.445		
12:00 – 12:30			**Invited Special Topic 2** **CARBIOWISE – Carbon-Wise Design of Energy-Efficient and Bio-based, Durable Buildings** 11:45 - 12:45 | MB9-AB
12:30 – 13:00		**LUNCH** 12:15 - 13:30| LB Atrium	
13:00 – 13:00			
13:30 – 14:00	**Parallel Sessions** **Session 8A-8E** 13:30 - 15:00| MB3.210-3.445		**Workshop 7** **Integrating Materials and Construction Technologies for Sustainable Eco-Friendly Buildings** 13:30 - 15:45 | MB9-CD
14:00 – 14:30			
14:30 – 15:00			
15:00 – 15:30	**COFFEE BREAK** 15:00 – 15:30		
15:30 – 16:00	**Parallel Sessions** **Session 9A-9E** 15:30 - 17:00| MB3.210-3.445		
16:00 – 16:30			
16:30 – 17:00			**Poster Session** 16:00 - 17:30 | MB9-EFG
17:00 – 17:30			
17:30 – 18:00			
18:00 – 20:00	**Concordia Lab Tours (Future Buildings Lab, Loyola Cpus)** 18:00 - 20:00		

Friday, July 24

Time	July 24
8:30	**Keynote, Kefei Li** 8:30 - 9:15 | MB 1.210
9:00	
9:30	**Panel 4** 9:15 - 10:15 MB 1.210
10:00	
10:30	**COFFEE BREAK** - 10:15 - 10:45
11:00	
11:30	**Parallel Sessions** 10:45 - 12:15
12:00	
12:30	**CLOSING** 12:15 - 12:45
13:00	**Lunch** 12:45 - 14:00
13:30	

DETAILED SCHEDULE

Opening and Keynotes

Opening Session — Tuesday, July 21, 8:30 – 9:15 — Room: MB 1.210

Mourad Debbabi
Dean of the Gina Cody School of Engineering and Computer Science
Concordia University

Jean-Francois Houle
Vice-President, Engineering
National Research Council Canada

Andreas Athienitis
Director, Concordia Centre for Zero Energy Building Studies | Chair, CFREF Volt-Age
Scientific Committee
Concordia University

Keynote — Tuesday, July 21, 9:15 – 10:15 — Room: MB 1.210

Christer Sjöström
Senior Professor, KTH Royal Institute of Technology
Sweden

Bio

Christer Sjöström is an R&D engineer and senior Professor of KTH Royal Institute of Technology in Sweden. He has a long background in working with R&D and standardization within areas such as performance over time of materials, products and technical systems and has contributed to most of the DBMC events since the start of the series of conferences. One of his major interests is the important interrelation of academic research and industrial and societal development. He was President of CIB during 1995 – 1998, a period that was concluded with a Congress focusing on "Construction and the Environment". With his backstory of research work in industry, at research institutes and the academy, he has also over the years advised start-up companies and founded new companies. He is today a counsellor and Board Member of a start-up with a patented accelerator technology to support the production of green hydrogen gas.

Topic: Climate change and Energy shift – expectations on building and construction sector and industry

This keynote examines why the building and construction sector remains off track for the 2050 Net Zero Emissions pathway, despite stronger energy codes, minimum performance standards, renewable technologies, and power-sector decarbonization. Drawing on international tracking reports and a review of environmental and energy-shift initiatives, the lecture will explore how new buildings and much of the existing building stock must become zero-carbon-ready by 2030, and what this means for research, regulation, standardization, and industry action.

Keynote **Wednesday, July 22, 8:30 – 9:15** **Room: MB 1.210**

Marianne Armstrong
Director, Resilient and Sustainable Infrastructure, National Research Council Canada
Canada

Bio

Marianne Armstrong is Director of the National Research Council's Climate Resilient Built Environment Initiative, where she plays a pivotal role in shaping and implementing a national research program aimed at enhancing the resilience of Canada's infrastructure and buildings against climate change and extreme events. Over the past decade, she has directed and inspired multi-disciplinary resources at the NRC and collaborators from over 170 different organizations to work together to affect change to national guidance, codes and standards, and achieve critical progress towards a sustainable and resilient future for Canada's built environment.

Topic: Strengthening Canada's Buildings in a Changing Climate: A Journey from Research to Resilience

Since 2016, the National Research Council Canada, in partnership with Housing Infrastructure and Communities Canada, has been working to increase the resilience of Canada's buildings to climate change and extreme weather. This presentation highlights how a decade of research has enabled changes to Canada's Codes and standards and led to the development of new guidance and tools.

Keynote **Wednesday, July 22, 9:15 – 10:15** **Room: MB 1.210**

Menghao Qin
Professor, Technical University of Denmark
Denmark

Bio

Prof. Dr. Menghao Qin is a leading building physicist specializing in sustainable building materials and high-performance building systems at the Technical University of Denmark (DTU). He is internationally recognized for pioneering the integration of Metal-Organic Frameworks (MOFs) into building applications, advancing both energy efficiency and indoor air quality. Prof. Qin also holds the Saint-Gobain Chair professorship at ESPCI/ENS Paris, France, and serves as the Operating Agent of the International Energy Agency (IEA-EBC) Annex 92 - Smart materials for energy-efficient heating, cooling, and IAQ control in residential buildings. Before joining DTU, he was a full professor and founding director of the Center for Sustainable Building Research at Nanjing University, China. Dr. Qin also has extensive experience in environmental system design and green building consultancy, with contributions to major projects worldwide.

Topic: Metal–Organic Frameworks for Energy-efficient and Low-carbon Building

This keynote presents recent research outcomes from IEA EBC Annex 92 on the application of metal-organic frameworks for energy-efficient, sustainable control of the built environment. It will show how MOF-based heating and cooling, air purification, dehumidification, and carbon dioxide capture can reduce building energy demand while improving indoor air quality. The talk will also address the practical barriers to large-scale deployment in buildings, including scalability, cost, safety, and long-term durability.

Keynote **Thursday, July 23, 8:30 – 9:15** **Room: MB 1.210**

Ana Silva
Head of Research and Innovation, Porvalor
Portugal

Bio

Ana Silva is a researcher & innovation strategist focused on activating and nourishing innovation ecosystems towards a more sustainable and resilient society. Ana's experience ranges from coordination of high-level multistakeholder and interdisciplinary collaboration projects to developing AI-driven tools for smarter decision-making in asset-intensive sectors that are critical for the functioning of society. Her activities cover the construction, defence, energy, transportation and water sectors. She is currently the Head of Research and Innovation at Porvalor, with a focus on identifying market trends and emerging technologies to develop innovation opportunities within the built environment. Ana Silva authored over 90 peer-reviewed publications and two scientific books, holds a PhD in Civil Engineering and is currently pursuing a PhD in Computer Science.

Topic: Use of Artificial Intelligence in service life prediction and maintenance planning

Can machines help us make better maintenance decisions? In reality, the most robust maintenance decisions emerge at the intersection of algorithms and atoms. This keynote addresses the critical gap between algorithmic processing and engineering intuition. The central premise is a core truth in data science: data is not knowledge. Algorithms are excellent at pattern recognition and simulating millions of future maintenance scenarios, but they are entirely blind to context, risk, and the long-term lifecycle philosophy of civil engineering. A machine can identify a correlation, but it cannot deduce physical causation. Machine learning models must be seen not as autonomous decision-makers, but as crucial decision-support systems. Through real-world applications at the intersection of academia and industry, this lecture demonstrates how physics-informed data science can be successfully applied in condition-based maintenance in different fields. The lecture also discusses how Large Language Models (LLMs) can be used to synthesize unstructured data into predictive intelligence for the resilience of critical infrastructure. Finally, this keynote outlines how combining deep domain expertise with advanced AI can shift the maintenance paradigm: from reacting to damage after it occurs, to enabling prescriptive, strategic, and lifecycle-oriented management of the built environment.

Keynote **Friday, July 24, 8:30 – 9:15** **Room: MB 1.210**

Kefei Li
Professor, Civil Engineering Department, Tsinghua University
China

Bio

Dr. Kefei Li works in the Civil Engineering Department of Tsinghua University as a tenured full professor and principal investigator (PI) of the research group of building materials. He obtained his Ph.D. degree from Tongji University (2000) and Ecole Nationale des Ponts et Chaussées, Paris (2002). His research fields include the physical and mechanics of cement-based materials, the durability of concrete materials and structures and the life-cycle engineering of concrete structures. Based on his professional achievement, he has obtained the national science and technology prize (2011) and the Guangdong Province science and technology prize (2018).

He leads multiples national projects of research and international projects including the most recent Innovandi CP18 core project (2025-2029). He has published 100+ peer-reviewed papers (H index=41) and 10+ books chapters), has chaired three international conferences (ConMod'2014, LEOSOE'2019, DBMC'2023), holds 10+ technical patents, heads the draft team of the durability standards of China (T/CCES 57, GB/T 50476), and serves as associate editors for Cement and Concrete Research, Materials and Structures. He has been the chair of RILEM

TC 289-DCM (2019-2025), Cluster convener of TAC Cluster D (Service life) (2011-2016), regional convener of China Region of RILEM (2016-2021), and RILEM Fellow (2023). He is also active member of IABSE (deputy executive member of China group), fib (COM8), ISO TC71/SC4, board member of JCSS (Joint Committee of Structural Safety) and board member of CCES (China Civil Engineering Society).

Topic: Metal–Organic Frameworks for Energy-efficient and Low-carbon Building

This keynote summarizes research on the durability planning of concrete structures in the Hong Kong–Zhuhai–Macau sea-link project for a 120-year working life in an aggressive subtropical marine environment. It will address model-based probabilistic durability design, quality control during construction, durability assessment of completed structures, and long-term maintenance planning supported by a smart durability database, durability model libraries, and life-cycle cost analysis.

Plenary Session

Panel 1 **Tuesday, July 21, 13:10 – 14:30** **Room MB 1.210**

Moderator
Dr. Michael Lacasse
Adjunct Professor | Retired Senior Research Officer
Concordia University · Canada

David Kayll

President and senior building science specialist

Frontenac Building Science Inc.
Canada

Leslie Peer

Principal and Senior Engineer

RJC Engineers
Canada

Kathryn Bourke

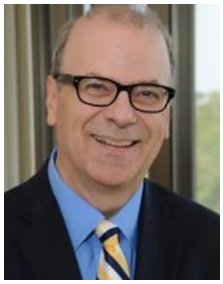
Chartered Building Surveyor | Chair of ISO TC 59/SC14

Whole Life Ltd
United Kingdom

Stefanie Coleman

Sustainable and Resilient Housing Industry Lead

Natural Resources Canada
Canada



Kenneth P. Boyce

Corporate Fellow and Vice President of Engineering

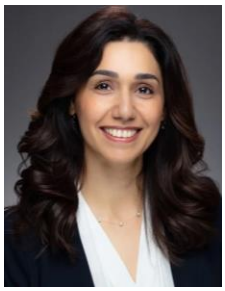
UL Solutions
United States

Topic: Resilient Standards: Designing for a Non-Stationary Future

Panel summary: Traditional design relies on historical data that no longer predicts the future. To ensure the durability of our built environment, standards development must shift toward forward-looking, performance-based specifications that account for non-stationary climate loads and compounding environmental stressors.
This panel is to focus on a possible evolution of regulatory frameworks and the specific guidelines practitioners need to navigate this uncertainty. Standards development must move beyond prescriptive minimums to prioritize predictive durability—refining service-life models (such as ISO 15686) to reflect localized microclimates and the integration of active systems such as BIPV. Practitioners require site-specific implementation roadmaps that bridge the gap between high-level code and construction reality. These guidelines must include:
Dynamic Risk Assessment of buildings and structures to climate change: An iterative, proactive process that evaluates how changing climatic loads—such as increased heat, severe storms, and flooding—impact building

integrity over time.
Multi-Hazard Resilience: Practical guidance for managing concurrent stressors, such as extreme thermal cycles and moisture extremes.
Adaptive Retrofit Protocols: Providing performance-based strategies for the resilient renewal of existing building envelopes.

Panel 2 — Wednesday, July 22, 13:10 – 14:30 — Room: MB 1.210



Moderator
Dr. Marzieh Riahinezhad
Associate Research Officer
National Research Council Canada · Canada

Dominique Derome

Tier 1 Canada Research Chair and Professor

Université de Sherbrooke
Canada

Inês Flores-Colen

Professor, Sustainable Building Solutions

University of Lisbon
Portugal

Christian Brischke

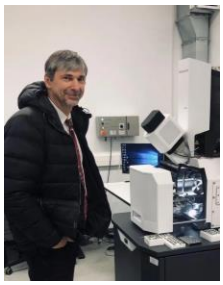
Professor and Senior Researcher

Thünen-Institute of Wood Research
Germany

Carsten Rode

Professor

Technical University of Denmark
Denmark



Andrzej Cwirzen

Professor

Luleå University of Technology
Sweden

Topic: Building Materials for a Changing World: Durability, Resiliency, and Sustainability

Panel Summary: As climate pressures intensify and building performance expectations rise, the durability, resilience, and environmental impact of materials have become central to global construction practice. This panel brings together leading experts from Canada and across Europe to examine how building materials behave, degrade, and adapt under evolving environmental stressors, while addressing the growing imperative for low-carbon, resource-efficient, and sustainable material solutions.
With complementary expertise spanning hygrothermal performance and moisture transport (Prof. Dominique Derome), building pathology, maintenance, and sustainable materials (Prof. Inês Flores-Colen), biological durability of wood and service-life prediction (Prof. Christian Brischke), moisture durability, climate-resilient envelopes, and new versus traditional material use (Prof. Carsten Rode), and advanced concrete, nanotechnology, and next-generation binders (Prof. Andrzej Cwirzen), the panel will explore cutting-edge advances in durability, service-life modeling, moisture safety, bio-based and circular material systems innovation.
Through perspectives representing Canada, Portugal, Germany, Denmark, and Sweden, the session will illuminate practical and scientific pathways for integrating durability, resilience, sustainability, and decarbonization into next-generation building materials, retrofits, and performance-based standards.

