Shab Hardi, P. Eng., M.Sc.

Structural Engineer

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Education

SHARIF UNIVERSITY OF TECHNOLOGY, IRAN **2009 - 2011**

M.Sc. in Civil Engineering

BABOL NOSHIRVANI UNIVERSITY OF TECHNOLOGY, IRAN **2004 - 2008**

B.Sc. in Civil Engineering

Experience

ROAR ENGINEERING **2025– PRESENT**
Structural Engineer

Conduct thorough investigations of engineering failures, including structural collapses and material defects.

Perform site inspections, collect evidence, analyze data using tools like finite element analysis (FEA), 3D modeling, and material testing.

Prepare comprehensive technical reports and presentations summarizing findings, conclusions and recommendations.

Provide expert testimony in legal proceedings, depositions or insurance claims as needed.

Collaborate with multidisciplinary teams including architects, contractors and legal professionals to assess incidents.

Develop preventive recommendations to enhance safety, reliability and compliance with industry standards.

Selected Projects

Fire Loss in Residential Complex

Assisted in evaluating fire-damaged timber framing in a multi-unit housing complex. Performed material sampling and load analysis, identifying weakened joists and beams. Supported senior engineers in drafting a report that guided reconstruction efforts ensuring compliance with updated fire codes.

Tree Impact Damage to Residential Dwelling

Investigated structural damage to a single-family home caused by a fallen tree during a storm. Performed site inspections and used SAP2000 to model impact forces, identifying compromised load-bearing walls. Authored a report for insurance claims, recommending targeted repairs that restored structural stability while minimizing costs. Provided expert testimony in a dispute resolution securing a favorable outcome for the homeowner.

Vehicle Impact on Commercial Building

Analyzed a vehicle collision with a retail storefront, causing partial facade collapse. Utilized AutoCAD and non-destructive testing to assess damage to concrete columns and steel reinforcements. Determined design inadequacies in impact resistance and proposed retrofitting solutions, adopted by the property owner to prevent future incidents. Supported insurance negotiations with a detailed failure analysis report.

Fire Loss Investigation in Industrial Facility

Evaluated structural integrity of a warehouse post-fire, focusing on steel moment frame deficiencies. Conducted thermal analysis using ANSYS and material testing as per ASTM standards identifying heat-induced deformations. Recommended replacement of critical moment frame and updated fireproofing measures, influencing facility-wide safety upgrades. Presented findings to stakeholders facilitating rapid recovery and compliance.

GRAVITY ENGINEERING INC., TORONTO **2024 - 2025**
Structural Engineering

Structural design of commercial, residential, and industrial projects, ensuring compliance with OBC and NBC building codes.

Collaborated with architects, contractors, and project managers to develop cost-effective and safe structural systems.

Performed structural calculations, including load analysis, material strength, and safety factor assessments to ensure the integrity of structures.

Reviewed and approved design changes, RFIs (Requests for Information), prepare due diligence and submittals.

Conducted on-site inspections and reports, assisted with project management to ensure structural systems are being built according to specifications.

Selected Projects

Chick-Fil-A, Ottawa

Material: Steel, Concrete, |Tools: ETABS, Mathcad, Tekla Tedd, designed a one-story steel-framed commercial building with bracing, addressing seismic considerations and Class E soil conditions.

Toyota Canada Dealership Facility, Ontario

Material: Steel, Concrete, Masonry |Tools: ETABS, Excel VBA,Tekla Tedd, Led structural design and load analysis for a steel-framed building, ensuring compliance with OBC2024 and CSA S16-19.

SAZAN INC., (REMOTE), TORONTO **2021 – 2023**
Structural Engineering

Collaborated with a team of five structural engineers to perform structural design and analysis of various building types, specializing in wood-based structures compliant with the Ontario Building Code.

Performed comprehensive structural design calculations, analyses, and simulations using SAP2000, ETABS, and SAFE, as well as manual calculations, ensuring structural integrity, stability, and compliance with relevant codes and standards.

Provided input and recommendations for selecting suitable building materials and systems.

Utilized AutoCAD to create structural drafts and mentored new designers on the Canadian Building Code, wood design principles, and the analysis and design of concrete slabs and foundations.

Selected Projects

FireLane Complex, Niagara-On-the-Lake

Material: Steel, Mass timber, Concrete, Masonry |Tools: ETABS, Forte, designed wood frame structures with shear walls and steel moment frames, analyzing wind loads using abacus.

