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FRAMEBUILDING NEWS

THE ONLY PUBLICATION SERVING THE POST-FRAME INDUSTRY FOR OVER 30 YEARS

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APRIL 2021 • Vol. 33, Issue 2

Buildings of the Year

FEATS IN POST-FRAME

The First Look into Your Building

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Structural Performance

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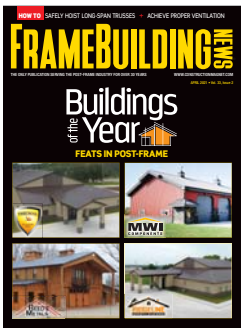

ON THE COVER: Projects featured in the Buildings of the Year section. Projects from H&D Quality Builders (p. 40), Greiner Buildings (p. 39, cover placement sponsored by MWI Components), and Reed's Metals (p. 34).

FRAMEBUILDING NEWS

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SHIELD WALL MEDIA LLC

It's great to be back ...

This is my first issue since returning to *Frame Building News* as the managing editor. The January 2020 edition was the last issue of this title for which I played a significant role. It was memorable for me because I spoke with quite a few industry players to gauge what might be on the horizon for 2020. In late 2019, it looked as though 2020 was going to be a phenomenal year; no one could have ever predicted the events that would take place.

While 2020 certainly had more than its share of challenges, I consider myself fortunate to be involved (though only adjacently) in the essential construction trade. I enjoy facing the challenges of learning what's what, what's new, and what's coming down the pike.

In this edition, the feature that commands attention is the Buildings of the Year section beginning on page 30. I find the number of commercial, residential, and special purpose buildings erected with post-frame exciting. It tells me that a growing number of enterprising business owners and private property owners recognize the benefits of post-frame construction. Take, for example, the church project built by H&D Quality Builders (p. 40). The builder explained the project was built for a church community that had been waiting almost 10 years for a church building. "Post frame was chosen for the spans possible, cost effective construction techniques, and the energy efficiency of the frame type."

Speaking of H&D, Matt Kennell, who has been with that company for nearly 27 years, was awarded the honor of NFBA Crew Foreman of the Year. I'm disappointed that Matt couldn't receive the honor in the traditional way at the Frame Building Expo Awards Banquet due to the event being postponed until next year, but I'm glad he received official recognition for his efforts and dedication. (p. 20)

With that being said, I hope to meet you at the Construction Rollforming Show June 3-4 in Cincinnati. If you have ever thought about roll forming your own components, you can't miss this show! You'd be challenged to find this many roll-forming equipment manufacturers and roll-forming suppliers anyplace else in the Midwest. Learn more at http://bit.ly/CRSJune2021.

Until next time — be well.

— Karen Knapstein

Currently Under Construction: 2021 Post-Frame Directory

Last year, Shield Wall Media published its first Post-Frame Directory in the June edition of Frame Building News. It served as a convenient guide for architects, engineers, developers, and building owners.

In that first directory, we listed more than 50 suppliers in addition to roughly 200 post-frame builders. This year, we're looking to grow the directory and make it even more useful to readers.

If you are a supplier, manufacturer, or post-frame builder, I encourage you to send me your information so you can be included in the Frame Building News 2021 Post-Frame Directory. There is absolutely no cost to get your company listed in the June edition. [See last year's directory here: http://bit.ly/FBNPF2020.]

To be included, send me your company details and I'll take care of the rest. What I need: Company Name; Street; City, State, ZIP; Phone; Fax; Email; Website URL. [Suppliers and Manufacturers: To get your company logo included with your free directory listing, the cost will be $150. Contact Gary at 715.252.6360 or gary@shieldwallmedia.com.] **Don't wait: The deadline is May 10.** (If we run out of space, who is included will be determined by who sent their info the soonest.)

Feel free to give me a call if you have any questions or you just want to give me your info over the phone. Reach me directly at 715.513.6767. Email your company information to karen@shieldwallmedia.com or snail mail to: Post-Frame Directory, PO Box 255, Iola, WI 54945. [Mention "FBN Post Frame Directory" in the subject line of your email.]

Did you miss my call?

I truly hope your 2021 is off to a healthy and profitable start. Here at Shield Wall Media, we editors started our year by calling random subscribers. And I do, literally, mean a few compared to how many of you there are.

The goal of this practice is to get direct feedback about how we can better serve your informational needs. *Frame Building News* has been around for more than 30 years. We recognize that as methods and technology changes, so may builders' needs.

We can also help you with your subscriptions ... one fellow I spoke with said he was getting multiple copies. Whether you're getting too many copies or not enough, let us know your subscription "pain points" and we'll fix the problem.

We can assist you with address corrections, subscriptions, and unsubscribes ... but the content is the real reason we're calling.

On what topics would you like to see more coverage? Advice on how to run a more successful business? Would you like to see even more new products? Stepping back into the role of managing editor of *FBN*, I'll do my best to provide the coverage you need and want. I place a high value on your guidance. I'm not saying that I'll be able to act on and provide coverage for every suggestion, but I'll do my best to find the information you need. After all, if you have noticed a topic lacking, odds are someone else has, too. If I receive multiple requests for a topic or feature to be covered, you can bet your bottom dollar that topic will be bumped to the top of my list.

REMEMBERING CHRIS RAY

November 15, 1960 – February 18, 2021

Chris Ray was the National Sales Manager at Levi's Building Components since 2014. In his position he helped the company grow tremendously, leading the sales team to exceed expectations year over year.

More than that, Chris was an incredible person. He was genuine, humble and patient. To those under his management, he was the kind of boss it was easy to grow fond of. His down-to-earth attitude didn't just make him highly approachable, but made him a great person to simply sit and talk with about anything from music, to travel or great restaurants. Chris was also an incredibly creative person, with loads of ideas and big hopes for what could be accomplished if we work together.

The memories of Chris will be an inspiration for many. Here are some memories from a few who had the privilege to work beside him:

"Chris Ray was an incredible boss. I started my career with Levi's at the beginning of Covid shutdowns last March. Chris went out of his way to make sure I was given every opportunity for success. Chris was knowledgeable and caring. He was hands-down the best boss I have ever had; our entire sales team would agree. We were blessed to have been given the time with him that we were, and he will be greatly missed."

– Shannon Zimmerman,
Inside Sales Agent

"Truly a renaissance man of our time. Chris was able to bring some unique characteristics to his style of leadership. He was well versed, very bright and able to communicate his ideas effectively to anyone. Chris was a hard working guy, a great sales manager and instrumental in Levi's becoming a successful business. Chris loved his family and spoke often about how proud he was of all of them. He loved life and looked forward to new friendships and experiences. Everyone who knew him will miss him dearly."

– Ed Machowski,
Senior Technical Sales Agent

Chris was a real great guy to be around. He was full of life, a real gentlemen. I am not sure I ever got to go through the door behind him. He was always holding the door open for people. Some of the great phrases he used. "It takes all of us together, its takes a village to get the job done." Another one was. "Today is a gift. Let's make the best of it." He has left us big shoes to fill.

– Steve Fisher,
President and CEO

Chris Ray, 1960-2021.
PHOTO COURTESY OF LEVI'S BUILDING COMPONENTS

At the request of the family, if anyone would like to give in memory of Chris Ray, please do so by making a donation to the American Cancer Society. ***FBN***

Ambassador Supply Adds Hixwood Metal to its businesses

Ambassador Enterprises, a legacy-minded private equity firm based in Fort Wayne, Indiana, has announced the acquisition of Hixwood Metal, Inc., by its affiliate, Ambassador Supply. The purchase strengthens Ambassador Supply's growing materials and post-frame businesses and expands its market to include Wisconsin.

Based in Stanley, Wisconsin, Hixwood Metal is a respected industry leader that manufactures and distributes post-frame building supplies and offers full-design services for roofing, commercial contractors, and the retail market.

"We're excited to welcome Hixwood Metal into the Ambassador Supply family as the company continues its dedication to the quality and service that made them a leader in post-frame materials," said Brad Crawford, president of Ambassador Supply. "Together with Ambassador Supply leadership, Hixwood can continue to grow its legacy of trust, expertise, quality, and service."

Bob Vitoux, Private Equity leader at Ambassador Enterprises, stated, "This acquisition is exactly the type of legacy investment that we and our affiliates seek. One that can accelerate Hixwood's growth, continue to offer their customers the unprecedented expertise and service for which they've become known, and cultivate their legacy and impact in their community."

Annual Adjustments Made to OSHA Civil Penalties

The U.S. Department of Labor has announced adjustments to Occupational Safety and Health Administration (OSHA) civil penalty amounts based on cost-of-living adjustments for 2021.

OSHA's maximum penalties for serious and other-than-serious violations will increase from $13,494 per violation to $13,653 per violation. The maximum penalty for willful or repeated violations will increase from $134,937 per violation to $136,532 per violation.
The increased penalty levels apply to any penalties assessed after January 15, 2021.

National Construction Safety Week Set For May 3-7

Construction Safety Week, an annual industry-wide education and awareness event originally formed in 2014, is set for May 3-7, 2021. The week-long event is designed to inspire everyone in the industry to be leaders in safety. This year's theme is "Holistic Safety - Be Present. Be Focused. Be Safe."

Construction is a physically and mentally demanding occupation. According to the Centers for Disease Control (CDC), the construction industry has one of the highest suicide rates compared to other industries. In addition, the pandemic has intensified the ongoing issue of substance abuse across the industry, particularly opioid addiction. These serious issues can cause even the best worker to put others at risk and a momentary lapse in focus can lead to catastrophic results. Less noticeable things like prolonged stress, anxiety, financial concerns or tensions with a family member, a boss or coworker can cause workers to lose focus.

"We hope to help everyone in the industry recognize and address these issues," said Michael McKelvy, Safety Week 2021 chair and Gilbane Building Company president and CEO. "We've built in the mental wellness focus as a vital enhancement to our mission this year. Safety Week resources and tools will enable industry leaders to strengthen their safety culture, raise awareness about holistic safety, and address both the seen and unseen risks that impact our ability to be present and focused while we work, both in the field and in office environments."

The Associated General Contractors of America (AGC) is a signature sponsor of Construction Safety Week for a third year.

2021 IBC Requires Automatic Doors for Entrances to Public Buildings

The newly released International Building Code (IBC) for 2021 includes a provision long sought by accessibility advocates: the mandated inclusion of automatic doors for entrances to public buildings. IBC 1105.1.1 stipulates that, in facilities meeting building occupant load thresholds for a number of common occupancies, public entrances that are required to be accessible shall have one door be either a full power-operated door or a low-energy power-operated door.

The code applies to a wide range of public places, including retail stores, restaurants, clubs and casinos, movie theaters and concert halls, libraries, banks, and college dormitories. Depending on the type of building, occupant loads must be greater than 300 or 500 for the automatic door requirement to kick in. The thresholds have been chosen so they do not apply to buildings with smaller occupancies and less foot traffic, though occupants of all buildings, regardless of size, could ben-

efit from the touch-free, germ-free accessibility provided by automatic doors.

Joe Hetzel, technical advisor to the American Association of Automatic Door Manufacturers (AAADM), has long been a proponent of greater accessibility and first began working to update the code a decade ago. Language he helped craft was submitted and approved during the 2021 IBC code development cycle, which took place in 2018, resulting in the new requirements.

"The code addresses a public need," said Hetzel. "It is widely accepted that automatic doors enhance overall accessibility and accommodate a wide array of conditions that might make using standard doors difficult, if not infeasible. The new code requirement accommodates a wide variety of accessibility needs that manual doors being installed today cannot encompass."

Coincidentally, the new code arrives in the wake of the global coronavirus pandemic, which has heightened public interest in touch-free entrances to public buildings.

"At the time we began this process, no one could have envisioned today's unprecedented concern for minimizing public touchpoints. This new directive on automatic doors will surely enhance public health as well," said Hetzel. He believes these health-related benefits will provide extra encouragement for establishments below the occupancy thresholds to consider automatic doors in response to public demand.

The IBC is adopted at the state and local levels, and will take time to become the new set of requirements across the nation.

AAADM (American Association of Automatic Door Manufacturers) encourages everyone affected to monitor their markets for the adoption of the 2021 IBC. AAADM is also providing members and other industry professionals with information, alerts, bulletins, and other support as new construction projects transition to the updated code. This will also encourage retrofitting where feasible. ***FBN***

In Memoriam: Dana Fitzpatrick, 90

Dana G. Fitzpatrick, 90, of Ellicottville, New York, passed away December 18, 2020, at Olean General Hospital. He graduated from Ellicottville Central School in 1948, where he was Senior Class President and quarterback of the undefeated 1948 ECS football team. He went on to earn his Bachelor's Degree in Economics from the University of Notre Dame and graduated in 1952.

Following college, Mr. Fitzpatrick was commissioned as an Officer in the Navy and was stationed in Newport, Rhode Island, from 1952-1954. On December 28, 1955, he married the former Bernice Siebart, who survives.

He served as President, CEO, and Chairman of the Board of Fitzpatrick & Weller, Inc. capping a 66-year career by leading the company to celebrate its 125th year in 2020. Mr. Fitzpatrick was a former director of the following organizations: National Hardwood Lumber Association, Hardwood Manufacturers Association, and the American Forest and Paper Association. He served as Chairman of the American Hardwood Export Council and the National Forest Products Association.

In addition to his loving wife of 65 years, Dana is survived by two sons: Daniel (Nancy) Fitzpatrick of Ellicottville, and Gregory (Ann Marie) Fitzpatrick of Ellicottville; three daughters: Marcia (Jim Zaepfel) Fitzpatrick of Williamsville, Kerry (Michael) Allison of Mansfield, Massachusetts, and Dr. Sheila Fitzpatrick of Vail, Colorado. Also surviving is a sister, Kathleen Widger of Great Valley, and ten grandchildren, and two great-grandchildren.