Panel 3 **Thursday, July 23, 9:15 – 10:30** **Room: MB 1.210**

Moderator
Dr. Hua Ge
Professor/Associate Dean, Student Academic Services, Gina Cody School of Engineering and Computer Science
Concordia University · Canada

Moderator
Dr. Caroline Hachem-Vermette
Associate Professor, Building Engineering
Concordia University · Canada

Miljana Horvat

Professor, Department of Architectural Science | Associate Dean, Graduate and Postdoctoral Studies
Toronto Metropolitan University · Canada

Jin Wen

Department Head and Professor
Penn State University
United States

Nathan Van Den Bossche

Associate Professor, Building Science
Ghent University
Belgium

Kefei Li

Professor
Tsinghua University
China

Sathya Ramachandran

Director of Building Science, Greater Toronto and Hamilton Area
EXP · Canada

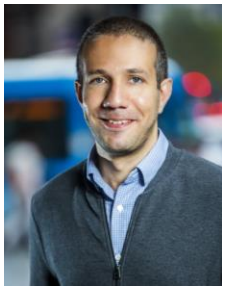
Topic: Building Engineering in a Global Context: Education, Collaboration, and Future Directions

Panel Summary: This panel brings together voices from Canada, the United States, Europe, China, and Asia—spanning educators, researchers, and industry leaders—to address a question that matters more than ever: what will it take to shape the built environment of tomorrow, from revitalizing existing cities and communities to building new ones?

Building Engineering sits at the intersection of science, design, technology, and climate action. Unlike any single traditional discipline, it owns the whole building and its surroundings—from materials, components, and systems to energy, performance, occupant safety, health and well-being, and resilience. This session will challenge assumptions, identify gaps between education and industry, and make the case for why Building Engineering is one of the most consequential yet under-recognized professions shaping our built world, uniquely positioned to tackle climate challenges.

Through live polling, debate, and candid perspectives from the panel, the audience will leave with a clearer understanding of where the field stands, where the career opportunities are, and where Building Engineering needs to go next.

Panel 4 **Friday, July 24, 13:10 – 14:30** **Room: MB 1.210**



Moderator
Dr. Mohamed Ouf
Associate Professor, Building Engineering
Concordia University · Canada

Ana Silva

Professor | Head of Research and Innovation
Porvalor
Portugal

Andreas Athienitis

Director, Concordia Centre for Zero Energy Building Studies | Chair, CFREF Volt-Age Scientific Committee
Concordia University
Canada

Jan Carmeliet

Full Professor, Chair of Building Physics
ETH Zürich
Switzerland

Xiaohong Gu

Materials Research Engineer
National Institute of Standards and Technology United States

Topic: AI, Disruptive Technologies and Innovation in Building Engineering

Panel Summary: This panel will explore how artificial intelligence is transforming building engineering across research, professional practice, and education. Bringing together experts from academia and industry, the discussion will examine opportunities and limitations of AI in areas such as building performance prediction, design optimization, and decision-making, as well as the implications for engineering workflows, skills development, and training of the next generation building scientists and engineers.

Special Topic

Special Topic 1 — Thursday, July 23, 10:45 –11:45 — Room: MB 9. AB

Stephanie Coleman
LEEP Sustainable Resilient Housing Industry Lead
Natural Resources Canada

Bio

Stefanie Coleman joined Natural Resources Canada's Local Energy Efficiency Partnership (LEEP) team (part of CanmetENERGY research labs) in July 2023 serving as Sustainable and Resilient Housing Industry Lead. She oversees LEEPs work on the Greener Neighborhoods Pilot Program (GNPP), and Sustainable Resilient Housing in residential construction (integrating energy, carbon and climate resilience). Prior to joining NRCan, she worked in the residential construction industry for 18 years, having owned a renovation contracting business for 15 years, working in building science consulting and as Chief Sustainability Officer for a homebuilder. She served as the national Canadian Home Builders Association (CHBA) President in 2019/2020. In 2023, she completed a Master of Environment and Business and is completing a PhD in Sustainability Management at the University of Waterloo.

Topic: Strong Homes, Strong Future: Building Sustainable and Resilient Canadian Homes

As Canada faces growing housing and climate-related challenges, the need for homes that are both sustainable and resilient has never been greater. This session provides an overview of Natural Resources Canada's LEEP Sustainable Resilient (S|R) Homes Program and shares key insights from seven regional case studies involving 35 builders and renovators across the country. Discover the real-world barriers, gaps, and opportunities to advancing energy-efficient, low-carbon, and durable housing solutions, and explore practical lessons that can help shape the future of new and existing low-rise homes in Canada.

Special Topic 2 — Thursday, July 23, 11:45 – 14:45 — Room: MB 9. AB

Carsten Rode
Professor in Building Physics at DTU Sustain
Technical University of Denmark

Bio

Carsten Rode is a Professor in Building Physics at DTU Sustain, Technical University of Denmark. He is a specialist in heat, air and moisture transport in buildings, including the indoor environment, energy performance of buildings, durability, and building renovation. Prof. Rode is the author of MATCH, the first computational model for combined heat and moisture transfer in building constructions made available to building designers in practice. He has extensive experience in experimental investigations of individual building materials and building envelope structures in the laboratory and in the field. He has experience from participation in several international research projects, e.g. within the IEA, and was Operating Agent of IEA EBC Annex 68, Design and Operational Strategies for High IAQ in Low Energy Buildings (2015-2020). Prof. Rode has for nine years been president of the International Association of Building Physics (2009-2015 & 2021-2024), and a board member of the Active House Alliance (2011-present). As a member of ASHRAE, he was in January 2026 raised to the grade of Fellow.

Topic: CARBIOWISE – Carbon-Wise Design of Energy-Efficient and Bio-based, Durable Buildings

The transition to low-carbon construction will accelerate the use of timber and other bio-based materials, and it will offer significant climate benefits that must be embraced. But it may also introduce new challenges related to moisture sensitivity, durability, long-term performance, and longevity. CARBIOWISE shall bring together international experts in building physics, material science, and sustainability assessment, as well as practitioners and stakeholders from the building industry to establish the evidence base for safe, durable, and climate-resilient bio-based buildings. Through activities such as modelling, laboratory testing, field monitoring, and integration of service life into life-cycle assessment, the project shall collect evidence on what works well, and what may be challenging when bio-based solutions are proposed and implemented. The seminar will present the idea and invite for comments and discussions on the proposal. Possible platforms for joint project execution shall also be discussed..

Workshops

Workshop 1 **Monday, July 20, 8:30 – 12:15** **Room: MB 9. EFG**

Organizer | Speaker
Lin Wang
National Research Council Canada
Canada

Organizer | Speaker
Villu Kukk
Tallinn University of Technology
Estonia

Michael Lacasse
Concordia University
Canada

Hua Ge
Concordia University
Canada

Jonas Niklewski
Lund University
Sweden

Liam O'Brien
University of Maine
USA

Stan Francispillai
RDH Building Science
Canada

Phalguni Mukhopadhyaya
University of Victoria (Uvic)
Canada

Dario Bottino-Leone
Eurac Research
Italy

Hygrothermal Performance of Mass Timber Envelopes: Response to Wind-Driven Rain Exposure and Uncertainties in Material Properties (CIB W040)

This workshop presents wind-driven rain and rain penetration studies in Canada, along with CIB W040's work on the hygrothermal properties of mass timber. It will cover the performance of wall assemblies under various climates, highlighting risks, uncertainties, and potential design or retrofit solutions.

Workshop 2- Part 1 Tuesday, July 21, 10:45 – 13:00 Room: MB 9. CD

Organizer | Speaker
Caroline H-Vermette
Concordia University
Canada

Organizer | Speaker
Costa Kapsis
University of Waterloo
Canada

Terri Oswald
Mitrex
Canada

Syndey Browne
Diamond Schmitt Architects
Canada

Veronique Delisle
Natural Resources Canada (NRCan)
Canada

BIPV in Practice: Products, Integration, and Performance

This workshop provides a practical, product-focused insight at Building Integrated Photovoltaics (BIPV). Participants will see real product examples, learn integration strategies for façades and roofs, and review performance and durability data from operational projects. Case studies from Canada and abroad will showcase how BIPV contributes to energy generation, aesthetics, and sustainability.

Workshop 2 –Part 2 Tuesday, July 21, 14:45 – 17:30 Room: MB 9. CD

Organizer | Speaker
Zhe Xiao
National Research Council Canada
Canada

Organizer | Speaker
Hua Ge
Concordia University
Canada

Edvinas Bigaila
Lüchinger Meyer Partner (LMP)
Switzerland

Yoon Ko
National Research Council Canada
Canada

Wenhang Du
Concordia University
Canada

Andreas Athienitis
Concordia University
Canada

BIPV Technical Guide, Standards and Codes

This workshop will address the technical guidance, standards, and code requirements needed to support wider adoption of building-integrated photovoltaics. Presentations will cover fire safety and code gaps, BIPV roof product specifications, life-cycle assessment, and construction regulations. European implementation experiences will highlight BIPV system engineering, project workflows based on SIA 102 stages, and case studies illustrating interfaces between BIPV products and building applications. Additional topics include BIPV/T interactions with peak load and the electrical grid. The session will conclude with a roundtable discussion on lessons learned and future opportunities for advancing BIPV design guides, standards, and regulatory pathways.

Workshop 3 — Wednesday, July 22, 10:45 – 12:45 — Room: MB 9. CD

Organizer | Speaker
Mazdak Nik-Bakht
Concordia University
Canada

Éric Bernier
DECASULT
Canada

Atefeh Hesarbani
Concordia University
Canada

BIM-Based Digital Twins for Building Performance and Decarbonization

Digital twins are emerging as a powerful approach to support data-driven building operation, maintenance, and retrofit planning. By integrating static information from Building Information Models (BIM) with dynamic data from building monitoring systems, digital twins enable advanced applications such as performance analysis, fault detection, predictive maintenance, and scenario-based decision-making for decarbonization.
This workshop introduces the fundamentals and practical implementation of BIM-based digital twins for buildings. The session begins with a concise overview of core concepts, common misconceptions, and key use cases across the building lifecycle, from asset inventory and monitoring to predictive analytics and retrofit planning. Participants will then explore commercially available tools for digital twin development and deployment.
The second half of the workshop focuses on hands-on experience using a cloud-based platform and a simplified case study building with synthetic operational data. Participants will learn how BIM models and operational data can be integrated to support building performance analysis and decarbonization-oriented decision making.

Workshop 4 — Wednesday, July 22, 14:45 -17:30 — Room: MB 9. CD

Organizer | Speaker
Audrey McGarrell
Cool Roof Rating Council
USA

Organizer | Speaker
Stacey Weister
Crosier Kilgour
Canada

Moses Kodur
Surface Optics Corporation
USA

Evaluating Surface Radiative Performance of Building Envelope Materials

This interactive workshop provides researchers and practitioners with an exploration of the testing, weathering, and rating processes that produce third-party verified radiative property data used in academic research, policies, and programs focused on solar reflective “cool” roofing and exterior wall materials. Workshop participants will also learn about the critical role of third-party product ratings in code compliance and enforcement; how surface radiative property test methods and standards are developed and maintained; and how subject matter experts contribute to the development of cool surface codes. The workshop will include a hands-on demonstration and training on measuring surface radiative properties using a CRRC-approved test method

Workshop 5 — Wednesday, July 22, 14:45 -17:30 — Room: MB 9. AB

Organizer | Speaker
Michael Lacasse
Concordia University
Canada

Leslie Peer
RJC Engineers
Canada

David De Rose
BSSO, Synergy Partners
Canada

Robert Jonkman
Codes & Standards, Canadian Wood Council
Canada

Overview of CSA standard – CSA S478 – Durability in Buildings

This workshop provides an overview of the recently updated CSA standard, CSA S478 that focuses on Durability in Buildings. The standard provides a structured framework for designers, owners, and contractors to ensure that building elements achieve their intended service life. The overview will consist of providing information on the most pertinent parts of the standard and as well, given that it has been recently updated, will highlight changes to the standard as have been made help facilitate its uptake to the National building Code of Canada.

Workshop 6 — Thursday, July 23, 11:00 – 12:30 — Room: MB 9. CD

Organizer | Speaker
Ted Sthatopoulos
Concordia University
Canada

Primer about Publishing Technical Papers in International Journals: Sharing an Editor's Experience

This Workshop aims to demystify the publication process, offering invaluable insights from an editor's perspective. Participants will gain practical tips on manuscript preparation, submission strategies, and navigating the peer review process. Join us to enhance your understanding and increase your chances of successful publication in top-tier journals. There will be a single presenter followed by interaction with the audience (PhD students, junior researchers, asst. professors).

Workshop 7 — Thursday, July 23, 13:45 – 16:00 — Room: MB 9. CD

Organizer | Speaker
Ahmed Soliman
Concordia University
Canada

Clément Boisselier
Aecon Group Inc.
Canada

Etienne Gravel
Pomerleau
Canada

Nicolas Ginouse
BMQ et BMQ Solutions
Canada

Integrating Materials and Construction Technologies for Sustainable Eco-Friendly Buildings

This session brings together leading Environment & Sustainability Directors, alongside a key industry player, to

explore how cutting-edge developments in construction materials are reshaping the future of low-carbon buildings. As the sector faces increasing pressure to address both embodied and operational carbon, industry leaders are driving transformative solutions—from novel cement formulations to circular material strategies and performance-based design approaches.
Attendees will gain insight into how these innovations are being translated into practice through evolving standards, regulatory frameworks, and corporate sustainability commitments. The session will highlight real-world applications, challenges in scaling adoption, and the role of cross-sector collaboration in accelerating decarbonization.
Join this discussion to discover how material innovation and governance are converging to redefine durability, performance, and climate impact – positioning the built environment at the forefront of the global transition to net-zero.

