



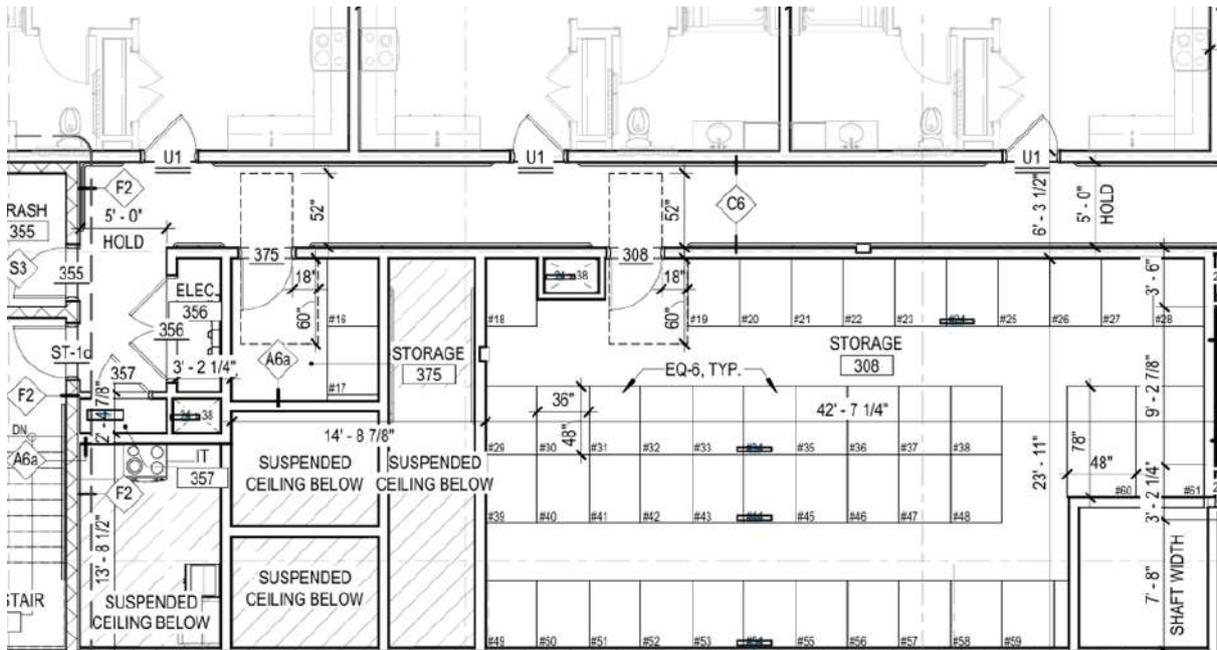
Structural Railing Design, Detailing & Shop Drawing Development for Commercial Building

(Structural Detailing, Engineering Calculations & Shop Drawing Development Services)

CASE STUDY



TECHTURE



Client : General Contractor

Team Size : 2 No.s (BIM Engineer & BIM Coordinator)

Disciplines : Structural

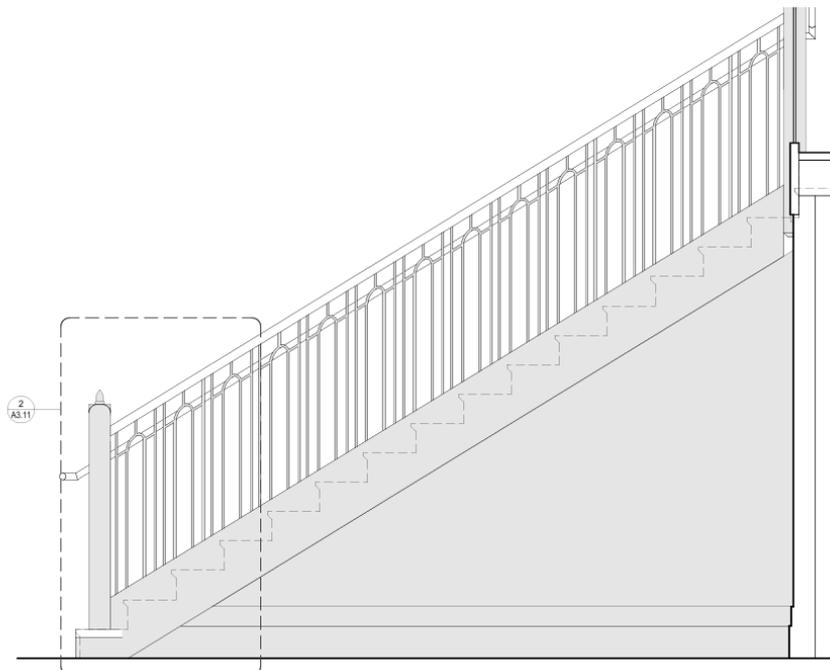
Duration : 2 Weeks

Scale : 4,000 Sq. Ft.

Software : Autodesk Revit & AutoCAD

Type : Commercial

Location : Illinois, USA



Project Overview

Techture delivered Structural Railing Design, Detailing, and Shop Drawing Development for a 4,000 Sq. Ft. commercial building, ensuring structurally compliant and fabrication-ready railing systems. The scope included engineering design validation, connection detailing, and coordinated shop drawing preparation based on approved architectural and structural inputs. Using Autodesk Revit and AutoCAD, the project focused on achieving accurate constructability, load-compliant railing systems, and seamless integration with stair and slab interfaces. A BIM-supported workflow enabled precise detailing, reduced site ambiguity, and streamlined fabrication readiness.

Scope & Deliverables

- Development of detailed 3D railing models and fabrication-level detailing based on approved architectural and structural drawings.
- Structural design and engineering calculations for railing systems including load resistance, anchorage, and stability verification.
- Structural analysis and connection design calculations for stair-to-railing interfaces and support conditions.
- Preparation of coordinated, fabrication-ready shop drawings including sections, elevations, fixing details, and material specifications.
- Submission of consolidated structural design calculation reports covering railing systems and stair connections, including client coordination and revision incorporation.

Challenges

- Ensuring structural compliance of railing systems while maintaining architectural intent and aesthetics.
- Accurate detailing of stair connection interfaces with varying support and anchorage conditions.
- Managing incomplete or unclear input data requiring engineering assumptions and client clarifications.
- Achieving fabrication accuracy while minimizing on-site modifications.

Techture Approach

- ❏ Implemented a BIM-driven detailing workflow using Revit for coordinated modeling and AutoCAD for precise documentation.
- ❏ Performed engineering validation through structural calculations aligned with applicable design standards.
- ❏ Established proactive coordination cycles with the client to validate assumptions and revisions.
- ❏ Developed constructability-focused detailing to ensure fabrication and installation efficiency.

Benefits

- ❏ Fabrication-ready shop drawings reducing site rework and installation delays.
- ❏ Structurally validated railing systems ensuring safety and compliance.
- ❏ Improved coordination between architectural intent and structural performance.
- ❏ Faster approval and fabrication turnaround through clear engineering documentation.
- ❏ Reduced project risks through early clarification and coordinated detailing.

