Ahmad Shahroodi Ph.D., P.Eng., CanDACC Adj.

Assistant Vice President | Forensic Team Lead
Senior Forensic Engineer | Large/Complex Loss
Federal Construction Contract Adjudicator

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Professional Summary:

Ahmad Shahroodi, Ph.D., P.Eng. joined the Forensic Engineering team at EFI Global Canada in August 2021, as a Senior Forensic Engineer. He also joined the international Large/Complex Loss team at EFI Global. Prior to joining EFI Global, Dr. Shahroodi worked as a Senior Forensic Engineer, project manager, structural designer, and quality control manager in many structural and infrastructure projects in Ontario. Dr. Shahroodi is the leader of EFI Global Canada Forensic Team in Central Canada. His team includes Civil/Electrical/Mechanical/Materials Forensic Engineers and Fire/Explosion investigators. Dr. Shahroodi also leads the Drafting and Drawing Department at EFI Global Canada.

In the world of forensic engineering, Dr. Shahroodi has worked in both infrastructure and structural projects (building, municipal and highway paving and culverts, and concrete structures). This experience coupled with his skills in structural and concrete materials design means Dr. Shahroodi has an excellent understanding of structures/infrastructures behaviour under various types of exposure and loading. As a forensic expert, he conducted investigations on a variety of failures and prepared expert reports to identify the cause of the damage/collapse and determine its extent. He is also an expert in testing structures and infrastructures with advanced non-destructive methods. His forensic reports and expertise have been referred to in several over province projects. Also, Dr. Shahroodi has provided litigation support in various cases across Ontario.

Dr. Ahmad Shahroodi is also a certified Federal Adjudicator by the authorized nominating authority under the Federal Prompt Payment for Construction Work Act. Dr. Shahroodi is able to hear construction adjudications, consider Claimants and Respondents positions, and come to the determination, which is ultimately enforceable by the courts of law.

Licenses and Certification:

- Member at Professional Engineers Associations in Canada
- Certified Adjudicator at Canada Dispute Adjudication for Construction Contracts (CanDACC)
- Certified Adjudicator at Ontario Dispute Adjudication for Construction Contracts (ODACC)
- Certified Concrete Field-Testing Technician at American Concrete Institute (ACI)
- Drone Pilot License Basic Operations – Small Remotely Piloted Aircraft System, Visual line-of-sigh

Project Experience (insurance claims & defendant-plaintiff litigations):

Direct Engineering Team: Manage and direct professional team members in aspects of professional activities including quality control, technical approach, and inspection and business including budgeting, pre-bidding, marketing, project closure, and client support.

Restoration and Repair Planning: Provided many restorations, shoring, repair, rehabilitation, and strengthening plans/designs for damaged structures and infrastructures (private and public owned).

Concrete Durability: Forensic investigation of various concrete durability defects and concrete diseases from mix designing, batching (batch data and dispatch records), transportation, pouring, consolidating, finishing, protecting, and curing aspects.

Slip/Trip & Fall: Forensic investigation of various incident areas (e.g., sidewalks, ramps, stairs), non-technical investigation, Code review, surface friction assessment, and litigation support in various slip & fall and trip & fall cases (for Defence and Plaintiff lawyers).

Pools & Reservoirs: Failure analysis and Code compliance review of in-ground, semi-, and above ground pools and pool enclosure investigations (different materials, configurations, and designs).

Forensic Investigation of Government Properties: Investigation of the original and cause of a failure, a damage, or a construction quality defect of many bridges, culvers, roads, operational facilities, and stormwater management systems, and marine structures.

Standard of Care: Review of experts' works and opinions and comparison with proper provincial and professional Acts and Codes to comment on the standard of care.

Renewal Energy: Failure analysis of collapsed wind turbines and renewable energy generators.

Sewer Backup and Floodings: Failure analysis of infrastructures (municipality sewer and sanitary systems), design/construction/maintenance review, internal plumbing system review, and causation investigation of various residential and commercial buildings flooding.

Construction Related Damages: Forensic assessment of various construction related damages to the neighboring buildings, stormwater management systems, roads, and structures.

Blast and Explosion Analysis: Forensic investigation of possible damage and extent of damage to buildings and infrastructures related to explosions and blasts in an area, dynamic analysis, and review of pre-blast protection methods.

