

Metal Builder

RURAL BUILDER MAGAZINE SPECIAL

SEPTEMBER
2022



METALCON

PREVIEW EDITION

- WHO'S WHO OF EXHIBITORS
- KEYNOTE SPEAKERS ANNOUNCED
- EDUCATIONAL OPPORTUNITIES
- IMP SHOWCASE

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Great Things in the Works!

Welcome to the second issue of Metal Builder Magazine. Since the last publisher's letter, the recession has become official but we keep moving forward.

Two initiatives across all of our magazines, including Metal Builder, are increasing the data generation capabilities and recognizing the top builders in each market segment we serve.

Part of preparing for success (and to minimize the negative impact of a recession) is planning. Good planning requires good information. We are proud to be partnering with METALCON to collect and disseminate the information you need. We will be releasing a few sur-

veys addressing specific issues during the next few months. In the first issue of 2023, Metal Builder will have a State of the Industry article examining the data and the information will also be distributed to METALCON attendees and exhibitors.

Please watch for and complete the surveys. Help Metal builder and METALCON help you succeed.

Another way to succeed is modeling the behavior and practices of companies and individuals who are exceptionally good at what they do. We are going to recognize those companies in the metal building segment. We will compile a list of the top 100 (approximate) companies and then let the industry determine who is the best.

The Top 5 will receive awards and be featured in Metal Builder magazine. If your company or a company you know should be on the top 100 list and the ballot, send me the information at gary@shieldwall-media.com

We are here to help you succeed, good times or bad. Our goal is to provide the information you need and to show you how the best in the industry do what they do.



Gary Reichert
Publisher

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On the cover: Photo Courtesy of METALCON



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PHOTOS COURTESY OF TRACHTE BUILDING SYSTEMS

Extra-Large Boat and RV Storage Facility

If you purchased a boat or RV recently, you aren't alone. Both boating and RV industries have reported significant growth in 2021 with a strong start to 2022. At the same time, these units are somewhat rare – while they can be profitable, they are not as profitable as traditional household storage units, and the major corporate brands of self-storage do not build them.

As a result, there's high demand for larger storage units; in most areas, there is a shortage of these units. This creates a great opportunity in the right situation. Storage facilities that specialize in boat and RV storage need large (10 to 15 acres), inexpensive parcels of land. Ideally the location will be just outside of town on a well-traveled road and situation in an area with high interest in boating and/

or camping. Areas where neighborhood covenants prohibit outdoor vehicle storage are more likely to need high levels of these units.

WHAT SIZE UNITS ARE POPULAR?

Most "travel trailer" style campers (traditional hitch mount) and Sprinter van style RVs will fit under a 12' door. This

covers about 70% of the market. For customers with fifth wheel or "diesel pusher" (think of Willie Nelson's tour bus) you'll need a 14' tall door. Unit widths typically range from 12 to 15 feet wide, and 30 to 50 feet long.

For your customers with boats, take a good look at the dimensions of popular boats and trailers in your area. In the Midwest inland lakes, you'll find that common fish and ski boats fit in a 12x25 or 12x30 foot unit. If you are near the ocean or Great Lakes, your clients may have larger, taller boats which require larger units.

HOW WIDE SHOULD THE DRIVEWAYS BE?

Wide driveway requirements are one of the reasons that these large units are costly to develop. The largest campers and RV may require 60 to 80' wide drives. A rule of thumb is to look at the length of the entire rig and then multiply by 1.5. So, for a 20' long pickup towing a 30' long camper,



the total rig is 50' long and would require a 75' wide driveway for comfortable entry to the unit.

If your layout will include angled parking, that can allow your drives to be narrower. Open parking and open canopy

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projects are commonly designed with angled parking. Enclosed buildings are more commonly designed with straight access or 60 degree angled spaces.

WHAT FEATURES SHOULD BE INCLUDED ON THE SITE?

A major “must have” for a boat and RV site is bollards at all corners and on the side of each unit door. They should be sturdy – six or eight inch well pipe, set 3’ to 4’ deep in concrete, filled with concrete. If your site will truly cater to boat/RV clients, consider adding a 20 amp outlet to each unit, on separate breakers. Renters will pay extra for a unit with power for their trickle chargers. Additionally, water and dump stations are handy for camper customers. Lighting controlled by a motion sensor or timer is another thoughtful upgrade.

