



**Pinnacle
Infotech**

Construct
Certainty, with
Technology

Deloitte.
Technology Fast50



BIM

Revolutionizing The AEC Industry



- BID Presentation
- BIM Consultancy Management & BEP Development
- 3D Modeling & Coordination
- BIM Model Auditing/ Inspection
- Architectural & Engineering Design Development
- Constructability Review & Analysis
- Detail Shop/ Installation Drawing
- BOQ/ Material Take-off
- Construction Phasing Management (4D-5D)
- Scan to BIM & Facility Management Service

pinnacleinfotech.com



COMMITMENT

We are committed to our core values and corporate mission:

- Maximizing client value by adopting the latest technologies and innovations.
- Improving project efficiency by streamlining workflow and providing high quality services.
- Saving time by using a large global team to leverage time zone advantages.
- Reducing client costs by up to 15% by harnessing a highly experienced global work force.

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Revolutionizing the AEC Industry

Proper planning and coordination are the keys to the successful execution of projects in the construction industry. Building Information Modeling (BIM) allows stakeholders to create and examine virtual representations of the Mechanical and Electrical (MEP) systems, and other utilities.

The virtual construct can be used to generate accurate shop drawings and address design issues before construction begins. Advancements in 3D technology and the advent of BIM have also revolutionized the Architectural, Engineering and Construction (AEC) industry.

Pinnacle Infotech has been acknowledged as the global leader in providing innovative BIM solutions. We have received several awards and recognition from both industry and government.

We are an ISO 9001:2015, ISO/IEC 27001:2013, and Environment Management System (EMS) 14001:2015 certified company.

Serving the industry for more than 20 years in 40 countries with 5500+ projects, Pinnacle acquired deep understanding of international building codes and procedures. Our global delivery system allows us to maintain constant contact with our clients making geographical separation meaningless.

We recognize the importance of effective work process management and regular communication when outsourcing services. We have developed an ideal mix of infrastructure, experience, global presence and commitment to excellence that has led to long-term relationships with more than 1150 clients worldwide.



What is BIM ?

Building Information Modeling (BIM) is the creation and use of coordinated 3D model via link to intelligent database for a construction project. BIM enables seamless collaboration between Architects, Engineers, Contractors and Sub-Contractors which enables quick decision making, accurate construction documents, better construction management and facilities management.



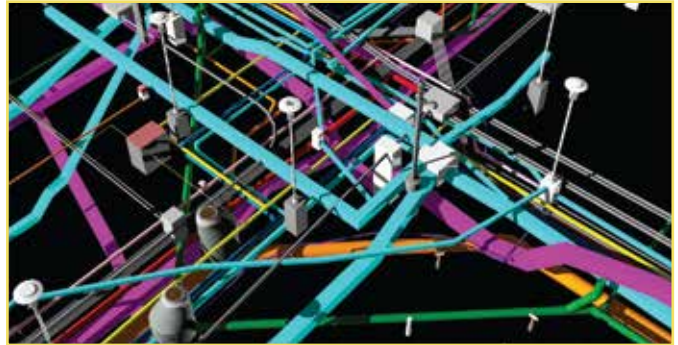
Benefits of BIM

- **CO-ORDINATION:** Streamline communication with 3D visualization among all stakeholders for quick decision making during design and pre-construction phase.
- **EFFICIENCY:** Eliminate RFI's, work stoppages and rework by checking the accuracy and completeness of drawings before starting construction on-site/off-site.
- **QUALITY:** Improving Quality by producing accurate Shop Drawings directly from the 3D BIM model which could also be used for pre-fabrication.
- **SAVINGS:** Pre-construction and Pre-fabrication reviews mean better use of manpower, better quality construction and reduced rework and wastage, all of which translate into lower costs.
- **PROJECT MANAGEMENT:** Detailed Material BOQ and Shop Drawings with 3D visualization enable a better look at "The Big Picture" and aid in the review, scheduling and monitoring of each project.



Project Visualization and Collaboration

The co-ordinated BIM model helps in visualizing the complete project before construction, thus enabling comparison between different design options leading to development of more efficient, cost-effective and sustainable solution.

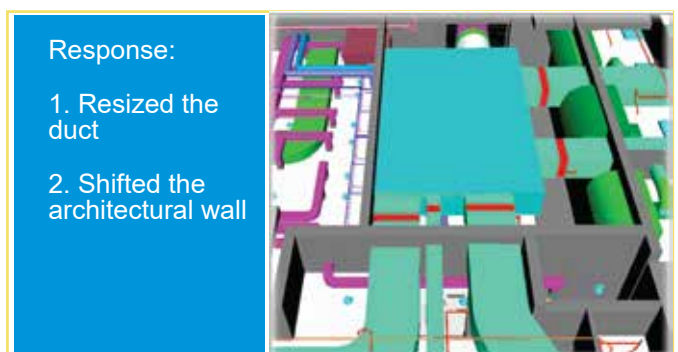
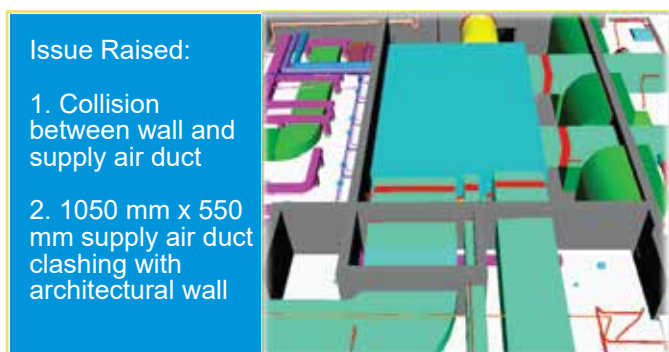
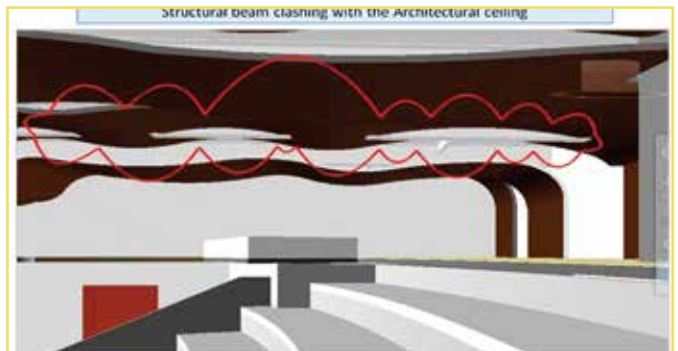


Constructability Review & Analysis

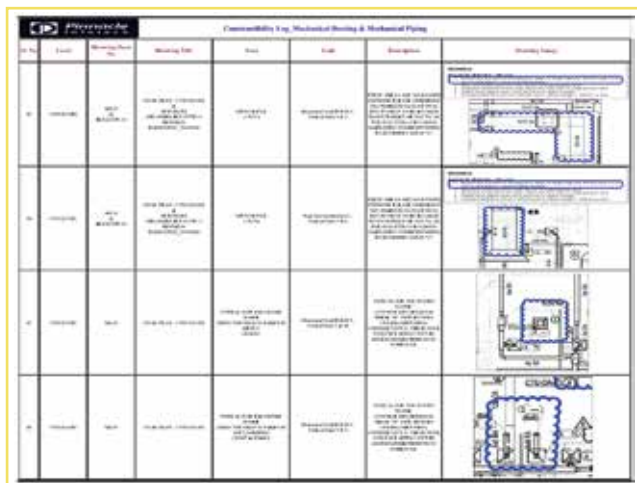
Virtual Construction of project in BIM enables Independent Review of the Construction Plans and Specifications. This identifies discrepancies in drawings and all constructability issues at preconstruction stage. During the constructability review, our BIM team generates a series of RFI's to identify following type of constructability and operational issues:

- Missing information / documents
- Input inconsistencies
- Conflicting data
- Operation clearance and accessibility issues
- Maintenance access

BIM model is updated based on responses of RFI's. Status of all RFI's is maintained in a log and follow-up is done to resolve them at preconstruction stage. This eliminates work stoppages and rework during construction.



