



CASE STUDY

Zhejiang Engineering provides efficient design and analysis for a hydrogen plant

Key facts:

Company: Zhejiang Engineering Design Co., Ltd.

Website:
www.zedc.com.cn

Industry: Oil & Gas

Country: China

Octave products used:
Forte 3DWorx (*CADWorx Plant Professional*), Aspect Pipe Stress (*CAESAR II*)

Zhejiang Engineering Design Co., Ltd. (ZEDC) provides engineering, procurement and construction (EPC) services to the chemical, petrochemical and pharmaceutical industries. In addition to engineering and design, the firm provides clients with consulting and project management services.

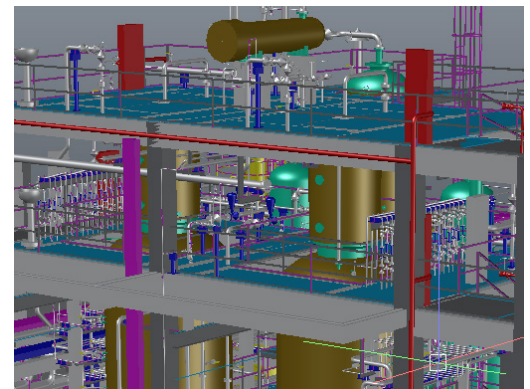
Identifying goals

The Sichuan Hebang hydrogen sulfide (H₂S) gas production project, located in Leshan, Sichuan, China, has a capacity of 15,000 tons per year and covers 6,500 square meters with a cost of US\$300 million (2 billion RMB).

One of the world's top five engineering companies, JGC of Japan, licensed the production technology for H₂S, one of the main materials of methionine and partnered with Zhejiang Engineering Design Co., Ltd. (ZEDC) for the detail design work. The project includes the following facilities:

- H₂S plant
- Sulfur melting and purifying plant
- Sulfur warehouse
- Refrigeration plant

There are 95 pieces of equipment and 400 pipelines totaling 5,800 meters of stainless steel, carbon steel, galvanized steel and PE pipe with diameters of DN15 to DN500 and a total of 21 pipe classes.



Overcoming challenges

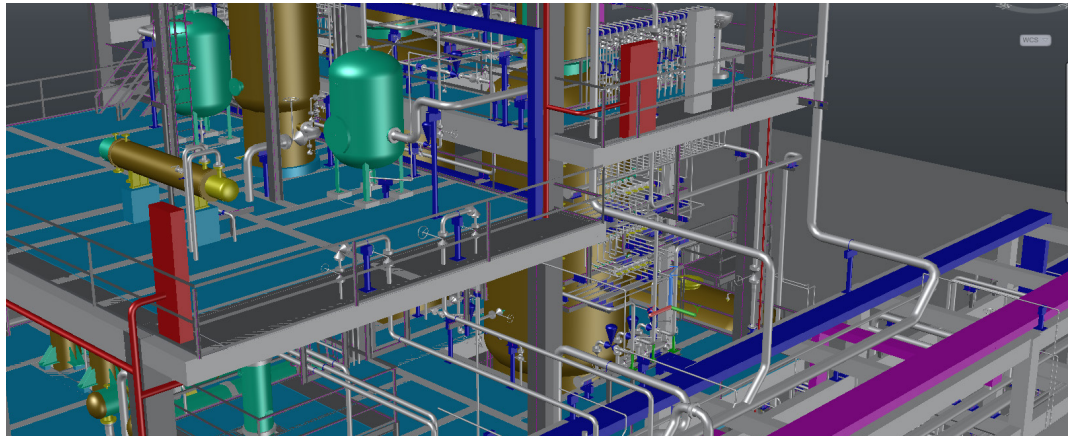
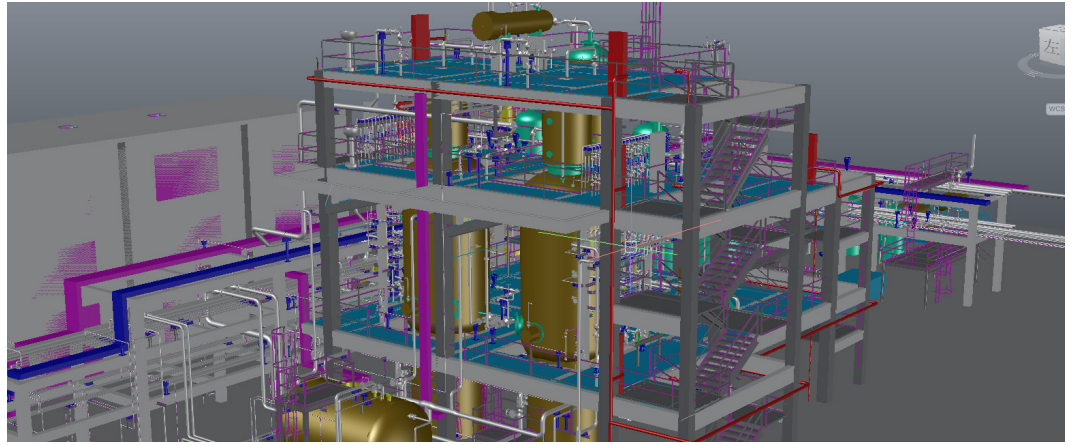
For this project, JGC needed to review ZEDC's detail design 3D model at the 30, 60 and 90 percent stages.

"The project's 3D model complexity and JGC's detail requirements were major challenges," explained Miaoyan Jin, 3D administrator at ZEDC. "Plus, many young engineers lacked experience using 3D design and had to learn it on the job."

ZEDC had used other design software previously. Because of the importance of accurate material accounting and easy visual design reviews, the company decided on 3D design using Forte 3DWorx because of the software's fast learning curve and ease of use, plus its easy integration with Aspect Pipe Stress for pipe analysis.

Key benefits:

- Completed the database and 3D model independently
- Translated the 3D model of pipelines to Aspect Pipe Stress to conduct the piping stress analysis
- Made detail design reviews more intuitive and efficient
- Increased accuracy from 90% to 95%
- Reduced modeling labor hours by 20%



Without Forte 3DWorx, more collisions in the design can occur, adding to expenses, and the bills of material would be less accurate. The design review meetings would typically uncover more errors resulting in costly rework, causing customer satisfaction to suffer.

Forte 3DWorx helped eliminate errors and customer complaints, and the detail design reviews were more intuitive and efficient, delivering higher customer satisfaction.

ZEDC increased its accuracy from 90 to 95 percent.

Realizing results

By using Forte 3DWorx, ZEDC completed the database and 3D model independently and translated the 3D model of pipelines to Aspect Pipe Stress to conduct the piping stress analysis.

"Modeling totaled about 1,000 labor hours, a 20 percent reduction thanks to Forte 3DWorx and Aspect Pipe Stress," Jin added, "and labor hours will continue to decrease as staff members become more skilled."

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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