



DBMC 2026

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

Detailed Program — Oral Presentations, Poster Sessions & Workshops

July 20-24, 2026

Montreal (QC), Canada

Organized by Concordia University and the National Research Council Canada



Center for Zero Energy Building Studies
Centre d'études sur le bâtiment
à consommation nulle d'énergie



National Research
Council Canada

Conseil national de
recherches Canada

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Part I — Oral Presentation Program

Tuesday, July 21, 2026

Slot 1 | 10:45-12:15

Session 1A — Concrete & Binders + Embodied Carbon & LCA

Room 3.210 | 10:45-12:15 | Session Chair: Inês Flores-Colen

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
10:45-11:00	11747	Toward Low-Carbon Cement: Flash-Calcined Sediment-Based Ternary Binders	Zeraoui, Ahmed; Benzerzour, Mahfoud; Abriak, Nor Edine	Zeraoui, Ahmed	IMT Nord Europe, France
11:00-11:15	11560	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	Akinyele, Joseph Olawale	Federal University of Agriculture, Abeokuta, Nigeria
11:15-11:30	11619	Performance of geopolymer fiber-reinforced concrete after exposure to elevated temperature	Abadel, Aref A; Alqarni, Ali S; Alharbi, Yousef R	Abadel, Aref A	Civil Engineering Department, College of Engineering, King Saud University, Saudi Arabia
11:30-11:45	11752	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.	Alqarni, Ali S.	Department of Civil Engineering, King Saud University, Riyadh, Saudi Arabia
11:45-12:00	11727	Durability Assessment of Graphene Oxide-Tailored Ternary Blended Nano-Concrete Composites under Prolonged Sulfuric Acid Exposure	Anwar, Abdullah; Ngo, Tuan; Liu, Xuemei; Zhang, Lihai	Anwar, Abdullah	The University of Melbourne, Australia
12:00-12:15	11733	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	Ohis Aigbavboa, Clinton	CIDB Centre of Excellence & Sustainable Human Settlement and Construction Research Centre, Faculty of Engineering and the Built Environment, University of Johannesburg, Johannesburg, South Africa

Session 1B — Concrete Durability

Room 3.270 | 10:45-12:15 | Session Chair: Carles Serrat Piè

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
10:45-11:00	11599	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	Mancio, Mauricio	Unisinos University, Graduate Program in Civil Engineering, Brazil
11:00-11:15	11627	Durability of concrete in nuclear systems: Review of Degradation mechanisms and mitigation strategies	Abdelaziz, Moataz; Bassuoni, M.T.	Abdelaziz, Moataz	University of Manitoba, Canada
11:15-11:30	11618	Towards using piezo-impedance intelligence for carbonation sensing in cementitious materials	Haq, Moinul; Tee, Kong Fah; Al-Osta, Mohammed	Tee, Kong Fah	King Fahd University of Petroleum and Minerals, Saudi Arabia
11:30-11:45	11624	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	Allain, Frédéric	EDF, Direction Technique, TEGG, Aix en Provence, France
11:45-12:00	11425	Enhancing Durability of Concrete Highway Bridges in A Changing Climate Using High Performance Materials	Moghtadernejad, Saviz; Bhadra, Rituraj; Lounis, Zoubir; Zhang, Jieying	Moghtadernejad, Saviz	National Research Council Canada, Canada
12:00-12:15	1424	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	Lounis, Zoubir	National Research Council Canada, Canada

Session 1C — Hygrothermal Performance

Room 3.430 | 10:45-12:15 | Session Chair: Dominique Derome

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
10:45-11:00	11409	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	Park, Ji Hun	Department of Architecture and Architectural Engineering, Yonsei University, Seoul, Republic of Korea
11:00-11:15	11200	Durability of chopped straw and corn stover insulated retrofits under high initial moisture conditions	Conley, Brock; Pope, Hamish; Carver, Mark	Conley, Brock	Natural Resources Canada, Canada
11:15-11:30	11221	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	Endo, Suguru	Hokkaido Research Organization, Japan
11:30-11:45	11495	Impact of SS-NMR-derived Liquid Diffusivity on Hygrothermal Simulation of Building Envelope Materials	Yari, Hossein; Esmizadeh, Elnaz; Riahinezhad, Marzieh; Wang, Lin; Dragomirescu, Elena	Yari, Hossein	University of Ottawa, Canada

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
11:45-12:00	11250	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.	Foster, Morgan	Carleton University, Canada
12:00-12:15	11284	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	Wang, Lin	National Research Council Canada, Canada

Session 1D — Timber Durability

Room 3.435 | **10:45-12:15** | *Session Chair: Ernst Jan de Place Hansen*

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
10:45-11:00	11115	Enhancing Mass Timber Durability: Lessons from the CRAMM Risk Assessment Tool	Johns, Dorothy; Richman, Russell	Johns, Dorothy	Toronto Metropolitan University, Canada
11:00-11:15	11309	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	Stokes, Kathryn	BRANZ, New Zealand
11:15-11:30	11324	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	Tsuchimoto, Takahiro	Building Research Institute, Japan
11:30-11:45	11395	Development of Machine Learning Models for Hygrothermal Performance Prediction of Cross-Laminated Timber Walls	Akhavan Shams, Sina; Ge, Hua; Wang, Lin	Akhavan Shams, Sina	Department of Building, Civil, and Environmental Engineering, Concordia University, Montreal, Canada
11:45-12:00	11431	Evaluating hybrid CLT for hygrothermal comfort and energy efficiency in community centers	Kang, Yujin; Kang, Seong Taek; Park, Ji Hun; Kim, Sumin	Kang, Yujin	Yonsei University, South Korea
12:00-12:15	11429	Feasibility assessment of hinoki CLT for building envelope applications	Kang, Seong Taek; Park, Ji Hun; Kim, Sumin	Kang, Seong Taek	Yonsei University, South Korea

Session 1E — Additive Manufacturing

Room 3.445 | **10:45-12:15** | *Session Chair: Klodian Gradeci*

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
10:45-11:00	11368	Mechanical Performance of 3D Printed Concrete: Comparing Cast and Printed Concrete Materials	Hentschel, Alexander; Woods, Joshua; Fam, Amir	Hentschel, Alexander	Queen's University, Canada
11:00-11:15	11386	Redesigning Conventional Clay Bricks for Sustainability: 3D Printing and Thermal Optimization	Saad, Esraa; Correa, David	Saad, Esraa	University of Waterloo, Canada
11:15-11:30	11398	Durability of 3D-Printed High-Performance Concrete Containing Phosphate-Based Corrosion Inhibitor	Das, Jyotish Kumar; Guadagnini, Maurizio; Nematollahi, Behzad	Das, Jyotish Kumar	The University of Sheffield, United Kingdom

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
11:30-11:45	11430	Properties of Cementless Printable Mortar as a Function of Material Composition Parameters	Lin, Wei-Ting; Ho, Chia-Ying; Cheng, An; Chen, Jie; Hebda, Marek	Lin, Wei-Ting	Department of Civil Engineering, National Ilan University, Yilan, Taiwan
11:45-12:00	11437	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	Reda, Ibrahim	Université de Sherbrooke, Canada

Session 1F — Energy Efficiency & Retrofit + Embodied Carbon & LCA

Room 3.285 | 10:45-12:15 | Session Chair: Fitsum Tariku

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
10:45-11:00	11124	High- and ultrahigh-strength concrete as a sustainable solution for arctic regions?	Cwirzen, Andrzej; Rajczakowska, Magdalena	Cwirzen, Andrzej	Luleå University of Technology, Sweden
11:00-11:15	11554	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	Huang, Baolin	Southeast University, China
11:15-11:30	1316	Holistic performance optimization of dielectric-coated electrostatic precipitators for efficient submicron particle removal	Xu, Jing; Wang, Chenhua; Liu, Junjie	Xu, Jing	Tianjin Key Lab of Indoor Air Environmental Quality Control, School of Environmental Science and Engineering, Tianjin University, Tianjin, China
11:30-11:45	11143	AIRStat: A Learning Thermostat for Energy-efficient Buildings	Ashraf, M. Nauman; Aliabadi, Amir A.	Ashraf, M. Nauman	University of Guelph, Canada
11:45-12:00	11629	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	Salifu, Nasiru	Department of Civil Engineering, University of Manitoba, Canada
12:00-12:15	11230	An Assessment of Building Design Modifications for Wildfire Resilience under a Changing Climate	Henry Lu; Abhishek Gaur; Sandy Erni; Jamie Sandison; Nouredine Benichou	Mehdi Ghobadi	National Research Council Canada – CONST

Slot 2 | 14:45-16:15

Session 2A — Heritage & Masonry

Room 3.210 | 14:45-16:15 | Session Chair: Wahid Maaref

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
14:45-15:00	11449	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	Vitiello, Veronica	University of Naples Federico II, Italy
15:00-15:15	11529	Development and application of a platform for	Yu, Hui; Zhang, Huibo	Yu, Hui	Shanghai Jiao Tong University,

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
		predicting the spatiotemporal distribution of wind-driven rain on building facades			People's Republic of China
15:15-15:30	11411	Enhancing the durability of shipwreck wood for museums: nanoscale insights into PEG consolidation using molecular dynamics	Carmeliet, Jan; Shomali, Ali; Zhang, Che; Derome, Dominique	Carmeliet, Jan	ETH Zurich, Switzerland
15:30-15:45	11451	Hygrothermal properties of historic fired clay bricks: building an international dataset	Vereecken, Evy; Roels, Staf; Xu, Bingyu; Walker, Rosanne; Artigas, David; Van Straaten, Randy; Petreševics, Fanni; Nagy, Balázs; Mizutani, Etsuko; Ogura, Daisuke; Zhao, Jianhua; Kinnane, Oliver; Hofheinz, Anna; Marincioni, Valentina; Briz Bejerano, Lara; Larcher, Marco; Stappers, Marc	Van Straaten, Randy	KU Leuven; KIK-IRPA, Belgium
15:45-16:00	11492	Green Facades in Historic Architecture: A Review of Vegetated Walls for Heritage Conservation	Elkordy, Khadiga	Elkordy, Khadiga	Faculty of Engineering Mataria Helwan University, Egypt

Session 2B — Embodied Carbon & LCA

Room 3.270 | 14:45-16:00 | Session Chair: Costa Kapsis

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
14:45-15:00	11578	Scaling Embodied Carbon Assessment in Residential Construction: From Research Infrastructure to Policy Implementation	Racusin, Jacob; Trottier, Mélanie	Trottier, Mélanie	Builders for Climate Action, Canada
15:00-15:15	11592	Embodied Carbon Reduction Potential of Typical Construction Solutions for Non-Residential Buildings	Bartels, Giovanna; Flores-Colen, Inês; Silvestre, José; Gomes, Ricardo; Fernandes, Joana	Bartels, Giovanna	Instituto Superior Técnico, Universidade de Lisboa, Portugal
15:15-15:30	11594	Multiple-life-cycle environmental impact analysis for mass timber and precast concrete structural systems	Liu, Yulin; Kim, Joyce; Haas, Carl; Olumo, Adama; Hojjati, Aryan	Liu, Yulin	University of Waterloo, Canada
15:30-15:45	11611	Limiting the carbon footprint of buildings in Finland and Europe	Sirola, Tomi; Westermarck, Mikael; Vinha, Juha	Sirola, Tomi	Tampere University, Finland
15:45-16:00	11730	Evaluating Embodied Carbon in High-Performance Building Enclosures	Chiu, Vincent	Chiu, Vincent	Elastochem, Canada

