



3D BIM Presentation & 4D Construction Phasing / Simulation



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

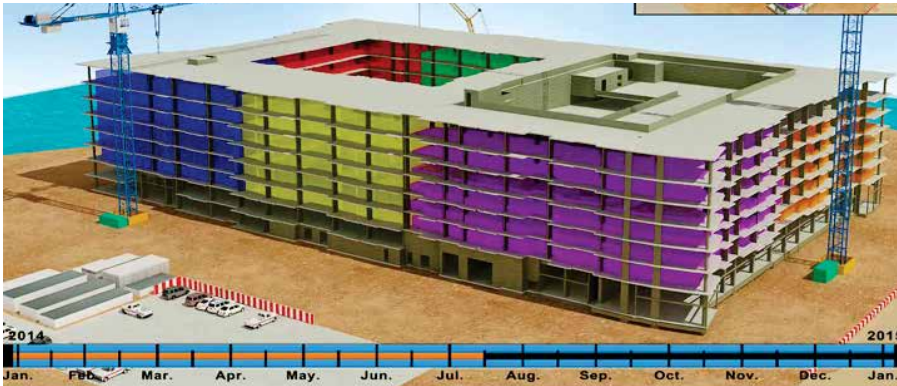
- E Excellence**
We take pride in our passion for excellence. It is a way of life for us.
- A Agility**
We are always at the edge of technology and driven by agile transformations.
- R Reliability**
We have ISO-certified processes and workflow to produce consistent and reliable performance.
- T Teamwork**
Pinnacle provides an environment where teams collaborate effectively to excel.
- H Honesty**
We win the trust of our stakeholders through integrity, straightforwardness, and transparency.

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1. Revolutionizing the AEC Industry



BIM Presentation - 4D Construction Phasing

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, Electrical and Plumbing (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. Pinnacle received Deloitte Technology Fast 500 award in 2014 for 86% growth rate in Technology as per Asia Pacific Ranking and Deloitte Technology Fast 50 India award in 2015. NASSCOM, the leading IT trade association, has named Pinnacle among the Top IT Innovators for 6 years between 2007-17. 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.

The successful completion of more than 15000 BIM projects in 43+ countries has provided Pinnacle with a 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

Coordination

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 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.

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

3. 3D Modeling & Visualization

3D visualization allows all stakeholders including owners, users, designers and contractors involved in the construction process to share project image effectively and identify errors and inconsistencies in the early stages of construction. Pinnacle specializes in the virtual construction of 3D BIM models, using a range of inputs, including contract drawings, design documents, specification sheets, hand sketches and more. The team produces the model after resolving construction issues, generates RFIs & consults with project consultants. Starting from the abstract to photo realistic visualization, 3D visualization ensures a design vision, before the beginning of construction. 3D Rendering & Design Visualization software applications are used to bring life to BIM models. 3Ds Max & Revit are leveraged to make the BIM models meet the exact business requirement of clients with professional graded animation, rendering, modeling & texturing.

Benefits of 3D Modeling & Visualization

Coordination

Pinnacle streamlines coordination with 3D Visualization among all stakeholders for quick decision making during design & pre-construction phase. Drawing conversions from 2D to 3D BIM using AutoCAD and Revit tools help contractors to smoothly execute construction projects.

Bidding & Sales

3D visualization enables potential investors, buyers and owners to understand the layout & spatial interrelationships of a project. 3D photo-realistic visualization enables contractors to sell projects effectively by communicating the benefits of their plans in a better way. Communication uncertainties are eliminated through 3D BIM, saving business time and money that was earlier wasted through reworking on design.

Bidirectional Associativity

Pinnacle ensures changes to any part of the building to be made only once. All annotations & graphics are correctly resized to ensure annotation decisions like changed sheet scale.

Efficiency

2D drawings are eliminated by generating CD sets from accurate & coordinated BIM Models. BIM helps to save time by allowing easy & accurate modeling of complex elements and irregular shapes and ensures that all 2D drawings are accurate and updated as per the current model.

Quality

Pinnacle ensures that all data, graphics, schedules, drawings, sheets and other details in the CD set are current & coordinated.

