

Innovations: Building Information Modeling speeds up construction time, saves money

By [Alysha Schertz](#), of BizTimes
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Building construction and architecture have moved away from pencils and paper to computer-generated blueprints and plans.

Several construction and architectural firms have taken those computer generated blue prints one step further and moved to Building Information Modeling, (BIM) which uses construction information, loaded into a building design as objects to generate a virtual 3D model of the building itself.

One example is Neenah-based Miron Construction Co. Inc., which has used the BIM technology on many of its projects including some in the Milwaukee area.

"The BIM technology allows you to see a complete 3D-floor-to ceiling model of the project that displays what would and what would not work," said Klaus Lemke, vice president of Miron's Milwaukee operations. "It's almost like actually building a virtual version of whatever you are designing."

VISUALIZATION Designs generated with Building Information Technology enable a user to virtually see the project before it is built. The technology allows them to spot problem areas in pre-construction, which saves time and money later.

According to Lemke, traditional blueprints can often be complicated and it is sometimes hard to understand the concept and design behind them. The BIM technology and the computer generated model allows the layman the ability to see what the project looks like before it is actually built, Lemke said.

"It really offers a good visualization of what you are building," he said. "The program has the ability to take property owners and clients through a virtual walk-through of the building with varying levels of detail."

The program can be modified to show the building at a 3D CAD file level, but also has the ability to make it very realistic including carpet and wall color, and it shows natural lighting to help determine the best types of windows to put it in, Lemke said.

Palermo Villa Inc. is planning to expand its headquarters in Milwaukee's Menomonee Valley. Miron, which built the facility in 2006, will be the general contractor and will use BIM technology, for the expansion project,

"BIM is quickly becoming a standard tool that we use on every project,"

Lemke said.

"Of course the degree to which we can use it right now varies depending on who we are working with, but the industry is definitely moving in this direction."

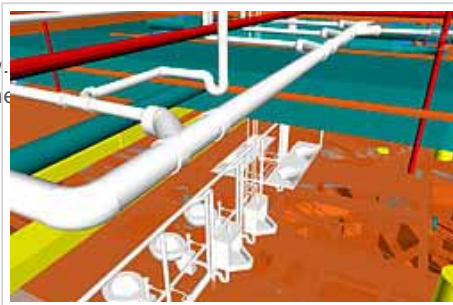
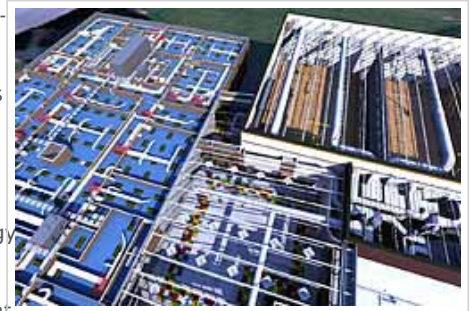
Separate from ease of visualization, BIM also allows architects and contractors to put in a surprising amount of detail into the designs, Lemke said.

"The program allows you to virtually build in the plumbing system, the electrical system, the HVAC system and other components, and the runs a clash detection program on the design itself," Lemke said.


The clash detection program can inform users where there are problems in the design, where pipes are bumping into each other or where there isn't enough space in the corridor for everything, Lemke said.

"We can work out every single detail and problem before we go into construction," he said. "Expectations for quality designs go way up, an it allows us to work out the problems during the design stage before individuals get to the construction site, find those problems, and was valuable time and money making difficult decisions on the spot."

Designing the inner components of the building using BIM to see how things will fit together allows contractors to use pre-fabricated piece during installation, which can assist in speeding up construction time, Lemke said.



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“When you think about the dozens of systems that all have to come together in one place in any given project, it’s really amazing that experienced workers were able to do it at all,” Lemke said. “Well trained employees though, have been able to do it, but almost always had to make some sort of adjustments in the field that ended up taking them a little longer than expected.”

Doing it first virtually saves time and money, he said.

All of the mechanical designs and the HVAC designs for the new Palermo’s expansion have been brought together in the BIM system to run the high level clash detection program, Lemke said.

Dan Bayer, director of virtual construction at Miron, is responsible for training Miron employees on the BIM software and is also credited for pushing the BIM technology when he came on board two years ago.


Miron is in the process of building a construction innovation laboratory at its Neenah headquarters that will allow clients to utilize the BIM technology to do a virtual walk through of their building, as well as house future technological advances Miron is pursuing, Bayer said.

“We are always looking for new ways to make our business more efficient,” Bayer said. “Part of my job here has to do with a significant amount of research and development and staying on top of advancements and technology in those fields. In addition to streamlining the BIM technology we are also looking at a few other advancements that aren’t even on the market yet.”

About Alysha Schertz

Alysha Schertz is a reporter with BizTimes Milwaukee, covering the technology beat. She also handles Personnel File and BizNotes submissions for the publication. Alysha is a 2007 graduate of Carroll College. Alysha's contact information is below. News also can be sent to Alysha Schertz, BizTimes Milwaukee, 126 N. Jefferson St., Suite 403, Milwaukee, WI 53202.

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