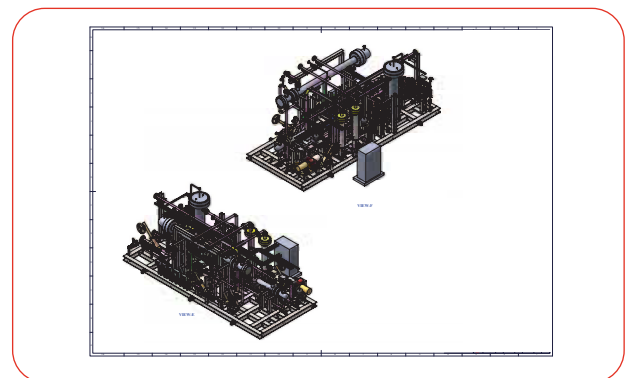
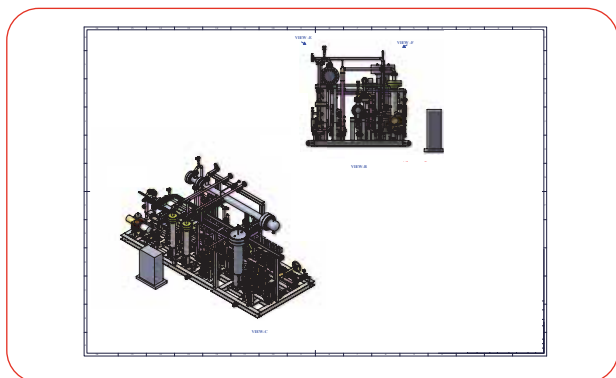




**Making productivity
plug-and-play with
skid design**

Type of Project	Client Industry	Location	Project Duration	Tools Used
Modular skid	Pharma	USA 	35 Days	Solidworks + AutoCAD

Project Profile	Team details
The Client is Pharmaceutical American Multinational Pharmaceutical Corporation headquarter in US. It is one of the world's largest pharmaceutical companies.	Project Lead: 10 Yrs Piping Designer: 5 to 7 Yrs Piping Structural Designer: 4 to 6 Yrs E&I Designer: 5 to 8 Yrs



The customer is a US-based global pharmaceutical major with interests spanning all the continents and an unblemished image of quality. This pharmaceutical manufacturing process skid was a requirement the customer had a severe urgency for and needed it to be designed to precision.

The customer had previously engaged us for a variety of projects earlier on and was conversant with Enventure's capabilities, but this project was the beginning of a new dimension to the relationship with the customer as the skid was to be designed, stress-analyzed in India but fabricated in the US, which meant that apart from the design, considerations included:

- Material Availability
- Cost of materials
- Proximity of the fabrication capability

This is in addition to the common challenges faced in skid design, which are the space restrictions and the extremely high reliability.

Enventure was selected to design the skid based on the customer's previous experiences with our services.

Enventure Approach

Skid design being one of Enventure's core capabilities, we were cognizant of the potential challenges faced in such projects. Hence, after initial phase of due diligence and documentation, we set up a three-shift team for this project with a customer touchpoint every single day, handled by the third shift. The shifts had an overlap with the next to allow for a project huddle, during which, the team discussed the project progress including changes and suggestions from the customer touchpoint.

Enventure's REFR approach of Responsiveness, Efficiency, Fast turnaround, and Reliability was tested to the limits during this project. Given the stringent deadline, the design, validation, pipe stress analysis, validation and quality oversight had to be performed with unmatched efficiency. Typical to most projects, the Enventure team also setup a step-delay project management plan that allowed for the skid design to be broken down into smaller modules where pipe stress analysis for each module could be performed individually. This allowed for reduced waiting time and lag between the design, stress analysis and quality oversight processes, thus contributing to the overall project efficiency.

Project/Solution Overview

The customer required approximately 50 isometric and GA drawings, 5 structural drawings in a complete skid design package encompassing:

To reduce the scope for delays and to improve the collaboration with the design owners, Enventure used the standard three-shift approach. In projects such as these, early completion is a blessing for almost all customers owing to the significantly increased opportunity for design analysis, validation, and improved fabrication scheduling, all of which have a direct and significant impact on the cost of the project and the overall quality of execution.

- **Foundation Design:** Which included the drawing, details of stress analysis and rigid adherence to the dimensions.
- **Steel Structure Design:** Which comprised the design of the overall structure to facilitate easier fabrication. This design had to consider the walkways around the skid and allow for appropriate placement of access valves and instruments.
- **Equipment Placement:** Within the skid, the equipment had to be placed and routed to allow for efficient utilization of available space, as well as reduce the amount of piping, which in-turn has a two-pronged benefit of reduced cost, and improved efficiency and longevity of the skid due to improved stress handling
- **Pipe Routing:** The principal considerations for the routing were efficiency, easy access to valves from the walkways, improved visibility to the instruments, and reduced need for maintenance. The design incorporated several of Enventure's signature routing improvements that reduced piping length and improved alignment with the overall skid design, the placement and the overall plant design.

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Customer benefits

As always, the Enventure team completed the project in a record time of 35 days against a 60-days turnaround which is the industry standard for skids such as these. In addition:

- Zero-defect delivery across all 50 isometrics and associated drawings allowed for a smooth execution of the skid fabrication
- Improved equipment placement and routing optimization afforded tangible cost savings for the customer
- Real-time reporting and complete transparency allowed the customer utmost peace of mind, something they had begun getting used to

Conclusion

Skid designs are usually tricky owing to the very fact that there is always a space constraint, which is why efficiency in the design is often the difference between smooth, maintenance-free and incident free operations and everything to the contrary. From a design execution standpoint, when the requisite skill-set is in abundance, it is a P times Q equation of personnel for the time engaged. Given our experienced talent pool, we usually staff the team such that the project is completed in about 60% of the estimated time. It is this approach that allow for:



- Responsiveness to customer inputs and revisions without resulting in time overruns
- Efficient execution allowing for adequate validation and analysis, resulting in significantly improved quality
- Faster turnaround even in the light of multiple iterations and design revisions, allowing customers to remain confident that their timelines would be unaffected if not positively
- Reliable services that help our customers deliver the value they would like to, on every project like this one

In essence, it is our REFR approach, Enventure's core and foundational principle that stands testimony to almost a quarter of a century of successful Engineering Services Outsourcing.



**Engineering Excellence.
Building Trust.**