Social Event

Welcome Reception **Monday, July 20, 18:30 – 20:00** **MB 9 -ABCD**

John Molson School of Business
Concordia University

Gala Dinner **Wednesday, July 22, 19:00 – 22:00** **Maison Alcan**

Maison Alcan, Downtown Montréal
1188 Sherbrooke St W, Montreal,
Quebec H3A 1H6

The **DBMC 2026 Gala Dinner** will take place at the historic **Maison Alcan**, one of Montréal's most distinctive heritage venues, located in the heart of downtown.
This remarkable architectural complex blends beautifully preserved historic buildings with contemporary design, creating a unique setting where Montréal's architectural heritage meets modern elegance. The venue's intimate courtyard and refined interior spaces provide the perfect atmosphere for an evening of networking, celebration, and memorable conversations.
Conference participants will enjoy a curated dining experience featuring high-quality cuisine inspired by local flavours, accompanied by carefully selected beverages. The evening will offer an opportunity to connect with colleagues, keynote speakers, and industry leaders in a relaxed and elegant environment.
The gala dinner is one of the social highlights of the DBMC 2026, bringing together the international durability and building science community for an unforgettable evening in Montréal.

Concordia Lab Tours

Downtown **Tuesday, July 21, 18:30 – 19:30**

Solar Simulator - Environmental Chamber (SSEC) facility

An internationally unique facility, the SSEC enables accurate and repeatable testing of solar systems and advanced building envelopes under simulated sunlight and controlled indoor and outdoor conditions. This facility consists of two major systems: a large-scale solar simulator and a two-storey environmental chamber with a mobile solar simulator lamp field.

Atmospheric Boundary-Layer Wind Tunnel

This facility is used to study wind effects on buildings and their environment under simulated urban, suburban, and open-terrain conditions; Its rotating test platform allows different wind directions to be assessed, while the accompanying visualization tunnel uses smoke to demonstrate airflow patterns around building models.

Future Buildings Lab Thursday, July 23, 18:00 – 20:00

Located on Concordia University's Loyola Campus, the Future Buildings Laboratory (FBL) is a unique, world-class living laboratory and testing facility that supports multidisciplinary research and education in sustainable buildings and infrastructure. This $1.27M CFI-supported facility enables cutting-edge research in three key areas:

- **Energy-positive building envelopes and integration with HVAC systems;**
- **Intelligent building operation; and**
- **Optimization of residential nano-grids with renewable sources and electric vehicles.**

Buildings of the future must be intelligent, self-sustaining, and responsive to occupant needs, low in environmental impact, and resilient to climate change. The FBL provides an ideal platform for advancing this vision through full-scale testing of advanced building technologies under real-world conditions.

Urban Wind Energy Assessment of Building-Integrated Wind Turbines (BIWTs): A Comprehensive Experimental Study

Presenter: Payam Gholamalipour
Authors: Payam Gholamalipour, Hua Ge, Ted Stathopoulos

Energy Optimization of a Solar House Using Model Predictive Control For an Integrated Air-Source Heat Pump Water Heater and Radiant Floor Heating System.

Presenter: Yearim Yang
Authors: Yearim Yang, Andreas Athienitis

Experimental Design and Analysis on HVAC system: the Heat Recovery Ventilator Preheated by BIPV Panels, and AHU with an Air Source Heat Pump in Cold Climate

Presenter: Jing Li
Authors: Jing Li, Radu Zmeureanu, and Hua Ge

Modular Colored BIPV/T Roof Systems for Cold-Climate Housing

Presenter: Anna-Maria Sigounis
Authors: Anna-Maria Sigounis, Andreas Athienitis

Vehicle Integrated Photovoltaic Energy Prediction Using Physics-Informed Machine Learning

Presenter: Hyacinthe Tchakounte
Authors: Hyacinthe Tchakounte, Akrem Aljehaimi, and Prof. Pragasen Pillaying

Integration of Renewable Energy Sources and Emergency Power Supply at the Future Building Laboratory (FBL)

Presenter: Mahad Mohamud Awad
Authors: Mahad Mohamud Awad, Jay Prajapati, and Prof. Pragasen Pillay

Ventilation Strategy in BIPV Systems: Performance, Durability, and Temperature Distribution

Presenter: Zahra Zareie
Authors: Zahra Zareie, Max Junginger, Kai Ye, Daniel Baril, and Hua Ge

Experimental Procedure for Obtaining the Steady-State and Dynamic Responses of an Open-Cathode PEM Fuel Cell

Presenter: Aurean B. Guimaraes
Authors: Jie Dang, Aurean B. Guimaraes Jr, Luiz A. C. Lopes, and Yanick Paquet

ORAL PRESENTATION DETAILED SCHEDULE

Tuesday, July 21

Slot 1 | 10:45 -12:15

	Session 1A	Session 1B	Session 1C	Session 1D	Session 1E	Session 1F
	Concrete & Binders + Embodied Carbon & LCA	**Concrete Durability**	**Hygrothermal Performance**	**Timber Durability**	**Additive Manufacturing**	**Energy Efficiency & Retrofit + Embodied Carbon & LCA**
Room	**MB 3.210**	**MB 3.270**	**MB 3.430**	**MB 3.435**	**MB 3.445**	**MB 3.285**
Chair	**Inês Flores-Colen**	**Carles Serrat Piè**	**Dominique Derome**	**Leslie Peer**	**Klodian Gradeci**	**Junjie Liu**
10:45-11:00	**Toward Low-Carbon Cement: Flash-Calcined Sediment-Based Ternary Binders** Robotized tower crane: Simulation and high-level action planning system Mohammad Reza Kolani, Stavros Nousias, André Borrmann	**From Durability Threat to Climate Asset: Leveraging Corrosion-Resistant Rebar Alternatives to Enable Service-Life Carbonation of Concrete as a Scalable Strategy for CCUS in the Built Environment** Mancio, Mauricio; Menegussi Portela, Giovanna; Aguiar, Jose Renato Lima; da Silva, Pedro Matiazzi	**Hygrothermal performance assessment of light-frame timber walls for mid-rise buildings in South Korea** Park, Ji Hun; Kang, Seong Taek; Kang, Yujin; Kim, Sumin	**Enhancing Mass Timber Durability: Lessons from the CRAMM Risk Assessment Tool** Johns, Dorothy; Richman, Russell	**Mechanical Performance of 3D Printed Concrete: Comparing Cast and Printed Concrete Materials** Hentschel, Alexander; Woods, Joshua; Fam, Amir	**High- and ultrahigh-strength concrete as a sustainable solution for arctic regions?** Cwirzen, Andrzej; Rajczakowska, Magdalena
11:00-11:15	**The Resilience of Cement-based concrete and geopolymer concrete exposed to seawater over a period of 12 months** Akinyele, Joseph Olawale; Labiran, John Oluwole; Igba, Uvieoghene Tobit; Ewetade, Abayomi Olukayode	**Durability of concrete in nuclear systems: Review of Degradation mechanisms and mitigation strategies** Abdelaziz, Moataz; Bassuoni, M.T.	**Durability of chopped straw and corn stover insulated retrofits under high initial moisture conditions** Conley, Brock; Pope, Hamish; Carver, Mark	**Investigating the Impact of Climate, Geography and Preservatives on the Durability of Pinus Radiata in New Zealand** Stokes, Kathryn; Li, Zhengwei; Lanner, Michael; Cooley, Sarah; Nicholson, Catherine	**Redesigning Conventional Clay Bricks for Sustainability: 3D Printing and Thermal Optimization** Saad, Esraa; Correa, David	**BIM-based Embodied Carbon Evaluation of Longevity-designed Prefabricated Housing: A Case Study of Wood-Bamboo Wall Component Maintenance** Huang, Baolin; Li, Ruotian; Zhang, Hong
11:15-11:30	**Performance of geopolymer fiber-reinforced concrete after exposure to elevated temperature** Abadel, Aref A; Alqarni, Ali S; Alharbi, Yousef R	**Towards using piezo-impedance intelligence for carbonation sensing in cementitious materials** Haq, Moinul; Tee, Kong Fah; Al-Osta, Mohammed	**Rain penetration into drainage cavities at parapets and wall flashings of mid-to-high-rise wooden buildings** Endo, Suguru; Saito, Hiroaki; Matsuoka, Daisuke; Miyashita, Yuma; Miyamura, Masashi; Tsuchimoto, Takahiro	**R&D project on the durability of the exterior walls in mid- and high-rise timber constructions** Tsuchimoto, Takahiro; Saito, Hiroaki; Wakiyama, Yoshio; Naruse, Tomohiro; Suzuki, Jun-ichi; Yamaguchi, Katsumi	**Durability of 3D-Printed High-Performance Concrete Containing Phosphate-Based Corrosion Inhibitor** Das, Jyotish Kumar; Guadagnini, Maurizio; Nematollahi, Behzad	**Exploring the long-term performance of air purifiers in removing particulate matter and formaldehyde across different residential environments** Xu, Jing; Zhou, Yucan; Liu, Junjie
11:30-11:45	**Optimized and Sustainable Utilization of Top and Bottom Mine Tailings as a Partial Replacement for Fine Aggregates to Improve the Fresh and Hardened Properties of Concrete** Alqarni, Ali S.	**Evaluation of long-term degradation of reinforced concrete buried ducts in acid environment, through advanced numerical reactive-transport analysis and accelerated laboratory tests.** Allain, Frédéric; Legrix, Alexis; Bonneau, Juliette	**Impact of SS-NMR-derived Liquid Diffusivity on Hygrothermal Simulation of Building Envelope Materials** Yari, Hossein; Esmizadeh, Elnaz; Riahinezhad, Marzieh; Wang, Lin; Dragomirescu, Elena	**Development of Machine Learning Models for Hygrothermal Performance Prediction of Cross-Laminated Timber Walls** Akhavan Shams, Sina; Ge, Hua; Wang, Lin	**Properties of Cementless Printable Mortar as a Function of Material Composition Parameters** Lin, Wei-Ting; Ho, Chia-Ying; Cheng, An; Chen, Jie; Hebda, Marek	**AIRStat: A Learning Thermostat for Energy-efficient Buildings** Ashraf, M. Nauman; Aliabadi, Amir A.

11:45-12:00	**Durability Assessment of Graphene Oxide-Tailored Ternary Blended Nano-Concrete Composites under Prolonged Sulfuric Acid Exposure** Anwar, Abdullah; Ngo, Tuan; Liu, Xuemei; Zhang, Lihai	**Enhancing Durability of Concrete Highway Bridges in A Changing Climate Using High Performance Materials** Moghtadernejad, Saviz; Bhadra, Rituraj; Lounis, Zoubir; Zhang, Jieying	**Experimental Analysis of the Hygrothermal Behaviour of a Steel-Framed Building Envelope with an Exposed Semi-Rigid Glass Fibre Insulated Sheathing Layer** Foster, Morgan; Baldwin, Christopher; Cruickshank, Cynthia A.	**Evaluating hybrid CLT for hygrothermal comfort and energy efficiency in community centers** Kang, Yujin; Kang, Seong Taek; Park, Ji Hun; Kim, Sumin	**Feasibility of a 3D-Printed Passive House Multi-Family Building in Northern Climate: Early-Stage Design and Energy Performance Assessment** Reda, Ibrahim; Jetlaoui, Chaima; David, Laliberté; Qi, Dahai	**Case Study on the Field Performance of Conventional and Nano-modified Coatings for Concrete Bridge Decks** Salifu, Nasiru; Ahmed, Mohamed Elmustafa; Ariyadasa, Madhushani; Bassuoni, Mohamed; Mohamed, Mady; Ghazy, Ahmed
12:00-12:15	**The Impact of Building Information Modelling Integration in Academic Curricula on Students' Knowledge of Construction Processes: A Review** Bamgbose, Olusayo Ayobami; Fatai Ogunbayo, Babatunde; Ohis Aigbavboa, Clinton	**A Probabilistic-Mechanistic Framework for Assessing the Deterioration of Concrete Bridge Girders under a Changing Climate Using Non-Homogeneous Markov Processes** Bhadra, Rituraj; Moghtadernejad, Saviz; Lounis, Zoubir; Zhang, Jieying	**Hygrothermal performance assessment of thermally retrofitted wood-frame building envelope system - the influence of rain leakage** Wang, Lin; Bas, Canan; Lacasse, Michael; Mahdavi, Alireza; Lee, Ivan; Merino Gordo, Felipe; Xiao, Zhe; Defo, Maurice	**Feasibility assessment of hinoki CLT for building envelope applications** Kang, Seong Taek; Park, Ji Hun; Kim, Sumin		

Slot 2 | 14:45 – 16:15

	Session 2A	Session 2B	Session 2C	Session 2D	Session 2E
	Heritage & Masonry	**Embodied Carbon & LCA**	**Concrete Durability and Binders**	**Digitalization & AI**	**Advanced and Sustainable Materials**
Room	**MB 3.210**	**MB 3.270**	**MB 3.430**	**MB 3.435**	**MB 3.445**
Chair	**Wahid Maaref**	**Costa Kapsis**	**Mehdi Ghobadi**	**Mohamed Ouf**	**Carsten Rode**
14:45-15:00	**A non-invasive diagnostic protocol for moisture pathologies in historic masonry: from laboratory calibration to on-site validation** Vitiello, Veronica; Marmo, Rossella; De Santis, Francesco; Castelluccio, Roberto	**Scaling Embodied Carbon Assessment in Residential Construction: From Research Infrastructure to Policy Implementation** Racusin, Jacob; Trottier, Mélanie	**Evaluation of High-Limestone PLC Concretes for Chloride Resistance: Role of Pore Structure and Chloride Binding** Wang, Chengkai; Medeiros, Rennan; Sanchez, Leandro	**Building Information Modeling (BIM) for Durability and Service Life Assessment: A Review of Opportunities, Tools, and Future Integration** Osman, Mohamed; Soliman, Ahmed	**Casting Direction and Thickness Effects in PCM-Modified Hemp–Lime Composites** Zhang, Ziqi; Kavgic, Miroslava; Noël, Martin
15:00-15:15	**Development and application of a platform for predicting the spatiotemporal distribution of wind-driven rain on building facades** Yu, Hui; Zhang, Huibo	**Embodied Carbon Reduction Potential of Typical Construction Solutions for Non-Residential Buildings** Bartels, Giovanna; Flores-Colen, Inês; Silvestre, José; Gomes, Ricardo; Fernandes, Joana	**Sulphate attack on mortars with metakaolin and ladle furnace slag as supplementary cementitious materials** Silva, Tayná; Silva, Rui; de Brito, Jorge; Ferreira, Gisleiva	**Leveraging Artificial Intelligence to Evaluate Approaches in Reducing Waste in the Construction Industry: Evidence from South African Construction Professionals** Ogunbayo, Babatunde Fatai; Adekunle, Samuel Adeniyi; Ogundipe, Kunle Elizah; Aigbavboa, Clinton Ohis; Akniradewo, Opeoluwa	**Eco-Revolution: Geosourced and Biosourced Materials for the Architecture of Tomorrow** Kabore, Aguérata; Ouellet-Plamondon, Claudiane

