



ISO 19650
Certified



BIM & Beyond: Redefining Infrastructure



pinnacleinfotech.com



**Pinnacle
Infotech**

Construct
Certainty, with
Technology

Mission

Help the AECO 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 AECO 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.

Our Way of Giving Back

Ankuran Foundation

A first-of-its-kind, not-for-profit, national network of world-class learning centers that impart Science Education through experiential learning to school students from diverse backgrounds. To learn more, visit Ankuran.org

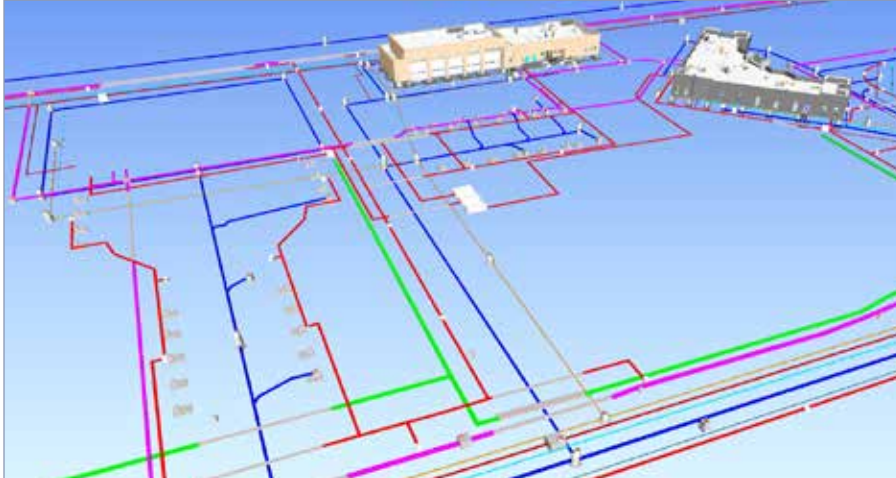


Index

1. Revolutionizing Infrastructure Projects	Page 04
2. Software Proficiency	Page 04
3. Benefits of BIM Implementation in Infrastructure Projects	Page 04
4. MRTs, LRTs & APM Systems	Page 05
5. Railway & Stations	Page 06
6. Airport and Airfields	Page 07
7. Site Utilities	Page 08
8. Roadways & Elevated Corridors	Page 09
9. Bridges	Page 10
10. Geotechnical and Earthwork	Page 11
11. Tunnel	Page 12
12. Water Infrastructure	Page 13
13. River Training & Hydraulic Infrastructure	Page 14
14. Ports, Harbors, Marine & Coastal Engineering	Page 15
15. Power Distribution Infrastructure	Page 16
16. BIM-GIS Integration	Page 17
17. Construction Management Support Services	Page 18
18. Why Pinnacle	Page 19
19. Our Team	Page 19
20. Our Infrastructure	Page 20
21. Our Work Processes	Page 20
22. Our Projects	Page 21
23. Clients Speak	Page 22



1. Revolutionizing Infrastructure Projects



Underground Utility BIM Model

Pinnacle Infotech empowers infrastructure projects with advanced design engineering, BIM, and digital construction solutions. Leveraging intelligent, data-powered BIM solutions, we enhance precision, coordination, efficiency, and sustainability across project lifecycles.

Our portfolio includes a wide range of infrastructure developments spanning segments like railways, bridges, tunnels, roadways, utilities, ports, airports, high-rise RCC structures, drainage systems, geotechnical projects, presentation models, and more.

We specialize in creating detailed and data-rich 3D BIM models from inputs such as contract documents, survey data (including LiDAR and terrestrial scans), hand sketches, redline drawings, and design files for global infrastructure projects.

With 18,000+ projects delivered across 47+ countries, ISO-certified workflows (9001:2015, 27001:2013, and 19650 standards), and extensive expertise on international construction codes, Pinnacle is a trusted partner to global infrastructure leaders. With us, you can simplify construction planning, monitor material usage, track site progress in real time, and manage data across the infrastructure lifecycle.

2. Software Proficiencies

In the Autodesk Environment

- Autodesk Civil 3D
- Autodesk Revit
- Autodesk Navisworks
- Autodesk InfraWorks
- Autodesk ReCap Pro
- Autodesk Assemble
- Autodesk Construction Cloud

In Bentley Environment

- MicroStation
- OpenBridge
- OpenRoads
- OpenTunnel
- OpenRail
- SYNCHRO
- ProjectWise

Other Software Applications

- Tekla Structures
- BEXEL Manager
- Rhinoceros & Grasshopper
- Trimble Connect
- Bluebeam Revu
- iTWO CostX

3. Benefits of BIM Implementation in Infrastructure Projects

Enhanced Visualization for Smarter Planning

Improve design reviews with immersive 3D BIM models that accurately simulate infrastructure elements such as rail tracks, bridge spans, and airport layouts.

Greater Efficiency with Clash-Free Coordination

Simulate construction scenarios with accurate construction models that reduce delays and rework and eliminate conflicts in tight corridors, junctions, or service trenches.

Superior Quality with Precise Documentation

Improve build accuracy and compliance with fully coordinated construction documentation including detailed plan sets, section views, elevations, and annotated shop drawings aligned to global standards.

Cost Optimization with Model-Driven Estimation

Integrate quantity take-offs and cost data, optimize procurement planning, minimize waste, and track budget impacts in real time with accurate 5D and 3D models.

Streamlined Project Management with Data-Powered Insights

Track project progress, material flows, installation updates, and milestone completion with GIS-integrated BIM models for better control over cost, time, and resources.

4. MRTs, LRTs & APM Systems

We specialize in providing BIM-driven support for Mass Rapid Transit (MRT), Light Rail Transit (LRT), and Automated People Mover (APM) systems across the globe. Spanning the entire transit ecosystem, our intelligent 3D models and LOD 100 – 350-integrated BIM workflows ensure clash-free coordination of structural, architectural, civil, and MEPF elements of transit stations, guideways, rolling stock, track beds and layouts, platforms, elevated and supporting structures, signaling, power rail, automation systems, and more.

4.1. Modeling Rail Infrastructure

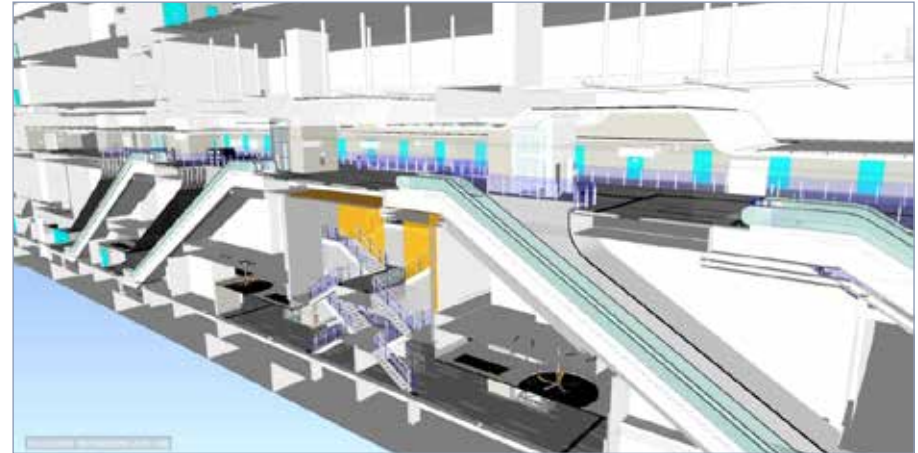
From coordinated 3D BIM models to detailed engineering documentation, our expertise spans the full scope of transit infrastructure across MRT, LRT, and APM systems – covering stations, depots, guideways, civil and structural works, and rail systems integration.

Our Areas of Expertise

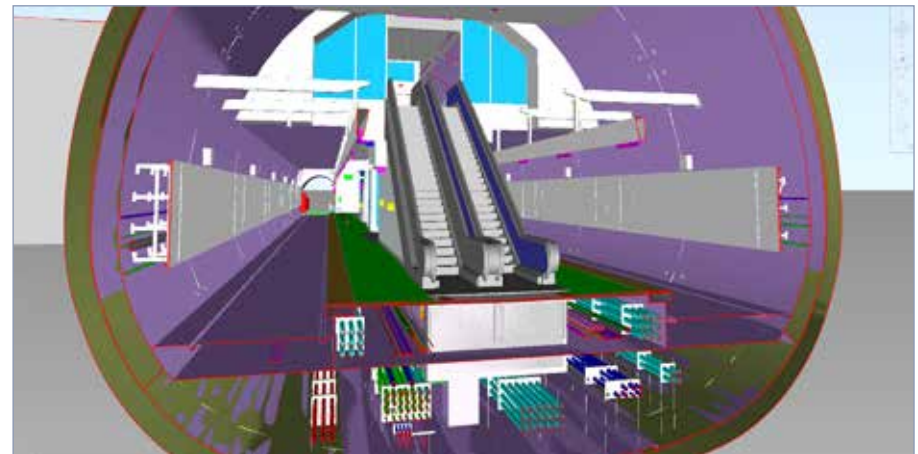
- Establishing modular Revit files to manage frequent design changes across disciplines.
- Integrating critical rail systems such as signaling, communication, SCADA, power rail, and traction substations into a unified BIM platform.
- Aligning designs with local codes and international standards to maintain regulatory compliance and streamline submissions to utility authorities.
- Resolving conflicts, accurately simulating track layouts, and providing real-time constructability reviews to reduce design clashes and material waste.

