

Mahavir Nakum, P.Eng.

Structural Engineer

Contact
Cell: 416-301-4049
Tel: 844-235-8565
MahavirNakum@roarengineering.com

Education

UNIVERSITY OF OTTAWA, ONTARIO **2017 - 2018**

M.Eng. in Civil Engineering

GUJARAT TECHNOLOGICAL UNIVERSITY, INDIA **2012 - 2016**

B.Sc. in Civil Engineering

Experience

ROAR ENGINEERING **2025– PRESENT**
Structural Engineer

ELEMENT FORENSIC ENGINEERING, BURLINGTON **2023 - 2025**
Professional Engineer

Conducted thorough assessments of structural and architectural components post-catastrophic events, devising restoration strategies while adhering to industry standards.

Designed and implemented restoration solutions for buildings impacted by fire, blast, and environmental damage.

Developed emergency demolition and shoring strategies to stabilize damaged structures while maintaining operational safety.

Utilized structural analysis software, including SAP2000, to model and analyze diverse structures such as steel industrial buildings and historic wood buildings, ensuring cost-effective restoration.

Provided consultation and recommendations for reinforcing and retrofitting structural elements, including wood beams, trusses, and steel OWSJ, to ensure long-term structural integrity.

Managed complete restoration designs, including structural, architectural, and mechanical aspects per Ontario Building Code requirements.

Designed connections between new and existing structural elements for seamless integration and code compliance.

Collaborated with multidisciplinary teams to develop innovative solutions for strengthening aging structures, effectively communicating technical findings to clients and stakeholders.

Oversaw RFIs, site instructions, and permit-ready restoration drawings for insurance and construction processes.

Assessed and restored retaining walls impacted by environmental factors, developing innovative solutions for poor soil conditions and high-water tables.

Prepared comprehensive reports and documentation to facilitate clear communication with adjustors and owners, ensuring alignment with project goals and objectives.

MTE CONSULTING INC., BURLINGTON **2019 – 2023**
Structural Designer/Structural Engineer

Independently designed and prepared structural elements for several complex projects, including long-term care buildings, commercial structures, and residential developments.

Analyzed and designed concrete shear walls, columns, slabs, and foundations using advanced software tools such as ETABS, SAFE, and S-Concrete for high-rise and mixed-use developments.

Led the design of lateral force-resisting systems, including steel braced frames and wood shear walls with hold-downs and tension rod systems for various projects.

Managed construction phase activities, including site reviews, requests for information (RFI), site instructions (SI), cost change orders (CCO), and coordination with project teams to ensure adherence to budgets and schedules.

Utilized Revit for 3D modelling of structural components and preparation of detailed permit and construction drawings for multi-story buildings and commercial spaces.

Collaborated with project managers and senior engineers to ensure compliance with building codes, client requirements, and project specifications.

Worked closely with architects, MEP engineers, and contractors to develop coordinated construction documents.

Developed custom structural solutions for high-importance buildings and large-scale residential and commercial projects.

MTE CONSULTING INC., BURLINGTON **2018 – 2019**
Structural CAD Technician

Drafted and modelled structural elements for residential and commercial buildings using AutoCAD and Revit, ensuring precision and compliance with design specifications.

Assisted in the preparation of permits and construction drawings, translating design intent into clear and accurate visual documentation.

Supported senior designers and engineers by reviewing and updating shop drawings during the construction phase, ensuring alignment with approved designs.

Coordinated with project teams to resolve design issues and incorporated revisions based on client feedback and engineering requirements.



VIRTUAL VISION, BHAVNAGAR **2016**
Structural Design Engineer

Successfully designed various structures, including retaining walls and steel manufacturing plants, ensuring compliance with relevant codes and standards.

Reviewed and fixed shop drawings and Bill of Materials (BOM) to ensure accuracy and alignment with structural designs.

VISHWA INFRASTRUCTURE, BHAVNAGAR **2015 - 2016**
Junior Site Supervisor

Conducted regular construction site visits, inspected various phases of construction, and prepared daily site reports.

Carried out material tests and ensured compliance with construction site health and safety precautions.

TRAINING & CERTIFICATION

CAD Experience – Revit (drafting plans, elevations, sections, details, etc.)

