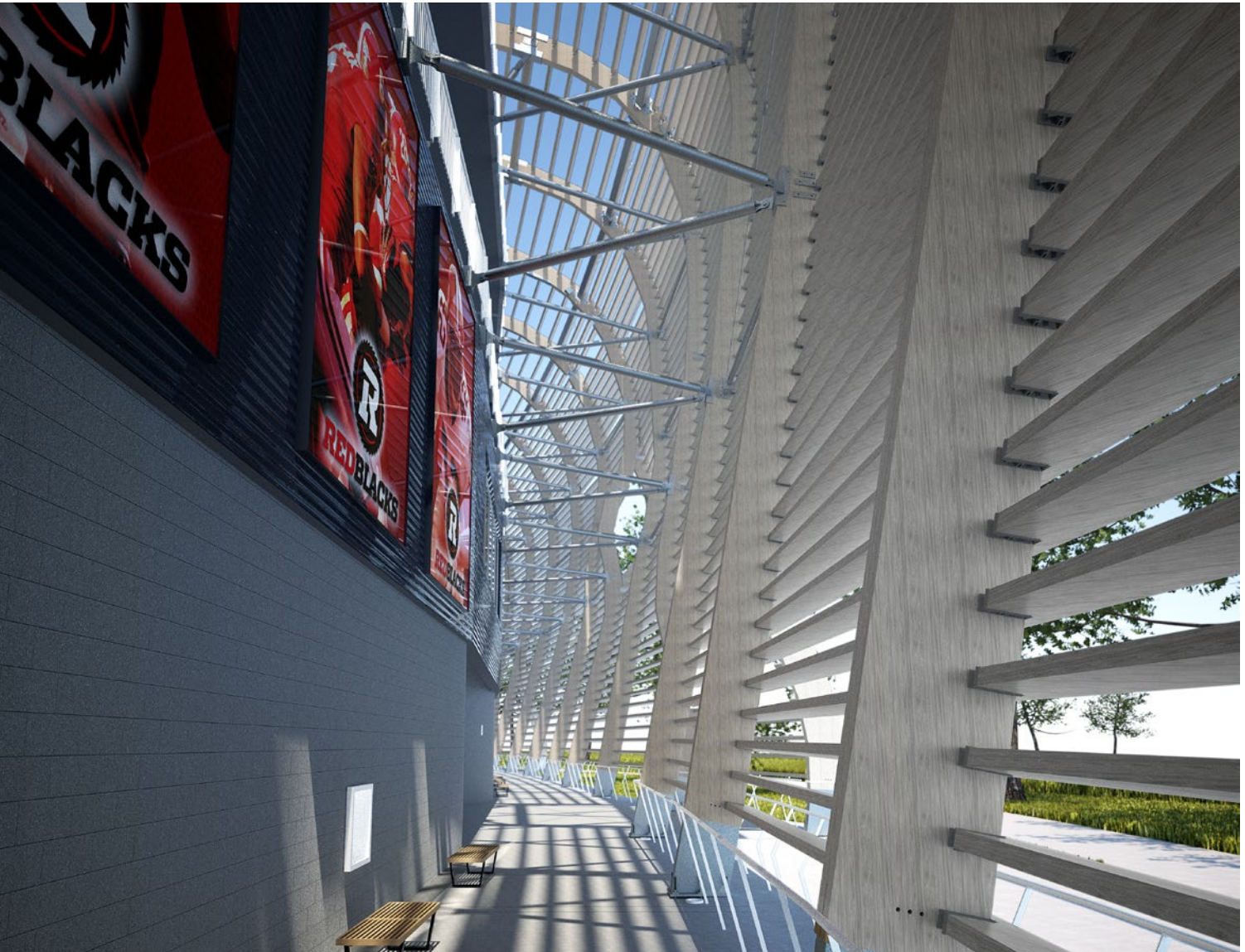


DESIGN {IT} MILL INC.

ENGINEERING AND FABRICATING COMPLEX ARCHITECTURAL FORMS
WITH SOLIDWORKS SOLUTIONS



Design {it} Mill relies on SOLIDWORKS Premium design and analysis and SOLIDWORKS Enterprise PDM product data management solutions to quickly resolve design and engineering challenges associated with the fabrication and construction of custom, complex, and curvilinear architectural forms.

design{it}mill.inc.

Challenge:

Quickly resolve design and engineering challenges associated with the fabrication and construction of custom, complex, and curvilinear architectural forms.

Solution:

Implement SOLIDWORKS Premium design and analysis, and SOLIDWORKS Enterprise PDM product data management software.

Results:

- Reduced development cycles by 35 to 40 percent
- Shortened model build times by 35 percent
- Accelerated response time to mill by 200 percent
- Cut 10 weeks from stadium project

Design {it} Mill Inc., (DIM), works with owners, architects, engineers, fabricators/installers, and contractors to create, fabricate, and implement complex architectural forms. The specialized design studio draws on the talents of creative, cross-disciplinary professionals with backgrounds in architecture and mechanical engineering to develop highly customized façade, building envelope, fabrication, and specialty curtain wall detailing solutions. Notable projects include the South Stands Veil at Lansdowne Stadium and the Communications Security Establishment Canada facility, both in Ottawa, Canada.