While paved driveways are an expectation on modern self-storage sites, it may be reasonable to use gravel for large boat/RV customers. Customers will be most concerned with the size of the unit and accessibility to get their vehicle into it – not whether it’s paved. However, gravel does require more maintenance and can be problematic for snow removal.

WHAT TYPE OF DOORS ARE REQUIRED?

Typical self-storage doors can be used on some smaller boat/RV units, but as the door size reaches 11’ wide x 12’ tall, you’ll need a heavier duty door designed for large openings. Roll up doors at this size and larger should be equipped with a chain hoist, such as Trac-Rite’s model 977 door. Motor operators are attractive to customers, but a costly addition. Sectional doors are the top performers for the largest units, but are also more costly, and with a drawback that they do not come equipped with a traditional self-storage latch to accommodate a padlock and over-lock mechanism.

BUILDING DETAILS

The steel building packages used for large units will be like regular self-storage structures – just bigger. Purpose built self-storage building packages will gen-



PHOTOS COURTESY OF TRACHTÉ BUILDING SYSTEMS

erally have a “post and purlin” construction method, with columns along the lateral walls 5’ apart. The outer walls without doors will be conventional steel building framing with corrugated panels. The roof should have a minimal amount of insulation to prevent condensation from dropping on the contents.

The roof design is typically a galvalume standing seam panel with a ¼:12 pitch. Using a lean-to design to shed all water to the rear is preferred when possible. Unless required by your stormwater planning, it’s a good idea to build without gutters for lower maintenance.

On the side wall lined with doors, you’ll find either conventionally framed and trimmed door openings, or with more

premium level buildings such as Trachte’s you’ll find specially formed 18-gauge jambs and headers.

One of the questions that often comes up with large units is whether to include a small swing door in addition to the large garage door. Again, the renters for these units are generally most concerned with the garage door opening size, and depth of the unit. Adding width to the unit to accommodate a swing door reduces the number of rentable units in the building without a significant rental income increase.

In the right location and with proper planning, boat and RV storage can be a lucrative business with long term, reliable tenants. **MB**

Boston Tower Fast-tracked with Tower Cranes



OVER THE PAST YEAR, THE rapidly rising, 43-story One Congress office tower has become a distinct new landmark in Boston's North End. But going largely unnoticed are the Potain MR 415 and MR 418 A tower cranes that are quietly growing along with the building — and also inside it.

Forming part of the western parcel of the 4.8-acre Bulfinch Crossing mixed-use development, a stone's throw from Boston City Hall, the imposing new building tops out at around 565 ft and offers spectacular views over the city and harbor. The innovative approach to its construction was a result of the desire to begin leasing space within the tower as quickly as possible, explained Cori Amadon, vice president at James F. Stearns, the leading crane provider for the project.

"We were approached by John Moriarty Associates, the main contractor, to devise a plan that would allow them to start leasing floors six through 25 before the rest of the structure was complete," he said. "That meant we had to rethink the original plan of tying in tower cranes to the building's outside perimeter and come up with an interior climbing program instead."

The solution was to make full use of the building's concrete slipform core, which grows faster throughout construction than the floors that surround it. Once structural work is complete, the building core will be home to the elevator shafts that provide vertical transportation throughout the building.

"When we started looking at this project, we thought, 'Ok, we'll climb the cranes up through the concrete core,' but the concrete company was initially opposed because they worried it might subtract a lot of their workspace," Amadon said. "Typically, when developing internal form systems, the concrete contractors design a platform system that covers the entire core that is used for assembling rebar, shaking rebar out, etc., so they can hoist material from the ground and land it on their workspace. They asked us to find a way to put the tower cranes on the outside of the core instead."

The mutually agreed solution centered around the two Potain luffing-jib tower cranes, which James F. Stearns rented from Maxim Crane Works. James F.

