

**NEIL KAZEN, M.Eng., M.Sc., P.Eng.,  
FCPCI, FASCE, FEC  
Consulting Structural Engineer**  
(Former name: Nabil El-Khazen)

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Forty-seven years of Structural Engineering management, design, supervision, contracting, research and academic teaching. Has been in consulting practice in Toronto for the past 38 years. Previously employed by major international consulting and contracting firms in structural design and construction management. Projects included landmark subway stations, airports, bridges, parking garages, high-rise building, industrial buildings, hospitals, stadiums and nearly all kinds of structures.

**EXPERIENCE:**

2/14 – 8/16      STRUCTURAL DESIGN MANAGER, Transportation Division, SNC-Lavalin, Toronto/  
STRUCTURAL ENGINEERING DISCIPLIN LEAD, Crosslinx Transit Solutions, Eglinton  
Crosstown Light Rapid Transit (ECLRT) project.

This project, awarded to Crosslinx Transit Solutions (CTS), in which SNC-Lavalin is a partner, is a design-build-finance-operate and maintain for 30 years project. ECLRT 19 km line includes 25 stations (with 15 underground stations). At \$5 billion contract value (\$5.9 billion according to the competition), it is the largest in Canada, and the largest in the history of Ontario.

I had the honor of leading the largest component of it: Structures.

As the System-wide Lead Structural Engineer, I led all of the project's Segment Lead Structural Engineers from SNC-Lavalin Toronto, Montreal and Vancouver; IBI; and sub consultants Entuitive, Lee and RJC. Even though our member firms never worked together in one team in the past, and even though some of them used to be in fierce competition against each other, I managed to streamline them all into one coherent Structural Focus Group where rivalry was replaced by close team cooperation. The result was the development of unified structural design criteria, structural concept philosophy, extensive value engineering (including some firsts in Canada). My approach to proposal writing enabled us to introduce daring value engineering concepts that were readily accepted by METROLINX.

Winning the competition against a much larger foreign competition was like Canadian David defeating a foreign Goliath. Our excellent management and team-building, created a mighty team out of mid-size firms; a legacy in team building. The result was a stunning optimized design that saved the public \$900 million compared to that of the competition's bid.

After winning the project, I continued to lead the Structural Focus Group into further value engineering, system-wide reports, details, specifications, unified approach for coordination with other disciplines and with the construction group. Helped train three structural teams for SNC-Lavalin's Montreal office and supervised quality control of all structural teams.

By the time I approached my 70th birthday, I trained a three-member team to be my replacement, consolidated all the necessary information for smooth transition and called it a retirement.

7/13 – 2/14

SENIOR STRUCTURAL ENGINEER, GLOBAL BUILDINGS  
CH2MHILL, Toronto, Ontario

Worked as a Structural Specialist on The Right Honourable Herb Gray Parkway (formerly known as the Windsor-Essex Parkway); Infrastructure Ontario; Windsor, Ontario, This is a Design Build Finance and Maintain (DBFM) project. 11-km-long, 6-lane, below-grade extension of Highway 401 through Windsor, Ontario, including 12 cut-and-cover tunnels, 14 bridges, 9 major culverts, various earth-retaining structures, etc. This \$1.5 billion Contract Value project faced controversial issues, related to prestressed-precast girders that became public and involved the highest levels of the Ontario Government.

My roll was to advise Infrastructure Ontario, through CH2MHILL, on these issues as well as raise new issues that I observed, look for viable solutions, propose testing procedures, visit precast plants and write comprehensive reports. Meet with Infrastructure Ontario project team and the Independent Expert Review Committee (advising the Minister of Transportation) who included my findings into their report that was addressed to the Minister. As a member of CH2MHILL team, helped resolve the conflict to the satisfaction of Infrastructures Ontario: Safe construction was restored at no cost to the public.

8/95 – 7/13

CONSULTING STRUCTURAL ENGINEER  
El-Khazen Consulting Ltd., Toronto, Ontario

Provided specialized consulting services, and in some cases, full engineer/drafting packages for various consulting firms and producers such as Halcrow Yolles, Entuitive, HATCH, Pre-Con, NORR, BRIGGS in Toronto; and High Concrete Structures in Pennsylvania USA. Examples are:

- Specialized structural consulting work with Halcrow Yolles from 3/96 to 7/13.

