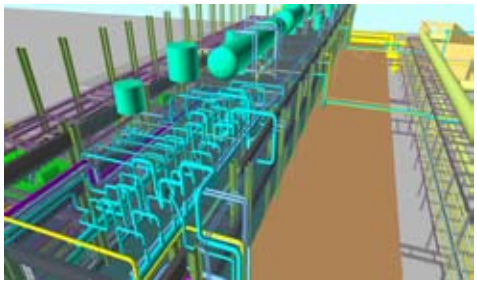
CASE STUDY
CADWorx & Analysis Solutions

INTERGRAPH



"CADWorx Plant Design Suite allowed us to view the 3D model of the piping system beam, column, equipment, and pipe racks. We were able to save time and man-hours using technical reviews built into the CADWorx software"

Kapil Dev Maurya, Designer at Fichtner, Mumbai

PRODUCT INDEX

Intergraph® CADWorx® Plant
Intergraph CADWorx Design Review

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FICHTNER saves on modeling leveraging CADWorx model reviews and CAESAR II interface

About the company

FICHTNER Consulting Engineers (India) Private limited (FICHTNER Mumbai) provides comprehensive engineering solutions for a wide range of utility and industrial power projects. A leader in engineering consultation, FICHTNER India's 400 engineers have completed more than 1000 projects to date.

Expanding IISCO Steel Plant

IISCO Steel Authority of India Limited (SAIL) undertook a 2.5 MTPA (Million tons per annum) expansion project at its steel plant in Burnpur, West Bengal, India, for a power and blowing station with three blast furnace gas fired boilers, steam turbine generators and steam driven turbo blowers. The co-generation plant producing steam for the steel plant will also generate electricity.

Accommodating complex piping in limited plant space

Bharat Heavy Electricals Limited (BHEL), the EPC contractor for IISCO-Burnpur, appointed FICHTNER Mumbai to do the civil, mechanical and electrical engineering, including design, drawings and engineering documentation for civil, structural and architectural areas, piping and area layouts, construction isometrics, documentation, and piping support. Engineering work included pipe stress analysis for all steam and water systems and cooling water, fuel gas, fuel oil, air plant and utility piping requirements. They also did electrical engineering for the facility. Engineering work included six surface condensers, high pressure heaters, steam jet air ejectors, seven gland steam condensers plus de-aerators, storage tanks, and boilers. Total piping weighed around 1400 tons, ranging up to 92" (2336.8 mm) in diameter. They had to engineer the highly complex piping in limited space plus conduct seismic analysis and stress analysis for all of the piping systems.

Delivering timely and precise layout calculations and isometrics

Using Intergraph CADWorx Plant solutions, FICHTNER developed piping layouts, bills of material, isometric drawings for fabrication, piping support locations, and equipment and structural models. Using the CADWorx link with Intergraph CAESAR II, they analyzed stress loads on these incorporated piping supports corresponding to various possible load cases, producing stress reports. They also performed seismic analysis and analysis of pressure safety valves.

Viewing models for reviews and reducing man-hours

By leveraging the stress analysis interface between CAESAR II and CADWorx Plant Professional, they avoided potential problems that could come from integrating the mill piping with interconnecting piping systems, such as steam and other processes.

"Intergraph CADWorx allowed us to view the 3D model of the piping system beam, column, equipment, and pipe racks," explained Kapil Dev Maurya, designer at Fichtner Mumbai, "and we were able to save time and man-hours using technical reviews built into the CADWorx software." The CAESAR II interface with CADWorx made it easy to accurately engineer joints, elbows, bellows, valves and other components and resolve the issues linked with the piping system's modeling and simulation requirements. "The CADWorx bi - directional link with CAESAR II software helped us to avoid remodeling and modification and saved us a lot of time in the area of interface checking, preparation of isometrics, bill of quantities etc. " concluded Maurya.