



NDA Consulting

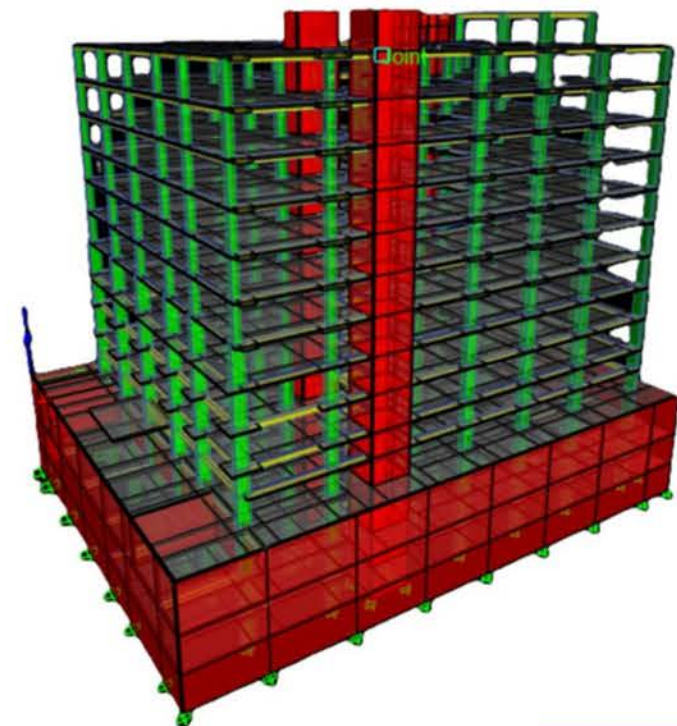
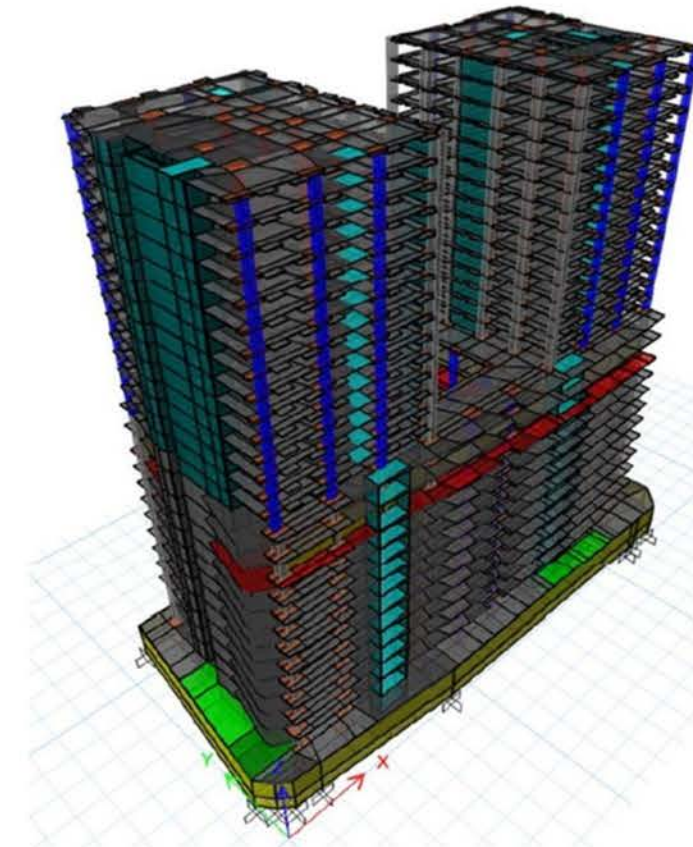
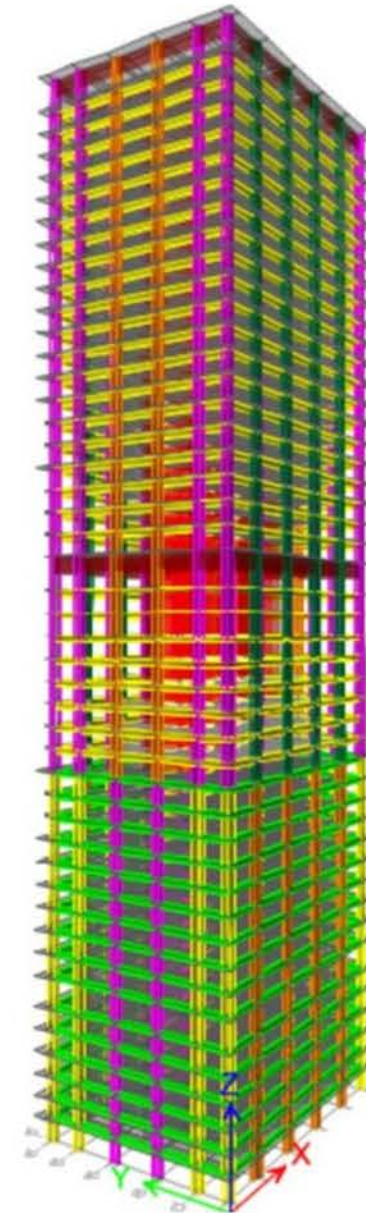
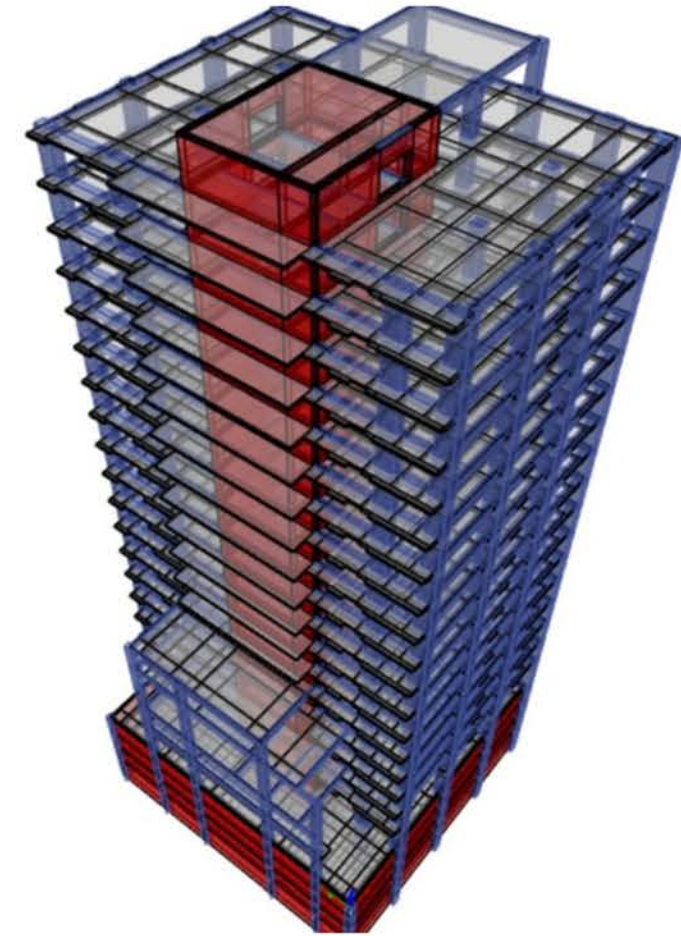
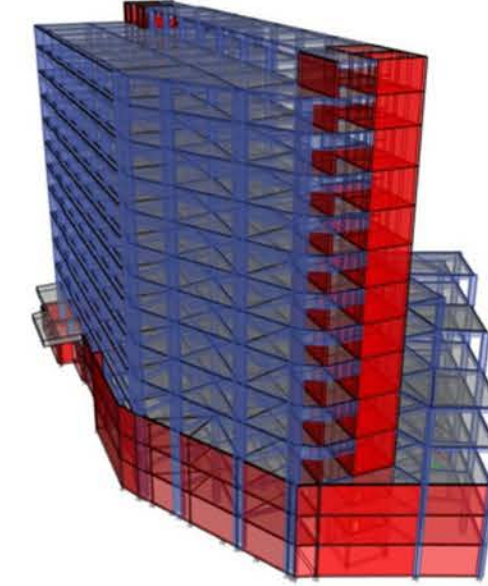
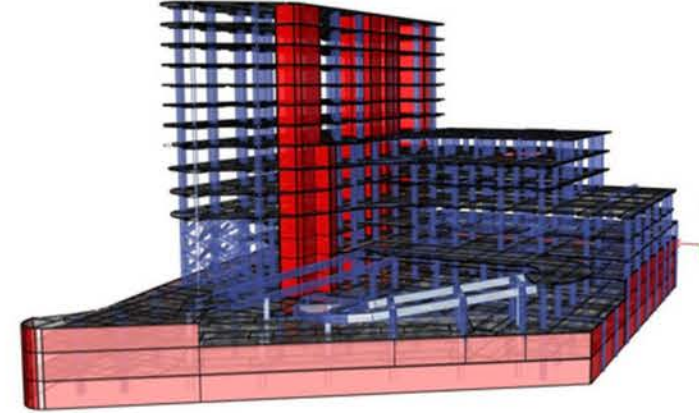
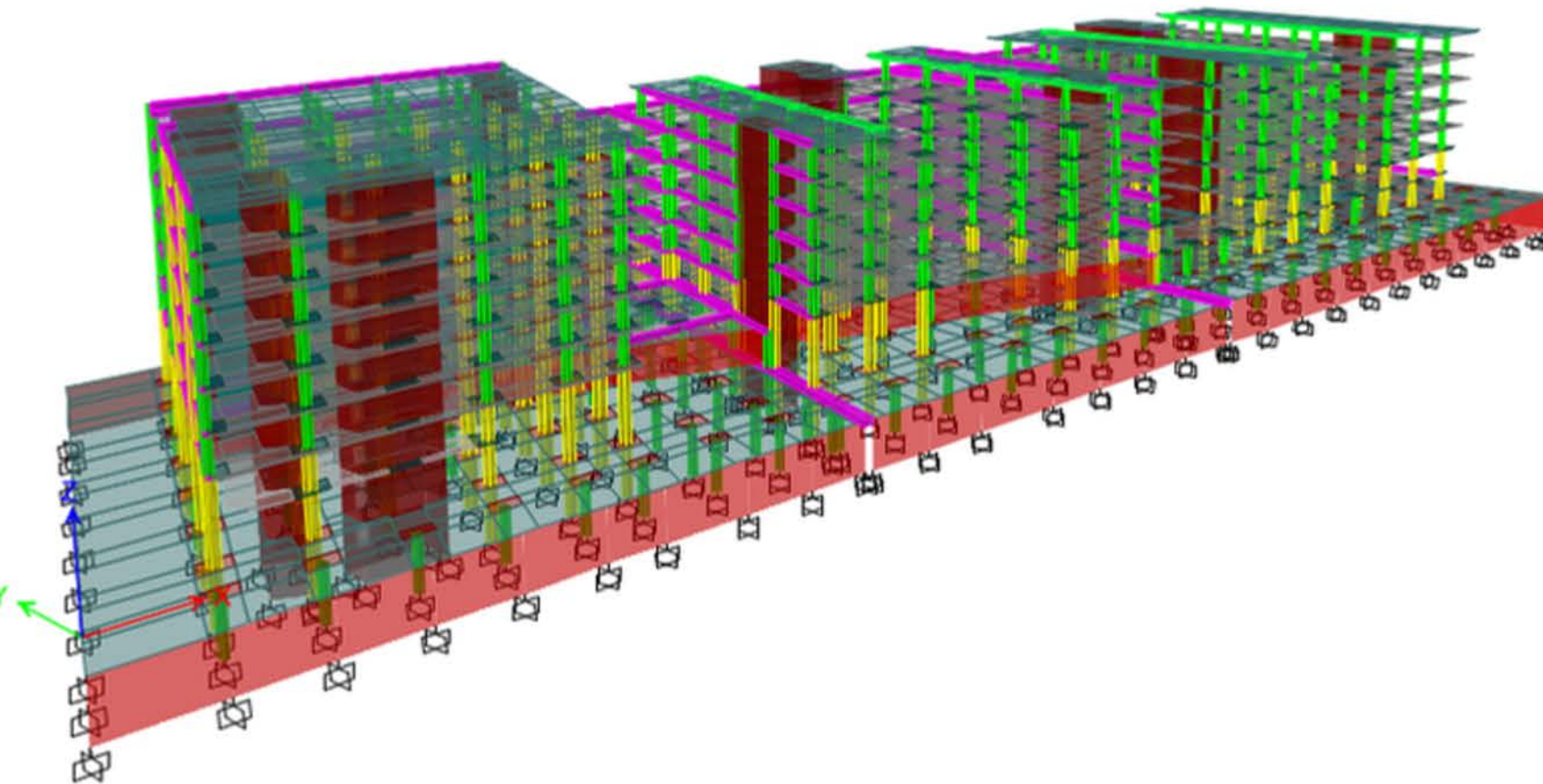
C O M P A N Y P R O F I L E



