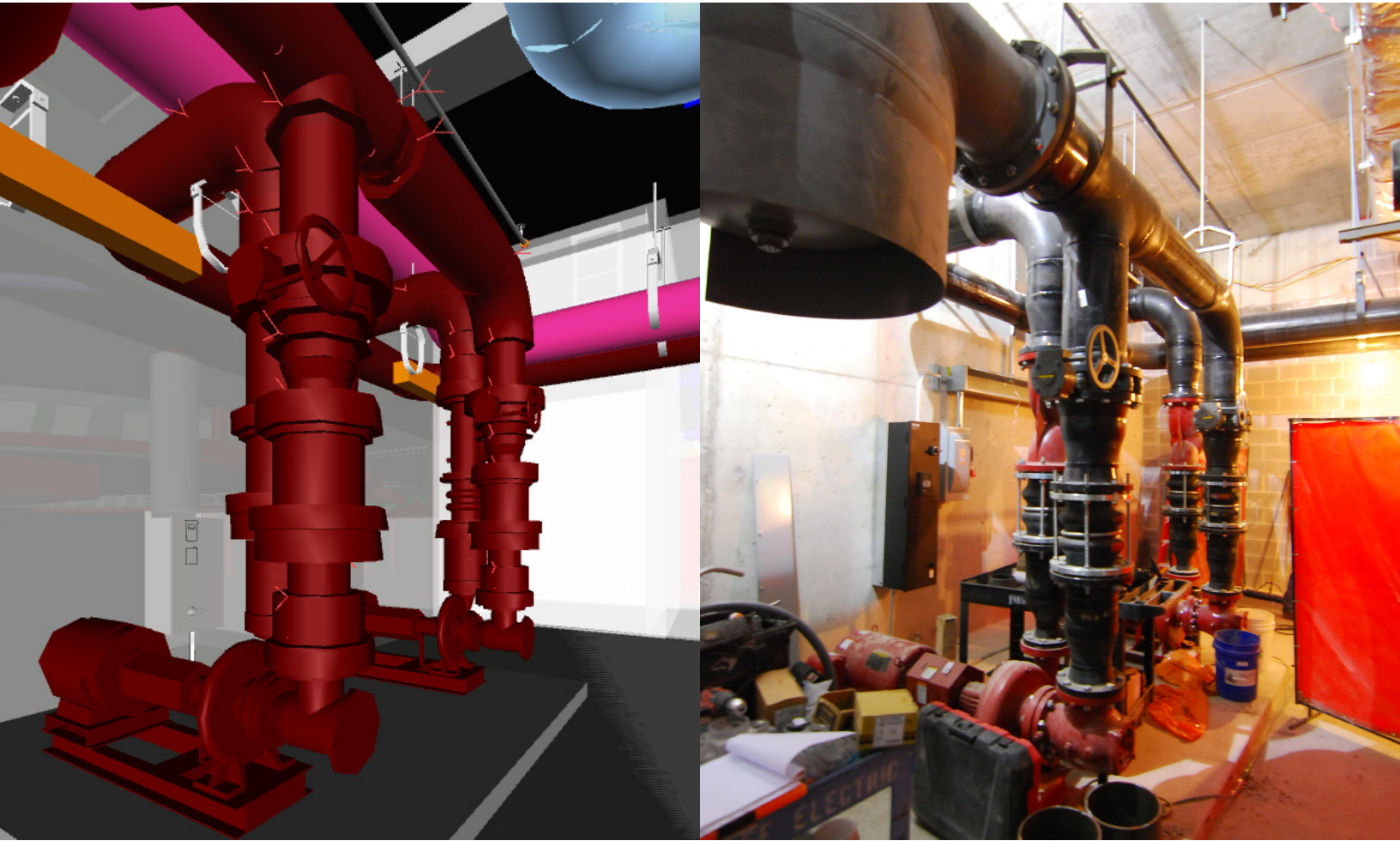




15% Cost Savings with Streamlined BIM Workflow

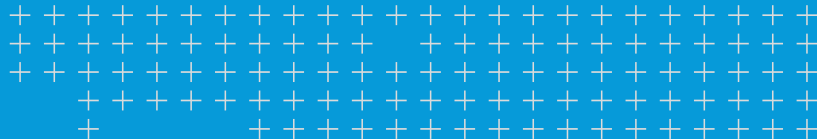


From Design to Fabrication and Installation

Mechanical contractor gains competitive edge and increases prefabrication to 90% by embracing a Constructible Process

Solution

Trimble SysQue,
Trimble RTS-655
SysQue Supports for point layout
Trimble Tablet



Context

J.M. Brennan, Inc. is a family-owned mechanical contractor that has been in business since 1932. The Milwaukee, Wisconsin-based contractor provides services for HVAC, plumbing, process piping, controls, industrial sheet metal and service.



CHALLENGE

J.M. Brennan was looking to enhance overall productivity and develop designs with a higher Level of Detail (LOD) including the ability to include real-world specification in designs.

