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MAGAZINE

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FLIP THIS ISSUE
FOR 2020 CONSTRUCTION
ROLLFORMING SHOW PREVIEW

COASTAL CONCERNS

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- **INVENTORY MANAGEMENT FOR ROLL FORMERS**
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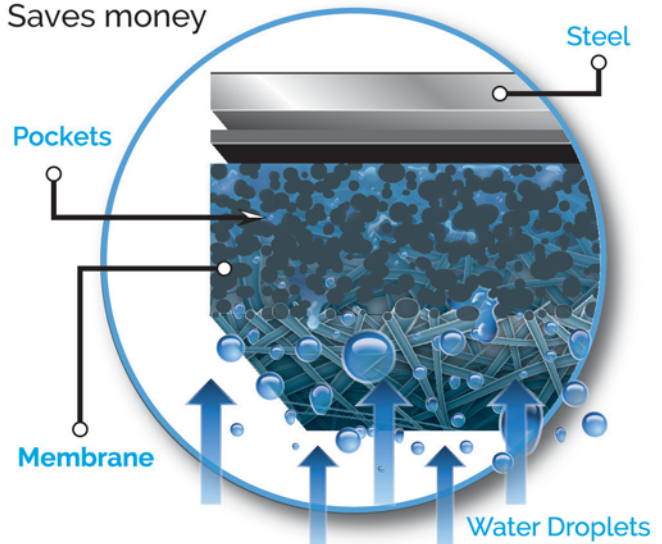
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learned their trade in the real world.

We are finalizing the publication dates and editorial schedules for our newest addition.

If you have a question or a suggested topic, or would like to be considered as an author or resource for the magazine, please contact me.

Gary Reichert, Publisher
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ON THE COVER:

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Thoughts on Seaside Roofing

PHOTO COURTESY OF BRILLIANT ROOFING, STUART, FLORIDA.

When I was brand-new to Shield Wall Media and just getting my bearings in the world of metal roofing, I was reviewing our editorial calendar for the year and spotted a cover story simply listed as “Metal Roofing By the Sea.” At the time, I thought, “Interesting, I wonder if oceanside roofing is different because of the saltwater, the hurricanes, or both?” Fast forward a few months and wow, have I learned a lot about this topic!

The timing couldn't be more perfect, too, as my in-laws recently moved from their longtime home north of Detroit, Michigan, to the coastal town of Manteo, North Carolina. And when I say “moved,” I mean they bought an empty wooded lot and are now deep in the throws of building a charming Southern-style cottage. They know I'm the editor of *Metal Roofing Magazine*, and their questions soon flooded in: “Should we put on a metal roof?” “What will stay on during a hurricane?” “How do we make sure the roof doesn't corrode?”

I found several consumer resources and forwarded them along, but now I feel I can share my newfound knowledge and actually be useful as they make their



final roofing choice.

Located just a short jaunt away from the well-known Outer Banks, the small town of Manteo is on Roanoke Island, which is bookended by two saltwater sounds. The town is slightly more protected from breaking waves than the nearby islands, but my in-laws still want to choose a roof that will last the rest of their lifetimes.

If you've experienced your fair share of coastal jobs, you know just how particular the metal type, fastener selection, and paint choices can be. If you've never bid on a roofing project near the ocean, now may be the time to learn what the best options and practices are. After all,

according to the National Oceanic and Atmospheric Administration, there were 23.3 million people living in U.S. coastal counties in 2010, and this number has only grown in the past 10 years. Think of how many residential and commercial roofs are required by that many people! Head over to page 16 for an in-depth look into coastal considerations for metal roof installations.

In other thrilling news, in case you missed it, flip back to page 3 for a big announcement from our publisher! We hope you're as excited as we are.

Jessica Franchuk, Managing Editor
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Lester Buildings Announces Succession Plan

Lester Buildings said it has completed the first phase of its ownership succession plan. A Management Buyout Group consisting of Mark Billstrom (President), Melanie Hoof (Chief Financial Officer), Ted Helmink (Vice President, Engineering Services), and Tyler Bennett (Vice President, Manufacturing) have purchased a minority interest in the business. Included as a part of the transaction is an option to purchase the remaining interest in the business at a future date. The group will join John Hill, who previously owned 100% of the business, as the newly formed ownership group. Hill will sell his remaining interest in the business over the next few years as called for in a purchase option agreement executed by the parties.

This plan is the culmination of a yearlong set of discussions between the parties. It begins the process of successfully transitioning the business to a fourth generation of ownership. Lester was originally founded in 1947 by a group of local businessmen in Lester Prairie, Minnesota. It was purchased by Art Schwichtenberg in 1954, who was running the business for the group at the time. He owned the business until his retirement in 1986. He sold the business to Butler Manufacturing Company, who turned the successful regional business into a nationally recognized leader in post-frame construction. Butler sold the

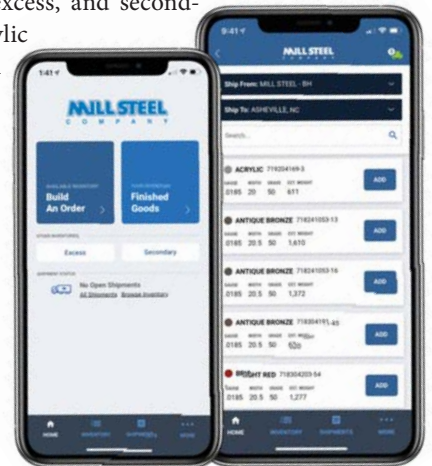
business in 2004 to a management group led by Hill. He and his original ownership team owned and operated the business for much of the intervening years, with Hill buying out the last remaining original minority owner in 2018.

Hill made the following comments regarding the incoming ownership group: "As I begin to think about my own retirement, it is important that I take the necessary actions to ensure the successful transition of Lester to its next generation of ownership. Each of the new minority owners has been active in the business for several years, lives in a community close to where the company operates, is relatively young, and is well-respected by employees and customers alike. I have a high degree of confidence that this move will position the company for further growth and prosperity for many years to come."

New owner Mark Billstrom commented, "The previous three generations of ownership have positioned Lester as a respected national leader in the post-frame construction industry. We are excited for this opportunity to continue the work of our predecessors. Lester's people and work culture are second to none. Their experience, abilities, and technical knowledge, along with the strong reputation of the Lester brand, gives us confidence that Lester will continue to grow in both traditional and non-traditional post-frame markets."

Mill Steel Co. Launches Painted Coil App

Mill Steel Co. has launched its first mobile app. Through the Mill Steel app, customers have access to the company's complete line of prime, excess, and secondary painted and acrylic inventories. With real-time pricing and steel sales transactions, this easy-to-use tool allows customers to reorder products, view their order history, place an order for either delivery or pickup, and bid on coils from excess and secondary inventories.



"In an effort to maximize our service offerings to our construction customers, our goal was to develop an easy-to-use online app that would provide a full-service, 24/7 online marketplace. We are very excited to be a leader in our industry offering a complete set of mobile tools to the construction market," said Pam Heglund, President of Mill Steel Co.

The Mill Steel app is available for free download in the Apple App Store and through Google Play. More information can be found by visiting www.millsteel.com/the-mill-steel-app. **MR**

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PEOPLE IN THE NEWS

New President and CEO for EDCO Products

EDCO Products, a Minnesota-based manufacturer of residential and commercial exterior building products, recently announced that its board of directors has named John G. Lewis as President and Chief Executive Officer.

Lewis brings more than 20 years of senior management experience, including finance, engineering, and manufacturing, most recently as Chief Executive Officer of Trex Commercial Products, another building products manufacturer. Previously, Lewis served as Chief Financial Officer for HelpSystems. In addition, Lewis currently serves as an independent director of several manufacturing and technology businesses.

"I am honored and excited to lead the EDCO team," said Lewis, continuing, "Over its nearly 75-year history, the company has established an unmatched reputation for product quality, performance, and innovation. From this solid foundation, we will strive to become the preferred brand of exterior building solutions for consumers and homebuilders nationwide."

Jeff Henry Named as MCA Executive Director

The Metal Construction Association (MCA) has named Jeff Henry, MBA CAE, as its new Executive Director. He replaces Karl Hielscher, who has retired.

In response to the MCA appointment, Henry said, "My job is to empower them to develop programs and services that advance the goals of the association and that provide our membership with exceptional professional development opportunities."

MCA Executive Committee Chair Jim Bush noted that, "Jeff's past experience with our organization, as well other industry trade associations, will be valuable as we continue the renewed stra-



Jeff Henry

tegic direction of MCA. His leadership will assist in our initiatives of continued membership growth, technical and code research, marketing, fiscal responsibility, and industry outreach. I look forward to working with Jeff and his team."

Henry's previous roles included

Managing Director of the United States Bowling Congress and President of the National Frame Building Association. He is also currently Executive Director of the International Staple, Nail, and Tool Association and the Synthetic Roof Underlayment Institute. **MR**



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CALENDAR

NOTE: Due to the COVID-19 pandemic, many events have been rescheduled or cancelled. Contact the show organizer for updates before traveling.

August

12-14. National Association of Women in Construction Virtual Conference. www.nawic.org.

18-19. National Institute of Building Sciences Building Innovation, Virtual Edition. www.buildinginnovation.org.

24-27. Groundbreaking Women in Construction Virtual Conference. www.enr.com/groundbreaking-women-in-construction.

September

1-3. CANCELLED. National Hardware Show. Las Vegas, Nevada. www.nationalhardwareshow.com.

9-11. Self Storage Association (SSA) Fall Virtual Conference & Trade Show 2020. www.selfstorage.org.

15-17. CANCELLED. GlassBuild America. Las Vegas, Nevada. www.glassbuildamerica.com.

21-23. CANCELLED. National Coil Coating Association (NCCA) Fall Meeting. St. Louis, Missouri. www.coilcoating.org.

October

1-2. CANCELLED. Shed Builder Expo 2020. Grand Rapids, Michigan. www.shedbuilderexpo.com.

7-8. Construct AEC Education & Expo Virtual Experience. www.constructshow.com.

12-15. CANCELLED. PaintExpo. Karlsruhe, Germany. www.paintexpo.de.

14-16. ENR FutureTech. San Francisco, California. www.enr.com.

21-23. METALCON 30th Anniversary Event. Las Vegas, Nevada. www.metalcon.com.

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28-30. Design-Build Conference & Expo.
National Harbor, Maryland. www.dbia.org.

November

4-6. Adhesive & Sealant Council Convention and Expo.
Louisville, Kentucky. www.ascouncil.org.

10-12. Greenbuild Virtual International Conference & Expo.
www.greenbuildexpo.com.

December

9. Rollforming Basics Course. Duke Energy Convention Center.
Cincinnati, Ohio.
www.constructionmagnet.com/construction-rollforming-registration.

10-11. 2nd Annual Construction Rollforming Show.
Duke Energy Convention Center. Cincinnati, Ohio.
www.constructionmagnet.com/construction-rollforming-registration.

2021 January

12. Wisconsin Lumber Dealers Leadership Conference.
Wisconsin Dells, Wisconsin. www.nlassn.org

19-22. World of Concrete. Las Vegas, Nevada.
www.worldofconcrete.com.

23-27. ASHRAE Winter Conference & AHR Expo.
Chicago, Illinois. www.ashrae.org.

26-28. The International Surface Event. Las Vegas, Nevada.
www.intlsurfaceevent.com.

2021 February

4-5. 1st Annual Garage, Carport & Shed Builder Show. Century
Center. South Bend, Indiana. www.constructionmagnet.com/garage-carport-shed-builder-show-home-page.

