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ON THE CUTTING EDGE

For contractors ready to make the investment, laser machines offer vast improvements in cutting speed and consistency

The lasers light show you may have seen at rock concerts are boring compared to what's taking place today in the sheet metal industry. These days, industrial lasers are being used to cut all types of metal in new and intricate ways at record-setting paces, and it's happening all across the country.

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FROM THE PRESIDENT

Technology Is Driving Change, We Must Embrace It

Technology is driving change in our industry faster than ever before, and quite frankly, faster than many of us are prepared for. Regardless of your comfort level, innovation and technical advancements are sweeping our industry.

In this issue, SMACNA covers the purchasing decisions and experiences five contractors have recently gone through on their path to owning new laser cutters. The cover story really resonated with me as my shop just made several major purchases as well, including a laser cutter and coil line for sheet metal, a robotic welder and tiger stop for piping, and a water jet for cutting duct lining. These major upgrades and new additions will bring our shop in line with other fabricators in the area and will enable Western Allied Mechanical to be more efficient and more competitive, and most importantly, expand capacity to grow and take on more work that already awaits us.

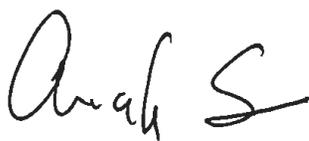
Once installed, these pieces of equipment will change everything about our shop from cost of operations to estimating, to production time and capacity.

With cutting speed improvements going from 275 inches on our plasma to 1,200 inches per minute on our new laser, and a water jet capable of cutting 3,000 inches per minute, our ability to pre-fabricate quickly increases, expanding our opportunities at the same time.

While each piece of technology substantially increases efficiencies, it will also allow us to add more field installers to handle the additional capacity.

I encourage all SMACNA contractors to take a close look at the latest innovations in equipment and build a financial model to examine the impact new equipment can have on your costs and the possibilities of new revenue as result. Change is upon us and if we don't embrace technology and innovation, our competitors will, and they surely will pass us by.

Sincerely,



Angie Simon
SMACNA President



CAPITOL HILL UPDATE

The 2020 Focus on Pensions

While the 2018 Joint Select Committee on Solvency of Multiemployer Pension Plans could not overcome political divisions to solve the pension crisis, it did launch the 2019 effort for a bipartisan solution and comprehensive reform. Members of Congress recognize the political cost of letting the PBGC implode and leaving retirees without promised benefits or even the PBGC guarantee. So, Congress will act sooner or later. In fact, the

end-of-year spending bill in 2019 included a fix for the Mineworker's pension plan, which saw its last significant employer file for bankruptcy, forcing their plan into insolvency earlier than expected.

A fix is still needed for other failing plans and for the PBGC, and the issue has the attention of both parties and the Administration. The issue will test the political will of Democrats and Republicans and stake-

holders as negotiations continue.

For failing plans, House Democrats want the Butch Lewis Act, which would provide direct federal money to failing plans in the form of a loan some believe will never be repaid.

The Republican Multiemployer Pension Recapitalization Plan would provide federal money to shore up the PBGC in a way that would mitigate the impact of plan failure on affected retirees, but would not be a total rescue and would include Composite Plans—but it comes with strings attached.

The Republican proposal as drafted contains structural changes and fees so onerous, it seems unlikely any stakeholders would support them, and no one contemplates they will be enacted as proposed. SMACNA remains focused on two tracks: Authorizing Composite Plans and ensuring changes to the system aren't so costly they drive employers out of the system.

SMACNA spearheaded the construction industry employer response to the Republican proposal. The letter, which was signed by eight construction industry



FEATURE STORY

associations, outlines our concerns. The letter can be viewed at <https://smacna.org/news/grassley-alexander>. SMACNA members and chapters can view the Republican proposal at <https://www.finance.senate.gov/>.

SMACNA and other stakeholders continue to share with Congressional offices how proposals affect plans, contributing employers, and participants. While stakeholders

don't agree on everything, all agree structural changes should not further destabilize plans that aren't going insolvent.

Both sides of the aisle have said there is a potential legislative vehicle in the Senate in May. Politics demands a solution, and we are working with both political parties in hopes of a bipartisan breakthrough that both sides will see as a political win by May.



SMACNA endorsed H.R. 5544, “Stop Unfair Bid Shopping Act” of 2019 (SUBS Act), introduced by Rep. Scott Peters (D-CA-52)

The SUBS Act will bring greater fairness, quality, and credibility to the federal government construction market bid process. SMACNA has long-supported this important change to the federal construction bidding process. If enacted, the SUBS Act provides confidence that post-award subcontractor changes and cost-savings accrue to the federal gov-

ernment and not exclusively to the prime contractor. For specialty contractors who invest considerable resources to develop drawings and proposals for their bids, post-award bid shopping and unwarranted contractor substitutions create significant financial harm, while the federal government loses the value in both craftsmanship and material.



The communications and marketing team at AHR Expo.

2020 AHR Expo a SMACNA Success

SMACNA was well represented this year in Orlando at the 2020 AHR Expo, the world's largest event for the heating, ventilation, air conditioning and refrigeration sector.

Thousands of attendees and exhibitors came together from across the globe at the expo from February 3-5 to network, learn about new developments and best practices, and see the latest technological innovations in the industry. SMACNA's exhibit booth attracted large crowds of visitors throughout the three days of the expo.

The SMACNA Technical Services department delivered four different presentations during the first two days of the event. Mark Terzigni, SMACNA's director of engineering and technical resources, and Pat Brooks, a senior project manager with SMACNA, educated and entertained standing room only crowds at presentations that were well received by those in attendance.

Topics included:

- SMACNA HVAC duct construction standards for metal and flexible materials;
- HVAC duct design for high-performance air distribution systems;
- HVAC air duct leakage; and

- SMACNA HVAC duct construction standards for flat oval tables.

Other highlights from the event included a panel discussion on current topics and trends in the HVAC industry hosted by SMACNA Premier Partner Johns Manville. In addition to Terzigni, roundtable participants included:

- Brennan Hall of Johns Manville;
- John Newland of Hercules/SPIDA; and
- Mike Bailey of Mestek Machinery.

Ignite Your Career Gets Early Premiere

Importantly, the event gave SMACNA an opportunity to preview its new workforce development program, Ignite Your Career, which formally launched in February.

The SMACNA booth included prominent igniteyourcareer.com signage, a video of key careers in the industry, and marketing handouts highlighting the earnings potential and the scope of work that takes place in the sheet metal and air conditioning sector. SMACNA's message focused in-part on the opportunity to go through a debt-free, salaried apprenticeship that leads a career in which journeyman can earn an average annual salary of nearly \$75,000.