S-5! Expands Production Facility

Metal roof attachment manufacturer S-5! (www.s-5.com) has announced a 20,000+ square foot expansion of its production facility in Iowa Park, Texas, driven by global market growth in both solar and snow retention markets.

Wichita Falls-based, Anthony Inman Construction is executing the work under a construction management contract with S-5! corporate. The project also involves local area subcontractors, including GTO Engineering, Scales Concrete Construction, Parker Electric, James Lane Air Conditioning and Plumbing, and others.

Said Harry Carner, S-5! Vice President of Manufacturing, "The expansion will house a raw material warehouse and manufacturing. It's designed to allow us to continue our growth and actually free up room for current production — we're bulging at the seams now."

Current plans include expanding S-5!'s 43,000-square-foot facility to 63,000 square feet and increasing its solar power generation 60%. Beginning in 2011, S-5! renovated and repurposed the plant from an old Walmart store with retrofits of energy-saving space conditioning, lighting, reinsulation, office additions, security measures, architectural face-lift and solar PV.

"The city of Iowa Park made us an offer on that building that couldn't be refused, and in return, we have created more than 80 new local jobs to date as our business continues to grow," said S-5! CEO and Founder, Rob Haddock. "Iowa Park and the State of Texas understand economic development, and we are grateful and responsive to that. It just works."

Today, this award-winning S-5! manufacturing facility utilizes state-of-art equipment and automation to manufacture 100% of S-5! products. Certified to ISO 9001:2015 quality assurance standards, every aspect of the supply chain is tracked, including lot traceability and Certificates of Conformance (C of C). S-5! uses only raw material certified to ASTM standards (sourced from another Texas company in Carrollton) and is regularly audited to ensure proper quality assurance procedures are followed. In addition to solar power, all scrap is recycled and all machining coolants are captured and recycled.

"During the COVID-19 pandemic we have had no lay-offs, no furloughs, and have added staff," says Carner. "S-5! continues to grow and expand and remains future-forward thinking focused on constant development and growth. This building addition will double our production capacity."

Qora panels by Arcitell

Arcitell, LLC Announces Exclusive Agreement with Keystone Building Products

Arcitell, LLC recently announced an exclusive distribution agreement for its flagship product, Qora Cladding, with Keystone Building Products, a leading building materials distributor, who supplies products to the manufactured housing industry across five states.

This agreement makes Keystone the exclusive distributor of Qora Cladding to the manufactured home market segment in Pennsylvania, New York, Virginia, North Carolina, and South Carolina.

"We are excited to be able to offer Qora Cladding. The unique features, appearance and application make It a great fit for the customers we serve," said David Hostetter, Director of Sales and Marketing, Keystone Building Products, Inc.

Qora Cladding is a cladding product that resembles the look of stone without compromising performance or aesthetic appeal. Lightweight yet durable, it is the only stone cladding product that is indistinguishable from the real thing.

Since 1996, Keystone Building Products has been supplying the manufactured housing industry, maintaining high service levels, and providing quality products at a competitive price.

"We are happy to partner with Keystone Building Products and are excited about bringing Qora Cladding to their customers," said Mike Maddern, Director of Marketing and Sales, Arcitell. "Keystone has a history of supplying and servicing the manufactured housing fabrication market with innovative products and excellent service. Their employee and customer-focused culture fits well with Arcitell's core principles and couldn't be more pleased about the opportunity to work with all the Keystone team members."

RIMA Announces 'Progressive' Membership Rate for 2021

For the construction industry, building codes are a top priority. Even though code hearings and events have gone virtual, organizations like the Reflective Insulation Manufacturers Association International (RIMA) still have to do the work behind the scenes. This requires a conscious effort and people willing to get involved, either by lending their expertise or by supporting efforts through association memberships.

In addition to codes, there are many things RIMA is doing to benefit its members and the building industry. One such benefit includes its new partnership with ASTM International and SEI, which manage the RIMA Verification Program, the development of key strategic alliances within the construction industry and special educational seminars.

The Reflective Insulation Manufacturers Association International (RIMA-I) has announced a special progressive membership: New members can join for $1,500 for all of 2021. Learn more at www.rimainternational.org. **FBN**

NOTE: Before making travel arrangements, check with the show producer to confirm there have been no changes to event dates, venue, or show hours.

April

7-9, Great Bend, Kansas. Great Bend Farm, Ranch & Hemp Expo, Great Bend, Kansas. Greatbendfarmandranchexpo.net

12-16, ONLINE. The Virtual Steel Conference. www.nascc.aisc.org

14-16, ONLINE. Virtual World of Wood Convention, sponsored by the International Wood Products Association. ipawood.org

19-21, Austin, Texas. National Coil Coating Association Annual Meeting. Austin, Texas. www.coilcoating.org

May

19-21, Washington, D.C. National Lumber & Building Material Dealers Association Summit. dealer.org

June

3-4, Cincinnati, Ohio. Construction Rollforming Show, Duke Energy Convention Center. www.constructionrollformingshow.com; Gary Reichert, gary@shieldwallmedia.com; 715.252.6360

8-10, Las Vegas, Nevada. World of Concrete. www.worldofconcrete.com

9-11, ONLINE. ENR FutureTech. www.enr.com/future-tech

July

21-23, Kissimmee, Florida. Florida Roofing & Sheet Metal Expo, Gaylord Palms Resort & Convention Center, Kissimmee, Florida. www.floridaroof.com/frsa-expo

August

10-12, Las Vegas, Nevada. International Roofing Expo, Mandalay Bay Convention Center, Las Vegas. www.theroofingexpo.com/en/home.html

5-8, Omaha, Nebraska. Building Component Manufacturers Conference, CHI Health Center, Omaha. www.bcmcshow.com

September

7-10, Orlando, Florida. Florida Building Material Alliance Convention and Trade Show. fbma.org

29-30, Grand Rapids, Michigan. DeVos Place Convention Center, Shed Expo. https://shedbuilderexpo.com/

October

3-5, Las Vegas, Nevada. Western Roofing Expo, Rio, Las Vegas. Westernroofingexpo.com; info@wsrca.com; 800.725.0333

6-8, Tampa, Florida. METALCON, Tampa Convention Center, Tampa, Florida. www.metalcon.com

19-20, New Orleans, Louisiana. INTEX Expo (the largest trade show catering to the wall and ceiling industry), Ernest N. Morial Convention Center, intexconstructionexpo.com

21-23, Las Vegas, Nevada. National Hardware Show, Las Vegas Convention Center, West Hall. Educational sessions Oct. 20. www.nationalhardwareshow.com

November

4-5, South Bend, Indiana. 1st Annual Garage, Shed & Carport Builder Show, Century Center, South Bend, Indiana. Gary Reichert, gary@shieldwallmedia.com; 715.252.6360. https://bit.ly/3q4kCrL ***FBN***

AIR QUALITY

Why Proper Ventilation Is So Crucial (and How to Achieve It)

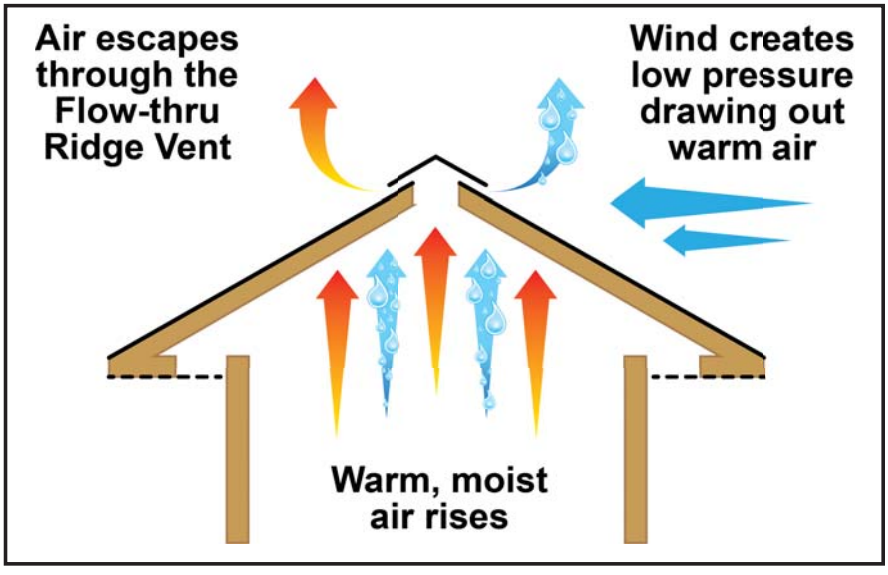
By Bret Buelo, Wick Buildings, Inc.

For a post-frame building to function properly, it needs to be more than just a building. It should be a complete system that's engineered and built to help ensure good indoor air quality.

This is a critical factor for the well-being of the building itself, as well as all the things that go inside it — from vehicles and equipment, to livestock and horses, to your customer and their guests.

Taking steps to ensure good air quality in a post-frame building will, for example, keep it cooler on hot days, prevent moisture from dripping on your customer and their things, and help your customer stay safer and more comfortable when they're in it.

So how can you achieve good indoor air quality? It all comes down to controlling the airflow with proper ventilation. Learn about the essentials for proper ventilation and explore what ventilation system may be right for your customer's building.



Ventilation 101: Outflow and Inflow

Let's take a look at how proper ventilation works by examining a basic passive ventilation system.

Vented ridges: Out with the moist, stale air

The process starts with warm, moist air rising inside a post-frame building. (In the case of a lined building with a ceiling, air is rising in the building's attic.)

As the diagram shows, thermal convection, which is basically the movement of heat through fluid motion, causes the air to escape through a ridge vent. (Wick provides our customers with a cost-effective flow-thru ridge vent as standard, with a variety of options should the building require more ventilation.)

In addition, wind hitting the roof can actually aid this process by creating low pressure, which further draws out the warm air through the ridge vent.

Vented eaves: In with the cooler, fresh air

When that warm, higher humidity air escapes through the ridge vent, it creates negative air pressure inside the building.

And that's when vented eaves come into play.

Vented eaves are the yin to a vented ridge's yang. They enable the negative air pressure to draw in cooler, lower humidity air from outdoors. (Other openings, such as doors and windows, can facilitate the process.)

Voilà: That's post-frame building ventilation in a nutshell.

Finding the sweet spot for outflow and inflow

Not surprisingly, one-size-fits-all ventilation isn't the best solution. For the most effective ventilation performance, you want to strike a balance between the outflow and inflow of air. And that requires careful consideration.

You will want to make sure the building has the right ventilation for the type of building your customer is erecting — and for what's inside it. An engineer should be able to calculate what the building needs in order to achieve optimal inflow and outflow.

When Is more than a conventional passive system needed?

The basic system described above can work great for many types of sheds and post-frame buildings. There are, however, scenarios where your customer may need

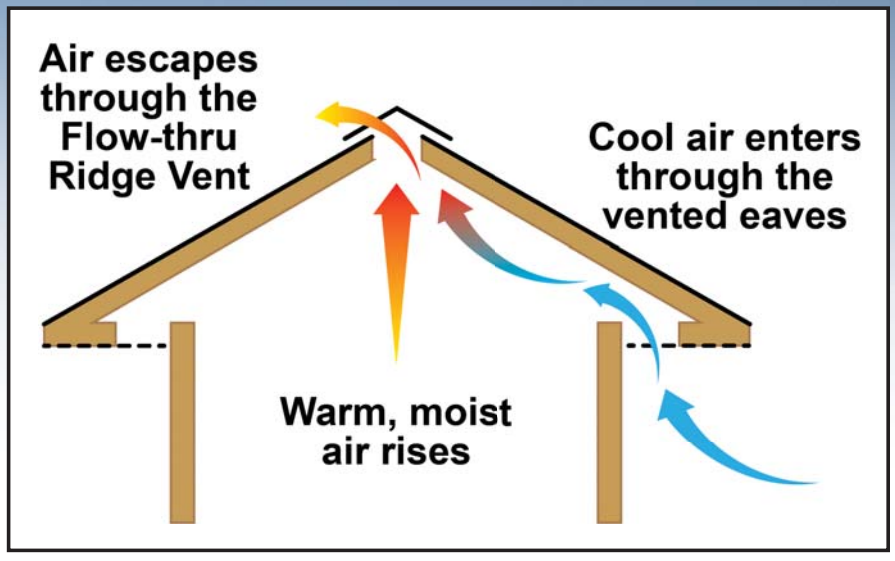
more ventilation. Here are some common examples:

Curing new concrete. New concrete will release moisture during the curing period. A general rule of thumb is that it takes one to two months of drying time per inch of concrete pad, depending on humidity levels and temperature.

Washing equipment. Frequently washing equipment or vehicles inside a post-frame building will add moisture to the air and create a need for more ventilation. Concrete is porous and will retain water, even if the building has floor drains and the doors are open while your customer is washing.

Storing materials that off-gas. If your customer stores chemicals like fertilizer or other off-gassing substances in an enclosed building, the building will need increased ventilation.

Using chemicals inside. Using spray paint, high-strength cleaning materials, or other strong chemicals demands a high-ventilation environment.



Housing animals. When large animals like livestock and horses breathe, sweat, and generate waste, your customer's building is going to have higher levels of moisture and odor and thus a greater need for more ventilation to improve air quality.

Using as a living space. If your customer plans to work or live — or just spend a lot of time — in their post-frame building, your customer will need additional ventilation. In fact, commercial and residential building codes specify the amount

Cut-away view of ridge vent configuration. Note the venting gap in the peak of the roof, the media that prevents rain, snow and debris from entering, and the cover.
PHOTO COURTESY WICK BUILDINGS

of "air turns" needed in a human-occupied space to ensure adequate air quality for maintaining good health.

