CASE STUDY

Richard Design Services saves 100,000 engineering hours with Octave solutions



Key facts:

Company: Richard Design Services

Website: richardepc.com

Industry: Power

Country: United States

Products used: Aspect Pipe Stress *(CAESAR II)*, Facets Instrumentation *(Smart Instrumentation)*, Forte 3DWorx *(CADWorx Plant Professional)*

Key benefits:

- Met strict project timeline requirements with a fast-track schedule
- Leveraged direct integration between design and analysis tools
- Decreased time to project completion by one third

Headquartered in Beaumont, Texas, USA, Richard Design Services is a full-service engineering company providing front-end development of detail design for both large and small projects.

Identifying goals

Richard Design Services provides engineering for a renewable diesel facility in Norco, Louisiana, capable of producing more than 10,000 barrels per day (BPD) of diesel from inedible oils and other waste feedstock. A joint venture of Darling International and Diamond Alternative Energy, a Valero subsidiary, the project included the hydrotreating facility, pretreating facility, storage tanks, rail offloading facilities and offsite installations.

The assignment covered front-end development, detail design, and design management. The project included 200,000 linear feet of pipe, 450 pieces of equipment and pipe ranging from 1.5 inches to 24 inches in diameter. The US$360 million project is the largest renewable diesel facility in the United States.

Overcoming challenges

The Norco project required fast-track engineering while still developing the final design, with a 12-month engineering schedule and a 22-month overall schedule that would require many work-hours by Richard Design Services' engineers and technicians. To address these challenges, the company chose Forte 3DWorx, Aspect Pipe Stress and Facets Instrumentation for an integrated approach.

"A project of this size using other programs would have taken an estimated 300,000 workhours," explained Michael Tran, Mechanical Design Supervisor at Richards Design Services. "With Forte 3DWorx for design, we were able to complete it in 200,000 hours, cutting the time by one third." Using the interfacing capabilities in Forte 3DWorx and Aspect Pipe Stress, the piping isometric drawings were fabricated before engineering was completed.

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Michael Tran
Mechanical Design Supervisor,
Richards Design Service

"The clients were very satisfied with the end product," Tran said. Without these tools, the schedule would have slipped and incurred an estimated 100,000 or more additional project hours. Using Forte 3DWorx and Aspect Pipe Stress, the firm produced pipe isometrics, stress analysis reports, structural design drawings, piping plans and other deliverables.

Realizing results

The isometrics were given to pipe fabricators for spooling and the stress analysis technicians were able to use the output from Forte 3DWorx Plant Professional
for stress analysis. This saved the firm many project hours when compared to what would be possible with other design programs.

Richard Design Services produced over 6,500 isometric drawings automatically and provided accurate quantities for pipe and structural by using CADWorx to produce automatic bills of material, all while avoiding schedule slips. This was the largest renewable diesel facility in the United States, requiring over 65 specifications and thousands of isometric drawings. From start of engineering to completion took just 23 months and the project's 10,000 BPD design is currently operating at over 11,000 BPD.



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.

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