15:15-15:30	**Enhancing the durability of shipwreck wood for museums: nanoscale insights into PEG consolidation using molecular dynamics** Carmeliet, Jan; Shomali, Ali; Zhang, Che; Derome, Dominique	**Multiple-life-cycle environmental impact analysis for mass timber and precast concrete structural systems** Liu, Yulin; Kim, Joyce; Haas, Carl; Olumo, Adama; Hojjati, Aryan	**Durability-related performance of alkali-activated concrete produced with wastewater from truck mixer washing** Sabino, Afonso; Neves, Renato; de Brito, Jorge; Bravo, Miguel	**Artificial Intelligence for Enhancing Durability and Climate Resilience of Zero Energy and Smart Buildings** Omar, Osama	**Durable Hybrid Insulation Systems with Reflective Materials for Metal-Frame Assemblies** Saber, Hamed H.; Yarbrough, David W.
15:30-15:45	**Hygrothermal properties of historic fired clay bricks: building an international dataset** Vereecken, Evy; Roels, Staf; Xu, Bingyu; Walker, Rosanne; Artigas, David; Van Straaten, Randy; Petresevics, Fanni; Nagy, Balázs; Mizutani, Etsuko; Ogura, Daisuke; Zhao, Jianhua; Kinnane, Oliver; Hofheinz, Anna; Marincioni, Valentina; Briz Bejerano, Lara; Larcher, Marco; Stappers, Marc	**Thermal and Environmental Performance of Lime–Slag Stabilized and Fiber-Reinforced Compacted Earth Blocks** Bouteldja, Ines; Kenai, Said; Grine, Khaled; Farina, Ilenia	**Influence of Nano-Additives on the Behavior of Geopolymer Composites in Moist and Aqueous Environments** Korniejenko, Kinga; Figiela, Beata	**Application of Machine Learning techniques for evaluating the service life of ETICS** Porcellini, Francesca; Zitiello, Enrico Pasquale; Basile, Eliana; Salzano, Antonio; Nicolella, Maurizio	**Impact of Hurd Origin on Thermal and Mechanical Performance of Fixed-Mix Hemp–Lime Composites: Canada–France–Sweden** Fidan, Serhat; Ajoku, Chinedu; Kavgic, Miroslava
15:45-16:00	**Green Facades in Historic Architecture: A Review of Vegetated Walls for Heritage Conservation** Elkordy, Khadiga	**Limiting the carbon footprint of buildings in Finland and Europe** Sirola, Tomi; Westermarck, Mikael; Vinha, Juha		**Parametric Energy Modeling of Canadian Residential Building types for Solar Gain Indices evaluation and Climate-Responsive Design** Gill, Kanwarpartap Singh; Singh, Prabhnoor; Grewal, Kuljeet Singh	**CFD Analysis of Energy and Optical Performance in Transparent components of Building Envelopes with Solid-Solid Phase Change Materials** Arasteh, Hossein; Maref, Wahid; Saber, Hamed
16:00 -16:15		**Evaluating Embodied Carbon in High-Performance Building Enclosures** Chiu, Vincent		**From automated façade anomaly detection to BIM-integrated vulnerability assessment** Marmo, Rossella; Di Matola, Mario; Vitiello, Veronica; Fraiese, Mariacarla; Castelluccio, Roberto	**Impact of Active Vacuum Insulation on Moisture Response of Exterior Building Envelopes** Khatibi, Meysam; Froese, Thomas; Mukhopadhyaya, Phalguni

	Session 3A	Session 3B	Session 3C	Session 3D	Session 3E
	Embodied Carbon & LCA	**Concrete Durability and Binders**	**Emerging Technologies for Construction Durability**	**Climate Resilience**	**Emerging Technologies for Construction Durability**
Room	**MB 3.210**	**MB 3.270**	**MB 3.430**	**MB 3.435**	**MB 3.445**
Chair	**Miljana Horvat**	**Amir Sabziparvar**	**Ahmed Soliman**	**Stefanie Coleman**	**Daniel Chung**
16:30-16:45	**A sustainable maintenance strategy based on risk and carbon emissions optimization in whole life of pipelines** Zhao, Zi-Tong; Li, Mu-Zi; Liu, Ze-Fan; Lu, Zhao-Hui; Li, Chun-Qing	**Evaluating the effect of transitioning from General Use to General Use Limestone Cement on testing AAR-reactivity potential of aggregates** Medeiros, Rennan; Verros, Athanasios; Sanchez, Leandro; Shehata, Medhat	**Characterization of Load-Induced Voltage Response in CNT-Cement Composites for Durability Monitoring** Fukuyama, Tomoko	**Combine a probabilistic approach and an accurate experimental tool to predict mould growth in building materials** Soudani, Lucile; Illy, Hervé; Moularat, Stéphane; Zibouche, Kamel; Rakotomalala, Billy	**Anisotropic Deformation Mechanisms in 3D-Printed Mortar: Compaction, Delamination, and Splitting** Yawaka, Rintaro; Uematsu, Ren; Kamada, Hiroharu; Fukuyama, Tomoko
16:45-17:00	**The Adaptive Factory: Parametric LCA for Circular and Low-Carbon Biopolymer Building Products** Tsui, Tanya; Cucurachi, Stefano; Thonemann, Nils; Hu, Mingming	**Role of Si/Al ratio in synthetic zeolites from fly ash on the hygro-mechanical and durability properties of cement-based materials** Styczeń, Joanna	**Interlayer Bond Strength as a Durability-Critical Parameter in Coarse Aggregate-Based 3D Printed Concrete** Ghodke, Swapnil Balasaheb; Singh, Bhupinder; Chowdhury, Shubhankar Roy	**Existing Buildings and Their Adaptation to Future Climate Scenarios: The Case of The Athenian Polykatoikia of The Period 1920s – 1940s Through 6 Discrete Examples** Chronopoulou, Angeliki	**Effect of Nozzle Size on Curved Full-Scale 3D Printed Concrete Cracking Behaviour** Abdelhalim, Maya; Soliman, Ahmed
17:00-17:15	**A Specification-Based Approach for Validating Industry Foundation Classes Data Readiness in Retrofit Life Cycle Assessment- A Case Study** Mahbod, Sarah; Azad Oshin, Shamanta; Poirier, Erik; Jalaei, Farzad; Hosseini Gourabpasi, Arash; Nik-Bakht, Mazdak	**Assessing the creep evolution of cement pastes under high relative humidity conditions** Martin--Cavaillé, Camille; Giroudon, Marie; Turq, Viviane; Laloo, Raphaël; Lacarrière, Laurie	**Evaluating Carbon Emissions and Operational Energy Savings in a Prefabricated Ultra-Low-Energy Building Using BIM** Aung, Wai Phyo; Hong, Zhang; Tjiongnotoputera, Michael Anharlintama; Kyaw, Aung Thiha	**Modeling Smoke Plume–Green Firebreak Interactions Using Computational Fluid Dynamics** Gu, Zhonglin; Qi, Dahai; Fellouah, Hachimi; Taha, Ahmed	**3D Concrete Printing: A Path to Sustainable & Digitalized Construction Technology** Tan, Ming Jen; Paul, Suvash Chandra; Lee, Junghyun; Jhun, Jihye; Fadhel, Bandar A.; Amr, Issam T.; Tay, Yi Wei Daniel
17:15-17:30	**Life Cycle Assessment of FA–GGBS Based Geopolymer Concrete Incorporating Recycled Aggregate and Glass Powder** Manzoor, Tawzia; Shah, Asif Hussain; Bhat, Javed Ahmad	**Biomass Fly Ash as a sustainable filler in Precast low-carbon concrete with métakaolin and slag blends** Dossa, Joëlla; Page, Jonathan; Vanhove, Yannick; Djelal, Chafika	**Alterations to Existing Commercial Roofs – Protocol Development Through Industry Consultation** Shyti, Flonja	**Impact of Climate Change on Freeze-Thaw Risk** Lee, Ivan; Merino Gordo, Felipe; Tam, Claire	**A Probabilistic Framework for Risk Assessment of Alkali-Silica Reaction: Integrating Laboratory and Field Data** Bergmann, Ana; F.M. Sanchez, Leandro
17:30-17:45	**Durability assessment of SCC incorporating fully recycled concrete gravel and up to 30% recycled sand** Safi, Obaidurrahman; Ghorbel, Elhem	**Improved Transport Properties and Strength Development in Concrete with Calcined Marl: Benefits and Limitations for Long-Term Durability** Bahhou, Abdelmoujib; Taha, Yassine; Hakkou, Rachid; Benzaazoua, Mostafa; Tagnit-Hamou, Arezki	**Assessment of Test Methods for Freeze–Thaw Durability Performance of Additively Constructed Concrete Material** Lyu, Chen; Hartell, Julie Ann	**Integrating retrofit and reinforcement learning control for climate-resilient building performance** Nik, Vahid	**Digital Twin-Enabled Strategies: A Replicable Model for Resilient Urban Transformation** Azzalin, Maria; Lauria, Massimo

17:45-18:00	**Does building-integrated photovoltaics deliver environmental benefits in the 2050 Net-Zero energy scenario? A scenario-based Life Cycle Assessment in Canada** Du, Wenhang; Ge, Hua; Siluvai Antony, Praveen	**Volumetric Instability of Mortars Incorporating Bauxite Residue Under Climate-Relevant Exposure Risks** Olayinka, Rukayat; Jafari, Reza; Fiset, Mathieu; Darveau, Jean-Benoît; Colleen Sylla, Fatou		**Designing for Climate Resilience: Integrating Vulnerability Assessment into Durable Building Strategies** Conrad, Leanne; Stockfish, Braedyn; Armstrong, Scott	**Improving ISO wind-driven rain model using CFD-ML based reduced-order models** Gholamalipour, Payam; Stathopoulos, Ted; Ge, Hua

Wednesday, July 22

Slot 4 | 10:45 -12:15

	Session 4A	Session 4B	Session 4C	Session 4D	Session 4E
	Advanced and Sustainable Materials	**Embodied Carbon & LCA**	**Service Life & Asset Management + Mortars & Finishes**	**Hygrothermal Performance**	**Solar Envelopes + Hygrothermal Performance**
Room	**MB 3.210**	**MB 3.270**	**MB 3.430**	**MB 3.435**	**MB 3.445**
Chair	**Christian Brischke**	**Amir Aliabadi**	**John Wells**	**Liam O'Brien**	**Targo Kalamees**
10:45-11:00	**UV Durability and Mechanical Performance of Epoxy–Glass Fiber Composites for Harsh Maritime Environments** Fazli, Ali; Auty, Ken	**The Impact of Building Component Service Life on Long-Term Environmental and Economic Performance: A Comparative LCA of a Modular Home** Song, Mathew; Kim, Joyce; Haas, Carl; Ahn, Jun; Ghobadi, Mehdi; Hojjati, Aryan	**Challenges Associated with the Practice of Prefabricated Roofing Assemblies** Dabas, Maha	**Hygrothermal Performance of Natural Thermal Insulating Lime-Based Mortars Before and After Artificial Aging** Cachão, Sofia; Juncais, Mariana; Bersch, Jéssica; Parracha, João; Veiga, Rosário; Flores-Colen, Inês	**Variability in Nail Withdrawal Resistance of Roof Sheathing and Irreversible Strength Loss after Wet-Dry Cycle** Ishihara, Saori
11:00-11:15	**Cellulose-Based Foams for Thermal and Acoustic Insulation: Toward Sustainable Decarbonization of the Building Sector** Myja, David; Bley, Julien	**Economic Trade-offs of Concrete Reuse in Structural Applications** Begeyev, Rustem; Haas, Carl; Kim, Joyce; Hojjati, Aryan	**Proposed Methodology for Estimating Stucco Service Life and Investigating Effective Factor Values** Sadeghi, Sara; Riahinezhad, Marzieh; Esmizadeh, Elnaz	**Buildings of Tomorrow: Sustainable Solutions for Contrasting Climates** Kabore, Aguérata; Ouellet-Plamondon, Claudiane	**Evaluating the Impact of Sealant Materials and Installation Style on the HAM Performance of Prefabricated Wall Panels** Salehi, Parisa; Khaleghi, Hamed; Karatas, Aslihan
11:15-11:30	**Recommended Structural Solutions for Bio-Based Building Envelopes** Tuominen, Eero; Tuurala, Ilkka; Westermarck, Mikael; Vinha, Juha	**Guide for the Environmental Life Cycle Assessment (LCA) of housing rehabilitation operations** Schor, Daniela; Silvestre, José; Saade, Marcella	**Simulation of Argon-Filled IGU and VIG Performance and Degradation in a Single-Family Home** MacIntyre, Rebecca; Hayes, Alexander; Baldwin, Christopher; Cruickshank, Cynthia A.	**Post-Flood Envelope Prediction from Interstice Water Using Neutron Imaging and High Hydrostatic Pressure Immersion** de Cotret, Daniel; Trtik, Pavel; Boucher, Marie-Amélie; Derome, Dominique	**Assessing Building Envelope Resilience to Heatwaves in Cold Climate Regions: Comparative Analysis of Photovoltaics and Vertical Greening Systems** Hassan, Ahmed Nouby Mohamed; Hachem-Vermette, Caroline
11:30-11:45	**Durability Assessment of Biobased Insulation Materials Based on Recycled Wheat Straw Aggregates** Alshndah, Zeyad; Becquart, Frederic; Belayachi, Naima	**Designing Buildings to Last: Adaptability Criteria for a Circular and Resilient Future** Baienat, Saba; Midoune, Narimene; Bechara, Helal; Iordanova, Ivanka	**How maintenance shapes the durability, cost, and safety of building envelopes** Dias, Ilídio; S. Bartels, Giovanna; Flores-Colen, Inês; Silva, Ana	**Hygrothermal Performance of Timber Exterior Walls in Different Climates of Turkey: Simulations Validated by Field Measurements** Ekşi Kılıçaslan, Ayşegül; Kus, Hülya	**A Comparative Evaluation of Natural vs. Accelerated Aging in TiO2-P25-Enhanced Thermochromic Coatings for Ceramic Roofing** Hidalgo-Araujo, Ana Carolina; Salomão, Rafael; Berardi, Umberto; Dornelles, Kelen

