SAGAR MAHAJAN

STRUCTURAL ENGINEER | CIVIL ENGINEER | PUNE UNIVERSITY

mahajansagar676@gmail.com | 7020926594 | www.linkedin.com/in/sagar-mahajan-339042187 | Mumbai, India

SKILLS

STRUCTURAL

- **Producing structural analysis models** from **architectural drawings**
- **Breaking down complex problems** through applying **fundamental engineering principles**
- **Prioritising tasks** to meet project deadlines
- **Effectively communicating** with people of engineering and non-engineering backgrounds

SOFTWARE

- **ETABS** used on various projects involving design & analysis of RCC framed structures
- **STAAD PRO** used to analyse steel & concrete elements
- **RCDC** used to design concrete elements shearwall,column,beam ,slab,column,pilecap,etc
- **AutoCAD** used to draft 2D engineering drawings
- Comprehensive understanding of **Microsoft Office Suite**

EDUCATION

MIT-SDE ,PUNE

MBA/PGDM-CPM

Dec 2023 - Dec 2025

- **CGPA**-Currently pursuing

Vishwakarma Institute of Information Technology,PUNE

- Bachelor of Civil Engineering
- **CGPA:** 8.56 / 10

Oct 2017 - Mar 2020

Smt.SSP Polytechnic Chopda, Jalgaon

- Diploma In Civil Engineering
- Marks: 88%

Oct 2014 - Mar 2017

GN Systech Consulting Engineers Pvt. Ltd. |

JAN 2024 - PRESENT **Senior Structural Engineer** | **Mumbai,**

MAJOR PROJECTS

CRYSTAL ANTARA,THANE,55-STORY RESIDENTIAL SKYSCRAPER

- **Optimized the design of a 55-story residential tower** by reducing shear wall thickness while ensuring structural integrity.
- Performed **serviceability limit state** (SLS) and **limit state method** (LSM) checks to validate the design.
- Conducted **structural analysis and design using ETABS software,** adhering to IS codes (IS 456, IS 1893, Tall Building Code 16700).
- Completed a **peer review** of the structural design in collaboration with **Epicons Consultant Pvt. Ltd.**
- **Designed and detailed shear wall**s, slabs, and beams, ensuring compliance with industry standards.
- Performed **gust wind calculations** as per IS 875 (Part 3) for wind load evaluation.
- **Positively communicated and coordinated outputs** with other disciplines when **optimising the design for client desires** .
- Designed **underground water tanks (UGT)** and septic tanks following IS 3370 standards.
- Conducted **sensitivity analysis** using **upper-bound** and **lower-bound** methods to assess structural behavior.
- Performed **dynamic analysis using ETABS** and **scaled base shear** for static and dynamic cases.

PEER REVIEW & OPTIMIZATION OF PRE-ENGINEERED BUILDING (PEB)-M/S. SUPRIYA LIFESCIENCE LTD. -AMBERNATH

- Conducted **peer review and structural optimization** of a PEB structure.
- Verified **proper load applications as per client requirements and design standards.**
- Checked **wind load calculations using hand calculations & MS Excel** and validated results.
- **Performed a detailed study of the STAAD Pro model** and provided structural improvement suggestions.
- Assessed structural integrity by checking the **utilization ratio to ensure safety and efficiency.**
- Ensured compliance with **IS 800 for steel structures and IS 1893 for seismic design.**
- Reviewed connection design and member adequacy to enhance structural stability.
- Suggested **cost-effective modifications to improve material efficiency** without compromising strength.
- Collaborated with the client to address design concerns and provide structural recommendations.

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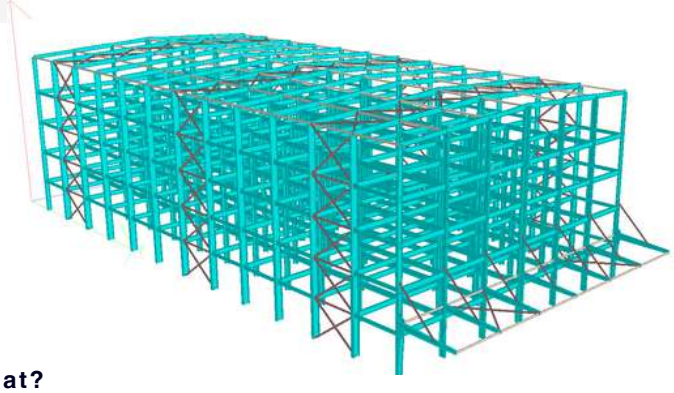
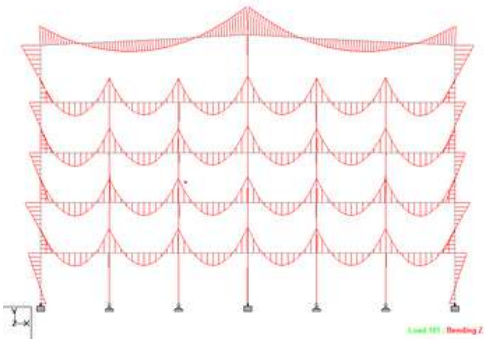
PEER REVIEW - PRE-ENGINEERED BUILDING (PEB)-AMBERNATH





