



Enhanced Levels of Development to Aid Project Delivery

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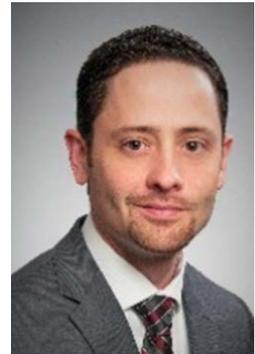
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Summary

The concept of Level Of Development (LOD) for Building Information Models (BIM) is well developed in many countries including the United States and the United Kingdom. Current LOD attributes focus on the architectural and engineering attributes of the modelled objects, such as material grade, finish, colour, weight, power consumption, etc.

This paper describes a proposed enhancement to expand LODs to include 1) procurement, the purchasing of material and equipment, as well as 2) construction planning and execution activities. Examples of the proposed Procurement and Construction LODs from level 100 to level 400 are given.

Keywords: Building Information Modelling (BIM); Level Of Development (LOD), procurement, construction.

1. Introduction

Level of Development is a measure of the completeness of information associated with an object contained in a Building Information Model. The United States based BIM Forum provides guidance on Level of Development (LOD) for use with the American Institute of Architects', Project Building Information Modelling Protocol Form (G202).¹ Form G202 is essentially a standard contracts for delivering a project using BIM. The BIM Forum's LOD is a reference that enables practitioners in the Architecture, Engineering and Construction (AEC) industry to specify and articulate, with a high level of clarity, the content and reliability of Building Information Models (BIMs) at various stages during the design and construction process. This clear articulation allows model authors to define what their models can be relied on for, and allows downstream users to clearly understand the usability and the limitations of models they are receiving.²

The British Standards Institution in a Publicly Available Specification, PAS 1192-2, provides a protocol for information management during the capital/delivery phase of construction projects using building information modelling. The following terms are defined in this document; Levels Of model Detail (LOD) as a description of graphical content of models at each of the stages, and Levels Of model Information (LOI) as a description of non-graphical content of models at each of the stages. Levels of model definitions are discussed at seven project stages; Brief, Concept, Definition, Design, Building and commission, Handover and closeout, Operations.³

The Royal Institute for British Architecture (RIBA) provides a BIM overlay to their standard plan of work which is complementary to PAS 1192. RIBA defines Work Stage A through M; Appraisal, Design Brief, Concept, Design Development, Technical Design, Production Information, Tender Documentation, Tender Action, Mobilisation, Construction to Practical Completion, Post Practical Completion, Model Maintenance & Development. Six general phase of project delivery; Preparation, Design, Pre-Construction, Construction, and Use are associated with complementary "data drops" i.e. transfer of information.⁴