Our Deliverables

- Comprehensive 3D models and shop drawings for track beds, guideways, depots, and station infrastructure
- Fully coordinated MEPF models for station facilities covering HVAC, electrical, plumbing, and fire protection systems
- Ventilation and smoke control system layouts
- Electrical distribution design and load analysis (ETAP, DIALux)
- Potable water, drainage, and pump sizing calculations
- Fire protection design including hydrants, sprinklers, and alarm systems



MRT Sample



MRT Sample

5. Railways

We facilitate railway infrastructure development through advanced BIM strategies that integrate civil, electrical, operational, and architectural components into a unified digital workflow. With a prestigious global project portfolio and extensive domain knowledge, we help railway authorities, consultants, and contractors optimize planning, design, and construction processes by delivering smart and safe transportation systems.

5.1. Integrated Engineering Solutions for Modern Rail Infrastructure

Through data-rich modeling, multidisciplinary integration, and advanced simulations, we help stakeholders accelerate delivery and improve constructability for railway assets throughout their lifecycle.

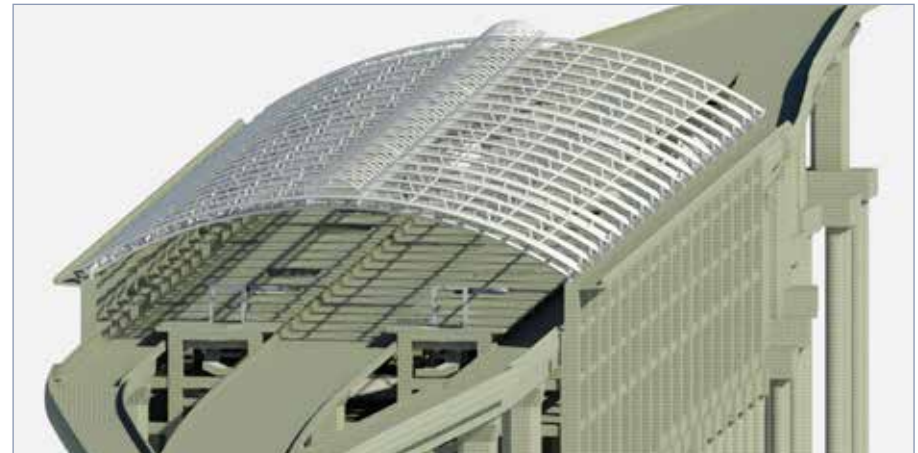
Our Areas of Expertise

- Developing integrated 3D models of rail alignments covering mainline tracks, turnouts, crossovers, cant, and superelevation with dynamic cross-section generation and corridor profiling.
- Modeling and coordinating earthworks and grading strategies combined with automated quantity take-offs and cost estimation workflows.
- Automating drawing and sheet generation for plan/profile views, cross-sections, detailed layouts, and IFC-compliant submissions.
- Integrating survey and geospatial data into the BIM environment to enable accurate placement of alignment, structures, and systems across the full length of the corridor.
- Modeling clash-coordinated 25 kV AC overhead electrification (OHE) systems including masts, cantilevers, contact wires, and catenary assemblies that are aligned to corridor geometry.
- Developing third rail system models for 750 V DC metro and transit projects, covering insulated supports, power interfaces, and energy distribution pathways.
- Designing substations with voltage conversion, protection, and regulation components integrated with SCADA, PDPs (Power Distribution Panels), and real-time control systems.
- Simulating power distribution and protection systems including UPS, DG sets, surge protection devices (SPDs), protective relays, and circuit breakers.

- Integrating critical safety systems such as earthing, bonding, and lightning protection to meet global rail infrastructure codes and operational standards.

Our Deliverables

- Comprehensive 3D models for mainline, metro, and LRT rail corridors, including tracks, stations, depots, and signaling systems
- Civil and structural documentation including grading plans, cross-sections, turnouts, crossover layouts, and utility corridors
- Installation-ready & clash-resolved electrical BIM packages for OHE, third rail, substations, PDPs, lighting, and SCADA systems
- 4D and 5D simulations for construction phasing, budget control, and sequencing
- Integrated rail yard and depot BIM models with functional layouts for maintenance bays, sidings, washing lines, and parking loops
- BIM support for grade separations, tunnel and bridge approaches, level crossings, and guideway alignments



Station Sample

6. Airport and Airfields

Our specialized BIM services for complex airport and airfield developments offer coordinated models and documentation that support design optimization, project execution, and long-term facility management. From terminal buildings to taxiways and underground utilities to airside systems, our data-rich BIM workflows ensure compliance, safety, and performance throughout the project lifecycle.

6.1. Precision Engineering for Airside and Landside Infrastructure

Leveraging multi-disciplinary coordination, advanced simulations, and compliance-driven modeling, we facilitate stakeholders to execute airport projects with greater speed, safety, and operational precision.

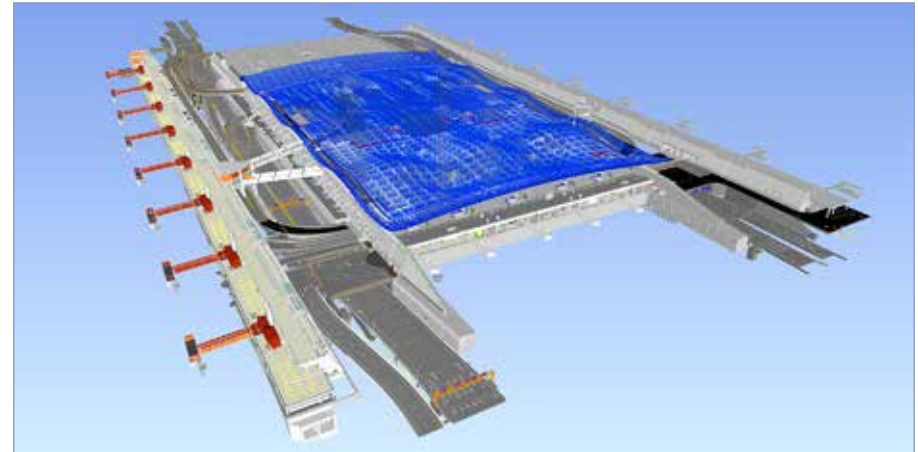
Our Areas of Expertise

- Creating high-detail 3D BIM models for terminals, runways, taxiways, aprons, control towers, cargo areas, service buildings, parking decks, and blast fences.
- Coordinating MEPF systems across large-scale facilities with advanced clash detection to eliminate system conflicts and ensure smooth on-site execution.
- Integrating 4D scheduling and 5D cost estimation into project models using platforms like Navisworks and Bexel to support real-time construction phasing.
- Conducting energy analysis and sustainability modeling to optimize resource usage, material selection, and system efficiency.
- Developing 6D BIM models that support post-construction asset management and AIM that enables streamlined maintenance and renovation planning.
- Embedding IoT, sensor data, and Digital Twin integration into airfield models to support safety-driven design, real-time monitoring, and facility optimization.

