

THE RACE FOR BIM

By Michael Gillum

Building information modeling (BIM) is becoming the norm for how large general contractors create estimates, track projects, and calculate costs. There is little doubt that in a few years, small to mid-size subcontractors who do not use BIM will not be able to bid on larger projects.

Growth-oriented subcontractors must start implementing BIM now, or risk being shut out later. Here is a quick primer on what BIM is, emerging BIM trends, and the steps contractors should take to ensure a smooth transition to a robust BIM program.

BIM: A PRIMER

BIM is a business management process that uses software to design and develop scaled 3-D models of a structure's components and systems, including material quantities and properties. It can be used throughout the building's life-cycle—from estimation to construction to operation—to track progress and maintenance.

The models are built from databases of material and labor items, which are compiled and kept current by the various BIM software vendors. In theory, engineers, architects, contractors, and other building partners can use BIM software to easily share, update, and edit project models.

Because there are no standards for BIM file formats, cost codes, or work breakdown structure (WBS) codes, work flow is seamless only when all of the partners on a project use the same vendor's BIM package.

With every vendor creating its own data and file format, exchanging information between competing BIM systems is hard, if not impossible. To address this, BIM vendors sell "read-only" licenses that allow smaller contractors to open and view models produced by larger partners.

However, the licenses—which are costly in their own right—do not support model design or editing. Smaller contractors get access without manipulation, forcing them to map changes separately or estimate manually, which drives up costs and the potential for human error.

IMPLEMENTING BIM

Some vendors, such as Maxwell Systems, are leveling the playing field by developing BIM import and export technology, despite the lack of standards. In 2008, it is certain that some construction software tools will allow small and mid-size contractors to do more than simply view BIM models from large contractors.

For example, Maxwell Systems is integrating BIM interoperability into Maxwell Systems Quest Estimator™ and will eventually be adding the same functionality to Maxwell Systems Estimation™ Logistics. With these enhanced features, small to mid-size contractors will be able to import, view, modify,

and export BIM models from large contractors, helping them remain competitive and relevant, without breaking the bank.

Maxwell Systems certainly will not be the only provider to break the BIM barrier. Small and mid-size contractors will have to decide which provider's solution best meets their needs and budget. To that end, here are some suggestions for sourcing a BIM solution, and laying the groundwork for future success:

- **Get integrated.** Many contractors rely on several stand-alone programs to address a range of operational needs. These disparate packages cannot share core business data, let alone BIM models. Company data is trapped, requiring manual data entry, or tedious import and export and field mapping to move information between systems. Avoid creating another information silo. Instead, use the move to BIM as a catalyst to streamline operations with a complete end-to-end business management application. This will centralize business processes in a common system, including BIM. With a click, data can be moved seamlessly between accounting, project management, estimation, modeling, and other systems.
- **Get 3-D.** Make certain the software's BIM facilities support 3-D graphics and 3-D digital assemblies. This helps contractors get a full 360-degree view of project plans. It can also be a useful sales tool during the bid process. Drill into existing and future 3-D capabilities. For example, more sophisticated 3-D capabilities combine component graphics into a unified view, allowing contractors to do virtual walk-throughs of projects. And the most sophisticated systems will add a fourth dimension: time. For example, an upcoming release from Maxwell Systems will allow contractors to create "what if" scenarios that visually illustrate how project elements are affected when time frames are expanded or reduced.
- **Get a partner.** Enlist the help of a qualified solution provider to speed implementation and minimize risk. The first step is to identify the company's needs and develop an outline of desired results, such as integrating BIM into estimating. Then develop a short list of potential solution providers. Trade shows, online forums, peer networking, and Internet searches are the obvious first steps to narrowing the list.
- **Get answers.** Once a short list has been developed, get satisfactory answers to the following questions:
 1. **Industry applicability:** Does the provider's solution address the specific needs of the construction market segment?
 2. **Cost:** Does the product's licensing model fit the proposed budget? If not, does its feature set justify additional expense?

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3. Credentials: Is the provider a member of accredited industry associations? Can it provide at least five references from current customers?

4. Experience: How long has the provider been developing, marketing, and supporting construction software? How long has it been supporting BIM? How many customers has it served? How many are using its BIM facilities?

5. Availability: Can the provider's tech support team be contacted and asked more questions? How helpful, knowledgeable, and engaging are the provider's sales representatives? What are its tech support policies? What tech support facilities are available (phone, online, e-mail, etc.)?

6. Implementation: How long will it take to deploy the solution, from day one to finish? What additional computing infrastructure, if any, will the organization have to purchase, configure, and deploy? What are the estimated time-to-results and return on investment?

- **Get ahead.** Know what technologies are likely to appear down the road, and make certain whatever solution opted for is committed to keeping the business current. For example, all BIM solutions use proprietary file formats often dubbed .TIN or .BIM. Some providers are looking at using XML, an open standard, to foster seamless interoperability that eliminates import and export requirements. Other providers are eyeing support for wireless PDAs that allow convenient viewing of models in the field. Still others are or will be offering dual monitor support that lets managers view more project files at once.

BIM'S IMPACT

BIM delivers flexibility. The more information contractors can extract from BIM files, the more accurate their estimates will be. BIM will also open the door for smaller contractors to become one-stop design and build shops, and work directly with owners to keep costs low and customization high.

Overall, the benefit is improved profits. BIM integration will deliver the visibility, productivity, and cost management that drives success. Any contractor that puts BIM into use today will be ahead of the pack tomorrow. ◆