1 (844) 632-2661



www.ndacan.com





About Us

We are a Canadian company, registered with the Professional Engineers Ontario (PEO), specializing in structural engineering, geotechnical engineering, 3D modeling, and CAD detailing services.

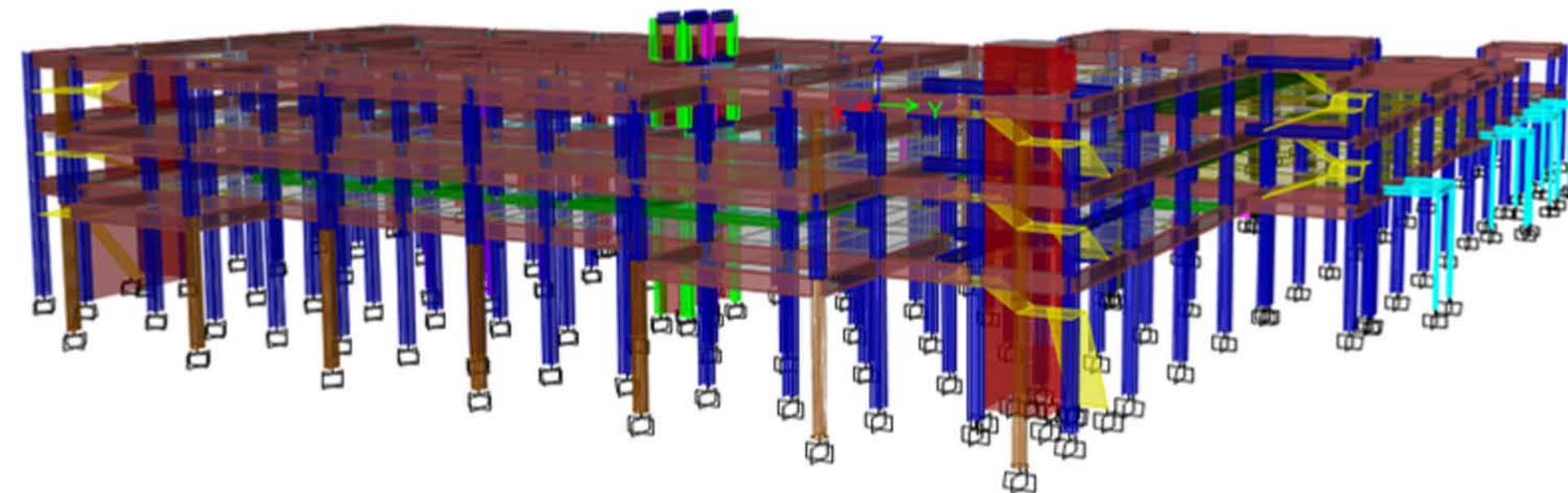
Our diverse expertise supports a wide range of industries, ensuring innovative and reliable solutions for:

- High-rise buildings and real estate development
- Roads, bridges, and infrastructure projects
- Energy sector and Utilities

Whether you're a developer seeking to hire a structural design consultant or a consulting firm looking to outsource design or drafting work to optimize costs, our dedication to excellence and precision sets us apart. With our vast experience and technical expertise, we provide exceptional services to leading design and construction companies worldwide, helping you achieve your project objectives efficiently and effectively.

Partner with us and experience the difference that our expertise and dedication can make in your projects. Our prestigious clients include:

- Flores Lund Consultants (BergerABAM), USA
- Byrne Looby Partners, Ireland
- Bullivant Arabia, Saudi Arabia
- Acres International (Hatch Ltd.), Canada
- Scot Wilson, United Kingdom
- John Seiferts, United Kingdom
- Turner International
- Bauer International
- Alghurair Group, Dubai





Structural Analysis & Design

Effective structural design begins with the utilization of sophisticated software tools. Our engineers employ cutting-edge software to craft precise three-dimensional models of structures. These digital representations are instrumental in simulating and analyzing a structure's behavior under various conditions. These detailed models ensure that the structure is optimized for design efficiency and performance predictability. Our team is capable of performing the following specialized designs and analysis.

