NEW NEIGHBOR: HS-MDT Home Solutions builds homes in paradise.

FULL DIMENSIONS: Why building information modeling is taking root.

Under Way in Queens

GTF JOINT VENTURE → p.80
Building information modeling gains ground in the industry. BY CHRIS PETERSEN

Some tools have always been a part of a builder's repertoire, like a hammer and nails. As construction becomes more sophisticated, however, some new essentials have found their way into the contractor's toolbox, literally and figuratively. Many of these tools aren't really tools in the traditional sense. Rather, they can be new ideas, new techniques and new processes that nevertheless can be just as important to a builder as the old standbys.

In the digital age, contractors need to be just as handy with certain software packages as they are with a drill or a saw. One of the most recent developments in construction software is the rise of building information modeling (BIM). Originating in the 1980s, BIM generates a 3-D computer model of a building and allows the architect and/or builder to simulate the phases of construction in real-time, in essence letting them build the project in a virtual setting before setting foot on the job site.

Because BIM is a dynamic process that models a project's construction schedule as much as
‘I believe we will see the entire industry make the transition.’

The project itself, BIM can be said to be a “four-dimensional” (4-D) model of a building. By seeing how a construction schedule will manifest itself, builders and architects can see potential problems before they arise on the actual project. As increasing efficiency becomes a much larger concern for many project owners, BIM has become a much more common element of project delivery.

To get a sense of where BIM came from and where it is going, Construction Today recently spoke with Burcin Becerik of the Viterbi School of Engineering at the University of Southern California. She is a specialist in BIM, and frequently works with Los Angeles-area builders and architects to share BIM techniques with the rest of the industry. Becerik says the emergence of BIM couldn’t have come at a better time for the construction industry, according to some recent figures from the U.S. Department of Commerce.

In the years between 1964 and 2003, she cites, non-farm labor productivity doubled, but the construction industry’s productivity declined 20 percent over that same time frame. BIM and other project delivery techniques aimed at increasing efficiency should provide the industry with the tools necessary to turn that around, Becerik says. provided the industry embraces the process fully.

Construction Today: Can you give me a brief explanation of how BIM gained a foothold in the construction industry? Who were the first to use it, and on which types of projects?

Burcin Becerik: I believe architects were among the first users of BIM, followed by the builders. Owners were among the first to use or mandate the use of it, therefore, a more important question is why the owners have not required the use of BIM. Having said that, more and more owners started to require the use of BIM in their projects. One important example of this is the U.S. General Services Administration’s (GSA) BIM guidelines through GSAs national BIM program published in 2003. I am not sure if one could say there is one or more types of projects that use BIM first than the other types. GSAs guidelines are followed by the American Institute of Architects and Associated General Contractors’ guidelines for BIM.

CT: How specifically does BIM help architects and builders? Are there any kinds of builders that benefit from BIM more than others?

BB: There are multiple benefits of using BIM. The most important difference, for both architects and builders, is with BIM the model is an intelligent database, rather than just a representation of a project. Therefore, one could extend their services and can potentially realize increased productivity. Interference detection is an area most builders now use BIM for. Some other builders utilize BIM models for 4-D scheduling and model-based estimating.

CT: Are there any potential pitfalls builders could find themselves in by using BIM?

BB: I am not sure if there are any pitfalls. Like any new technology adoption, learning curve is an issue at the beginning. Cost of software/hardware and training are among the other initial investment.

CT: Do you foresee BIM becoming a mainstream, everyday part of a builder’s routine in the future, or are we already at that point?

BB: Although we are close, we are not there yet. According to the SmartMarket report of McGrawHill most of the builders are utilizing BIM. However, in the near future, I believe we will see the entire industry making the transition to BIM. However, the definition of “utilization of BIM” changes from firm to firm. The most common use of BIM is for design and visualization purposes. For builders, interference checking is the most common use. However, there are many other uses of BIM such as model-based estimating or energy analysis, that have not been utilized to the full capacity by the building industry yet.