



Building Envelope Council Ottawa Region

In-Person Seminar

Sala San Marco, 215 Preston St.

Tuesday, June 20, 2023

Lunch and Networking: Noon – 1:00 pm

Presentation One: 1:00 pm – 2:00 pm

Presentation Two: 2:00 pm – 3:00 pm

Best Practice on Improving Building Envelope Thermal Performance in Heritage Rehabilitation Projects

Public Service and Procurement Canada (PSPC), in partnership with Frontenac Building Science Inc., will be presenting on the impact of adding insulation to the interior side of a heritage building envelope. It has been widely identified that adding insulation on the interior of a masonry building increases the risk of freeze-thaw damage to the heritage components in an envelope. Because of this, it has been a long-held principle to avoid insulating these buildings. Recent innovations in laboratory methods to predict freeze-thaw risk coupled with numerical simulations and future climate projections, combine to make this an opportune time to explore a method to achieve an optimum balance between heritage conservation and GHG emission reduction goals for heritage building rehabilitations. Through an increased thermal performance of the building envelope, operational GHG emissions can be reduced while maintaining durability and respecting the character defining elements of the heritage building.

Public Service and Procurement Canada (PSPC), together with the National Research Council (NRC), and support from private sector building envelope consulting firms, have established a guide titled “Insulating Heritage Mass Masonry Building from the Interior: A Best Practice Guide to Mitigate Risk of Freeze-Thaw Damage” to provide a methodology to achieve an optimum balance between heritage conservation and GHG emission reduction goals for heritage building rehabilitations. Specifically, the Guide considers the addition of insulation to the interior surface of a heritage stone envelope and the corresponding risk assessment of the freeze-thaw durability of the heritage masonry components.

Joel Becker, P.Eng.

Joel Becker is a professional engineer working at Public Service and Procurement Canada (PSPC) in the Environmental and Sustainability Office of the Science and Parliamentary Infrastructure Branch. Prior to joining PSPC, Joel worked in the private sector and specialized in building science and structural engineering for building rehabilitations. Joel holds a Bachelor of Engineering degree in Architecture Conservation and Sustainability Engineering from Carleton University, and a Construction Engineering Technology diploma from Niagara College.

David Kayll, FMA, P.Eng.

David is president and senior building science engineer at Frontenac Building Science Inc, based in Ottawa. He has over 35 years of experience in building science, building envelopes, energy efficiency, and facility management on multi-disciplined architectural/ engineering teams in new and renovation construction of heritage, institutional, industrial, commercial, and residential facilities. His experience includes 10+ years on the East Coast, five on the West Coast, and 20+ in the National Capital Area. David is Chair of Codes Canada’s Standing Committee on Environmental Separation (Division B, Part 5 of the NBC) for the 2025 code cycle, having also served on the 2015 and 2020 code cycles. David is a past-President of the British Columbia Building Envelope Council (BCBEC) and a past board member of BECOR. Mr. Kayll is registered in the Provinces of Ontario, Nova Scotia, and Manitoba as a professional engineer.



Joel Becker

Environmental Sustainability Office
Science Office of the Science and
Parliamentary Infrastructure Branch Public
Services and Procurement Canada



David Kayll

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