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EDITOR'S NOTE

## What Do You Think: Are Work Site Issues Due to Lack of Education and Apprenticeships?

**ONE OF THE PERKS OF** being an editor at Shield Wall Media is that I get to talk to a lot of people and hear different viewpoints. Recently I spoke to a gentleman in New York who has had a long career in residential construction; we'll call him Hank. He says he has excellent employees and that he rarely has to hire because he pays well and treats his employees with respect. That said, he is concerned by the lack of quality workmanship that he sometimes comes across in the industry.

Hank said that he sees jobs in which people have done quick, slipshod work, moved on, and never look back. He believes it is largely due to a lack of educational opportunities in the industry and the disappearance of apprenticeships.

Many years back when Hank was starting his company, he had a few European immigrants come to work for him. They came with high quality skills that had been passed down from generation to generation. Nowadays he says, no one takes over when a man retires. "Most young people can't even hang a door," he claims.

"Even architects sometimes do not know their job any more," he bemoaned. "They enter facts into a computer program, but some of these guys don't know enough to realize when something is missed."

Further, he said, many people work hard to afford a home, but what is built for them is, sometimes, not well done. "Why should only the rich be able to get a quality-built home?" he asked.

I asked Hank what he thought should be done about this. He said that he felt that educational systems had let the industry down; the high schools were not teaching technical skills and there didn't seem to be any post-secondary schools offering this training either.

I told Hank that I have spoken to many people who have attended technical programs both in high school and at colleges. He was surprised and glad to hear it but said that in the area where he lives there are no such programs.

The conversation left me wondering whether Hank was right and if the solution to the lack of industry employees is, at least in part, due to a lack of education as well? Would more apprenticeships help? Or are there other reasons for the problems?

I would be interested to hear about your experiences and opinions on the subject. Email them to me or give me a call (920-659-6319); I'd love to talk to you, too.

Linda Schmid

Linda Schmid, managing editor linda@shieldwallmedia.com





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### **The Community You Crave**

could be in the trades

**NOT MANY YOUTHS KNOW WHAT** they want to do when they finish high school, but Jonathan Ota knew. He wanted to go into the military. His Dad was a Marine and he admired him. Further, his experience in school made him feel sure that he didn't want to go to college. He had pumped gas, worked in the supermarket, and roofed houses and none of those jobs tripped his trigger. Of course, he says that roofing was different back in the day. "You didn't have fancy lifts to move the roofing



Jonathan Ota with his military buddies

material up to the roof; it was all on your shoulder as you went up the ladder."

Ota entered the military when he finished high school. Initially he loved it. He enlisted before 9/ll, but he was deployed 3 times in 4 years and by the time he was done, he was suffering from PTSD.

After his release, he tried various jobs, including working at a mortgage company and managing a construction company. The construction company felt uninspiring; the owner needed things completed quickly so speed was the focus. This didn't sit well with Ota; he was an ambitious person and he wanted to do things well and feel pride of craftsmanship.

Ota signed up for night school at North Bennett Street School, a trade school; he wanted to learn his craft so he was able to provide the kind of quality he envisioned.

He found that he enjoyed carpentry and learned to make furniture. But more importantly, he found his community. Ota said, "At the trade school everyone was happy. There was a sense of camaraderie I hadn't experienced since my time in the military."

One of the wonderful things about the sense of community is that it was among a group of people who were quite diverse; gender, age, and ethnicity played no part in it. It was just a bunch of people who loved working with their hands. Some of the people you wouldn't expect would be into this you'd find out were creating the finest work of all.



As a result of a collaboration with mikeroweWORKS Foundation (www.mikeroweworks.org), *Rural Builder* is featuring profiles of Work Ethic Scholarship recipients in each of its issues. Hundreds of scholarships have been awarded to trade-school students who value hard work and taking personal responsibility. *Rural Builder* applauds these students and wants to acknowledge their choice to apply their talents to skilled trades. Thank you, mikeroweWORKS Foundation, for your continuing efforts to close the skills gap and "reconnect the average American with the value of a skilled workforce."



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His instructor saw promise in Ota and suggested he apply for the mikeroweWORKS scholarship. Winning was a huge help since he was in his mid-thirties with a wife and kids at that point. He managed to save some of the money for equipment, and when Ota graduated he opened his own shop.

The camaraderie continued as four of the graduates got together and opened four businesses in a building that one of the students had inherited. It works well, Ota says. They each have their own corner and they share the larger machinery among them, thereby making it more affordable for all of them.

Ota's business is called Gunner Grey Furniture Fusion. "Fusion" refers to the well-balanced design and clean lines from Japanese culture that he incorporates into his work. It's particularly satisfying to Ota as it is a bit of his own heritage that he taps into.

Ota finds his work amazing; working with his hands as he does seems to be therapeutic to him, and the PTSD is pretty well controlled now. Working with power tools keeps his mind razor sharp, and the sense of peace flows over into the rest of his life.

Part of what he loves about his work is planing down into wood to see the grain. He feels bad that a tree was taken down, but by turning it into a work of art, it is like he's "bringing nature back to life."

Some of his favorite work is special projects, such as display cases, reception desks, and kitchen cabinets. He is working on a big bookcase that has a Norwegian flair. Norwegian style with carved dragons and hidden compartments speaks to him.

Ota says that a person can make a very good living making custom furniture. He says, "The sky's the limit if you like the work and have the ambition and skill. He has pretty lofty goals himself.



While he says he is not as efficient as someone who has been in the trade for 15 years, he expects to make forty grand in the first year and eventually be able to bring his wife in to manage the business. He plans to open a cabinet shop in the basement of the building he is in, hire more craftsmen and grow the business until it covers the bills and retirement savings and then he can work exclusively on the elaborate projects that appeal to his creativity.

Ota has a different theory of why fewer kids want to enter the trades than people usually express. He says, "When you and I were kids and we had to write a report, we went to the library, and started looking for source material, and we sorted through a lot of resources, making copies and notes and reading books or pieces of them. Now kids just type the subject into Google and everything is right there."

He is not saying that everything in life comes easy to kids today; he thinks some things make life harder like cyber bullying. However, he believes that with so much instant gratification and kids seeing people making lots of money by being influencers, kids develop less work ethic. In his experience, if you enlist kids to work, they stand around waiting to be told what to do instead of trying to pitch in.

Ota believes the only way to combat this thinking is to meet kids where they are, on TikTok for instance. They need to see people who are successful in trades roles and how interesting and fulfilling these roles can be. **RB** 



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## Red Iron or Green Treated Lumber

How should I frame my post-frame building?

