



DESIGN IS GOOD BUSINESS

It doesn't just add value; it multiplies it.



Your building can do much more than keep the rain off your business; it can advance your business plan. To capture the full value of your capital program, you will do well to engage your architect in a discussion of your business goals, with your business leaders.

BIM and the Afterlife of Construction Documents

It used to be that, once a building was constructed, the construction documents—the plans—were rolled up and put on a high shelf, to lie unseen until a major repair or renovation arose. With the advent of Building Information Modeling (BIM), that's changed. Digital documents incorporate a far greater wealth of information than ink lines on paper. Not only can they record the location, dimensions, and material specifications of building elements, they can also incorporate their functional characteristics—the light transmittance of a pane of glass or the speed settings of a fan.

For the building owner and facilities operator, this information can be extracted and employed in an ever-increasing range of ways. Some are simply quantitative: if you want to know how

Library

- [Savings by Design](#)
- [The Business Case for Green Building](#)
- [Green Schools Investment Guide](#)
- [The Technical Feasibility of Zero Net Energy Buildings in California](#)
- [The Dollars and Sense of Green Retrofits](#)

much paint you'll need to repaint a dozen classrooms, the model can tell you how many square feet of wall surface are involved. Others are more sophisticated, as when the model serves as the platform for building automation software, optimizing, for example, energy use for heating and cooling, in real time.

To be able to make effective use of a Building Information Model in your building's operations, it's helpful to understand a few basic things:

Many Authors, Many Elements

Like most construction documents, whatever the format, Building Information Models have many authors—the architect, various engineers, the contractor, subcontractors, and others. The Building Information Model is also made up of many different model elements—a portion of the model representing a component, system or assembly within a building or building site. To keep track of who's responsible for what, each model element is identified with its author.

Levels of Development

Whether produced using Building Information Modeling or pencil and paper, the design of each element of a building advances through stages, from rough layout to detailed specification. To keep track of the progressive development of many model elements by many authors, the AIA California Council's Integrated Project Delivery working group proposed a concept that has become an industry standard, called "level of development" or LOD, which defines what information in a model element may be reliably used. This concept has become an integral part of the AIA's Digital Practice Documents, which define five levels of development:

LOD 100: information that doesn't specify size, shape, location, or orientation. Example: sixty foot-candles of lighting.

LOD 200: a generic system, object, or assembly with approximate quantities, size, shape, location, and orientation. Example: round, LED downlights at four feet on center.

LOD 300: a specific system, object or assembly in terms of quantity, size, shape, location, and orientation. Example: an exact number of a particular model of LED downlight, precisely

located.

LOD 400: a specific system, object, or assembly in terms of quantity, size, shape, location, orientation, and interfaces with other building systems. Example: an exact number of a particular model of LED downlight, precisely located, with installation details.

LOD 500: a field verified representation in terms of size, shape, location, quantity, and orientation. The element that is field verified can, itself, be at any LOD.

It's important to note that only model elements can be assigned levels of development; the Building Information Model as a whole will contain elements at different LODs.

Authorized Uses

"Authorized uses" are those for which the information in the model element can be relied upon, as determined by the model element's author. There are two reasons that authorized uses need to be defined. The first is that, at any moment of a model element's development, some of the information contained in it will have been fully thought-out and determined, while other information won't. For example, the author may insert a light fixture from a manufacturer's object library as a placeholder for a light fixture of that sort, to be specified later. If the author designates the model element to be at LOD 200, anyone using the model knows to rely upon it only "as a generic system, object, or assembly with approximate quantities, size, shape, location, and orientation."

As explained in the AIA Guide to Document E203—2013, the second reason for defining authorized uses is "to address the fact that the possible uses of a Model (and all the information included in the Model) are potentially limitless. This has caused significant concern to design professionals that their work may be used for unintended purposes. This concern has led to the proliferation of onerous disclaimers essentially stating that, while the Model is being shared, it cannot be used or relied on. To address this issue, the LOD framework allows the Project Participants to identify 'Authorized Uses' for the Model content at each LOD."

Why Are These Concepts Important to Building Owners and Operators?

To end up with a Building Information Model that will do the

things you want it to do, it needs to be developed with your ends in mind. It's important that the agreements you enter into with your architect, your contractor, and others specify the levels of development and authorized uses that will best support your ongoing use of the model for building operations. And, of course, it's important that the authors of the model be appropriately compensated for their contributions to it. The AIA's Digital Practice Documents offer an effective set of tools for making it so.

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2015 AIACC Merit Award for Interior Architecture, NOAA Daniel K. Inouye Regional Center, Pearl Harbor Ford Island, HI, HOK. The facility consolidates over 800 people from around the island in a state-of-the-art sustainable research and administrative campus rooted in the federal agency's mission, the cultural traditions the Pacific Region, and the island's ecology.

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