

Construction 4.0 Series

[4] Understanding BIM Level of Development (LOD)

Last month, we looked at the Dimensions of BIM. In this month's issue, we explain the different Level of Development (LOD) in BIM. BIM is a very broad process of creating and managing digital information about a built asset. The type of information becomes more complex as the project progresses from design stages to completion and handing over of complete datasets to the client. LOD was first introduced by the American Institute of Architects (AIA) in 2008 to define different levels of development which dictate the detailing levels required in a BIM model. The LOD specification helps designers define the inherent characteristics of the elements in a model at different stages of development. The clarity in illustration gives depth to a model, signifying how much and at which level someone should rely on a model's element. There are now six levels of development as detailed below:

LOD 100 – Conceptual

This is a 3D representation of the building with basic information. A conceptual model is obtained at this stage whereby parameters such as location, orientation, area, height, and volume are roughly defined.

LOD 200 – Schematic Design

This is the phase where the conceptual design will be transition into a data-rich model. The model contains approximate quantities, size, positioning, and system relationships of the objects will be included. Each BIM object is assigned with preliminary information.

LOD 300 – Detailed Design

At this stage, the model will contain accurate parameters as per what will be constructed. Accurate object dimensions, capacities, and connections defined. Individual objects are coordinated, and clashes identified at this level.

LOD 350 – Construction Documentation

The model now includes more details and show how the elements interact with one another and building systems. The elements are clearly represented in the model with clear graphics and written definitions. Actual sizes, connections, fittings and branches are included for building services, elevation other structural elements must be accurately represented.

LOD 400 – Fabrication and Assembly

At LOD 400 is achieved when fabrication and assembly can be driven directly from the model. Fabrication, assembly and installation details must be included at this stage.

LOD 500 – As-built

Elements are modeled as constructed assemblies for operations and maintenance. All elements are as per actual and accurate in size, shape, location, quantity and orientation. BIM objects are populated with actual specifications and details.