**Session 2C — Concrete Durability and Binders****Room 3.430** | **14:45-16:15** | *Session Chair: Mehdi Ghobadi*

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
14:45-15:00	1414	Evaluation of High-Limestone PLC Concrete for Chloride Resistance: Role of Chloride Binding	Wang, Chengkai; Medeiros, Rennan; Sanchez, Leandro	Wang, Chengkai	University of Ottawa, Canada
15:00-15:15	11156	Sulphate attack on mortars with metakaolin and ladle furnace slag as supplementary cementitious materials	Silva, Tayná; Silva, Rui; de Brito, Jorge; Ferreira, Gisleiva	de Brito, Jorge	Instituto Superior Técnico - Universidade de Lisboa, Portugal
15:15-15:30	11159	Durability-related performance of alkali-activated concrete produced with wastewater from truck mixer washing	Sabino, Afonso; Neves, Renato; de Brito, Jorge; Bravo, Miguel	de Brito, Jorge	Instituto Superior Técnico - Universidade de Lisboa, Portugal
15:30-15:45	11180	Influence of Nano-Additives on the Behavior of Geopolymer Composites in Moist and Aqueous Environments	Korniejenko, Kinga; Figiela, Beata	Korniejenko, Kinga	Cracow University of Technology, Poland
15:45-16:00	11239	Shrinkage Reducing Admixtures for Slag and Calcined Dredged Clay One Part Alkali Activated Materials	Ramadan, Mohamed; Soliman, Ahmed	Ramadan, Mohamed	Concordia University, Canada
16:00-16:15	11240	Superabsorbent Polymers for Shrinkage Mitigation in Slag and Calcined Dredged Clay One Part Alkali Activated Materials	Ramadan, Mohamed; Soliman, Ahmed	Ramadan, Mohamed	Concordia University, Canada

Session 2D — Digitalization & AI**Room 3.435** | **14:45-16:15** | *Session Chair: Mohamed Ouf*

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
14:45-15:00	11232	Building Information Modeling (BIM) for Durability and Service Life Assessment: A Review of Opportunities, Tools, and Future Integration	Osman, Mohamed; Soliman, Ahmed	Osman, Mohamed	Concordia University, Canada
15:00-15:15	11253	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	Ogunbayo, Babatunde Fatai	William V.S. Tubman University, Republic of Liberia SARCHI in Sustainable Construction Management and Leadership in the Built Environment, University of Johannesburg, South Africa
15:15-15:30	11276	Artificial Intelligence for Enhancing Durability and Climate Resilience of Zero Energy and Smart Buildings	Omar, Osama	Omar, Osama	Department of Architecture and Interior Design, College of Engineering, University of Bahrain, Bahrain
15:30-15:45	11377	Application of Machine Learning techniques for evaluating the service life of ETICS	Porcellini, Francesca; Zitiello, Enrico Pasquale; Basile, Eliana; Salzano, Antonio; Nicoletta, Maurizio	Zitiello, Enrico Pasquale	University of Naples Federico II, Italy



Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
15:45-16:00	11428	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	Gill, Kanwarpartap Singh	University of Prince Edward Island, Canada
16:00-16:15	11435	From automated façade anomaly detection to BIM-integrated vulnerability assessment	Marmo, Rossella; Di Matola, Mario; Vitiello, Veronica; Fraiese, Mariacarla; Castelluccio, Roberto	Vitiello, Veronica	Department of Civil, Building and Environmental Engineering, University of Naples Federico II, Italy

Session 2E — Advanced and Sustainable Materials

Room 3.445 | **14:45-16:15** | *Session Chair: Carsten Rode*

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
14:45-15:00	1304	Casting Direction and Thickness Effects in PCM-Modified Hemp–Lime Composites	Zhang, Ziqi; Kavgic, Miroslava; Noël, Martin	Zhang, Ziqi	University of Ottawa, Canada
15:00-15:15	11193	Eco-Revolution: Geosourced and Biosourced Materials for the Architecture of Tomorrow	Kabore, Aguérata; Ouellet-Plamondon, Claudiane	Ouellet-Plamondon, Claudiane	Ecole de Technologie Supérieure (ETS), Canada
15:15-15:30	11290	Durable Hybrid Insulation Systems with Reflective Materials for Metal-Frame Assemblies	Saber, Hamed H.; Yarbrough, David W.	Saber, Hamed H.	Jubail Industrial College, Saudi Arabia
15:30-15:45	11302	Impact of Hurd Origin on Thermal and Mechanical Performance of Fixed-Mix Hemp–Lime Composites: Canada–France–Sweden	Fidan, Serhat; Ajoku, Chinedu; Kavgic, Miroslava	Fidan, Serhat	University of Ottawa, Canada
15:45-16:00	11307	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	Arasteh, Hossein	École de Technologie Supérieure (ÉTS), University of Quebec, Montreal, Canada
16:00-16:15	11326	Impact of Active Vacuum Insulation on Moisture Response of Exterior Building Envelopes	Khatibi, Meysam; Froese, Thomas; Mukhopadhyaya, Phalguni	Mukhopadhyaya, Phalguni	University of Victoria, Canada

Slot 3 | 16:30-18:00

Session 3A — Embodied Carbon & LCA

Room 3.210 | **16:30-18:00** | *Session Chair: Miljana Horvat*

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
16:30-16:45	11150	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	Zhao, Zitong	Beijing University of Technology, China
16:45-17:00	11547	The Adaptive Factory: Parametric LCA for Circular and Low-Carbon Biopolymer Building Products	Tsui, Tanya; Cucurachi, Stefano; Thonemann, Nils; Hu, Mingming	Tsui, Tanya	Institute of Environmental Sciences (CML), Leiden University, Netherlands



Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
17:00-17:15	11563	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	Mahbod, Sarah	Concordia University, Canada
17:15-17:30	11574	Life Cycle Assessment of FA–GGBS Based Geopolymer Concrete Incorporating Recycled Aggregate and Glass Powder	Manzoor, Tawzia; Shah, Asif Hussain; Bhat, Javed Ahmad	Shah, Asif Hussain	Central University of Kashmir, Tulmulla, Ganderbal, India
17:30-17:45	11571	Durability assessment of SCC incorporating fully recycled concrete gravel and up to 30% recycled sand	Safi, Obaidurrahman; Ghorbel, Elhem	Ghorbel, Elhem	CY Cergy Paris University, France
17:45-18:00	11541	Does building-integrated photovoltaics deliver environmental benefits in the 2050 Net-Zero energy scenario? A scenario-based Life Cycle Assessment in Canada	Du, Wenhong; Ge, Hua; Siluvai Antony, Praveen	Du, Wenhong	Department of Building, Civil and Environmental Engineering, Concordia University, Montreal, Canada

Session 3B — Concrete Durability and Binders

Room 3.270 | 16:30-18:00 | Session Chair: Amir Sabziparvar

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
16:30-16:45	11468	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	Medeiros, Rennan	University of Ottawa, Canada
16:45-17:00	11372	Role of Si/Al ratio in synthetic zeolites from fly ash on the hygro-mechanical and durability properties of cement-based materials	Styczeń, Joanna	Styczeń, Joanna	Lublin University of Technology, Poland
17:00-17:15	11407	Assessing the creep evolution of cement pastes under high relative humidity conditions	Martin--Cavaillé, Camille; Giroudon, Marie; Turq, Viviane; Laloo, Raphaël; Lacarrière, Laurie	Martin--Cavaillé, Camille	FERMAT, Université de Toulouse, CNRS, INP, INSA, UPS, France Université de Toulouse, INSA, LMDC, France Université de Toulouse, CNRS, Toulouse INP, CIRIMAT, France
17:15-17:30	11415	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	Dossa, Joëlla	Univ. Artois, IMT Nord Europe, Junia, Univ. Lille, Laboratoire de Génie Civil et géo-Environnement (LGCgE), France French Environment and Energy Management Agency, France
17:30-17:45	11184	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	Bahhou, Abdelmoujib	Département de génie Civil, Université de Sherbrooke, Sherbrooke, Canada
17:45-18:00	11189	Volumetric Instability of Mortars Incorporating Bauxite Residue Under Climate-Relevant Exposure Risks	Olayinka, Rukayat; Jafari, Reza; Fiset, Mathieu; Darveau, Jean-Benoît; Colleen Sylla, Fatou	Olayinka, Rukayat	Université du Québec à Chicoutimi, Canada

**Session 3C — Emerging Technologies for Construction Durability****Room 3.430** | **16:30-18:00** | *Session Chair: Ahmed Soliman*

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
16:30-16:45	11434	Characterization of Load-Induced Voltage Response in CNT-Cement Composites for Durability Monitoring	Fukuyama, Tomoko	Fukuyama, Tomoko	Ritsumeikan University, Japan
16:45-17:00	11732	Interlayer Bond Strength as a Durability-Critical Parameter in Coarse Aggregate-Based 3D Printed Concrete	Ghodke, Swapnil Balasaheb; Singh, Bhupinder; Chowdhury, Shubhankar Roy	Ghodke, Swapnil Balasaheb	Technology Innovation Centre for 3D Printing of Concrete, Department of Civil Engineering, Indian Institute of Technology Roorkee, India
17:00-17:15	11539	Evaluating Carbon Emissions and Operational Energy Savings in a Prefabricated Ultra-Low-Energy Building Using BIM	Aung, Wai Phyo; Hong, Zhang; Tjongnotoputera, Michael Anharlintama; Kyaw, Aung Thiha	Aung, Wai Phyo	The School of Architecture, Southeast University, Nanjing, China
17:15-17:30	11748	Alterations to Existing Commercial Roofs – Protocol Development Through Industry Consultation	Shyti, Flonja	Shyti, Flonja	National Research Council of Canada, Canada
17:30-17:45	11454	Assessment of Test Methods for Freeze–Thaw Durability Performance of Additively Constructed Concrete Material	Lyu, Chen; Hartell, Julie Ann	Hartell, Julie Ann	Texas A&M University, United States of America

Session 3D — Climate Resilience**Room 3.435** | **16:30-18:00** | *Session Chair: Stefanie Coleman*

