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METAL ROOFING MAGAZINE

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Metal Roofing Manufacturer:
Sheffield Metals International, Sheffield, Ohio

Roofing Contractor: Zach Kilwein, Beartooth Metal Roofing, Billings, Montana

Stay Safe Out There — Please

According to OSHA and the Bureau of Labor Statistics, fatalities caused by falls from elevation continue to be a leading cause of death for construction workers. Of the 986 construction fatalities recorded in 2021, 378 were attributed to falls from elevation.

Skilled tradespeople are a precious resource. Where would any of us be without them? It makes sense to keep them safe. The National Safety Stand-Down To Prevent Falls in Construction is an annual event that raises fall hazard awareness in an effort to stop fall injuries and fatalities.

What, exactly, is a Stand-Down? According to OSHA: "A Safety Stand-Down is a voluntary event for employers to talk

directly to employees about safety. Any workplace can hold a stand-down by taking a break to focus on 'Fall Hazards' and reinforcing the importance of 'Fall Prevention'."

In this edition, we acknowledge the importance of fall prevention with a closer look at safety systems for metal roofing. You'll find the safety system coverage beginning on page 42. If you participated in the National Safety Stand-Down (or Construction Safety Week), we'd like to hear how you participated. Or, if every week is a "Safety Week" for you, we'd like to learn about that, too.

This year is just flying by. It's hard to believe that Q1 is already over and Q2 is nearly so. Which means our mid-year State of the Industry Survey is wrapping up and we'll share some of the survey results in the next edition — as well as feedback from industry insiders.

I always appreciate learning about the insights and experiences of the people who are actually manufacturing components and getting things built. And it's a real treat to speak in person with you. If



Kelly Myers (left) and Matt Orsini accept the Metal of Honor plaque on behalf of rFOIL Insulation Products (Covertech) at the 2023 Frame Building Expo. Photo by Shield Wall Media staff.

you happen to see me buzzing through the aisles at the FRSA Expo, stop me, say "hi," and fill me in on what's going on in your corner of the industry.

Until next time — be well ... and stay safe!

Karen Knapstein, Managing Editor
karen@shieldwallmedia.com

PS: If your company received a Metal of Honor award, please send us a photo of your employees with the plaque or how you are displaying the plaque at your business.

"Falls are very real. We had a fall at our company that nearly cost a life. OSHA is real; our fine for that incident was \$90,000+. PLEASE use fall protection! There are permanent systems out there for all types of metal. Use a trusted source to find those options!"

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Gary Reichert,
Publisher, Shield Wall Media

ON THE COVER:

Metal Shake Roofing LLC manufactured the panels installed in this edition's Project of the Month. PHOTO COURTESY OF METAL SHAKE ROOFING LLC.

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Metal Roofing Magazine was born as a supplement to *Rural Builder* magazine in 1999. A few more supplements were published in 2000. In 2001 it was elevated to a stand-alone magazine, and today it is over 20 years old.

This article was originally published in the June/July 2003 edition of Metal Roofing Magazine. It was written by Ryan Reed, one of this magazine's editors at the time.

We've also added informational updates from Isaiah Industries and Westlake, contemporary manufacturers of metal shingles.

We hope you enjoy this bit of metal roofing history!

Metal Shingles

The Life, Death, and Reinvention of the Metal Shingle

By Ryan Reed

When Thomas Jefferson roofed the University of Virginia in 1822 in tinplate shingles, he complained bitterly of the exorbitant price a certain Mr. Broke charged for the product: "We were led to it from a belief that it could not be done without the very expensive & complicated machine which he used to bend the tin, which he told us was a patent machine, costing 40 dollars and not to be had in the US ... Seeing his machine at work, and how simple the object was, I saw that the same effect could be produced by two boards hinged

quicker than his 40 dollar machine."

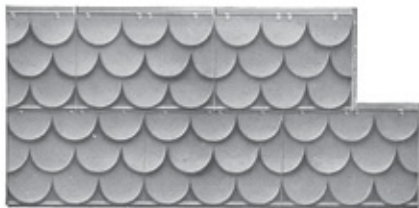
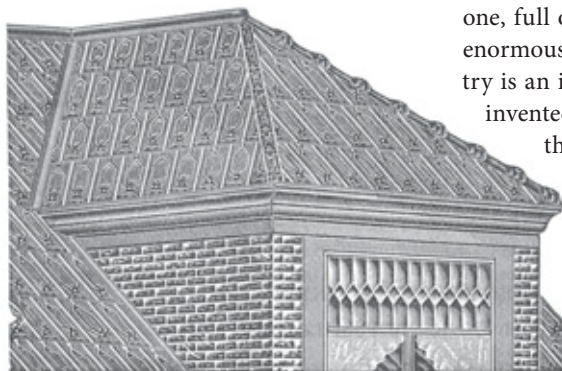
Nearly two centuries later, the business of making metal shingles hasn't changed all that much. Sure, we don't use tinplate. And our stamping presses are a bit more complex than "two boards hinged together." But it's still an industry of new ideas, questioning old methods, and cutting costs. Every few years, a new entrepreneur comes up with a new idea, a new machine, a new material, or a new way to use an old material.

The metal shingle industry — and by metal shingles we mean overlapping, water-shedding modular panels, whether they're made to look like tiles, shakes, slate, or other products — is still a young one, full of inventors and innovators and enormous possibilities. "This industry is an infant," says Joe Zappone, who invented his own shingle more than three decades ago. "We have, what, 8 percent? In Europe, it's all permanent roofing. That's where we're headed."

Like Zappone, most of those involved are true believers who consider metal a superior product, of significant environmental benefit and value to buyers.

Most also understand the challenges involved in creating a product that is simple to use but designed for durability and weathertightness — and still affordable. For every brash entry into the field, there are as many quiet exits from companies that could not handle the challenges. Jefferson, it might be noted, solved his cost problems — but his metal roof leaked badly and was soon roofed over with wood shingles.

What follows is an overview of metal shingles over the last 200 years, focusing on the products and businesses that have brought the industry to where it is today.



The Virginia, the Dixie, the Tennessee, and the Ohio Cluster were some of the stamped shingle offerings from Wheeling Corrugating between 1890 and 1930. WHEELING CORRUGATING IMAGES.

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The Tin Shingle Era

Although copper and lead were both used on roofs since the Middle Ages, the first truly affordable metal roofing material was tinplate, which was made by drawing iron sheets through baths of molten tin. In the early 19th century the duller terneplate was developed by drawing iron through a tin-lead bath. Both materials require diligent upkeep and repainting, but otherwise could last many decades.

Roofing shingles have been made from metal for centuries, but until the late 19th century there is little evidence of any shingle manufacturing process — each one was handmade by metal craftsmen (sometimes called brightsmiths). Aside from the University of Virginia, other early metal shingle roofs include the Arch Street Meetinghouse (1804) in Philadelphia, with tin shingles laid in a herringbone pattern, and Hyde Hall (1829) in New York.

Usually edge-folded and installed with clips, simple metal-shingled roofs were common by the 1850s.

In the late 19th century stamping presses were developed to emboss tin and terne into shingles with distinctive patterns. The most popular of these small, Victorian-era shingles had diamond, fleur-de-lis, or scalloped patterns; seldom were they larger than 9x12 inches. Metal barrel tiles were also made.

From the 1880s to the 1920s, tin shingles proved enormously popular, valued for their light weight, low maintenance, fire resistance, and relatively low cost. Tin roofs had to be kept painted, with red and green the most popular colors.

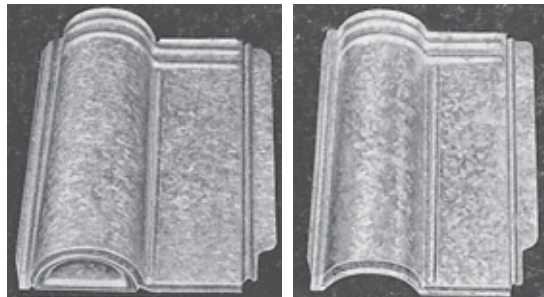
Although there were metal shingle companies throughout the nation, the area around Wheeling, W.V., was a hotbed. An 1886 article in the *Wheeling Daily Intelligencer* called the manufacture of “iron roofing” “an industry which is growing to vast proportions in Wheeling.” With three major mills in the area, Wheeling was a natural location for a number of companies: Caldwell

& Peterson, William A. List & Co., N.A. Haldeman & Co.

Soon galvanized iron and steel joined tin and terne, but by no means replaced them. It also didn't change the popular name; stamped shingles of any material remained known as “tin shingles.”

Catalogs from steel companies such as Wheeling Corrugating show that metal roof shingles were marketed to homeowners right alongside other galvanized products, such as ceiling tiles, stove pipe, watering and washing cans, and baking tins. When properly installed, these roofs proved very resilient. But as systems, they weren't much more than modified stamped ceiling tiles taken outdoors.

Tin shingles were widely popular in their era, but they seem to have survived in certain geographic pockets. In Key West, Fla., tin shingles are often required on historic district buildings to this day, following a tradition begun after a major fire destroyed much of the town early in the 20th century.



From at least the 1880s, clay tile facsimiles were also formed from steel. WHEELING CORRUGATING IMAGES

Other areas seem to be marked by strong or recent European ethnic descent. Todd Miller of Classic Products notes many such roofs are popular in certain towns in Ohio dominated by immigrants of German heritage. “I assume this is because in Europe, ‘permanent’ roofing has always been the norm,” he says. Their light weight made tin shingles transportable, and they showed up in the west even before the railway made heavier products possible. Allan Reid of Dura-Loc also notes widespread use in Canadian towns such as Simcoe, Ont.

Tin shingles never went out of production, but after the 1930s they

increasingly became historic materials. One factor in their demise was the diversion of steel to military uses during World War I, particularly in Canada. Asphalt composition shingles, developed in the 1890s, became inexpensive to make, and the Depression of the 1930s pushed many homeowners into the cheapest alternative. Within a few decades, asphalt shingles had captured up to 90 percent of the residential market.

Aluminum shingles

Even as the tin shingle era was ending, asphalt's impermanence left just enough of an opening for a new alternative: aluminum. Just decades before considered a precious metal comparable to silver, aluminum was coming into its own as a building material in the 1920s. Its light weight, its superior corrosion resistance relative to galvanized steel, and its ready formability made it an obvious choice for roofing. Aluminum producers, however, initially concentrated on making siding materials.

Not that they didn't think of roofing. One of the first aluminum shingle roofs was installed on the Pittsburgh Country Club in the 1920s (at last report, it was still in place). The roof presumably involved Alcoa, which was headquartered in the city. But the shingles were handmade, and there's no record that the installation was prelude to a product.

Aluminum roofing shingles gradually evolved out of siding products after World War II. In the late 1940s, according to industry veteran Zappone, an aluminum siding salesman named Lou Corder began building stamping presses to produce small interlocking aluminum shingles, about 8x15 inches; some of the half-dozen of these “Alumi-Lock” machines produced are still around, used by smaller regional producers.

Both Reynolds Aluminum and Kaiser Aluminum started designing and developing interlocking shingles in the 1950s, says Classic's Miller. First into mass production was Kaiser's Rustic Shingle, introduced in 1959, a 12x24-inch



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How Shingles Have Changed Over the Last 20 Years

Now that you've read about the history of metal shingles, you're probably wondering, "How are metal shingles — and the metal shingle market — different than they were 20 years ago?"

Todd Miller, Isaiah Industries, brings us up to date with this brief Q&A session.

Q: How have metal shingles (and/or the metal shingle market) changed over the last 20 years?

A: You know, metal shingles have gained market share but probably not as rapidly as vertical seam metal roofing has. This is largely due to the onset of more regional and even jobsite fabrication of standing seam roofing and other vertical panels. EDCO has been a significant entrant into metal shingles, as have been ProVia and Vic West. One thing that has really driven metal shingles to a new level is the development of "print coat" paint finishes that allow more than one color to be on the panel. This has especially developed the production of products that even more closely resemble wood and slate. We also have seen CertainTeed and Quality Edge come and go from the production of metal shingles.

Q: What are consumers currently looking for?

A: You know, I think homeowners today just want the durability of metal roofing and also the ability to place a long-term solar array on top of their roof. Beyond that, they look for the metal roof that best suits the style of their home and its surroundings.

Q: How have the manufacturing process and/or coatings changed over the course of the last 20 years?

A: Not a lot has changed other than the increased use of print coats as mentioned earlier. Production still remains fairly similar to how it's always been.

Q: What is your prediction for the future of the market?

A: One struggle for metal shingles has been a lack of installers. I am pleased to see that MCA has teamed with NRCA for developing a ProCertification test for metal shingles. I do hope that, 40 years from now, most professional roofing crews will be well versed in installing metal roofs of all types. Slowly, we are making progress toward that end.

Q: What else would you like to share?

A: One area of significant research right now in regards to the energy efficiency of homes has been thermal breaks. Metal shingles feature their own integrated thermal break and I think that will gain more recognition in coming years.

interlocking shake profile. Kaiser also produced the 12x60-inch Rough Shake. These were used both for residential and commercial applications, at first siding and façades, and then tweaked for use on roofs.