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GSM worked on the new Gary and Christine Rood Family Pavilion on the roof of the parking structure.



General Sheet Metal Collaborates on Oregon Health & Science University Project

Oregon's General Sheet Metal (GSM) was the design build contractor of choice when Oregon Health & Science University built the Gary and Christine Rood Family Pavilion—a Ronald McDonald House that provides lodging for patients and their families. GSM worked alongside ZGF Architects and Hoffman Construction on the new building that opened in 2019.

The pavilion features five stories dedicated for patients and families to relax and focus on healing, and sits atop six levels of parking, with retail shops on the ground floor. GSM did the punch windows, the thermally broken furring, cladding, flashing, plus some interior work in the entryway. The project took more than 12 months to complete, but from first involvement to sign off it was more than three years in the making. The integrated project delivery method meant Olander worked in ZGF's office. Once the project got underway, the owner, architects, Hoffman Construction, and all trade partners worked in

the same job trailer.

The original design didn't pass the design review board, but the co-location made collaboration on the re-work easier.

"I attended all the design review meetings with ZGF architects," Olander points out. "The beauty of it was they didn't have to transfer information and we were all on the same page."

Tom Breault, Senior Project Manager at GSM, notes that the company faced some unique challenges on this project. "The engineering of the garage screen panels was a task with having to design in the drift and the deflection of the parking garage concrete structure."

They also had to address environmental issues. "In order to keep the garage screen from howling or screaming with the wind, perforated panels were used in conjunction with the 1/4" bent plate garage screen panels," Breault said.

As they planned the perforated panels and 1/4" bent plate screen panels, GSM relied on mock-ups. They would make a prototype in

their shop, then take it out to the site so everyone had the opportunity to see what they were getting before moving forward.

Olander appreciated that architect John Thompson cared about efficiency as well as design. One result of this mindset was to change their panel size from 4 x 4' to 39 x 39" which achieved 100 percent material utilization.

Olander explains the reasoning behind the custom aluminum plate panels. "A parking garage in Oregon has to have 50 percent free area or they have to put an exhaust system in the garage. The perforated panels are about 42 percent free area, so they had to provide some more open surface. The idea was to take a square panel and bend it corner-to-corner out at an angle. That gave it an attractive shape and opened up the free area. It's installed more like a curtain wall system where it's allowed to be free-floating in both directions, so it meets the seismic and live load requirements."

GSM used their CNC routing table, computerized breaks and

shears to form the large 1/4" plates for the garage screen. They also used their 25-ton press. The 1/4" plate and aluminum tube for the garage screen were unique to this project. This job was one of the first major projects where GSM fabricated the composite panels in their shop rather than purchasing them.

With all the moving parts of the project, everyone appreciated that working on a building that included a Ronald McDonald House was a special opportunity.

"I think everybody who worked on it understood," Olander said. "Even though the Ronald McDonald house was the smaller portion of the whole job, it's a really important piece that meant a lot to all of us."



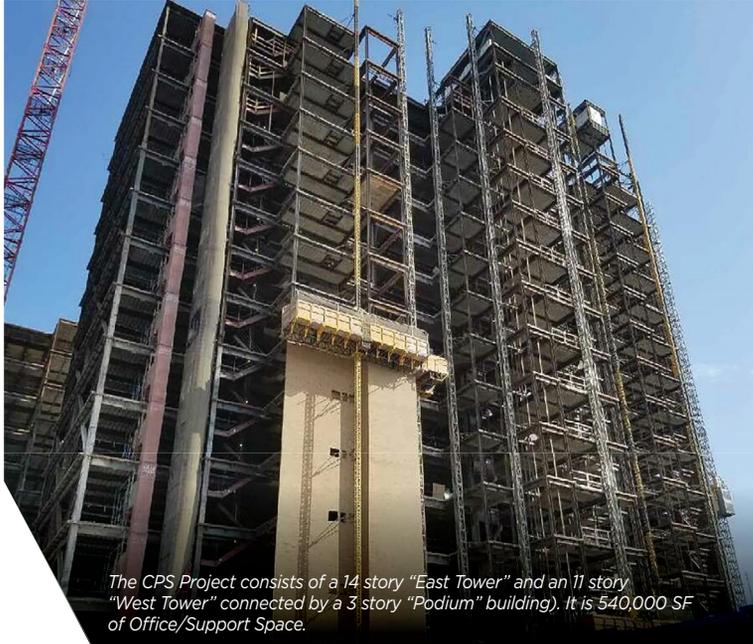
GENERAL SHEET METAL
www.gsmw.com



ZGF ARCHITECTS
www.zgf.com



HOFFMAN CONSTRUCTION
www.hoffmancorp.com



The CPS Project consists of a 14 story "East Tower" and an 11 story "West Tower" connected by a 3 story "Podium" building. It is 540,000 SF of Office/Support Space.



Preparation Is Half the Work

There are many sayings that emphasize the importance of pre-planning. Even Abraham Lincoln was quoted as saying, "If I had eight hours to chop down a tree, I would spend six hours sharpening my ax."

This wisdom still holds true for contractors in today's data-driven, digital world, where technology is transforming the construction industry. Today's HVAC project managers would likely agree with Lincoln's sage advice, but would put a modern twist on it when comes to talking about technology in the shop, "Hire knowledgeable and patient BIM designers."

That's exactly what Brandt, a SMACNA company based in Texas, has done. As a design-build fabrication, mechanical, plumbing, and electrical contractor, Brandt depends on its streamlined teams to win projects and collaborate with stakeholders throughout all phases of the construction process.

Brandt promotes early coordination efforts during the

preconstruction phase to lead to successful projects. With early involvement, this is where Brandt's BIM (Building Information Modeling) team shines. The City Public Services (CPS) Energy project, where Brandt is a contractor, is the latest example of their BIM proficiency.

The project, which started in 2017, involves the complete reconstruction of an existing building complex, which includes both an 11-story building and a 14-story building connected by a three-story podium structure. The 540,000 square-foot facility primarily consists of vast office space, along with 27 restrooms, 2 locker rooms, a coffee bar, and an extensive kitchen.

According to Steve Pendleton, Project Director for the CPS Energy job, the team ran into several hurdles during preconstruction and the early phases of construction. These obstacles resulted in construction starting at the top of the building, instead of the bottom as they had initially planned.

"The change of construction direction created the need to completely rebuild the schedule, redirect the BIM effort, and procure the project materials and equipment in a different order," Pendleton said. "We expedited this entire process so that the completion date would not be impacted."

The value of Brandt's BIM team (nearly 70 designers) has been especially evident on this project, where they led the BIM coordination efforts for the project.