What options are available for greater ventilation?

If your customer does need more ventilation, there are a number of possibilities, ranging from higher volume passive ventilation options to various powered ventilation systems.

Passive ventilation options

Open ridges. These are used with higher density livestock housing and maximize the passive air flow through the ridge area. However, Mother Nature will send rain and snow through the open ridge, so make sure the building is designed properly.

RV-35 and RV-100 ridge vents. These industry-standard higher profile passive vents provide a larger volume of air flow through the ridge, yet still provide weather protection.

Vented cupolas. A vented cupola sits on top of a roof ridge and can be used in conjunction with other ridge venting systems.

Gable vents. These are located high on the gable

wall in the attic area, ideally on both ends of your customer's building, to allow air to flow in and out of the building.

Powered ventilation options

Attic fans or ventilators. Mounted either in a gable wall with opening and closing shutters, or under a covered vent in the roof, they can move a lot of air and can be triggered by temperature or humidity levels.

Power vented cupolas. These electric fans mount in the cupola and can also be triggered by temperature or humidity levels.

Exhaust fans. Similar to the common bathroom fan, these can be used to remove moisture, vapor, or odors from interior spaces or rooms under the attic. Use the appropriate filtering system for the type of exhaust being removed.

Air exchangers. This option is commonly used in residential and commercial environments when the HVAC system is exchanging interior air that is heated or cooled with fresh outside air.

When moist air meets a cold roof: A special note on condensation

When temperature and humidity conditions reach the dew point, moisture condenses on the underside of a non-insulated metal roof. And when there's a lot of condensation, drops of water form and start to fall, potentially damaging whatever contents lie below.

The traditional method for combating condensation is to insulate the roof so that the temperature on the inside roof panel never reaches the dew point.

However, there are simpler, more economical solutions. If your customer doesn't plan on insulating the entire building, you'll want to consider installing some type of condensation control system on the underside of the roof.

For example, Wick Buildings offers the DRIPSTOP™ Condensation Control membrane, which arrives at our customer's building site already in place and installed with the roofing panels. (The membrane is self-adhering and is applied to the panels in the roll forming phase.)

Proper ventilation means peace of mind

If your customer needs a post-frame building or shed in the first place, then your customer needs good ventilation. No matter what goes in — and what goes on — in your customer's building, the fundamentals of proper ventilation should apply.

Be sure you identify up front all the ways your customer will be using the building. Then plan accordingly for the appropriate ventilation system. Ultimately, when your customer's building can breathe easier, so will your customer and so will you. ***FBN***

MAKE THE JOB AN UPLIFTING EXPERIENCE

Proper hoisting equipment and technique make a big difference

By Sean Shields, Structural Building Component Association

Metal-plate connected wood trusses are used in most post-frame buildings because they are incredibly effective at spanning long distances while efficiently resisting intended design loads (gravity, snow, wind, etc.). As the first two articles in this series outlined, proper handling of trusses is important because significant damage may occur to wood members, plates and joints when a truss bends out of plane that can affect long-term performance (see Figure B1-7).

Lifting long-span trusses with a crane or telehandler during installation is the biggest material handling challenge on the jobsite. This article will explore field-tested best practices with regard to choosing and using hoisting equipment and employing the best lifting techniques. It should be noted that while some of this guidance may seem at first-glance to be "excessive," just keep visualizing the cost to your business and reputation if an overloaded crane tips over onto the building you are building, or trusses twist out of plane while suspended 40 feet in the air over that building. This article exists because incidents like these are more common than they should be.

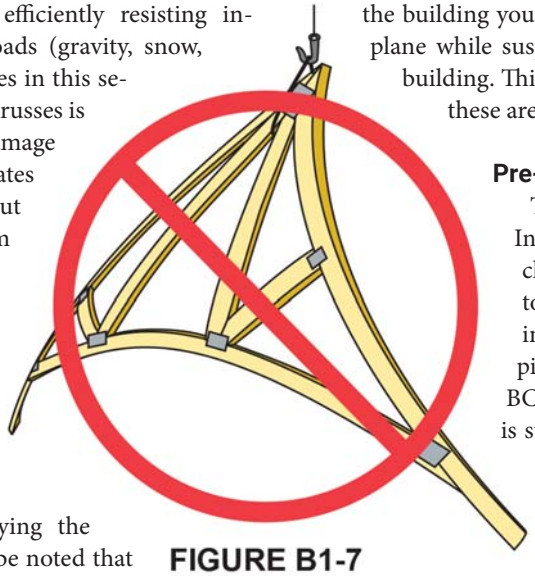


FIGURE B1-7

Pre-Lift Considerations

The Building Component Safety Information Handbook's (BCSI) B1 chapter contains a wealth of guidance to installers on best practices pertaining to truss hoisting. The best single piece of advice is located on page 2 of BCSI B1: "Prior to Truss installation, it is strongly recommended that the Contractor involved with the installation of the Trusses meet with the installation crew and crane operator for a safety and planning meeting."

Length, material composition, and configuration can all have a significant impact on an individual truss' weight distribution and deformation characteristics when it is suspended or moving through the air. Site conditions and limitations can also affect the truss hoisting process. The component manufacturer (CM) who supplies the trusses can provide recommended pick points and guidance on truss weight. It's vital this information is given to the crane or telehandler operator in advance of a lift to ensure they use only machinery and rigging equipment with the appropriate size and weight capacity.

These pre-lift meetings should also include discussions of any site conditions that might limit a crane's range of motion (i.e. utility lines or nearby buildings) or a telehandler's path from truss storage to point of installation. Further, the crane operator should provide clear expectations for site preparation or staging that might be required in advance. A common issue is ensuring firm, and relatively level terrain at the crane set up location so the deployment of outriggers can be done safely and efficiently.

Finally, OSHA has established clear expectations in 29 CFR 1926 when it comes to hand signals and line of sight between the crane operator, the pick point, and the set point. A pre-lift discussion should cover these items and ensure compliance both from a safety and risk management standpoint.

Hoisting Best Practices

Trusses may be lifted individually, or in banded groups. Metal or nylon banding is used to help stabilize groups of trusses during transport and handling, but BCSI B1 makes it clear that trusses should never be lifted by the banding, nor should the banding be solely relied upon to securely transfer bundles on the jobsite. When hoisting trusses, materials such as slings, chains, cables and nylon straps should always be of sufficient strength to carry their weight and should be free from defects or damage that impacts their rated capacity. All rigging equipment gets worn over time, and used rigging equipment shouldn't be taken out of service unnecessarily. However, cuts, excessive fraying, gouges, and kinks should always be inspected and it just makes sense to err on the side of caution when you consider the consequences if a piece of rigging breaks during a lift involving truss or truss bundles weighing hundreds to thousands of pounds. Slings, taglines and spreader bars should also be used in such a way as they don't cause damage to truss members or joints.

The longer the truss, the greater the forces pulling the truss out of plane and the more resistance that is needed to keep your truss looking like a triangle or rectangle and not a bowl of spaghetti.

Two of the most common challenges when it comes to hoisting long span trusses is utilizing a spreader bar of sufficient length and using a sufficient number of pick points to avoid damage to wood members and joints. Again, BCSI B1 provides clear recommendations with regard to both these items.

Single Trusses

When lifting single trusses over 30 feet, and up to 60 feet, a spreader bar should be used with lines that toe-in to pick points.

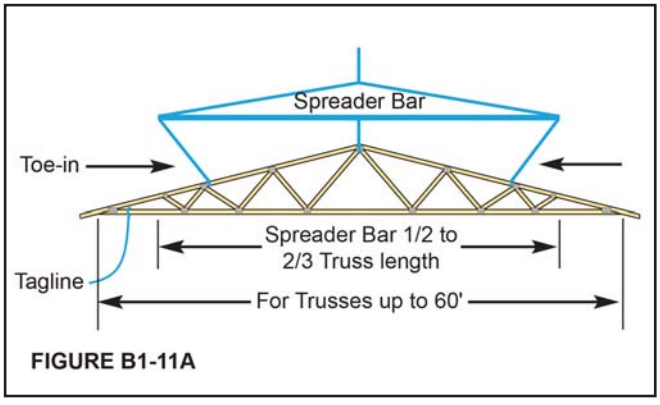


FIGURE B1-11A

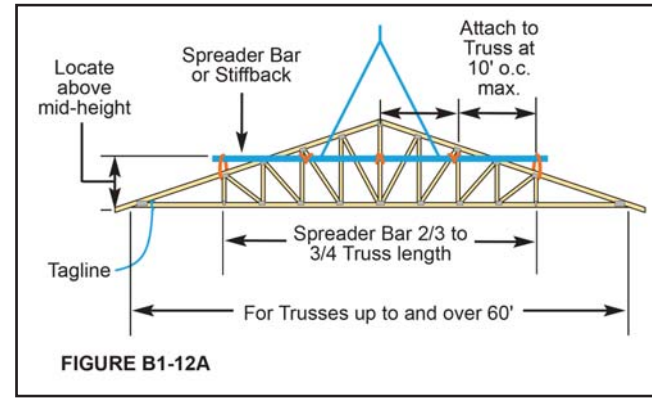


FIGURE B1-12A

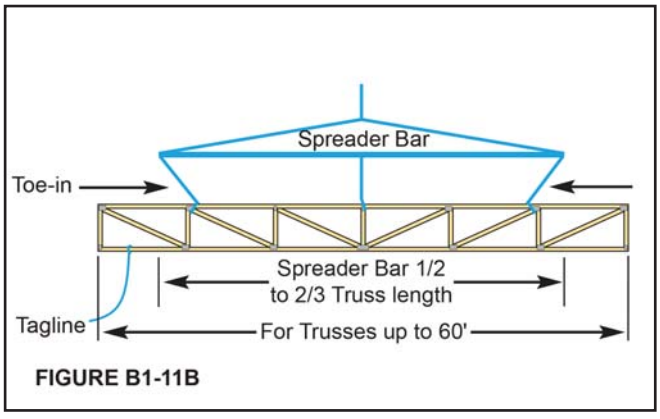


FIGURE B1-11B

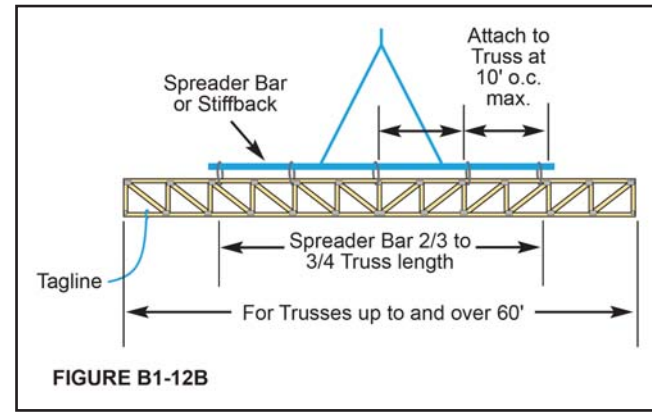


FIGURE B1-12B

BCSI recommends spreader bars should be between one-half to two-thirds the overall length of the truss being lifted. Figures B1-11A and B1-11B provide good illustrations of what this best practice looks like.

For trusses over 60 feet, spreader bars should be two-thirds to three-fourths the length of the truss and connections between the bar and the top chords and/or webs of the truss should be made at 10-foot intervals. Figures B1-12A and B1-12B illustrate this approach.

These frequent connections may appear, at first glance, to be either impractical or excessive. Yes, while these recommendations are conservative, they are based on countless observations in the field over time. Particularly in the case of long-span trusses, the spreader bar is an essential tool in preventing the truss from lateral bending out of plane. The longer the truss, the greater the forces pulling the truss out of plane and the more resistance that is needed to keep your truss looking like a triangle or rectangle and not a bowl of spaghetti.

PHOTO B1-12: ***For trusses between 45-60 feet in length, at least two pick points should be used to lift a bundle.*** *Photos courtesy of SBCA.*

Banded Trusses

Another way to resist lateral bending out of plane is to lift trusses in banded bundles. Bundles present a different set of challenges. First, the weight of a truss bundle becomes very important to know to ensure a crane or telehandler's capacity isn't exceeded when the boom is extended to its farthest pick or set point. Again, the CM is a good source to supply the weight of individual trusses that can then be combined to determine the total weight of the bundle.

Second, all banding should be inspected prior to hoisting to make sure it is intact and secure. Again, never use the banding to lift the bundles. For trusses between 45-60 feet in length, at least two pick points should be used to lift a bundle (see Photo B1-12). For trusses over 60 feet in length, a minimum of three pick points should be used.

Finally, because of the concentrated weight of truss bundles, special care should be taken to ensure the truss bundles are positioned to not overload the supporting structure. BCSI recommends all walls be adequately braced prior to supporting the weight of the bundle. To that end, consider whether you might need to install additional wall supports or T-reinforcements in the vicinity of each bundle.

The Bottom Line

If something goes sideways during a long-span truss lift, it will go quickly and with very little warning. The consequences can also be devastating, from significant truss damage to building collapse and injuries. BCSI B1 provides field-tested best practices to avoid these outcomes and ensure every long-span truss installation is truly uplifting. In the next article, we'll look at the best practices within BCSI B2 as it pertains to the installation of long-span trusses. ***FBN***

H&D's Matt Kennell Honored As Crew Foreman of the Year

Matt Kennell, H&D Quality Builders, with his 2020 Crew Foreman of the Year plaque.

Last fall, Matt Kennell of H&D Quality Builders in Roanoke, Illinois, was selected by the National Frame Builders Association as September's Crew Foreman of the Month.