THE FAST TRACK TO TOWER BUILDING

- The developers of One Congress, a 43-floor office block in downtown Boston, wanted to start leasing space on the lower floors while construction was still underway.
- This required an intelligent approach to tower crane installation, so a Potain MR 415 and MR 418 were erected in the core of the building, in an internal climbing configuration.
- This setup also eliminated the need for larger, more expensive tower cranes.

Stearns has a long-standing relationship with Maxim on crane rentals for major projects across the northeastern United States.

CORE SKILLS

Using Potain MR cranes on the project was an inspired choice. The interchangeability of their bases with those of its sister ranges, the MD and MDT models, increased the number of installation options for internal and external climbing configurations. Also, their uniquely mounted luffing mechanisms and hoists saved space on the jobsite, enabling operation in this confined space.

Demolition of an adjoining car park exposed a row of four connected concrete core cells that provided fully enclosed support for the climbing mechanism for the Potain MR 415. The MR 418 A was then added to the outside of the westernmost cell, where it too would soon be largely obscured from view by the steel frame of the tower being built around it.

In collaboration with engineering firm Howard I. Shapiro & Associates, plans were drawn up for each stage of the MR 415's upward journey. For Phase 1, the initial installation, the crane would be freestanding, with just under 197 ft of mast, and a similar jib length. In Phase 1A, marking the end of the freestanding operation, a climbing frame was installed in the core before level 14 was poured, and the building was then erected up to the 15th floor.

The contractor's desire for a spacious

working platform had left a gap of mere inches around the mast perimeter and the core walls, leaving the riggers with no opportunity to assemble or drop in the mast from above. Instead, the beams were pulled into the bottom of the core through a doorway, assembled at ground level, and then maneuvered into position by crane and/or air tuggers.

As the project progressed to Phase 2, crane configuration underwent a major and permanent change. The jib on the MR 415 was shortened to 131 ft while a second tower section was added, taking the length of the mast to 246 ft, as the building was erected to the 22nd floor.

During the next stage, the MR 415 was disconnected at the second tower section and raised 90 ft, from ground level up to level 11, where the first tie had been placed, and the climbing mechanism attached. Once the building reached the 29th floor, the first diving board (support frame) was added at the 25th floor, leaving the crane ready to jump once more.

The crane climbed another 90 ft during each of the next two stages, with a second diving board added at level 32 during Phase 4 and a third board seven floors later during Phase 5, by which time the structure had reached level 42. For the final push, Phase 6, one last climb of 88 ft would be sufficient to enable topping off in July 2021, with the crane supported by the diving boards on levels 32 and 39.

"One of the unique things about this project is that it has a four-cell system from ground level up to level 25, and then one of the cells 'disappears' and it turns into a three-cell core," Amadon explains. "So, initially we were working internally surrounded by a concrete cell up to level 25, but then we had to come out of that and switch from a four-sided support system to utilizing a diving board system on the outside of the core."

MORE OPTIONS WITH POTAIN

These smaller, lighter cranes provided further benefits to a project that might once have relied on the use of larger, more costly models.

"By reducing the loads that are imposed, they give you the flexibility to come

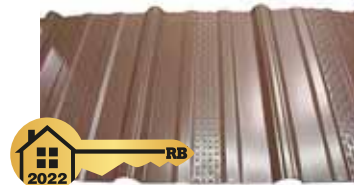
up with a different type of support system that's not as cumbersome as would be needed to support a larger tower crane," Amadon explained. "You can get great results working with an MR 608 (32 t maximum capacity) from the perimeter, but if you put a 24-ton capacity MR 418 into the core of a building with a shorter boom, you can pretty much get the same benefit."

Disassembly of the cranes was also straightforward. A derrick crane was placed on the rooftop to remove one of the tower cranes in November 2021, while the 418 A continued placing glass for the tower's construction. The crane was then removed in an almost exact reversal of its installation, according to Amadon.