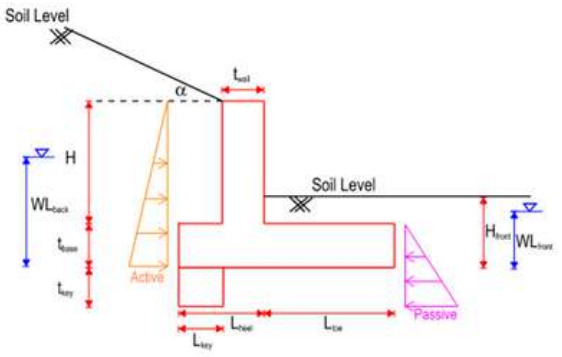
What?

- **Designed and prepared calculation reports** for main portal frame members, purlins, and bracing in a PEB structure.
- Reviewed and provided detailed mark-ups for the drafting team to ensure accurate structural detailing.

How?

- **Performed structural analysis using STAAD Pro and developed critical load case combinations in Excel.**
- **Calculated design loads and documented design iterations in MS Word for reporting.**
- **Reviewed and marked up structural drawings to ensure compliance with design standards.**

RETAINING WALL DESIGN - UNDER GROUND WATER TANK & SPT



What?

- Design a reinforced concrete cantilever retaining wall that retains a sloped embankment of soil.
- Designed UGT and STP tanks using IS 3370 and the cantilever wall method for various structures.

How?

- Performed **soil, hydrostatic and surcharge load calculations**
- Performed **stability checks** on the wall (i.e sliding, overturning and bearing)
- Used **hand calculations** to derive the design actions on wall
- Verified calculations using **Tekla Tedds**
- Applied concrete design principles to **size reinforcement**
- performed structural analysis for UGT & SPT in G+55 floor buildings and other structures to ensure stability.

BLUE JET HEALTHCARE LTD-MAHAD , AMBERNATH-CHEMICAL PLANTS

What?

- Designed a chemical plant structure using **STAAD Pro and ETABS**, optimizing steel members as per structural requirements.
- Designed beams, columns, decking sheets, and mezzanine floors for **reactor floors and pipe rack structures in the chemical plant.**
- Applied loadings as per client inputs and arranged reactions based on tonnage for accurate design.
- Checked member capacities and ensured compliance with **IS 800** and **IS 1893 for seismic safety**.

How?

- Performed structural analysis and **optimization in STAAD** Pro and **ETABS**, ensuring cost-effective and safe design.
- Created and analyzed critical load case combinations for different plant structures.
- Verified steel member capacities using **KL/R** ratio from **IS 800** table to ensure stability.
- Coordinated with clients and project teams to incorporate specific load requirements and **optimize the structure** accordingly.

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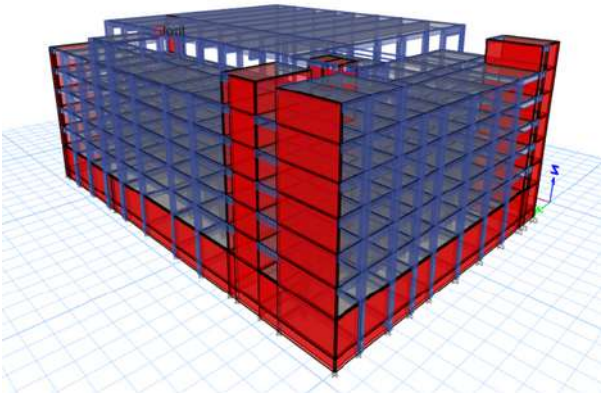
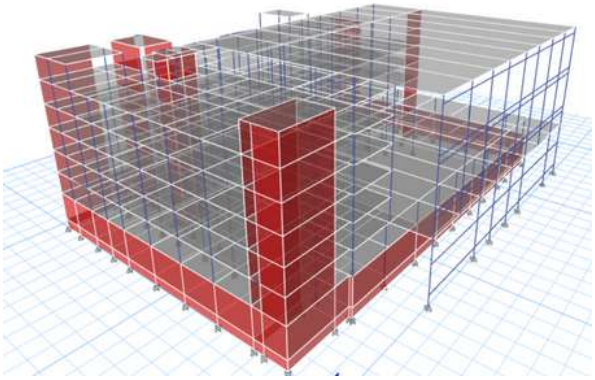
MULTI-STOREY SCHOOL BUILDING -MUSCAT ,OMAN





