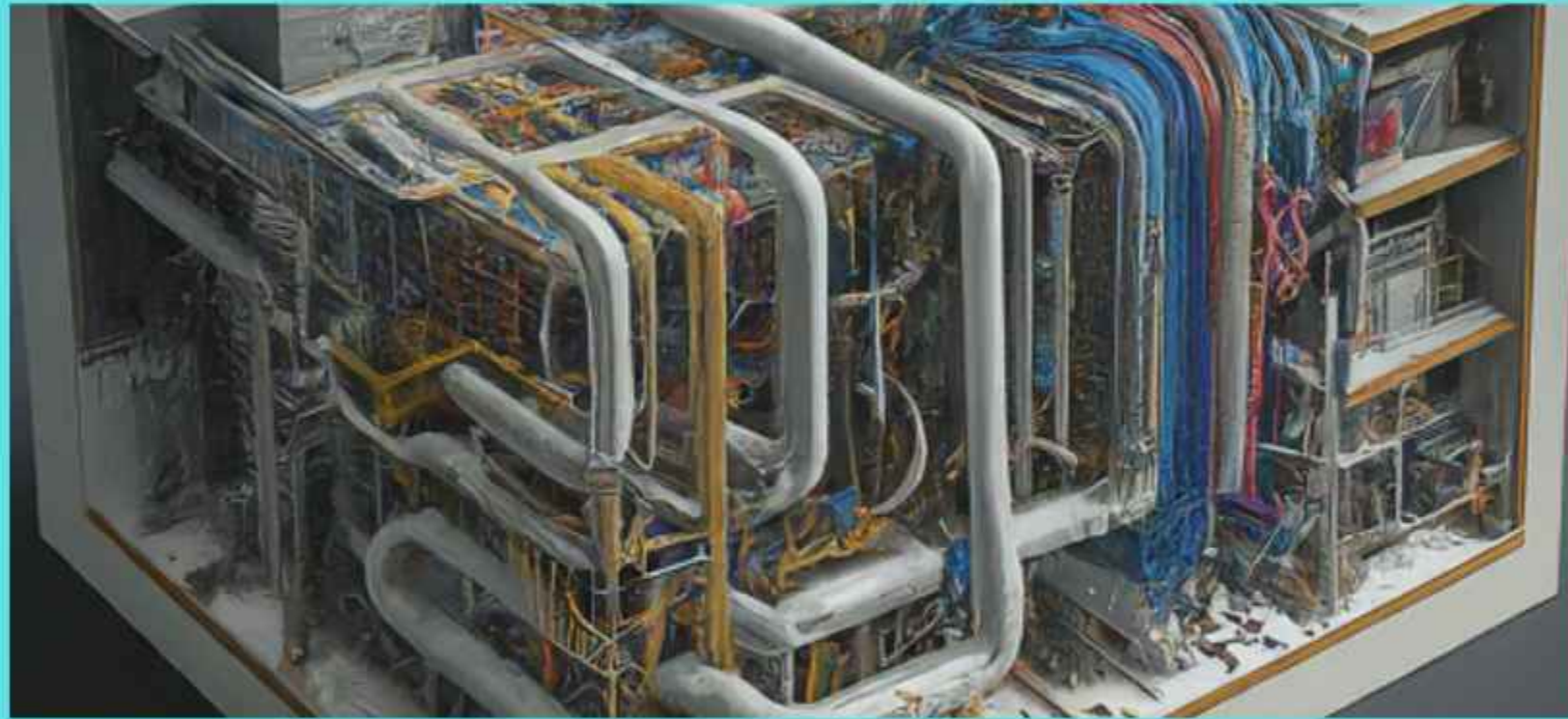


MEPF BIM Services



Phone: 302-206-3183

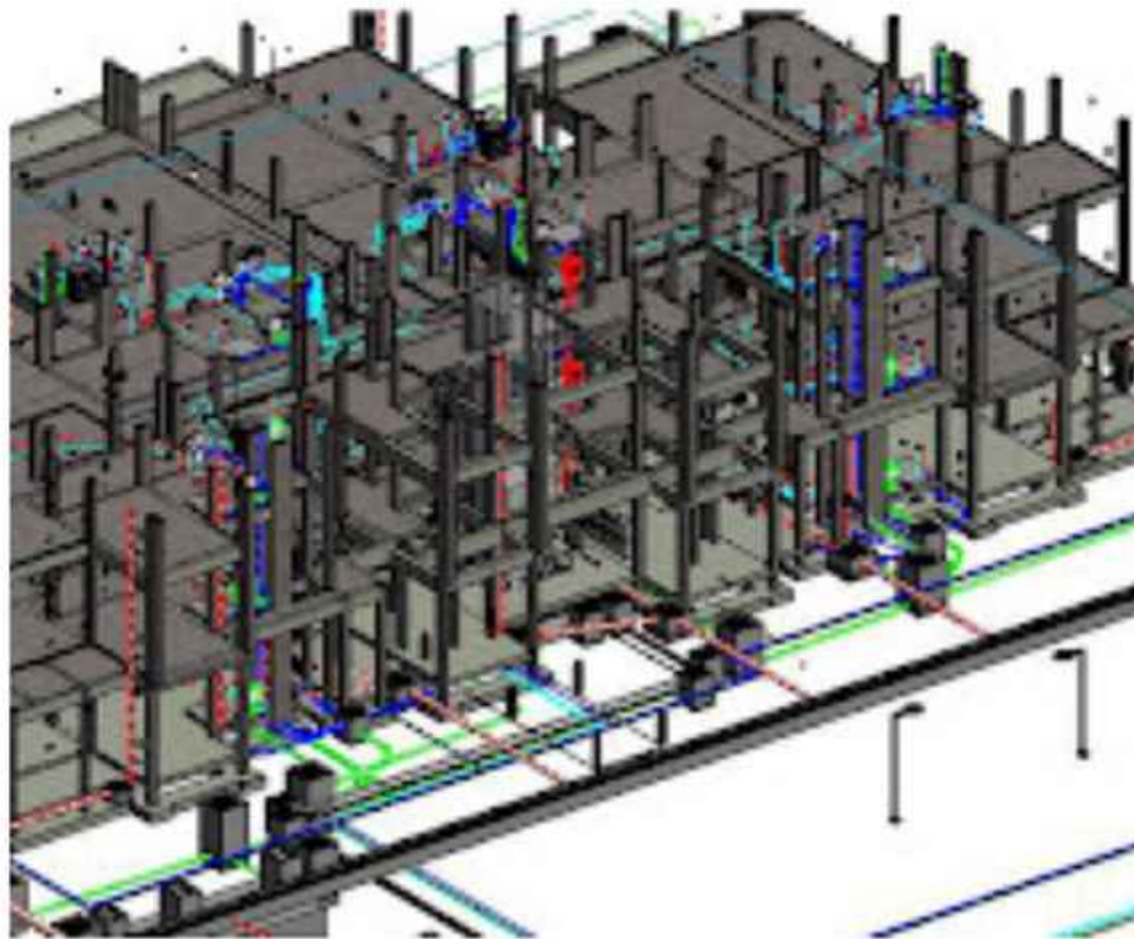
Email: samrat.dutta@capstonees.com

<https://capstonees.com/>



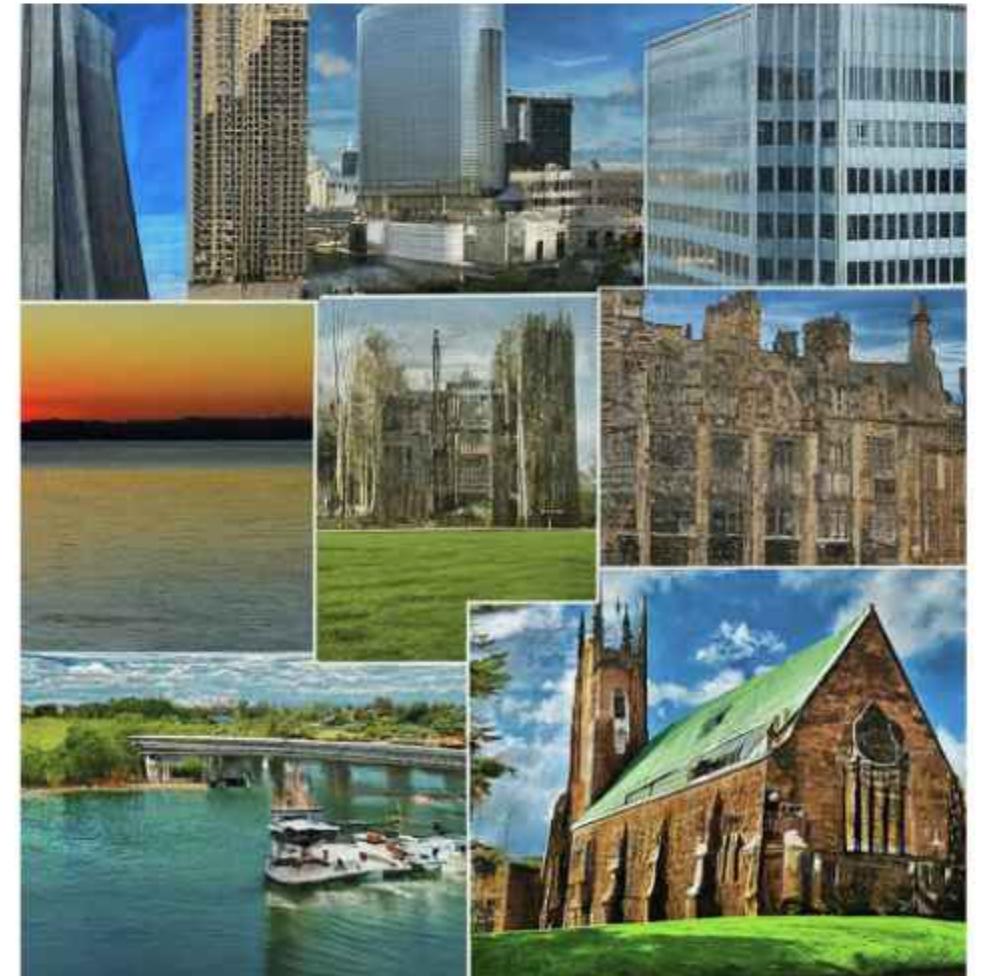
Welcome To Our Company

We bring buildings to life! Our MEPF BIM modeling facilitates efficient and coordinated design. With MEPF BIM, we empower informed decision-making throughout the building lifecycle.



