




TEJJY INC. USED BIM MODELING SOLUTION FOR CLASH DETECTION & COORDINATION OF DC COURTHOUSE

CASE STUDY

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Tejy Inc. Used BIM Modeling Solution for Clash Detection & Coordination of DC Courthouse

Tejy Inc. worked with various software applications like Revit, MEP Fabrication, Navisworks, and PDF viewer for error-free shop drawings and 3D model creation of DC Courthouse Project.

BIM Scope of Work for DC Court House Project:

BIM Team members of Tejy Inc. used Autodesk Revit & Autodesk Navisworks to create the 3D BIM Model (LOD 400) for MEP & Fire Protection trades for DC Court House Project to meet the objectives like:

- **3D Model Creation for MEPFP Trades & Coordination** (Clash Detection & Mitigation, Visualization)
- **Constructability Review** (Model Update) to reflect changes from Design Changes, RFI Generation & As-Built Update
- **Coordinated Service Drawings** Facilitating complete coordination among all trades using Autodesk Navisworks to generate clash report and resolve issues between various trades
- **Detailed Quantity Take-off (QTO)** incorporating manufacturer's reference

Tejy Inc.'s Approach to Work:

The MEP design validation engineers of Tejy Inc. checked and compared the IFC design documents of the client for inconsistencies and recalculated the data (size of pipes, ducts, fluid flow rate, etc.). RFIs were raised by Tejy Inc., where the client's decision was necessary. The RFIs were inspected by the client, who in turn escalated the same to the consultant for a probable solution.

Project Challenge: Coordination Problem

Coordination among various services was difficult as the structure did not allow any service to pass through the beam/concrete wall unless conceived at the design stage. Being a renovation project, the hard trades like Structure and Architecture were already finalized and there was limited room to run other services without making major impact on the existing conditions.

Solution: Tejjy's BIM modelers made all efforts to ensure that the pipes and ducts can pass through the selected cut-outs in the walls and available dedicated spaces for services through designed routes with minimum impact on the existing services. This was done by shifting and changing the service routes, considering the clearance required, and modifying the sizes of ducts & pipes within acceptable limits.

How BIM helped in resolving fundamental challenges for the Project?

- BIM helped in identifying the mismatch in the risers, schedules, sections, architecture, and structural drawings.
- BIM identified the need for providing revised diffuser & lighting layout on the ceiling.
- Constructability issues were raised through RFI's and the BIM model & drawings were updated based on the responses.
- BIM identified space constraints and saved time, rework, & eliminated wastage.
- BIM coordination identified the clash and raised it to consultants which resulted in the revision of the design, identifying multiple issues in a single drawing and resolving through drawing validation like design mismatch with MEP plan, which saved disaster during construction.

Tejjy Inc.'s Value Addition to the Project:

Tejjy Inc. performed coordination work among various trades that reduced clashes, saving time and money for the project.

- RFIs were raised about missing data, conflicting data, constructability/aesthetic issues, maintenance issues, and accessibility issues
- Critical clashes were resolved for MEPFP, Architectural & Structural trades due to space constraint, plan Mismatch, Design Discrepancy, and Maintenance & Aesthetic issues

Project Participants:

- Cooper Builds
- RCI Systems
- Metro Test Balance
- Planned Power
- JPG Services Inc.

Final Thought:

BIM Software Applications like Revit and Navisworks helped Tejjy Inc. progress through MEP clash detection. BIM Engineers of Tejjy Inc. reviewed critical areas in 3D for any changes made and evaluated space constraints successfully. BIM facilitated various design disciplines to collaborate flawlessly on a single information platform, improving work efficiency, reducing errors, verifying aesthetic looks, and enhancing building performance.