**RED AND GREEN HOLD OPPOSITE** places on the color wheel. Interestingly enough, people who are color blind or "color ignorant" often have a hard time distinguishing between them. In post-frame building, the two types of materials generally used for framing are red iron or green treated lumber. So, in the scheme of buildings which are designed to be strong, durable, and longlasting, are these two materials opposites or complementary components? When should you build with red iron; when should you choose green treated lumber?

#### THE CASE FOR RED IRON

First, where does the term "red iron" come from? According to Brian Shelton of Chief Buildings, "red iron" means simply: steel. The term was coined because of the widespread use of a red colored primer to prevent the steel from surface rusting. Now, gray primer is just as common.

Red iron is a great material for columns, rafters, girts, and purlins because it will not rot, bugs are disinterested, and there is no warping or degrading. Red iron is expected to last a lifetime; the sheathing generally breaks down before the red iron. Some buildings that are framed with red iron are still standing after seventy years, Shelton says, they are still aesthetically pleasing and still going strong.

Red iron can span great distances that wood can't match, for instance rafters in large barns. Wood rafters can only span about 100 feet before interior posts are needed to support the center. At those extreme spans, wood rafters may only be spaced 20" apart, so the sheer number of wood rafters needed is a costly proposition in time and materials. Alternatively, red iron easily spans over 100 feet without interior columns, and when needed can even span 300 feet without interior columns, but the columns and rafters do get very large and heavy and can require special equipment to move them around. However, when you need more wood to complete a project, it can get pretty pricey very quickly, in time and materials.

"The labor costs are generally less with red iron, and if you use pre-engineered metal building packages, there is no cutting and waste to deal with on the job site," Shelton said.

Red iron is often used in agricultural construction because the equipment used today has gotten so large. With combine headers

ranging from 30' to 50' wide, the headers have to be removed each time they pass through a door. Red iron construction easily allows wide open floor plans and doors wide enough to accommodate the biggest of the big, even in side walls.

"When you consider the ecological side of things," Shelton said, "wood is a renewable resource, but 90% of steel is recyclable. Wood can't touch that."

Can workers jump back and forth between working with wood and red iron? While it can be done, Stelton says that red iron requires a different skill set than wood, so it might require a bit of a learning curve. "With a little familiarity, a builder can learn the nuances. For instance, a builder might fudge measurements in wood, but with metal the size is what it is. If the foundation doesn't meet up, you have a problem that will affect everyone downstream, so it requires a lot of coordinating between tradesmen."

#### **RED IRON TIPS**

• If you are building a cattle shed or other animal confinement, the red iron should be painted or better yet galvanized so the caustic waste doesn't degrade the steel.

• If you are building along the coastline, the red iron should definitely be galvanized to protect it from the salty sea spray.

• While red iron will last years without rusting, a maintenance schedule of repainting every few years will keep it looking nice in a retail setting.

• Agricultural building interiors that are not exposed to elements can last decades unpainted. Eventually they will start to rust, but if you sand and reprime them, they are fine.

· Enclosed metal buildings will generally require insulation because condensation will likely be a problem on the interior surfaces of the roof and wall panels.

• Any type of cladding or roofing that you would use on a wooden post frame building can be used on a red iron frame.

• The foundation of the red iron frame should be concrete piers placed under columns, beams around the building perimeter, or a whole slab.

• Don't have your wood workers try to construct a red iron building; get a specialist. The products are only as good as the guy who installs them.





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### THE CASE FOR GREEN-TREATED LUMBER

Everyone knows green-treated lumber is lumber treated with a decay-resistant preservative, but what is the green treatment? Most likely it is treated with chromated copper arsenates; copper, or possibly alkaline or micronized copper quarternary, or copper azole. Copper is the most commonly used preservative for treating wood.

Cory Padgette of Graber Post said, "green treated lumber should be used when the member will be exposed to the outdoor elements. It's also used for sill plates or other times when lumber would come in contact with concrete." Since concrete will often "sweat" due to condensation, the green treatment is desirable.

"Green treated lumber is often used in post frame construction and for outdoor items such as porch posts and barge board behind the gutter," Padgette said. "If there is a crawl space, it is common practice to use treated lumber for joists." Members that will not experience outdoor exposure may not need to be green-treated. For example, purlins and roofing generally do not need to be treated.

Green treated lumber has the advantage

of price on its side; wood buildings are generally less expensive than metal buildings.

"Red iron makes the most sense when you get into larger spans or if you are designing for something specific in terms

### A Note on Green-Treated Lumber

According to the USDA, CCA (chromated copper arsenates) provides good protection for wood used aboveground, in contact with the ground, or in contact with fresh or sea water. With decades of proven performance, CCA–C provides the benchmark by which the performance of other water based wood preservatives are judged. The chromium serves as a corrosion inhibitor, and corrosion fasteners in wood treated with CCA is not as much of a concern as woods treated with other waterborne preservatives that contain copper but do not contain chromium.

Inorganic arsenic exists in CCA, and this preservative is classified as a Restricted Use Product by the EPA. No problems have been uncovered in use of Green Treated Lumber when it is used as prescribed. The Consumer Safety Information Sheet, based on information developed by treated wood producers in conjunction with the EPA, gives guidance on handling and site preparation. This information should be made available to everyone who handles CCA-treated wood.



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### **POST-FRAME FOCUS**

of weather resistance," Padgette stated.

The challenge of green treated lumber is that, "depending on the size of the lumber and how recent the treatment is, the lumber may warp as it dries out," Padgette stated.

"Life expectancy of green treated lumber can vary greatly depending on usage. Lumber with constant exposure can be compromised in as few as 10 years. The same lumber in a humidity controlled crawl space may last 50 years," Padgette said.

#### **GREEN TREATED LUMBER TIPS**

• To help treated lumber last longer, protect treated lumber at areas of ground contact with a wood sealer.

• Prolonged sun exposure can take a toll on treated lumber.

• The right fastener choice can help extend the life of your structure. Galvanized or stainless fasteners are recommended for green-treated lumber.

• Metal cladding with a painted back can be used with green treated wood.

• For external sidings other than metal, use a moisture barrier behind the cladding. **RB** 





## Got Any Shingles?

The Right Roofing for the Job

**EARLY ON, ROOFS WERE PREDOMINANTLY** created of wood, slate shingles, and clay tiles. In the mid-1800s low-slope roofs became popular and they were topped with metal and bituminous roofing. Then, rolled asphalt roofing was developed, which led to asphalt shingles. Throughout the 20th century, asphalt shingles were the predominant roofing material, although other materials were available, and they are still the most common residential roofing material.

Today all of these roofing forms, and more, are available, but they are not necessarily the same as yesterday's shingles.

#### **METAL SHINGLES**

Metal shingles are stamped on presses in modular panels of various sizes and designs. According to Todd Miller of Isaiah Industries, they have many benefits for building owners as well as roofers.

