



Dr. Randy Van Straaten

Employment

Dr. Randy Van Straaten is the President and a Building Science Specialist at Building Enclosure Labs Inc (BELi) in London Ontario. The firm provides building enclosure consulting and laboratory testing services.

Education & Teaching

Sessional Professor

- Building Science for Retrofits - George Brown College
- Building Performance Ryerson University

Ph.D., Civil and Environmental Engineering, Western University, London, ON

- Coordinated and taught within the Our Green Campus facility management program at Western University.
- Insurance Research Lab for Better Homes Facility Manager
- Western Facility Management Sustainability Specialist and Building Science Support

M.A.Sc., Building Engineering, Civil Engineering Dept., University of Waterloo, ON

- Building science and materials science teaching assistant and lecturer

Sep 1995-Apr 2000: B.A.Sc., Mechanical Engineering, University of Waterloo, ON

BELi Projects

Expert witness for the White vs JHTI case covering large scale failures in New Zealand housing. He was the third party witness of laboratory testing, provided peer review of expert submissions, and provided expert testimony.

Technical expert reviewer of an insulation product environmental life cycle study for a major industry association.

Low-Carbon Solutions for Multiunit Residential Buildings Study for BC Housing including overcladding a residential tower include measures to achieve net zero carbon performance.

Pembina Institute Reframed Lab Initiative aimed at scaling up deep retrofits. BELi is on a team conducting a feasibility study and schematic design for HVAC replacement and overcladding a 3 storey building.

Consulted on development and optimization of a total building envelope system including walls and fenestration for FLYnn which is optimized for thermal performance, construction speed, wall thickness and embodied carbon

Enbridge Savings-by-Design workshops for new and retrofit building projects including Museum London and RBC Place. Randy developed and presented building envelope upgrades solutions for these existing buildings.

BELi recently completed a costing study to upgrade the City of London's next new firehall to the high performance Passive House standard.

pre-BELi Projects

Randy previously managed the masonry decay risk assessment group at RDH's Waterloo lab which conducted field review, testing, moisture analysis, and monitoring for a wide array of retrofit projects. A recent project of note was providing these services and forensic investigation of failure of imported brick cladding for a project at Southern New Hampshire University.

Embodied carbon analysis the Net Zero Carbon Certification for Mohawk College's The Joyce Centre for Partnership & Innovation

Building enclosure consulting for multi-unit residential and university buildings including design reviews, thermal analysis, submittal review, mock-up review, and field reviews.

Full scale testing of residential wall and roof assemblies at the Insurance Research Lab for Better Homes at Western University.

Memberships

- P.Eng., Professional Engineers of Ontario
- Passive House Canada

Publications

- Charron, E. and Van Straaten, R. (2021) *Interior Insulation Retrofitting Heritage Masonry Buildings - Best Practice Dos and Don'ts*. OAA Sustainable Built Environment Committee
- "Clay Brick Material Properties" Association of Preservation Technology, Miami, FL, Nov 23, 2019.
- "Continuous Exterior Insulation: Increase Durability and Decreased Energy" Owens Corning/Dorken/Northern Facades event, London, ON, June 2019.
- Van Straaten, Randy "Retrofitting Masonry Buildings in Cold Climates: When and What to Test" *RCI Interface*, July 2017.
- Van Straaten, Randy A. "Pressure Equalization of Wind-Induced Pressures on Residential Vinyl Siding Cladding in Full-Scale." Doctoral thesis, Western University 2017.
- Van Straaten, Randy, Trevor Trainor, and John Straube. "Wind-Washing Effects on Mineral Wool Insulated Sheathing." Paper presented at the ASHRAE Performance of the Exterior Envelopes of Whole Buildings XIII, Clearwater Beach, FL, December 2016.
- Van Straaten, Randy, Trevor Trainor, and Chris Schumacher. "Critical Freeze-Thaw Saturation Measurement of In-Service Masonry." Paper presented at the ASHRAE Performance of the Exterior Envelopes of Whole Buildings XIII, Clearwater Beach, FL, December 2016.
- Roppel, Pat, Ivan Lee, Randy Van Straaten, and Jamie Mackay. "Guiding Design Teams by Hygrothermal Energy and Thermal Comfort Analysis while Managing Uncertainty." Paper presented at the ASHRAE Performance of the Exterior Envelopes of Whole Buildings XIII, Clearwater Beach, FL, December 2016.
- Van Straaten, R, Straube J., and A. Lukachko, "Durability and Resilience of Tall Buildings with Precast Concrete Enclosure Systems" Paper presented at CSCE Conference, London, ON, June 2016
- Van Straaten, Randy and Trevor Trainor. "Improving Access to the Frost Dilatometry Methodology for Assessing Brick Masonry Freeze Thaw Degradation Risk." Paper presented at CCBST 2014, Toronto, ON, October 2014.
- Ueno, Kohta, John Straube, and Randy Van Straaten. "Field Monitoring and Simulation of a Historic Mass Masonry Building Retrofitted with Interior Insulation." Paper presented at the ASHRAE Performance of the Exterior Envelopes of Whole Buildings XII, Clearwater Beach, FL, December 2013.
- Ueno, Kohta, Phil Kerrigan, Honorata Loomis, and Randy Van Straaten. "Retrofit of a Multifamily Mass Masonry Building in New England." *Building America Program*, U.S. Department of Energy, Oak Ridge, TN, February 2013.
- Ueno, Kohta, Randy Van Straaten, and Chris Schumacher. "Interior Insulation of Mass Masonry Walls: Joist Monitoring, Material Test Optimization, Salt Effects." *Building America Program*, U.S. Department of Energy, Oak Ridge, TN, May 2013.
- Ueno, K., and R. Van Straaten. Expert Meeting Report. Interior Insulation Retrofit of Mass Masonry Wall Assemblies. No. DOE/GO-102012-3475. *Building Science Corporation*, Somerville, MA (United States), 2012.
- Loomis Honorata, Kohta Ueno, and Randy Van Straaten. "Byggmeister Test Home: Cold Climate Multifamily Masonry Building Condition Assessment and Retrofit Analysis." *Building America Program*, U.S. Department of Energy, Golden, Oak Ridge, TN, September 2012.
- Van Straaten, Randy, Greg Kopp, and John Straube. "Testing Water Penetration Resistance of Window Systems Exposed to "Realistic" Dynamic Air Pressures." Paper presented at ICBEST, Vancouver, BC, June 2010.
- Van Straaten, Randy. "Loss prevention begins at home." Institute for Catastrophic Loss Reduction 3, no. 1 (2009) Toronto, ON.
- Van Straaten, Randy et al. "Correlation between Air Tightness and Air Quality in Mongolian Houses." Paper presented at Indoor Air Conference, Beijing, China, 2005.
- Van Straaten, Randy et al. "Mongolian Housing Energy Efficiency Study and Recommendations for Clean Development Mechanism Project." Report for United Nations Development Program – Mongolia UNDP Office, Ulaanbaatar, Mongolia, 2004.
- Straube, John, Randy Van Straaten, and Eric Burnett. "Field Studies of Ventilation Drying." Paper presented at the Performance of the Exterior Envelopes of Whole Buildings IX ASHRAE, Clearwater, FL, December 2004.
- Van Straaten, Randy. "Measurement of ventilation and drying of vinyl siding and brick clad wall assemblies." Master's thesis, University of Waterloo, 2004.