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
16:30-16:45	11342	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	Illy, Hervé	CSTB (Centre Scientifique et Technique du Bâtiment), France
16:45-17:00	11387	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	Chronopoulou, Angeliki	National Technical University of Athens, Greece
17:00-17:15	11404	Modeling Smoke Plume–Green Firebreak Interactions Using Computational Fluid Dynamics	Gu, Zhonglin; Qi, Dahai; Fellouah, Hachimi; Taha, Ahmed	Gu, Zhonglin	University of Sherbrooke, Canada
17:15-17:30	11443	Impact of Climate Change on Freeze-Thaw Risk	Lee, Ivan; Merino Gordo, Felipe; Tam, Claire	Lee, Ivan	Stantec, Canada
17:30-17:45	11458	Integrating retrofit and reinforcement learning control for climate-resilient building performance	Nik, Vahid	Nik, Vahid	Lund University, Sweden
17:45-18:00	11164	Designing for Climate Resilience: Integrating Vulnerability Assessment into Durable Building Strategies	Conrad, Leanne; Stockfish, Braedyn; Armstrong, Scott	Armstrong, Scott	Entuitive, Canada

**Session 3E — Emerging Technologies for Construction Durability****Room 3.445** | **16:30-18:00** | *Session Chair: Daniel Chung*

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
16:30-16:45	11518	Anisotropic Deformation Mechanisms in 3D-Printed Mortar: Compaction, Delamination, and Splitting	Yawaka, Rintaro; Uematsu, Ren; Kamada, Hiroharu; Fukuyama, Tomoko	Yawaka, Rintaro	Ritsumeikan University, Kusatsu, Shiga 525-8577, Japan
16:45-17:00	11543	Effect of Nozzle Size on Curved Full-Scale 3D Printed Concrete Cracking Behaviour	Abdelhalim, Maya; Soliman, Ahmed	Abdelhalim, Maya	Concordia University, Canada
17:00-17:15	11609	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	Tan, Ming Jen	Nanyang Technological University, Singapore
17:15-17:30	11455	A Probabilistic Framework for Risk Assessment of Alkali-Silica Reaction: Integrating Laboratory and Field Data	Bergmann, Ana; F.M. Sanchez, Leandro	Bergmann, Ana	University of Ottawa, Canada
17:30-17:45	11459	Digital Twin-Enabled Strategies: A Replicable Model for Resilient Urban Transformation	Azzalin, Maria; Lauria, Massimo	Azzalin, Maria	Università Mediterranea di Reggio Calabria, Department dAeD, Italy
17:45-18:00	11496	Improving ISO wind-driven rain model using CFD-ML based reduced-order models	Gholamalipour, Payam; Stathopoulos, Ted; Ge, Hua	Gholamalipour, Payam	Department of Building, Civil, and Environmental Engineering, Concordia University, Canada

Wednesday, July 22, 2026

Slot 4 | 10:45-12:15

Session 4A — Advanced and Sustainable Materials

Room 3.210 | 10:45-12:15 | Session Chair: Christian Brischke

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
10:45-11:00	11350	UV Durability and Mechanical Performance of Epoxy–Glass Fiber Composites for Harsh Maritime Environments	Fazli, Ali; Auty, Ken	Fazli, Ali	CTT Group, Canada
11:00-11:15	11362	Cellulose-Based Foams for Thermal and Acoustic Insulation: Toward Sustainable Decarbonization of the Building Sector	Myja, David; Bley, Julien	Myja, David	Innofibre, Cégep de Trois-Rivières, Canada
11:15-11:30	11612	Recommended Structural Solutions for Bio-Based Building Envelopes	Tuominen, Eero; Tuurala, Ilkka; Westermarck, Mikael; Vinha, Juha	Tuurala, Ilkka	Tampere University, Finland
11:30-11:45	11559	Durability Assessment of Biobased Insulation Materials Based on Recycled Wheat Straw Aggregates	Alshndah, Zeyad; Becquart, Frederic; Belayachi, Naima	Belayachi, Naima	Université d'Orléans, France
11:45-12:00	11570	Mechanical, Physical, and Durability Performance of Bio-Based Mortars with Hemp and Starch	Riffi, Somaya; Ghorbel, Elhem; Schmidt, Franziska; Cuccagna, Filippo	Riffi, Somaya	CY Cergy Paris University, France TRACTEBEL Engineering, France

Session 4B — Embodied Carbon & LCA

Room 3.270 | 10:45-12:15 | Session Chair: Amir Aliabadi

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
10:45-11:00	11440	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	Song, Mathew	University of Waterloo, Canada
11:00-11:15	11453	Economic Trade-offs of Concrete Reuse in Structural Applications	Begeyev, Rustem; Haas, Carl; Kim, Joyce; Hojjati, Aryan	Begeyev, Rustem	University of Waterloo, Canada
11:15-11:30	11464	Guide for the Environmental Life Cycle Assessment (LCA) of housing rehabilitation operations	Schor, Daniela; Silvestre, José; Saade, Marcella	Silvestre, José	IST, Portugal
11:30-11:45	11471	Designing Buildings to Last: Adaptability Criteria for a Circular and Resilient Future	Baienat, Saba; Midoune, Narimene; Bechara, Helal; Iordanova, Ivanka	Midoune, Narimene	École de Technologie Supérieure, Montreal, Canada
11:45-12:00	11474	Bridging BIM and Life Cycle Assessment: A Comparative Evaluation of BIM-Integrated LCA Tools for Early-Stage Durability Assessment	Midoune, Narimene; Iordanova, Ivanka	Midoune, Narimene	École de Technologie Supérieure, Canada

**Session 4C — Service Life & Asset Management + Mortars & Finishes****Room 3.285** | **10:45-12:15** | *Session Chair: John Wells*

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
10:45-11:00	11113	Challenges Associated with the Practice of Prefabricated Roofing Assemblies	Dabas, Maha	Dabas, Maha	National Research Council Canada, Canada
11:00-11:15	1735	Proposed Methodology for Estimating Stucco Service Life and Investigating Effective Factor Values	Sadeghi, Sara; Riahinezhad, Marzieh; Esmizadeh, Elnaz	Sadeghi, Sara	National Research Council Canada, Canada
11:15-11:30	11285	Simulation of Argon-Filled IGU and VIG Performance and Degradation in a Single-Family Home	MacIntyre, Rebecca; Hayes, Alexander; Baldwin, Christopher; Cruickshank, Cynthia A.	MacIntyre, Rebecca	Carleton University, Canada
11:30-11:45	11305	How maintenance shapes the durability, cost, and safety of building envelopes	Dias, Ilídio; S. Bartels, Giovanna; Flores-Colen, Inês; Silva, Ana	Flores-Colen, Inês	Porvalor, Portugal
11:45-12:00	11380	Extreme Value Distributions applied to the Failure of Organic Coatings in Service	Croll, Stuart	Croll, Stuart	North Dakota State University, Fargo, United States of America
12:00-12:15	11120	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	Serrat, Carles	Universitat Politècnica de Catalunya-BarcelonaTECH, Spain

Session 4D — Hygrothermal Performance**Room 3.435** | **10:45-12:15** | *Session Chair: Liam O'Brien*

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
10:45-11:00	11433	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	Bersch, Jéssica	CERIS, Instituto Superior Técnico, Universidade de Lisboa, Portugal
11:00-11:15	11194	Buildings of Tomorrow: Sustainable Solutions for Contrasting Climates	Kabore, Aguérata; Ouellet-Plamondon, Claudiane	Kabore, Aguérata	Ecole de Technologie Supérieure (ETS), Canada
11:15-11:30	11418	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	de Cotret, Daniel	Université de Sherbrooke, Canada
11:30-11:45	11351	Hygrothermal Performance of Timber Exterior Walls in Different Climates of Turkey: Simulations Validated by Field Measurements	Ekşi Kılıçaslan, Ayşegül; Kus, Hülya	Ekşi Kılıçaslan, Ayşegül	Sakarya University, Türkiye
11:45-12:00	11446	Maximum spreading of a droplet impacting on inclined porous substrates: experiments and modeling	Dias, Maude; Carmeliet, Jan; Derome, Dominique	Dias, Maude	Université de Sherbrooke, Canada
12:00-12:15	11109	The effect of micro-cracking on water uptake and absorption of plaster in ETICS	Olak, Henri; Kalamees, Targo; Klõšeiko, Paul; Mustjõgi, Erik	Olak, Henri	Tallinn University of Technology, Estonia

**Session 4E — Solar Envelopes + Hygrothermal Performance****Room 3.445** | **10:45-12:15** | *Session Chair: Targo Kalamees*

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
10:45-11:00	11728	Variability in Nail Withdrawal Resistance of Roof Sheathing and Irreversible Strength Loss after Wet-Dry Cycle	Ishihara, Saori	Ishihara, Saori	Chiba Institute of Technology, Japan
11:00-11:15	11605	Evaluating the Impact of Sealant Materials and Installation Style on the HAM Performance of Prefabricated Wall Panels	Salehi, Parisa; Khaleghi, Hamed; Karatas, Aslihan	Karatas, Aslihan	University of Illinois Chicago, United States of America
11:15-11:30	11320	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	Hassan, Ahmed Nouby Mohamed	Concordia University, Canada
11:30-11:45	11125	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	Hidalgo-Araujo, Ana Carolina	Institute of Architecture and Urbanism, University of São Paulo (USP), Brazil Architectural Science, Toronto Metropolitan University, TMU, Toronto, Canada
11:45-12:00	11625	The Impact of Design and Specification Criteria on the Durability of Building-Integrated Photovoltaic (BIPV) Systems	Sahyoun, Sahar; Zareie, Zahra; Ge, Hua	Sahyoun, Sahar	Concordia University, Canada
12:00-12:15	11103	Forensic Insights into Durability Failures in Building Enclosures	Hasan, Javeriya; Bjornson, Dana	Hasan, Javeriya	30 Forensic Engineering, Canada

Slot 5 | 14:45-16:15**Session 5A — Timber Durability****Room 3.210** | **14:45-16:15** | *Session Chair: Villu Kukku*

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
14:45-15:00	11104	Sensitivity Analysis of Moisture Performance in Wood-Frame Wall Assemblies Using Stochastic Simulation	Xiao, Zhe; Wang, Lin; Defo, Maurice	Xiao, Zhe	National Research Council Canada, Canada
15:00-15:15	11308	Literature Review of the Possibility of Bio-Based Preservatives for Mass Engineered Timber	Li, Peishan; Okuda, Shinya	Li, Peishan	National University of Singapore, Singapore
15:15-15:30	11177	Moisture performance of cross-laminated timber construction details: Lab testing of risk zones and protection methods	Blommaert, Anke; Van Den Bossche, Nathan; Steeman, Marijke	Blommaert, Anke	Ghent University, Belgium
15:30-15:45	11211	Data-Driven Hygrothermal Modelling of CLT: Linking Sensor Deployment and Numerical Predictions for Durability	Vyas, Yash; Richman, Russell	Vyas, Yash	Toronto Metropolitan University, Canada
15:45-16:00	11245	Investigating the Hygrothermal Behaviour of CLT	Kukku, Villu; Kalamees, Targo	Kukku, Villu	Tallinn University of Technology

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
		External Walls with Wood-Fibre-Based ETICS under Cold and Humid Climatic Conditions			(TalTech), Estonia