Known for durability, some metal shingles installed on buildings in the Victorian era are still going strong, a testament to the enduring nature of metal roof shingles. Early on metal shingles were installed unpainted, and the paint was added later. In the 40s and 50s, they began pre-painting with durable coatings for an even stronger roofing shingle.

Metal shingles also offer high wind resistance due to their interlocking nature, and of course, they are fire resistant. They are water-tight, usually requiring a pitch of 3:12 similar to asphalt shingles.

In addition to their durable nature, building owners tend to like the aesthetics of metal shingles. They can get almost any look: wood, shake, asphalt, slate, or tile with the long-lasting benefits of metal. Many like the metal shingles with stone or aggregate coatings. It features the same stone that is applied to asphalt shingles.

"This makes sense to people as their roof will blend in with their neighbors' roofing," Miller said.

Many people like metal roofing because of the high recycled content; being eco-conscious is important to a lot of homeowners. Sometimes metal shingles can be installed right over old shingles which can save the customer money, too.



Metal Shingle Roof. COURTESY OF ISAIAH INDUSTRIES

Builders on the other hand like metal shingles for another reason. While they certainly like the durability a well-laid metal roof delivers to their customers, they are likely to offer metal shingles because they are more unusual and it's profitable to offer a niche product.

"Often there is only one experienced installer in the area, so if a homeowner is excited about a metal shingle roof, that roofer will get the work," said Miller. "Contractors may offer a variety of shingle types, but some focus on metals and others focus on metal shingles to differentiate themselves and build value."

Installation of metal shingles requires a different skill set from other roofing materials. "It's like a cross between asphalt and standing seam installation," Miller continued. "The hallmark of metal shingles is that flashing and trim is premade like an asphalt roof. With standing seam, roofers have to make a lot of their own trims and pieces."

Traditional asphalt shingle roofers "may find that metal shingles are easier to install than standing seam," Miller said. "You have a starter strip at the bottom edge and each horizontal course covers the previous course. The shingles are usually fastened with concealed nails or screws as well as with valley pans and other pre-formed accessories that the shingles fit into or attach to."

All the same, Miller warns that there are some challenges involved with metal shingles. "There is a higher investment," he said, "it's about 2½ to 3 times the cost of asphalt. So you have to learn how to market and sell metal shingles. Computer-based programs can help figure out what is best for the customer."

"Homeowner associations sometimes have covenants against metal roofing. Often after they see the metal shingles they like the aesthetic, but it can be a challenge sometimes to gain acceptance. Many manufacturers are happy to assist with that process."

#### **CLAY TILES**

According to Robin Anderson at Westlake Royal Roofing Solutions, clay tiles have a history that dates back to the Bronze



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Clay Shingle Roof. COURTESY OF WESTLAKE ROOFING SHINGLES

Age. "Clay tile adorns everything from the roofs of palaces, temples, and rooftops in Italy, to the historic California missions. Though one of the oldest roofing materials, clay tiles are still widely selected today for their beauty and ability to complement specific architectural styles. For example, Westlake Royal Roofing Solutions' El Camino Mission Barrel Clay Tile was recently selected to roof a hotel built in historic downtown San Juan Capistrano. In doing so, AO, the architects, were able to create a roof that not only complemented the hotel's architecture, but that aligned aesthetically with the roof and architecture of the famous San Juan Capistrano Mission just across the street."

The clay tiles of today feature a simple overlapping design and pre-punched fastener holes, which makes them easy to install. "The only real 'challenge' is the cutting at the roof details. Making sure that the individual tile is cut in line with the next course takes some skill to do accurately," Anderson said.

Clay is a natural choice when you consider the desires of homeowners, offering durability, sustainability, energy efficiency and the savings that go hand-in-hand with that. They are manufactured from locally sourced geologic material and they boast Cool Roof and Cradle-to-Cradle certification. If there is damage to the roof, they can easily be replaced and when the roof is at the end of its life, all of the tile can be recycled.

"The thermal mass and above deck airflow provided by clay tile systems make these products some of the most energy efficient available on the market today," Anderson said. "Homeowners choosing tile over asphalt shingles can reduce their home energy bills by as much as 22% by installing a tile roof, as indicated by the 2005 industry study, "Steep-slope Assembly Testing of Clay and Concrete Tile with and without Cool Pigmented Colors," conducted by independent Oakridge Laboratories. Results vary based on profile of tile installed, location, weather, and other factors,"

Non-combustible clay tiles help with fire safety, protecting buildings from flying embers that could ignite a fire. Many clay roof tile products have received Class A fire rating, the highest fire resistance rating for roofing, a rating that the ICC Evaluation Service indicates can withstand a higher level of fire exposure originating from sources outside the structure. Of course, the tile rating should be checked on the specific tile chosen.

Hail, another threat to roofing integrity, is another place where clay tiles can shine. The rating assigned to the specific tile chosen can range from 2-4. Class 4 hail rating means that the tile can withstand two-inch ice ball impacts shot from a cannon at 70 mph.

#### **CONCRETE TILES**

"Concrete roof tile is beautiful and enduring," said Anderson at Westlake Roofing, "and it increases the value of a home. It is specifically known for durability and a lengthy lifespan which far outlasts competing alternatives such as asphalt shingles. The tile is also low maintenance and portions of the roof may be

easily replaced if damage ever occurs."

Concrete tiles are available in an expansive range of colors and profiles to complement a wide range of home architectural styles," Anderson continued. "Consumers may select concrete tile that mimics traditional slate, cedar, shake and more."



Beyond aesthetics, clay and concrete tiles are very similar in their benefits. Concrete tiles are Class A fire rated, the highest fire rating. They are also Cool Roof rated, resistant to damage from high winds and hail, and they are low maintenance, allowing for replacement of portions of the roof or even a single shingle should that be necessary.

It is important for roofers to know the conditions a concrete roof is likely to encounter in the location it is installed, such as hail, wind, and fire. This will dictate the proper fastening and grading of the tiles.

#### **COMPOSITE TILES**

Composite shingles are generally made to replicate natural products, but with more built-in benefits than Mother Nature has to offer. For example, composite roofing can be made to resist termites, insects, fungus, and algae growth ... which roofing such as cedar shakes are subject to. They resist impact and will not crack or break, which natural slate can do.

Some man-made composites are created of resins, UV and thermal stabilizers, melted down and then poured into individual molds. They can be made to mimic other materials so closely, that they are accepted in projects requiring historical accuracy.

Roofers have reported that lightweight composite shingles are easy to install. Some companies, like DaVinci Roofscapes, make it easier on the jobsite by sorting the shingles in bundles by color so the roofer can simply install them immediately on the roof. Of course, as with any product, there is a learning curve.

