Bob Does BIM – Part III (of III)

Once again, Bob found himself sitting in his corner office of Bob’s Sheet Metal, looking out the window, thinking about Building Information Modeling. Bob loved BIM, but some days, he really wondered why.

On the one hand, the more and more his folks worked with it, the more expert they became. And the modeling seemed to be driving other changes. One of Bob’s more experienced detailers had been out on the job, and seen some of the pre-fabricated racks and plumbing batteries done by EZ Mechanical. Soon after, Bob’s started doing some sub-assemblies of their own, putting ten or twelve feet of duct together, adding a fitting or tap, and then the terminal box. To be honest, Bob’s could have been doing this before, but it seemed to gain interest when the sheet metal crew saw other trades passing them up on pre-fabrication!

On the other hand, Bob was starting to “feel” the indirect costs of BIM. Just the other day, he approved a license for Navis Manage, nearly a $10,000 bill. Bob’s had been using a Navis Freedom Viewer, which allowed the detailers to see the model. It didn’t allow them to run conflict reports, and with some back and forth coordination between EZ’s piping detailer and Bob’s staff, it seemed necessary to be able to publish a conflict report so the two could resolve the conflict before they uploaded their drawings to the BIM model site. That expense wasn’t in Bob’s budget.

Bob had a couple jobs, a prison job and a hospital project, that were becoming a lesson in contrasts. On the prison job, detailing costs were well above the estimate. Fortunately, the shop and field were holding their own, and the slippage was manageable.

Since they won the prison job, Bob’s had also acquired some work on a local hospital expansion, a job that was under a construction management agreement with a very large regional company. Bob was excited about this one; it was a prime contract, which was always attractive to Bob, and it also had a requirement for BIM modeling. In fact, the specs were very similar to the prison. Bob’s initial fears about the Stumblebumps, Stupids and Schedule¹ were somewhat relieved when he learned that the mechanical and electrical contractors were large, respected firms with advertised experience in BIM. He did wonder how these subs had come into the market and taken work away from local guys like EZ, and his friends at Bright Lights Electric.

For the past three months, Bob had assigned two detailers to work on the hospital. It was a fast track job, and some of the structure was already up when they bid the job, so the pace was fast!

¹ For more on these characters, see Bob Does BIM - Part II
Today, Bob found himself reflecting on the differences between the two jobs. Frankly, the slow start on the prison should have enabled the BIM team to get coordination done well in advance of construction. But it didn’t happen that way. The hospital was moving at warp speed, yet the modeling process seemed to work better. After some discussion with his detailers and project managers, Bob had come to some conclusions:

- The BIM model manager makes a huge difference. On the prison, conflicts dragged on, with meeting after meeting devoted to debates and limited leadership from the GC’s model manager. He seemed to facilitate meetings – not solutions. On the hospital, the model manager had a clear agenda, and he simply told folks to move. Frankly, he had a pretty good sense of what should be done, who could move and why, and the team seemed to respect his judgment. He was a leader.

- BIM model meetings were handled quite differently. On the prison, most of the meetings were on site, with limited commitment to an agenda, and a lot of iterations of drawings came from those meetings. Costs piled up.

On the hospital, meetings were handled by Go to Meeting, and attendees sat in from their offices. Meetings were held after the conflict reports were published and after the first round of corrections were made in each contractor’s office.

- Experienced partners affected the cost. On the prison, the model manager and Owner did not hold parties responsible for following the BIM spec. So the electrical contractor was furnishing drawings with blocked out spaces in corridors, simply taking space for multiple conduit runs. And his fixtures were boxes without dimensions. In tight quarters, it was really hard to resolve conflicts, since the detail was missing. Bob’s moved more than it should have.

On the hospital, the electrical contractor was a pro; his conduit, racks, hangers and all critically dimensioned components were drawn. The same was true for the piping contractor, whose racks illustrated clearly where valves and top take-offs were, so Bob’s knew what to dodge.

- Field foremen had to use the model. That seemed obvious, but EZ’s foreman on the prison had not used BIM models in the past. Sometimes his sense of where to put things governed. Sometimes, when the models weren’t complete, he forged ahead with layout on his own, installing systems where they were generally indicated on the engineer’s drawings. Bob wasn’t sure how often they moved or offset a duct in the field to accommodate him.

On the hospital, that simply couldn’t happen. Field leaders for the mechanical and electrical contractor were not only dependent on the model; they were waiting for pre-fabricated assemblies and racks. They used robotic survey equipment to lay out hangers and inserts. Heck, they simply couldn’t have installed stuff without the model!
It wasn’t just that they used the model, they were involved in it. Both of their foremen were using iPads, receiving their detailers’ progress drawings, which they then marked up using Blue Beam, noting field concerns. The detailers made those changes, and it really seemed their team bought into the technology.

All that was great stuff, but what did it mean? What was Bob’s supposed to do? Bob was about to shrug off all this thoughtfulness, move on and unroll a set of plans. But then he remembered something he’d heard from a speaker at the SMACNA convention in October. One of the New Horizons Foundation speakers was talking about Strategic Thinking Organizations, and about studying your customers and jobs, figuring out why and where you made money, and eliminating the places where you didn’t.

Maybe Bob wasn’t giving himself enough credit. Whether he knew it or not, he’d asked his detailers and project managers what was working and what wasn’t. Maybe he should bring in a few of the foremen and dig a little deeper. Maybe instead of unrolling that set of plans, he ought to call the construction manager on the hospital and find out what else they were working on. After all, why wouldn’t Bob’s want to do more work for someone who “got it”?\n
Bob understood what the New Horizons Foundation speaker meant. It was sinking in. Bob was about to begin doing business a little bit differently.

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2013 Notes: The author of the “Bob Does BIM” series is Mr. Guy Gast, President of The Waldinger Corporation – Iowa, past Chair of the SMACNA HVAC Contractors Council Steering Committee, and current Vice President of SMACNA.

SMACNA is grateful for his creative work in enhancing SMACNA members thinking and understanding of BIM.

For more information on BIM or the HVAC Committee, go to the SMACNA website at www.smacna.org or contact Mike McCullion, Project Manager, Market Sectors at 703-995-4027 or mmccullion@smacna.org.