

David Raoufi, E.I.T.

Structural Engineer in Training

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PROFESSIONAL PROFILE

David is a Structural Engineer-in-Training (E.I.T.) with experience in structural design, construction management, and quality control. He has structural design experience in multi-family structures, full structural custom homes and commercial pre-engineered buildings. Having completed over 150 unique projects, David combines his design experience with practical field experience to deliver, effective solutions to meet the needs of his clients. David's approach to forensic engineering is rooted in attention to detail, timely reporting, and clear communication. He strives to deliver thorough, evidence-based conclusions that help clients make informed decisions, whether for legal, insurance or construction purposes. His solid foundation in both structural design and real-world construction experience ensures that each forensic evaluation is backed by practical, actionable insights.

David's expertise includes:

- Lateral and Gravity Wood Framing including heavy timber connections
- Concrete Suspended Slab Design
- Heavy and Light Gauge Structural Steel
- Traditional and Non-Traditional Concrete Foundations and Screw Pile Foundations
- Assessment of structural stability after fire flood and impact
- Earth Retaining Structures
- Concrete Pools and Tanks
- Concrete mix design

EDUCATION

B.ASc. Civil Engineering, University of British Columbia, Kelowna, BC 2016-2021

- 16-month cooperative education option
- Graduated with distinction

PROFESSIONAL AFFILIATIONS

Association of Professional Engineers and Geoscientists of Alberta (APEGA)

Engineers and Geoscientists British Columbia (EGBC)

WORK HISTORY

2024 – Present: Structural Engineering E.I.T, Oak Forensic Engineering, Calgary, AB

Forensic analysis of structures, incidents, property losses, and course of construction disputes. The work generally falls into three categories:

1. Structural investigations to assist with insurance claims, course of construction disputes and mediation, and legal proceedings.
2. Structural assessment to determine the immediate structural stability and safety of a building after fire, flood or impact. I can also provide repair recommendations and details if necessary.

3. Preventative structural review and oversight. Assistance with identifying structural risks in new construction, independent structural reviews, and building code compliance.

David draws on his previous experience, structural analysis expertise, and connections with relevant labs and consultants to oversee technical investigations for our clients. He keeps up-to-date with industry-leading technologies to perform thorough inspections and conduct both non-destructive and destructive testing to uncover the facts of our investigations. For specific unique and complex projects, he also collaborates with external subject matter experts to guarantee our clients receive optimal results and deliverables.

2021 – 2024: Structural Design E.I.T, ROV Consulting, Kelowna, BC

As a Structural Design E.I.T. at ROV Consulting, David designed various structures including residential and commercial buildings in accordance with Part 9 and Part 4 of NBC2018, CSA A23.3, and CSA S16-09. He conducted structural analysis with Finite Element Modelling software such as RISA 3D, SAFE, and ETABS and subsequently provided construction drawings using AutoCAD 3D for building permit and construction purposes. His role involved reviewing and coordinating shop drawings with local suppliers and conducting reinforcement, framing, and shoring reviews. David managed over 150 projects, collaborating with clients and consultants to provide cost-effective solutions while ensuring deadlines were met. Additionally, he quoted and budgeted jobs based on forecasted work hours and efficiently scheduled construction phases to enhance productivity and workflow.

2019 – 2020: Engineering Student, PCL Westcoast Construction, Kelowna, BC

In this role, David performed quantity take-offs and estimates, coordinated concrete pours—including ordering and quality control—and reviewed subcontractor submittals. He worked closely with the Project Manager, Structural Site Superintendent, and Field Coordinator, supervising subcontractor work and coordinating design changes. His responsibilities included submitting as-built drawings and proposing structural design solutions in response to RFI situations. He managed rebar, shoring, and city inspections, and was responsible for filing and following up on RFIs and submittals. Additionally, David reviewed structural, architectural, mechanical, and electrical designs with subcontractors, provided document control using Bluebeam Revu, and handled project procurement documentation. David was also awarded the British Columbia Student of the Year Award.