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Composite Shingle Roof. COURTESY OF DAVINCI ROOFSCAPES COMPANY

Besides aesthetics, there are many benefits to composite shingles: low maintenance, great fire ratings (some are Class A) and impact ratings (some at Class 4). Homeowners may even find



that they can get discounts on their homeowner's insurance due to the safety of some of these roofing materials; that's a great selling point for roofers.

As to water tightness, it should be remembered that no one type of roofing tile is more or less watertight than another. It's all about the roofing system that is put into place. It's about the layers of materials that are installed on the roof to create a watertight surface, and it's all about the skill of the roofing installation crew.

As previously mentioned, working with any new medium can have a learning curve. However, the good news is that some composite roofing can be installed at lower temperatures than many other roofing materials, so it extends the installation season for roofers. Besides allowing a roofer to get more projects completed, this means you don't have to roll the dice on next season's prices.

#### **ASPHALT SHINGLES**

Asphalt shingles have been the leading form of roofing products for over a century and are still going strong in today's market said Matt Boyle, New Product Development Manager of business products manufacturer, CertainTeed. However, new and exciting changes are happening in the industry –advancements in cool roof technology, impact resistance, and sustainable manufacturing processes that use less raw materials.

"The carbon footprint of asphalt shingles is lower than people think compared to other products like metal or composite since asphalt is a by-product of petroleum that would otherwise be thrown away," O'Boyle said.

Many roofers prefer asphalt shingles as they find it easier to work with than other roofing materials, according to O'Boyle. He added, "They offer easy installation, helping to accelerate project completion, and have a short learning curve making the installation process simple for seasoned professionals to teach new contractors."

Approximately 75% of homes feature asphalt roofing in the United States. O'Boyle added that many people consider asphalt to be the most aesthetically pleasing. "There are many options and designs to choose from depending on regional needs and specifications, as well





Asphalt Shingle Roof. PHOTO COURTESY OF CERTAINTEED.

as various price points to help meet any budget," he said.

Durability of the products depend on the shingle chosen. They come in different thicknesses with different warranties, anywhere from 20 years to limited lifetime warranties. CertainTeed, for example, is well known for comprehensive warranties.

"Today's roofing professionals are looking to partner with reputable manufacturers and get credentialed to set themselves apart from competitors," said O'Boyle. "Knowing a product is backed by 110+ years of innovation and an extensive

### Focus On Roofing

warranty puts roofers' minds at ease and offers peace of mind for their clients."

O'Boyle said the biggest challenge for a homeowner is ensuring they have hired the right contractor since installation is key to protecting the roofing structure. A roofer can improve their chances of being hired if they can show that they have been credentialed for roofing installation.

#### **IT'S UP TO YOU**

In the end, all of these shingles have benefits, and it is up to you, the contractor, to be up-to-date on what is out there and match those benefits to the concerns of the customer. If customers are asking for a roof type that you are not experienced with, check with manufacturers for credentialing and education. More roofing options may mean more business. **RB** 



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## Getting Employee Candidates Excited About Your Company

**IT'S NOT YOUR IMAGINATION. IT** IS exceedingly difficult to hire great people. And for some roles, it seems like no one even wants to apply. Despite the fact that hiring is hard, there are things you can do to get candidates excited about working for your organization.

Today's workers are different in some ways than the workers of twenty or thirty years ago. The US Bureau of Labor Statistics data shows that the current labor force participation rate for workers ages 25 to 54, is holding above 82%, a bit shy of the record setting 84%+ that we saw back in the 1990s. The unemployment rate remains well below 4%. Millennials make up the largest portion of the workforce. Gen Z is also entering the labor market.

Employers must understand the changing generational dynamics in the workforce. Start by looking at your company's branding and website. The candidate experience should be easy with little-to-no hurdles.

"I just finished [redesigning] our new website to attract potential candidates and not necessarily to market trusses," said Marion Nielson, Executive Assistant at The Truss Company. "We are trying to attract younger people. They are super website savvy. Candidates want to see an awesome site that is really appealing and easy to navigate. They are more likely to apply to the company that has a site that is really good, that's well designed and mobilefriendly. We have it linked to our Indeed [job application page] for all locations and positions."

Companies should also check their social media presences to ensure they have good information to share with potential talent about their company. Review and keep current your Facebook, Instagram, LinkedIn, and Glassdoor, where you can also post job opportunities for your employees to share with their networks.

Consider partnering with your local Career and Technical Education (CTE) programs too, which are typically offered by public schools, community colleges, or vocational schools in order to tap that burgeoning youth talent pool.

The Truss Company is fostering relationships with these programs to showcase different career options for students interested in different trades, especially knowing that college isn't necessarily for everyone. Building young talent early in these skilled trade areas is a key to building that application pipeline when they enter the workforce.

"I joined the advisory committee for the local high school," said Josh Wright, Vice President of Manufacturing at The Truss Company. "We want to try to help them. Their focus wasn't on framing or CAD because they offer many different programs for the kids to sign up. But we want to be a part of that."

Younger workers want to know what their future opportunities



are, and see that they have a career path with opportunities to continuously develop different skills. As such, businesses should ensure candidates know how they can grow in their career.

"We have had good luck hiring kids right out of high school, and for summer jobs," said Wright. At one time, "we had the entire wrestling team working for us all summer long. That was kind of fun. A couple of them came back and one is now working to be a salesperson as well."

Plant tours and youth hiring initiatives are also valuable. "We have found that on the tours, to attract kids, they want to see people working on the floor, and see it's automated," said Wright. "They get to see how the equipment moves around. That it is safe. You can push a button and you have things moving. You are more of a CNC [Computer Numerical Control] operator than a sawyer pulling a saw. It's a clean work space with more automation which is helpful when attracting younger workers. They want to come and work [with high-end equipment]. No one wants to get dirty anymore. The other benefit is for the older workforce [who see] the value because it's an easier working environment physically. We have invested a lot of money. Our new facilities are pretty automated. Most importantly we're not getting rid of people. We are able to adjust and build capacity."

Well-crafted job ads can help attract the best candidates who are more likely to be successful. It's important to have an objective job model to define ideal qualities beyond the basic skills. This helps companies identify the behaviors and drives critical to onthe-job success to accompany the list of tasks and skills in your job description.

Finally, companies need to interview beyond the resume and delve into the candidate's fit for the behaviors, learning abilities, competencies, values, and culture. Make sure your managers and leaders are properly trained to interview for how people will fit, not just in the job, but on the team, and in your culture. RB

Dolly Penland, President & CEO of Business Results, a PI® Premiere Certified Partner and Master Training Center, Talent Optimization consultancy, and a CATIL<sup>®</sup> Elite Certified Partner, works with organizations helping them to hire and manage their talent to their highest potential. She specializes in multiple areas including helping businesses grow sales, reduce turnover, and develop leaders.