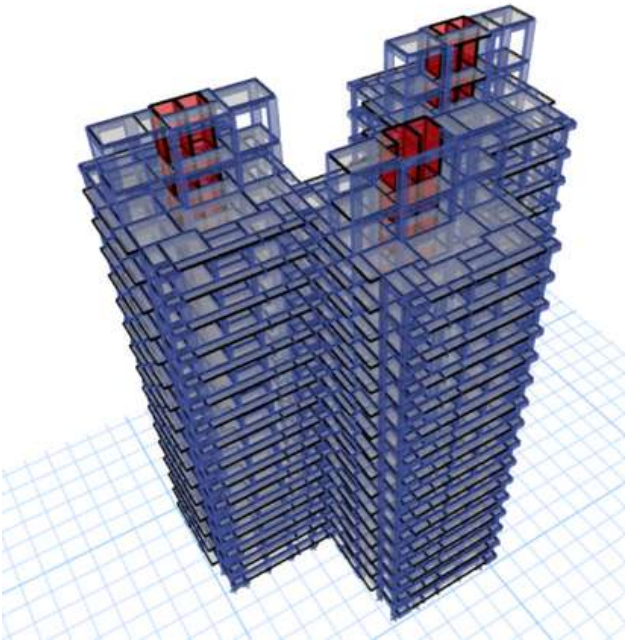
What?

- Designed a school building in **Muscat, Oman**, with **2 basement floors for parking & swimming pool and 4 above-ground floors using ETABS.**
- Applied structural checks as per **BS code**, ensuring compliance with safety and performance standards.
- Designed a terrace floor with a golf course and other amenities, incorporating structural load considerations.
- Used post-tensioned (PT) beams in the auditorium and swimming pool areas to achieve the required clear spans as per client requirements.

How?

- Performed structural analysis in **ETABS, applying wind and seismic drift checks for stability.**
- Verified **mass participation ratio, soft story behavior**, and other structural integrity checks as per **BS code.**
- Used **BS code load combinations** to ensure accurate load distribution and proper load application.
- Optimized the structural system by incorporating PT beams in large-span areas to meet architectural and functional needs.

EBONY-ENSAARA METRO PARK ,PIPLA ,NAGPUR (G+15) RESIDENTIAL TOWER



What?

- Designed a **G+15 residential building using ETABS**, ensuring compliance with **IS 456, IS 1893, and IS 875** (wind load checks).
- Prepared a comprehensive **Design Basis Report (DBR)** and developed detailed foundation drawings, RCC floor plans, and slab designs for structural integrity.
- Coordinated with the client's structural team and architects to align structural design with project requirements.

How?

- Performed structural analysis in **ETABS**, applying seismic and wind load checks as per IS codes.
- Developed and reviewed all structural drawings in coordination with the drafting team for accuracy.
- Ensured proper load path and stability through optimized foundation and slab designs.
- Worked closely with multidisciplinary teams to ensure efficient execution and adherence to design standards.

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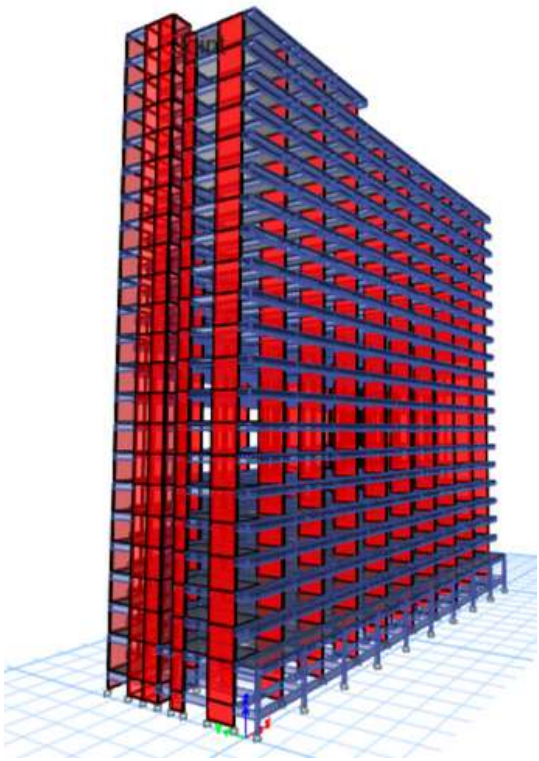
ACE SIGNATURE IT PARK-CIRCLE WAGALE ESTATE, THANE WEST. (G+20)



What?