9-11. International Builders Show. Orlando, Florida.
www.buildersshow.com.

22-25. Fenestration and Glazing Industry Alliance Annual
Conference. Amelia Island, Florida. www.aamanet.org.

24-26. International Roofing Expo. Las Vegas, Nevada.
www.theroofingexpo.com.

24-26. ENR Top Young Professionals Conference.
Tempe, Arizona. www.enr.com.

25-27. Construction Institute Summit. St. Louis, Missouri.
www.cisummit.org.

2021 March

3-5. Frame Building Expo. Nashville, Tennessee. www.nfba.org.
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Financial Recovery and Survival

New programs continue to emerge following the 2020 global pandemic

The economic impact of the COVID-19 pandemic and recovery is expected to last for months, potentially even years. As congress and other government agencies attempt to save different areas of the economy, it is important for every metal roofing contractor to understand what resources are available to help them recover.

The Coronavirus Aid, Relief, and Economic Security (CARES) Act, first and foremost, lifted the Tax Cuts and Jobs Act (TCJA) restriction that limited the deduction of business interest to 30% of adjusted taxable income to 50%—at least for 2019 and 2020. While there continues to be no limitation on deducting business interest for smaller businesses, the CARES Act specifically earmarked funds for businesses and other eligible applicants, with a major portion coming from the Payroll Protection Program (PPP).

PPP Loans and Forgiveness

Overseen by the U.S. Small Business Administration (SBA), the PPP offered low-interest, government-backed loans from private lenders that could be used to help small businesses and professional practices retain workers and continue to pay their bills during the pandemic.

Best of all, compliance with the PPP meant that those low-interest loans could become “grants,” and not have to be repaid. Unfortunately, although the SBA reportedly had funds available from a supplemental funding of that program in the summer, applications for the program list an expiration date of October 31, 2020, suggesting a deadline.

Beyond the PPP

But the government’s Coronavirus-related funding didn’t end there. Economic Injury Disaster Loans (EIDL)



are a long-standing program offering low-interest loans directly by the SBA (rather than by a bank) of up to \$2 million to small businesses and professional practices that have suffered major issues related to a disaster. These loans can be paid over a period of up to 30 years and carry an interest rate of 3.75%, with no payment due the first year.

In response to the pandemic, Congress added a provision to the EIDL program offering an immediate advance of up to \$10,000. Effectively a grant, this amount does not have to be repaid and is available within days of a successful application.

More Than a Pretty Face

In addition to their low cost, SBA loans have long provided a way out of damaging financial situations. The SBA’s lower interest rates and longer payback periods mean more money is available to the borrower for other business needs. While the actual terms depend on how

the funds are to be used, several different SBA loan programs, each with their own advantages, restrictions, and limits are offered:

- The most popular program is the SBA’s flagship 7(a) loans that provide working capital for a wide variety of uses. 7(a) loan guarantees topping out at \$5 million are commonly used for acquiring land, purchasing equipment, or working capital. They require low down payments and offer flexible terms and affordable, variable interest rates.
- SBA Express Loan applications are responded to within 36 hours and can help extend a business’s credit line by providing up to \$350,000 for up to a seven-year period, while guaranteeing only 50%.
- 504 loans are longer-term fixed-rate loans that provide capital for the acquisition of fixed assets and are usually used for owner-occupied real estate and equipment purchas-

es. However, while SBA 504 loans are most commonly used for real estate, they can also be used to renovate existing facilities, purchase equipment with a service life of 10 years, and refinance commercial real estate debt.

- The SBA's Microloan program provides loans to not-for-profit lending intermediaries that, in turn, make loans of up to \$50,000 to help small businesses and certain not-for-profit childcare centers start up and expand.

Small Business Development Centers

Small Business Development Centers (SBDCs), almost 1,000 strong, "help existing businesses remain competitive in a complex, ever-changing global marketplace." SBDCs are hosted by univer-



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FINANCE TIPS

sities and state economic development agencies and funded, in part, through a partnership with the SBA. Less than half of an SBDC's funding comes from the SBA, with the remaining portion coming from Congress, state funding, donations, grants, and corporate sponsorships.

The Federal Reserve

The Federal Reserve's Main Street Lending Program is providing up to \$600 billion in loans to small and mid-size businesses. Designed to help businesses and professional practices in need of funding to help until they have recovered from, or adapted to, the impact of the pandemic, the program offers 5-year loan amounts ranging from \$250,000 to \$300 million.

State and Local Funding

A number of states, cities, and municipalities are offering business loans and grants, many of which the average metal roofing contractor or business can usually qualify for. Most state and local programs, both those aimed at attracting or retaining workers and recovery from the pandemic, offer tax breaks and/or small grants that do not have to be repaid.

Keep in mind, though, that because demand continues to be so overwhelming, some funds targeted for business-related pandemic relief and recovery have run out of money much faster than originally anticipated.

Banking as Lenders

Bank loans continue to dominate financing for small and midsize businesses in need of capital. Banks offer an array of programs to help customers affected by the pandemic. But should that funding be in the form of a business loan or a line of credit?

Interest with a business loan is generally higher than the interest rate for a business line of credit. Of course, if a payment is missed with a business line of credit, the interest rate can increase significantly.

In addition to the annual "standby" fees or interest, some business lines of



credit have annual fees, especially if they're under a certain dollar amount.

Every financial institution offers both loans and lines of credit. But don't overlook banks funding from other financial institutions such as:

- Bank of America is providing up to \$200 million in capital to community development funds, including \$10 million in philanthropic grants to help fund Community Development Financial Institutions (CDFIs).
- Citibank has also committed \$10 million to help CDFIs provide funding to those who may not fully qualify for federal government stimulus funding.
- Goldman Sachs committed \$300 million to aid small businesses and communities suffering through the COVID-19 crisis. The package included \$250 million in emergency small business loans and \$25 million in grants to CDFI financial institutions.
- JPMorgan Chase pledged \$50 million to help businesses, nonprofits, and other organizations during the crisis.

Of the \$50 million, \$8 million was specifically reserved for "small businesses vulnerable to significant economic hardships."

Alternative Funding

Financial institutions are increasing the digitized services they offer while the financial marketplace competes with offerings such as peer-to-peer lending, alternative online financing, and crowdfunding. Business lending is becoming a big business, with hundreds of millions of dollars raised from unique "platforms" such as Crowdfunding, Peer-to-Peer Lending, and Marketplace Lending.

So called "digital transactions" involve constantly evolving methods where Financial Technology (FinTech) companies collaborate with various sectors of the economy to take advantage of new lending and capital-raising opportunities.

- Crowdfunding is becoming a popular alternative source of financing for many small contractors and businesses. The Securities and Exchange Commission (SEC) now allows busi-

nesses and even first-time start-ups to raise up to \$1 million online from non-accredited investors over 12 months.

- Peer-to-Peer (P2P) lending can be best described as non-bank banking. It is the practice of matching borrowers and lenders through online platforms. P2P borrowers are able to gain access to funds quickly and often at lower interest rates than banks, making it an attractive alternative to more conventional bank loans. Unfortunately, even though it may be the most innovative source of funding, P2P lending is definitely not the most affordable.
- Marketplace Lending refers to the segment of the financial services industry that uses investment capital and data-driven online platforms to lend

directly to small businesses and consumers. Marketplace lenders employ new, largely automated underwriting processes and, although remaining largely undefined, encompass lenders that make loans to higher-risk, lower-income borrowers.

Other Resources

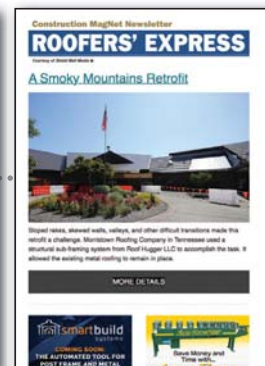
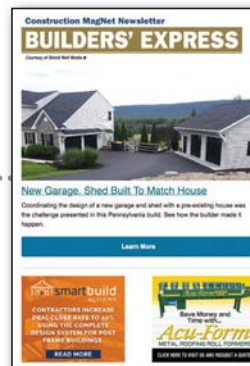
- The Save Small Business Fund created by the U.S. Chamber of Commerce offers grants of \$5,000 to provide short-term relief. Those qualifying must have between 3 and 20 employees, be located in an economically-vulnerable community, and faced financial hardship due to the COVID-19 pandemic.
- Intuit Quickbooks, Yelp, and GoFundMe have teamed up to provide funds to the Small Business

Relief Fund, a program providing grants, tools, and resources to help during the crisis. Participants must be independently owned and operated and must not be dominant in their field. Each recipient must also intend to use the fund to help care for employees or pay ongoing business expenses.

Every contracting business owner should be keeping a close eye on the coming legislation and be prepared to take advantage of every new program. Congress is reportedly considering yet another bailout bill, the SBA is constantly upgrading and refining its loans and loan guarantee programs, and banks and other financial institutions (both online and brick-and-mortar) continue to offer assistance to their customers while attracting new business. **MR**

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She Sells ~~Seashells~~ Metal Roofing By the Seashore

Considerations and concerns
for coastal installations

By Jessica Franchuk

In 2010, 123.3 million people lived in U.S. coastal counties according to a report by the National Oceanic and Atmospheric Administration's (NOAA) Office for Coastal Management. That's a lot of people, who require a lot of residential structures, which need a lot of roofs. Faced with salt spray exposure and hurricane-force wind and rain, more and more seaside homeowners are choosing metal roofing due to its hardness, longevity, and proven track record along the coast.

The NOAA also states that annually, coastal counties produce more than \$8.6 trillion in goods and services—the businesses producing this money are housed in commercial, industrial, agricultural, or residential buildings, which also need roofs. With 22 states boasting saltwater coastline, the U.S. roofing market requires solutions that can stand up to this often-harsh environment. Here are areas to consider when bidding a metal roofing job by the sea.

Metal Types

Travis Lord, Product Manager for The



Boral Steel BARREL VAULT in Copper Penny on a waterfront home. Photo courtesy of Boral Roofing.

Garland Company, said, “When on the coast, typically the go-to will be .040” or .050” aluminum. Stainless steel and zinc are also great options, but tend to be more expensive. Aluminum is more cost-effective than stainless steel and zinc and still does a superb job at handling salt-spray environments.” He recommends avoiding galvanized steel as it can rapidly corrode in this environment.

Drexel Metals’ Director of Sales, Ken McLaughlan, added that while aluminum is more corrosion-resistant than steel (and is lighter), it is also softer. The entire roof system will be less of a load on the structure, but won’t stand up to the punishment of a severe hailstorm as well as steel.

Natural metals are often said to perform best, as shared by Robin Anderson, Technical Manager for Boral Roofing, who noted about each:

- **Copper:** Though highly corrosion-resistant, copper does not have the strength of steel. Warranties and wind performance may be lower than other materials. Patina can stain areas of runoff. Has a high cost and is heavier than other metals.
- **Aluminum:** Though highly corrosion-resistant, also does not have the strength of steel. Warranty and performance to winds may be lower than other materials. Patina of aluminum oxide will dull the bare color.
- **Zinc:** Though highly corrosion-

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resistant, does not have the strength of steel. Warranty and performance to winds may be lower. Patina darkens the coloring and the cost is high.

Anderson also added that alloys can bring added benefits:

- **Stainless Steel:** Strong; has some corrosion to fasteners of carbon steel.
- **Galvanized Steel:** Strong. Shorter resistance to salt corrosion. Has setback requirements from the water.
- **Zinc-Alum Coated Steel (commonly known as Galvalume®):** Strong. Has a higher resistance to corrosion than galvanized.

