



Keep Your “I” on BIM

By William Lawliss, AHC/CDC, CSI, CCPR

SIMILAR TO MOST LARGE FAMILIES, JOHN'S was renowned for their yearly reunions. But this one held special meaning. John hadn't been to a reunion since he'd bought the family business three years ago, and his grandfather was going to be there.

He had only spoken to his grandfather by phone a few times since the old man had retired to Florida, leaving the family business he had started in John's hands. During their phone conversations, John never talked shop with his grandfather, but the business was doing well. However, the company and industry were changing, and John was looking forward to updating both his grandfather and his father on the company's success and the changes he had implemented.

After only a few steps into the restaurant where the reunion was being held, John heard a familiar, friendly voice call out, "Junior!" With a smile, John turned, and there, sitting at the head of the long dining table, was his grandfather, Marty.

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"Come over here, son," Marty laughed as he patted the unoccupied chair next to his. John obeyed, but only after giving Marty a hug hello. "We have a lot to catch up on," he said.

The old man eyed his grandson with a glimmer of curiosity. "It has been a while since we spoke last. Tell me: how is everything going?"

John grinned confidently. "We're very busy. We're bidding an average of eight to ten projects per day, and we're winning..."

"Hold on, Junior." Marty frowned slightly before cupping a wrinkled hand around his ear and leaning forward in his chair. "Either I'm becoming more deaf than I thought I was, or I just heard you say 'per day.'"

"Yes, sir!" John nodded proudly. "Eight to ten projects per day. I'm expecting a dozen requests and bids on Monday alone."

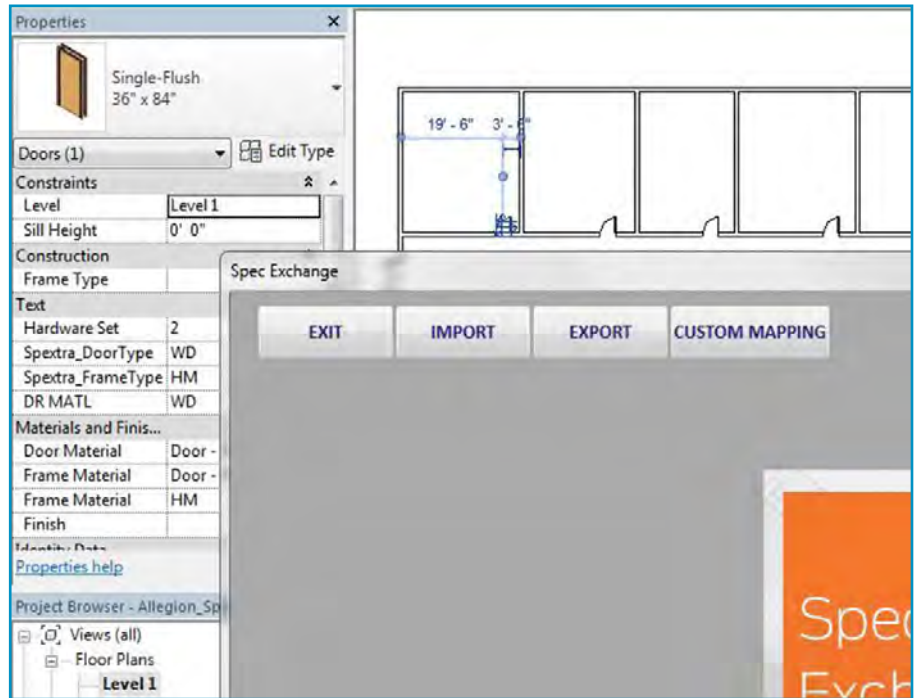
Marty raised his eyebrows at John in shock. "Requests *and* bids on the same day! What do you do, weigh the plans?"

"Oh, Dad." Both men glanced up to see John's father, John Sr., standing behind them, a serious-yet-amused look on his face. "They haven't used plans for *years*. Bid documents are emailed in PDF format." At this, John Jr. smirked.

"Sorry to burst your bubble, Dad, but we don't use PDF documents or email for bidding anymore. We've entered the BIM world now!" John watched as his grandfather's eyes grew as large as golf balls.

"BIM!" he asked. "What the he—?" But before he could finish, John quickly cut in.

"Hold on, Grandpa," he warned with a laugh. "Gram is in the next room, and even though it has been a while, I still recall her bionic hearing." John looked at both men and



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adjusted his tie in a businesslike manner. "Now, let me tell you about BIM."

"BIM is an acronym for Building Information Modeling," John said and then turned to Marty. "Remember when you used to take me with you to architects' offices, Grandpa, and I was fascinated with the scale models made from cardboard and foam board?"

Marty smiled, causing small wrinkles to crease near his eyes. "Yes, I do. You loved the miniature trees and cars they had on display!" He laughed. "You wanted to build a model of your house for your Matchbox cars."

John chuckled before continuing. "Well, today, architects and contractors have been using the software I mentioned to model the building and components in 3D. They can

compare different designs, run cost estimates, mock-up a room, and check for conflicts or clash detection before they actually build anything. They can even create actual models using 3D printers."