Peer Review using 2D Documents



Pinnacle will analyze the documentation packages/pdf for errors and omissions that may impede construction. We will verify that work requirements are clear and the documents are coordinated. We will make written comments to plans and specifications then submit them to you for review. The analysis may include the Architecture, Structural, Site, Site Utilities or Mechanical.

The following will be checked:

- Plans
- Specifications
- Relevant Special Provisions

We use Bluebeam Revu for the process.

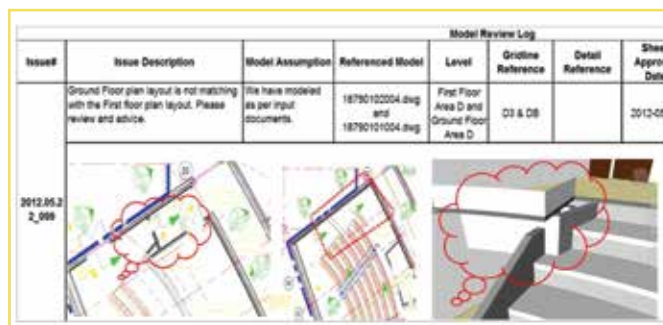
BIM Model Auditing & Validation

We provide accurate and reliable BIM Model Authoring for Engineers, Contractors, Architects, Design Firms and other construction professionals. The clients provide us a range of inputs like the contract documents, specification sheet, and design document. We compare the CD Sets /Input documents along with the BIM Model which is provided by the client, ensuring that the specifications are matched with the LOD standards and other details. We ascertain that the outputs such as CD set, shop drawings and bill of quantity (BOQ) from the BIM model are reliable.

We make a comprehensive analysis and audit BIM Model for delivering project in a risk free environment, facilitating smooth construction.

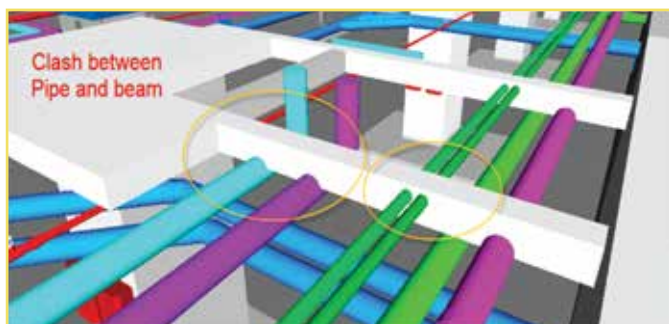
Our Audit process includes the following steps:

- Reviewing Documentation
- Reviewing LOD against Design Function
- Data Validation
- Clash Detection & Coordination

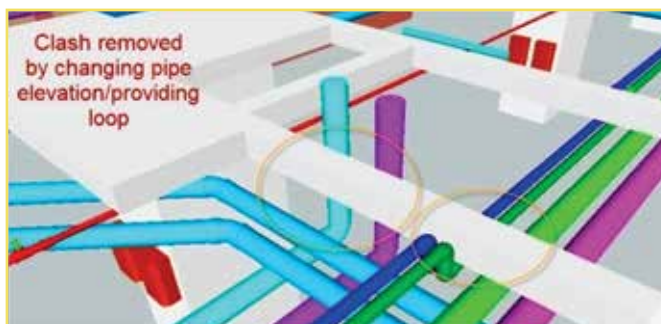


Model Coordination & Clash Resolution

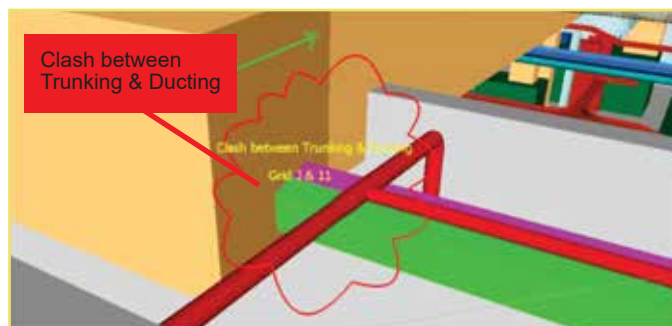
We generate a coordinated BIM model after resolving the clashes among all the trades (Architecture, Structure, Concrete, Mechanical, Electrical, Plumbing, Fire Protection, etc.). Clashes are resolved through WebEx meetings/ sharing 3D clash snapshot. Clashes are resolved by re-routing utilities, changing elevation and re-sizing. Value Engineering is also offered to improve system efficiency, reduce costs and easier construction and maintenance.



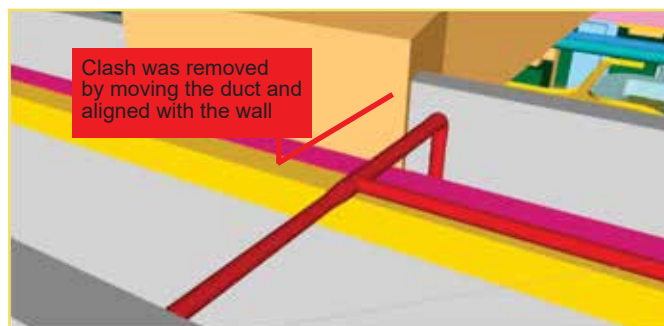
Before Coordination



After Coordination



Before Coordination

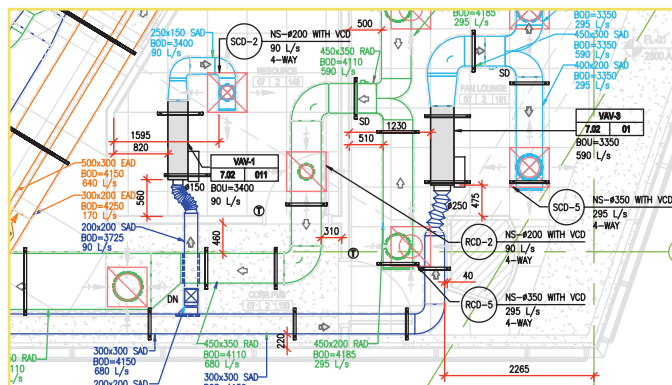


After Coordination

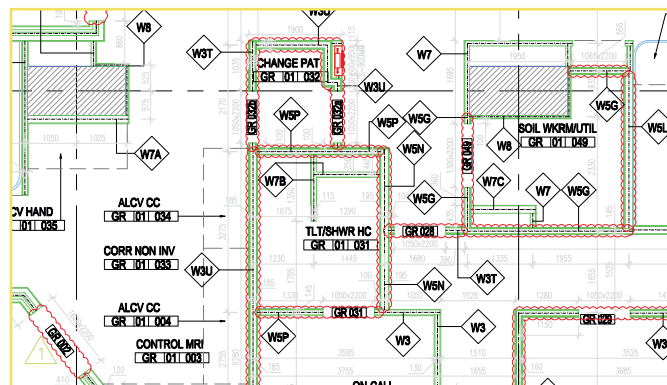
Detail Shop Drawings

Detail Shop Drawings are created based on project standards and are useful to contractors, fabricators, suppliers and manufacturers during construction. BIM is highly useful for construction of any irregular or complex structures. We generate accurate sleeves, penetration and hanger locations from the BIM model before start of construction. These drawings can be directly downloaded into GPS instruments for fast and accurate layout at site. These drawings are generated directly from coordinated BIM models and are detailed enough for workshop fabrication and/or on-site construction. Advanced BIM tools help in revisions management.

Architects & Structural Engineers often lose time preparing technical documentation of projects. Revit BIM allows them to easily create professional shop drawings, saving several hours of work in the field. The shop drawing creation can be automated from BIM, ensuring fast output generation with data accuracy in construction document. Using BIM based shop drawing a more sustainable project can be developed. The dynamic changes and centralized drawing location lead to a significant addition to productivity in the process of extracting Shop drawings. This eliminates human errors, making it less time-consuming to manage and make changes in the drawings. The co-ordinated shop drawings coming out of BIM model predict possible clashes and resolve them, before execution which helps in saving time and money.



