

## McKamish Building Information Modeling Leadership Vision Enabled by Partnership With Case Technologies

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David McKamish

### Implementation Highlights

- Strategic Planning
- Autodesk® Navisworks Manage Project Based Training
- BIM Technologies:
  - Autodesk Software
  - Lenovo Graphics Workstation
  - Hitachi Starboard Interactive Whiteboards



BUILDING EXCELLENCE

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Based in Pittsburgh, PA, McKamish has over 35 years of experience as a leading mechanical contracting company serving a variety of project types and sizes. In addition to mechanical systems construction, McKamish also offers a variety of specialty metals solutions as well as services such as energy management and preventative maintenance. McKamish offers a range of design-build and design-assist to provide its clients comprehensive solutions to their construction projects.

McKamish is recognized as an innovative leader within the industry, and is committed to innovate at many levels within the organization to retain this leadership position. David McKamish, President describes the vision of the company as “a commitment to excellence.” David explains that to be a leader requires understanding the right time to move ahead. “To be a leader, you need to embrace the challenge in all aspects of the business. We are continually looking to ways we can get out there early enough to be a leader, yet not too early that it might place the business at risk. Not only do you need to be committed to innovation, but you also need to be committed to the people who bring value to the company and provide them the training and tools they need to be successful.”

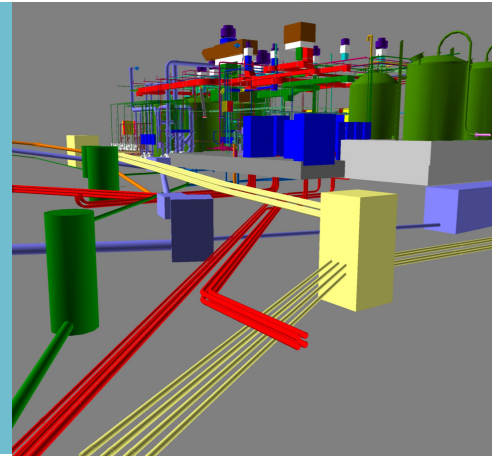
No more evident is their innovative attitude than in their implementation of cutting edge technologies. Over seven years ago, long before many within the construction industry began thinking about technology, McKamish implemented a digital, model-based prototyping process to streamline and improve the quality of their internal shop drawing and fabrication production.

Even with the advantages witnessed in their internal processes, McKamish realizes that the broader construction project coordination and management process is fraught with inefficiencies and to gain higher levels of productivity will require extending the model-based approach to the overall project execution process. According to David McKamish, “Although we had taken a leadership position for our own processes, we felt that we were still falling short because all of the various aspects of the projects; various trades, along with design information were not integrated.” This lack of integration is a significant impediment to project success. “Lack of integration causes issues in the field which are much more costly than had they been discovered in the coordination stage” explains David. Furthermore, lack of integration prevents McKamish from taking advantage of higher value processes such as pre-fabrication.

McKamish got a glimpse of how powerful an integrated model-based construction coordination and collaboration process can be on the Consol Energy Center (Pittsburgh Penguins Arena) project back in 2008. A model based coordination process was used on this massively complex project to coordinate the mechanical, electrical and fire protection systems work, managed by the construction manager. Even though this process was implemented without design information models, the impact on the field coordination effort was self evident. “That project was certainly an impetus for us to take the next step on the wave of technology” explains Jim Regan, Construction Coordination Manager with McKamish. “It showed us right away that being able to see and coordinate things more clearly provided a much higher comfort level”.

"Anyone who has come has been extremely impressed. It shows our commitment very clearly and that we are not just talking about it, we are doing it."

Jim Regan



That comfort level that Jim describes allowed the teams to work much more efficiently than before. "I don't think that you could have built the project as quickly without it. It did require a bit more time up front to get design information modeled, but to be able to respond to and implement changes as quickly as we did was a big success" says Jim.

Because of this experience and the desire to continue with their spirit of innovation, McKamish has set forth to take a leadership position in overall project coordination and management by extending their model-based approach in a highly collaborative Building Information Modeling (BIM) environment. "We made a firm commitment and conscious effort that we would absolutely be recognized as the BIM leader within the industry in 2010" explains David.

With their BIM vision firmly set as an organizational objective, McKamish set out to find a technology company who could assist them in planning and implementation. "We may have had the vision, but we needed some guidance and a partnership to help get us there" David explains.

Realizing that the implementation was as much or more about the industry processes that would be effected as the technology itself, McKamish sought to develop a partnership with a company that had significant industry knowledge as well as the technological expertise of the systems required. Case Technologies was selected and has provided the partnership McKamish was looking for. "Case Technologies provided to us the combination of technological expertise along with industry knowledge and an understanding of our processes -- they

helped us bring it all together" says David.

The other aspect that attracted Case Technologies to McKamish was their ability to listen and understand the specific goals that McKamish had and to develop a plan that was responsive to those goals rather than pushing their own agenda. "We had a very definitive direction that we wanted to take, and Case Technologies' ability to listen to our goals and mission and then follow through on that with us as a partner was key to the successful implementation" according to David.

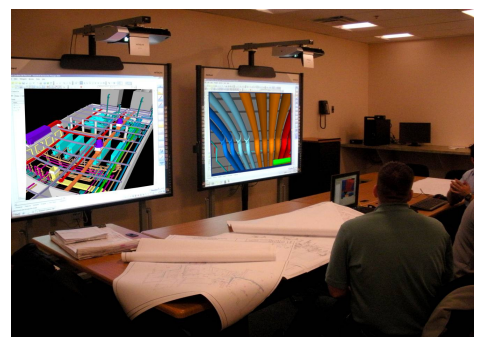
Together, Case and McKamish developed an implementation plan that started with an informational presentation to the entire McKamish office staff that discussed the industry challenges and potential value of the collaborative BIM process that set the stage for the changes that were to be undertaken in the company. Case Technologies then provided training for the Construction Coordination team on Autodesk Navisworks software; the tool that provides overall project coordination and management capabilities. Case Technologies utilized a "project-based" training methodology with the McKamish team leveraging a current project that illustrated clearly a "real-world" coordination work-flow that integrated architectural and structural design models with the McKamish mechanical fabrication models.

Armed with the knowledge of the new coordination process, McKamish began to implement BIM on several projects. To facilitate the integrated coordination process and to clearly demonstrate their commitment to BIM, they invested in a dedicated BIM Coordination Room within their offices, which they again turned to their partner Case

Technologies to help plan and implement. The room has two large interactive white boards and a high-end graphics workstation that facilitate ease of collaboration between all project participants in coordination meetings.

The room has had a huge impression on those who have been part of the dynamic interactive coordination sessions that it has housed, particularly those new to the model-based approach. "Anyone who has come has been extremely impressed. It shows our commitment very clearly and that we are not just talking about it, we are doing it" explains Jim.

Being ultimately successful in this new collaborative environment requires a significant change in attitude that breaks from the confrontational approaches of the past, something McKamish clearly understands. "Other project participants that come to the interactive coordination meetings can be a bit embarrassed at first because they know that some of their work might not work to begin with" explains Jim. "However, everyone realizes right away that the purpose of these sessions is to resolve the issues quickly and efficiently rather than drag them out which is good for everybody."



The BIM Coordination Room in Action