Reynolds Aluminum jumped into the fray in the early 1960s with the 12x36-inch Shadow Crest. Both these products were used primarily for commercial applications such as chain stores and restaurants. Classic Products bought Kaiser's line in 1980 and Reynolds' in 1987.

In 1972, Alcoa developed the 12x48-inch interlocking Country Cedar Shake for siding applications, adding roofing accessories about two years later. This almost exclusively residential product was bought by Perfection Building Products, a division of Classic Products, in 1995 and became the Country Manor Shake.

Smaller regional companies also produced aluminum shingles, and some continue to do so, but many others have been discontinued. One success story is Zappone, a Kaiser representative who understood the problems of turning siding into roofing products. In 1969 he designed his own aluminum shingle just for roofing, combining features of several other products. Within a decade, inspired by a trip to Europe, Zappone turned his efforts to producing shingles in copper, and his shingle now dominates that niche.

Other designs cropped up from complete strangers to the business. In 1976

Nebraska inventor Richard Reinke, holder of many pivot irrigation patents, looked around for a metal shingle for his home. Finding nothing satisfactory, he bought a 1950 military surplus 50-ton press and created his own corrugated aluminum shingle, now known as the Reinke Shake.

The stone-coat invasion

While aluminum shingle struggled to expand a niche market, an entirely different metal shingle product was being born overseas. The improbable story of stone coating begins in Britain during World War II. Responding to the need to better disguise new corrugated steel buildings from German bombers, the Decraspray Company developed a coal-based sprayable emulsion called Decramastic. When the war ended, it was found that this black coating had virtually bonded with the steel, and could protect it for many years. Contractors began requesting steel sheeting factory-coated with the product, particularly for industrial use.

At the same time, a man named Ben Booth was marketing a similar product that had also been developed as war-time building camouflage: steel panels covered in road tar, then sprinkled with stone chips.

In 1954, a New Zealand metal building importer named L.J. Fisher saw an ad for Decramastic and flew to England to secure the rights to make and sell the product outside England. Not long after he met Booth, and saw the stone-chip concept. As he went into production making Decramastic sheeting, Fisher found that the freshly coated iron sheets

bonded to each other when stacked. He first hit on using stone chips to prevent bonding, but



The Alcoa shake, now Perfection's Country Manor Shake, and other aluminum products offered unprecedented wood shake realism when they came on the market. PERFECTION / AMERICAN ROOFING PHOTO



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soon landed on the idea of marketing a stone-chip covered panel with the Decramastic as the bonder. He bought the rights to use a four-pan aluminum tile profile called Martile, and by 1957 Fisher was producing what he called the Decramastic Roof Tile.

The tile, which used a batten-mounted system, quickly gained acceptance in New Zealand, then Australia; in 1970 the first U.S. offices opened. Improvements were made: the tile was enlarged, given improved side-locks, overglazed to improve chip adhesion, and a “double-drop” method was developed to improve coverage. In 1969 Alex Harvey Industries bought out Fisher, and in 1985 Carter Holt Harvey acquired Alex Harvey. In 1998 Tasman Building Products bought up Carter Holt Harvey’s roofing operations, including the Decra line.

Decra’s first successful competitor was Gerard, founded in 1971. By that time many Decramastic roofs were reaching the durability limits of the bituminous coating, and Gerard developed an acrylic resin binder that, while more expensive, proved to have superior longevity. After some criticism, Decra tiles were switched over to acrylic binders during the 1980s. In 1989, Gerard and Decra joined forces in all markets but the United States.

In the American market, stone-coated tile took off in California in the 1980s, with a new red chip that allowed a clay tile look; a shake facsimile product was also developed for the market. California had enormous subdivisions roofed in wood shakes, and by the 1980s these were increasingly targeted by fire officials as fire hazards; many wood roofs also warped and split badly in the arid climate. Stone-coated products proved ideal for reroofing these homes, since the batten-mounted panel could go over the old shakes without tear-off. Single statewide roofing contractor, Cal-Pac Roofing, installed tens of thousands of metal shake and tile roofs over the course of the decade. Gerard (1984) and Decra (1988) both established manufacturing plants in Southern California.

The industry stumbled in the early



Metal products are achieving new levels of realism in their mimicry of other materials, while other shingles simply revel in the nature of metal. (Top) Classic’s powder-coated TimberCreek Shake; MetalWorks’ slate-surfaced StoneCrest Slate; the Decra Shingle. Classic, Metalworks, Tasman photos.

1990s after the safety of enclosing wood shakes was challenged, primarily by the tile industry, but Gerard and Decra fought back by establishing industry testing procedures and a firefighting protocol.

Meanwhile, competitors emerged from the ranks. Frustrated by shipping and other problems in Canada, Decra distributor Allan Reid decided to build his own company. He designed the Continental Tile, a profile he considered better suited to North America than the convex pan style, and in 1984 founded Dura-Loc in Courtland, Ont.

Another company emerged from

stone-coating’s homeland. Metro Roof Products was founded in 1989 by brothers Ian and James Ross, roofing contractors who were among Decra’s largest installers in New Zealand. The company opened a Southern California plant in 2000. One of its first strokes in the U.S. was to market a battenless stone-coated product that would mimic composition shingles in look and installation; two companies have since followed suit.

Modern shingles

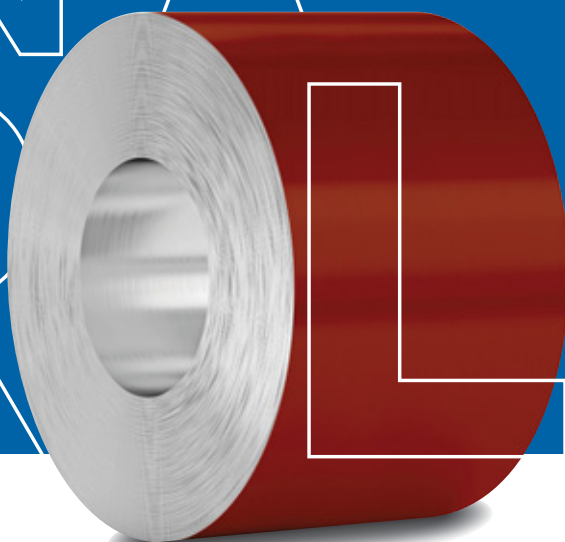
Despite this long history, by the early 1990s metal shingles were still confined to niche markets, especially outside of the West Coast stronghold of the stone-coats. Still, several technical breakthroughs had set the stage for a leap forward: advances in galvanization, the development of Galvalume, improvements in paint lines, and, above all, the creation of fade- and chalk-resistant Kynar-based coil coating systems. Durability could be better assured, and technical issues behind forming and finishing metal made a growing array of styles possible. Metal’s old problems — leaks, corrosion, paint chalk and fade — were receding into the past.

With home prices rising and steel prices low, many felt the time was right for metal to start making a serious dent in composition shingle’s market share.

One of the first to take the challenge head-on was MetalWorks. Prompted by Alcoa’s exit from the market in 1995, Marcus Plowright and Bill Moore-Gough set out to design a metal shingle line from scratch. They began by folding napkins in a Vancouver, B.C., Denny’s restaurant, and a few years later had sold a half interest to Centria and set up shop as MetalWorks.

MetalWorks’ steel shingles (initially a wood-grained and a smooth slate) were made with a lighter gauge steel and a lower profile, and installed closer to the deck than other shingles. All the panels are the same size. The emphasis was on simplicity and ease of installation — training is largely confined to a 15-minute video.

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“We had to take the power away from the craftsman installer and put it back in the hands of the roofing contractor owner,” says Plowright. “The only way to do this was to make the product easy enough for any asphalt roofer to tackle,

Current Trend: Elevated Performance

Robin Anderson, Technical and Strategy Development Manager for Westlake Royal Roofing Solutions™, has this to say about the metal shingle market.

Q: How have metal shingles (and/or the metal shingle market) changed over the last 20 years?

A: The past two decades have brought a significant emphasis on energy efficiency and product sustainability. Builders and design professionals are looking for roofing materials that are manufactured to achieve elevated performance goals. Metal shingles systems have been developed to further provide a greater thermal performance than have been made available in the past; systems that utilize Above Sheeting Ventilation (ASV) and enhanced solar reflective characteristics are now more widely sought after as the desired solution to these performance needs.

Q: What are consumers currently looking for?

A: Consumers have been asking for roof coverings that provide not only beauty to their properties, but that also help reduce energy bills and provide enduring protection. Metal shingle solutions that provide ASV, insulation performance, and reflective coatings are in wide demand. Because of the ever-changing climate conditions in various regions, consumers are ultimately looking for metal shingle solutions that provide protection from the most severe environmental elements, including fire, wind, rain, and hail impacts.

Q: How have the manufacturing process and/or coatings changed over the course of the last 20 years?

A: With efforts for constant improvement, the chemistry of the finishes has been enhanced for greater resistance to the harshest of environmental elements, with greater flexibility, better adhesion of the finish to the metal substrate, and improved resistance to color loss and fade. On the aesthetics side, we've given the end user a more consistent design and longer-lasting product.

Q: What is your prediction for the future of the market?

A: It is likely that we will continue to see an ever-increasing need for higher-performing systems that are designed to protect and improve the structures to which they are installed.

with no special tools or training.”

The company moved aggressively to acquire the kind of widespread wholesale distribution that asphalt shingles enjoy.

Other companies launched or upgraded products. Classic introduced a shake product with a textured, powder-coat finish. Dura-Loc introduced shake facsimiles and direct-to-deck tile and slate panels. ATAS picked up a unique diamond shingle. Many companies began offering their shingles in copper and titanium-zinc. In 2000 Walter Hauk licensed the Zappone design to produce a ground-breaking colorized stainless steel product, the Millennium Tile.

But most of the new products have been designed to mimic the look and installation ease of asphalt composition shingles — a sign that metal can fight the dominant material on its own aesthetic ground. Classic Products came out with a low-profile shingle facsimile out of aluminum, the Oxford Shingle, in 2001. Wierton Steel and ATAS teamed up to produce the Advanta Shingle. National Steel, struggling with bankruptcy, announced it was developing a steel shingle in the late 1990s, and finally brought out the Centura Shingle in 2002, distributed by Georgia Pacific. Several stone-coated manufacturers also launched battenless shingle products that both look and install more like “dimensional” composition shingles.

The 1990s also saw the organization of the Metal Roofing Alliance, which aimed to take the gospel of metal roofing directly to homeowners. While hardly limited to modular products — most residential metal roofing was, and remains through-fastened panels or standing seam-style panels — the appearance of affordable, mass-produced metal shingles, shakes, and tiles was certainly a necessary condition for the marketing effort.

And of course, in 2000, metal roofing truly came of age with the launch of the first magazine devoted to the topic.

Over the past several years, manufacturer-members of the MRA have seen double-digit sales growth annually. The explosion of the metal shingle business

hasn't gone unnoticed. In 2000, roofing giant Owens Corning bought the U.S. rights to the Vail Shingle, an intricately folded shingle made in copper and painted steel developed for use on upscale projects around Vail, Colo. The product was folded into the company's high-end MiraVista line, which ultimately included standing seam panels as well as synthetic slate and shake products.



The coal-based Decramastic emulsion went from wartime expedient, to industrial steel protectant, then to stone chip binder; now it's just a footnote in the history of stone-coating.

The prospect of a giant corporation pushing metal roofing sent both alarm and excitement through the industry. The episode proved short-lived, however — Owens Corning abruptly dropped the entire MiraVista line in the fall of 2002. The reasons were never given, but no doubt included performance problems with the line's synthetic materials, the Vail shingle's production costs, and the division's short financial leash, due to the company's asbestos-related bankruptcy status.

Some doubt whether a giant company like Owens Corning can properly distribute a metal product, which requires constant education, training, and support. “They tried to market it like comp,” says Zappone. “Metal requires more finesse. You have to find guys who will be proud of what they're doing.” This, he says, is why small companies have dominated the metal shingle business.

Others think the big company's adventure may be a taste of things to come. As stone-coated veteran Peter Croft reported being told by a composition shingle maker, “You guys develop the market, then we'll come in and buy you up.” **MR**



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Lightning Protection

Lightning protection facts to share with building owners

By Jennifer Morgan, Director,
East Coast Lightning Equipment



Remember the time when metal roofing was believed to be a material that actually attracted lightning more than other roofing materials? Education by various associations has convinced the masses this was a myth. Still, the owner of a building with a metal roof located in an area susceptible to lightning strikes, should consider protection.

According to a white paper from the Metal Construction Association, “based on all of the available evidence, on any given building, a metal roof is no more or less likely to be struck by lightning than any other type of roofing material. As an electrical conductor and a noncombustible material, the risks associated with use of a metal roof may even be a more desirable construction option.”

Lightning, which may be occurring more frequently due to climate change, can ignite fires, damage structures and injure occupants. Powerful lightning surges, measured in tens of thousands of amperes and millions of volts, could fry electronic devices and systems within the building.