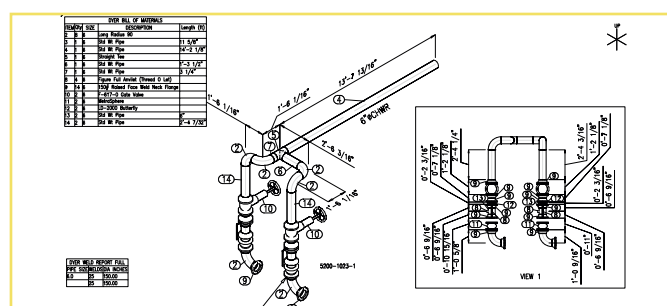
HVAC Shop Drawing

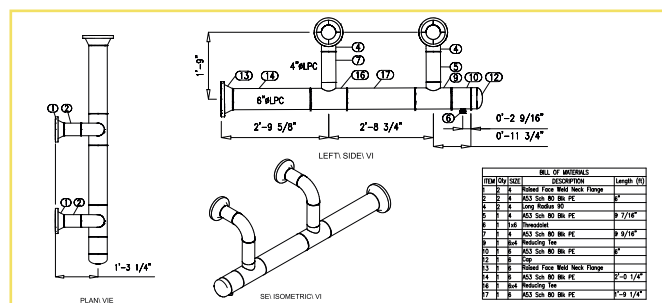
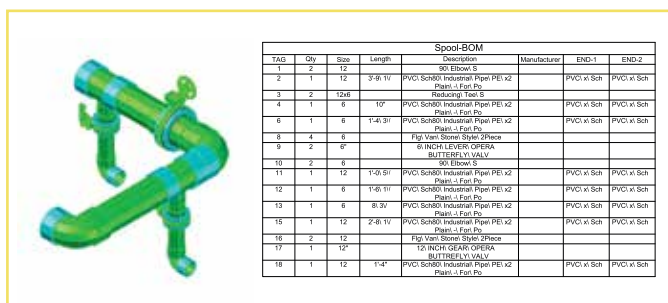


Architectural Shop Drawing

Fabrication/Spool Drawings

Fabrication drawings can be generated from the BIM model for accurate pre-fabrication off-site / on-site. Segmented spool drawings and a spool map with segment locations are generated in accordance with the contractors pre-fabricating standards and preferences. Pre-fabrication significantly improves quality, helps in material handling and reduces cost.





Bill of Quantity (BOQ)

BIM model generates accurate quantity of all materials. These quantities are automatically updated with any changes in the BIM model. Quantity Take-Off (QTO) reports can be formatted in Excel and exported to a database for detailed analysis. Quantities can be generated for a specific time period or project area (4D/5D) to help manage material procurement and save inventory costs.

The following elements can be generated from a BIM model:

- Structural elements – Concrete, Steel, Rebar's, CMU Walls, etc.
- Architectural elements – Block Work, Ceiling, Doors and Windows, Railings, Finishes, etc.
- MEP elements – Ducts, Pipes and Fittings, Accessories, Equipments, Cable Trays, Hangers, etc.

Exterior Curtain Panel Schedule (as per Rev. 00 FD dated 09-03-2015)					
Type	Count	Length (mm)	Height (mm)	Area (m ²)	Description
CW1_FULLY TEMPERED PANEL	1	480	1965	0.943	FULLY TEMPERED PANEL
CW1_FULLY TEMPERED PANEL	1	480	650	0.312	FULLY TEMPERED PANEL
CW1_FULLY TEMPERED PANEL	1	480	1965	0.943	FULLY TEMPERED PANEL
CW1_FULLY TEMPERED PANEL	1	480	650	0.312	FULLY TEMPERED PANEL
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CW1_FULLY TEMPERED PANEL	1	480	650	0.312	FULLY TEMPERED PANEL
CW1_FULLY TEMPERED PANEL	1	480	1965	0.943	FULLY TEMPERED PANEL
CW1_FULLY TEMPERED PANEL	1	480	650	0.312	FULLY TEMPERED PANEL
CW1_FULLY TEMPERED PANEL	1	480	1965	0.943	FULLY TEMPERED PANEL

Architectural QTO

Service	Size	Schedule	Material	Qty	Length
CHWR	1 1/4"	601 Coupling Cx/C	Copper: Wrot Copper	1	
CHWR	1 1/4"	607 90 Elbow Cx/C	Copper: Wrot Copper	1	
CHWR	1 1/4"	Control Valve Full Port	Carbon Steel: Carbon Steel	1	
CHWR	1 1/4"	Soldered Joint	Copper: Wrot Copper	1	
CHWR	1 1/4"	Soldered Joint	Copper: Wrot Copper	2	
CHWR	1 1/4"	Soldered Joint	Copper: Wrot Copper	3	
CHWR	1 1/4"	T-585-70 Ball Valve	Bronze: Cast Bronze	2	
CHWR	1 1/4"	Type L Hard Copper	Copper: Wrot Copper	1	
CHWR	1 1/4"	Type L Hard Copper	Copper: Wrot Copper	1	3 1/8"
CHWR	1 1/4"	Type L Hard Copper	Copper: Wrot Copper	1	3 1/4"
CHWR	1 1/4"	Type L Hard Copper	Copper: Wrot Copper	1	3 1/2"
CHWR	1 1/4"	Type L Hard Copper	Copper: Wrot Copper	1	3 3/4"
CHWR	1 1/4"	Type L Hard Copper	Copper: Wrot Copper	1	3 7/8"
CHWR	1 1/4"	Type L Hard Copper	Copper: Wrot Copper	1	4 1/2"
CHWR	1 1/4"	Type L Hard Copper	Copper: Wrot Copper	1	5 3/4"
CHWR	1 1/4"	Type L Hard Copper	Copper: Wrot Copper	1	1'-4 3/4"
CHWR	1 1/4"	Type L Hard Copper	Copper: Wrot Copper	1	12'-2 5/8"
CHWR	1 1/4"	Type L Hard Copper	Copper: Wrot Copper	1	14'-2 1/2"
CHWR	1 1/4"	Type L Hard Copper	Copper: Wrot Copper	1	15'-0 1/2"

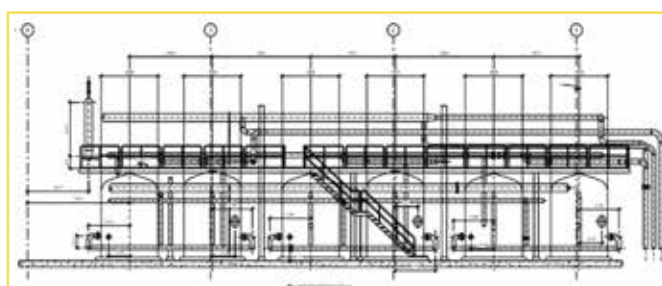
MEP QTO

3D Scanning to BIM & Facility Management (CoBie Data)

3D Scanning technology gives an accurate and detailed "as-built" drawing with Point Clouds. BIM tool use Point Clouds to create Revit model with automated recognition and placement of architectural, structural and MEP elements. The visual model of existing conditions is used for design and clash detection mainly in retrofit and renovation projects producing a seamless fit between new and existing assets.