11:45 – 12:00	**Mechanical, Physical, and Durability Performance of Bio-Based Mortars with Hemp and Starch** Riffi, Somaya; Ghorbel, Elhem; Schmidt, Franziska; Cuccagna, Filippo	**Bridging BIM and Life Cycle Assessment: A Comparative Evaluation of BIM-Integrated LCA Tools for Early-Stage Durability Assessment** Midoune, Narimene; Iordanova, Ivanka	**Extreme Value Distributions applied to the Failure of Organic Coatings in Service** Croll, Stuart	**Maximum spreading of a droplet impacting on inclined porous substrates: experiments and modeling** Dias, Maude; Carmeliet, Jan; Derome, Dominique	**The Impact of Design and Specification Criteria on the Durability of Building-Integrated Photovoltaic (BIPV) Systems** Sahyoun, Sahar; Zareie, Zahra; Ge, Hua
12:00 – 12:15			**A function-oriented assessment methodology (FOAM) for monitoring and predicting the functional condition index (FCI) of existing buildings** Serrat, Carles; Royano, Veronica; Gibert, Vicente; Rapinski, Jacek	**The effect of micro-cracking on water uptake and absorption of plaster in ETICS** Olak, Henri; Kalamees, Targo; Klõšeiko, Paul; Mustjõgi, Erik	**Forensic Insights into Durability Failures in Building Enclosures** Hasan, Javeriya; Bjornson, Dana

Slot 5 | 14:45 – 16:15

	Session 5A	Session 5B	Session 5C	Session 5D	Session 5E	Session 5F
	Timber Durability	**Emerging Technologies for Construction Durability**	**Steel & Concrete Durability**	**Energy Efficiency & Retrofit**	**Solar Envelopes**	**Hygrothermal Performance**
Room	**MB 3.210**	**MB 3.270**	**MB 3.430**	**MB 3.435**	**MB 3.445**	**MB 3.285**
Chair	**Villu Kukk**	**Suvash Chandra Paul**	**Jorge de Brito**	**Anabela Bonada**	**Caroline Hachem-Vermette**	**Lin Wang**
14:45 – 15:00	**Sensitivity Analysis of Moisture Performance in Wood-Frame Wall Assemblies Using Stochastic Simulation** Xiao, Zhe; Wang, Lin; Defo, Maurice	**Valorization Of Industrial Mining Tailing in 3D Printed Concrete Buildings: A Path Towards Sustainability** Mehrez-Khalil, Rayene; Ben Azouz, Kaouther; Soliman, Ahmed	**Impact of Asr-Reactive Fillers on Asr-Induced Expansion** Coutinho, Yane; Medeiros, Rennan; Sanchez, Leandro; Carneiro, Arnaldo	**Dynamic Wall Prototype for Overheating Prevention: Laboratory Evaluation of the Thermal Performance** Barreira, Eva; M.S.F. Almeida, Ricardo; Ribas, Manuel	**Evaluating the long-term performance of 3D glass BIPV components** Castro Morales, Kevin Aarón; Sanz Saiz, Carlos; Corrao, Rossella	**Hygrothermal risk factors in the performance of vented attic structures in the New Zealand context** McNeil, Stephen; Stokes, Kathryn
15:00-15:15	**Literature Review of the Possibility of Bio-Based Preservatives for Mass Engineered Timber** Li, Peishan; Okuda, Shinya	**A methodology for optimized ternary mortar formulation for 3D printing coupled with CIPM and LCA** Ouellet-Plamondon, Claudiane; Brial, Victor	**Seismic Damage Crack Characteristic of Reinforced Concrete Exterior Wall Tiles** Liao, Chu-Tsen; Liao, Wen-I; Chiu, Chien-Kuo; Chang, Heui-Yung; Lai, Chi-Ming; Pai, Yu-Han	**Investigating Indoor Environmental Quality in Homes on Musqueam Reserves: The Case for Demand-Responsive HVAC Systems** Shang, Yina; Li, Bo; Gharial, Montekpal; Briant, Morgane; Tariku, Fitsum	**Feasibility of Photovoltaic integration as a building material: Green building certification lens** Dehadani, Ashu; Matai, Khushal	**Coupling of transient simulation tools to extend their capabilities** Fechner, Heiko
15:15-15:30	**Moisture performance of cross-laminated timber construction details: Lab testing of risk zones and protection methods** Blommaert, Anke; Van Den Bossche, Nathan; Steeman, Marijke	**Study about the strength difference between mold mortar and additively constructed mortar produced by 3D printer** Tsuchiya, Naoko; Obara, Taku; Abe, Shota; Ogura, Hiroki; Sasano, Hiroshi	**Study on the Residual Seismic Performance of Earthquake-Damaged Reinforced Concrete Walls and Development of a Predictive Model** Liao, Wen-I; Chen, Xuan-Zhen; Lin, Fang-Fei; Liao, Chu-Tsen; Chiu, Chien-Kuo	**Multi-Objective Optimization of Cost-Effective Retrofit Strategies for a Detached House in Winnipeg, Canada: A 3E Framework Approach** Ziaeemehr, Bahador; Ghobadi, Mehdi; Ge, Hua; Lacasse, Michael	**Evolution of the solar reflectance and thermal emittance of naturally exposed roofing products** McGarrell, Audrey; Destaillats, Hugo; Levinson, Ronnen; Chen, Sharon	**Infrared thermography for defects detection – Systematic quantitative evaluation under variable conditions** Almeida, Ricardo; Barreira, Eva

15:30 – 15:45	**Data-Driven Hygrothermal Modelling of CLT: Linking Sensor Deployment and Numerical Predictions for Durability** Vyas, Yash; Richman, Russell	**Use of eggshell as supplementary binder in 3D concrete printing** Castillo Sotelo, Silvia; Ouellet-Plamondon, Claudiane; Etxeberria Larrañaga, Miren; A. Hof, Lucas	**Environmental Corrosivity of Coastal Atmospheres: Is Chatham Island Different from Mainland New Zealand?** Li, Zhengwei; de Raadt, Anna; Stewart, Carol; Johnston, David	**Building Energy Performance Classification Systems in Lithuania and Malta – a Comparative Analysis** Buhagiar, Vincent; Norvaišienė, Rosita	**Solar photovoltaics integrated in the building envelope: Durability assessment from the construction perspective** Santamaria Fernandez, Susana; Etxepare, Lauren; Roman, Eduardo	**Vernacular Architecture Reinvented for Climate Change and Environmental Resilience** Pace, Alexei; Buhagiar, Vincent
15:30 – 16:00	**Investigating the Hygrothermal Behaviour of CLT External Walls with Wood-Fibre-Based ETICS under Cold and Humid Climatic Conditions** Kukk, Villu; Kalamees, Targo	**Behaviour of multi-layer 3D printed reinforced concrete components under contact detonation stress** Zohrabyan, Vahan	**Optimizing RCA Concrete for Cold-Climate Infrastructure through Durability-Based Sustainability Assessment** Mello Muller de Oliveira, Yuri; Medeiros, Rennan; Sanchez, Leandro; Dumeignil, Sacha	**Cool materials across North America - An overview of technology, applications and standards** Ziaeemehr, Bahador; Schneider, Sarah; Ge, Hua; Lacasse, Michael	**A Mixed-Method Analysis of the Drivers and Barriers to Building Integrated Photovoltaics (BIPV) Adoption** Baril, Daniel; Sigounis, Anna-Maria; Ahn, Jun; Athienitis, Andreas; Ge, Hua	**An Experimental Setup for Monitoring Wood Durability and Moisture Dynamics: Preliminary Results** Niklewski, Jonas

Slot 6 | 16:30 – 18:00

	Session 6A	Session 6B	Session 6C	Session 6D	Session 6E
	Service Life & Asset Management	**Policy & Decision Frameworks**	**Concrete Durability**	**Energy Efficiency & Retrofit**	**Climate Resilience + Monitoring & Diagnostics**
Room	**MB 3.210**	**MB 3.270**	**MB 3.430**	**MB 3.435**	**MB 3.445**
Chair	**Herve Illy**	**Ernst Jan de Place Hansen**	**Juan Lizarazo-Marriaga**	**Phalguni Mukhopadhyaya**	**Anabela Bonada**
16:30-16:45	**Loss of Performance of Hydraulic Lime Mortars under the Action of Thermal Cycling Fatigue** Mendes, Maria Paula; Romero-Gómez, María Isabel; Flores-Colen, Inês	**BIPV Market Potential Review: Drivers, Barriers, and Methods** Du, Wenhang; Al-Shatnawi, Zahra; Zannah, Riazul; Baril, Daniel; Hachem-Vermette, Caroline; Ge, Hua; Gaucher-Loksts, Erin; Delisle, Véronique	**Investigation of steel corrosion under natural and accelerated carbonation in low-carbon cementitious systems** Joshi, Sarthak; Samson, Gabriel; Kamde, Deepak Kumar; Cyr, Martin; Helson, Olivier; Bourbon, Xavier	**A Two-Way Coupled Prognostic HVAC Model for Urban Physics Simulations** Safdari, Mojtaba; Ashraf, M. Nauman; Al Janaideh, Mohammad; Siddiqui, Kamran; Aliabadi, Amir A.	**Assessment of the long-term durability of a retrofitted double-skin steel envelope with materials issued from the circular economy under future climate change scenarios** Assaf, Marwan; Brachelet, Franck; Tittelein, Pierre; Defer, Didier; Antczak, Emmanuel
16:45-17:00	**Management of refurbishment projects throughout the building service life cycle** Korentz, Jacek; Nowogońska, Beata; Kurowska, Aleksandra	**Hybrid-Agile Design of Experiments (HADOE): Lessons from Four Years of Application in Durability Testing** Gradeci, Klodian; Sletnes, Malin; Ruther, Petra	**Carbonation-induced corrosion of metakaolin-based ettringitic binders with low-clinker and clinker-free content** Rigaud, Tom; Samson, Gabriel; Bucher, Raphaël; Djamaï, Zakaria; Cremona, Christian; Cyr, Martin	**Predicting HVAC Energy Use Intensity in U.S. Healthcare Facilities Using Machine Learning Models and CBECS 2018 Microdata** Pipim, Charles; Derrible, Sybil; Karatas, Aslihan	**Future Weather Data for Hygrothermal Building Envelope Simulations: Implications of Bias Adjustment** Shang, Yina; Tariku, Fitsum

17:00-17:15	**User acceptance and aesthetic limit states for wooden cladding: A multi-country study for sustainable planning** Alfredsen, Gry; Gustavsen, Geir Wæhler; Ross, Lone; Grüll, Gerhard; Forsthuber, Boris; Niklewski, Jonas; van Niekerk, Philip Bester; Brischke, Christian	**Barriers in the Building Regulations for Renovation of Buildings** de Place Hansen, Ernst Jan; Rohde, Lasse; Hansen, Helene; Ørsager, Morten	**Freeze-thaw-resistance of concrete - Approach for a new sensitivity testing concept** Spörel, Frank	**Optimization-Based Screening of HVAC System Selection for Energy-Efficient and Environmentally Responsible Design** Aeinfar, Sanam; Tutunchian, Omid	**Flat Roof Ventilation: Airflow Field Measurement** Abebe, Zelalem; Tariku, Fitsum; Mukhopadhyaya, Phalguni
17:15-17:30	**Approaching robust and precise Life Cycle Costing (LCC) for wood products based on service life data** Brischke, Christian; Acquah, Richard; Akkurt, Tolgay; Alfredsen, Gry; Forsthuber, Boris; Hosseini, Hasan; Hundhausen, Ulrich; Kalamees, Targo; Kalbe, Kristo; Kers, Jaan; Kukk, Villu; Landaas, Magnus O; Marais, Brendan N; Modaresi, Roja; Niklewski, Jonas; Grüll, Gerhard; Gustavsen, Geir W; Sandak, Anna; Sandak, Jakub; van Niekerk, Philip B	**Service Life Assessment of Buildings – a New Framework Model** de Place Hansen, Ernst Jan; Rode, Carsten; Haugbølle, Kim; Ottosen, Lisbeth M.; Jensen, Nickolaj Feldt; Karlshøj, Jan; Scheutz, Peter	**Investigating the Impermeability of Various Products and Protocols of Crystalline Waterproofing Technology** Al-Jabari, Maher; Al-Rashed, Radi	**Hydro-Mechanical Performance of Thermally Treated Expansive Clay for Construction Applications** Alsabhan, Abdullah; Hamid, Wagdi; Al-Mahbashi, Ahmed M.; Salem Binyahya, Abobaker	**Regulatory, Technological, and Human Resource Development for Drone-Based Building Façade Inspections in Japan** Miyauchi, Hiroyuki
17:30-17:45	**Prediction of residual service life - LCC implications of UK handback of buildings procured under PFI /PPP.** Bourke, Kathryn; Addyman, Simon; Broyd, Tim	**Toward High-performance and Durable Homes: Insights from Tiered Energy Code Modelling in Cold Regions** Kaluthantirige, Piyaruwan; Rico, Maeric; Jarri, Syed; Bello, Hussein; Pockar, Jusin; Timmins, Eric	**Relationship Between Concrete Paste Volume and Con-crete Transport Properties – A Review** González-Betancur, Daniela; Quattrone, Marco; M. John, Vanderley	**Effects of Building Energy Efficiency under Future Climates on Space Heating and Cooling Demand and Outdoor Environments** Shehzad, Muhammad Faisal; Fung, Alan; Stopps, Helen	**Enhancing building resilience and indoor comfort through La2Ce2O7 and Al2Ce2O7 nano-ceramic cool paints: a long-term assessment under climate change scenarios** Lupis, Katia; Selicati, Valeria; Stasi, Roberto; Berardi, Umberto
17:45-18:00	**Influence of different ageing parameters on the resistance to penetration of water of underlays for discontinuous roofing** Boberach, Christina; Treml, Sebastian	**Sustainability Best Practices in the Construction Industry: Current Trends and Implications** Tambwe, Ornella; Aigbavboa, Clinton; Akanyawie, Gloria	**Analysis of Spatial Variations in Corrosion of Outdoor Iron Artifacts and the Mechanism of Precipitation-Condensation Corrosion** Niu, Muran; Zhu, Hangyao; Xie, Huarong; Li, Yonghui; Hokoi, Shuichi		**Integrating Change Detection and Digital Material Passports for the Durability Assessment of Stone Masonry in Historic Built Heritage: The Case of Matera (Italy)** Porcari, Vito Domenico; Porcari, Sara; Priore, Arcangelo; Guida, Antonella; Bernardo, Graziella; Fattore, Carmen