Lightning protection systems (LPS) provide proven and affordable protection against one of nature’s most common and violent forces. Lightning shatters structures, sparks fires, destroys electronic devices with powerful surges and can cause injury and death.

To determine if a building needs protection, building designers and owners can use the Lightning Risk Assessment in NFPA 780 – Standard for the Installation of Lightning Protection Systems. These calculations can be easily performed online at <http://bit.ly/LightningRisk>.

Design, installation and certification

Using a third-party certified LPS installer to help ensure adherence to proper safety standards is significant. Installing an LPS is not a do-it-yourself

*(LEFT) A lightning protection installation technician verifies that the air terminal is properly aligned.
(Photo courtesy of Smokestack Lightning Protection, Brookfield, Massachusetts.)*

task for roofers or even electricians.

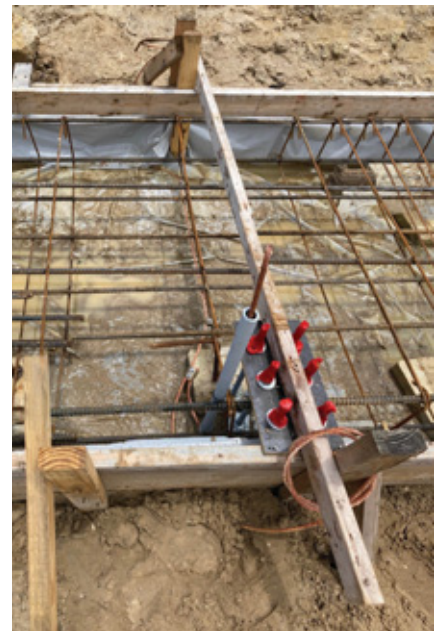
Design of a lightning protection system should be delegated to a firm employing individuals certified by the Lightning Protection Institute (LPI). Communicate with the LPS designer so you both understand project conditions and can optimize the LPS for efficient installation. Diligent planning can minimize costs and maintain project aesthetics.

According to the LPI website, the Master Installer Series is a sequence of examinations offered to individuals involved in the installation or sale of lightning protection systems. There are two exams to reach the level of Journeyman Installer; two additional exams to achieve Master Installer certification; and a final exam to become certified as a Master Installer/Designer. More information can be found at the LPI website (<https://lightning.org>).

An LPS creates multiple, interconnected low-resistance paths that safely conduct lightning between earth and sky. LPS installers may be one of the first trades onsite and one of the last to leave. Early work can include installing ground electrodes or ground rings, making interconnections to rebar in the footings, and making provisions to ensure that all building system grounds are made electrically common.

Once completed, it's important to obtain a third-party certification for a lightning protection installation. Requiring these certifications will help ensure the work has been performed by a contractor familiar with lightning protection. Good practice dictates specifying one or both of the third-party review programs currently available.

The first program offered is the Lightning Protection Institute



The lightning protection grounding system is tied into the rebar in building footings. (Photo courtesy of East Coast Lightning Equipment Inc., Torrington, Connecticut.)

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CLOSER LOOK

– Inspection Program or the LPI-IP, which provides onsite lightning protection system inspection services, follow-up inspection reports and issues certification for installed systems that comply with standards LPI 175, NFPA 780 and/or UL96A. (Note: LPI Maintains a lightning protection and installation training program for its members.)

The LPI-IP program was created in 2011 and addresses a need for a lower cost alternative to the second inspection option for lightning protection offered by Underwriters Laboratories (UL).

The UL lightning protection program has been available for decades. One part of the program involves quarterly factory inspection of the products made by lightning protection manufacturers to ensure compliance with UL's lightning protection standard, UL96.

Contracting firms maintain a listing with UL as lightning protection installers. Individual installations are then submitted to UL for Master Label Certification. Upon receiving an application, UL sends a field inspector to the jobsite to review the job for compliance with UL's installation standard, UL96A. Installers are notified of any deviations from the standard revealed in the inspection and these must be corrected prior to issuance of the Master Label Certificate for a particular structure. The UL certification remains in effect for five years.

Components

Most of the LPS is below roof level. The most obvious above-roof components are air terminals, formerly called lightning rods. They must be located at the highest points on a roof. Depending on the building's size and configuration, additional air terminals may be required around the roof perimeter at intervals not exceeding 20 feet, within the field of the roof, on rooftop equipment and as dictated by standards.

Air terminals can be as slender as



When installed during construction or re-roofing, the lightning protection system roof network can be concealed below the roofing. Only the slender air terminals will be visible.

(PHOTO COURTESY OF MR. LIGHTNING, COLORADO SPRINGS, COLORADO.)

(BELOW) Air terminals must be at the highest locations and no more than two feet from outside corners, so a chimney will often require multiple air terminals and conductors. (Photo courtesy of Mr. Lightning, Colorado Springs, Colorado.)



a 3/8-inch diameter and as short as 10 inches. Taller air terminals can be used for decorative purposes or to meet special requirements.

Air terminals are interconnected by conductors – typically multi-strand cables that can safely carry up to 3 million volts of lightning to the ground. Conductors must also be used to bond rooftop equipment and metal building

components, such as ladders, drains and railings, to the LPS.

LPS components are typically copper or aluminum. To prevent galvanic action with roofing and flashings, copper components should be used with copper roofing and aluminum components with steel or aluminum roofing.

In most buildings, through-roof penetrations are required so the down conductors can be run inside the structure; the penetrations can be sealed with typical flashing details. If conductors are exposed to view, they should be located in the least conspicuous locations and follow the building's architectural lines.

Every wire entering the building must have a surge-protective device on it. A variety of mounting devices, connectors, fasteners and adhesives are also required. All LPS components should be listed by UL specifically for lightning protection.

Working around LPS

Once the LPS is installed, it's important that any crews working onsite are trained to avoid damaging installed LPS components.

Specialists should be onsite during re-roofing to remove LPS components without damaging them, mark locations of through-roof penetrations that will be covered by new roofing and then restore the lightning protection. The specialist will also apply for the recertification of the LPS once the work is completed.

The LPS will have to be expanded to accommodate any new additions, bond new equipment and systems and protect new services entering the building. Disruptions to LPS should be coordinated with the building owner and not made when thunderstorms are forecast.

Safety first

A lightning strike can result in a disaster, but don't let it become a tragedy.

A lightning protection system will protect a building and its contents but it will not protect you if you are on the roof when lightning approaches. Get off the roof and into an enclosed building or an automobile at the first indication of thunder or lightning, even if it is miles away. Then stay off the roof for at least a half hour after the storm has passed. **MR**

About East Coast Lightning Equipment, Inc.

Established in 1984, East Coast Lightning Equipment, Inc. (ECLE, <https://ecle.biz>) provides high-quality, UL-listed lightning protection system components to lightning protection design and installation contractors throughout the United States, Canada, Central America and the Middle East. ECLE materials meet or exceed UL and LPI standards for safety.



LightningProtection4: Air Terminals are placed at regular intervals along ridges and within two feet of gable ends. (Photo courtesy of Mr. Lightning, Colorado Springs, Colorado.)

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"Left" snips by Malco Products, SBC. Note the tight radius of the cut.
PHOTO COURTESY OF MALCO TOOLS.

By Tom Batho, New Product Development Manager, Malco Products, SBC

Back in the early 1990s, a home improvement editor at Popular Mechanics recommended that folks keep a snips-type metal cutter in their home tool boxes just for the “shear pleasure of it.” While we still agree with that advice for home repairs, snips are a must-have component of toolboxes for metal roofing professionals because of their function, form and fit.

Function

Contractors, builders and roofers want tools that make their work more efficient in a variety of ways — one-and-done trips to the job site, quality work at all times with no reworking, and no material waste. The nature of the metal roofing business means that there’s an interest in specialty tools, especially when it comes to the best tool for the application at hand. A quality pair of snips are considered a staple because they allow trade professionals to make the cleanest, most efficient cuts possible

across a wide range of materials.

Because metal roofing pros rely on snips to effectively and efficiently get the job done, there are now a variety of snips available that include different features depending on how they will be used on the jobsite. Lightweight metal cutting snips provide a long cut, are lightweight and good for cutting lighter gauges of metal along with other materials. Builders and roofers needing to make long cuts tend to prefer the lightweight option. Additionally, these snips are meant to be used over and over again so they are extremely durable, and many offer replacement blades so that you can get the most out of your tool.

The top line versions of lightweight metal cutting snips ensure that metal roofing professionals can make cuts that are long and tight and provide straight and left-curve cuts of the highest quality across various materials, including sheet metal, metal roofing, aluminum, stainless steel, steel siding and vinyl.

Aviation snips provide high quality, short cuts on heavier sheet metal gauges that require more strokes and cycles compared to a lightweight metal cutting snips. Models with an offset design are popular as they improve material flow and are safer because the users hand does not meet up with the material as easily as with a straight snip. These tools have industry-standard color coding handles for quick identification of the type of snips. Aviation snips also have a spring design which allows for the snips to “self-open.” Mini-aviation models are another great option. At only a little over 7” in length, this version perfectly fits in tool belts, allows for access in tight spaces, and is a good fit for any small, unplanned cutting needs.

While lightweight and aviation snips are the most common, specialty versions such as heavy-duty forged steel snips — regular pattern snips for straight and wide curves and duckbill snips to cut tighter circles — provide trade professionals powerful cuts with great maneuverability. In addition, vertical snips have an advantage in tight locations, making it easy to get a quality cut with an angled snip.

Metal roofing professionals also might want to consider the benefits of using powered tools in certain situations. A powered solution is a great option when making long cuts since it reduces fatigue and improves ergonomics. Power assisted shear solutions are flexible, allowing for a quick interchange between a shear and drill or driver.

Most trade professionals are likely to include both lightweight snips and aviation snips in their tool kits, using the lightweight version to work through long cuts and the aviation snips for shorter cuts, where maneuverability is needed, and heavier gauge steel is used.

PRODUCT FEATURE

Form

There are specific traits trade professionals should look for when purchasing high-quality snips. Prior to testing out the snip, it's good practice to inspect the tool making sure that the overall fit and finish of the components (handles, grips, latch, and blades/jaws) is of high quality, the action of the snip is smooth, and it's a comfortable fit in the hand during the range of motion. Also make sure to review the safety warnings, confirm the tool is made using high quality steel, and verify the cutting capacity of the tool prior to use.

Once you've inspected the tool, it's time to test it out. Exceptional products should have an ease of cut and no pinch points. They shouldn't tear or catch on the metal that's being cut. The ability to cut to the tip of the blades in one motion and a smooth, clean cut with no burrs are the hallmarks of a quality tool. Make sure you get a feel for the control of the cutting and determine if there's a preference of design, for example function of the latch or serrated cutting edge. By cycling the snips, you can test out if there's a consistent, smooth scissors action and try out maneuverability.

The key to a good user experience with snips is to follow the experts' advice for using them safely and efficiently. Trade pros

should always follow the manufacturer's safety warnings. It's also important to understand the manufacturer's warranty. A company that backs up their tools by stating the full warranty for the life of a product when used in normal conditions equates to not only quality but safety.

Professionals should use the tool as intended and be aware of its capacities. Tools not used as intended may lead to injuries, inefficiency and void the warranty. Finally, make sure to pick the right snip for the job. By selecting the right tool, users will obtain the best results in an efficient timeframe, getting them on to the next jobsite in a timely manner.

Fit

You can spend a fair amount of time researching, reviewing and cutting metal before purchasing a new pair of snips, but it's imperative that the tool has a good fit and a feeling of quality in your hand. With a high-quality pair of snips, building pros can reduce the total number of cuts needed and decrease the total number of repetitive motions.

Overall comfort is a personal preference for each user, for example some professionals like aviation snips with a traditional handle design while others want an ergonomically

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symmetrical design. Whatever the preference, design for efficiency and comfort in the working environment, should be on your checklist when thinking about the fit of the snips. Personal comfort, accompanied by the weight of the snips, material flow, smoothness and finding a suitable solution for the needed application all fall under the ergonomic umbrella of high-quality tools.

At Malco, aviation, lightweight and steel snips are some of the most popular, long-standing product lines. Malco continues to build on this legacy of excellence by bringing high-quality, new versions to the trades. Innovative snip and shearing tools have always been about making the job easier and safer for trade professionals. The top products on the market do this while consistently evolving to meet the future needs of the industry.

MR

"Right" snips by Malco Tools. Note the deformation on the cut edge, marking the material to be discarded. PHOTO COURTESY OF MALCO PRODUCTS, SBC.



Snips: "Buy Cheap, Buy Twice"

By Karen Knapstein

Metal roof installation is a whole lot harder without the proper tools and equipment. One of the benefits of the Reed's Metals Metal Masters loyalty program is professional, hands-on training on residential metal roofing. Metal roofing specialist Jasson Johnson, corporate trainer at Reed's Metals, who shows all the little tricks of the trade in the Metal Masters training sessions, shares some of his insights on snip selection and use.