Conceptual Cost Estimate

Quantity Take offs from the model are extracted and linked with the prevalent rate of materials, labor & construction techniques to enable stakeholders prepare cost estimates.

Integrated Building Materials

Pinnacle's real-world materials drive detailed plan, section and elevation representations of building components to save documentation time. The integrated Accurender, Raytracing & Radiosity engine use the same materials and save time & effort to produce visualizations.

4. 4D Construction Phasing / Construction Sequencing

4D is an extension of 3D with the time, included in addition to other three dimensions. Pinnacle's 4d simulation helps all the project participants, including the architects, contractors, designers and the owners to visualize the whole series of construction events and understand the progress of construction activities throughout the lifetime of the project. The project construction sequencing or the schedule to BIM model is linked to show the real time simulation of construction sequence in an animated video. The clients can compare the planned vs. the actual construction schedule throughout the project life cycle, based on 4D presentation. They can explore 4D simulation for supporting construction planning and can assess the impact of proposed design on construction schedule and work process.

Autodesk Revit & Navisworks Manage software platforms are used to create a workflow for enabling project teams to plan construction operations effectively by identifying potential problems and evaluating alternatives. Using BIM models, construction planners are able to simulate construction activities in their planned sequence, detect clashes and interference problems, improve construction schedules, track materials and can manage supply chain. 4D phasing acts as a powerful communication tool between project team and clients, resulting in better understanding of project milestones and improved construction plans. Delays and construction rework are minimized as project managers can carefully plan and coordinate construction operations down to the last detail both in time and space through 4D Phasing. All design elements are collaborated onscreen in 4D and thus the construction team can improve accuracy in construction sequencing.

Benefits of Construction Simulation

- Powerful Visualization of Construction Process (Problem Forecast before construction)
- Improved Construction Planning & Management (Better Understanding of Project Milestones)
- Effective Bidding Presentation (Winning New Projects & Clients)
- Streamlined Construction Productivity (Reduced Cost & Error)
- Competent Execution of Construction Process (Coordinating Detailed Construction Operations)
- Efficient Logistics Management (Safe work environment for all site workers)
- Effective Building Site Space Utilization (Resolving Space Conflicts)
- Effective Project & Risk Management (Monitoring Plan & Tracking the Actual Progress)

5. Pre-Construction Site Logistics

The pre-construction site logistics include a visual representation of comprehensive planning and implementation services for clients. Starting from the project conception stage, Pinnacle offers a dedicated planning and estimation. A careful project evaluation is made for offering customized logistic solution by collaborating with the main contractors and sub-contractors.

Pinnacle's logistic solutions ensure a safe and efficient work environment for all site workers. BIM Engineers submit site logistics plans to the master developers before the beginning of actual construction and site establishment. The plan details the access to the site & plot, lay-down, assembly area, loading area, hoisting area, crane placement area, bus pick-up & canteen area, security gates & concrete pump areas, truck discharge location and several other information, that get submitted to clients for approval.

Construction Equipment Used

Excavators, Pile Rig, Bulldozers, Hydraulic Shears, Rock-breakers, Dumper Trucks, Portable Concrete Mixers, Concrete Pump, Batch Plant, Track Mounted Crane, Crawler Crane, Tower Crane, Luffing Crane, Jib Crane, Hoist, Grader, Dewatering Trucks, Compactor/Road Roller, Asphalt, Brick Pavers.

6. Marketing BIM Presentations helps in winning the bids (3D/4D/5D)

Pinnacle helps clients to secure bids by creating Marketing Presentations of high quality 3D rendered images, 4D Construction Phasing, Site Logistics, Walkthrough Animations, Mock-ups, Quantity Take-off & Cost-Estimates. BIM is used in an innovative way to present an effective and accurate representation of the project.

Walkthrough Animations

The animations are used for making construction phasing & photo-realistic presentations. The walkthroughs show every angle of the construction space, including landscaping, interior lighting, natural lighting, accurate material representation and moving objects. They not only offer an idea of the project to clients but help them navigate construction on their own terms. 3D Walkthrough makes a winning situation for the designers, homeowners, buyers, contractors and investors, by letting them experience a realistic feel of the building size and layout.