At year's end, the NFBA reviewed the Foreman of the Month recipients who were selected throughout 2020 in order to decide who would be bestowed the honor of Crew Foreman of the Year. After the process was complete, H&D Quality Builders was proud and excited to discover that Matt Kennell had been chosen to receive this honor.

NFBA board member Duane Borkholder traveled from Indiana to Roanoke to personally present the Crew Foreman of the Year award to Matt at a small gathering of Matt's family and co-workers in the H&D training center.

During the gathering, Todd Meinhold, owner of H&D Quality Builders, formally recognized Matt for being selected as the September "Crew Foreman of the Month" by presenting Matt with a framed copy of the article by the NFBA that announced the monthly award. Todd expressed his thanks and appreciation to Matt for his strong work ethic, his humble leadership, and the dedication and commitment he has shown for each and every project he has worked on over the years.

In reaction to being surprised with the Crew Foreman of the Year Award, Matt told *Frame Building News,* "It's definitely an honor and a privilege. Todd kind of surprised me with it. Since we didn't have the [Frame Building Expo] this year, we had my family there, which I had no idea they were going to be there. My father-in-law and mother-in-law flew in from Florida just for this occasion. They brought my children out of school to be there. It was very special."

This May, Matt will mark 27 years full time with H&D. Before becoming a full-time employee, he worked part time during the summers of 1992 and 1993. "That first year I didn't know much," he mused. But his hard work and dedication started paying off right away. During the 1993-1994 school year, he was able to participate in a co-op program where he went to school part time and worked part time. After he finished school in 1994, he started full-time with the company.

When asked about his plans for the next 10 years, Matt said, "I see myself staying out in the field as long as I can and

NFBA Board member Duane Borkholder (right) of Borkholder Buildings presents the NFBA's Crew Foreman of the Year plaque to Matt Kennell. PHOTOS COURTESY OF H&D QUALITY BUILDERS

as long as I'm physically able. As long as my body holds up. I enjoy building. I'm sure at some point there will be a transition — perhaps doing more office work. But at this point I'm pretty content in the field."

Given his decades of experience, we asked Matt what advice he would give a new person coming into the trade. He thought for a moment and said, "When I was contemplating my future way back when, the one thing I realized is there's no job that you're going to enjoy every part of every day, Keep that in mind to help you get through the tough times. Every job has them.

"Find a good employer who is going to respect who you are and treat you well," he continued. "You need to find someone like that and you stick with them."

Matt holds H&D in high regard. "H&D has treated me very well. I've had a couple of bosses over the years and they recognize the people who are putting forth the effort. They've made my job a whole lot easier."

"It's been a good company to work for. They stuck with me and helped me to grow up in the business and learn some things." ***FBN***

NFBA 2020 Foreman of the Month Awards

April: Jay Beiler, White Horse Construction
June: Jacob Waugh, Greiner Buildings
July: Johnny Hostetler, H&H Custom Homes
August: Nathan Fisher, Level Edge Construction
September: Matt Kennell, H&D Quality Builders
October: Daryl Vandenbos, Remuda Buildings

Roof Clips & Clamps
Selection & Placement

Industry experts share their top tips and tricks

AceClamp
www.aceclamp.com

PMC Industries, LLC manufactures a series of sliding-pin roof clamps, AceClamps, specifically designed to attach snow retention/solar racks to a variety of roofing panels. It's essential to make sure you have the appropriate clamp for the job to ensure a safe installation. Clamps are attached to the vertical rib by various clamping actions, either set screws or sliding pins controlled by a hex bolt and washer.

Determining How Many Clamps Are Needed

Design Load: Each clamp has a design load associated with a specific type of roof panel. The design load should be based on accredited third-party test lab data.

Safety Factor: Know the safety factor which has been used to convert test load to design load.

Environmental Factors: The clamp manufacturer can help you determine how many clamps will be required based on the environmental factors at the project's location, such as building height, roof slope, roof panel width (rib to rib measurement), code wind speeds, and code snow loads. We employ engineers who will consult on projects to ensure the job specifications are accurate.

Orientation: If installing PV panels, you should know whether they will be installed landscape or portrait. You'll want to select the clamp that best matches the vertical rib's configuration to which it will be attached.

Tips and Tricks

- Don't overtighten (a common mistake with impact drivers)
- Don't damage roof panel finishes – Set screws can penetrate the roof panel coating, therefore propagate rust.
- Don't penetrate thinner metals – Know your gauge or panel thickness, especially for copper, aluminum, or zinc panels.
- Don't damage the anti-back out features of some clamps designed to withstand vibration from low-level seismic occurrences or wind flutter.

If the project requires multiple rows of snow rails to meet the snow load conditions, install the uppermost row first and work your way down the roof. Should the project be delayed for whatever reason, there could be damage from a sudden snowstorm if only a lower row has been installed and becomes overloaded.

- Do: Select the correct clamp for the seam. Ask a professional and even request a sample before starting the install. One set of AceClamps works on most seams, whether it's for snow retention or solar mounting.
- Do: Install per the manufacturer's instructions
- Do: Assure proper install torque for the roof type, panel material, and thickness.
- Do: Use the correct tool – drill driver preferred by most manufacturers.
- Do: Check the installed torque with the recommended torque wrench.
- Do: Re-check the torque after extreme weather events (heavy snow, wind, seismic).
- Do: Match the clamp material to the roof panel material to avoid galvanic corrosion.
- Purchasing clamps from a manufacturer that assembles them in-house, like AceClamp, saves time on the job site.

Always contact the clamp manufacturer if you have any questions about the product, limitations, installation tips, or environmental concerns.

Dynamic Fastener
www.dynamicfastener.com

Clamps, the component commonly used to fasten snow retention and solar systems, are an effective mechanism to fasten such products to standing seam roofs. Our DYNA-CLAMPS® do not pierce the roof. Therefore, they do not violate the warranty from the roof manufacturer.

Knowing what to look for in a clamp is a basic place to start. Ideally, clamps should be versatile, made in the USA and aesthetically pleasing. The clamps must be sturdy and made with high-quality materials.

The quality of the clamp needs to be considered because your metal roof will be around for more than 50-plus years. Some factors to consider are the amount and quality of the independent testing that has been performed on the clamps and the warranty provided by the manufacturer. For example, DYNA-CLAMPS® are non-ferrous, non-piercing clamps for attachments to standing seam metal roofs.

If a series of many DYNA-CLAMPS® are going to be secured to the roof, and if these clamps must stay linear across the

roof, as when installing DYNA-GUARD®, then first the installer must secure a taught string in the area that the DYNA-GUARD® will be set — place the DYNA-CLAMPS® along the string to achieve the linear necessity.

Once the DYNA-CLAMP® is in its proper position, use a screw gun and the included allen bit to tighten the setscrews. For the majority of the DYNA-CLAMPS® with two set screws, alternate tightening each set screw.

"By alternating the tightening between the two set screws, that method will best work out the extra space in the standing seam," "Keep alternating and tightening until both set screws have torque settings at the recommended requirement by Dynamic Fastener for the steel thickness of the panel that the user is currently attaching DYNA-CLAMPS®."

Furthermore, when fastening a DYNA-CLAMP® to a double-fold SSR profile like Butler MR-24, always place the set screws on the flat side of the double-fold. Notice the protruding lip at the bottom of the opening of the DC-U or DC-DF. Position this protruding lip directly under the double-fold of the panel, so that the lip is in direct contact with the lowest part of the actual fold. Then, drive the setscrews such that they are driven against the thickest part of the double-fold in the panel seam.

S-5!

www.s-5.com

S-5!'s zero-penetration clamps attach ancillary items to standing seam metal roofs, and our brackets utilize state-of-the-art weatherproofing for exposed-fastened roofs, maintaining roof integrity. Warranted for the life of the roof, our products are tested on 500+ different roof profiles and gauges. Applications include snow retention, fall protection, wind performance enhancement, satellite dishes, solar arrays, signs/banners, light fixtures, walkways, HVAC, lightning protection, equipment screens, conduit, condensate lines and more.

Each of S-5's clamps and brackets has been extensively tested for holding strength by a certified lab. Determining the number of clamps/brackets required for your project is math and science-based—not guesswork. It is contingent on the specific application of the product on a given project. The load (or force) that any connection experiences in service must be matched to the allowable strength of the clamp/bracket for your metal roof's specific gauge, profile and manufacturer.

Our web-based Clamp-to-Seam Tool assists with matching S-5! clamps/brackets to specific roof profiles and gauges. Our web-based calculators search our entire test database to determine accurate, engineered options and quantities for any application.

S-5! CEO & Founder, Rob Haddock shares this advice:

There are no codes or standards for design, manufacture, use or testing of attachments, so it is a "buyer-beware" scenario. The number of products on the market either untested, inappropriately tested or engineered is alarming. Without proper testing/engineering you are "rolling the dice."

Use products that are:

- Proven through certified testing to withstand intended design loads
- Engineered and designed in accordance with project specifics
- Produced in an audited facility with quality standards to assure product consistency
- Proven to perform for the entire anticipated roof service life
- Limiting your liability with proof of all the above from the vendor. ***FBN***

Two-Man Hole Diggers

General Equipment Company has introduced its 332H and 348H EPIC™ Series two-man hole diggers. Featuring 5.5-horsepower (4.1 kW) Honda GXV160 four-stroke engines, the new models are capable of digging holes up to 18" (457mm) in diameter. They offer an ergonomic design and heavy-duty construction to handle a wide range of construction-related hole digging projects, from simple backyard fencing to more complex landscaping or soil sampling jobs. Like other hole diggers in the EPIC Series, the 332H and 348H product designs raise the bar for performance, ease of use and safety.

The new, ergonomically engineered Power-FLEX™ composite operator handles are exclusive to the EPIC Series, providing maximum control, strength and balance during operation, while dampening vibrations. The handles reduce kickback and fatigue to increase operator comfort, productivity and jobsite safety.

The hole diggers also include a new Auger-LOK™ feature for conveniently removing stuck augers. The Auger-LOK uses a spring-loaded actuator to lock the auger in place so that operators can simply twist the auger out of the hole. This practical solution eliminates costly damage to hole digger and auger when using other removal methods.

www.generalequip.com

Dynamic Fastener Releases New Lengths of Hi-Lo Fasteners

Dynamic Fastener has added additional lengths to partner with their very popular 12-16x1-1/2" T-17 Hi-Lo fastener. Lengths are now available in 2", 3" and 4". All lengths are available with a T-17 point, Hi-Lo threads and a 5/16" hex washer head. This screw is used to attach up to 18 gauge sheet metal to wood. The fastener can also be used to plug a previous #9 or #10 pole barn screw or any time a slightly larger fastener is desired. The screw is available with or without a 9/16" outside diameter sealing washer. It also comes standard with Dynamic Fastener's Dyna-Coat® 1000-hour salt spray premium coating.

www.dynamicfastener.com

POWERLAGS® Truss Screws

Altenloh, Brinck & Co. US, Inc. has announced the immediate availability of a new addition to the line of SPAX® POWERLAGS® Engineered Fasteners. SPAX® POWERLAGS® truss screws are designed for use in attaching truss/rafters to wall plates for ensuring a building code required continuous attachment method from floor to roof

The new product is a #14 x 6-1/4" fastener that includes patented SPAX® features:

- T-STAR plus drive within a cylindric head
- Patented thread serrations
- A unique 4CUT™ point for quick and easy installation with no pre-drilling required.

"Our new construction fastener is made of carbon steel with SPAX® exclusive WIROX™ coating which is ideal for interior framing use. The truss/rafter fasteners will be packaged in a Contractor Pax™ 50 count carton ready for retail shelves and will include a 2" long T-30 plus bit," said Eric Ashack, SPAX® Product Manager.

https://spax.us/products/powerlags

WindClamp 2X for Metal Roofs

S-5!, an authority on metal roof attachment technology, has introduced its newest addition to its line of WindClamps™, designed to increase wind resistance for standing seam and other concealed-fastened metal roofs.

The new WindClamp2X, as with all S-5!'s WindClamps™, are small aluminum clamps placed over the roof's seam at designated intervals to prevent male-to-female seam separation and/or seam separation from the roof's mounting clip. S-5! WindClamps are a cost-compelling alternative for new construction and can also be used in retrofit applications to bring older roofs into compliance with current codes and wind standards.

Attaching these simple, yet highly-tested clamps to a roof's seams have proven to dramatically improve wind uplift performance. S-5! WindClamps increase – and often double – wind resistance, preventing multiple modes of failure, including seam separation and clip disengagement when used at roof clip locations. This clamp-to-seam technology has been a highly cost-effective solution to preserve rooftops in some geographic regions and/or roof "zones" with increased probability of extreme wind uplift conditions.
www.s-5.com

Tool Tethering Kits

Stronghold by PSG® introduces three all-in-one, tool tether trade kits.

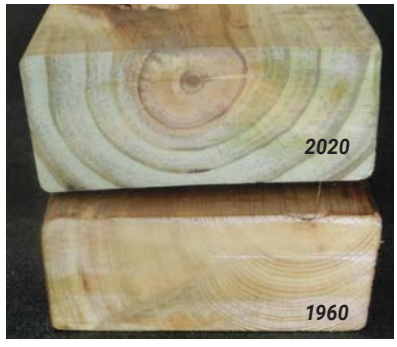
The all-in-one kits include a full suite of products, available in three neatly bundled designs exclusively for specific trades, to prevent tool drops from at-height work locations, onto people and infrastructure below. The kits feature Stronghold's innovative tethers that connect tools to wrists, belts and other anchors, to eliminate drop hazards. Coils, bungees and swiveling premium tethers that prevent tangles while handling tools in use, no matter which tool attachment is used, are featured in the kits. The kits incorporate the new ANSI/ISEA 121-2018 for Dropped Objects Prevention Solutions wherever the standard applies and are aimed at eliminating the guesswork of purchasing proper tool tethering supplies.

www.puresafetygroup.com ***FBN***

Compiled by Karen Knapstein

Fastener Data

Pull-out Test Results Depend Largely On Moisture Content, Grain Pattern



This is a comparison of an old-growth pine 2x4 vs. a new-growth pine 2x4. Notice the old growth has over 80 rings and the new growth has only 5 rings. The old wood is more dense, stronger, burns slower, and is more insect resistant. The new wood was grown for the sole purpose of being used for timber and the old growth was taken from natural forests, of which there are very few left.

