

BIM Advancements Fulfill Contractors' Needs



From the start, building information modeling (BIM) primarily favored architects. Already on the horizon, however, are BIM platforms with graphical modeling capabilities that can look deeply into a project's timeline and determine real costs, materials and construction options. In other words, it's the contractor's turn to capitalize on the advantages of BIM.

This second, "macro" wave of BIM offers graphic modeling for the comprehensive, start-to-finish treatment of a building project. It includes industry-leading data provisions like RS Means' 18,000 assemblies and 180,000 line items. Some technologies offer green building

options, like products from FutureStone, and others integrate with popular applications, such as Sage Timberline.

BIM for contractors also works with the leading platforms for "micro" BIM modeling already leading the industry, such as Revit, Bentley and others.

THE BOTTOM LINE

New BIM technology improves estimating by delivering parametric costing details. For example, side-by-side comparisons with traditional estimation measures show that up to 92 percent of non-billed time is unnecessary. Total cost variations stay within one percentage point.

If an initial design concept is over budget, building team members can change the model and receive instant cost and visual feedback. This potentially reduces the need to spend time and money on additional technical consultant reviews.

According to the National Institute of Standards and Technology, the U.S. AEC industry loses \$15.8 billion per year because of the gap between early planning and building completion. Architects and general contractors agree that separate plans seldom, if ever, match up.

New BIM technology transforms typical sequential decision-making and eliminates the disparity between plans. As a

result, the value of a general contractor's participation rises, and an architect's presumptions about construction factors do not go unchecked.

HOW IT WORKS

After the conceptual design is determined, a BIM modeler creates a digital parametric model. Some BIM software provides building type templates with correlating material choices and processes. A modeler also can work from a firm's own templates and data.

The model generates conceptual cost and estimate information. Inputting the project's zip code links the contractor to accurate regional data. Additionally, BIM creates custom line items or assemblies.

Switching from 3-D to 2-D and detail cost views is easy and aids follow-up presentations to owners, investors and community groups.

During design charettes or public hearings, a modeler can perform takeoffs or pursue what-if scenarios. Alternative building shapes, the number of floors, different materials and sustainable designs can be incorporated with accompanying cost estimates.

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The data can be transported to a pro forma document or standard worksheets to consider operating income and expenses.

CASE IN POINT

Several projects serve as examples of BIM's speed and precision for estimating designs. Plans for Two Alliance Center, a 20-story, 558,000-square-foot Class A office tower in Atlanta, included macro estimates by The Beck Group, the general contractor. Using a leading macro tool, Beck generated a detailed graphic representation mirroring the architect's AutoCAD design.

This resource can adapt to other applications to generate costing information and isolate potential problems. Beck determined under-building parking

was not feasible because column spacing greatly limited parking. In half a day, Beck re-modeled the structure for a stand-alone parking garage on a property next door. The redesign saved \$6 million that went toward the land purchase.

In another example of BIM's design-build integration, Leon LaJeunesse, a contractor in Lake Zurich, Ill., sought a BIM product for overall system analysis and planning.

"We were looking for tools to deliver more information early on in the design process with information that was auditable, not just [providing] cost per square foot," LaJeunesse says.

"The problem with the traditional way is when you come up with quantity and pricing, you have to redesign the project. It takes a lot of time you probably don't have. You can miss the market because you didn't know the budget. This gives me a lot of flexibility because I can model it in 3-D."

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