Site Logistics

BIM helps to verify site logistics & yard operations with tools for visually depicting job site space utilization through all stages of construction. Pinnacle incorporates various items into the model as a part of the logistic plan and uses a range of BIM tools to improve construction planning and monitor on-site health and safety measures. The presentations help in construction equipment placement, crane deployment, storage documentation, parking space allotment and concrete batching plant.

Virtual Mockups

Pinnacle facilitates design verification by ensuring that the design meets client's expectations through virtual mockup of various building components with equipment & finishes. A virtual tour of the proposed building (a detailed 360 degree view) is created, through detailed 3D renderings and walkthroughs on the fly. This helps in visualizing the project before it is built.



Logistics



Stadium



Office Building



Beach Resort

MEP Rack Hoisting

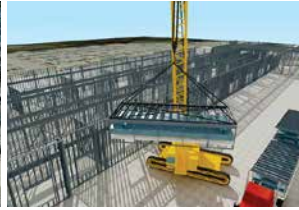
Alabama, USA

In this project Pinnacle showed the process of hoisting and placing the MEP racks for the largest owner and operator of inpatient rehabilitative hospitals. Operating in 28 states across the country and in Puerto-Rico.

- Area: 300,000 sq. ft.
- Scope of work: 3D Model & Walk-through



Initial Development Stage



Interim Development Stage



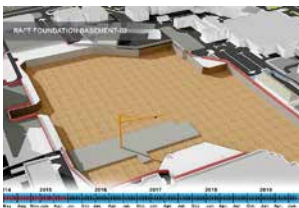
Completed Development Stage

Medical City

Abu Dhabi, UAE

The medical city will combine a general hospital with a level-one trauma center and women's and pediatric hospitals. Given the massive scale of this project, creating a hospitable sense of character and overall unity for the entire facility – while conveying a sense of identity for each individual hospital. Pinnacle involved in this project to create a 3D BIM Model 4D Construction Phasing and walkthrough for the purpose of bid presentation.

- Area: 4,416,728 sq. ft.
- Scope of work: 3D Model, 4D Presentation & Walk-Through



Initial Development Stage



Interim Development Stage



Completed Development Stage

Stadium

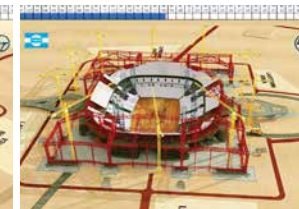
Doha, Qatar

This stadium will have the capacity to host 60,000 spectators in 2022 FIFA world cup and fulfill all the requirements for hosting the matches through semi-final round. It will also have the retail space and restaurants but also landscaped paths for residents to use horse riding cycling and jogging tracks. Pinnacle has created a 3D BIM model and 4D presentation showing the construction methodology with a walkthrough of the entire project.

- Area: 280,000 sq. m.
- Scope of work: 3D Model, 4D Presentation & Walk-Through



Initial Development Stage



Interim Development Stage



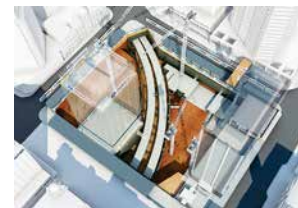
Completed Development Stage

Downtown Shopping Centre

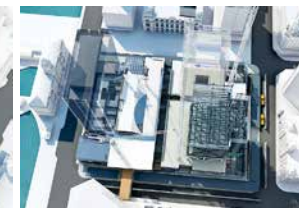
Auckland, New Zealand

Downtown Shopping Centre is a smaller shopping centre with 12,417 m² gross lettable area in the Auckland CBD, Auckland City, New Zealand. Situated at 11–19 Customs Street West between Lower Albert Street and the Britomart Transport Centre, this highrise is planned for the site so that the future City Rail Link can go through the foundations of that building.

- Area: 29,880 sq. ft.
- Scope of work: 4D Presentation



Initial Development Stage



Interim Development Stage



Completed Development Stage

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.