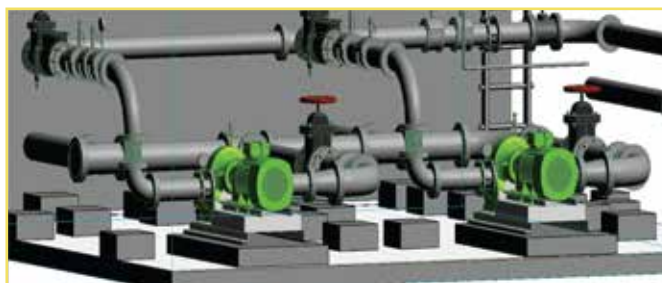
Point cloud sample



Output (2D drawing) generated from point cloud



Existing plumbing model

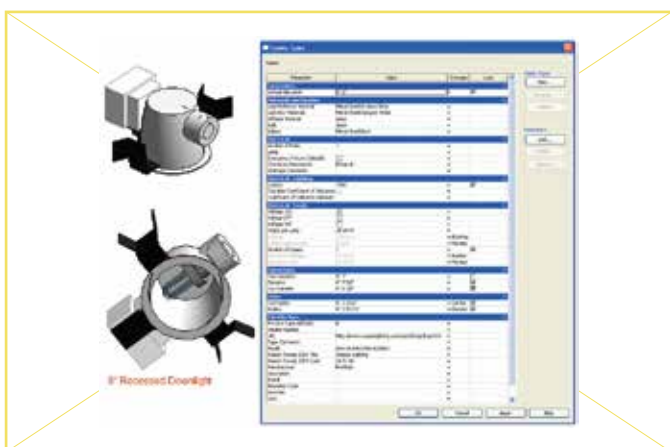


Plumbing Model prepared from point cloud model

Facility Management

Pinnacle facilitates project stakeholders to organize approved electronic submittals during design and construction through facility management. We manage complete contact records of every project, including accurate data for essential fields. The building information model files, drawings and the PDFs are organized to be easily accessed through secure server directories. Our engineers follow COBie (Construction Operations Building Information Exchange) process for managing facility assets.

- Provides all detailed information pertaining to facility management like wear & tear, make, warranty, cost and other product specifications in Revit
- Manages complete contact records for projects
- Transfers data from As-Built Model to Spread Sheet & Maintains updated As-Built Models
- Facilitates quick trouble shooting through information sharing among project stakeholders
- Allows better simulation through design analysis on BIM during renovation and upgrade
- Offers an exact virtual representation of the building services after construction
- Reduces cost in operation, management and space planning by predicting building performance throughout the life-cycle of the facility
- Enables improved & precise budgeting for future maintenance



Lighting fixture with it's property

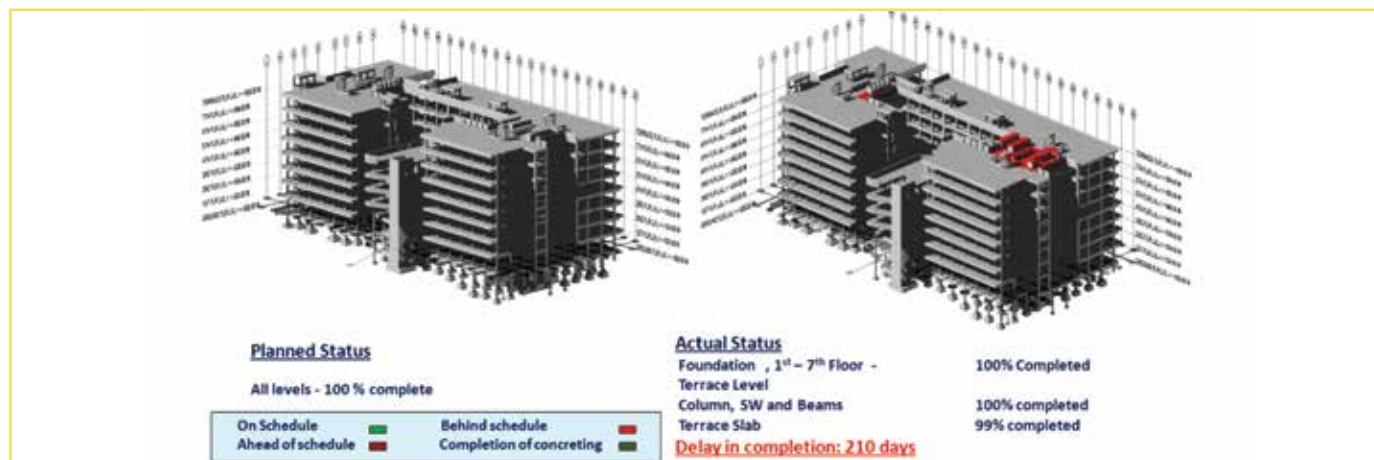


Lighting fixture with it's property

Construction Analysis - Planned Vs. Actual

Project construction schedule/sequencing is linked to the BIM model. A real time simulation of the construction sequence is shown in Navisworks Time Line or as an animation video format. During the entire duration of the project, the Planned Vs. Actual construction schedule is compared and presented.

When the project plan is established in visual simulation, users can visually associate model objects and scheduled tasks. Users can click on a building object in the 4D visual environment and can view its associated task highlighted in the Gantt Chart or vice versa.



Construction Management (4D & 5D)

Project construction schedule/sequencing is linked to the BIM model. A real time simulation of the construction sequence is shown in Navisworks Time Line or as an animation video format. During the entire duration of the project, the Planned Vs. Actual construction schedule is compared and presented.

When the project plan is established in visual simulation, users can visually associate model objects and scheduled tasks. Users can click on a building object in the 4D visual environment and can view its associated task highlighted in the Gantt Chart or vice versa.



4D Presentation Snap



5D Presentation Snap

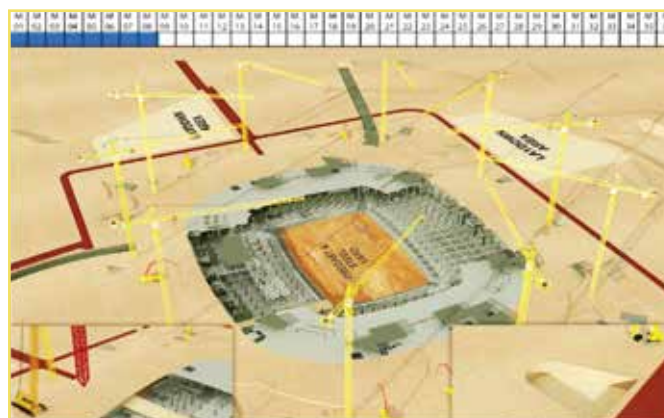
Marketing BID Presentation

We help our clients secure bids by creating Marketing Presentations of high quality rendered images, Walkthrough Animations, 4D Phasing and Site Logistics.

Videos are prepared using client's construction planning integrated with project bid drawing.



Project development progression at the 3rd month



Project development progression at the 8th month



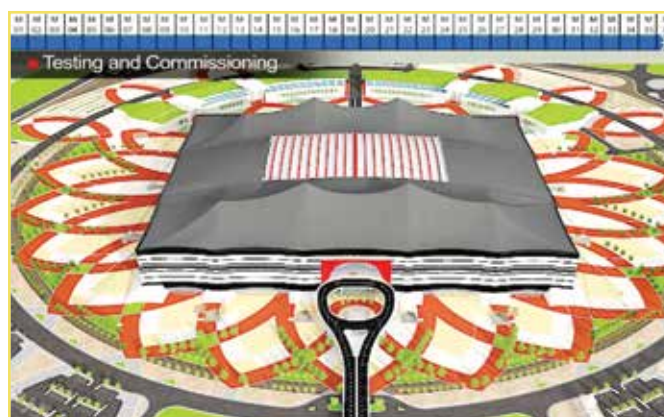
Project development progression at the 15th month



Project development progression at the 22nd month



Project development progression at the 25th month



Project development progression at the 36th month

"Pinnacle was able to meet our very tight and aggressive schedule. The provided us with a detailed site logistics animated model for a presentation and was ultimately awarded the project."

~ W.T. Rich Company, Inc.

Benefit of Construction Management & BID Presentation

We help our clients secure bids by creating Marketing Presentations of high quality rendered images, Walkthrough Animations, 4D Phasing and Site Logistics.

