

November | December 2018

Vol. 9 | Issue 6

# Roofing

THE INDUSTRY'S VOICE

## Ship Shape

U.S. Coast Guard Goes  
Green, Earns LEED Gold

More Government &  
Municipal Projects

### → BUSINESS SENSE

Closing More Quotes After  
Roof Inspections

### → ENVIRONMENTAL TRENDS

Are Solar Power Mandates  
Coming Your Way?

### → NEW PRODUCTS

The Top 40 Products  
of the Year



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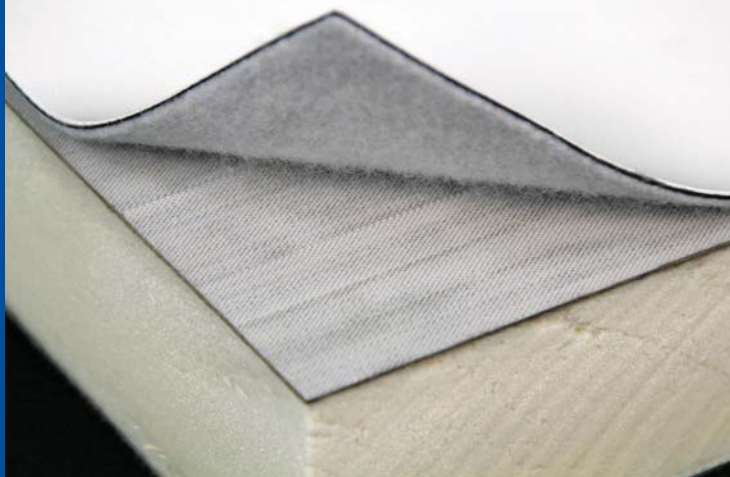


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- 📍 New Mexico
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- 📍 Utah
- 📍 Washington
- 📍 Wyoming

Photo above courtesy of Airmark Apartments:

**Hotel Interurban, Tukwila, WA** Architect: Gwest Architecture Installing contractor: All Metals Distributor: AMS Profiles: Highline C2, Flush Soffit  
Colors: Sandstone, Bone White, Charcoal, Slate Gray Photography: Robert Pisano

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The Douglas A. Munro Coast Guard Headquarters Building in Washington, D.C., has more than 550,000 square feet of green roof space on 11 different levels.

# Roofing

[RoofingMagazine.com](http://RoofingMagazine.com)

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The 550,000-square-foot vegetative roof assembly atop the Douglas A. Munro Coast Guard Headquarters Building in Washington, D.C., manages the release of storm water into the city's sewer system. Gordon Contractors installed the green roof on the 11-level, 1.2-million-square-foot headquarters, which ultimately received LEED Gold certification from the U.S. Green Building Council.

Photo: Owens Corning

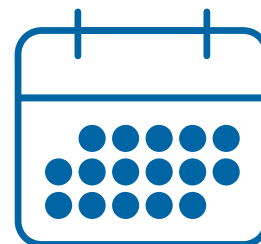




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*Roofing* welcomes letters to the editor. Letters must be signed and include a return address/email and telephone number. *Roofing* reserves the right to edit letters for clarity and length. Send letters to [Chris@RoofingMagazine.com](mailto:Chris@RoofingMagazine.com).

**If you enjoyed reading this issue, please consider submitting something for the next one. Let's talk about ideas! Call Chris King at (248) 376-5115; email him at [chris@roofingmagazine.com](mailto:chris@roofingmagazine.com); post a comment on our website; and/or Facebook and tweet us. This magazine—and your peers—are counting on you!**

# How 'Bout That, Sports Fans!

**L**ate autumn can be the most beautiful time of the year. It is also a great time to be a sports fan. College and pro football are in full swing, the baseball season culminates in the World Series, and basketball and hockey get underway. There are a lot of great sporting events to get lost in during the fall, which is a good thing, because it's also election season, and there is nothing more depressing than campaign commercials.

But sports can be more than just a distraction from a brutal TV news cycle. Growing up, I thought of sports as a parallel educational track that taught me just as much as — if not more than — my formal schooling. Whether you are paying attention or not, you absorb a lot of life lessons on the athletic field.

You learn that hard work pays off. You learn the value of teamwork. You learn that you can do your absolute best and still lose. You learn that crazy, unexpected things happen. You learn that people get hurt. You learn that authority figures can be wrong — that coaches, umpires and referees make mistakes. You learn what nepotism is. You learn that last year's bitter rival can be this year's teammate — and not such a bad person, after all. You learn that every once in a while, David really does beat Goliath.

There's a reason people use a lot of sports metaphors. It's especially common in the business world, where the relationship between individual achievement and group success plays out every minute of every day.

I remember once consoling a co-worker who was passed up for a promotion she thought she deserved, which went instead to the boss's son. I didn't tell her that this was a lesson I learned at age 10, when I realized the coach's son was going to start at second base, and I had to find another position. At age 13, I learned that the rule about missing football practice meant missing that week's game somehow did not apply to our star running back. At age 36, I learned that the last-place men's league softball team can beat the undefeated first-place team in the first round of the playoffs. I also learned that cheap champagne can give you a wicked hangover.

So, as fall turns to winter, root for your favorite team and savor every victory. Remember, as someone once said, life is the ultimate team sport. Now, dust yourself off and get back in there. **R**





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# CONTRIBUTORS



**Greg Hayne** is the owner of Roof Management, a roof consulting company, and The Hayne Coaching Group, which provides training for roofing contractors on how to improve their businesses, including a program specifically tailored to expanding their service departments and making them more profitable. In "Business Sense," page 30, he provides advice on closing quotes after conducting roof inspections.



**Paul Casseri** is the product manager of the Roofing Shingles and Underlayment Division for Atlas Roofing Corp. He is responsible for all areas of product management, including product initiation, feasibility, design, development and testing. He is a graduate of Penn State University with more than 20 years of experience in the building products industry. In "Details," page 34, he offers tips on shingling cone-shaped roofs.



**Justin Koscher** is the president of the Polyisocyanurate Insulation Manufacturers Association (PIMA). Prior to joining PIMA, he was vice president of Public Policy and Staff Counsel for the Center for Environmental Innovation in Roofing. In "Tech Point," page 40, he details the features and benefits of high-density polyiso cover boards in commercial roofing projects.



**Gary Liardon** is president of the Consumer Group Nationwide at PetersenDean Roofing & Solar, a full-service roofing and solar company based in Fremont, California that employs 3,000 workers and operates in 11 states. In "Environmental Trends," page 44, he explores legislative efforts to mandate solar power on new homes in California and explains the opportunities they might pose for roofing contractors across the country.



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## TAMKO Donates Roof For Patriot PAWS Service Dogs Project



**PATRIOT PAWS SERVICE DOGS**, a Texas-based nonprofit organization that trains and provides service dogs to disabled American veterans at no cost, will open a new guest home to accommodate traveling veterans from across the country while they're paired with a new service dog – all thanks to generous donations from a group of manufacturers and contractors, including The Dallas Builders Association and TAMKO Building Products Inc.

The new Patriot PAWS guest home is scheduled to be completed in late 2018. The two-bedroom, two-bathroom home is ADA compliant and can host veterans as they go through the two-week process of being paired with a service dog. This project was made possible through donations from multiple manufacturers, distributors and contractors, and through a partnership with the Dallas Builders Association.

"Although Patriot PAWS is located in Texas, their impact is felt nationwide, and we are proud to have members who generously help when called upon," said Sheena Beaver, education director and executive administrator for the Dallas Builders Association. "Without TAMKO's donation, this project would have been financially burdensome and this beacon of hope would still be just a dream."

This is the first Patriot PAWS project for TAMKO. "Between Hero Flights, Honor Flights and roof donations for wounded vets, TAMKO has a long history of supporting our heroes," said TAMKO President and CEO David Humphreys. "And we appreciate what veterans bring to the job – more than 15 percent of our employees have a military background. When we heard about the Patriot PAWS organization, we knew that we wanted to find a way to support them in the important work that they're doing for veterans."

For more information, visit [www.TAMKO.com](http://www.TAMKO.com).



## Atlas Roofing Acquires ACH Foam Technologies



**Atlas Roofing Corporation** announced its acquisition of ACH Foam Technologies with headquarters in Westminster, Colorado. ACH Foam Technologies is a manufacturer of molded polystyrene solutions with manufacturing facilities across North America.

According to Atlas Roofing, the addition of ACH Foam Technologies brings decades of experience, diverse product offerings and a wide range of advanced technology to Atlas' expanded polystyrene foam business and establishes the largest manufacturer of molded polystyrene in North America.

"We are excited to combine the exceptional expertise, extensive manufacturing footprint and growth vision of ACH Foam Technologies with the outstanding Atlas portfolio," said Mike Huempfer, President and CEO of ACH Foam Technologies.

"ACH shares with Atlas a similar approach to growth, its commitment to innovation, product quality and customer service and, most importantly, our same dedicated focus on people," said Ken Farrish, President of Atlas Roofing Corporation. "The time-proven experience and accomplishments of both the ACH and Atlas EPS teams make us very optimistic about the potential of this combination and what we can do for our customers and our industry."

For more information, visit [www.atlasroofing.com](http://www.atlasroofing.com).

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The Rosemont, Ill.-based National Roofing Contractors Association represents all segments of the roofing industry, including contractors; manufacturers; distributors; architects; consultants; engineers; building owners; and city, state and government agencies. NRCA's mission is to inform and assist the roofing industry, act as its principal advocate and help members in serving their customers. For information about NRCA and its services and offerings, visit [www.NRCA.net](http://www.NRCA.net).



## NRCA Now Accepting ProCertification Qualified Assessor Applications

**NRCA IS NOW** accepting applications for Qualified Assessors for its NRCA ProCertification initiative. Qualified Assessors will serve as performance exam proctors, responsible for evaluating and verifying hands-on skills for those seeking to be certified through NRCA ProCertification.

Qualified Assessors will need to meet eligibility requirements, complete two self-paced online training modules and pass a proctored online exam.

NRCA ProCertification's Qualified Assessor Program will teach candidates observation and assessment skills and the policies and procedures required to fulfill their roles in NRCA ProCertification. This role is ideal for Registered Roof Observers (RROs) and roofing manufacturer and distributor representatives.

Benefits of being a QA include expanding current business offerings by assessing NRCA ProCertification candidates; generating additional revenue by charging NRCA ProCertification candidates an appropriate fee for conducting their performance exams; gaining access to NRCA ProCertification



materials for specific roof system disciplines; and earning a digital badge and professional recognition as being one of the leaders in the roofing industry.

Certifications for foreman, asphalt shingle applicators and thermoplastic applicators are scheduled to launch December 2018.

NRCA ProCertification is designed to create a competent, sustainable and high-performing roofing industry workforce. Experienced roofing workers can demonstrate their skills and knowledge to become certified roof system installers in specific roof system applications and disciplines.

Application materials and more information may be found at [www.nrca.net/NRCA-ProCertification](http://www.nrca.net/NRCA-ProCertification).

## NRCA Encourages All Stakeholders to Participate in Roofing Day 2019

Taking place April 3-4, 2019, Roofing Day in D.C. is a national legislative fly-in event to advocate for the roofing industry. It will bring together hundreds of roofing professionals from all segments of the industry to speak with one voice on critical issues before members of Congress. It is the largest advocacy event dedicated solely to the roofing industry.

In its inaugural year, Roofing Day in D.C. 2018 saw more than 400 roofing industry stakeholders from 47 states and Puerto Rico taking part. This event made a lasting impression on members of Congress. During the event, participants advocated for a bill to improve career and technical education, and soon after, Congress approved the legislation and President Trump signed it into law.

Participants in Roofing Day in D.C. 2019 will build on this success to further strengthen the roofing industry's influence. To make an even greater impact in 2019, NRCA is seeking strong participation from a broad cross-section of the industry, including employers, field employees and others from all sectors of the industry.

As the date of Roofing Day in D.C. 2019 approaches, NRCA will post more about the issues on its website at [www.nrca.net/roofingday](http://www.nrca.net/roofingday).

For more information, contact Alison LaValley at (847) 493-7579 or [alavalley@nrca.net](mailto:alavalley@nrca.net) or Nathan Pick at (202) 546-7584 or [npick@nrca.net](mailto:npick@nrca.net).

## NRCA Seeking Submissions for CNA/NRCA Community Involvement Award

For the seventh year, NRCA and CNA have partnered to co-sponsor the 2018 CNA/NRCA Community Involvement Award. NRCA roofing contractor members are urged to submit any charitable project, activity or donation completed between January 1, 2018, and December 31, 2018, for consideration in the awards program, which shines a light on the roofing industry's charitable works. The deadline for submissions is December 31, 2018.

Any charitable project undertaken by an NRCA contractor member is eligible to receive the award. Projects, activities or donations do not have to involve roofing work.

For more information and submission guidelines, visit [www.nrca.net/CNA-NRCAaward](http://www.nrca.net/CNA-NRCAaward).

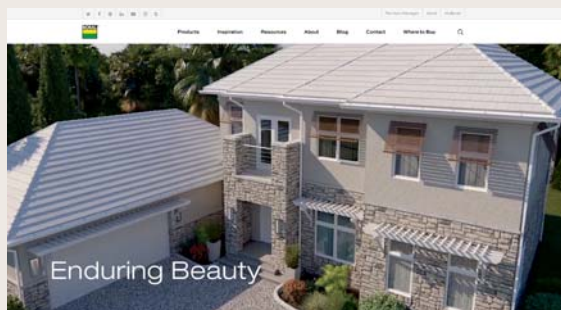


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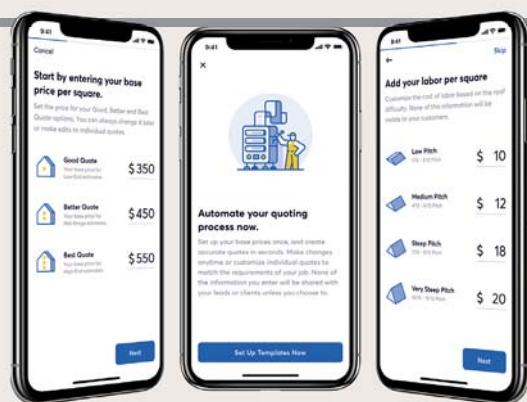
## Boral Roofing Launches New Website

**Boral Roofing LLC** introduced an all-new website featuring all four core product lines — clay, concrete, steel and composite solutions — as well as roofing components. Designed for ease of use, the site showcases a number of key features designed to engage and inform key audiences within both the residential and commercial real estate sectors who are involved in both new and retrofit design and construction projects. Resources include product literature, technical information and architect-specific resources, as well as a Blog and a Where to Buy search tool. For more information, visit [www.boralroof.com](http://www.boralroof.com).



## McElroy Metal Publishes E-Book on Economic Benefits of Roof Recover With Metal

**McElroy Metal** offers a new E-book, *Need a New Roof? How Building Owners Reduce Cost with a Metal Roof*. This valuable reference identifies the many long-term and cost-effective benefits of installing a metal roof. The resource was developed to help building owners understand re-roofing options and present the features and benefits of Metal-Over-Metal and Metal-Over-Shingle Recover Systems. McElroy Metal's E-book can be downloaded by visiting this link: <https://info.mcelroymetal.com/building-owners-reduce-cost-with-a-metal-roof>.



## EagleView App Update Expands Beyond Roof Measurement Reports

**EagleView Technologies** has released its newest update to the EagleView App, available for download on both the iOS App Store and on Google Play. The new EagleView App features include automated quoting for job estimates as well as an interactive 3-D visualizer, enabling a 360-degree view of the property. The EagleView App is currently used to order, view order status, and access property measurement reports anytime, anywhere. With this new update, users can now take the guesswork out of estimating by setting customized job cost and pricing preferences, and generating an automated quote for every report order placed. For more information, visit [www.eagleview.com](http://www.eagleview.com).



## Hydrotech Releases Fourth Edition of Garden Roof Planning Guide

**American Hydrotech** has released the Fourth Edition of the company's Garden Roof Planning Guide in updated print, online and app versions. The complimentary resource is an educational tool for architects, facility management, building owners, installers and contractors on the latest technology, applications and benefits of vegetative roofs. It is available for download in PDF format at <https://www.hydrotechusa.com/planning-guide> or by requesting a copy via email at [guide@hydrotechusa.com](mailto:guide@hydrotechusa.com).