2019: QAQC Civil Site Inspector/Engineering Assistant, Journey Engineering, Calgary, AB

As a Quality Assurance and Control Inspector, David provided daily field support on O&G civil construction works, ensuring all activities met design drawings and specifications. He administered contract requirements to contractors and prepared detailed field reports on work activities and progress for the client and 3rd party stakeholders. Additionally, David tracked quantities and progress payment data, supported the review of construction-related submittals, and provided technical input on various construction tasks. His responsibilities also included project scheduling, forecasting, and updating project spreadsheets using MS Excel to maintain accurate records.

2018: Engineering Assistant, City of Lloydminster, Lloydminster, AB

Under the guidance of Project Tech and Lead Engineers, David designed sketches, ditch corridors, grade assurance, and drainage plans using Civil3D. David conducted daily site visits on new road construction, inspecting subgrade, sub-base, and deflection roll tests with pavement contractors. He performed stakeout points for drainage swales and ditches constructed by Parks and Recreation and operated Trimble Survey equipment. Additionally, he studied and provided information from TAC ATC for road design and signage placement, supervised Quality Control for proctors, concrete, and asphalt testing,

and managed Mio-Vision Traffic Camera data analysis. David also completed over 30 signalization warrants for high-priority intersections and performed lateral service inspections for newly developed buildings connecting to sanitary and storm mains.

SAMPLE OF TECHNICAL PROJECTS

Structural Design – Two Storey Cantilever Retaining Wall Foundation On Steep Slope Lot

- Coordinated with the Geotechnical Engineers to determine the in-situ loading conditions which included surcharge loading from adjacent structures, compaction and hydrostatic loading.
- Analyzed and modelled the foundation as a system using RISA3D and RISA Foundation. Explored different options of transferring the backfill loads for the client to minimize excavation.
- Ensured local stability of the foundation and coordinated the design and construction requirements with the contractor.

Structural Design – Net Zero Part 4 Prefabricated Custom House on Screw Piles

- Designed and implemented a net-zero prefabricated home with modular and onsite framing, ensuring sustainability and zero concrete usage by opting for an innovative screw pile foundation and steel stud crawlspace framing to meet both environmental and constructability goals.
- Engineered modules according to shipping and transport load requirements, ensuring that all modules were designed to withstand transportation forces while maintaining structural integrity during both shipping and on-site assembly.

Structural Design – Wood-Framed Four Storey Hotel with Rooftop Patio and Hot Tub

- Designed a four-storey wood-framed hotel in Penticton, BC, incorporating a rooftop patio with heavy planters and a hot tub, addressing the challenge of transferring these significant loads to the foundation through complex transfer framing while integrating into the lateral system. Due to the close proximity to the property line and heavy loading due to the rooftop patio a unique raft-style foundation system was modelled in SAFE.
- Developed a raft-style foundation using SAFE software to accommodate a foundation located near the property line, ensuring stability and load distribution in a confined space while meeting local building code requirements.
- Engineered the design of a wood-framed structure with a concrete suspended slab podium, balancing structural efficiency, load transfer, and lateral stability to support the rooftop amenities and the overall building's design requirements.

O'Rourke Family Vineyard – Concrete Mix Design Analysis Using Onsite Aggregate

- Concrete supplied by owner using blasted local aggregate posed many pumping and placing difficulties.
- Tested concrete constituents and liaised with geotechnical engineer to provide solution.
- Reviewed ASTM standards and provided expertise to create revised mix design to allow blasted aggregate to set-up and pump efficiently.
- Created solution that had cost savings of ~\$200/m³ and increased pumping/placing efficiency by 30%.

Capstone Research Design Project

- Led a team of five to find a solution for industry partner and their waste fly ash produced from saw-mill boiler byproduct.
- Conducted weekly design meetings to ensure project deliverables were completed.
- Led a team through design process while researching the application and studies of fly ash.
- Provided project schedule and budget to complete final mix-design and data.
- Completed boiler ash chemical analysis and mortar testing to provide necessary data to client to achieve certification.
- Liaised with industry partner and City of Kelowna to improve fly ash transportation and use regulations.

CONTINUING EDUCATION / ADDITIONAL TRAINING

Accident Injury Preventions, *Fall Protection*, October 2024.

Worksite Safety, *Mobile Elevating Work Platforms*, November 2024.

SEABC C10 – Design of Foundations and Earth-Supported Structures.

SEABC C13 – Structural Steel Design for Buildings.