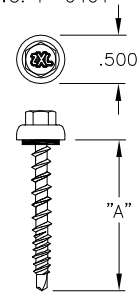
PHOTO COURTESY OF ST FASTENING SYSTEMS

PERFORMANCE DATA SHEET

DIMENSIONAL DATA

LENGTH "A":	1"; 1 1/2"; 2"; 2 1/2"; 3"
PT. DIA.	SELF-DRILL POINT MICROBIT
MAJOR DIAMETER	.210/.200
MINOR DIAMETER	.130/.126
HEAD – ACROSS FLATS	.305/.311

REF. DRWG. P-0401



STRENGTH CHARACTERISTICS

ULT. TENSILE STRENGTH:	1575 LBS.*
MIN. TORSIONAL STRENGTH:	60 IN-LBS.
NOM. SHEAR STRENGTH:	1574 LBS.

* THE TABULATED VALUE REPRESENTS THE ULTIMATE TENSILE LOAD AT WHICH THE ZXL HEAD BREAKS FROM THE CARBON STEEL FASTENER BODY.

BMT DENOTES BASE METAL THICKNESS AFTER REMOVAL OF PAINT FINISH AND METALLIC PROTECTIVE COATING.

TECHNICAL DATA PROVIDED HEREIN IS TO BE USED AS A GUIDE FOR TYPICAL STRENGTH CHARACTERISTICS ONLY.
ALL STRENGTH VALUES SHOWN ARE ULTIMATE VALUES, EXPRESSED IN POUNDS.
AN APPROPRIATE FACTOR OF SAFETY MUST BE APPLIED BY THE USER TO OBTAIN ALLOWABLE LIMITS FOR DESIGN.

PULL OUT STRENGTH

SUBSTRATE	3/4 PLY	5/8 PLY	1/2 PLY	7/16 OSB	2X Y. PINE 1" PENET.	2X Y. PINE 1-1/2" PENET.	2x SPF 1" PENET.	2x SPF 1-1/2" PENET.	2X OAK 1" PENET.
VALUE (LBS ULT.)	636	441	368	210	713	1526	466	1216	1114

PULL OVER STRENGTH

NOTE: 26 AND 29 GA. VALUES SHOWN WERE OBTAINED USING 80 KSI STEEL SHEETING. 24 AMD 22 GA. VALUES WERE OBTAINED USING 50 KSI MINIMUM STEEL SHEETING.

MATERIAL / HEAD DIAMETER	DESIGNATION	AZ55 GALVALUME			
	NOM. GAUGE	29	26	24	22
	THICKNESS	.015	.019	.024	.032
	BMT (INCHES)	.013	.0175	.022	.030
ZXL (.500 DIA.)	VALUE (LBS. ULT.)	658	927	1035	1386

ST Fastening Systems — A Division of The Hillman Group

6357 Reynolds Road P.O. Box 4515
Tyler, Texas 75712
903-592-2826 1-800-352-4864
Fax 903-592-1583
www.stfasteningsystems.com

#10-16/8 ZXL KWIKSEAL
LONG LIFE WOODBINDER; MB PT

DATE:	REVISED	REVISION	ENGR. CHG.	No.
2-21-17	2-27-18	A	EC 1405	PDST-55

Where would your building projects be without the humble screws and nails that hold them together. The little workhorses allow you to build a structure out of a pile of components.

For the important job they do, it doesn't hurt to know a little bit about how they work and how performance test data illustrates how well they perform.

Many fastener manufacturers share testing data with their customers and potential customers. This important information is readily available, but builders need to remember the successful performance of the fastener depends not only on the fastener design, composition, and proper use, but also on the substrate.

Peter Graves, P.E., of ST Fastening Systems, explained why test data reports will have some sort of disclaimer, to the effect of, "Test results and fastener recommendations are based on laboratory conditions. Actual job site conditions vary; we assume no liability for the use of this information."

"I have done pullouts on several of ST's screws, along with several other manufacturers," he said. "The screws are all similar for the same thread profile and diameter. The problem with published data is the screw in question has a pullout value, but the wood it is being pulled from has a different moisture content and grain structure. These factors can vary from end to end as well as board to board.

"As you can imagine," he continued, "a bundle of wood being tested will be drier on the perimeter surface than the pieces inside, and visa versa depending when it rained or what the humidity is."

Old growth lumber is significantly stronger and more stable than modern lumber that is largely harvested from tree farms. "The grain structure has changed considerably over the past 20 years with all the advancements in irrigating tree farms and fertilizing additives to force trees to grow faster," he explained. "The tree rings are considerably further apart than wood grown in old growth forests in the past. [See image.] In pullout testing, it was evident that the more rings crossed, the higher the pullout. If a screw is installed near a 'knot,' the pullout value could be considerably higher.

"The pullout would differ depending on how the wood was cut also," Graves continued. "Compare a 1-1/2" screw installed vertically in the 2020 board, vs. installed horizontally. Up and down it would cross 2-3 rings, while horizontally it would cross maybe 3-4. If installed longitudinally, it would have less pullout, since it would not cross a grain ring at all."

#10 WoodZip TP-17

Designed for metal roofing and sidewall panel installation onto wood substrates. Popular for post frame building panel installation and concealed fastening of shingle roofing ridge vent.

Features:

- #10-16 HI-L dual stage thread pattern for improved holding strength into wood substrates.
- 1/4" HWH and TP-17 Point for precision installation performance.
- Thick EPDM bonded washer
- Certified for use in Florida. DMG85 Silver coating covers the complete fastener. This fastener meets the 2017 Florida Building Code Version section R904.5.2 requirement and has a Miami-Dade County P.C. Listing # L 16-1206.07

SPECIFICATIONS

Typical Specifications #10-16 HL:
1/4" Hex Drive, TP-17 Point MTW
Torsional: 55 - 60 in-lbs
Tensile: 1,530 lbs. min.
Shear: 1,298 lbs min.
Pull out SYP Wood 1" penetration
S. Yellow Pine 999 lbs ult
Pull out 1/2" PLY 412 lbs ult
Pull out 7/16" OSB(NOM1/2) 192 lbs
Passed ASTM G85-11Annex A5 280hr test, Meets HVHZ FBC
Passed ATSM B117 1000 hr test
TAS 114 A E sec 2.6.1.1
ANSI/ASME B 18.6.1 COO: Taiwan

SPECIFICATIONS

#12 WoodZIP SCAMP - 5/16 CHWH 304SS, HI-LO TP-17 Point. Assembled with EPDM/304 Stainless Steel Bonded Sealing Washer, Metal to Wood ,Metal to Concrete (with pre-drill)

Outside thread diameter: 0.232"
Inside shank diameter: 0.178"

Country of Origin: Taiwan

Shear Testing: Double Shear 4,622 lbs avg.

Pullout-Testing @ 2in/min	Average	Ultimate
15/32" CDX Plywood	397 lbs	425 lbs
7/16" OSB	240 lbs	300 lbs
2" x 4" Pine SYP	471 lbs	473 lbs
4000 PSI Concrete	794 lbs	971 lbs
CME Concrete Block	722 lbs	841 lbs

Testing for Florida Building Code High Velocity Hurricane Zone : TAS 114, Appendix E , ASTM G85 Annex A5. Complies for 1000 hr exposed applications. Complies with 2017 Florida Building Code R904.5.2 requirements.

Tested for Miami-Dade Fastener Listing: TAS 114, Appendix E, ASTM G85 Annex A5. Complies for 1000 hr exposed applica-tions fastener listing number issued, Listing # L 19-0219.02.

MIAMI-DADE COUNTY LISTED

#12 WoodZip SCAMP SSC

WoodZIP S.C.A.M.P. 304 Stainless Steep Cap Head

This little devil of a fastener was designed for original panel installation of 5V Crimp and other metal roofing panels to wood substrates. It has also found widespread use as a replacement fastener for old worn or backed out #9/#10 metal to wood roofing fasteners and original installation of many other metal roofing panels. The addition of masonry and concrete substrates to the specifications of the WoodZIP Scamp fasteners now allows for use as a multi-purpose fastener into concrete including the replacement of 3/16" diameter masonry screws.

Features:

- 304 Series Stainless Steel Capped Head
- Larger diameter oversized #12 Shank
- Galvanized and DMG85 Coated Shank with TP-17 Point
- Stainless Steel/EPDM "free spin" bonded sealing washer
- Standard colors available with powder coated paint
- 5/16" drive head for driving stability
- Miami-Dade County Product Listing # L 19-0219.02

The faster wood grows, the weaker it gets. After the American Wood Council rewrote all the load tables in 2012 or 2013, Graves re-tested and adjusted all the [data] values. "We even put a note stating, 'All pullout values are based on wood densities found in present day wood products.' Plywood has voids and fillers, while OSB is the least consistent of any of them, since it is just chips glued and pressed together. The pullout values will vary depending on how many big chips the threads engage in, and can be almost nothing when installed into small shavings."

What does that mean for builders? Use the test data as a measure of strength characteristics for the fasteners you are considering. If you have concerns about whether or not you are using the right fastener for any particular job or application, talk with your suppliers and manufacturers.

Editor's Note: Suppliers and manufacturers have granted Frame Building News permission to print fastener test data for select fasteners. If you have questions about a specific fastener's application, contact your supplier or manufacturer. If you use the "reader service" form on page 58, we reach out to manufacturers and suppliers on your behalf and send your contact information directly to them.

Watch for a follow-up article that will address how screw proximity and other factors affect pull-out values. If you would like to see more data like this in future issues, call or email me (Karen) at 715.513.6767 or karen@shieldwallmedia.comk to give her your feedback. ***FBN***

DYNAMIC FASTENER

ENGR. DATA FOR D•F® BRAND 1022 CARBON STEEL SCREWS

WARNING: You must specify or purchase **D•F** brand screws if you are referencing the data on this page. Otherwise, buyer beware!

ULTIMATE AVERAGE PULLOUT VALUES IN METAL (POUNDS)

FASTENER		STEEL GAUGE											
SIZE	POINT	26	24	22	20	18	16	14	12	3/16"	1/4"	5/16"	1/2"
#6	T2	134	179	275	296	471	629	962					
#8	T2	168	177	283	298	491	800	978					
#10	T17	218	261	444	480	585							
	T1	195	249	308	357	565	961	1163					
	T2	148	244	283	368	547	853	1023	1436				
	T3	142	204	288	299	499	760	1041	1388				
#12	T17	203	283	388	495	670							
	T1	165	288	376	390	649	1179	1619	1991				
	T3	143	172	259	341	551	838	941	1630	2780			
	T4					495	742	1059	1587	3245	4013		
	T5					487	792	1027	1746	3796	4208		
#14	T1	224	313	545	562	800	1113	1547					
	T2	244	268	355	420	615	1134	1385	1785				
	T3	161	225	296	346	613	1034	1297	1602	3382			
	T4						863	1181	1642	3415	5304		
Fenderheads	T5										5547	5593	6244
#17	AB	253	324	410	442	553	940	1144	1843	3672	4249		
		← Drill 3/16" hole →				← Drill 1/4" hole →							
#18	T1	275	415	614			1469						
5/16-12	T3						1007	1425	2218	4616	6486		
5/16-18	T3						830	1147	1565	3633	4629		

ULTIMATE AVERAGE PULLOUT VALUES IN WOOD (POUNDS)

OUR CODE	FASTENER		PLYWOOD 1/2"	PLYWOOD 3/4"	2x4 PINE 1"	2x4 PINE 1 1/2"
CS AS	8-15	T-17 S/S	212	551	662	
MW	9-14		381	534	736	1047
MW	9-14	S/S	362	500	894	1272
MW	10-16	Hi-Lo	393	552	763	1289
CS AC	10-12	T-17	358	572	837	921 (1 1/4")
CS AS	10-12	T-17 S/S	329	637	969	1299
CS AC	12-11	T-17	341	610	1027	1240
CS AS	12-11	T-17 S/S	444	623	766	1321
MW	12-16	Hi-Lo	422	626	855	956 (1 1/4")
AC	14-10	T-17	449	641	870	1538

NOTE: Pullout values in wood will vary drastically more than pullout values in steel because of the vast inconsistencies of wood. These pullout values should be used as only a guideline. A job site pull test is required if you need to know the exact pullout values for your specific project. Users must determine and apply appropriate safety factors.