"Brandt invested 14,000 hours, spent over a two-year period, to get the project fully modeled," Pendleton said. "Throughout most of the modeling process, we had two meetings a week to make sure this job stayed on the top of all the

team members' priority lists. We had up to 10 virtual (BIM) designers stationed at our Carrollton, Fort Worth, Houston, and San Antonio offices working simultaneously to accomplish this effort."

The knowledgeable and patient Brandt BIM designers and construction team persevered. Now the CPS project is well on the way to being a success. The general contractor, Sundt Construction, has noticed.

"I want to take a minute to say thank you to the Brandt team for
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THE BRANDT COMPANIES
www.brandt.us

According to the Brandt website, "BIM essentially boils down to the process spanning the initial design and development of a project, all the way through to the installation of the physical building. By digitizing the physical representation and unique characteristics of a given facility, you're getting more than just a blueprint—you're getting an in-depth look at the entire life cycle of a building before building even commences."



Gabrilson has brand recognition with its yellow-and-black colors, and delivers consistency in everything it does.



Merging Traditional Branding with Digital Marketing

“Yellow, Gabrilsons,” says a friendly voice on the phone. The “Y” replacing the “H” in Hello is not an accident. It’s an extension of an extremely successful marketing campaign that’s been going strong for more than 70 years.

Yellow. It is much more than a color for Gabrilson Indoor Climate Solutions, a SMACNA firm based in Davenport, Iowa. It is the foundation of the company’s brand.

“Everybody here is trained to answer the phone, ‘Yellow,’” said company president Tom Gabrilson. “It’s an example of how we try to consistently build top of the mind awareness.”

According to Wikipedia, top-of-mind awareness (TOMA) is a measure of how well brands rank in

the minds of consumers. Gabrilson said his firm has great TOMA in the Quad Cities area (southeastern Iowa and northwestern Illinois), and it all began with his father, the company’s founder.

The younger Gabrilson learned that the colors of black and yellow stand out better than other color combinations. So, he painted his service trucks yellow, and painted the exterior of the company building yellow—and everything had the Gabrilson name painted in black. Just about everyone in town noticed.

“I grew up, going to school, where everybody thought I was rich,” Gabrilson recalled. From that time forward, he understood the power of branding. As president, he embraces the branding every day, and he is always looking to

the most effective marketing strategies.

“In our business, if we do everything right, nobody notices us,” Tom explained. Thanks to the success of the company branding, everybody notices Gabrilson Indoor Climate Solutions.

Gabrilson used to advertise the company brand everywhere he could: television, billboard, home expos, jingles, and—of course—the yellow pages. Not anymore.

“The internet is changing the scope of our business,” Gabrilson said. “Basically, I’m moving my marketing online—virtual marketing, so to speak.”

He has found the internet to be the best way to reach customers

“It’s a little expensive, but it really has brought us up in the generic Google search,”

He said. “I think it’s important to reach the next generation. They would rather text than talk to a human being.”

Whether he is testing new online strategies or updating traditional branding tactics that have been so successful, Gabrilson is determined to run his company like restaurateur Ray Crock—selling consistency.

“That’s my philosophy too,” he said. “I want my customers to know that they’re going to get a clean-shaven, well-groomed technician to provide a solution to their issue.”

“YELLOW. IT IS MUCH MORE THAN A COLOR FOR GABRILSON INDOOR CLIMATE SOLUTIONS, A SMACNA FIRM BASED IN DAVENPORT, IOWA. IT IS THE FOUNDATION OF THE COMPANY’S BRAND.”

who don’t have the Gabrilson yellow on the top of their minds. So Gabrilson is using Facebook and putting some of his marketing budget into services provided by Podium—an online company that makes interaction management tools for local business. According to the Podium website, they help businesses with customer interactions “from reviews to webchat to messaging and everything in between.”

That consistency is visible in the Gabrilson Indoor Climate Solutions branded show room, where they have a fully operational Carrier hybrid heating system on display. To ensure all the company’s yellow service

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GABRILSON INDOOR CLIMATE SOLUTIONS
www.gabrilson.com



Partlan-Labadie recently installed the ventilation system at the Fiat Chrysler paint shop in Michigan.



Partlan-Labadie Continues to Provide Critical Solutions

Fiat Chrysler Automobiles is building two new paint shops in Michigan, and SMACNA contractor Partlan-Labadie Sheet Metal Company of Oak Park, Mich., is a crucial part of that growth.

“We’re installing the ventilation system, providing basic comfort for the future workforce,” says Partlan-Labadie President Craig M. Pessina. “It’s like heating and cooling a home.”

To Craig and many of his staff, complex and bigger systems may seem simple – like heating or cooling a home – but of course, industrial plants require much bigger ventilation systems than any home. For this project, Partlan-Labadie purchased 42-inch round duct and fabricated the necessary 232-inch rectangular duct and specialized fittings in-house.

“The rectangular duct is outside the maximum range of SMACNA guidelines,” Pessina said. “We had to calculate the correct proportions ourselves. For a project of this magnitude, we closely follow

SMACNA design standards to ensure high quality results.”

Installing 10,000 to 12,000 linear feet of duct into a million square foot paint shop might sound like a big project for many contractors, but it is smaller in scale compared to past plants worked on by Partlan-Labadie.

“We’ve done paint shops before,” said Pessina, “some three or four times larger than this one.” Ironically, the smaller construction sites like this one pose the most serious challenges for completing these projects on schedule. “In some ways, these small facilities are less challenging projects because they are not as spread out as our previous paint shop jobs,” Pessina explains. “The equipment is packed into a much smaller footprint.”

For previous paint shop jobs, Partlan-Labadie would bring in large crews as the work progressed, peaking at 40 or 50 craftsmen on-site. With these more compact plants however, this tried-and-true strategy backfired.

“About a fifth of the way into the project, we realized that we had too much manpower, and it was detrimental to our success,” Pessina said. “It wasn’t just our own people we had to take into account, but also the 500-600 other tradespeople who were working at the same time. We were tripping over each other.”

The crowded conditions slowed Partlan-Labadie’s progress, and raised the risk of injuries. “We stepped back on manpower and refocused on road-mapping the most efficient ways to go forward.”

Materials handling also proved to be unique. A crane hoisted the air supply houses to the 110-foot high roof access, but then the team had to move them to their final location 80 feet above ground level.

Increased planning and foresight were crucial to success. “We had to maneuver them back down through different levels of the building,” says Pessina.

