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# Adam Lohonyai

MEng., P.Eng., DFE

Practice Lead

Structural Consulting Engineer

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## OFFICE

Burlington

## EMAIL

[alohonyai@ocig.com](mailto:alohonyai@ocig.com)

## CONTACT

1 (888) 624-3473, ext: 183  
(905) 928-5522

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Adam specializes in structural forensic investigation and holds a Master of Engineering degree from the University of Alberta. He is a licensed professional engineer in Ontario, BC, Alberta, Manitoba, New Brunswick, PEI, and Nova Scotia. To date, Adam has investigated over 800 structural losses and has been qualified as an expert in structural engineering three times in the Ontario Superior Court of Justice. Adam's background includes work as a structural engineer providing service for new building construction, personal fall arrest systems, roll-over protection systems, structural assessments, repairs, and failure investigations. He also has experience teaching engineering labs and conducting research on building envelopes, structural health monitoring, and masonry walls at the University of Alberta.

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## EDUCATION

### University of Alberta

Master of Engineering (MEng) in Structural Engineering

Edmonton, Alberta, Canada

2012

### University of Alberta

Bachelor of Science (BSc) in Civil Engineering

Edmonton, Alberta, Canada

2010

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## PROFESSIONAL REGISTRATION/LICENSING

- Association of Professional Engineers and Geoscientists of Alberta (APEGA), P.Eng since 2016
  - Professional Engineers Ontario (PEO), P.Eng since 2016, designated Consulting Engineer since 2021
  - Engineers and Geoscientists of Manitoba (EGM), P.Eng since 2018
  - Association of Professional Engineers of Nova Scotia (APENS), P.Eng since 2019
  - Engineers and Geoscientists of British Columbia (EGBC), P.Eng since 2020
  - Association of Professional Engineers and Geoscientists of New Brunswick (APEGNB), P.Eng since 2022
  - Engineers PEI (APEPEI), P.Eng since 2022
  - Association of Professional Engineers and Geoscientists of Saskatchewan (APEGS), P.Eng. since 2023
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## TECHNICAL AFFILIATIONS

- American Concrete Institute (ACI)
- American Institute of Steel Construction (AISC)
- American Society of Agricultural and Biological Engineers (ASABE)
- American Society of Civil Engineers (ASCE)
- Canadian Society for Bioengineering (CSBE)
- Canadian Society for Civil Engineering (CSCE)

Forensic Engineering Technical Committee (CSCE), member and sub-committee vice-chair

Ontario Onsite Wastewater Association (OOWA)

National Frame Building Association (NFBA)

Structural Engineering Institute (SEI)

Structural Building Components Association (SBCA)

The Masonry Society (TMS)

National Academy of Forensic Engineers (NAFE), DFE since 2022

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## **PROFESSIONAL EXPERIENCE**

### **Structural Forensics Practice Lead**

OCI Group (Formerly Origin and Cause Incorporated)

2022 – Present

### **Forensic Engineer**

OCI Group (Formerly Origin and Cause Incorporated)

Ancaster, Ontario

2015 – 2022

- Specializing in the investigation and rehabilitation of structures damaged in various types of incidents, including construction or design deficiencies, structural overload, fire, explosion, lightning, wind, moisture intrusion, ground vibration, tree impact, and vehicle impact
- Investigating losses involving a variety of structures, including barns, grain bins, storage buildings, residential buildings, low-rise commercial buildings, and light industrial buildings
- Prepare reports and provide opinion regarding the origin and cause of structural failures
- Provide recommendations for safe entry
- Provide structural designs for repair or rebuild

### **Forensic Engineer**

Sintra Engineering Inc.

Edmonton, Alberta

January 2014 – April 2015

- Specialized in the investigation and rehabilitation of structures damaged in various types of incidents, including construction or design deficiencies, structural overload, fire, wind, moisture intrusion, and vehicle strike
- Involved in the investigation of a variety of structures, including barns, grain bins, storage buildings, residential buildings, low-rise commercial buildings, and light industrial buildings
- Assisted in the investigation into the cause of the collapse of an industrial steel structure shortly after it was erected, tracing the root cause to a deficient connection design
- Provided background research and analysis that was instrumental in the investigations of structures such as a mercantile building that experienced roof collapse on four separate occasions, and a steel grain bin which buckled during discharge of its content

### **Research and Teaching Assistant**

University of Alberta

Edmonton, Alberta

September 2010 – December 2013

- Involved in a variety of engineering research work at the University of Alberta. Topics included structural behaviour of masonry, thermal and moisture-related deformations of masonry, building monitoring, building envelope performance, and construction product evaluation
- Research has been published in several peer-reviewed journals
- Instructor for the laboratory and seminar portions of the undergraduate engineering course CivE 270 “Mechanics of Deformable Bodies”, teaching foundational elements of solid mechanics, structural analysis, and structural design

