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BUILDING INFORMATION MODELING

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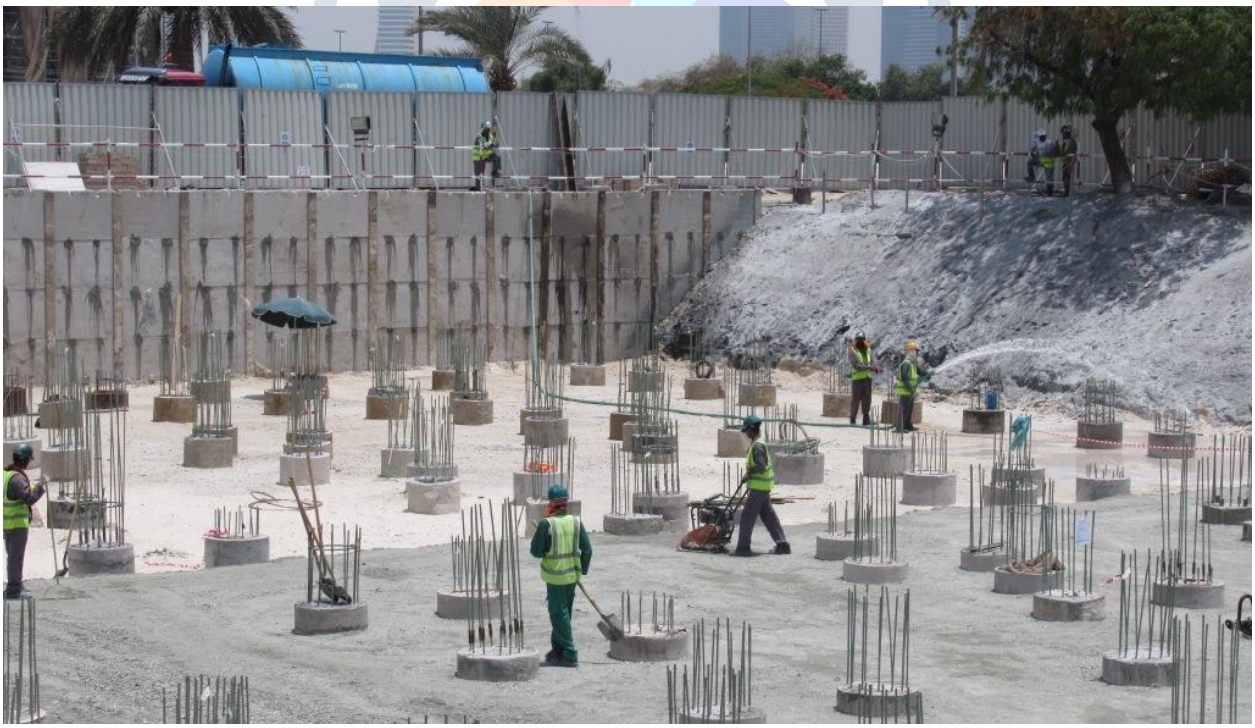
Abstract:

Building Information Modules (BIM) is a database application used to store and manage a building's information, such as floor plans, mechanical and electrical systems, and other related information. The application is designed to provide a comprehensive, integrated view of a building's information, and to facilitate collaboration between designers, contractors, and other stakeholders. BIM can help streamline the construction process, reduce risk, and improve the quality of the finished product. It can also help reduce the cost of construction by providing an efficient way to track and manage information. Additionally, BIM can be used to generate reports and simulations, as well as to visualize and analyse a building's performance.

I. INTRODUCTION:

Building information modules (BIM) is a new and rapidly growing field in the construction industry. It is based on the concept of using digital models of a building or other structure to facilitate the design, Construction, and management of the built environment. BIM is the technology-driven process that integrates data, processes, and people to enable collaboration, communications, and coordination among multiple stakeholders throughout the life of a project.