Joint Health and Safety Committee Certification - OSG Workplace Wellbeing

Working at Heights - Worksite Safety

SKILLS

Structural analysis and design: ETABS, SAFE, S-FRAME, SAP2000, WoodWorks, MASS, S-Concrete

Drafting and modelling: Revit, AutoCAD

Restoration design for fire, blast, and environmental damage

Expertise in concrete, steel, wood, and masonry systems

Knowledge of the Ontario Building Code (OBC) and the National Building Code of Canada (NBCC)

Strong technical report writing and construction documentation

KEY ACHIEVEMENTS

Oversaw 30 high-risk assessments with a $12 million project budget

Managed a portfolio of 40 projects, over 1 million square feet

Reduced project costs by 15% through efficient structural design methodologies

Managed structural analysis for 7 large-scale projects with budgets over $50 million

Increased software efficiency by 40% through task automation in SAP2000



Handled design responsibilities for 11 mid to high-rise buildings using ETABS and SAFE software

Implemented design changes, cutting project costs by 15% on average

Achieved a 25% decrease in design errors through training sessions

PROJECTS

Fire Restoration, Brant Food Centre - 94 Grey Street, Brantford, Ontario

Project Characteristic: Built in 1890, Fire Damage, 13,200 sqft of retail space
Role: Structural Designer
Scope of work: Restoration of the incident building as per the latest building code

Provided emergency shoring measures to secure the building for safe demolition and restoration

Led the restoration of fire-damaged structural elements such as the roof and perimeter multi-white brick walls

Reinforced existing historic wood beams and joists with steel to support new rooftop HVAC systems

Fire Restoration, Niagara Investment Castings - 16 Smith Street, St Catharines, Ontario

Project Characteristic: Fire Damage due to a furnace blast, continued operation of the facility, emergency shoring
Role: Structural Designer
Scope of work: Provide Claim Qualification Drawings and Restoration of the incident building as per the latest building code

On-site inspection and oversight during the initial assessment of the loss

Provided emergency shoring measures to secure the building for safe demolition and continued operation of the remaining portion of the factory

Designed a new roof system to withstand the diaphragm forces and loads from the new RTUs

Developed post-installed solutions for column and beam connections, analyzed existing and new OWSJ systems, and engineered seamless connections between new and existing steel elements

Fire Restoration, The Home Hardware – 370 Bayfield, Goderich, Ontario

Project Characteristic: Fire Damage, Claim Quantification
Role: Structural Designer
Scope of work: Provide a claim qualification drawing of the incident building as per the latest building code

Detailed assessment of the loss and structural sketching to generate the as-built drawings

Developed claim quantification drawings to assist with the insurance claim process

Environmental Impact Restoration - 1052 Edgemere, Fort Erie, Ontario

Project Characteristic: Tree Impact damage, focused damage, emergency measures
Role: Structural Designer
Scope of work: Assess the damage, provide permit-ready drawings as per the latest building code

Assess the damaged components and provide the emergency sketch to restrict environmental damage

Designed select roof components and perimeter walls while maintaining the overall structure for re-use

Critical Infrastructure Restoration - 1352 Tonolli Rd, Mississauga, Ontario

Project Characteristic: Soil Erosion, Retaining Wall, Soldier Piles
Role: Structural Designer
Scope of work: Provide permit-ready drawings assuming worst soil erosion and as per the latest building code

Developed robust soil erosion mitigation designs like soldier piles with continuous retaining walls acting as a deep beam, effectively addressing challenging site conditions

Linhaven Long Term Care - 403 Ontario St, St. Catharines, Ontario

Project Characteristic: 5-storey building with Precast slab, CFS load-bearing walls and Concrete SFRS.
Role: Structural Designer, Assistant Project Manager
Scope of work: New design as per the latest building code

Designed a five-storey long-term care building with a basement to accommodate 256 beds

Utilized precast slabs, concrete SFRS, cold-formed steel (CFS) load-bearing walls, and steel ground floor systems

Independently prepared structural drawings, conducted site reviews, responded to RFIs, prepared SIs, and handled cost change orders with minimal supervision

Gilmore Lodge Long Term Care - 50 Gilmore Rd, Fort Erie, Ontario

Project Characteristic: 3-storey building with Precast slab, CFS load-bearing walls and Concrete SFRS
Role: Structural Designer, Assistant Project Manager
Scope of work: New design as per the latest building code

Designed a three-storey long-term care building with a basement for 160 beds

Applied similar structural systems as Linhaven Lodge

Provided full design, documentation, and construction phase support, ensuring adherence to budget and timelines

Soho Urban Towns - 505 Highland Rd W, Hamilton, Ontario

Project Characteristic: Apartment Building, Concrete SFRS, Underground Parking
Role: Structural Designer
Scope of work: New design as per the latest building code

Engineered two eight-storey poured concrete buildings connected by a five-storey concrete amenity bridge over a large transfer slab, with one level of underground parking

Analyzed and designed concrete shear walls, columns, and slabs using ETABS, SAFE, Excel, and S-Concrete

SUMMARY OF PROFESSIONAL STRENGTHS

Licensed Professional Engineer with over six years of specialized experience in forensic and structural engineering. Skilled in assessing damage, designing restorations, and analyzing a wide range of building types, from fire-damaged residential homes to multi-storey commercial and long-term care facilities. Known for independently managing complex projects, preparing permit-ready drawings, and coordinating with contractors, adjusters, and other consultants. Proficient in tools such as SAP2000, ETABS, SAFE, S-Frame, and WoodWorks, with a deep understanding of Ontario Building Code and safety standards.