CASE STUDY

Strategic Projects Inc. realizes significant gains in productivity by switching to Octave Forte 3DWorx

Key facts:

Company: Strategic Projects Inc.

Website: www.strategicprj.com

Industry: Oil & gas

Country: Canada

Octave products used: Forte 3DWorx *(CADWorx Plant Professional)*

Key benefits:

- Rapid adoption of a system that met the client's requirements/ standards
- Software solution that is widely used in the Canadian oil & gas industry
- Software that is . dwg-based and has links to engineering and fabrication partners
- Easy access to a local and well-trained workforce
- Flexible solution that has perpetual and lease options

Identifying goals

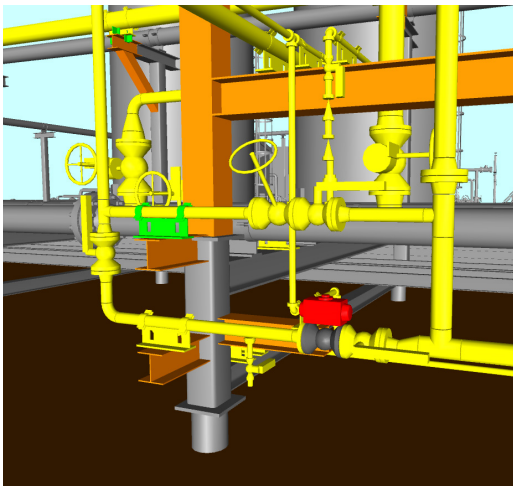
Strategic Projects Inc. (SPI) is a Canadian Engineering, Procurement & Construction Management (EPCM) company with a focus on oil & gas facility and pipeline projects.

Before the conversion, SPI's design process consisted of generating the 3D model of the facility. Then, from the model, it generated traditional drawing packages such as layouts and piping isometrics for fabrication. As part of its cost-saving measures, SPI was tasked to simplify the workflow between the engineering and fabrication teams.

One of the methods identified was to maximize the use of 3D design tools and minimize the number of traditional format drawings required to complete the fabrication, which reduced the overall project cost. The challenge was to ensure that the 3D model generated by SPI was in a format that could be used by multiple third-party fabrication shops without the need of a data conversion or optimization. AutoCAD® Plant 3D did not fit this requirement and a different 3D plant design software was needed.

Overcoming challenges

SPI replaced AutoCAD Plant 3D with Forte 3DWorx and kept other software the same, so it was easy to implement the change. As it was more difficult to convert the spec files in Plant 3D than start from scratch, all piping and structural steel specs were regenerated in Forte 3DWorx.



Once the 3D model was developed in Forte 3DWorx, the file was checked for quality against the Piping & Instrumentation Diagram (P&ID) by generating a Bill of Materials (BOM) and verifying against the specification. The model was then reviewed by the client using Navisworks for constructability and operability. Once approved by all parties, the 3D model was finalized, frozen for hard revision and ready to be sent out for fabrication.

The native files (.dwg) were then sent to the fabrication shop where they generated the necessary fabrication deliverables directly from the model, including layouts, piping isometrics and a snapshot of the model. Technical assistance from Octave Aspect Pipe Stress experts provided a viable solution and the results provide satisfactory for the customer.

Realizing results

Implementing Forte 3DWorx and eliminating isometric drawings reduced mechanical design and drafting hours by approximately 12%, positively impacting both the project cost and schedule.

The use of Forte 3DWorx software was critical in achieving the above savings, as it was the most widely accepted 3D plant design tool in the Canadian oil & gas industry. Most of the fabrication shops in Western Canada were familiar with the software, and it is easy for them to find additional designers trained on Forte 3DWorx when the need arises.

In the end, SPI's goal was to provide a fit-for-purpose solution to its clients. Minimizing the project cost while maintaining the highest quality is key to making these projects successful. By automating the data handling between different software, SPI could eliminate the risk of missing or duplicating materials, which reduced not only the engineering hours but also the procurement and construction costs. SPI uses the 3D model generated in Forte 3DWorx as a reference point for the integration of various project tasks.

Moving forward

SPI started multiple research projects to further utilize the 3D model. One of the projects is to develop a Virtual Reality tool from the 3D model that operators can use. This way, the 3D model will not only be the design tool during the construction but also can become a 3D virtual twin that will live on for the life of the facility.

The company has been using 3D laser scans to increase the accuracy of the 3D model, especially for brownfield projects where locating the tie-in points is critical. SPI has recently completed a facility expansion project and increased the 3D model's accuracy to within a few millimeters by performing a 3D laser scan of the existing facility at the beginning of the project and incorporating point cloud data into the 3D model. The scanner used was a Leica P40, which provided both cost-effectiveness and accuracy.

About Octave

Octave is a leader in enterprise software, turning data into decisive action and intelligence into your edge. Our software solves for and simplifies complexity, from the design and build to operations and protection of people, property, and assets– for any scope, at any scale. For decades, we've partnered with customers to sharpen performance, elevate efficiency, and amplify results. From factory floors to entire cities, our solutions are tuned to scale up what's possible from day one onward.