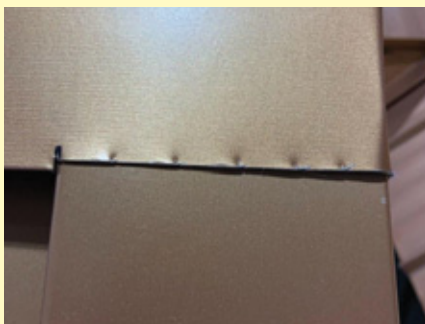
"The trim is what makes a roof look good," he says. And precise trim work is the mark of a professional, which takes skill, finesse, and the right tools.

"There are different styles of snips," Jasson explains. "You need to choose your snips depending on what type of job you're doing. These are the tools of your trade; use a quality product." If you don't, you'll be fulfilling the saying: "Buy cheap, buy twice."

"They're all packaged about the same," he says. But they're not the same quality. "If you have to do one little project, you can get the snips you need at a big box store. But if you're in a trade, you have to do research."

Offset snips often work the best for metal roofing professionals. He prefers snips that have pitched handles: the shear blade is even with the metal but the handles are pitched up a little, keeping your fingers away from the metal.

An important thing to remember is there are different snips that should be used depending on what you're cutting. Yellow-handled snips are for cutting in a straight line and won't deform either the left or right. Red- and green-handled snips will deform the piece that's being



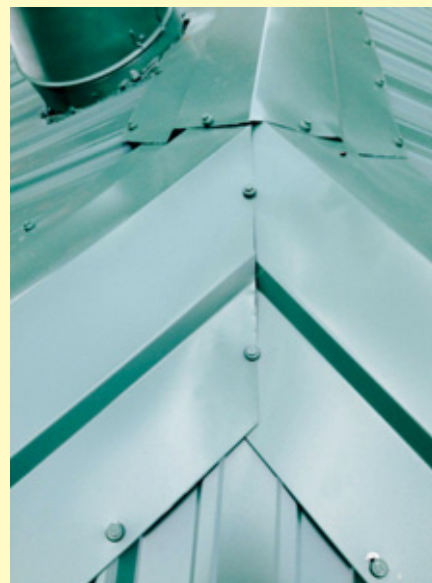
This flashing is marked every place the snips was closed completely. Photos by Jasson Johnson.

discarded. Jasson prefers Midwest snips. "The red and green snips offset left and right," he explains. "When the cutting blade is on top, that's the way it's going to lean but will distort the piece you're getting rid of. Depending on what you're trying to get rid of determines which snip you should use."

Keep 'em Cutting

Here are some of Jasson's top tips to help you get clean cuts now and in the future:

- 1 Treat them with respect. Wipe them down with a suitable lubricant. If you're working in the rain, you want to dry them off and wipe them down to keep them from corroding. "They run through the metal better when they're clean," he says.
- 2 Don't cut wire or other stuff with your snips. "Once they get chipped, you'll need to throw them away. Unless you're going to cut more wire." Whenever you use snips that have



You can see where the snip closed each time on the miter cut. You can also see it's not the only issue with this job.

a chipped blade, it will put a burr in the trim you're cutting.

3 Don't close the blade all the way. "Don't close the snips completely when you're cutting or it will leave a burr or barb on the side," he cautions. "Also, only cut to the point you're trying to reach. In other words, don't put your snips past the point you should be cutting. You'll end up going too far, past the point, and wreck the piece you just spent 15 minutes on."

MR

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Upbeat in Dallas

Return to “Normal” Cause for Celebration at IRE 2023



By Metal Roofing Magazine Staff

The International Roofing Expo returned to Dallas for its 2023 event. Held from March 7-9, show producer Informa Markets reports the event featured nearly 600 exhibitors that filled more than 175,000 square feet in the Expo Hall of the Kay Bailey Hutchison Convention Center.

More than 14,000 roofing professionals attended over the course of the event. In addition to visiting exhibitors, they were able to take advantage of 45 educational and break-out sessions.

Attendees came from more than 47 countries, including, but not limited to, Canada, Mexico, New Zealand, China, the United Kingdom, Brazil, and Germany.

Exhibitor Reports

Direct Metals Inc. sells its products through a distributor network and used IRE Dallas to promote its products and point contractors to a stocking distributor from whom they can buy. DMI's David Quehl reports: "Attendee optimism and enthusiasm were on display at the IRE. Large crowds filled the exhibit hall all three days and the after-effects of the COVID pandemic were in the rear-view mirror. While not every market is setting records, the message from the majority of attendees at the DMI booth is that there is still strength in the roofing market and many expected another strong year. Supply chains have improved, but there are still shortages in some industries. DMI is fully prepared for a strong year with an excellent supply of both DEKZIP and PANCLIP."

Jeff Regan reports that Hicks Lightning Protection, along with Harger Lightning & Grounding were the only two lightning protection companies represented at



Leland Industries staff engages show attendees.



New Tech Machinery, a Mazzella Company, exhibited a portable roll former in a trailer.



Attendees could get an up-close look at AceClamp's non-penetrating attachment solutions.

the event. "Lightning protection, when applied goes hand in hand with roofing materials and installation," Regan says. "It is always good to know what new types of new roofing materials are in the future as well as new challenges, such as solar roofs that are incorporated into the roofing material for a better aesthetic look and energy output. These are certainly things to come and new challenges for installers of both roofing contractors and lightning protection

installers.

"The IRE Show and Expo lets us get to these roofing manufacturers to work together and come up with solutions for both companies to better benefit the property owner," he continues. "We certainly learn a lot from attending this show and are able to educate the contractors and the roofing contractors as well."

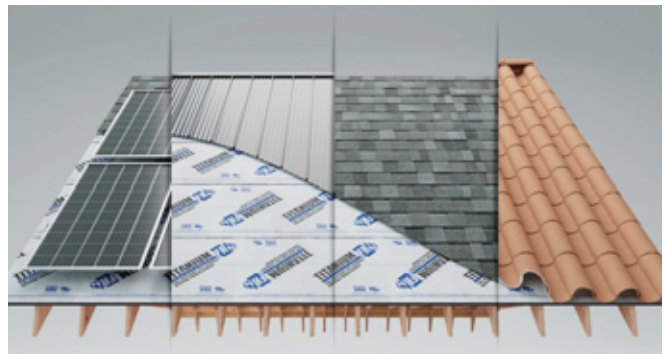
Westlake Royal Roofing, which owns Unified Steel Stone Coated Roofing, reports, "This year's IRE in Dallas was a

huge success for us at Westlake Royal Roofing Solutions™. This show always offers a great opportunity to make connections with both contractors and builders — and this year was no different.”

When asked about their impressions of the roofing industry (trends/market demands, interest, vitality, innovations, etc.), they respond: “With an increasing focus on weather and storm resiliency, the industry is looking for code compliance relative to regional climate conditions as well as insurance criteria surrounding product performance. These currently vary from market-to-market. Additionally, the construction industry is still facing a significant labor shortage and residual supply chain issues, which in turn affects the roofing sector. There is great concern about the state of the economy with current inflation and rising interest rates. Many consumers are being priced out of the for-sale housing market,



New standing seams are wider than traditional standing seams. Shown is Harger's new non-penetrating connection for lightning protection that doesn't damage coatings. PHOTO COURTESY OF HARGER LIGHTNING & GROUNDING.



Owens Corning debuted its Titanium FR Fire Resistant Self-Adhered Roofing Underlayment at IRE 2023. PHOTO COURTESY OF OWENS CORNING.

while others are simply holding onto their homes for a longer period of time. We plan to keep a close eye on how these changes continue to affect the building industry.”

Mark Strait, Kirsch Building Products (makers of Sharkskin underlayments), reports he met with new and potential customers as well as current customers. “It's always nice to get to meet customers who genuinely support the products we bring to market,” he says.

He, too, has noticed a growing trend in the roofing industry:

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“Long-term roofing products (ROI), along with energy savings materials and systems that provide a GREEN, LEEDS and RECYCLABLE, advantage continue to gain ground.”

What's New

One of the most exciting benefits of attending a trade show is experiencing newly introduced products first-hand. Here are a few of the new products from the March 2023 event:



Raytec Manufacturing exhibited an antique bench used for making ferrules. Tag Saunders looks on as Jordan Fox operates the machine.



Montana Steel specializes in stone-coated steel shingles. Kevin Hillaby mans the booth.

Titanium Fire-rated Underlayment by Owens Corning

Titanium® FR High Temp and Fire Resistant Self-Adhered Underlayment is designed to provide the Class A fire resistance typically required for roofing assemblies installed in wildland urban interface (WUI) areas.

As the highest classification for fire resistance in roofs per ASTM E108 or UL 790 fire testing, Class A indicates the material as “effective against severe fire exposure.” In WUI areas and other environments presenting a high risk for fire, a Class A roof is required by codes to help prevent the spread of external structure fires. Wildfires have remained a persistent hazard in many regions of the U.S. in recent years.

Proprietary technology in Titanium® FR is designed to mitigate the risk of fire spread to the roof deck under metal, tile, or asphalt roof coverings. The classification is particularly important for metal roof systems as most metal roof products cannot meet Class A fire resistance without either a special fire-retardant underlayment or installation of gypsum panels over the roof sheathing.

This new underlayment offering also supports fire safety in energy generating roof assemblies. As roof-mounted solar panels are often located in WUI areas and are subject to harsh conditions, Titanium® FR provides a Class A fire resistant underlayment that delivers fire resistance and is designed for leak protection under BAPV solar panels. Roof assemblies equipped with mounted photovoltaic (PV) panels are evaluated to assess the ability of the entire assembly to protect a structure’s interior from fire. Most roof-mounted solar panels only meet the requirements for Class C, designating “effective against light fire exposure.” Titanium® FR High Temp and Fire Resistant Self-Adhered Underlayment achieves Class A fire resistance for roof assemblies that include solar panels, even if the panels alone are Class C.

In addition to supporting fire safety efforts, Titanium® FR High Temp and Fire

Resistant Self-Adhered Underlayment feature Sure-Foot® technology to support walkability in wet and dry conditions. The new underlayment also features a specially engineered self-adhesive layer to allow repositioning for easy installation on the roof.



Malco Products' new line of Metal Benders. PHOTO COURTESY OF MALCO PRODUCTS, SBC

Metal Benders by Malco Products, SBC

Malco Products, SBC, introduced its new professional-grade metal benders at IRE 2023.

Metal Benders by Malco have the ability to form 0°-100° bends on straight or curved panels of any length right on the jobsite.

Narrow bearing stance models follow curved panels easily or form straight bends when needed, and wide bearing stance models provide more control for straighter bends. Both variations may be paired with a connector for a modular experience, allowing trade pros to “free-style” their set-up, in a one- or two-station configuration.

Additionally, the metal benders allow for easy configuration and flexibility on the jobsite by allowing the user to adjust the rollers for different thicknesses and materials, and they can also be customized by replacing the angled roller with an optional 2mm radius roller to allow for “softer” bends for materials like copper, zinc, and aluminum, which can have problems with tighter bends.

S-5! SnoBracket™

S-5! introduced its new SnoBracket™ attachment for mounting snow retention systems to insulated metal panel (IMP) roofs.

The new SnoBracket is specially



IRE 2023 was the first trade show appearance for the SnoBracket by S-5! PHOTO COURTESY OF S-5!

designed to provide the strength required for snow retention applications but with “sheet-only” attachments. Created specifically for trapezoidal-ribbed IMPs, it comes in two sizes: SnoBracket™ TB and SnoBracket™ RB fitting to popular rib profile dimensioning.

Designed to protect an IMP's moisture barrier, without the compromise of thermal bridging the SnoBracket features a factory-applied, premium, closed-cell EPDM rubber gasket, creating a positive seal against water intrusion and attaches in-shear using eight self-piercing fasteners (four on each side), resulting in the holding capacity of more than 2,000 pounds in 26 ga coated steel.

Westlake Royal Roofing Website

Westlake Royal Roofing unveiled its new website, WestlakeRoyalRoofing.com. “The enhanced user interface is intuitively designed with easy-to-use navigation and elevates the overall customer journey through product discovery, design inspiration, immersive visualization, and technical education. In addition to spotlighting each of our brands, the site also includes an updated resource library, an extreme weather assistance section, and an opportunity to meet your territory sales representative.”

Conclusion

“The International Roofing Expo is the destination for roofing contractors, suppliers and industry professionals to gather to drive the industry forward,” says Rich Russo, Show Director, International Roofing Expo. “This year's expo solidified the importance of face-to-

face connection with highly engaged and at capacity networking and education events, reflecting the need for hands-on learning. IRE continues to provide resources for roofing professionals nationally and internationally with nearly 50 countries represented. We

look forward to continuing to see the growth of the industry and innovation and providing the most up to date information and trainings to the roofing community throughout the year, online at our ConstructionNext platform and at our 2024 event.” **MR**

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Preferred Contracting

A Company that Prays Together

By Linda Schmid

Sometimes a satisfying, lifelong career is triggered by a passing comment. In 1977, John Zolko's pastor mentioned that the community needed some honest Christian contractors. Zolko got to work. He found two partners, Dave Hildebrand and Glenn Vernon, and Preferred Contracting was on its way.

