

Jacobs brings proven experience in application of pre-assembly and modular project delivery in the petroleum industry. Our modular construction experience and capabilities span the project spectrum from concept through construction. We bring experience executing modular projects and working with pre-assembly fabricators across Europe and the rest of the world.

Jacobs routinely performs engineering, design, fabrication, module assembly and construction management for process projects ranging from small, skid-mounted systems to large, multi-module grassroots process facilities. To accomplish these tasks, we draw on the skills and resources of our extensive in-house design capabilities and either in-house or 3<sup>rd</sup> parties assembly organizations depending on the project location. Many of our professionals have worked on both off-site and traditionally construction projects. They know how to balance the merits of each design/construction approach. Jacobs is able to offer a wide diversity of services starting from conceptual design through detail to full EPCm services, plus we have experience of supporting our clients to meet the challenge of managing smaller, fast-track opportunities.

The modular construction approach is rapidly gaining support as a means of overcoming traditional field construction issues and problems by addressing the following issues:

- » Safety
- » Declining site labor productivity
- » Reduced labor availability
- » Security
- » Quality
- » Cost

When the site is located in an operating process plant, it dramatically reduces the impact of construction on plant operations. It provides owners with a highly engineered process facility which, while built off-site, retains all critical access features of traditionally constructed with all the acknowledged benefits of off-site assembly.

### FEATURES

- » Faster Time-to-Market - Shorten Schedule by 10-20%
- » Minimize Impact of Site Labor Shortages
- » Minimize Impact to Existing Operations by Reducing Peak Manpower up to 50%
- » Improve Safety Performance



### Economics Benefits

A CII Best Practices Survey indicated average savings of 5% of TIC through the use of modular construction, with a range of 1-9% based on 290 projects.

### Project:

*SO<sub>2</sub> Reduction Project at Rotterdam, The Netherlands. Modular SRU; 100 t/d SUPERCLAUS® & Stick built Waste Gas Treatment*

### Background:

*Project licensed, engineered and built by Jacobs. Transportation by ship from modular shop in the US to Rotterdam harbor.*

### Project TIC (in 2001):

*Total project: 59 million Euro  
Modular SRU: 19.5 million Euro*

### Duration:

*24 months from FID up till ready for startup.*

### Scope of Services:

- » Process Design Package
- » Process License
- » FEED
- » Detailed Engineering
- » Modular Fabrication
- » Procurement & Contracting
- » Construction Management

### For any information:

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