



# ACP Sheet Metal

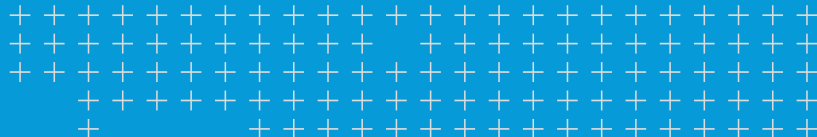


## Accelerates Shop Production and Reduces Material Waste with Trimble's FabShop

Sheet metal fabricator uses Trimble's sheet metal CAM cutting software (formerly Vulcan), DuctDesigner 3D and AutoBid SheetMetal, for a seamless workflow from estimating to design and fabrication.

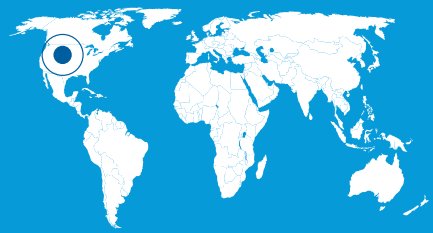
### Solution

Trimble® FabShop, formerly CAM Software, DuctDesigner 3D®, AutoBid SheetMetal software and several Mestek machines including Coil Line, Plasma and Water Jet Insulation cutting.



# overview

What started in 1977 as a small sheet metal fabrication shop, today has grown into one of the largest and most well-established sheet metal fabricators and installers in the Oklahoma City area and surrounding states. The company has a 21,000 square foot manufacturing plant, with more than 28,000 square feet of laydown area. The ACP Sheet Metal fabrication process couples technologically-advanced equipment like plasma cutters and water cutting machines, computers, and the coil line with the craftsmanship of experienced journeymen.



Location  
OKLAHOMA,  
USA



## CHALLENGE

ACP Sheet Metal was looking to advance the speed and accuracy of its cutting machines and to improve interoperability between design and manufacturing tools.

After practicing as an attorney for several years in his professional career, Nathan Dills returned to his roots as a metal fabricator and began running Oklahoma City-based ACP Sheet Metal with his father Harold Dills in 2005. Nathan later took over the business in 2013 and today he also owns and runs Midwest Fabricators. ACP Sheet Metal specializes in the design, fabrication and installation of duct in commercial and industrial buildings as well specialized fabrication. This includes the design and fabrication of duct components for very large public safety centers, hospitals, universities, sports and performance centers, and more. ACP Sheet Metal also provides advanced BIM coordination services, welding and 3D drafting services.

ACP Sheet Metal has a solid, long-time relationship with industry innovator Mestek Machinery. Dills explains that ACP Sheet Metal is a long-time user of Mestek's Lockformer® plasma cutting systems. In fact, the company still relies on its original plasma cutting table purchased in the mid-1980s. Mestek has several long-standing brands under its umbrella from— Engel Industries, Iowa Precision, ISM and Lockformer— which together deliver metal forming solutions that range from a single cheek bender to fully automated manufacturing lines. Mike Bailey, vice president of sales for Mestek, explains

that it's Mestek's philosophy to provide complete solutions for customers.

"We've had such a great relationship with Nathan and the folks at ACP," said Bailey. "Our work with them is a consulting role where we came up with solutions that all work together to provide detailed models, estimating and the ability to download drawings directly to the equipment. It's really about the complete solution that's all interoperable and it's a joint effort between Mestek and Trimble to help ACP save time and labor and to increase productivity."

A couple years ago, Dills recalls that he was ready to take on more complex projects and added additional cutting tables to his manufacturing shop. He worked with Mestek and purchased an Iowa Precision HVAC coil line machine. Happy with the gains in productivity and looking to continue to increase safety and minimize material waste even further, he spoke with Bailey about his options. Mestek suggested a complete solution including a 20-foot Plasma Coil Feed machine and Vulcan Plus Plasma Cutting System and a Vulcan Waterjet Jet Insulation cutting system. With these cutting machines in its manufacturing plant, ACP is also using Trimble's CAM FabShop, as well as DuctDesigner 3D and Trimble AutoBid Mechanical and AutoBid Sheetmetal for takeoff, bid creation and vendor submittal. As part of their workflow, they are also using AutoCAD Revit for 3D model creation and sharing and Naviswork for clash detection.



Formerly Vulcan, Trimble FabShop is the industry standard for sheet metal CAM cutting software. Dills explains that his operators like that with Trimble FabShop they can control how fittings are entered, formed, and fabricated with options for standard and specialty fittings. It also includes input screens that are easy-to-use, and a comprehensive fitting library.