Seismic Analysis

Seismic analysis is essential for designing structures in earthquake-prone regions, focusing on enhancing earthquake resistance to protect lives and property. Our process begins with linear static seismic analysis to assess basic responses under assumed linear behavior. We then conduct nonlinear static seismic analysis (pushover analysis) to evaluate performance under yielding conditions. For a more dynamic assessment, we utilize dynamic seismic analysis, employing time history or response spectrum methods to simulate real earthquake ground motions. Additionally, we perform seismic performance assessments to gauge ductility and resilience, along with soil-structure interaction analysis to understand how the interaction between the structure and the supporting soil influences seismic response. By integrating these comprehensive methods, we ensure that our designs can effectively withstand and mitigate the impacts of earthquakes.

Wind Analysis

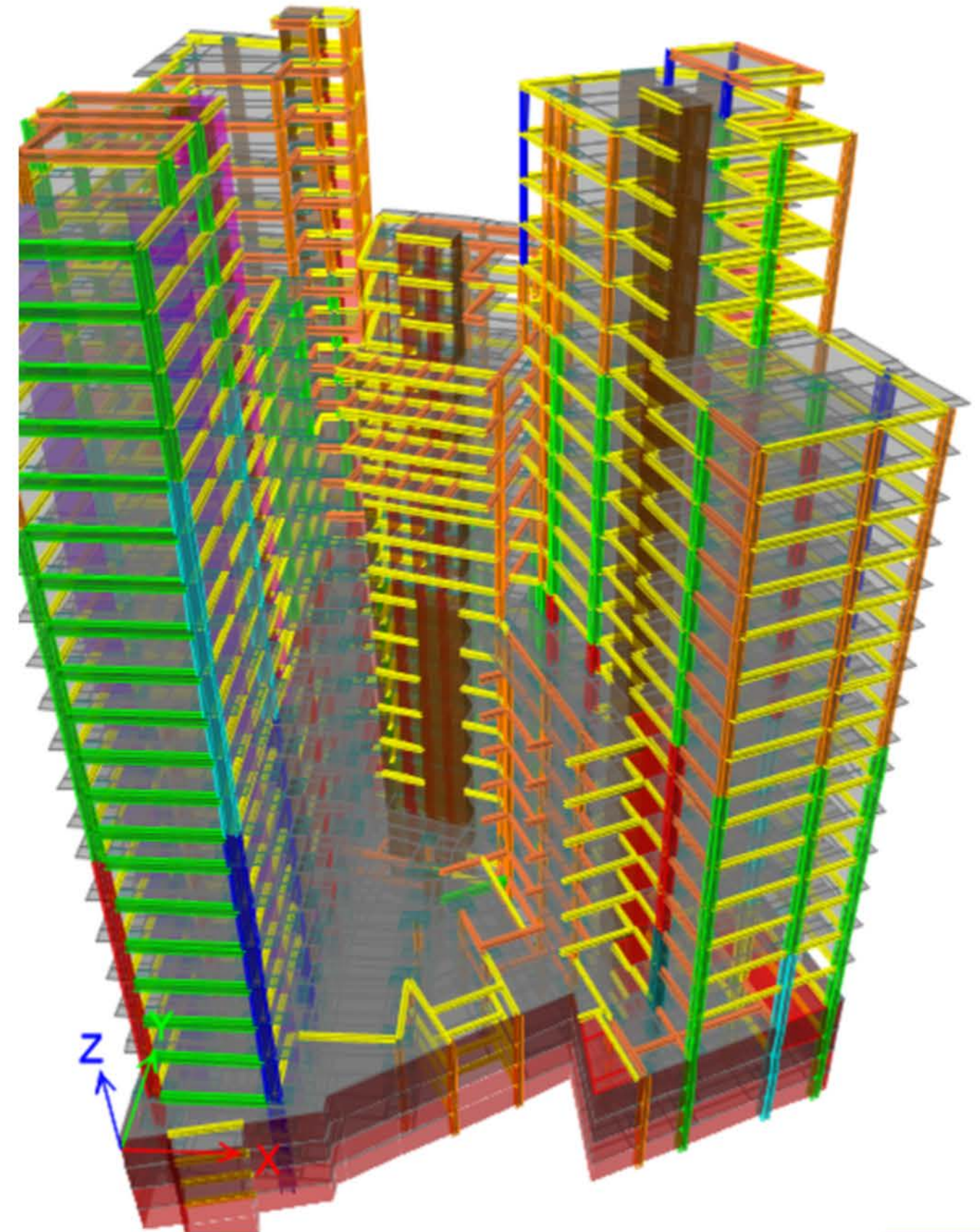
Wind analysis is vital for designing structures that can endure varying wind loads, enhancing stability and safety, especially in high-wind regions. It includes static analysis for steady wind conditions, dynamic analysis for fluctuating loads, and vibration assessments to prevent discomfort or damage. Additionally, it evaluates wind load distribution across structural components and adheres to building codes for compliance. By integrating wind analysis into the design process, we mitigate risks associated with wind forces and improve the resilience of the built environment.

Site Specific Response Spectrum Analysis

Site Specific Response Spectrum Analysis is crucial for accurately assessing the seismic response of high-rise structures with long periods. Unlike the commonly used two-period response spectrum, which has a limited plateau, our approach involves preparing a site-specific spectrum tailored to the unique seismic characteristics of the location. We conduct a probabilistic hazard analysis to derive this spectrum, ensuring it effectively captures the seismic demands on the structure. This method allows us to provide a more precise evaluation of potential ground motion, enhancing the design's resilience and safety for tall buildings in seismic-prone areas.

Vibration Analysis

Utilizing software like SAP 2000, a three-dimensional model is developed. Modal analysis is then applied to ascertain the system's natural periods, frequencies, and modal shapes. To gain insights into the dynamic behavior and response, a dynamic time history analysis is carried out. Damping values, aligning with guidelines from relevant codes and standards and encompassing both geometric and material damping, are adhered to. This systematic approach is geared towards safeguarding stability and reliability in the dynamic response of the scrutinized system.





Value Addition

Value Engineering

Our goal is to enhance functionality while minimizing costs. Value engineering is a strategic approach that ensures owners receive quality without overpaying, by identifying effective and affordable alternatives. Product quality remains our top priority.

To achieve cost-effective design without compromising structural integrity, our engineers conduct thorough calculations. They assess loads, material properties, and other parameters to determine the optimal dimensions and specifications for structural elements, balancing cost and performance. We also explore alternative materials, construction methods, and design strategies as vital components of this process.

Over-engineered structures can lead to unnecessary costs, wasted materials, and project delays. While some over-design may stem from a desire for a higher safety factor, it often results from design errors or a lack of understanding of site conditions. We focus on studying alternative designs that fulfill the same purpose as the existing design.

Our approach seeks optimum solutions that improve functionality, constructability, quality, and sustainability. This is not just a routine design review or a simple cost-cutting exercise. Any changes must be justified by potential cost savings, recognizing a clear need for change and a distinct opportunity for financial benefit.

Structural Rehabilitation and Strengthening

Our expertise in Structural Assessment and Retrofitting Design focuses on rehabilitating and strengthening old or damaged buildings using advanced techniques. We conduct comprehensive surveys, including damage assessments, core sampling, steel extraction, ferro scanning, slab load tests, and petrographic testing, to evaluate existing conditions. Utilizing non-destructive testing (NDT) methods, we assess structural integrity without compromising the structure.

Based on our findings, we develop customized repair and strengthening solutions, such as:

- **CFRP Wrapping:** Utilizing Carbon Fiber Reinforced Polymer to enhance structural strength and durability.
- **Column Jacketing:** Strengthening columns with additional materials to improve load-bearing capacity.
- **Grouting / Epoxy Injection:** Restoring structural integrity by sealing voids and cracks with specialized grout and epoxy resins.
- **Steel Bracing:** Adding steel braces to improve stability and resistance to lateral forces.
- **Foundation Underpinning:** Strengthening and stabilizing foundations to prevent settlement and structural failure.
- **Post-Tensioning:** Applying tension to steel tendons within concrete to enhance load-carrying capacity.
- **Shotcrete Application:** Spraying concrete onto surfaces for reinforcement and repair.
- **Load Redistribution:** Modifying load paths to reduce stress on weakened areas.