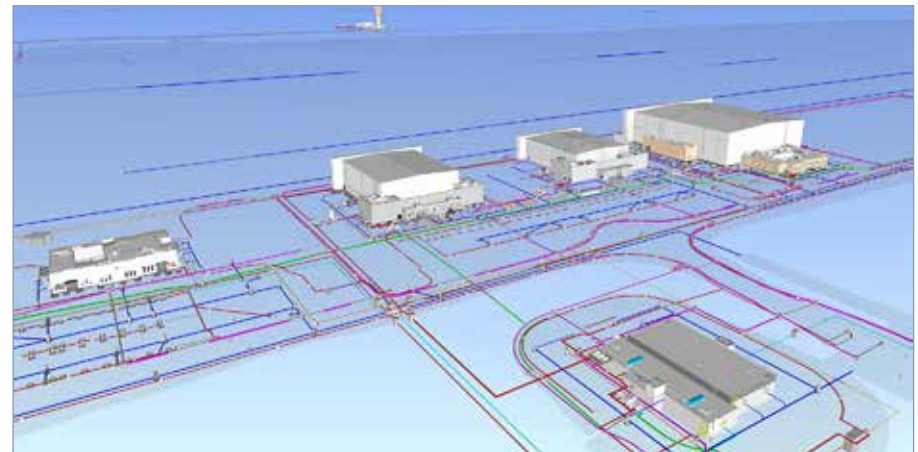
Our Deliverables

- Comprehensive 3D BIM models of airport landside and airside infrastructure
- Detailed, fabrication-ready MEPF coordination drawings, utility layouts, and clash-free system models
- 4D construction sequencing models and 5D cost-linked simulations
- Energy models and sustainability assessments aligned with LEED, IGBC, and airport-specific green standards
- 6D BIM models enriched with metadata for lifecycle asset tracking and AIM integration

- Digital Twin-integrated models with provisions for real-time performance monitoring and predictive maintenance
- Authority submission sets and IFC-compliant documentation meeting international aviation guidelines



Airport Sample



Airport Sample

7. Site Utilities

Our advanced BIM capabilities cater to complex underground utility networks across urban, marine, aviation, and industrial infrastructure. Collaborating closely with technology leaders like Autodesk and Bentley, we provide end-to-end BIM workflows that optimize design accuracy, minimize site-level conflicts, and streamline project delivery at every stage.

7.1. Modeling Multi-Utility Infrastructure Systems

Our robust BIM solutions for wet and dry utility systems across diverse infrastructure sectors support the full project lifecycle – from schematic layouts to detailed design, construction documentation, and asset integration.

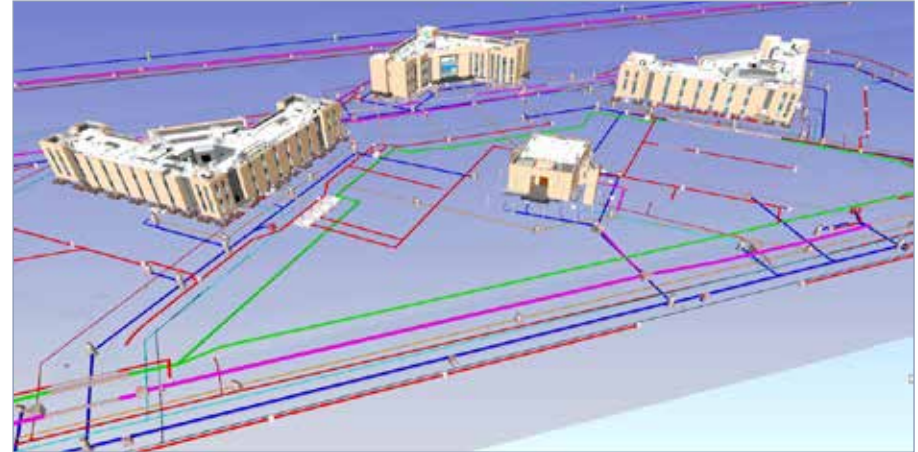
Our Areas of Expertise

- Establishing intelligent BIM models across schematic, detailed, and final design stages to ensure accuracy and compliance from early planning to as-built integration.
- Managing clash coordination workflows through design workshops, automated clash detection, and design validation.
- Generating construction-ready documentation that supports installation with minimal field changes.
- Simulating construction phasing for underground systems with 4D scheduling tools to visualize progress and optimize construction sequencing.
- Integrating asset metadata and GIS-based inputs into utility models to support facility management, operations, and long-term maintenance planning.
- Ensuring compliance to local and global codes with regional utility regulations and submission-ready authority drawings.

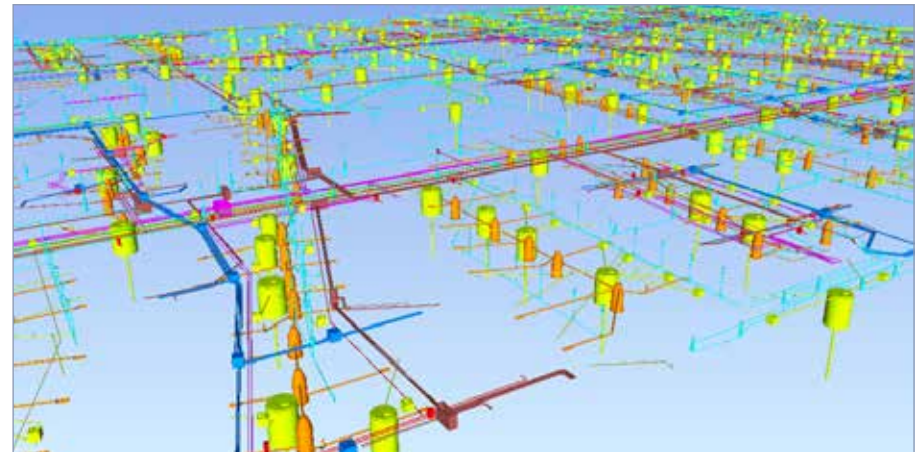
Our Deliverables

- Comprehensive 3D models and coordinated drawings for wet and dry utility systems including water, sewer, stormwater, electrical, gas, telecom, and more
- Schematic, detailed design, and as-built BIM models enriched with utility-specific metadata aligned to greenfield and brownfield development standards
- Clash-free composite utility models and construction documentation for city-scale infrastructure, airfields, port zones, and industrial complexes
- Shop drawings and plan/profile views for trenching, manholes, duct banks, valve pits, and transformer locations

- As-built model development with asset tagging for Digital Twin integration and lifecycle tracking of underground networks
- 4D simulations, quantity take-offs, and constructability reviews
- Authority-compliant utility models and submission drawings aligned with local codes, permitting regulations, and utility coordination protocols



Site Utility Sample



Site Utility Sample

8. Roadways & Elevated Corridors

We deliver cutting-edge BIM services for roadway and elevated corridor infrastructure spanning across national highways and interchanges to urban road extensions, pavement rehabilitation, and smart road systems. Our digital workflows help EPCs, consultants, and government authorities coordinate service trenches, traffic infrastructure, and multi-layer road sections.

8.1. BIM & Multidisciplinary Design for Complex Road Networks

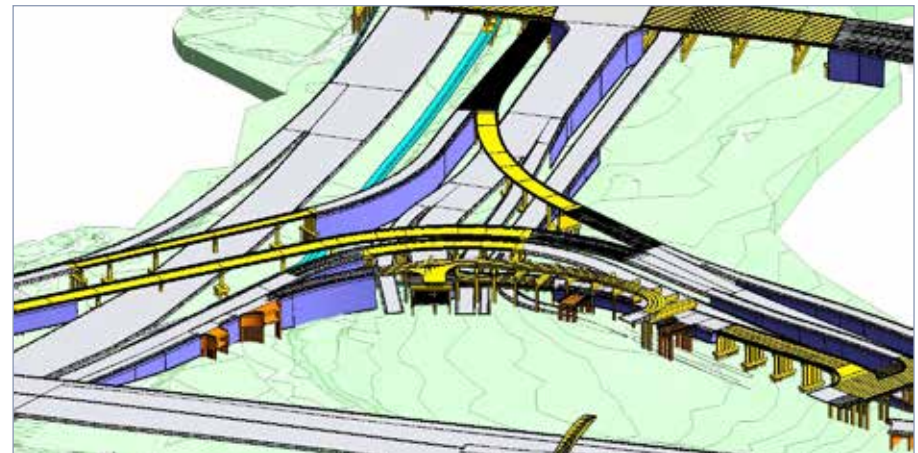
From arterial highways to city roads, our solutions span the full scope of highway geometry, grading, utility planning, drainage, safety infrastructure, and traffic systems. Our multidisciplinary teams deliver lifecycle-ready digital models enriched with spatial accuracy, real-time constructability insights, and submission-ready documentation.

Our Areas of Expertise

- Developing detailed 3D BIM models for highways, expressways, arterial and local roads, grade-separated junctions, interchanges, and multi-layer transport corridors.
- Aligning road and corridor designs with global standards like AASHTO (USA), RTAC (Canada), DMRB (UK), and JRA (Japan).
- Modeling road safety and traffic infrastructure including signage, pavement markings, lighting systems, pedestrian walkways, cycle tracks, crash barriers, and ITS systems.
- Integrating surface runoff and collection systems like catch basins, culverts, stormwater channels, and retention structures.
- Delivering BIM support for utility trenching, duct banks, and service corridors, including spatial planning, clash detection, and compliance documentation for brownfield and congested corridors.
- Incorporating guardrail systems and safety barriers as per regional specification.
- Rebuilding or updating road models to LOD 400 or LOD 500 in the absence of usable legacy data.
- Supporting pedestrian and cyclist safety through coordinated modeling of crossings, sidewalks, bollards, warning signage, and dedicated lane features.
- Facilitating traffic engineering tasks like traffic signal layout, signal timing optimization, and traffic impact assessment studies.

