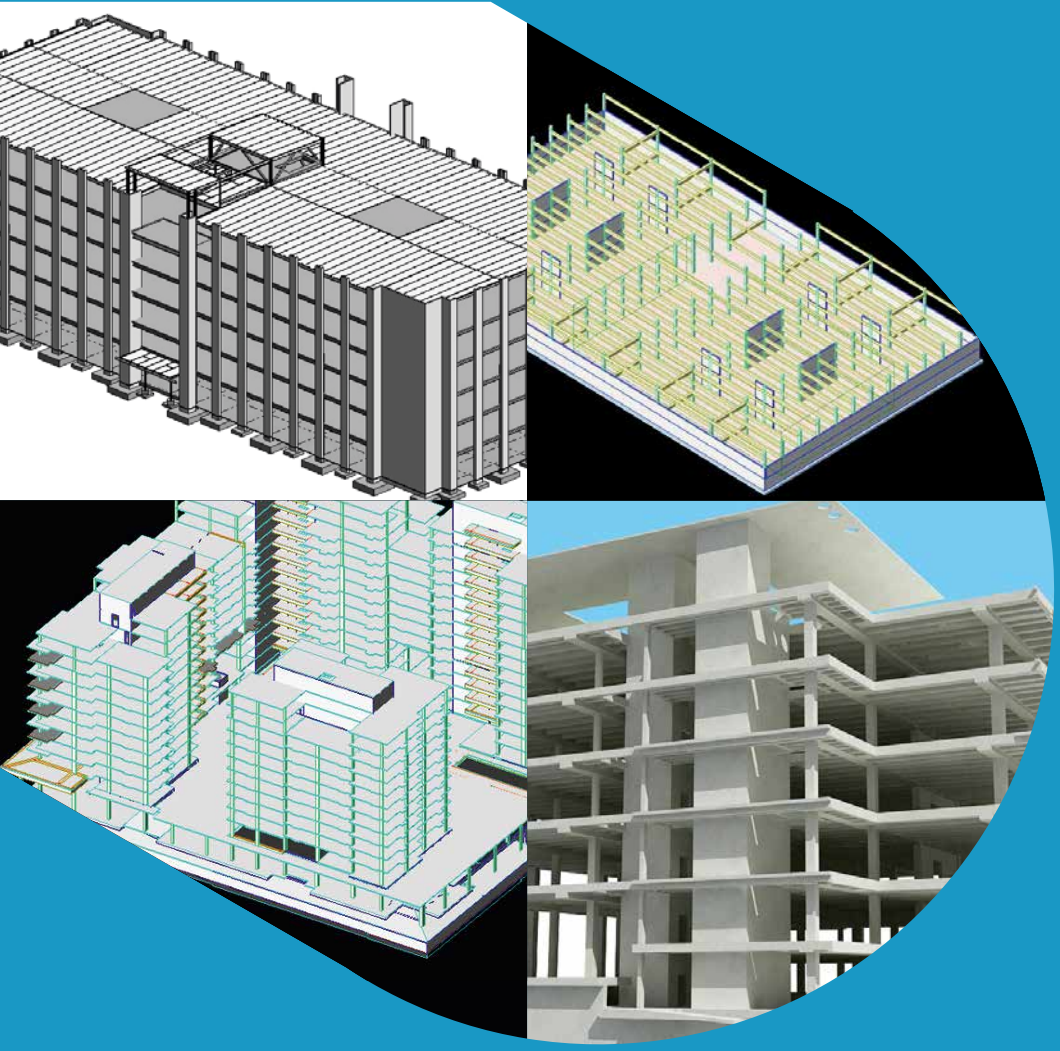


Structural Engineering

30+ years

pinnacleinfotech.com

Pinnacle Infotech

Construct Certainty, with Technology

Mission

Help the AEC industry optimize resources, cost and quality through innovative use of technology for:

- Sustainable and efficient design
- Collaborative pre-construction planning
- Agile construction process
- Reliable facility management

Vision

Lead the global AEC industry to certainty and efficiency using technology.

Associations:

Our Values

E **Excellence**
We take pride in our passion for excellence. It is a way of life for us.

A **Agility**
We are always at the edge of technology and driven by agile transformations.