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14-16

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Metal Construction Association  
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16-18

**CRCA 36TH ANNUAL TRADE SHOW & SEMINARS**  
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18-20

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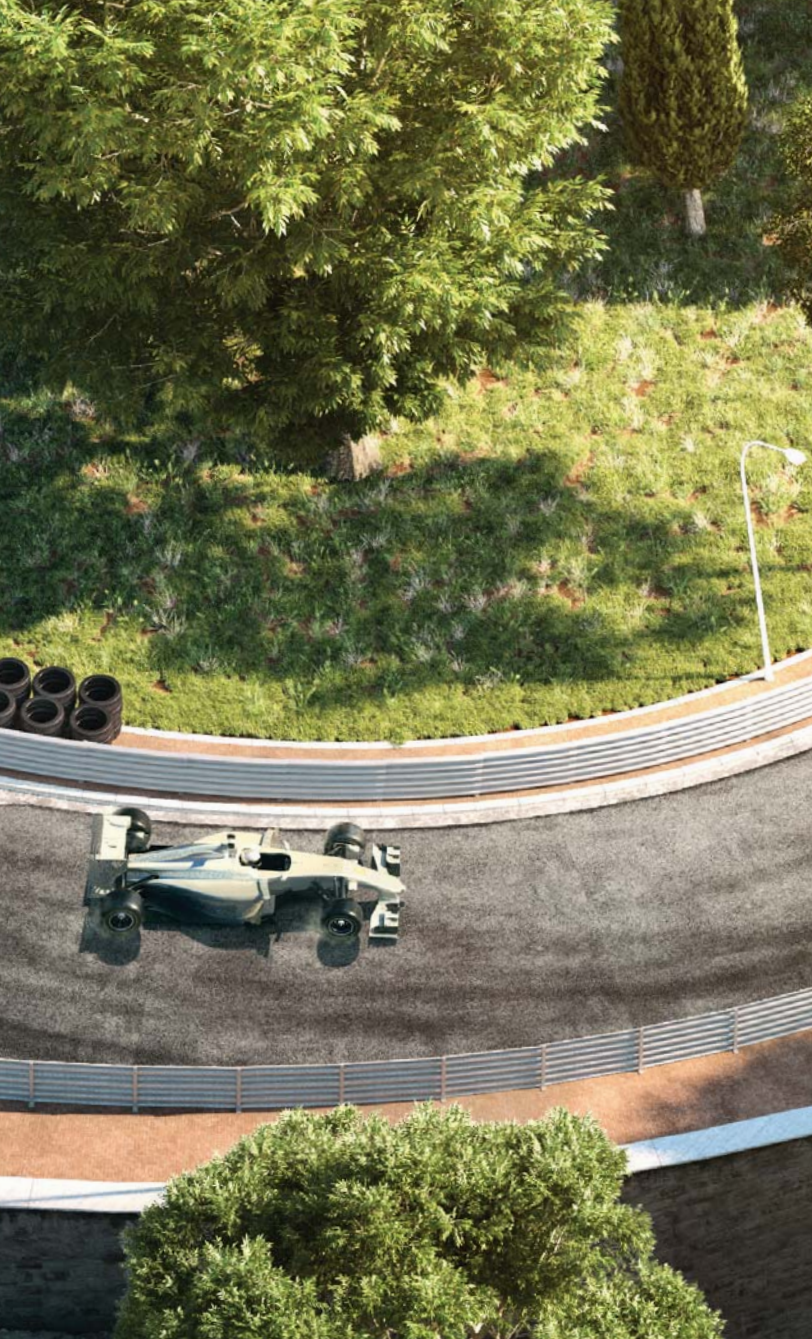
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# MATERIALS & GADGETS



## Smog-Reducing Granules Improve Air Quality



The **3M** Industrial Mineral Products Division recently launched 3M Smog-Reducing Granules to help remove smog pollution (nitrogen oxides or NOx) using roofing

shingles. Integrated throughout a shingle's surface, 3M's roofing granules are designed with a specialized photocatalytic coating applied to the base mineral. The specialized coating on the granule is activated by the sun's UV rays, while blending inconspicuously into various shingle color combinations. As sunlight hits the shingles, radicals are generated and transform nitrogen oxide gases into water-soluble ions, improving air quality. According to the company, this smart solution for pollution mitigation can help communities contribute toward their NOx emission reduction efforts.

[www.3M.com](http://www.3M.com) | Circle No. 15



## Self-Adhered Roofing Underlayment Features Slip-Resistant Surface



The **RhinoRoof** brand of synthetic roofing underlayment now includes comprehensive roof deck protection. Comprised of the most advanced formulations for self-adhered roofing technology, new RhinoRoof Granulated Self-Adhered Roofing Underlayment features a granulated, slip-resistant surface. The new synthetic underlayment offering complements contractors' safety programs by providing a slip-resistant surface material on roofs of varying slopes. According to the manufacturer, when paired with RhinoRoof U20 synthetic underlayment, the Granulated Self-Adhered Roofing Underlayment provides a system approach to protecting the entire roof deck against ice dams and wind-driven rains.

[www.EavetoPeak.com](http://www.EavetoPeak.com) | Circle No. 17



## Low-VOC Aerosol Contact Adhesive/Primer Applies Quickly



The new AeroWeb Low-VOC Aerosol Contact Adhesive/Primer from **Mule-Hide Products**

**Co.** complies with VOC-related regulations in all 50 states. According to the manufacturer, the product delivers aggressive adhesion and a quick drying time while going on as much as 60 percent faster than traditional roller-applied adhesives. It can be used in a wide variety of applications, including adhering standard TPO and standard EPDM membranes to horizontal and vertical surfaces; adhering fleece back membranes to vertical surfaces; enhancing the bond between Mule-Hide F5 Air & Vapor Barrier and various substrates; and priming unexposed asphalt prior to applying Mule-Hide Helix Low-Rise Adhesive for insulation attachment.

[www.MuleHide.com](http://www.MuleHide.com) | Circle No. 16



## Roof Vent Designed Specifically for Clothes Dryers



The **DryerJack** is the first roof termination specifically designed for the demanding needs of venting clothes dryers. Made in the USA of Galvalume and available powder coated in black, brown or white, DryerJacks feature a patented curved damper that meets code requirements and more, according to the company. To safely vent dryers, airflow restriction must be minimized to prevent lint blowback and the fire hazard that creates. A passageway of 21 square inches delivers nearly zero airflow restriction, allowing the dryer to operate at peak performance.

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# MATERIALS & GADGETS



## Perimeter Rail Chute Guard System Meets OSHA Requirements

SafePro launches its Perimeter Rail Chute Guard system. This innovation is engineered to meet the latest OSHA safety requirements mandating the use of fall protection for the open edge chute area of the roof. The SafePro Perimeter Rail Chute Guard system is designed to provide commercial rooftop fall protection, safety and security. According to the company, it is the ideal solution for safety guardrails on rooftops during re-roof construction. The chute guard system is easy for contractors to work with, including a functioning gate that glides open to allow for debris to be safely discarded off the roof edge into the trash chute. When closed, the gate automatically locks in place.

[www.SafeProSafety.com](http://www.SafeProSafety.com) | Circle No. 20



## New Coating Line Includes Silicone and Acrylic Products

Soprema Inc. launches a new collection of silicone and acrylic products under the brand name of ALSAN Coatings. According to the company, ALSAN Coatings are ideal for maintaining and extending the life of existing roofs by protecting them from natural weathering. ALSAN Coating SIL 402 is a low-VOC, high-solids, single-component silicone roof coating that forms a durable weatherproof coating for exceptional UV protection and resistance to standing water. ALSAN Coating AC 401 is a high-quality, plasticizer-free, water-based, acrylic elastomeric roof coating that is tested in accordance to ASTM D-6083. ALSAN Coating AC 401 is highly reflective and offers outstanding flexibility and resistant natural weathering.

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# MATERIALS & GADGETS

## Waterproofing Membrane Is Solvent Free

➔ **Chem Link** launches NOVALINK WM, a waterproofing membrane available in two- or five-gallon pails.

NOVALINK WM is a cold-applied, single-component waterproofing membrane that cures by exposure to atmospheric and substrate moisture to form a continuous, tough, reinforced elastic seal. It is solvent-free and compliant with all known environmental and OSHA requirements, allowing its use in confined spaces with standard personal protection equipment.



[www.ChemLink.com](http://www.ChemLink.com)  
Circle No. 24



## Drainage Mat Developed for Use in Balconies, Breezeways

⬆ **TAMKO's** new TW-Drain 220 is a drainage mat designed with core and fabric construction to help keep water out of residential, multifamily and light commercial projects. According to the company, the drain's unique design allows for quick and simple installation in concrete waterproofing projects. TW-Drain 220 may be used for above grade applications such as balconies and breezeways. TW-Drain 220's dimpled drainage core and filter fabric help protect entry points from potential moisture penetration into buildings. TW-Drain 220 comes in 50-foot rolls with a 4-foot width.

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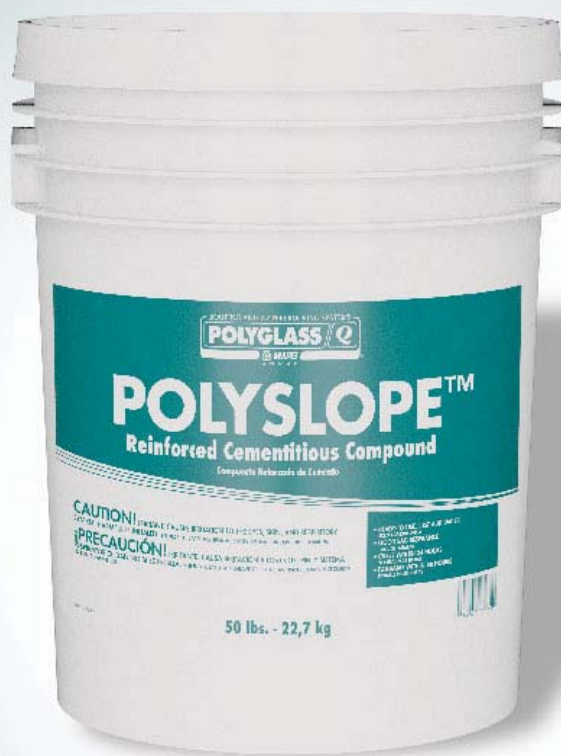


## Water-Repellent Sloping Material Promotes Positive Drainage

**P**olyglass U.S.A., Inc. launches Polyslope, a water-repellent, fiber reinforced, cementitious compound is designed to address standing water, promote positive drainage, and divert water off the roof.

According to the manufacturer, the product can be used to create positive drainage on roofs that have low spots and divert standing water. Polyslope is a blend of special binders, fiber, admixtures, selected aggregate, and powder polymers formulated to produce high bond strength and easy

**“We are proud to bring this product to market and enable contractors to quickly resolve roof challenges. Our mission is to deliver quality and innovative solutions to the roofing industry that are sustainable and help prolong the life of the roof.”**



finishing. The product is mixed with 1.2 gallons to 1.3 gallons of water per 50-pound pail. Polyslope is ready to use after adding water and mixing. It is easy to screed and paintable after 48 hours.

“We are proud to bring this product to market and enable contractors to

quickly resolve roof challenges,” said Ariel Lender, director of product management and codes and compliance. “Our mission is to deliver quality and innovative solutions to the roofing industry that are sustainable and help prolong the life of the roof.” **R**



The “Roofers’ Choice” winner is determined by the product that receives the most reader inquiries from the “Materials & Gadgets” section in a previous issue. This product received the most inquiries from our July/August 2018 issue.

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# Roof Assessment Tips

## What Can Visiting a Car Dealership Teach You About Closing Quotes After Roof Inspections?



**ASSESSING A ROOF IS EASY.** Assuming you have the basic technical skills, which are not difficult to learn, analyzing a roof and determining what deficiencies are present, what needs to be done, what can wait, all of that, really isn't that hard to do.

So, why do so many roofing contractors have trouble selling the repairs their reports recommend? (And when they don't sell the repairs they often think the problem is with their report format). Let's see if we can bring some clarity to this.

Years ago, in my role as roofing consultant, I had a client give me a copy of an assessment report performed by a roofing contractor with a quote for about \$36,000 of recommended repairs to correct deficiencies they found on a shopping center. I had also inspected the roofs and I agreed that everything they presented was a legitimate deficiency. So, what did I recommend to my client? I recommended we do none of it!

Let me give you a bit more information about the roof. In the three years that my client had owned the 84,000-square-foot shopping center, they have never had single roof leak and the well-installed gravel surfaced built up roofs were about eight years old. Do you really think a building owner is going to spend \$36,000 on an 84,000-square-foot shopping center that had never leaked?

When you drop your car off at the body shop to have them fix a scratch on the right rear quarter panel on your car, you don't expect them to fix the scratch, repaint the whole car, install new rims and tires, tint the windshield and upgrade the radio.

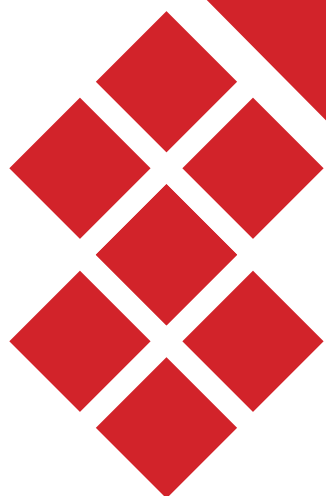
*Tip 1: Most roofing contractors doing assessments produce reports and quotes "recommending" way too much work.* Just because something on a roof isn't perfect doesn't mean you have to fix it, at least right away. For instance, just because that EPDM wall flashing is starting

to bridge, you and I both know it isn't going to rip open for at least another three or four years and perhaps longer. (And there are exceptions, sure, but if you are on the roof regularly, monitoring it, there is no chance you won't see it coming.) When you quote the repair of those flashings, it is the same as getting a quote to "install new tires and rims, tint your windshield and upgrade the radio" when you took your car in for that scratch on that right rear quarter panel.

There is another factor that comes in to play. When you dropped your car off at the body shop and when you see a quote to do all that unrequested work, you know you don't need it. That isn't the case with the typical building owner and his roofs.

The typical building owner, property manager, facility manager, building engineer, asset manager knows less about roofs than your receptionist. Think about that for a minute. While there are exceptions to this rule, they are few and far between. Do you know what that means? It means that they are not going to understand the report you produce. You can tell them what a flashing is and they will nod their head up and down. That doesn't mean they understand. If you, instead, asked them to explain to you what a flashing is and you listen to their answer you will quickly discover that they have no real idea what a flashing is. But here is what they do know: They don't need to spend \$36,000 on a shopping center that doesn't leak. Since they can't understand your report, they just do none of it.

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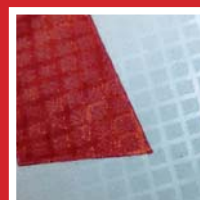
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*Tip 2: If you give them a laundry list of things to choose from, they will often choose "none of the above."* So, make sure you explain why each of these things is necessary and the possible consequences of not doing them.

*Tip 3: "Sell" your assessments as a way to manage an aging roof.* While we can all agree that roofs should be inspected

regularly, let's also agree that the roofs that most need to be inspected regularly are aging (or problematic) roofs. Especially when you are trying to start work with a potential new client, point out that it is often possible to cost effectively extend the life of an aging roof, and the best way to figure out exactly if that might be possible and how to do it is with a formal assessment. Importantly,

this also gives you a context for understanding what they are after and makes it much easier to avoid the issues mentioned in both Tips 1 and 2.

Let's say you decide to buy a new car. You walk into the dealership and lady behind the desk says, "Just a minute, I'll get somebody for you." Shortly, a mechanic in greasy coveralls comes walking out the service area, wiping the grease off his hands with a rag. He walks you over to a car on the show floor and says, "You should buy this one. It is a real good car." That isn't how it works? Really? (And, do you think that mechanic should be surprised when you don't buy that car? Then why are you surprised when your estimators only sell one in five estimates they put out for repairs?)

Does the professional salesman you actually buy your new car from know as much about how that car works as the mechanic? Probably not. Then why do you suppose auto dealers use salespeople to sell cars rather than mechanics or others with excellent technical expertise? Because salespeople know how to sell. In our industry, we routinely see commercial roofing service salespeople closing over 60 percent of their sales. Once you made the adjustments recommended in the first three tips, if you are not closing 60 percent or more of your service estimates coming off assessment reports, you need to follow the advice in Tip 4.

*Tip 4: Hire a true sales professional to sell.* When your payroll clerk and bookkeeper are both off work due to maternity leave and an auto accident, would you grab two guys from a tear-off crew and have them do the bookkeeping and payroll? If a couple of guys don't show up on a Monday at the start of a large tear-off, do you send your payroll clerk and bookkeeper out to help with the tear-off? Then don't expect the guy who you have assessing your customers' roofs to also sell them the work you are quoting. Hire true sales professionals and watch your revenue grow.

By following these tips, the quality of your assessments will go up and so will your closing ratios. **R**

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## DETAILS

WRITTEN BY **PAUL CASSERI**

# Mastering the Curve

Expert Tips For Shingling  
A Cone-Shaped Roof



one-shaped roofs are one of those projects that contractors either love to do or avoid like the plague.