Lead Structural Engineer or Structural Specialist on all their underground transit structures:

- METROLINX seven stations review at 5% stage
- Tel Aviv Red Line LRT, 10 underground stations: Lead Structural Engineer for the first 10% then Structural Advisor after that.
- METROLINX Allen/ Eglinton station, ECLRT: Lead Structural Engineer for the first 10% then Lead Quality Control after that (10% -30%)
- METROLINX SRT/ Sheppard Stn: Lead Structural Engineer for this 30% design.
- DLR Woolwich Station, London, UK: Lead Quality Assurance
- TTC Summer Hill Station: Feasibility study for new adjacent construction
- TTC Harborfront LRT: Feasibility study for new adjacent construction (Air Canada Arena)
- TTC Leslie Subway Station: Structural Specialist for the final design. This project received the Ontario Concrete Award in the category of Cast-In-Place Concrete, Structural Design Innovation; and the 2001 Canadian Consulting Engineering Award of Excellence in the Transportation Category.

Structural Specialist on all Prestressed/ Precast Concrete projects including:

- East Markham Community Centre Parking Garage
- The Landmark Parking structure, Markham, Ontario
- Square One Parking Deck, Mississauga, Ontario

- Meadowvale Parking Garage, Mississauga, Ontario
- Yorkdale Parking Garage Expansion, Toronto
- Bloomington Arena and Parking Garage, Illinois
- Swiss Re Parking Garage, New York.

Structural Specialist on all Heavy Post-tensioning projects:

- Proposed PT framing to carry a 77 floors building, at 2 Bloor West, over Bloor-Yonge subway station.
- 6<sup>th</sup> Avenue Bridge, THE BOW, Calgary, Alberta.
- Bruce Power Station: Checking the capacity of PT girders for removal of 3450 tonnes Calandria (with spent Uranium rods) for replacement with a new one.
- 9<sup>th</sup> Ave, Bridge/ Deck over 15 railway tracks, MTA, New York, NY.

Design Engineer/ Lead Engineer/ Project Engineer of complex Cast-in-Place Concrete structures:

- Project Engineer for conceptual design of the 8 million square-ft Lybid Plaza, Kiev, Ukraine.
- Design/ Lead Engineer for most of the reinforced concrete of Lester B. Pearson International Airport terminal building (project value \$2.4 billion) that won the 2001 Ontario Concrete award for Cast-in place Concrete Material Development and Innovation.
- Design/ Lead Engineer: Winnipeg International Airport parking structure and part of Terminal Building.
- Design Engineer, Oqyana World First in Dubai.
- Design Engineer, Las-Vegas MGM Development, underground structures.

Other projects included, Toronto; Niagara Falls Casino; Baycrest Centre, Toronto; Shipping Centre, Shanghai, China; Appold Street Office Bldg., London, England;;

- Structural Specialist/ PT Design with Entuitive from 2/2011 to 5/2012: Continuation of the design of 9<sup>th</sup> Ave, Bridge/ Deck over 15 railway tracks, MTA, New York, NY, that started at Halcrow-Yolles.
- Full engineering, drafting and construction reporting of Santa Maria Foods, an industrial prestressed-precast building in Brampton, Ontario (for Pre-Con Company, 10/99 – 3/2000).
- Full engineering and drafting of a high profile facade (architectural precast panels with granite) of Fox Chase Cancer Centre, Philadelphia, PA. (High Concrete Structures, 4/98 – 3/99).
- Lead Structural Engineer (in-house structural quality control and co-ordination) of TTC Yonge / Sheppard Subway Station, Toronto, with NORR (11/96 – 12/97). This station with its west tail-track, is the largest TTC station and the latest built interchange station. Its surviving team members are the only living ones who have such an experience in Toronto. (The other two existing interchange underground stations belong to a past generation).
- Consulting Engineer of H.E.P.C. Bridge (Precast) for Pre-Con (3/97 – 4/97).

- Structural Specialist with HATCH, Sheppard Line Twin Tunnels, TBM Removal Shafts and Precast Concrete Culverts (9/95 – 11/95).
- Resident Engineer, Keele Street Bridge Steel Rehabs (for CN Rail) with the BRIGGS Group (8/95 – 9/95).

