

**3DEXPERIENCE®**

ARCHITECTURE, ENGINEERING & CONSTRUCTION **CIVIL DESIGN FOR FABRICATION**

Drive Collaboration and Efficiency of Infrastructure Projects



**BUILD EFFICIENCY
INTO EVERY
INFRASTRUCTURE
PROJECT THROUGH
INNOVATIVE
COLLABORATION**

Public works project owners have a strong responsibility to the public to create infrastructure that meets user needs while reducing problems of construction. Research finds that the public's willingness to pay for projects increases when it's evident that cost-effective measures are implemented. Plus, there is increased collaboration on financing, with public owners turning to public-private partnerships and private financial initiatives. This is driving increased collaboration among all stakeholders in design and construction.

Dassault Systèmes Civil Design for Fabrication Industry Solution Experience built on the collaborative **3DEXPERIENCE®** platform enables simultaneous real-time access to design models and project data from anywhere and across different disciplines. This creates an interactive community of owners, engineers, and civil designers who can work in parallel, share data, and build quality and efficiency into every project.

The challenge of building a growing infrastructure

Worldwide spending on infrastructure projects is expected to grow from US\$4 trillion in 2012 to US\$9 trillion by 2025, led largely by new, emerging markets. Public owners are looking to facilitate rapid increases in urbanization in China, India, Latin America, and around the world by building bridges, roadways, and other infrastructure projects quickly and cost-effectively.

Both railways and highways have tremendous numbers of repeated elements when they extend several kilometers. **Civil Design for Fabrication** provides a single-source of truth with real-time management of the large amounts of information from various BIM environments, with IFC and OmniClass fluency. Users can start design from a catalog and make updates that are immediately reflected across all design models.

Collaboration among users and platforms

No user is isolated when using **Civil Design for Fabrication** Industry Solution Experience. You can import data from any number of platforms to create a single-source mock-up where all parties — owners, designers, engineers, and fabricators — can work together as part of an integrated design community.

Customizable and repeatable templates

There is far more replication of details in civil design than in building designs, making integration even more critical. The ability to work from existing 3D templates from the civil engineering catalog, or create your own original templates for future use, makes working with **Civil Design for Fabrication** not only highly customizable, but easily repeatable. You can save time by importing prototypes from a list of available components using already established parameters and then easily modifying them.

Modifications made to any template piece during design will be instantly updated throughout the model, ensuring consistency while reducing errors. Component templates come loaded with 3D data as well as reference documents for fully-informed projects. More than 75 percent of projects can usually be generated from the pre-populated templates. From there, you can build your own protected company IP repository of initial and modified components, speeding future projects.

KEY BENEFITS

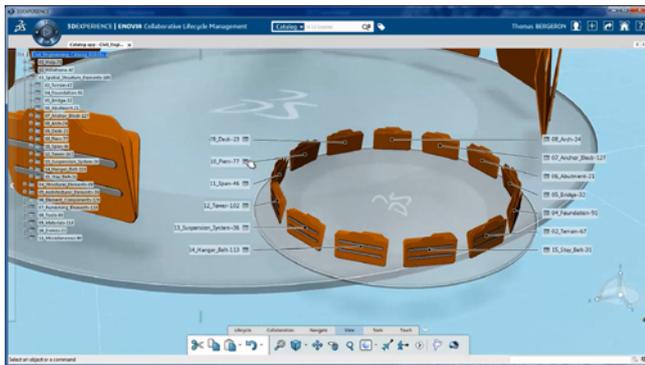
- Move the traditional 2D layout into a BIM from which drawings can easily be produced
- Link engineering data to every model, promoting time-saving pre-fabrication
- Use an end-to-end solution for solid continuity from design through construction
- Ensure real-time information is used, reducing errors and requests for information