With both tower cranes now removed, sixteen floors comprising a total of 1 million ft. of trophy office space are now available for lease and will be ready for occupancy in 2023. The One Congress project is a partnership between Carr Properties, National Real Estate Advisors, and The HYM Investment Group. **RB**

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EDUCATIONAL PROGRAM TOPICS:

- Condensation prevention
- Coil irregularities
- Sales process 1
- Sales process 2
- Leasing and Financing
- Pre Cut vs. Post Cut
- Integrating peripherals
- Roll former maintenance
- Using OEM to increase throughput
- Ventilation for metal roofs
- What can you make with a brake
- Retooling vs. recalibrating
- Used vs. new machines - life cycle cost
- Applications for portable machines
- Clamps for accessories and solar
- Sourcing coil in a competitive marketplace

(Topics subject to change)

SHOW SUPPORTERS



Community Venue

Pre-fabrication Meets Custom Features

OHIO'S UPPER MIAMI COUNTY REGIONAL community welcomes the Arbogast Performing Arts Center (APAC), a multi-purpose venue built in Troy, Ohio.

The 39,000-square-foot facility opened in October 2021, although planning for the \$11 million structure began more than a year before construction started. Foundation Steel LLC, located in Swanton, Ohio, and Brentwood Builders, Inc. of Cedarville, Ohio, partnered to construct the metal building over a period of 13 months. Foundation Steel was the erector and Brentwood Builders served as construction manager.

The two-story community arts center includes a 1,200-seat tiered auditorium designed for family and student education, entertainment, community programming and business events, as well as Troy Christian Schools-hosted plays, concerts, internships and weekly chapel meetings.

VERSATILE AND FUNCTIONAL

The facility space is versatile and can accommodate seating for a variety of events. For example, the front stage area has room for 200 chairs and seating for 100 at banquet tables. More than 180 people seated at banquet tables and a mini-stage can fit within the first floor lobby area. The second-floor lobby can accommodate 100 people for banquet seating. In addition, there are meeting and conference rooms on both floors. Catering and green rooms plus a café with coffee bar are also available for community events.

TRICKY TWISTS & TURNS

Brad Gordon of Foundation Steel, who served as both project manager and estimator for APAC, describes some of the more challenging aspects of the building construction.

"We used 12-inch charcoal-colored horizontal metal siding, and this smaller size siding was dictated by the darker color. Smaller, darker siding makes the resulting structure more pleasing to the eye," Gordon says. "Overall construction went well, however it was challenging to keep the panels level and ensure that all the vertical joints remained in alignment.

"Another tricky portion of the project was installing an aluminum frame on top of the exterior screen wall framing. The screen wall wraps around three sides of the building," he adds.

Galvanized tube steel screen wall framing with Kalzip Panels from Green Building Elements were used with metal panels for the exterior because they are easy to attach, clean and maintain.

Wall system and insulation used was Fabral, Inc. HCF16-2C Panels that are all purpose high temp over 5/8" densglass sheathing underlayment with 6" batt insulation on all exterior walls.



Support beams for the center's second-floor cantilever balcony hang from the building's main structure, which eliminates the need for interior columns to support the balcony. As a result, there are no sight line obstructions for patrons sitting on the first floor of the auditorium.

Chad Coe of Brentwood Builders describes APAC as a hybrid building because it combines elements of a pre-engineered structure with conventional steel design. The building features a Butler Model MR24 roof system with vinyl insulation facing R30 also by Butler.

The final challenge: "The acoustical engineering firm Haverstick Designs of Carmel, Indianapolis had to consider the facility's HVAC and lighting systems and coordinate with the structural engineers to ensure that extraneous noise from these systems would not impact the auditorium's acoustics," Coe said.

Based on construction excellence, the Metal Building Contractors & Erectors Association (MBCEA) honored the design and construction team with its 2022 Building of the Year award. **RB**

METALCON 2022

Show Highlights & Educational Programming for Indy Event

METALCON, the only global event dedicated exclusively to the application of metal in design and construction, announces its program lineup for this year's annual conference and tradeshow scheduled from Wednesday, Oct. 12 to Friday, Oct. 14 at the Indiana Convention Center in Indianapolis.

From intensive pre-show workshops beginning on Tuesday, Oct. 11 to 25+ free educational sessions located inside the exhibit hall to inspiring keynotes and in-depth workshops, top industry experts will share their knowledge with attendees who are eligible to earn continuing education credits (CEUs), including AIA and CSI learning units among others.

