

CASE STUDY



CADWorx & Analysis Solutions



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Viswanathan Shanmugam, Assistant Chief Engineer at Fichtner Consulting

Fichtner solves challenges with CADWorx® Plant Professional

Awarding of CCPP Project

Fichtner Consulting Engineers (India) Pvt. Ltd. (Fichtner) is one of the leading firms in India providing comprehensive engineering solutions for utility and industrial power projects. The firm was awarded a project to engineer and design a 300 MW Combined Cycle Power Plant (CCPP) consisting of two gas turbines, a condensing steam turbine, two heat recovery steam generators and mechanicals. Equipment included the condensate extraction pump, ejector, gland steam condenser, LP heater, and valves. Total pipe length was 3,505 m (11,500 ft.) in diameters of 25 NB to 1400 NB, with maximum pipe temperature of 517° C (962.6° F).

The project included the plot plan, plant layout, process flow diagram, vendor drawings, subsystem engineering, and steam piping stress analysis. Fichtner also handled the preparation of technical specifications, vendor data sheets, construction drawings, and civil and structural works.

Addressing challenges of ISO accuracy and codes

The complex layout with 75 separate pipe runs of widely varying diameters, fluid pressures and temperatures had to meet stringent codes and standards plus the confined area presented challenges. Also the high temperature piping, ASTM A335P91 alloy steel, is expensive and has to be ordered well in advance. This required accuracy because any error could have delayed the project and increased costs.

Choosing comprehensive tools for design and engineering analysis

Fichtner chose Intergraph CADWorx Plant Professional because its designers were familiar with AutoCAD and its ease of use allowed them to become productive quickly. They chose Intergraph CADWorx Design Review to allow timely reviews and Intergraph CAESAR II® for pipe stress analysis because of its interface with CADWorx Plant for design and engineering analysis.

"With CADWorx Plant 3D modeling, we could forecast design or construction problems during modeling while CADWorx Design Review helped our clients and contractors identify design changes in advance," explained Viswanathan Shanmugam, assistant chief engineer at Fichtner. "This helped us remove ambiguities and avoid rework."

Enhancing project deliverables

They used CADWorx Plant Professional to develop a 3D model, CADWorx Design Review for project collaboration and review, and CAESAR II for pipe stress analysis. "CADWorx helped us resolve our project challenges while ISOGEN was used to produce accurate isometric drawings and bills of materials for fabrication directly from the 3D model, saving time and reducing material costs" Shanmugam added. "We also imported the pipe stress analysis modifications from CAESAR II into the CADWorx Plant model, which reduced data inconsistency,"

This project demonstrated how a complex yet compact layout can be developed more efficiently with the collaborative capabilities of CADWorx Plant Professional, CADWorx Design Review and CAESAR II. The CADWorx 3D model used to create project deliverables and to transfer design knowledge to the field with ease.

PRODUCT INDEX

CADWorx® Plant Professional
CADWorx® Design Review
CAESAR II®

INDUSTRIES SERVED

- Power Generation

FEATURED RESELLER

KLG
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