Our Deliverables

- LOD 300 to LOD 500-aligned 3D BIM models for highways, city roads, utility corridors, and elevated transport infrastructure
- Shop drawing sets including geometry layouts, plan/profile views, D-sections, cut & fill sheets, trenching layouts, and composite utility drawings
- Custom subassembly details for pavement structure, medians, signage footings, stormwater discharge points, and multi-lane traffic design elements
- Signage and pavement marking models, including horizontal and vertical signage with plan annotations
- Guardrail placement drawings and safety barrier detailing
- Blow-up drawings for service trench junctions, crossings, and detailed utility diversions
- Construction simulation models for phased execution and 4D sequencing
- Metadata-integrated as-built BIM models for facility management, O&M planning, and Digital Twin conversion
- Traffic impact assessment documentation
- GIS-integrated BIM outputs for spatial analysis, asset tracking, runoff studies, and smart infrastructure systems



Roadways Sample

9. Bridges

From concept and detailing to construction sequencing and maintenance, our advanced Bridge Information Modeling (BrIM) solutions extend across the full bridge lifecycle. Be it complex steel arch bridges, precast girder systems, or expansive multi-span elevated structures, our intelligent 3D models capture geometry, materials, loads, reinforcement, and structural behavior to deliver precision-engineered BrIM solutions.

9.1. Precision Engineering through BrIM

Our end-to-end BrIM approach – covering conceptual design stage to asset management stage – ensures every bridge is engineered for constructability, sustainability, and long-term resilience.

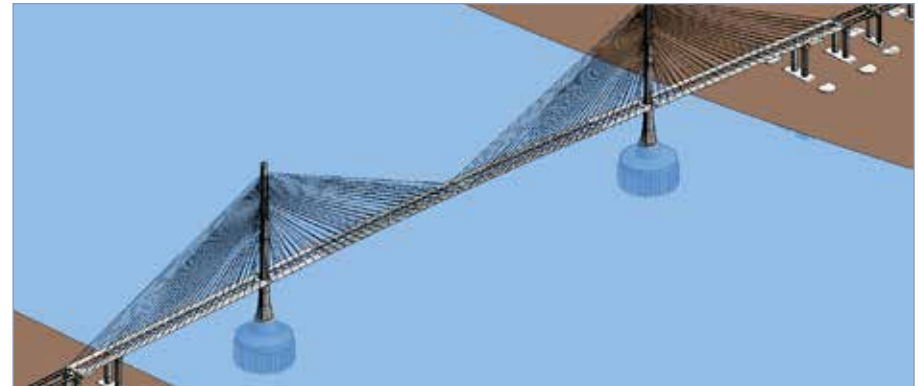
Our Areas of Expertise

- Using Revit, Tekla, Civil 3D, InfraWorks, and Bentley OpenBridge to create 3D bridge models that capture precise geometry, material specifications, reinforcement, and structural behavior.
- Ensuring model consistency and data accuracy with federated BIM workflows that integrate terrain, roadway, and utility data across Autodesk and Bentley platforms.
- Simulating construction phasing through 4D BIM using platforms like Navisworks, SYNCHRO, and OpenBridge to forecast staging and identify execution-stage clashes.
- Automating 2D drawing generation, profiles, reinforcement details, and quantity take-offs using Revit and OpenBridge for quicker documentation and reduced manual coordination errors.
- Developing Digital Twin by embedding IoT inputs, inspection data, and laser scans into bridge models that support real-time condition tracking and predictive maintenance workflows.
- Supporting long-term asset management through metadata-rich bridge models and aligning them with national and global lifecycle maintenance standards and inspection protocols.

Our Deliverables

- Comprehensive 3D BIM models and shop drawings for steel, RCC, and composite bridge types including decks, piers, girders, bearings, and foundation systems

- Fully coordinated construction documentation with 2D sections, geometry profiles, and reinforcement detailing
- Phased construction simulations using 4D tools
- Automated bill of quantities, cut and fill analysis, and material take-offs integrated directly from the BIM model
- Digital Twin-ready models imbued with sensor metadata and inspection records
- Fabrication-ready rebar detailing including IFC-compliant shop drawings and scheduling sheets



Bridge Sample



Bridge Sample

10. Geotechnical and Earthwork

Our advanced BIM solutions for geotechnical and earthwork modeling bring accuracy, safety, and constructability to the foundation of infrastructure projects. From terrain shaping and cut-fill analysis to dewatering systems and ground stabilization, our models help project teams plan effectively, reduce risks, and coordinate seamlessly across disciplines. Using point cloud data, geotechnical reports, and civil specifications, we create integrated BIM environments that align excavation, drainage, and foundation elements with structural and MEP systems.

10.1. Advanced Terrain Modeling, Excavation Strategies & Ground Stabilization

With a data-driven approach, we support critical design decisions related to grading, dewatering, stabilization, and foundation planning for geotechnical and earthwork-intensive scopes including terrain, excavation, and subsurface structures.

Our Areas of Expertise

- Developing accurate 3D terrain and grading models with slope control, surface draping, and cut-fill optimization.
- Creating excavation and backfill models based on aerial imagery, LiDAR scans, and point cloud data to facilitate surface comparison, progress tracking, and precise quantity calculations.
- Modeling coordinated dewatering systems including sump pits, well points, pumps, header systems, and recharge wells.
- Designing parametric models of geotechnical stabilization systems such as rock bolts, soil nails, shotcrete, geotextiles, jet grouting, and chemical stabilization zones.
- Building fully integrated 3D models of retaining structures including diaphragm walls, secant/tangent piles, MSE walls, soldier piles with lagging, tiebacks, and crib walls.
- Supporting slope stabilization and embankment modeling with benched profiles, reinforcement zones, and protective elements such as gabions, riprap, ACBs, and geobags.
- Providing seamless BIM coordination between geotechnical elements and structural, architectural, and MEP disciplines.

Our Deliverables

- Detailed terrain and grading models with elevation control, surface analysis, and boundary extraction
- Construction-ready excavation and backfill plans with cut-fill quantities and staging simulations
- Clash-coordinated dewatering system models including pumps, trenches, discharge pipelines, and valve boxes
- Geotechnical 3D visualizations of boreholes, soil layers, groundwater tables, and ground improvement zones
- Reinforcement detailing for foundation systems including pile foundations, pile caps, and raft foundations
- Integrated retaining structure models with alignment to excavation depths, utility clearances, and structural connections
- Digital documentation for consultant and contractor submissions, including quantity take-offs, section views, and installation guides



Earthwork Sample

11. Tunnels

Our extensive BIM expertise supports the planning and execution of tunnel infrastructure projects, bringing in multidisciplinary coordination, clash-free detailing, and lifecycle asset delivery. By integrating 4D, 5D, and AIM processes into our tunnel BIM workflows, we specialize in purpose-built models to support excavation staging, tunnel lining, structural frameworks, utilities integration, and as-built accuracy across complex geological and construction scenarios.

11.1. Digital Engineering Solutions for Tunnel Infrastructure

Tailored to the complexities of tunnel infrastructure, our advanced BIM and digital construction capabilities span TBM, NATM, and cut-and-cover methods, integrating structural detailing, utility coordination, construction staging, and asset data into a unified digital environment.

