

Building Information Modeling (BIM)

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1. Introduction

- **BIM:** a digital process for creating and managing information about a building across its life cycle.
- It produces an intelligent 3D model linked to data, not just drawings.

2. Key Concepts

- The model holds geometry plus data on materials, cost, and performance.
- **Parametric objects:** components carry attributes and rules that update automatically.
- A shared model supports collaboration across disciplines.

3. Dimensions of BIM

- 3D represents geometry; 4D adds scheduling and time.
- 5D adds cost estimation; 6D covers sustainability and energy.
- 7D supports facilities management and operations.

4. Benefits

- Improves coordination and detects clashes before construction.
- Reduces errors, rework, waste, and project cost.
- Enhances visualisation and informed decision-making.

5. Implementation and Challenges

- A common data environment stores and shares project information.
- Standards such as ISO 19650 guide information management.
- Challenges include software cost, training, and interoperability.