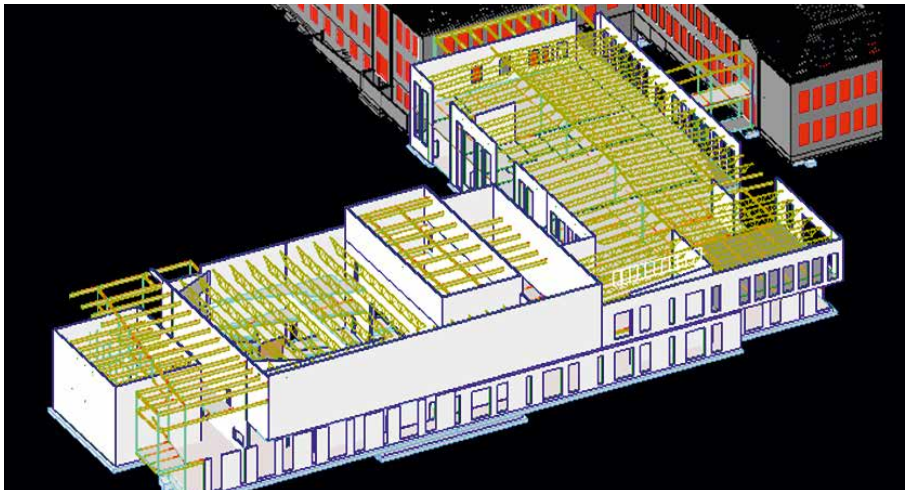
R **Reliability**
We have ISO-certified processes and workflow to produce consistent and reliable performance.

T **Teamwork**
Pinnacle provides an environment where teams collaborate effectively to excel.

H **Honesty**
We win the trust of our stakeholders through integrity, straightforwardness, and transparency.

Index

1. Revolutionizing Structural Engineering



Structural BIM Model

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 Architectural & Structural 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 recognitions from both the industry and the government. Our process orientation and quality control are per ISO standards – 9001:2015, 27001:2013, 19650-2, 19650-3, and 19650-5, plus EMS 14001:2015. As holders of **ISO 19650-5**, the esteemed international certification for BIM services, we ensure adept data management and transparent collaboration.

Serving the industry for more than 30 years in 43+ countries with 15000+ 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 2000 clients worldwide.

2. Benefits of Implementing BIM for Structural Engineers

Visualization

Streamline communication with 3D visualization among all stakeholders for quick decision making during design and pre-construction phase.

Efficiency

Eliminating 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 Drawings directly from the 3D BIM model.

Savings

Better usage of resources, better quality drawings and reduced rework and wastage, all of which translate into lower costs.

Project Management

Material quantity and Drawings with 3D visualization enable a better look at “The Bigger Picture” and aid in the review, scheduling and monitoring of each project.

Our clients have reported up to 15% cost savings by successfully implementing BIM

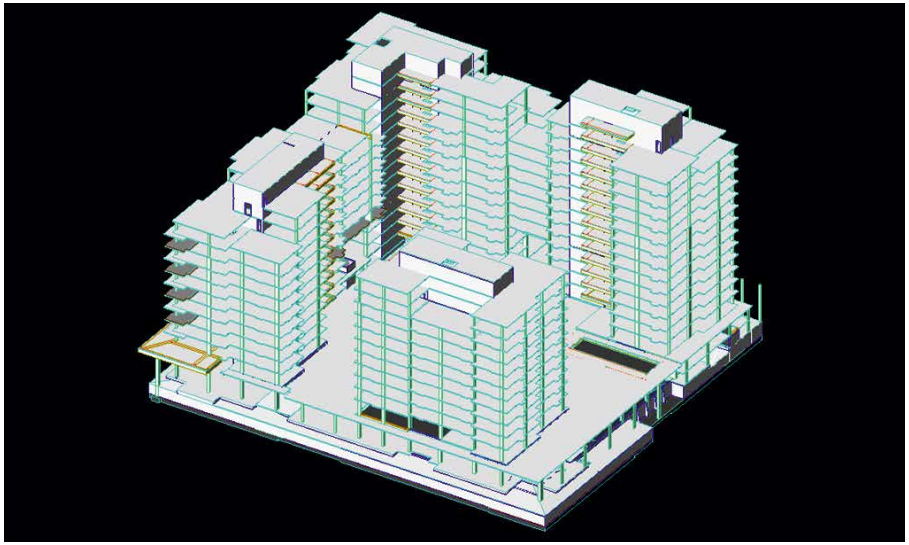
3. BIM Services for Structural Engineers

Pinnacle provides accurate, reliable and cost effective solutions for Structural Engineering firms. We specialize in the virtual construction of 3D BIM models using a range of inputs including contract documents, hand sketches, redlines and design documents. During the modeling, we validate the design for constructability, performance and maintenance of various wood, steel and concrete structures like column size, structural openings, beam depths and clashes.