Adjusting the work crew and

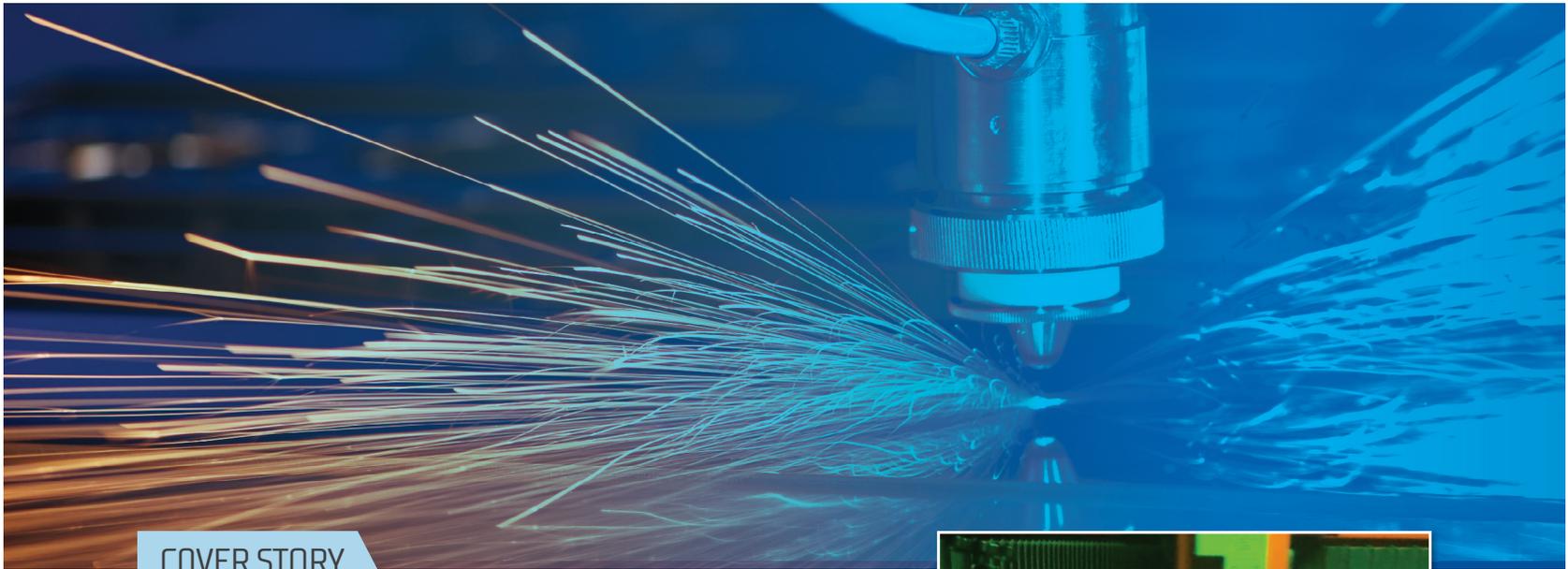
detailed planning paid off. “The Detroit plant is now 95 percent complete,” Pessina said. “We are in the thick of the second facility in Warren, Mich. I’m glad we had the two projects back-to-back, because we were so well-prepared for the second job. Things are going much more efficiently for the second facility. That will wrap up around April.”

With business booming, Pessina appreciates his work force. “We are fortunate to be a union shop,” he said. “Labor is always a challenge, but Local 80 includes a vast array of very qualified sheet metal workers. They have experience working here in Michigan. We have a solid crew of labor.”

Partlan-Labadie just celebrated their 130th year as a family-owned business. “There aren’t too many challenges that we haven’t seen,” Pessina said. “We pride ourselves on providing solutions for our customers. We do our best to ensure the entire team, not just sheet metal workers, with a successful project.”

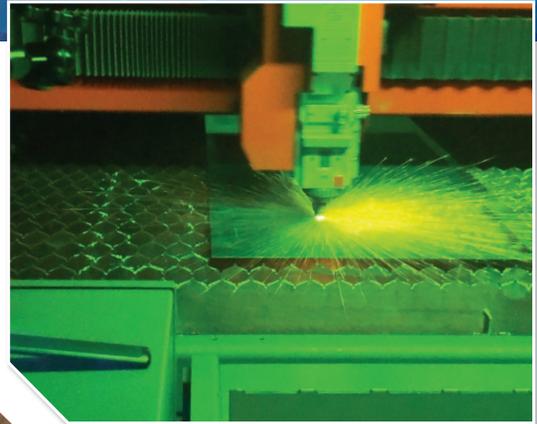


PARTLAN-LABADIE
www.partlanlabadie.com



COVER STORY

ON THE CUTTING EDGE



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Laser cutting equipment is steadily making its way into the sheet metal shops of SMACNA members—especially those whose businesses extend beyond HVAC ductwork into other types of specialty fabrication. At companies where the client list encompasses industrial and agricultural businesses and even large-scale beer brewing operations, laser cutting machinery is almost mandatory, some contractors say.

Nothing compares when it comes to the speed and accuracy of laser machines, they add. Even the most expensive plasma cutters cannot match the laser for efficiency or the clean cut it produces.

Ask George Gallant. The president and owner of Lor-Don Ltd., a 58-year-old industrial contracting company in London, Ontario, has purchased three laser machines over the last 16 years. The company currently has two: one is a 12-year-old, 4-kilowatt carbon dioxide (CO₂) laser machine, and the newest is a 10-kilowatt fiber laser unit. The manufacturers were Mitsubishi and Bystronic. They can cut 16-gauge stainless steel anywhere from 160 inches per minute (IPM) on the older machine, to an eye-popping 2,350 IPM on the latest model.





“LASER CUTTING EQUIPMENT IS STEADILY MAKING ITS WAY INTO THE SHEET METAL SHOPS OF SMACNA MEMBERS—ESPECIALLY THOSE WHOSE BUSINESSES EXTEND BEYOND HVAC DUCTWORK INTO OTHER TYPES OF SPECIALTY FABRICATION.”

A Fairly Recent Development

The CO2 laser was invented by Bell Labs in 1964 and has long been used in construction. The more powerful fiber laser, which has been available for about 30 years, has only come into common use in the last decade.

They're essential to Lor-Don's success, Gallant said, adding that they can even run when nobody is in the shop, since the sheets are automatically fed and cut.

“We could not do what we're doing today without those pieces of equipment,” he said. “If you're going to be in this (industry) fabricating the product, you're going to have a laser or you just can't afford to do the work.”

In Clackamas, Ore., officials with General Sheet Metal (GSM) decided to purchase a laser cutting machine after comparing the direct and indirect costs of outsourcing such work to vendors versus performing it in-house. The company estimated direct costs at

close to half a million dollars.

“Indirect cost was more difficult to measure but included reduced drive times (pickup and delivery) and reduction of accounts payable time (writing purchase orders and billing),” said Danny Knudsen, the manufacturing distribution manager at GSM.

General Sheet Metal decided on a Mitsubishi 4020 RX-F40, a 4,000-watt fiber laser capable of cutting up to 1-inch-thick milled steel, half-inch steel and aluminum, and copper, brass and bronze up to 3/8th-inch.