"We are extremely grateful to our 2022 sponsors; without them the show would not be possible: Mill Steel Company (premier level), CIDAN Machinery Inc., (platinum level), Samco Machinery (gold level), Sherwin-Williams (silver level), and Mac-Tech (silver level) along with long-time partner, the Metal Construction Association (MCA)," said METALCON Show Director, Judy Geller.

Keynote speakers for this year's show include Dr. Melissa Furman of Career Potential, a consulting, training and coaching organization, presenting *Leading for Today and Tomorrow* on Wednesday, Oct. 12th at 10 a.m. Then, on the following day at the same time, American IndyCar Series driver, Josef Newgarden will share fascinating stories on the inner workings of a professional racing program and highlight lessons learned regarding communication and teamwork on his path to the top tier of American Motorsports in his keynote, *The Road to Success*.

A variety of special focus areas are planned, including:

THE ARCHITECT'S EXPERIENCE

Featuring a series of events over two days focused on the use of metal as a design



The METALCON 2022 trade show takes place Oct. 12-14 at the Indiana Convention Center in Indianapolis.

and construction component, this "show-within-a-show" is for architects, designers, specifiers and engineers to breathe new life into projects and solve a wide variety of architectural, structural, environmental and building performance challenges—all through the use of metal.

Offering exclusive education sessions specific to design professionals, attendees will hear from respected thought leaders, award-winning architects, and industry experts, including a featured special keynote presentation by the "dean of North American building science," Joe Lstiburek of Building Science Corporation as he delves into the world of energy flow in *There's No Such Thing as a Free Thermodynamic Lunch – How Changing Energy Flow Changes Everything*. Additionally, a special architects-only guided floor tour is planned.

THE METAL BUILDING MARKETPLACE

More and more architects and contractors are taking advantage of the benefits

offered by metal buildings. This dedicated pavilion features top metal building and components manufacturers, creating a convenient hub for contractors, the design and architectural community, and others to discover the solutions these companies can provide.

THE INSULATED METAL PANEL PAVILION

Back by popular demand, the MCA's Insulated Metal (IMP) Alliance (leading manufacturers, material suppliers, and resellers) brings together six major independent brands of leading insulated metal wall and roof panels that produce 85% to 90% of all IMPs shipped in the U.S. and Canada—all in one location. Understand why IMPs are described as "tomorrow's roof panels today."

Plus, drop by the IMP's Education Center for IMPs — *Installation and Handling Best Practices*. This seminar and demo will focus on best practices and common mistakes made during unloading, storage and handling of installation of IMPs.

NRCA PROCERTIFICATION®

Through NRCA's national certification initiative, experienced workers who demonstrate substantial roofing skills and knowledge can become certified in specific roof system installations at METALCON. Visit www.nrca.net for more information.

LEARNING CENTERS

METALCON's FREE education sessions are 60-minute sessions from 11:30 a.m. to 5:00 p.m. on Wednesday and Thursday, and from 10:00 a.m. to 1:00 p.m. on Friday. Organized into three Learning Centers, attendees can earn up to 12 hours of CEUs.

BEST PRACTICES

Get solid, sensible advice and the tried-and-true techniques, tools and strategies you need to ensure your business's growth and success.

TECHNICAL KNOWHOW

Deep dives into code compliance, fire prevention, rainscreen assembly, air flow

and other topics critical to product performance, safety and your business.

SUSTAINABILITY

Get the latest information on sustainability practices and products for metal buildings and discover new ways to deal with carbon.

Additionally, METALCON continues to offer in-depth workshops this year on the Tuesday, Wednesday and Thursday of the show to provide cutting-edge education and training, which cannot be found elsewhere. Attendees will be armed with new information, fresh ideas and strategic direction to address some of the major issues facing the construction industry today — skill-building, team-transforming and lifesaving workshops, including:

- Metal Roof Installation Training Certificate Program
- Rollforming for the Metal Construction Industry
- Architectural Excellence with Insulated Metal Panels

- Understanding Metal Roofing
- Life or Death Accountability: Transforming Your Team to Act as if Lives Depend on Them
- Game Plan Your Fall Plan.

