



Graham Finch | Dipl.T., M.A.Sc., P.Eng.

Principal, Senior Building Science Specialist

Graham Finch is a building science engineer who specializes in enclosure design, research, and investigation work for new and existing buildings. His work experience includes a wide range of projects including building enclosure and facade design and analysis, forensic investigations, research studies, energy assessments, building performance monitoring, field review, and various testing services for projects across Canada and the US.

Recently, Graham has been deeply involved with numerous Passive House projects and research, along with the development of guidance and training materials for BC's new Energy Step Code.

Expertise + Experience

Graham works across a wide spectrum of RDH's core service areas and is directly involved with building enclosure design, investigation work, and research related to building materials and building enclosures across North America.

Graham regularly works with building product manufacturers and other clients on product research and development, performance monitoring, forensic investigations and field testing. He also works closely with architects and developers supporting the design of high performance building enclosures and facade components for projects across North America.

Graham is regarded as an industry leader in evaluating thermal energy and hygrothermal (heat, air, and moisture) performance of building enclosure systems. His Master's degree research and thesis focused on hygrothermal performance of rainscreen wall assemblies in coastal British Columbia and the research has resulted in several publications and practical recommendations for the construction industry.

Graham's theoretical training coupled with his practical experience and proficiency with state-of-the-art analysis software has enabled him to perform thermal and hygrothermal analyses of a wide variety of enclosure systems and components in cities around the world. This analytical work is used as the basis for making recommendations regarding air barriers and vapour retarders, as well as for the location and levels of insulation necessary to avoid condensation related problems and maximize thermal efficiency. This expertise is particularly relevant when dealing with specialty buildings with sustained high indoor humidity such as museums or when developing new building materials.

Lately, much of Graham's research and consulting has been involved with the design and construction

of building enclosures for mass timber and tall wood buildings incorporating new building elements such as cross-laminated and nail-laminated timber (CLT & NLT). Through this leadership and project work, Graham has delivered many presentations and authored several industry publications on taller wood building enclosures.

In addition, Graham was previously a part-time instructor at the British Columbia Institute of Technology where he taught building science courses to the Diploma and Master's levels. Graham is regularly invited by various building industry organizations and clients in Canada and the US to speak to the practical and technical issues of various building science topics.

Graham is a Principal and shareholder of RDH and is committed to the success of RDH projects. Originally from Vancouver Island, Graham has returned and now calls Victoria home.

Education

M.A.Sc., Civil Engineering, University of Waterloo, ON. Specialization - Building Science Engineering. Thesis: "The Performance of Rainscreen Walls in Coastal British Columbia"

B.A.Sc., Civil Engineering, Co-op Program, University of Waterloo, ON

Dipl.T., Diploma of Civil and Structural Engineering Technology, British Columbia Institute of Technology

Memberships + Awards

P.Eng., Association of Professional Engineers and Geoscientists of BC (APEGBC)

Member, American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)

Member, Roofing Consultant Institute (RCI)

Past Board of Directors (NBEC Chair and Secretary), British Columbia Building Envelope Council

Past President, National Building Envelope Council

Technical Advisory Groups: BC Building Code - Part 9, Energy and Ventilation. City of Vancouver - Greenest City Buildings Committee



Typical Projects

RESEARCH, ENERGY + FORENSICS

- Engineering consulting for building enclosure rehabilitation and new construction projects in the Pacific Northwest.
- Building enclosure design and consulting for several single family, commercial and mixed use Passive House projects across British Columbia.
- Building product research and development, performance monitoring, material and field testing and consulting for a number of building products to help clients develop new building materials and bring new ideas to market.
- Development of building science industry guidelines, bulletins, and technical publications.
- Design and installation of building monitoring systems for a wide range of buildings to assess enclosure performance as part of forensic, research, or retrofit projects.
- Forensic investigations and litigation support for numerous speciality projects in Canada, US, and New Zealand.
- Energy assessments and building modeling for several multi-unit residential and commercial building retrofit studies.
- Hygrothermal and thermal simulation and analysis (WUFI, THERM, Heat3).
- Building Science Research Projects on various topics.

Publications + Presentations

Graham is regularly invited by various organizations and clients across Canada and the US to speak to the practical and technical issues of various building science topics. He actively publishes guidelines, technical papers and presents on building science research at local to international conferences. The following is a selected list of some recent publications and presentations which Graham has delivered in the past few years. A full list of past publications is available if interested. Many of these papers, publications and presentations are available for download on our website, www.rdh.com.

Recent Industry Guidelines & Publications

- "Nail Laminated Timber U.S. Design & Construction Guide v1.0." *Guideline for Binational Softwood Lumber Council*. Co-Author of Building Enclosure and Construction and Installation Chapters, 2017.

- Building Enclosure Design Guide: Wood-frame Multi-Unit Residential Buildings." *Guideline Publication for BC Housing, Updated in 2017.*