Our structural drafting & detailing services comply with international codes and structural standards as applicable for projects. We have an ISO certified process to document the clients' standards and preferences to ensure complete compliance.

We produce high quality structural drawings across domestic and international markets in the AEC industry. We make a comprehensive analysis of the detailed structural elements like columns, beams and floors for delivering project in a risk free environment.

Our Drafting and Detailing services are intended for High Rise RCC structures, Structural Steel, Industrial Sheds, Plants, Stacks, Mills, Commercial Buildings, Airports, Theatres, Warehouses, Hospitals, Parking Garage, Residential Complexes, Condos and Villas. We are platform independent and work on major software applications including AutoCAD, Revit and Tekla.



Structural BIM Model

Pinnacle's BIM Services for Structural Engineers include

- Design Development & Coordination
- 3D Modeling and Detailing
- Drawing Set Creation/Construction Documents
- Quantity Take-off & Cost Estimation

3.1 Design Development & Coordination

Pinnacle has the competence and technology to assist Structural Engineering Firms in the design development stage. Our dedicated team of skilled personnel is experienced in interacting with engineers to understand their design-intent and provide value-added support as the design evolves from conceptual /schematic stage to construction stage.

The inputs required by Pinnacle include any or all of the following

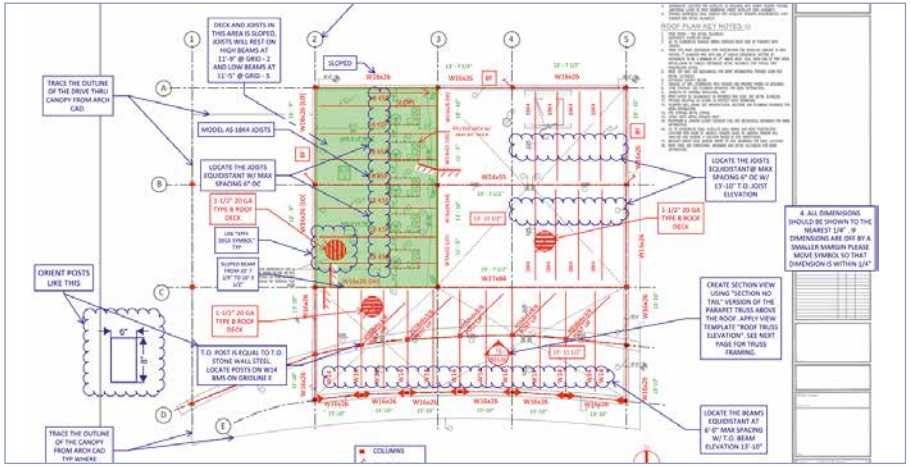
- Conceptual Drawings
- Single Line Diagram
- Hand-sketches
- 2D Drawings
- Red-Line Mark-ups

Pinnacle's engineers translate designers' thoughts, expressed through the aforesaid inputs, into buildable information in the form of 2D drawings and/or 3D models.

The above process passes through one or more of the following stages of Design Evolution:

A. Schematic Design

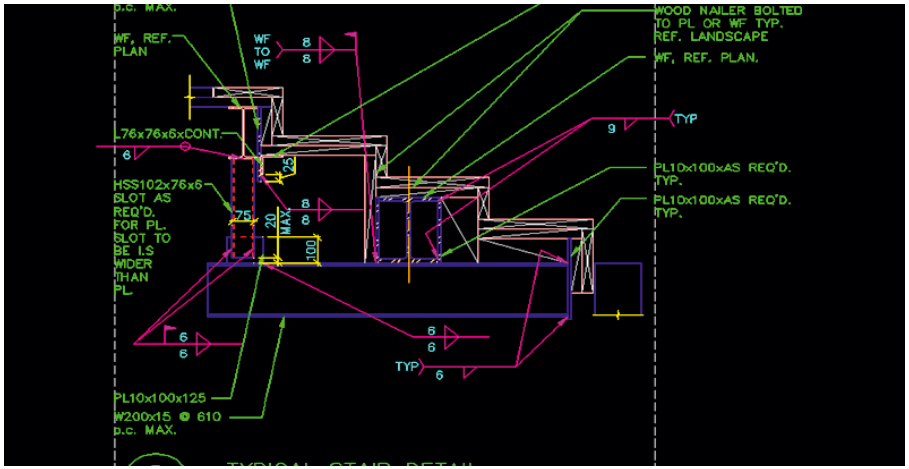
Schematic design is an initial design scheme that seeks to define the general scope of the project, including scale and relationships between building components. The engineer's/ designer's sketches interpreting the client's desired functional relationships between various activities are translated to Revit model. At this stage, the description is in terms of a set of integrated ideas and concepts about what the proposed system should do, behave and look like. The model is used for preliminary studies like overall project phasing. Analysis based on overall systems can be performed and quantities based on specific elements can also be obtained.



