Specifi

Technical Publication

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BIM - Level of Development (LOD)

Level of Development is made up of two parts. LO-Detail and LO-Info.

LO-Detail refers to the 3D or geometrical information in a BIM model and the extent of its detail when it's drawn. For example, a solid works engineering design contains a high LO-Detail. A simple 3D cube represents a low LO-Detail.

LO-Info refers to the extent of information contained within a BIM model. Low LO-Info could be a BIM model wich only contains a few identification parameters like Model Number and Dimensions. High LO-Info is displayed in BIM models which have all the parameters relative to the appliance added to the BIM model.

"The Level(s) of Development (LOD) describes the level of completeness to which a Model Element is developed" The American Institute of Architects (AIA) developed the concept further in AIA Document E202 – 2008 Building Information Modelling Protocol Exhibit.

Level of Development is used by the design team in a construction project to establish the extent of both 2D/3D information and the associated meta data for project collaborators. It is important not to confuse LOD with level of detail or level of information which describe the 2D/3D and data aspects of level of development respectively. The AIA (American Institute of Architects) and the RIBA (Royal Institute of British Architects) through its subsidiary enterprise The NBS have established protocols to describe LOD and the various extents of required/expected information. This information is a guideline and can vary depending on the outlines of a project in the BIM execution plan.

LOD 1 (UK) or LOD 100 (US)

LO-Detail

Diagrammatic or schematic model elements which can be primitive 3D or 2D symbols. The minimum requirement may involve showing the existence of an element without particular reference to shape or precise size.

LO-Info

A basic indication of what the object may be in the form of a description of general classification.

Purpose- Conceptual

*unless specifically required, LOD 1 is unlikely to be required for most Foodservice design projects.

LOD 2 (UK) or LOD 200 (US)

LO-Detail

The model may be repented as a crude 3D assembly with allusions to size and configuration. The model can be a recognisable component, for example an oven with a box shape square legs and round burners or can function as a place holder.

LO-Info

As per LOD 1

Purpose- Space holder / Approximate Geometry

LOD 3 (UK) or LOD 300 (US)

LO-Detail

A developed model to provide information for a more developed design. Key information such as door swings, service zones, floor clearances and counter heights should be demonstrated. This LOD can be used to provide a sub-contractor brief by illustrating size and location and is accurate enough to be measured from.

Level of Information

As per LOD 1

Purpose- More Precise Geometry / Can Inform Sub-Contractor Tender Information

LOD 4 (UK) or LOD 400 (US)

LO-Detail

The model has enough accuracy to inform and permit for the fabrication process in the case of manufactured products this would mean information for installation such as delineated service connections and entry heights. It should also include information which can affect other elements of the design such as a drop in element into a table.

LO-Info

This is the point when it is likely that a product has been selected or that the criteria has been narrowed down. Information such as the manufacturer and model, the services information and other technical specification required for specifying equipment

Purpose- Fabrication / Specification

*It is ill advised that mesh geometry is used unless the product has been specified or into the later phases of the design process. This is due to the lack of flexibility it provides when compared to other model content

LOD 5(UK) or LOD 500 (US)

LO-Detail

The model should be as close to the equipment which will or has been installed while being mindful of file size. Models should include all information required from this point for the life cycle of the product and for use by facilities management personnel.

Lo-Info

Information about the actual product, who installed it and when, warranties etc. (This is also covered by COBie specifications).

Purpose- As-Built / Useful for Life-Cycle Management

References- AIA BIM protocol document, *G202–2013, BIM FORUM Level of Development Specification 2016, NBS BIM ToolKit, NATSPEC BIM Paper NBP001 November 2013*