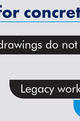
# TOP **BIM BENEFITS** FOR CONCRETE CONTRACTORS

Concrete contractors can use BIM to streamline construction activities with clash-free 3D Revit models to gain precise concrete modeling and detailing.

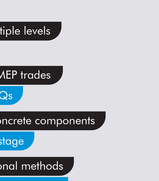
Market size of concrete contractors in the **US-2022**



**$67.6 billion**

Global market for precast construction by **2026**

**$168 billion**

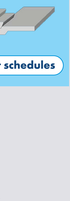


## Challenges for concrete contractors

- CAD-based drawings do not facilitate accurate design check and planning of precast concrete
  - Design Inaccuracies and rework
- Legacy workflows have coordination issues at multiple levels
  - Rework, project delays, cost overruns
- Absence of collaboration between structural and MEP trades
  - Greater onsite clashes and inaccurate BOQs
- Inability to visualize and calculate material quantities for concrete components
  - Inaccurate material quantity and greater wastage
- Unique element ID cannot be assigned in 2D traditional methods
  - Dimensionally inaccurate prefab leading to improper planning
- Lack of visualization to schedule concrete component manufacturing and installation
  - Inability to track actual vs planned schedule throughout the project

Labor input for drawing and checking with typical CAD pre-cast projects **83%**

Total labor hours for CAD based projects - **1,000** To **8,000** Hours

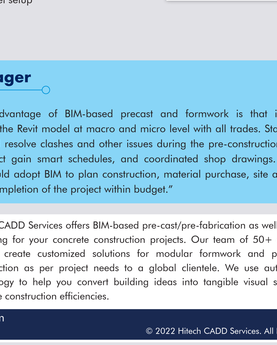


## How BIM overcomes challenges & benefits concrete contractors

- Accurate, coordinated, and parametric 3D models for precast, formwork, and other concrete structures
  - **Precise RCC design coordination and planning, accurate pour locations**
- Software-driven BIM workflows reinforced with Revit automation drive accurate documentation
  - **Seamless construction, mitigated delays, reduced RFIs, greater constructability**
- Model-based coordination between structural and MEP trades
  - **Clash-free 3D models for seamless onsite installation, reduced onsite risks**
- Accurate QTOs from data-packed 3D models enriched with visualization
  - **Precise calculation of material quantity for precast, no material waste**
- 3D model-extracted shop drawings for Rebar and BBS in compliance with global standards
  - **Dimensionally accurate and high-quality precast fabrication, lower rework**
- 3D BIM model reinforced with 4D construction sequencing
  - **Shorter project duration, Greater accuracy, & tracking of actual vs planned precast schedules**

## Why BIM-based prefabrication or formwork will increase over the next 3 years?

Dodge Data & Analytics, 2020




## Successful precast detailing and formwork modeling projects in concrete construction

Revit structural model for precast at LOD 450 for an office building, India

**Business Need**

- Develop a Revit structural model at LOD 450 with Bar Bending Schedules (BBS) and Rebar modeling.



**Solutions and Approach**

- 2D CAD files received as input were studied by structural designers for coordination and extraction of information.
- Architecture and MEP models were coordinated with the structural model to create a single and clash-free 3D model with accurate RFIs.
- Accurate documentation including shop drawings, connection details, and BBS were generated.





**Deliverables and Results**

- Coordinated Revit structural model
- Accurate documentation
- Comprehensive sheet setup

Coordinated Revit 3D model for formwork, Netherlands

**Business Need**

- Creation of an accurate 3D formwork model with GA and fabrication drawings for a 22-storey commercial building.



**Solutions and Approach**

- Files sent by the client in .pdf format were reviewed in BIM 360.
- IFC files were imported to Revit to build a BIM deliverable and Revit families were created.
- 3D model at LOD 450 was generated through Dynamo automation with precise part count for floor plans, sheets, & component sheets.
- Precise and detailed shop drawings and GA drawings were created.



**Deliverables and Results**

- Hassle-free documentation with sheet setup
- 20% reduction in production time
- 100% output quality

## From the project manager



Kaushik Gajjar,
Architect, Asia

The greatest advantage of BIM-based precast and formwork is that it enables coordination of the Revit model at macro and micro level with all trades. Stakeholders can identify and resolve clashes and other issues during the pre-construction stage. It helps the project gain smart schedules, and coordinated shop drawings. Concrete contractors should adopt BIM to plan construction, material purchase, site activities to ensure timely completion of the project within budget."

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Hitech CADD Services offers BIM-based pre-cast/pre-fabrication as well as formwork modeling for your concrete construction projects. Our team of 50+ certified Revit experts create customized solutions for modular formwork and pre-fabrication construction as per project needs to a global clientele. We use automation and technology to help you convert building ideas into tangible visual structures and improve construction efficiencies.

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