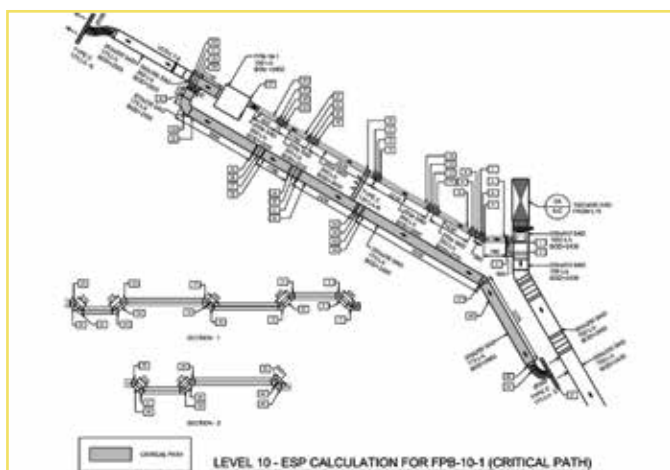
Videos are prepared using client's construction planning integrated with project bid drawing.

- Helps clients in winning the Project.
- Powerful Visualization of Construction Process
- Streamlined Construction Productivity
- Reduced Cost & Error in Construction with Efficient Logistics Management
- Coordinating Detailed Construction Operations
- Monitoring Plan & Tracking the Actual Progress
- Better Understanding of Project Milestones

ACS & MEP Design Support & Optimization

Our engineering team builds intelligent BIM model to design complex building systems with greater efficiency. This gives all stakeholders a clear idea of design intent enabling them to modify the design to achieve the outcomes they want, minimizing risk of costly changes later on. Different design options are simulated and analyzed to develop more efficient and cost-effective solutions. Some of these are listed below:

- Drafting and detailing support
- Framing Detailing
- 3D modeling of complex structures
- Quantity Extraction of individual walls and floors of rooms
- Concrete Lift Drawing
- Reinforcement Drawing & BBS
- Revit based heat load calculation and generation of HVAC layouts
- Sizing and calculation of HVAC ducts and pipes
- Illumination calculation and generation of light and power layout
- Creation of sanitary and water supply layouts based on fixture unit values and pipe sizing
- Validation of equipment capacity for all services
- Creation of Technical Schedules and Auto-Updating the same based on design iterations
- Pressure loss reports and velocity legend creations
- Other analysis reports as required



ESP Calculation – Using Elite Software

Pipe Velocity Label (m/sec)	Input Flowrate (lit/min)	Output Mode	Inlet Pr. (bar G)	Outlet Pr. (bar G)	Drop in pr. (bar)	Pipe Frict. (bar / m)	Reynolds Number
1	2	3	0.7566	0.6352	0.1214	1.0927E-03	
1.3682E+05	1.071	528.0	0.6352	0.6308	4.4180E-03	1.0927E-03	
2	3	4	0.6352	0.6308	4.4180E-03	1.0927E-03	
1.3682E+05	1.071	528.0	0.6308	0.5453	6.5518E-02	4.2902E-03	
3	4	5	0.5453	0.5094	5.5854E-02	4.2902E-03	
1.7922E+05	1.837	528.0	0.5094	0.4480	6.0428E-02	4.2902E-03	
4	5	6	0.4480	0.4565	1.2544E-02	4.2902E-03	
1.7922E+05	1.837	528.0	0.4565	0.3195	0.1370	4.2902E-03	
5	6	7	0.3195	0.2743	4.5215E-02	4.2902E-03	
1.7922E+05	1.837	528.0	0.2743	0.2510	2.3218E-02	4.2902E-03	
6	7	8	0.2510	0.2325	1.8570E-02	4.2902E-03	
1.7922E+05	1.837	528.0	0.2325	0.2143	1.8192E-02	4.2902E-03	
7	8	9	0.2143	0.1957	1.8570E-02	4.2902E-03	
1.7922E+05	1.837	528.0	0.1957	0.1736	2.2091E-02	4.2902E-03	
8	9	10	0.1736	0.1736	0.0000	4.2902E-03	
1.7922E+05	1.837	528.0					
9	10	11					
1.7922E+05	1.837	528.0					
10	11	12					
1.7922E+05	1.837	528.0					
11	12	13					
1.7922E+05	1.837	528.0					
12	13	14					
1.7922E+05	1.837	528.0					
13	14	15					
1.7922E+05	1.837	528.0					
14	15	16					
1.7922E+05	1.837	528.0					

Pump Head Calculation – Using PIPENET Software

Value Engineering

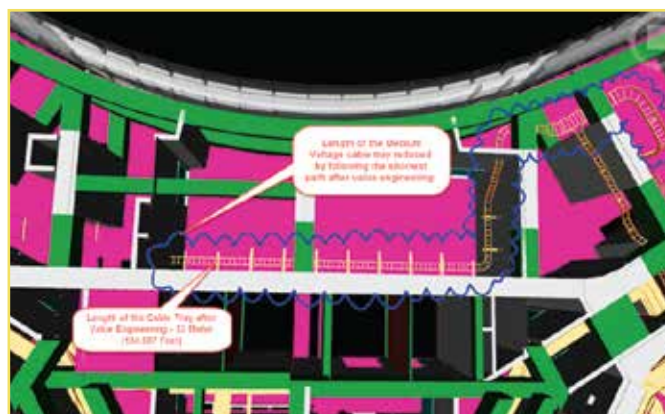
Pinnacle brings Value Engineering for all successfully delivered projects through rigorous Design Detailing, Effective Quality Control (QC) Process and using technical expertise from Design, Construction Management & Field Installation. Our Creative In-House Brainstorming helps to re-design MEP layout and save time for contractor or design consultant, without changing orders. We make proper spacing and positioning of hangers for maximum load bearing and cost optimization.

Benefits of Value Engineering

- Improves System Effectiveness & Constructability
- Reduces Material & Labor Cost
- Lowers Installation Time
- Enhances Safer Construction
- Ease in access during construction & post construction stages
- Hanger Support Optimization
- Sheet Metal Cost Optimization
- Resolves Constructability Issues
- Coordinates MEP Utilities
- Reduces offset in trunk duct
- Clean layout for MEP Model
- Generates Higher ROI to client
- Shaft Optimization
- Saves time on RFIs
- Avoids discrepancy with local codes in Plumbing Model



Issues as per input drawing



Issues resolved after value engineering

BIM Services for Specialty Trade Contractors

The Specialty Trade Contractors subsector comprises establishments whose primary activity is performing specific activities (e.g., pouring concrete, site preparation, plumbing, painting, and electrical work) involved in building construction or other activities that are similar for all types of construction, but that are not responsible for the entire project. We do also cater to all the trade Contractors in different means. Our BIM Services is adhering to Specialty trade contractor such as:

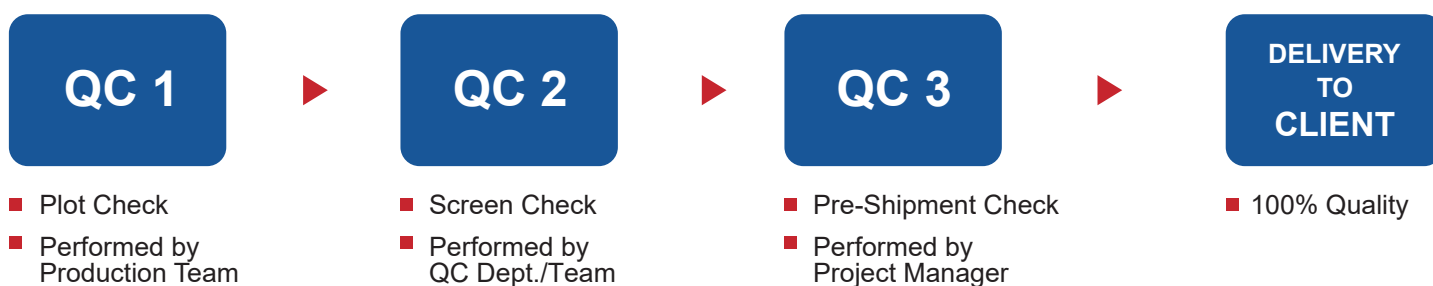
- FRAMING CONTRACTOR
- DRYWALL CONTRACTOR
- CARPENTRY CONTRACTOR
- CONCRETE CONTRACTOR
- MEPF CONTRACTOR

Quality Control Process

Our QC process is ISO 9001:2015 certified and managed by an independent QC team. We have implemented Environment Management Systems (EMS) 14001:2015.