- Designed a **G+20** commercial building using **ETABS** and **RCDC**, incorporating shear wall and **SMRF (Special Moment Resisting Frame)** system for lateral stability.
- Performed structural analysis and applied all checks as per **IS 456, IS 1893 (seismic), IS 875 Part 3 (wind load), and IS 13920 (ductile detailing).**
- Coordinated with the client's structural team, architects, and other stakeholders to ensure compliance with project requirements.

How?

- Optimized the structural system for strength, stability, and cost efficiency while adhering to engineering standards.
- Performed **seismic, wind, and serviceability assessments,** ensuring compliance with **IS 456, IS 1893, IS 875 Part 3, and IS 13920.**
- **Designed shear walls and SMRF** elements to enhance lateral load resistance and ductile performance as per **IS 13920.**
- Reviewed and finalized structural drawings with precision and clarity to ensure smooth execution.
- **Coordinated with multidisciplinary teams,** facilitating efficient project execution and implementation.

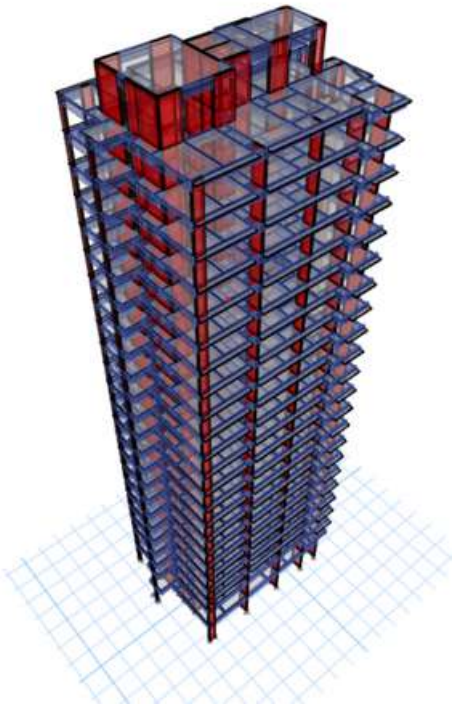
ADITYA TRIDENT- (G+24) - RESIDENTIAL BUILDING ,NAGPUR

What?

- Designed a **G+24 residential building using ETABS**, ensuring compliance with **IS 456, IS 1893, IS 875 Part 3, and IS 16700.**
- Developed structural framing plans, coordinated with architects, and implemented the Special Moment Resisting Frame **(SMRF)** system for lateral stability.
- Performed **static** and **dynamic analysis** using the **response spectrum method**, **base shear scaling**, and conducted wind drift, seismic drift, and diaphragm displacement checks.

How?

- Optimized the framing system for structural efficiency and architectural feasibility.
- Conducted structural analysis in **ETABS**, including **static, dynamic, and response spectrum analysis.**
- Applied base shear scaling and **SMRF** system to enhance seismic performance and lateral stability.
- Reviewed and validated structural models for compliance with all **serviceability and design checks**..



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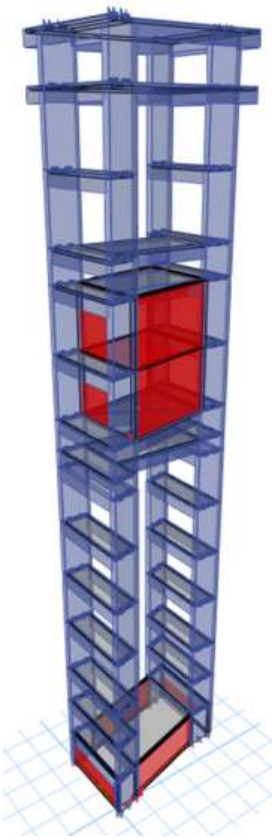
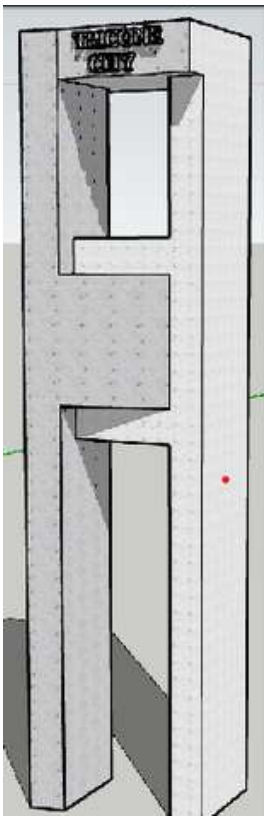
OHWT (45M HEIGHT)CLUB HOUSE - TRICONE CITY -INDORE





