

MUHAMMAD ZAHIDULLAH

Civil Engineer | Structural Design & BIM | ETABS · SAFE · Revit

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PROFESSIONAL SUMMARY

Civil Engineering graduate (CGPA 3.49/4.00, four-time Dean's Honor List) specialising in reinforced concrete design and BIM. Delivers end-to-end structural design in ETABS and SAFE to UBC-97 / BCP-2021 and ACI 318-19 — most recently the seismic analysis and mat foundation design of an 8-storey RC building, verified throughout by independent hand calculation. Produces fully coordinated Revit models and drawing sets covering structure, reinforcement and architecture. On-site internship experience in construction quality oversight; PEC Graduate Engineer registration in process. Seeking structural design, graduate trainee or site engineering roles.

EDUCATION

BS Civil Engineering

2022 – 2026

Capital University of Science and Technology (CUST), Islamabad

- **CGPA 3.49 / 4.00** — graduated August 2026.
- **Four-time Dean's Honor List** recipient (Semesters 2, 3, 5 and 8).
- Pakistan Engineering Council (PEC): Graduate Engineer registration in process.
- Key coursework: Structural Analysis & Design, Reinforced Concrete Design, Geotechnical Engineering, Construction Project Management, Quantity Surveying, Hydraulics & Irrigation Engineering, Transportation Engineering.

EXPERIENCE

Freelance Structural & BIM Engineer

Jul 2026 – Present

Self-employed · Fiverr (draftbyzahid)

- Deliver RC analysis and design, Revit and AutoCAD drawing production, and BOQ documents for international clients to fixed deadlines.
- Convert PDFs, images and hand sketches into coordinated DWG floor plans; prepare quantity takeoffs and detailed cost estimates.

Site Engineering Intern

Jul – Oct 2025

Standard Interiors — Chitral District, Khyber Pakhtunkhwa · On-site

- Inspected executed RC and finishing works against structural drawings and specifications, verifying conformance before subsequent construction stages were allowed to proceed.
- Reconciled design intent with field execution, tracking drawing implementation on site and flagging deviations to the site engineer for corrective action.

STRUCTURAL DESIGN & BIM PROJECTS

Seismic Analysis & Foundation Design — 8-Storey + Basement RC Building

Jul 2026

ETABS · SAFE · UBC-97 / BCP-2021 · ACI 318-19 | Self-driven project

- Independently designed an 8-storey plus basement RC apartment building (dual system: SMRF with twin shear-wall cores) for Seismic Zone 3, Peshawar — deriving all UBC-97 seismic parameters by hand ($Z = 0.30$, $R = 8.5$) and verifying the ETABS base reaction against manual estimates to within **0.5%**.
- Performed equivalent-lateral-force and response-spectrum analysis with RSA-to-ELF base-shear scaling, P-Delta and storey-drift verification (0.7R-amplified drift at 41% of the code limit); eliminated torsional irregularity through balanced dual-core placement.
- Designed special moment frames to ACI 318-19 Chapter 18 (strong-column-weak-beam, joint shear, SDC D) and a 30 in mat foundation in SAFE on compression-only soil springs — punching shear $D/C = 0.47$, with bearing-pressure iteration via mat extension.
- Diagnosed and corrected critical model-setup errors (envelope combination type, response-spectrum scale factor) purely through independent hand-calculation cross-checks.

Crescent Court — 10-Storey RC Office Tower, Full BIM Model

2026

Revit 2025 → 2027 | Self-driven project

- Modelled a 10-storey L-shaped office tower with a curved east bay end to end: levels and grids, columns, beams, floors, lift and stair cores, 14 in basement retaining walls and a 36 in mat foundation.
- Detailed reinforcement to slabs, beams and columns inside the model, then built the full architectural model in the same file so structure and architecture stayed coordinated throughout.
- Produced coordinated plan, elevation and section views, titled drawing sheets, and quantity schedules generated directly from the model.
- Member sizing: 24×30 in columns (24 in circular on the curved bay), 15×27 in main beams, 12×21 in secondary beams, 8 in slabs and 12 in core walls.

Seismic-Resistant Design of a G+2 Commercial Building

Academic

ETABS · SAFE · AutoCAD · Revit

- Finite-element modelling of a three-storey RC commercial building under combined seismic and gravity loading, with detailing of critical beams, columns, slabs and foundation.

ADDITIONAL ENGINEERING PROJECTS

Automated Crack Detection & Localization of Masonry Walls — Final Year Project

2025 - 26

Python · PyTorch · YOLO · U-Net · OpenCV

- Built a deep-learning structural health monitoring system that detects and localizes cracks in masonry walls, reducing reliance on manual visual inspection; curated a 300-image dataset (crack, non-crack, noisy) to train and evaluate the models.

Design of a Lined Irrigation Canal — Marala Headworks to Bopalwala, Sialkot

Spring 2026

HEC-RAS · Manning's Equation · Google Earth Pro

- Designed a 32.6 km concrete-lined trapezoidal canal ($Q = 122.4 \text{ m}^3/\text{s}$); sized the most economical section, set the longitudinal profile and invert levels, validated depth, velocity and flow regime in a 1-D steady-flow model, and benchmarked against Kennedy and Lacey regime theories.
- **Construction Project Scheduling Using CPM** (Primavera P6, Excel) — full CPM schedule with AOA/AON network diagrams, float analysis, S-curves and critical-path analysis with and without delays.
- **Water Distribution System Analysis, DHA Phase-2 Islamabad** (EPANET) — modelled network flows and nodal pressures to assess hydraulic performance and adequacy.
- **Seepage Analysis of Sadpara Dam** (Slide 6.0) — analysed seepage through the dam body and foundation to evaluate stability and seepage control performance.
- **Coursework:** ESAL estimation of IJP Road, Islamabad (Excel); Bill of Quantities for a house foundation (Excel); architectural design of a community building (AutoCAD).

TECHNICAL SKILLS

Structural Design & Analysis: ETABS, SAFE, SAP2000; RC design; seismic design (ELF & response-spectrum analysis, UBC-97 / BCP-2021 / ACI 318-19); mat & shallow foundation design; finite-element modelling; independent hand verification.

BIM & Drafting: Revit (structural and architectural modelling, rebar detailing, sheets, schedules), AutoCAD, Civil 3D.

Quantity Surveying & Construction Management: BOQ, quantity takeoff, cost estimation, PlanSwift; Primavera P6, CPM & network analysis, float analysis, S-curves.

Water Resources & Geotechnical: HEC-RAS, EPANET, Slide 6.0; open-channel and canal design.

Programming & Tools: Python, PyTorch, OpenCV, Git, Google Earth Pro, MS Excel, MS Office.

HONORS & ACTIVITIES

- **Dean's Honor List, CUST** — four-time recipient (Semesters 2, 3, 5 and 8).
- **Two-time champion**, CUST inter-departmental football tournament; departmental football and volleyball representative.

LANGUAGES

English (professional working proficiency) · Urdu (native)