Our World, in Three Dimensions

Business information modeling by architects and designers will change the way that AV pros interact with the larger design/build team

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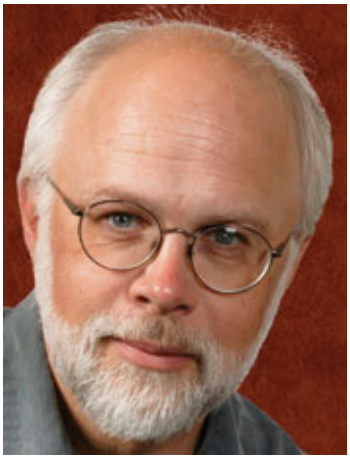
I recently attended a panel discussion on the subject of revit Architecture, a flavor of business information modeling (BIM) software developed by the company that brought you AutoCAD. Basically, I went to find out more about the technology and how it was being used, and I left muttering under my breath, "I have met the enemy and he is us." That, by the way, is not a slam, but rather recognition of where the design industry is currently headed and how much catching up we in AV have to do.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Of the eight panelists, three were architects, two structural engineers, two mechanical engineers, and one electrical engineer. The discussion centered around lessons they'd learned from implementing Revit in their offices and how to make the most of it. Why is this important to the AV industry? We care because they care.

At an American Institute of Architects conference in 2005, AIA distributed "A Report on Integrated Practice," which included papers on what is known as Integrated Practice/Integrated Project Delivery (IP/IPD), of which Revit is an important subset. Thom Mayne of architecture firm Morphosis in Santa Monica, Calif., predicted that if architects did not adopt this technology, they would be out of business in 10 years. He was quickly followed by Joseph Burns of the Thornton-Tomasetti Group, an engineering firm in Chicago, who said, "The same can be said of the engineers who work with those architects."

Current Adoption

At the Revit panel, I quickly realized my company worked with all three architects, all of which had five to seven projects in-house for which they were using Revit. In fact, I'm preparing an RFP response to one of the firms for a Revit-driven project. I sat next to a colleague from a small electrical engineering firm that recently invested in the program, driven in part by an architect and a client that insisted the project be done in Revit. I also ran into other friends from firms we work with who were implementing the software in response to the General Services Administration 2003

mandate, which required that BIM systems be used on all government projects by 2006.

There are some obvious benefits to better design and construction coordination. Annual construction in the U.S. is valued around $1.3 trillion. A study completed in 2004 by the Construction Industry Institute/Lean Construction Institute suggested that as much as 57 percent of the time, effort, and material invested in construction projects does not add value to the final product, compared to only 26 percent in the manufacturing world. Reducing that waste is one of the reasons that the construction industry is moving rapidly towards implementation of IP/IPD and systems like Revit.

Now, this will change the way we work on a number of different levels. The nature of IP/IPD requires a greater degree of collaboration among the design team, building owner, and contractors at a much earlier stage in the project. Projects are larger and more complex than ever, and they're being built on tighter schedules and budgets than in the past, requiring a greater degree of communication and coordination. Implementing IP/IPD and BIM, therefore, should a boon for us, as AV pros have long lobbied for a place at the table earlier in the project.

It was also clear from the panel that the make-up of teams in their offices–and ultimately in ours–will change, in part because design is more closely tied to the 3D model of the facility. In the past, an engineer or an architect would sketch their design and turn it over to a CAD operator to draw. Now drafters are looking to take classes in Revit and are often denied because firms say that spending the $1,200 necessary to gain such knowledge would do no good without a degree in engineering or architecture. But the process raises the stakes for everyone and will require a whole new set of skills, including the ability to think and design in 3D and to see how your work fits in with the overall building.

This will directly impact the manufacturers of audio, visual presentation, and control systems equipment. The number of manufacturers that provide 3D or BIM models of their equipment is very limited. In fact, the overwhelming majority of manufacturers don't yet have the capability. But soon manufacturers of loudspeakers, projectors, video displays, screens (both front and rear), equipment racks, desk-mounted gear, etc., will need to get with the program.

Practice What We Preach

Recently, the architect on a project we'd just completed reminded me of the difficulty we had getting the electrical engineer, general contractor, and electrical contractor to understand how an interface panel was going to mount in the end of a dais. In the end, the rough-in was installed, but the finished product did not look at all like what we had originally intended. The architect felt strongly, and I agree, that an accurate 3D model of the finished assembly would have helped everyone understand what we were after.

Where do we go from here? If you haven't started exploring IP/IPD and BIM, do it now. You can start at AIA's website, www.aia.org. Find out about the different software programs available, their hardware requirements, and any training classes available. In some areas, Autodesk is offering free classes to design professionals who've been displaced by the current economic situation and need to hone their skills.

Play around with a simple program such as Google SketchUp. Ask other software manufacturers if they're going to make their software compatible with programs such as Revit or Autodesk Ecotect (which has an acoustics module). Talk with architects and general contractors in your area and find out how they're addressing the issue. And encourage manufacturers to provide you with meaningful 3D models to insert into your drawings.

We possess the knowledge to help design and construction teams visualize their 3D models. What better way than to show them how to use AV technology to create interactive design environments?

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