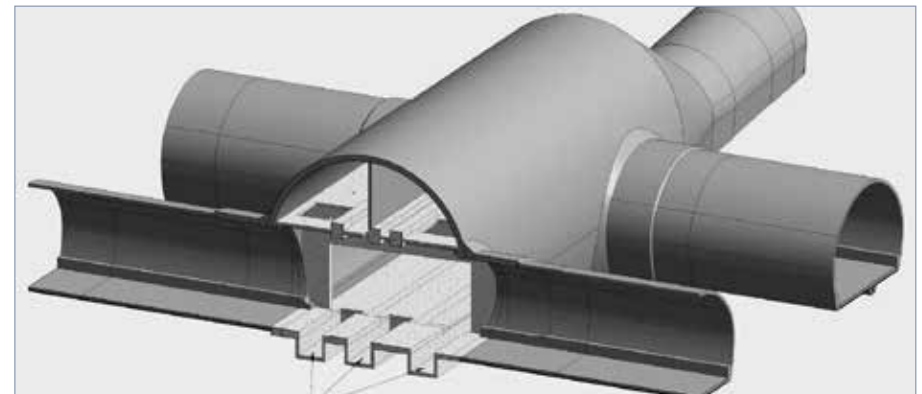
Our Areas of Expertise

- Developing intelligent 3D BIM models for TBM-driven tunnels, cut-and-cover tunnels, shafts, cross passages, station boxes, walkways, portals, and water tunnels.
- Modeling tunnel linings, segmental rings, track slabs, civil structures, and vehicle envelopes.
- Detailing MEP systems, drainage pipelines, dewatering systems, pump rooms, and groundwater relief layouts within confined tunnel spaces for clash-free integration.
- Generating models for temporary and enablement works such as scaffolding, formwork, jacking frames, and shield components.
- Delivering rebar modeling and detailing for tunnel rings, station infrastructure, foundations, walls, slabs, and retaining structures.
- Preparing progressive as-built models integrated with construction progress, site markups, RFIs, and redline documentation.
- Executing structured clash detection between tunnel linings, rebar, utilities, and architectural elements using Navisworks, Solibri, BIM Track, and Revizto.
- Performing 4D construction sequencing and excavation simulation using Synchro to visualize tunnel phasing, TBM operations, and temporary works.
- Facilitating collaborative model coordination, version control, and data management through Autodesk BIM 360 and Autodesk Construction Cloud (ACC).
- Supporting earthworks, grading, and tunnel access logistics planning using vehicle movement simulation and spatial modeling tools.

- Extracting model-based quantities (5D) for concrete, excavation volumes, tunnel segments, track elements, and rebar.
- Defining and delivering Asset Information Models (AIM) based on ISO 19650-3 standards including asset metadata, O&M parameters, and maintenance schedules.

Our Deliverables

- Coordinated, LOD 200 to 500 3D BIM models for tunnels, shafts, galleries, and related civil works customized across project lifecycles
- Drawing sets including plan & profile views, tunnel ring arrangements, cross-sections, reinforcement drawings, and fabrication-ready BBS
- Construction staging visualizations through 4D sequencing models integrated with project timelines and excavation plans
- 5D-enabled quantity take-offs for structural components, excavation volumes, track slab systems, and segmental linings
- Fully updated as-built models reflecting contractor markups, RFIs, FCRs, and asset tags
- COBie, IFC, Excel, or custom formatted Asset Information Models (AIM)
- Discipline-integrated models for utilities, structures, and mechanical systems
- Submission-ready documentation packages, including IFC/ RVT/ NWC outputs, GA drawings, tunnel staging layouts, and maintenance schematics
- Standardized BIM Execution Plans (BEP) in alignment with ISO 19650 standards and organizational BIM protocols



Tunnel Sample

12. Water Infrastructure

With our specialized, end-to-end BIM services for water infrastructure projects, engineers, contractors, and consultants can plan, model, and manage potable water, wastewater, and stormwater systems with precision and control. From treatment plants and pumping stations to hydraulic structures and stormwater basins, we support every phase of water infrastructure delivery with coordinated BIM models and discipline-integrated documentation.

12.1. Intelligent Modeling for Water Supply, Wastewater & Stormwater Systems

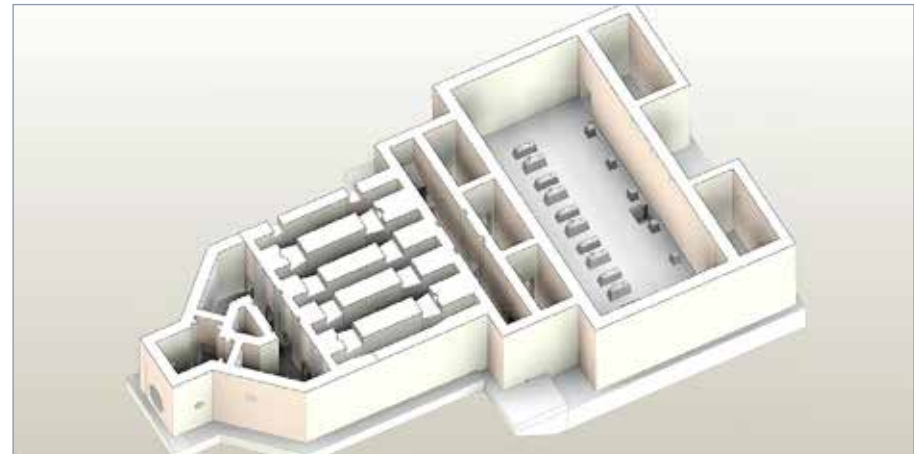
Our comprehensive BIM solutions for water infrastructure systems supports the full spectrum of potable water supply, wastewater management, stormwater drainage, and hydraulic structures by integrating geospatial data, regulatory standards, and construction sequencing.

Our Areas of Expertise

- Modeling fully coordinated potable water systems including transmission and distribution pipelines, pumping stations, booster networks, reservoirs, water treatment plants, and valve chambers.
- Developing municipal and industrial sewerage and wastewater system models including gravity mains, pressurized lines, manholes, lift stations, inspection chambers, STPs, clarifiers, sludge digesters, and sludge handling systems.
- Designing stormwater drainage systems with open and closed channels, box culverts, oil-grit separators, retention basins, infiltration trenches, and stormwater treatment units.
- Modeling large-scale hydraulic structures such as intake towers, headworks, spillways, weirs, dams, diversion channels, canal systems, and aqueducts aligned to terrain and hydrologic profiles.
- Integrating GIS and utility mapping databases to include topographical data and terrain-informed modeling to optimize pipe alignments and avoid clashes with other utilities.
- Delivering BIM support for industrial water management systems including effluent treatment plants (ETPs), process water systems, and industrial wastewater treatment plants modeled to performance and regulatory standards.

Our Deliverables

- Data-rich, hydraulic and civil design-compliant 3D BIM models for potable water, wastewater, and stormwater systems
- Detailed plan, profile, and section drawings for utility pipelines, structures, and plant layouts aligned with client-specific CAD and BIM standards
- General Arrangement (GA) and fabrication drawings for water treatment, STP, and ETP facilities with annotated schedules, legends, and quantity summaries
- Automated sheet sets for construction and submission packages, including clash-free utility layouts, trenching profiles, and structural details
- Quantity take-offs and cost estimation based on model geometry and asset parameters
- 4D construction sequencing and 5D cost simulation
- As-built model generation with asset tagging, maintenance data, and metadata-enriched Digital Twins for long-term facility management
- Clash detection and resolution across water systems, structural components, and MEP integration zones



Water Infrastructure Sample

13. River Training & Hydraulic Infrastructure

With precision-driven BIM workflows, we aid in the development of river and hydraulic infrastructure covering river training and flood control to canal irrigation and inland navigation. Our data-rich models support engineers, consultants, and EPC contractors in delivering resilient and sustainable water systems.

13.1. River Systems Modeling, Flood Protection, and Inland Navigation Solutions

Our advanced BIM solutions for river training, flood control, irrigation, and inland navigation infrastructure incorporate hydrology, terrain data, and structural systems into a unified digital environment to support accurate simulation, clash-free design, and efficient construction delivery across the board.

Our Areas of Expertise

- Modeling riverbank protection systems including revetments, gabions, geo-textiles, and embankment reinforcements for flood resilience and erosion control.
- Designing guide bunds, spurs, groynes, and cutoff structures for channel stabilization combined with floodplain modeling and cross-section extraction.
- Integrating hydrology data with terrain modeling to support hydraulic performance analysis, water surface profiling, and embankment planning.
- Delivering detailed BIM models for barrages, head regulators, undersluice bays, and stilling basins with radial gate systems, stop-log arrangements, and hoist structures.
- Detailing structural components like divide walls, fish ladders, and hydraulic gate embedment with rebar modeling and reinforcement layouts.
- Modeling canals and irrigation systems including main canals, branches, distributaries, canal lining, aqueducts, syphons, and drop structures.
- Integrating BIM for canal headworks, pumping stations, SCADA housing, and cross-drainage structures for remote system control.
- Designing flood mitigation and storm drainage elements such as detention basins, spillways, flap gates, diversion channels, sedimentation structures, and urban storm outfalls.
- Developing GIS-based route alignments for inland navigation infrastructure including floating jetties, approach channels, pontoons, riverine terminals, and navigation locks.

- Modeling ancillary river port components like mooring dolphins, signal towers, and marine access platforms to support inland water transport.