Thursday, July 23

Slot 7 | 10:45 -12:15

	Session 7A	Session 7B	Session 7C	Session 7D	Session 7E
	Heritage & Masonry	**Mortars & Finishes**	**Concrete Durability**	**Low-Carbon Binders**	**Climate Resilience**
Room	**MB 3.210**	**MB 3.270**	**MB 3.430**	**MB 3.435**	**MB 3.445**
Chair	**Nathan Van Den Bossche**	**Eva Barreira**	**Christian Paglia**	**Patrick Dangla**	**Dan Sandink**
10:45-11:00	**Degradation mechanisms and durability evaluation of heritage conglomerate under Wet–Dry cycling: A case study of the Dunhuang Grottoes** Zhang, Huihui; Wang, Yanwu; Guo, Qinglin; Wang, Xuezhi; Li, Jiaming	**Developments of physical and mechanical properties of mortars under wetting and drying cycles** Silva, Matheus; Souza, Ana Luiza; Rodrigues, Hellen; Bauer, Elton	**Durability Assessment of Reinforced Concrete Bridge Components under Natural Environmental Exposure** Khan, Asad-Ur-Rehman; Mahmood, Wajeeha; Kahlid, Fatima; Fareed, Shamsoon	**Enhancing the Shrinkage Performance of Limestone Calcined Clay Cement (LC3) with Shrinkage-Reducing Admixtures** Abdelhalim, Radwa; Soliman, Ahmed	**Durability and resilience to flooding when climate change makes buildings increasingly prone to this risk** Derome, Dominique; de Cotret, Daniel; Boucher, Marie-Amélie; Levasseur, Elène
11:00-11:15	**Energy renovation of historical buildings: Optimizing strategies for Haussmannian architecture** Cheniti, Billel; Ouldboukhitine, Salah-Eddine; Bakkour, Amer; Pennec, Fabienne	**Structure and Mechanical Properties of Cement-Based Polymer Membranes and Mortars for Waterproofing.** Silva, Anna; Barcelos, Letícia; Queiroz, Samuel; Vasconcelos, Paulo; Bauer, Elton	**The Influence of Potential Alkali Release from Aggregates on Alkali-Silica Reaction** Xia, Zichun; Medeiros, Renann; Sanchez, Leandro; Leemann, Andreas	**A Review on the Durability Characteristics of Limestone Calcined Clay Cement** Abdelazim, Omar; Soliman, Ahmed	**Implementation of Climate Resilience Options – Canadian Insurance and Home Building Industries** Sandink, Dan; Lohmann, Frank; Winkelmann, Sonja; Mosqueda, Tamara; Cass, Brett; El-Zaylaa, Bilal
11:15-11:30	**A Fuzzy Logic-Based Model for Conservation Prioritization of Grotto Temple Murals Via Health Status and Durability Evaluation** Li, Shuyi; Zhu, Hangyao; Xie, Huarong; Hokoi, Shuichi; Li, Yonghui	**Eco-Efficient Materials: The Potential Use of Sheep Wool Fibers in Lime-Based Mortars** Damasceno, Madalena; Santos, Ana Rita; Gomes, Maria da Glória; Matias, Luís	**Durability Indicators for Sustainable Concrete: Challenges and Research Needs** M Sanchez, Leandro F.	**Long-term study of the natural carbonation of concretes containing supplementary cementitious materials: behavioural and predictive models** Cascudo, Oswaldo; Melo, Sandra; Carasek, Helena	**Quantifying Climate Change Impacts on Hygrothermal Degradation: Evaluating the Reliability of Climate-Based Indices** Chen, Xiaolin; Termonia, Piet; Hamdi, Rafiq; Van Den Bossche, Nathan
11:30-11:45	**Enhancing the Durability of Heritage Façades: An Analysis of Intervention Techniques and Materials** Aledavood, Anitasadat; Monjo Carrió, Juan	**Bond failure between layers of ETICS: Accelerated aging methods equivalent to 15 years of Mediterranean climate exposure** Parracha, João Luís; Leonor, Diogo; Veiga, Rosário; Flores-Colen, Inês	**Calibration and Implementation of a Web-Based Calculator for Pore Solution Conductivity in Concrete Durability Assessment** Higuera-Flórez, Camilo; Barragán, Deyvid; Quintero, Alessandra; Lizarazo-Marriaga, Juan; Zea, Hugo; Rios, Camilo	**Verification of strength development and carbonation of concrete using binders that contribute to CO2 reduction** Kage, Tadatsugu; Nakada, Kiyofumi; Mishima, Naoki; Tsuchiya, Naoko; Jinnai, Hiroshi	**Cultural Construction Knowledge and Resilience to Climate Change in Indigenous Building Durability in Sub-Saharan Africa** Anugwo, Iruka Chijindu; Appau, Williams Miller; Attakora-Amaniampong, Elvis
11:45 – 12:00	**Hygrothermal Examination of a Proposed Interior Insulation Retrofit of a Historic Masonry Building** J. Sperl, Brennan; A. Wells, John; Moore, Travis; A. Lacasse, Michael	**Long-Lasting Protection: Advancements in Waterborne Coatings** Arca, Hale Cigdem	**Durability and Heavy-Metal Leaching of Low-Clinker High-Performance Concrete (HPC) Incorporating Copper-Molybdenum Tailings** Kanaan, Dima; Alam, M. Shahria; Clyde, Erin	**Advanced application of limestone calcined clay cement (LC3) in 3D concrete printing** Zhang, Runxiao; Fares, Galal	**Toward climate-resilient cities: a study on integrating AI, LCZs, and CFD to develop an urban climatic map in the tropical city of Chiayi, Taiwan.** Huang, Jou-Man; Ku, Liang-Yun; Tsai, Hui-Ping

12:00 – 12:15			**Calibration of Sodium and Potassium Release Factors to Improve Pore Solution Conductivity Modelling for the Durability Design of Fly Ash–Blended Cements** Higuera-Flórez, Camilo; Lizarazo-Marriaga, Juan; Zea, Hugo	**Performance Assessment of Concrete Mixtures Incorporating Reclaimed Fly Ash** Ahmed, Almotaseembillah; Ghasemalizadeh, Saeid; Khoshnazar, Rahil; Nassar, Nashaat N	**Challenges and approaches for the durability assessment of building materials in the context of climate change** Illy, Hervé; Farkh, Salem; Colin, Xavier

Slot 8 | 13:30 – 15:00

	Session 8A	Session 8B	Session 8C	Session 8D	Session 8E
	Mortars & Finishes	**Monitoring & Diagnostics + Infrastructure & Civil Assets**	**Concrete Durability**	**Hygrothermal Performance**	**Embodied Carbon & LCA**
Room	**MB 3.210**	**MB 3.270**	**MB 3.430**	**MB 3.435**	**MB 3.445**
Chair	**Joanna Styczen**	**Heiko Fechner**	**Christer Sjöström**	**Kathryn Stokes**	**Miroslava Kavgic**
13:30 – 13:45	**Advancing Sustainability in Silicone Sealants: Industry Innovations for Durability, Recycling, and Environmental Responsibility** Wolf, Andreas	**Assessment of Layer Thickness and Compressive Strength of Existing Precast Concrete Sandwich Panels** Paalandi, Kristo; Talvik, Ivar; Tuisk, Tanel; Kalamees, Targo	**Assessing Pyrrhotite in Concrete for Mitigation Strategies of Damaged Construction** Watson, Stephanie; Carey, Ashley; Dehwah, Osamah; Dixon, Patrick; Martys, Nicos; Mengason, Michael; Stutzman, Paul	**Impacts of the air opening size and air leakage path on the hygrothermal performance of wood-frame walls** Junginger, Max; Ge, Hua	**On decarbonisation, reduction of greenhouse gas emissions and other environmental impacts Role and obligation of the building and construction sector** Sjöström, Christer
13:45 – 14:00	**Comparison of Electrical Performance of Mortars Containing New and Recycled Carbon Fibers** Kunz, Annika; Orlowsky, Jeanette	**Ultrasonic Wave Propagation for Assessing Freeze-Thaw Damage in Partially Saturated Plasters** Vilba, Kristina; Klõšeiko, Paul; Olak, Henri; Ratassepp, Madis; Kalamees, Targo	**An Investigation of Longitudinal Shear Transfer in Composite Steel Truss in Concrete Beams Using Push-off Tests** Kumar, Shyamal; Singh, Bhupinder	**Evaluating Condensation Risk and Durability in Window-Wall Spandrel Backup Assemblies Through Hygrothermal Analysis** Kahsay, Meseret; Ramachandran, Sathya; Pushman, Paul	**Architectural Glass Recycling as a Climate-Responsive Durability Strategy** Yee, Stanley
14:00 – 14:15	**Study on prediction method for changes in floor slipperiness due to wear caused by foot traffic considering dirt and sand** Fukuda, Shintaro; Fujii, Yuutarou; Yu, Dongcheng; Minegishi, Yuma; Morita, Ayuka	**Field Study to Evaluate the Durability of Thermal Insulation Materials based on Renewable Resources** Treml, Sebastian; Kamml, Michael; Cucchi, Chiara; Zirkelbach, Daniel; Lengsfeld, Kristin; Tanaka, Eri	**Concrete Gas Permeability: Implications for Hydrogen Storage Applications** Abreu Araujo, Luana; Rebolledo Ramos, Nuria; Torres Martín, Julio Emilio; Chinchón-Payá, Servando; Sánchez Montero, Javier	**Consequences of Moisture Gradients in Glulam Joints – wetting and drying** Møller, Eva Birgit; Flensborg, Emilie; Madsen, Ida Hauge; Larsen, Finn	**Long-Term Weathering Performance of Architectural Panels: Painted vs Vitreous Enameled Panels in a Circular Economy Context** Rossi, Stefano; Benedetti, Luca; Lusenti, Cesare
14:15 – 14:30	**Evaluation of Durability and Protective Performance of Coatings for Exterior Wood Cladding** Koga, Junko; Sakata, Kaito; Yano, Suzuha	**Using an Unknown Material When Known is Unavailable: Evaluating Long-term Performance of MgO Board** Roth, Melissa; Brandt, Malia; Norwine, Emily; Snortum-Haney, Torii	**Exploring mechanochemically activated local rocks as cementitious binder- its mechanical strength and durability** Habermehl-Cwirzen, Karin	**Moisture damage of the swimming pool's lightweight structures** Kalamees, Targo; Idnurm, Maari; Tark, Teet; Liivrand, Herki	**Comparative Analysis of Environmental Product Declaration for Roofing Membranes in North America** Chen, Sitong; Aggarwal, Chetan; Ge, Hua; Siluvai Antony, Praveen; Molleti, Sudhakar

14:30 – 14:45	**Long-Term Performance of Carbon Nanofiber-Enhanced Cement Mortars Incorporating Reclaimed Fly Ash** Teymouri, Ali; Guzmán, Héctor J.; Khoshnazar, Rahil	**The Stress Corrosion Cracking Susceptibility of Stainless Steel Bridge Bearings** Paglia, Christian	**Review on the Durability Performance of Concrete made of Biochar: Mechanisms and Evidence Gaps** Coutinho, Yane; Tawadros, Verina; Sanchez, Leandro	**Demonstration of moisture increase on upper part of the wall assemblies with drainage cavity** Saito, Hiroaki; Miyamura, Masashi; Matsuoka, Daisuke; Osamura, Sadaharu; Mishima, Naoki	**Comparative Life-Cycle Assessment of an Institutional Glulam Building with an Equivalent Reinforced Concrete** Jamtsho, Tenzin; Braescu, Liliana
14:45 – 15:00		**Long-Term Durability of Asphalt Shingle Roof Covers: Laboratory Degradation Characteristics** Abdelwahab, Karim; Brown-Giammanco, Tanya; Sung, Lipiin	**A Proposed Self-Healing Method for Concrete Cracks Using Scallop Shell Biowaste and CO_2 Nanobubbles** Kurohman, Novik; Choi, Heesup; Inoue, Masumi	**Blindside Waterproofing Systems in Bathtub Application under Hydrostatic Condition: Lessons from Field, Mock-Ups, and Laboratory Testing** Ramachandran, Sathya; Dell'Aquila, Domenic; Pushman, Paul	