Session 5B — Emerging Technologies for Construction Durability

Room 3.270 | 14:45-16:15 | Session Chair: Suvash Chandra Paul

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
14:45-15:00	11225	Valorization Of Industrial Mining Tailing in 3D Printed Concrete Buildings: A Path Towards Sustainability	Mehrez-Khalil, Rayene; Ben Azouz, Kaouther; Soliman, Ahmed	Mehrez-Khalil, Rayene	Gina Cody School of Engineering and Computer Science, Concordia University, Montreal, Canada
15:00-15:15	11311	A methodology for optimized ternary mortar formulation for 3D printing coupled with CIPM and LCA	Ouellet-Plamondon, Claudiane; Brial, Victor	Ouellet-Plamondon, Claudiane	École de technologie supérieure - Université du Québec, Canada
15:15-15:30	11312	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	Tsuchiya, Naoko	National Institute for Land and Infrastructure Management, Japan
15:30-15:45	11332	Use of eggshell as supplementary binder in 3D concrete printing	Castillo Sotelo, Silvia; Ouellet-Plamondon, Claudiane; Etxeberria Larrañaga, Miren; A. Hof, Lucas	Castillo Sotelo, Silvia	École de technologie supérieure, Montreal, Quebec, Canada Universitat Politècnica de Catalunya,(UPC-Barcelona Tech) Barcelona, Spain
15:45-16:00	11359	Behaviour of multi-layer 3D printed reinforced concrete components under contact detonation stress	Zohrabyan, Vahan	Zohrabyan, Vahan	University of the Bundeswehr Munich, Germany

Session 5C — Steel & Concrete Durability

Room 3.430 | 14:45-16:15 | Session Chair: Jorge de Brito

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
14:45-15:00	11187	Impact of Asr-Reactive Fillers on Asr-Induced Expansion	Coutinho, Yane; Medeiros, Rennan; Sanchez, Leandro; Carneiro, Arnaldo	Coutinho, Yane	University of Ottawa, Canada
15:00-15:15	11292	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	Liao, Chu-Tsen	National Taiwan University of Science and Technology, Taiwan
15:15-15:30	11203	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	Liao, Wen-I	National Taipei University of Technology, Taiwan
15:30-15:45	11238	Environmental Corrosivity of Coastal Atmospheres: Is Chatham Island Different from Mainland New Zealand?	Li, Zhengwei; de Raadt, Anna; Stewart, Carol; Johnston, David	Li, Zhengwei	BRANZ, New Zealand

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
15:45-16:00	11753	Optimizing RCA Concrete for Cold-Climate Infrastructure through Durability-Based Sustainability Assessment	Mello Muller de Oliveira, Yuri; Medeiros, Rennan; Sanchez, Leandro; Dumeignil, Sacha	Mello Muller de Oliveira, Yuri	University of Ottawa, Canada

Session 5D — Energy Efficiency & Retrofit

Room 3.435 | **14:45-16:15** | *Session Chair: Anabela Bonada*

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
14:45-15:00	11393	Dynamic Wall Prototype for Overheating Prevention: Laboratory Evaluation of the Thermal Performance	Barreira, Eva; M.S.F. Almeida, Ricardo; Ribas, Manuel	Barreira, Eva	University of Porto - Faculty of Engineering - CONSTRUCT, Portugal
15:00-15:15	11381	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	Shang, Yina	British Columbia Institute of Technology, Canada
15:15-15:30	11417	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	Ziaeemehr, Bahador	Concordia University, Canada
15:30-15:45	11500	Building Energy Performance Classification Systems in Lithuania and Malta – a Comparative Analysis	Buhagiar, Vincent; Norvaišienė, Rosita	Buhagiar, Vincent	University of Malta, Malta
15:45-16:00	11523	Cool materials across North America - An overview of technology, applications and standards	Ziaeemehr, Bahador; Schneider, Sarah; Ge, Hua; Lacasse, Michael	Schneider, Sarah	Cool Roof Rating Council, United States of America

Session 5E — Solar Envelopes

Room 3.445 | **14:45-15:45** | *Session Chair: Caroline Hachem-Vermette*

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
14:45-15:00	11270	Evaluating the long-term performance of 3D glass BIPV components	Castro Morales, Kevin Aarón; Sanz Saiz, Carlos; Corrao, Rossella	Castro Morales, Kevin Aarón	Department of Architecture, University of Palermo, Italy
15:00-15:15	11110	Feasibility of Photovoltaic integration as a building material: Green building certification lens	Dehadani, Ashu; Matai, Khushal	Dehadani, Ashu	Green Business Certification Inc., India
15:15-15:30	11154	Solar photovoltaics integrated in the building envelope: Durability assessment from the construction perspective	Santamaria Fernandez, Susana; Etxepare, Lauren; Roman, Eduardo	Santamaria Fernandez, Susana	Fundacion Tecnalia Research & Innovation, Spain University of the Basque Country, Spain
15:30-15:45	11265	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	Baril, Daniel	Concordia University, Canada

Session 5F — Hygrothermal Performance

Room 3.285 | **14:45-16:00** | *Session Chair: Lin Wang*



Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
14:45-15:00	11310	Hygrothermal risk factors in the performance of vented attic structures in the New Zealand context	McNeil, Stephen; Stokes, Kathryn	McNeil, Stephen	BRANZ, New Zealand
15:00-15:15	11522	Coupling of transient simulation tools to extend their capabilities	Fechner, Heiko	Fechner, Heiko	Bauklimatik Dresden Software GmbH, Germany
15:15-15:30	11390	Infrared thermography for defects detection – Systematic quantitative evaluation under variable conditions	Almeida, Ricardo; Barreira, Eva	Almeida, Ricardo	Polytechnic Institute of Viseu, Portugal Faculty of Engineering - University of Porto, Portugal
15:30-15:45	11550	Vernacular Architecture Reinvented for Climate Change and Environmental Resilience	Pace, Alexei; Buhagiar, Vincent	Pace, Alexei	University of Malta, Malta
15:45-16:00	11108	An Experimental Setup for Monitoring Wood Durability and Moisture Dynamics: Preliminary Results	Niklewski, Jonas	Niklewski, Jonas	Lund University, Sweden

Slot 6 | 16:30-18:00

Session 6A — Service Life & Asset Management

Room 3.210 | 16:30-18:00 | Session Chair: Herve Illy

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
16:30-16:45	1597	Loss of Performance of Hydraulic Lime Mortars under the Action of Thermal Cycling Fatigue	Mendes, Maria Paula; Romero-Gómez, María Isabel; Flores-Colen, Inês	Mendes, Maria Paula	CERENA, Centro de Recursos Naturais e Ambiente, Instituto Superior Técnico, Universidade de Lisboa, Portugal
16:45-17:00	11142	Management of refurbishment projects throughout the building service life cycle	Korentz, Jacek; Nowogórska, Beata; Kurowska, Aleksandra	Korentz, Jacek	University of Zielona Góra, Institute of Civil Engineering, Poland
17:00-17:15	11195	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	Alfredsen, Gry	Norwegian Institute of Bioeconomy Research, Norway
17:15-17:30	11179	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; Kuk, Villu; Landaas, Magnus O; Marais, Brendan N; Modaresi, Roja; Niklewski, Jonas; Grüll, Gerhard; Gustavsen, Geir W; Sandak, Anna; Sandak, Jakub; van Niekerk, Philip B	Brischke, Christian	Thünen Institute of Wood Research, Germany
17:30-17:45	11513	Prediction of residual service life - LCC implications of UK handback of buildings procured under PFI /PPP.	Bourke, Kathryn; Addyman, Simon; Broyd, Tim	Bourke, Kathryn	Whole Life Ltd, United Kingdom
17:45-18:00	11514	Influence of different ageing parameters on the resistance to penetration of water of underlays for discontinuous roofing	Boberach, Christina; Tremel, Sebastian	Boberach, Christina	Forschungsinstitut für Wärmeschutz e.V. München, Germany

Session 6B — Policy & Decision Frameworks

Room 3.270 | 16:30-18:00 | Session Chair: Lin Wang

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
16:30-16:45	1598	BIPV Market Potential Review: Drivers, Barriers, and Methods	Du, Wenhong; Al-Shatnawi, Zahra; Zannah, Riazul; Baril, Daniel; Hachem-Vermette, Caroline; Ge, Hua; Gaucher-Loksts, Erin; Delisle, Véronique	Du, Wenhong	Department of Building, Civil and Environmental Engineering, Concordia University, Montreal, Canada
16:45-17:00	11112	Hybrid-Agile Design of Experiments (HADOE): Lessons from Four Years of Application in Durability Testing	Gradeci, Klodian; Sletnes, Malin; Ruther, Petra	Gradeci, Klodian	SINTEF, Norway
17:00-17:15	11519	Barriers in the Building Regulations for Renovation of Buildings	de Place Hansen, Ernst Jan; Rohde, Lasse; Hansen, Helene; Ørsager, Morten	de Place Hansen, Ernst Jan	Aalborg University, Denmark
17:15-17:30	11153	Service Life Assessment of Buildings – a New Framework Model	de Place Hansen, Ernst Jan; Rode, Carsten; Haugbølle, Kim; Ottosen, Lisbeth M.; Jensen, Nikolaj Feldt; Karlshøj, Jan; Scheutz, Peter	de Place Hansen, Ernst Jan	Aalborg University, Denmark
17:30-17:45	11394	Toward High-performance and Durable Homes: Insights from Tiered Energy Code Modelling in Cold Regions	Kaluthantirige, Piyanuwana; Rico, Maeric; Jarri, Syed; Bello, Hussein; Pockar, Jusin; Timmins, Eric	Rico, Maeric	Southern Alberta Institute of Technology, Canada
17:45-18:00	11383	Sustainability Best Practices in the Construction Industry: Current Trends and Implications	Tambwe, Ornella; Aigbavboa, Clinton; Akanyawie, Gloria	Tambwe, Ornella	University of Johannesburg, South Africa

**Session 6C — Concrete Durability****Room 3.430** | **16:30-18:00** | *Session Chair: Juan Lizarazo-Marriaga*

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
16:30-16:45	11448	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	Joshi, Sarthak	Laboratoire Matériaux et Durabilité des Constructions (LMDC), INSA-UT, Toulouse, France
16:45-17:00	11450	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	Rigaud, Tom	Laboratoire Matériaux et Durabilité des Constructions (LMDC), Université de Toulouse, INSA-UPS, France
17:00-17:15	11499	Freeze-thaw-resistance of concrete - Approach for a new sensitivity testing concept	Spörel, Frank	Spörel, Frank	Federal Waterways Engineering and Research Institute, Germany
17:15-17:30	11512	Investigating the Impermeability of Various Products and Protocols of Crystalline Waterproofing Technology	Al-Jabari, Maher; Al-Rashed, Radi	Al-Jabari, Maher	International Chem-Crete Co., United States of America
17:30-17:45	11515	Relationship Between Concrete Paste Volume and Con-crete Transport Properties – A Review	González-Betancur, Daniela; Quattrone, Marco; M. John, Vanderley	González-Betancur, Daniela	Universidade de São Paulo, Brazil
17:45-18:00	11572	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	Xie, Huarong	School of Architecture, Southeast University, Nanjing, China

Session 6D — Energy Efficiency & Retrofit**Room 3.435** | **16:30-18:00** | *Session Chair: Phalguni Mukhopadhyaya*