Coating Options

Once a metal type is chosen, next up on the list of considerations is the coating/finish. According to Lord, “It is important to utilize a coated metal when on the coast. Bare metal is much more prone to oxidation, [with] nothing stopping the salt spray from interacting with it. A Polyvinylidene Difluoride (PVDF) coating is recommended to help keep the substrate metal free from oxidation. A two-coat coil-applied PVDF system will help resist the harsh coastal environment.” Another option is stone-coated steel, which can provide prolonged resistance.

Many coil coating companies make systems specifically designed to resist the issues commonly plaguing coastal roofs. Sherwin-Williams Coil Coatings offers Flurothane® Coastal, “a two-coat system that uses an innovative thick-film primer to thrive in the most severe coastal environments.” This premium fluoropolymer 70% PVDF system was created to deliver long-lasting protection for industrial, commercial, or architectural projects within 1,500’ of the coastline. The system has been field-proven and provides a high-performance finish, as well as the following unique benefits: outstanding resistance to UV rays, exceptional color retention, and resistance to chalking from salt spray and harsh coastal environments. Flurothane® Coastal coatings can be applied to a variety of substrates,

including Hot-Dip Galvanized (HDG), Galvalume®, and aluminum.

Clamps, Clips, and Fasteners

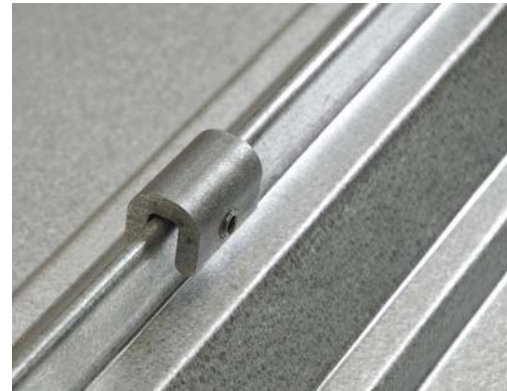
After the metal type and coating are determined for the specific job, you must consider how to keep the roof *on* the building. Many coastal areas are subject to hurricanes, which can bring sustained winds from 74 mph to 157+ mph. S-5!® shared when considering metal roof types in coastal areas, an important factor is extreme wind forces that will try to tear any roof from its mountings. Standing seam metal has a distinctive advantage over other membrane and asphaltic roof types because it serves as a “structural” covering, meaning it can be engineered to withstand almost any forces imposed by wind. Increasing the frequency of attachment, increasing the gauge thickness of the metal, decreasing the panel width, and using S-5!® external “WindClamps™”, or any combination of the above, will generally increase the durability of the roof in a windstorm. These remedies are not guesswork, but a matter of science, engineering, and testing. The S-5!® solution alone can increase wind resistance up to three-fold.

Rob Haddock, CEO and Founder of S-5! Metal Roof Innovations, explained: “Wind speeds are converted to negative pressure exerted on the roof; this pressure is often called ‘uplift.’ The conversion is a complex mathematical and geometric one governed by engineering standards (ASCE-7) and/or local code authorities. The transfer of the computed forces from the roof covering into the building’s structure involves a number of factors and components, including the strength of the seam itself, the strength of the clip’s attachment to the seam, the strength of the clip itself, and finally the clip’s attachment to the roof deck or structure (the clip screws). These components comprise a ‘load chain,’ which is only as strong as its weakest link. Because of the complexity of this load chain, most often its strength is determined by full-scale assembly testing.”

Haddock suggested consulting with

the roof system provider to ensure the assembly proposed is proven to meet the wind speeds specific to the project’s location and set forth by the code authority having jurisdiction (AHJ).

Regarding fasteners, Direct Metals Inc. President Andrew Mullen said, “A fastener is the common way the metal roofing panels are secured to a roofing system substrate. The selection and



S-5!® WindClamps are designed to increase wind resistance. Photo courtesy of S-5!.

installation of roofing system fasteners and screws have a direct effect on the performance and service life of these systems. Understanding how a fastener is chosen and performs within the roofing system is an important component of being a professional installer. It would be logical to assume that the roofing fasteners that come in a metal roofing package are expected to give corrosion-free performance for the life of the panel they are securing; that is not necessarily true. Many factors affect the corrosion resistance and holding power of a fastener (including selection of the proper fastener installation tool), but one of the main determining factors is proximity to highly corrosive coastal areas subject to yearly wind events.”

Mullen continued, “There are two main types of metal roofing systems: exposed fastener and concealed fastener. There are four typical substrates that these systems will be installed into. The choice of the correct fastener will be determined by a combination of factors, including the roofing sys-

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Elementary school on the West Coast featuring a curved metal roof—note the proximity to the shoreline. Photo courtesy of The Garland Company.

tem type, substrate, panel alloy, and expected life cycle.”

Lord added that stainless steel fasteners should be used in coastal regions, even for concealed fastener systems. The stainless will work well with aluminum roof panel systems. The use of stainless steel fasteners is even more critical for through-fastened systems or exposed fasteners in general. If the fasteners that are designed to hold the roof in place rust and fail, it could potentially lead to a roof blow off. A less extreme scenario from oxidized fasteners could be simply that the roof leaks because the fasteners rust so much that they create voids in the connection, losing their watertight seal.

Atlas Building Products agreed that they would not recommend an exposed carbon steel fastener in a coastal/tidewater environment—this will lead to deterioration of the fastener and red rust at a more rapid rate. If the fastener is exposed, they suggested a zinc die-cast head fastener as the superior choice to prevent against red rust in coastal/tidewater environments. Ultimately, Atlas felt the best option is to install standing-seam panels with stainless steel clips, along with concealed stainless steel fasteners.

According to Mullen, coastal areas and the proximity of structures to areas of saltwater fallout substantially

increase the corrosion possibilities of roofing systems and their fasteners. Installers of exposed fastener panels should be using premium corrosion-resistant fasteners and not just an everyday galvanized “economy” fastener. “There has been a great advancement over the past 20 years in longer-lasting, premium exposed fasteners designed to provide years of corrosion-free performance, such as stainless steel cap head fasteners and zinc alloy capped fasteners. In coastal installations as near as 3,000’ from the shore, the FEMA recommendation is full 300 series stainless steel in both exposed and concealed building fasteners,” he explained.

Regarding fastener and panel compatibility, Mullen continued, “The popularity of corrosion-resistant alloys, such as aluminum panel installations, has grown in coastal areas. It is important to understand the differences between metal alloys and how bare dissimilar metals in certain environmental conditions can have serious reactions that promote premature corrosion and degradation.

“When working with aluminum panels, it is particularly important to understand the exposure to agitating factors such as proximity to saltwater fallout, moisture, and air movement. The installation of exposed fastener aluminum

panels should be done with an all-aluminum fastener to avoid dissimilar metal reactions. If aluminum fasteners cannot be found for the application, a best practice approach of predrilling a pilot hole slightly larger than the fastener diameter and then sealing all edges of the hole with a barrier coating or sealant prior to fastener installation can lessen the chances of a reaction.”

Underlayments

Lord said that underlayments are typically recommended in metal roofing, and a high-temp, self-stick, self-sealing underlayment should be used whenever possible. This acts as just another layer to what should be a “belts and suspenders” style of waterproofing. Anderson added that the underlayment chosen should be tested for high winds and pass ASTM standards for D-1970 (nail seal-ability).

“It’s crucial to specify a metal roofing underlayment material that is designed to protect the structure from extreme weather elements specific to the region where the roof is being installed. This can include water seepage caused by ice dams and wind-driven rains, as well as extremely hot and/or cold weather,” stated McLauchlan.

Codes and Testing

Code compliance and product longevity are always on the list of things contractors need to consider when choosing products for each job. Mullen said, “Forces that exact change can be small or large, such as the force of hurricane winds—the same winds that necessitate building codes and standards in Florida. Building codes promote the use of higher quality materials expected to increase the structural rigidity and extend the life of the building. These standards are quickly being specified, adopted, or mandated by many coastal cities, counties, and insurance bodies to encourage responsible building practices.

“Examples of code requirements and recommendations include the 2014, 2017, and upcoming 2020 code version of the Florida Building Code, which requires

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corrosion-resistant fasteners for roof assemblies. FEMA has written recommendations that coastal construction and high-wind areas only use stainless steel fasteners for roofing within 3,000' of a body of saltwater. The Miami-Dade County Code compliance office has also implemented a fastener listing program that outlines additional corrosion-resistance and shear strength standards required for metal roofing fasteners, both concealed and exposed. If you are building in coastal or building code regulated zones, it is suggested that you determine if the fasteners in your system have certification listing numbers or meet building code guidelines and offer the corrosion resistance warranted by corrosive coastal environments.”

Lord added that certain areas of the country (Miami-Dade, Florida, Texas, etc.) have special requirements to be met in order for metal roof systems to be installed. Most of these requirements are derived from catastrophic hurricane events, such as Hurricane Andrew in 1992. These requirements are essentially roofs that are designed and attached to withstand extremely high wind uplift forces. Typically, a manufacturer proves this design through testing their assem-



The new blue aluminum roof on the Bradenton Yacht Club in Bradenton, Florida, replaced an old, tired roof, giving the building new life. Photo courtesy of PAC-CLAD and www.hortonphotoinc.com.

blies and providing the results to either an approvals agency or the authority having jurisdiction in that region or area. “A customer should expect a manufacturer to be able to provide testing and approvals information to show that their roof system can handle the harsh wind uplift forces that that roof will endure,” he said.

Sherwin-Williams Coil Coatings conducts their own weather testing, which

has become critical in preventing product failures. Innovation matters to the company, which continues to improve the performance and durability of their coating systems through research and development: “A well-planned weathering test program could identify coating failure risks in advance. With this, new formulations are created and need to be tested to failure.” From their *Weatherability Matters* literature, the potential failures they test for include:

- **Gloss Retention:** Gloss refers to a coating’s ability to reflect light without it scattering. Direct UV exposure can degrade the luster of the topcoat. While all types of coatings will lose some degree of gloss over time, lower quality paints will generally lose gloss much earlier than superior coatings.
- **Chalking:** Chalking is caused by degradation of the resin system at the surface of the finish due to exposure to UV rays. As the resin system breaks down, resin particles take on a white appearance and embedded pigment particles lose their adhesion to the film. Chalking is tested by transferring the chalk to fabric or adhesive tape, then comparing it to a photographic reference standard (ASTM D4214). The range is from 10 to 1,



The Sherwin-Williams “Test Fence” is the most accredited manufacturer’s test facility in the coil coatings industry. Photo courtesy of Sherwin-Williams Coil Coatings.



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A residential metal roof located only three blocks from the Atlantic Ocean in Ponte Vedra Beach, Florida. Photo courtesy of PAC-CLAD and www.hortonphotoinc.com.

with 10 showing the least amount of chalking and 1 showing the presence of extreme chalking.

- **Fading/Delta E:** Delta E (dE) is a single number that represents the distance between two colors. One color is always the standard—the starting point for the calculation. The second color is the weathered panel. The Delta E number will provide the color change that is expected due to fade

and loss of gloss after exterior exposure. The lower the number, the lower the amount of color change. The higher the number, the higher the amount of fading.

- **Blistering:** Blistering represents a localized loss of adhesion and the lifting of the coating film from the underlying surface. This is caused by heat, moisture, or a combination of the two. This condition eventually leads to peeling and corrosion. Surface blistering can sometimes be caused by improper drying or curing of the coated material.
- **Cracking/Flaking:** Hairline frac-

Advice From a Seasoned Professional

By Rob Haddock, CEO and Founder of S-5! Metal Roof Innovations, Ltd.

