May | June 2018

Vol. 9 | Issue 3

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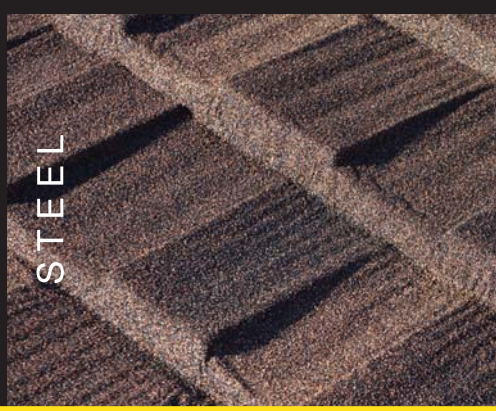

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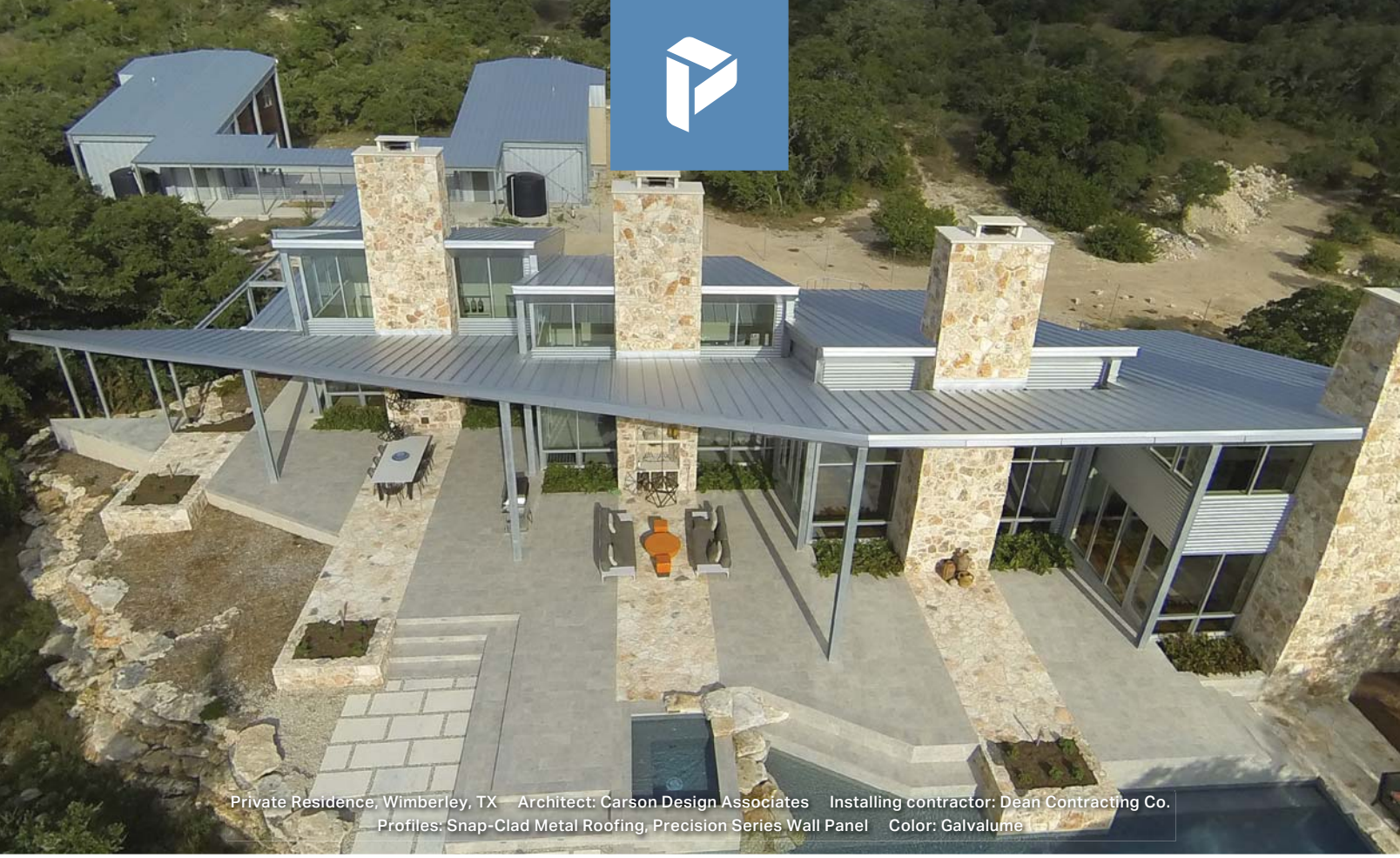

