

## COMPANY

**Pinnacle Infotech**

## LOCATION

**Durgapur, India**

## SOFTWARE

**Autodesk® Revit®**

# Pinnacle Uses BIM For Smooth Completion of Rosslyn Central Place Project

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—**Bimal Patwari**  
CEO  
Pinnacle Infotech

—**Biswaroop Todi**  
Vice President  
Pinnacle Infotech

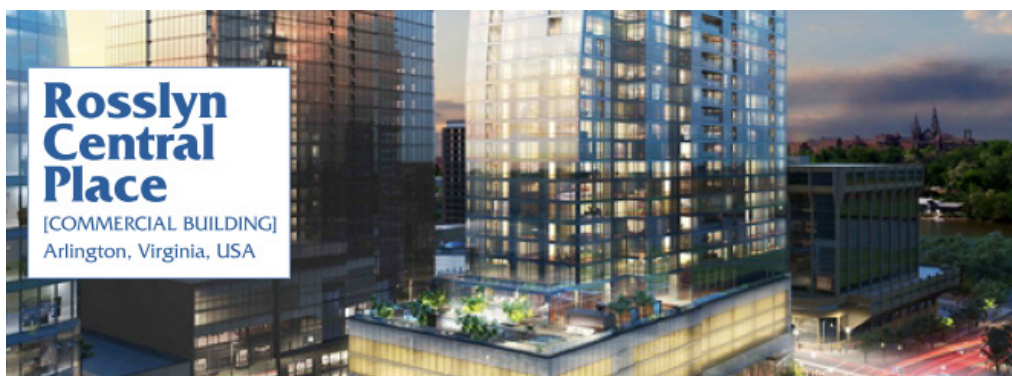


Image courtesy: Pinnacle Infotech

**Headquartered in Durgapur, India, Pinnacle Infotech is catalyzing renaissance in the construction arena with Building Information Modeling (BIM) services. Pinnacle facilitates clients in more than 30 countries, collaborating across time zones with global delivery centers in India, USA, UAE, UK and Italy. Being the leading provider of innovative BIM services to the Architectural, Engineering and Construction Industries for more than 18 years, Pinnacle has successfully executed 4000+ landmark projects like Dubai International Airport, Muscat Airport, Delhi International Airport (T3), Pharmaceutical plants, Msheireb Downtown Construction (Doha), Hospitals, Medical Centers, High Rise Towers, University Campuses, Industrial Plants, Dams and Bridges.**

## Project Summary – Rosslyn Central Place

One of the significant projects of Pinnacle Infotech, Rosslyn Central Place is a mixed use development, located above Rosslyn Metro Station in Arlington County, Virginia, USA with a 636,000 sq ft. Residential Tower & 750,000 sq ft. Commercial Tower. It is perfectly positioned with an easy access to Washington’s Central Business District and Georgetown. Phased turnover will begin in early 2017, it will provide an inspiring dining and retail space with integrated clientele

living and working upstairs.

Located along the shores of Potomac River, Rosslyn Central Place is an exciting mix of residential, retail & commercial development. Designed by a famous architecture firm - Beyer Blinder Belle Architects and Planners, the glass façade of the Rosslyn Central Place will soar to dramatic heights, offering amazing views of the District & Northern Virginia. Going further, an open-air public plaza with seating, shade and a robust programming schedule is expected to serve as the heart of the place. The project will also be home to the highest public Observation Deck and open air terrace in the Washington D.C. area at 443'-0" above sea level, with 360 degree views of the DC, MD and VA skylines. The panoramic views are anticipated to attract over half a million visitors annually to the front of Central Place.

## BIM Scope for Pinnacle

Pinnacle created the architectural and structural models of Rosslyn Central Place that boasts of 33 stories (Ground Floor Level to 30th Floor Level, Floor 31 Penthouse Level, Roof Level) including the basement (B1, B2 & B3). The office space starts from 75 feet above street level on the 8th floor and the view just gets better. Pinnacle deployed a team of 10 BIM Engineers (In-house), including project managers and collaborators located in US and India to create 3D architectural and structural models of the 34 floors, including the level above Mechanical room.

# Using Autodesk BIM software, we could easily create models with the help of cutaways, elevations and sections.

## Pinnacle's scope of work also included:

- Creation of 3D Models (LOD 300) for Architectural & Structural Trades for MEP Coordination (Clash Detection & Mitigation, Visualization)
- Architectural Modeling elements like Exterior Walls, Interior Walls, Ceiling, Soffit, Doors, Windows (as per schedule), Stairs and Railings
- Structural Models of Beams (Primary & Secondary as per the beam schedule), Columns, Joists/Trusses, Structural Slab/ Metal Deck, CMU/Pre-cast walls, Footing, Foundation, Equipment Support System, Steel/Concrete Stair and other Structural Framing Components
- Constructability Review (Model Update to reflect changes resulting from Design changes, RFI Update & As-Built Update)

## BIM Process involving Pinnacle's In-House Team, Client & Consultant

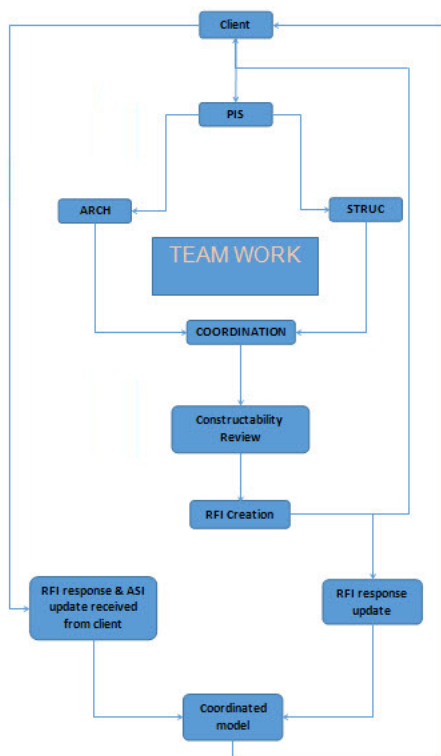


Image courtesy: Pinnacle Infotech

## Challenges & The Way Out:

1: **Timeline** - Pinnacle faced the challenge

of completing the models of all the 34 floors within 27 working days.