A prominent architectural feature on Queen Anne- and Norman-style homes, cone-shaped roofs are also found on Armenian and Georgian churches and medieval towers and castles.

Their sloping and curved geometric surfaces can be difficult and labor intensive to shingle, especially for

roofers who are accustomed to working only with straight lines.

Whereas a simple pitched roof typically has two or more sides and a hip roof has at least four sides, a conical or turret-style roof can appear to have an infinite number of sides. Some cone-shaped roofs have three to eight flat sides that create more of a geometric shape, such as a pyramid.

So, the challenge is: How do you install flat shingles on this intricate, rounded surface?

## GETTING STARTED

Thanks to their flexibility, modern asphalt shingles can be installed on roofs of any shape.

To begin shingling a cone roof, you need to know three measurements: the length of the rafter, the diameter of the cone and the widest piece of shingle you'll be using.

To determine the distance around the base of the cone, multiply its diameter by 3.14. For example, if the diameter is 20 feet, the perimeter would





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equal 62.8 feet. With a 12-inch-wide shingle, you would need 63 shingles in each row around the cone.

Precise calculations are necessary because shingle pieces will need to change shape and become narrower as you move from the base of the cone up to its peak.

Cutting the shingles is a task you can do ahead of time, by creating a template, or when you get to a particular part of the installation.

### SAFETY CONCERNS

Because cone-shaped roofs are usually steep and high off the ground,

consider hammering footholds into the roof for stable support while you work. Better yet, use scaffolding, which not only provides a platform for leaning a ladder onto the roof, it also serves as an easily accessible shelf for your roofing materials and tools.

### UNDERLAYMENT AND VENTILATION

With preparations complete and safety equipment in place, you're ready for the fun part: installation.

First, start by applying a good quality underlayment to the deck per the manufacturer's instructions.

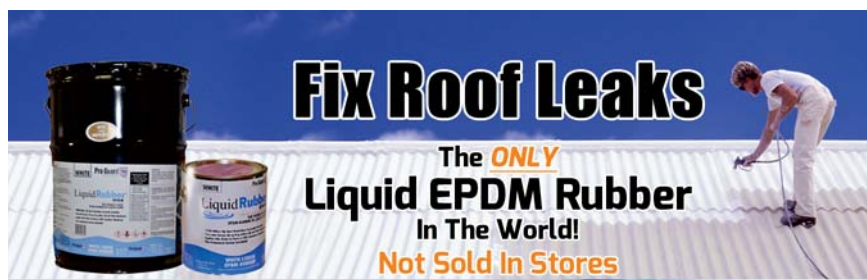
The underlayment should be applied vertically, perpendicular to the eave, following the flow pattern from the cone's peak to its base. This process will help to prevent the material from wrinkling or buckling. You should end up with an overlap near the peak, which can be trimmed during underlayment application and before installing shingles.

Continue to overlap the underlayment vertically as you progress up the cone and use asphalt plastic cement to cement the lap edge. Alternatively, you can use a peel-and-stick underlayment. A self-adhering underlayment protects the eaves and flashing from wind-driven rain and covers any possible gaps between abutting shingles.

Next, check the ventilation. If the cone is open to the attic area, it should be part of the ventilation system. To accommodate static ventilation in the main portion of the attic, increase the requirement for the net-free area by the same square footage as the cone-shaped room. If the area is open to the living space, a ceiling fan can help force moisture and heat from the cone-shaped room to the main living area for dispersal. Using a room dehumidifier may also be helpful.

When working with a completely circular cone, use an off-peak, roll-type ridge vent at the peak for positive ventilation. The formula for cone-shaped rooms is consistent with any other residential area:

- Equal intake and exhaust vents:




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300 square feet of attic area = 1 square foot of net-free vent area

- Exhaust vents only: 150 square feet of attic area = 1 square foot of net-free vent area

In cases with no ventilation, make the homeowner aware of potential issues

with accelerated wear and how it can affect the product's warranty. For more specific requirements, contact the shingle manufacturer.

### SHINGLING FLAT-SIDED VS. ROUNDED CONES

After installing underlayment and

addressing ventilation, you can start applying shingles.

If you're working with a flat-sided cone roof, you can use the standard hip and ridge installation method. Snap vertical chalk lines from the cone tip to the eave center on each of the flat sides. Then apply shingles to the flat areas, cutting at the hips or joints. Use a standard hip and ridge shingle to complete the hip joints.

To ensure a continuous roofing line, snap horizontal chalk lines around the cone so that shingles will line up on adjacent sides.

Shingles on steep-sided cone roofs – those greater than 21/12 slope – may need to be hand sealed with asphalt plastic cement. Check the manufacturer's instructions for steep-slope application.

When shingling a rounded cone roof, you won't have a horizontal line to follow because of the curvature. If you try to create a line, butting the sides of the shingles together, the shingles will gradually curve downward and won't correctly align when you encircle the cone.

To make installation easier, divide the roof into three distinct zones. Start applying shingles to zone one, at the bottom of the cone, and then work your way up to zones two and three.

While you are nailing, have another crew member help hold the shingles down around the curve so they are flush against the surface.

Because the cone shape tapers from the base to the peak, succeeding courses require less material.

The degree of horizontal offset and varied shingle cutouts will create a random appearance. When using standard three-tab shingles, trim each shingle for proper vertical alignment. A simpler alternative would be to use a randomly applied shingle that doesn't need to be vertically aligned.

Shingling a cone-shaped roof may be challenging, but with the proper knowledge and execution, you can restore this architectural focal point to its full glory.

For more information from Atlas Roofing, including technical bulletins, installation instructions and product data sheets, visit [atlasroofing.com](http://atlasroofing.com). **R**

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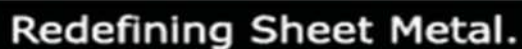
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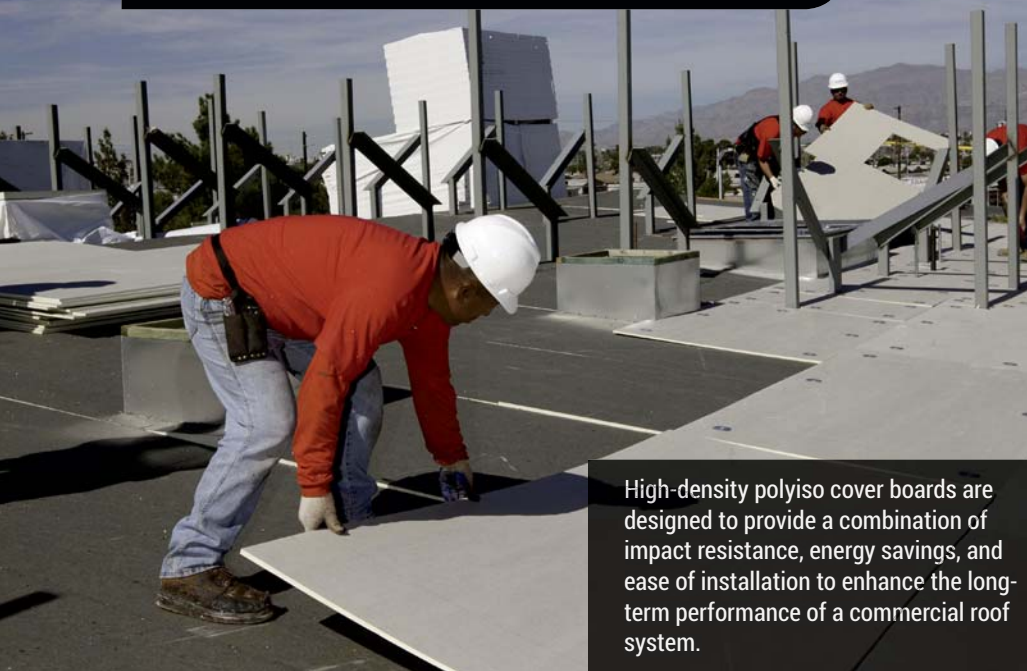
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## TECH POINT

WRITTEN BY JUSTIN KOSCHER



High-density polyiso cover boards are designed to provide a combination of impact resistance, energy savings, and ease of installation to enhance the long-term performance of a commercial roof system.

## High-Performance Versatility

### Benefits of High-Density Polyisocyanurate Cover Boards for Roofing Systems

**ROOFING PROJECTS**, whether new construction or renovation, require careful product selection to balance cost with performance. Many contractors choose to include cover boards in their roof designs to enhance overall system durability and lower long-term maintenance costs, particularly for low-slope commercial roof applications. There are many cover board products currently available — ranging from traditional gypsum board to highly engineered polyisocyanurate (or “polyiso”) technologies. Across product types, cover boards are an important component in roof systems that provide a rigid substrate and protection for other components of the roof system.

Selecting the right cover board for your project means verifying that the product will work with the chosen membrane type to provide a stable foundation for the roof and suitable protection for the underlying insulation. Understanding the unique

benefits of a high-density polyiso cover board product can help roofing contractors reduce labor costs and save money during the construction process, while also contributing to lower building energy usage over the long-term life of the roof system.

#### BENEFITS OF HIGH-DENSITY POLYISO COVER BOARDS

High-density polyiso cover boards provide a combination of impact resistance, energy savings, and ease of installation that make them a compelling option. They are manufactured with coated glass facers that provide well-recognized versatility during installation and service-life durability. By adding a high-density polyiso cover board, roofing contractors can enhance the long-term performance of a commercial roof system in addition to providing the following advantages:

**Lightweight:** High-density polyiso cover boards, on average, weigh 66

to 80 percent less, when compared to other products of the same thickness. Individual boards are light enough to be carried by a single worker, reducing manpower requirements.

**Water resistance:** The water absorption by volume of high-density polyiso cover boards is about four percent—much lower than traditional boards. High-density polyiso cover boards will not rot or dissolve and can maintain their integrity under adverse weather conditions.

**Fewer truckloads:** High-density polyiso cover boards can be shipped with about three times more square feet per truckload, requiring fewer trucks, which leads to fuel and transportation savings, as well as reduced traffic congestion on job sites.

**Reduced product staging time:** High-density polyiso cover boards require less crane time with lower hoisting, loading, and staging costs. The cover boards are easier to carry and maneuver around the roof. Pallets need not be broken or redistributed as they might need to be with other products.

**Ease of cutting:** Unlike traditional gypsum boards which require heavy-duty saws or cutters to resize, high-density polyiso cover boards can be easily scored and cut using a utility knife. A single worker can measure and cut boards to size, increasing the productivity of the roofing team.

**Weight:** When considering a building's structural design, high-density polyiso cover boards will contribute less dead load to a roof than other alternatives. Lighter dead loads can add up to savings in structural costs for new construction and fewer headaches when reroofing an existing building.

**Greater R-value:** In addition to providing suitable protection to a roof

**BREAKING NEWS!**

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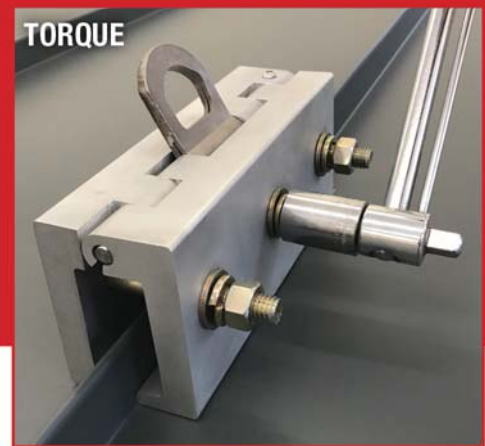
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system, high-density polyiso cover boards can increase the thermal resistance of the roof and provide two to five times more R-value than other cover board options.

**Virtually dust-free:** High-density polyiso cover boards are made with polyisocyanurate foam found in insulation products, which contribute less dust

during cutting. This can decrease potential seam contamination of the roof cover prior to waterproofing the laps. Reduced dust and the absence of silica particles also enhances worker safety. And, less mess also means improved productivity for installers.

**Mold:** High-density polyiso cover boards resist mold growth when

tested under ASTM D3273. This makes the products highly suitable for applications prone to elevated moisture conditions.

**Resiliency:** Higher compressive strength and flexibility in cover boards improves a roof's resistance to damage from foot traffic, heavily loaded carts, dropped hammers and other tools.

**Versatility:** High-density polyiso cover boards can be used in new construction, reroofing, and recover applications. They are suitable in mechanically attached, adhered and ballasted roof assemblies. **R**

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### High-Density Cover Boards Help Ohio High School Achieve LEED Gold Certification

When the Green Local School District in Ohio began making plans for a new high school to be built in Smithville, they wanted to build for the long-term. Recognizing that operating costs should be factored into building budgets, they set a goal to seek LEED Gold certification for the new building.

The school district was eager to design for lowered heating costs in the brutal Ohio winters through smaller, more efficient mechanical systems. Achieving that energy efficiency required designers to look at the whole building envelope with an eye toward maximizing insulation and minimizing the thermal and vapor conductivity of the building components.

Their roofing solution? Charcoal-colored PVC membrane to capture winter sunlight over polyiso roof insulation and 1/4-inch high-density polyiso cover board from Johns Manville.

Advanced Industrial Roofing Inc., based in nearby Massillon, installed the components over the school's structures — 12 distinct roofing areas of varying size and slope. With such a complex job, they were grateful for the ease of handling and cutting the high-density polyiso cover board and for the sturdy protective surface it provided during the installation.



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## California Advances Use of Solar Energy in the Residential Sector

**State's Alternative-Energy Paradigm Could Mean Opportunities for Roofing Contractors**

**THE IMPORTANCE** of solar energy to provide renewable energy options and protect the health of our environment is a national movement that got a big boost in California recently. The state government adopted new policies to establish a more progressive foundation for the use of solar power in residential buildings as part and parcel of its pioneering “net-zero” mission.

While California is at the leading edge of solar energy production, other states such as Colorado, New Jersey and Virginia are not far behind. So, whether roofing companies are working in California or somewhere else in the country – especially the so-called

“sunshine states” – it would be smart for them to better understand the state-of-the-art technologies as well as nuts-and-bolts mechanics of high-performance solar energy systems.

### **SOLAR ENERGY SYSTEMS ON EVERY NEW HOME**

Of most interest to roofers in California is a far-reaching energy policy adopted earlier this year by the California Energy Commission requiring that solar photovoltaic (PV) electric systems be installed on virtually every new residential dwelling built in the state starting in 2020. “California is about to take a quantum leap in energy standards,”

stated Robert Raymer, technical director for the California Building Industry Association. “No other state in the nation mandates solar, and we are about to take that leap.”

For California’s roofing industry, this pro-solar policy could open the door for significant new business opportunities as home builders prepare for the 2020 implementation.

California has been a leading proponent of solar power for the past decade with its goal of reaching net-zero energy usage by 2045. Committed to the long-term use of solar power, the California Energy Commission took a major step toward achieving that goal, and beyond, by adopting a policy in May of this year that will make solar energy systems standard on virtually every new home built in California starting in 2020.

California’s net-zero mission dates to 2007 when the Energy Commission adopted the goal aimed at making homebuilding so efficient “newly constructed buildings can be net zero energy by 2020 for residences and by 2030 for commercial buildings.” Under this policy, solar energy was considered one component of building more energy efficient homes – but was not required.

Now, the new solar mandate, officially called the 2019 Building Energy Efficiency Standards, requires that all houses, condos and apartment buildings up to three stories which secure building permits after January 1, 2020, install solar energy systems. The new CEC policy focuses on four key areas: smart residential photovoltaic systems; updated thermal envelope standards (preventing heat transfer from the interior to exterior and vice versa); residential and nonresidential ventilation requirements; and nonresidential lighting requirements. The standards also encourage demand-responsive technologies such as heat pump water heaters, improvements to a building’s thermal envelope to enhance comfort and energy savings by inclusion of high-performance insulation and windows.

“Under these new standards,

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California's 2019 Building Energy Efficiency Standards requires that all residential structures install solar energy systems beginning in 2020.

buildings will perform better than ever, and at the same time they contribute to a reliable grid,” explains CEC Commissioner Andrew McAllister, who is the commission’s lead on energy efficiency. “The buildings that Californians buy and live in will operate very efficiently while generating their own clean energy. They will cost less to operate, have healthy indoor air and provide a platform for ‘smart’ technologies that will propel the state even further down the road to a low emissions future.”

With the new standards in place, more advanced solar products and roofing systems will become the norm as consumers expect optimum performance and maximum savings from their solar investments. Based on a 30-year mortgage, the Energy Commission estimates that although the new standards could add about \$40 to a residential homeowner’s average monthly payment, they will save consumers \$80 on monthly heating, cooling and lighting bills.