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-Jack Carson, President, Carson Design Associates

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FEATURES

Roofing
RoofingMagazine.com

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COLUMNS

DEPARTMENTS

ON THE COVER

The CHRISTUS Trinity Mother Frances Herrington-Ornelas HealthPark in Tyler, Texas, houses an urgent care clinic, medical offices, a physical therapy area and a fitness center. The roof and wall panel systems were key to meeting the design goals for the complex.

Photo: Petersen

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RAISE THE ROOF

WRITTEN BY **CHRIS KING**

Spring Forward, Fall Protect

Spring arrived late here in Michigan, and before the weather — and construction — began to heat up, I saw a press release from MIOSHA indicating the second year of its "Stop Falls. Save Lives." safety awareness campaign would focus on the roofing industry. I called Nella Davis-Ray, Director of MIOSHA's Consultation Education and Training (CET) Division in Lansing, to ask her why.

"Nationally and at the state level, we are pleased to see that overall, when you look at general industry and construction, there is a downward trend in work-related fatalities and injuries, and we like to think we play a part in that downward trend," she said. "Even though we are seeing this downward trend, when you look at roofers' fall-related incidents, and particularly when you look at roof-related fatalities, their rate is 10 times higher than the rate for construction workers as a whole. So, if there is any trade we can talk to about falls, the data shows the one group we should be focusing on is the roofers."

The statistics were sobering, but the overall message was hopeful. "Our message is that all falls are preventable," Davis-Ray said. "We really do believe that in MIOSHA."

The key is making sure every employee is properly trained, has the proper safety equipment — and knows how to use it — and follows the jobsite-specific safety plan. According to Davis-Ray, the MIOSHA can help with all of those things — and the services are free.

The CET Division works independently of the Enforcement Division. It provides guidance to employers and employees through a variety of methods, including classroom training and educational materials including literature, videos, and a fall protection website, www.michigan.gov/stopfalls. The greatest tool of all, noted Davis-Ray, is a staff of consultants who can provide individualized training.

"I'm surprised how many employers, particularly contractors, are not aware that all they have to do is pick up the phone and call us," she said. "At their request, we can schedule a time and location for one of our construction safety consultants to come out and work with them directly on safety and health issues."

Consultants can review written requirements, explain interpretations of the standard, and answer specific questions about a project and whether or not a contractor might be in compliance. They can also help in crafting a comprehensive safety program. "We always try to look at the big picture," Davis-Ray says. "The overarching issue is to have an effective system in place so that you ensure that safety is considered as a part of every contract."

Davis urges contractors in every state to explore the free educational resources OSHA can provide. Michigan contractors can call 800-866-4674 or visit www.michigan.gov/miosha to learn more. R

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Roofing

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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.

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; post a comment on our website; and/or Facebook and tweet us. This magazine—and your peers—are counting on you!