Our Deliverables

- Comprehensive 3D BIM models for river training systems, barrage structures, canal networks, and inland waterway infrastructure
- Cross-section extractions and terrain-integrated floodplain models
- Reinforcement-detailed models for barrages, head regulators, stilling basins, and radial gate installations
- Coordinated plan/profile drawings and GA drawings for canals, spurs, embankments, pumping stations, and cross-drainage structures
- Clash-free integration models for SCADA housing, mechanical gates, electrical systems, and structural elements
- Construction sequencing and quantity take-offs for excavation volumes, lining materials, reinforcement schedules, and water-retaining elements
- GIS-integrated BIM documentation for navigation alignment, terminal design, and river-based transport corridors
- Discipline-integrated documentation for approvals and regulatory submissions



River Training & Hydraulic Infrastructure Sample

14. Ports, Harbors, Marine & Coastal Engineering

Our specialized BIM services for marine infrastructure projects range from port terminals and marinas to subsea utility systems and shoreline protection. With multidisciplinary teams supporting clients through every phase of development, we deliver technically accurate models, survey-aligned coordination, and lifecycle-ready documentation.

14.1. Precision Engineering for Marine Infrastructure

With advanced BIM solutions tailored for marine infrastructure projects, we support the design and execution of ports, marinas, shoreline protection, offshore structures, and underwater utilities.

Our Areas of Expertise

- Modeling dredging and land reclamation scopes using seawall and polder methods with integrated bathymetric survey data for sub-sea terrain modeling and terrain-adaptive earthwork alignment.
- Developing high-precision 3D BIM models for port and harbor structures such as quay walls, berthing facilities, mooring dolphins, dry docks, Ro-Ro ramps, navigation channels, and fender systems.
- Creating coordinated jetty and pontoon system models, including floating pontoons, fixed jetties, gangways, superyacht berths, and pile guide systems along with marine foundation and access platform modeling.
- Designing coastal protection elements including revetments, breakwaters, seawalls, groynes, and shoreline reinforcements that address flood control, wave action mitigation, and erosion protection.
- Delivering coordinated utility modeling for marine systems including water supply, storm drainage, fuel lines, telecom ducts, and electrical cabling for subsea trenching and pipe support structures.
- Modeling dockyard and offshore elements such as caissons, pile-supported platforms, dock gates, and marine maintenance zones integrated with onshore infrastructure systems.
- Enabling seamless coordination across structural, geotechnical, civil, and MEP disciplines with survey integration and 3D clash detection to ensure constructability.

Our Deliverables

- BIM models for dredging areas, reclaimed land sections, and sub-sea terrain with bathymetric alignment and cut-fill analysis
- Coordinated construction documentation for port infrastructure including berth structures, quay walls, slipways, dry docks, and mooring components
- 3D models and detailed drawings of floating pontoons, pile caps, jetty decks, fender systems, and marine access platforms
- Clash-free layouts and trenching profiles for marine utilities including water, fuel, power, and communication systems: above and below water
- Shoreline protection detailing with breakwater profiles, armor placement drawings, and erosion control systems
- Dockyard and offshore infrastructure models with foundation detailing, maintenance zone planning, and marine access coordination
- Documentation sets including plan/profile drawings, section views, quantity take-offs, and submission-ready BIM outputs



Port Sample

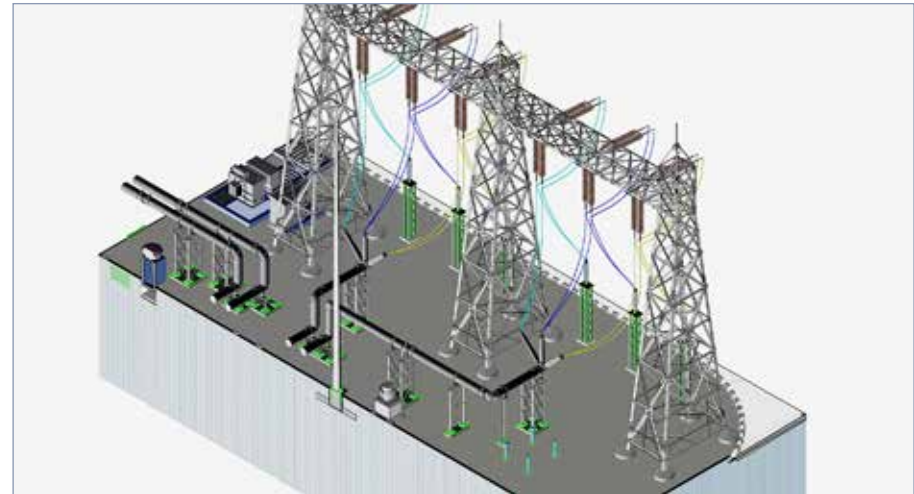
15. Power Distribution Infrastructure

We create detailed BIM models and shop drawings for power evacuation infrastructure. Our work covers Civil, Structural, and MEPF trades, and we focus on delivering accurate and buildable outputs.

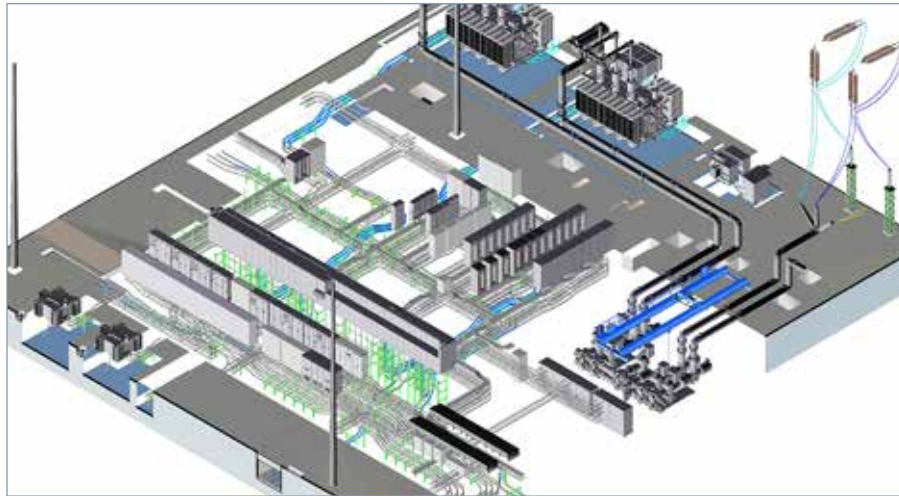
Using Tekla, we develop precise structural models, including towers, foundations, trenches, cable ducts, and equipment support structures. This helps ensure strength, accuracy, and compliance with design standards, while also supporting smooth fabrication and installation.

For MEPF, we use Revit to create accurate models based on submittals. These include 132kV GIS, 33kV switchgear, control panels, auxiliary panels, battery chargers, BESS control panels, and transformers. We also handle HVAC, chilled water piping, firefighting, and plumbing system modeling and coordination.

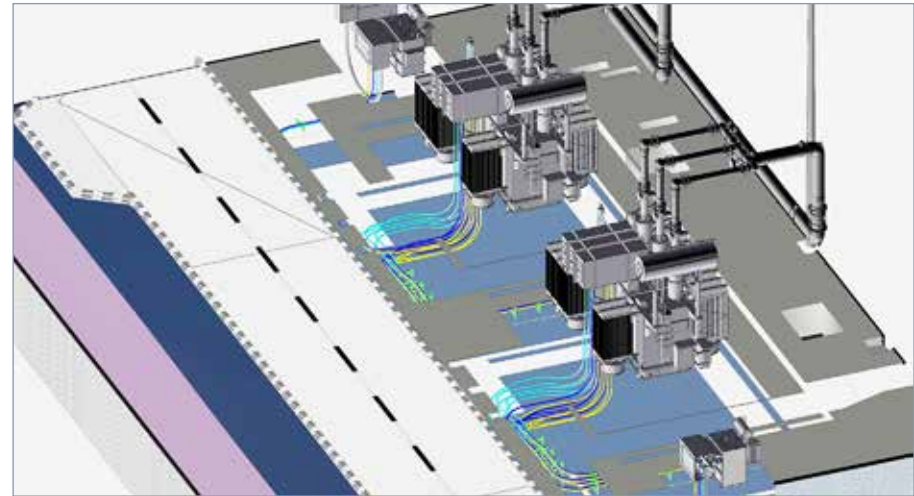
By using BIM, we improve teamwork between different trades, reduce clashes, and help complete projects more efficiently.



Power Distribution Infrastructure Sample



Power Distribution Infrastructure Sample



Power Distribution Infrastructure Sample

16. BIM-GIS Integration

Leveraging the combined power of Geographic Information Systems (GIS) and BIM, we deliver location-aware, data-rich insights at every stage of the project lifecycle, allowing for high-precision planning, mapping, and real-time monitoring across infrastructure domains globally.