### **Structural Engineer**

Becker ElZein & Associates

Edmonton, Alberta

May 2011 – April 2012

- Performed structural analysis, design, and drafting work in a variety of applications, utilizing steel, concrete, timber, and aluminum
- Design experience includes personal fall arrest anchorages, roll-over protection

structures, concrete and permanent wood foundations, helical piles, foundation repairs, beam repairs, pipe racks, pipeline lifting and pulling procedures, crane girders, lifting lugs and spreader bars, industrial equipment supports, single family dwellings, and low-rise commercial buildings

- Assisted in the design of a 36+ m (120+ ft) span pedestrian bridge.
- Performed numerous investigations of failed or code non-compliant structures, including building envelopes, roof and wall framing, decks, concrete foundations, and permanent wood foundations
- Assisted with failure investigations into the collapse of an 800-ton gantry crane and the premature deterioration of the precast concrete stairs of a large townhouse complex

### **Estimator/Drafts Person**

Trade-Tech Industries

Bowmanville, Ontario

April 2009 – August 2009

- Performed quantity take-offs from structural and architectural drawings in order to prepare bids for structural steel and miscellaneous metals subcontract bids
- Estimated the costs of field-welding work, designed and drafted structural steel connections, and assisted with the preparation of fabrication drawings for steel structures

### **Materials Technician**

EXH Engineering Services

Edmonton, Alberta

May 2008 – August 2008

- Performed quality control sampling and testing of aggregates produced for the construction of new roadway surfaces, bases, and sub-bases in the Athabasca oil sands region
- Produced test reports for the production supervisor, describing the gradation, density, fracture count, and moisture content of the aggregates

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## SKILLS & EXPERTISE

- Wood (CSA O86), Steel (CSA S16), Cold-formed Steel (CSA S136), Concrete (CSA A23.3),
- Masonry (CSA S304), and Aluminum (CSA S157) structures
- Building Envelope Design
- Farm Buildings and Post-Frame Buildings
- Silos and Bulk Storage Bins
- Septic and Onsite Sewage Systems
- Analysis and design software: S-Frame, SAP2000, MASS, WoodWorks
- Drafting: AutoCAD

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## DISTINCTION & RECOGNITION

TMS Journal Outstanding Paper Award (2019)

NSERC Industrial Postgraduate Scholarship (2014)

Queen Elizabeth II Graduate Scholarship (×4: 2010-2013)

Harry Edward Sim Memorial Scholarship (2013)

Equals6 Top Talent Scholarship (2012)

Alberta Heritage Graduate Student Scholarship (2011)

Tied Branch Standing 2 of 153 (2010)

Graduated with Distinction (2010)

EnCana Civil and Petroleum Engineering Scholarship (2009)

First Class Standing (×4: 2006-2009)

Jason Lang Scholarship (×4: 2006-2009)

Ronald N. Dalby Scholarship in Civil Engineering (2008)

Stuart Olson 50th Anniversary Undergraduate Scholarship (2006)

Roger Neilson/Toronto Maple Leafs Alumni Scholarship (2005)

Newbert Construction and Engineering Entrance Award (2005)

University of Alberta Academic Excellence Award (2005)

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## **FURTHER TRAINING & EDUCATION**

ASCE 2024 Forensic Engineering Congress, Seattle, Washington (November 2024)

American Concrete Institute (ACI) Fall 2020 Virtual Conference, Online (October 2020)

Canadian Wood Council (CWC) workshop, Timber Bridge Design, London, Ontario (July 2019)

Thirteenth North American Masonry Conference, Salt Lake City, Utah (June 2019)

CWC Workshop, Lateral Design of Wood Structures, Vaughan, Ontario (June 2018)

Global Innovative Campus (GIC) Course, Design of Helical Piles, Online (July – October 2017)

GIC course, Design of Slabs on Grade, Online (August – October 2017)

American Society of Civil Engineers (ASCE), various webinars. List of titles available upon request. Online (September 2014 – Present)

CWC Wood Conference, Ottawa, Ontario (February 2016)

ASCE 2015 Forensic Engineering Congress, Miami, Florida (November 2015)

International Association of Certified Home Inspectors (InterNACHI), various online

courses. List of course titles available upon request. (April 2014 – March 2015)

ASCE course, Structural Condition Assessment of Existing Structures, Las Vegas, Nevada (September 2014)

CWC workshop, Introduction to Timber Engineering, Edmonton, Alberta (June 2014)

Global Innovative Campus webinar, Helical Piles in Practice, Online (April 2014)