“With this adoption, the California Energy Commission has struck a fair balance between reducing greenhouse gas emissions while simultaneously limiting increased construction costs,” explains California Building Industry Association CEO and President Dan Dunmoyer. “This set of cost-effective standards ensures homebuyers will recoup their money over the life of the dwelling.”

## SB 700 BOOSTS STORAGE BATTERY USE

California’s most recent pro-solar policy, SB 700, was signed into law by California Gov. Jerry Brown in September and promises to give use of solar energy another big boost in the state. The new measure extends California’s Self-Generation Incentive Program (SGIP) for an additional five years, from the current January 1, 2021 expiration date until January 1, 2026. SGIP provides substantial rebates to homeowners through the state Public Utilities Commission for the installation of energy storage systems that save solar power for use during off hours such as evenings and cloudy days, or during utility blackouts.

This extension should also add to the demand for new and retrofit solar systems – a boost that could benefit roofing companies which also install solar panels.

Understanding this potential, PetersenDean Roofing & Solar is at the forefront of storage battery technology as a key component of our solar energy systems. To this end, we have partnered with SolarEdge, a global leader in PV inverters, power optimizers, and module-level monitoring services, and LG Chem, the world’s largest lithium-ion battery manufacturer. With this partnership in place, our company has made a major leap towards utilizing state-of-the-art storage battery technology as part of the solar packages we offer to our builder customers and home owners.

High-performance storage systems such as lithium ion batteries also dramatically increase the homeowner’s independence from utilities and the associated challenges related to stability and rate increases with lower energy costs. A grid-connected residential energy storage system that synergistically combines solar and energy storage can greatly reduce a homeowner’s operational reliance on the local electric utility. Simply put, modern batteries make it possible for homeowners to use stored solar energy not only during the night and possible blackouts, but during peak demand

times when utility rates are at their highest, thus keeping their monthly utility bills lower.

On a macro level, storage battery technology offers electric utilities the opportunity to create a smarter power grid that, among other benefits, can give the utility better control over managing peak demand and thus reduce the need for new, extremely costly generation plants to cover that demand. Considering all the changes required by utilities and regulatory agencies as these entities respond to the new energy age, this transformational storage technology provides energy producers more creative ways to connect with home builders and home owners, giving them greater control over their efforts to save money and help our environment by using more renewable energy.

This also creates huge potential. The market research firm IHS Markit states that energy storage is considered critical to enabling power delivery systems that are heavily reliant on renewable energy, and batteries will play an important role in this transition. According to Grid-Connected Energy Storage Market Tracker by IHS Markit, 130 gigawatt hours (GWh) of battery energy storage will likely be installed worldwide between 2018 and 2025.

## NEED FOR EDUCATION

Continuing education is critical. As alternative-energy policies such as those adopted by California become more prevalent in states across the country, builders and their planners/architects must be in tune with the changing demands and requirements of structural design and implementation that optimize the performance of solar as well as other non-polluting energy producing systems.

“There is a lack of awareness and technical expertise with respect to creating cost-effective net zero energy communities,” explains Judi G. Schweitzer MRED, AMDP, CALGreen CAC, founder and owner of Orange County, California-based Schweitzer & Associates. An energy consultant for the state as well as major residential

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developers, Schweitzer states emphatically that one of the top priorities to achieving optimum performance is education.

Whatever aspect of solar energy production in which a roofing company or other vendor may be involved, ongoing education is key to knowledge and success. To assist roofing companies with education and information, the National Roofing Contractors Association (NRCA) hosts as part of its website The Rooftop Solar Resource ([www.rooftopsolarresource.com](http://www.rooftopsolarresource.com)). This site serves as a comprehensive resource for homeowners, business owners, building managers and consumers looking for information regarding solar rooftops, as well as a resource for contractors, suppliers, architects, designers and consultants seeking more information regarding the technical aspects of rooftop solar installations.

Nevertheless, while much has been written and says about solar energy and its benefits, education about system design and proper installation is at best, lagging. For example, we are still amazed as we do our on-the-ground assessments how many residential solar panel systems are improperly designed and installed, such as not orienting solar panels for maximum exposure to the sun.

Along with orientation, Schweitzer points out that the size of a solar PV system will depend on such factors as the location of a home and its relative climate zone. Obviously, solar panels will perform better on homes located in sunbelt states, but even in these regions, design and installation are critical to performance. One other point that falls under education: Something as basic as the correct color of a roof can improve the performance of a solar energy system. Combining a PV system with a so-called cool roof – usually white or light colored – can boost the performance of a solar system by as much as 10 percent. When it comes to the wise production of energy, every percentage point counts. 

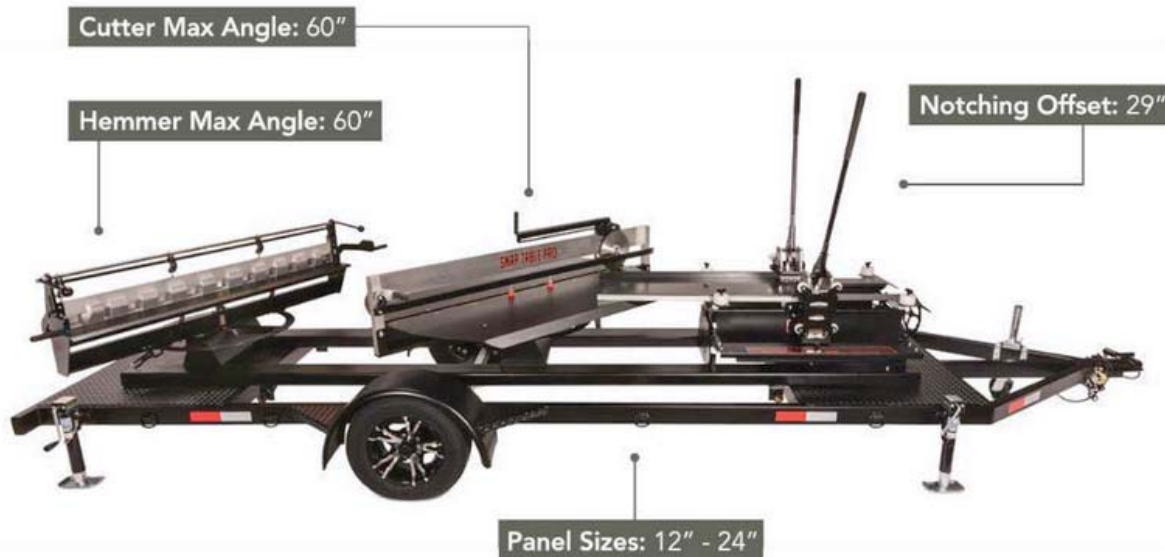


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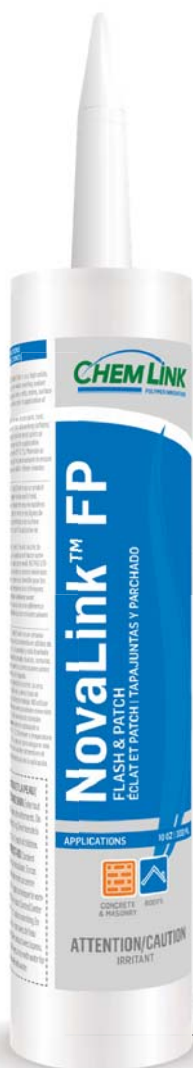
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# the Top 40 Products of 2018

The following product roundup features the Top 40 products of the year, as chosen by the readers of *Roofing* magazine. The products were selected based on the number of reader requests for sales leads through the Reader Action Card in the print issue and the number of clicks on our website, [www.RoofingMagazine.com](http://www.RoofingMagazine.com), including those generated through our monthly e-newsletter. The product generating the most leads from each print issue is also featured as our “Roofers’ Choice” product, and the 2018 winners are included here with that designation. *Note: The numbers in this section are for identification purposes only, and do not reflect ranking.* If you have a new product you’d like us to consider for a future edition of our Materials & Gadgets section, please email Editor-in-Chief Chris King at [chris@roofingmagazine.com](mailto:chris@roofingmagazine.com).







## 1 Roof Leveling Compound Helps Eliminate Ponding Water

GreenSlope is a roof leveling compound that helps eliminate water ponding areas on flat rooftops. The cured material is similar to that of a professional running track or playground surface and can withstand tough climates as well as heavy foot traffic. According to the manufacturer, the product is designed to fill in low areas and bring the roof back to its original slope, directing water toward drainage areas. It is designed for use on EPDM, TPO, PVC, modified bitumen and metal roofs. Made from EPDM, GreenSlope is lightweight, durable, and able to withstand freeze-thaw cycles. Other uses include protecting curbs, filling low areas near drains, establishing walk pads and filling pitch pans. [www.Greenslope.com](http://www.Greenslope.com)

Circle No. 48



## 2 New Product Line Secures Rooftop Pipes and Struts

Green Link introduces a family of custom-engineered, molded straps and caps for securing pipes and struts for its KnuckleHead rooftop support product line. Straps have been designed for both Heavy Pipe and Strut Support KnuckleHeads, while a cap design was developed for Lite Pipe Supports. All are molded from tough, weatherproof urethane and feature a striking "safety yellow" color. The Heavy Pipe KnuckleHead strap secures a 3-inch outside diameter pipe, while the Strut Support strap fits steel or aluminum Unistrut-type channel. The Lite Pipe Support cap is designed to secure a single 1-inch nominal pipe or two 1/2-inch nominal pipes. The Strut Support straps are available in nominal pipe sizes ranging from 1/4 inch to 6 inches. [www.Greenlinkengineering.com](http://www.Greenlinkengineering.com)

Circle No. 49



## 3 Stainless Steel Bi-Metal Drill Screws Are Corrosion Resistant

Triangle Fastener Corporation introduces a full line of 304 stainless steel bi-metal self-drilling screws. Bi-metal screws have heads and threads made of 304 stainless steel, providing corrosion resistance and ductility. A hardened carbon steel drill point welded to a stainless steel body allows the screw to drill and tap steel up to 1/2 inch thick. The screws are used to attach aluminum, stainless steel, insulated metal panels (IMPs) and when ductility is needed in the connection. They are available in #12 and 1/4-inch diameters in lengths up to 12 inches. Head styles include: hex washer head, pancake head and button head.

[www.Trianglefastener.com](http://www.Trianglefastener.com)

Circle No. 50

## 4 Insulation Board Contains No Halogenated Compounds

GAF introduces a new non-halogen polyisocyanurate insulation: EnergyGuard NH Polyiso Insulation Board. According to the manufacturer, the development of EnergyGuard NH Polyiso Insulation Board demonstrates the GAF commitment to providing architects, contractors, and building owners with affordable products that help them meet their sustainable and environmental design goals, by offering products that do not contain halogenated compounds. As with their current EnergyGuard Polyiso Insulation, this product line offers high insulating values to help save on energy costs and is available in a variety of thicknesses. Easy cutting in the field provides the installer with simple fabricating on the roof deck. [www.GAF.com](http://www.GAF.com)

Circle No. 51



5



6



7



8

## 5 Pre-Weathered Fastener Matches Corten Panels

Lakeside Construction Fasteners offers the new high-strength COR-10 WOOD-X fastener, which is engineered to secure Corten metal panels into hardwood decking substrates. It is pre-weathered for an exact Corten metal panel color match, eliminating the need to wait for fasteners to be painted or weathered to match. The fastener is available in sizes from 1 inch to 3 inches, and it features an EPDM washer to ensure a sealed protective barrier. According to the manufacturer, its high-low threads and sharp T-17 cut point allows the fastener to quickly penetrate the Corten metal panel for low-cost installation.

[www.Lakeside-Fasteners.com](http://www.Lakeside-Fasteners.com)

Circle No. 52

## 6 Insulation Board Designed for High Load-Bearing Applications

Kingspan Insulation has expanded its commercial product offering by introducing GreenGuard Type VII XPS Insulation Board. The product is designed for high load-bearing engineered applications requiring insulation with a minimum compressive strength of 60 psi. Type VII XPS is primarily used in commercial roofing applications, such as protected membrane and pedestal paver systems. According to the manufacturer, the insulation board offers an R-value of 5.0 per inch of thickness and meets ASTM C578 Type VII requirements. The product retains its insulating properties over time, has high water resistance and is HCFC-free.

[www.Kingspaninsulation.us](http://www.Kingspaninsulation.us)

Circle No. 53



## 7 Portable RhinoBond Hand Welder Designed for Use in Tight Spaces

OMG Roofing Products introduces the RhinoBond Hand Welder. Based on patented Sinch Technology, the portable RhinoBond Hand Welder is designed to help roofers weld RhinoBond Plates in tight spaces, such as under raised rooftop equipment, and on vertical surfaces. The ergonomically designed tool features a vibrating handle and an indicator light that lets roofers know when the tool is activated and when the weld cycle is complete. The base is recessed and features centering indicator lines to help users properly align the tool over installed RhinoBond Plates for optimum bonding and improved productivity.

[www.OMGRoofing.com](http://www.OMGRoofing.com)

Circle No. 54

## 8 High-Visibility Primer Improves Adhesion for Acrylic Coatings

KM Coatings offers KM SP 1000, a VOC-compliant, solvent-based primer designed to improve the adhesion of acrylic coatings to most aged TPO and PVC membranes. According to the manufacturer, using this primer with a KM-approved acrylic coating provides excellent coverage and long-term protection. Its orange color enables strong identification for the applicator to achieve complete monolithic surface application.

[www.KMcoatings.us](http://www.KMcoatings.us)

Circle No. 55





9

## 9 Two-Component SPF Adhesive Provides More Coverage

Soprema introduces a low-pressure, two-component spray polyurethane foam (SPF) adhesive to its DUOTACK family of roofing adhesive products. DUOTACK SPF was designed to provide quick, efficient adhesion of PVC membranes, insulation and cover boards to approved substrates. According to the manufacturer, the product was developed by Soprema chemists with vast knowledge and experience in the roofing and polyurethane foam industry to provide 50 percent more coverage and a faster flow rate than competing products. It also has usability in multiple applications without the need for extensive inventory and expensive equipment, like pace carts. [www.Soprema.us](http://www.Soprema.us)

Circle No. 56



10

## 10 Adhesive-Free Attachment System Eliminates Temperature Restrictions

Carlisle SynTec Systems introduces its RapidLock (RL) Roofing System. This adhesive-free system uses VELCRO Brand Securable Solutions to fully attach 115-mil FleeceBACK RL EPDM or FleeceBACK RL TPO to InsulBase RL or SecurShield HD RL polyiso insulation. According to the manufacturer, the RapidLock system does away with temperature restrictions, has no VOCs or odors, offers wind uplift ratings comparable to traditional fully adhered single-ply systems and has a Factory Mutual 1-90 approval rating. The adhesive-free system also saves time and labor.

[www.CarlisleSynTec.com](http://www.CarlisleSynTec.com)

Circle No. 57



11

## 11 High-Performance Adhesive/Sealant Anchors Rooftop Supports

Green Link offers a new adhesive/sealant designed for use with the company's KnuckleHead Rooftop Support System. The product bonds and seals the KnuckleHead Universal Base and is effective on a wide range of roof surfaces. The new adhesive/sealant has been specially formulated to adhere to PVC, EPDM, TPO, and modified bitumen, as well as the KnuckleHead base itself, which is composed of glass-reinforced nylon. According to the company, it will not discolor from UV exposure, can be applied at temperatures as low as 32 degrees, and is capable of joint movement in excess of 35 percent. [www.Greenlinkengineering.com](http://www.Greenlinkengineering.com)

Circle No. 58



12

## 12 Cap Stapler Offers Easier Loading and Extended Tool Life

National Nail announces the upgraded 18-gauge Stinger CS150B cap stapler with an enhanced design that improves performance with easier loading, longer tool life, and tool-free adjustable exhaust. Shooting 200 caps and 200 staples before reloading, the versatile cap stapler now also provides a wider range of operating pressure (up to 120 psi) for installing roofing underlayments, house wrap, and foamboard. The Stinger CS150B shoots 5/8-inch, 7/8-inch, 1-1/4-inch, and 1-1/2-inch length 18-gauge staples with full 1-inch plastic caps. It also includes an installed belt hook and durable carrying case. [www.Stingerworld.com](http://www.Stingerworld.com)

Circle No. 59

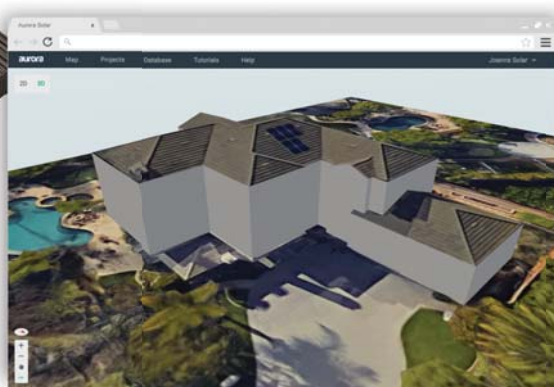




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## 13 Composite Shake Shingles Offered in New Colors

DaVinci Roofscapes launches the Nature Crafted Collection of composite shake shingles, which includes three realistic, nature-inspired colors: Aged Cedar, Mossy Cedar and Black Oak. According to the manufacturer, each new color reflects different progressive aging processes found on real shake shingles. Each tile has been crafted to resist fire and impact, along with high winds, mold, algae, fungus and insects. The Nature Crafted Collection is available on all DaVinci Multi-Width and Single-Width Shake composite roofing tiles. [www.DaVinciRoofscapes.com](http://www.DaVinciRoofscapes.com)

Circle No. 60



## 14 Solar Mounting Platform Designed for Exposed Fastener Panels

S-5! introduces the SolarFoot, a mounting platform designed for exposed fastener metal roofing. With four points of attachment, it provides an ideal mounting platform to attach the L-Foot of a rail-mounted solar system or other ancillaries to the roof. According to the manufacturer, the SolarFoot ensures a durable, weathertight solution for the life of the solar system and the roof. Each piece contains two reservoirs of a factory-applied butyl co-polymeric sealant, allowing a water-tested seal. Simply peel the release paper from the butyl sealant and fasten through the predrilled holes in the base of the SolarFoot. [www.S-5.com](http://www.S-5.com)

Circle No. 61

## 15 3-D Modeling Tool Aids in Solar Design Projects

Aurora Solar Inc., a solar design software company, offers SmartRoof, a tool that allows anyone to accurately and easily model residential and commercial sites for solar projects. According to the company, SmartRoof intelligently infers the internal structure of a roof after a few clicks, reducing solar design time and difficulty. According to the company, SmartRoof requires just an outline of the perimeter of the roof to automatically infer its internal structure. It allows solar designers to drag and drop dormers into the model. The remote site modeling tool enables designers to intersect multiple roof structures, making modeling of complex roof structures significantly easier.