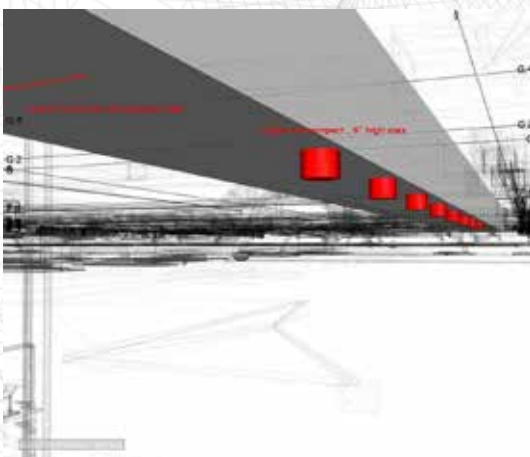
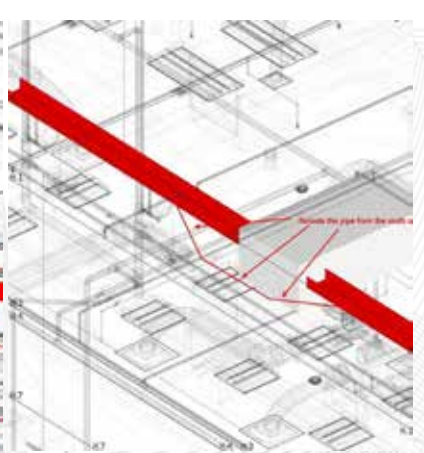
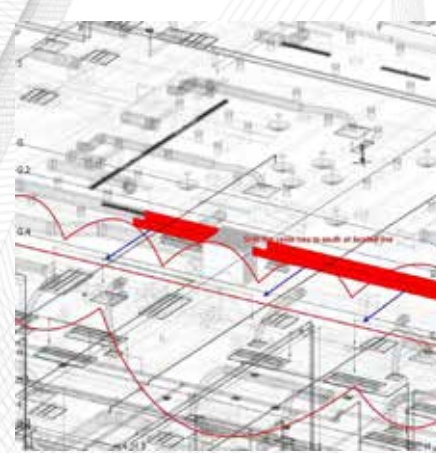
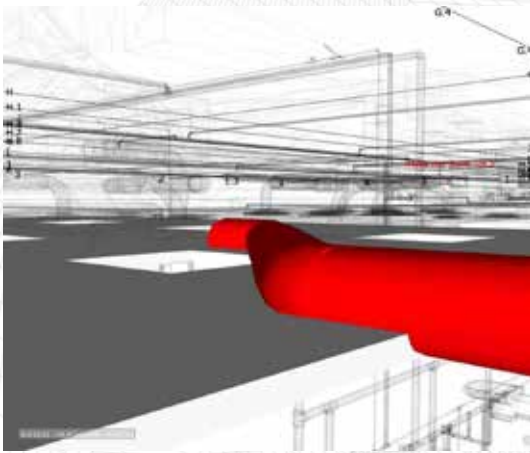
Project Facts at a Glance:

| | |
|---|---|
| Project Name | Court House Interior Renovation & MEPF upgrades |
| Trades Covered | MEPFP (Mechanical, Electrical, Plumbing, Fire Protection) |
| Scope of Work | 3D BIM Model Creation, Clash Coordination |
| LOD | 400 |
| Average BIM Team Size | 3 BIM Engineers from Tejjy Inc. |
| Software Applications Used for the Project | Revit BIM, Navisworks, Bluebeam PDF |

Clash Images


DC Appeals Court Clash Report

| Image | Clash Name | Grid Location | Item Name | Item Name | Comments |
|-------|---------------------------|---------------|------------|---|---|
| | electricalPlumbing Set 02 | H-2 | Pipe Types | Cable Tray with Fittings | #19 - 2020/4/22 19:32 Review with Fire Protection / move the cable tray down by 4-5" |
| | electricalPlumbing Set 01 | E.8-2 | Pipe Types | Metal - Cooper Industries - Steel - White | #1 - 2020/4/22 19:08 Pending Possible RFI |





**DESIGNING DREAMS,
BUILDING RELATIONS!**

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