The main objective of the quality control (QC) process is to detect errors and rectify it. Ensuring quality is a group effort and our dedicated QC team is led by a highly qualified and experienced Manager in M&E Coordination and Quality Control.

The entire QC process is handled in three phases:



QC Check Phase I

- The model is plotted on paper and a preliminary grid by grid check is done comparing it with the original contract documents. Member of the Project Management team assists in this process.
- The project team leader sends status report to the QC Department to begin QC Phase II.

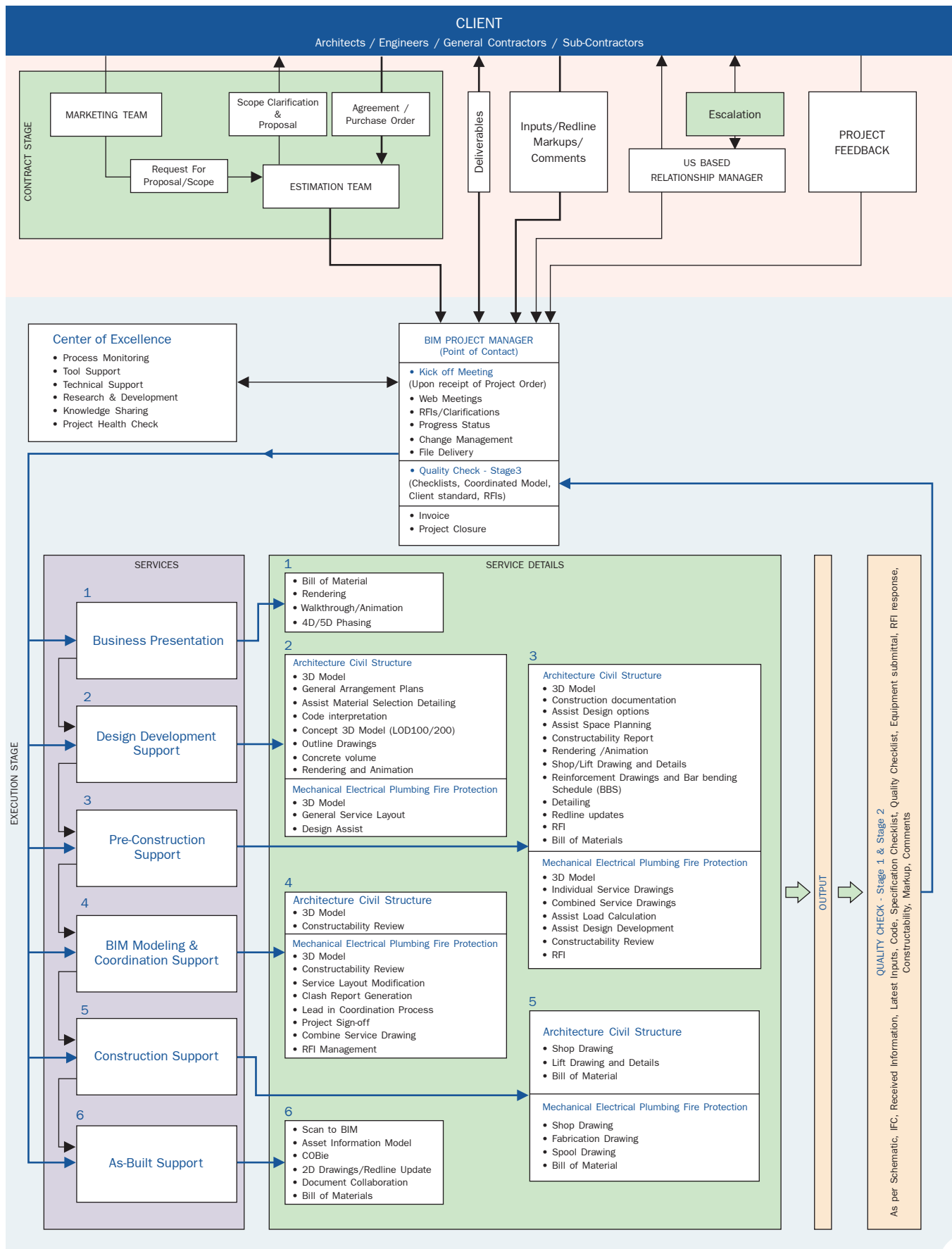
QC Check Phase II

- The QC Team performs a more detailed comparison of the Contract Documents against the 3D BIM model. Specific Checklist is prepared to review/check the deliverables. Their main objective is to review, identify and address the following:
 - ▶ Missing data (if any)
 - ▶ Mismatches with the contract documents
 - ▶ Clashes (Old/New), Elevation, Routing, Fittings, etc.
 - ▶ Construction point of view.
 - ▶ Fly-Zones requirements
 - ▶ Attribute Checking (Pressure class, Pipe material, etc.)
 - ▶ Location of Equipment such as VAV, Sleeves, Hangers, Valves.
 - ▶ Equipment Connection details as per Schematic Drawings.
 - ▶ Equipment Models as per Technical Submittals.
 - ▶ Annotations & Dimensions, Aesthetic View.
 - ▶ Miscellaneous issues
- The QA/QC Team continuously interacts with the Project Lead and other team members to resolve all technical issues related to the project.

QC Check Phase III

- The Project Manager conducts the pre-shipment check before sending them to the client.

Work Process



Why Pinnacle?

Pinnacle is the global leader in providing innovative BIM services. Our in-house team of 1500+ experienced Architects, Engineers, and BIM professionals provide end-to-end solutions to discerning clients around the world. We have 20+ years of global experience, during which we have collaborated with several leading contractors on BIM projects across categories such as specialty hospitals, stadiums, universities, dams, apartment complexes, hotels, casinos, large retail center, high school, airport, commercial buildings, convention center, high rise towers, and industrial projects.

Quality Output

Our Quality Control Team is led by employees who have 20+ years of experience. Our process orientation & quality control is in line with ISO 9001:2015 and ISO 14001:2015 standards. Our Preconstruction & prefabrication reviews with RFI generation help clients make better use of manpower and improve the quality of construction, reducing rework and wastage. Detailed material BOQ & Shop Drawings with 3D visualization enable a better look at "The Big Picture" and aid in the review, scheduling, and monitoring of each project.

Fast Turnaround

Our skilled team of professionals can provide quick turnarounds on complex projects. Pinnacle has completed several large-scale projects across multiple verticals.

High-tech Infrastructure

Our 3,80,000 sq. ft. world-class production facility is equipped with high-end workstations, advanced servers with real-time backup, and a 24*7 high-speed data and voice network. We have an uninterrupted power supply and an advanced security system by CISCO to ensure a trusted and reliable client data protection mechanism.

Competitive Cost

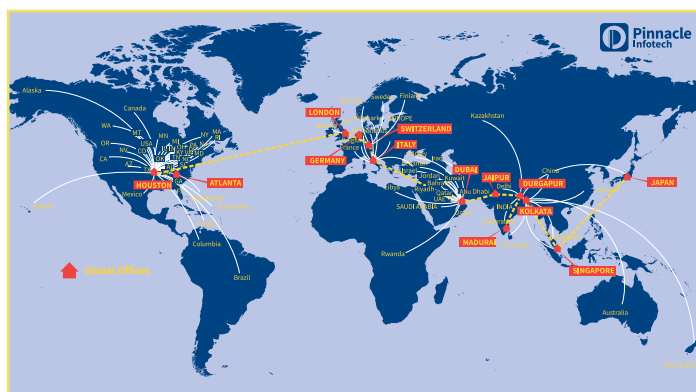
Clients rely on us for our top-of-the-line services at reasonable rates. We help clients assemble projects in a virtual environment for identifying and correcting potential problems before construction. We offer cutting-edge advantage in terms of Building Information Modeling services, facilitating project coordination, collaboration, asset management, risk mitigation, logistic planning and cost optimization.

