

SANJAY KUMAR P.Eng, P.E.

Lead/Senior Structural Engineer

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Summary

- **Masters graduate in structural engineering** having **9+ years** of experience in analyses, assessment and detailed design of **steel structures, reinforced concrete structures and their foundations** within the **mining & minerals, onshore oil & gas, petrochemical and heavy industrial sectors** in accordance with **American, Canadian Codes and Euro Standards**.
- Registered as **Professional Engineer P.E.** with the **Texas Board of Professional Engineers and Land Surveyors TBPELS. NCEES Records** (in progress) for **multi-state comity licensure**.
- Registered as **Professional Engineer P.Eng** with the **Professional Engineers of Ontario PEO**.
- **Lead Engineer** in L&T for the WKO Facility (Kuwait Oil Corporation) project and responsible for planning, scheduling and delivering the targets within the allocated project budget for the ISBL area in 8 GC's containing 16 technological structures, 24 piperacks, 32 steel shelters, 176 equipment foundations and 8 reinforced concrete substation buildings.
- **Canadian Citizen - Eligible for TN Visa. Employer sponsorship is not required to work in the US.**
- **Expert developer** of VBA automation with a keen insight into structural engineering concepts, to bring down the overall project costs. [\(Click to see\)](#)
- Collaborated with international clients, stakeholders and colleagues using excellent oral and written communication, while working in a multidisciplinary team-oriented environment along with the ability to work independently and take ownership of assignments.
- Extensive knowledge of codes and standards such as **ACI 318, AISC 360, PIP, ASCE 7, IBC, AASHTO, CSA A23.3, CSA S16, NBCC, OBC & Euro Codes**.
- Computer Skills/Design Software: **STAAD.Pro, SAP2000, Mathcad, AutoCAD, Microstation V8, Bluebeam, Navisworks, spColumn, RISA-3D, Tekla, E3D, OpenSTAAD, Excel VBA, LISP & Microsoft office products.**

Work Experience

Job Title : Structural Engineer Level II **Mar 2023 - Present**
Employer : Worley Canada East, Markham, Ontario

- Analysis and design of the **P7A G1+G2 building** of size 62x25x28 m, **utility building** of size 65x15x28 m, **NMC scrap building** and their foundations conforming to CSA S16, CSA A23.3, NBCC and OBC.
- **Constructability review** was performed for the above buildings and **sequential erection and design** proposals were proposed to the client.
- **Prepared the load combinations**, conforming to **NBCC, OBC and PIP** standards for the PACMAN project.
- **Vendor GAD reviews** and coordinate packages (sub-contractors) with other disciplines and vendors, to manage the flow of data for designs.

Projects:

- PACMAN Project, Umicore, Ontario, Canada.

Job Title : Structural Engineer
Employer : WOOD Canada Ltd, Oakville, Canada

Nov 2020 - Mar 2023

- Analysis and design of the **Screening Building, Primary Crusher Building** and their foundations conforming to CSA S16, CSA A23.3, NBCC and OBC.
- **Finite element modelling**, analysis and design of **dynamic** foundations of pumps, in-accordance with latest CSA and ACI standards.
- **Package Engineer** for the **precast concrete** supply contract in Côté Gold project and the **multi-plate tunnels** in Marathon project.
- Responsible for the structural drawings submitted by the sub-contractor (Scott Steel). Reviewed and provided approvals for their design and drawing submittals.
- Reviewed the 3D models submitted by the fabricator and provided approvals for the steel fabrication model for construction.
- **Provided** prompt **RFI responses** to the **precast supplier** (BPQ), **pre-engineered building vendor** (Scott Steel) and the **steel fabricator** (Walters), in-order to avoid construction delays.
- Assisted the Lead Engineer in preparing the **TDR (Technical Decision Record)** and **ECN (Engineering Change Notice)** for the hot and cold storage building layouts.
- Prepared the MTO material take-off for the feasibility study of the Marathon project.
- Prepared the calculations sheets to verify the **development length** as per CSA A23.3, ladder and handrail standard drawings as per NBCC, OBC and OSHA standards.
- Prepared the **load combinations**, conforming to NBCC and OBC standards for the Marathon project.
- Provided engineering technical support to the site during construction, and responded to RFIs from construction contractors and suppliers.
- **Vendor GAD review** and coordinate packages (sub-contractors) with other disciplines and vendors, to manage the flow of data for designs.

Projects:

- Côté Gold Project, IAMGOLD, Ontario, Canada.
- Marathon Palladium and Copper Project, Generation PGM, Ontario, Canada.

Job Title : Civil & Structural Engineer
Employer : Saipem, India

Oct 2019 - Mar 2020

- Analysis and design of **structural steel modular piperacks** and **technological structures** and their **pile foundations**, conforming to American Standards.
- **Finite element modelling**, analysis and design of **cooling tower basin sumps** and **dynamic pump/compressor foundations** in-accordance with ACI 318.
- **Developed VBA Excel sheets** for stream-lining the process of design of **miscellaneous pipe supports** and their **foundations**, leading to a **40% reduction in man-hours**.
- Initiated, prepared and issued the **calculations & design drawing packages** for the above engineering deliverables.
- **Supervised** the calculation, technical reports and drawings issued by **subordinates**.
- Collaborated with the Milan Operating Centre of SAIPEM and EPC contractors, for timely approval of design documentations and drawings, while sticking with the budget and committed schedules.
- **Developed VBA macro tools** to extract the **foundation summary data** from **MAT-3D**, for reporting, BOQ estimation and providing draftsmen input data. It directly resulted in a **70% saving in man-hours**.
- **Generated a VBA macro tool** to create **sketches of pedestal rebar** for draftsmen input and the same sheet was extended to determine the number of pedestal rebars contributing to anchor bolt tension. **AutoCAD license**

consumption for the above activity was brought down to zero, simultaneously efficiently enabling multiple iterations.