Slot 9 | 15:30 -17:00

	Session 9A	**Session 9B**	**Session 9C**	**Session 9D**	**Session 9E**
	Energy Efficiency & Retrofit	**Timber Durability**	**Concrete Durability**	**Embodied Carbon & LCA**	**Hygrothermal Performance**
Room	**MB 3.210**	**MB 3.270**	**MB 3.430**	**MB 3.435**	**MB 3.445**
Chair	**Caroline St-onge**	*Lin Wang*	**Michael Lacasse**	**Xiaohong Gu**	**Jan Carmeliet**
15:30 – 15:45	**Perspectives on Policy, Economic, and Environmental Aspects of Building Retrofits in Canada** Madadizadeh, Ali; Siddiqui, Kamran; Aliabadi, Amir A.	**Hygrothermal Analysis of CLT Wall Assemblies with Vapor Retarder Design: A Case Study of Korea's Mixed Climate** Lee, So-min; Lee, Jeong-hun	**Sampling-Based Modelling of Belgian Heritage Masonry: Key Brick Properties Governing Façade Degradation.** Vanderschelden, Bruno; Hayen, Roald; De Kock, Tim; Cnudde, Veerle; Van Den Bossche, Nathan	**Climate change-induced reductions in frost depth: impacts on building design in frost-susceptible soils** Lomp, Siim; Männik, Aarne; Hallik, Jaanus; Kalamees, Targo	**Hygrothermal Performance of Internally Insulated Walls Under Future Climate Scenarios** Jensen, Nickolaj Feldt; Peuhkuri, Ruut H.; de Place Hansen, Ernst Jan; Møller, Eva B.
15:30 – 16:00	**Evaluating Real-World Durability and Thermal Performance of Exterior Retrofit Systems in a Mixed-Humid Climate** Palani, Hevar; Iffa, Emishaw; Desjarlais, André	**UV-Induced Discoloration in Small-Scale Glulam Specimens: Species Effects for Mass Timber Applications** Kurzinski, Shaghayegh; Maines, Emily	**Forgotten but effective: frost dilatometry in brick freeze-thaw analysis** Wroe, John; Malomo, Daniele	**Life Cycle Assessment of Window Retrofit Strategies for Reducing Greenhouse Gas Emissions in Old Buildings** Jeon, Jin-u; Heo, Eun-jeong; Lee, Jeong-hun	**Experimental Comparison of the Hygrothermal Performance of Magnesium Oxide Panels with Stucco Cladding** Scharf, Nicholas; Hilbrecht, Robin; Baldwin, Christopher; Cruickshank, Cynthia A.; Grin, Aaron
16:00 – 16:15	**Energy Retrofitting of Existing Low-Rise Residential Buildings: A Systematic Review** Hesarbani, Atefeh; Jalaei, Farzad; Hosseini Gourabpasi, Arash; Ge, Hua; Nik-Bakht, Mazdak	**Hygrothermal Performance of a Cross-laminated Timber and Wood Fiber Insulation School Building in a Cold Climate** O'Brien, Liam; Li, Ling; Herzog, Benjamin; Snow, Jacob	**Aging test for the evaluation of protective film degradation: a study using a non-destructive techniques** Ripamonti, Davide; Carangelo, Enrico; Frabasile, Emanuele; Gargano, Marco; Melada, Jacopo; Ludwig, Nicola	**Experimental Study on the Mechanical Performance of Bubble Deck Slabs Incorporated with Plastic Bottles** Dadzie, Donald Kwabena; Dokyi, George Okyere; Ansah, Samuel K.; Kaliluthin, A. K.	**The Link Between Indoor Air Quality and Material Durability in Energy-Efficient Buildings: A Review** Mwangi, Antony; Laszlo, Czetany

16:15 – 16:30	**Ventilation options for climate-resilient retrofits in historic wooden apartment buildings: energy use, cost-effectiveness, and carbon impacts** Arumägi, Endrik; Hallik, Jaanus; Kalamees, Targo	**Moisture-, Impact-, and Termite-Resistant Micro-Charring Layer for Tropical Fast-Growing Timber Species** Okuda, Shinya; Kua, Harn Wei	**The natural protective effect of biofilm on stone surface in a urban context: the case of the Monumental Cemetery of Milan, Italy** Ripamonti, Davide; Bertolin, Chiara; Villa, Federica; Chao, Gao; Ludwig, Nicola Gherardo	**Emerging Technologies for Sustainable Waste Management of Silicone Elastomers** Wolf, Andreas	**Hygrothermal performance of exterior walls in Canada: a field survey** Bastien, Diane; Winther-Gaasvig, Martin; Ge, Hua; Aggarwal, Chetan; Vanhoutteghem, Lies
16:30 – 16:45	**Building Energy Performance of Cool Coatings for Urban Heat Island Mitigation in Canadian Climate** Lefebvre, David; Cruickshank, Cynthia A; Jandaghian, Zahra	**Incorporating wooden components in non-ventilated flat and pitched roofs and their deterioration** Juras, Peter; Jurasova, Daniela	**Historic Façades as Overlooked Reservoirs of Urban Lead: Evidence from Antwerp, Belgium** Deboli, Sofia; De Kock, Tim	**Durability assessment of mussel shell-based mortars for applications in construction** Calà, Adriana; Saeli, Manfredi	**Performance of Brick-Clad Timber-Framed Exterior Walls in Cooled Buildings in Nordic Climate** Hyötyläinen, Maiju; Valovirta, Ilkka; Laukkarinen, Anssi; Vinha, Juha
16:45 – 17:00		**Timber durability and moisture monitoring: Comparison of established moisture measurement techniques** Lima, Daniel F.; Duarte, Sónia; Schweigler, Michael; Dorn, Michael; Branco, Jorge			**Updating Scheffer's Climate Index** Peer, Leslie; Sloat, Destynee

Friday, July 24

Slot 10 | 10:45 -12:15

	Session 10A	Session 10B	Session 10C	Session 10D	Session 10E
	Low-Carbon Binders	**Digitalization & AI**	**Service Life & Asset Management**	**Hygrothermal Performance**	**Energy Efficiency & Retrofit**
Room	**MB 3.210**	**MB 3.270**	**MB 3.430**	**MB 3.435**	**MB 3.445**
Chair	**Sebastian Treml**	**Ana Silva**	**Zhengwei Li**	**Petra Rüther**	**Sathya Ramachandran**
10:45-11:00	**Effect of Gypsum Content on the Performance of LC3 Mortar** Abdelazim, Omar; Soliman, Ahmed	**Machine Learning-Based Prediction of In-situ Concrete Strength (36–120 N/mm²) Using Cylindrical Specimens** Sato, Sachie; Isobe, Ryota; Yamada, Yoshitomo	**Methodology and Online Tool Development for Service Life Prediction of Polymeric Materials Used in Energy and Building Infrastructure** Gu, Xiaohong; Sung, Lipiin; Jacobs, Debbie; Hong, Yili	**One-dimensional Homogenization in Hygrothermal Modeling of Historic Masonry: Evaluating a Generic Numerical Experiment Approach** Dang, Xinyuan; Hofheinz, Anna; Vereecken, Evy; Janssen, Hans; Roels, Staf; Kinnane, Oliver	**Testing and Analysis of Wood-Based Prefabricated Panel Concepts for Deep Energy Retrofits** Dikeos, John; Cruickshank, Cynthia; Baldwin, Christopher
11:00-11:15	**Evaluation of the External Sulfate behaviour of Portland Limestone Cement Systems with and without Supplementary Cementitious Materials** Kianpour, Kiarash; Xia, Zichun; F.M. Sanchez, Leandro	**Towards Durable and Moisture-Safe Buildings: LLM-Powered Translation from BIM to Hygrothermal Modeling** Moshari, Amirhosein; Javanroodi, Kavan; Nik, Vahid	**Performance and Life Cycle of Public Educational Buildings: Durability through Incremental Adaptation** Cignachi, Grasiela; Lima Gaspar, Pedro; Lopes Farias, Hugo	**Durable Airtightness with Tape Solutions in Building Envelopes – Findings from a knowledge project 2019-2023** Rüther, Petra; Sletnes, Malin; Brozovsky, Johannes; Gradeci, Klodian	**Residual Seismic Capacity and Low-Carbon Retrofitting of Steel Box-Shaped Columns** Chang, Heui-Yung; Chi, Wei-Chieh; Liao, Chu-Tsen; Lai, Chi-Ming

11:15-11:30	**Data-Driven Analysis of Compressive Strength in Novel Low-Carbon Cement : Limestone Calcined Clay Cement (LC3)** Chaparro, Faber; Soliman, Ahmed	**Physics-informed neural networks for inverse estimation of moisture diffusivity and saturation field in concrete** Sghuri, Abderrahmane; Chen, Xuande; Wang, Xiaodong	**Service order analysis as a tool for maintenance operations: A case study** Souza, Jéssica; Pires, Mariana; Pires, Lais; Silva, Ana	**Towards quantifying watertightness of walls** Van Linden, Stéphanie; Van Den Bossche, Nathan	**Climate Sensitivity of High–Reflectivity Building Envelopes: Energy Simulation of Peak Cooling Performance in Canadian Climates** Jandaghian, Zahra; Bartko, Michal; Ghobadi, Mehdi; Gaur, Abhishek
11:30-11:45	**Shrinkage Reducing Admixtures for Slag and Calcined Dredged Clay One Part Alkali Activated Materials** Shrinkage Reducing Ramadan, Mohamed; Soliman, AhmedAdmixtures for Slag and Calcined Dredged Clay One Part Alkali Activated Materials	**Integrating Stereo Vision and Machine Learning for Autonomous Robotic Masonry Block-Laying** Plascencia Padilla, Artaban Lott; Chen, Yuxiang; Chairez Oria, Jorge Isaac	**Assessment of Service Life of Outdoor Wooden Board-walks in Estonia – A Field Measurement Pilot Study** Rajasaar, Maarja Mirjam; Kalamees, Targo; Kers, Jaan; Kaubi, Ulvar	**Impact of Strapping Detailing on Exposed Air Barrier Assemblies During Construction** Holgate, Julia; Marston, Cole; Annam, Ebenezer; Lloyd, Alan	**Reducing Heat Stress Exposure Through Retrofit Vertical Greening Systems in South African Informal Settlement Dwellings** Manderson, Grant; Hugo, Jan; Botes, Karen
11:45 – 12:00	**Superabsorbent Polymers for Shrinkage Mitigation in Slag and Calcined Dredged Clay One Part Alkali Activated Materials** Ramadan, Mohamed; Soliman, Ahmed	**Automated BIM Model Generation from Natural Language Descriptions Using a T5-Based Framework** Sui, Chuhao; Chen, Yuxiang; Mei, Qipei	**Advanced Condition Assessment of Building Sealants Via Automated Crack Detection and Long-Term Property Evaluation** Lopez-Carreon, Itzel; Rao, Sneha; Riahinezhad, Marzieh; Esmizadeh, Elnaz; Jahan, Esrat; Collins, Peter; Mozaffari, Hamed	**Case Study: Evaluating Causes and Remedial Strategies for Brick Cladding Deterioration in Existing Buildings** Ismaiel, Maysoun; Korneluk, Bob	**Airtightness and Sound Insulation Improvements through Window Retrofit in an Aged University Building** Jang, Ha-eun; Lee, Jeong-hun
12:00 – 12:15		**Digital Infrastructure and Carbon Emissions in Commercial Real Estate: Evidence from Ghanaian Shopping Malls** Appau, Williams Miller; Attakora-Amaniampong, Elvis; Anugwo, Iruka Chijindu	**Impact of material selection, design, and maintenance on the durability of modern wooden buildings in cold and humid climate: Estonian case studies** Kukk, Villu; Kalamees, Targo	**Whole Building Airtightness Testing with Diagnostics for Durability of Components** Richman, Russell; Todd, Austin; Labbe, Greg	**Sustainable HVAC Practices for Building Efficiency, Occupant Comfort, and Climate Change Adaptation** Kumar, Rakesh; Girgis, Elisabeth; Dekin, Alex; Prince, Madelaine; Mukhopadhyaya, Phalguni; Froese, Thomas; Leung, Wilma

POSTER PRESENTATION DETAILED SCHEDULE

Thursday, July 23

Chair: Sahar Sahyoun

16:00 – 17:30

Theme 1 — Evaluating the Durability of Building Materials and Components

Room: MB 9-EFG

Prediction Method Wrinkle of Floor Covering Caused by Dynamic Load
Fujii, Yuutarou; Fukuda, Shintarou

Degradation of Brick Masonry Due to Ineffective Damp-Proofing – A Case Study of the Golden Gate in Gdańsk
Hoła, Anna

Lifting The Roof: An Analysis of the Moisture Barrier Performance of Large Low-Slope Roofs
Dakin, Joe; Teetaert, Jason

Assessing the Impact of Moisture Storage Profiles of Varied Wood Species on the Hygrothermal Behavior of CLT Using a Digitally Calibrated Simulink Mode
Vyas, Yash; Richman, Russell

Smart Structures, Stronger Futures: Global Research Trends on IoT and BIM Applications in Construction Materials Durability
Gyadu-Asiedu, Nana Akua Asabea; Aigbavboa, Clinton; Ametepey, Simon Ofori

Durability And Service Life of Nature-Based Construction Materials for Climate-Resilient Buildings. A Bibliometric Review
Akanyawie, Gloria A.; Aigbavboa, Clinton; Aghimien, Douglas; Aliu, John; Stephen, Seyi S.