16.1. Geospatial Intelligence for Infrastructure Projects

Spanning across multiple sectors such as transportation, utilities, urban development, and environmental planning, our GeoBIM capabilities support precise terrain modeling, network optimization, regulatory compliance, and Digital Twin creation.

Our Areas of Expertise

- Performing high-precision hydrographic and bathymetric surveys for water bodies to support marine, inland, and urban infrastructure planning.
- Generating 3D terrain models and spot height analyses for land development, watershed planning, and environmental impact assessments.
- Conducting spatial data integration between BIM models and GIS platforms for advanced visual analytics, geospatial validation, and spatial query resolution.
- Executing change detection studies to monitor land use shifts, infrastructure expansion, and construction impact.
- Optimizing route and network planning using GIS-based transportation modeling and digital corridor simulations.
- Modeling infrastructure assets using integrated BIM-GIS workflows for utilities, highways, MEP systems, and telecom networks.
- Embedding MEP components into 3D GeoBIM environments for coordinated infrastructure and utilities management.
- Digitizing land parcels, building footprints, and transport systems using topological mapping standards and integrating them with regional land records.
- Enabling zoning, layout design, and urban planning through spatially anchored BIM-GIS data for regulatory submissions.
- Building web-based GIS platforms and .SLPK applications.
- Automating spatial workflows using FME to simplify data exchange and synchronization across BIM and GIS ecosystems.

- Implementing smart plotting, layout planning, and geospatial visualization.
- Supporting disaster risk management, environmental monitoring, agricultural mapping, and telecom network planning.
- Delivering climate modeling, coastal zone planning, and geological analysis integrated into BIM frameworks.

Our Deliverables

- GIS-enriched BIM models integrated with terrain, topographic, utility, and cadastral data
- Geo-referenced 3D BIM environments with geometric accuracy and topologically error-free datasets
- Bathymetric maps, land-use/ land-cover classifications, and volumetric assessment reports
- Conversion-ready BIM datasets in GIS-compatible formats such as .SHP, .GDB, and .KML with defined schema and spatial indexing
- Web-based GIS interfaces and portals for asset viewing, stakeholder interaction, and public communication
- Digital Twin integration through enriched spatial models containing metadata, IoT hooks, and predictive monitoring support
- Smart city governance tools, network optimization outputs, and BIM-to-GIS visualizations

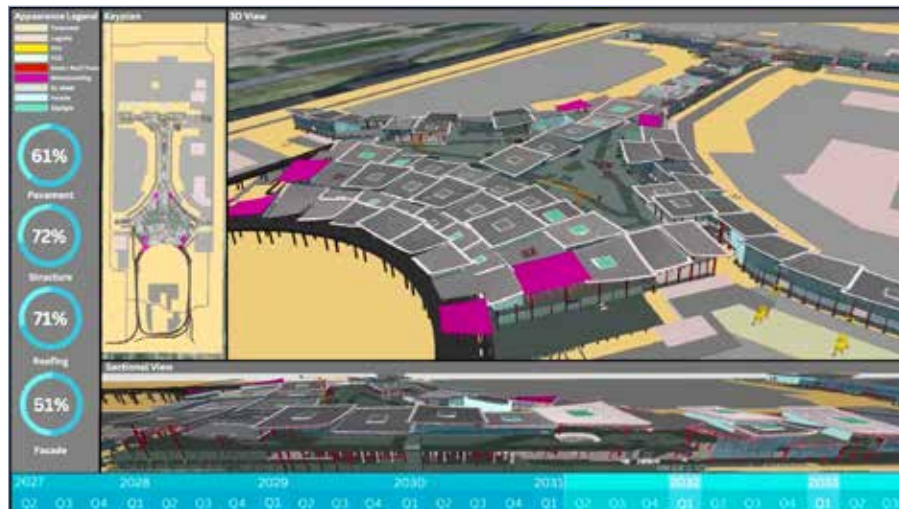


BIM-GIS Integration Sample

17. Construction Management Support Services

17.1. 4D Construction Phasing & Monitoring

4D BIM integrates 3D models with the project schedule to visualize how construction activities unfold over time. This helps plan construction sequences, detect clashes, and allocate resources more efficiently. By linking BIM with tools like Primavera or MS Project, we provide real-time visualization of task progress, milestone tracking, and schedule adjustments. 4D simulations allow teams to compare planned timelines with actual progress, identify delays early, and test different construction scenarios before execution. This improves coordination, reduces risks, and ensures smoother project delivery.

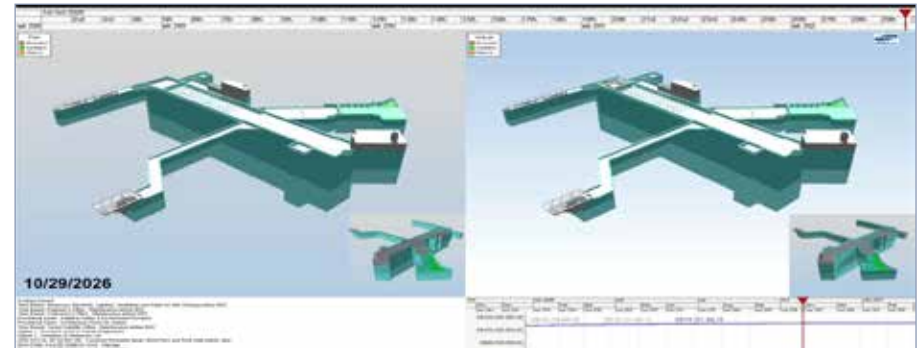


4D Construction Phasing & Monitoring Sample

17.2. 5D Quantity Take-off & Cost Estimation

5D BIM connects design models with cost data to provide accurate quantity take-offs and real-time cost estimation. This enables better financial planning and control throughout the project lifecycle.

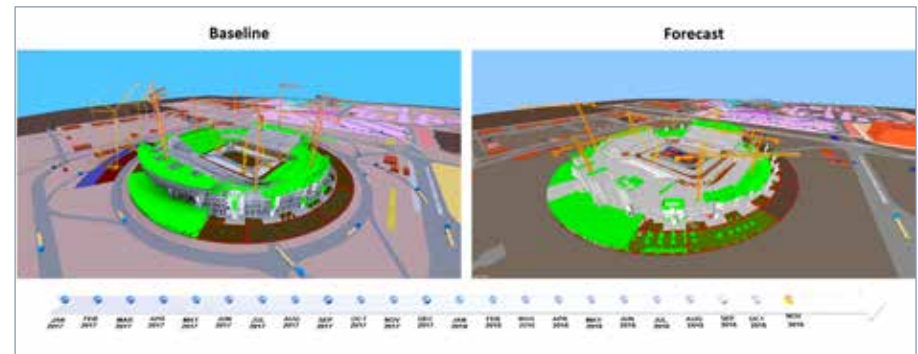
As design changes are made, our 5D models automatically update material quantities and cost projections. This helps teams assess the financial impact of changes, avoid budget overruns, and make informed decisions. The result is improved transparency, efficient resource management, and more predictable project outcomes.



5D Simulation Sample - Planned Vs Actual Data

17.3. Logistics Detailing

BIM transforms construction site logistics by improving planning, and execution of materials, equipment, and workforce movement. BIM also acts as a digital twin, offering a centralized 3D model that enhances stakeholder collaboration and supports data-driven decision-making for better project outcomes.



4D Construction Planning

18. Why Pinnacle

Each of our employees is committed to 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

Pinnacle relies on trusted ISO-based processes to consistently produce excellent results. We have over 30 years of experience in the AECO industry, and our work processes are ISO-certified.

Teamwork

We work together to scale every challenge. We understand that teamwork 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.