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
16:30-16:45	11530	A Two-Way Coupled Prognostic HVAC Model for Urban Physics Simulations	Safdari, Mojtaba; Ashraf, M. Nauman; Al Janaideh, Mohammad; Siddiqui, Kamran; Aliabadi, Amir A.	Safdari, Mojtaba	University of Guelph, Canada
16:45-17:00	11542	Predicting HVAC Energy Use Intensity in U.S. Healthcare Facilities Using Machine Learning Models and CBECS 2018 Microdata	Pipim, Charles; Derrible, Sybil; Karatas, Aslihan	Pipim, Charles	Department of Civil, Materials and Environmental Engineering, University of Illinois Chicago, United States of America
17:00-17:15	11544	Optimization-Based Screening of HVAC System Selection for Energy-Efficient and Environmentally Responsible Design	Aeinfar, Sanam; Tutunchian, Omid	Aeinfar, Sanam	Istanbul Gelisim University, Turkey
17:15-17:30	11746	Hydro-Mechanical Performance of Thermally Treated Expansive Clay for Construction Applications	Alsabhan, Abdullah; Hamid, Wagdi; Al-Mahbashi, Ahmed M.; Salem Binyahya, Abobaker	Alsabhan, Abdullah	King Saud University, Saudi Arabia
17:30-17:45	11729	Effects of Building Energy Efficiency under Future Climates on Space Heating and Cooling Demand and Outdoor Environments	Shehzad, Muhammad Faisal; Fung, Alan; Stopps, Helen	Shehzad, Muhammad Faisal	Toronto Metropolitan University, Canada

**Session 6E — Climate Resilience + Monitoring & Diagnostics****Room 3.445** | **16:30-18:00** | *Session Chair: Anabela Bonada*

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
16:30-16:45	11553	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; Tittlein, Pierre; Defer, Didier; Antczak, Emmanuel	Assaf, Marwan	Univ. Artois, IMT Nord Europe, Junia, Univ. Lille, Laboratoire de Génie Civil et géo-Environnement (LGCgE), France
16:45-17:00	11621	Future Weather Data for Hygrothermal Building Envelope Simulations: Implications of Bias Adjustment	Shang, Yina; Tariku, Fitsum	Shang, Yina	British Columbia Institute of Technology, Canada
17:00-17:15	11622	Flat Roof Ventilation: Airflow Field Measurement	Abebe, Zelalem; Tariku, Fitsum; Mukhopadhyaya, Phalguni	Abebe, Zelalem	British Columbia Institute of Technology, Canada
17:15-17:30	11501	Regulatory, Technological, and Human Resource Development for Drone-Based Building Façade Inspections in Japan	Miyauchi, Hiroyuki	Miyauchi, Hiroyuki	Building Research Institute, Japan
17:30-17:45	11751	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	Lupis, Katia	Politecnico di Bari, Italy
17:45-18:00	11610	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	Porcari, Sara	University of Basilicata - Department DIUSS (Italy) - Matera, Italy

Thursday, July 23, 2026

Slot 7 | 10:45-12:15

Session 7A — Heritage & Masonry

Room 3.210 | **10:45-12:15** | *Session Chair: Nathan Van Den Bossche*

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
10:45-11:00	11548	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, Xuezh; Li, Jiaming	Zhang, Huihui	The Palace Museum, Beijing, China
11:00-11:15	11549	Energy renovation of historical buildings: Optimizing strategies for Haussmannian architecture	Cheniti, Billel; Ouldboukhite, Salah-Eddine; Bakkour, Amer; Pennec, Fabienne	Ouldboukhite, Salah-Eddine	IUT Clermont Auvergne / Institut Pascal, France
11:15-11:30	11579	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	Li, Shuyi	School of Architecture, Southeast University, Nanjing, China
11:30-11:45	11422	Enhancing the Durability of Heritage Façades: An Analysis of Intervention Techniques and Materials	Aledavood, Anitasadat; Monjo Carrió, Juan	Aledavood, Anitasadat	Universidad Politécnica de Madrid, Spain
11:45-12:00	11742	Hygrothermal Examination of a Proposed Interior Insulation Retrofit of a Historic Masonry Building	J. Sperl, Brennan; A. Wells, John; Moore, Travis; A. Lacasse, Michael	J. Sperl, Brennan	Crosier Kilgour, Winnipeg, Canada

Session 7B — Mortars & Finishes

Room 3.270 | **10:45-11:30** | *Session Chair: Eva Barreira*

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
10:45-11:00	11734	Flexural behavior of 3D printed concrete reinforced with sprayed SHCC overlays	Zhou, Min; Guadagnini, Maurizio; Nematollahi, Behzad	Nematollahi, Behzad	School of Mechanical, Aerospace and Civil Engineering, University of Sheffield, United Kingdom
11:00-11:15	11406	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	Damasceno, Madalena	Instituto Superior Técnico, Universidade de Lisboa, Portugal
11:15-11:30	11583	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	Parracha, João Luís	Buildings Department, National Laboratory for Civil Engineering (LNEC), Lisbon, Portugal

Session 7C — Concrete Durability

Room 3.430 | **10:45-12:15** | *Session Chair: Christian Paglia*



Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
10:45-11:00	11294	Durability Assessment of Reinforced Concrete Bridge Components under Natural Environmental Exposure	Khan, Asad-Ur-Rehman; Mahmood, Wajeeha; Kahlid, Fatima; Fareed, Shamsoon	Khan, Asad-Ur-Rehman	NED University of Engineering & Technology, Pakistan
11:00-11:15	11329	The Influence of Potential Alkali Release from Aggregates on Alkali-Silica Reaction	Xia, Zichun; Medeiros, Renann; Sanchez, Leandro; Leemann, Andreas	Xia, Zichun	University of Ottawa, Ottawa, Canada
11:15-11:30	11335	Durability Indicators for Sustainable Concrete: Challenges and Research Needs	M Sanchez, Leandro F.	M Sanchez, Leandro F.	University of Ottawa, Canada
11:30-11:45	11347	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	Lizarazo-Marriaga, Juan	Universidad Nacional de Colombia, Colombia
11:45-12:00	11348	Durability and Heavy-Metal Leaching of Low-Clinker High-Performance Concrete (HPC) Incorporating Copper-Molybdenum Tailings	Kanaan, Dima; Alam, M. Shahria; Clyde, Erin	Kanaan, Dima	School of Engineering, The University of British Columbia, Canada
12:00-12:15	11346	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	Lizarazo-Marriaga, Juan	Universidad Nacional de Colombia, Colombia

Session 7D — Low-Carbon Binders

Room 3.435 | **10:45-12:15** | *Session Chair: Patrick Dangla*

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
10:45-11:00	11247	Enhancing the Shrinkage Performance of Limestone Calcined Clay Cement (LC3) with Shrinkage-Reducing Admixtures	Abdelhalim, Radwa; Soliman, Ahmed	Abdelhalim, Radwa	Concordia University, Canada
11:00-11:15	11249	A Review on the Durability Characteristics of Limestone Calcined Clay Cement	Abdelazim, Omar; Soliman, Ahmed	Abdelazim, Omar	Department of Building, Civil and Environmental Engineering, Concordia University, Montreal, Canada Ain Shams University, Cairo, Egypt
11:15-11:30	11341	Long-term study of the natural carbonation of concretes containing supplementary cementitious materials: behavioural and predictive models	Cascudo, Oswaldo; Melo, Sandra; Carasek, Helena	Cascudo, Oswaldo	Universidade Federal de Goiás - UFG (Federal University of Goiás), Brazil
11:30-11:45	11427	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	Kage, Tadatsugu	Building Research Institute, Japan Tokyo Polytechnic University, Japan
11:45-12:00	11216	Advanced application of limestone calcined clay cement (LC3) in 3D concrete printing	Zhang, Runxiao; Fares, Galal	Zhang, Runxiao	National Research Council Canada, Canada
12:00-12:15	11343	Performance Assessment of Concrete Mixtures Incorporating Reclaimed Fly Ash	Ahmed, Almotaseembillah; Ghasemalizadeh, Saeid; Khoshnazar, Rahil; Nassar, Nashaat N	Ahmed, Almotaseembillah	Department of Civil Engineering, University of Calgary, Canada

**Session 7E — Climate Resilience****Room 3.445** | **10:45-12:15** | *Session Chair: Dan Sandink*

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
10:45-11:00	1473	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	Derome, Dominique	Université de Sherbrooke, Canada
11:00-11:15	11111	Implementation of Climate Resilience Options – Canadian Insurance and Home Building Industries	Sandink, Dan; Lohmann, Frank; Winkelmann, Sonja; Mosqueda, Tamara; Cass, Brett; El-Zaylaa, Bilal	Lohmann, Frank	Canadian Home Builders' Association, Canada
11:15-11:30	11172	Quantifying Climate Change Impacts on Hygrothermal Degradation: Evaluating the Reliability of Climate-Based Indices	Chen, Xiaolin; Termonia, Piet; Hamdi, Rafiq; Van Den Bossche, Nathan	Chen, Xiaolin	Ghent University, Belgium
11:30-11:45	11191	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	Anugwo, Iruka Chijindu	Durban University of Technology (DUT), South Africa, South Africa
11:45-12:00	11289	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	Huang, Jou-Man	Department of Landscape Architecture, National Chiayi University, Taiwan
12:00-12:15	11333	Challenges and approaches for the durability assessment of building materials in the context of climate change	Illy, Hervé; Farkh, Salem; Colin, Xavier	Colin, Xavier	Arts et Métiers Sciences et Technologies, Laboratoire PIMM (Processes and Engineering in Mechanics and Materials), France

Slot 8 | 13:30-15:00**Session 8A — Mortars & Finishes****Room 3.210** | **13:30-15:00** | *Session Chair: Joanna Styczen*

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
13:30-13:45	11106	Advancing Sustainability in Silicone Sealants: Industry Innovations for Durability, Recycling, and Environmental Responsibility	Wolf, Andreas	Lopez-Carreón, Itzel	National Research Council Canada, Canada
13:45-14:00	11116	Comparison of Electrical Performance of Mortars Containing New and Recycled Carbon Fibers	Kunz, Annika; Orłowsky, Jeanette	Kunz, Annika	TU Dortmund University, Germany
14:00-14:15	11152	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	Fukuda, Shintaro	Institute of Science Tokyo, Japan
14:15-14:30	11155	Evaluation of Durability and Protective Performance of Coatings for Exterior Wood Cladding	Koga, Junko; Sakata, Kaito; Yano, Suzuha	Koga, Junko	Shibaura Institute of Technology, Japan
14:30-14:45	11252	Long-Term Performance of Carbon Nanofiber-Enhanced Cement Mortars Incorporating Reclaimed Fly Ash	Teymouri, Ali; Guzmán, Héctor J.; Khoshnazar, Rahil	Teymouri, Ali	Department of Civil Engineering, Schulich School of Engineering, University of Calgary, Canada