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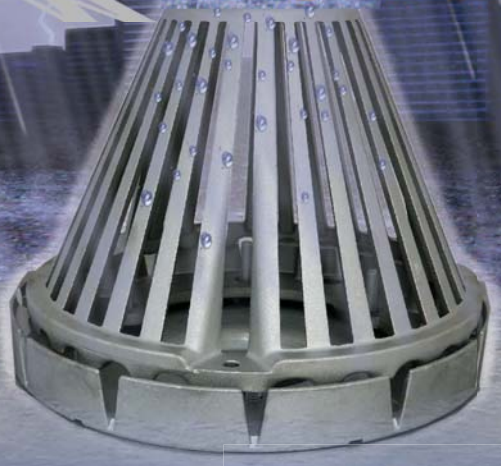

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CONTRIBUTORS

Caroline Trautman is an attorney with Raleigh, N.C.-based Anderson Jones PLLC. She concentrates on areas including construction law, construction litigation, lien and bond claims, and contracts. In "Business Sense," page 38, she examines the changing definition of joint employment and its effect on who might legally be considered to be an employee of a company.

Angie Lewis is an award-winning writer whose work has appeared in numerous publications. She currently works with Atlas Roofing on its blog, Asphalt Life. In "Business Sense," page 46, she distills the advice of business-planning experts Kevin Kennedy and Joe Bazzano of Beacon Exit Planning, who detail exit and succession plan strategies for roofing contractors.

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 Environmental Innovation in Roofing. In "Tech Point," page 56, he provides an overview of recent federal legislation and reforms that impact the building and roofing industries.

Marcin Pazera, Ph.D., is the technical director for the Polyisocyanurate Insulation Manufacturers Association (PIMA). He holds a doctoral degree in mechanical engineering from Syracuse University. In "Details," page 60, he provides an overview of methods for properly storing and handling polyisocyanurate insulation.

Craig Brightup is CEO of The Brightup Group, LLC, a government relations, lobbying and political services firm headquartered in Washington, D.C. He is also the legislative consultant to the Spray Polyurethane Foam Alliance. In "Legislation & Regulation," page 62, he explores key areas of the Tax Cuts and Jobs Act of 2017 and how they could positively affect companies in the roofing industry.

David Stassi is field technical support manager at Insulfoam, a manufacturer of expanded polystyrene (EPS) insulation products. A graduate of Colorado State University, Stassi worked as a field sales representative for OMG Roofing Products prior to joining Insulfoam. In "Tech Point," page 64, he details recent advances in induction welding methods for attaching TPO and PVC membranes.

Tim McQuillen is director of technical services for the Asphalt Roofing Manufacturers Association (ARMA), a trade association representing North America's asphalt roofing manufacturing companies and their raw material suppliers. In "Details," page 68, he outlines the causes of ponding water in low-slope roofs and delineates best practices to prevent ponding.

Thomas W. Hutchinson, AIA, FRCI, RRC, CSI, RRP, is a principal of Hutchinson Design Group Ltd. In Barrington, Illinois, and a member of *Roofing*'s editorial advisory board. In "From the Hutchinson Files," page 72, Hutchinson explores the topic of thermal loss through fasteners in mechanically attached single-ply assemblies and argues that the phenomenon necessitates changes in building codes.

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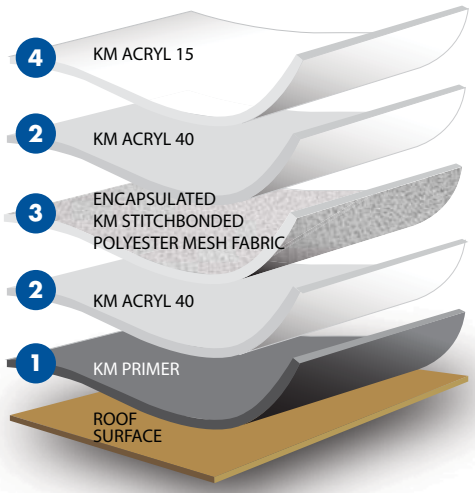

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IKO Holds Grand Opening Celebration for New Plant

IKO recently held a grand opening celebration at the company's 250,000-square-foot production and warehouse facility in Hillsboro, Texas.