Advanced Materials Testing: Coordination and conducting advanced concrete, steel, soil, and aggregate testing in various private and government owned projects for quality control, long-term durability assessment, fire resistance, and forensic investigation purposes.

Infrastructure: Failure analysis of infrastructures in Ontario and Quebec, Code compliance, design review, construction and maintenance analysis, and repair/rehabilitation cost determination.

Litigation Support & Consultation: Related to assessment of the original and cause, extent of damage, and responsible parties in various forensic cases (structure, infrastructure and building envelope) at different stages of litigation (e.g., discovery, cross-examination preparation, settlement).

Building Envelope Failure: Forensic investigation of various types of failures in building envelopes, and causation analysis (e.g., roof leakage, window/door failure, exterior cladding damage and leakage and …)

Business Development: Member at business development committees, marketing committee, and health and safety committee in several business.

Major/Complex Projects:

- **Combined Sewage Storage Tunnel (CSST)-Ottawa:** Production, quality control, durability assessment, forensic investigation, and project management of precast concrete liners for tunnels (approximately $18M project)
- **Collapse of Algo Center Shopping Center:** Investigation of the cause of the collapse including visual inspection, destructive and advanced non-destructive assessment of steel and concrete structural elements
- **Wind Turbine Tilting:** Forensic investigation of the cause of the failure in wind turbines from structural, materials, construction, and serviceability points of view ($4M project)-2002
- **Building Envelope Failure:** Various forensic engineering cases about failure in building envelope (more than $60M loss in total)
- **Age Determination of Defects:** Forensic investigation, sampling, laboratory testing, to estimate the age of defects and deteriorations to support litigation cases (approximately $1M residential projects in total)
- **Concrete Infrastructure:** Forensic investigation and durability assessment of concrete precast elements such as Ministry of Transportation-Ontario culverts, municipalities septic tanks and sewer systems, and Toronto Transit Commission beams (total project values approximately $25M)
- **Post-Fire Assessment:** Forensic inspection (destructive and non-destructive) of fire-related damage in structures (e.g., roof trusses, concrete foundations, steel structures) and infrastructures (e.g., Ottawa LRT bridge) to determine the extent of damage and provide rehabilitation suggestions (total loss approximately $6M)
- **Municipality Infrastructure:** Forensic evaluation and durability assessment of more than more than 80 km of concrete sidewalk, hand curb, road work, and machine curb Greater Toronto Area
- **Structural Design:** Design of various retaining walls, rehabilitation methods (for masonry historical structures), steel structures, and water reservoirs (total $12M)
- **Sewage Backup & Flooding:** Investigation of several sewage backup and flooding in provinces of Ontario and Saskatchewan, causation, restoration, and rehabilitation planning.
- **Maintenance Review:** Review of maintenance and snow removal protocol and process and investigation of related damage to 12 new train stations and determination the cause of damage (total $5M)
- **Equipment Failure:** Co-investigating various mechanical machinery (e.g., scissor lift, crane, or golf car), determining the cause of a failure or incident by review rental-ready inspection, inspecting the machine (design, , repair, maintenance) and reviewing the operation.

Professional Experience:

- **EFI Global Canada, Canada**
  2021-Present
  Senior Forensic Engineer / Forensic Engineering Team Lead

- **Ontario Dispute Adjudication for Construction Contracts (ODACC), Canada**
  2020-Present
  Certified Construction Contract Disputes Adjudicator

- **CEP Forensic, Ottawa, Canada**
  2019-2021
  Senior Forensic Engineer / NDT Specialist
  Regional H&S Officer

- **Power Precast Solutions, Ottawa, Canada**
  2018-2019
  Project Manager / Quality Control Manager

- **Turk Valley Aggregate, Cobourg, Canada**
  2013-2017
  Materials Quality Control Consultant

- **Giatec Scientific, Ottawa, Canada**
  2012
  Concrete Materials Specialist / Forensic Investigator

- **Bolton & National East Ready-Mix, Toronto, Canada**
  2011-2012
  Quality Control Manager / Forensic Investigator

- **University of Toronto, Toronto (post-graduation employment), Canada**
  2010-2011
  Concrete Durability Specialist

- **Rah Sazeh Pol, Tehran, Iran**
  2005
  Structural Engineer (building & bridge)