GeoStructural Design

Foundation and Substructure Design

Our expertise in geotechnical design encompasses the critical foundational elements that ensure stability and support for various structures. We specialize in a diverse array of foundation types tailored to meet the specific needs of each project, including:

Shallow Foundations:

- Strip Footings
- Isolated Footings
- Combined Footings
- Raft Foundations

Deep Foundations:

- Pile Foundations
- Piled Raft Foundations
- Caisson Foundations

We meticulously assess and model the geotechnical soil report before conducting a detailed analysis of the soil and structural interactions. This allows us to design the most appropriate foundation type tailored to the specific soil conditions and project requirements.

Earth Retention Systems

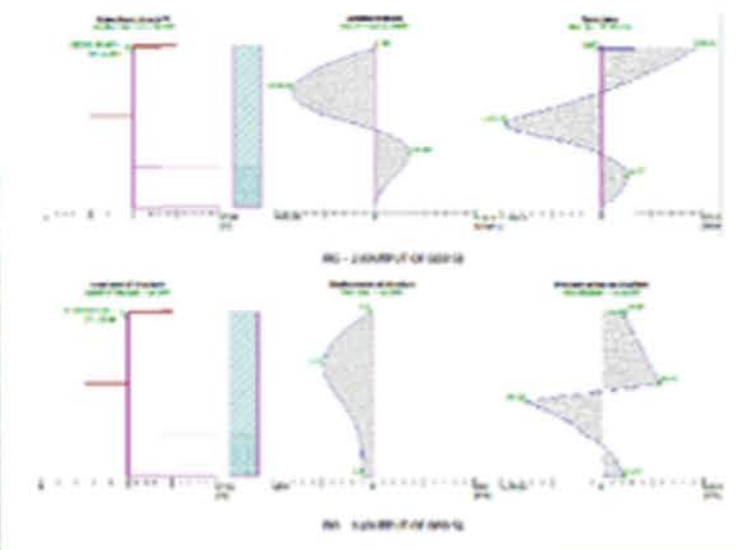
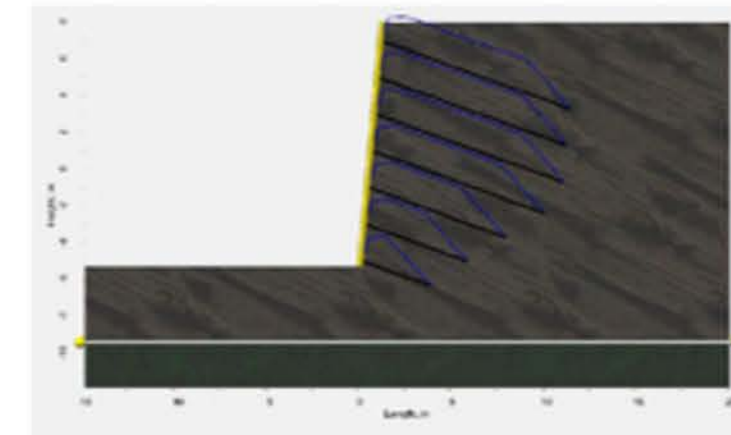
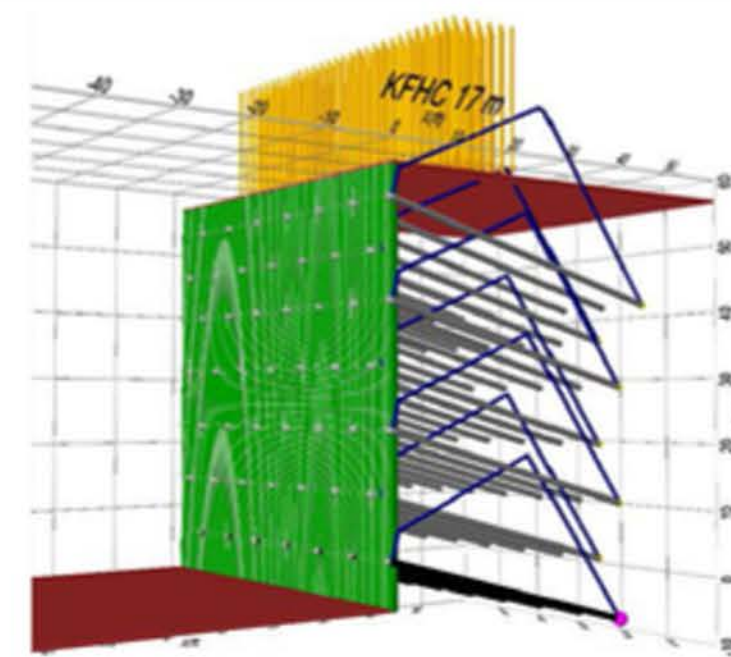
Safety is our top priority during construction. To ensure structural integrity of the earth retention system, we incorporate temporary supports known as shoring works into our comprehensive designs.

Our shoring solutions include:

- Sheet Piles
- Soldier Piles
- Secant Piles
- Micropiles

To further enhance stability, we implement advanced tie-back mechanisms, such as:

- Post-tensioned pressure grouted ground anchors,
- Steel Struts and Raker assemblies, and
- Or a combination thereof





BIM Services

2D AutoCAD Drafting

We meticulously integrate all design disciplines and standardize client-specific drafting preferences to guarantee consistency and highest quality standards. Our approach emphasizes effective communication and collaboration throughout the process ensuring compliance with our client's:

- Drafting Standards and Guidelines
- Line Weights and Plot Style Requirements
- Templates, Symbol Libraries, and Blocks
- Layer Management Requirements

Multidisciplinary 3D Modeling in Revit

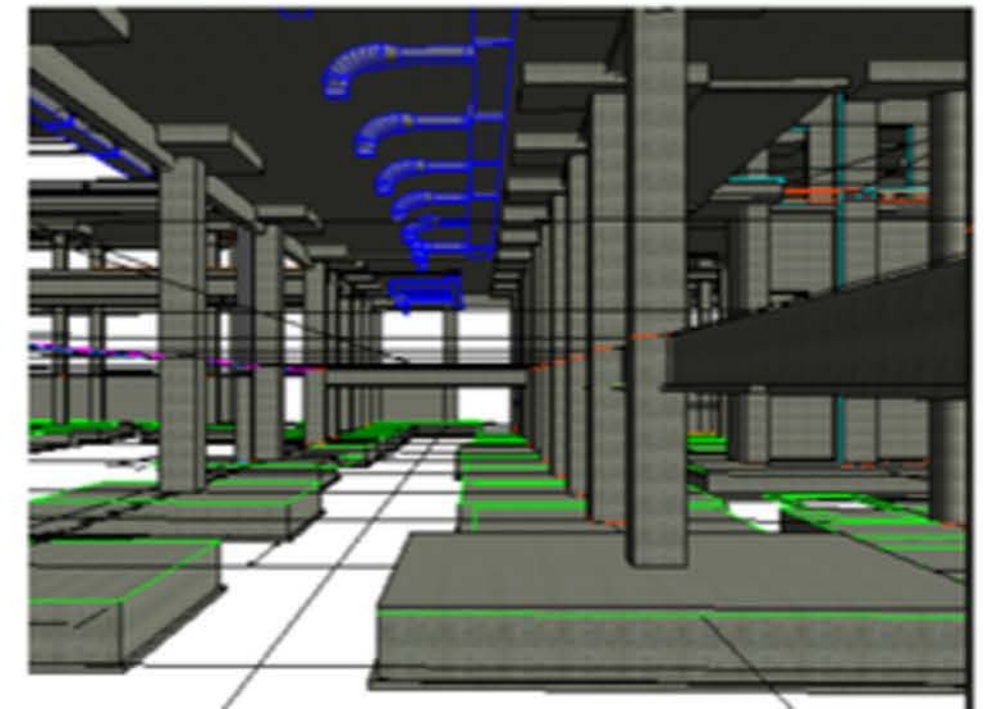
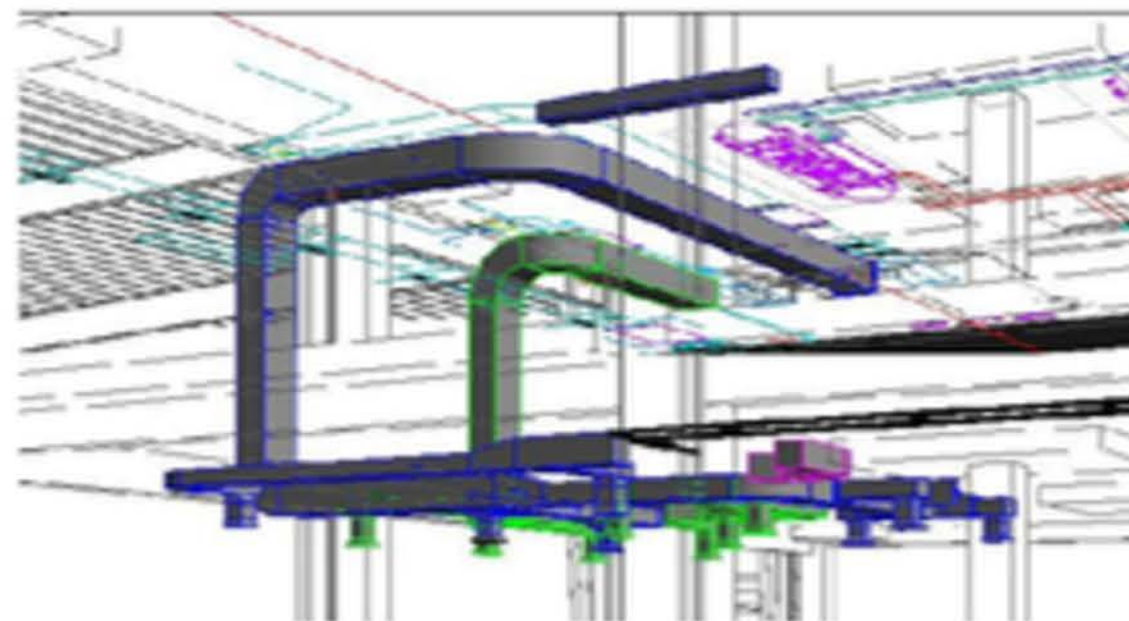
An integral part of our process, integrating various elements of a construction project—such as architecture, structural engineering, and MEP systems—into a unified model. This enables us to facilitate early clash detection systems before construction begins, thereby significantly minimizing the risk of costly delays and rework.