[www.AuroraSolar.com](http://www.AuroraSolar.com)

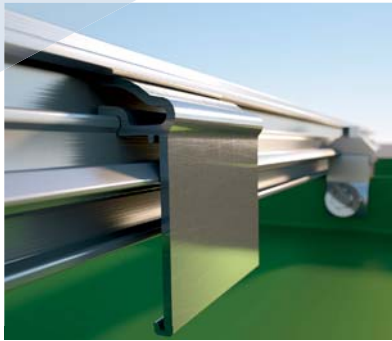
Circle No. 62

## 16 Perforated Starter Shingle Designed to Save Time, Reduce Waste

TAMKO Building Products introduces the Perforated Starter shingle to its roofing product line. Made from fiberglass mat coated with asphalt and surfaced with ceramic granules, the Perforated Starter course shingle is the answer to roofing contractors need for an easy to install starter strip prior to shingle application. The perforation ensures that contractors no longer lose time field cutting shingles to the appropriate size while reducing related waste. The product can be used with TAMKO's full line of asphalt shingles, including the Heritage series laminated asphalt shingles and Elite Glass-Seal 3-Tab shingles. [www.TAMKO.com](http://www.TAMKO.com)

Circle No. 63





17



18

## 17 Snow-Retention System Utilizes Snap-Fit Design

AceClamp offers the Color Snap, a patented snow-retention system that utilizes a snap-fit design. The product ships to roofers with fully assembled, ready-to-install components and snap-in ice clips. Color Snap is available for either standing seam metal roofing or membrane roofing with a variant of the product known as Color Snap-M. According to the company, both varieties offer greater installation flexibility, are easier to install, and help to reduce labor costs by minimizing preparatory tasks. [www.AceClamp.com](http://www.AceClamp.com)

Circle No. 64

## 18 Sheet Metal Brake Designed to Reduce Labor Costs

Roper Whitney releases the Autobrake 1212, which is designed to provide accuracy and repeatability when forming 12-gauge mill steel and 14-gauge stainless steel. It features the rotating Kombi beam, which expands the machine's folding capabilities to produce straight to box and pan bending in just 11 seconds. The box tooling is 6.3 inches in height, precision ground and laser hardened to 60. Pieces are also laser etched with the length of the tool for easy box setup. Optional left-hand or right-hand back gauge extension provides superior material positioning. Maximum 12-foot back gauge travels in less than three seconds and is provided by the six-stage design combining high speed with compact space requirements. [www.RoperWhitney.com](http://www.RoperWhitney.com)

Circle No. 65



19



20

## 19 Modified Bitumen Products Can Now Be Applied in Colder Temperatures

CertainTeed's Flintlastic SA (self-adhering) modified asphalt low-slope roof systems can now be installed in temperatures as low as 20 degrees Fahrenheit. According to the manufacturer, the products can be installed using an application method that is safe for both installers and building occupants, as it uses no kettles or flames and has no hazardous or noxious fumes. Roofing pros only need a hot air welder and silicone roller to complete installations in cold weather, and the change is designed to help alleviate costly weather delays while making a direct impact on the roofing contractor's bottom line. [www.CertainTeed.com](http://www.CertainTeed.com)

Circle No. 66

## 20 Multi-Purpose Joint Sealant Adheres to Damp Surfaces

Kemper System America Inc. offers GreatSeal PE-150, a single-component joint sealant designed for long-lasting weathertight seals. According to the manufacturer, it is ideal for sealing joints in roofing, walls and masonry, as well as gaps around penetrations, flashings, windows and doors. According to the company, the product adheres even on damp surfaces, can be applied in cold weather, and in most cases, without a primer. It bonds aggressively to most building materials, including wood, vinyl, glass, fiberglass, foam insulation, asphalt, modified bitumen, EPDM, PVC, PIB rubber, and Kynar coatings, as well as painted, galvanized and anodized metals. [www.Kempersystem.net](http://www.Kempersystem.net)

Circle No. 67



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## 21 New Colors Available for Concrete Tile Line

Boral Roofing LLC introduces a set of new colors for its signature concrete roof tile line. Inspired by the beach landscape, the six new hues in the collection are particularly well suited to complement homes of the contemporary and transitional architectural styles, according to the manufacturer. The collection includes new colors Ashen Blend, Café Sand Blend, Mottled White Blend, Atmosphere Blend, Oceana Blend, and Beach Blonde Blend, with each shade reflecting an element commonly found at the seaside. The tile is low maintenance, offers a Class A fire rating, and is fully recyclable at the end of its life on the roof.

[www.Boralamerica.com/roofing](http://www.Boralamerica.com/roofing)

Circle No. 68

## 22 New Sealant and Patch Mastic Designed for Durability, Sustainability

Chem Link launches NovaLink FP, a flash and patch mastic product, available in a 10.1-ounce cartridge. NovaLink FP is a high-quality, moisture-curing elastomeric waterproofing and sealant designed to fill, seal and level grout lines, voids, seams and surface damage on construction materials prior to application of liquid waterproofing. According to the manufacturer, the product is also useful for repairing roof leaks, asphalt shingles, roof valleys and seams, chimney flashings and in emergency roof repair situations.

[www.ChemLink.com](http://www.ChemLink.com)

Circle No. 69

## 23 Shingles Offer Time-Release Technology to Fight Algae Growth

Seeking to reduce the prevalence of unsightly shingle discoloration caused by blue-green algae growth, which impacts 80 percent of U.S. homes, GAF introduces StainGuard Plus Technology. According to the manufacturer, the company's proprietary time-release copper ion technology releases 10 times as much stain-fighting copper as its traditional copper coated mineral granules to better resist the growth of algae. This technology is currently available on GAF's Timberline Ultra HD Stainguard Plus labeled shingles and is backed by a 25-year limited warranty against blue-green algae discoloration.

[www.GAF.com](http://www.GAF.com)

Circle No. 70

## 24 Fasteners Designed to Attach Sheeting Over Rigid Insulation

Triangle Fastener Corporation expands its line of BLAZER Drill Screws with new sizes designed to attach metal panels over rigid insulation. These unique screws have two different threads with a gap in between that eliminates jacking of the panel during installation. According to the manufacturer, the special 1/4-14 "high thread" under the screw's head secures the metal panel tightly against the head for optimal seal. The screws have a BLAZER 3 drill point for fast penetration with less effort and a TRI-SEAL spray coating for corrosion protection. They are available in lengths including: 1-7/8, 2-3/8, 3-1/4 and 4 inches.

[www.Trianglefastener.com](http://www.Trianglefastener.com)

Circle No. 71





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## 25 New Hip and Ridge Product Offers Added Thickness

TAMKO Building Products Inc. introduces its new Heritage Designer Ridge asphalt shingle. Constructed with SBS modified bitumen technology, the high-profile ridge product is designed to add a look of polished sophistication to finish asphalt roofing projects with style, according to the manufacturer. Two layers of asphalt shingles are laminated together to produce the high-definition appearance of added dimension in the Heritage Designer Ridge, which is up to a half inch thicker than TAMKO's standard Heritage hip and ridge product. The product is offered in 10-inch and 8-inch overlap.

[www.TAMKO.com](http://www.TAMKO.com)

Circle No. 72

## 26 Storm Repair System Uses Shrink Wrapping Technology

Stormseal is a storm recovery system that protects damaged roofs or walls with a patented wind-, rain- and hail-resistant polyethylene film. The technology, pioneered in Australia, is now available in the United States. According to the manufacturer, Stormseal is designed to replace flapping, leaking, flyaway tarpaulins. The low-density patented polyethylene film is cut and fitted at the worksite with the heat "shrink wrapping" technique, changing the chemical structure of the film and enhancing its strength. [www.Stormseal.com](http://www.Stormseal.com)

Circle No. 73

## 27 New Electric Hoist Moves Operator Away From the Load

Safety Hoist Company launches its new electric material hoist, which moves the operator a safe distance away from the hoist and its load. According to the manufacturer, its unique pendant control makes this one of the safest hoists available today. The hoist runs on 110-volt electric household current, and its controlled descent enables safe, smooth transport both up and down. The electric hoist is quiet, environmentally-friendly, and free from harmful emissions, so it can be used both indoors and outdoors. It can handle up to 500 pounds without sacrificing speed or efficiency.

[www.SafetyHoistCompany.com](http://www.SafetyHoistCompany.com)

Circle No. 74

## 28 New Line of Fasteners Designed for Extreme Environments

The new 40-year Ply-Lo Extreme line of fasteners from East Coast Fasteners is designed for extreme environments. According to the manufacturer, Ply-Lo Extreme was successfully tested in accordance to ASTM B117 for more than 3,000 hours of salt spray. With all the features of the original Ply-Lo fastener, the Ply-Lo Extreme is available in #10, #12 and #14, with a 40-year warranty.

[www.Plyco.com](http://www.Plyco.com)

Circle No. 75



30

## 29 Adjustable Steep-Slope Roof Anchor Aids Ladder Access

The RIDGEPRO is a versatile and adjustable roof anchor that can be connected to the peak before stepping onto a steep-slope roof, allowing a safe transition on and off ladders on roofs with pitches ranging from 6/12 to 12/12. The innovative arch straddles ridge vents, and the adjustable, pitch-specific settings are designed to maximize contact between the product and the roof surface. Constructed from solid, aircraft-grade aluminum, it exceeds industry standard of 5,000-pound tensile strength test when anchored. [www.TheRidgePro.com](http://www.TheRidgePro.com)

Circle No. 76



31

## 31 Work Gloves Offer Advanced Fit, Safety and Comfort

PrimeSource Building Products offers GRX Gloves, a brand-new line of quality gloves designed to promote hand safety and offer value for American workers. According to the manufacturer, GRX Gloves offer workers the latest technology in comfort, fit and safety to deliver a range of tighter fitting, more breathable gloves for a variety of applications and weather conditions. The GRX glove line will be available through the PrimeSource network of pro-contractor supply location and pro-supply locations like 84 Lumber and BMC. [www.PrimesourceBP.com](http://www.PrimesourceBP.com)

Circle No. 78



32

## 30 Primer Adheres to Aged and New Single-Ply Membranes

Everest Systems offers Everprime All Ply, a primer for various new and aged single-ply membranes. According to the manufacturer, this high-quality, plasticizer free, single component, solvent-based primer can be applied by a spray brush or a roller. The product is designed to provide exceptional adhesion to new and aged TPO and PVC membranes. In addition, this high-performance coating provides excellent surface for subsequent application of acrylic, 100 percent solids Silicone and fluoropolymer coatings. [www.Everestsystemsco.com](http://www.Everestsystemsco.com)

Circle No. 77

## 32 Retrofit Roof Drains Feature Integrated Vortex Breaker

OMG Roofing Products introduces a new line of retrofit roof drains called Hercules-Plus. The drains feature integrated vortex breaker technology, which helps improve drain performance to quickly remove water from the roof. According to the manufacturer, independent performance testing shows that Hercules-Plus RetroDrains provide up to 2.5 times greater flow capacity than original Hercules Drains without vortex breaker technology. Drains are available in four sizes: 3 inches, 4 inches, 5 inches and 6 inches, and with an optional TPO or PVC coated flange for direct membrane attachment. [www.OMGRoofing.com](http://www.OMGRoofing.com)

Circle No. 79





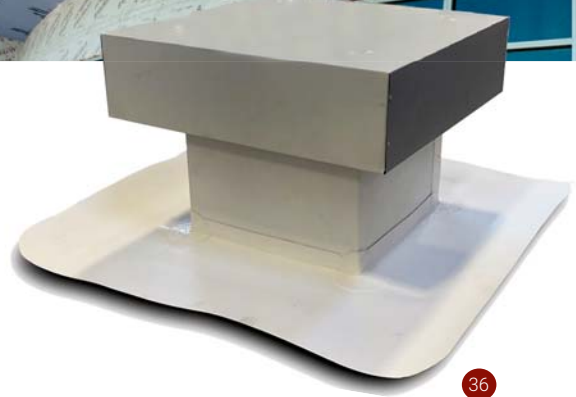
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## 33 Conductive Primer Developed for Electronic Testing

Detec Systems has developed TruGround, a conductive primer which enables accurate electronic leak detection (ELD) testing on conventional roof membranes including black EPDM, TPO, PVC, modified bitumen, hot and cold fluid applied. According to the manufacturer, TruGround must be installed directly below the membrane per ASTM D7877. TruGround can be used for quality assurance testing on newly installed membranes and is chemically compatible with fully adhered, mechanically attached and torch-down membranes. Once applied, ELD testing can be performed for the life of the roof. Future breaches or seam voids can be quickly pinpointed, allowing repairs to be done immediately, preventing costly moisture damage from occurring. [www.DetecSystems.com](http://www.DetecSystems.com)

Circle No. 80

## 35 Underlayment Can Be Used in Vertical Applications

MFM Building Products announces that its Ultra HT Wind & Water Seal high-temperature roofing underlayment can be used for vertical side wall applications. This self-adhering membrane is composed of a cool white, cross-laminated, high density polyethylene film laminated to a high-temperature rubberized asphalt adhesive system rated to 250 degrees Fahrenheit. According to the manufacturer, this premium product is extremely tough, is self-sealing around fasteners and offers a 90-day UV exposure rating. The company states that Ultra HT is ideal for vertical applications under metal panel systems and parapet walls capped with metal tiles. Special installation instructions must be followed for all vertical applications. [www.MFMBP.com](http://www.MFMBP.com)

Circle No. 82

## 34 Structural Acoustical Roof Decks Reduce Noise Levels

Tectum Structural Acoustical Roof Deck solutions from Armstrong Building Solutions provide predictable noise absorption, durability, and sustainability to meet building design needs. Composite roof deck options provide R-values up to 44. By providing noise absorption up to 0.80, the panels often eliminate the need for additional acoustical treatments, providing faster and easier installations than standard steel roof decks. According to the manufacturer, Tectum Roof Decks are an ideal noise reduction solution for large, high traffic, exposed structure spaces such as auditoriums, gymnasiums, arenas, pools, ice arenas and multi-use facilities. [www.ArmstrongBuildingSolutions.com](http://www.ArmstrongBuildingSolutions.com)

Circle No. 81

## 36 Gravity Vent Delivers Natural Ventilation

Acme Cone Company introduces a new gravity vent that delivers natural ventilation for buildings with single-ply roofs when windows and other ventilation solutions are not an option. The vent is available in standard sizes of 12, 18 and 24 inches in white, gray and tan. It is now available for order and immediate shipment. According to the company, contractors using Acme Cone's prefabricated flashings benefit from more efficient and productive crews who aren't spending unnecessary time flashing in the field. [www.AcmeCone.com](http://www.AcmeCone.com)

Circle No. 83



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## 37 Fluid-Applied Roofing System Available in New Colors