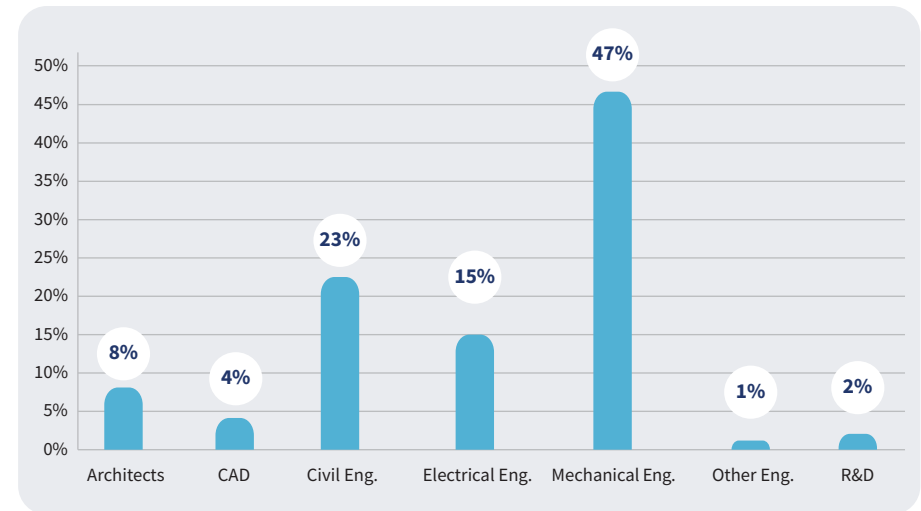
Honesty

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.

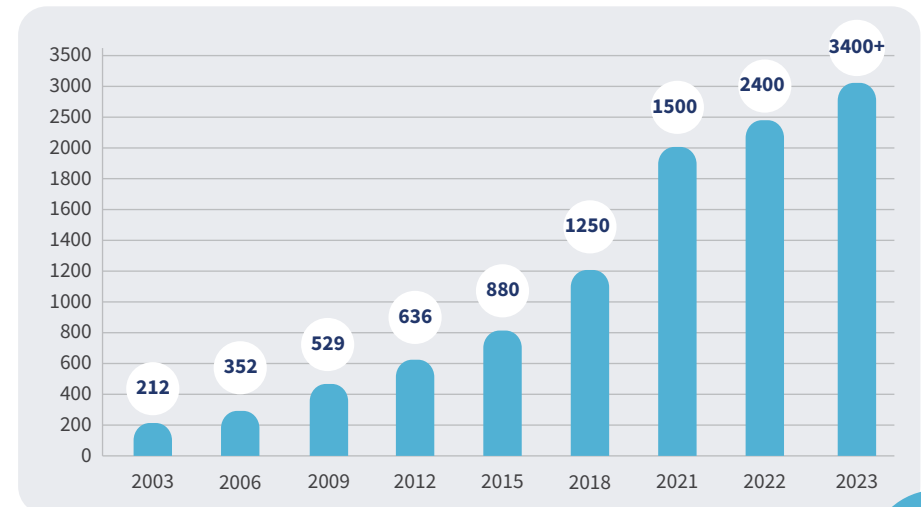
8. Our Team

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

The Madison - 603 Glenwood

Raleigh, USA



Holiday Inn

Blackpool, UK



The New St. Paul's Hospital

Vancouver, Canada



Witty GmbH & Co. KG

Dinkelscherben, Germany



Hollywood Burbank Airport

Burbank, USA



Mt. Vernon Substation No.230

Boston, USA



12. Clients Speak

“Working with Pinnacle is always a very pleasant and professional experience. Their team is extremely responsive and produces a high quality product. W.T. Rich is very happy to have partnered with Pinnacle on several projects, and we genuinely believe that the 4D animations created and used by our business development department are the highlights of our presentations to potential owner/clients. We look forward to the continued relationship with Pinnacle moving forward.”

W.T. Rich Company, Inc., USA

“The experience was wonderful, everything was turned around quickly as needed, and we appreciated the efforts made to get the project done within our VERY TIGHT timeline. It was wonderful working with the Pinnacle team. We will use you again! Thank you!”

Rabren General Contractors, USA

“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., USA

“Pinnacle has been a real asset to the project. Their team is very knowledgeable and efficient at the BIM process and have provided an end product that is very useful to not only the construction coordination and installation, but also the end users of the facility.”