The company has grown significantly over the past 80 years and now has its third generation of Brennans leading the company forward to the next phase of growth, expansion and leadership. In addition to extensive service offerings, the company also offers design, engineering, BIM and prefabrication services. J.M. Brennan's build services span everything from new construction to renovations and new equipment installation, as well as custom mechanical solutions.

J.M. Brennan started its BIM department in January 2017 and hasn't looked back since. Today, the company is a full BIM operation, leveraging this approach for design, coordination and installation across their departments.

SOLUTION

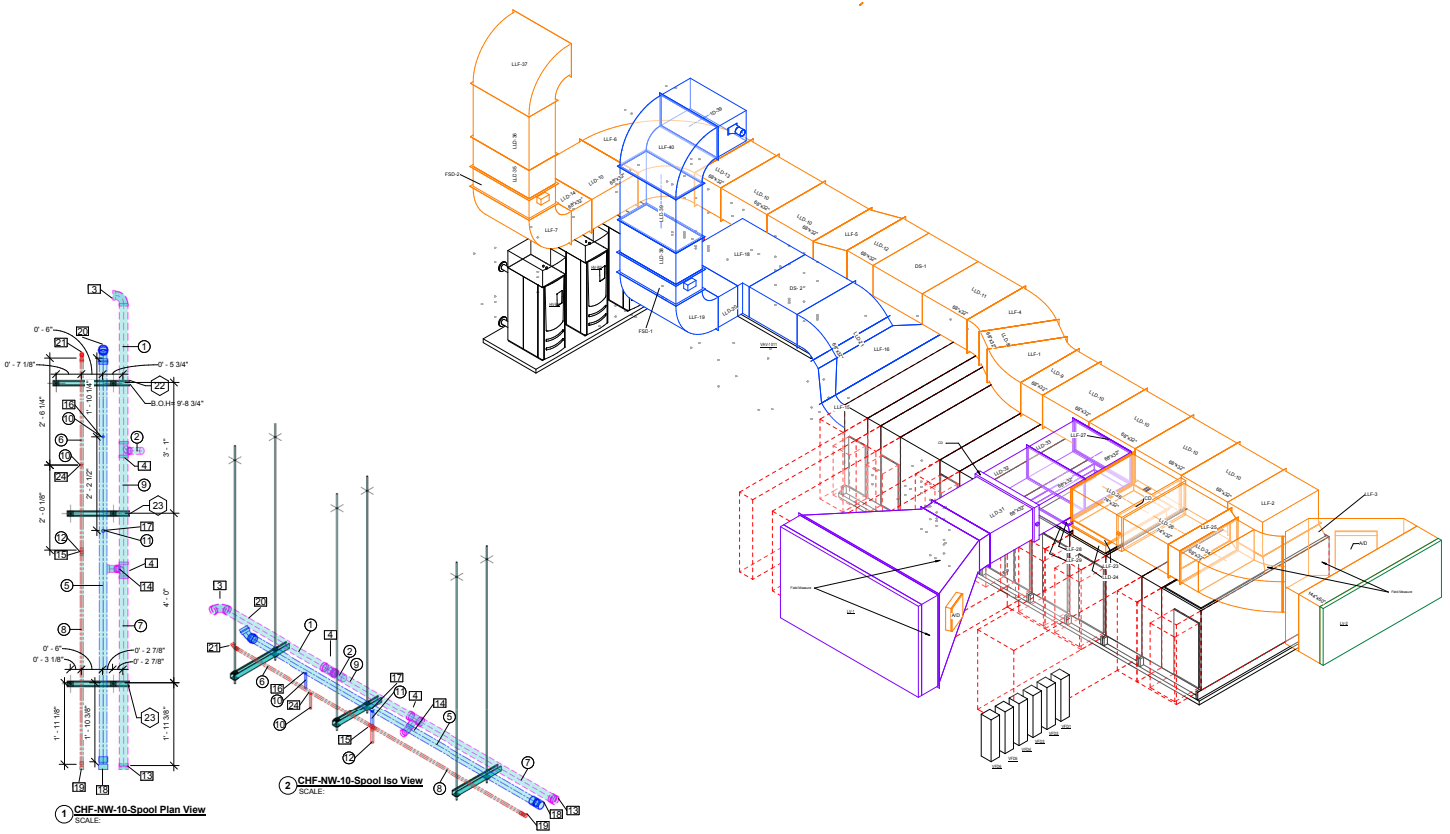
Trimble SysQue, Trimble RTS-655 and SysQue Supports for point layout, Trimble Tablet

SPECIALIZING IN DUCTWORK, MECHANICAL PIPING AND PLUMBING

J.M. Brennan selected Trimble SysQue to enhance their use of Autodesk Revit. Dan Cedeno, project manager and BIM/database manager at J.M. Brennan, explains that the team chose Trimble SysQue because it lets users design with real-world, manufacturing-specific content that aids greatly in the prefabrication process and later for installation. Having a high level of detail in the model is critical because it allows the BIM team to create precise and accurate project plans that meet detailing, fabrication, manufacturing, and installation requirements.

SysQue also extends the Revit MEP BIM data to include material cost, labor values, submittal documents, and procurement part numbers. In all, SysQue has access to a continually evolving database of over eight million line items of content.