Schematic Design Sample

B. Detailed Design

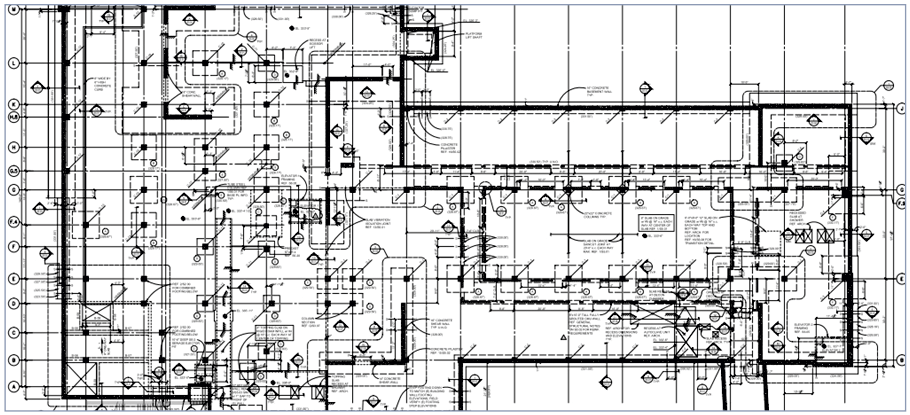
Detailed Design is the stage following schematic design where the schematic design decisions are worked out in greater details. The details get reflected in the Revit model. This also provides the client with drafted to-scale drawings, illustrating how the project would look like after the construction gets over. The model can be leveraged for the generation of traditional Construction Documents and Shop Drawings and can be used for the analysis of Clash & Cost.



Detal Design Sample

C. Construction Documentation

Construction Documentation is a bridge between building design and physical building form. It encompasses the preparation of drawings and specifications that set forth the detailed requirements for the construction of a building project. The Models include elements that are accurate in terms of size, shape, location, quantity and orientation with complete fabrication, assembly and detailing information. Analysis can also be performed at this stage such as Clash Detection, Sequencing & Cost.



Construction Documentation Sample

3.2 3D Modeling

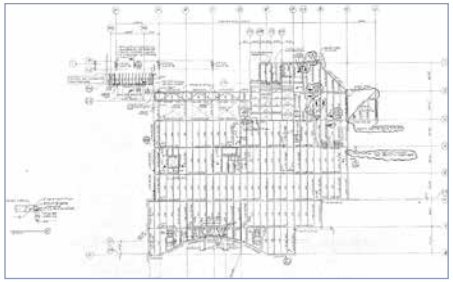
Proper planning and coordination are the keys to the successful execution of projects in any industry. Advancements in 3D technology and the advent of Building Information Modeling (BIM) have revolutionized the Structural Engineering firms. BIM involves the creation and use of a coordinated 3D model by linking it to intelligent databases for a building project. This technology, when applied to the Structural Engineering firm enables seamless collaboration, enabling quick decision making, accurate construction documents and better construction.

We generate accurate 3D Models for Wood, Steel & Concrete from an approved set of Structural Drawings. Our BIM solutions are efficiently used for structural design, detailing and prefabrication.

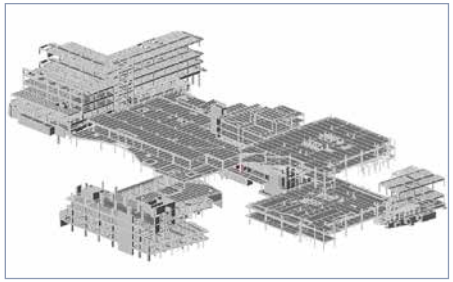
Working in BIM environment helps us to easily handle complex structural design projects, including wood framing and modeling. BIM usage has helped us produce several reports for enhancing production.