Westlake Apartments, Los Angeles

Material: Wood, Concrete, Masonry|Tools: ETABS, SAFE, Forte, Managed the design of a 7-story building with a concrete foundation and wood superstructure, ensuring compliance with CBC and ASCE/SEI standards.

Sailway Rehabilitation, Dana Point, CA

Material: wood|Tools: Forte, designed wood headers, steel frames, and reinforced concrete slab foundations for the rehabilitation of a 2-story residential building, ensuring compliance with CBC, ASCE/SEI, ACI318, NDS, and SDPWS standards.

ABNIYE CONSULTANT ENGINEERS **2017 – 2021**
Structural Engineering / Project Manager

Conducted site visits and surveys to assess existing structures, gathered data for design and analysis, produced reports assessing their condition and potential risks, and recommended remedial actions.

Collaborated with architects, clients, and other engineering disciplines to coordinate and integrate structural design with overall project requirements.

Reviewed shop drawings, calculation, submittals, RFI, and design change proposals to ensure compliance with design intent and specifications.

Actively participated in meetings with clients, contractors, and regulatory agencies to address structural-related issues and provide technical solutions.

Selected Projects

22 Office Buildings for Tolab

Material: Steel, Post-Tension Concrete, Masonry|Tools: ETABS, SAFE
Designed earthquake-resistant steel and post-tension concrete slab structures with 50 ft spans.

Sarpolzahab Hospital

Material: Concrete FRP | Tools: ETABS
Seismically retrofitted the structure using FRP methods, enhancing seismic resistance without disrupting serviceability.

Swimming Pool

Material: Concrete, Aluminum, steel | Tools: ETABS, SAFE, SAP2000, Formain
Designed and analyzed a reinforced concrete facility with a swimming pool and space frame roof, ensuring structural integrity and compliance with design standards.

MOSHAVERAN IR CONSULTANTS **2011 – 2016**
Structural Engineering

Assessed and recommended suitable building and construction materials to ensure compliance with building codes, regulations, and project specifications.

Utilized CSI software for structural analysis and design, conducting feasibility studies to evaluate project viability.

Performed technical analyses of survey and field data and produced reports essential for topographic, soil, hydrological, and other specialized reports.

Supervised projects and construction sites, overseeing land surveys and ensuring adherence to design plans.

Selected Projects

Asia Insurance IT Center

Material: Concrete | Tools: ETABS, SAFE, AutoCAD, designed a concrete structure with a 3 ft thick anti-theft underground enclosure.

Hotel

Material: Steel, Concrete | Tools: ETABS, SAFE, AutoCAD, Analyzed and designed a 13-story earthquake-resistant steel and concrete building.

Waterpark Facility

Material: Concrete | Tools: SAP2000, AutoCAD, designed a high-speed river and wave pool structure, performing hydraulic analysis and ensuring structural stability under dynamic water wave conditions.

Water Reservoir

Material: Reinforced concrete | Tools: SAP2000, AutoCAD, designed a 140 Ft^3 reinforced concrete water tank, optimizing concrete thickness for cost efficiency and drafting detailed design drawings to ensure constructability.

SKILLS

Structural Design: ETABS, SAFE, SAP2000, SAFE, Tekla Tedds, Forte, Familiar with RAM and STAAD Pro

Drafting: AutoCAD, Revit

MS Office Suite: Excel, Word, PowerPoint

Codes & Standards: Ontario Building Code OBC, CSA, NBC, US codes ASCE/SEI, ACI318

Soft Skills: Strong interpersonal and communication skills, team player, detail oriented

Driver's license: Holding valid G class driving license

KEY ACHIEVEMENTS

P.Eng. designation from Professional Engineers Ontario (PEO)

Steel Building Design | Canadian Institute of Steel Construction (CISC)

SUMMARY OF PROFESSIONAL STRENGTHS

Structural Engineering professional with 10+ years of experience in designing and analyzing concrete, steel, and wood structural systems for commercial, residential, and industrial projects. Proficient in advanced structural analysis tools, including ETABS, SAP2000, and SAFE, to develop innovative, Canadian cods and standards (CSA, NBC, OBC)-compliant solutions for seismic retrofitting, high-rise constructions, and complex building systems. Excelled in project management, site assessments, and multidisciplinary collaboration to deliver safe, sustainable, and cost-effective structural designs. Holds M.Sc. and a B.Sc. in Civil Engineering with P.Eng. designation from Professional Engineers Ontario (PEO).