What Is BIM (Building Information Modeling)?

Worksheet

BIM is a collaborative process built around an intelligent 3D model that stores geometric and non-geometric data (materials, cost, schedule, performance) so architects, engineers, and contractors can design, coordinate, and manage a building throughout its lifecycle in one connected dataset.

Questions

1. What does BIM stand for?

A) Basic Interior Modeling
B) Building Information Modeling
C) Built Infrastructure Method
D) Building Integration Manual

2. A BIM investment of $50,000 yields $200,000 in savings. What is the ROI?

A) 150%
B) 300%
C) 400%
D) 250%

3. What is BIM 'clash detection' used for?

A) Checking budget overruns
B) Finding physical conflicts between building systems before construction
C) Scheduling worker shifts
D) Selecting paint colors

4. What does LOD 500 represent in a BIM model?

A) Conceptual massing
B) Design development detail
C) Construction documentation detail
D) As-built, field-verified condition

5. A BIM implementation costs $40,000 in software and training but avoids $180,000 in rework from clash detection. What is the ROI?

6. A BIM model shows a duct clashing with a beam. Resolving it in the model costs $500 versus $15,000 to fix in the field. How much is saved?

7. A firm finds 12 clashes per project on average, saving $8,000 per clash caught before construction. What are the total savings for one project?

8. Define: What does BIM stand for?

9. Define: How is BIM different from 3D CAD?

10. Define: What is 'clash detection'?

Answer Key

1. B) Building Information Modeling - BIM stands for Building Information Modeling.

2. B) 300% - (200,000 50,000) 50,000 100 = 300%.

3. B) Finding physical conflicts between building systems before construction - Clash detection finds where systems like ducts, pipes, and structure would physically collide.

4. D) As-built, field-verified condition - LOD 500 is the as-built level, verified to match actual field conditions.

5. ROI = (Savings Investment) Investment 100 ROI = (180,000 40,000) 40,000 100 ROI = 140,000 40,000 100 = 350%

6. Savings = Field cost Model cost Savings = 15,000 500 = $14,500

7. Total savings = Clashes Savings per clash Total savings = 12 8,000 = $96,000

8. Building Information Modeling - a data-rich 3D model used throughout a building's lifecycle.

9. BIM links geometry to information (cost, materials, schedule); 3D CAD is just shapes with no embedded data.

10. Using the BIM model to find where systems (structural, mechanical, electrical) physically collide before construction.