Sectors we facilitate :

- Residential Buildings
- Commercial Buildings
- Train Stations and Airports
- Hospitals
- Hotels and Resorts
- Schools and Universities
- Industrial Gas Stations
- Historical Monuments



About Us - Capstonees: Pioneering Progress, Crafting Excellence

Welcome to Capstonees, where innovation meets expertise in architecture, building, and industrial services. With a proud legacy spanning over 17 years, we have emerged as a trusted partner for industry giants like Specon, Petrofac, TechnipFMC, AECOM, and Dodsai. Our journey is marked by a relentless pursuit of excellence, delivering top-notch solutions in architecture, building, house exteriors, renovations, and industrial projects.

At Capstonees, we specialize in a diverse range of sectors, catering to airports, metro rail stations, master planning, landscape architecture, power system transmission, oil and gas facilities, bridges, water supply systems, highways, and building MEP engineering. Our extensive portfolio reflects our commitment to precision, quality, and client satisfaction.

As technology evolves, so do we. In our continuous quest to stay ahead, we are proud to announce our expansion into Building Information Modeling (BIM). This cutting-edge technology allows us to revolutionize the way projects are designed, constructed, and managed. By harnessing the power of BIM, we aim to enhance collaboration, streamline processes, and drive efficiency across all our services.

What sets us apart is not just our technical prowess, but our unwavering dedication to innovation and client-centric solutions. Our team of experts comprises architects, engineers, designers, and project managers who are driven by a passion for excellence and a commitment to delivering projects that exceed expectations.

Whether it's designing iconic structures, optimizing building performance, or implementing sustainable solutions, Capstonees is your trusted partner every step of the way. Join us on a journey of innovation, creativity, and unparalleled expertise as we shape the future of architecture and construction together.



Petrofac



TechnipFMC

AECOM Dodsai



Vision

Capstone highlights commitment to:

- **Sustainable growth:** This emphasizes not just their growth but the growth and success of AEC clients as well.
- **BIM technology:** Capstone focuses on BIM services for achieving sustainability.



Mission

Our mission is to leverage Building Information Modeling (BIM) to optimize the design, coordination, and construction of Mechanical (M), Electrical (E), Plumbing (P), and Fire Protection (F) systems within a building project.

Our BIM Drive



We are delivering best-in-class engineering solutions for global clients through Building Information Modeling.

Capstone is your trusted partner for AEC clients.

Target Future of BIM in MEPF



The target future of BIM in the MEPF market focuses on further integration, automation, and intelligence, aiming to:

- **Enhance collaboration and data exchange:** Seamlessly connect with architectural and structural models for holistic project management.
- **Automate repetitive tasks:** Utilize machine learning and artificial intelligence to automate tasks like clash detection, code compliance checks, and design optimization, freeing up human expertise for higher-level decision-making.
- **Integrate with advanced technologies:** Leverage technologies like virtual reality (VR) and augmented reality (AR) to facilitate immersive design reviews, training, and on-site construction guidance.
- **Embrace cloud-based solutions:** Foster real-time collaboration and accessibility of BIM models from anywhere, enabling remote work and project management.
- **Move towards 5D BIM:** Integrate cost estimating and scheduling data into the BIM model, allowing for 4D visualization of the construction process and 5D cost analysis for improved project budgeting and control.

- **Increased Government Mandates represent a growing 20-25% of countries globally actively promoting or mandating BIM use.**

The estimated cost savings from BIM adoption: 5-10% (Autodesk, 2022) (conservative estimate)

What is BIM?



Building Information Modeling (BIM) goes beyond traditional 2D drawings. It creates a collaborative 3D model enriched with data about every building element, from walls and floors to MEP systems and materials. This "single source of truth" empowers your entire AEC team for improved project outcome.

Why Choose Our MEPF BIM Services?

1. MEP System Design and Modeling

- We create 3D models of MEPF systems (HVAC, plumbing, electrical, fire protection) with precise details and accurate spatial relationships.
- Our engineers enable clash detection and facilitate design coordination, minimizing rework and delays.
- We generate accurate shop drawings and fabrication details, enhancing construction efficiency.

2. BIM Coordination and Collaboration

- We provide a central platform for all project stakeholders (architects, engineers, contractors) to share and access model information.
- Our team facilitates real-time collaboration and issue resolution, improving communication and project transparency.
- We enable efficient clash detection across disciplines, minimizing errors and ensuring a clash-free design.