### Detailing duct components with more consistency and accuracy

Dills explains that ACP Sheet Metal begins a project by building and detailing the sheet metal components in Trimble's DuctDesigner 3D. DuctDesigner 3D is a CAD detailing software that has 3D modeling capabilities and AutoCAD compatibility. This helps deliver greater productivity and efficiency during design. Dills explains that ACP Sheet Metal's Head Draftsmen Ryan Booher and Larry Kitchens, like that DuctDesigner lets them set up specific company standards, fabrication, and project settings within the tool's data editor. The hanger point tool is also useful for spacing points along a duct run to save time and ensure accuracy. DuctDesigner is also integrated into ACP Sheet Metal's project workflow, with connections to Trimble FabShop CAM software.

"DuctDesigner gives our models more consistency and accuracy and warns us if fittings don't meet our duct construction standards," said Dills. "It highlights invalid fittings like a transition offset that exceeds so many degrees. It's not that these types of errors would get through to

fabrication, it's that now we can find and fix them so much faster, we don't waste time or spend extra money on rework."

### Faster and more accurate project estimating and takeoffs

Once models are detailed in DuctDesigner 3D, drawings can be exported to AutoBid Mechanical and AutoBid SheetMetal to generate pricing reports and project cost estimates. Or, they can be sent directly to Trimble FabShop CAM software to start fabrication within minutes using a cutting machine. AutoBid is a complete estimating solution that includes pre-built assemblies, automatic fitting generation, and integration with the Trimble DuctDesigner 3D detailing solution. Booher and Kitchens like that with AutoBid they can box in an area for takeoff and convert shapes from rectangular to round, or whatever is needed, saving a lot of time. The software automatically generates fittings inserting the correct fittings and hangers according to the specifications, pulling data from a SMACNA-based duct standards library. With tight integration between AutoBid and DuctDesigner 3D, ACP Sheet Metal project managers like that they can monitor the project through the detailing phase and evaluate cost impacts due to changes in the design.

"As we grow and continue to get more complex jobs, we knew we wanted an estimation process that was much more automated and would help us create more detailed and accurate estimates," said Dills. "With AutoBid, we can perform takeoffs directly from electronic 3D CAD drawings,



which means we can generate estimates and takeoffs in a much faster timeframe.”

### Streamlined design and fabricating workflow

Dills explains that Booher and Kitchens are generally working on 3 to 4 fabrication projects simultaneously and at any given time the ACP Sheet Metal team could be designing systems, coordinating BIM models with project engineers and other trades, conducting pricing and reporting, or fabricating projects using the Trimble suite of MEP products and AutoCAD software.

“Our drafting department can create a design in DuctDesigner 3D and instantly send that file to my shop foreman,” said Dills. “They give it a number and send to the plasma machine and coil line. They don’t have to hand enter from the drawings to the plasma table and coil line so there’s less manual input and room for error. And there’s no time wasted in between those

steps. Our output and production are greater because the inputs are greater and our workflow and integration are tight.”

### 24-month ROI and better material optimization

Used with the Trimble suite of office software, Dills estimates about a 24 month return on investment for the Vulcan Plus 5” X 20” plasma cutting machine. Lockformers Vulcan Plus Plasma Cutting machine along with Iowa Precisions Plasma Coil Feed machine has replaced two older machines and eliminated the need to handle sheets and feed the plasma cutting table by hand. This has reduced labor needs and improved material utilization. On any given job the machine eliminates the need to handle the individual sheets of material, reducing the process by approximately 4 hours on any given job based on the size and complexity.

## RESULTS

- Developed an automated bidding and estimating process that’s more accurate and twice as fast compared to conventional methods with the ability to perform takeoffs directly from electronic CAD drawings.
- Increased shop productivity and cut material waste by approximately 60 - 70% with Vulcan Waterjet machine and Trimble’s suite of detailing, estimating and CAM cutting software.
- With Trimble’s CAM cutting software and the waterjet cutting system, ACP Sheet Metal can fabricate less expensively, faster, safer all while reducing material waste.



Contact your Distribution Partner today

NORTH AMERICA  
Trimble MEP  
10368 Westmoor Drive  
Westminster CO 80021  
USA

© 2018, Trimble Inc. All rights reserved. Trimble, the Globe & Triangle logo are trademarks of Trimble Inc., registered in the United States and in other countries. All other trademarks are the property of their respective owners. PN 022516-217 (01/16)