Happily, Zolko had experience with concrete to pay his way through college, so he started out in concrete, then built new houses, then the company found its niche. They mainly do exterior remodeling — roofing, fascias, siding, soffits, and gutters, brick pointing, windows and doors, and more. They do asphalt roofing, but they are more focused on metal because they like doing work that lasts.

"Do a roof in metal and it's done for 50 years," Zolko says. "It's less expensive in the long run."

He has subcontracted workers, Amish crews who can do all the varieties of tasks involved in remodeling. They do around a million dollars of business each year.

While many employers find it difficult to find skilled employees, Zolko has a more specific concern. He's not looking

for people with skills; he looks at his company as a training ground.

"We're sending our children into the future, so we have to train them. Encourage them. Give them a hug. Keep them safe. Teach them to do something that will last."

The challenge, then, is finding people to do general labor. He says that so many people are more focused on partying and watching the game.

One way he combats this is trying to be a contractor that good workers want to work with. "Pay well and pay on time," he says. His company has grown due to lots of discipline, getting up early, and staying up late Zolko says. He also reads a book a week so he can learn from others' mistakes. A few that he recommends include "The Seasons of a Man's Life" by Jim Roan; "The Richest Man in Babylon" by George Clason; "Green Eggs and Ham" by Dr. Seuss (it's about trying new things), and The Bible.

His company does about 50/50 residential and commercial work, and they install a lot of stone-coated steel by Westlake on roofs with pitches of 4/12 to 8/12.

C & N Metals of Oakland, Maryland, is where Zolko gets his steel. Beacon



LABOR OF LOVE

Roofing Supply in Pittsburg supplies his Titanium Underlayment by Owens Corning, and Triangle Fasteners and Mastic Metals Gutters are also among their main suppliers. Employees all drive Fords. They also work with ABC Supply Co.

In 40 years of business, Zolko never had problems procuring materials like he had in the past few years. They had a job reroofing a large copper roof at one point, and they needed 50 hangers. They had to search for them all across West Virginia and Pennsylvania, getting a few here and a few there.

Now he orders ahead and locks in prices, figuring components will likely be higher in the future.

Preferred Contracting is licensed in a tri-state area: Pennsylvania, Ohio, and West Virginia. Zolko notes that it's an accomplishment getting licensed in West Virginia; they are very protective of their system.



Company culture involves Zolko and his crew praying together.

"It's fun to thank God every day for vision, health, and our families."

Many different personalities have worked for Zolko over the years. He says he's had military guys who have flashbacks, some who have come to work impaired and had to be sent home for the day. Some workers are angry that the mill shut down thereby breaking a generational tradition.

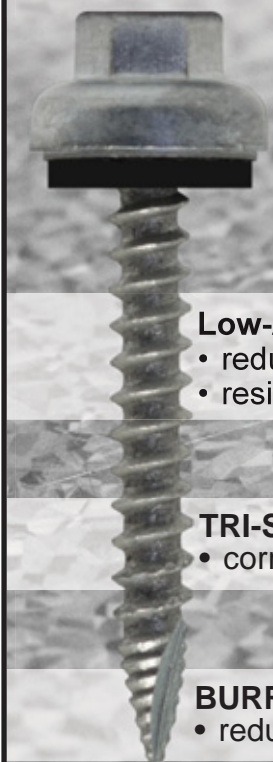
Zolko's philosophy is that he is giving jobs to people who need them and making the world a better place.

"From one to whom much has been given, much is expected," he says.

The company's business goal is to do the best possible job for the best possible price for each and every customer. And to treat them as you want to be treated.

His final bit of advice for work, play, and all of life: "When you know God loves you, you can deal with anything." **MR**

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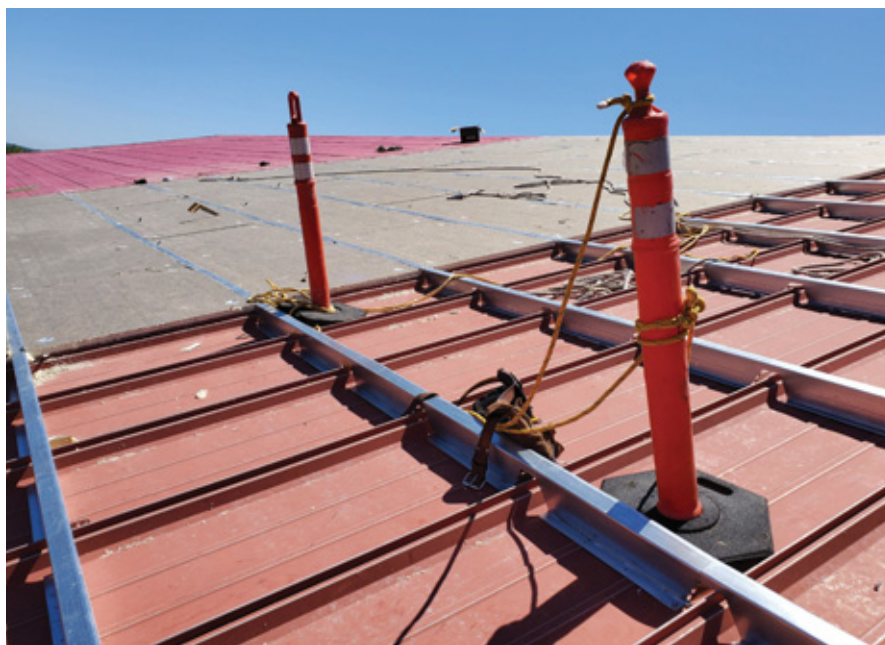
Roof Recover Methods

9 Ways to Recover an Existing Sloped Metal Roof with Standing Seam

By Charlie Smith, McElroy Metal,
www.mcelroymetal.com

In our first two articles, “Metal Roofs: Recover or Remove?” (*Metal Roofing* Oct./Nov. 2022) and “Panel Systems That Work Well for Metal Roof Retrofits and Recovers” (*MR* Feb./March 2023), we covered whether it is better to recover or remove and replace an existing metal roof that has reached its service life, as well as the types of standing seam roof systems that should be used to recover an existing sloped metal roof. In this article, we will cover some of the different ways to recover an existing sloped metal roof, whether it be on an open frame metal building or over a solid deck. As stated previously, when contemplating doing a recover, it is best practice to use a structural standing seam panel. We will begin with the most common type of recover scenario I get involved in: putting a new symmetrical standing seam on a metal building.

There are at least nine ways to recover an existing metal roof on a metal building. These include Roof Hugger, Top Hat, Clip and Purlin, Zee Clip and Hat, Hat over hat spacer, hat over sliding hat, hat and scat, Grid, tall clip and infill with rigid



Model T Roof Hugger over high floating standing seam. ALL PHOTOS COURTESY OF CHARLIE SMITH

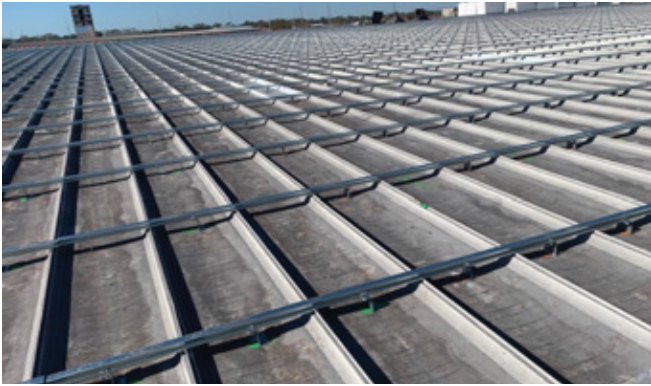
insulation (where you attach the new roof to the purlins using long fasteners). On a metal building, there are several things that need to be established to help decide what is the best way to recover the roof. First you need to determine: What is the existing roof? Is it an exposed fastener R panel or Corrugated panel, or is it a standing seam? If it is a standing seam you need to know if it is installed with high floating or low floating clips. This is very important. This should be one of the first things you figure out because it will determine how you retrofit the roof.

The roof system you plan to use to recover the existing roof will need to meet the current wind and snow loads attached to the existing frame spacing. In order to calculate those pressures, you need the purlin spacing, the roof slope and the eave height. You will need to have some kind of drawing showing roof plan and elevation. If you or the owner are concerned about the additional weight added during reroofing, then you will need to measure purlin gauge, size, lap length over the rafter frames, bay spacing and how the purlins are attached to the rafter frames. As stated before, the Section 707 of the International Existing Building Code allows for the recover over

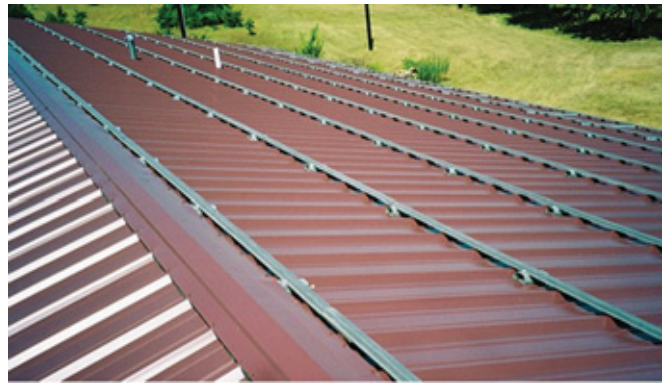
an existing roof as long as it does not add more than 3 pounds per square foot to the structure. Pretty much all of these methods will weigh less than 3 pounds per square foot, unless you add a lot of iso or get involved in a grid system.

Let's start with options to recover an existing exposed fastener roof. In my opinion, the best way to recover an existing roof on a metal building is to use a Roof Hugger. A Roof Hugger is a 16- or 14-gauge purlin that is notched out to fit over the ribs of the existing roof on a metal building. There are a number of reasons I think it is the best system. First, it provides the most attachment back to the structure of any frame system used to recover an open-frame metal building. A Roof Hugger installed over an exposed-fastener roof on a metal building will increase the load carrying capacity of the purlin. A Top Hat will also have this effect. This is a very big deal. Roof Hugger has conducted a lot of modified base testing that includes a purlin lap as well as software modeling to determine exactly how much extra load the purlins will handle after installation of the Roof Hugger.

As I said in the first article, we saw an increase over 7 pounds per square foot



Hat over zee clip system over low floating 3 x 24 trapezoidal standing seam.



A hat over floating hat system is great for recovering when using an R panel.

of added capacity by using a 4 1/2" Roof Hugger on top of an R panel. Basically, we made the existing 8" purlin into a 12 1/2" purlin. There are a lot of buildings out there that will not meet the current design loads or are at the limit as they are. In many instances, installing a new roof with a Roof Hugger will not only give the

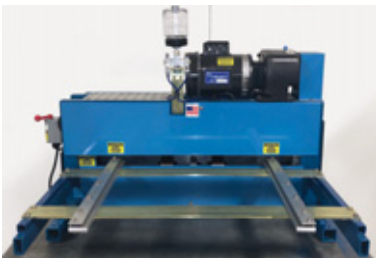
owner a new watertight roof, but a structural upgrade at the same time. I have been on a lot of metal buildings where I felt like I was on a trampoline, then, after the retrofit, they felt completely different.

As far as insulation goes, you can infill between the two roofs with batt, EPS or iso. In most areas you can leave out the

insulation and provide a ventilated air space between the roofs. This saves a lot of money and, in my experience, provides a very similar outcome as far as reducing the heat transfer into the buildings.

The biggest disadvantage of using a Roof Hugger is price. It is one of the more expensive ways to recover an existing

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PROBLEM SOLVERS



Tall clip system with 24" wide symmetrical standing seam over R panel.

metal roof on a metal building. Another disadvantage is that you will not get continuous insulation using a Roof Hugger.

The clip and purlin, zee clip and hat, hat over hat spacer are all two-piece retrofit frame systems where the lower piece sits between the ribs of the existing roof panel and attaches to the purlin. Depending on the wind load, snow load and purlin spacing, the lower members are spaced anywhere from 12" to 48" on center along the purlin. A second member, either a continuous 16-gauge zee purlin or hat section is attached to the top of the lower members. This system costs much less than a notched purlin or Roof Hugger, especially if the engineering allows the lower members to be spaced at 48" on center.

Typically these systems are infilled with batt insulation, but provide the very best performance of the options to provide a ventilated air space between the two roofs. There is very little blocking the passage of air from eave to ridge. Any time you are using a frame system and want to insulate using an air space, you want to make sure you install either foam tape or thermal spacers between the panel and the new purlin or hat to make sure you don't get any roof rumble, the noise that is made when the wind blows just right and the panels start vibrating on the purlins. It will drive everyone out of the building and result in a call from someone's lawyer.

Individually, the clip and purlin system consists of a 12-gauge angle clip attached through to the existing purlin and a small 16-gauge purlin attached to the clip.

The advantages of the clip and purlin are cost and ease of creating a 6" high space if the owner wants to add 6" batt insulation between the two roofs. The disadvantages are you need to add a stabilizer every 10'-15' and you are fastening the zee sideways into the 12-gauge clip.