When it comes to marine environments, the metal roofing playbook is very different from inland applications. This is due, in large part, to the way oxide layers do (or don't) react with each other on the roof and also in the presence of sodium and chlorides (salt). To add complexity, chloride levels vary within different seas and areas within the same ocean. Volcanic atmospheres in many coastal and island environments can exacerbate corrosive effects as well. And "wet" chlorides are more corrosive than dry ones. "Wet" chlorides are more prevalent in cool, damp climates like Maine and the Pacific Northwest.

All metals oxidize over time when exposed to air and moisture. Notably, these resulting oxide layers may have very different galvanic properties than the parent metals that created them. Although we think of "corrosion" in a negative context, technically, oxidation is a corrosion process. Other synonyms we sometimes use are "aged," "weathered," "patinated," or "pre-patinated." Most often, oxides act to seal and protect the base metal, retarding or preventing further corrosion, so it's a good thing.

Oxide layers are why, for example, in a "normal" environment, stainless is compatible with aluminum, although they are distant on the galvanic scale. Stainless oxide is electrolytically compatible with aluminum oxide, although the parent metals are not. While the oxidation of any metal happens naturally, it can also be induced and accelerated artificially in production. Often stainless oxide is induced by "passivation," and aluminum oxide by "anodization."

What alters this oxide protection process in a severe marine environment depends on how the specific metal oxide reacts

with chlorides from ocean spray; the oxide layer may never fully form because it is continually boiled away by acids. Now two potential issues may exist: the corrosive nature of the acid on the oxide or its parent metal, as well as saltwater acting as an electrolytic agent and accelerating dissimilar metals' corrosion—assuming there are dissimilar metals. To aggravate the foregoing, blowing sand is frequently an added issue on ocean-front properties. Blowing sand can cause mechanical damage, abrading the oxide layer, paint layer, or the base metal itself.

So, what is the best way to dodge the salt-spray bullet? The first move is a physical one—build further inland if possible. The prevailing wind direction also comes into play with respect to how far salt spray and sand are carried—just 30' can make a huge difference. Significantly more severe problems can occur on roofs 20' from breaking surf when carried by prevailing winds versus 50' or 100' away.

Regardless of the metal roof type, be sure it is freely drained (a slope of 3:12 is a suggested minimum). All metals in salt environments are prone to accelerated corrosion if this criterion is not met. This also means that using non-metallic soffit materials is well-advised as water lingers on flat soffits—both inside and out.

It is also helpful to rinse the roof of salt deposits and other debris, such as pine straw and deciduous fallout. When these residues collect on the roof, they retain and trap moisture against the roof surface. While this is true of any metal roof type, with the heightened corrosive effects of saltwater over time, the salt retained may cause unsightly staining and/or corrosion of the roof material when it lingers. Depending on the severity of other factors aforementioned, the frequency of rinsing can vary from every two weeks to several months or more. The greater the rinsing frequency, the longer the roof life and

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tures occur in the coating that then splits and eventually peels away from the substrate to cause cracking and flaking. Improper application, spreading paint too thin, poor surface preparation, or improper paint selection for the environmental conditions can all cause cracking or flaking in a coating system.

The company takes two approaches to weather testing: long-term natural exterior weather exposure and laboratory accelerated weathering. Each approach verifies performance, application, weathering, and appearance of sample panels. For natural exposure tests, panels are

placed on inclined open racks orientated at the sun, usually at a 45-degree angle in a southerly direction (this angle ensures full UV exposure). For accelerated testing, special environmental cabinets and instruments are used to speed up the weathering process and measure its effects under extreme conditions.

The centerpiece of Sherwin-Williams Coil Coatings' exposure sites is a 6¼-acre facility in Fort Myers, Florida. Based on its subtropical location, this weathering site provides perfect conditions for natural exposure testing. "The site has 100,000 panels on exposure and a laboratory staffed with experts to review results

and complete accelerated weather tests," the company shared.

Warranties

Lord commented that a good manufacturer will offer not only a long-term waterproofing warranty, but also a finish warranty for the paint finish on the roof. A contractor should also offer a workmanship warranty for their installation. These should be in place so the manufacturer, contractor, and most importantly, the customer all understand responsibilities and know who to turn to if there were to ever be any issues down the road.

MR

aesthetics will prevail. Bottom line, a metal roof by the seacoast will last measurably longer if rinsed often.

Use a standing seam, double-folded profile regardless of material type with concealed clips (stainless is strongly recommended). And conceal all other fastenings from direct exposure to salt spray. Lap-seams, snap-seams, and exposed fastenings complicate metals' compatibility, risk potential infiltration, and create other issues. If these materials are used, then expect a significantly shorter roof life. Adding a small bead of butyl copolymer sealant within the seam and moistening the clips into it as the roof is installed will help further prevent subsurface moisture, which can cause corrosion and galvanic corrosion.

A dive into metal types and their use in coastal applications:

Coated Steel: Referred to as Galvalume®, 55% Al-Zn-coated steel is still a favorite for these applications. This material will carry an exclusion in its warranty for a specified distance from breaking surf (usually ¼ mile). Despite this and the availability of better options, the price tag to upgrade presents a significant difference that many choose not to invest in. In normal environments, this material will carry a 25-year warranty and an expected life of 70+ years. In severe marine environments, it may serve up to 25 years or more, even within the distance disclaimed by the warranty. Expect a shorter roof life as the proximity to the coastline and headwinds decrease. Use bare, mill-finish material, not prepainted, especially in direct salt spray. In this environment, paint coatings actually exacerbate corrosive effects at cut edges, minor scratches, and severe radius bends.

Aluminum: .032" or .040" unpainted sheet aluminum will generally do somewhat better than coated steel and yield a 20-30% service life improvement. It may also cost 20-30% more. Again, with pre-painted material, the aforementioned problems exist so the precautions are the same.

Titanium Zinc: The oxide layer that forms on zinc sheeting in a salt environment is chloride rather than hydroxide. This

material demonstrates good performance in marine environments. Although manufacturers provide only limited warranties, historic performance is significantly better than coated steel. Expect a service life of about 80 years. Talk to the manufacturer for additional recommendations with regards to surface finishes.

Copper and Tin-Zinc Coated Copper: Bare sheet copper will obtain a green patina (which represents oxide layers) much faster in seacoast environments than inland. The expected life of this material in coastal environments is in the range of 75-100 years for 16 oz. material and slightly longer for 20 oz. material. Warranted life from manufacturers may be only 25 years or less, but the material will far outlive its warranty. The tin-zinc coated product will not perform as well as bare copper, primarily because of earlier degradation of the coating that will present some objectionable cosmetic issues. This may happen only after extended years of exposure or it may happen much sooner, depending on the nature and severity of the contaminants and the proximity to breaking surf.

Stainless Steel: Stainless steel sheeting is available in a number of different alloys. 316-L is a "marine-grade" with lower carbon content than other alloys. It is better suited for coastal applications and provides significantly better performance than coated carbon steel, but at a higher price tag as well. Stainless should render a service life in excess of 100 years in coastal applications. Remember though, it is *stainless*, not *stainproof*.

Lead Sheet: The best of the bunch, but fallen from grace and commercially unavailable.

Rob Haddock, the inventor of metal roof attachment solutions, is an award-winning roof-forensics expert, author, lecturer, and building envelope scientist and has worked in various aspects of metal roofing for nearly five decades. For more information, visit www.s-5.com.

Natural Ventilation: A Symphony

| Achieve perfection by asking the right questions



By Shannon Clark, MWI Components

“Natural ventilation is like a symphony; one wrong note can stagnate the entire production, but when executed to perfection, the elaborate composition will rejuvenate the room.”

When it comes to ventilation, customization is the name of the game. You won’t find one ridge vent that’s perfect for each and every building; nor will you find a universal soffit profile. Obtaining ideal ventilation is a fine balance between ridge vents, soffit, and louvers.

Before we dive in too deep, let’s ruminate over the ventilation “rules”:

1. Systems using natural ventilation should be designed for effective ventilation regardless of wind direction.
2. Inlet openings should not be obstructed by buildings, trees, signboards, or indoor partitions.
3. Greatest flow per unit area of total opening is obtained by using inlet and outlet openings of nearly equal areas. If there is a difference in size, the lower opening should be slightly larger.
4. Two openings on opposite sides of a space will tend to increase the ventilation flow. If the openings are at the same

(TOP) MWI Center Vent Soffit. Photo courtesy of Lester Buildings.

(LEFT) MWI employee Judge Altenburg in Ridg-Vent® production line. Photo courtesy of MWI Components.

FEATURE ARTICLE



MWI employee Chandra Cowell in Ridg-Vent® production line. Photo courtesy of MWI Components.

level and near the ceiling, much of the flow may bypass the occupied level and be ineffective in diluting contaminants at the occupied level.

5. There must be vertical distance between openings for the temperature difference to produce natural ventilation; the greater the vertical distance, the greater the ventilation.

Now that you have a basic understanding of Natural Ventilation, take the time to evaluate a project's ventilation needs by asking a few simple questions:

1. Are you ventilating the attic or the entire building?
2. What are the building dimensions?
3. What is the roof pitch?
4. How is the building used and how will it be occupied?
5. Is there insulation and where is it located?
6. What are the possible locations for air inlets?
7. Which type of ventilator will you use?

Upon determining answers to the questions listed above, be sure to align your answers with the appropriate ridge ventilation systems. Some manufacturers like MWI Components have ridge ventilation worksheets that allow you to determine the proper Ridg-Vent® for your building's needs.

Different ridge vents will often be used on specific buildings. For instance, an RV100 Economy Ridg-Vent® from MWI Components is ideal for attic ventilation on garages, mini storage units, etc., while the MWI RV35 Ridg-Vent® is commonly utilized for large attic ventilation or entire horse, cattle, or poultry building ventilation. Consult your manufacturer's ridge ventilation guide(s) to ensure accuracy with your venti-

lation systems prior to purchasing.

Above all else, for any ventilation system to function properly, an equal amount of fresh air must be introduced into the space to allow the vent to exhaust the air out through the ridge. Without an equal or slightly greater inlet area, no manufacturer's ridge vent will function properly. In fact, improper ventilation will produce stagnant air. In some cases a lack of intake can even lead to a vacuum at the ridge as air is pulled in. This may result in water and/or snow damage.

Although ridge vents are a vital aspect of proper ventilation, soffit cannot be understated. The best location for inlet air or attic ventilation is through vented soffit panels.

Soffit inlets can also act as inlets for the entire building. It is important to match the intake to the exhaust in that application, as well. In the event that the intake and exhaust are not equivalent, a slightly larger intake than exhaust is preferred.

While soffit and ridge vents are crucial to ventilation composition, louvers and cupolas are often brought into question. When it comes to louvers and cupolas, here some tips:

- Be sure to note, the use of end wall louvers is only effective on short buildings where air can flow easily to the center of the building.
- Although cupolas can be made with louvers, today's cupolas are more commonly utilized for decoration rather than functionality.

All in all, natural ventilation perfection is achieved through a combination of factors. Understanding the basics of ventilation, answering simple—but necessary—questions about the project, and utilizing your manufacturer's ventilation guides will result in a refreshing ventilation symphony that keeps your audience (even if it's poultry) rejuvenated. **MR**

For more information, visit www.mwicomponents.com.



MWI RV900 Ridg-Vent® production line. Photo courtesy of MWI Components.



Dissimilar Metal Corrosion in Roofing Installations

Courtesy of the Metal Construction Association (MCA); www.metalconstruction.org

This technical bulletin provides guidance when working with different metals used in roofing installations. Most metals used for construction projects are chosen for their strength, corrosion-resistance, and longevity. However, some metals do not perform well when placed in contact with specific other metals or when exposed to certain chemical compounds. Users should be aware of compatibility issues and situations that may affect the performance of the installed roof.