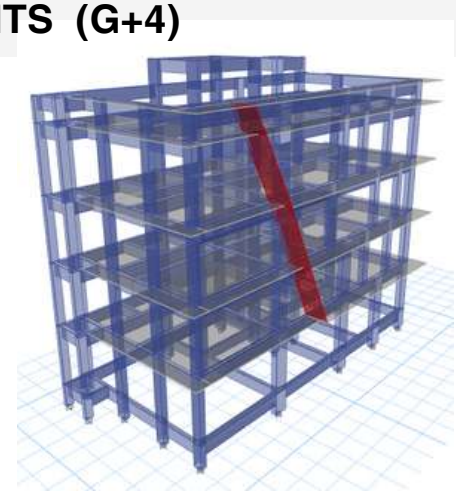
What?

- Designed a **45m overhead water tank using ETABS,** ensuring compliance with **IS 456, IS 1893, and IS 3370 Part 4.**
- Applied all loads as per client requirements, including water pressure on tank walls, wind, and seismic loads.
- **Performed structural safety checks**, analyzing the **tank in both empty and full conditions** to ensure stability.
- Designed staging (support structure) and optimized column and bracing elements for seismic and wind load resistance.

How?

- Modeled and analyzed the water tank in **ETABS,** incorporating **wind and seismic drift checks as per IS codes.**
- Designed the **bottom slab** and **shear walls to withstand hydrostatic pressure** and structural forces.
- Performed reinforcement detailing for durability and crack control, ensuring long-term performance and water tightness.
- Verified overall **stability, strength, and serviceability** by ensuring full compliance with Indian Standard codes.

BANGALURU GUEST HOUSE-DID CONSULTANTS (G+4)



What?

- Designed the RCC structure while maintaining the architectural elevation.
- Incorporated **floating columns** to achieve the required elevation.
- Prepared the **Design Basis Report (DBR)** for client submission.
- Coordinated with the client for design approvals and execution.
- **Developed foundation drawing**s and reviewed structural detailing (slabs, staircase, etc.)

How?

- Used **ETABS for structural analysis and design**.
- Ensured compliance with **IS 456 & IS 1893.**
- Collaborated with architects to integrate structural solutions without compromising aesthetics.
- **Worked closely with the drafting team to ensure accurate detailing.**
- Verified and refined drawings before submission to ensure accuracy and constructability

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Sushila Consulting Engineers Pvt. Ltd. |

DEC 2023 - JAN 2024 **Structural Engineer | PUNE**,

- Applied extensive structural engineering expertise to the design and analysis of diverse construction projects.
- Developed and reviewed detailed **RCC drawings**, ensuring compliance with industry standards and project specifications.
- Collaborated with architects, contractors, and stakeholders to optimize structural designs and address potential challenges.
- Conducted structural assessments, providing recommendations for improvements and modifications as needed.
- Performed quantity estimation and structural design using **STAAD.Pro,** contributing to the successful execution of residential apartment projects.

Freelance Structural Engineer |

OCT 2020 - NOV 2023 **Structural Engineer** |Maharashtra

- Designed and **executed over 30 residential bungalows** using **ETABS and STAAD.Pro**, ensuring structural stability and compliance with relevant codes.
- Performed complete structural analysis and design, including load calculations, **foundation design,** and **beam-column** sizing as per client requirements.
- Developed detailed RCC and steel drawings, coordinating with architects and MEP consultants to ensure seamless integration of structural elements.
- Provided **on-site execution support**, **overseeing construction to ensure adherence to design specifications and quality standards.**
- Optimized structural designs to enhance cost efficiency without compromising safety and durability.
- Ensured compliance with local building codes and IS standards, addressing site-specific challenges effectively.
- Collaborated closely with contractors and site engineers, resolving technical issues and facilitating smooth project execution.