The hat over zee clip and hat over hat spacer are very similar. In both cases you are fastening the hat section down into the top of the zee clip or hat spacer. The hat spacer is more stable than the zee clip, but costs a little more and may require 4 fasteners

into the purlin. The zee clip is better used in areas of lower wind speeds and snow accumulation. All of these 2-piece systems are best if you want to use 6" of batt insulation.

A sliding hat base made the rounds a few years ago and it works really well if you want to retrofit using an exposed fastener R panel. The hats float back and forth as the R panel expands and contracts. I think it is a great system for lower budget jobs with no manufacturer warranty.

The "Hat and Scat" retrofit is a method used by the more dishonest contractors or contractors that don't know better. This method involves installing a hat section on top of the ribs of the R panel and then attaching one side of the hat into the purlin and the other side into the R panel rib. The "scat" part is to get paid and scat out of there before the roof blows off because that is pretty much what is going to happen.

A grid system consists of purlins or hat sections that run up and down and attach through the old roof into the purlins. These new "rafters" are normally spaced no more than 4' apart and connected together using hat section or purlins. These systems are used when the roof panel that you are planning to use will not meet the wind uplift at the existing purlin spacing. You can see here where a grid is used in the edge or corner zone because the new roof panel will not meet wind load.

This is why I use a symmetrical standing seam that incorporates continuous clips. Continuous clips eliminate additional corner framing in most instances.

A tall clip is the fastest and most economical way to recover an R panel on a metal building. This involves using a 24" wide standing seam and attaching it directly to the purlins using clips that hold the new panel above the ribs of the R panel. The clip sits between the ribs of the R panel and should hold the panel up 1 3/4" to clear all of the fasteners and what not. These systems are normally insulated, but I have done a few with only an EPS flute fill board down the middle. It lowered the cost and worked great.

The last way to recover an exposed fastener on a metal building is to infill it with rigid insulation, which should be



Clip mounted on 6" x 6" x 1/4" shim plate and attached through to purlin.

iso, then put down peel and stick, install the roof on top of the insulation and attach directly to the purlins using long fasteners. The advantages to this system are you get the best insulation coverage and you remain water tight during the whole process.

If the existing roof is corrugated, you have a few choices to retrofit. Again, Roof Hugger has what I believe is the best system and it is called a Corru-Fit Hugger. This is a two-piece system that consists of a triangular shaped spacer that sits between in the low of the corrugation and a small zee purlin that connects the spacers. A long fastener is used to attach the zee purlin through the spacer into the purlin.

Another method is to install rigid insulation on top of the corrugation and attach the new roof to the purlins using long fasteners. I have also used a plastic shim plate under a clip on jobs where the corrugated panel was a heavier gauge, and we were not so concerned about crushing the ribs.

The last way to recover an existing corrugated panel is to use a hat spacer that sits down between the ribs of the corrugated panel with a hat section that runs across over the purlin. Here is a photo of a system promoted by Top Hat.

If the existing roof on a metal building is a standing seam, then you must determine if it is a low floating or high floating

system. The best way to figure it out is to drill a hole in the panel right over the purlin about 2" away from the seam on the male side of the panel (so you do not hit the clip) and measure the distance between the panel and the top of the purlin. You can also measure from the underside. This dimension will be zero, 3/8" 1", 1 3/8" or maybe 1 3/4". Zero to 3/8" is a low-floating system and with that you can do any of the systems above for exposed fastener panels. If you use a Roof Hugger or Top Hat you can expect an increase in the load carrying capacity of the purlins. If the existing standing seam is a high floating system, the only system that is really designed for this application is a Model T roof hugger. The Model T uses special offset fasteners that maintain the distance between the panel and the purlin. The Model T also has an anti-rotation arm built in that attaches the Roof Hugger to the existing panel rib. This is very important because it keeps the hugger from rocking back and forth since it is not in compression against the purlin below. Also, the Model T only adds weight to the roof, not any structural enhancement.

If the existing roof is on a solid deck, there is no need for a frame. The best way to recover these jobs is by infilling with iso, maybe an HD iso board on top of the flute fill, ice and water shield and a new roof attached all the way down to the deck. **MR**



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Following the “Golden Rule”

By Courtney Glover

Golden Rule Fasteners started with a mission in mind — to follow the “Golden Rule” by treating everyone the way they would like to be treated. In May of 1991, Archie and Fay McDow opened Golden Rule Fasteners, Inc. For the first few years, the couple ran the business out of their living room while homeschooling their two young boys. Archie made deliveries of screws, nuts, and bolts in his personal car to hardware stores around the Southeastern United States.

Fay stayed home to answer phone calls on their business line. At night, Fay took accounting courses to learn how to manage the bookkeeping for their new startup business. She spent her days balancing being a homeschool teacher, inside sales rep, and accountant.

In 1995, Art McDow, the eldest McDow son, moved back to Alabama to help his father with the company. With Art's suggestion, the company began selling a line of painted screws for metal roofing and carports. This quickly became the company's best-selling product. This led to the company carrying many accessories for metal roofing, allowing them to expand their market coverage in areas outside of the Southeast. They began selling to roll formers and carport manufacturers from Florida to Idaho.



Golden Rule Fasteners [www.goldenrulefastenersinc.com] is no longer operated out of a spare bedroom. The business has grown significantly and is currently located in Tallassee, Alabama. Photos courtesy of Golden Rule Fasteners.



As the Golden Rule dock shows, deliveries are no longer made in a Chevy Caprice Classic.

In 2004, the youngest McDow son, David, joined the business full time. He is accredited for calling on some of the larger roofing supply chains. They began supplying these stores with pipe flashings. This caused the discovery of a need that had not yet been filled by other companies within the shingle roofing industry; the Residential Zip-Seal. Art and

David worked to design a retrofit flashing for shingle roofs that would wrap around obstructed penetrations, such as the electrical mast, where a standard pipe flashing could not be used. Their first sale of the Residential Zip-Seal was in 2008. After a couple of years, they developed a new, smaller version called the GoldenSeal Retrofit Flashing.

The Who, What, and Where

Today, Golden Rule Fasteners is a wholesale distributor of painted and unpainted screws, pipe flashing, retrofit flashing, caulk, butyl tape, expanding foam for hips and valleys, closure strips and more, for both metal and shingle roofing industries. They do business from coast to coast in the United States and some business in Canada. The company sells to roll formers and they supply bigger franchises such as ABC Supply Company and SRS Distribution.

David McDow, the youngest son and Executive Vice President of the company,



mentioned that his personal favorite part is the special projects. For example, the company was called upon to help with building an orphanage in Mexico, a roof on a church in Jamaica, and schools in Haiti.

The company faces competition from some major distributors but David believes that Golden Rule Fasteners is set apart from others due to their service level. They believe in always treating everyone the way you would like to be treated. He states that they “strive to give the best service, ship out the same day, and maintain a personal relationship with customers.

Golden Rule Fasteners’ business philosophy is to always remember the “Golden Rule.” To treat people right, sell top quality products, give the best service possible, and be innovative.

David stated that they seek to introduce new products that help customers avoid headaches. They try to find a need and create a product to fill the need. Currently, the company has new innovations in the works that David couldn’t yet expound upon.

Challenges and The Future

In the beginning, the company faced a couple of challenges. Early on, they



Golden Rule Fasteners has been awarded three patents for their flashings.

received and distributed a bad batch of screws. Clients began calling, explaining that the screws were rusting in their portable buildings. Archie loaded up his step ladder and, with the middle McDow son, John, hit the road. Archie and John spent days replacing the rusty screws with new, good screws. This is one example of the McDows’ golden rule of treating people the way that you would like to be treated and providing quality services.

David McDow felt that 2021 was a very strong year due to people being stuck at home during the COVID-19 pandemic. During this time, they were also dealing with the aftermath and reconstruction after Hurricane Michael. He considered 2022 to be a strong year as well and hopes that 2023 continues with an upward trend. In the future, David hopes for even more expansion. He commented, “I would love to open a branch out west and be able to provide faster service for those in that area.” **MR**



David McDow, Executive Vice President, Golden Rule Fasteners.

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FRSA Convention & Expo

Focus on Education

Lisa Pate, FRSA Executive Director

Education will be front and center during FRSA's 101st Annual Convention and the Florida Roofing and Sheet Metal Expo, taking place July 12–14 at Gaylord Palms Resort and Convention Center in Kissimmee.

FRSA's Educational Foundation has slated 31 seminars that focus on many of the topics contractors need to run their businesses. Florida licensed contractors are mandated by the state to take specific educational hours every two years to keep their licenses active. These credits include seven hours of general (G) and one each of wind mitigation (WMM), laws and rules (L&R), workplace safety (WPS), workers' comp (WC), advanced (ADV) and business practice (BSP).

FRSA takes pride in offering industry-specific seminars that focus on the Florida Building Codes and are taught by industry professionals. These seminars include:

- 2023 Florida Building Code 8th Edition – 2 hours G credit
- FRSA-TRI 7th Edition Tile Manual – 1 hour G credit
- Designing for Performance – Single-Ply Roofing – 1 hour G credit
- FBC Requirements for Underlayment – 1 hour G credit
- Tile Hip and Ridge Installation – 1 hour G credit
- Specialty Shingles – Code and Installation Requirements – 1 hour G credit
- Lightweight Insulating Concrete Roof Decks – 1 hour G credit.

In addition to code-based seminars, contractors will be able to apply the following seminars to their continuing education requirements:

- Contractor Licensing Issues and Construction Contacts – 1 hour L&R/1 hour BSP
- The OSHA Inspection and Citation Process – 1 hour WPS
- Fall Protection – What Employers Need to Know – 1 hour WPS
- Navigating Material Volatility – 1 hour BSP

- Estimating the Right Way – 1 hour BSP
 - Workers' Compensation Coverage and the Perils of PEOs – 1 hour WC
 - How to Start or Grow a True Services Department – 1 hour G
 - The Impact of the Legalization of Marijuana on the Construction Industry – 1 hour L&R
 - Top 5 Employment Issues in Roofing – 1 hour L&R
 - Top 5 Insurance Issues in Roofing – 1 hour L&R
 - Wind Mitigation Methods, the Law! – 1 hour WMM
 - Reputation Management Legal Issues – 1 hour BSP
- Business seminars that aren't approved for continuing educa-



tion hours but are a necessity for contractors include:

- CCN Contractor Bootcamp – KPI Managing by the Numbers – 6 hours
- KPI Managing by the Numbers – 1 hour
- Service Department Training Revelations – 1 hour
- A Crash Course in Effective Digital Marketing and Lead Optimization – 1 hour

Seminars are scheduled each day prior to the Expo to ensure



FRSA's 101st Annual Convention and the Florida Roofing and Sheet Metal Expo are taking place July 12–14 at Gaylord Palms Resort and Convention Center in Kissimmee, Florida.

full participation on the trade show floor.

There are over 240 companies exhibiting at the Expo, providing another great opportunity for contractor education. In addition to every type of roofing system, product and accessory, there are vendors with equipment to make any roofing job more efficient and cost effective. Service companies that provide services like estimating, marketing, safety training, software, marketing and more. During the two-day event, contractors will have 10 hours to visit exhibitors and learn about new products and services. FRSA encourages contractors to bring their crews to see what's new and exciting in their industry.

Although education is a major focus, there's still plenty of time to socialize. Sports tournaments begin on Wednesday,

July 12 with fishing at Sunrise Marina in Port Canaveral, golf at Falcon's Fire Golf Course and pistol and clay shooting at Tenoroc Shooting Range in Lakeland. Tournament registrations are limited and the cost increases after June 20, so be sure to book early.

National Women in Roofing meet for an insight-filled session where you'll be able to network with other NWiR members as women in the industry share their career experiences.

Join us at Wreckers Sports Bar on Wednesday evening as we officially kick off the Convention at the Welcome Reception. There will be delicious food stations and an open bar at this free event: a great time to reconnect with other industry professionals.

During the Business Lunch on Thursday, elections for FRSA's Officers and Directors will be held, Life and Honorary Memberships presented along with other industry awards and the Educational Foundation scholarship recipients honored.

On Thursday evening, the S.T.A.R. Awards Reception is held prior to the Officer Installation Dinner, where FRSA Officers for the coming year will be installed, the President's Award and FRSA's highest honor, the Campanella Award, will be presented. After dinner, attendees will head to Wreckers Sports Bar for the After Party, after-dinner drinks and desserts.

FRSA's Convention has always been a family event, so bring the spouse and kids and let them enjoy their own events. The Ladies' Program includes a Mosaics and Mimosas session and a Cake Decorating Workshop with the Gaylord Palms pastry chef.

The Kids' Program events include:

- **Mad Science** – Wednesday, July 12 – 5:30



pm – 9:00 pm – Kick off the evening by exploring the science behind superhero powers. Watch as a mad scientist makes Superman fly and creates a storm indoors. Kids jump into the action by making their own ooey-goey slime and end the night with a sweat treat.

• **Pool Party & Crafts** – Thursday, July 13 – 9:00 am – 3:00pm – Enjoy some fun in the sun and cool off poolside at the Cypress Springs Family Fun Waterpark. This infinity swimming pool located onsite at Gaylord Palms Resort is complete with four slides, a multi-level playground and an outdoor restaurant. The group will show off their artistic abilities with a variety of crafts as they take a break from the sun.