Pinnacle offers 3D BIM Modeling for the following structures

Reinforced Cement Concrete Structures like Buildings, Tanks, Steel Plate Girder, Industrial Sheds, Gantries & Truss Girder, Wooden Structures like Sheds & Residential Structures, Steel & Composite Structures Pre-stressed and Post-tensioned Structures like Parking Structures.



Input Sample



Output Sample

4. Drawing Set Creation/Construction Documents (CD/Permit Sets)

Our construction drawings provide expressive representation of a building with a chronological description of each phase of construction like floor plans, elevations, reflected ceiling planes and other details. We apply construction drawings or as-built drawings to residential and commercial works like renovations or new structure additions and our clients appreciate the flexible and customizable solutions we create. Our 2-dimensional construction drawings produced from 3D models help to make building plan estimate and review. Pinnacle produces parts, assembly and DXF drawings for complex wooden structures from 3D models.

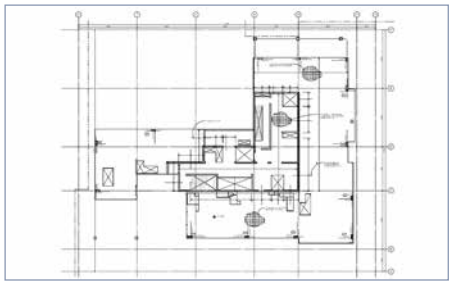
Our Construction Drawings serve the following areas

- 2D Drafting & Detailing
- Portable Structures
- As-Built Construction

We generate and deliver the following drawings from 3D BIM Model

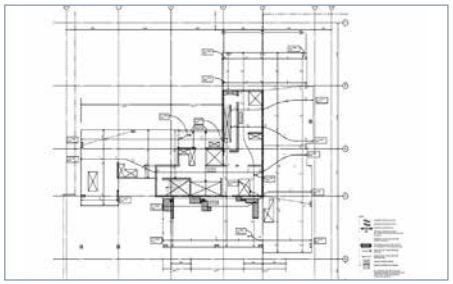
- Rebar/ Post-Tension Detailing
- Concrete Structure Drawings
- Steel Structure Drawings
- Wood Structure Drawings
- Sections, Details & Elevations
- Schedule – Column, Beam, Slab

4.1 Reinforcement Drawing



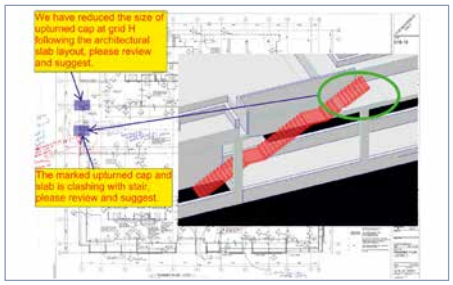
Reinforcement Drawing - Output Sample

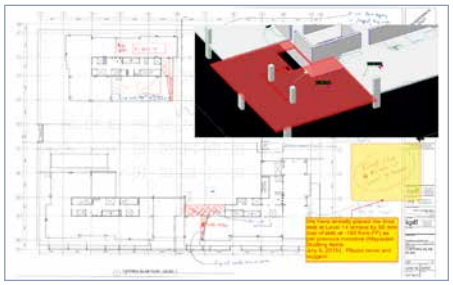
4.2 Post Tensioning



Post Tensioning - Output Sample

5. Request for Information





RFI Samples

6. Quantity Take-off & Cost Estimation

BIM helps to accurately calculate the quantity measures of all materials for Structural Engineering firms. These quantities are automatically updated whenever any change is made in the BIM model. Our quantity take-off and estimation services for construction & pre-construction planning and coordination help all project stakeholders to enhance productivity and carry out constructability analysis.

We plan, prepare and update construction project schedules and capitalize on early project decision-making opportunities to improve facility design, construction and life-cycle performance. Project stakeholders can see the advantage in integrating full BIM data with business functions such as procurement, contract management, advanced document management, project cost control accounting, project management, budget evaluation and project risk management.

7. Why Pinnacle

Each of our employees has ingrained in themselves the core values - ‘EARTH’ of our organization.