FASTENER VALUES

FASTENER	TENSILE (LBS. MIN)	TENSILE (AVG. LBS. ULTIMATE)	SHEAR (AVG. LBS. ULTIMATE)	TORQUE (MIN. IN-LBS.)	TORQUE (ULTIMATE IN-LBS.)
6-20	1284	1656	983	25	53
8-18	1544	2466	1319	42	74
10-16	1936	3298	1929	61	114
12-14	2778	4216	2741	92	215
12-24 T4	3020	3999	2365	100	206
12-24 T5	3188	4535	2289	150	215
14-14	4060	4769	3834	150	253
14-20 T5 Fenderheads	4225	5940	3651	150	338
17-14	5300	6437	5188	180	569

ULTIMATE SHEAR VALUES (POUNDS)

FASTENER		STEEL GAUGE									
DIA.	POINT	26-26	24-24	22-22	20-20	18-18	16-16	14-14	12-12	1/8"-3/8"	1/4"-1/4"
#6	T2	290	351	531	758	845					
#8	T2	296	391	550	740	1060					
#10	T1	416	523	742	884	1373					
	T2	303	440	629	830	1206					
	T3				728	1263	1592	1674			
#12	T1	414	649	987	1018	1452					
	T3				769	1358	1774	2332	2478		
	T4								2074	2207	
	T5								2198	2207	2364
#14	T1	544	684	1143	1244	1764					
	T3				930	1442	1889	2697	2890		
1/4-20	T5								3362	3448	3759
#18	T1	493	648	1021							
5/16-12	T3						2399	3638	4482	4675	
5/16-18	T3						2057	3120	5297	6493	

All tests were conducted under laboratory conditions. Ultimate values are listed. The user or specifier must determine and apply appropriate safety factors. Unless otherwise provided, a 4-to-1 safety factor is commonly used. Because actual applications vary and are uncontrollable by Dynamic Fastener, we assume no liability for the use of this data.

NOMINAL SCREW SIZES

Thread Diameter	Decimal Equivalent
#6	.140
#7	.150
#8	.160
#9	.180
#10	.190
#11	.200
#12	.210
#13	.230
1/4	.240
#14	.250
#17	.285
#18	.304

SHEET STEEL GAUGES

	Common Sheet Steel Gauges	Decimal Equivalent
LIGHT	29	.014
	26	.018
	24	.024
	22	.030
	20	.036
MEDIUM	18	.048
	16	.060
	14	.075
	12	.105
	10	.134

PANEL-TITE BURR BUSTER

PANEL-TITE®
TECHNICAL DATA SHEET

PANEL-TITE BURR BUSTER — TYPE 17 MILLED POINT

#10-12 #12-12 #14-12

| SUPERIOR PERFORMANCE |

PANEL-TITE® METAL-TO-WOOD SCREWS

#9-15 Dual Thread | #12-14 High Low Type 17 | #10-14 High Low Type 17 | #12-8 Low Root Type 17 | #14-10 Single Lead Type 17

| AVAILABLE |

GENERAL SPECIFICATIONS

Strengths (Carbon Steel = CS and Stainless Steel = SS)

Size	Thread Major Dia.	Tensile (lbs. min)	Shear (avg. lbs. ult.)	Torsional (min. in. lbs.)
#9-15 304 SS	.178	1,500	980	45
#10-12 CS BB	.190	1,850	1,216	65
#10-14 CS HL	.190	1,850	1,216	65
#12-8 / #12-14 CS	.216	2,183	1,946	80
#12-12 CS BB	.216			
#14-10 CS	.235	3,150	2,150	125
#14-12 CS BB	.235			

Hex Sizes
#9, #10, #12 = 1/4" HWH
#14 = 5/16" HWH

Washer Diameters
#9, #10 = 12mm OD
#12 = 14mm OD
#14 = 15mm OD

MATERIAL SPECIFICATIONS

Material: Carbon Steel
Finish: TRI-SEAL Long-life (ACQ Compatible)

Material: 304 Stainless Steel
Finish: Passivated. (ACQ Compatible)

Material: 304 Stainless Steel
Plating: Zinc Plated

Paint: Kalida-Kote Polyurethane with UV stabilizer

Washer Types
Stainless Steel Screws
304SS vulcanized to non-conductive EPDM.

Carbon Steel Screws
G90 20ga Galvanized Steel vulcanized
to non-conductive EPDM.

PERFORMANCE SPECIFICATIONS

Pullout Values in Wood (Carbon Steel or Stainless Steel)
Ultimate Average Load in Pounds Force

Fastener Dia. & Point	Wood Type: PLYWOOD-CDX 11/32" 3/8" NOM	15/32" 1/2" NOM	19/32" 5/8" NOM	23/32" 3/4" NOM	OSB 7/16"	19/32"	23/32"	SYP 2 x 4
#9-15 GP		350	402	548	173	344	431	887
#10-14 High-Low		345	415	625	142	348	438	925*
#10-12 BURR BUSTER		349	450	706	258	381		
#12-12 BURR BUSTER [1]	249		467	608	218	383		579
#12-8 Type 17		296	445	552	139	445	538	748
#12-14 Type 17								
#14-10 Type 17		434	475	626	153	327	475	1030*
#14-12 BURR BUSTER [1]	337		539	676	258	404		1169*

Report #T279-10 | Farabaugh Engineering and Testing | 9.30.2010 REV: JS122017 | JS012020 | JS050420
[1] Report #T213-20 | Farabaugh Engineering and Testing | 05.01.2020

PULLOUT TEST SETUP - EMBEDMENT
2 x 4 = 1" embedment. * Denotes 1-1/2" penetration
All other tests full thread embedment.

MEETS FLORIDA BUILDING CODE 1506.6 & R904.5.2(TRI-SEAL® & SS ONLY)

Corrosion Test Results TRI-SEAL® COATING

Testing Method	*Results
SO_2 Test Per ASTM G87	20 Cycles (2 liters)
Salt Spray Per ASTM B117	1,000 hours

*0% Red Rust
Exceeds ASTM B633 Salt Spray requirements.

Pullover Strength in Pounds
Grade 50 per ASTM A1011 60Ksi Min. Steel

Washer Size	26ga (.019")	24ga (.023")	22ga (.031")	20ga (.035")	18ga (.049")
1/2" O.D.	810	1080	1350	1620	2160
9/16" O.D.	912	1216	1520	1824	2432
15mm O.D.	955	1274	1593	1912	2548

Calculated per AISI S100

EVENT VENUE

GREINER BUILDINGS

BUILDER: Greiner Buildings

BUILDING SIZE:
102’ x 116’ x 16’ (11,832 sq. ft.)

DOORS: Plyco 92 Series

FASTENERS: Maze Nails;
Atlas screws for attaching steel

FOUNDATION: Embedded w/ 48” concrete frost wall

INSULATION: Closed-cell spray foam: R-19 (wall), R-38 (roof)

POST: RigidPly glulams with Green Post

ROOF PANELS: Premier Metals Legacy Panel, 29 ga.

TRUSSES: Engineered Building Design, 2x trusses clearspan

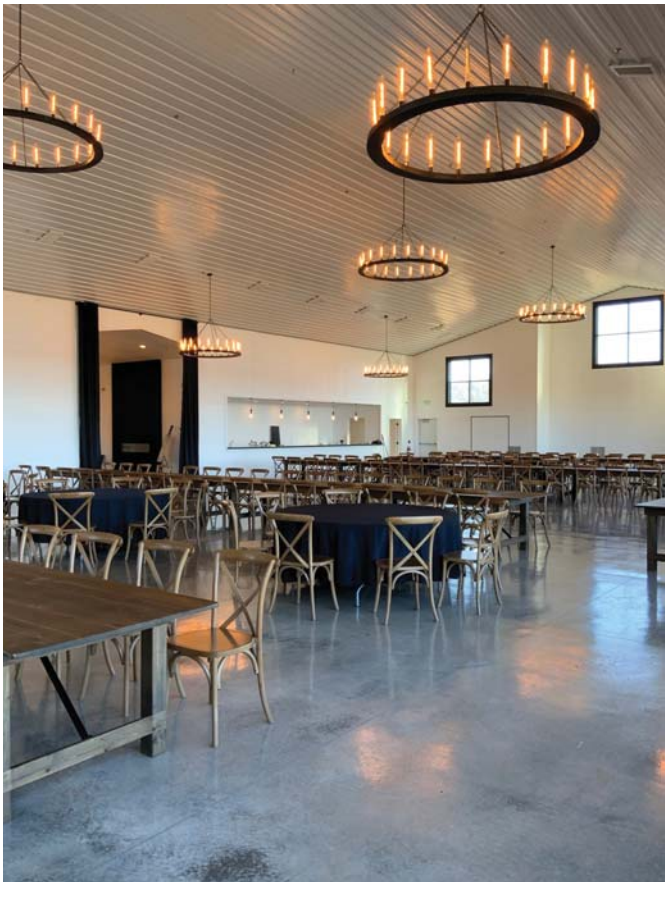
VENTILATION: MWI Components precut vented soffit

WALL PANELS: Premier Metals Legacy Panel, 29 ga.

WINDOWS: Manko Window Systems Series 2450

www.greinerbuildings.com

Located in historic Galena, Illinois, this beautiful indoor/outdoor wedding and event venue was a high-profile project in the area. With sweeping views of the Galena countryside through a full wall of glass, this custom-built event barn is designed to capture the essential elements of successful entertaining. The modern barn design is classic and elegant, boasting white walls and floor-to-ceiling windows, as well as fabulous outdoor spaces. The expansive glass wall provides a breathtaking view of the rolling hills that make up the Galena countryside and provides a memorable backdrop for the head wedding table. The extensive natural light, a working fireplace, and service bar with clearspan header above all add to the building’s elegance and celebratory nature. The owner chose post-frame construction because it allowed her to achieve the aesthetics and beauty required of a wedding and event center, including vaulted ceilings and chandeliers, and clearspan bar area, while also meeting a specific business budget.



WEDDING VENUE

THE BARN STORE

BUILDER: The Barn Store, Gallatin, Tennessee. Materials provided by Barn Depot Trading Co.

SIZE: 40’ x 70’ x 20’; (2) 12’ x 70’ x 16’ 5/12 pitch open sheds (appx. 9’ clear under header); (1) 20’ x 14’ x 18’ gable overhang with deck handrails and rebar spindles

DOORS: Walk doors by Plyco, single sliding with crossbucks by The Barn Store

FASTENERS: Mac Metals

INSULATION: Plyco Ply-Foil Double Bubble

ROOF PANELS: Mac Metal

TRUSSES: Scissor trusses by Barren County Truss, 5’ OC

WINDOWS: MGM Industries

SIDING: Board and batten, 4’ stone wainscot

FOUNDATION: Concrete

CUPOLAS & WEATHERVANE: Plyco: (1) 4’ x 4’, (2) 3’ x 3’

www.thebarnstore.com

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DOORS THAT WORK!

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INCREDIBLE SWING DOOR

Strong aluminum frame for ultimate safety and operation. No need for bulky dangerous uncontrolled hydraulic power systems, these doors run with smart servo drives that control the motion, speed, and accuracy that's unmatched to anything else on the market.

EVENTS FACILITY

REED'S METALS

BUILDERS: Joseph Miller, Jason Coleman, Dennis Rowe, Bettle Bailey

SIZE: 50' x 82' x 20', plus (1) one 12' x 72' lean-to, (1) 12' x 60' lean-to

DOORS: Metal Tech (Coldwater, Mississippi) custom sliding doors

FASTENERS: Atlas Fasteners #10 1 1/2" wood screws

FOUNDATION: 6" concrete slab, stamped and stained with antique glaze

INSULATION: Thermatuff Insulation, 99.4% pure aluminum, 4mm foam core, woven poly backing

POSTS: Consolidated Forest Products 8x8 #1 CCA Treated

ROOF PANELS: Reed's Metals Residential Rib, 29 ga.

TRUSSES: Reed's Metals engineered steel trusses

VENTILATION: Custom built functioning cupolas, (1) 6'x6', (2) 4'x4'

SIDING: Cedar siding

WINDOWS: Custom glass pane

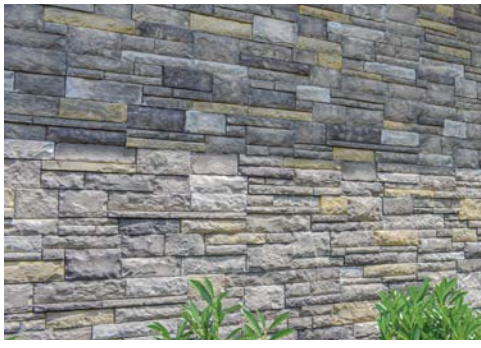
SPECIAL INTERIOR FEATURES: Repurposed corrugated panels from local dairy barn on ceiling

Reed's Metals is proud to be the official, energy efficient, metal roofing provider of Cypress Hall, located in Hernando, Mississippi. The original property was used to butcher hogs for the family farm. Fast forward to today, this elegant and charming venue has morphed into a full-time events facility that caters to weddings and receptions, corporate meetings, crawfish boils, family reunions and much more. Many people are in awe with its beautiful black walnut doors, cypress wood and metal ceiling which were repurposed from an old neighborhood dairy farm. Cypress Hall isn't just popular with the locals. This venue stays booked for months throughout the year servicing customers and organizations all throughout the South and beyond. During the January 2020 tornado that damaged Hernando, Mississippi and neighboring communities, Cypress Hall was leveraged as an emergency shelter by FEMA, The American Red Cross, a local fire department and first responders.

https://reedsmetals.com

EVENT VENUE

GRABER POST BUILDINGS, INC.



This building was constructed for a non-profit organization to host various events and fundraisers throughout the year.

PROJECT SIZE:
Main Building — 40’ x 80’ x 12’
Porches — 16’ wrap-around

BUILDER:
Graber Post Buildings, Inc

ROOFING: GPB 16” Standing Seam Panel. Color – Shiny Black

SIDING: Unfinished 6” Red Cedar Lap Siding

REAR WALL: Versetta Stone

WINDOWS: Pella Architect Series windows

ENTRY DOORS:
Pella Architect Series Doors

www.graberpost.com

COMMERCIAL OFFICE AND WAREHOUSE

REMUDA BUILDING LTD.

BUILDER: Remuda Building Ltd.

