



CASE STUDY

Nortech streamlines plant design with Octave Forte and Aspect solutions

Key facts:

Company: Nortech Solutions Group Ltd.

Website:
www.nortech-group.com

Industry: Oil & gas

Country: United Kingdom

Octave products used:

Forte 3DWorx (*CADWorx Plant Professional*), Aspect Pipe Stress (*CAESAR II*), Forte Isogen (*Isogen*)

Key benefits:

- Clash-free design using improved 3D design capabilities
- High-quality, automated isometric production tailored to client needs
- Lowered project costs through interoperability
- Enhanced 3D laser scan data processing, resulting in better project transparency

Nortech Solutions Group Ltd. provides professional engineering design, project and construction management assistance services to the oil and gas, process, petrochemical, chemical, iron, steel and energy industries both in the U.K. and internationally. Nortech works closely with clients to develop and deliver a project from Concept Engineering (CE), Basic Engineering (BE) and Detailed Engineering (DE) with the production of Approved For Construction (AFC) deliverables across a number of market sectors.

Identifying goals

Nortech was selected to engineer and design a new plant for Jersey Gas, a liquefied petro gas importer owned by International Energy Group.

Jersey Gas' original manufacturing plant could not efficiently operate based on the seasonal differences in energy demand, and at peak times it was running with minimum spare capacity. The new plant needed to avoid these challenges, and rise to demands, allowing the existing gas holder to be withdrawn out of service and the associated land to be sold for further development. The main drivers for the project were to improve the security of supply and to remove the need for the gas holder.

Existing plant information was to be retrieved in CloudScan and Navisworks formats, of which only simplistic data models had been produced. Octave solutions were used for more complex plant and construction design to ensure the completion of the project according to a tight delivery schedule.



Overcoming challenges

A tight time schedule and limitations to the available data model affected the engineering and design process. Nortech needed a solution to ensure clash-free design with efficient 3D design capabilities, the ability to produce and revise isometrics and the ability to create bills of materials.

Nortech chose Forte 3DWorx and Autodesk Navisworks for their familiarity and AutoCAD®-based 3D design capabilities. The 3D design began with the creation of piping specifications along with existing, modified and new piping catalogues. The piping modelling commenced after the creation of the specifications.

Forte 3DWorx was also used for the structural, civil and mechanical design. After this, all the isometric drawings were produced with Isogen, enabling automated isometric creation tailored to Nortech's needs. Piping support details and generic 3D design were also created with Hexagon tools. Moreover, the 3D design was transferred into a fully dimensional 2D format for fabrication purposes.



Aspect Pipe Stress was used for pipe stress analysis throughout the project. The interoperability of Aspect Pipe Stress and Forte 3DWorx enabled quick and highly successful information transfers between the solutions. This provided an effective and cost-saving way to easily define a piping system analysis model.

Realizing results

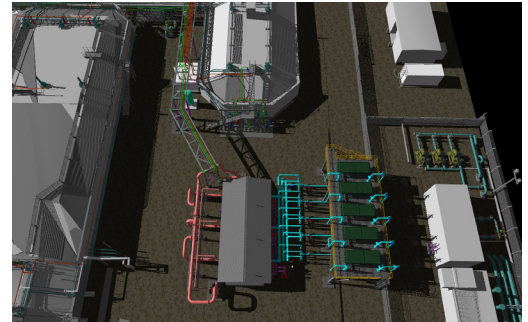
Working with Forte 3DWorx and Navisworks gave Nortech's engineering department an overall view of the 40-plus separate 3D files and helped the team keep track of the design processes. The models could be easily viewed within Nortech as well as readily shared with the client.

Forte 3DWorx was used to:

- Create piping and structural design in both 3D and 2D formats
- Automatically generate accurate isometrics
- Define pipe support details
- Create layouts and bills of materials

Moving forward

Following the successful Jersey Gas project, Nortech has implemented Forte 3DWorx in the majority of its projects, predominantly for piping design. Octave's tools are currently used on a wide range of brownfield topside projects, including caisson replacements, FEED studies and complete projects across a number of North Sea offshore facilities.



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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