- **LOD 100 - Conceptual Design:** Basic shape and size of elements, conveying our overall design.
- **LOD 200 - Schematic Design:** Refine the model to include quantities, sizes, shapes, and locations.
- **LOD 300 - Detailed Design:** Include geometric details, specific sizes, and components to coordinate disciplines.
- **LOD 350 - Construction Documentation:** Detailed assemblies for construction-level documents and shop drawings.
- **LOD 400 - Fabrication and Assembly:** Detailed models with specific assemblies and connections for fabrication and assembly.
- **LOD 500 - As-Built or Facility Management:** Reflect the installed and operational elements of the building in our model, offering real-world data for maintenance and facility management.

Parametric Revit Family

We provide high-quality, custom Revit parametric families tailored for architecture, structure, MEP, and other disciplines. Our team focuses on delivering flexible, efficient, and easy-to-use solutions that seamlessly integrate into your workflow.

Whether you need families designed to meet specific project requirements or optimized for better performance, we're here to support your success.





Shop Drawings (1)

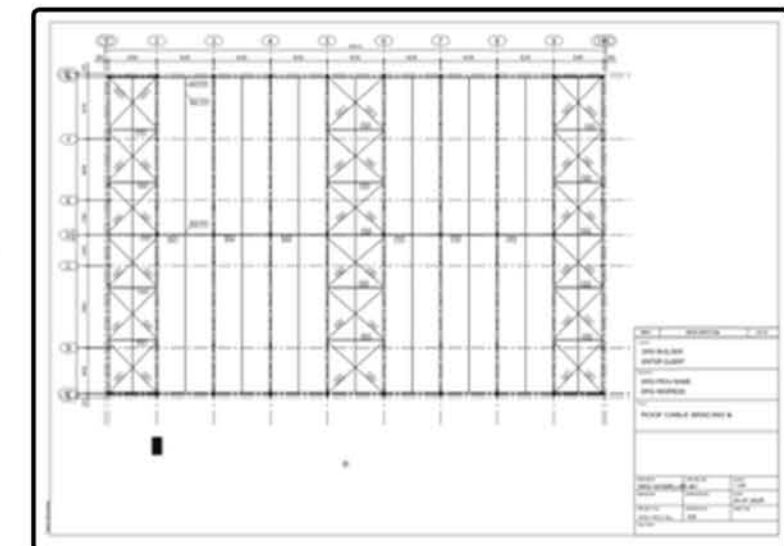
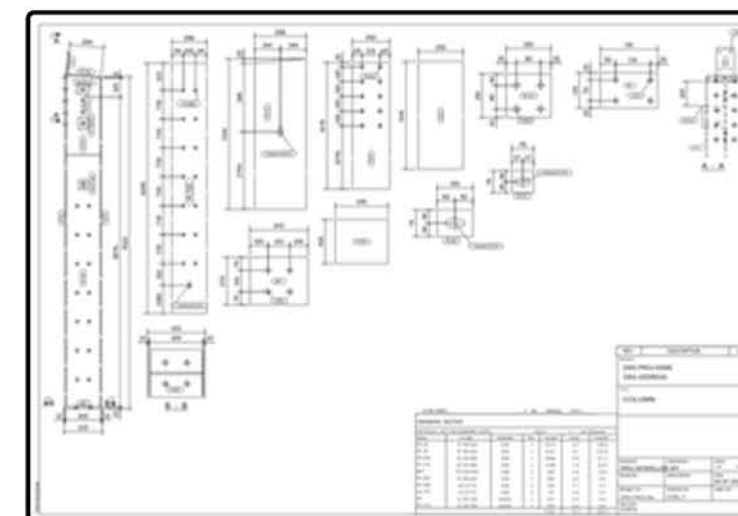
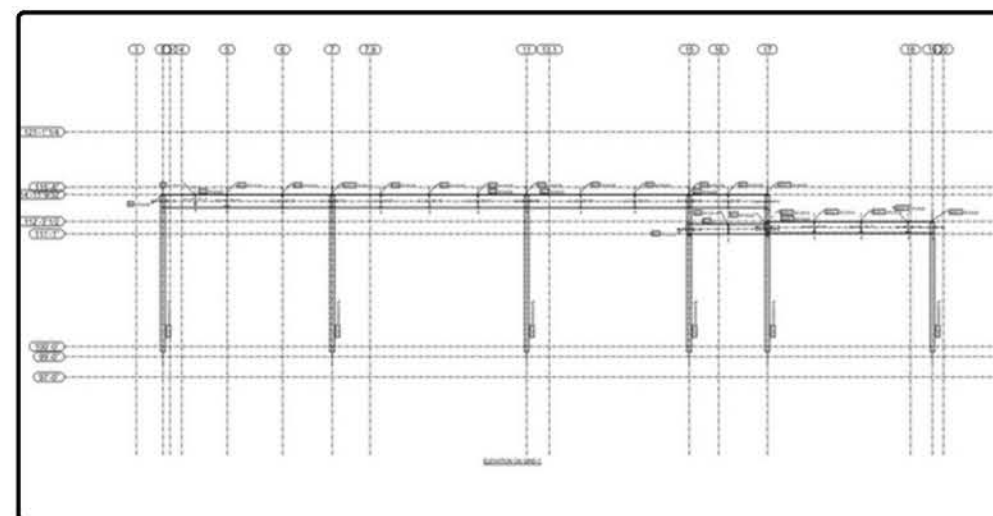
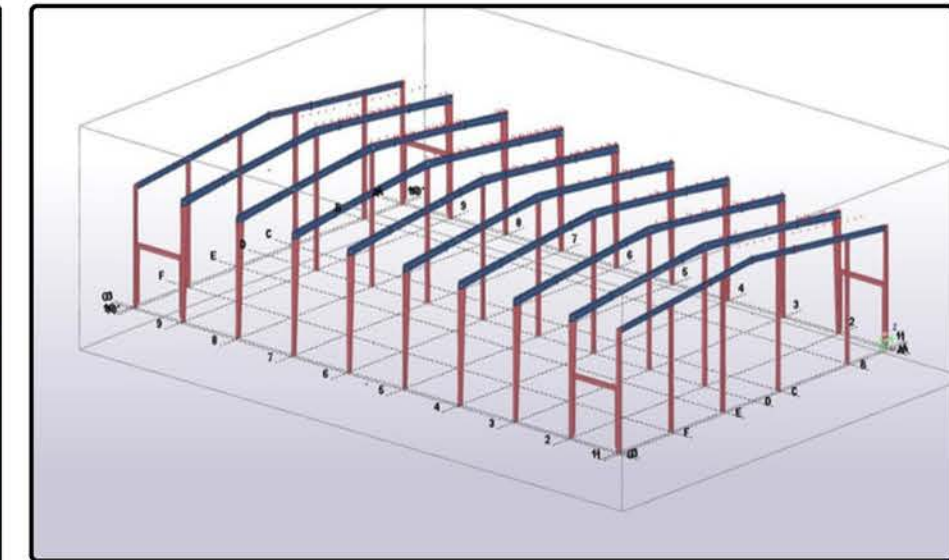
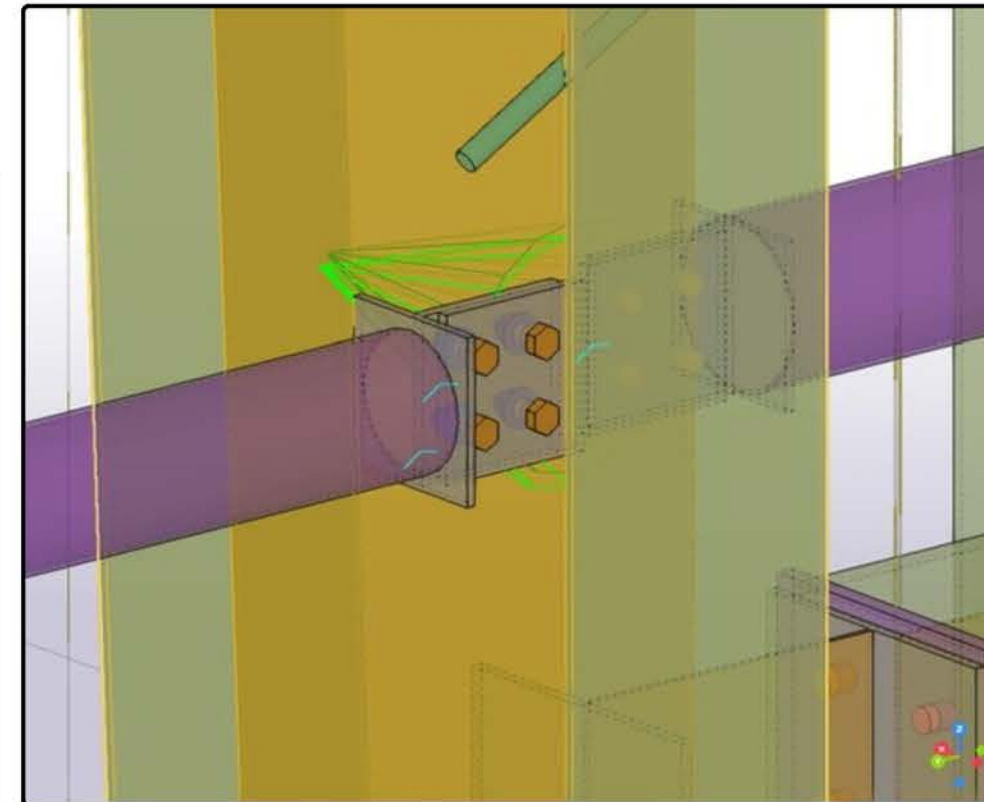
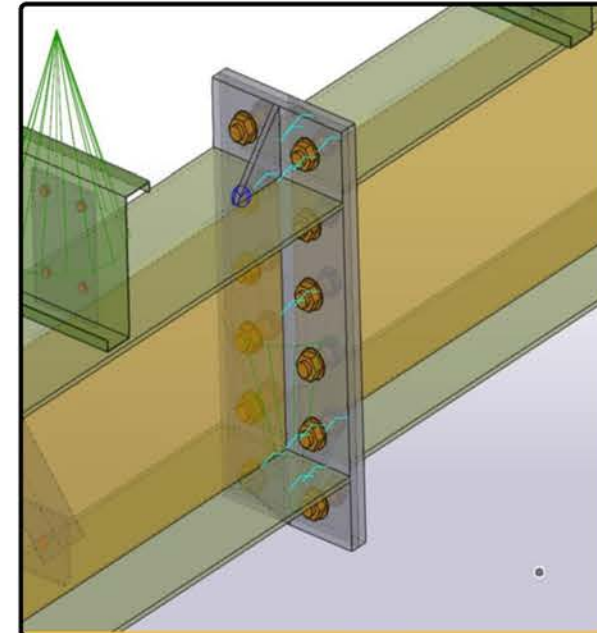
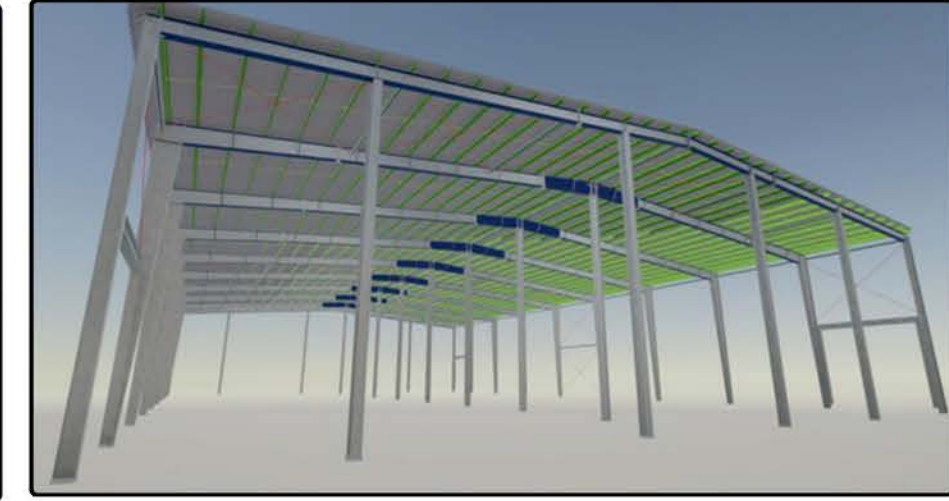
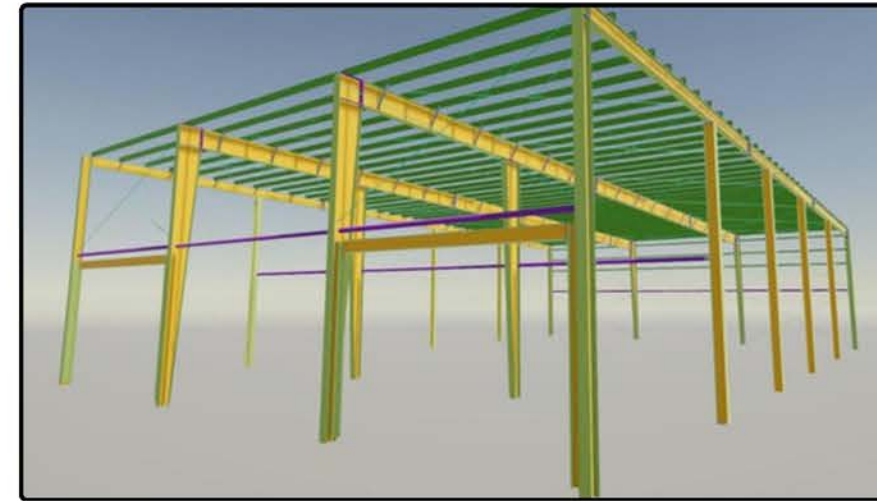
Structural Detailing

Our drafters ensure compliance with dimensional accuracy, material specifications, detailing connections, and reinforcement configurations.

By consistently referencing and upholding established codes and standards, our structural detailing not only meets regulatory requirements but also guarantees the structural integrity and safety of the construction in accordance with industry best practices.