8/93 – 7/95

STRUCTURAL ENGINEERING LEADER AND DEPUTY PROJECT MANAGER OF ALLEN SUBWAY STATION, Toronto

DS-Lea Associates Ltd. (Consulting Engineers & Planners), Toronto, Ontario

Led the structural group of this interchange station of Eglinton Subway line from conceptual development to the 60% stage (cancelled by the provincial government due to budget cuts). Co-ordinated work of all disciplines involved with each other and with the client (RTEP).

Initiated the TTC Load Factor Study, a first for a transit authority. Analyzed 13 subway structures.

Pioneered numerous cost-cutting measures that became the new norm in TTC subway design, which resulted in saving millions of dollars of taxpayers money. Pioneered a Design Brief that became a guide to other engineering consultants in Toronto.

6/93 – 9/93

CONSULTING STRUCTURAL ENGINEER / DOWNSVIEW SUBWAY STATION

Henry J. Kaiser Company (Canada) Ltd., Toronto, Ontario

(Went out of business in 11/94)

Reviewed and revised the structural design of this pioneering subway station to achieve cost saving and improved constructibility. Designed architectural precast concrete arches. Compiled final structural engineering design notes of the whole team.

3/88 – 5/93

VALUE ENGINEER / STRUCTURAL SPECIALIST

Pre-Con Company, Brampton, Ontario

Reporting to the President, provided structural concepts, carried out Value Engineering design and performed overall evaluation of projects at the pre-bid stage, with specialized knowledge of production/ transportation/ erection departments, as well as structural safety and bottom line economy. Projects covered all areas of precast/ prestressed concrete: transit facilities such as TTC subway station Precast concrete option (1992); parking structures including Pearson Airport Terminal 3 Parking Garage; bridges; office, residential, institutional and industrial building; utility structures, etc. Products included both structural and architectural precast, using reinforced, restressed and/or post-tensioned concrete.

10/85 – 3/88

DESIGN ENGINEER / STRUCTURAL SPECIALIST / CONTRACTS ENGINEER

Beer Precast Concrete Limited, Toronto, Ontario (went out of business in 10/94)

Provided specialized design of architectural precast concrete panels both reinforced as well as post-tensioned panels; as Acting Erection Manager, supervised erection of all projects and was a member of the management team, addressing daily business issues.

9/84 – 10/85

SENIOR STRUCTURAL ENGINEER / STRUCTURAL SPECIALIST

and

12/86 – 1/93

CONSULTING STRUCTURAL ENGINEER (on contract)

DS-Lea Associates Ltd., (Consulting Engineers &amp; Planners), Toronto, Ontario

9/84 – 10/85: Carried out responsibility for all the structural engineering work of the company's four offices in Toronto, Ottawa, London (Ontario) and Winnipeg. Supervised drafting, inspected sites, evaluated existing structures for rehabilitation work. Performed feasibility studies. Participated in cost estimates, preparation of specifications and tender documents. Co-ordinated structural work with clients (public and private), architects, other engineering consultants and contractors. Structures worked on included transportation structures, bridges such as Spadina Road Bridge, Toronto, and buildings. Structures were of structural steel as well as cast-in-place concrete.

12/86 – 1/93: Consulting jobs through El-Khazen Consulting Ltd., same types of structures as above such as Peter Street Bridge and "Sky Walk" (Simcoe Street Pedestrian Bridge), Toronto.

2/84 – 8/84

CONSULTING STRUCTURAL ENGINEER

Working with M.R. Byrne & Associates Ltd. (Consulting Engineers), Burlington, Ontario, designed a monorail transportation system together with its train structure. Designed and wrote a manual on the design of wiper blades of cars, using lab tests and computer analysis. Performed site inspection, reporting and analysis of cast-in-place concrete rehabilitation work.

Working with American Precast Concrete Consultants, Downsview, Ontario (went out of business in 1986), designed a post-tensioned architectural precast concrete monument.

10/78 – 1/81

and

12/81 – 2/84

PARTNER / DIRECTOR / SENIOR DESIGN ENGINEER

Ecsedi Engineering Ltd. (precast/prestressed concrete specialists), Toronto, Ontario (went out of business 2/84)

Provided specialized consultation service for various precast concrete plants and consulting firms. Designed and/or directed the design of precast, prestressed and post-tensioned structures. Co-ordinated structural design with architects, engineers, general contractors and producers. Inspected precasting plants. Started the use of the in-house computer. Developed software for Prestressed members design. Projects included NAIT 2 (Northern Alberta Institute of Technology 2); TTC Kipling Subway Station superstructure, Toronto (1979-1980).