IKO HELD an official grand opening ceremony to celebrate the opening of the company's newest production facility in Hillsboro, Texas. According to Marketing Director Carol Perkins, local dignitaries and IKO customers were on hand to attend the ribbon-cutting ceremony and tour the plant during the grand opening celebration held March 22. The new plant began producing product in late December.

The 250,000-square-foot production and warehouse facility is historic for IKO as it completes the company's manufacturing footprint in the United States, allowing it to better serve and build upon the customer and homeowner base in the Southwest. IKO opened its first U.S. asphalt shingle plant in Wilmington, Delaware, in 1981.

According to Vice President of Sales (U.S.) Keith Lowe, the new flagship facility is a vital component of the company's long-term strategic expansion plan as well as a significant statement on the company's commitment to the U.S. market. "IKO has built more modern facilities and invested more in our technology in the past twenty years than anyone else in our industry," said Lowe. "We are proud of the effort and resources that we've invested in better serving our U.S. customers."

The Hillsboro facility employs 65 people locally, with the possibility for future expansion to meet consumer demand. The project was announced in 2015, shortly after the company opened its IKO Southeast facility in Sylacauga, Alabama. Plans are already underway for the construction of a new facility west of Toronto, Ontario, modernizing IKO's first plant in eastern Canada, built in 1958. For more information, visit www.iko.com.

Participating in the facility's ribbon cutting ceremony are (from left) David Koschitzky, Co-Chair and CEO of IKO North America; Mike McDonald, President of Hillsboro Economic Development Corp.; Shannon Trammell, Mrs. Hill County; Brian Birdwell, Texas State Senator; Art Mann, Economic Development Administrator for the City of Hillsboro; Henry Koschitzky, IKO President and CEO; Keith Lowe, Vice President of IKO U.S. Sales; Guy Tremblay, Vice President North American Operations at IKO; Edith Omburg, Mayor of the City of Hillsboro; Dan Nobbe, IKO Hillsboro Plant Manager; Don Nicholas, District Field Representative for Congressman Roger Williams.

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Soprema Adds Seventh U.S. Contractor Training Center

SOPREMA INC. has expanded its comprehensive contractor training program by opening a new training center in Capitol Heights, Maryland. The new training center is located within a new 15,000-square-foot distribution facility operated by Convoy Supply Inc., a distributer of building envelope materials for the construction industry.

The new training center will offer courses covering product specifications and application for the full building envelope in a 1,350-square-foot classroom. The space will also be available to local contractors and architects for industry meetings and training sessions.

"At Soprema, training and education are taken very seriously, and I'm glad that we can now offer our customers another convenient location specifically for this purpose," said Tim Kersey, Vice President and General Manager for Soprema. "With labor being the number one topic in our industry, we want contractors to feel comfortable and become proficient using our products. We also want designers to better understand our products and systems and feel comfortable specifying them, so we are committed to ensuring they have every opportunity to interact with and learn from us in person."

For more information, visit www.soprema.us.

Advanced Roofing Rides to Help Fight M.S. for 15th Consecutive Year

The bicycling team from Advanced Roofing Inc. participated in the Multiple Sclerosis (M.S.) Bike Ride for the 15th consecutive year, completing the trip from Miami to Key Largo and back March 3-4. According to Advanced Roofing CEO and President Rob Kornahrens, this year's team raised $25,160.50 for the Multiple Sclerosis Society, bringing the combined total for all 15 years to $590,525. "It was another great year. The weather was great and the event was well organized from start to finish," Kornahrens said. "I thank everyone for their support and look forward to our 16th year next year," Kornahrens said. "We will continue to ride until M.S. stands for 'Mystery Solved.'"

For more information regarding Advanced Roofing's next M.S. Bike Ride, contact Kim Campanile by email at kimc@advancedroofing.com or visit www.nationalmssociety.org.

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NEWSFROMNRCA

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 infoårm 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.