3. Construction Sequencing and 4D BIM:

- We develop a 4D BIM model that integrates the construction schedule with the 3D model, visualizing the construction sequence over time.
- Our BIM team optimizes construction planning by identifying potential bottlenecks and enabling resource allocation based on the schedule.
- We improve communication and coordination amongst different trades, leading to a more efficient construction process.

4. Cost Estimating and 5D BIM

- We integrate cost data with the 3D model, enabling real-time cost tracking and budget monitoring.
- Our team facilitates the identification and evaluation of cost-saving opportunities throughout the design and construction process.
- Our engineers support accurate and reliable cost estimates, enhancing project financial control.

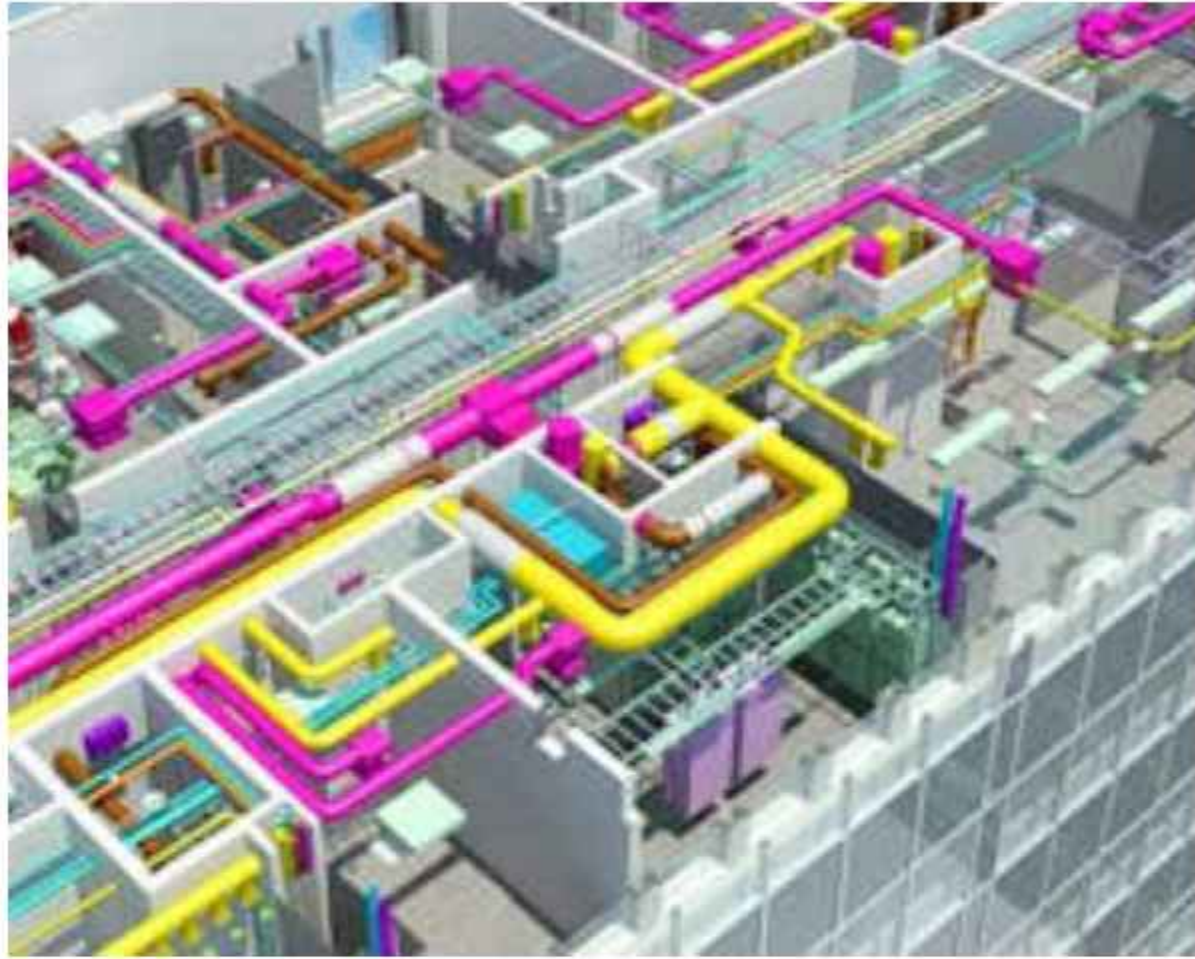
5. Building Performance Analysis and Sustainability:

- We enable the simulation of building performance metrics like energy consumption, thermal comfort, and daylighting.
- Our MEP team supports the optimization of MEP systems for improved energy efficiency and sustainability.
- We provide data-driven insights to inform sustainable design decisions and reduce the building's environmental impact.