The Whiting-Turner Contracting Company, USA

“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, USA

“Great experience and successful results!”

Nesma & Partners, Saudi Arabia

“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, USA

“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, UK

“Teams are very cooperative and friendly. We are happy and looking forward to work with Pinnacle in future.”

Obayashi, Japan

“I value Pinnacle as a one of the best BIM service providers worldwide. I met some of your leaders at conferences and we are friends. I will continue to look for ways to partner with Pinnacle of projects because of the quality of your services.”

VDCO Tech, USA

“We highly appreciate the quality, responsiveness shown by the team all the way till the tender submission. We hope to continue the relationships in future projects.”

Drake & Scull International LLC, Oman

“A very tight deadline was met and was greatly appreciated.”

D.E. Harvey Builders, USA



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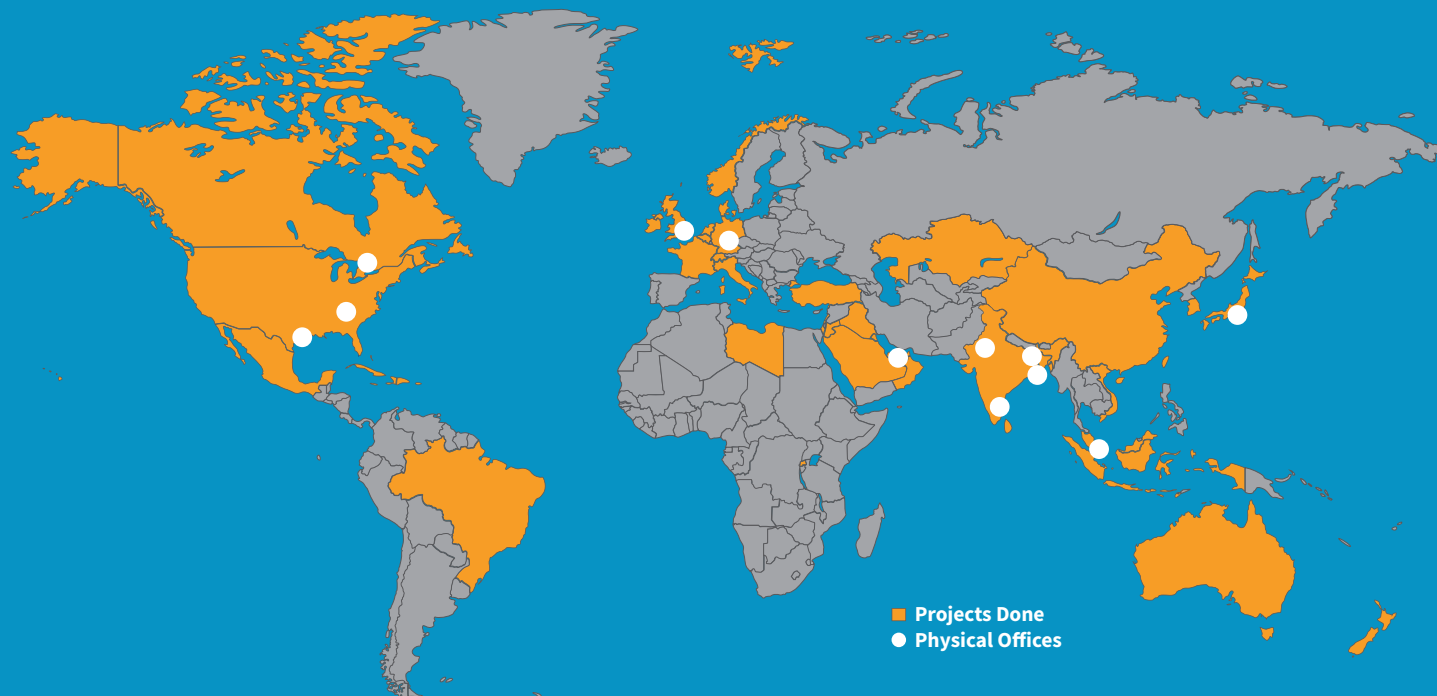
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