1/81 – 12/81

STRUCTURAL ENGINEER

Quinn Dressel Associates (Consulting Structural Engineers), Toronto, Ontario

Worked on the design of high-rise commercial centers and low-rise luxury buildings (mostly cast-in place concrete and occasionally structural steel). Used 3-D structural analyses programs and developed in-house program for creep, shrinkage and elastic deformations of high-rise buildings. Projects included Petro Canada Head Quarters, Calgary, Alberta (a 55 story, 2,000,000 square feet office tower) and Elf Aquitaine Head Quarters, Paris, France (50 storey, 1,000,000 square feet).

2/77 – 7/78

STRUCTURAL AND PLANNING ENGINEER

Consolidated Contractors International Co. Ltd., Abu Dhabi, United Arab Emirates

Working with this leading international contractor, planned the construction of a major stadium with seating capacity of 55,000. Planned manpower allocation of 1100 workers. Issued detailed construction programs to 22 site engineers. Provided remedial details. Represented the general contractor during meetings with the architect, consulting engineer and subcontractors in all structural engineering matters. The structure was a combination of cast-in-place concrete walls and floors, precast concrete bleachers and segmental precast/post-tensioned 100' span cantilever roof beams.

3/73 – 12/76

SENIOR STRUCTURAL ENGINEER

Dar Al-Handasah (Shair & Partners, Consulting Engineers)  
Beirut, Lebanon and Cairo, Egypt

Working with this leading international design firm, directed a group of structural engineers and draftsmen (the first to be a Section Leader at age 28). Analyzed and designed major structures: a stadium; hotels; office, industrial and residential buildings and bridges. Advised architects during conceptual design stage.

11/72 – 3/73

SITE ENGINEER

Orient Trading and Contracting Company, Doha, Qatar

Supervised the construction of the "Royal Guards Barracks".

10/70 – 6/72

TEACHING GRADUATE ASSISTANT

School of Engineering and Architecture  
American University of Beirut, Lebanon

Helped in teaching most undergraduate structural engineering and some transportation courses.

9/69 – 2/70

LABORATORY ENGINEER

Central Laboratory, Ministry of Communications  
Damascus, Syria

Performed all tests related to concrete, aggregates and soil. Designed concrete mixes. Wrote a manual on the triaxial compression test of soil.

**EDUCATION:**

M.Sc. (Physics) York University, 1982

Completed, as an interest, while having a full time engineering job.

M.Eng. (Civil-Structures), American University of Beirut, Lebanon, 1972. Course average "A". Thesis supervised by a researcher from University of California, Berkeley.

B.Eng. (Civil), Damascus University, Syria 1969.

Diploma structural project with grade "A" completed under supervision of a UN professor.

Currently, a part-time student at Trinity College, U of T, MTS Program (Masters Degree in Theological Studies).

**AFFILIATIONS:** PEO P.Eng., Consulting Engineer and, formerly, Structural Specialist  
ASCE Fellow  
CPCI Fellow  
EC Fellow  
PCI Former Member, won Certificate of Merit for Parking Garages work.

**INTERESTS/ VOLUNTEERING:**

Outdoors: Hiking, canoeing and kayaking  
Member of Toronto Outdoors Club

Formerly:

- Member of Bridging Government and Engineers (BGE) Committee of Engineers Canada, liaison with my Member of Parliament.
- Vice Chair – Advocacy, PEO/ Toronto-Humber Chapter (for 11 years). Won Ontario Volunteer Award.
- Member of OSPE's Government Relations Committee
- Resident Engineer with Scarborough Board of Education, volunteering on behalf of PEO
- Member of several political think tanks including Transportation Advisory Committee at Queen's Park (1996-2002), advising three consecutive Ministers of Transportation.
- Ran in Federal Elections, year 2000.
- President- Queen's Quay Toastmasters Club. Led the club to President Distinguished Club Award, Won 1st place over 184 clubs (District 60) in best Open House and best membership drive.
- Toastmasters Area 21/District 186 Governor. Lead the Area (5 clubs) into Select-Distinguished Area status.
- Won several speech awards including Bronze in speech contest over 30 clubs (Div. C/ D60)