Tremco Roofing and Building Maintenance launches six new AlphaGuard BIO Top Coat colors: light gray, medium gray, dark gray, sand, beige and safety yellow. The line enables Tremco Roofing to better support its customers' aesthetic and safety requirements on the company's AlphaGuard BIO projects. AlphaGuard BIO, Tremco Roofing's fluid-applied roofing system, is an excellent choice for restoring older but still functional roofs; both the Top Coat and Base Coat have received BioPreferred certification from the U.S. Department of Agriculture. The new colors add to an already robust palette for AlphaGuard Top Coat. [www.TremcoRoofing.com](http://www.TremcoRoofing.com)

Circle No. 84

## 39 Ridge Vent Provides 15 Square Inches of Net Free Area Per Linear Foot

Keene Building Products offers Viper Vent, a patented, lightweight ridge vent that provides 15 square inches of net free vent area per linear foot. According to the manufacturer, its double-density edge provides superior strength and rigidity, ensuring its ability to maintain a sleek finished look that makes it virtually invisible from the curb. The filter is manufactured with extra thick fibers, and the company states the UV resistant textile allows it to provide superior airflow over its lifetime. Viper Vent is available in a variety of lengths and can be applied on an asphalt, wood, tile, metal, or slate roof. [www.KeeneBuilding.com](http://www.KeeneBuilding.com)

Circle No. 86

## 38 Pitch Pans Can Be Used on Horizontal and Vertical Surfaces

The new ShapeShift line from Mule-Hide Products Co. Inc. is a single solution for creating pitch pans for use in virtually any low-slope roofing job, including with smooth modified bitumen systems and on both horizontal and vertical surfaces. The line can be used with EPDM, TPO, PVC, metal, spray polyurethane foam (SPF), elastomeric acrylic coating, smooth modified bitumen and smooth built-up roofing systems. The straight and corner sections feature interlocking joints and snap together to form square and rectangular pitch pans 4 inches by 4 inches and larger. [www.MuleHide.com](http://www.MuleHide.com)

Circle No. 85

## 40 Dual-Component Extruder Minimizes Downtime

The Garlock Cyclone 5/15 Dual-Component Extruder is designed to significantly reduce the time and materials needed to adhere rigid insulation and cover boards to structural roof decks, as well as adhering fleece backed single-ply membranes in both new roofing and recover operations. The Cyclone equally dispenses a two-component, 1:1 ratio low viscosity polyurethane adhesive. Users can access connectors and load chemical containers from the front without kneeling or crouching, and the adjustable gun assembly and ergonomic design help reduce application errors and training time. [www.GarlockEquip.com](http://www.GarlockEquip.com)

Circle No. 87



# U.S. Coast Guard goes Green, earns LEED Gold

**Douglas A. Munro Coast Guard Headquarters Boasts One of World's Largest Green Roofs**

**L**ike a 550,000-square-foot sponge, the vegetative roof assembly (VRA) atop the Douglas A. Munro Coast Guard Headquarters Building in Washington, D.C., absorbs rainfall while managing its release into the city's sewer system. Green roofs are a storm water management "best practice" in the nation's capital, which boasts more than 3.2 million square feet of green roof space.

Gordon Contractors installed the green roof on the 11-level, 1.2-million-square-foot headquarters, which is also home to several independent field commands including the National Pollution Fund Center and Marine Safety Center. Key performance objectives included complying with D.C.'s stringent storm water regulations, as well as federal Environmental Protection Agency (EPA) rules requiring 95 percent of storm water to be collected onsite.

Beyond complying with local and federal storm water mandates, the project team creating the vegetative roof sought to create a rooftop habitat that supports biodiversity and helps birds and other wildlife thrive. The result of a careful and collaborative approach to moisture management is a high-performing roof that ultimately

received LEED Gold certification from the U.S. Green Building Council. Working as a system, the roof's components help reduce rainwater runoff while helping to reduce pollutant loads and protect natural resources such as the nearby Chesapeake Bay.

### NUMEROUS CHALLENGES

As every roofer knows, no two projects are alike. The location of the Douglas A. Munro Coast Guard Headquarters on hilly terrain provided plenty of natural obstacles, including nine of the eleven levels being built into a hillside. The site features a series of stair-stepped green roof terraces that help gradually move water from higher to lower levels and eventually into a pond through elevation changes of 120 feet. According to Steve Gordon, president of Preservation & Protection Systems Inc. (PPSI), the company providing design and installation support with the Owens Corning FOAMULAR extruded polystyrene insulation and Henry 790-11 Hot Rubberized Asphalt used in the VRA, the stair-step design required a complex approach to the roof's varied elevations. To meet this challenge a complex network of expansion joints by EMSEAL tied together multiple air barriers within the system. Another challenge was the magnitude

of the project, spanning more than a half-million feet across multiple levels and 176 acres. Timing was critical, as plants and vegetation required quick delivery and transplanting into their new environment, particularly during D.C.'s sweltering summers. These living materials couldn't simply be covered with a tarp until better conditions prevailed, but had to be quickly transported, installed and irrigated.

The Douglas A. Munro Coast Guard Headquarters serves 4,000 occupants, so comfort and energy efficiency were important concerns. From the outset of the project, the integrated roofing team was tasked with designing a vegetative roof assembly that would help decrease the building's heating and cooling energy usage, lower long-term maintenance costs and extend the life of the roof.

### A SOLUTION TO ACHIEVE PERFORMANCE GOALS

The project team selected a Protected Roof Membrane Assembly (PRMA) to deliver the water management required to meet storm water mandates, as well as deliver energy efficiency through R-value performance and strength to support vegetation requirements. The PRMA places the insulation layer above the





The Douglas A. Munro Coast Guard Headquarters Building in Washington, D.C., has more than 550,000 square feet of green roof space.





The stair-stepped green roof terraces help gradually move water from higher to lower levels and eventually into a pond.

waterproofing membrane, a reversal of traditional roof systems. PPSI recommended Owens Corning FOAMULAR 404 and 604 extruded polystyrene (XPS) insulations for use in the PRMA. The water resistance and compressive strength of the XPS insulation provided the integrity needed for long-term roof performance and helped the Douglas A. Munro Coast Guard Headquarters Building ultimately achieve LEED Gold certification.

Given the sheer size of the project, it was inevitable that the roofing team would encounter several scenarios requiring strategic problem-solving throughout the installation. For example, the team adjusted the engineered soil specification to reduce the loads within the structural tolerances for the roof structure and carefully addressed a range of pH, moisture, organic matter and nutrient levels to support the variety of plants. Not only did such careful attention deliver strength performance, it's also achieved the objective of attracting wildlife. The terraced landscape has welcomed not only birds and butterflies, but the occasional

deer wandering onto a rooftop.

## EVALUATING RESULTS

Since its completion, the VRA at the Douglas A. Munro Coast Guard Headquarters has attracted widespread attention from landscaping groups, engineering firms and organizations interested in sustainability. These groups are interested not just in the building's unique design but in its resilience and performance. Steve Gordon of PPSI says the resilience of the headquarters' roof is reflected in its record of no leaks. "We've had no leaks," Gordon says. "The reason we use hot fluid applied waterproofing on green roofs is because we want to avoid any leaks in the building. At the end of the day, the biggest liability in a roof is water."

After successfully navigating a range of challenges and opportunities, the U.S. Coast Guard Headquarters' VRA epitomizes the convergence of aesthetics and performance and is recognized as one of the largest green roofs in the world. According to the Landscape Performance Foundation,

## DOUGLAS A. MUNRO COAST GUARD HEADQUARTERS BUILDING WASHINGTON, D.C.

### TEAM

**ARCHITECTS:** WDG, Washington, D.C., [www.wdgarch.com](http://www.wdgarch.com)

**GENERAL CONTRACTOR:** Clark Construction Group, Bethesda, Maryland, [www.clarkconstruction.com](http://www.clarkconstruction.com)

**ROOFING CONTRACTOR:** Gordon Contractors, Capitol Heights, Maryland, [www.gordoncontractors.com](http://www.gordoncontractors.com)

**INDEPENDENT REP AGENCY:** Preservation & Protection Systems Inc. (PPSI), Laurel, Maryland, [www.ppsimd.com](http://www.ppsimd.com)

### MATERIALS

**INSULATION:** FOAMULAR 404 and 604 extruded polystyrene, Owens Corning, [www.owenscorning.com](http://www.owenscorning.com)

**WATERPROOFING MEMBRANE:** 790-11 Hot Rubberized Asphalt, Henry Company, <https://us.henry.com>

**EXPANSION JOINTS:** EMSEAL, [www.emseal.com](http://www.emseal.com)

**PAVERS:** Hanover Architectural Products, [www.hanoverpavers.com](http://www.hanoverpavers.com)

**SEDUM MATS:** Sempergreen, [www.sempergreen.com](http://www.sempergreen.com)

the headquarters' vegetative roof retains up to 424,000 gallons of rainwater.

In a small way, the performance reflects the integrity of a hero an Act of Congress honored when naming the headquarters, according to Captain Will Smith, Commanding Officer U.S. Coast Guard Base NCR. Captain Smith noted, "The Coast Guard's only Medal of Honor recipient, Douglas Munro earned the award for his selfless sacrifice as a landing craft pilot at Guadalcanal while evacuating marines from a beachhead under heavy fire from enemy forces." **R**

## GOVERNMENT & MUNICIPAL PROJECTS

WRITTEN BY **CHRIS KING**



Indian River County Intergenerational Recreation Center hosts recreational and competitive sporting events and other community activities.

# All-American Design

## Recreation Center's Innovative Roof and Wall Systems Provide Added Durability

Indian River County Intergenerational Recreation Center was designed to be the hub of its community, a venue that hosts recreational and competitive sports and other activities, including educational, social and philanthropic events.

The new \$10.4 million facility, branded by the county as the “iG Center” and often referred to as “Big Red,” consists of two adjoining main buildings: the two-story gymnasium and a long, single-story wing that houses various multi-purpose rooms, a concession area, a game room and a

catering kitchen.

The site’s location near the ocean-front in Vero Beach, Florida, is susceptible to hurricanes and other extreme weather events, and making sure the complex would stand up to the elements was a key consideration for officials and residents in the county. This concern prompted a focus on the design of the building’s exterior envelope. In the end, a metal roof and metal wall panels were the key to meeting the building’s design goals.

### DESIGN CRITERIA

When county officials spoke with the

architects at Borrelli + Partners, they had a strict set of criteria in mind for the building, including the ability to withstand high wind speeds and 100-year rainstorms. “They mandated a sloped roofing system,” notes Dan-Michael Trbovich of Borrelli + Partners. “They wanted a minimum 20-year warranty, and they said they were looking for a ‘50-year roof.’ This affected the roof design and the wall design.”

A key goal of the team at Borrelli + Partners was to specify a watertight metal roof system that would also allow unlimited thermal movement to cope with extreme temperature



fluctuations. They found what they were looking for in a standing seam metal roof and wall system manufactured by IMETCO.

The 37-acre site and open park setting also provided the opportunity to explore interesting aesthetic elements. The building would be highly visible, and goals included a dynamic exterior design that would allow the park and the building complement each other. In the end, the decision was made to go with bright red and white metal panels that would stand against the blue sky to create what Trbovich calls an "All-American design."

In one of many daring design elements, sections of the red roof panels were folded over and brought down

to the ground to serve as wall panels. A custom detail was devised to make the transition impervious to water penetration.

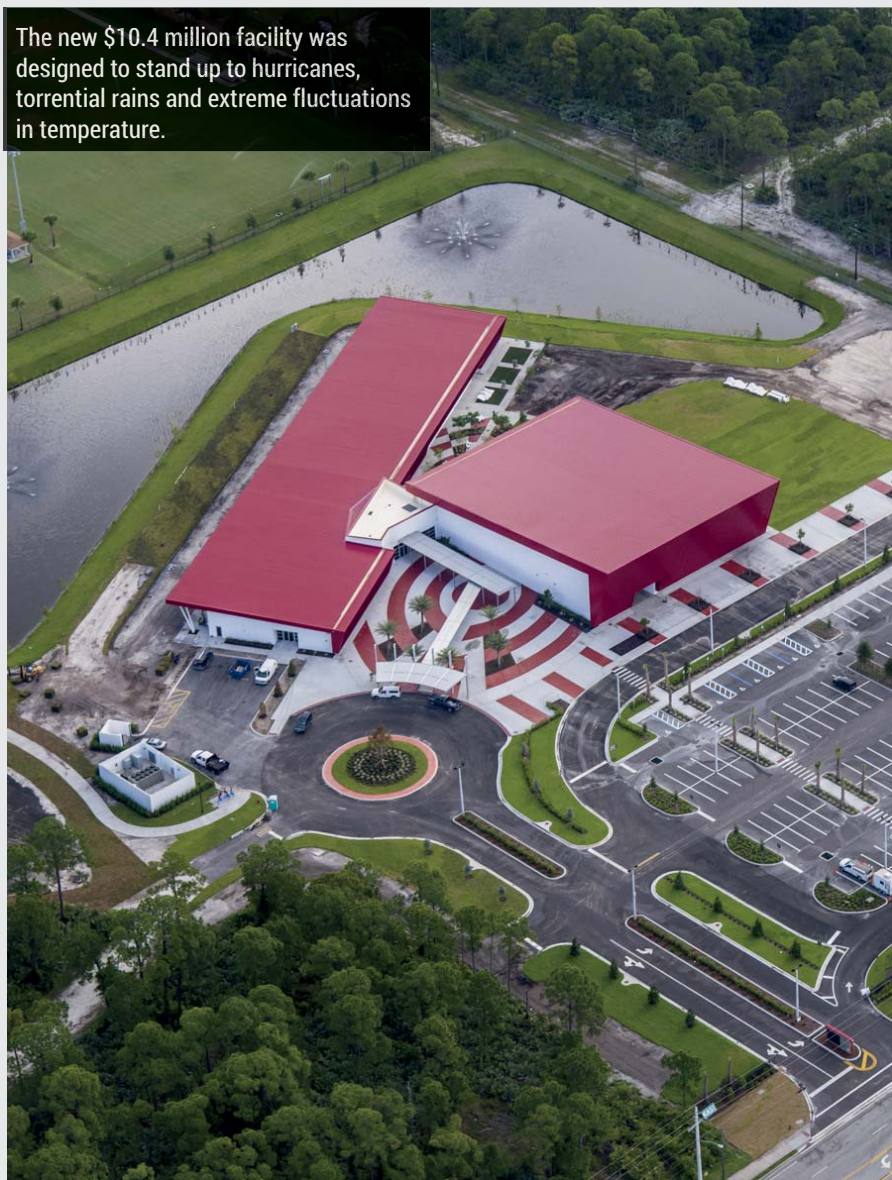
"Our criteria included a kneecap—a premanufactured fixture that would be put over the entire thing," Trbovich says. "IMETCO was the only manufacturer we knew that offered that, and it was absolutely critical in the design."

Areas in which the panels were turned over included the south-facing wall, which was no coincidence. "We wanted to make sure the south-facing wall didn't get too much heat, so what you're essentially doing is creating a vented roof decking system that protects the vertical surface on the south side," notes Trbovich.

High summer temperatures and afternoon rains in Vero Beach can cause a lot of expansion and contraction, so HVAC and plumbing systems were re-routed to avoid the roof. "There is not a single roof penetration," Trbovich says. "We wanted to make sure that roof would be able to move and slide. We wanted to make sure there were no contraction points that would hang it up, therefore we went with a design that would not allow roofing penetrations, whether it was a vent pipe, air duct or air-handling unit."

Detailing was meticulous and consistent throughout, according to Trbovich. Flashing details were all designed to have a 6-inch overlap. "We went to extreme levels of detailing,

The new \$10.4 million facility was designed to stand up to hurricanes, torrential rains and extreme fluctuations in temperature.