Technical Strengths

We are software independent, our professionals use the latest BIM software: Autodesk Suite (Revit - all versions), AutoCAD Architecture, MicroStation, Navisworks, Inventor, AutoCAD Civil 3D, Plant Design Suite, Pro/Engineer, SysQue, All Plan, Adobe Photoshop, Adobe Illustrator, Adobe After Effects, 3DS Max, Tekla Structure, SolidWorks, Autodesk Fabrication Suite, SketchUp, Bluebeam, PIPENET, and other design software. As we have a deep understanding of global and regional codes and standards, we have ensured that our Quality Management System is as per ISO 9001:2015.

Global Presence

Pinnacle has offices around the world (SINGAPORE, JAPAN, USA, UK, UAE, INDIA - Durgapur, Kolkata, Jaipur & Madurai, GERMANY, ITALY) enabling us to serve our clients around the clock.



Communication

Pinnacle's Project Management team is available to clients through several communication channels including:

1. Global telephone networks for instant communication
2. Email (on Google server) for reports and interactions
3. Video and teleconferencing for presentations and conversations
4. Web conferences with US-based phone systems
5. Engagement of US-based Relationship Managers

Testimonials

"Biprajit and Sourav were very responsive to email and phone calls, despite the time zone differences between our offices. The Pinnacle team completed the model on schedule and was able to provide a separate model for each floor as they progressed through the building in order to prevent delays to our MEP coordination schedule. I would recommend using Pinnacle for future 3-D modeling jobs."

Clark Construction Group LLC

"Working with Bip and the Pinnacle team has been a great experience. The model generation, updates, etc. have been quick and accurate. I definitely appreciate the creation of RFI's by Pinnacle to aid us in our coordination efforts."

Turner Construction Company

"As with all of the previous projects that we have worked with Pinnacle on, this project came together seamlessly and without any problems. The Pinnacle team is very detailed in their approach, always meets our demanding schedules, and always with excellent quality in the finished product. There are not many companies that work for/with us that can keep up with our pace, but Pinnacle can every single time. I would personally recommend them to anyone in need of BIM, CAD, and drawing coordination services."

Rivers Plumbing and Electric

"Great experience. My requests were always answered timely and the models were always completed accurately. They even went above and beyond and would point out discrepancies in the plans that were cause for RFI's (although, full disclosure: I wasn't there when the contract was signed so I'm not sure if this was included. Either way though, thank you)."

James A. Cummings, Inc

"Everything adhered to the construction documents exactly as expected. Good price and quick modeling service."

The Whiting-Turner Contracting Company

"Despite coming 2nd post tender Midas were able to secure the contract on this new build extension to this Grade II listed building in the historic centre of Bristol following extensive archaeological activity and preparatory ground works. As part of the initial talks with the client Midas presented the 4D sequence that was produced by Pinnacle for this project. This was a great way of starting a dialogue with the client! Everyone in the office including the client was very impressed with the animation, to the point, that the client also wanted to upload the sequence on his website for PR purposes. Personally, this has been my favourite project so far! Well done!"

Midas Construction

"The project had a tight deadline. It was completed on-time, while maintaining high quality workmanship, and impressing our internal staff and most importantly our client."

C.D. Smith Construction, Inc

"We are really appreciative of the work you do! It has helped us to grow our firm without a large staff, which really helps us adjust to market conditions!"

ProjX LLC

"Went above and beyond by adding in some requests from the project teams from 3D column grids to following our naming convention. Always a pleasure to work with."

Wohlsen Construction Company

"I found the experience with Pinnacle to be very satisfactory. We received the products promised when they were promised. It was very easy to make corrections and suggestions that were followed by the Pinnacle team. Given the quality and degree of detail in the PDF renderings that were given to Pinnacle, I think the finished product that they delivered exceeded our expectations. We are now working on another major project with the Pinnacle team and expect the same results."

Nordic PCL Construction, Inc.

"It has been a pleasure to work with you, albeit in the back ground of the project, however the work you have done over the last 6 months have been essential to ensure that the project has moved forward unhindered."

McLaren Construction Group

Testimonials

"The CDR's were very well presented and intuitive. This basic clash detection process was perfectly executed on time and without fuss. Pinnacle is an ideal BIM partner, allowing the principle design team to dedicate their resource to design tasks."

Willmott Dixon Construction

"Pinnacle was able to meet our very tight and aggressive schedule. The provided us with a detailed site logistics animated model for a presentation and was ultimately awarded the project."

W.T. Rich Company, Inc.

"Working with Pinnacle team worked very well. This was a fairly small marketing project with a short deadline, and your team provided us exactly what we needed in the time period that was necessary. We are still waiting for the client to make a final decision, however, if they do proceed with our company we most likely will be working with Pinnacle for some of the MEP trade coordination."

Wright Construction Group

"It was just a little difficult to communicate changes based on the time zone difference but over all you did a great job."

Rycon Construction, Inc

"Good team with some strong skills. Communication was quick but there were several instances where requests were misinterpreted or not fulfilled."

Ralph J. Duffie, Inc

"I love the fact the Pinnacle were more friends to us than a subcontractor. Both companies worked liked a team together and helped each other to grow and work in the most efficient way. It's so amazing when I see the transformation from when they started the BIM Modeling for Clarendale of Chandler, and by the end, we were using all the cloud platforms such as Collaboration for Revit, BIM 360 Team to make this overseas flow of information/collaboration effortless. I would like to thank Mr. Bibek Mukherjee and his for their endless support throughout the project. I look forward to work with Pinnacle again."

Canyon State Electric Co., Inc

"Very satisfied with my experience. This project had a lot of challenges with creating the as-builts due to the numerous redlines and Pinnacle was able to work through them."

Megen Construction Company, Inc.

"The team at Pinnacle communicated with me effectively from the time of consultation until the end of the project. There was no delay in the submission of their deliverables, revisions were incorporated promptly. The team was professional, cordial, competent and delivered a product that was accepted by our client (U.S.A.C.E), I am very satisfied and will recomend that we use Pinnacle again for similar tasks."

Megen Construction Company, Inc.

"Overall the experience was very positive. All of Pinnacle's staff was very responsive and friendly. The attention to detail was outstanding. The 3D modeling was excellent. The cost for Pinnacle's service on the projects was very low - I believe it should have been more given the magnitude of the work. I believe Pinnacle did not fully understand the magnitude of work required when submitting their proposal, but they stood by their price."

Petra, Inc.

"I'm working hard with my company to expand our relationship with Pinnacle. I will need additional BIM services soon. Your work provides us an incredibly valuable resource. Thank you for your service."

Richard Holz Inc.

"Pinnacle is consitantly raising our expectations of what to expect of a BIM service provider. Your response time and your willingness to go the extra effort separates you from the rest."

