

Structural BIM Modeling, Analysis & Documentation for Commercial Office Development

(Structural Analysis & BIM Modelling, BIM & VDC Coordination Services)

CASE STUDY



Client : Structural Enginner

Team Size : 3 Nos. (BIM Engineers & BIM Coordinator)

Disciplines : Structure

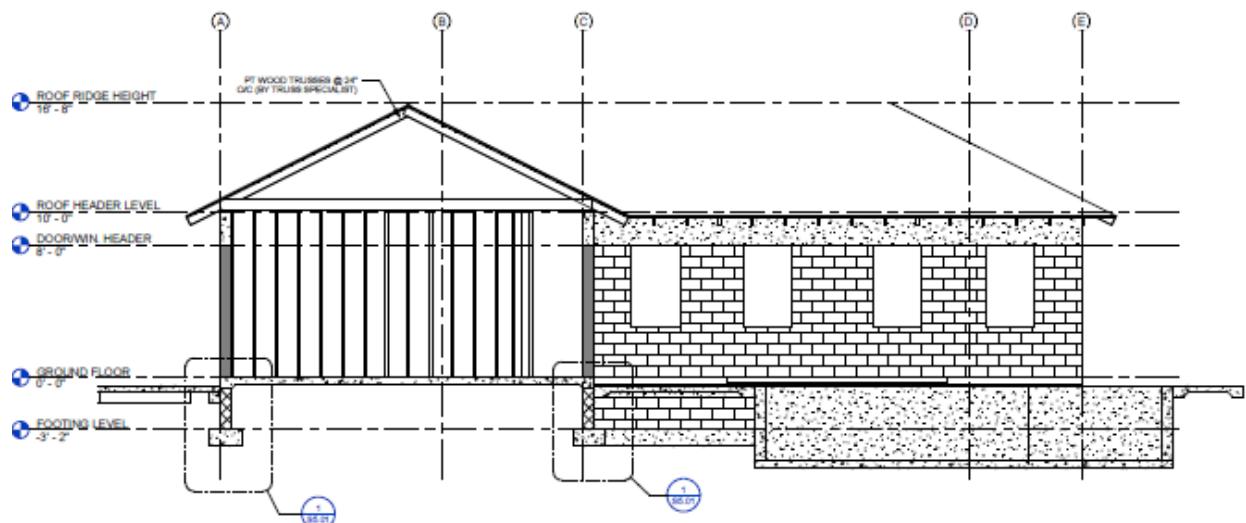
Duration : 1 Month

Scale : 30,000 Sq. Ft.

Software : Revit & Lumion

Type : Commercial

Location : Autodesk Revit & ETABs



Project Overview

This project involved structural analysis, BIM-based modeling, and construction documentation for a commercial office building with an approximate built-up area of 30,000 sq.ft. The scope included validation of existing structural systems, development of a detailed 3D analytical model, and optimization of primary structural elements and foundations. BIM workflows were used to ensure coordination across disciplines and improve constructability. The engagement delivered permit-ready and construction-ready structural documentation aligned with project requirements and design standards.

Scope & Deliverables

- Reviewed architectural, structural, and geotechnical inputs to validate and align existing framing systems
- Developed a comprehensive 3D analytical and BIM structural model for design verification and coordination
- Performed full structural analysis and optimization of primary elements and foundation systems
- Produced LOD 300–400 structural models and drawings suitable for permitting and construction
- Delivered coordinated, construction-ready documentation through BIM-led workflows

Challenges

- Alignment of existing structural framing with updated architectural layouts and site conditions
- Verification and optimization of structural systems, including foundations, retaining walls, and parking substructures
- Compliance with Bahamas city codes alongside international design standards
- Delivering coordinated, construction-ready outputs within a compressed timeline

Techture Approach

- Developed a comprehensive 3D analytical structural model to validate loads, member sizing, and system adequacy
- BIM-driven coordination to identify gaps between architectural, structural, and site inputs early
- Evaluated multiple foundation strategies to recommend the most efficient and code-compliant solution
- Produced LOD 300–400 structural models and drawings aligned with permitting and construction requirements

Benefits

- Reduced design risk through early-stage validation of structural systems
- Improved constructability with coordinated, clash-free BIM models
- Optimized material usage through data-driven structural analysis
- Accelerated approvals with permit-ready, code-compliant documentation