Common causes for accelerated corrosion of metal roofs include excessive contact with chemically contaminated water, trapped moisture, and galvanic reaction due to dissimilar metals. When several of these causes occur simultaneously, the corrosive effect is multiplied.

There are precautions with regard to metal corrosion that should be understood by the user to avoid potential corrosive

situations. Some of these basic material guidelines are common knowledge within the metal roofing trade, but when other trades are unaware of these issues, problems with incompatible materials may result. The installer is closest to the work, even when performed by other trades, and can alert the appropriate parties of any harmful corrosive effects on the metal roof that are discovered.

What Is Dissimilar Metal Corrosion?

Galvanic corrosion (also called “electrolytic corrosion”) refers to accelerated corrosion induced when two dissimilar materials are coupled by an electrolyte. When a galvanic couple forms, one of the metals in the couple becomes the anode and corrodes faster than it would by itself. The other metal becomes the cathode and corrodes slower than it would alone. For dissimilar metal corrosion to occur, two conditions are required:

- 1. The different metals (or their oxide layers) are galvanically incompatible with each other.** Putting two different met-

als in electrolytic contact with each other can create an electrochemical reaction. In that reaction, the less noble metal acts as an anode and the more noble metal acts as a cathode. The anode passes electrons through the electrolyte to the cathode, causing oxidation. As this happens, the anode loses mass (corrosion). The severity of galvanic corrosion is determined by the relative compatibility of the metals in contact with each other as well as the behavior of their oxide layer compounds. In some cases, the oxides will actually retard, or arrest the process, but in other cases, the galvanic couple can result in rapid acceleration of the process, resulting in premature corrosive failure of the weaker, anodic metal or metallic coating.

2. Metals are in electrolytic contact (electrically joined to each other by moisture). An electrolyte is simply an electrically conducting fluid. Almost any fluid falls into this category, including rainwater or snow-melt water. In order for galvanic activity to occur, there must be moisture present that couples the two metals electrically. The corrosion process will be more accelerated when the electrolyte is particularly aggressive. Airborne contaminants become waterborne when they are picked up in the precipitation. Sulfurous and nitrous oxides, for instance (from burning fossil fuels), when mixed with rainwater become very acidic. Chlorides contained in seawater or deicing salt are strong electrolytes.

The current flow between the cathodic metal and the anodic metal is independent of the surface area of either metal. However, the relative surface areas of coupled metals can affect the rate of corrosion of the anode. As a result, it is undesirable to have a large cathodic surface in contact with a relatively small anodic surface. The classic example is a galvanized (zinc-coated) nail in an aluminum or stainless steel roof. The zinc is the more anodic metal; hence the zinc coating will be depleted as it passes electrons to the more cathodic aluminum. Because there is a small nailhead surface with a thin coating of zinc surrounded by a large aluminum surface, the zinc coating will deplete quickly and completely and the nail will begin to red rust. The inverse galvanic couple however (an aluminum nail in a galvanized roof), poses no problem. Although zinc and aluminum are generally considered compatible, there are still these cautions.

Common Metals for Metal Roofing

The common metals used in metal roofing construction are zinc or hot-dip zinc-coated steel, aluminum, Al-Zn alloy-coated steel, stainless steel, terne-coated stainless steel, and copper. Some of these metals are compatible with each other and others are not. Generally, stainless steel performs well with other types of metal used in metal roofing. The two types of stainless steel alloys typically used for roofing are ferritic and austenitic microstructures. Austenitic stainless steels (304 and 316L) are substantially more corrosion-resistant than ferritic alloys (439 and 430). In marine or severe industrial applica-

tions, where chloride and other corrosive substances occur, 316L is a minimum requirement. The same applies for stainless steel fasteners.

Copper performs well in contact with lead or stainless steel, but not other metals. In fact, copper has a very severe corrosive effect on steel, aluminum, and zinc. Care must be taken when using aluminum panels in contact with zinc as stated previously. Aluminum ancillary items such as fasteners, roof curbs, and clamps are compatible with Galvalume® (55% Al-Zn coated steel) and normally compatible with hot-dip galvanized steel.

Precautions

It is of critical importance to the installers, interface trades, and other users of metal roofing to note the following precautions:

- Graphite is the primary material in the common pencil. Graphite is extremely corrosive to aluminum and aluminum alloys.
- Extreme caution must be used by installers and other tradespeople to avoid electrolytic contact of zinc, aluminum or Al-Zn coated steel, and copper. This also includes exposure to pressure-treated wood and runoff from copper plumbing, HVAC equipment, and other copper-containing products. Copper salts can quickly stain and corrode the roof surface.
- Chemical corrosion can also occur when no metals appear to be involved. For example, the use of fire-retardant or preservative-treated lumber should be avoided with all metal roofing materials, except copper and certain types of stainless steel. The chemicals used in treated wood often have high concentrations of copper salts and other corrosive elements. When the materials get wet, these corrosives become waterborne and can dissolve and attack the anodic metal roofing material. These effects are intensified because lumber is porous and traps moisture against the metal, which accelerates corrosion. Preservative-treated lumber and like products should not be used on metal roofs. Even untreated lumber and rubber pads pose a risk of moisture entrapment. If the use of treated or untreated lumber or rubber pads cannot be avoided, suitable stainless steel grades can be used (304 or 316L depending on location).
- Aluminum and metallic coatings used on steel sheet that contains aluminum (Galvalume®/Zincalume®) have a severe sensitivity to strong alkalis. Sometimes highly alkaline cleansers are used in the cleaning of certain rooftop HVAC equipment. This practice should be avoided on such roofs. Cementitious materials are also very alkaline, including concrete, brick and block mortar, and stucco. These mortars pose a severe threat to the above metals when wet. Corrosion caused by these alkalis is apparent by a conspicuous black and/or white stain on the panel surface, which will be followed by red rust. When dry and freely draining, cement mortars do not seem to be

a chemical problem, but they are highly abrasive and can damage the metal roof surface. Construction trades should be sequenced so that adjacent masonry work is complete before roof materials are put in place. If this is not possible, the roof surface must be thoroughly protected. If a spill of alkalis occurs, it must be immediately removed and thoroughly cleaned and rinsed with clean water to prevent damage. Be aware, most masonry cleaners contain hydrochloric acid, which will affect most metals. Stainless steel 316L will be the most resistant to those types of cleaners.

Preventing Dissimilar Metal Corrosion

The following examples show how dissimilar metal corrosion can be prevented:

- 1. Use separation barriers to prevent reaction:** When applicable, dissimilar metals should be separated with a barrier. Barriers include bituminous membranes or coatings of sufficient thickness that will coat the more noble/cathodic metal, separating the two dissimilar metals and stopping the electrical contact. Typical prepainted metal roofing products are not coated to meet this criterion.
- 2. Protective pads:** Protective pads should *not* be used on the surface of a coated steel or aluminum roof as they promote capillary moisture entrapment, which can lead to premature corrosion.
- 3. Wood blocking:** Wood blocking should *not* be used on the surface of a coated steel or aluminum roof as it promotes capillary moisture entrapment, which can lead to premature corrosion.
- 4. Water runoff from dissimilar metals:** Even if two dissimilar metals do not appear to be in direct physical contact, dissimilar metal corrosion can still occur. Water runoff from a more noble/cathodic metal onto a less noble/anodic metal can cause corrosion and staining. An example of this is a copper (cathodic) roof or pipe that drains water onto a Galvalume® (anodic) surface. Another example is drainage of condensate from a rooftop air conditioning unit or swamp cooler onto a metal roof. Condensate can be a stronger electrolyte than typical rainwater. Instead of such practice, the effluent should be plumbed to a drain inside or outside the building. Water runoff from rusty areas or runoff water containing rust will affect and corrode all fasteners and roofing metals.

Summary

Being aware that dissimilar metal corrosion potential exists and understanding how galvanic reactions take place will help in the selection of metals used on roofing installations. Potential problems can be eliminated before they occur, saving money and time while extending the life of a roof. Before different metals are specified for a metal roofing project, it is advisable to consult with the metal panel manufacturers to

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for the purpose of expanding the use of all metals used in construction. MCA promotes the benefits of metal in construction through:

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- Publications to promote use of metal wall and roof products in construction

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determine if galvanic corrosion is a threat. Fastener selection is equally important as this could also lead to dissimilar metal corrosion. **MR**

References: MCA Metal Roof Installation Manual, 2014; MCA Technical Bulletin, Fastener Selection Guide, 2014; American Galvanizing Association, www.galvanizeit.org.

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Portable Roll Former Re-Tooling

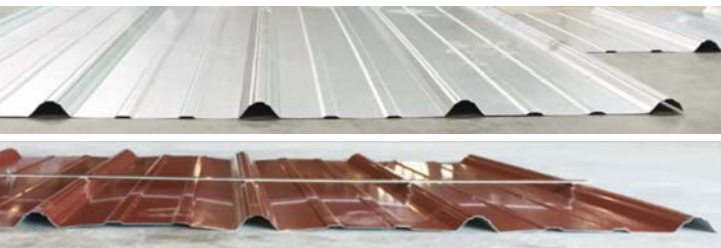
Ben Schmidt, Industry Sales Manager for The Bradbury Group, shared tips for repair versus replacement of the tooling on portable roll formers.

What to Look For

“There are basically two different types of tooling wear,” Schmidt explained, “a catastrophic event and normal wear.”

Catastrophic Event: “Something bad happened; you can see it when it happens,” Schmidt said. Paint damage on the panel is one possible sign. Double sheeting is another sign—more than one sheet tries to go through at the same time. “When your tools are designed for 0.020” and you send three .015” sheets through, you have 0.045” of material trying to run through a 0.020” gap. Worst case? Your machine stalls. Best case? [The panel] gets through but you end up with worn areas [on your tooling] that will immediately wipe out your bending radii,” Schmidt said.

Normal Wear: With normal wear, you’ll notice a gradual decline. “As you run steel, the bending radii will become lessened. It becomes loose—you can see it in the dies,” Schmidt said. Technicians use radius gauges to check for wear. Common problems may include: panel coverage running wide, reduced panel features, wavy edge on overlap, panel flatness control—crossbow affect, large bending radii, and degraded quality on post-cut lines.



New (above) versus worn (below) ag panel tooling. It’s visibly obvious that the worn panel does not lay flat.

Repair Options

The best-case scenario is that you can repair your machine rather than replace the tooling. Repair solutions include:

Calibration: “When you calibrate a machine, you’ll be setting your vertical clearances and horizontal clearances, then set your pass-to-pass settings to make sure it aligns throughout,” Schmidt instructed.

Vertical and Horizontal Tooling Clearances: Tooling should be calibrated for the maximum material thickness for which the tooling was designed.

Pass-to-Pass Alignment: Tooling that has been inspected and calibrated within each individual pass needs to be checked for alignment from tooling pass to tooling pass. Identify the



common spacer/roll width sizes, then assure the gap on the precision straight edge does not exceed 0.010” from pass to pass. Schmidt noted, “Engineers design in a perfect world, so make sure the gaps are the same on each piece of tooling.”

When Repairs Don’t Work

If calibration and alignment don’t solve the issue, three options are left:

Recutting: When you have tools recut, the tools and spacers are removed, sent to the factory, and stripped, retraced, re-profiled, re-chromed, inspected, and profile tested. The result will be a like-new profile with shrinkage of about 0.070”. The advantages include reduced cost—about 50% of a new set—and reduced lead time. One disadvantage is uncertainty. Schmidt said, “You don’t know for sure if those rolls are going to clean up.”