BUILDING SIZE: 80’ x 52’ Office attached to a 90’ x 152’ Shop

DOORS: Allmar / Crystal Glass 3’6” x 7’ walk doors; 6’ x 7’ commercial doors

FASTENERS: Wayne Building Products 1-1/2” TEK, 4” GRK, 5” hangers, #8 x 3/4”

FOUNDATION: Burnco 16” x 6” poured concrete post base

INSULATION: Johns Manville R28 batt and R40 blow-in

POSTS:
Hillier 4 ply, 2x8 nail laminated

ROOF PANELS: Forma Steel, 29 ga.

WALL PANELS: Forma Steel, 29 ga.

TRUSSES: ZyTech Building Systems 2x trusses

VENTILATION: Wayne Building Products aluminum vented soffit

WINDOWS: Ply Gem 3’ x 7’ double pane windows — Vinyl Vista

SPECIAL INTERIOR FEATURES: Steel stud framing and interior glass panels

This building is being used for a commercial business as an office and warehouse, we were able to maximize the size according to the budget by using post-frame construction. The design took our entire team but it came together nicely and created a new opportunity for post-frame to prove it can compete with steel-frame commercial construction.

www.remudabuilding.com

COMMERCIAL CONDO

GREINER BUILDINGS

BUILDER: Greiner Buildings

BUILDING SIZE:
48’ x 120’ x 16’ (5,760 sq. ft.)

DOORS: AJ Manufacturing 7100 Series

FASTENERS: Maze Nails, Atlas screws for attaching steel

FOUNDATION: Embedded

INSULATION: Anco, Texture Fine 8’ batts

POSTS: Rigidply glulams with GreenPost

ROOF PANELS: Premier Metals Legacy Panel, 29 ga.

SPECIAL INTERIOR FEATURES: Versetta Stone wainscot

TRUSSES: Engineered Building Design, 2x trusses clearspan

VENTILATION: MWI Components pre-cut vented soffit

WALL PANELS: Premier Metals Legacy Panel, 29ga.

WINDOWS: AJ Manufacturing, 900 Series

ADDITIONAL DETAILS:
Shutters by AJ Manufacturing (SHUT-14X39-RP); cupola by MWI Components (CW3X3); weathervane by MWI Components (American Liberty Flag)

www.greinerbuildings.com

Sustainable Solutions, LLC’s landmark commercial condominium houses four local businesses and is one of the first structures built in Washington, Iowa’s new industrial park. The symmetrical design features extended fascia, awnings, decorative stone, cupolas with glass & lighting, flying gables and Dutch corners. Inside, the bathrooms are finished with unique rustic wood paneling. The owner chose post-frame construction because it provided affordability, flexibility and a very visually appealing design to attract renters and customers. The resulting building is cost-effective and low maintenance, both inside and out.

FREEDOM BAPTIST CHURCH

H&D QUALITY BUILDERS

This project was built for a church community that had been waiting for almost 10 years for a church building to call home. Post frame was chosen for the spans possible, cost effective construction techniques, and the energy efficiency of the frame type.

SIZE: 9,665 sq. ft.

DOORS: Plyco 92 Series 3/0x6/8

FOUNDATION: In-ground posts with Post Protectors

INSULATION: Thermal Building Concepts 3/8" 3HT installed on all exterior walls and roof

POSTS: Borkholder Buildings 3-ply 2x8

ROOF PANELS: McElroy Metal Max Rib Ultra, 29 ga.

WALL PANELS: McElroy Metal Max Rib Ultra, 29 ga.

TRUSSES: Borkholder Buildings, 2' on center SYP trusses

WINDOWS: Sun Windows 4x4 double casement — wood interior, aluminum exterior

www.hdqualitybuilders.com

CABIN

BLUNIER BUILDERS, INC.

BUILDING SIZE: 30’ x 32’ x 10’

DOORS: Plyco 20 Series

FOUNDATION: 4’ deep concrete piers with stainless steel post brackets by Blunier Builders

POSTS:
Blunier Builders 3-ply 2x6 SYP

ROOF PANELS: McElroy Metal Kynar Max-Rib Ultra Steel

WALL PANELS: McElroy Metal Kynar Max-Rib Ultra Steel

INSULATION: 6” R19 batt

TRUSSES: Central Illinois Truss scissor trusses

VENTILATION: McElroy Metal vented ridge and vented eaves

WINDOWS: AJ Manufacturing Harmony Series vinyl framed

ADDITIONAL DETAILS:
Plyco cupola and shutters; Custom Illini Chief Weathervane by Blunier Builders

https://blunierbuilders.com

This project was started with the purpose of creating a rural getaway for the new owners, and it does just that. It may be a small building, but it was a great project with a few challenges. One unique challenge was creating a custom weathervane. The owners are big University of Illinois Fighting Illini fans, and they requested an Illini chief weathervane. With the help of a local fab shop, we were able to bring their vision to life.

STORAGE BUILDING

WALTERS BUILDINGS

BUILDING SIZE: 24’ x 30’

DOORS: Plyco 20 Series 3068

GARAGE DOOR: Clopay

FASTENERS: Maze Nails, Sealtite Woodgrip Fasteners

FOUNDATION: Concrete

POSTS:
JWS Post 3-ply 2x6 mech lam

ROOF PANELS: Steel Dynamics JWS Steel Panel, 28 ga.

WALL PANELS: Steel Dynamics JWS Steel Panel, 28 ga.

WINDOWS: Plyco CTBE500

ADDITIONAL DETAILS:
MWI Components cupola, 36” weathervane, MWI Components soffit

www.waltersbuildings.com

RESIDENCE

QUALITY STRUCTURES

BUILDER: Quality Structures

BUILDING SIZE: 40’ x 72’

FASTENERS: Atlas Fasteners

FOUNDATION:
12” x 36” Frost Footing

INSULATION:
Fiberglass R19 batts

POSTS:
Stud attached to post frame

ROOF PANELS:
QSI Pro Q Plus, 29 ga.

TRUSSES: 2’ OC scissor trusses

VENTILATION:
MWI Components Univent

WALL PANELS:
QSI Pro Q Plus, 29 ga.

WINDOWS: Simonton Brickmould Series Low-E Egress

ADDITIONAL DETAILS:
OSB under steel, house wrap, masonite fiberglass entry doors, special post wraps

www.qualitystructures.com

Judy’s home was a life long dream made true by Quality Structures. Her new home is featured on our website at https://www.qualitystructures.com/buildings/judys-home

HOBBY SHOP

MILMAR POLE BUILDINGS

BUILDER: Milmar Pole Buildings; crew leader: Dan Hernandez

SIZE: 44’ x 72’ x 16’ w/ 9’ x 40’ porch

DOORS: Mastercraft six panel

WINDOWS: Sunrise, single-hung, Ivory

ROOF & WALL PANELS: Alpha Building Center, Shipshewana, Indiana, 29 ga.; finished with AkzoNobel Ceram-A-Star 1050 Paint System

CUPOLAS: Purchased by owner from AA Statuary & Weathervane Co.

SHUTTERS: Menards, custom painted to match trim

COLORS: Roof: Charcoal; Siding: Red; Trim: Ivory

This building is divided in half for cold storage/ heated shop. Radiant heat tubing run in zones for front half and back half around perimeter. Some of the custom features are cupolas, decorative shutters up high and on windows, faux loft door, garage door eyebrow overhang and custom cupolas/ weathervanes. Use of building is for a hobby shop, place to store vehicles and hang out with grandkids.

www.milmarpolebuildings.com

MILLION DOLLAR BARN

S-5!

SIZE: 4,875 sq. ft.

ARCHITECT: Ted Jasinski, Frederick Ward Associates

GENERAL CONTRACTOR: Paul Risk Construction, Quarryville, Pennsylvania

ROOFING INSTALLER: Agpoint Construction Services, Quarryville, Pennsylvania

WINDOWS: Viwinco Windows

INSULATION: Owens-Corning R-19

ROOF PANELS: McElroy Metal Medallion-Lok 16" wide panels with double pencil ribs, standing seam, coated with Sherwin-Williams Fluropon PVDF coating

WALLS: Exterior stained 1x12 Rough Sawn Cedar Board and Batten; Interior stained T1-11

TRUSSES: RigidPly Rafters

SNOW GUARDS: S-5! ColorGard

ADDITIONAL DETAILS: Custom Amish-made cedar barn doors and cupolas with copper roof

www.s-5.com

Located in an upscale rural neighborhood in Churchville, Maryland, this high-end, 4,875-sq. ft. post-frame barn features top-of-the-line products, including the retaining wall, exterior siding, custom doors and a 7,500-sq. ft. McElroy Metal Medallion-Lok standing seam roof.

Known as the million-dollar barn, an interior loft measures 1,880 sq. ft. and overlooks the pasture below. Windowed dormers in the loft area provide plenty of light into the building. The 14' wide doors accommodate equipment stored in the barn.

The interior of the barn is sided with T-111 clear cedar siding, featuring grooves 8" on center. The T-111 siding is also wrapped around the bottom 4' of the interior glulam columns. The interior of the windows and doors are all carefully trimmed with the T-111 siding. The exterior siding is 1' by 12' #1 cedar board and batten siding.

The charcoal gray roof with PVDF coating features 16" wide panels with double pencil ribs and various pitches, some as steep as 9:12. Copper roofing tops off the cupolas. ColorGard by S-5! snow guard solution is mounted to the roof, penetration-free, complementing the look of the roof with perfect color and finish matching designed to last the life of the roof.

HOBBY BUILDING

MORTON BUILDINGS, INC.

SIZE: 3,510 sq. ft.

BUILDER: Morton Buildings, Inc.

INSULATION: Morton's Energy Performer Insulation Package

ROOF & WALL PANELS: Morton's Hi-Rib, 26 ga., Copper and Ivory

DOORS: Morton MB 910 9 Lite walk door

WINDOWS: Pella Windows

CUPOLAS: 3'6" Morton Cupolas

mortonbuildings.com

TOURIST ATTRACTION

FBi BUILDINGS

BUILDING SIZE: 42’ x 110’ x 16’, (1) lean-to: 36’ x 26’ x 16’, (1) lean-to: 12’ x 110’ x 8’

FASTENERS: SFS Intec Woodmacs; Maze Nails; Simpson Strong Drives

FOUNDATION: Concrete Pier

POSTS: Laminated 3-ply 2x6, 10’ OC

ROOF PANELS: McElroy Metal Max-Rib Steel, 29 ga.

TRUSSES: FBi Buildings 2x Trusses

WALL PANELS: McElroy Metal Max-Rib Steel, 29 ga., Autumn Red

WINDOWS: Simonton Pro Finish Contractor, 2’ x 2’ Vinyl Picture

DOORS: Roll-up: Janus International, 10’w x 8’h Garage: C.H.I. Door, 10’w x 9’h

CUPOLAS: MWI Components, (4) 36” x 36”, (1) 48” x 48”

ADDITIONAL DETAILS: Dormers, gambrel roof, turkey tail overhang, country squire doors

This post frame building is used as a ride/tourist attraction for Bengston Pumpkin Farm, Homer Glen, Illinois. This building is unique because of the construction technique that was used. The building features a gambrel roof, flying overhang, cupolas, dormers, and an overall innovative design. The customer chose post frame for this project because of the economical construction style and the overall speed of construction.

fbibuildings.com

HOBBY SHOP

BLUNIER BUILDERS, INC.

BUILDING SIZE: 48’ x 64’ x 16’, 48’ x 16’ x 9’ porch

DOORS: Plyco 20 Series

FOUNDATION: 4’ deep concrete pier with stainless steel post brackets by Blunier Builders

POSTS:
Blunier Builders 3-ply 2x6 SYP

ROOF PANELS: McElroy Metal Kynar Max-Rib Ultra Steel

WALL PANELS: McElroy Metal Kynar Max-Rib Ultra Steel

INSULATION: 6” (R-19) batt

TRUSSES: Central Illinois Truss scissor trusses

VENTILATION: McElroy Metal vented ridge and vented eaves

WINDOWS: AJ Manufacturing Harmony Series vinyl framed

ADDITIONAL DETAILS:
Plyco cupola and weathervane

https://blunierbuilders.com

The owners wanted a multi-functional building to store drag cars and also serve as an entertaining space for family, friends, and church events. We faced a few setbacks during the building process, one of which was grading issues that we had to overcome. The weather also gave us some setbacks. Overall the building turned out stunning on both the inside and outside!

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MUSIC STORE/EVENT CENTER

RR BUILDINGS

BUILDER: RR Buildings

BUILDING SIZE: 26’ x 72’ x 16’

WALK DOORS: Sierra Pacific

GARAGE DOORS: AlumaView Raynor

FASTENERS: Nails: Maze 20d Galvanized, 60d hardened. Roofing Screws: Atlas Fastener

FOUNDATION: 8” concrete footing wall, concrete piers for porches

INSULATION: 3” closed cell insulation in walls; R-38 blown fiberglass in roof

POSTS: Ohio Timberland 3-ply glue lam

FRAMING: LP® SolidStart® LSL a nd I-joists

ROOF PANELS: Metal Sales Image II

TRUSSES: Enlarged 15.5” heel for better energy efficiency and stronger connection

WALL PANELS/SIDING: LP Building Solutions Smartside Expert Finish with WeatherLogic Water Screen

WINDOWS: Sierra Pacific

This building will be an addition to the Ukulele Station of America, which is a music store as well as a place for intimate concerts, lessons, and internet sales. The biggest problem faced was making sure the building fit into the residential area. Dealing with COVID-19 and delayed supplies was another issue.

https://rrbuildings.com

FARMER'S MARKET

PIONEER POLE BUILDINGS INC.