The firm specializes in architectural façade/roof systems for new construction, such as curtain wall, made-to-measure cladding systems, and structural glass and related lightweight systems. With expertise using a variety of materials—including wood, steel, aluminum, copper, zinc, titanium, concrete, stone, glass, and other multimaterial composites—DIM utilizes detailed systems information and innovative construction methodologies to realize the essence of conceptually driven design intent in the construction of complex, curvilinear forms.

According to Partner Mark Cichy, DIM realized it needed 3D solid modeling and product data management (PDM) solutions to tackle the challenges associated with transforming advanced architectural concepts into actual structures. “We need to go beyond building information modeling (BIM), which has traditionally utilized 2D approaches,” Cichy explains. “Our work focuses on the cutting edge of architectural design, such as buildings that don’t have a single linear surface.

“Everything we do is unique and often the first of its kind,” Cichy adds. “From the beginning, we knew that we needed a capable 3D platform that could support the modeling of surfaces and solids, analysis of components and structural supports, and management of design data and workflows.”

DIM evaluated the Autodesk® Inventor®, Pro/ENGINEER®, and SOLIDWORKS® 3D design packages before standardizing on SOLIDWORKS solutions, implementing SOLIDWORKS Premium design and analysis software and SOLIDWORKS Enterprise PDM (EPDM) product data management software. The firm chose SOLIDWORKS solutions because they are easier to use; offer greater flexibility for customization; and provide design, simulation, communication, and PDM capabilities in a single, integrated environment.

“Choosing the right system was critical to our success because we needed to lay a strong foundation to support the specialized nature of our work,” Cichy stresses.

“The interaction of design, analysis, and PDM tools in SOLIDWORKS provides greater ease of performance, and the open SOLIDWORKS Application Programming Interface (API) provides unmatched flexibility for automating tasks and processes.”

SURFACES WITH SOLIDS SAVE TIME

Using SOLIDWORKS, DIM has shortened modeling time by 35 percent, reduced development cycles by 35 to 40 percent, and accelerated response time to mill by 200 percent. Cichy attributes much of these time savings to the combination of surfacing and solid modeling tools in SOLIDWORKS, as well as the automation of workflow processes.



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— Mark Cichy, Partner

“Using solids allows us to understand the geometric properties of a design—like mass and material properties—not just its surface profile,” Cichy says. “By combining surfaces and solids, we can take advantage of the parametric aspects of the model, which is extremely helpful when you’re trying to master ways to deal with complex forms, such as the curvature of steel. The integrated SOLIDWORKS environment makes design changes almost instantaneous, stress analysis more efficient, and data management more effective.”

AUTOMATING DESIGN TASKS

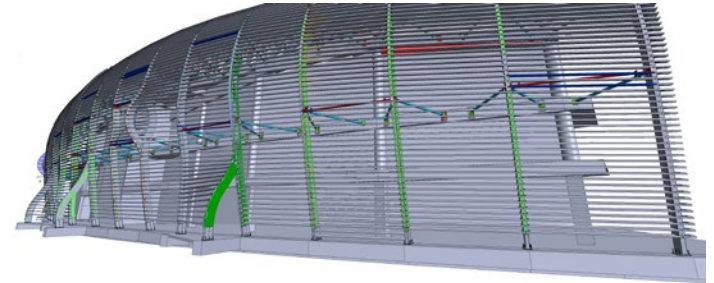
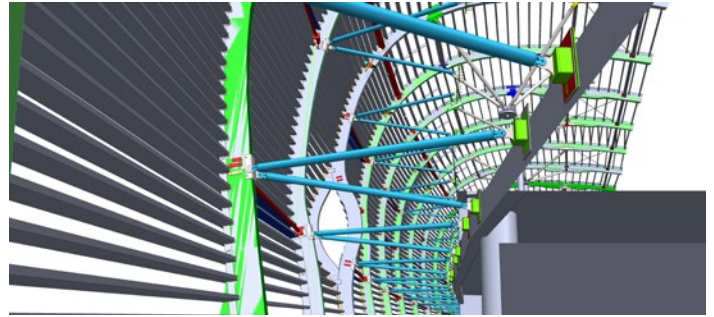
Leveraging the SOLIDWORKS API, DIM has automated many routine tasks, such as outputting drawings and production files following a design change, as well as specialized, time-intensive processes. For example, the Lansdowne Stadium project required 1,850 unique pieces of wood, each with a different cut. Instead of modeling each cut separately, DIM developed a macro routine that automated the process.

“What we projected to take 12 weeks was done in two,” Cichy notes. “By spending one day to create the routine, we cut 10 weeks from the project. This type of automation—using standard languages like Visual Basic® and C#—makes us more productive.”

EDRAWINGS BECOME INDISPENSABLE

With SOLIDWORKS eDrawings® files, DIM has improved communication, interaction, and collaboration with clients and partners. “I have found eDrawings to be a phenomenal collaboration tool,” Cichy says. “I can go to a construction trailer and show an eDrawings file of the design to contractors, owners, and architects. Being able to sketch, dimension, and make notes on the design enables me to capture all input and feedback. eDrawings are an indispensable tool for embedding meeting notes in the geometry.”

“We operate in areas where no one else can,” Cichy continues. “SOLIDWORKS allows us to realize designs that push the limits of architectural imagination.”



By leveraging the open SOLIDWORKS Application Programming Interface (API), Design {it} Mill has created macros to automate time-intensive tasks, resulting in additional time savings.

Focus on Design {it} Mill Inc.

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