## INDIAN RIVER COUNTY INTERGENERATIONAL RECREATION CENTER VERO BEACH, FLORIDA

### TEAM

**ARCHITECT:** Borrelli + Partners,  
Orlando, Florida, [www.borrelliarchitects.com](http://www.borrelliarchitects.com)

**GENERAL CONTRACTOR:** KAST  
Construction, West Palm Beach,  
Florida, [www.kastbuild.com](http://www.kastbuild.com)

**ROOF SYSTEM AND WALL SYSTEM  
INSTALLER:** Atlantic Roofing II of Vero  
Beach Inc., Vero Beach, Florida,  
[www.atlanticroofing2.com](http://www.atlanticroofing2.com)

### MATERIALS

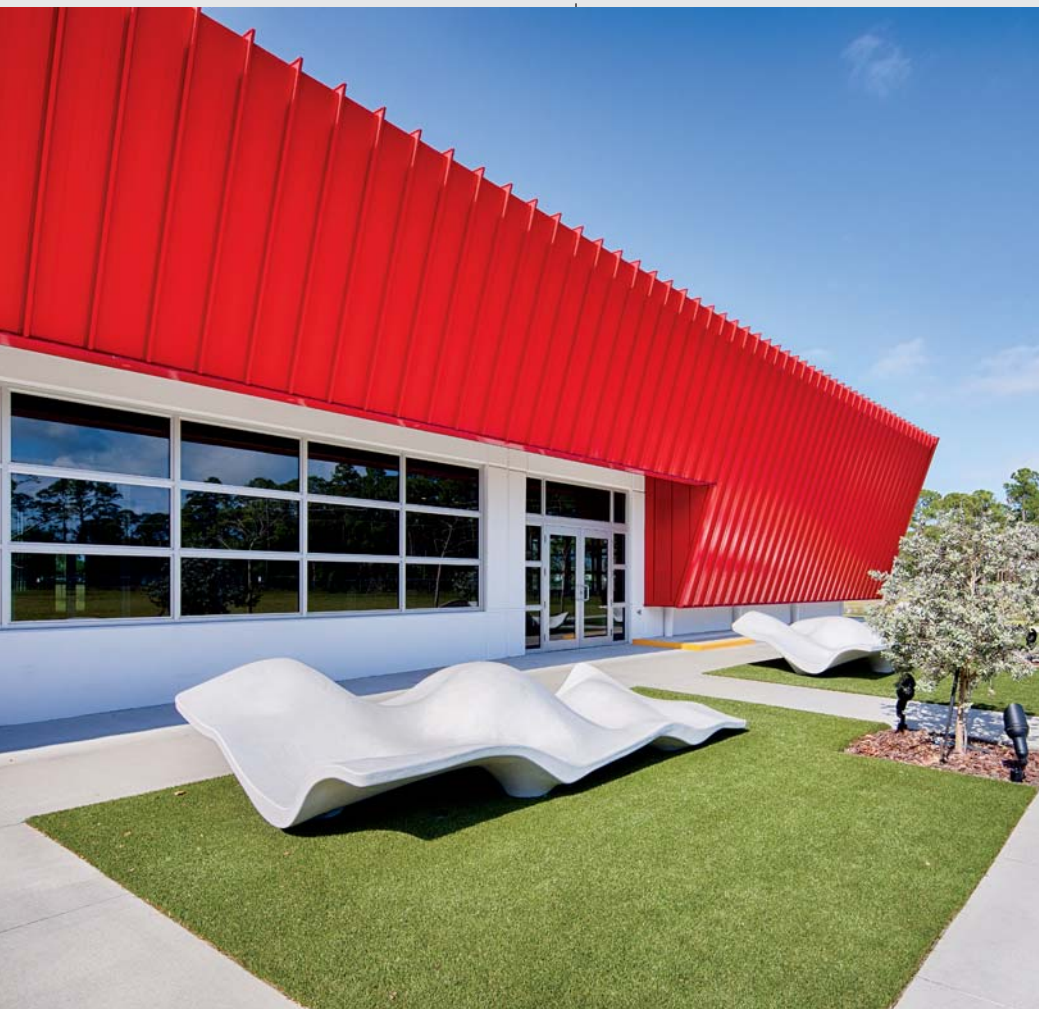
**METAL ROOF PANELS:** Series 300 in  
Cardinal Red, IMETCO, [www.imetco.com](http://www.imetco.com)

**METAL WALL PANELS:** Series 300 in  
Cardinal Red and Latitude in White,  
IMETCO

**UNDERLAYMENT:** Aqua-Block 50,  
IMETCO

**COVER BOARD:** 5/8-inch DensDeck  
Prime, Georgia-Pacific, [www.densdeck.com](http://www.densdeck.com)

**SINGLE-PLY MEMBRANE:** 50-  
mil FiberTite XT KEE, Seaman  
Corporation, [www.fibertite.com](http://www.fibertite.com)



whether it was in section cuts or in isometric cuts, to make sure that each and every one of those flashing details had that same 6-inch overlap. We required those be uniform across the facility on all corners, so that we essentially matched rake, eave jamb and corner flashing details.”

### INSTALLATION CHALLENGES

To ensure the details were correctly installed in the field, the architect and manufacturer worked closely during construction with the general contractor, KAST Construction, and the installer, Atlantic Roofing II of Vero Beach Inc.

Atlantic Roofing II applied the standing seam roof system and metal wall panels, as well as a small single-ply roof on a flat section near the entryway. IMETCO Series 300 panels in Cardinal Red were installed on both the roof and walls, while white IMETCO

Latitude panels were also installed on the walls.

The metal roof system was installed over the structure’s metal deck. It included 3 inches of polyiso insulation, 5/8-inch DensDeck and Aqua-Block 50 peel and stick, high-temperature underlayment.

The absence of penetrations simplified the metal roof installation, notes Steven Cottrell, project manager and chief estimator for Atlantic Roofing II. “The panels were rolled right on the site, and the longest ones up there are 168 feet long,” he says.

The roll former was stationed on the ground, and panels were lifted to the roof with a special cradle. “IMETCO brought out the metal and provided the machinery to roll them out, and the panels were placed onto giant spacer bars and loaded onto the roof,” Cottrell explains. “It was a bit of

a challenge. We had 20 men up on the roof unloading them.”

The flat roof sections connecting the two buildings and the entryway were covered with a Seaman FiberTite KEE membrane, which was fully adhered over 3 inches of polyiso, tapered insulation and 5/8-inch DensDeck.

The roof system features a large internal gutter, which was lined with the same FiberTite roof system. Metal panels drop into the gutter and pick up on the other side, so it was crucial to ensure the area would be watertight and the panels would line up perfectly. “We worked closely with the architect and manufacturer on that,” notes Cottrell. “We used their eave detail and high eave detail, and it worked very well.”

### ELEGANT SOLUTIONS

According to Cottrell, the roof and wall installations went smoothly and the roof is performing well – despite a hurricane and a 100-year rainstorm. “We’ve had no leaks, zero callbacks,” he says.

As the building was completed, Borrelli + Partners worked with the county to design the landscaping around the structure. “Our architects and interior designers work very closely with the landscape crew,” Trbovich notes. “We’re concerned about the physical space – external, internal, architectural and throughout. It’s a real holistic design approach, and you don’t see that with most architectural firms.”

The result is a project that Cottrell and Trbovich point to with pride. “It’s a unique structure,” says Cottrell. “It was a challenging project, but we rose to the challenge and banged it out. It’s like a little star for us on the fridge, if you know what I mean.”

For Trbovich, what stands out the most is the marriage of form and function in the many details. “While the building looks interesting with the awning and the striking form of the red standing seam roof, what’s crucially important is all the things we just talked about that are embedded in that design – the solutions themselves.” **R**





**The Hatch Memorial Shell Shows Off  
New Roof at 4th of July Celebration**

# New Waterproofing Anchors Boston Tradition

In an annual tradition, Boston kicks off its outdoor summer concert series with a nationally televised performance by The Boston Pops Orchestra on the 4th of July while fireworks snap and sparkle. The Pops perform from The Hatch Memorial Shell, an

amphitheater shaped like the quarter of an orange that opens to the crowd on the Charles River Esplanade.

The difficulty of waterproofing this curved structure became apparent after the Massachusetts Department of Conservation & Recreation (DCR), owner and manager of the Hatch Shell put

out a bid for a new roof around Labor Day in 2017. The specification called for a single-ply EPDM sheet with pre-cast concrete panels set atop pedestals as an aesthetic outer shell.

Folan Waterproofing & Construction Co. Inc. of South Easton, Massachusetts, the general contractor, handled the





The Boston Pops perform at The Hatch Memorial Shell on July 4, 2018.

overall project as well as demolition of an old terrazzo roof and installation of the new pre-cast concrete panels. Executive manager Patrick Folan worked closely with roofing contractor John F. Shea Company of Mattapan, Massachusetts, which was responsible for the waterproofing installation.

Shea Company project manager Michael Frank, RRC, reviewed the installation challenges with Folan. The EPDM sheet would need to be cut into multiple slices, and then require full adhesion to the curved roof deck as well as along all the lap seams. The pedestals for the 665 concrete panels also posed an issue since the anchor studs would penetrate the EPDM sheet. There would be nearly 4,500 penetrations on the job for the 1,476 stainless steel pedestals alone. No EPDM manufacturer would warrant the installation.

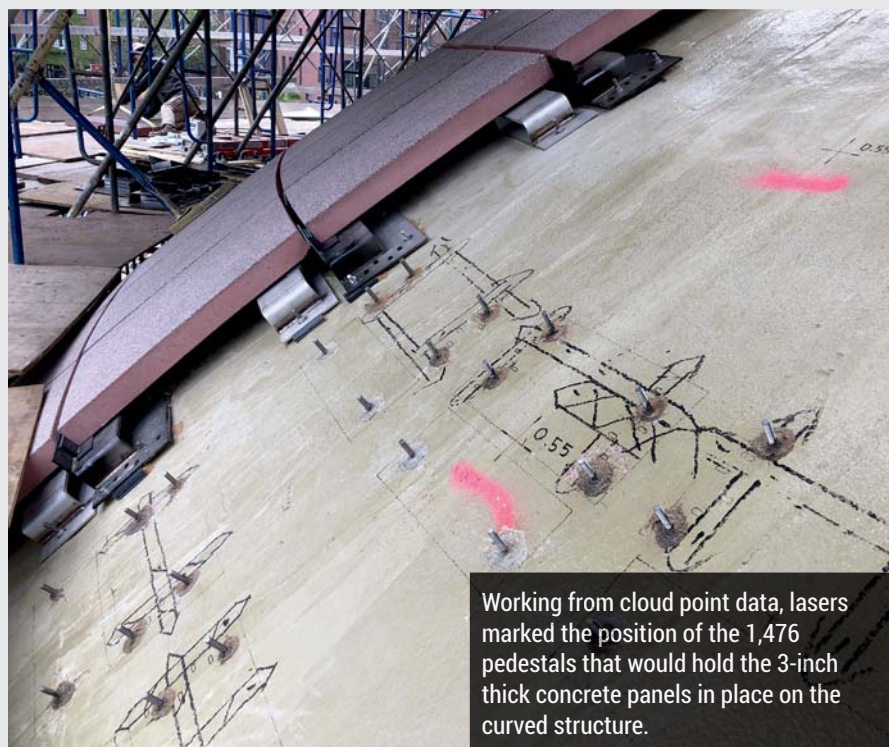
After the contract was awarded in October 2017, the construction team suggested an alternative inspired by a recent project for a youth center in Cambridge. There Shea Company used the Kemperol 2K-PUR liquid-applied reinforced membrane system to waterproof below a plaza deck topped with pedestals and pavers. The DCR and Boston architectural firm Bargmann Hendrie + Archetype Inc. gave the team a green light to explore further.

"The point we made was that because we are dealing with such an odd shape and with so many penetrations for the studs, it would be much easier to install the Kemperol liquid-applied

system," Frank says. "With the single-ply EPDM sheet, there would be 'miles' of field seams and, of course, every time you have a lap joint, you have areas that may be suspect at some point for leaking."

The team contacted Kemperol manufacturer, Kemper System America Inc. of West Seneca, New York, and detailed specifications for the assembly along with cost estimates were presented to the owner and architect about two weeks later. "Obviously, there was a change in installed cost, but it was almost immediately accepted. So, we needed to completely shift gears, and revise our shop drawings and submittals accordingly," Frank says. Among other things, the design of the stainless steel pedestals was modified to allow the panels to rest a couple of inches above the new reinforced membrane.

The surface preparation for the waterproofing started in April 2018, with a late May project completion target. The Folan crew removed the old cast-in-place terrazzo roofing system with air hammers and then peeled back an existing neoprene membrane to expose the structural concrete deck. Before the waterproofing membrane could be applied, Folan completely tented the roof with



Working from cloud point data, lasers marked the position of the 1,476 pedestals that would hold the 3-inch thick concrete panels in place on the curved structure.



winter enclosures around the scaffold-ing, and then added diesel heaters to maintain the temperature above 40 degrees F.

Shea Company worked the job across the top of the structure and down row-by-row. After applying a Kempertec EP primer, crews applied Kemperol 2K-PUR resin with high-nap rollers a section at a time while laying Kemperol reinforcement into the resin from 20-foot rolls. Each roll was pre-cut lengthwise and then rerolled so it could be smoothly laid onto the curved surface. This was closely followed by a topcoat of the resin to fully embed the reinforcement in the resin. The system fully adheres to the deck and creates a monolithic watertight surface.

### SECURING THE ANCHORS

Each pedestal needed to be precisely positioned and anchored into place through the membrane, so the epoxy anchoring system for the studs was key to the project.

After the membrane fully cured, 3-D measurements were taken across the dome with point cloud software to

## THE HATCH MEMORIAL SHELL BOSTON, MASSACHUSETTS TEAM

**ARCHITECT:** Bargmann Hendrie + Archetype Inc., Boston, <https://bhplus.com>

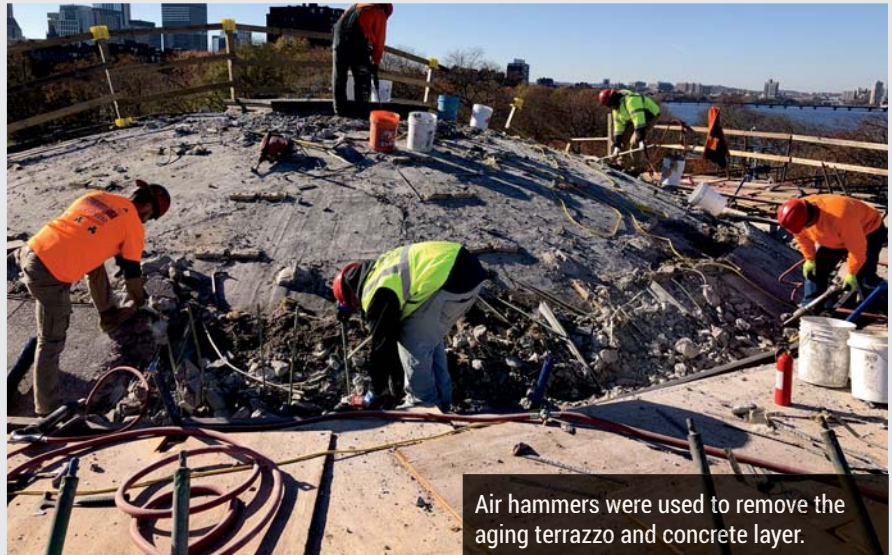
**GENERAL CONTRACTOR:** Folan Waterproofing & Construction Co. Inc., South Easton, Massachusetts, [www.folanwaterproofing.com](http://www.folanwaterproofing.com)

**ROOFING CONTRACTOR:** John F. Shea Company of Mattapan, Massachusetts, [www.johnfshea.com](http://www.johnfshea.com)

## MATERIALS

### LIQUID-APPLIED WATERPROOFING

**SYSTEM:** Kemperol 2K-PUR liquid-applied reinforced membrane system, Kemper System America Inc., West Seneca, New York, [www.kemper-system.com](http://www.kemper-system.com)



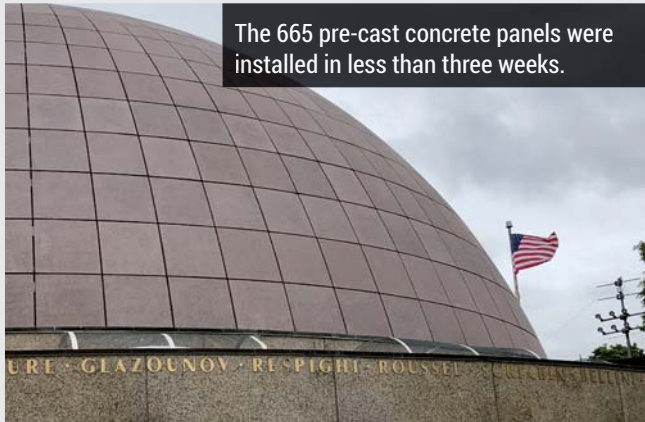
Air hammers were used to remove the aging terrazzo and concrete layer.



The team from John F. Shea Company waterproofed the concrete roof deck with a Kemperol liquid-applied reinforced membrane system.



The studs for the pedestals were epoxied in place through the Kemperol membrane and top-sealed with GreatSeal construction sealant, also from Kemper System.



The 665 pre-cast concrete panels were installed in less than three weeks.

help determine the height difference between the surface of the membrane and the desired finished elevation for the pre-cast panels. The surveying firm that made the measurements returned when it was time to set the pedestals.

