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# The BIM Phrasebook

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# WELCOME

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Building information modelling (BIM) is rapidly becoming a universally-applied tool within the construction industry and elsewhere. However, it is a field that is rife with technical jargon, industry-specific phrases, and acronyms that can be bewildering to the layperson.

So, for anyone encountering BIM for the first time or still finding their feet in this area, what follows is a glossary of some of the most commonly used, but easily misunderstood, terms used in the BIM sector.



## 3D/4D/5D/6D

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While 3-D obviously refers to three-dimensional geometry in other fields, in building information modelling the additional dimensions refer to data included in the model rather than spatial or mathematical dimensions. Generally, 4D means that the model includes construction sequencing information, while 5D adds cost information, and 6D adds project lifecycle information. However, the order is not universally agreed.

## Approved for Construction (AFC)

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This refers to drawings and documents that are reviewed and approved by authorities of internal and external organizations including the client team members of the construction. A Construction team must use only AFC marked or stamped drawings and documents for the construction works and activities.

# “all project stakeholders can access this data”

## Architect’s Supplemental Information (ASI)

Formal documents issued by the architect that provide additional information, instructions or interpretations. They are used to provide guidance during construction. ASIs are initiated by the architect, while RFIs are initiated by the contractor.

## BIM Execution Plan (BEP)

This is the ongoing outline and strategy provided by the BIM suppliers. It can be separated into a pre-contract and a post-contract BEP.

## Building Information Modeling (BIM)

Building Information Modeling (BIM) is a strategic approach to design and construction in which all project stakeholders collaborate using 3D modeling and the application of intelligence to that model to drive efficiencies, reduce risks and costly rework and waste, and create confidence in project delivery. For MEP contractors, BIM provides significant cost-savings benefits due to pre-planning, prefabrication, value engineering and coordination with other contractors.

## Bill of Materials

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Lists the name, reference number, quantity and unit of measure of all raw materials, sub-assemblies, intermediate assemblies, sub-components, components and parts needed to complete a contract or an order.

## Common Data Environment (CDE) / Project Share Point

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This is the one-stop location for all the shared data relating to a project, usually stored on an online cloud-based site. All project stakeholders can access this data to facilitate collaboration, but individual intellectual property rights are still maintained.



## Constructible Model

A coordinated model which includes all the data and detail required to inform and instruct the stakeholders involved in the construction of a building. The constructible model would be fully coordinated and depending on the LOD requirement may include fabrication level detail from intelligent manufacturer derived assets.

## Construction Operations Building Information Exchange (COBie)

The COBie is a spreadsheet containing non-graphic information from the building information model, of which it is considered a subset. This could be described as asset data not relating to the physical dimensions of the project. This spreadsheet can be collectively accessed and added to over the course of the project's lifecycle.

## Design-Build (DB)

A project delivery method in which a single entity, the design-builder, is contracted to provide design and construction services. Design-build aims to reduce risk and delivery time by unifying the flow of work from initial concept through completion.

## Design-Bid-Build (DBB)

A project delivery method which splits design and construction services into separate contracts that are fulfilled by separate entities.

## Design-Build-Operate (DBO)



Design-build-operate (DBO) is a project delivery method in which a single private entity is contracted to design, construct and operate a new major construction project. The goal of a DBO is to streamline and improve the traditional design-build (see design-build) approach by taking long-term efficiencies and cost savings into account.

## Digital Terrain Model (DTM)



Digital Terrain Modeling (DTM) is the practice of creating a digital representation of land typography that contains elevations of natural terrain features such as barren ridge tops and river valleys. A DTM is effectively a digital elevation model, a model of the bare ground surface without any objects like plants or buildings, that has been augmented by elements such as breaklines and observations. DTMs are usually created using photogrammetrically derived linework introduced into a DEM surface.

## Facilities Management (FM)

Facilities management (FM) is a professional role that encompasses multiple disciplines to ensure the maintenance and functionality of an organization's built environment. FM is done through the integration of people, place, process, and technology.

## Federated Model

A federated building information model is one where several pre-existing models have been combined to create one complete source of information on the project.