### PIS approach:

- PIS engaged a team of 10 engineers, divided into two groups – one for the architecture and the other for the structural modeling with clearly defined targets.
- PIS used Autodesk Revit for successfully completing the 3D Models.

2: **Input Inconsistency** - The Construction documents set had several inconsistencies that needed to be sorted out before the commencement of modeling.

### PIS approach:

- The engineers checked and compared the Construction Documents for inconsistencies.
- Comparison documents were submitted showing inconsistent parameters. The proposed solution were given by Pinnacle and client's approval was sought for the change.
- Over 85 RFIs were raised, where client's decision was considered necessary. The RFIs were vetted by the client, who in turn escalated the same to the consultant for probable solution.

3: **Coordination Problem Among Services** - Coordination was difficult as the structure of the building did not allow any service to pass through the beam/concrete wall, unless it was not conceived at the design stage and the space between false ceiling and the true ceiling was inadequate in many cases.

### PIS approach:

- At places where coordination was genuinely impossible, RFIs were sent to the client/consultant to change the false ceiling height.

### Hurdles Overcome With The Help of BIM

1. **Input Challenges** – BIM helped sort inconsistencies that were found in the input drawings.
2. **Incomplete Information** – In many cases, floor beam sizes, specifications and elevations were not available in the input documents. BIM identified the need

for providing revised ceiling height and beam sizes that would provide the actual plenum space for MEP services. Besides, there were incomplete information related to wall types and design layout for hotel and residential units. RFIs were raised to resolve these issues.

3. **Constructability Issues/ Reviews** – There were some conflicts between architecture and structure, which could have affected the actual construction in terms of time, cost, manpower, material, etc. BIM minimized all these wastages.

### Value Engineering

- Modified ceiling height design to suit site constructability
- Modified beam size design to avoid issue in site construction
- Coordinated MEP services with Existing structure and Interior Drawings
- Detected Design and Constructability Issues
- Facilitated Complete Coordination among all trades

### Value Addition:

- Over 85 RFIs were raised pertaining to Missing Data, Conflicting Data, Constructability/Aesthetic Issues, Maintenance Issues and Accessibility Issues
- More than 100 Clashes were resolved from BIM implementation

"Using Autodesk BIM software, we could easily create models with the help of cutaways, elevations and sections. We combined Revit & Navisworks software platforms to coordinate with subcontractors' models as well as other disciplines and thus could avoid the cost of rework from the existence of clashes."

—Sourav Banerjee  
Manager  
Pinnacle Infotech

Pinnacle was extremely responsive whenever issues arose. The desire to deliver a satisfactory product was very much appreciated.

## Summary

Autodesk Revit helped Pinnacle Infotech to plan using intelligent models and allowed team to anticipate, plan and coordinate every aspect of the project design, detailing, construction and maintenance. It helped to identify constructability issues before the construction by detecting the number of clashes, thus avoiding work stoppages, rework and wastage of time, material and manpower.

**Biprajit Nag, Assistant General Manager, Pinnacle Infotech** said - "Autodesk Revit BIM software helped us progress through each phase of the project, starting from floor setup to structural modeling. Pinnacle has reviewed critical areas in 3D for any changes made and evaluated space constraint successfully. BIM facilitated various design disciplines to collaborate in a flawless manner as a single information platform, enhancing work efficiency, reducing errors, verifying aesthetic looks and improving building performance."

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## Behind The Project:

- Architect - Beyer Blinder Belle Architects and Planners
- Engineer - Tadjer-Cohen-Edelson Associates
- MEP Contractor/Consultant - Dewberry
- General Contractor - Clark Construction Group, LLC
- Developer - The JBG Companies

## Behind The Project:

**Molly Raglani, Senior Project Manager** - "Pinnacle was extremely responsive whenever issues arose. The desire to deliver a satisfactory

product was very much appreciated."

**Mike Reisinger (Residential)** - "Upon project kickoff, our project team was left with a complicated building design without a building model to coordinate with. Pinnacle Infotech quickly produced an accurate structural & architectural full building model to allow MEP coordination to begin almost immediately. Furthermore, the pinnacle detailers were extremely responsive when incorporating design changes into the program. More times than not, Pinnacle's turn around when making model edits was less than 24 hours."

**P.J. Bombero, Project Manager (Office)** - "The design of this project was completed prior to the use of 3D modeling and in order to perform MEP coordination a model needed to be developed. Pinnacle Infotech worked diligently with the team in order to produce the model in phases to allow the coordination process to begin on the below grade structure. The Pinnacle team worked to develop the model quickly, and provided multiple revisions based upon design changes from the Architectural and Structural design firms. Their quick turnaround and desire to provide a satisfactory model was essential in the MEP coordination process."



Image courtesy: Pinnacle Infotech



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