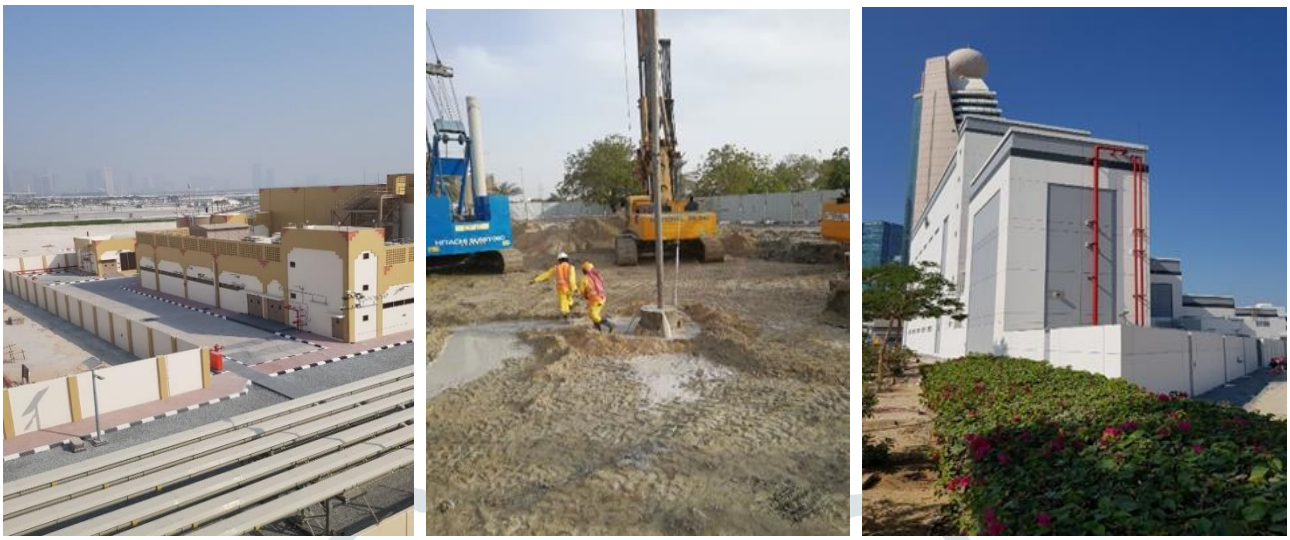


Building foundation processing details for RSHDPORT 132/11kV substation in Dubai.

BIM wash: "BIM wash" or "BIM washing" is a term sometimes used to describe inflated, and/or deceptive, claims of using or delivering BIM services or products. Also termed, "faking the BIM."

Interoperability and BIM standards: As some BIM software developers have created proprietary data structures in their software, data and files created by one vendor's applications may not work in other vendor solutions. To achieve interoperability between applications, neutral, non-proprietary or open standards for sharing BIM data among different software applications have been developed.

Management of building information models: - Building information models span the whole concept-to-occupation time span. To ensure efficient management of information processes throughout this span, The BIM manager is retained by a design-build team on the client's behalf from the pre-design phase onwards to develop and to track the object-oriented BIM against predicted and measured performance objectives, supporting multi-disciplinary building information models that drive analysis, schedules, take-off and logistics.



Construction of DEWA substations 400/132kV & 132/11kV substations in Dubai.

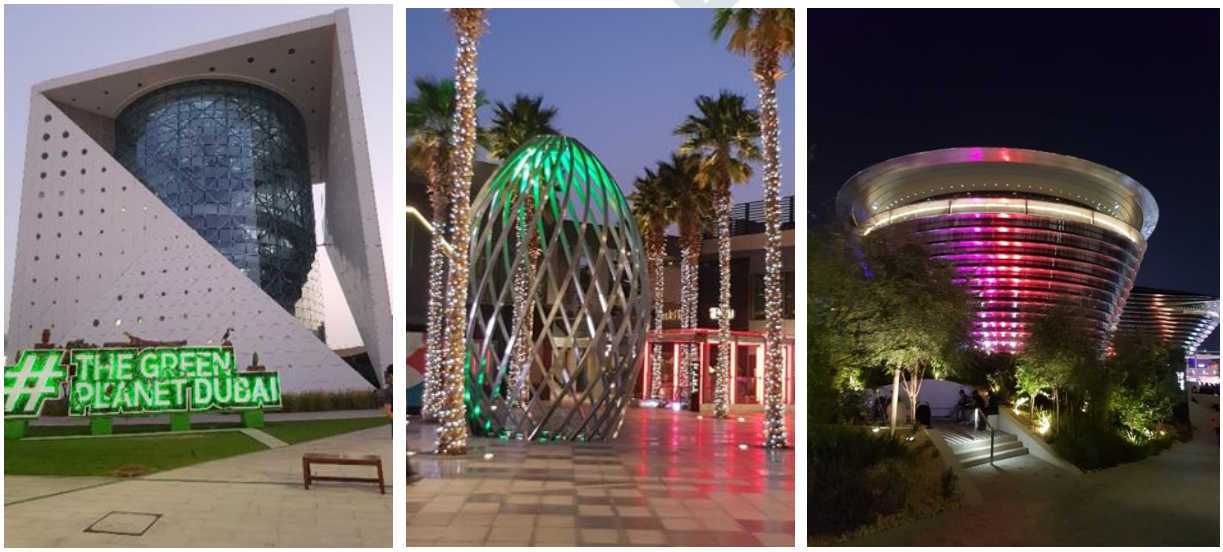
BIM in construction management: - The BIM concept envisages virtual construction of a facility prior to its actual physical construction, in order to reduce uncertainty, improve safety, work out problems, and simulate and analyze potential impacts. Sub-contractors from every trade can input critical information into the model before beginning construction, with opportunities to pre-fabricate or pre-assemble some systems off-site. Waste can be minimized on-site and products delivered on a just-in-time basis rather than being stock-piled on-site.