Recent Presentations & Seminars

- "Tall Wood Building Enclosures – A Race to the Top" Mass Timber Conference, Portland, OR, March 2017.
- "New and Innovative Passive Building Enclosures for High-Performance Buildings." Passive House Canada Master Class Course, Saskatoon February 2017, Vancouver, BC, March 2017.
- "The Tradition and Science of Window Installations and the Impact of High Performance Buildings." FEN-BC Technical Conference, Vancouver, BC, February 2017.
- "Passive House 2.0 – Lessons From the First Generation of Passive House Projects on the West Coast." NYPH Seminar, January 2017, Buildex Seminars in Vancouver and Edmonton, February & March 2017.
- "Osmosis and Blistering of Liquid Applied Waterproofing Membranes – What We Have Learned in the Past Decade." BCBEAC Annual Conference, Vancouver, BC, September 2016.
- "High Performances Walls – All about Exterior Insulation & Claddings Attachments to Minimize Thermal Bridging." CSI Construct Conference, Austin, TX, September 2016.
- "High Performance Building Enclosures – New Materials, Innovation, and Lessons Learned." CSI Chicago, 13th Annual Building Enclosure Event, February 2016.
- "Optimal High R-value Wall Designs for the Far North – Balancing the Science & Practice." NNCA Residential Construction Workshop, Yellowknife, NWT, February 2016.
- "High Performance Walls – All about Exterior Insulation & Cladding Attachments to Minimize Thermal Bridging." Presented to New York City AIA/BEC Chapter, November 2015. Dallas AIA/BEC Chapter, October 2015. Baltimore and Philadelphia AIA/BEC Chapters, September 2015.
- "Building Enclosures for the Future – Building Tomorrows Buildings Today." Presented to Denver and Minneapolis AIA/BEC Chapters, and St. Louis Building Envelope Group, October 2015.
- "Building Enclosures for 5&6 Storey Mid-Rise Wood Buildings: Lessons Learned & Best Practices." Presented at Toronto Wood Solutions Fair, Toronto, ON November 2015. Edmonton and Calgary, AB, February 2016.



- “Cost Optimized Energy Efficient House Construction Guidelines for Canada’s Far North.” Presented at Half Day Seminars for the Northwest Territories and Nunavut Construction Association, Yellowknife, NWT, February 2015.
- “Building Enclosures for the Future: Building Tomorrow’s Buildings Today.” AIBC Continuing Education Seminar, Victoria, BC, March 2015.
- “Osmosis: The Bane of Liquid Applied Waterproofing Membranes.” Building Science Summer Camp, Westford, MA, August 2014.
- “Building Enclosure Assemblies that Work for Taller Wood Buildings.” Woodworks National Symposium on Tall Wood Buildings, Chicago, IL, November 2014.
- “Conventional Roofing Assemblies: Measured Benefits of Light to Dark Roofing Membranes and Alternate Insulation Strategies.” Presented at several North American industry events including: RCI Annual Convention in Anaheim, Chicago BEC, Philadelphia BEC, Ontario BEC, WAAPA Seattle, AATO Mississauga, 2014.
- “Super Insulated Building Enclosures – Balancing Energy, Durability, and Economics in the Pacific Northwest.” Seattle Building Enclosure Council Symposium, Seattle, WA, May 2013.
- “Adoption and Compliance with Energy Codes: ASHRAE 90.1 and NECB.” Presented at RCIC Annual Conference, Edmonton, AB, May 2013.
- “Thermal Bridges in Concrete Construction – Solutions to Address Energy Code Compliance, Thermal Comfort and Energy Savings.” Presented at Passive House North Conference, Vancouver, BC, September 2013.
- “Walls and Windows for Highly Insulated Buildings in the Pacific Northwest.” Presented at Passive House Northwest – Annual Conference, Seattle, WA, March 2013.
- “Premature Failure and Re-Glazing of an Energy Efficient Structurally Glazed Curtain-wall Building.” Presented at BEST3 Conference, Atlanta, GA, April 2012.
- “Energy Efficiency Tune-ups for Mid- to High-Rise Residential Buildings.” Presented at BCBEAC Annual Conference and AGM, Vancouver, BC, September 2011.
- “The Problems with and Solutions for Ventilated Attics.” Paper presented at 30th RCI Annual Convention, San Antonio, TX, March 2015.
- “Evaluating the Energy Savings of High Performance Building Enclosure Retrofits.” Paper presented at 14th Canadian Conference on Building Science & Technology, Toronto, ON, November 2014.
- “Thermal Bridging of Masonry Veneer Claddings and Energy Code Compliance.” Paper presented at the 12th Canadian Masonry Symposium, Vancouver, BC, June 2013.
- “The Path toward Net-Zero High-Rise Residential Buildings: Lessons Learned from Current Practice.” Paper presented at the ASHRAE Buildings XI Conference, Clearwater Beach, FL, December 2010.
- the ASHRAE Buildings XI Conference, Clearwater Beach, FL, December 2010.
- “Monitoring of Historic Structures for Whole Building Improvements.” Paper presented at ICBEST Conference, Vancouver, BC, June 2010.
- “Osmosis and the Blistering of Polyurethane Waterproofing Membranes.” Paper presented at RCI Building Envelope Technology Symposium, San Diego, CA, October 2009.
- “Osmosis and the Blistering of Polyurethane Waterproofing Membranes.” Paper presented ASHRAE Buildings XI Conference.
- “Osmosis and the Blistering of Polyurethane Waterproofing Membranes.” *RCI Interface Magazine*, December 2010.
- “Air Leakage with Multi-Unit Residential Buildings: Testing and Implications for Building Performance.” Paper presented at the 12th Canadian Conference on Building Science and Technology, Montreal, QC, May 2009.
- “Ventilated Wall Claddings: Review, Field Performance, and Hygrothermal Modeling.” Paper presented at the ASHRAE Buildings X Conference, Clearwater Beach, FL, December 2007.
- “Field Performance of Spray Polyurethane Foam: The Role of Vapour Diffusion Control.” Paper presented at the 11th Canadian Conference on Building Science and Technology, Banff, AB, March 2007.

Recent Technical Papers & Bulletins

- “Cladding Attachment Solutions for Exterior Insulated Commercial Walls” RDH Technical Bulletin #11. March 2017.
- “High-Rise Wood Building Enclosures” Paper presented at the ASHRAE Buildings XIII Conference, Clearwater Beach, Florida, December 2016.