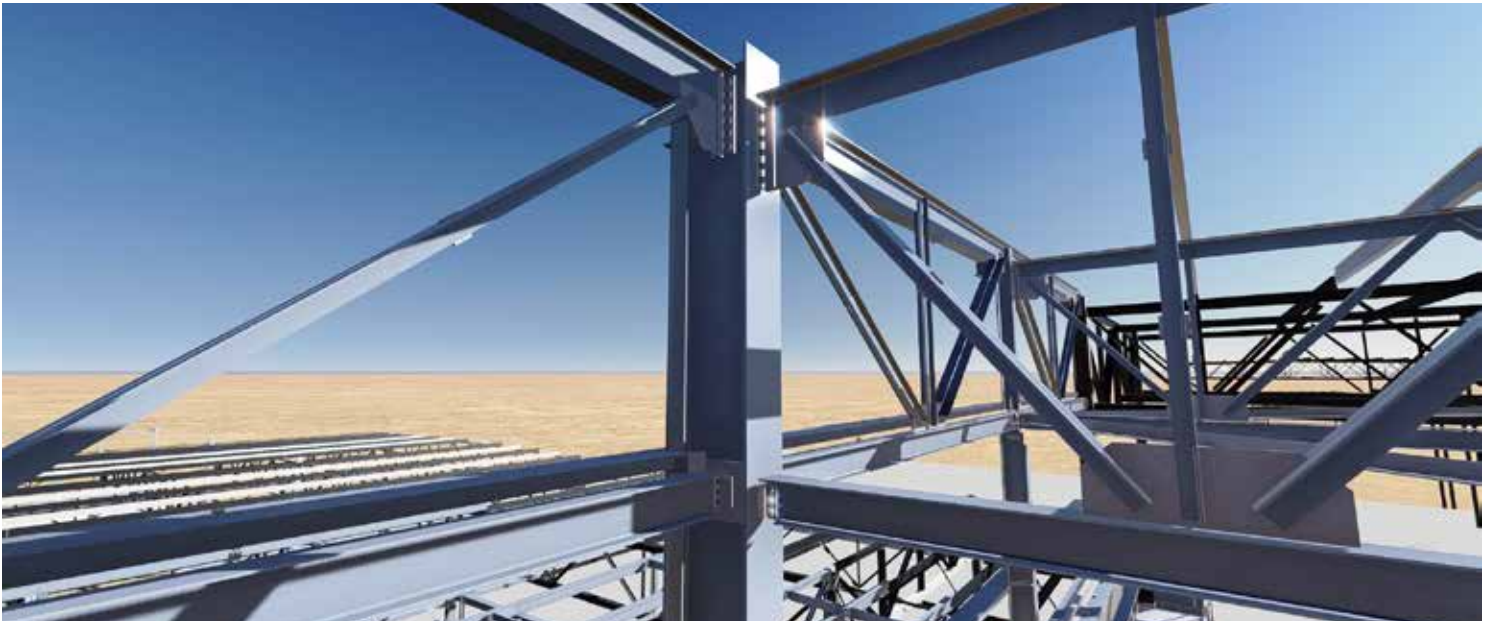




Virtual Design & Construction: Steel

ssoe®. making clients successful.



What is VDC Steel? The innovative application of SSOE's virtual design technology that seamlessly integrates steel design, fabrication, and erection delivering exceptional quality with reduced cost and a faster schedule.

Critical path schedules. Fluctuating material prices and availability. Significant investment. A complex path from engineer to detailer to fabricator to erector. Each step adds cost. Each step is an opportunity for error. The combination of these factors makes structural steel installation one of the most critical factors in project success.

SSOE's Virtual Design and Construction (VDC) Steel enables you to minimize the risk and cost of structural steel while delivering the quality your facility demands. Our virtual technology brings the handoffs from the field into the office. VDC Steel not only streamlines these steps, it also transforms the software used for designing, detailing, and installing into one virtual environment. It enables you to view each step and make decisions early in the project, saving you time, trouble, and money later.

An added advantage is SSOE's 65+ years of structural steel expertise. We've installed structural steel into facilities in 40 countries for thousands of clients. With over 200 engineers registered in 50 states, no one is more qualified to manage your steel from concept to installation than SSOE.

Advantages of VDC Steel

Streamlined and seamless integration through one virtual model that produces:

- Fabricator-ready models
- Approved shop drawings
- CNC programs
- Mill order lists

Exceptional quality

- Advanced clash detection
- Limited field errors
- Methodical control from design through construction

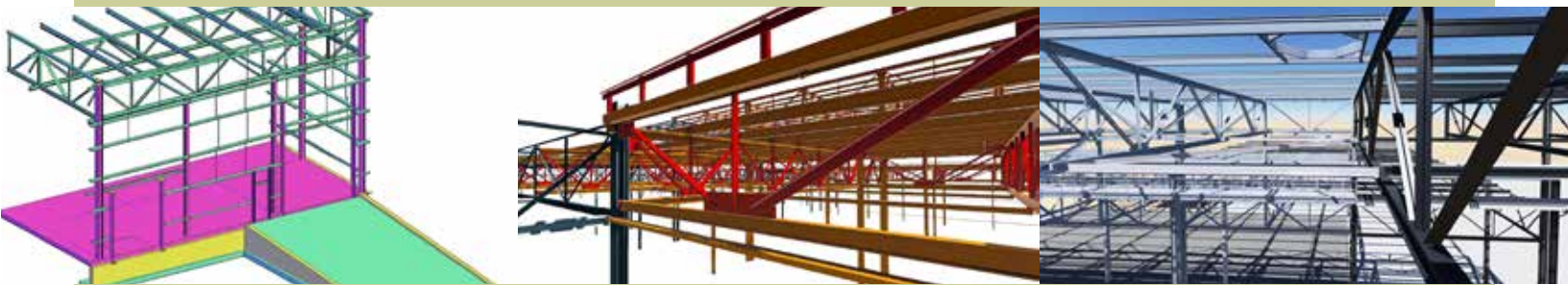
Reduced cost

- Optimized detailing in a virtual environment
- Accurate bids and estimates
- Reduction in field change-orders