General Sheet Metal, which specializes in mechanical, architectural and HVAC fabrication, uses the laser for cutting HVAC fittings out of stainless and thicker milled steel.

A Need for Speed

Going to a fiber laser from a plasma table, the speed difference when cutting fittings was noticeable immediately, Knudsen said. GSM's plasma table typically

cuts material at a rate of around 350 inches per minute (IPM). The Mitsubishi laser could do the same amount, four times as fast: 1,400 IPM.

Based on numbers like that and what it means to time savings and costs, Knudsen said purchasing the machine was unquestionably the right decision.

“We all had concerns on the cost of this machine, but we are on track to beat the projected ROI (return on investment) of six years, and my goal is to reach it in four years,” he said.

Bill Marrinan isn't surprised by those types of comments. Marrinan is a vice president and owner at Gladwin Machinery & Supply, a Schaumburg, Ill.-based seller of fabrication equipment with customers and offices throughout the Midwest. The main brand of laser cutting equipment that he represents is from Mazak Optonics Corp.

“If we're talking 16 gauge and lighter, which is ductwork—galvanized ductwork—you're probably going to be 10 times faster, which is a lot when you talk about savings or increasing capacity,” Marrinan said. “It's huge. It's mind-boggling.”

A Revolutionary Change

He compares the technology used in the newest laser machines to the evolution from the gasoline-powered internal combustion engine to the plug-in, fully electrified vehicles from automakers such as Tesla. They represent the future.

“Most of the fiber lasers that are being sold today are being sold to people who already had laser (ma-

chines),” he said. “They want to get away from all the maintenance of the old machines. They want the speed. There's a huge flight to this new fiber technology” whether it is to save money or increase capacity and add more customers.

Partly because of the expense and the fact that many HVAC projects don't require the clean edge cut that lasers provide, most sheet metal shops are more likely to have a plasma cutter, Marrinan said.

But there are a few laser machines aimed directly at the HVAC market, Marrinan pointed out. One is the Vulcan Laser-Max 1.5 from Mestek Machinery. The fiber laser cutter dispenses with the bulky enclosure most laser machines require. Instead, just the laser cutting head is enclosed, and the whole machine doesn't take up much more space than the 20-foot plasma table sheet metal contractors are already familiar with.

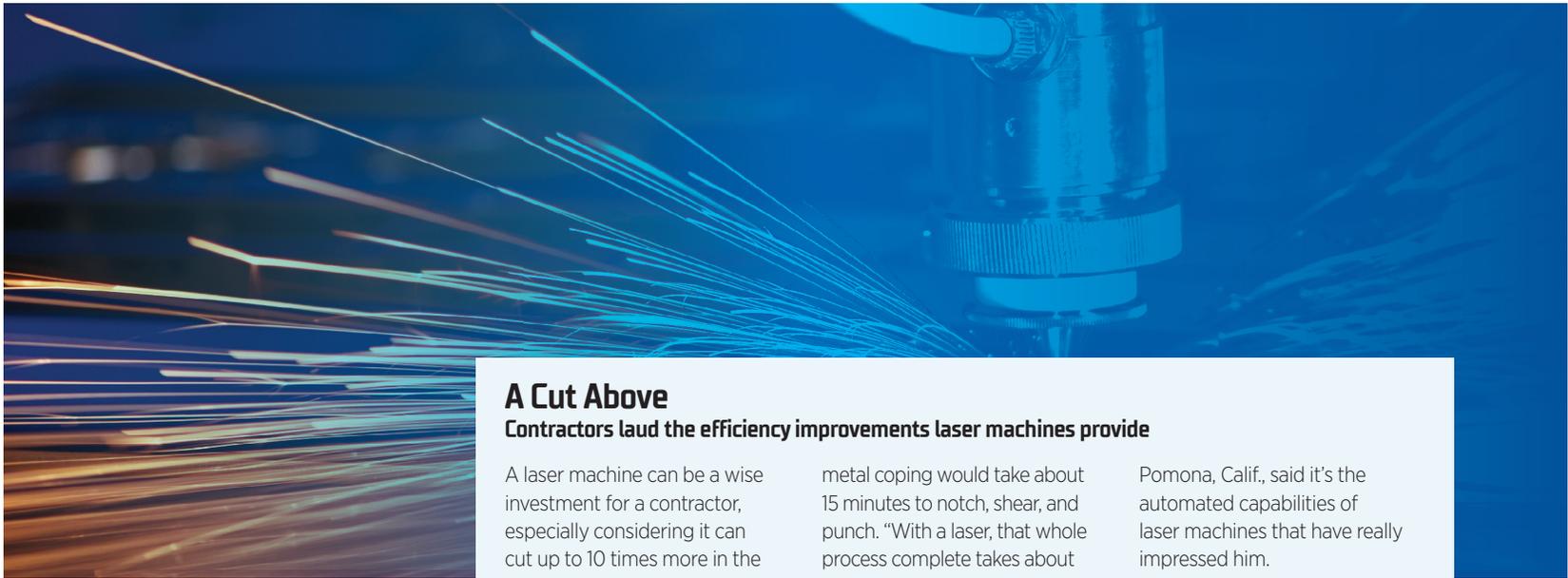
Like its larger laser cousins, it cuts fast and clean—in about a third of the time that a traditional plasma cutter takes—and without the smoke, powder and jagged edges common with plasma.

Taking It to the Max

Among those who have purchased the Laser-Max for their shops are Tom Nolan of Hermanson Co. in Kent, Wash.

In the case of Hermanson, the laser machine was part of a \$3M upgrade to the sheet metal and pipefitting shop at the full-service HVAC construction contractor. (The overhaul was featured in the September/October 2019 issue of SMACNews.)

“FPO CUTTING EQUIPMENT IS STEADILY MAKING ITS WAY INTO THE SHEET METAL SHOPS OF SMACNA MEMBERS—ESPECIALLY THOSE WHOSE BUSINESSES EXTEND BEYOND HVAC DUCTWORK INTO OTHER TYPES OF SPECIALTY FABRICATION.”



A Cut Above

Contractors laud the efficiency improvements laser machines provide

“We had seen promotional videos of the Laser-Max HVAC application machine and had toured shops around the country using the machine in order to collect their opinions and experiences,” said Tom Nolan, the contractor’s fabrication general superintendent. “That data collection convinced us that the laser should be part of our investment. We have found that the laser does cut much faster and the quality compared to a traditional plasma cutter is much cleaner. The laser simply makes for a better product.”

Hermanson uses the Laser-Max to cut 24-gauge to 16-gauge galvanized metal, along with 16-gauge stainless steel for welded duct systems.