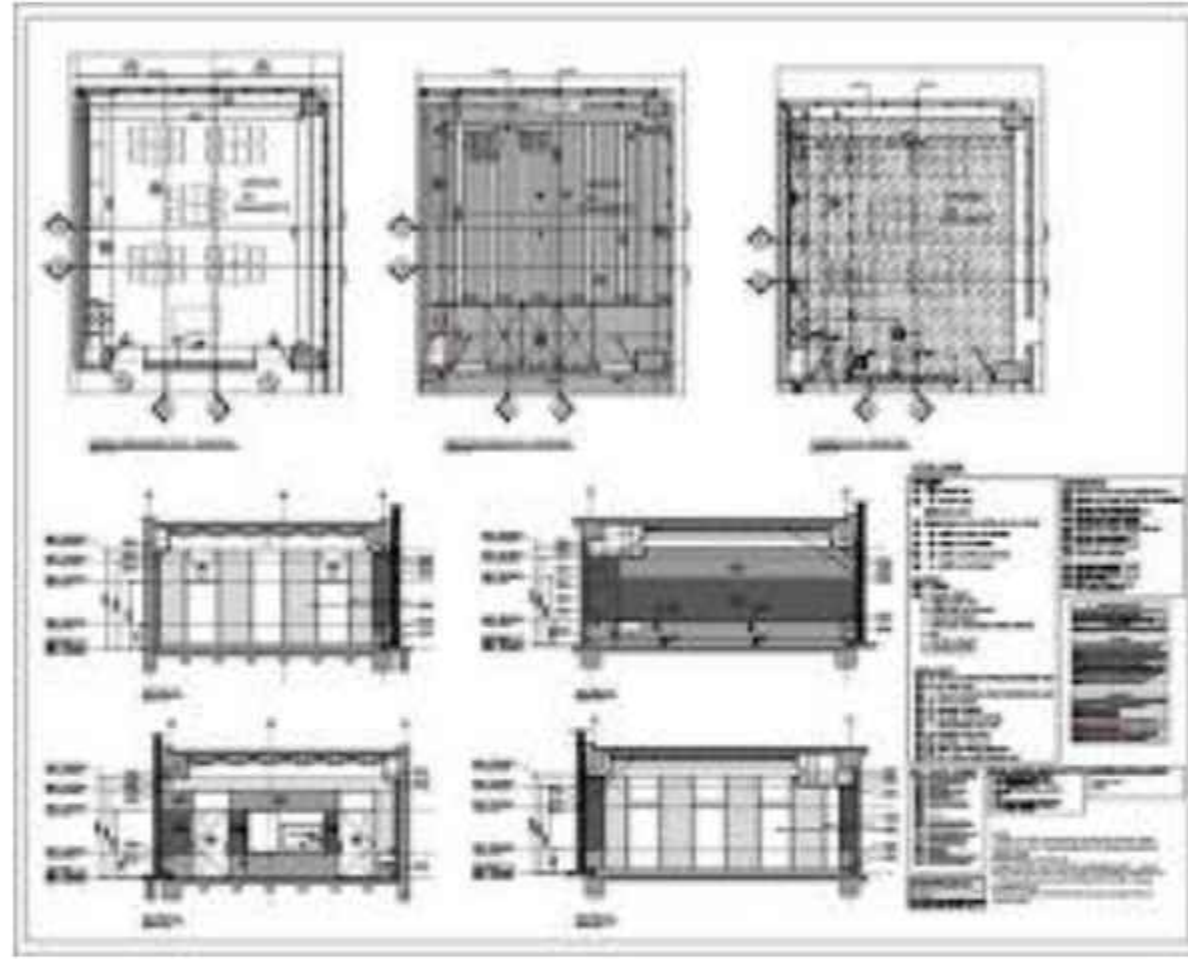
6. Facilities Management and BIM for Operations (BIM FM)

- We create and maintain as-built BIM models to support efficient facility management and maintenance activities.
- Our team provides accurate and detailed information about building systems, facilitating proactive maintenance and troubleshooting.
- We enable data-driven decision-making for future renovations and upgrade, improving building lifecycle management.