Session 8B — Monitoring & Diagnostics + Infrastructure & Civil Assets

Room 3.270 | 13:30-15:00 | Session Chair: Heiko Fechner

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
13:30-13:45	11190	Assessment of Layer Thickness and Compressive Strength of Existing Precast Concrete Sandwich Panels	Paalandi, Kristo; Talvik, Ivar; Tuisk, Tanel; Kalamees, Targo	Paalandi, Kristo	Tallinn University of Technology, Estonia
13:45-14:00	11257	Ultrasonic Wave Propagation for Assessing Freeze-Thaw Damage in Partially Saturated Plasters	Vilba, Kristina; Klõšeiko, Paul; Olak, Henri; Ratassepp, Madis; Kalamees, Targo	Olak, Henri	Department of Civil Engineering and Architecture, Tallinn University of Technology, Estonia
14:00-14:15	11272	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	Treml, Sebastian	Forschungsinstitut für Wärmeschutz e. V. München, Germany
14:15-14:30	11379	Using an Unknown Material When Known is Unavailable: Evaluating Long-term Performance of MgO Board	Roth, Melissa; Brandt, Malia; Norwine, Emily; Snortum-Haney, Torii	Roth, Melissa	Simpson Gumpertz & Heger, United States of America
14:30-14:45	11101	The Stress Corrosion Cracking Susceptibility of Stainless Steel Bridge Bearings	Paglia, Christian	Paglia, Christian	Supsi Institute of materials and construction, Switzerland
14:45-15:00	11251	Long-Term Durability of Asphalt Shingle Roof Covers: Laboratory Degradation Characteristics	Abdelwahab, Karim; Brown-Giammanco, Tanya; Sung, Lipiin	Sung, Lipiin	Materials and Structural Systems Division, Infrastructure Materials Group, National Institute of Standards and Technology, United States of America

**Session 8C — Concrete Durability****Room 3.430** | **13:30-15:00** | *Session Chair: Christer Sjöström*

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
13:30-13:45	1283	Assessing Pyrrhotite in Concrete for Mitigation Strategies of Damaged Construction	Watson, Stephanie; Carey, Ashley; Dehwah, Osamah; Dixon, Patrick; Martys, Nicos; Mengason, Michael; Stutzman, Paul	Watson, Stephanie	National Institute of Standards and Technology, United States of America
13:45-14:00	1589	An Investigation of Longitudinal Shear Transfer in Composite Steel Truss in Concrete Beams Using Push-off Tests	Kumar, Shyamal; Singh, Bhupinder	Singh, Bhupinder	Indian Institute of Technology Roorkee, India
14:00-14:15	11127	Concrete Gas Permeability: Implications for Hydrogen Storage Applications	Abreu Araujo, Luana; Rebolledo Ramos, Nuria; Torres Martín, Julio Emilio; Chinchón-Payá, Servando; Sánchez Montero, Javier	Abreu Araujo, Luana	Eduardo Torroja Institute for Construction Sciences - Spanish National Research Council (CSIC), Spain
14:15-14:30	11133	Exploring mechanochemically activated local rocks as cementitious binder- its mechanical strength and durability	Habermehl-Cwirzen, Karin	Habermehl-Cwirzen, Karin	University of the Faroe Islands, Faroe Islands
14:30-14:45	11165	Review on the Durability Performance of Concrete made of Biochar: Mechanisms and Evidence Gaps	Coutinho, Yane; Tawadros, Verina; Sanchez, Leandro	Coutinho, Yane	University of Ottawa, Canada
14:45-15:00	11167	A Proposed Self-Healing Method for Concrete Cracks Using Scallop Shell Biowaste and CO₂ Nanobubbles	Kurohman, Novik; Choi, Heesup; Inoue, Masumi	Kurohman, Novik	Kitami Institute of Technology, Japan

Session 8D — Hygrothermal Performance**Room 3.435** | **13:30-15:00** | *Session Chair: Kathryn Stokes*

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
13:30-13:45	2538	Impacts of the air opening size and air leakage path on the hygrothermal performance of wood-frame walls	Junginger, Max; Ge, Hua	Junginger, Max	Concordia University, Canada
13:45-14:00	11463	Evaluating Condensation Risk and Durability in Window-Wall Spandrel Backup Assemblies Through Hygrothermal Analysis	Kahsay, Meseret; Ramachandran, Sathya; Pushman, Paul	Kahsay, Meseret	EXP Services Inc., Canada
14:00-14:15	11117	Consequences of Moisture Gradients in Glulam Joints – wetting and drying	Møller, Eva Birgit; Flensburg, Emilie; Madsen, Ida Hauge; Larsen, Finn	Møller, Eva Birgit	Technical University of Denmark, Denmark
14:15-14:30	11144	Moisture damage of the swimming pool's lightweight structures	Kalamees, Targo; Ildurm, Maari; Tark, Teet; Liivrand, Herki	Kalamees, Targo	Tallinn University of Technology, Estonia
14:30-14:45	11175	Demonstration of moisture increase on upper part of the wall assemblies with drainage cavity	Saito, Hiroaki; Miyamura, Masashi; Matsuoka, Daisuke; Osamura, Sadaharu; Mishima, Naoki	Saito, Hiroaki	Ashikaga University, Japan
14:45-15:00	11470	Blindside Waterproofing Systems in Bathtub Application under Hydrostatic Condition: Lessons from Field, Mock-Ups, and Laboratory Testing	Ramachandran, Sathya; Dell'Aquila, Domenic; Pushman, Paul	Dell'Aquila, Domenic	EXP Services Inc., Canada

Session 8E — Embodied Carbon & LCA

Room 3.445 | 13:30-15:00 | Session Chair: Miroslava Kavgic

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
13:30-13:45	1119	On decarbonisation, reduction of greenhouse gas emissions and other environmental impacts Role and obligation of the building and construction sector	Sjöström, Christer	Sjöström, Christer	Prof Ch Sjöström Consultancy AB, Sweden
13:45-14:00	11478	Architectural Glass Recycling as a Climate-Responsive Durability Strategy	Yee, Stanley	Yee, Stanley	Infinite Recycled Technologies, LLC, United States of America
14:00-14:15	11122	Long-Term Weathering Performance of Architectural Panels: Painted vs Vitreous Enameled Panels in a Circular Economy Context	Rossi, Stefano; Benedetti, Luca; Lusenti, Cesare	Rossi, Stefano	University of Trento, Italy
14:15-14:30	11185	Comparative Analysis of Environmental Product Declaration for Roofing Membranes in North America	Chen, Sitong; Aggarwal, Chetan; Ge, Hua; Siluvai Antony, Praveen; Molleti, Sudhakar	Asifa Ainapure	Concordia University, Canada
14:30-14:45	11173	Comparative Life-Cycle Assessment of an Institutional Glulam Building with an Equivalent Reinforced Concrete	Jamtsho, Tenzin; Braescu, Liliana	Jamtsho, Tenzin	Dungkar Estate, His Majesty's Secretariat, Bhutan

Slot 9 | 15:30-17:00

Session 9A — Energy Efficiency & Retrofit

Room 3.210 | 15:30-17:00 | Session Chair: Caroline St-onge

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
15:30-15:45	11157	Perspectives on Policy, Economic, and Environmental Aspects of Building Retrofits in Canada	Madadzadeh, Ali; Siddiqui, Kamran; Aliabadi, Amir A.	Madadzadeh, Ali	University of Guelph, Canada
15:45-16:00	11181	Evaluating Real-World Durability and Thermal Performance of Exterior Retrofit Systems in a Mixed-Humid Climate	Palani, Hevar; Iffa, Emishaw; Desjarlais, André	Iffa, Emishaw	Oak Ridge National Laboratory, United States of America
16:00-16:15	11213	Energy Retrofitting of Existing Low-Rise Residential Buildings: A Systematic Review	Hesarbani, Atefeh; Jalaei, Farzad; Hosseini Gourabpasi, Arash; Ge, Hua; Nik-Bakht, Mazdak	Hesarbani, Atefeh	Concordia University, Canada
16:15-16:30	11235	Ventilation options for climate-resilient retrofits in historic wooden apartment buildings: energy use, cost-effectiveness, and carbon impacts	Arumägi, Endrik; Hallik, Jaanus; Kalamees, Targo	Arumägi, Endrik	TalTech, Estonia
16:30-16:45	11243	Building Energy Performance of Cool Coatings for Urban Heat Island Mitigation in Canadian Climate	Lefebvre, David; Cruickshank, Cynthia A; Jandaghian, Zahra	Lefebvre, David	Carleton University, Canada
16:45-17:00	11385	Evolution of the solar reflectance and thermal	McGarrell, Audrey; Destailats, Hugo; Levinson, Ronnen;	McGarrell, Audrey	Cool Roof Rating Council, United



Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
		emittance of naturally exposed roofing products	Chen, Sharon		States of America

Session 9B — Timber Durability

Room 3.270 | 15:30-17:00 | Session Chair: Lin Wang

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
15:30-15:45	11399	Hygrothermal Analysis of CLT Wall Assemblies with Vapor Retarder Design: A Case Study of Korea's Mixed Climate	Lee, So-min; Lee, Jeong-hun	Lee, So-min	Department of Bio-based Materials, Chungnam National University, Korea
15:45-16:00	11551	UV-Induced Discoloration in Small-Scale Glulam Specimens: Species Effects for Mass Timber Applications	Kurzinski, Shaghayegh; Maines, Emily	Kurzinski, Shaghayegh	Roger Williams University, United States of America
16:00-16:15	11585	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	O'Brien, Liam	University of Maine, United States of America
16:15-16:30	11590	Moisture-, Impact-, and Termite-Resistant Micro-Charring Layer for Tropical Fast-Growing Timber Species	Okuda, Shinya; Kua, Harn Wei	Okuda, Shinya	Department of Architecture, National University of Singapore, Singapore
16:30-16:45	11607	Incorporating wooden components in non-ventilated flat and pitched roofs and their deterioration	Juras, Peter; Jurasova, Daniela	Juras, Peter	University of Zilina, Slovak Republic
16:45-17:00	11279	Timber durability and moisture monitoring: Comparison of established moisture measurement techniques	Lima, Daniel F.; Duarte, Sónia; Schweigler, Michael; Dorn, Michael; Branco, Jorge	Lima, Daniel F.	University of Minho, ISISE, ARISE, Department of Civil Engineering, Portugal

Session 9C — Heritage & Masonry

Room 3.430 | 15:30-17:00 | Session Chair: Michael Lacasse

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
15:30-15:45	1273	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	Vanderschelden, Bruno	Ghent University, Belgium University of Antwerp, Belgium
15:45-16:00	11137	Forgotten but effective: frost dilatometry in brick freeze-thaw analysis	Wroe, John; Malomo, Daniele	Wroe, John	McGill University, Canada
16:00-16:15	11176	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	Ripamonti, Davide	Università degli Studi di Milano, Italy
16:15-16:30	11266	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	Ripamonti, Davide	Department of Physics "A. Pontremoli", Università degli Studi di Milano, Italy

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
16:30-16:45	11340	Historic Façades as Overlooked Reservoirs of Urban Lead: Evidence from Antwerp, Belgium	Deboli, Sofia; De Kock, Tim	Deboli, Sofia	University of Antwerp, Belgium