Excellence | Agility | Reliability | Teamwork | Honesty

Excellence

Excellence is a way of life for us. Our commitment to hard work, creativity, and innovation allows us to reach our full potential in approach, operations, and collaborations. We foster a culture of excellence from the ground up within our organization to achieve operation at the highest industry standards.

Agility

We understand that every business is different. We are highly agile and can adjust quickly to changing market conditions and client requirements. In addition, we offer a variety of business models to suit your specific needs at competitive prices.

Reliability

Pinnacalites rely on trusted processes to consistently produce excellent results. We have over 30 years of experience in the AEC industry, and our work processes are ISO-certified.

Teamwork

We work together to scale every challenge. We understand that it is only through teamwork that we can provide the best possible results for our customers. Pinnacle fosters a team-oriented culture where everyone is valued, and their contributions are encouraged and recognized.

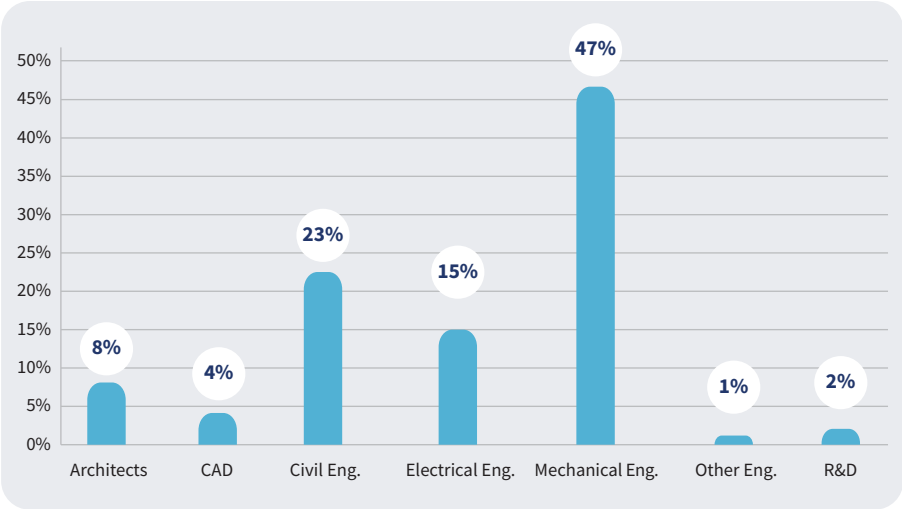
Honesty

Honesty is our key value, and we hold ourselves to the highest standards of integrity. We strive to be transparent and clear in our communication to ensure that our clients get the best value for the money.

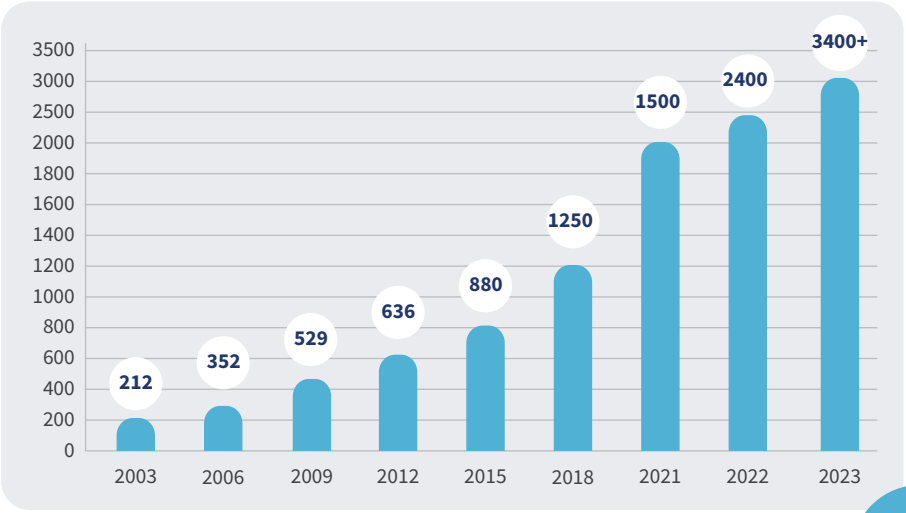
8. Our Team

Pinnacle's significant contribution to Building Information Modeling is made possible by its highly qualified and experienced workforce, including engineers, architects, and other experienced professionals. All our employees are well-versed in handling international construction codes and standards. We are proud of the diverse team and their global experience.