- Developed Windows scripts using Send Keys method, to **create structured project folders in Windows**.

Projects:

- Clean Fuel Project, Thai Oil, Thailand.

Job Title : Assistant Manager Civil & Structural

July 2017 - Aug 2019

Employer : L&T Hydrocarbon Engineering, India

- **Lead Engineer** of the Kuwait Oil Corporation project within WKO facilities.
- Handled the ISBL area in 8 gathering centres, containing 16 technological structures, 24 piperacks, 32 steel shelters, 176 equipment foundations and 8 RCC substation buildings.
- **Seismic Analysis and design of RCC substation** in a high seismic zone adhering to **ductile detailing** along with the **preparation of BBS** as per ACI 318.
- Analysis and design of **Transformer foundations** and **dynamic equipment foundations** for compressors.
- Planning, scheduling and **material take-off** of the above engineering deliverables.
- Review and quality compliance of **fabricator shop** and **BBS drawings** for the above structures.
- Providing engineering **technical support to the site during construction**, including **site inspections**, responding to RFIs from construction contractors and issuing Design Change Notes.
- **Participated** in 30%, 60% and 90% **model design reviews** with Client, JV and contractors.
- **Vendor GAD review, coordinate** projects **with other disciplines** and JV, to manage the flow of data for designs.
- Prepared the **civil & structural design basis**, conforming to ASCE 7 and Kuwait Oil Corporation standards.
- Analysis and design of **shelters, piperacks & pipe supports** conforming to AISC 360.
- **Finite element modelling**, analysis and design of **raft foundations** of technological structure, in-accordance with ACI 318.
- Analysis and design of **pile foundations of piperacks, technological structures and buildings** in-accordance with IS codes.
- **Estimation** of the number of **piles** based on initial pile capacities, to arrive at a **±10% BOM** for the pile project cost estimates, **tender quotes** and other **contractual documents**.
- **Estimation of Manhours** for new project bids and undertook **feasibility studies** during bidding to **identify** the **constructability issues** during **site surveys and inspections**.
- **Developed a tool** for **extraction of member end forces from STAAD** to perform **connection designs**, through **VBA and OpenSTAAD**. It saved a considerable amount of man-hours while performing multiple analyses and the automation was implemented later, across multiple projects in the department.
- **Implementation of an AutoCAD LISP tool**, to change the template of multiple drawings simultaneously, directly resulting in a **30% reduction in drafting man-hours** for the activity.
- **Deployment of VBA macro tool**, using AutoCAD LISP **to estimate grading and filling quantities**.
- Performed manual calculations for validation of MAT-3D and RCDC softwares.
- **Data mining of foundation failure patterns** and material take-off **using VBA** to arrive at **economical** and safe **designs**, ensuring proper functionality and practicality.
- Awarded the **“Outstanding”** performance ratings for two continuous years at L&T.

Projects:

- WKO Facilities Revamp Project, Kuwait Oil Corporation (KOC), Kuwait.

- 100 kTPA Chloromethane Project, Gujarat Alkalies Company Ltd, India.
- Ramanmandi Barwala Project, Hindustan Petroleum Corporation Ltd, India.

Job Title : Civil & Structural Engineer

July 2015 - July 2017

Employer : Amec Foster Wheeler (A Wood PLC), India

- Analysis and design of **piperacks, equipment supporting structures**, conforming to Eurocodes.
- Analysis and design of **static/dynamic pump, horizontal exchanger and vessel foundations**.
- Preparation of load combinations as per Eurocode.
- **Development of VBA tool** to display the **Excel formulas** for documentation.
- **Adequacy check** of existing EO reactor **structure and pile foundations** conforming to Eurocodes.
- Analysis of **raft foundations with piles** through **FEM modelling**.
- **Connection designs** were performed using **RAM connection**.
- **Developed built-in VBA functions** using OpenSTAAD, for effective modelling in STAAD.
- Provided minimal strengthening for piperack during **adequacy checks of brownfield projects** and **prepared drawings** indicating the **modifications for foundations**.
- Analysis and design of **miscellaneous pipe supports** in **offshore deck platforms**.
- Reviewed the **fabrication drawings** of steelwork arrangement in the pipe supports.
- Developed **wind loading sheets**, for **offshore structures** based on American standards.
- Prepared **connection design calculation sheets** conforming to American codes.

Projects:

- Vaccum Gas Oil Project, PREEM AB, Lysekil Refinery, Sweden.
- EOG2 RUBY FEED Project, Shell Eastern Petroleum Pte.Ltd, Jurong Island, Singapore.
- BLNG COGEN II Project, Steam Integration EPCm, Lumut, Brunei.
- Montrose Arbroath Redevelopment Project, Talisman Energy Limited, UK (North Sea).

Education

(Evaluated as equivalent Canadian Bachelors and Masters Degree by WES, Canada)

(Evaluated as equivalent American Engineering Degree by NCEES)

MASTERS IN STRUCTURAL ENGINEERING

2013-2015

Indian Institute of Technology Madras, India

BACHELORS IN CIVIL ENGINEERING

2008-2012

College of Engineering Guindy, India

Activities

- Provided training to various educational institutions and private companies on Structural Engineering Software and automation: STAAD.Pro, SAP2000, ETABS and Excel VBA.