## Integrated Project Delivery (IPD)

Integrated Project Delivery (IPD) is a collaborative approach to project delivery that integrates people, systems, business structures and practices to employ the talents and insights of all participants. The goal of IPD is to create a process that optimizes project results, reduces waste, increases value to the owner, and maximizes efficiency through all phases of design, fabrication, and construction.

## Isometric Drawings (ISO)

Isometric drawings are full-scale 3D drawings. An isometric drawing shows all

## Industry Foundation Class (IFC)

A standard format used in BIM to allow free exchange of information between different software programs. The IFC is a data model that was developed by buildingSMART International as a means to create a standard for data that is platform neutral, uses an open file format specification and is not controlled by a single vendor.



## Issued for Construction (IFC)

Drawings and documents which are prepared by a registered professional of record to reflect design changes made during the construction of a project.

## Level of Accuracy (LOA)

Level of Accuracy is a guideline for specifying the accuracy of building documentation. It is a common set of standards used by professionals in the Architectural, Engineering, Construction, Owner (AECO) industry that aims to create clarity and consistency in building documentation so that those employing it will achieve the accuracy results they require.

## Level of Development (LOD)

The depth of thinking applied to a building model. The level of development refers to the reliability of the model. It helps communicate the level of clarity and reliability of Building Information Models (BIM) throughout different phases in the construction project. The LOD helps define model deliverables, milestones, and handoffs.

## Private-Public Partnership (P3 or PPP)

A public-private partnership (P3) is a project delivery model that expands on the advantages of design and construction collaboration of design-build models (see design-build). A P3 is a contract between a public entity and a private sector entity that focuses on improving project efficiencies and aims to serve and benefit the public.

## Proposal Request (PR)

A proposal request (PR) is a document issued by the architect to inform the contractor of a cost or schedule change that will affect the project. The contractor will review it with their subcontractors to finalize the price and/or number of construction days that reflect the change in scope to the project.

## RACI Matrix



This matrix is used to establish the level of responsibility of an individual within a project. RACI is an acronym that stands for: responsible, accountable, consulted, informed. Different parties will fall under different headings, with the responsible section indicating the individuals that have overall direct responsibility for the project and descending from there. It is also sometimes utilized to represent: responsible, authorized, contribute, informed.

## **Request for Information (RFI)**

A standard business process for collecting written information about the capabilities of various suppliers. RFIs are typically used for gathering basic information and identify next steps. RFIs are initiated by the contractor, while ASIs are initiated by the architect (see ASIs).

## **Request for Proposal (RFP)**

A request for proposal (RFP) is a document used by an organization to solicit bids for a particular project. An RFP is issued early in the procurement process and is often used to collect information on supplier

## **Spacial Allocation**

In BIM, spacial allocation is defined as a manageable spatial subdivision of a project, agreed on at the outset and with its own reference file, allowing more than one person to work on the project simultaneously and consistently.

## **Statement of Work or Scope of Work (SOW)**

A statement of work or scope of work (SOW) is a formal document that describes the work requirements for a specific project. A SOW clarifies project deliverables, costs, and timeline and aims to define the liabilities, responsibilities and work agreements between two parties.

## **Virtual Design and Construction (VDC)**

Virtual Design and Construction (VDC) leverages technology and project methodologies to both define and integrate the design, construction and operation processes for project stakeholders. In a VDC project, the architectural, structural and MEP models are all coordinated in “virtual” space (i.e. on the computer) prior to construction starting. This integrated model offers many values including an environment for easier and more informed collaboration, better coordination of trades for scheduling and ultimately tighter control of budget and delivery times.

## **Work Breakdown Structure (WBS)**

An outline or map of the specific project. A work breakdown structure starts with the project as the top-level deliverable, then breaks this down into major deliverables with sub deliverables and tasks. In MEP, the Work Breakdown Structure breaks a major deliverable such as plumbing modeling into the specific systems to be modeled, such as chilled water, hot water, return etc.





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Tel: 1-800-234-3758

Email: [mep@buildings.trimble.com](mailto:mep@buildings.trimble.com)

Website: [mep.trimble.com](http://mep.trimble.com)

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