Reduced schedule by a minimum of 4 weeks

- Steel lead times
- Design and approval process
- Analysis and options

SSOE's commitment to **documenting savings on our projects equal to our fee**, known as our **Value Promise**, has resulted in a culture that inspires us to constantly look for better ways to do things. Often our improvements are small, incremental steps. Others are innovations—**significant shifts in how we approach your project**. **VDC Steel is one of those shifts.**

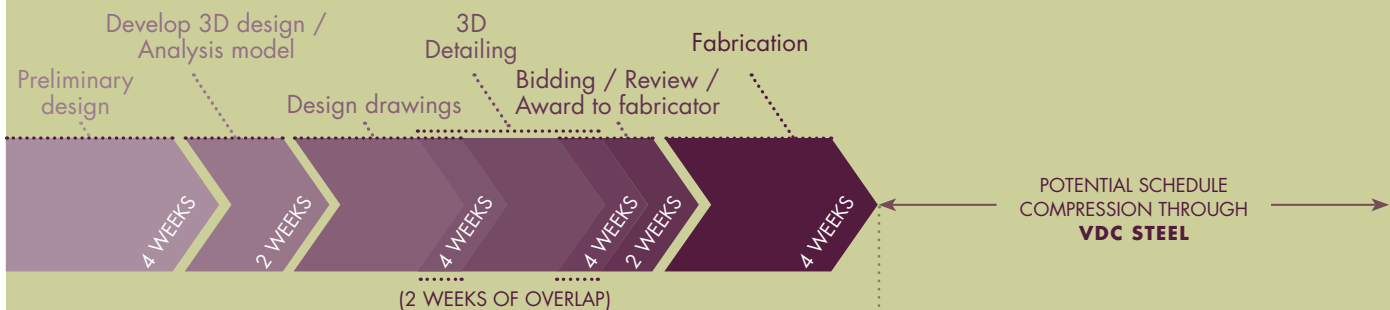


Representative Schedule Compression through VDC Steel

TRADITIONAL DETAIL / MANAGEMENT METHOD – SEQUENTIAL PROCESS



DETAILING / MANAGEMENT WITH VDC STEEL – CONCURRENT PROCESSES



TIMELINE

10 WEEKS

18 WEEKS

28 WEEKS

*Based on 500 tons Source: *Engineering News-Record*

Locations

Albany, NY
Alliance, OH
Atlanta, GA
Birmingham, AL
Chandler, AZ
Chengdu, China
Cincinnati, OH
Columbus, OH
Hamburg, Germany
Huntsville, AL
Kalamazoo, MI
León, Mexico
Lima, OH
Midland, MI
Monterrey, Mexico
Mumbai, India
Nashville, TN
Omaha, NE
Penang, Malaysia
Portland, OR
Raleigh-Durham, NC
Riverside, CA
St. Paul, MN
Santa Clara, CA
Shanghai, China
Shenzhen, China
Toledo, OH
Troy, MI
Washington, DC

Markets

Life Sciences
Manufacturing / Process
Power
Telecommunications

Services

Architecture
Construction management
Data / Fire / Security
Energy consulting
Engineering
Master planning
Procurement
Project / Program management
Site selection
Tool install
Virtual Design and Construction

Rankings

Engineering News-Record (ENR)

- Top 5 Automotive Plant Design Firm for the past decade
- Top 5 Semiconductor Design Firm for the past 5 years
- Top 10 Food and Beverage Design Firm for the past decade
- Top 10 Manufacturing Design Firm for the past 6 years

ENR Global Sourcebook

- Top 35 International Manufacturing Design Firm for the past 5 years

Building Design + Construction (BD+C)

- Top 10 Engineering / Architecture Firm for the past 5 years
- Top 10 Industrial Engineering Firm for the past 5 years
- Top 15 BIM Engineering Firm for the past 6 years

Named "Best AEC Firm to Work For"
(Building Design + Construction)

Named a "Great Workplace"
(Great Place to Work®)

SSOE Facts

- SSOE was founded in 1948 and currently has more than 20 locations worldwide.
- We are a global engineering, procurement, and construction management (EPCM) firm with projects in 40 countries.
- SSOE returned 105% of our fee to clients in projects savings over the last 5 years.
- Greater than 98% of clients surveyed would recommend SSOE to a colleague.
- 150 of our clients have worked with SSOE for more than 20 years.
- SSOE offers program management services from design through construction, to commissioning and start-up, for seamless project delivery.
- SSOE's focus is using the appropriate project delivery method for your goals, including Virtual Design and Construction (VDC), which brings our clients better and faster results through more integrated teams and advanced technologies. Even when a more traditional delivery model is used, you'll see significant benefits from the collaboration strategies and technological capabilities our leadership in VDC necessitates.



www.ssoe.com/VDC



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