Employee Background



Workforce Growth



9. Our Infrastructure

Pinnacle has large state-of-art campuses in Durgapur, Jaipur, Kolkata & Madurai, comprising facilities like High-speed Bandwidth, Blade servers, an R&D center, a Datacenter, recreational zones, playgrounds, and more.

We also have equipped global delivery centers in the US (Houston and Atlanta), Canada (Toronto), UK (London), UAE (Dubai), Singapore, Germany (Munich), and Japan (Tokyo) that allow our employees to work in the same time zone as our customers.

Pinnacle's *Construct-ability Installation Lab* gives construction site experience to employees, integrating theoretical learning with practical experience. It enables our employees to deliver BIM solutions on time and with accuracy.

10. Our Work Processes

We strongly emphasize the significance of efficient work process management and consistent communication in the context of outsourcing services. Our process orientation and quality control are per ISO standards – 9001:2015, 27001:2013, 19650-2, 19650-3, and 19650-5, plus EMS 14001:2015. As holders of **ISO 19650-5**, the esteemed international certification for BIM services, we ensure adept data management and transparent collaboration. On orders, we assign a dedicated Relationship Manager, a competent Project Delivery Head, and Project Managers for focused execution.

Relationship Management

Our relationship managers are co-located with customers, ensuring clear communication, managing timelines, and handling deliveries promptly to surpass customer expectations. They advise customers on the services Pinnacle provides and build long-term business relationships.

Production Process

Project teams report to Project Delivery Head (PDH). The PDH provides technical leadership to the team and ensures standard work processes (as per ISO norms) are followed. They oversee project delivery. Project Delivery Heads periodically communicate with the client to get regular feedback and ensure the successful completion of the project.

Project Managers handle small teams for a customer and are responsible for understanding project requirements, project standards, invoicing processes, and communication protocols. They prepare project templates per project specifications, plan resources and align project delivery schedules.

Auditing Process

The COE team is an independent body in the company for Process and quality management and monitors the process and quality through various audit parameters, sets up feedback management processes, carries out investigations in case of any complaints/concerns, and provides action items. This way, Pinnacle ensures consistency in the final deliverables throughout the company.

Quality Control Process

Pinnacle's efficient processes and stringent quality control mechanisms have added certainty to 15000+ projects worldwide. Our process orientation and quality control are per ISO 9001:2015, ISO/IEC 27001:2013, ISO 19650-2, ISO 19650-3, and **ISO 19650-5** standards and are managed by an independent QC team.

11. Our Projects

NASA Lyndon B. Johnson Space Center

Houston, USA

Iron Point Road Apartments

Folsom, USA

Meridian Outer Banks Apartments

Meridian, USA

Boston Children's Hospital

Boston, USA

Battersea Power Station Phase 4

London, UK

Kidbrook Station Square

London, UK

12. Clients Speak

"Pinnacle has been great, and we are happy to work with you. We appreciate that Pinnacle always completes on time and to our standards. Also, we appreciate the flexibility to take on more work necessary to complete the job."

Forell Elsesser Engineers Inc., USA

"The folks at Pinnacle communicate well and do great work. Like anyone, they are human and not perfect, but they are quick to acknowledge mistakes and consistently seek to improve. I enjoy working with them."

KPFF Consulting Engineers, USA

"We are delighted with the performance of Pinnacle. They made a big effort to ensure our documentation was accurate and met our design intent. They have also done a great job in meeting some tight deadlines. We will be engaging them again on projects in our pipeline."

Sensum Engineering, Australia

"I have been pleased with the work the Pinnacle team has done for us so far. The work is done promptly and completely to a satisfying level."

Catena Consulting Engineers, USA

"We were very satisfied with the work done by Pinnacle team."

Forell Elsesser Associates, USA

"The team is very professional and timely, and I genuinely appreciate the quality of work and their advice and guidance in a new process for us as a control contractor. Great work!"

Muia Steel Ltd., Canada

"Working with Pinnacle has been great. It helps take the stress out of meeting our deadlines on time. Overall very good. We will utilize their team again. We appreciate your attentiveness and response and ability to meet our requested deadlines."

McVeigh & Mangum Engineering, USA

"This was complex project with a lot of architect driven changes throughout the process. There were hiccups, which we expected, but Pinnacle worked through them all with us."