• **Extreme Video Game Night** – Thursday, July 13 – 5:30 pm – 10:00 pm – The party is coming to us! Climb inside the Supreme Party Machine, a giant truck packed with large TVs, the latest game consoles and a huge variety of video games. Race friends in Mario Kart, build creative structures in Minecraft or show off your dance moves in Just Dance.

• **Exploring Florida's Habitat Up Close** – Friday, July 14 – 9:00am – 2:00pm – Call all explorers! The Gaylord Palms Resort is filled with adventures just waiting for you. The program will

start with a presentation from reptile experts at Gatorland as they discuss some of Florida's most unique creatures. Yes, there will be an opportunity to hold them with the guidance of Gatorland team members. Then set out on a scavenger hunt that will have you navigating the Gaylord Palms atrium and learning about plants, animals and historical landmarks.

The Foundation Auction, the annual fundraiser for FRSA's Educational and Research Foundation, begins on July 7 and ends on July 14. Generous industry members and partners donate vacation packages, sporting event tickets, gift baskets, TVs, electronics, restaurants gift cards and of course, roofing materials for this event. All proceeds from the Auction benefit scholarships, education and industry research. Anyone can donate or bid electronically on Auction items by visiting www.floridarooft.com/items. The app lets you place automatic bids, notifies you when you've been outbid and allows you to view items without bids. It's a great way to support industry education while getting something for yourself!

For more information or to register for FRSA's Convention and Expo, please visit www.floridarooft.com. Questions? Please call Zimari at 800-767-3772 ext. 100. **MR**



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Rooftop Safety

By Rob Haddock, President of the Metal Roof Advisory Group & CEO and Founder of S-5!



Walkways and lifeline attached to an anchor point with S-5! clamps and Unistrut (Source: Diversified Fall Protection)

Work-related accidents such as falling off a roof can result in serious and fatal injuries. These accidents are common due to construction-related hazards on roofs and improper safety precautions set in place for workers. Many employers in the construction industry violate Occupational Safety and Health Administration (OSHA) safety requirements, particularly with respect to fall protection due to ignorance or inconvenience.

According to the most recent data from the Census of Fatal Occupational Injuries (2021) Bureau of Labor OSHA Statistics program, fatal work injuries recorded in the United States increased by 8.9 percent in 2021 from the previous year, and falls remain the leading cause of work-related deaths in construction.

Global Safety Cultures

In the U.S., it is the responsibility of the employer to protect the employee from rooftop hazards, and because job site visits are infrequent and temporary, most employers choose devices that are temporary and portable. In most other places throughout the world, this is not the case. It is the responsibility, rather, of the building owner to provide the means of protection. For this reason, fall protection systems tend to be permanently installed throughout the building's life. In the U.S., we are beginning to see a trend toward the latter practice.

So, how do metal roofs play into the equation?

Although metal roofs are known for their durability, sustainability and versatility, they can be quite slippery, posing a potential fall hazard, leading to serious injury for workers and liability for a business. Add inclement weather like rain or snow, and the risk is elevated for any worker needing roof access.

Whether installing rooftop equipment, accessories such as HVAC, service walkways, solar PV and snow retention, or conducting rooftop inspections, cleaning, maintenance or servicing equipment, rooftop access is necessary year-round. Fall protection ensures safety on that roof.

Many contractors and installers spend hours on metal rooftops and are confident they can easily navigate the terrain. But accidents happen, so a reliable fall protection system is a must. In addition to protecting the company and its employees, OSHA has established a number of requirements professionals must follow so it's important to select a fall protection system that complies with OSHA regulations.

Main Types of Fall Protection

According to OSHA, fall-arrest systems must be designed to prevent a worker from free falling more than six feet or contacting a lower level, such as the ground or a lower roof plane. In many cases, this requires guardrails or personal fall-arrest systems, which include anchors as secure attachments for the system.

Anchor Points

An anchor point can be a single secure attachment used as a fall-arrest system. In this situation, a body harness is connected to the anchor, limiting the falling distance if a worker was to descend over the edge. Anchor points may incorporate one or multiple attachments and can also be paired with travel-restraint lanyards designed to prevent access to the area where a

fall hazard occurs.

Another option providing more freedom of movement is called a horizontal lifeline. This system includes multiple anchor points and a connection cable. The anchor points can be installed on a temporary or permanent basis and require some training for proper use.

For fall-arrest systems, OSHA requires the anchorage strength to either be “capable of supporting at least 5,000 pounds per person attached or designed, installed and used under the supervision of a qualified person, as part of a complete personal fall arrest system that maintains a safety factor of at least two.”

Fall-restraint (or travel-restraint) systems must be able to “withstand 3,000 pounds or twice the maximum expected force needed to keep the worker from accessing the fall-hazard area.”

Guardrails

Guardrails are placed around the roof’s perimeter or any unprotected or exposed side to prevent falling off the

edge. As passive barriers, guardrails do not require training. When correctly installed, they are extremely reliable. Often permanent fixtures on the roof, guardrails can save money on repeated professional inspections.

Guardrails used for fall protection must be able to withstand a 200-pound force in any outward or downward direction within two inches of the top rail extremity.

Walkways

In large commercial settings, rooftop walkways are another way to keep workers safe when there is equipment or systems on the roof that must be maintained. For example, on the Apple Park headquarters building in California, six miles of walkways were installed in conjunction with a 7.4 MW rooftop solar PV array.

Determining if the fall protection is truly secure

Given the weight loads the systems need to carry, it is critical to ensure that

the rooftop attachments can support the anchors, guardrails or walkways in a safe and reliable manner. The only way to ensure this reliability is to utilize attachments properly load tested, including a factor of safety. Then, engineer the fall protection system using the tested design load information.

The variables involved in metal roofing include profile types, material types, gauges and substrates.

Load testing must take into account all of these factors to be viable. Each situation is unique, and the way an attachment performs on one type of roof is no guarantee it will perform the same way on another. For this reason, it is important to consult attachment load tests that have been performed for the specific roof type and profile. In addition, these tests should be certified through an independent third party, to ensure the results are proven accurate.



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Fall Protection in Perpetuity

A closer look at anchor points from Ridgeline Safety Systems

Anchors from Ridgeline Safety Systems are offered for all types of construction — reroof, nested purlin, 1.5" purlin, OSB-decked roofs, and 3.5" purlin. They are fastened to the trusses either while the trusses are still on the ground, or as soon as the old ridge cap is removed, providing an immediate tie off point.

What role does Ridgeline Safety Systems play in roofer safety?

Ridgeline Safety Systems' patented roof anchors provide a tie-off point from the time the truss is set through the entire life of the building.

How are Ridgeline Safety Systems tested?

Our anchors are strenuously tested in-house and then tested by a third party, ICC accredited lab.

What standards do the systems meet?

They meet OSHA 1926.502 fall arrest standards - 5000 lb static load, 620 lbs / 6' drop.

What else would you like to add?

Ridgeline Safety System anchors are an affordable way to keep workers safe. We have options for all standard construction types, as well as re-roof anchors, with custom designs available. **MR**

Preventing Fall-Related Accidents Through Proper Pre-Use Inspection

By Cameron Kelson, Corporate Marketing Manager, Diversified Fall Protection

When it comes to ensuring safety when working at height, one of the most important aspects to consider is the proper inspection and use of the safety equipment that will be utilized, including full-body harnesses, lanyards, and connectors. Using safety gear incorrectly, or that has excessive wear and tear can be just as dangerous as not wearing safety gear at all, so proper examination and utilization is imperative to ensure workers stay protected and safe.

Before putting on or using your harness or lanyard, do a thorough inspection to make sure it is in generally good condition. This includes checking for cuts, burns, tears, abrasion, or excessive soiling and discoloration. Look over the stitching for signs of pulled or cut stitches, and ensure that all the labels are securely held in place and easily legible. Check the connectors and harness hardware (such as the D-rings and buckles) for distortion, cracks, corrosion, or any other signs of damage. Make sure to inspect the harness impact indicator to ensure that it has not experienced an arrest load. If any issues are found during your inspection, the equipment should be removed from service and replaced immediately. Any of the stated problems can compromise the function of the equipment and put the user in danger.

After the pre-use inspection is completed, it is time to put the harness on. For most applications, the harness will be worn over all work clothing, so ensure that all clothing necessary is worn before putting on the harness. Make sure to remove items such as pens and keys from pockets, as these can get trapped between the harness and the body in the event of a fall and cause serious injury. As the harness is being donned, check that the leg straps are not twisted or cross-buckled and tighten them snugly. Ensure



the sub-pelvic strap sits directly beneath the buttocks. This allows the harness to better distribute the load during a fall event. The chest strap must be secured, tightened, and positioned properly across the front of the chest. Ensure that the dorsal D-ring is aligned with the spine, directly between the two shoulder blades.

Now that the harness is on, it is time to get a second set of eyes to look over everything. A partner check is a brief process, but it is imperative, as it is not uncommon for steps to accidentally get missed or performed incorrectly in the process of putting on a harness. Your partner should have an organized approach to checking your harness, working from top to bottom in the front, then repeating the process in the back. They must check that the shoulder straps cannot come off the shoulders, that

the chest strap is properly positioned and secured, and that all keepers are correctly positioned and loose webbing is managed. They should also make sure that the leg straps are connected and tightened, that the D-ring is properly centered on the back, and that the sub-pelvic strap is snug and positioned below the buttocks.

Now that the equipment has gone through the proper pre-use inspection process the user can put on any additional personal protective equipment (PPE) necessary, such as a hard hat, safety glasses and gloves, and connect to the fall protection system. These steps must be taken before each use, as the brief process can go a long way towards preventing fall-related accidents, injuries, and deaths, allowing workers to return home safely at the end of each day. **MR**

Once the exact values are determined, the system can be engineered to withstand the appropriate loads designated by OSHA.

When mounting fall protection, be careful not to compromise the integrity of the metal roof. For a standing seam metal roof, select clamps that are specifically made to fit the seam profile. Source clamps that are produced in an audited facility with quality assurance standards for product consistency. Make sure the clamps are manufactured from corrosion-resistant metals and are metallurgically compatible with the roof material. Additionally, it's critical to know the reputation of the manufacturer to ensure the system is verified and has been accurately engineered and tested for the loads it must withstand on the specific roof profile.

Choose non-penetrating clamps that rely on a mechanical interlock for superior

holding strength while protecting the metal roof from unnecessary holes. For permanent fall protection systems, source clamps that have the durability to last the life of the roof, backed by the manufacturer's warranty.

What role does S-5! play?

S-5! provides reliable clamp and bracket attachments for metal roofs to most of the largest fall protection companies in the world for permanent anchor points, horizontal lifelines, roof walkways, handrails and guardrails. The extensive certified load testing of the company's products along with their certified manufacturing enables certified system applications in conformity with global safety standards for fall protection.

Main Take Away

It's critical to protect workers from falling off a metal roof – whether

installing ancillaries and equipment or conducting inspection and maintenance. OSHA regulations offer multiple fall-protection strategies to choose from including anchor points, guardrails and walkways.

To ensure safety measures provide adequate protection and meet OSHA-identified loads, utilize rooftop clamps that are:

- Independently load tested to the specific project parameters.
- Designed to fit the seam profile of the standing seam roof.
- Manufactured in a facility with independent quality assurances.
- Non-penetrating, to protect the roof.
- Corrosion-resistant and long-lasting.

By selecting tested and proven attachment solutions, fall protection systems can be engineered to keep workers safe and truly confident on the roof. **MR**

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Logan Stampings and Roof Hugger both received Metal of Honor awards in 2023. Duane Sailors (Logan Stampings, left) and DJ Highnote (Roof Hugger) each pose with their awards.

Award Winners

A large number of Metal of Honor winners were exhibiting at the Spring 2023 trade shows, presenting an ideal opportunity to hand-deliver the Metal of Honor award plaques.

On these pages you'll find the companies that received their awards at the International Roofing Expo in Dallas, held March 7-9 at the Kay Bailey Hutchison Convention Center.

When you consider there are hundreds — if not thousands — of companies that supply the metal roofing industry with materials and services, you gain an appreciation for how special it is to receive a Metal of Honor commendation.

When the next voting cycle begins, be sure to vote for your preferred suppliers. It's a great way to support those who support your business.

Next year, 2024, will mark the 20th anniversary of this very special award program. Watch the next edition of Metal Roofing to learn more about how you can nominate a business for the Metal of Honor. **MR**

PHOTOS BY METAL ROOFING MAGAZINE STAFF.



From left to right: James Hazen, Dave Thomas, Steve Bradley, Lance Ninomiya, and Dave Rowe show off the Metal of Honor award in their booth at IRE 2023.



From left to right: Randy Hicks, David Delcoma, Paul Bratton, Rachel Hindel, and Will Gerstman accept the MFM Building Products Metal of Honor award.