Wohlsen Construction Company

Project Snap Shots

SECTOR LOCATION	CLIENT ROLE	PROJECT NAME SCOPE OF WORK	BIM END DATE	PROJECT AREA AVG. TEAM SIZE
Mixed Use Commercial Center Jeddah, Saudi Arabia	MEP Contractor	Kingdom Tower (Worlds Tallest Tower - 1100 Metre) Pinnacle's scope of work included 3D BIM Model Creation @LOD 400 for MEPF trades to meet project objectives including Design Validation, Clash Coordination, Constructability Review, Coordinated Service Drawings, Builder's Work Drawings, Shop Drawings of Mechanical (CHW & Duct Work), Plumbing, Electrical (Light, Power, Fire Alarm & Containment), Fire Protection & Builder Work (Slab & Wall Penetration), Quantity Take-Off (BOQ), Design Calculation for HVAC (Elite), Electrical (ETAP & Dialux) & Plumbing (Pipe Net)	May 2018	569,755 sq m 110 Engineers
Mixed Use Los Angeles, CA, USA	General Contractor	Pacific Palisades Village <u>Our scope of work for the project included:</u> 1. Model Creation of plumbing services - hanger, equipment modeling, associated fittings & accessories 2. Coordination as per clash report provided by client 3. Plumbing Service Shop Drawing Preparation (Detailed 2d drawings showing annotations & dimension tagging), Spool Drawings, Sleeve Drawings for Concrete Walls, Hanger Drawings	August, 2018	104,500 sq ft 4 Engineers
Hospital Leesburg, Virginia, USA	Mechanical Contractor	Inova Loudoun Hospital <u>Our scope of work for the project included:</u> A. BIM Model Creation of Plumbing & Mechanical Piping of all buildings B. Basic coordination & other trade coordination as per the clash report provided by the client C. Hanger file creation as per system	April, 2018	426,220 sq ft 5 Engineers
Educational Sylvania, Georgia, USA	Mechanical Contractor	Worth County High School <u>Our scope of work for the project included:</u> 1. Plumbing 3D Model Creation of all levels including pipes, associated fittings, accessories & equipment 2. 2D Clash Coordination with Architecture & Structure 3. Preparation of 2D Drawings/Shop Drawings - Drawings for New Construction of Sub-Basement, Basement, 1st Floor, 2nd Floor, Attic Level & Roof 4. Using rack hanger for corridor areas 5. Preparing rack spool	December, 2017	734,986 sq ft 4 Engineers
Commercial Lancaster, Pennsylvania, USA	General Contractor	Wegmans Food Market Project <u>Our scope of work for the project included:</u> 1. 3D BIM Model Creation A. Architectural 3D Model including Exterior Walls, Interior Walls, Doors & Windows, Ceiling & Soffit, Stairs, Ramps, Roof (Main Level Floor Plan and Roof) B. Structural 3D Model including Concrete Footings, Foundations, Slab, Beam, Columns, Steel Framing and Deck (Foundation, Floor & Roof Framing Plans) C. Sheet Metal & Mechanical Piping 3D Model with associated fittings and accessories - (Main Level Floor Plan and Roof) D. Plumbing 3D Model with associated fittings and accessories - Partial Floor Plan - (Main Level Floor Plan and Roof) E. Fire Protection 3D Model with associated fittings and accessories - Partial Floor Plan - (Main Level Floor Plan and Roof)	August, 2017	111,986 sq ft 4 Engineers
Mixed Use Portland, Oregon, USA	General Contractor	Modera Davis Our scope of work for the project included creation of 3D BIM Model of Sheet Metal and Mechanical Piping of all buildings and Concrete Lift Drawings. Concrete detailing included Floor Plan for Level 1, 2, 3 & 12, Parking 1 & 2, Roof Plan, High Roof and Roof Level Canopy and Concrete Sheet type included various plans such as Foundation, SOG, Wall & Column, Wall & Column Elevation, Section & Details, Slab and Soffit.	July 2017	240,700 Sq ft 6 Engineers
Hotel Nashville, Tennessee, USA	MEP Contractor	JW Marriot Hotel Our scope of work for the project included creation of 3D Models of Sheet Metal, Mechanical Piping and Plumbing (accessory, equipment and fittings) of all buildings, Basic & Other trade coordination as well as preparation of Shop Drawing/2D Drawings for HVAC, MP and PL trades. We provided As-Built Updates as per mark-up drawings and facility management as per available information.	June 2017	460,000 Sq ft 6 Engineers

Project Snap Shots

SECTOR LOCATION	CLIENT ROLE	PROJECT NAME SCOPE OF WORK	BIM END DATE	PROJECT AREA AVG. TEAM SIZE
Industrial Cincinnati, Ohio, USA	General Contractor	Cincinnati Union Terminal The scope of work for the project included creation of 3D BIM Models of Sheet Metal and Mechanical Piping of the building with fitting, accessories and equipment for installation and fabrication. Basic coordination was done by us and other trade coordination was done as per the clash report provided by the client. We also provided Shop Drawings/2D Drawings for Sheet Metal and Mechanical Piping.	May 2017	981,350 Sq ft 4 Engineers
Hospital Durant, Oklahoma, USA	General Contractor	Choctaw Nation Regional Medical Center Pinnacle's scope of work for the project included creation of 3D Models (Sheet Metal/ Duct Work, HVAC Equipment Modeling per approved submittals, HVAC Detailed connection to Equipment), Coordination (Clash report generation) and HVAC Shop Drawings (Sheet Metal/Duct Work) & Slab Penetration for Choctaw National Regional Medical Center, consisting of 3 storey buildings.	October 2016	204,987 Sq ft 3 Engineers
Stadium Atlanta, Georgia, USA	General & MEP Contractor	Atlanta Braves Ballpark Stadium Pinnacle's scope of work for the project included: Fabrication Shop Drawing of Sub Roof Supporting System, Sub-Roof Coordination in 2D Drawings.	June 2016	500,000 Sq ft 3 Engineers
Airport Orlando, Florida, USA	General Contractor	OIA South Terminal Pinnacle's scope of work for the project included: A. Architectural and 4D Fly through for OIA South Terminal, B. Development of the exterior model C. 60-90 second fly over/around (exterior only) looped. D. 4D construction phasing, tied to the summary schedule	April 2016	500,000 Sq ft 4 Engineers
Hotel and Conference Center Georgetown, Texas, USA	General Contractor	Sheraton Georgetown Hotel Pinnacle's scope of work included 3D Model Coordination for plumbing, piping, and associated fittings; Sleeve; and Shop Drawings. We also generated detailed 2D drawings showing the necessary dimensions, tagging, and annotations from the clash-free coordinated model. Moreover, we undertook equipment modeling based upon BIM requirements and availability of files.	June 2015	308,960 sq ft 4 Engineers
Education & Convention Center Seattle, Washington, USA	General Contractor	Washington State Convention Center The scope of work was to prepare LOD 200 level Architectural and Structural 3D models. After the preparation of the models, the elements /items/objects of the 3D models were linked with the corresponding activities/tasks of the construction schedule, shared by the client. A 4D animated video was created, showing the actual construction sequencing.	May 2015	1,430,000 sq ft 4 Engineers
Residential and Retail Arlington, Virginia, USA	General Contractor	Rosslyn Central Place Our scope of work included 3D Model Creation @ LOD 300 for Architectural & Structural Trades for MEP Clash Coordination - Architectural Modeling elements comprised of Exterior & Interior Walls, Ceiling, Doors, Windows, Stairs & Railings, Structural Beams (Primary & Secondary), 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, RFI & As-Built Update)	December 2014	636,000 sq ft Residential Tower & 750,000 sq ft. Commercial Tower 8 Engineers
Industrial Plant South Carolina USA	MEP Contractor	Bridgestone Aiken ORR Plant Scope included robust determination of Process Piping-3D Model, Coordination, Shop Drawing, Hanger BOQ, Spool, and Hanger-LOD-500 Drawing creation.	June 2013	1,320,000 sq ft 12 MEP Engineers
Airport Dubai UAE	MEP Contractor	Dubai International Airport Concourse-4 The scope of the work included 3D BIM Modeling for both ACS and MEP, 2D Shop Drawings, Modeling of the exterior walls & slabs, & Clash coordination. A detailed quantity take off (QTO), incorporating manufacturer's references and a unique asset ID generated from the clash free coordinated model. The scope also included the As-built shop drawings based on the Redline drawings receiving from construction site.	March 2013	167,748 sq m 64 MEP Engineers, 7 Architectural and Structural Engineers



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