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The 2023 Directory will polybag with the December issues of Rural Builder, Metal **Roofing**, Rollforming and January Frame Building News

SWM Directory will go to these subscribers: **Rural** Metal ROOFING Rollforming FRAMEBUILDING BUILDER

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## Mini Warehouse

**THE CUSTOMER STARTED OUT BY** looking for a company to aid in the design and construction of this project. The project required working with the local authorities and securing financing, and it took a year and a half before construction started. The project consists of office, storage, and some heated buildings. All of the buildings are by Wick and the mortarless block masonry is Moderra. **RB** 









### **THE DETAILS:**

Location: Shorewood, Ilinois Builder: Wise Construction Building System: Wick Buildings Doors: Trac-Rite Walls & Roof: Wick Buildings Insulation: Dr!pstop Trusses: Trusswell Design, Wick Buildings Mortarless Masonry: Moderra Foundation: Concrete Slab

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## **Mortarless Cladding**

Simplifies the Builder's Job While Satisfying the Client

**NATURAL STONE AND BRICK HAVE** been popular home cladding materials for decades. However, as builders and contractors know, they do have some inherent challenges.

One such challenge is the price tag. This can be a problem when a homeowner is required to use stone or brick in whole or in part when building or upgrading their homes. This is often the case for those whose homes are located along the shores of a waterway. While those materials are very attractive, they can be pricey too. An easy way to resolve this dilemma for your client is to offer them mortarless sheathings which can come in with a much smaller price tag, yet offer the timeless looks of stone or brick.

Installation of brick and stone with mortar requires specific weather conditions. Jim Weidner of Moderra Mortarless Masonry Veneer, says, "Some mortarless cladding can be installed in any type of weather. That means that it can be installed in sub zero temperatures, rain, or even the snow. That means no weather delays, keeping building projects on time and on budget. Also, because it is mortarless, that means it does not require heating or tenting, something a mortared masonry product would. This saves the building contractor, as well as the building owner, additional financial costs."

Weidner says that another problem with traditional stone or brick claddings is that they require a mason for installation, and unfortunately, through the years, the number of good, qualified masonry subcontractors have dwindled. "There are still some very good masonry subcontractors out there, but they are few and far between. They are also in high demand, which makes it difficult for building contractors to schedule them; and their



8" No Score Running Bond. PHOTO COURTESY OF MODERRA

talents come at a very high price."

When you use mortarless cladding, another trade that is already performing a service on the project can do double duty and install the masonry veneer as well. Trades people such as carpenters or siding contractors can provide the labor for the



TandoStone Cladding, J-Channel Seaside Grey



PHOTO COURTESY OF R&R BUILDINGS

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Silvermine Stone Siding (real stone). PHOTO COURTESY OF HIXWOOD

masonry veneer installation. It's killing two birds with one stone and saving time, money, and more coordination.

Noah Oberholtzer of Hixwood says, "It is considerably faster and easier to install mortarless cladding; simply screw it to your plywood backer." He adds that treated plywood backer is recommended for use with mortarless cladding.

Trent Wagler of Graber Post states that they use mortar-



Versetta Stone. PHOTO COURTESY OF BORAL/WESTLAKE

less cladding because of the simplicity of installation. "It also gives homeowners peace of mind knowing that it can be easily removed in the future without lots of labor."

Of course, mortarless cladding has its own challenges. When compared to a more basic cladding, it is pricier, Oberholtzer says. However, the price tag isn't the only thing that builders and their clients are taking into consideration when choosing cladding for their project.

According to Brian Martin of Qora Cladding, mortarless cladding can be indistinguishable from real stone, and it is lightweight and durable and, "it can be installed in hours instead



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of weeks."

Martin continued, "The builders I've known are clear on their desires. They want cladding and trim that looks authentic, installs quickly and easily, and does not result in callbacks. The price must also fit the budget. But more and more, it comes back to variety. Variety has been expensive in the past, calling for multiple trades. Stucco is one trade, stone another trade, brick (sometimes) another trade, and lap siding another. Most trim guys can install lap siding, and they are going to be onsite no matter the siding material. New cladding offerings give the builder what they want — it looks great, installs quick and easy, meets all the durability needs, and most importantly requires one trade skill to complete."

Weidner agreed that variety is important. "It is highly doubtful that one comes across a contractor that says, 'I have way too many options to choose from.' The more options the better. Mortarless masonry veneer products are just another legitimate option a building contractor, owner, and designer have at their disposal. Going mortarless saves you time and money, making everyone involved a winner in the end."

Marci Katz, NEWPRO's CMO elaborated on the design



Moderra Brick. PHOTO COURTESY OF MODERRA

possibilities when working with the assorted palettes. "Now, the mixed-material look can be achieved without the headaches of dealing with supply and labor issues," she explained. "Some mortarless claddings' engineering and materials offer the look of natural stone or wood but without the upkeep and maintenance of those materials." **RB** 



### Market Update

BY RURAL BUILDER STAFF

## From Their Perspective ..

We asked suppliers and manufacturers about their take on the current construction business climate. Here's what a few of them had to say:

Crew workers are still hard to find. Increased payroll expenses due to increased poaching in a very limited labor pool are driving building prices up to dangerous levels. The balancing act of price, profit, and pay scale is extremely challenging. The bright side is that demand remains steady in our markets. ??

Matt Greiner, Owner/COO Greiner Buildings

Finding and retaining employees is key to success in any climate, especially now. We here at Levi's Building Components believe company culture matters, and it is proving to be a valuable part of our formula for success. We are living our core values of Integrity, Quality, Service, Collaboration, and Growth. To our employees and customers, it's known as the Levi's Experience.

Mike O'Hara, National Sales Manager Levi's Building Components

What a year so far! The word which comes to mind is "Adaption." While supply chain and upward cost pressures continue, we as an industry have learned to adapt. This has served us well and will continue to serve us as we move forward. It is a testament to the quality people in our industry. Generally I am seeing business remain strong. Some slow down may be occurring but this can be expected after the unprecedented past couple of years. What we may see as a slow down can to some degree be attributed to a normalization of an unsustainable growth pattern. I remain very positive about the metal roofing and post-frame building industry where I live. **17** 

#### Randy L. Chaffee Source One Marketing, LLC

Business is very strong – momentum from 2021 has continued into the first six months of 2022. I expect the balance of the year to remain at the same pace. Good news for the industry: There are new post-frame builders entering into the market to service and support increased demand for post-frame constructed buildings. These new builders are looking for innovative products and services to provide a competitive advantage to build their respective businesses. In addition, consumers new to the postframe industry are also driving new innovative designs and services in order to meet their individual needs. As an innovative leader, our ICC-ESR certified Perma-Column family of products provides a permanent foundation solution that supports builder and consumer needs. These are very exciting times for our industry...I'm looking forward to the journey.