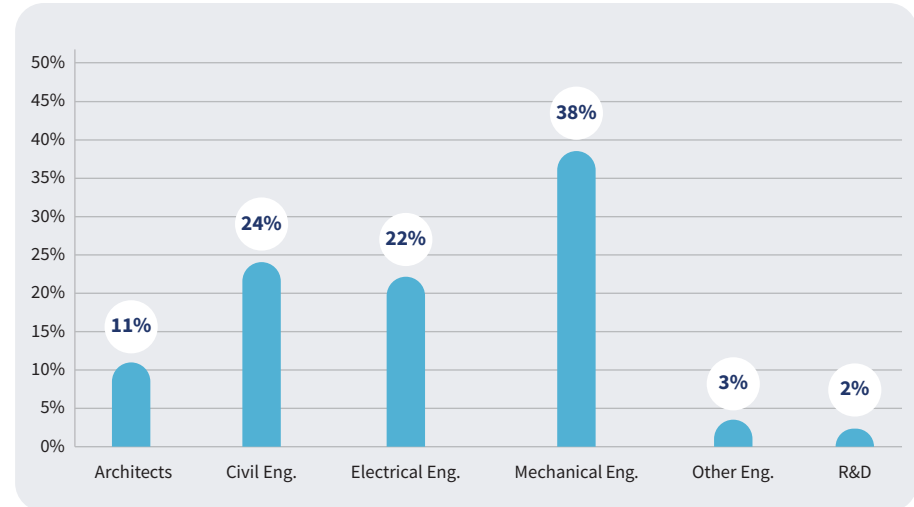
Honesty

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

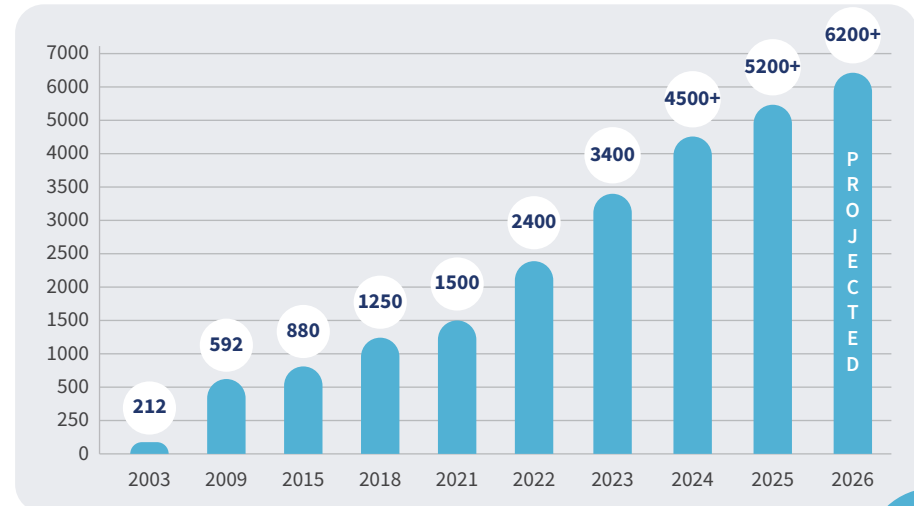
19. Our Team

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 with international construction codes and standards. We are proud of the diverse team and their global experience.

Employee Background



Workforce Growth



20. Our Infrastructure

Pinnacle has large state-of-art campuses in Durgapur, Jaipur, Kolkata, Madurai & Bengaluru, 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, Atlanta, and San Jose), Canada (Toronto), UK (London), KSA (Riyadh), UAE (Dubai), Singapore, Germany (Cologne), and Japan (Tokyo) that allow our employees to work in the same time zone as our customers.

Pinnacle's Constructability 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.



21. 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, 27001:2022, 19650-2, 19650-3, and 19650-5. 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 the 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 18,000+ projects worldwide. Our process orientation and quality control are per ISO 9001:2015, ISO/IEC 27001:2022, ISO 19650-2, ISO 19650-3, and **ISO 19650-5** standards and are managed by an independent QC team.

22. Our Projects

Taoyuan International Airport

Taoyuan, Taiwan



Bruckner Expressway

New York City, USA



Hazrat Shahjalal International Airport

Dhaka, Bangladesh



New Phnom Penh International Airport

Phnom Penh, Cambodia



Goa International Airport

Goa, India



Herzliya Depot

Israel



23. Clients Speak

“A fantastic management. We were provided excellent support and service by the management All responses were prompt and professional. This added with a great BIM support cum with skilled technical staff assistance from the beginning to end of the process. The team is really informed and goes to extra mile at every stage. I would recommend Pinnacle unreservedly.”

Penta-Ocean Construction Co. Ltd., Singapore

“I was very satisfied with the quality of the work done, delivery on time, and prompt action to additional requests. I will highly recommend Pinnacle Infotech to my colleagues”

Electra Construction, Israel

“The work was well received and the client was impressed with the work. This is much appreciated by myself and Parsons. We will keep you posted on the potential for future work as we move into the as-built phase of the project, and some of our other upcoming projects. It has been a pleasure working with you so far as Vasilios and Armin have spoken highly about the open level of communication and coordination on this effort.”

Parsons, USA

“It has been a wonderful experience working with Pinnacle and the team. The collaboration and proficiency demonstrated throughout the project were impressive, and the responsiveness was exceptional. We appreciate your team's dedication and look forward to future opportunities to work together.”

Saudi Salco Contracting, KSA

“The process of checking and performing tasks without arbitrarily working on uncertainties is successful. Also, the other advantage is that PINNACLE translates the foreign language files and applies it to the work.

The requested activities were performed properly in accordance with the schedule.”

Samsung C&T Corporation, South Korea

“The communication and responsiveness was excellent. Thank you for your efforts!”

Arora Engineers, Inc., USA

“Very satisfied with the BIM team for their BIM work, responsiveness & coordination with the team & client. Appreciated the team adjusting the work schedule & weekend to streamline the deliverables for us & the client.”

Carrasco & Associates, USA

“It was a great experience working with the team, especially the BIM Lead. Pinnacle has done a great job with collaboration and timely communication, making the process smooth and efficient. Looking forward to working together again!”

Saudi Salco Contracting, KSA



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Madurai

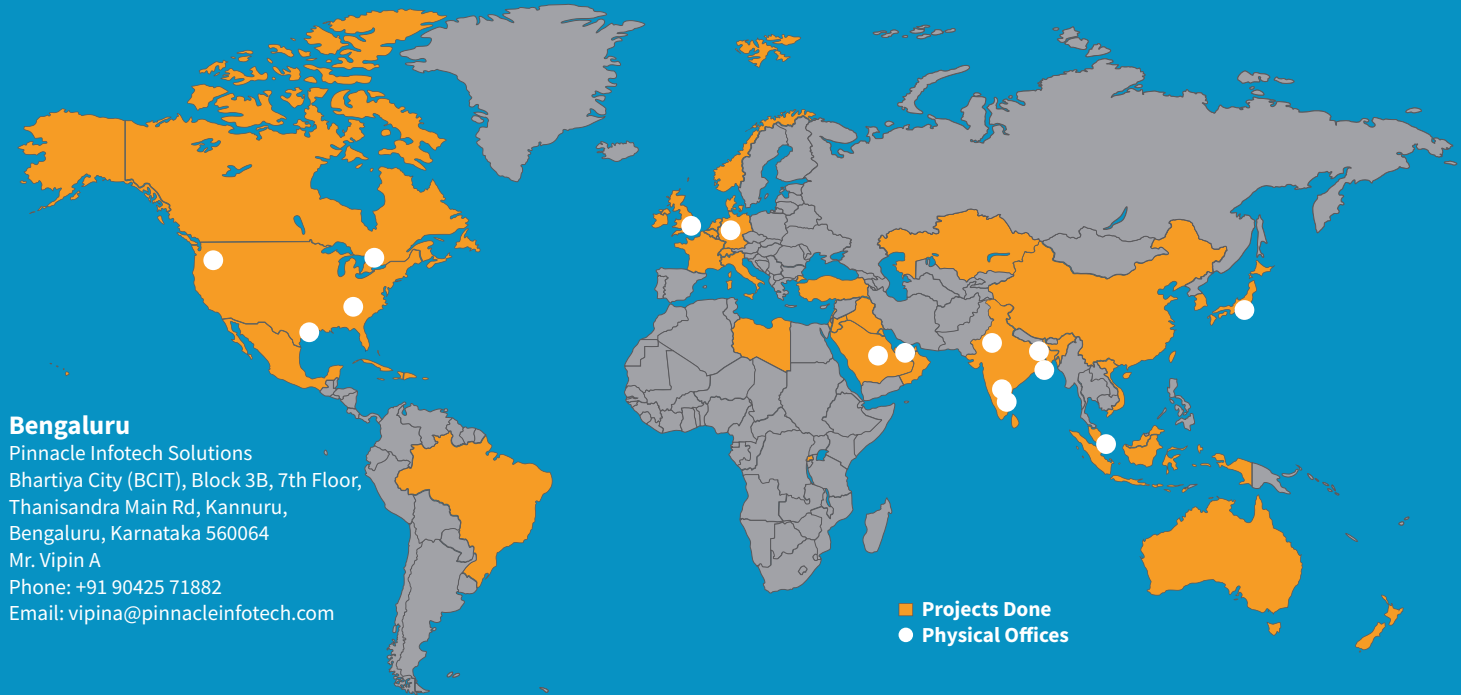
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**Pinnacle
Infotech**

Construct
Certainty, with
Technology