



## RISHABH ENGINEERING, UNITED STATES

### Key Facts

**Company:** Rishabh Engineering

**Website:** [www.rishabheng.org](http://www.rishabheng.org)

**Industry:**

- Oil & Gas - Onshore

**Country:** United States

**Products Used:**

- CAESAR II®
- CADWorx®

**Key Benefits:**

- Imported CADWorx files into CAESAR II for stress analysis without data loss thanks to bi-directional compatibility between CADWorx and CAESAR II.
- Took advantage of a comprehensive library of major international piping codes.
- Design supports to accommodate the movement of the horizontal radiant tubes with a 300 °F temperature difference.
- Re-analyzed pipe in a compact and congested area.
- Saved 200 man-hours.

### RISHABH ENGINEERING ANALYZES COMPLEX REFINERY PIPING SYSTEM WITH CAESAR II®

Headquartered in Vadodara, India, Rishabh Engineering (Rishabh) provides engineering services to global engineering, procurement, and construction (EPC) companies, engineering contractors, original equipment manufacturers (OEMs), fabricators, and surveying companies in the oil and gas, chemical, petrochemical, power, water/waste water, and utility industries.

#### PIPING ANALYSIS CHALLENGE

Rishabh provided pipe stress analyses for a Billings, Montana, U.S., refinery with eight heaters and piping of up to 18 inches in diameter operating at up to 1,029 degrees Fahrenheit with pressures up to 1,100 psig. The project required 32 load cases and adherence to strict international standards.

The client only had non-editable drawings showing a top view of the heaters and a cross section of the coils. Other project challenges included a tight schedule and limited resources.

#### IMPROVING PRODUCTIVITY WITH FAST IMPLEMENTATION AND BI-DIRECTIONAL COMPATIBILITY

Rishabh selected CAESAR II to perform the pipe stress analyses and CADWorx to create a model of the stress-critical heater coils.

“CAESAR II has a comprehensive library of major international piping codes. It is easy to install and activate. Plus, the input graphics module made it easy to develop models for analysis,” explained Arpit Gupta, manager of business acquisition.

“The support service portal was extremely helpful in answering our questions, and we capitalized on the compatibility between CADWorx and CAESAR II, importing the files into CAESAR II for stress analyses without data loss,” Gupta added.



## RESOLVING MULTIPLE ENGINEERING AND DESIGN CHALLENGES WITH CAESAR II

On the horizontal radiant tubes, there was a 300 degrees Fahrenheit difference between the hot and cold face, causing a bowing effect. Using CAESAR II, the team designed supports to accommodate this movement. On the horizontal heaters, the client changed the tube metal, so Rishabh performed a new analysis to ensure a proper design.

The piping between the convection and radiant heater sections was in a compact and congested area but could not be rerouted. Rishabh re-analyzed the pipe, increasing the radius of the elbows to allow for the required flexibility.

The system's 50 piping supports presented what is normally a tedious task to check for lift-off supports. The intuitive Alternative Sustained Stress (Alt-SUS) case tool in CAESAR II greatly reduced this burden.

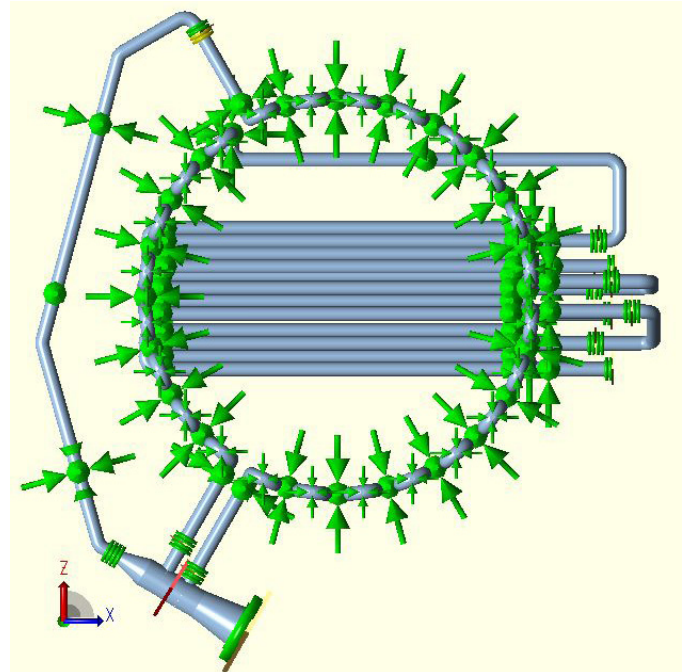
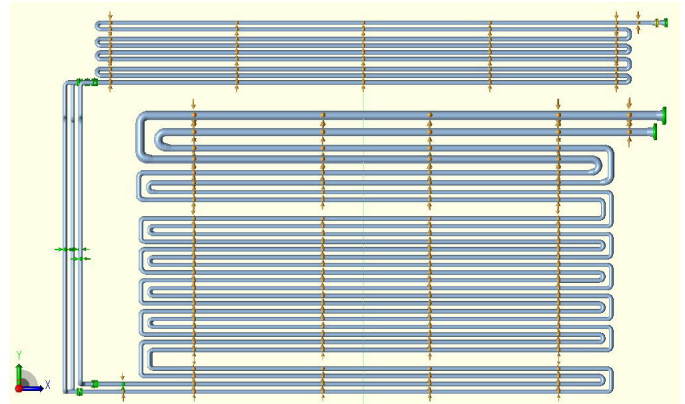
## REDUCING MAN-HOURS WHILE ENSURING TIMELY DELIVERABLES

"Without CAESAR II, the stress reports would be less comprehensive and deadlines missed, plus we would have needed separate tools for analyzing nozzles and generating isometric drawings," Gupta added.

With CAESAR II, Rishabh easily generated reports and comprehensive isometric drawings while improving accuracy and saving time. The team met the high expectations of a client with limited resources while saving 200 man-hours, a seven percent savings.

## AWARD-WINNING PROJECT

Rishabh received the 2017 Drivers of Success Award for its use of the software. The annual Drivers of Success competition recognizes innovative applications of Hexagon PPM products, impressive project results, and significant benefits from collaboration among disciplines and the integration of the products.



## ABOUT HEXAGON'S PPM DIVISION

Hexagon's PPM division is the world's leading provider of asset life cycle solutions for design, construction, and operation of industrial facilities. By transforming unstructured information into a smart digital asset, our clients are empowered to visualize, build, and manage structures and facilities of all complexities, ensuring safe and efficient operation throughout the entire life cycle.

Hexagon is a global leader in digital solutions that create Autonomous Connected Ecosystems (ACE). Hexagon (Nasdaq Stockholm: HEXA B) has approximately 18,000 employees in 50 countries and net sales of approximately 3.5bn EUR. Learn more at [hexagon.com](https://www.hexagon.com) and follow us @HexagonAB.