Rob Heselbarth accepts Petersen / PAC-CLAD's 18th Metal of Honor award. Only a small number of companies have received the honor this many times.



Katie Hill accepts the Metal of Honor award on behalf of Titanium by Owens Corning.



Tom Diamond accepts the Metal of Honor award for The Garland Company.



James Lake (left) and Matt Cox exhibit the MBCI Metal of Honor award at IRE 2023.



From left to right, Chris Depue, Bill Fox, Matt Montgomery, and Bryan Ketchum pose with the Union Corrugating Metal of Honor award at IRE 2023.



The Malco Products SBC crew accepts its Metal of Honor award. From left to right: Jon Olson, Austin Cash, Jim Finneman, Nancy Gunnerson, Mike Hemmesch, and Scott Crane.



Mark Strait accepts the Metal of Honor award on behalf of Kirsch Building Products, makers of Sharkskin roof underlayments.

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EagleView Unveils Geospatial Platform

EagleView Technologies, Inc., a leading aerial imagery, software, and analytics provider, is opening its platform for strategic customer and partner access. The EagleView Platform will provide customers and partners the capabilities to access interactive experiences, improve current workflows and create services and solutions with the same core capabilities and tools that power EagleView's products and services.

"With this platform, we are opening access to the capabilities that have made EagleView an industry-leading geospatial solution provider," said EagleView CEO Chris Jurasek. "Now, companies across all industries from architecture, engineering, and infrastructure to wireless service providers will be able to build solutions utilizing our proprietary software, imagery and property data sets into their own products and workflows, speeding innovation and delivery."

The platform includes the capability to leverage EagleView's library spanning multiple decades and 20 million+ square miles of geospatial images and data captured using EagleView's technology. This native access to the multi-decade imagery database includes high-precision aerial captures of properties and rural and city landscapes (including bridges, roads, powerlines and other features) from which strategic partners can utilize machine learning tools to extract unique data.

The platform offers strategic enterprise customers and partners the capabilities to both identify and extract features of the natural and built environment of residential and commercial property, as well as assets and infrastructure. These new capabilities combine imagery, machine learning, and change analytics. The vertically integrated platform includes the capability for image storage, image processing, feature identification, and extraction of new geospatial data insights.

With the EagleView Platform, strategic customers and partners can utilize:

- A 20+ year historical database of proprietary aerial and drone imagery, covering 94 percent of the North American population, 20 million+ square miles of visual records, and the majority of U.S. counties.

- Geospatial information captured to ensure geolocation accuracy, geometric quality, and photometric quality.

- High-resolution ortho and oblique imagery that allows for feature identification, extraction, and change comparison.

- Multi-source cloud imagery storage including drone, aerial and other technologies.

ABC Supply: Announces Acquisition & Commitment to Make A Wish Foundation

ABC Supply Co., Inc., the largest wholesale distributor of roofing and other select exterior and interior building products in North America, has acquired the assets of Thermal Tech, Inc., a siding distribution business in Kalispell, Montana.

The acquired Thermal Tech location (2301 Highway 2E in Kalispell) will operate as an ABC Supply branch focused on distributing roofing, siding, windows, gutter and rainwear products, decking and railing, as well as other related exterior building products and accessories. Craig Metzler will manage the location.

In 1975, Roy Nordwall started Thermal Tech, Inc. in Columbia Falls, Montana. Roy retired in 1993, passing the company to his son, Jay Nordwall. In 1996, the company moved to its current site in Kalispell.

Commitment to Make-A-Wish

In other ABC Supply Co. news, the company has recommitted to creating life-changing wishes for children with critical illnesses with a new \$3 million pledge. Since becoming a national partner in 2020, ABC Supply has helped grant the wishes of more than 300 children nationwide.

"For three years, ABC Supply has made a profound impact on wish kids across the country, and we're thankful for their continued support as we work together to grant the wish of every eligible child,"

said Leslie Motter, president and CEO of Make-A-Wish America (wish.org). "Our partnerships are invaluable so that we can continue to create hope for wish families going through the unimaginable."

Every hour, three kids are diagnosed with a critical illness in the U.S. ABC Supply's commitment will help kids like Genesis, an 8-year-old with cancer who wished for a backyard treehouse. The ABC Supply team in Coal Valley, Illinois, helped make her wish come true by donating construction materials. With her new treehouse, Genesis gets to play outside and enjoy being a kid. ABC Supply team members have provided similar wish granting support in other communities nationwide by volunteering their time and providing wish-specific resources.



COE Ships Coil Line to NUCOR

COE Press Equipment recently shipped and installed a 6" coil processing line to Nucor's facility in Frankfort, Kentucky, which manufactures building envelope systems designed to protect roofs, exterior walls, foundations and fenestration systems. The new line, which consists of COE's 6" Series 1 Servo Roll Feed, a Series 250 (2.5" x 6") Power Straightener and a 4,000# X 12" capacity Coil Reel, feeds a newly installed SEYI press.

The Nucor line is designed to handle galvanized steel at 40,000 PSI up to 0.051" - 0.125" thick in coil widths from 2"-6". It can achieve a roll speed of 392 feet/minute with a feed accuracy of +/- 0.003".

The line features COE's ServoMaster Touch™ Controller including Feed Advisor and Work Roll Advisor, which eliminate guesswork during job setup by

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- Component List
- Brief Description
- Three to five attractive high resolution images (at least one must be the entire roof).



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Malco Announces Trade-Pro of the Year Winners

Malco Products, SBC, one of the nation's leading solution developers and manufacturers of a variety of high-quality tools for the building trades, has announced the winners of its first-ever Building Exterior Trade-Pro of the Year Award program. The new program recognizes and uplifts skilled construction professionals, who serve their customers and communities with their talents.

The program recognized five top exterior building contractors and technicians from across the U.S.:

- Jordan Cortright, Owner of G8 Home Exteriors, Olivet, Michigan
- Joshua Woolley, Owner of Woolley's Gutter Experts, Lemon Grove, California
- Chickie McCafferty, Exterior Service and Repair Technician at Volpe Enterprises, Horsham, Pennsylvania,
- Craig Hastings, Owner of C&C Construction, Millington, Maryland
- Arron Wyman, Owner of Newt's Custom Construction, Abbot, Maine

Each of the winners will receive a Malco tool kit valued at \$1,000, awarded by their local distributor.

"Malco is proud to recognize its first-ever group of Building Exterior Trade-Pro of the Year winners for their professional achievement, safety excellence and community contributions," said Malco president and CEO Rich Benninghoff. "These building professionals represent

hard work and dedication to their craft, and we are excited to kickoff this program with such a worthy group of award recipients."

As a strong supporter and advocate of careers in the trades, Malco donates significant quantities of in-kind products and apparel annually to a variety of skilled trade education programs, competitions and events across the country.

Carlisle Construction Materials Collects Socks for Communities in Need

Carlisle Construction Materials (CCM), headquartered in Carlisle, Pennsylvania, with plants around the country, has announced the donation of over 18,800 pairs of socks to communities in need. Socks are the number one most needed item at shelters around the country, with over 500,000 individuals experiencing homelessness on any given night.

During the month of February, CCM collected socks at 28 facilities around the U.S. The initiative, called "Sockuary," helped to impact 17 organizations, from youth-oriented groups like Preble Street Teen Services in Portland, Maine, to emergency shelters like Helping Hands House in Puyallup, Washington. Carlisle has always tried to be a good corporate steward and this initiative is consistent with that goal.

"This was the first time we have done a nationwide company initiative," said Mike DuCharme, Vice President of Marketing and sponsor of CCM's Community Stewardship Team. "We were excited to see the level of employee engagement around this initiative and the impact that we were able to make. Our company has demonstrated a commitment to the communities in which it operates, and we are already looking toward our next project."

MRA Announces New Regional, National Members

Metal Roofing Alliance (MRA) has announced new regional members on the heels of also expanding its national

manufacturing member roster earlier this year.

New MRA regional members include:

- The Bryer Company, a manufacturer of architectural and commercial metal roof, wall and soffit systems. Headquartered in Auburn, Washington, Bryer also carries a full line of fasteners and metal construction accessories to serve the sheet metal, mechanical, and metal building markets.

- Nu-Ray Metals, a high-performance metal panel fabricator, providing high quality components including metal roofs, siding and accessories. Nu-Ray has evolved from a local metal roofing installation company to a full service regional manufacturer providing panels to contractors up and down the West Coast.

- TS Metal Supply has joined MRA as a Utah member. From locations in St. George and Payson, Utah, TS Metal Supply serves the roofing needs of customers in Utah, Idaho, Nevada, Colorado, Montana, Wyoming and California.

The announcement of MRA's new regional members comes on the heels of two leading national manufacturers also joining the organization earlier this year. New national members include Cornerstone Building Brands, the largest manufacturer of exterior building products in North America with more than 100 locations servicing the commercial, residential, and repair and remodeling market; and Carlisle Architectural Metals (CAM), a division of Carlisle Construction Materials (CCM), which consists of two architectural metal roofing and wall brands: Petersen Aluminum and Drexel Metals.

"We are thrilled that regional and national leaders in residential metal roofing are stepping up to support the growth of the industry," said Renee Ramey, MRA executive director. "There are so many business opportunities for quality metal roofing in the U.S. and Canada, and these companies are leading the way." **MR**

project of the month



Residential Reroof

Homeowner Elated with Stamped Metal Shakes Featuring Custom Color

Metal Shake Roofing LLC of New Providence, Pennsylvania, manufactured the metal shakes to reroof this 30-year-old residence. The customer's concrete tile roof was failing; in fact, they said the roof always leaked — even when it was new. The contractor presented the metal shakes to the customer and she knew immediately that that was the roof she wanted.

Getting the exact color was the challenge. The customer wanted the roof color to match the house perfectly. Hixwood helped them get exactly what they wanted. "It's amazing what can be done, when you consider that

we had a painted piece of paper with the color that the owner of this house wanted for their roof," said Hixwood's Paul Zimmerman. "We took the color to Becker Specialty Group and they made us the color in Texture that the owner wanted. We're so glad that we got to be part of this project."

The old roof was torn off down to the deck and new synthetic underlayment put on. Furring strips (1" x 4", 16" o/c) were installed and the metal shakes (each covering 16" x 32") were attached quickly and easily.

The customer could not be happier with their new, custom-colored metal roof. [MR](#)



PROJECT OVERVIEW

Location: New Providence, Pennsylvania

Roof Size: 72 sq. total

Roofing Panels: Metal Shake Roofing
LLC metal shakes, 28 ga. G100,
16" x 32" coverage

Coating: Becker's Beckry Tex,
Whalewatching Blue

Fasteners:
East Coast Fasteners,
Whalewatching Blue

Underlayment:
GAF Tiger Paw Synthetic Underlayment

Sealant: EM Seal

Ventilation: Flex-O-Vent

Other: Ridge cap, drip edge, valleys,
and rake trim on gables custom made
by Solanco Metal Roofing, 28 ga. G100.

Coil Supplier: Hixwood



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MR JUNE/JULY 2023

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CSI: Expansion Plans

In general it looks like a good year with many businesses planning on expanding in 2023 or in the near future. Only one in three businesses did not have some plans to expand.

One item that stands out is that more diversified businesses appear more adaptable and able to expand. Comparing percentages for “primary” business and “participate in,” the “participate in” group has a higher percentage planning on some expansion.

Primary Roofing 60%, Participate in Roofing 71% with some plan to expand. Primary Metal Roofing has 80% planning to expand. A reasonable assumption is the difference between Primary Roofing and Participate in Roofing is the inclusion of metal and accessories (gutters). This is also supported by the data point that Participate in Metal Roofing is lower (75%) than Primary Metal Roofing.

This indicates that metal roofing is growing and driving the expansion of businesses in the roofing sector. **MR**

If you like the CSI columns or find the information useful, help us help you. Shield Wall media sends a State of the Industry Survey in fall and a mid-year State of the Industry Survey in Spring.

Please complete the survey and share it with your colleagues. A larger survey sample generates more reliable information.

What and where are metal roofing contractors and Metal Roofing subscribers planning for expansions in 2023?

Percentage of Respondents Planning Expansions	In 2023	In Future
All respondents	19%	50%
Roofing as primary business	30%	30%
Metal roofing as primary business	21%	59%
Participate in Roofing	26%	45%
Participate in Metal Roofing	23%	52%
Participate in gutter and accessory	30%	49%
Metal Roofing subscribers	27%	52%

Percentage of Respondents Planning Expansions By Market Segments	In 2023	In Future
Residential, single family as primary	20%	47%
Residential, multi-family as primary	0%	83%
Commercial as primary	15%	56%
Participate in residential single family	22%	53%
Participate in residential multi-family	17%	68%
Participate in agricultural	24%	49%
Participate in commercial	23%	54%

Planned Areas of Expansion	Metal Roofing Subscribers	Primary Metal Roofing	Participate Metal Roofing
Employees – construction	26%	24%	30%
Employees – support	51%	56%	53%
Jobsite equipment	17%	4%	23%
Metal forming equipment	33%	44%	33%
Trucks	26%	16%	27%
Material handling equipment	23%	16%	19%



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