BIM in facility operation: - BIM can bridge the information loss associated with handling a project from design team, to construction team and to building owner/operator, by allowing each group to add to and reference back to all information they acquire during their period of contribution to the BIM model. This can yield benefits to the facility owner or operator.

Dynamic information about the building, such as sensor measurements and control signals from the building systems, can also be incorporated within BIM software to support analysis of building operation and maintenance.

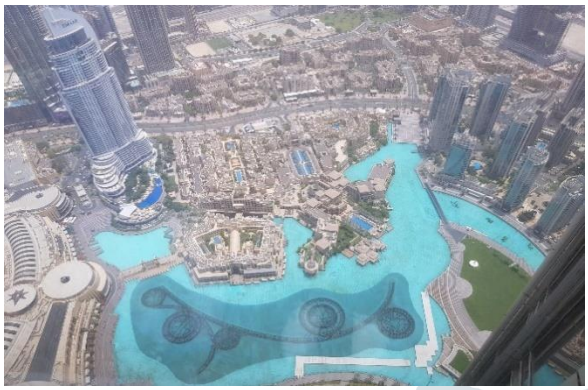
BIM is seen to be closely related to Integrated Project Delivery (IPD) where the primary motive is to bring the teams together early on in the project. A full implementation of BIM also requires the project teams to collaborate from the inception stage and formulate model sharing and ownership contract documents.

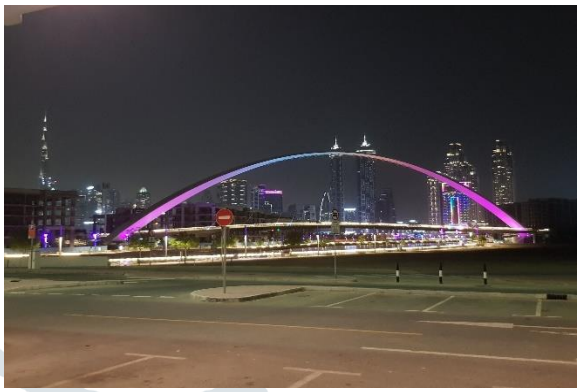
The American Institute of Architects has defined BIM as "a model-based technology linked with a database of project information", and this reflects the general reliance on database technology as the foundation. In the future, structured text documents such as specifications may be able to be searched and linked to regional, national, and international standards.



Usage throughout the project life-cycle: - Use of BIM goes beyond the planning and design phase of the project, extending throughout the building life cycle. The supporting processes of building lifecycle management include cost management, construction management, project management, facility operation and application in green buildings.

HISTORY: The concept of BIM has existed since the 1970s. The first software tools developed for modeling buildings emerged in the late 1970s and early 1980s, and included workstation products such as Chuck Eastman's Building Description System and GLIDE, RUCAPS, Sonata, Reflex and Gable 4D Series. The early applications, and the hardware needed to run them, were expensive, which limited widespread adoption.





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CONCLUSIONS:

BIM is an effective tool for improving the efficiency, accuracy, and quality of construction projects. It allows all stakeholders to have the same information, thus eliminating the need for multiple versions of the same data. BIM also provides a platform for collaboration, allowing stakeholders to share and analyze data in real-time. Additionally, BIM can help reduce costs and improve safety, as it can be used to identify potential design construction issues before they become costly problems.