Partial Tooling: Partial tooling replacement is a frequent request by customers who have lost minor rib definition or want to restore panel flatness. It is less expensive—about 25% of a new set—with less lead time. Unfortunately, there is no guarantee that new tooling intermixed with existing tooling will provide “like-new” conditions.

Complete Tooling Replacement: In the case of a complete replacement, all tooling and spacers are replaced. In the end, you will have new tooling and the design flexibility to incorporate changes when the market changes. It does require a substantial capital investment, however, and behooves the owner to take a close look at the entire machine. “If the tool set is worn out, the roll former is probably worn out, too,” Schmidt said. “The worst thing you can do is put a brand-new set of tooling on a [machine] that needs help.” **MR**

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project of the month

Hope Hollow, Columbus, Ohio

www.s-5.com



Cancer Care Home's New Metal Roof Receives Snow Guard System

This six-bedroom, 4,000-square-foot residence located on 1½ acres in north Columbus, Ohio, is the home of Hope Hollow, a cancer support center. This nonprofit organization provides lodging, meals, transportation assistance, and emotional support...all at no cost... to patients (and their loved ones) who are financially in need while traveling to the area for cancer treatment.

Founders Kevin Clark and Jane Jacquemin-Clark endured their own try-

ing journey. Jane is a two-time cancer survivor who persevered through three surgeries and seven weeks of radiation treatment, and would regularly pray and speak her gratitude to God for having survived two cancers.

Still, she felt the need to do more—to find a way to *live* her gratitude. Kevin had worked for the city and Jane was a high school teacher/counselor. In 2009, they bought a home designed after a Pennsylvania farmhouse and together

they spent the next five years restoring the circa-1939 home, which they would eventually call Hope Hollow. They were on a mission to help other cancer patients by providing “welcome, hospitality, and hope.”

In the midst of their journey, they met roofing contractor Brett Rogers, owner of Rogers Roofing Inc. Rogers was known throughout Columbus for his work on a number of churches...many with metal roofs. Kevin and Jane wanted to replace



Project Overview

Location: Columbus, Ohio

Building: Hope Hollow residential cancer respite care

Roofing Contractor: Rogers Roofing Inc. of Columbus, Ohio

Roofing Panel: Fabricated from 24-gauge Sheffield Metals steel

Snow Retention System: S-5!® ColorGard® snow retention system

Fasteners: 1-1/8" Concealor ULP screws from Triangle Fastener

Underlayments: CertainTeed WinterGuard®; GCP Applied Technologies TRI-FLEX® XT

Ventilation: Custom vented ridge with 22-gauge perforated steel

their home's metal roof with another in order to reflect the original look of the home. The Columbus roofing contractor faced quite a challenge on this project, with a total of 10 roof sections and the potential for roof avalanches on several roof facets. Kevin and Jane were also concerned about the snow—this area of Ohio receives considerable snowfall levels, and they wanted to ensure snow would not slide off their new metal roof and cause harm to the cancer patients, their loved

ones, or the property below.

Rogers installed a black, 24-gauge Sheffield Metals FF-100 standing seam metal roof. Due to the snowy climate of the area, he advised Kevin and Jane to install ColorGard® by S-5!®—a popular snow guard solution for standing seam metal roofs. Manufactured from high-tensile, aircraft-quality aluminum and extensively tested for load-to-failure results, ColorGard provides safety to the residence, controlling roof snow migra-

tion and dramatically reducing the risks associated with rooftop avalanches.

Because Hope Hollow is a 501(c)(3), Kevin and Jane sought the most cost-effective way to protect Hope Hollow's guests and property from snow damage. One day, Kevin picked up the phone and called S-5!. On the other end of the line was S-5! CEO and Founder Rob Haddock. Kevin explained the project and shared their personal journey. He asked Haddock if he would provide Hope



Hollow with a discount on S-5's ColorGard. Haddock responded, "I need to call you back." Kevin thought, well that is the end of that. But, Haddock did call him back, and he said, "No, I am not going to discount the product...instead I will donate everything you need." Kevin was thrilled. That was the beginning of an ensuing charitable relationship, which has carried forward from that moment through S-5's charitable foundation and Haddock's personal friendship with Kevin and Jane. He even visited Hope Hollow and stayed with Jane and Kevin, witnessing their mission first-hand.

Hope Hollow's new ColorGard complements the look of the home's unique roof with a clean appearance, and is designed to last the lifetime of the roof. With the addition of the S-5! snow guard products, they have reduced the risk of sudden and unexpected release of snow, posing a serious threat to its guests and property. The S-5! ColorGard system does not compromise the roof's integrity and eliminates the risk of voided roof warranties. And, as an added plus, Kevin Clark no longer has to shovel away avalanched snow from walkways. **MR**

Today, Kevin and Jane are retired and running Hope Hollow full-time. To learn more, visit www.hopehollow.com.



"Several years ago, [we] reached out to Rob Haddock, the founder and CEO of S-5!. What began as a business transaction turned into something much greater as he embraced our mission. Not only did he assist us with his snow guard products, but he has become one of our most loyal supporters—as a generous donor and a faithful believer in our mission and ministry. Rob was so kind to make a personal visit to us in Columbus. We were honored and humbled to meet him in person. We highly recommend S-5!. It is an exceptional business that cares about people in need, and Rob is a kind, generous, and loving man who has truly touched the lives of the cancer patients we serve at Hope Hollow. We are grateful beyond words to Rob and S-5!."

**—Kevin Clark and Jane Jacquemin-Clark,
Founders of Hope Hollow**

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Inventory Management & Plant Integration for Roll Formers

By Shawn Huffman, Beck Automation

What do you think of when you hear “inventory management”? For many, it’s making sure they know how much coil inventory they have on the floor. In today’s market, that is only a small piece of a bigger picture. Inventory management consists of not only your raw coil inventory, but how that material is being used. For example, how much scrap is being produced? What is causing you to create scrap? What changes can be made to reduce scrap?

With today’s technology in both Controls and Office-to-Shop software, seamless plant integration can be accomplished, giving management the tools required to answer not

only these, but virtually all of your questions—allowing you to make changes that can affect the bottom line.

Whether you’re in the market for a new machine or interested in upgrading your current equipment, it’s important to make sure you will have the capability to get what you want out of your business. This is where insight and forethought can make a world of difference to both your efficiency and bottom line.

Machine Concept and Configuration

Is your machine configured to help reduce scrap? There are many different configurations of machines. Three basic concepts are: Pre-Cut, Post-Cut, and Pre-Punch/Post-Cut. Each of

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these has their own potential issues that can generate unwanted scrap. However, by understanding what the issues are, there are some simple options that can help overcome each.

Pre-Cut Lines are generally low scrap producers. However, one shortfall is the ability to produce shorter pieces. With a controller capable of auto-joining pieces that are too short to run through the roll former, operators can run these shorter parts, which are joined together and can then be taken offline and sheared down to the correct length. As with all lines, another way to reduce scrap is by reducing coil changes. New controls have the capability to run jobs based on like materials and/or profiles. This not only reduces scrap associated with changeovers, but will also reduce downtime associated with loading a new coil.

Post-Cut Lines generally create scrap upon the tail out of a coil due to a coil change being required, but the machine

is still full of unused material. With a Smart-Cut feature, prior to a material change being required, the line will halt and notify the operator to cut the material loose, ensuring there is enough material in the machine to complete the

remainder of the order. Adding a pull-across or powered shear can ensure the last piece is the correct length and no scrap is produced.

Pre-Punch/Post-Cut Lines generally create scrap either on thread up or tail out of material. Adding an additional encoder (one at the entry end and one at the exit end) can eliminate scrap. The additional encoder in conjunction with a “Thread” or “Slow Run” mode can allow the operator to jog material through the machine while producing good parts. When the material reaches the shear, it will crop the leading edge, resulting in only minimal scrap. By switching to the exit end encoder after the material reaches the shear and performs the first cut, the last piece of material will be tracked all the way to the shear, resulting in minimal scrap as well.

Modern Controls

Are your current controls providing you with the capability to track your production and scrap? The process of the operator manually tracking coil and submitting this documentation to the office staff for manual entry into your ERP is long gone. With modern controls



and software packages, you can have complete integration between the office and your machine(s).

One crucial aspect of reducing scrap is making sure you are using the correct coil. Coils can be scanned into the controller, and validation can be accomplished by verifying the coil loaded on the machine is the correct material required for the job. Upon pressing line start, the controller will perform a check to validate the material assigned to the coil matches the material required for the job. The validation can either appear as a warning, notifying an operator that incorrect material was loaded and giving them the ability to run anyway in case a substitute is required, or force a supervisor to enter a password acknowledging the substitution is being made.

Material detect switches will also ensure that scrap is being reported correctly. When threading up a new coil, the Length Past Shear is automatically reset to a negative number (shear to encoder distance) and will count down to 0.00" once the coil reaches the shear, ensuring the correct scrap is reported. Likewise, on tail out, the line will halt, allowing the operator to acknowledge if the last piece was good or scrap, and reporting back the correct amount of scrap that was produced.

Modern controls have additional benefits such as Profile/Level selection to ensure that the correct level is running on a dual level line for the profile needing produced, requiring the operator to perform quality checks at specific intervals to make sure the parts are correct and within tolerance, and employee login to hold employees accountable and verify who is running the machine(s).

Office-to-Shop Software Integration

Implementing an office-to-shop software program allows all events on your machine(s) to be tracked. This is where software can give management a leg up. They can evaluate overall scrap production and trace it back to the root cause. As scrap is created on the machine, oper-

ators can select from a list of scrap reasons, assigning the scrap to the specified reason. This information can be evaluated, giving management the necessary tools to take corrective action.

Integrating the software directly with your ERP or design software can also reduce errors by entering information one time. This not only saves the wasted time of double entry, but will also eliminate entry errors, which can prove costly to your customers and your bottom line. This integration can be bidirectional, so the orders are not only being sent to the office-to-shop software for production, but data can be pushed back to an ERP software for tracking order completion, relieving coil inventory, and even tracking man hours.

Production/Coil Tracking/Management Evaluation

While the ultimate goal is to reduce scrap, you first need to know what is generating the scrap. There's no use purchasing coil from a new vendor if 90% of the scrap is generated due to material handling. In this case, your efforts would be better realized if you reduced coil changes or trained staff on the handling of coils.

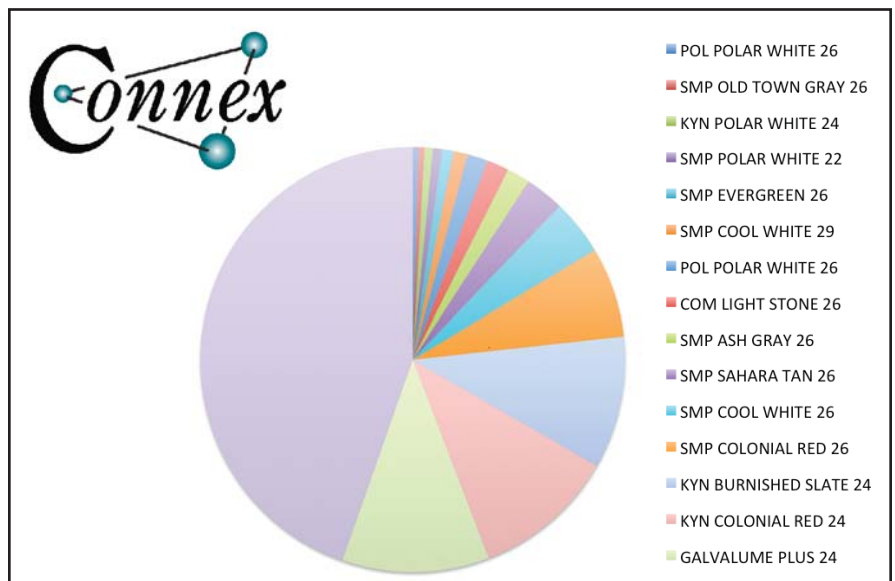
The ability to run reports with accurate data gives management the infor-

mation necessary to find issues and take the necessary corrective actions. Management can drill down into the data to find details such as how much scrap is being created, what is generating this scrap, how much downtime is being experienced on each machine, and what is causing the downtime. This allows management to take the necessary corrective actions on what can have the biggest effect, ensuring money is being spent on what will provide the best ROI.