Session 9D — Embodied Carbon & LCA

Room 3.435 | **15:30-17:00** | *Session Chair: Xiaohong Gu*

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
15:30-15:45	11261	Climate change-induced reductions in frost depth: impacts on building design in frost-susceptible soils	Lomp, Siim; Männik, Aarne; Hallik, Jaanus; Kalamees, Targo	Lomp, Siim	Tallinn University of Technology, Estonia
15:45-16:00	11405	Life Cycle Assessment of Window Retrofit Strategies for Reducing Greenhouse Gas Emissions in Old Buildings	Jeon, Jin-u; Heo, Eun-jeong; Lee, Jeong-hun	Jeon, Jin-u	Chungnam National University, South Korea
16:00-16:15	11361	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.	Dokyi, George Okyere	Auckland University of Technology, New Zealand
16:15-16:30	11376	Emerging Technologies for Sustainable Waste Management of Silicone Elastomers	Wolf, Andreas	Lopez-Carreón, Itzel	National Research Council Canada, Canada
16:30-16:45	11403	Durability assessment of mussel shell-based mortars for applications in construction	Calà, Adriana; Saeli, Manfredi	Saeli, Manfredi	University of Palermo, Italy

Session 9E — Hygrothermal Performance

Room 3.445 | **15:30-17:00** | *Session Chair: Jan Carmeliet*

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
15:30-15:45	11465	Hygrothermal Performance of Internally Insulated Walls Under Future Climate Scenarios	Jensen, Nickolaj Feldt; Peuhkuri, Ruut H.; de Place Hansen, Ernst Jan; Møller, Eva B.	Jensen, Nickolaj Feldt	Department of the Built Environment, Aalborg University, Denmark
15:45-16:00	11237	Experimental Comparison of the Hygrothermal Performance of Magnesium Oxide Panels with Stucco Cladding	Scharf, Nicholas; Hilbrecht, Robin; Baldwin, Christopher; Cruickshank, Cynthia A.; Grin, Aaron	Scharf, Nicholas	Department of Mechanical and Aerospace Engineering, Carleton University, Canada
16:00-16:15	11535	The Link Between Indoor Air Quality and Material Durability in Energy-Efficient Buildings: A Review	Mwangi, Antony; Laszlo, Czetany	Mwangi, Antony	Budapest University of Technology and Economics, Hungary
16:15-16:30	11540	Hygrothermal performance of exterior walls in Canada: a field survey	Bastien, Diane; Winther-Gaasvig, Martin; Ge, Hua; Aggarwal, Chetan; Vanhoutteghem, Lies	Bastien, Diane	University of Southern Denmark, Denmark
16:30-16:45	11613	Performance of Brick-Clad Timber-Framed Exterior Walls in Cooled Buildings in Nordic Climate	Hyötyläinen, Maiju; Valovirta, Ilkka; Laukkarinen, Anssi; Vinha, Juha	Valovirta, Ilkka	Tampere University, Finland

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
16:45-17:00	11217	Updating Scheffer's Climate Index	Peer, Leslie; Sloat, Destynee	Peer, Leslie	RJC Engineers, Kelowna, Canada

Friday, July 24, 2026

Slot 10 | 10:45-12:15

Session 10A — Low-Carbon Binders & Decarbonization Strategies

Room 3.210 | 10:45-12:00 | Session Chair: Sebastian Trembl

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
10:45-11:00	11246	Effect of Gypsum Content on the Performance of LC3 Mortar	Abdelazim, Omar; Soliman, Ahmed	Abdelazim, Omar	Department of Building, Civil and Environmental Engineering, Concordia University, Canada Ain Shams University, Cairo, Egypt
11:00-11:15	11192	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	Kianpour, Kiarash	University of Ottawa, Canada
11:15-11:30	11227	Data-Driven Analysis of Compressive Strength in Novel Low-Carbon Cement : Limestone Calcined Clay Cement (LC3)	Chaparro, Faber; Soliman, Ahmed	Soliman, Ahmed	Concordia University, Canada
11:30-11:45	11132	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	Chen, Guojie	University of South China, China
11:45-12:00	11603	Thermal and Environmental Performance of Lime-Slag Stabilized and Fiber-Reinforced Compacted Earth Blocks	Bouteldja, Ines; Kenai, Said; Grine, Khaled; Farina, Ilenia	Bouteldja, Ines	Geomaterials and civil engineering Laboratory, Saad Dahleb blida-1 University, Algeria

Session 10B — Digitalization & AI

Room 3.270 | 10:45-12:15 | Session Chair: Ana Silva

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
10:45-11:00	1408	Machine Learning-Based Prediction of In-situ Concrete Strength (36–120 N/mm ²) Using Cylindrical Specimens	Sato, Sachie; Isobe, Ryota; Yamada, Yoshitomo	Sato, Sachie	Tokyo City University, Japan
11:00-11:15	1438	Towards Durable and Moisture-Safe Buildings: LLM-Powered Translation from BIM to Hygrothermal Modeling	Moshari, Amirhosein; Javanroodi, Kavan; Nik, Vahid	Moshari, Amirhosein	Division of Building Physics, Lund University, Sweden
11:15-11:30	11107	Physics-informed neural networks for inverse estimation of moisture diffusivity and saturation field in concrete	Sghuri, Abderrahmane; Chen, Xuande; Wang, Xiaodong	Chen, Xuande	Université du Québec à Rimouski, Canada Research Center on Concrete Infrastructures
11:30-11:45	11161	Integrating Stereo Vision and Machine Learning for Autonomous Robotic Masonry Block-Laying	Plascencia Padilla, Artaban Lott; Chen, Yuxiang; Chairez Oria, Jorge Isaac	Plascencia Padilla, Artaban Lott	University of Alberta, Canada
11:45-12:00	11166	Automated BIM Model Generation from Natural	Sui, Chuhao; Chen, Yuxiang; Mei, Qiwei	Sui, Chuhao	University of Alberta, Canada

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
		Language Descriptions Using a T5-Based Framework			
12:00-12:15	11197	Digital Infrastructure and Carbon Emissions in Commercial Real Estate: Evidence from Ghanaian Shopping Malls	Appau, Williams Miller; Attakora-Amaniampong, Elvis; Anugwo, Iruka Chijindu	Anugwo, Iruka Chijindu	Durban University of Technology (DUT), South Africa, South Africa

Session 10C — Service Life & Asset Management

Room 3.430 | 10:45-12:15 | Session Chair: Zhengwei Li

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
10:45-11:00	11282	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	Gu, Xiaohong	National Institute of Standards and Technology, United States of America
11:00-11:15	11306	Performance and Life Cycle of Public Educational Buildings: Durability through Incremental Adaptation	Cignachi, Grasiela; Lima Gaspar, Pedro; Lopes Farias, Hugo	Cignachi, Grasiela	CIAUD – Centro de Investigação em Arquitetura, Urbanismo e Design, Lisbon School of Architecture, Universidade de Lisboa, Portugal
11:15-11:30	11321	Service order analysis as a tool for maintenance operations: A case study	Souza, Jéssica; Pires, Mariana; Pires, Lais; Silva, Ana	Pires, Mariana	University of Brasília, Brazil
11:30-11:45	11322	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	Rajasaar, Maarja Mirjam	Tallinn University of Technology (TalTech), Estonia State Forest Management Centre, Estonia
11:45-12:00	11364	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	Lopez-Carreon, Itzel	National Research Council, Canada
12:00-12:15	11426	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	Kukk, Villu	Tallinn University of Technology (TalTech), Estonia

Session 10D — Hygrothermal Performance

Room 3.435 | 10:45-12:15 | Session Chair: Petra Rüther

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
10:45-11:00	11178	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	Dang, Xinyuan	KU Leuven, Belgium University College Dublin, Ireland
11:00-11:15	11128	Durable Airtightness with Tape Solutions in Building Envelopes – Findings from a knowledge project 2019-2023	Rüther, Petra; Sletnes, Malin; Brozovsky, Johannes; Gradeci, Klodian	Rüther, Petra	SINTEF, Norway
11:15-11:30	11131	Towards quantifying watertightness of walls	Van Linden, Stéphanie; Van Den Bossche, Nathan	Van Den Bossche, Nathan	Ghent University, Belgium
11:30-11:45	11201	Impact of Strapping Detailing on Exposed Air Barrier Assemblies During Construction	Holgate, Julia; Marston, Cole; Annam, Ebenezer; Lloyd, Alan	Holgate, Julia	University of New Brunswick, Canada
11:45-12:00	11391	Case Study: Evaluating Causes and Remedial Strategies for Brick Cladding Deterioration in Existing Buildings	Ismaiel, Maysoun; Korneluk, Bob	Ismaiel, Maysoun	RJC Engineers, Canada
12:00-12:15	11421	Whole Building Airtightness Testing with Diagnostics for Durability of Components	Richman, Russell; Todd, Austin; Labbe, Greg	Todd, Austin	Evergreen Building Science, Canada

Session 10E — Energy Efficiency & Retrofit

Room 3.445 | 10:45-12:15 | Session Chair: Sathya Ramachandran

Time	Paper ID	Presentation Title	Authors	Presenter	Presenter Affiliation
10:45-11:00	11281	Testing and Analysis of Wood-Based Prefabricated Panel Concepts for Deep Energy Retrofits	Dikeos, John; Cruickshank, Cynthia; Baldwin, Christopher	Dikeos, John	Carleton University, Canada
11:00-11:15	11317	Residual Seismic Capacity and Low-Carbon Retrofitting of Steel Box-Shaped Columns	Chang, Heui-Yung; Chi, Wei-Chieh; Liao, Chu-Tsen; Lai, Chi-Ming	Chang, Heui-Yung	National Chung Hsing University, Taiwan
11:15-11:30	11323	Climate Sensitivity of High-Reflectivity Building Envelopes: Energy Simulation of Peak Cooling Performance in Canadian Climates	Jandaghian, Zahra; Bartko, Michal; Ghobadi, Mehdi; Gaur, Abhishek	Ghobadi, Mehdi;	National Research Council Canada, Canada
11:30-11:45	11370	Reducing Heat Stress Exposure Through Retrofit Vertical Greening Systems in South African Informal Settlement Dwellings	Manderson, Grant; Hugo, Jan; Botes, Karen	Hugo, Jan	University of Pretoria, South Africa
11:45-12:00	11410	Airtightness and Sound Insulation Improvements through Window Retrofit in an Aged University Building	Jang, Ha-eun; Lee, Jeong-hun	Jang, Ha-eun	Chungnam National University, South Korea
12:00-12:15	11388	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	Mukhopadhyaya, Phalguni	University of Victoria, Canada

Part II — Poster Presentations

Posters are grouped by conference theme. Please refer to the conference poster boards on-site for exact board numbers and viewing times.