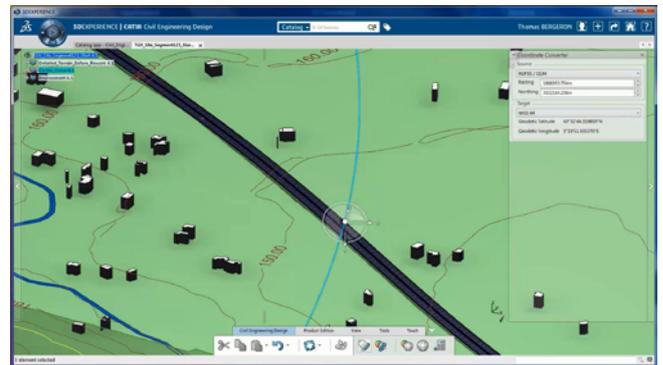
Civil Design Industry Process Experience

With Civil Design Industry Process Experience, you can leverage customizable, repeatable, and informed templates to boost project accuracy. The **3DEXPERIENCE** platform allows users to easily share information in a collaborative space where updates are automatically reflected among all users. Users can see which projects are assigned to participants. In addition to sharing data, the platform integrates all design data with true terrain information. Using new geolocation tools, users can bring precise site data into the model, or accurately prepare a site for excavation. Virtual modifications to any terrain lead automatically to relevant excavation calculations. Coordinates and terrain information can be extracted to use in the model, or design information can be placed in a true map to provide an accurate site overview and visual context for all users.

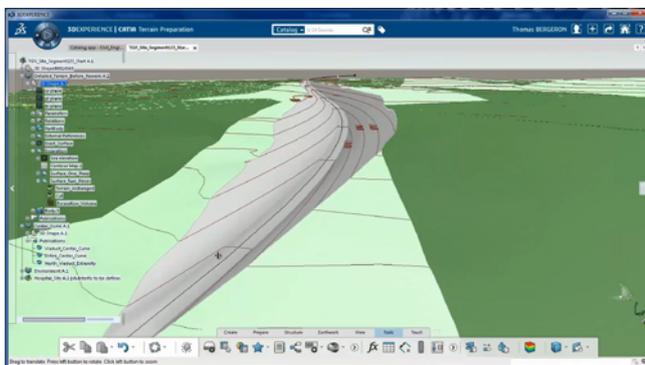
A comprehensive catalog provides pre-formed bridge, structural, and other component data that can easily be inserted for your site using an axis-based system. You simply input the reference coordinates and selected component to start creating a fresh span. Designers can reuse templates or modify the contents to suit a project's unique needs. From excavation to your standing structure, the solution supports the full range of data within a comprehensive BIM model. Civil Design Industry Process Experience connects conceptual design models to fabrication data, as well as to construction costs, quantities, specifications, and schedule.



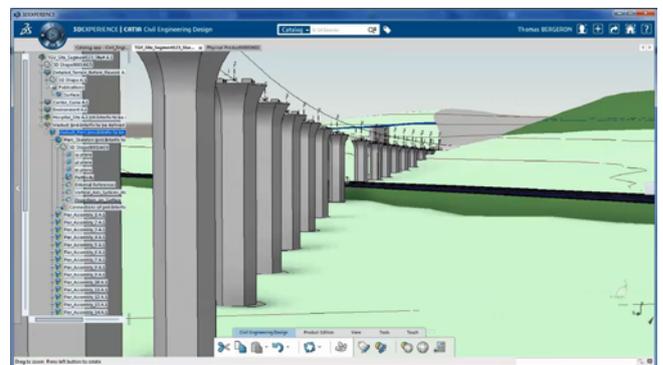
Easily share and browse files with high mobility for all users



