



Q&A with J.P. Cullen

The migration to 3D modeling solutions
Q&A with James S. Schumacher,
Project Executive for J.P. Cullen.

When J.P. Cullen needed to increase their efficiency & expand their capabilities, they migrated to Autodesk Revit Architecture & Autodesk Navisworks to achieve a 3D modeling environment. That decision is paying off as J.P. Cullen & its customers realize better communication & planning, saving them time & money.

- 1 *J.P. Cullen has been migrating to the next generation of 3D modeling solutions with Revit Architecture & Navisworks. Can you tell us what you've been working on since that decision was made and where the implementation stands today?*

First of all, it's important to understand that we are a construction company – not an architecture or design firm. Drafting for us is more about shop-drawing or lift-drawing as opposed to building design. The move from 2D to 3D solutions really helps us define for our team in the field what the final construction is going to look like – for example, how anchors and studs relate to the reinforcement of a wall, or how anchor bolts in the wall weave through the rebar.

Over the past 18 months we have been conducting our pilot project on a pretty high-profile job on the Epic Systems campus in Verona, Wis., and the results have validated and even exceeded our goals and expectations. As the project progressed, the combination of 3D modeling, clash detection and coordinating subcontractors has resulted in a significant savings of time, materials and, most importantly, money.

Although we're pleased with the results, I can't say we're surprised – we were quite confident the technology would quickly pay for itself. With the successful pilot under our belt we are on track with the overall plan. In fact, we recently announced the creation of our BIM Department with a dedicated manager, and the next step is to integrate 3D capability into all our projects.

- 2 *Moving to Revit Architecture & Navisworks and a parametric modeling environment offers some obvious and not-so-obvious benefits. Can you cite a few key reasons why this decision was made, and the specific benefits you were looking to achieve?*

Some of the features that we found appealing include: clash detection coordination, lift drawings / shop drawings, operation planning / workflow, and 3D-linked owner's manuals. There were three specific benefits we were looking for: first, an improvement in productivity; second, to make information easier to understand and communicate; and third, to provide accurate and detailed information. Our belief is that these benefits will allow us to become the low-cost provider of high-quality construction services. With the available technology, they don't need to be mutually exclusive.

One not-so-obvious benefit we've encountered is that operational planning and site logistics are much better. For example, where on the job site do we locate the materials, equipment, trailers, dumpsters, site roads, etc.? Typically, these things are located by default and have to move during the course of the job, but looking at the 3D layout we can plan where they are best situated.

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- 3** *Some parts of the building industry do not fully understand the value and downstream benefits of Building Information Modeling (BIM). Do you have any words of encouragement for them at this point?*

From our perspective, the issue is not thinking or worrying about the downstream – that's a given. We want people to realize the building industry as a whole will get the most value and benefit from upstream BIM users, applications and tools. Once BIM is in use, a construction site becomes in essence an assembly line, and like any assembly line it can be optimized. The ability to plan properly and eliminate conflicts prior to construction represents huge savings to everybody. It eliminates the need for RFIs, change orders, tear-outs and reworks, not to mention the time spent standing around arguing over who is responsible for the waste – all of which reduces the overall cost to the customer.

For example, as soon as the drawings on a job are out we look at them for things such as clash detection. This allows us to correct conflicts before the foundation is put in, which in turn allows us to do more prefab work, thereby leading to greater productivity and efficiency. We have a specific example working in 3D where we took 5 weeks off an identical phase of a project that previously took 3 months – you can't argue with success like that.

- 4** *One concern that some companies seem to have about transitioning to Revit is the availability of resources to help them migrate to this platform. What other resources might you recommend companies consider to learn more about this transition and the new design platform?*

People absolutely need to see it for themselves. In our case, I went out to see a project on the West Coast where they were working with a 3D model and I could see the efficiencies first-hand. User Groups can be a great forum for learning about it, but only if people are willing to share.

- 5** *What advice or recommendations can you offer to ensure a successful implementation?*

Don't skimp! Get a full implementation with training, and the right hardware and configurations to get the job done. We tried to do it with a laptop at first, but you need power, memory, the right server, and an FTP site. The model is of no use if you can't get and share the files – this process needs file protocol and somebody to coordinate it.

- 6** *Were there any specific challenges that you faced and how did you address them?*

Skimping on the hardware was a challenge, but we addressed that quickly by beefing up our systems. Another challenge is getting buy-in from everybody involved in the project – especially our subs – so we've been working very hard to get everybody to the table and prove to them the potential benefits for all of us. We've had to demonstrate some salesmanship, and we've had to call on their trust. It may be a tough investment for some, especially in this economy, but that investment will be paid back.

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What are the next steps for your team?

After completing the initial pilot at the Epic campus, we've completed two more in the past six months. We've also recently launched our BIM Department and can now offer BIM services to our partners. The goal is to grow that department and make BIM a part of every project we work on. Within five years it should be second nature to us.

Big picture, we want to be sure that we are staying ahead of the curve – not just locally, but nationally. We want to become a voice and an advocate for BIM and BIM technology on a larger scale and help the industry overall.

Visit the J.P. Cullen website: www.jpcullen.com

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