Since implementing the new workflow, J.M. Brennan can create BIM models with much more detail, much earlier in the design process. The previous process was not only time consuming, but data was often lost during the file exchange and design specs didn't always match construction standards.



IMPROVED COORDINATION WITH DATA-RICH MODELS

Recently J.M. Brennan was hired to complete all HVAC plumbing and mechanical pipe for a 4-story 718,000 square foot addition of St. Catherine's Hospital Surgical Unit in Pleasant Prairie, WI. With SysQue, the team was able to much more quickly evolve the engineering model into a constructible model directly in the Revit platform.

These capabilities have improved coordination with engineers and other MEP subcontractors. On the St. Catherine's Hospital addition, Matt Reynolds, BIM manager for J.M. Brennan explains that his team discovered a potential problem very early working with the plumbing contractor. The design called for a high number of medical gas lines which presented a conflict. To make more space, out of a very tight space, the J.M. Brennan team fabricated a multi-trade rack system so the plumbing contractor could hang their system off their ductwork.

INCREASING PREFABRICATION TO 90%- CUTTING LABOR COST AND MATERIALS WASTE

Using SysQue, designers were able to create fabrication-ready drawings, essentially eliminating the need for in-field design interpretation. "We've been able to pre-fabricate mechanical systems, ductwork, prefab racks, multi-trade tracks, and ensure everyone was coordinated within those racks," said Cedeno.

J.M. Brennan is now prefabricating close to 90% of plumbing and mechanical pipe which has helped to reduce labor costs and cut material waste significantly.

"Prefabrication allows us to provide a better end product to the client because we can pre-assemble our materials in a controlled environment with a much wider array of tools and technologies," said Cedeno. "Our workflow has greatly improved and we can bid and take on other jobs with confidence."

Using SysQue the team can quickly pull the construction-ready data like part labels, dimensions, hanger heights directly out of the BIM model. As part of the prefabrication process, they also print stickers for the prefabricated assemblies for pipes and hangers, which helps keep parts organized and documented for prefabrication.

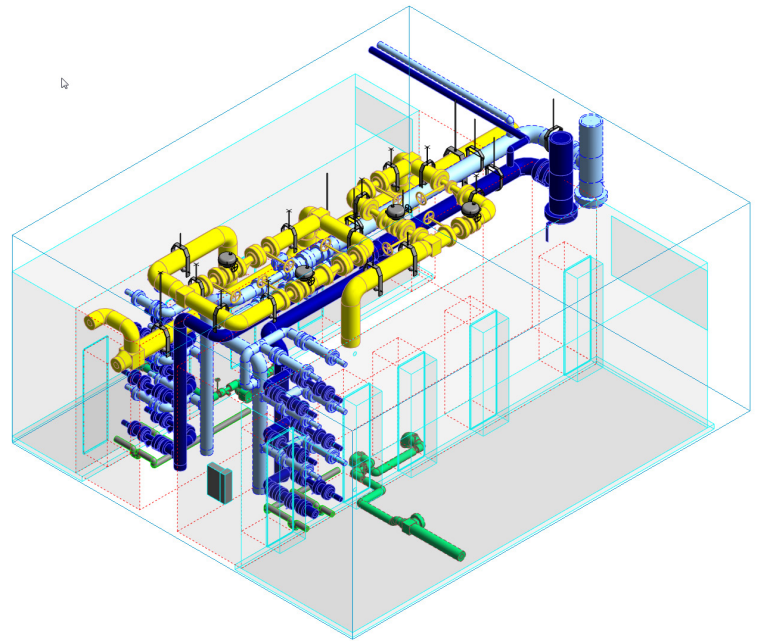
Within SysQue they can also quickly divide and output piping, plumbing, ductwork into spool sheets for color isolation, bill of material schedules, and dimensions. They can create their bill of materials for ordering exact pipe lengths and other pieces.

"We can put up a lot of ductwork on the fly and because the hangers are already located it's very easy to lay everything out in the field," said Cedeno. "The guys have a floor plan with the same color scheme on their iPad in the field to see how this is all laid out."

BRINGING IT ALL TOGETHER - COST SAVINGS OF AROUND 15%

The team estimates a cost savings of around 15% with the help of their SysQue workflow and the ability to prefabricate and assemble more components in their shop.

“Over the last few years we’ve seen a push back on designers to take on a bigger responsibility of the coordination efforts before they even go out to bid,” said Ceden. “They want a higher level of detail in their designs early in the process and we have tried to stay ahead of that curve. We are now able to competitively bid in a much bigger sector of the construction market due to SysQue.”



RESULTS

- **Overall cost savings of around 15%** - with the help of SysQue and the ability to prefabricate more components as well as speeding installation time with pipe and hangers already laid out correctly in 3D with the point solution
- **Increased prefabrication of components to 90%**
- **Accelerated and more accurate point layout**- Laying out points with total station and SysQue has saved a lot of manual field layout effort and accelerated installation
- **Enhanced collaboration with trades**- By including real-world specifications in BIM models, teams can identify potential problems with trades much earlier and coordinate for faster resolution

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