McNamara Salvia Structural Engineers, USA

"Responsive to comments and questions and work was delivered on time. Provided services met expectations. We were very satisfied."

RBA Structural Engineering, USA

"Everything worked very well for us. We will definitely be using your services in the future."

Stearn Joglekar Ltd., USA

"Quick response time with daily model updates from the Pinnacle team helped to make the process very smooth. Easy to use RFI process with quick feedback."

LeMessurier Consultants, USA

"Overall good experience. Complicated Job with keeping track of many design changes and RFIs that were issued on the job. Pinnacle preformed very well with the large amount of changes on this hospital project. All the section views and keys/legends provided on the shop drawings meet expectations and were outstanding. The most important thing is that when it came to the end of the project Pinnacle stepped up to and produce the needed changes in a timely manner."

Urata & Sons, USA

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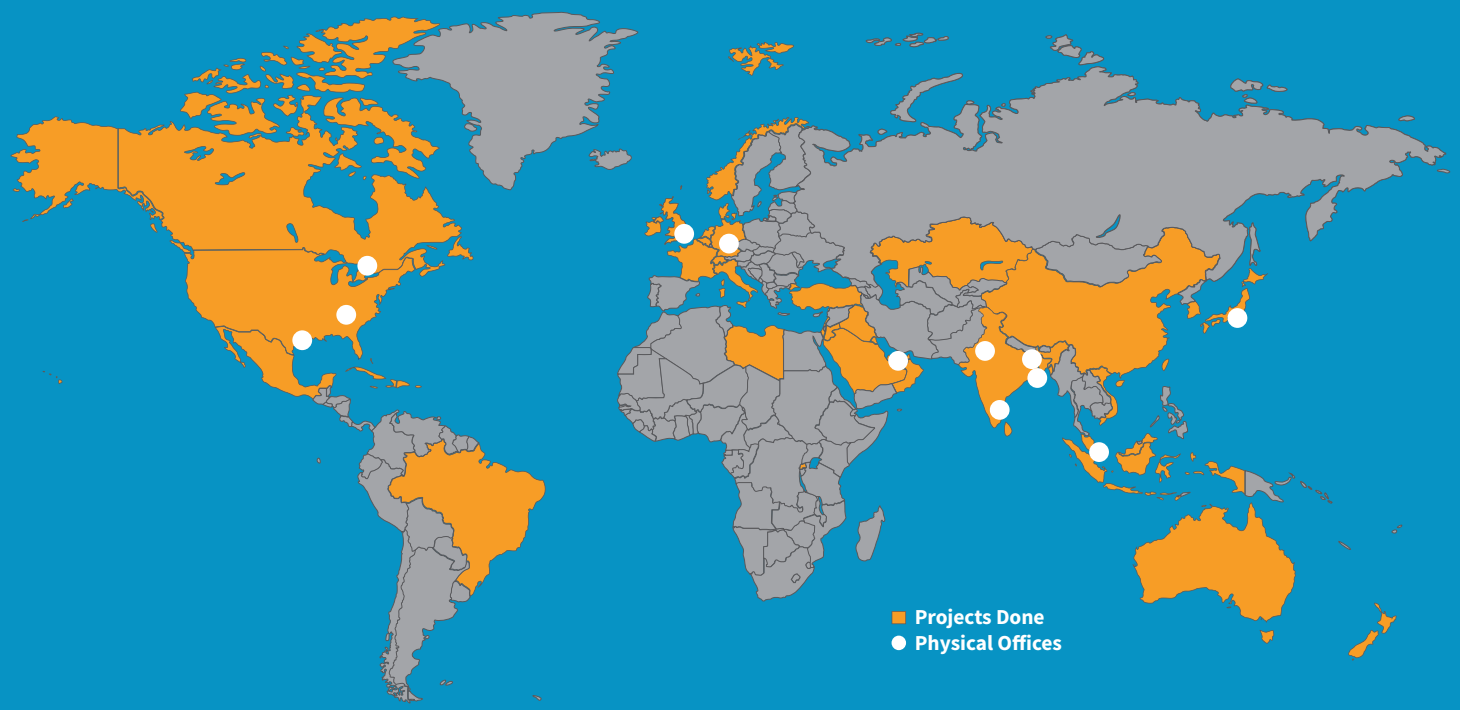

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Pinnacle Infotech
Construct Certainty, with Technology

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