Almost in unison, John's dad and grandfather both asked, "That certainly sounds interesting, but *how* do pictures of doors and hardware affect your business and your ability to bid eight to 10 jobs per day?" Laughing again but this time at their impatience, John said, "It's all about the 'I.'"

John Jr. then dove back into his explanation. "The 'I' stands for *information*. Architects used to draw a door in the floor plan with pencil or pen or using 2D software. The door schedule provided information about the size, material and fire rating, and it referenced the eleva-

tion and details of the door and frame and the assigned hardware set. As I'm sure you both recall, these are all disconnected, so we

that we use to import the models, or information, and then we work up a bid. Sometimes it's just a shopping list since the models are specific,

needed at the same time or needed by everyone, so information is available when it's needed and for whom it's intended at the different

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found errors or conflicts between the door schedule and plan or the details; unfortunately, sometimes we didn't find them until it was too late. Then we'd interpret the specification for the product information, which could cause more conflict."

Both John Sr. and Marty nodded their heads in agreement. "Now everything is connected," John continued. "Architects place a door using 3D software, including all kinds of information about the door, frame and door hardware. The door families and models they pick aren't just pretty pictures; they're data-rich objects that provide information about the opening that become an integral part of the building.

"When the wall changes type, dimension or rating, it automatically updates the opening or lets the user know that there is a conflict to be resolved. Manufacturers and software companies have created plug-ins and Web-based software that works with the 3D software to provide intelligence that assists architects and contractors in the selection of doors, frames and door hardware."

John Sr. cut in. "So what do you use for bidding?"

"Contractors send us bid packages that have the 3D models of the openings," John Jr. said. "We have modules of the Web-based software

but we bid a lot of projects where we have to convert generic models to specific manufacturers and products. However, since the generic models are in essence records of data, we can convert or map generic products to manufacturer-specific products fairly quickly. So we can bid several projects per day and almost anywhere in the country."

"Almost," John Sr. wagged a finger at his son. "Sounds like your competition can bid anywhere too, and you're competing on price."

John laughed nervously. "That's what I thought at first too, Dad. But I had to accept that the construction industry was changing, and it made me rethink the business so we could add value. The first thing I had to do was hire and train the best people. Expertise on codes, applications and products is even more important now, but people also need to know how to use technology. The technology is incredibly powerful, but it's not perfect. It still takes people who know what they're doing to complete and/or check the data. We often work with contractors in developing the models at different LODs."

"LODs?" Marty asked. "What are those?"

"LOD stands for Level of Development or Detail," John Jr. replied. "All the information isn't

Width	Height	Thickness	Fire Rating	Door Type	Frame Type	Quantity
5'-4"	7'-0"	0'-2"	45	HM	WD	1
6'-0"	6'-10"	0'-2"	NON	HM	HM	1
3'-0"	6'-8"	0'-2"	180	WD	HM	1
3'-0"	6'-8"	0'-2"	180	HM	WD	1
3'-0"	7'-0"	0'-2"	NON	HM	HM	1
2'-10"	7'-0"	0'-2"	NON	HM	WD	1

levels of development. When the architect starts the design, they know they need an opening. At some point they determine that they want the opening to be a wood door and hollow metal frame, and as the design progresses, the wood door becomes plain sliced red oak, and the hollow metal frame is 16-gauge cold-rolled steel. As you can imagine, the door and frame eventually become a specific manufacturer and model based on the specification, which is also information that's included in the model.

"The second thing we focus on is service. We make sure we provide incredible customer service, but we also have expanded our door and hardware installation service to include access control, fire door and egress assembly inspections, and maintenance contracts, which support our aftermarket business. So our industry expertise, ability to use technology, and high-end services allow us to make the bid more than just price, and we win a lot of work."

With a look of amazement and a proud grin, Marty said, "This sounds fascinating! Please tell me: how does the submittal process work?"

"Very similar," John Jr. replied

with a smile. "We use technology to become more connected to the architect, contractor, subcontractors and the owner. In essence, we're all working in the same building model, so communication and information are shared across all trades. Since the models are so detailed with actual product or generic product in a data structure, it's very fast for the architect and/or contractor to validate. Everything is done electronically—in the cloud." John laughed.


"Because we're all connected, approval is more about releasing areas or phases of construction when they're ready. Imagine, Dad and Grandpa, the wall construction and thickness get locked down when the frames are ordered. So any change to the wall afterward is a documented change. Basically, what

the 3D software allows us to do is create a virtual building to confirm constructability before anything gets ordered. The technology allows the project to move very quickly—time is money—which is why it's important that we have experienced people who know how to use the technology."

Before John Jr. could take another breath and continue, John Sr. interjected, "So you're an integral part of the construction team?"

"Oh, absolutely," John Jr. responded with enthusiasm. "The technology doesn't replace us; it just enhances our abilities. Some of our competitors have reinvented themselves like we did, but a lot are no longer around because they didn't adapt to change."

Marty smiled and slapped his son on the back. "It sounds like the business is in good hands," he said.

While this is a fictional story set sometime in the future, the content isn't all fictional. A lot of the concepts of BIM exist today. I don't consider myself a BIM expert; however, I have learned in the past year of working with BIM and 3D software that BIM is information and data with the intent to share knowledge to make decisions. The questions are: *How good is the information and data?* and *Will you adapt to the change to be part of the future?* 



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