NRCA
National Roofing Contractors Association

NRCA Launches ProCertification Initiative

TO ADDRESS the great need for skilled workers in the roofing industry, NRCA is launching a national worker certification initiative, ProCertification, later this year. The program will provide those interested in entering the industry with a clear career path based on industry-specific training courses and earned credentials.

ProCertification is comprised of two separate components: Training and Certification.

Training: ProCertification training programs will teach installation skills to roofing field employees in roof system installation, waterproofing, rooftop solar, and repair and maintenance. The purpose of ProCertification is to teach comprehension and skills based on industry standards and best practices presented in The NRCA Roofing Manual. Roof system installers will be directed to follow instructions of their foremen, who are responsible for directing crews to adhere to manufacturers instruction and company practices.

ProCertification training programs to be released in 2018 include: basic roofing skills; low-slope decks, insulation and flashing concepts; and thermoplastic single-ply roof system installation. Trainers throughout the country will be qualified by NRCA and trained to help installers learn and practice skills necessary to successfully complete ProCertification training

Certification: Certification through this program enables experienced roofing professionals to demonstrate they can perform the work to industry standards. Participants will be able to earn certifications in all major roof system, waterproofing and rooftop solar installations, as well as roof system repair and maintenance. Hands-on skills of ProCertification participants will be verified by NRCA Qualified Assessors. Online training for assessors will be available summer 2018.

Roofing Industry Stakeholders Meet Elected Officials on Roofing Day in D.C. 2018

More than 400 roofing industry stakeholders from 47 states convened in Washington, D.C., on March 7, meeting with their elected officials as part of Roofing Day in D.C. 2018. Led by the NRCA and more than 20 partner associations and organizations, the event was an unprecedented effort to elevate the image of the roofing industry and share its message with lawmakers on Capitol Hill. "NRCA is excited to lead this industrywide effort to bring the message of the roofing industry straight to our elected officials," said Reid Ribble, NRCA's CEO. "Thanks goes out to the more than 400 stakeholders who travelled to D.C. to advocate for our great industry."

NRCA Updates Roof Wind Designer

The NRCA has updated Roof Wind Designer, an online wind-load calculator intended to provide roofing professionals with an easy way to determine a roof system's design wind loads for many commonly encountered building types subject to code compliance.

The free web-based application has been updated to reflect the significant changes made to ASCE 7, "Minimum Design Loads and Associated Criteria for Buildings and Other Structures." Changes include basic wind map changes; new roof zone layouts; and updates to pressure coefficients.

Roof Wind Designer also added the ability to perform wind load calculations for the 2016 version of ASCE 7 and enables users to choose between three versions of the standard: ASCE 7-05, ASCE 7-10 and ASCE 7-16.

Roof Wind Designer initially was developed in cooperation with the Midwest Roofing Contractors Association and North/East Roofing Contractors Association. For more information visit www.roofwinddesigner.com.

National Roofing Week is June 3-9

National Roofing Week will take place June 3-9. The event raises awareness of the significance of roofs to every home and business, promotes the good deeds of the roofing industry, and stresses the value of professional roofing contractors and the importance of making informed decisions about maintaining or replacing any roof system. NRCA encourages its members to participate by informing the public about the essential role roofs and professional roofing contractors play in every community. For more information, visit www.nrca.net/National-Roofing-Week.

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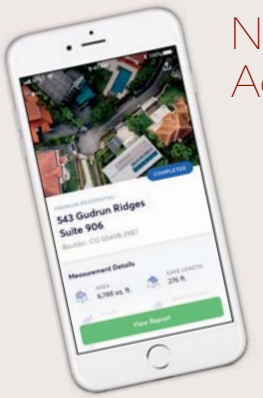
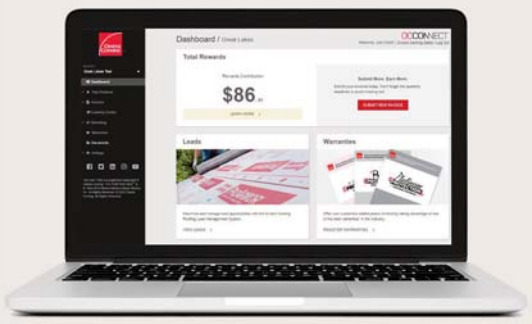