And in the METALCON Theater, a special State of the Industry panel presentation will take place on Thursday, Oct. 13, moderated by Paul Deffenbaugh of Modern Trade Communications.

Each year, METALCON gives back to the local community where the show takes place. The event is partnering with World Central Kitchen for this year's giving back program, which will raise money to help provide food for the hungry in Ukraine.

"We can't wait to host METALCON in Indianapolis this year," said Geller. "Indianapolis is within 750 square miles of 75% of the manufacturing distribution space in the U.S.—a central hub for contractors, architects, building owners, manufacturers and suppliers, not to mention all of the great restaurants and shopping within walking distance." **MB**

Understanding Metal's Sustainability Qualities

By Mark Swagerty, Exhibit Sales Manager, METALCON

Metal construction products offer many advantages. Metal roofing, metal walls, metal framing and studs, all bring durability and economic benefits to any project. Metal is where it's at and METALCON is where you find it.

METALCON 2022 is the place to learn about all of the benefits provided by the widest array of metal construction products under one roof. METALCON is scheduled for October 12-14 at the Indiana Convention Center in Indianapolis.

Sustainability is a word that gets tossed around plenty by those promoting metal construction products. Though it's a vague term, it does a great job of blanketing the long list of benefits provided by metal construction products. Sustainability experts at companies exhibiting and/or speaking at METALCON shared their thoughts on metal and sustainability.

DURABLE AND RESILIENT METAL

Lee Ann Slattery, FCSI, CDT, CCPR, LEED AP BD+C, Sales

Support Manager at ATAS International, Allentown, Pennsylvania said, "Metal is a durable, resilient choice for roofs and walls. It performs well in high wind events, hail and in wildfire prone areas of the country. Steel and aluminum are typically manufactured with recycled content and are fully recyclable at the end of a long service life.

"Standing seam metal roofing is the best choice for a roof over which solar PV panels are installed. With the use of special clamps, holding PV panels to the metal roof, you won't have roof penetrations. As well, the metal roof will far outlive the life of the PV panels, so there are no worries about having to decommission and remove the solar system to replace roof panels."



Lee Ann Slattery, ATAS International

Slattery notes insulated metal roof and wall panels (IMPs) are a top product for creating an energy efficient building as well as allowing a building to be constructed and dried-in more quickly than when using other building materials.

“Cool pigments in the paint on steel and aluminum panels help to reduce the cooling load on a building for both roofs and walls,” Slattery says. “By incorporating above-sheathing ventilation, with the creation of an air space between the metal roof panels and the roof deck, you can also help to reduce the cooling load. The space also helps to insulate the building in colder temperatures.”

Slattery says with solar air heating metal wall panels, preheated fresh air can be brought into a building, significantly lowering winter heating costs, making a building more energy efficient.

“The bottom line is that it’s important for contractors and installers to understand the sustainability benefits of metal roofs and walls to help educate a building owner, especially a homeowner who is concerned about the green building product for their home,” Slattery says. “They should also be aware of construction site separation of materials to be recycled, to ensure that all metal scrap is dealt with in a sustainable manner.”

THE IMPORTANCE OF INNOVATION

Alan Scott, FAIA, LEED Fellow, LEED AP BD+C, O+M, CEM, WELL AP, the Director of Sustainability at Intertek said “Long-lived roofing and cladding amortizes its own lifecycle impacts over a longer period of time and protects the rest of the structure, reducing its lifetime embodied carbon impacts,” Scott says. “Properly designed and installed metal siding and roofing systems can enhance the resilience of structures subject to wildfire and other extreme weather risks.

“Finally, when it reaches the end of its useful life, it is easily recyclable. This is important given the trend toward extended producer responsibility. Despite the benefits, steel is a material with a high embodied carbon level and it is critical for producers to seek renewable energy innovations to reduce this impact and more manufacturers to favor producers investing in this innovation.”

Scott says designers need to know the sustainability benefits of metal roofing and cladding so they can design a system that is easily installed correctly. “Any problem with the installation leads to a weak point in the system,” he says. “It’s all about the details. Details have to be designed and installed so there is no loss in performance, which impacts sustainability.”