Mark Stover, President Perma-Column LLC Tough times coming when it comes to finding qualified, experienced workers. There aren't enough human beings to do the work that's necessary. Dwayne Borkholder (Borkholder Buildings) and I developed the Rapid Frame System so one person on a skid steer can set a wall section. You don't need three or four guys to frame a wall. We can address personnel shortages with technology and innovation. The section of the section.

> Todd Meinhold Ridgeline Safety System

While the worker shortage and supply chain challenges of the past couple years haven't gone away, we're seeing suppliers and contractors better adapt to managing them. We're seeing more contractors than before tapping into technology to do more work with fewer people, and we at ABC Supply have been providing more services and tools to make contractors' jobs easier. We're anticipating 2022 will be a successful year for us and our customers, despite the challenges.

#### Mike Jost, Chief Operating Officer ABC Supply

S-5! distributor orders are up significantly over 2021. However, shipments are flat due to backlogs caused by supply chain issues and raw material availability. Our advantage is our distribution model. S-5! products are on shelves nationwide—always. Labor shortage is rarely a problem. We have a reputation in the industry for doing things The Right Way<sup>TM</sup>. We are a privately held company with a comfortable working environment, and values that attract great talent and retention.

Rob Haddock, Founder and CEO S-5!

<sup>44</sup> The climate of the Construction Industry has seen unprecedented growth despite the supply issues that dealers, distributors, and manufacturers have had to overcome. The import supply chain has been greatly affected by the rising costs of containers, delays in deliveries and even partial shipments, which has left the domestic manufacturers to fill the needs of the increased growth despite dealing with the rising costs of raw materials, transportation, and labor during this unique period. The consensus in many sectors is: How long can we sustain this unparalleled growth before the shortages in the supply chain impact the Construction Industry as a whole? <sup>77</sup>

Mike Green, Western Canadian Sales Manager Leland Industries

## **Construction Business Climate**

field Wall Media recently closed its mid-year Construction Business Climate Survey. Despite all the doom and gloom we hear from news outlets, the results are surprisingly good.

We divided respondents into three categories: Building Contractors, Roofing Contractors, and Building Material Dealers or Manufacturers.

We believe you'll find the results to be of interest.

### HOW DOES YOUR YEAR OVER YEAR GROSS Sales, including Backlog (Q1) Compare to 2021?

**67%** of Building Contractors report results that are up compared to Q1 2021.

67% of respondents are up across all business types.

### HOW DOES YOUR OVERALL Q1 PROFITABILITY COMPARE TO 2021?



86% across all business types report profitability to be the same or better. (2021 was a record year for many!)

### HOW DOES YOUR UNITS SOLD YEAR OVER YEAR, INCLUDING BACKLOG (Q1) COMPARE TO 2021?

**76%** of Building Contractors report unit sales being the same or better than Q1 of last year.

76% are the same or better across all business types, while 24% are down slightly across all business types.

### HOW WILL YOUR OVERALL PROFITABILITY IN Q2 Compare to 2021? (Best guess)

**90%** of Building Contractors estimate profitability will be the same or better.

90% of respondents (across all categories) are the same or more profitable than they were in Q2 2021.

HOW WILL YOUR Q2 YEAR OVER YEAR GROSS SALES, INCLUDING BACKLOG, COMPARE TO 2021? (BEST GUESS)

**90%** of Building Contractors estimate Q2 sales will be the same or better than 2021.

81% across all sectors report gross sales will be the same or better.

### WHAT CHALLENGE IS EXERTING THE GREATEST IMPACT ON YOUR BUSINESS?

Challenge: Shortage of workers is the #1 challenge for Building Contractors and Dealers/ Distributors/Manufacturers.

The #1 challenge for Roofing Contractors: It was a tie between material shortages and material costs.

### **2022 GENERAL OUTLOOK**

**57%** of Building Contractors estimate 2022 will close better than 2021. 57% of respondents across all categories believe 2022 will be better than 2021.

Comparing the numbers for Q1, Q2 and 2022 as a whole (best guess) sentiment drops slightly for Q2 and slightly more for the year as a whole.

Sentiment seems to be declining, but it is still generally positive.



FLASHBACK: 1974

**BY RURAL BUILDER STAFF** 

Farm Building News, November/December, 1974

#### FARM BUILDING NEWS, THE PRECURSOR TO RURAL BUILDER, began

over 50 years ago. As the title indicates, there was a great focus on agricultural building.

This article speaks to traditional barn raisings, where communities came together, providing free labor to help families build the barns they needed to make a living. This tradition was alive and well in some Amish communities of the 1970s and continues into the 21st century in some Old Order Mennonite and Amish communities.

# The many hands of willing workers... Barn Building

# The Amish Way

BY SIMON M. SCHWARTZ

#### METHODS USED IN THE ERECTION

of farm buildings have changed greatly down through the years. The style and type of farm buildings have changed also. Many farm builders today erect large buildings in a fraction of the time it used to take.

But the Old Order Amish still use their age-old method of erecting buildings, and the type of buildings they construct has changed little.

Early Sunday morning, July 25, 1974, the large barn, straw shed and implement shed on the farm of Levi Erb, Sugarcreek, Ohio were destroyed by fire.

#### SAWED OWN LUMBER

A couple days after the fire, when the debris had been hauled away, a dozen or so of the neighbors combined their efforts to fell 100 trees. The lumber was cut up by a portable saw mill brought to the Erb farm. Blocks were laid for a barn raising.

On August 13, everything was in readiness for the raising of the new barn, a structure  $44 \times 88$  ft. Along with the barn were a  $40 \times 58$ -ft. straw barn section and a large implement shed near the barn.

By 7 a.m. on August 13, 601 workers had gathered at the Erb farm to assist in the barn raising. The accompanying



7:35 a.m., August 13, 1974...Just 10 minutes after start of new barn on the Levi Erb farm near Sugarcreek, Ohio. Framing is underway with timbers being pulled up by rope and set into place.

pictures show how the barn raising progressed. By 2:40 p.m. the same day, the work on the barn was practically completed. The next day Erb threshed oats and the straw was blown into the new straw shed.

This is a long way from twentieth century procedure but it works for the Amish people. And with all those hundreds of men and boys on the farm, not a single injury was reported! RB



8:15 a.m. same day...Barn is nearly ready for siding. The 2-level implement shed on the left now taking shape after a 7:00 a.m. start. Framing for the straw shed is also getting underway.



