

BURNING BEAMS IN NO TIME

FOR SOME INSIGHTS INTO REMAINING SUCCESSFUL AND COMPETITIVE, TAKE A CLOSER LOOK AT HOW THIS FABRICATION SHOP WON MORE STRUCTURAL BUSINESS BY INVESTING IN AN AUTOMATED BEAM LINE THAT TRANSFORMED THEIR ENTIRE OPERATION INTO BECOMING MORE EFFICIENT AND COMPETITIVE.

By Michelle Avila

From an initial start as a one-man shop doing light commercial fabrication jobs to today, Fabrication Products, Inc. (Vancouver, WA) is working hard to remain successful and competitive. More than 30 years of history helps: starting in 1985 and growing into an established business with 40 or so people today, the company was purchased in early 2016 by long-time employees Marsha Dee and Greg Sword, whose goal was to continue for another 30 years, though they knew further automation would be vital to success. Working out of a 40,000 sq ft fabrication facility with a 4,000 sq ft paint building in Vancouver, the team is a well-rounded group of highly skilled and certified fitters, layout personnel, welders, helpers, painters, inspectors and delivery drivers that fabricate a wide variety of projects running the gamut, from multi-story towers to increasingly sophisticated hydro projects, like dams and fish management systems for many water district and government agencies.

Though Fabrication Products has enjoyed steady growth from increasingly larger and complex projects, they recently found themselves in a peculiar place. "We weren't winning much on the structural side," explains Sword. "The smaller guys had less overhead, and the bigger guys were more efficient because they had more automation." He could lower his overhead by reducing the size of his business or he could automate. Sword easily chose the latter, hopping on a plane to San Antonio, TX, to attend the 2017 NASCC Steel Show, where he started shopping. Because Fabrication Products cuts a lot of wide flanges, tube steel and channels, Sword suspected a beam line system would be a good addition for his shop. "Cutting that type of material takes a lot of time," he says. "And for us, it was all manual so we were not very efficient." He adds that his team had considered getting a beam line earlier, but didn't want to buy too early. "When we looked, they were still too new and not proven. Now, though, we felt the time was right. They've come a long way in the last ten years."

Sword met with a few different equipment manufacturers at the show, eventually finding Inovatech Engineering Corporation (Vankleek Hill, ON), a provider of integrated robotic systems. After getting a better sense of Sword's business and needs, Inovatech owner Miquel Clement knew that one of his SteelPRO beam processing systems would be a perfect fit. Sword and Clement chose the SteelPRO 600,



A cut out for a tie back pocket (top) in a member for the Washington Park Reservoir right after processing on the SteelPRO 600 system using XPR300 with X-Definition Plasma. A finished welded tie back pocket (center) prior to painting for another member in the same project. The final members are laid out in the yard (bottom) prior to paint and shipping to the Washington Park Reservoir in Portland, OR. This project totaled more than 200 pilings.

one of Inovatech's smaller systems. Sword liked the fact that he could easily integrate the system into their existing fabrication process while still having the ability to quickly process a wide range of material shapes and sizes. Less than 2½ months after first meeting Clement at NASCC, Fabrication Products took delivery of their new system and within a few days of installation, the shop was burning beams with it.

With a nimble robotic arm zooming around the part being cut, the shop was suddenly processing parts faster than they ever dreamed possible. All of the cutting, including the cutting of holes and precise bevels, was done in a fraction of the time that it took to do manually. Sword gave an example using a recent project that required 8 in holes to be cut at a 15 deg angle through the flanges and webs of a large structural wide flange. "Holes were taking 1½ hours a piece by hand. Now we are averaging maybe three minutes a hole. I can run a beam with five or six holes in 15 minutes," he says.

"They had 200 plus beams," explains Clement. "Using the old method, they needed 10-plus man-hours per beam. That's 2,000 hours, or a year of work by a highly skilled, well compensated employee. Now the machine takes 15 minutes per beam. That's four beams in an hour, or all 200 beams in 50 hours." The SteelPRO system at Fabrication Products uses XPR300® with X-Definition™ Plasma from Hypertherm Inc. (Lebanon, NH) that contains engineering advances, including many patent pending technologies, that take high definition plasma to the next level and create a highly efficient system that cuts and pierces faster than the HyPerformance® HPR260XD® system. This system is also capable of cutting thicker material than the HPR260XD and delivering squarer cut edges, markedly less angularity, and excellent surface finish on non-ferrous metals like aluminum and stainless steel.

"This system has a huge range of capabilities as far as sizes. It has really transformed our whole operation," notes Sword. "We are so much more efficient and competitive. Before, we would have to load material onto a saw with the forklift, cut it, take it off the rollers, and then bring it back around the building to begin the layout and fabrication process. That took a lot of time." Now, employees still have to load material onto a machine, but they are able to do so while the system is busy cutting another pipe or beam. Someone can load new material while the



The SteelPRO system (above) can cut five or six angled holes through the flanges and webs of large I-beams, H-beams, tubing, angle, channel, flat bar, and bulb flats in 15 minutes, delivering squarer cut edges, markedly less angularity, and excellent surface finish on non-ferrous metals like aluminum and stainless steel. It can complete four beams in an hour, or 200 beams in 50 hours. This same work takes 1½ hours a piece by hand and requires 10-plus man-hours per beam, or 2,000 hours of labor.



robotic arm cuts or marks a second piece, and the third piece is unloaded at the other end. I-beams, H-beams, tubing, angle, channel, flat bar, and bulb flats can all be cut this way. As a bonus, the system is completely reversible, making it easy to switch direction if the shop ever has the need to do so.

This is a big change from the way things used to be done. When Sword started at Fabrication Products back about 15 years ago, "We used to do everything by hand," he said. "We would take the drawings, lay the part out with chalk marks, shear it, and then use the punch." That changed in 2007 when the shop purchased a 10 ft x 40 ft CNC table from ALLtra Corporation (Dewey, OK) that came with both a plasma and oxy set-up. Material less than 1-1/4 in thick was cut with an HPR260, while anything thicker than that was cut using oxy. Ten years after first installing that machine, the system continues to work flawlessly. "We've had no issues with it. It's been a very reliable machine," states Sword, who explains that while Fabrication Products continues to use the ALLtra table today, it is used for the cutting of flat plate, leaving the SteelPRO open to do the heavy lifting.

"I've been able to bring in quite a bit of work based on the machine capacity," says Sword. "We are booked out at least six

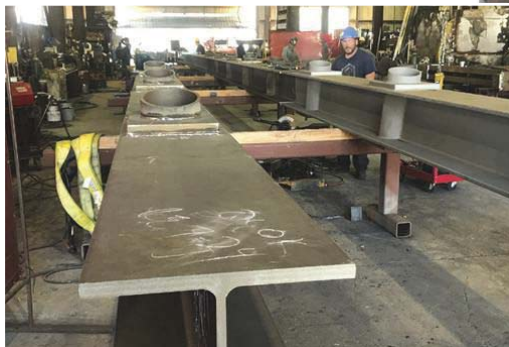
months. The difference is night and day... we are light years ahead of where we were. I can run the machine for a day and it takes the welders in the shop three or four days to catch up. Before it was the opposite... the shop was always waiting for us." ■

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It typically takes the welders in the shop three or four days to catch up with the SteelPRO system after it runs for a day.