Reporting which coil is being used and reconciling the used footage back to the correct coil is important for knowing your current inventory, and also for future warranty claims. Being able to track what coil was used will enable your company to issue claims and work with vendors to reconcile these claims. If/when issues do arise, you can be confident in knowing how and when the job was produced, who was running the machine when the job was produced, and what exactly was produced.

Management Evaluation

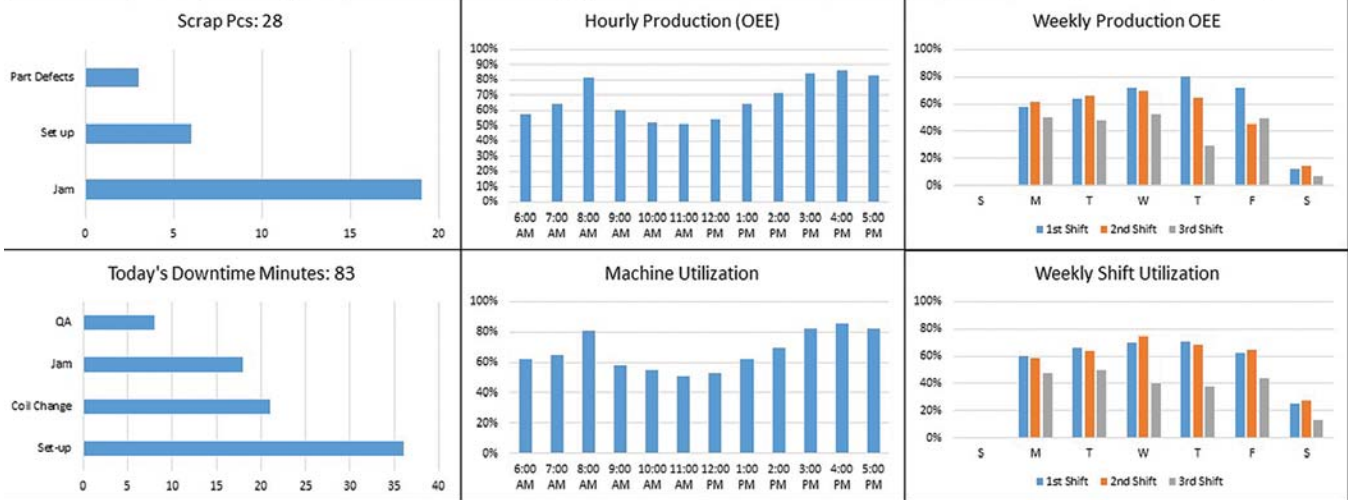
KPI's (Key Performance Indexes) can be displayed via monitors and provide real-time data on what is most important to your company. These indexes can usually be customized and display the information in a format that meets your



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Current W/O		Upcoming Work Orders				Work Orders Completed On or Before Due Date		Completed Work Orders				
155934 [ADE15WH]		W/O #	Part#	Qty		Increment	%	W/O #	Part#	Qty	PPH	Yld %
		155935	ADE15CC	500	Yesterday	95%	155933	ADE15RB	1000	90	99.1%	
Quality Inspections		155936	ADE15FR	1000	Weekly	87%	155932	ADE185TB	1500	89	98.7%	
[X] SU Mike C.		155937	ADE15CU	25	Monthly	89%	155931	ADE185WH	750	84	97.9%	
[X] TL Penny P.												
[] QA _____												



company's needs and can include machine efficiency (OEE) as well as scrap, downtime/run time, and daily or hourly production, and can be related to goals set for each machine. These not only provide necessary information for management but can also be used to create a competitive spirit among operators, which can also increase productivity.

Preventative maintenance will also ensure the machine is running at its full potential and the end product meets the specifications. The benefits of preventative maintenance are keeping downtime to a minimum, which increases production, in turn increasing profits while keeping your customers happy by providing on-time deliveries. This can include a multitude of tasks from greasing components, to sharpening or replacing dies and blades, to refinishing or replacing roll tooling. Since machine manufacturers all have different recommendations as to when this work should be performed, it can become quite cumbersome to create a procedure to make sure everything is being maintained correctly and on time.

With today's technology, your machine can notify both maintenance personnel and management when specific preventative maintenance is due, past due, or has been performed. This can adhere to the manufacturer's specifications, whether it's based on time, lineal footage, or number of press cycles. Once the maintenance staff is notified that a procedure is due, they can also easily pull up how the task needs to be performed, whether it's basic instructions, pictures, or even a video. It can also tell maintenance personnel how long it should take to perform the task. By providing staff with all of the information

they need to complete a task at their fingertips, it is more likely it will be completed correctly and on time.

An added benefit of having preventative maintenance in a database on a computer is being able to easily track what has been performed, when it has been performed, and how long it took to perform it so there is an accountability that is provided. Management can easily track what has been performed and what is coming up, which also helps them schedule around production. Trends can be seen so corrections can be taken. With knowing how long it will take to perform preventative maintenance, a schedule can be put together that can be mixed in with production, upgrades, and modifications to equipment.

The final aspect is getting the product to your customers by keeping track of your shipments and deliveries. Modern software allows you to schedule shipping dates, set routes, and verify both the loading and unloading of shipments. This helps by preventing orders from being sent to the wrong customer, stops employees from forgetting to load portions of an order, and ensures delivery with a received signature and/or photo verification, efficiently taking logistic control of your outbound products.

If you truly want to fully integrate your inventory management with your roll forming business, it is necessary to evaluate your needs, be informed of what options are available, and utilize the technology available to achieve your needs. **MR**

For more information, visit www.beckautomation.com.



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The PERMAPRODUCT lineup includes their Elastomeric Roof Coatings and caulks, as well as Clear and Semi-Transparent Sealers providing superior reflectivity, mildew resistance, energy savings, and soundproofing. These products have both transferable and renewable warranties ranging from 7 to 20 years, are available in beautiful finishes and custom colors, and are ready for contractors and homeowners alike.

Nationwide Coating's PERMAPRODUCT line's unique formulas allow for significant energy savings. According to www.energystar.gov, having a white, reflective roof surface can reduce the roof's surface temperature up to 100°F, significantly decreasing the amount of heat transferred into the building and reducing peak-hour cooling demands. Typically, their elastomeric coatings are cooler than the air temperature in direct sunlight. Higher reflectivity equals lower energy consumption and lower cooling costs.

www.nationwidecoatings.com

General Equipment Company Introduces Portable HEPA Air Filter

The AF501 portable HEPA air filter is General Equipment Company's latest addition to its AIR-SCRUB-R™ line. This compact, efficient unit delivers air scrubbing/negative pressure air movement capabilities, as well as outstanding air filtration in a wide range of industrial and construction-related job applications in non-hazardous locations.

Featuring a two-stage design, the AF501 includes a 30% pre-filter and a 99.97%-efficient HEPA secondary filter, capable of capturing allergens and other particles as small as 0.3 microns. The pre-filter can be replaced with an optional activated carbon filter to help absorb a variety of volatile organic compounds (VOCs), smoke, and other noxious odors and contaminants. An indicator light on the unit alerts users when to change filters to maintain optimum airflow and filtration.

The AF501 offers a 9½"-diameter inlet for maximum airflow and low power consumption. It also allows easy attachment of standard ventilation ducts for negative/evacuation airflow applications. Other standard features include a ¼-horsepower, 115 VAC electric motor, aluminum hub/blades, and a high-



density polyethylene housing that is UV-resistant. The AF501 weighs only 31 pounds and is stackable for easy transport and storage. It operates quietly with sound levels ranging from 56 to 72 dBA.

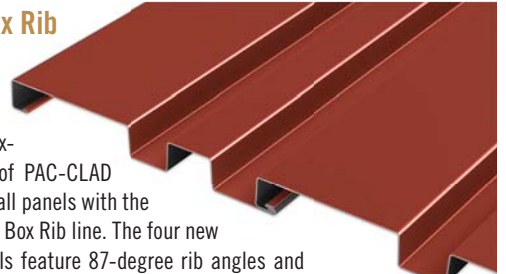
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Architects and designers can specify one of the four panel profiles or combine multiple Box Rib panels on the same surface to create custom patterns of ribs and valleys. Petersen's Box Rib panels are ideal for practically any structure that requires exterior wall cladding. "Petersen continues to respond to architects who tell us they want more options for wall cladding by introducing the Box Rib line," said Mike Petersen, President of Petersen. "As architects' creativity evolves, our product line also evolves with the same high-quality manufacturing, technical support, and testing that Petersen is known for."

www.pac-clad.com



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www.makitatools.com



Going Vertical

A new application for self-adhering underlayments

By David Delcoma, MFM Building Products Corp.

As today's building structures change their exterior façade, one of a number of growing trends is exterior metal wall panel systems and metal-capped parapet wall details. As with metal roofing systems, the builder must be concerned with the high amount of heat that is generated under metal cladding the structure or parapet wall with metal panels. The extreme heat buildup under these panels and the effect it has on the underlying materials must be taken into consideration.

In general, self-adhered underlayments must be high temperature-rated for use under these roof and sidewall systems. The enormous heat generated

under these metal panels can cause a breakdown of the membrane's top surface and/or cause the adhesive system to bleed out. As a result, the waterproofing properties can be compromised, which may lead to air, moisture, or water infiltrating into the building structure.

Keys to a Successful Vertical Installation

For roofing applications, a self-adhered underlayment must meet ASTM D1970. This standard has a minimum thickness of 40 mils, which means the membrane is heavier and will need to be secured in place.

Depending on the building structure, a self-adhered underlayment may be installed in either a horizontal or vertical fashion. Both methods require that the

membrane be secured in place. In a horizontal application, start at the bottom and back nail using button caps every 12" OC along the top edge of the material. The next course should have a minimum 3" side lap, which will cover the button caps. End laps require a minimum 6" overlap. Continue working up the structure, repeating the same steps, until you reach the top. As added protection, a termination bar can be installed for the top course.

In a vertical installation, again, start at the bottom of the wall and work up toward the top. If the membrane does not reach the top, back nail button caps 12" OC. Use a 6" end lap to cover the row of button caps with a new section. A termination bar must be installed at the top of each course. Once again, secure button caps 12" OC to adequately hold the mem-

PRODUCT HOW-TO



brane in place. Use a minimum of 3" side laps and 6" end laps as you continue to work across the wall. These overlap areas can conceal the button caps.

Another aspect of ASTM D1970 is that the underlayment must be self-sealing around fasteners by demonstrating that the membrane has a "Pass" on Self-Sealability per ASTM D1970/ASTM D7349. In essence, the adhesive system will seal around the button caps to maintain a complete waterproofing barrier by showing no water on the substrate underside, on the fastener shank, or between the membrane and substrate.