We provide:

- Rebar Detailing,
- Shop Drawings and Bar Bending Schedules
- TEKLA 3D Models
- General Arrangements Drawings
- Fabrication, Assembly, Erection Drawings
- Connection Design & Detailing
- Material Take-off (MTOs)



Shop Drawings (2)

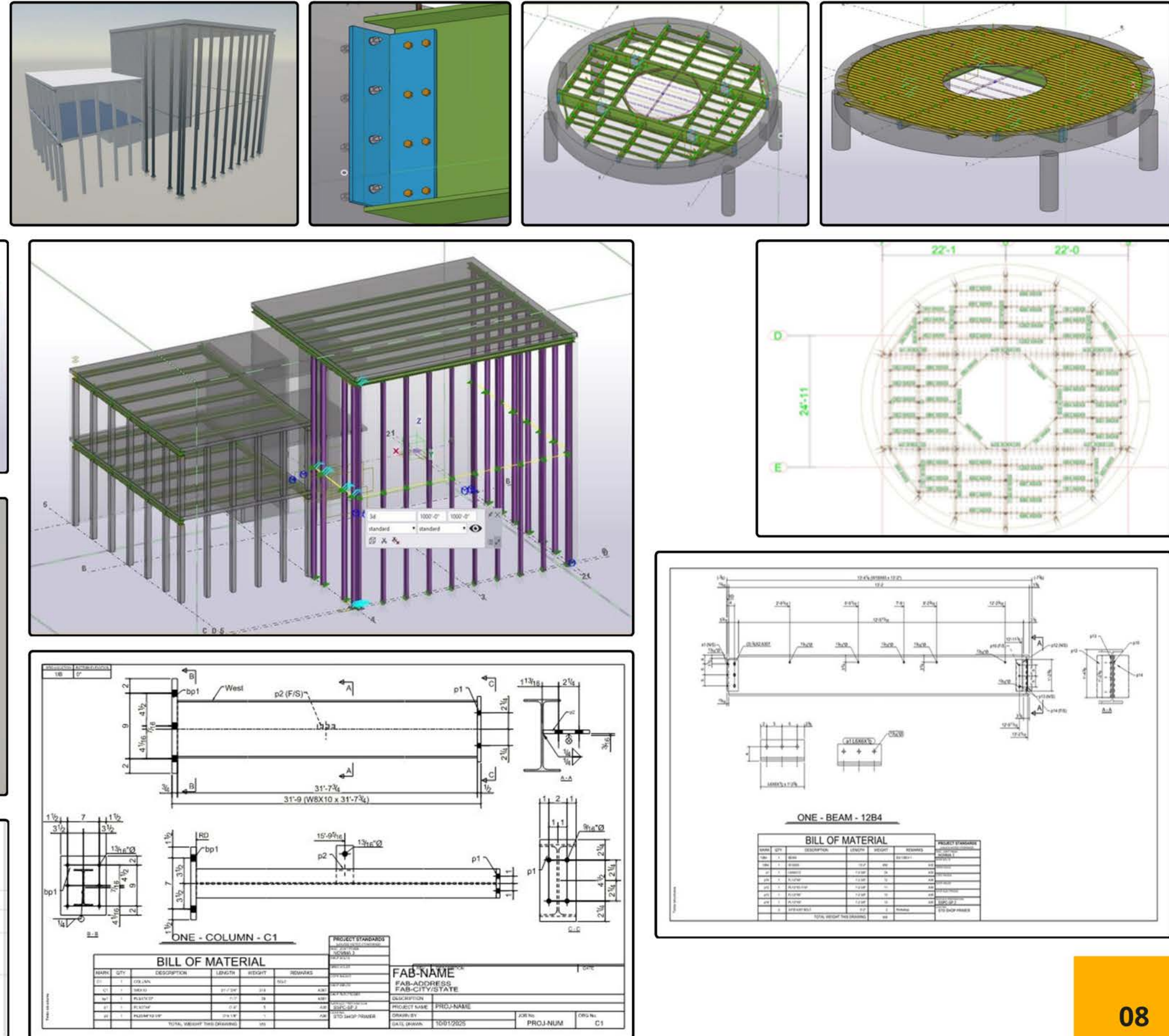
Tekla Structures Expertise

By integrating Tekla Structures into our workflows, we are able to:

- **Streamline coordination** across disciplines through clash detection and model-based collaboration.
- **Automate rebar detailing and quantity extraction** to support accurate cost estimation and procurement.
- **Generate fabrication-ready shop drawings** directly from the model, reducing manual drafting effort and minimizing revision cycles.
- **Simulate construction sequencing and phasing**, enabling proactive planning for complex structural assemblies.
- **Maintain version control and data integrity** throughout project delivery using model sharing and cloud-based collaboration environments.

Our team's deep understanding of both the engineering principles and modeling techniques behind Tekla ensures that our clients receive practical, buildable solutions that meet stringent quality and schedule requirements.

Whether the project involves high-rise structures, deep foundations, shoring systems, or industrial facilities, NDA Consulting's Tekla-driven approach delivers clarity, coordination, and confidence at every stage.

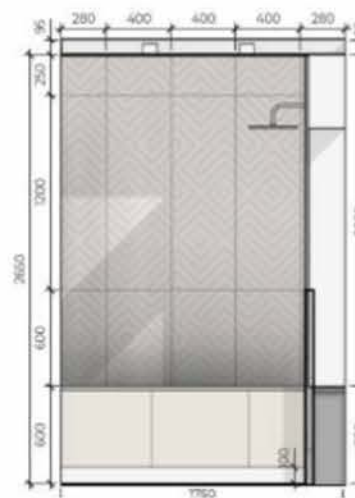
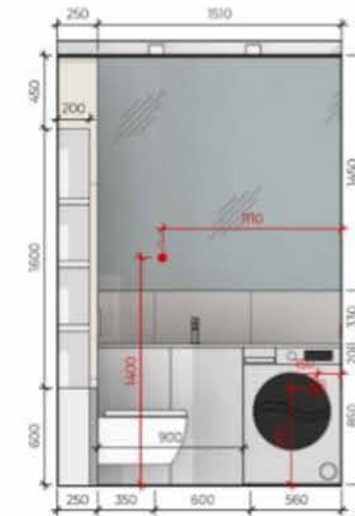
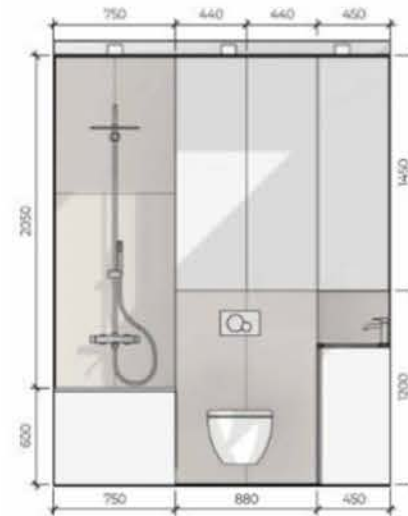
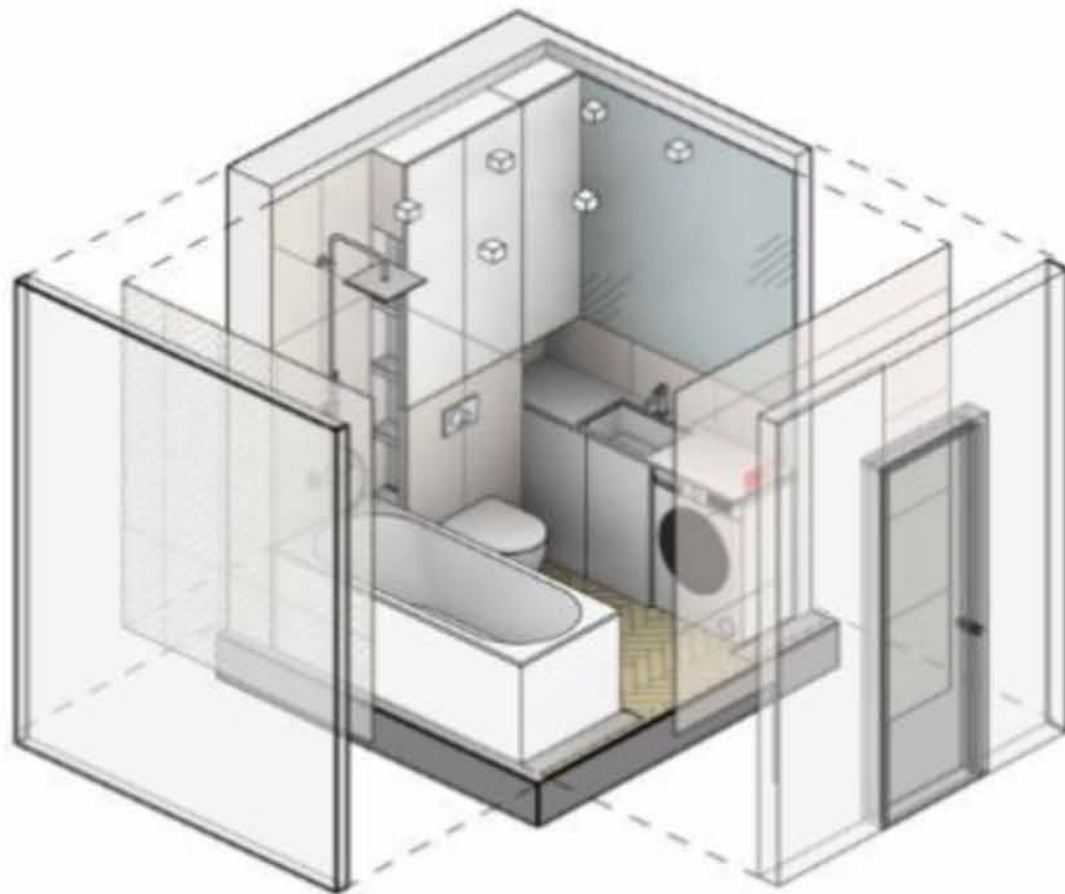