BUILDING SIZE: 20' x 40' x 11'

DOORS: Shank Door Co.

FASTENERS: Everlast

FOUNDATION:
Post-frame with concrete floor

INSULATION:
Batt, R-21; R-38 cellulose

POST: 3-ply 2x3, 8' OC, glulam beams, columns

ROOF PANELS: Everlast Roofing Black Metal, 27 ga.

SIDING: Board and batten

TRUSSES: Standard wood trusses, 4' OC, 20' rafter span

VENTILATION: Owens Corning

WINDOWS: United Windows

ADDITIONAL DETAILS: interior: tongue and groove boards, exterior: board and batten wood

www.pioneerpolebuildings.com

Pioneer's inside commercial team designed this project in keeping with the agricultural buildings on the property and surrounding area.

The Farmer's Market at AmbleBrook Gettysburg helps deliver farm-to-table, sustainable food options to the residents in this community. AmbleBrook provides its residents with a resort-like lifestyle, with a focus on full-spectrum wellbeing. The Farmer's Market at AmbleBrook ensures access to fresh meats and produce for its community by working with and supporting local farmers.

Everlast Roofing panels were featured along with western red cedar board and batten siding. 40' girder trusses allowed for the functioning clerestory design complimented by picture windows and full vision overhead doors with incline track from Shank Door Co. The interior has a partitioned off restroom and office and is completely insulated and finished off with Eastern white pine.

ACREAGE BUILDING/ HOBBY SHOP

REMUDA BUILDINGS LTD.

BUILDING SIZE: 40’ x 60’ x 18’

DOORS: Forma Steel 3’ x 7’ light commercial walk doors

FASTENERS: Wayne Building Supplies 4” GRK, 5” Hanger, 1-1/2” TEK, #8 x 3/4”

FOUNDATION:
12” x 2” concrete cookie

INSULATION: Johns Manville batt R28; blow-in R40

POSTS: Hillier 4-ply 2x8, 5’ OC

ROOF PANELS:
Forma Steel, 29 ga.

WALL PANELS:
Forma Steel, 29 ga.

SPECIAL INTERIOR FEATURES:
Hillier 6x6 decorative fir beams

VENTILATION: Wayne Building Supplies Aluminum Vented Soffit on Barn; exhaust fan and intake on arena

TRUSSES: Zytech 40’ clear span vaulted trusses

WINDOWS: Gentek Regency Series

www.remudabuilding.com

This is a recreational space intended to be used as a shop with a lean-to for RV parking and a greenhouse that the customers can sit and relax in, read a book, drink some wine, eat their lunch etc. with lots of natural light.

RURAL SHOP

QUALITY STRUCTURES

BUILDER: Quality Structures

BUILDING SIZE: 40’ x 64’ x 16’

FASTENERS: Atlas Fasteners

FOUNDATION:
Laminated columns

INSULATION: NOFP Solex LT

POSTS: Midwest Columns 3-ply laminated columns

ROOF PANELS:
QSI Pro Q Plus, 29 ga.

TRUSSES: 2’ OC scissor trusses

VENTILATION:
MWI Components Univent

WALL PANELS:
QSI Pro Q Plus, 29 ga.

WINDOWS: Simonton Brickmould Series Low-E Egress

CUPOLA: Sheet Metal Design

ADDITIONAL DETAILS:
Lean-to with Dutch corners, Masonite fiberglass entry doors

www.qualitystructures.com

This rural shop is as beautiful as they come. Full of aesthetically pleasing features like overhangs, cupola, wainscot, windows and Dutch corners.

AGRICULTURAL SHOP

LESTER BUILDING SYSTEMS

BUILDER:
Howell Buildings Company

SIZE: 84’ x 100’ x 20’

POSTS/FOUNDATION:
Embedded columns by
Lester Building Systems

TRUSSES:
Lester Building Systems

WINDOWS: Plyco

WALK DOORS: Plyco

OVERHEAD DOORS:
Clopay Overhead Doors

FASTENERS: Leland Industries

CUPOLAS/WEATHERVANES:
MWI Components

ROOF: Eclipse Roof System,
Evergreen, 6/12 pitch

www.lesterbuildings.com

Pickaway Farms is a farming operation that runs about 2,600 acres each year by a father, Jay, and his two sons, Brad and Austin. They also have a custom silage harvesting operation for local dairy farms, which encompasses an added 15,000 additional acreage each year. The father and sons were needing a reliable structure to house all of their large equipment and would stand the test of time for future generations. With that in mind, they decided to upgrade to an Eclipse Roof System.

HOBBY SHOP

HIXWOOD METAL

BUILDER: Horst Construction

BUILDING SIZE:
50’ x 80’ x 16’, (1) 16’ x 32’ x 12’ lean-to

DOORS: Plyco 20 Series 3068

FOUNDATION: Poles on concrete

INSULATION: Fiberglass

ROOF PANELS: Hixwood Metal 28 ga. SR100 BeckryTex

WALL PANELS: Hixwood Metal 28 ga. SR100 BeckryTex

SPECIAL INTERIOR FEATURES:
Palram America Dura Clad on some interior walls

TRUSSES: Five Star Truss

VENTILATION:
MWI Components vented soffit

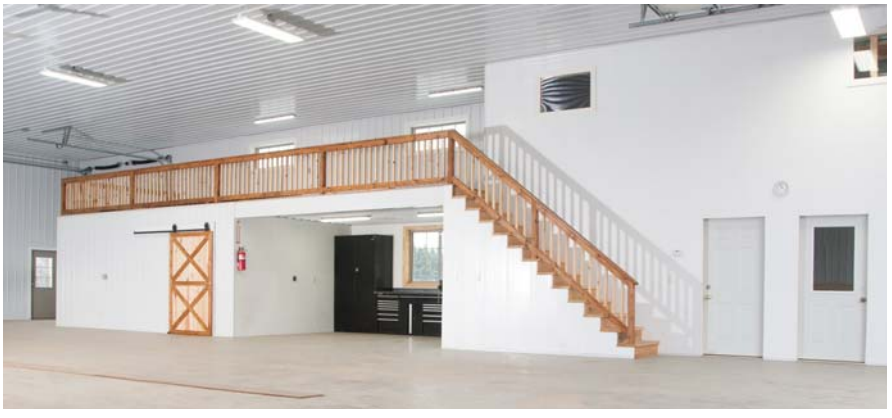
WINDOWS: Silverline 2800 Sandstone Sliders

CUPOLAS AND WEATHERVANE:
MWI Components: louvered cupolas w/ running deer weathervane

SUNSKY PANELS:
Palram America

STONE WAINSCOT: Adorn

www.hixwoodmetal.com



The owner of Horst Construction needed a functional and yet economical shop for his construction equipment and support equipment for his large poultry barn. With his long term relationship with Hixwood Metal he was able to put together a very attractive package that accommodated his needs, showcased the advantages of post frame for his potential clients, and had great curb appeal for the neighborhood he lives in.

Rollforming Show Slated For June 3-4

Building Homes For Heroes Speaker To Give Keynote Address

BY SHARON THATCHER & KAREN KNAPSTEIN

Jim Rogers, Director of Development for the national nonprofit Building Homes for Heroes, will be the keynote speaker for the 2021 Construction Rollforming Show. The show, postponed in 2020 due to COVID-19 restrictions, has been rescheduled for June 3-4. The show will still take place at the Duke Energy Convention Center in Cincinnati, Ohio, in Exhibit Hall A.

Building Homes for Heroes organizes the modification and building of mortgage-free homes, which are then gifted to injured veterans and their families. He helps people to do all they can to support our heroic injured veterans who have sacrificed so much for so many.

After a successful career of more than 20 years in the Air Force serving in locations around the world, followed by nearly a decade of supporting wounded veterans and their families in his current role, Rogers shares this message while speaking to Fortune 500 companies, businesses, organizations and participating in television and radio interviews across the country. He is tasked with helping the organization grow by uniting businesses, organizations and individuals around the common goal of supporting wounded veterans and their families nationwide.

Rogers holds an M.A. in Leadership and enjoys spending time with his family on their 50 acres of natural forested property and restoring his family's nearly 200-year-old historic farmhouse in the Mohawk Valley in Upstate New York.

Jim Rogers, Building Homes for Heroes Director of Development, will give the keynote address June 3 at the Construction Rollforming Show, in Cincinnati, Oho.
SUBMITTED PHOTO

Building Homes For Heroes

Building Homes for Heroes was founded by Andy Pujol in 2006, inspired after volunteering in the search and rescue for survivors of the 9-11 terrorist attacks.

According to Building Homes for Heroes Vice President Kimberly Vesey, one day, Pujol heard young veterans talking on the radio about the struggles they were dealing with and decided he would build a home and gift it to a veteran.

Vesey said it took Pujol time to incorporate and find his way, but after that one home was adapted and gifted, he thought, "Why stop now?" So the goals grew, and the organization grew.

Based in New York, Building Homes For Heroes is a 501(c)3 non-profit organization that now serves the entire country. "We've gifted homes in 33 states in home gifts and modifications," Vesey said. "We're attempting to get to every state; that's the goal."

While home gifting is the largest program, Building Homes for Heroes offers many other types of assistance. These additional programs include financial planning, sponsorships for athletic programs, emergency support, and more.

During the COVID-19 pandemic, the non-profit acted quickly and initiated a new program; it sent $500 checks to veterans for emergency funding.

"Psychological wounds cause veterans to fear for their lives," explained Vesey. Due to COVID-19, those who suffer from PTSD are "afraid now for their spouse, children, and parents. They're afraid now for the people that they love."

Partnerships with national distributors are critical for the organization because those companies can ship directly to the building site, Vesey explained. Sponsors who provide materials get deductions for donating products and they are included in the promotional coverage.

At the local level, the organization is dependent on builders and architects to donate labor or time. When a suitable home location has been selected, Building Homes for Heroes partners with local builders and then pulls in those national product sponsors.

Building Homes for Heroes has set the bar high; on average, they seek to gift one home every 11 days. With continued support, the organization hopes to reach its 300th home gift by the end of 2021. ***FBN***

Construction Rollforming Show

Educational Seminars & Show Schedule

THURSDAY JUNE 3, 2021

TIME	LEVEL 2, MEETING ROOM AREA	LEVEL 2, MEETING ROOM AREA	LEVEL 2, MEETING ROOM AREA	SHOW FLOOR - DEMO AREA
7:00-8:45	Continental Breakfast - Hallway Near Meeting Rooms (If Allowed)			
8:00-9:00	Social Media	Which Rollforming Line Works Best for Me?	Buying Versus Leasing Equipment	Off
9:00-10:00	Fasteners for Metal Panels	Software for Optimum Production	Packaging and Shipping Metal Panels	Off
10:00-11:00	Warranty Management for Coil Coatings	Buying a Business or Planning an Exit	Ways to Improve Your Panel Line Throughout	Off
11:00-12:00	Off	Off	Off	Off
1:00-2:00	No Classes			Keynote Address: Jim Rogers, Director of Development for Building Homes for Heroes
2:00-3:00	Differences in Coil	Other Rollforming Production Line Machines	Paint 101: An Introduction to Coil Coatings	Open
3:00-4:00	No Classes			Coil Purchasing
4:00-5:00	Metal Types and Uses	Used and Reconditioned Equipment	Sales Basics	Open
5:00-6:30	Happy Hour - Entryway in Front of Exhibit Hall Entrance - Duke Energy Convention Center			
7:00-11:00	Thursday Mixer - Hilton Cincinnati Netherland Plaza			

Exhibitor Setup Hall Closed to Attendees

Exhibit Hall Open 12:30 to 5:30

Exhibits Closed

FRIDAY JUNE 4, 2021

TIME	LEVEL 2, MEETING ROOM AREA	LEVEL 2, MEETING ROOM AREA	LEVEL 2, MEETING ROOM AREA	SHOW FLOOR - DEMO AREA
7:00-8:45	Continental Breakfast - Hallway Near Meeting Rooms (If Allowed)			
8:00-9:00	Closures and Ventilation	Trailers and Towing Portable Rollformers	Political Landscape and Business Climate	Open
9:00-10:00	No Classes			Solutions to Problems Cold Forming Metal
10:00-11:00	Moisture and Condensation Control	Benders and Brakes	The Role of Associations	Open
11:00-12:00	No Classes			Rollformer Maintenance
12:00-1:00	No Classes			Open

Exhibit Hall Open 9:30 to 1:30

Tear Down Starts 1:30

THE FINAL EDUCATIONAL SEMINAR SCHEDULE WILL BE POSTED AT THE SHOW
TIME SLOTS MAY CHANGE BASED ON SPEAKER AVAILABILITY

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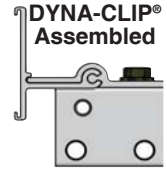

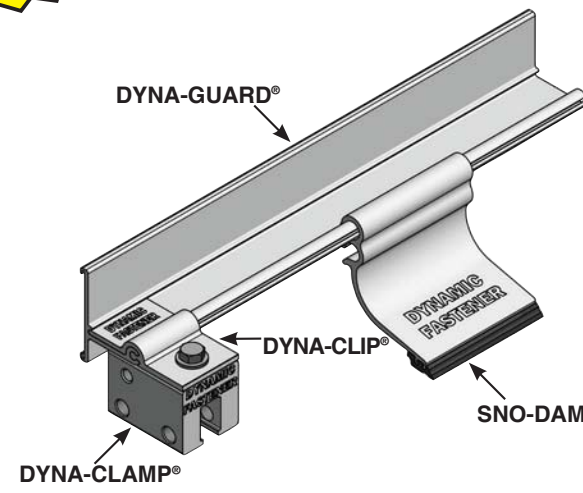

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