“It really excels on the lighter-gauge material,” Nolan said.

Initially, Hermanson ran its existing plasma table alongside the Laser-Max. But once the staff became familiar with its operation, the plasma was retired from service.

A laser machine can be a wise investment for a contractor, especially considering it can cut up to 10 times more in the same amount of time as older machinery and methods — and without the mess or dross.

At California Sheet Metal, an architectural contractor in El Cajon, Calif., executive vice president Joe Isom said the 3-kilowatt Bystronic Bysprint fiber laser the company bought in late 2018 has really boosted his company’s efficiency.

Before buying the machine, a single piece of 10-foot-long

metal coping would take about 15 minutes to notch, shear, and punch. “With a laser, that whole process complete takes about five minutes and (requires) less handling,” Isom said. “We have seen tremendous time improvements on jobs that involve large quantities because we call it ‘lights out’ fabrication. With the automated loading, we can turn the lights out at night, go home and a stack of processed material is sitting on a pallet ready for forming the next morning.”

Mike Hilgert, president of Superior Duct Fabrication in

Pomona, Calif., said it’s the automated capabilities of laser machines that have really impressed him.

“A lot of the machines are the same,” he said. “They’ll do the cutting. “It’s the automation that moves the material around that’s the important part. And I believe that the company we went with, which is Salvagnini, has the best automation.”

Like the Bystronic, the Salvagnini machine can pull, cut and process material without the need for someone to operate the machine.

“I mean, if we were to leave it alone for a weekend, it can cut up to 250,000 pounds,” he said. “This is significant progress in technology, which is extremely helpful for a company like ours.”



CALIFORNIA SHEET METAL
califsheetmetal.com

SUPERIOR DUCT FABRICATION
www.sdfab.com



LOR-DON LIMITED
lordon.com

GENERAL SHEET METAL
www.gsmw.com

GLADWIN MACHINERY & SUPPLY
www.gladwinmachinery.com

HERMANSON CO.
hermanson.com

2020 AHR Expo a SMACNA Success

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Students in attendance expressed interest in the program, offering a chance to test out SMACNA's new tradeshow booth materials. Additionally, contractors, recruiters, members of the media and more stopped to talk with SMACNA President Angie Simon about growing concerns over a lack of skilled labor in the sector. Jeff Henriksen, SMACNA's executive director of communications and marketing joined the conversation to share information on SMACNA's new workforce development efforts.

The SMART Union also participated in the AHR Expo, one of the major industry events that it views as prime opportunities to recruit new members. The organization is incorporating more face time with current apprentices into its presentations. For instance, apprentices will attend the events and demonstrate how to build tool trays at the union's booth.

"People just don't know about apprenticeships anymore," says Charles Mulcahy, an international representative for the SMART Union. "That's kind of an old-fashioned thing for some people who didn't grow up around the construction industry. It's something that was done back in the dark ages."

While some industry professionals want to see the apprentices' skills in action, other attendees are looking for more information about working in the sector. Rather than speaking with SMART executives, Mulcahy says prospective recruits often prefer the opportunity to hear directly from the apprentices and newly minted union members themselves.

"It's one young person talking to another young person in their own words about more than



SMART Apprentices demonstrate and help attendees build toolboxes at AHR Expo.



"FPO CUTTING EQUIPMENT IS STEADILY MAKING ITS WAY INTO THE SHEET METAL SHOPS OF SMACNA MEMBERS—ESPECIALLY THOSE WHOSE BUSINESSES EXTEND BEYOND HVAC DUCTWORK INTO OTHER TYPES OF SPECIALTY FABRICATION."

just the apprenticeship and their career as a sheet metal worker," Mulcahy notes. "They're interested in hearing about things like pensions and healthcare. They get to talk one-on-one, and that's extraordinarily effective."

Mulcahy points out that SMART

Union apprentices who accompany the presenters also have the opportunity to tour the events to learn about the latest developments in the industry, such as new technologies. "That's a good building experience for them and the union, too."

SMACNA National and SMACNA Brazil Meet

SMACNA National met with representatives of SMACNA Brazil during the 2020 AHR Expo to discuss current standards, technical documents and SMACNA business management documents available to the organization's members. Additionally, the SMACNA Brazil delegation learned about resources available via the SMACNA website.

The SMACNA Brazil delegation consisted of:

- Edson Alves – SMACNA Brazil Chapter President, Star Center, Santo André, São Paulo
- Edson Alves Jr. – Star Center, Santo André, São Paulo
- Antonio Uehara – Star Center, Santo André, São Paulo
- Wylían Rodrigues – DuctAir, Santo André, São Paulo

SMACNA National was represented by president Angie Simon, executive director of technical resources Eli Howard and executive director of member services Thomas Soles.



The Importance of Identifying Risks and Developing a Strategy

In the last issue we looked at the tendency for senior leaders, particularly founders, to stay involved in the myriad details of their organization long after they've grown to the point of hiring others who can help carry the load. In this issue, we'll share first an analogy, then a few takeaways.

In the days of western expansion, wagon trains provided an opportunity for adventurous families to make a dangerous and difficult overland journey to places like Santa Fe, Oregon, or the gold fields of California.

These wagon trains were led by two very different types of leaders (examples are all male because of historical context). The wagon boss was responsible to do whatever it took to travel an average of 12 miles every single day. In order to make that goal, he had to take care of all the details—lame oxen, broken wheels, and/or quarreling families.

The other key leader was the scout. It was his job to ride ahead and look for opportunities to exploit and dangers to avoid. A river crossing that was normally too swift was safe to cross this year—they could shave a day and a half off the journey. Distant sightings of native warriors painted for war—a need to detour immediately. When he came back, he had important information that would ultimately lead to decisions that determined success. While the wagon boss might have significantly more tangible responsibilities on his shoulders, without the scout the wagon train would soon be another in the long list of casualties on the plains.

I'm sure you can see where I'm going with this. The urgency of wagon boss responsibilities pulls on many leaders like a magnet. That was our focus last issue. But if you are hanging around the wagons, who's out there looking for opportunities

to exploit and dangers to avoid?

While no one can accurately foretell the future, we all know the boom cycle won't last forever. Like the scout, someone has to identify potential risks on the journey ahead and develop a strategy for managing it. Those companies that survive a downturn usually anticipated a change in the economic climate and were proactive in planning for leaner times.

What's your plan for those less robust seasons that are sure to come sooner or later? Who are your best clients who will continue to need you even during a down cycle? What other work should you be exploring now that might cycle up when your existing work cycles down? What's your current ratio of new construction to service work? What's your plan for differentiating your best people from your good people should there be a need to downsize? How are your cash reserves? How can you strengthen your banking and surety relationships? Where would a current investment in technology give you the advantage over your competitors when work becomes scarce?