That means there has to be communication and coordination between the trades during the installation. “Some jobs involve



Alan Scott, Intertek

multiple contractors working on different components, so it’s important for everyone to understand the entire system,” Scott says. “Any leaky window or faulty detail will lead to a compromise in the sustainability of the system and possibly a failure that will certainly have ecological and financial implications.”

Scott also says buildings, generally, are constructed to last a long, long time. “Occasionally, a building will outlive its usefulness and need to be torn down or disassembled,” he says. “It’s important to take that into consideration during the design and construction so that metal and other components can be separated and recycled, extending the lifecycle sustainability benefits.”

METAL'S RECYCLABILITY

Lori Reynolds Morrow, LEED Green Associate, Architectural Project Manager at Sheffield Metals, Sheffield Village, Ohio stated, “The sustainable benefits of the recyclability of metal roofs and walls is evident both when first producing the metal, typically using about 25 percent post-consumer content,” Reynolds Morrow says. “Then, at the end of the roofs’ and walls’ useful life, that very same metal returning as 100 percent recyclable material. Steel is the most recycled material in the world, with now more than 80 million tons recycled every year in the United States alone. When producing aluminum from recycled aluminum, the process needs only 5 percent of the energy that would be required if producing the aluminum from the raw material of bauxite ore.”

Reynolds Morrow points to a recently released Service Life Assessment by the Metal Construction Association that determined the expected service life of 55 percent Al-Zn Alloy coated steel (Galvalume) to be in excess of 60 years, using best practices. **MB**



Lori Reynolds Morrow, Sheffield Metals

ABOUT METALCON

METALCON is the largest international event in the metal construction and design industry. Established in 1991, it's the only annual tradeshow and conference devoted exclusively to the application of metal in design and construction. Each year, contractors, architects, developers, owners, installers, fabricators, manufacturers and suppliers from more than 50 countries attend. 200+ leading companies exhibit the latest products, solutions and game-changing technologies. Produced by PSMJ Resources, Inc., in partnership with the Metal Construction Association, METALCON's success is based on a dynamic exhibit hall, extensive educational programs and interactive learning opportunities. For information, visit www.metalcon.com or call 800-537-7765.

2022



INDIANA CONVENTION CENTER
INDIANAPOLIS, IN

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TO FRIDAY, OCTOBER 14



Main Theater

20' Bunkley Manufacturing
1349
20' Ace-Clamp
1448

20' Triangle Fastener
1449
20' NanoTech, Inc.
1548

20' SAMCO Machinery, Ltd.
1549

20' Steel Dynamics
1649

20' United Steel Supply
1749
20'
1848

Sales Office
The METALCO N Deck

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1949

Technical Knowhow Learning Center

POWERAISLE

Learning Center

50' METALFORMING, Inc. 1129 50' 1119	20' BT Synchro 1341 20' Norbert Architectural 1440	20' AMS Controls, Inc. 1441	20' Van Mark Technology 1541 20' TRIUMPH Inc. 1640	20' Lan's Building 1641 20' Falk Panel 1740	20' Therm-Air 1741	20' 1841 20' 1940	20' RoofersColl seShop 1941	20' 2041 20' 2140	Sustainability Learning Center POWERAISLE 20' 2119
	20' Steel's Metals of 1335 20' Red Bud Industries 1434	20' ST Fastening 1436	20' Reserved 1535	20' 1635	20' Paragon 1737 20' Master Metals, Inc. 1834	20' ROYCE 1837 20' 1936	20' 1937 20' 2036	20' 2037 20' 2136	
	20' Fastest Metals 1329 20' BCT Metals 1430 20' Zanussi USA 1428	20' Drexel Metals Inc. 1429	20' Epilay Inc. 1529	20' Innobil 1629	20' A. B. Martin 1731 20' Ameri Lux 1830	20' Micro Mesh 1831 20' 1930	20' 1931 20' 2030	20' 2031 20' 2130	
50' TENNSMITH 1119	40' New Tech Machinery 1321	20' MD Direct 1525 20' Eagle Buick 1623	20' Quail V 1624	20' BOLL ROFF 1625 20' ACT Buick 1724	20' ASC Machine Tools 1719 20' 1818	20' Steelp 1824 20' JGM Steel 1923	20' Surtus 1825 20' 1924	20' 1925	20' 2019