Protection of Mass Timber During Construction – Moisture Monitoring Best Practices for Instrumentation
Richman, Russell; Johns, Dorothy; Lawrence, Cameron; Headrick, Iain

Resistance of lime-wollastonite mortars to salt and ice crystallization
Vyšvařil, Martin; Žižlavský, Tomáš; Bayer, Patrik

Degradation Assessment of Surface-Protected Thermal Mortars
Bersch, Jéssica; Riahinezhad, Marzieh; Esmizadeh, Elnaz; Masuero, Angela; Dal Molin, Denise; Lacasse, Michael; Flores-Colen, Inês

Durability of concrete in sewerage networks with regard to biodeterioration
Pons, Tony; Ayoub, Janette; Guéguen-Minerbe, Marielle

A Simplified Thermal Modeling Methodology for Accurate Long-Term Performance Prediction of BIPV Systems
Zareie, Zahra; Ye, Kai; Baril, Daniel; Ge, Hua

Prediction of the Aging of Building Components
Nowogońska, Beata; Kurowska, Aleksandra; Korentz, Jacek

Impact of Treatments of Hemp Shives on the Hygrothermal Performance of Hempcrete: A Numerical Approach at the Building Envelope Scale
Ferroukhi, Yacine; Saleh, Hayat; Mesticou, Zyed; Si Larbi, Amir

Assessment of the thermo-mechanical properties of hybrid concrete-filled fiber-reinforced polymer tube (HCFFT) systems incorporating gold mine tailings
Chaabene, Yossr; Qi, Dahai; Masmoudi, Radhouane; Belem, Tikou; Tagnit-hamou, Arezki; Reda, Ibrahim

Influence of Iron Ore Sand on the Mechanical Properties and Durability of Concrete
Branco, Luiz Antonio Melgaço Nunes; Bento, Luciano dos Reis; Menezes, Mariana; Santos, Silvio Xavier; Ferreira, Danielle; Santos, Geniclésio

Theme 3 — Decarbonization, Reducing Greenhouse Gas Emissions and Other Environmental Impacts

Impact of thermal bridges on the energy consumption and carbon reduction of low-energy buildings in China
Xiong, Peng; Chen, Guojie; Liu, Xiangwei; Xie, Dong

Toward Contextual Benchmarking: Analyzing Canadian Case Studies from CLF WBLCA Dataset
Baienat, Saba; Iordanova, Ivanka

Durability and Mechanical Properties of Lightweight Aggregates from Coal Combustion By-Products
Franus, Małgorzata

Polymer Nanofibers as an Innovative Approach to Enhance the Durability of Asphalt Pavements
Malinowski, Szymon; Woszuk, Agnieszka; Franus, Wojciech

Green Pavement Solutions: Synergistic Zeolite–Silane Bifunctional Foaming Additives for Enhanced Asphalt Durability
Woszuk, Agnieszka; Malinowski, Szymon; Franus, Wojciech

Feasibility of Using Carbon-Rich Fly Ash as a Supplementary Cementitious Material.
Janek, Martyna; Franus, Wojciech; Piechota, Zuzanna

Valorization of Coal Mining Fly Ash for Sustainable Cement Mortars: Mechanical Properties and Durability Assessment
Franus, Wojciech; Piechota, Zuzanna; Janek, Martyna

Advancing Sustainable Roof Restoration: Quantifying Embodied Carbon Reductions and Economic Benefits in Existing Buildings
Pugalendiran, Milirsan; Christopherson, Michelle; Prijono, Ivan

Theme 4 — Rapidly Developing Technologies in Construction

Room: MB 9-EFG

Unearthing The Benefits of Implementing Proactive Safety Measures in The Construction Industry
Adekunle, Samuel; Aigbavboa, Clinton; Akinradewo, Opeoluwa; Aregbesola, Ganiu; Ogunbayo, Babatunde; Abiodun, Oluwapelumi

Beyond 3D printing: Making a case for Enhancing Construction Site Safety using 4D-printed Personal Protective Equipment
Adekunle, Samuel; Aigbavboa, Clinton; Ejohwomu, Obuks; Awuzie, Bankole; Ebekozien, Andrew

Optimization of Mechanical Properties of Recycled Steel Fiber using Evolutionary Computation
Memon, Neelam; Memon, Neelam; Larik, Asma

Flexural behavior of 3D printed concrete reinforced with sprayed SHCC overlays
Zhou, Min; Guadagnini, Maurizio; Nematollahi, Behzad

Experimental Study on Performance of Cross Laminated Timber and Reinforced Concrete Composite Floor System after Fire
Tsai, Meng-Ting; Yeh, Miao-Chen; Sato, Toshiaki

Pedagogical Strategies for Skilled Architecture and Building Engineering Undergraduates: Navigating the Generative Artificial Intelligence Era in a Fast-Evolving Industry 5.0 Landscape
Sourav, Md Sakib Ullah; Sahyoun, Sahar; Zeng, Yong; Ge, Hua

Segment-Based Multi-Year Optimization for Scalable Infrastructure Maintenance Planning under Uncertainty
Chung, Frederick B.; Paik, Yejee; Baek, Minsoo; Ashuri, Baabak

Proposal of a methodology for evaluating the 3D printability of mortars: sensitivity and repeatability analysis
Araujo, Renato; Carasek, Helena

Volt-Age Project Showcase

Thursday, July 23

16:00 – 17:30

Room: MB 9-EFG

Accurate and Scalable Canadian Residential Building Archetypes Based on Multi-Layer Filtering for Urban Building Energy Modeling Wei Zhou; Liangzhu Wang	**Digital Twins for Smart Decarbonization of the Built Environment Meeting Circular Economy Criteria** Shamanta Azad Oshin; Yunxiao Jin; Atefeh Hesarbani; Sarah Mahbod; Mazdak Nik-Bakht	**Thermal Comfort Among Passengers in an Airport Terminal** Ana Victoria Palma Florido; Mohamed M. Ouf; William O'Brien; Natalia Cooper; Hadia Awad	Indoor Air Quality and Energy Optimization for Airport Terminals Milad Babadi Soultanzadeh; Mohamed M. Ouf; Liangzhu Leon Wang
Self-Contained MPC for Buildings: Automated Sequential Identification with Active Excitation Harry Vallianos; Mohamed M. Ouf; Jayson Bursill; Burak Gunay	**Field Implementation of Model Predictive Control with a Novel Multi-Sensor in Grid-Integrated School Buildings** Navid Morovati; Ayegba Blessing; Andreas Athienitis	**CLEAR Hub – Designing Sustainable Plant Factories for Community and Ecology** Joseph Zambrano; Luis Virla; Ivan Kantor	**Durability of BIPV Systems: Standards, Experimental Validation, Hygrothermal Performance, and Fire Safety** Sahar Sahyoun; Zahra Zareie; Kai Ye; Hua Ge
Decision-Making Tools for Prioritizing Resilience and Sustainability Strategies for Buildings and Neighborhoods Caroline Hachem-Vermette; Ahmed Nouby Mohamed Hassan; Md Faisal Kabir	**Smart Retrofitting and Sustainable Design: Leveraging Digital Twins for Neighborhood-Scale Energy Efficiency** Abdul Moeed Khan; Caroline Hachem-Vermette	**Development of Energy-Resilient Communities for the Decarbonization Goals of Canada by 2050** Furgan Wali; Shivram Krishnan; Caroline Hachem-Vermette	**Comparative Study of Titanium Oxide Materials for Ultrafast Charging in Lithium-Ion Batteries** Abderrahim Laggoune; Anil Kumar Madikere Raghunatha Reddy; Jeremy I. G. Dawkins; Thiago M. G. Selva; Jitendar Singh Rajpurohit; Karim Zaghib
Comparative Analysis of Cell Design: Form Factor and Electrode Architectures in Advanced Lithium-Ion Batteries Khaled Mekdour; Anil Kumar Madikere Raghunatha Reddy; Jeremy I. G. Dawkins; Thiago M. Guimaraes C. Selva; Karim Zaghib	**Quantum Computing for Optimization of Urban Rooftop PV Deployment in Canada** Huiheng Liu; Honghao Fu; Liangzhu Leon Wang	**Enhancing Building Climate Resilience through Shelters: PV-Battery System Sizing for Extreme Heat Events** Jean-Christophe Pelletier-De Koninck; Michal Bartko; Andreas Athienitis	**Transforming Built and Urban Microclimates: Geothermal energy in cold regions** Biao Li; Saeed Vadiee; Kian Khaksar; Emad Norouzi; Suleiman Ahmed; Liangzhu Leon Wang

WORKSHOP DETAILED SCHEDULE

	Title	Organizers	Schedule	• Program
1	**Hygrothermal Performance of Mass Timber Envelopes: Response to Wind-Driven Rain Exposure and Uncertainties in Material Properties (CIB W040)**	Lin Wang, Canada; Villu Kukk, Tallinn University of Technology, Estonia	July 20 8:30 AM–12:00 PM MB9-EFG	• Wind-driven rain on building facade: field measurements and modeling — Hua Ge, Concordia • An overview of research on rain penetration of wall assemblies — Michael Lacasse, Concordia • Where Will Wood Decay? Predicting Moisture to Map Durability — Jonas Niklewski, Lund University, Sweden • Moisture Management Challenges in Mass Timber Buildings: Research at UVic — Phalguni Mukhopadhyaya, University of Victoria • Hygrothermal Performance of a Cross-laminated Timber and Wood Fiber Insulation School Building in a Cold Climate — Liam O'Brien, University of Maine • Hygrothermal Modelling of Mass Timber Joint Details — Stan Francispillai, RDH Building Science • Hygrothermal and LCA data set of bio-based insulations — Dario Bottino-Leone, Eurac Research, Italy • Mass timber wall configurations in North American regions (Canada) — Lin Wang • Mass timber wall configurations in Northern European regions (Estonia) — Villu Kukk, KU Leuven, Belgium; Tallinn University of Technology, Estonia
2-Part I	**BIPV in Practice: Products, Integration, and Performance**	Caroline Hachem-Vermette, Concordia University Costa Kapsis, University of Waterloo	July 21 10:45 AM–12:15 PM MB9-CD	• Welcome & Overview — Caroline Hachem-Vermette • Global & Canadian BIPV Product Landscape — Véronique Delisle, Natural Resources Canada • Product Showcase: BIPV Cladding — Terri Oswald, Mitrex, Canada • Integration in Practice: Architectural & Engineering Details — Costa Kapsis, University of Waterloo • BIPV Case Studies: Designing for Resilience and Architectural Excellence — Sydney Browne, Diamond Schmitt Architects • Q&A: Lessons Learned & Future Opportunities — Facilitator: Caroline Hachem-Vermette
2-Part II	**BIPV Technical Guide, Standards and Codes**	Zhe Xiao, NRC Hua Ge, Concordia University	July 21 2:45 PM–5:30 PM MB9-CD	• Welcome and introduction — Zhe Xiao and Hua Ge • BIPV systems: meeting construction regulations and sustainable goals: European perspectives — Edvinas Bigaila, Lüchinger Meyer Partner, LMP, Switzerland • BIPV Building Envelope Applications: Codes, Standards, and Compliance in Canada — Zhe Xiao, National Research Council Canada • BIPV building envelope performance: durability — Hua Ge, Concordia University • BIPV fire safety codes/standard gaps — Yoon Ko, National Research Council Canada • Life-Cycle GHG Assessment of BIPV Facade Systems under Canadian 2025 and 2050 Scenarios — Wenhang Du, Concordia University • BIPV/T: peak load and grid interactions — Andreas Athienitis, Concordia University • Round Table: Lessons Learned & Future Opportunities — Facilitator: Hua Ge, Concordia University
3	**BIM-Based Digital Twins for Building Performance and Decarbonization**	Mazdak Nik-Bakht, Concordia University	July 22 10:45 AM–12:45 PM MB9-CD	• Opening and presenter introduction: Workshop goal, agenda, expected outcomes — Mazdak Nik-Bakht, Concordia University • Introduction and theory: DT definitions, misconceptions, BIM vs DT, maturity levels, use cases — Mazdak Nik-Bakht, Concordia University/ Éric Bernier, DECASULT. • Practice and applications: DT applications for performance, maintenance, carbon auditing, retrofit — Éric Bernier (DECASULT)/Mazdak Nik-Bakht (Concordia University) • Software/tools in the market: Azure, Autodesk Tandem, Bentley, Willow, SpinalCom, TwinOps, etc. — Éric Bernier (DECASULT) / Atefeh Hesarbani (Concordia University) • Hands-on session on Build a simple DT workflow — Éric Bernier (DECASULT) / Atefeh Hesarbani (Concordia University) • Demo on other tools, capabilities, strengths, limitations — Éric Bernier (DECASULT) / Atefeh Hesarbani (Concordia University, Canada) • Q&A and wrap-up: Lessons learned, implementation roadmap, final discussion — All

	Title	Organizers	Schedule	• Program
4	**Evaluating Surface Radiative Performance of Building Envelope Materials**	Audrey McGarrell Stacey Weister Cool Roof Rating Council, USA	July 22 2:45 PM–5:30 PM MB9-CD	• CRRC Overview; UHI and cool surfaces impacts; testing, weathering, and rating processes; test methods/standards; codes and programs; methods and instruments demonstration • Audrey McGarrell and Stacey Weister, Cool Roof Rating Council, USA • Moses Kodur; Surface Optics Corporation, USA
5	**Overview of CSA Standard – CSA S478 – Durability in Buildings**	Michael Lacasse, Concordia University	July 22 2:45 PM–5:30 PM MB9-AB	• CSA S478 – Durability in Buildings: standard overview, service life requirements, quality management, and recent updates • Michael Lacasse, Concordia University • Leslie Peer, Principal and Senior Engineer, RJC Engineers • David De Rose, Managing Principal, BSSO, Synergy Partners • Robert Jonkman, Vice President - Codes and Engineering, Canadian Wood Council
6	**A Primer about Publishing Technical Papers in International Journals: Sharing an Editor's Experience**	Ted Stathopoulos, Concordia University	July 23 10:45 AM–12:15 PM MB9-CD	• This Workshop aims to demystify the publication process, offering invaluable insights from an editor's perspective. Participants will gain practical tips on manuscript preparation, submission strategies, and navigating the peer review process. Join us to enhance your understanding and increase your chances of successful publication in top-tier journals. • • Ted Stathopoulos, Concordia University, Canada
7	**Integrating Materials and Construction Technologies for Sustainable Eco-Friendly Buildings**	Ahmed Soliman, Concordia University	July 23 1:30 PM–3:45 PM MB9-CD	• This workshop brings together leading Environment & Sustainability Directors, alongside a key industry player, to explore how cutting-edge developments in construction materials are reshaping the future of low-carbon buildings. As the sector faces increasing pressure to address both embodied and operational carbon, industry leaders are driving transformative solutions—from novel cement formulations to circular material strategies and performance-based design approaches. • Clément Boisselier, Senior Manager, Sustainability, Aecon Group Inc., Canada • Etienne Gravel, Director, Environment and Sustainable Development, Pomerleau, Canada • Nicolas Ginouse, Technical Director, BMQ / BMQ Solutions / Amrize Canada

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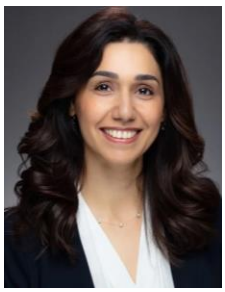

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1455 De Maisonneuve Blvd. W.
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