MEPF BIM Deliverables



**3D Model of a Building
with MEP Systems**

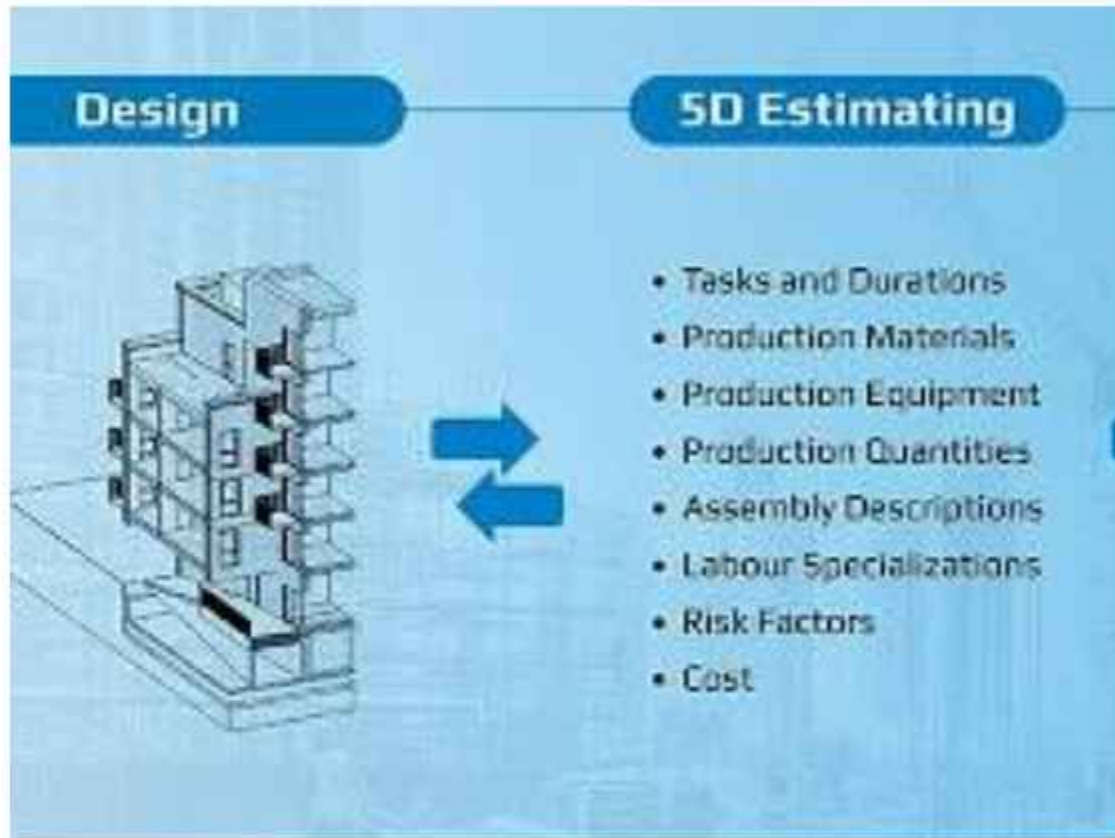


**Shop Drawings Generated
from a BIM Model**



**4D BIM Schedule
Visualization**

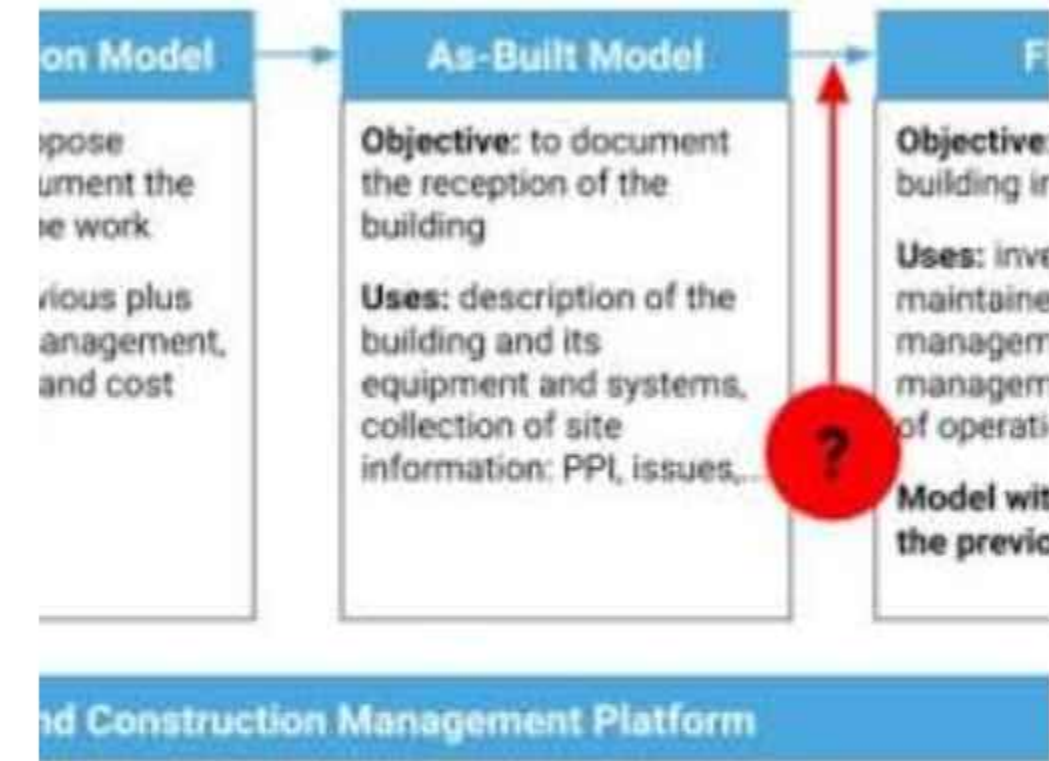
MEPF BIM Deliverables



5D BIM Cost Model



Building Performance Analysis Simulation:



As-built BIM Model for Facilities Management:

Benefits of BIM Implementation for MEPF Clients

Improved Design and Coordination:

Reduced rework and clashes

- Reduced rework and clashes: 20-40% [Source: AutoDesk white paper on BIM benefits]

Enhanced communication and collaboration:

- 15-25% [Source: McGraw-Hill Construction report on BIM adoption]

Increased Efficiency and Productivity:

Enhanced cost estimation

- Faster project delivery: 5-10% [Source: GSA BIM Guide for Owners]

Lower maintenance and operational costs:

- 5-15% over the building lifecycle [Source: USGBC report on the benefits of green buildings]

PORTFOLIO



High-Rise Buildings

The intricate nature of high-rise buildings, with their extensive use of vertical and horizontal load-bearing elements, demands precise coordination and clash detection. BIM facilitates this by creating a centralized model for all disciplines, minimizing errors and ensuring structural integrity.