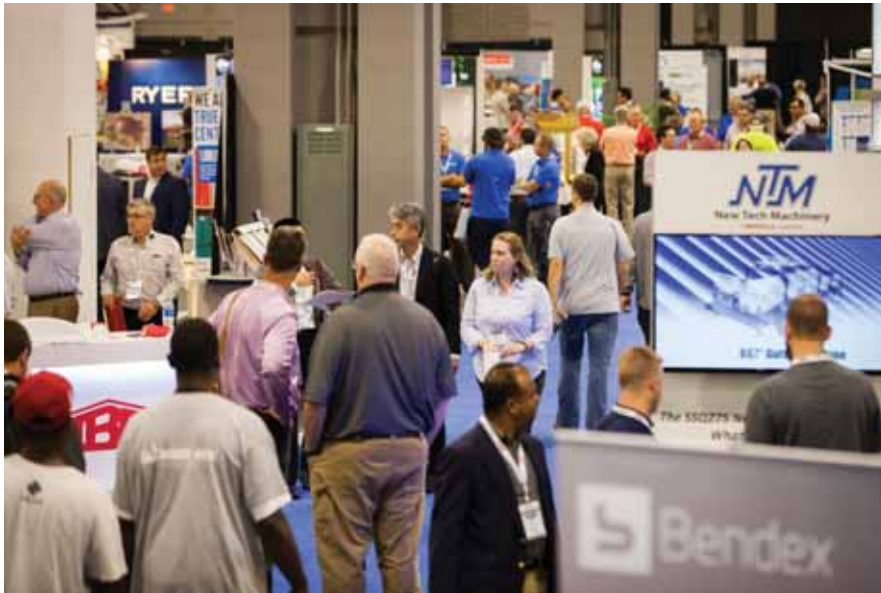
POWERAISLE

20' Sheffield Metals International 1111	20' Bradbury Group, The 1207	50' Casadei Industria 1311	20' ROOFING 1511 20' 1610	20' Sino-Germ, Inc. 1611 20' EDCO 1710	20' Jokin 1711 20' 1810	20' Polyline 1811 20' 1910	20' Prest 1913 20' KCF 2012	Best Practices Learning Center	
20' Frankl 1107 20' Metals 1208	20' Drip Stop 1307	20' Hot Mett 1407 20' FIDIL Insula 1508	20' ELVAL COLOUR 1505	20' Preter med 1607 20' Stair 1708	20' PHI 1707 20' Pro 1806	20' 1805 20' 1904	20' 1907 20' 2006	20' 2007 20' 2106	20' 2107 20' 2206
20' Plyco Corp. 1101	20' Sherwin-Williams 1201	20' Black Global 1301 20' Continental 1400	20' Klockner 1401 20' 1502	20' ABIS Inc. 1601 20' 1702	20' Intern 1701 20' GCP 1800	20' Excep 1801 20' 1900	20' PINN 1901 20' 2000	20' 2001 20' 2100	20' 2101 20' 2200

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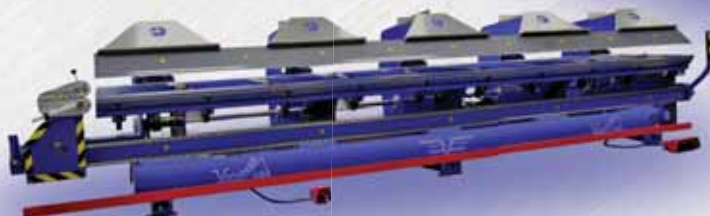


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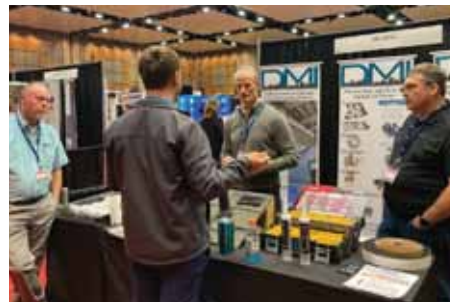
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