



Steve Mah, M.Eng., P.Eng.

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EXPERT SUMMARY

Mr. Steve Mah is a structural forensic engineer specialist and a Senior Associate with the Civil & Structural Engineering Group at 30 Forensic Engineering. Steve has more than 8 years of work experience in structural design across commercial, residential, and institutional construction in a wide variety of materials. Steve has performed the detailed structural analysis and design of numerous structures, from heavy rail infrastructure to custom residences, and has participated in the execution of all project phases, including engineering, procurement, and construction, along with multiple stakeholders and in a multidisciplinary environment. In addition, Steve has 1 year of environmental engineering consulting experience performing Phase I ESAs, building condition assessments, mould remediations, and asbestos-containing material surveys. As a forensic engineer, Steve has investigated structural failures and damage to buildings as a result of inadequate design specifications or construction procedures, overloading or use changes, fires, vehicle impacts, deterioration of steel structures, and foundation deficiencies. Steve has a special interest and experience in timber structures and is highly skilled in programming and automation.

SPECIALIZED PROFESSIONAL COMPETENCIES

- Civil and structural engineering
- Analysis and design of timber, steel and cold-formed steel structures, connections, and structural components
- Analysis and design of reinforced concrete structures and foundations
- Investigation of building, property, and construction failures
- Experience in multidisciplinary design of transit infrastructure
- Experience in design of commercial and residential mass timber structures
- Structural analysis and finite element modelling in industry software including SAP2000, SAFE, ETABS, RFEM, RAM, TEDDS, MASS, GSA, S-Concrete, WoodWorks® Sizer, and Excel
- Drafting and markups in industry software including Revit, AutoCAD, and Bluebeam
- Programming for engineering applications in VBA, Python, SQL, C++, and Java



ACADEMIC BACKGROUND

Bachelor of Arts, Philosophy, University of London International Programme, London, England, 2015

Master of Engineering in Civil Engineering, University of Toronto, Toronto, Ontario, 2009

Bachelor of Science in Civil Engineering, University of Toronto, Toronto, Ontario, 2007

ADDITIONAL COURSES

- 202301 Fire Protection 2012 (BLDG 9262)
- 202102 General Legal Process and Powers and Duties 2012 (BLDG 9257)

EMPLOYMENT BACKGROUND

30 Forensic Engineering

Senior Associate, Civil & Structural Engineering
2023 – Present, Toronto, ON

- Building systems and structural failure analysis.
- Investigations related to structural failures or damage to buildings or non-building structures and foundations.
- Assessments of structural design or construction deficiencies.
- Detailed design of structural remediation packages including emergency response plans, temporary shoring, and detailed repair or reconstruction design.

Associate, Civil/Structural
2020 – 2023

Aspect Structural Engineers Inc.

Structural Engineer
2019 – 2020, Toronto, ON

- Designed lateral system of 11-storey mass timber development for Sidewalk Labs. Created methods for automatic input of wind loads on tall buildings.
- Designed gravity and lateral systems of 4-storey mass timber Ribbon Building in Distillery District.
- Primary design engineer for wood-framed residential development consisting of two 3-storey buildings.
- Primary design engineer for cold-formed enclosure for Toronto Hunt Club.
- Deduced, documented, and reported errors in leading industry software packages.

Thornton Tomasetti Inc.

Structural Engineer
2017 – 2019, Toronto, ON

- Investigated checking of timber beams in 4-storey Toronto School of Art. Specified structural retrofits.



- Designed cantilevered cold-formed exterior walls and Indigenous Marker structure for 5-storey Humber College Centre for Technology Innovation. Carried out construction administration for primary structural design.
- Primary design engineer for new 4-storey masonry educational facility.
- Programmed VBA tools to interface with ETABS, assign loading, and retrieve results for progressive collapse analysis.
- Programmed comprehensive spreadsheets for office-wide use. These comprised the application of wind loading, seismic loading, snow loading, and seismic component loading, and included VBA-generated reference graphics.
- Programmed VBA tools for automatic site report generation.
- Drafted structural details and drawing revisions in Revit.

Arup Canada Inc.

Structural Engineer

2013 – 2017, Toronto, ON

- Investigation and analysis of timber bridge failure for 401 Richmond Street Building.
- Site investigations and reporting for seismic assessments of properties in Eastern Canada.
- Designed piled foundations, slabs-on-grade, and maintenance pits for Edmonton's Valley Line LRT. Researched and developed methods for shrinkage crack analysis based on CIRIA 660.
- Completed geotechnical analysis and coordination for soil-structure interactions of foundations for East Rail Maintenance Facility.
- Designed concrete walls, walers, and slabs as part of an international multi-disciplinary team for underground stations on the Riyadh Metro. Researched international code differences and provided recommendations.
- Programmed tool to automatically update and check drawing versions in Python.
- Programmed tool for post-processing FEM results in VBA, checking reinforced concrete failure conditions across all elements.
- Programmed tool to complete iterative steel member design in VBA, using API to interface with GSA.
- Designed walls, walers, and slabs for concrete underground station as part of Eglinton Cross Town LRT bid.

Moses Structural Engineers Inc.

Structural Engineer

2010 – 2013, Toronto, ON

- Primary design engineer for 6-storey wood-frame HOT Condos project in Mississauga.
- Primary design engineer for multiple single-storey, custom wood-frame residential structures.
- Inspected, measured, modelled, and analyzed OWSJs and steel beams of existing buildings for additional load.
- Designed steel connections for TD Place timber stadium veil in Ottawa.



- Completed third-party site inspections and recommendations for City of Brampton's Sandalwood Works Yard.
- Designed and programmed in-house accounting system for employee timesheets and billing, reducing administrative task time by more than 90%.
- Completed third-party wind loading analysis for Chinook Arc sculpture in Calgary.
- Created details for specialized applications including clay-straw walls and polystyrene panels.
- Built and maintained client relationships with architects and property owners.
- Developed fee proposals and conducted general site reviews and conformance inspections.

S2S Environmental Inc.

Project Scientist

2009 – 2010, Pickering, ON

- Conducted Phase I Environmental Assessments, asbestos-containing materials surveys, mould investigations, air quality testing, building condition assessments, and groundwater monitoring.
- Programmed interactive database of building condition assessments in MS Access and SQL as a final deliverable for Toronto Public Library.
- Negotiated and liaised with property owners and tenants.

PROFESSIONAL SOCIETIES AND ASSOCIATIONS

- Professional Engineers of Ontario (PEO), Professional Member
- Association of Professional Engineers and Geoscientists of Alberta (APEGA), Professional Member