Ecophos Industrial Services Improves Engineering Efficiency with Octave's Design and Analysis Solutions

Key facts:

Company: Ecophos Industrial Services

Website:
ecophos.com

Industry: Chemicals

Country: France

Octave products used:
Forte 3DWorx
(CADWorx Plant Professional)
Forte StructureWorx
(CADWorx Structure)
Aspect Pipe Stress
(CAESAR II)
OrthoGen for Forte 3DWorx
(OrthoGen for CADWorx)

Key benefits:

- 40% time saving on creating permit layouts
- Ability to generate deliverables (i.e. BOMs, layouts) automatically

Within the Ecophos group, a world leading provider of technological solutions for the phosphate industry, Ecophos Industrial Services offers engineering and project services, both for Ecophos' internal projects and external customers. Ecophos group is also an active industrial producer of phosphate products for the animal feed business and a distributor of related animal feed ingredients, carrying these operations under the Aliphos brand.

Identifying goals

Ecophos Industrial Services had recently designed and built a new plant for Aliphos in Dunkirk, France. The facility produces up to 220,000 tons of animal feed grade phosphate. Ecophos Industrial Services' most recent goal was to update the existing permit drawings to create an as-built permit dossier, that subsequently would save plant personnel time during future maintenance projects. The company needed a software solution that would automatically generate new permit layouts when changes to the model occurred.

Overcoming challenges

One of the key challenges for the project was the tight schedule: Ecophos Industrial Services was expected to deliver the new drawings within one month. To meet the short deadline, Ecophos Industrial Services decided to standardize permit drawing layouts to ensure that all the deliverables would be automatically up to the standards of both the client and Ecophos Industrial Services.

Octave's design and analysis solutions, more specifically OrthoGen for Forte 3DWorx was chosen for the project to reduce time needed for producing the drawings. Being quick to implement, learn and configure, Ecophos Industrial Services were able to start creating permit drawings from their 3D models just two weeks after purchasing OrthoGen for Forte 3DWorx.

Realizing results

During the Aliphos Dunkirk project, Ecophos Industrial Services used Octave's solutions for design, piping, mechanical and structural design as well as for stress calculations. Forte 3DWorx was used to design all the piping in 3D, which gave both Ecophos Industrial Services and the client a total overview of the project.

During the design, Ecophos Industrial Services could extract all the necessary data, such as bills of materials, isometrics, layouts, etc. for price inquiries, construction and as-built dossiers.

Ecophos Industrial Services also used Equipment in Forte 3DWorx to design all the equipment in 3D. With Forte 3DWorx, Ecophos Industrial Services could easily introduce and add the required Forte 3DWorx intelligence when receiving 3D equipment models from external parties.

Forte StructureWorx was used to design all the structural steel items, such as platforms, secondary steel and pipe racks. Having this information available in 3D enabled Ecophos Industrial Services to avoid clashes and improve project efficiency.

Ecophos Industrial Services used Aspect Pipe Stress to calculate and analyze the pipe stresses. As the software is compatible with the Forte 3DWorx, pipelines were exported from Forte 3DWorx directly to Aspect Pipe Stress and back to Forte 3DWorx to update the 3D piping model post-analysis, which saved time and helped to avoid mistakes.

For the creation of the as-built dossier, the first step was to create drawing styles in accordance with Ecophos Industrial Services' company standards, which were used to automatically generate orthographic drawings. The company started with the style configurations provided as part of the OrthoGen for Forte 3DWorx software, and adapted these to meet both their internal requirements and the client's specifications. Ecophos Industry Services created multiple varied views of the plant on their drawings, and automatically generated layout information per view.

The final step was to check the dimensions and tag numbering of the permit drawings and finish them by adding some additional information manually. Previously, the layouts were created by taking snapshots of the 3D plans, but as these could not be edited, the process involved an excessive amount of redrafting work.

Moving forward

One of the key benefits realized during the project was substantial time savings provided by different features of the Octave solutions.

Firstly, multiple disciplines were able to work simultaneously as data could be exported between different project phases and disciplines.

Secondly, the ability to design the basic study phase in 3D lessened the time needed for design later whilst the ability to automatically generate and update deliverables (such as isometrics, bills of materials, layouts) improved efficiency by cutting down the time needed for redesign or fixing errors.

When asking about using Octave's Forte 3DWorx design solutions on the project, Dario Pibiri, 3D engineer at Ecophos Industrial Services commented: "Forte 3DWorx offers a true WYSIWYG solution. All the components that are created with Forte 3DWorx already have all the required information to construct these components, saving user's time. We estimate that we've saved around 40% of time by using OrthoGen for Forte 3DWorx and that we'll continue to save around 25% of time for any similar project in the future as we've now created the company standards."