- **O&F Architects, Tehran, Iran**
  2003-2005
  Project Manager

Specialized Education:

- Work at Height & Fall Arrest
- Asbestos Awareness
- Spill Response
- Supervisor Health and Safety Awareness
- Working Together- Code & AODA
- Dry Lab Risk Management
- Lean White Belt in Management
- Concrete Repair Products
- Construction Law
- Ontario & Federal Construction Act
- Slip/Trip and Fall Incidents (EFI internal training program, which included five seminars related to the slip/trip and fall industry including human ambulation, potential hazards in the incident area, required code research including ADA, potential legal implications, and biomechanics)

Education:

- Philosophiae Doctor, University of Ottawa, Canada (Civil Engineering & Concrete Technology)
- Master's of Applied Science, University of Toronto, Canada (Civil Engineering & NDT)
- Bachelor of Engineering, IAU University, Tehran, Iran (Structural Engineering & Building Science)

Affiliations:

- Subcommittee Chair, Forensic Committee, Canadian Society of Civil Engineering (CSCE)
- Professional Engineer member at engineering regulatory bodies
- Certified Constitution Contract Disputes Adjudicator with Ontario Dispute Adjudication for Construction Contracts (ODACC)
- Member at Alternative Dispute Resolution Institute of Ontario (ADRIO)
- Certified concrete technician at American Concrete Institute (ACI)
- Associate member at American Concrete Institute (ACI) Committee 228 (Non-destructive Testing of Concrete)
- Voting member at American Concrete Institute (ACI) Committee 228B (Visual Inspection)
- Associate Member at Canadian Society of Civil Engineering (CSCE)
- Student member at Ontario Society of Professional Engineers (OSPE)
- Professional member at International Concrete Repair Institute (ICRI)
- Active member at Canadian Association of Home & Property Inspectors (CAHPI)
- Member at Council of Canadian Administrative Tribunals (CCAT)
- Vice-chair, Forensic Engineering Technical Committee, Canadian Society for Civil Engineering (CSCE)

Publications & Presentations:

- Malekpour A. and Shahroodi A., What is a Safe Filling Velocity in Water and Wastewater pipelines?, ASCE-Pipelines 2023 Conference, August 2023
- Shahroodi A., Martin-Perez B., and Alizadeh A., Shahroodi A., Martin-Perez B., and Alizadeh A., Electrical Properties as an Indicator for Rheological Properties Development of Fresh Cement

Pastes, 5th International conference on Structural Engineering and Concrete Technology (ICSECT'20), Lisbon, Portugal, April 2020

- Shahroodi A., Martin-Perez B., and Alizadeh A., Electrical Properties as an Indicator for Rheological Properties Development of Fresh Cement Pastes, Canadian Society for Civil Engineering (CSCE), 6th International Conference on Engineering Mechanics and Materials, Vancouver, Canada, June 2017
- Shahroodi A., Hooton R. D, Development of Test Methods for Assessment of Concrete Durability for Use in Performance-Based Specifications, Final Report submitted to the Ministry of transportation of Ontario and Department of Civil Engineering, University of Toronto
- Shahroodi A., Hooton R. D., Surface Electrical Resistivity (Wenner probe) as an Indicator for Concrete Quality Control, 2014, Winner of the ACI_James Instrument Best Paper Award in the field of NDT of Concrete
- Shahroodi A., Hooton R. D, Studying of air permeability of concrete and its relations with the other types of concrete penetrability, 2012, Unpublished yet
- Shahroodi A. and Mazroee A., Influencing Factors on Early Age Compressive Strength of Sand-Cement Mortars, Building and Houses Researching Centre Magazine, Mar. 2004, pp. 45-52
- Shahroodi A. and Golsoorat A., Application of Type A and B Grout in Rock Bolting Method during Rehabilitation of Concrete Structures, Payam e Sakhteman magazine, Session Jan.2005, pp. 90-99
- Shahroodi A., Ramezanianpour A. A., Hooton R. D., Prediction of 28-day compressive strength of normally cured cement mortars based on the 1 day strength of microwave cured cement mortars, 2010, International journal of civil engineering, Article code: A-10-87-2
- Shahroodi A. and Pahlavani G. A., Repair of Structures-Rehabilitation & Strengthening, ISBN 978600-90304-2-2, 2008
- Several blog, technical discussions, and technical publications in various online open sources