1:40 p.m. same day...After a bountiful dinner served by ladies of the community, roof being completed. An hour later everything was finished. Erb threshed oat straw into shed the very next day.



9:30 a.m. same day...JRoofing material about ready to be put on. Plywood sheets for floor of straw shed in the foreground. Power saw operated by gas engine. There were 601 men and boys on the job.

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### NEW PRODUCTS

BY RURAL BUILDER STAFF



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#### SIMPSON STRONG-TIE'S NEW TENSION STRAP

Simpson Strong-Tie has introduced the MTWS mass timber washer strap as a versatile, off-the-shelf, load-tested option for a variety of cross-laminated timber (CLT) panel-to-panel and panel-to-steel connections in mass timber construction.

Mass timber projects can use a hybrid of materials and require strap and holddown connections with two to three times the capacity of light-frame connections. The MTWS washer strap, engineered for high strength and stiffness, uses 10% to 20% fewer fasteners, boosting productivity and efficiency on jobsite, eliminating custom fabrication of connector straps.

"The MTWS washer strap provides a pre-engineered, tested solution to replace expensive, shop-fabricated steel plates," says Randy Daudet, director of Global Offsite Construction at Simpson Strong-Tie. "The use of inclined screws and washers reduces the number of fasteners needed to achieve load, which helps boost productivity for mass timber contractors."

### BRAVA ROOF TILE ANNOUNCES ASPIRE PAVERS

BRAVA Roof Tile announces the launch of Aspire, a line of synthetic pavers made from recycled plastic and tires.

Perfect for both ground and roof applications, the pavers are made with up to 95 percent post-consumer recycled rubber and plastics removed from the waste stream. The manufacturing process requires 95 percent less energy and produces 96 percent less CO2 emissions than concrete pavers.

The product is easy to install, lightweight, and designed to reduce installation time and manpower. RB



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ETTIBONE

# LIFTING WITH PURPOSE

Improving the scissor lift for today

**WHEN WORKING ON A PROJECT,** footing and balance shouldn't be a concern. While elevated, focusing on the job in front of you matters most. Dependable, practical working platforms,

including the scissor lift, can help make that happen. Lifts should provide peace of mind. Stability and leveling, the ability to work on all terrains, durable construction, electrical components, its hydraulics and ease of use are important.

One person on a quality lift can do what three people can using ladders in stages. The majority of builders we spoke to had great things to say about their lifts, but they also mentioned challenges and ways they'd improve the scissor lift, and the various areas where they've seen upgrades on some machines.

#### **TERRAIN & OUTRIGGERS**

The ability for scissor lifts to both maneuver and provide stability on all types of terrain is a chief



(RIGHT) Derstine Trailer/Scissor Lift




### **PRODUCT FEATURE**

concern. Projects must be completed both inside and on the outside of the building, which requires the lift to move and stand on uneven ground or natural dips. These challenges can be alleviated by paying careful attention to lift ratings. Manufacturers make scissors lifts rated for indoor and outdoor use. Make sure you use scissor lifts exclusively made for rough-terrain when navigating over hills and dips on the ground close to the building. When working inside, an indoor-rated scissor lift is all that is necessary. Allterrain lifts are convenient, as they work both inside and outside. They maintain stability while enhancing maneuverability in all conditions, and are ISO-rated to withstand winds up to 28 mph. For economic reasons and convenience, some builders will rent one type of scissor lift and own the other, depending on which type is used more.

Outriggers are often necessary for stability when working with all-terrain scissor lifts. These outriggers add length to the machine. One end of the platform of most scissor lifts extends out, while the other end does not, creating a clearance and accessibility problem on the other end over the back set of outriggers. This creates extra space between the edge plane of the basket and the wall you're trying to reach, sometimes 12-24". A scissor lift with a platform that extends back past the back set of outriggers is preferred to improve access to the wall or corner from both ends of a platform. Or, manufacturers recommend using a scissor lift with a higher reach to close the gap or one of their aerials. If this isn't an option, you'll have to reposition the lift to reach that portion of wall or corner.

Sometimes outriggers extend out past the ends of the base of the frame of the machine and add width. Avoid this challenge by using a scissor lift with outriggers that don't extend out as far or those that have a more low profile to eliminate that extra space they create, allowing closer access to the wall from the platform.





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### 'TIME-TRAVELING' CHALLENGES

Transporting a scissor lift to the jobsite requires extra time and vehicles and trailers. For many, these lifts need to be brought to the work location separately, even more than once when performing two-day jobs. Sometimes time-consuming trips are needed to haul out a crew and materials, and then a scissor lift can add another trip.

A trailer-scissor lift combination saves time and prevents the need for multiple trips. When using this type of scissor lift, you haul materials, crew, and the trailerscissor lift all in one trip. This patented lift, with a practical built-in utility dump trailer, has a steel frame, is self-propelled, accommodates multiple workers, can be 20 feet long or more and has extra axles for support. These are DOT-compliant and hitch up to a standard 3-quarter-ton truck.

### TILT ADVANCES

When on slight slopes the ability to increase reach and productivity is limited on some machines. However, scissor lifts with the patented technology of variable tilt allow you to elevate to limited elevations while reaching to work locations, even when working on a side slope greater than 1.5 degrees. The scissor lift operator uses the updated control box complete with a visual indicator to inform how high the platform can be raised based on the lift's side slope.

### **CENTER-POINT**

Some scissor lifts have a silicone sleeve in the non-grease center-point linkage area, or one has been put in place for lubrication. These wear over time, and if you don't catch this, these can get into the main hinge point and break it. Use scissor lifts where the kingpin joints and hinge points have been significantly upgraded and revamped, without the need for sleeves. Certain lifts have grease zerks in strategic locations, and manufacturers recommend greasing these points weekly, depending on the amount of use.

# LEVELING-OUT & SENSORY 'PERCEPTION'

All-terrain scissor lifts have high-tech



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### PRODUCT FEATURE

self-leveling capabilities; slab indoor scissor lifts have leveling technology too. Both use sensors to effect safe leveling of the lift. Receiving proper notification when sensors need changing can be challenging if there is no display. All the new ANSI A92-compliant lifts have standards requiring sensors. These machines will notify you with a listed code, indicating which specific sensor needs replacing. Manufacturers also say some sensors on new machines experiencing issues may just need a few times of use to break them in. They get painted and may stick at first, but that isn't common.

### WIRED IN AND ELECTRICAL CHORDS

The electrical wiring of scissor lifts came up as an issue. After years of use it's common to replace wiring to keep the lift in working order. The wiring may require a special order to replace and need installation by a specialist. Some manufacturers replace wiring and service their lifts.