Stadiums and Sports Complexes:

These structures typically entail large, open spaces with unique roof systems and heavy load requirements. BIM facilitates the creation of accurate models for complex geometries, facilitates load analysis, and helps ensure structural safety and efficient material usage.



Bridges and Infrastructure

Bridge and infrastructure projects often involve complex geometries, prefabrication, and integration with existing structures. BIM streamlines the modeling process, optimizes design for constructability, and enables efficient collaboration between engineers, contractors, and fabricators.



Prefabricated Construction

Prefabricated construction relies on off-site manufacturing and precise assembly on-site. BIM enables efficient design, production, and assembly of prefabricated components by providing accurate models and facilitating collaboration between designers, manufacturers, and assemblers.



Renovations and Historical Building Preservation

When renovating or preserving historical buildings, it's crucial to understand the existing structure and minimize disruption. BIM allows for accurate modeling of existing conditions using techniques like point cloud scans, facilitating informed design decisions and efficient integration of new construction elements while respecting the historical fabric.



Data center:

A well-organized cooling system layout for optimal server performance is emphasized in a Revit BIM model. BIM facilitated the design of a heat-dissipating layout, maximizing server lifespan and energy efficiency.



Sustainable building:

A 3D Revit BIM model showcases the integration of solar panels on the roof and geothermal wells for heating and cooling. BIM enabled the visualization and simulation of this sustainable design, optimizing energy usage and reducing the building's environmental impact.

MEPF Models Created in Revit BIM

High-rise office:

A detailed Revit BIM model showcases the intricate network of air ducts, plumbing pipes, and electrical conduits for efficient building operation. BIM facilitated clash detection, ensuring these systems don't interfere during construction, saving time and money.



Hospital floor:

A complex medical gas piping system with color-coded lines for safety is highlighted in a Revit BIM model. BIM enabled precise planning and coordination, ensuring the system adheres to strict medical regulations and patient safety protocols.



Residential house



A cross-section Revit BIM model reveals the precise placement of the HVAC system, including the furnace, air handler, and ductwork. BIM helped optimize the system's layout for efficient airflow and minimized noise transfer.

Contact Us:

**See your
vision come to
life. Partner
with our BIM
specialists.**

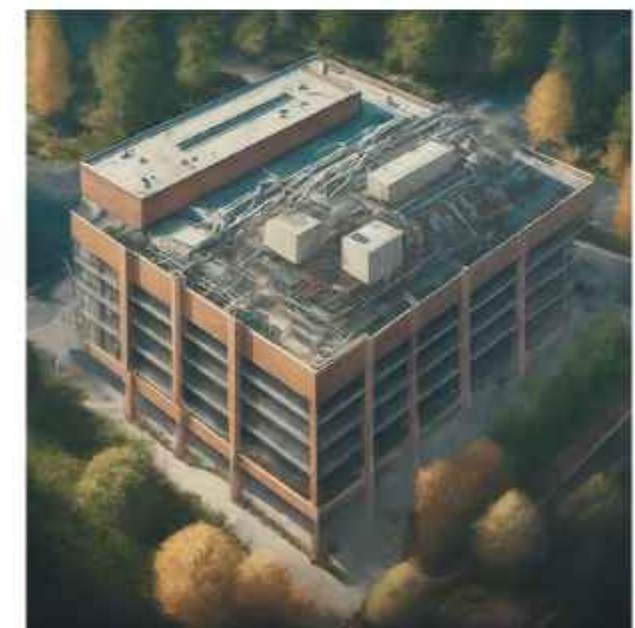
We depict innovative architectural forms, sustainable infrastructure, and seamless MEP integration through BIM – Optimize your project lifecycle with our cutting-edge design and construction technology.