New EagleView Mobile App Delivers Streamlined Access to Reports

EagleView Technologies launched a mobile app for roofing contractors. According to the company, the new app enables contractors to see key measurements quickly, introduces a new dashboard for report access and status updates, and provides the ability to upload user-generated images. The app utilizes EagleView's library of more than 350 million aerial images to provide contractors with accurate measurements at-a-glance, and instant access to their data and reports anytime, anywhere. Users can find more information at www.eagleview.com.

ARMA's eBook Provides Guidance for Installing Three-Tab Asphalt Shingles

The **Asphalt Roofing Manufacturers Association** (ARMA) has converted its popular manual, *Good Application Makes A Good Roof Better: A Simplified Guide – Installing Three-Tab Asphalt Shingles For Maximum Life & Weather Protection*, into an eBook, making it easier for contractors to access it on the jobsite. The guide serves as a resource for roofing professionals installing three-tab asphalt shingles, including for new-roof construction, re-roofing/roof replacement, and roof recovery projects. To purchase the guide, visit www.asphaltroofing.org/arma-bookstore.



Owens Corning Roofing Introduces the OCConnect Resource Center

Owens Corning Roofing launched the OCConnect Resource Center, an online 24/7 resource portal in response to input from members of the Owens Corning Roofing Contractor Network. The all-new OCConnect will replace the previous ProConnect Resource Center to provide contractors with faster, user-friendly navigation features, a streamlined at-a-glance user dashboard and full access to a wide range of communication tools with enhanced capabilities. A key highlight of the OCConnect Resource Center is the flexible and secure dashboard, which allows owners to assign multiple users and authorize varying levels of access. The OCConnect portal may be accessed at www.owenscorning.com/connect.

S-5! Releases Updated Attachment Solutions & Products Brochure

S-5! has published its 2018 Attachment Solutions & Products brochure and made it available for download. The 20-page brochure can be found along with other literature at www.s-5.com/resources/download-library/. The Attachment Solutions & Products brochure contains information about the proper application of S-5! products for uses including attaching solar panels, snow retention systems, signs, banners, pipes and conduits, HVAC and rooftop equipment, satellite dishes, lightning protection, fall protection and more.

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National Roofing Contractors Association
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17
CERTA TRAIN-THE-TRAINER AUTHORIZATION
Rosemont, Illinois
National Roofing Contractors Association
www.NRCA.net

28-30
CHINA INTERNATIONAL ROOFING & WATERPROOFING EXPO 2018
Shanghai, China
China National Building Waterproof Association
www.Chinaroofexpo.cn

JUNE

10-12
WESTERN ROOFING EXPO
Las Vegas
Western States Roofing Contractors Association
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19-20
MCA SUMMER MEETING
Rosemont, Illinois
Metal Construction Association
www.MetalConstruction.org

21-23
AIA CONVENTION
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American Institute of Architects
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27-29
FRSA'S 96TH ANNUAL CONVENTION AND THE FLORIDA ROOFING & SHEET METAL EXPO
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Florida Roofing and Sheet Metal Contractors Association Inc.
www.Floridaroof.com

JULY

10-14
NRCA MIDYEAR MEETINGS
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National Roofing Contractors Association
www.NRCA.net