CWC Wood Solutions Fair, Edmonton, Alberta (October 2013)

Twelfth Canadian Masonry Symposium, Vancouver, British Columbia (June 2013)

Canadian Society for Civil Engineering (CSCE) 2012 Annual Conference, Edmonton, Alberta (June 2012)

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## **SPEAKING ENGAGEMENTS**

Webinar: “Contractor Liability in Construction Claims”, Presented by Origin and Cause (April 29, 2020)

Webinar: “‘Did you feel that?!’ Construction Vibration Damage Claims” (May 30, 2018)

Webinar: “Can’t Touch This: The Do’s and Don’ts of Emergency Services/Repairs”, Presented by Origin and Cause (September 24, 2015)

City of St. Albert, Media Information Session: “Remote Monitoring of Differential Movements in Masonry Cavity Walls” (January 2013)

University of Alberta, Structural Engineering Seminar: “Innovative Technique for Insulating Walls Using Polyurethane Foam” (October 2012)

University of Alberta, Masonry Research Seminar: “Effective High-Density Polymer Thermal Insulation For Single-Wythe Masonry Walls” (November 2011)

University of Alberta, Concrete Materials Research Seminar: “Chemical and Micro Structural Characteristics of Fire-Exposed Concrete” (April 2011)

Third Masonry Mini-Symposium: “Thermal Efficiency Of Building Envelope Systems”  
(April 2011)

University of Alberta, Finite Element Analysis Seminar: “Inelastic Buckling of Short,  
Single-Angle Struts” (December 2010)

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## SELECTED PUBLICATIONS

Goudarzi, N., and **Lohonyai, A.J.** (2024). Collapse of a Steel-Framed Farm Building under Construction. *Forensic Engineering 2024*, pp. 1187-1194.

**Lohonyai, A.J.** Ground Vibration Damage on the Rise. *O&C Newsletter* (October 2016)

**Lohonyai, A.J.** Deconstructing Ice Dams. *O&C Newsletter* (April 2016)

**Lohonyai, A.J.**, Korany, Y., and Trovato, N. (2015). Analysis of Field-Measured Reversible Deformations in Masonry Cavity Walls. *The Masonry Society Journal*. vol. 33, no. 1, pp. 13-26.

**Lohonyai, A.J.**, Korany, Y., and Gül, M. (2014). Remote Field Monitoring of Thermal and Moisture Deformations in Masonry Cavity Wall Building Envelopes. *Journal of Performance of Constructed Facilities*. 10.1061/(ASCE)CF.1943-5509.0000550, 04014072

**Lohonyai, A.J.** and Korany, Y. (2013). Comparison of Building Enclosures Designed to the Minimum Requirements of the 2011 NECB. *Energy and Buildings*, vol. 66, pp. 143-153.

**Lohonyai, A.J.**, Korany, Y., and Ross, M.D. (2013). Effective Foam Insulation for Single-Wythe Masonry Walls. *Journal of Building Physics*, vol. 37, no. 2, pp. 200-210.

**Lohonyai, A.J.** (2012). Analysis of Building Enclosures Designed to the Minimum Energy Code Requirements of the 2011 NECB. Master of Engineering Report, University of Alberta, Edmonton, AB. 41 p.

Ross, M.D., **Lohonyai, A.J.**, and Korany, Y. (2011). Application of POLY-MOR Foam as Insulation for Single Wythe Masonry Walls. Masonry Chair Report 104, University of Alberta, Edmonton, AB. 40 p.

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## **REPRESENTATIVE PROJECTS**

Investigation and Repair of Structural Damage due to Lightning Strike, Hamilton, Ontario (2021)

Class 5 Sewage System Design for Reconstructed Cottage, Dunnville, Ontario (2021)

Tobacco Barn Collapse Investigation, Shrewsbury, Ontario (2019)

Septic Tank Collapse Investigation, St. Catharines, Ontario (2019)

Shoreline Protection Wall Failure Investigation Stoney Creek, Ontario (2018)

Bulk Cement Silo Explosion Investigation, Cambridge, Ontario (2018)

Investigation of Steel Building Collapse During Construction, Woodstock, Ontario (2017)

Concrete Pool Failure Investigation, Burlington, Ontario (2017)

A. Leone v. Brant Pools, Boddy Ryerson LLP, Brantford, Ontario (2017)

Tilting Stave Silo Investigation, Meaford, Ontario (2016)

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## **COURT EXPERIENCE**

M. Curtis ats D. Stafford, Scarfone Hawkins LLP, Hamilton, Ontario (2025)

C. Hines v. A. Walczak, Carl Hines, Hamilton, Ontario (2022)

M. Latif v. M. Ridolfo, Mazher Latif, Brantford, Ontario (2019)