Some builders opt for hiring an electrician they trust to do the work. Manufacturers now include wiring with upgraded anticorrosion properties and weatherproof linings to increase the wiring lifespan.

Another challenge is the wiring where accessories are plugged in. Not all scissor lifts accommodate wiring for equipment in a platform; the wires may not be heavy enough to use or the outlets don't accommodate some power saws or other plug-in tools. Many scissor lifts today have

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Pettibone Scissor Lift

120-volt outlets for plugging in tools with converters for running on AC. Improvements to the battery technology for cordless power tools allow the user to work in the scissor lift for longer periods without a cumbersome chord. These advances eliminate the need for plug-in tools up on platforms.

#### CONCLUSION

The scissor lift provides you with a working platform to do your job in hardto-reach areas at certain heights up against walls and buildings when other lifts can't. Manufacturers are putting your safety at the forefront with further development of these machines. They are constantly working to advance the capabilities of scissor lifts, while adhering to ANSI standards, so you can remain confident and focused on the job at hand. **RB** 



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# **Solar Solutions American Style**

A Case Study

**IN FOCUS** 

BV 5-51

#### LIBERTY SELF STORAGE, A MULTI-

**SITE** storage facility business in Louisiana and the state's largest solar-powered company, contacted The Next Energy Technology, a Louisiana-based solar power company, to do a conversion project for one of their locations. Liberty Self Storage dedicated itself to green energy in 2016, commissioning solar conversion for the first nine of 12 locations in St. Tammany Parish, but this time they wanted to do something different.

In line with the name of the company "Liberty" and what it represents, they chose an American Flag solar panel array designed by The Next Energy Technology as a symbolic source of pride and unity for all Americans.

The facility, located in Covington, La., features a 74.88kW DC solar array securely mounted to the MBCI Ultra-Dek standing seam metal roof with the S-5! PVKIT 2.0 solar attachment solution. In trading string inverters for 64 APsystems microinverters in the project design, they created one of the most energy-efficient locations in the Liberty chain, and helped Liberty take the lead as one of the most progressive mid-sized companies in the South.

### THE CHALLENGE

The Next Energy Technology was challenged with designing and installing solar panels in the arrangement of an American flag. A traditional rail-mounted system was not ideal because it would add additional weight to the array, and in certain areas, the rails would

remain exposed and compromise the design. Additionally, Liberty Storage was adamant that the array be attached to the metal roof without any penetrations.



mounting product capable of withstanding up to 140-mile-per-hour winds.

#### THE SOLUTION

Solar solution provider, Ontility recommended the PVKIT directattach<sup>™</sup> (rail-less) solar solution paired with the S-5-V Mini clamp to provide a secure, economical and penetration-free method for attaching solar modules to the metal roof. This enabled solar installers to "lay & play" PV modules with tested, engineered, cost-saving attachment. The solution also allowed a precise physical module arrangement to achieve the artistic objective.

In high-wind areas such as this, wind forces will try to tear a roof from its mountings. The exception-

al performance of metal roofing in these conditions is due in part to its attachment methods and interlocking installation where panels are interlocked and attached

Another challenge was the area's high

wind speeds due to its proximity to the

Gulf coast. The design wind load require-

ments for the roof necessitated a solar

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to the structure of the building, reducing the ability of wind to disrupt the roof panels.

Standing seam metal has a distinct advantage over other roof types because it serves as a "structural" covering, meaning it can be engineered to withstand almost any force imposed by wind. It also serves as the perfect platform for mounting solar PV because the structural ribs or seams can be used as inherent (and cost-free) "rails" for mounting solar PV via reliable mechanical attachments.

### LONG-TERM OUTLOOK

With the standing seam metal roof, good south exposure, no obstructions and a clear objective, The Next Energy Technology was able to overcome any and all challenges. As a result, they transformed a solar array into a symbol of freedom in the Deep South–an American flag.

### **PROJECT TEAM**

General Contractor: The Next Energy Technology, Kenner, LA

Engineer: Renewable Design Solutions, Dallas, TX

Distributor: ONTILITY Powered by Smith, Houston, TX

Solar Mounting: S-5!, Colorado Springs, CO

#### SOLAR STATS

Project Size: 74.88kW DC

Solar Installer: The Next Energy Technology

Module manufacturer: Hanwha Q-Cell 390w modules

Inverter manufacturer: APsystems YC1000 Microinverters

### **ROOF STATS**

Roof Profile: MBCI Ultra-Dek Roof Measured: 72' H x 166' W (southfacing roof surface) Roof Pitch: 14° **RB** 





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BY RURAL BUILDER STAFF

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### DECEMBER

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# Great Things in the Works!

elcome 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 surveys 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 METALC-ON 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@shieldwallmedia.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



# Metal Opportunities

RV 469



# Extra-Large Boat and RV Storage Facility

PHOTOS COURTESY OF TRACHTE BUILDING SYSTEMS

f 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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www.ruralbuildermagazine.com www.framebuildingnews.com www.readmetalroofing.com www.rollformingmagazine.com www.garageshedcarportbuilder.com www.roofingelementsmagazine.com 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 overlock 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 TRACHTE 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** 

# Heavy Metal

# 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 4.8acre 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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- Sales process 2
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- 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)



BY JEN HEIMBURGER, PRESIDENT, HEIMBURGER CONSTRUCTION & METAL BUILDING CONTRACTOR & ERECTORS ASSOCIATION

# Community Venue Pre-fabrication Meets Custom Features

**OHIO'S UPPER MIAMI COUNTY REGIONAL** community welcomes the Arbogast Performing Arts Center (APAC), a multipurpose 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 % 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

ETALCON, 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 "showwithin-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 am 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 triedand-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

etal 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

4 METAL BUILDER / A SPECIAL SECTION TO RURAL BUILDER / SEPTEMBER 2022

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,"



Alan Scott, Intertek

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 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, typ-



Lori Reynolds Morrow, Sheffield Metals

ically 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.

#### 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.

## METALCON: FLOOR PLAN





-Booth locations subject to change-

# **METALCON: EXHIBITORS**

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# METALCON : EXHIBITORS

ENGINEERING EDGE Engineering Edge (S) Pte Ltd BOOTH #1841

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# METALCON : EXHIBITORS



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Tennsmith is an American Manufacturer of quality sheet metal tools and machinery located in McMinnville, Tennessee. Teamed with our sister company Roper Whitney located in Rockford, Illinois, and Roll Former located in Chalfont, Pennsylvania, we now offer the most comprehensive product line-up for Folding, Shearing, Coil Processing and more sheet metal fabricating operations – all designed to streamline the sheet metal fabrication process.

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BOOTH #1449

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