"Their surveyors marked out the dome with lasers. They would set a mark, and say, 'This is your point for four panels, and this is the cavity depth for the finished panel elevation,'" Folan explains. There was also GPR (Ground Penetrating Radar) scanning performed to locate existing reinforcement in the original structural concrete. His firm carefully drilled holes for the threaded studs to avoid the existing reinforcing steel, and the studs were then set in epoxy. Shea Company then applied GreatSeal PE-150 sealant around the pedestals and the heads of the bolts.

"Kemper System provided this detail, and they wanted the epoxy to ooze out of the pre-drilled holes when the anchors were inserted," he says. "We would then hang the pedestals on the studs, and screw nuts onto the studs to hold the pedestal in place."

The Folan team needed to wait for an architectural review of the pre-cast concrete panels before they could be installed. They were not all the same, but designed and numbered like puzzle pieces for their location on the shell. The 3-inch thick panels averaged 3 feet by 4 feet, and needed to be lowered by crane since they ranged from about 350 to 550 pounds each.

The panels were installed row-by-row starting at the bottom with 3/4-inch open joints between. "The biggest factor at that point was the depth of the cavity. Before we set a pedestal, we needed to know whether it should be shimmed 1/16th, 1/8th or 1/4 inch," Folan says.

Though the panel fabrication process started late, the team worked six days a week with some 10-hour days to complete the job by a final June 15th deadline. "As fast as they could get us the pre-cast panels, we were putting them in," he recalls.

Looking back, Folan says the pedestals would have required much more time to install if the Kemperol system had not been selected, since there were nearly 1,500 of them and each would need to be covered with EPDM. "With the Kemper System detail, we could just keep moving to meet the deadline in time for the big July 4th celebration." **R**

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# Recreational Metal

**Insulated Metal Panels Lend  
New Rec Center Weather  
and Fire Performance**



**T**he new Lander County Recreation Center, also known as “BM Rec” to area residents, provides a daily splash of energy and enthusiasm to the quiet mining community of Battle Mountain, Nevada. Featuring bold, ribbed insulated metal panels, single-skin rain-screen panels and a standing seam roofing system, the project showcases a comprehensive metal building envelope and the best in performance and aesthetics offered by NCI Building Systems Inc.

Designed by VanWoert Bigotti Architects, the Lander County Recreation Center strikes the perfect balance between industrial and commercial architecture. The project pairs a steel frame system by Star Building Systems with more than 50,000 square feet of metal panels by Metl-Span and MBCI.

Metl-Span insulated metal panels make up the bulk of the project’s

high-performance metal exterior, providing thermal and moisture performance in a single, easy-to-install component. Designers blended 16,997 square feet of the ribbed 7.2 Insul-Rib profile with 4,595 square feet of lightly-corrugated CF Mesa panels for dramatic wall relief. Specified in both Charcoal Gray and Igloo White, the insulated metal panels provide exceptional aesthetic versatility.

While the 3-inch insulated metal panels boast an exceptional R-value of 23.58, the project team was equally impressed with the product’s unique, single-component construction. The ease of installation creates a weathertight building envelope after just one pass, creating efficiencies throughout the construction process.

The insulated metal panel system was installed without a hitch, according to Larry Rogers, owner of G&S Construction. As first-time Metl-Span IMP installers, Rogers and his team of builders underwent training at the

nearby Metl-Span West manufacturing facility in Las Vegas.

“Everything went up smoothly,” Rogers says. “I’ve heard nothing but positive reactions from the architect and the building owners.”

Designers accented the ribbed insulated metal panels in Charcoal Gray with a custom green single-skin metal panel from MBCI that provides aesthetic harmony with interior design and signage elements. The bold green exterior also serves as the project’s aesthetic focal point, drawing attention to the street-facing entrance.

“The lime green panels really strike the eye,” notes Associate Project Manager Charlie Grundy, VanWoert Bigotti Architects. “We wanted to inject some personality and energy to the project, and I think it was a big success.”

The project also incorporates fire-rated insulated metal panels, featured solely on a storage facility on the eastern side of the building’s



perimeter. While not part of the initial design, Lander County Recreation Center representatives requested additional storage space to meet the needs of its growing suite of programs and activities. Measuring approximately 600 square feet, the new addition “called for a firewall because of its proximity to a nearby school to meet codes,” Rogers said.

The team from VanWoert Bigotti did not hesitate to specify Metl-Span ThermalSafe panels. “The fire-rated panels were required at the common area between the Battle Mountain Junior High School gymnasium building and the storage building,” says

Armando Velazquez, building service representative with Star Building Systems.

ThermalSafe mineral wool panels combine exceptional fire-resistance with the thermal and moisture performance that can be expected from Metl-Span insulated metal panels. The product’s unique LockGuard interlocking side joint further enhances the fire-resistant performance of the panel with its tongue-and-groove engagement of the mineral wool core. The fire-rated panel also offers excellent structural characteristics and span capability.

The Lander County Recreation Center incorporates 972 square feet of

24-gauge, 4-inch ThermalSafe insulated metal panels with a Light Mesa profile and matching Charcoal Gray hue.

To complete the all-metal building envelope, VanWoert Bigotti Architects specified 22,853 square feet of 24-gauge CFR insulated metal standing seam roof panels. Featuring 2-inch standing seams with the lightly-corrugated Mesa profile, the CFR panels are exposed on the interior for smooth sightlines and a modern aesthetic appearance.

The product combines durable exterior and interior faces of Galvalume steel with Metl-Span’s high-performance polyurethane insulating core. Factory-cut panel ends and factory notching eliminate field work and erection costs, while weathertight vertical side seaming leads to additional installation efficiencies.

Battle Mountain residents celebrated the grand opening of the new Lander County Recreation Center with two days of free admission in July 2017. **R**

## LANDER COUNTY RECREATION CENTER BATTLE MOUNTAIN, NEVADA

### TEAM

**ARCHITECT:** VanWoert Bigotti Architects, Reno, Nevada, [www.vwbarchitects.com](http://www.vwbarchitects.com)

**GENERAL CONTRACTOR:** Core Construction, Reno, Nevada, [www.coreconstruction.com](http://www.coreconstruction.com)

**IMP INSTALLER:** G&S Construction, Battle Mountain, Nevada,

### MATERIALS

**INSULATED METAL PANELS:** Insul-Rib and CF Mesa panels, Metl-Span, [www.metlspan.com](http://www.metlspan.com)

**ROOF PANELS:** 24-gauge Mesa CFR insulated metal standing seam roof panels, Metl-Span

**METAL ACCENT PANELS:** Custom green metal panels, MBCI, [www.mbc.com](http://www.mbc.com)





# Roofers to the Rescue

After it was damaged during a high-wind event, the existing roof system, including loose-laid membrane, insulation and interlocking pavers, was removed and recycled.

## Prompt Response to Damage and a New Roof Help Restore Phoenix Library

**A**t 6 p.m. on Saturday, July 15, a microburst over the roof of Burton Barr Library in Phoenix, Arizona, was strong enough to lift the membrane and the pavers meant to protect the structure during such extreme weather conditions. The structure, including the roof, is designed to remain mechanically stable and adapt as the stress on the building increases, but the severe wind event ultimately led to a broken sprinkler system.

The sprinkler system was installed under the roof system on the top-side of the metal deck. Water rained down from the fifth floor and spread throughout the building. Upon initial evaluation, it was believed that

approximately 50 percent of the building had water damage. At one point there were several inches of standing water on the first floor.

The structure and roof deck were determined to be sound. The immediate goals included temporarily protecting the roof area from any further rain, as the weatherproof membrane had been disturbed, and drying out the moisture inside the building.

Star Roofing Emergency Services was called by Brycon Construction Company, and a crew of Star roofers spent the weekend preforming roof repairs to get the roof in the dry and mitigate further interior damage.





## INSTALLING THE NEW ROOF

Star Roofing's estimating and operations departments worked with Brycon Construction and the city of Phoenix to put together re-roof specification and budget pricing to install a new roof.

The existing roof system consisted of loose-laid EPDM over two layers of 4-inch polyiso insulation over a steel deck. Ballast consisted of 1 1/2-inch-thick interlocking pavers. Complete removal of the existing system was required. In all, 23 semi loads of insulation, 6 1/2 tons of membrane and 255 tons of concrete pavers were removed. Star Roofing recycled 100 percent of the pavers at Cemex USA in Phoenix, where the company grinds pavers and uses the material in making concrete. The EPDM and the roof insulation were also recycled through Nationwide Foam Recycling.

Access and the roof height provided challenges, especially in the roof removal process. The 34,000 pavers, each weighing 15 pounds, were placed in small trash bins. Pavers were removed 45 at a time, as this was the maximum weight per bin that Star's crane could handle with the jib extended at the angle required to reach the building.

Safety is always the paramount concern, according to Jeff Klein, vice president of Star Roofing. "Challenges included exposed edges on the north and south roof deck and the removal of the ballast pavers with our crane due to the weight of the pavers themselves," he notes. "To overcome these concerns, we limited the number of pavers removed at a time so as not to overstress the crane, and we made use of mobile fall protection carts and permanent safety tie-off davits."

Additional work was required due to the replacement of the damaged sprinkler system. The sprinkler was installed above the roof deck and buried under the roofing system. Because of possible litigation, the sprinkler system piping had to be marked, disassembled and lowered to the ground. The system was then reassembled in the parking lot for inspection by the city of Phoenix and their consultants.

The new roof specified was a fully adhered Sarnafil PVC system. Crews from Star Roofing installed 5/8-inch DensDeck cover board, which was mechanically fastened with gray screws to match the underside of the exposed metal deck. Screws had to be kept in straight lines because of their visibility. A self-adhered vapor barrier was installed over the cover board. It was topped with one layer of 3-inch polyiso and two layers of 2 1/2-inch polyiso, all set in adhesive.

A special installation method was required at the perimeter to protect against another high wind occurrence. Four layers of 5/8-inch DensDeck and two layers of 2 1/2-inch polyiso insulation, all secured with adhesive, were installed 18 feet in from of the roof edge.

The entire 43,000-square-foot roof area then received a Sarnafil 72 mil Fleeceback PVC membrane that was fully adhered. The system carries a 25-year warranty.

The project progressed smoothly, notes Klein. "That's what we do every day – working collaboratively with many stakeholders to problem solve and design a system that meets the needs of the building, doing the job in a timely manner, and minimizing disturbance to daily business and other major construction underway." **R**

## BURTON BARR PUBLIC LIBRARY PHOENIX, ARIZONA

### TEAM

**GENERAL CONTRACTOR:** Brycon Construction, Chandler, Arizona, [www.brycon.com](http://www.brycon.com)

**ROOFING CONTRACTOR:** Star Roofing Inc., Phoenix, Arizona, <http://starroofingaz.com>

### MATERIALS

**MEMBRANE:** 72-mil Fleeceback PVC, Sika Sarnafil, <https://usa.sarnafil.sika.com>

**COVER BOARD:** DensDeck, Georgia-Pacific, [www.densdeck.com](http://www.densdeck.com)



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The Vaughan Metropolitan Centre Subway Station is one of six new subway facilities near Toronto.

# Futuristic Vision

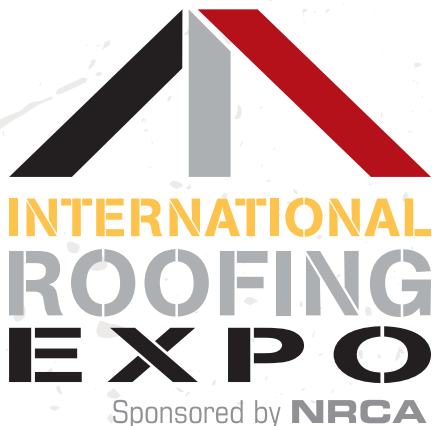
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The curvilinear design of the main entrance is capped with a standing seam roof comprised of zinc panels from Rheinzink.

**THE NEW VAUGHAN** Metropolitan Centre Subway Station is truly an artistic jewel on Toronto Transit Commission's (TTC) Spadina Subway Extension. One of six new facilities on the route, the station offers intermodal transit services and rapid subway connection to downtown Toronto.

The curvilinear design of the main entrance pavilion creates a futuristic appearance for the structure. The design offers a column-free interior environment with high ceilings and bright open spaces that allow daylight to penetrate deeply into the station.

Highlighting the exterior design is a standing seam roof that brings the structure to life. Approximately 12,000 square feet of Rheinzink Classic bright rolled panels clad the curved roof of the impressive building. The roof offers high solar reflectance and combines with significant sustainable initiatives throughout the project. The station exceeds Canada's National Energy Code requirements for energy performance by 40 percent and meets sustainability standards comparable to those required for LEED Silver certification.

More than 1,000 uniquely tapered panels were fabricated by Rheinzink distributor Agway Metals Inc. at its



facility in Exeter, Ontario. "No two panels are alike," says Paul MacGregor, estimator. "Each panel had an individual taper and length. We fabricated the panels using our CNC turret, which was key to achieving the exact taper for each panel right down to the millimeter."

Providing precise panel specifications to Agway Metals was the

installer, Bothwell-Accurate, of Mississauga, Ontario. It was a demanding process, according to Trevor McGrath, Bothwell's estimating manager for cladding. "We used a 3-D scanner on the roof structure and then utilized Radius Track Corporation to design the curved framing system that went on top of the roof structure," McGrath notes. "The Rheinzink panels


were then applied on that. Radius Track confirmed the skin model of the 3-D structure for us and then computer-flattened it so that we could begin doing sheet design and layout. The flattened model gave us critical dimensions regarding panel lengths and widths."

The panels were curved on site by Bothwell-Accurate using Agway's Schleich machine. "We did a sheet stagger at the beginning of the installation with the two panel lengths, which then allowed us to stagger all of the joints which is recommended," McGrath says.

Bothwell-Accurate has considerable experience in installing zinc. "We're very familiar with how to form and work with the natural metal," McGrath states. "The architects wanted an 'old school' appearance with hammered seams and the manner in which the flashings and counter-flashings were done. There was a painstaking amount of detailing done around the 46 skylights in the roof. Each one required custom attention. We had productions crews on the job getting the panels down and then finishing crews crafting the detail work."

Design for the station was a collaboration of Grimshaw Architects and Adamson Associates Architects in conjunction with ARUP Canada.

Goals of the Vaughan Metropolitan Centre included encouraging greater use of public transportation, facilitating efficient transfers between modes of transportation, as well as creating an interesting aesthetic experience. The domed entrance pavilion integrates a mirrored ceiling art installation by Paul Raff Studio designed to capture the drama of moving passengers and changing light conditions.

Juan Porral, partner at Grimshaw Architects, summed it up this way: "We are always looking for opportunity to create high-quality places with real character. By elevating a functional building to something artful and full of life that people will remember and enjoy, we can have a greater impact on urban space and user experience." 

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## Mission Accomplished

Composite Shake Is the Answer for Home in British Columbia

PHOTOS: DAVINCI ROOFSCAPES

**MYRTLE SIEBERT** grew up in the logging industry as the granddaughter of a hand logger in British Columbia, Canada. She married a man who dreamt of having his own logging company and saw that dream come true. But when it came time to replace the cedar shake roof on her own home near Victoria, she decided to go with composite shake shingles because of their durability, fire resistance, and ease of maintenance.

Siebert and her son did their homework. They visited local builder supply businesses and then struck gold when they hired Victoria-based Custom Roofing Inc. to do the job. Siebert worked closely with Caleb Friesen, owner of Custom Roofing, to make sure she got the roof system she wanted.

"Caleb and his team confirmed what we already knew – that composite shake from DaVinci was the product for my home," says Siebert. "I chose the style and color of the composite

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shakes carefully so that the new fake cedar shakes would look like the real cedar roof we had previously. Mission accomplished."

"She definitely wanted to maintain the look and feel of the thick wood shakes that the house had on it previously," Friesen notes. "The idea of longevity and consistent appearance truly appealed to this homeowner. The selection of Bellaforté Shake in the Tahoe color blend really complements the design of this house."

Made of pure virgin resin, UV and thermal stabilizers plus a

highly-specialized fire retardant, Bellaforté products are created to resemble natural slate and shake products. The composite roofs are designed to resist fading, rotting, cracking and pests, plus high winds, hail and fire. The realistic-looking roofing tiles stand up to weather challenges while requiring no maintenance.

Siebert was intimately involved in the re-roofing process. "I had been directly involved in building this home back in 1991, plus several others over the years," she says. "I love doing the planning and design work. Caleb was

delightfully communicative and his team of workers was fabulous."

Despite interruptions of pelting rain, snow obliterating the drawn lines and slippery conditions causing work stoppages, the team from Custom Roofing was careful and dedicated to the re-roofing process. "This roof gives me confidence," Siebert says. "As much as I love wood, I no longer have to worry about maintaining a real cedar shake roof. The DaVinci composite shake is the best possible option I could find for staying as close to real wood on our roof." <sup>R</sup>



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