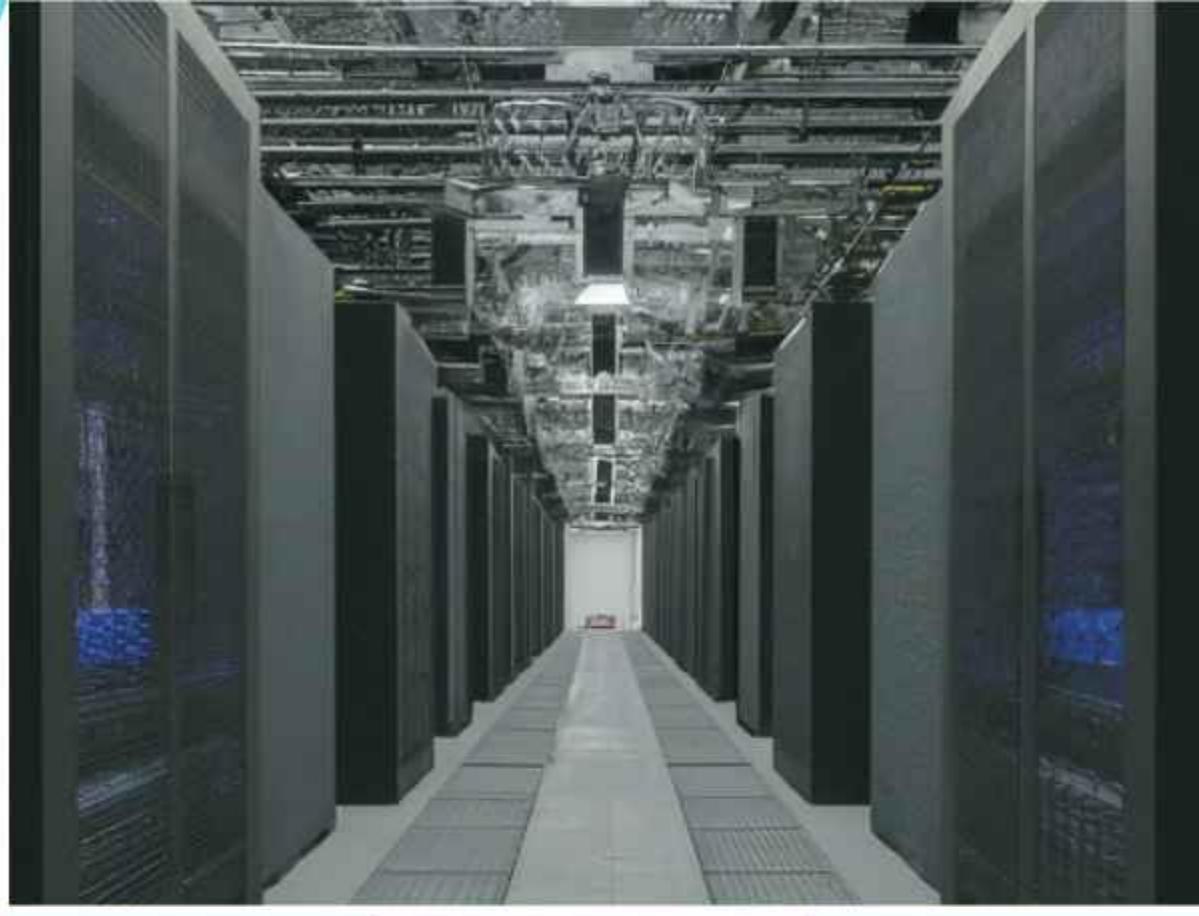
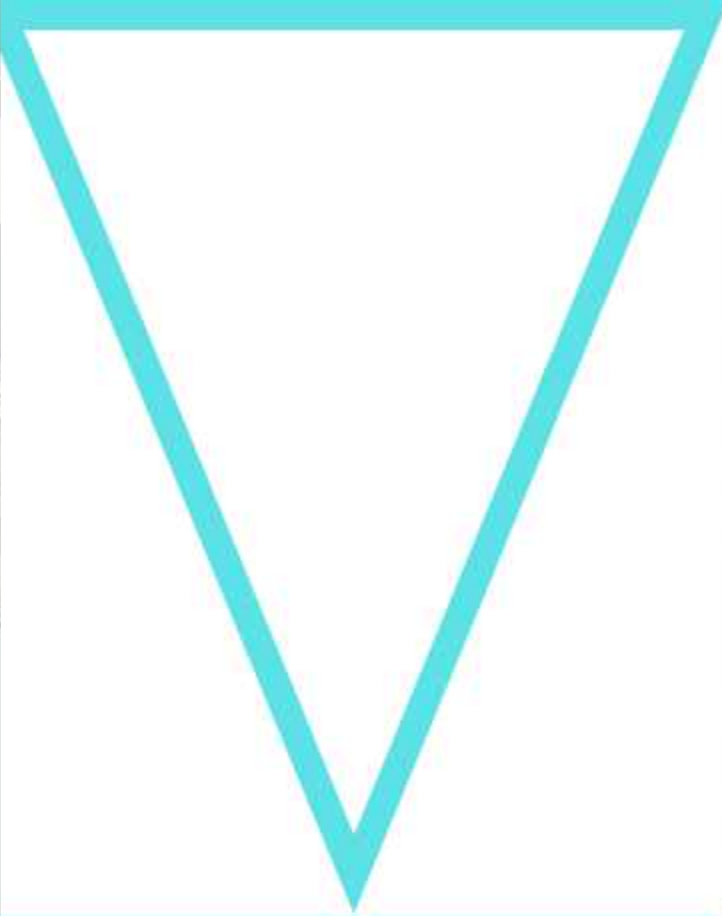
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Thank You