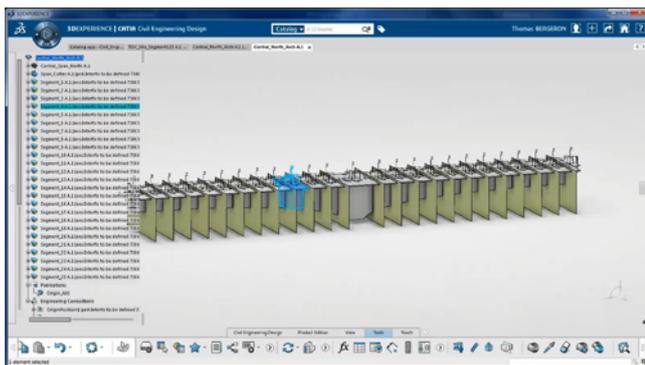
Geolocation capabilities enable real, local site precision



Changes in terrain preparation automatically translate to excavation preparation



Easily create an axis system adapting template components and reference coordinates



Templated components spur repeatability for prefabrication modeling



Comprehensive modeling is provided for large—and normal—scale structures

With the applications of the Civil Design Industry Process Experience, you can:

- Use geolocation tools to use the context of applicable terrain and reduce onsite surprises
- Design in both normal and large-scale ranges in a single model for increased project flexibility
- Model a range of AEC objects using IFC data
- Easily duplicate structural components, carrying all relevant data into the copied parts or modify all components by changing the parameters of one
- Update across all relevant documents in real time—upload a photo directly from the site and all stakeholders can see it instantly
- Manage high-level concept schematics through LOD 400

CIVIL DESIGN FOR FABRICATION

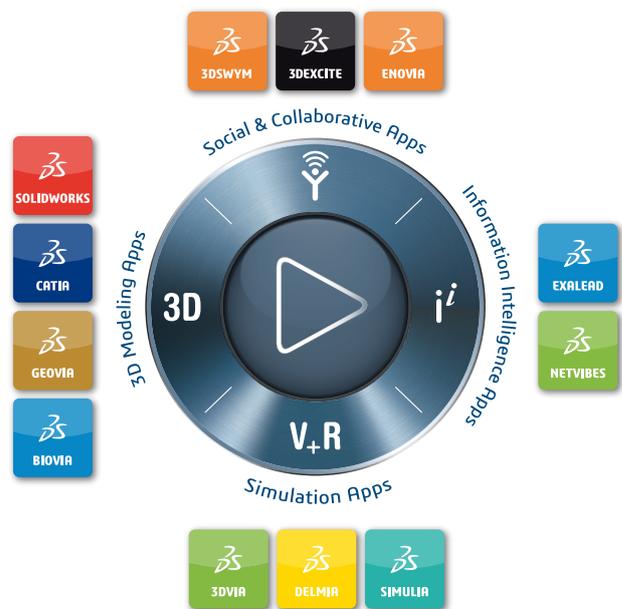
Dassault Systèmes **Civil Design for Fabrication** Industry Solution Experience moves infrastructure projects into a single platform for all civil engineering design data to ensure everyone is using the most current information. Applications and tools for collaboration and native design extend across concept, design, engineering, fabrication, and construction. Design models can be extended into fabrication to reduce waste and re-work found in the traditional design and construction process. Using the pre-formed catalog, real-time site data, and information imported from a range of platforms, users can easily create highly complex and infrastructure projects of any size.

As a complete end-to-end solution, **Civil Design for Fabrication** Industry Solution Experience brings new levels of accuracy to any bridge, road, tunnel, or other roadway project. Helping to keep projects on budget and on time, this solution will lead to new value for a growing community of owners.

Learn more about **Civil Design for Fabrication** at www.3ds.com/civildesignforfab

Our 3DEXPERIENCE® platform powers our brand applications, serving 12 industries, and provides a rich portfolio of industry solution experiences.

Dassault Systèmes, the 3DEXPERIENCE® Company, provides business and people with virtual universes to imagine sustainable innovations. Its world-leading solutions transform the way products are designed, produced, and supported. Dassault Systèmes' collaborative solutions foster social innovation, expanding possibilities for the virtual world to improve the real world. The group brings value to over 190,000 customers of all sizes in all industries in more than 140 countries. For more information, visit www.3ds.com.



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