There are a lot of resources available to help you navigate each of these topics. In the space of this short column, we simply want to remind senior leaders that no matter the size of your company, you have a role to play that no one else can fill. If you don't identify the right questions, and start working on the answers, no one else will. Train others to manage the wagons, then ride out to see what's coming next. You'll enjoy the view most because you get to see it first.

Ron Magnus, managing director of FMI's Center for Strategic Leadership with Ed Rowell, CSL consultant.

ignite YOUR career

SMACNA Kicks Off "Ignite Your Career" Workforce Development Campaign with the Launch of a New Career Website

If you were to ask a contractor in most any segment of the construction industry what their greatest business challenge is, you'd be hard pressed to find one who doesn't mention attracting and retaining good employees near the top of their list. With record low unemployment levels in the U.S., it's become a near-universal concern for companies around the country—one that is exacerbated in the sheet metal industry by an aging workforce, a national shortage of skilled trade workers and a general lack of public awareness about career opportunities within the industry.

In response, SMACNA announced an aggressive national workforce development campaign, designed to raise industry awareness and highlight career opportunities across the HVAC and sheet metal industries while supporting members in their recruitment efforts. IgniteYourCareer.com launched in early 2020 as the cornerstone of the initiative, targeting job seekers and young people who are exploring career options.

"We hear from mem-

bers all the time who tell us that while business is booming, the challenge is having enough workers to meet that demand," said Vince Sandusky, SMACNA's Chief Executive Officer. "SMACNA is proud to play a leading role in addressing this challenge. Our 'Ignite Your Career' campaign is focused on not only helping to fill the pipeline of immediate job openings, but also encouraging the next generation of workers to consider our field—whether on the craft or non-craft side."

"Thirty four percent of our workforce is now aged 50 or older, creating the perfect storm combining a great economy, record unemployment and an aging workforce," said Jeff Henriksen, SMACNA's Executive Director of Communications & Marketing. "Every chapter should take a close look at their workforce needs along with their JATC, and re-evaluate the impact that this aging trend will have on their workforce over the next five years. We want to make sure we have the best and brightest

workforce possible, ready to fill in as senior managers retire.”

The Ignite Your Career website serves as an educational hub for visitors to learn about the diverse career paths and opportunities within the industry, meet real-life professionals working in jobs across the industry, and connect with resources—including local SMACNA chapters and skilled training centers—that can help them get started in the industry.

SMACNA has also established a social media presence for its Ignite Your Career campaign on Facebook (@IgniteURCareer), Instagram (@ignite_ur_career/), Twitter (@_IgniteURCareer) and YouTube (Ignite Your Career). Other features of SMACNA's initiative include industry relations and collaboration with national, state, and local organizations to address specific workforce development needs. SMACNA will also be investing in audience and message research, advertising, and



public relations efforts. New collateral, including infographics and videos spotlighting real people in real careers in the industry, are also available for member companies to share and use in their own recruitment.

“A critical component of this campaign will be our members’ involvement,” Sandusky said. “We encourage our members and the industry to follow our new social media handles and share the content we post there with their own company or personal pages. We’ll also be rolling out additional tools and resources for members to use in

their own recruitment efforts. Empowering job seekers to pursue a career in sheet metal is something our entire industry can get behind.”

The U.S. Bureau of Labor Statistics projects a nine percent growth in jobs in the sheet metal industry by 2026, making it one of the fastest-growing industries in the country.

For more information on SMACNA's workforce efforts, visit IgniteYourCareer.com or contact Jeff Henriksen, SMACNA's Executive Director of Communications & Marketing, at Jhenriksen@smacna.org.



HVAC

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all their hard work, professionalism, and expertise they provided on this project,” Fabian Leal, Sundt Project Manager, wrote in an email. “I am thankful we had Brandt’s BIM team on this job,” Leal continued. “Without you, we would still be trudging along.”

At Brandt, many of their BIM technicians are former journeymen who know how to use tin snips and torches. They are also experienced problem solvers – an essential skill for BIM work.

Thanks to the extra efforts of the entire project team, Pendleton said the CPS project will be completed by the scheduled date - June 2020. He also said the customer is extremely happy with how the construction of this high-profile project has progressed.

For Brandt, the CPS project is another example of what the company tells its customers, “Early involvement and planning with the entire project team enables us to meet the owner’s goals and leverage the expertise of everyone involved.”



RESIDENTIAL

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vehicles are consistently clean, Gabrilson offers his employees financial incentives to keep a tidy truck. It is also evident in the company’s policy restricting the use of branded apparel.

All employees must wear Gabrilson’s apparel. Old company ball caps and shirts must be returned to the office, for example, not handed down to employee’s kids or donated to a thrift shop where their apparel may be worn inappropriately. “I guard my brand very closely,” Gabrilson said.

Gabrilson doesn’t have metrics to evaluate the impact of each of the company’s branding and marketing efforts, but he is looking to Google to provide those.

He also recommends hiring an ad

agency. Working with professionals, he’s learned that there are some popular marketing strategies that are not worth the money. Wrapped vehicles, for example, often feature designs that are wordy and visually busy.

“They may look great sitting still,” he said. “But they lose their effectiveness when they’re going down the road.”

At Gabrilson Indoor Climate Solutions, simple is better. Their yellow service vehicles feature the company logo, and essential information, like a phone number—easy to read and remember.

“The old man’s idea and our signature color has served us well for many years,” Gabrilson said. “If you see a yellow truck coming at you, you know it’s us.”





Mobilizing for the Future: Shop Technology

Technological advancements are improving all areas of the human experience. Countless innovations allow people to live longer, experience better healthcare, benefit from access to increased information, and thrive in connected communities on a global scale.

According to a study by Statista, a world leader in statistical market trends, urban population is increasing by 200,000 people per day. By 2050, the global population will rise to 9.7B people and 6.4B of these individuals will live in cities. In 2018, contractors supported this massive growth by building an average of 11,098 urban buildings per day. To keep up with the rapid demand for urbanization, contractors will have to build an average of 3,600 more buildings per day by 2050.

As the demand for more buildings increases, the complexity of the job site is also increasing. At a time when building schedules continue to get tighter and buildings are becoming more intricate, there is less time in the schedule and physical space available to construct ground-up assemblies on the jobsite.

To address challenges around filling hourly craft positions, many contractors are turning to offsite construction to improve productivity and ensure that workers can build in the best possible environments while maximizing safety and project efficacy.