Thursday, July 23, 2026

MB9-EFG | **16:00-17:30** | Session Chair: Sahar Sahyoun

Theme 1 — Evaluating the Durability of Building Materials and Components

Paper ID	Poster Title	Authors	Presenter	Presenter Affiliation
11148	Prediction Method Wrinkle of Floor Covering Caused by Dynamic Load	Fujii, Yuutarou; Fukuda, Shintarou	Fujii, Yuutarou	NIPPON Institute of Technology, Japan
11162	Degradation of Brick Masonry Due to Ineffective Damp-Proofing – A Case Study of the Golden Gate in Gdańsk	Hoła, Anna	Hoła, Anna	Wrocław University of Science and Technology, Poland
11186	Lifting The Roof: An Analysis of the Moisture Barrier Performance of Large Low-Slope Roofs	Dakin, Joe; Teetaert, Jason	Teetaert, Jason	SMT Research Ltd, Canada
11198	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	Vyas, Yash	Toronto Metropolitan University, Canada
11229	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	Aigbavboa, Clinton	University of Johannesburg, South Africa
11384	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.	Akanyawie, Gloria A.	University of Johannesburg, South Africa
11460	Protection of Mass Timber During Construction – Moisture Monitoring Best Practices for Instrumentation	Richman, Russell; Johns, Dorothy; Lawrence, Cameron; Headrick, Iain	Johns, Dorothy	Toronto Metropolitan University, Canada
11241	Resistance of lime-wollastonite mortars to salt and ice crystallization	Vyšvařil, Martin; Žižlavský, Tomáš; Bayer, Patrik	Vyšvařil, Martin	Brno University of Technology / Faculty of Civil Engineering, Czech Republic
11445	Degradation Assessment of Surface-Protected Thermal Mortars	Bersch, Jéssica; Riahinezhad, Marzieh; Esmizadeh, Elnaz; Masuero, Angela; Dal Molin, Denise; Lacasse, Michael; Flores-Colen, Inês	Bersch, Jéssica	CERIS, Instituto Superior Técnico, Universidade de Lisboa, Portugal
11356	Durability of concrete in sewerage networks with regard to biodeterioration	Pons, Tony; Ayoub, Janette; Guéguen-Minerbe, Marielle	Pons, Tony	Université Gustave Eiffel, MAST-CPDM, France
1552	A Simplified Thermal Modeling Methodology for Accurate Long-Term Performance Prediction of BIPV Systems	Zareie, Zahra; Ye, Kai; Baril, Daniel; Ge, Hua	Zareie, Zahra	Concordia University, Department of Building, Civil and Environmental Engineering (BCEE), Canada
11375	Prediction of the Aging of Building Components	Nowogońska, Beata; Kurowska, Aleksandra; Korentz, Jacek	Nowogońska, Beata	University of Zielona Gora, Institute of Civil Engineering, Poland

Paper ID	Poster Title	Authors	Presenter	Presenter Affiliation
11602	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	Ferroukhi, Yacine	Ecole Centrale de Lyon / ENISE, France
11199	Assessment of the thermo-mechanical properties of hybrid concrete-filled fiber-reinforced polymer tube (HCFPT) systems incorporating gold mine tailings	Chaabene, Yossr; Qi, Dahai; Masmoudi, Radhouane; Belem, Tikou; Tagnit-hamou, Arezki; Reda, Ibrahim	Chaabene, Yossr	Université de Sherbrooke, Canada
11600	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, Geniclécio	Branco, Luiz Antonio Melgaço Nunes	UFMG - Federal University of Minas Gerais, Brazil

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

Paper ID	Poster Title	Authors	Presenter	Presenter Affiliation
11475	Toward Contextual Benchmarking: Analyzing Canadian Case Studies from CLF WBLCA Dataset	Baienat, Saba; Iordanova, Ivanka	Baienat, Saba	ÉTS, Canada
11336	Durability and Mechanical Properties of Lightweight Aggregates from Coal Combustion By-Products	Franus, Małgorzata	Franus, Małgorzata	Lublin University of Technology, Poland
11296	Polymer Nanofibers as an Innovative Approach to Enhance the Durability of Asphalt Pavements	Malinowski, Szymon; Wozuk, Agnieszka; Franus, Wojciech	Malinowski, Szymon	Lublin University of Technology, Poland
11297	Green Pavement Solutions: Synergistic Zeolite–Silane Bifunctional Foaming Additives for Enhanced Asphalt Durability	Wozuk, Agnieszka; Malinowski, Szymon; Franus, Wojciech	Wozuk, Agnieszka	Lublin University of Technology, Poland
11479	Feasibility of Using Carbon-Rich Fly Ash as a Supplementary Cementitious Material	Janek, Martyna; Franus, Wojciech; Piechota, Zuzanna	Janek, Martyna	Lublin University of Technology, Poland
11334	Valorization of Coal Mining Fly Ash for Sustainable Cement Mortars: Mechanical Properties and Durability Assessment	Franus, Wojciech; Piechota, Zuzanna; Janek, Martyna	Franus, Wojciech	Lublin University of Technology, Poland
11114	Advancing Sustainable Roof Restoration: Quantifying Embodied Carbon Reductions and Economic Benefits in Existing Buildings	Pugalendiran, Milirsan; Christopherson, Michelle; Prijono, Ivan	Pugalendiran, Milirsan	WSP Canada Inc, Canada

Theme 4 — Rapidly Developing Technologies in Construction

Paper ID	Poster Title	Authors	Presenter	Presenter Affiliation
11254	Unearthing The Benefits of Implementing Proactive Safety Measures in The Construction Industry	Adekunle, Samuel; Aigbavboa, Clinton; Akinradewo, Opeoluwa; Aregbesola, Ganiu; Ogunbayo, Babatunde; Abiodun, Oluwapelumi	Adekunle, Samuel	William V.S. Tubman University, Liberia University of Johannesburg, South Africa
11255	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	Adekunle, Samuel	William V.S. Tubman University, Liberia University of Johannesburg, South Africa
11506	Optimization of Mechanical Properties of Recycled Steel Fiber using Evolutionary Computation	Memon, Neelam; Memon, Neelam; Larik, Asma	Memon, Neelam	Dawood University of Engineering and Technology, Pakistan
11242	Experimental Study on Performance of Cross Laminated Timber and Reinforced Concrete Composite Floor System after Fire	Tsai, Meng-Ting; Yeh, Miao-Chen; Sato, Toshiaki	Tsai, Meng-Ting	National Taiwan University of Science and Technology, Taiwan
11626	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	Sourav, Md Sakib Ullah	Concordia University, Canada
11623	Segment-Based Multi-Year Optimization for Scalable Infrastructure Maintenance Planning under Uncertainty	Chung, Frederick B.; Paik, Yejee; Baek, Minsoo; Ashuri, Baabak	Chung, Frederick B.	School of Engineering and Computer Science, University of the Pacific, United States of America
11345	Proposal of a methodology for evaluating the 3D printability of mortars: sensitivity and repeatability analysis	Araujo, Renato; Carasek, Helena	Carasek, Helena	Federal University of Goiás - UFG, Brazil

Volt-Age Projects Showcase

Poster ID	Poster Title	Authors	Presenter
1	Accurate and Scalable Canadian Residential Building Archetypes Based on Multi-Layer Filtering for Urban Building Energy Modeling	Wei Zhou; Liangzhu Wang	Wei Zhou
2	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	Shamanta Azad Oshin
3	Thermal Comfort Among Passengers in an Airport Terminal	Ana Victoria Palma Florido; Mohamed M. Ouf; William O'Brien; Natalia Cooper; Hadia Awad	Ana Victoria Palma Florido
4	Indoor Air Quality and Energy Optimization for Airport Terminals	Milad Babadi Soultanzadeh; Mohamed M. Ouf; Liangzhu Leon Wang	Milad Babadi Soultanzadeh
5	Self-Contained MPC for Buildings: Automated Sequential Identification with Active Excitation	Harry Vallianos; Mohamed M. Ouf; Jayson Bursill; Burak Gunay	Harry Vallianos
6	Field Implementation of Model Predictive Control with a Novel Multi-Sensor in Grid-Integrated School Buildings	Navid Morovati; Ayegba Blessing; Andreas Athienitis	Navid Morovati

Poster ID	Poster Title	Authors	Presenter
7	CLEAR Hub – Designing Sustainable Plant Factories for Community and Ecology	Joseph Zambrano; Luis Virla; Ivan Kantor	Joseph Zambrano
8	Durability of BIPV Systems: Standards, Experimental Validation, Hygrothermal Performance, and Fire Safety	Sahar Sahyoun; Zahra Zareie; Kai Ye; Hua Ge	Sahar Sahyoun
9	Decision-Making Tools for Prioritizing Resilience and Sustainability Strategies for Buildings and Neighborhoods	Caroline Hachem-Vermette; Ahmed Nouby Mohamed Hassan; Md Faisal Kabir	Md Faisal Kabir
10	Smart Retrofitting and Sustainable Design: Leveraging Digital Twins for Neighborhood-Scale Energy Efficiency	Abdul Moeed Khan; Caroline Hachem-Vermette	Abdul Moeed Khan
11	Development of Energy-Resilient Communities for the Decarbonization Goals of Canada by 2050	Furgan Wali; Shivram Krishnan; Caroline Hachem-Vermette	Furgan Wali
12	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	Abderrahim Laggoune
13	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	Khaled Mekdour
14	Quantum Computing for Optimization of Urban Rooftop PV Deployment in Canada	Huiheng Liu; Honghao Fu; Liangzhu Leon Wang	Huiheng Liu
15	Enhancing Building Climate Resilience through Shelters: PV-Battery System Sizing for Extreme Heat Events	Jean-Christophe Pelletier-De Koninck; Michal Bartko; Andreas Athienitis	Jean-Christophe Pelletier-De Koninck
16	Transforming Built and Urban Microclimates: Geothermal energy in cold regions	Biao Li; Saeed Vadiee; Kian Khaksar; Emad Norouzi; Suleiman Ahmed; Liangzhu Leon Wang	Saeed Vadiee

Part III — Workshops

Workshops will be held concurrently with the oral presentations on the 9th floor in MB9-AB, CD, EFG.

Workshop ID	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 — Wenhong 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)

Workshop ID	Title	Organizers	Schedule	Program
				- Software/tools in the market: Azure, Autodesk Tandem, Bentley, Willow, SpinalCom, TwinOps, etc. — Éric Bernier (DECASULT) / Atefeh Hesarbani (Concordia University) - Hands-on session on Microsoft Azure: Build a simple DT workflow — Éric Bernier (DECASULT) / Atefeh Hesarbani (Concordia University) - Demo on other tools: Autodesk Tandem and Bentley: capabilities, strengths, limitations — Éric Bernier (DECASULT) / Atefeh Hesarbani (Concordia University, Canada) - Q&A and wrap-up: Lessons learned, implementation roadmap, final discussion — All
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

Invited Special Topics

Thursday, July 23, 2026

MB9-AB | 10:45-12:45 | Session Chair: Michael Lacasse

- **Strong Homes, Strong Future: Building Sustainable and Resilient Canadian Homes**

Stephanie Coleman, Natural Resources Canada / LEEP Sustainable Resilient Housing Industry Lead

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.

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

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

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.