The last area of concern in that self-adhered underlayments are vapor barriers. If meeting ASTM E96, then the membrane demonstrates that it offers a Moisture Vapor Permeance of ≤ 0.1 perms. As with any vapor barrier, the contractor must allow for proper ventilation of the wall system by leaving a minimum air gap of 1". If the wall system uses a battens system, this will normally provide the necessary air ventilation space required.

Other Factors to Consider in Vertical Applications

Although self-adhering or "self-stick" roofing underlayments have been around

for more than 30 years, this new application carries the same factors to consider before choosing a product:

- **Building Codes:** Know all applicable building codes for sidewall applications, as well as the manufacturer's recommended installation instructions, prior to the installation. There are often minimum installation temperatures and UV exposure ratings.
- **Product Approvals:** Self-adhered underlayments can be certified or comply with industry standards to ensure their performance on the job site. Always check to see if your project requires a code-approved product, and what that code specifies.
- **Adhesion:** Ensure that the substrate is clean, dry, and free of wax, dirt, or debris. Dust/dirt will impair the adhesive properties of the self-adhered membrane. Weathered surfaces require a primer prior to installation to provide a clean, smooth surface.
- **Eliminate Gaps:** Do not use the underlayment to bridge gaps in the substrate. Always use a flashing membrane or tape to seal the gap, then install the underlayment.
- **Caulks and Sealants:** Caulks and sealants that contain plasticizers

may react adversely to the adhesive system of the underlayment, which may cause the mastic to liquefy. It is the responsibility of the installer to ensure that the underlayment is compatible with any product it will come in contact with.

- **Apply Pressure:** Apply sufficient pressure with a hand roller over the entire surface, paying special attention to any overlap areas.

The most important aspect of self-adhering underlayments is that when installed correctly, they can provide the contractor with peace of mind by greatly reducing the number of callbacks to fix a leak or problem area. Information is readily available from the manufacturer in the form of technical data sheets, installation instructions, installation videos, and other sources such as social media and YouTube.

By educating yourself and your customers, you may have the ability to secure new building projects that you were unaware of before. Listen and learn is the best way to understand what a project requires. Good luck. **MR**

For more information, visit www.mfmbp.com.



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Send us a notice of your successful completion of a challenging or unusual project and you may see it featured as a Project of the Month. We would also need 4-5 high-resolution images and details about the products used in the project.

Got questions? Call 920-224-5146 or email jessica@shieldwallmedia.com

News announcements and projects to be considered for Project of the Month placement can also be mailed to Metal Roofing, ATTN: Jessica Franchuk, PO Box 255, Iola, WI 54945.



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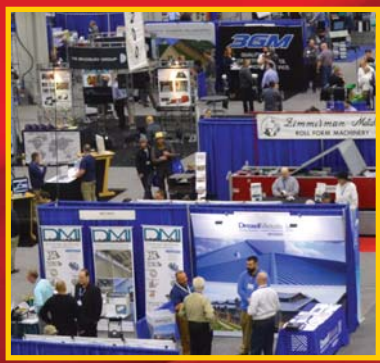
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Plans Underway for 2nd Annual CRS

We live in an interesting world; COVID-19 and protests are only the beginning. Here at Shield Wall Media, we feel obligated to contribute to the excitement...but in a positive way.

We are in contact with the Duke Energy Convention Center and the Hilton Cincinnati Netherland Plaza hotel, and have confirmed there are no restrictions or zombies on the horizon for the 2nd Annual Construction Rollforming Show (CRS) scheduled for December 10 and 11 in Cincinnati. If you are missing out on trade shows that were cancelled, here is your chance.

NEW THINGS COMING!

We have the educational programming outlined on page 4 of this special section, with a new addition to announce. As well as the traditional courses, we have added a 2½-day course on Introductory Roll Forming. This is the first official program offering of the new Construction Rollforming Association. The course will start with learning how to form a business entity and move on to cover everything from coil basics and maintenance through marketing and sales. The course will have a dedicated textbook and will require specific pre-registration. The goal is to help create a minimum shared knowledge base



so that we can develop standards and best practices within the roll-forming industry.

We have also recently released the hotel block information. The link is available online at www.constructionmagnet.com/construction-rollforming-registration, or you can call 800.445.8667. The group is listed as SHIELD WALL MEDIA: ROLLFORMING TRADE SHOW and the group code is SWM.

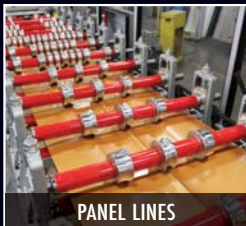
*Gary Reichert, Publisher
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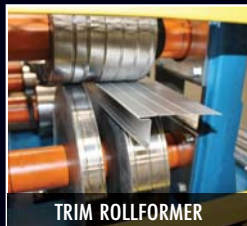
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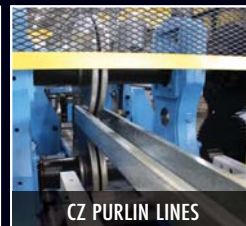
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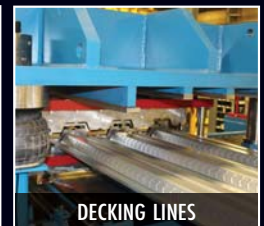
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EDUCATIONAL SCHEDULE

2020 CONSTRUCTION ROLLFORMING SHOW PRELIMINARY EDUCATIONAL SCHEDULE

WEDNESDAY DECEMBER 9, 2020 - EXHIBITOR SET UP. HALL CLOSED TO ATTENDEES

	Construction Rollforming Association Introductory Rollforming Course	Materials	Machines	Business	Featured
	Room #1	Room #2	Room #3	Room #4	Demo Area - Show Floor
7:00-8:45	Continental Breakfast	OFF	OFF	OFF	OFF
8:00-9:00	Business Entity Creation, Structure, and Risk Mitigation				
9:00-10:00	Capitalizing a Business (Debt, Equity, Lease vs. Purchase)				
10:00-11:00	Coil Basics				
11:00-12:00	Coating Basics				
12:00-1:00	Catered Lunch				
1:00-2:00	Roll Formers and Other Related Machines				
2:00-3:00	Trailers and Towing for Portable Machines				
3:00-4:00	Roll Former Maintenance, Retooling, and Replacement				
4:00-5:00	Aftermarket Software and Inventory Control				
5:00-6:00	Networking and Decompression Happy Hour				

Exhibitor Set Up. Hall Closed to Attendees

THURSDAY DECEMBER 10, 2020 - EXHIBITOR SET UP. EXHIBIT HALL OPEN 12:00 TO 5:30

7:00-8:45	Continental Breakfast - Sponsored				OFF
8:00-9:00	Packaging, Shipping, and Delivering Products	Paint Basics	Roll Former Basics	Buying vs. Leasing Equipment	
9:00-10:00	Safety Training and Certification	Coil Basics	Software for Optimum Production	Buying a Business or Planning an Exit	
10:00-11:00	Buying and Selling Coil	Warranties on Coil and Coatings	Trailers and Towing for Portable Roll Formers	Supply Chain and Inventory Management	
11:00-12:00	Catered Lunch	OFF	OFF	OFF	
1:00-2:00	NO CLASSES				Keynote Address
2:00-3:00	Marketing and Advertising	Coil on the Secondary Market	Other Production Machines: Slitters, Tipplers, Decoilers	Social Media and Digital Marketing	OPEN
3:00-4:00	NO CLASSES				Differences in Coil
4:00-5:00	Social Media and Digital Marketing	Metal Types and Uses	Reconditioned and Used Equipment	Basic Sales	OPEN
5:00-6:30	Happy Hour - In Front of Exhibit Hall Entrance - Duke Energy Convention Center - Sponsored				
7:00-11:00	Thursday Mixer - Hilton Cincinnati Netherland Plaza				

Exhibitor Set Up. Hall Closed to Attendees

Exhibit Hall Open 12:00 to 5:30

FRIDAY DECEMBER 11, 2020 - EXHIBIT HALL OPEN 9:00 TO 1:00

7:00-8:45	Continental Breakfast				
8:00-9:00	Basic Sales	Closures and Ventilation	Material Handling Equipment and Loaders	Political Landscape and Business Climate	OPEN
9:00-10:00	NO CLASSES				Solutions to Problems Cold Forming Metal
10:00-11:00	Buying and Selling Used and Reconditioned Equipment	Moisture and Condensation Control	Benders and Brakes	The Role of Associations	OPEN
11:00-12:00	NO CLASSES				Roll Former Maintenance
12:00-1:00	Human Resources, Recruiting, and Personnel Management	NO CLASSES			OPEN
1:30-3:00	Construction Rollforming Association Board Meeting				

Exhibit Closed

Exhibit Hall Open 9:00 to 1:00

Tear Down

PLEASE REMEMBER THIS IS PRELIMINARY AND WE ARE OPEN TO SUGGESTIONS

- All topics are tentative at this point.
- All time slots are tentative.
- If you have a suggestion for a topic or topics that you believe provides value or should be covered, please contact Gary Reichert, gary@shieldwallmedia.com, 715.252.6360.

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DECEMBER 10-11

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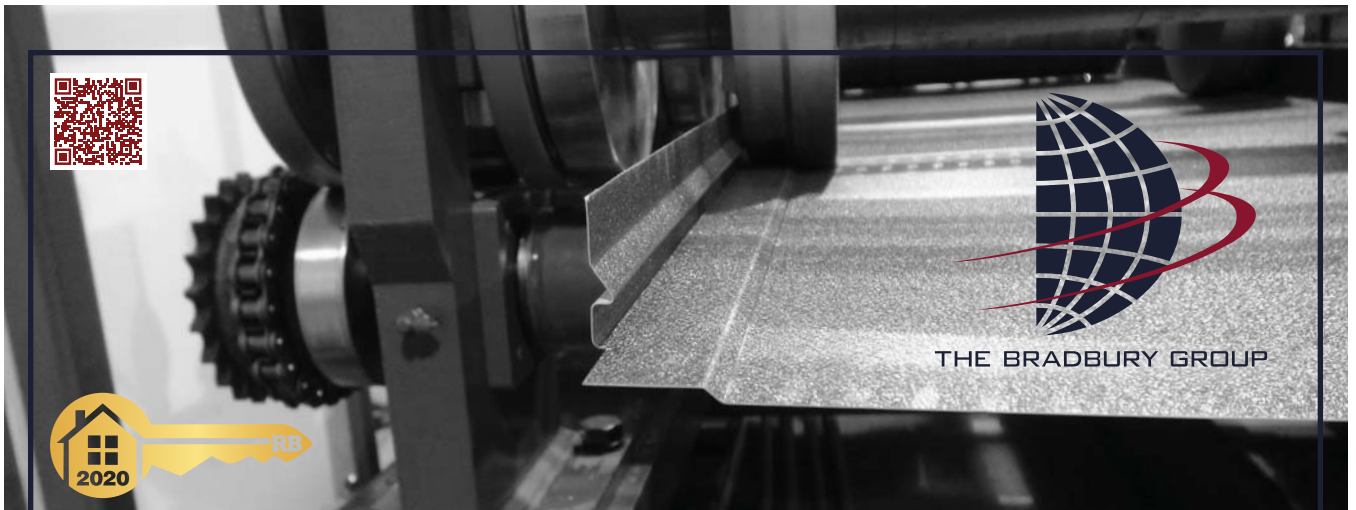
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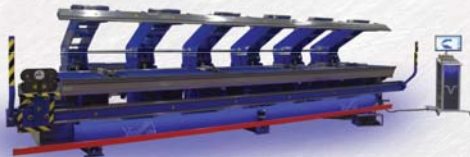
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