Offsite construction includes any scenario where components are assembled at a location other than the area of direct installation. Assemblies are typically fabricated in an optimized shop and then delivered to a traditional “stick built” jobsite. Offsite construction includes the creation of everything from preassembled hangers to preassembled rooms. While offsite construction is a general term that encompasses many types of off-location construction work, three of the most common categories of offsite construction are described below:

- 1. Prefabrication**, the most frequently applied type of offsite construction, is the process of assembling a typically “stick built” or in-field process in a controlled environment or facility.
- 2. Modular construction** is the process of combining multiple prefabricated components from several trades into one assembly or module which is then delivered to the jobsite.

- 3. Panelized construction**, a more comprehensive type of offsite construction, involves building walls, roofs, and flooring systems in a factory and delivering these units to the jobsite.

Whether first exploring prefabrication opportunities, or for those contractors who are veterans in the space, periodic assessment of the fabrication shop can pay dividends on reducing errors and tightening build schedules. Below are five practices that allow shops to run more smoothly and empower continuous improvement throughout the offsite construction process:

- 1. Identify Opportunities:** Often the greatest opportunities for work to be fabricated offsite are those tasks which are repetitive, monotonous, and performed in inconvenient locations on a site. From adding end caps on duct to assembling hangers, look for the tasks that can be shifted to a shop for huge time savings.
- 2. Plan Shop Workflow:** Designate and arrange task stations sequentially starting from those involving raw materials to labeling and loading final assemblies. The goal here is to reduce time wasted in moving materials around the shop and instead to optimize the flow of progress.
- 3. Inspect Thoroughly:** Proactively minimize costly revisions during the build process by planning the shop workflow with regular inspection points. Check for quality, tolerance, fit, and consistency with the digital model and ensure any discrepancies are resolved.
- 4. Lean on Lean Practices:** Apply principles to optimize the productivity of the shop employees. From clearly labeling workstations to ensuring that the appropriate tools are organized in consistent locations, manufacturing has provided many examples to pursue perfection.
- 5. Track and Coordinate:** In order to demonstrate the clear value of a fabrication shop, and to understand opportunities for improvement, it's critical to coordinate with the design and field teams early and often. Strategically integrate steps to document, track, and update progress of fabrication to limit blind spots and increase process transparency.

There are many available solutions that help address the above strategies. Design software

can help identify repeatable operations ideal for offsite construction and keep track of progress as offsite work is completed. In addition to using similar equipment from a jobsite within the fabrication shop, there are also a variety of hardware solutions that help increase shop efficiencies. Examples of products that drive increased productivity for offsite construction are listed below:

- 1. Autodesk** provides a suite of solutions for converting a project's digital model into optimized prefab assemblies, communicating between trades, and driving improved project coordination. (www.autodesk.com/solutions/architecture-engineering-construction/prefabrication-modular-construction)
- 2. ManufactOn** software is specifically designed for project management of construction materials, offsite production, and onsite installation. (www.manufacton.com)
- 3. MSuite** empowers the creation of fabrication drawings, spooling creation, and assembly tracking through the entire construction process. (msuite.tech)
- 4. Milwaukee Tool's ONE-KEY TICK** trackers can be utilized to track subassemblies through a fabrication shop, during delivery, and onto a jobsite. (onekey.milwaukeetool.com)
- 5. Mestek Machinery** creates duct work and sheet metal bending equipment able to reference the digital model for increased accuracy and optimized for the flexibility of the fabrication shop. (www.mestekmachinery.com)

Reaping the benefits of offsite construction does not necessarily require an upfront investment of entirely separate factory facilities. The ability to dedicate resources to offsite construction varies greatly between contractors, depending on size and geographical location. Regardless of the maturity of a contractor's offsite construction expertise, it is essential to approach the fabrication shop with an attitude of continuous improvement and the willingness to explore new solutions. These best practices empower accurate estimation, improved scheduling, and productive labor – all of which lead to more competitive bids and increased margins.

Tauhira Ali, Sr. Manager of Construction Technology | Milwaukee Tool



SMACNA President Angie Simon® with SMART General President Joseph Sellers, Jr. at PinP 2020

PARTNERS IN PROGRESS CONFERENCE

“All-In” at Partners in Progress

On February 25 and 26, over 500 representatives from SMACNA and SMART gathered at Caesars Palace in Las Vegas for the 2020 Partners in Progress Conference, aptly themed “All-In,” to demonstrate the industry commitment to strengthen the partnership and identify a roadmap to success on the best ways to work and grow together.

The conference kicked off with a joint message from SMACNA President Angie Simon and SMART General President Joseph Sellers, Jr. Simon and Sellers stressed the importance of SMACNA and SMART members embracing the “All-In” slogan by working together to overcome obstacles and embrace new industry technologies.

Attendees took part in over 15 educational sessions on leadership,

legislation, safety, mental health issues, business, and technology. Programming included ideas on technology, team cohesion, and ways to strengthen the bond between signatory contractors and union workers.

Simon and Sellers outlined five steps on the roadmap to success: effective communications, understanding changes to the industry, identifying areas of shared interest, effective leadership, and adaptability to change.

The final rally was an energetic presentation by former NFL head coach and current Arizona State University head coach Herm Edwards who said, “Leaders are information gatherers. Leaders teach a skill. Leaders give information, and most importantly, leaders must give hope.”

MEMBERS

Welcome New SMACNA Members

Climate Masters, Inc.	St. Louis, MO
American Mechanical	Fenton, MO
TRS Mechanical, Inc.	Spanaway, WA
Balancing Solutions, LLC	Edwards, IL
Metro Sheet Metal, Inc.	St. Paul, MN)
Allied Mechanical Services	Grand Rapids, MI
Vent Heating and Cooling, LLC	Hinckley, OH
PTL Contracting, LLC	Glen Burnie, MD
Air Distribution Systems, Inc.	Cherry Hill, NJ

Welcome 2020 Associate Members

PLATINUM

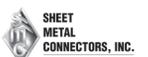


GOLD



SILVER

SMACNA welcomes new Silver Associate member
Second City Metals of Chicago, IL.



SMACNA's Associate Member program provides an opportunity for industry suppliers to build long-lasting relationships with SMACNA members, the industry's premier contractors. To learn more about becoming an Associate Member, visit smacna.org or contact Scott Groves at smacna@naylor.com.



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SMACNA CALENDAR

MARCH 2020

March 24-25

Collective Bargaining Orientation
Dallas, TX

March 26-27

Association Leadership Meeting
Dallas, TX

FUTURE SMACNA CONVENTIONS

September 27-October 1, 2020

77th Annual Convention
*The Broadmoor
Colorado Springs, Colorado*

October 24-27, 2021

78th SMACNA Annual Convention
Maui, Hawaii

October 23-26, 2022

79th SMACNA Annual Convention
Marco Island, Florida

October 15-18, 2023

80th SMACNA Annual Convention
*JW Marriott Phoenix Desert Ridge
Resort and Spa
Phoenix, Arizona*

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