

SOFTWARE HELPS STRUCTURAL FABRICATOR TACKLE COMPLEX PROJECTS DESPITE SHORT TIMELINES



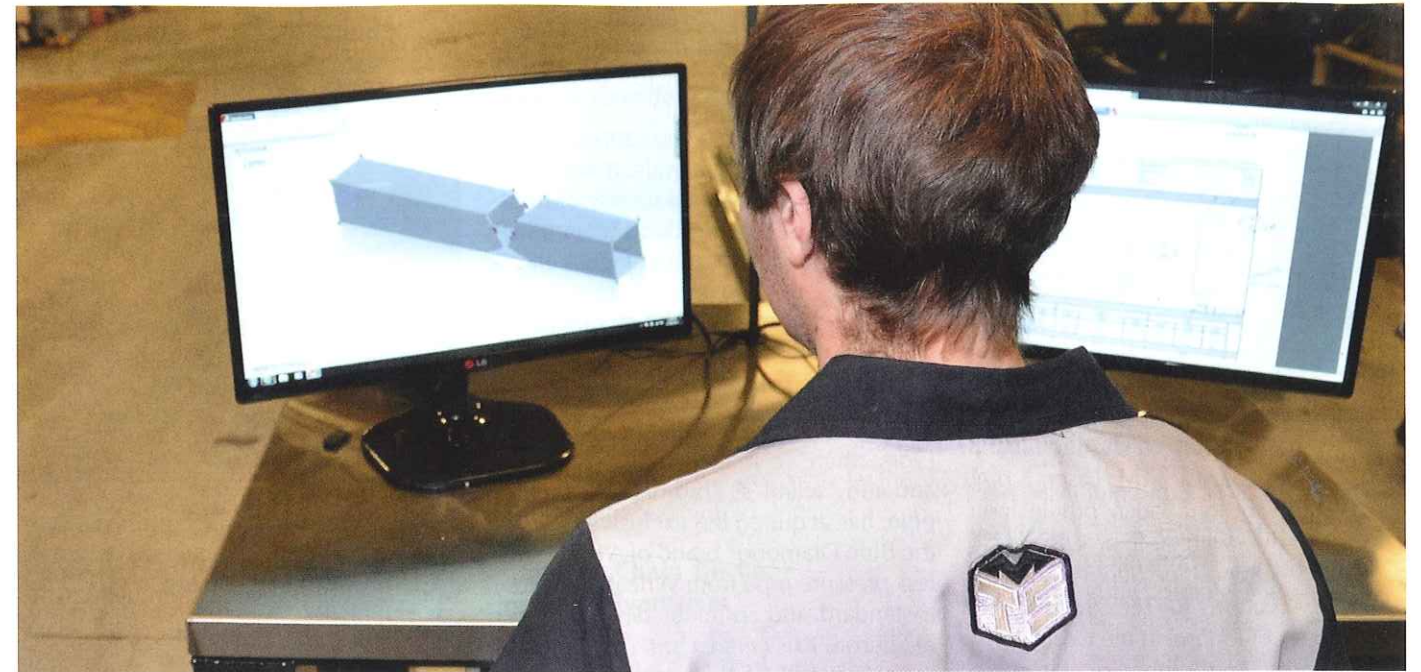
The annual World Routes expo is a prestigious event in which representatives from airlines, airports, tourism, and civil aviation meet to discuss new air routes. For World Routes 2014, the Metal Shop was subcontracted to build an expansive, flowing tubular structure for the Chicago Department of Aviation's booth, showcasing everything the host city has to offer.

Situation

When you visit a tradeshow, you probably focus most of your attention on the products or equipment the vendors have on display. Whether the products are aftermarket automotive at the Specialty Equipment Market Association (SEMA) Show, metal fabrication equipment at FABTECH®, or metal construction products and equipment at METALCON, the vendor's wares get the attention. However, the staff at The Metal Shop, Pleasant Prairie, Wis., has another reason to visit tradeshow. A big portion of its business is building tradeshow booths. This entails fabricating a variety of tubular shapes and sizes, which is aug-

mented by the company's other activities, which include complete metal fabrication services from prototyping to short-run production using aluminum, steel, and stainless steel.

Armed with only a single drill press, gas metal arc welding (GMAW) machine, and determination, Navy veteran Duane Swift launched his fabrication business in 2002. Since then The Metal Shop has accumulated a collection of machinery assets of more than \$1 million housed in a 35,000-square-foot manufacturing facility. Today the company's arsenal includes tube, pipe, and sheet metal bending and cutting equipment such as press brake, tube roller, and waterjet technologies.



The Metal Shop's principal laser operator, Michael Cousins, uses SigmaTUBE software from SigmaTEK to develop a V notch. The right-hand monitor shows the positioning and cutting instructions for the laser machine; the left-hand monitor provides a graphical representation of the cut tube.

Tradeshow exhibits have been the company's specialty from the beginning. Because the lead-times tend to be unbelievably short, the company has always looked for ways to buy time, which is why its machine purchases have become vital. A recent purchase is a case in point. Today's complex structures require myriad tube sizes and shapes, so company executives decided to invest in a laser machine designed and built to process tube.

However, its strategy isn't limited to buying machines. In this particular case, the next step was to get some additional productivity from the machine. While the machine provided the advanced functionality to ramp up production, management felt that the machine's original fabrication software lacked the sophistication needed to optimize the machine's cutting capabilities. Vice President of Operations Todd Swift looked for a more powerful program.

"Our big concern was to find a software program capable of handling SolidWorks® assemblies," said Swift. "Time spent reworking models is a step backward. In today's manufacturing environment, if your machinery isn't running, money is being lost."

Furthermore, the company came up with a two-year strategic plan to grow business by 50 percent, adding to the pressure to get more done in less time. It set its sights on expanding production capability.

Resolution

After evaluating a number of alternatives, the company decided on SigmaTUBE from SigmaTEK Systems. The software is a complete tube and pipe cutting program that operates seamlessly


within SolidWorks. It supports round, square, rectangular, and triangular tubular shapes along with structural material such as I-beam, H-beam, C-channel, angle iron, and user-defined shapes. Custom programs are available to maximize the advanced features from all the major laser manufacturers.

"The software really shined on the first project we were tasked with on the new tube laser," said Swift. "Our tradeshow client had the contract for the host city at the recent World Routes 2014 show at McCormick Place in Chicago. The booth was designed to have a hanging canopy over the show floor that was a replica of the Millennium Park overhead in Grant Park. The software made it possible. With little info from the client but a model, we were able to do two canopies, 40 ft. by 80 ft., from 4- by 0.065-in. aluminum tube. The parts fit like a glove," he said.

The project didn't end there.

"It is highly unlikely we could have turned this job, which had three additional canopies, in the 2½-week timeframe without this software," Swift said. The Metal Shop works mainly in aluminum, but initially the software was oriented more toward steel.

"SigmaTEK was quick to make individual condition changes for every material size and thickness," Swift said.

"I have to say that this is a unique case of a software program exceeding expectations," said Swift. "The SigmaTEK representative told me what we could expect, and the software and company have delivered." 

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