

## CUSTOMER SUCCESS STORY

# Trussbilt Implements Autodesk Inventor to Support 3D Modeling and Process Automation



**Trussbilt**

## The Organization

Trussbilt is a leading manufacturer of security wall panels, detention doors and frames, security ceilings and floors, and other specialty products. The company has been a leader in hollow metal manufacturing for more than 85 years and has completed more than 4,000 projects. Trussbilt has fabricated more than 600,000 detention-grade doors which can be found in 20 nations around the world, including most major detention centers in the United States.

## The Challenge

### Discovering the Limitations of 2D CAD Technology

In 2001, Trussbilt implemented a 2D design system called the "Trussbilt Engineering Automation and Materials System (TEAMS)". This solution captured customer parameters and requirements within a database, generated 2D drawings and bills of material (BOMs), and also included DWG and PDF routers. TEAMS was first used to create 2D drawings for Trussbilt's doors, however, when the company expanded the system to include their frames, difficult problems began to manifest themselves.

There are an unlimited number of configurations possible for Trussbilt's frames – they can be constructed with no windows to as many as 125 windows. In addition, the frame profiles vary from job to job and can change within a single frame. Another challenge is that around 17,000 different types of hardware can be placed in the frames. "We found that it was impossible to build a 2D configurator that would identify interferences. This is a big challenge on the shop floor – a configuration can look like it will fit in the 2D drawing, but when the frame goes into manufacturing, the team discovers that the different components won't fit," said Mark Harvey, Information Technology Manager and Lead Developer at Trussbilt. "We recognized that we had reached the limit of configurations that could be easily programmed in 2D with TEAMS and it was time to explore other alternatives."

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Mark Harvey  
IT Manager and Lead Developer  
Trussbilt LLC



## The Solution

### Transitioning to 3D CAD Technology

In 2012, Trussbilt decided to investigate whether 3D CAD solutions could address the manufacturing challenges it was experiencing. The company had Autodesk Inventor licenses, but no one in-house had 3D modeling experience or experience with Autodesk Inventor. As a result, Trussbilt reached out to IMAGINiT Technologies for advice on how to migrate their 2D system to the 3D world.

"We wanted a system that would generate complete 3D models, create PDF routers, and generate full BOMs. Perhaps most importantly, we needed a solution that would find interferences when hardware was placed in a design. We also wanted the ability to use 3D models to program our machine and nesting tools," said Harvey.

The IMAGINiT team of development experts worked through the nuances associated with creating 3D models in Trussbilt's environment. The team identified a way to integrate Autodesk Inventor with Trussbilt's TEAMS system, which minimized business disruptions because customer information was being captured the same way it always had been.

## The Results

With the new system, parameter lists are built with information from TEAMS. IMAGINiT developed external code libraries and configured Autodesk Inventor with iLogic rules that migrate parameter lists from a SQL database into Inventor. These parameters are placed in template pieces which are used to build frames. With the iLogic rules, one of the major benefits is that 2D information, such as x and y coordinates for cutouts and round holes, can be reused in 3D models. There was no need for Trussbilt to completely rebuild the TEAMS system.

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## About IMAGINiT Technologies

IMAGINiT Technologies, a Rand Worldwide Company, is the world's largest provider of enterprise solutions to the engineering community, including the building, manufacturing, civil and mapping industries. With over 25 years of experience, and 45 offices throughout North America, we provide the expertise, training and support to help companies realize the full power of design technology, maximize ROI and gain competitive advantage.

IMAGINiT is a leading provider of Autodesk software solutions and the largest North American Autodesk Authorized Training Center (ATC) partner. All of our locations are supported by a vast pool of engineering resources focused on developing real-life business solutions for their local clients.



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