3D Rendering

3D Visualizations

We provide professional 3D visualization (Exterior & Interior), walkthroughs, animations, and schematic presentations to help you showcase your projects with clarity and impact. Whether you need detailed architectural renderings, immersive walkthroughs, or clear schematic visuals for presentations and approvals, our team delivers high-quality solutions tailored to your needs. We work with architects, designers, and businesses to create engaging visuals that enhance communication, marketing, and decision-making.





Code Compliance

We prioritize adherence to applicable building codes, standards, and regulations to ensure the structural design aligns with safety, durability, and legal requirements. Our team is well versed in the following codes and standards:

- ACI – American Concrete Institute
- AISC – American Institute of Steel Construction
- ASTM – American Society for Testing and Materials
- ASCE – American Society of Civil Engineers
- EURO Codes – Technical rules developed by the European Committee for Standardisation for the structural design of construction works in the European Union
- BSI – British Standards Institute
- FHWA – Federal Highway Administration
- AASHTO – American Association of State Highway and Transportation Officials
- CIRIA – Construction Industry Research and Information Association



U.S. Department of Transportation
Federal Highway Administration





Software

The integration of state-of-the-art technology into our processes underscores our dedication to delivering optimal solutions for our clients. By staying ahead of the curve in terms of software capabilities, we position ourselves to tackle a diverse range of engineering challenges with confidence and innovation. At NDA Consulting, we believe that investing in the latest tools is an investment in the success and longevity of every project we undertake. Our staff are professionally trained in the following software programs and stay up-to-date with the latest versions:

- ETABS for multi-story building analysis and design
- SAFE for foundation and elevated-slab
- SAP2000 for structural analysis and design
- Pro – STructural Analysis and Design
- CSiBridge for specialized bridge-engineering
- PLAXIS 3D – Finite Element Analysis including Deformation, Stability and Water flow Analysis as well as Soil-Structure Interaction
- Elastic Plate (ELPLA) is a powerful tool for analyzing raft/ piled-raft foundations
- GEO 5 – comprehensive software suite providing solutions from geological survey to advanced geotechnical design
- Deep Excavations (DeepEx) for linear, non-linear (elastoplastic), limit equilibrium analysis and optimization for Deep Excavations
- SNAIL – Soil Nail Wall Analysis and Design Software



PLAXIS®

DEEP EXCAVATION
GEOTECHNICAL SOFTWARE & ENGINEERING



Why choose NDA Consulting?

Design sft



20M+

Extensive Structural Design Experience

Our team has successfully completed over 20 million square feet of structural design across a diverse range of projects. This impressive figure reflects our commitment to delivering innovative and efficient design solutions that meet the unique needs of our clients. Our expertise spans various sectors, including commercial, residential, industrial, and institutional buildings, ensuring that we can tackle projects of any scale and complexity.

3rd Party Vetting sft



20M+

Thorough Third-Party Structural Vetting

In addition to our design capabilities, we have also conducted comprehensive third-party structural vetting for over 20 million square feet of construction. This rigorous process involves detailed assessments and evaluations to ensure that all structural designs adhere to the highest safety standards and regulatory requirements. Our third-party vetting services provide clients with peace of mind, knowing that their projects have been thoroughly reviewed by independent experts.

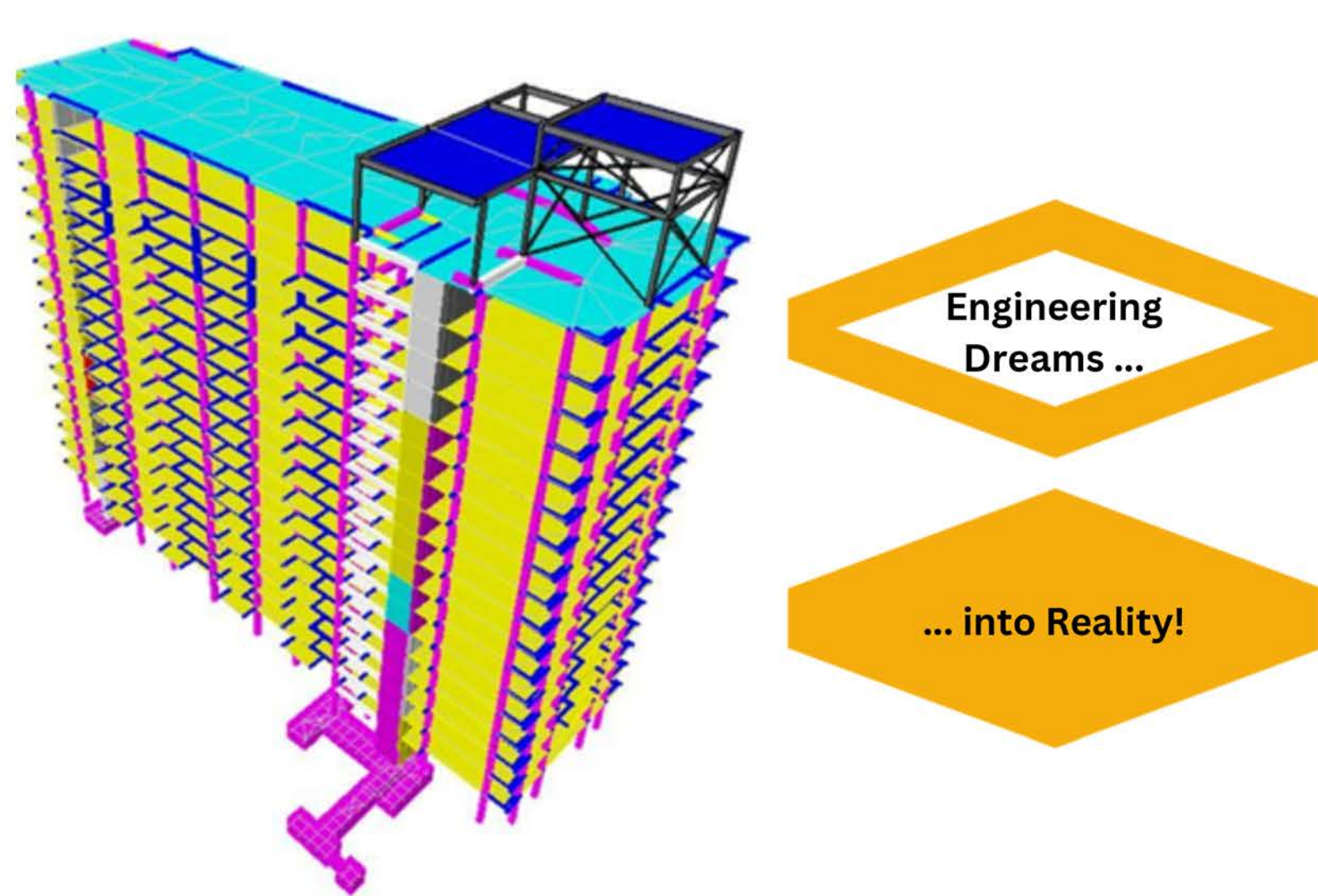
Completed Projects



1500+

Diverse Project Portfolio

We have successfully completed over 1,500 projects, showcasing our extensive experience and versatility in the field of structural and geotechnical engineering. Each project reflects our dedication to quality, innovation, and client satisfaction. Our portfolio includes a wide array of building types, from high-rise commercial towers to intricate residential developments, each tailored to meet the specific needs and aspirations of our clients.



THANK YOU