23-26
2018 INTERNATIONAL ROOF COATINGS CONFERENCE
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SEPTEMBER

13-14
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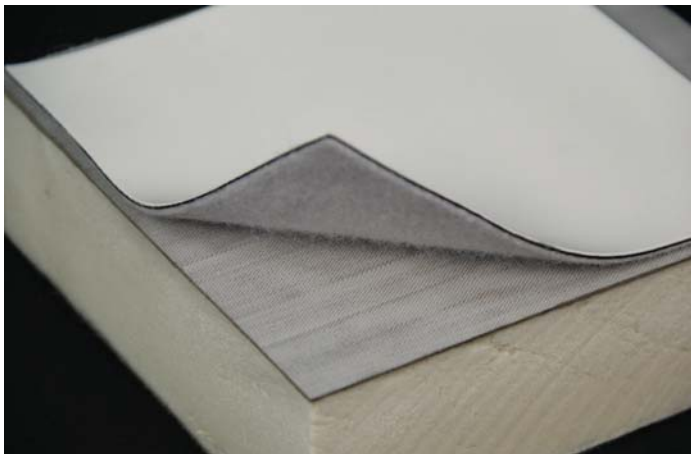
MATERIALS & GADGETS

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.

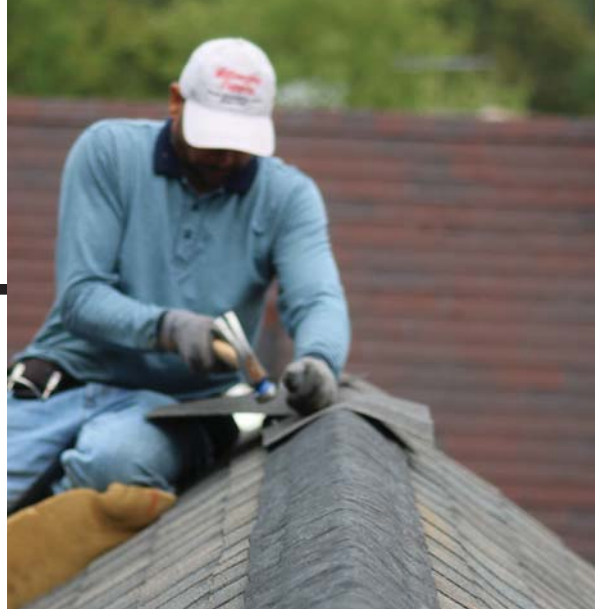
www.GAF.com | **Circle No. 20**



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 | **Circle No. 22**



Ridge Vent Provides 15 Square Inches of Net Free Area Per 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 | **Circle No. 21**

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 | **Circle No. 23**

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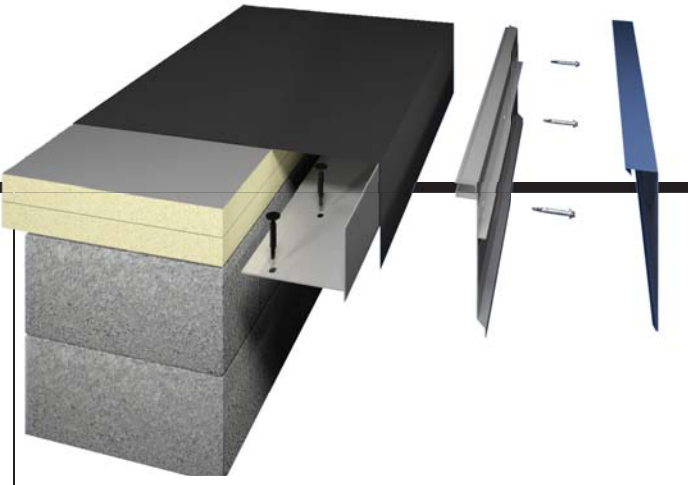
MATERIALS & GADGETS

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 | **Circle No. 25**



Roof Edge Solution Offers Long-Term Structural Performance

Metal-Era releases the Eliminailer-T, a heavy gauge aluminum extrusion that can be installed directly onto the building substrate in place of wood nailers to support increased long-term structural and thermal performance at the roof edge. Eliminailer-T is tested and meets requirements for FM 1-49. According to the manufacturer, an independent ANSI/SPRIK/FM 4435/ES-1 test at FM resulted in Eliminailer-T being able to withstand greater than 999 PSF at the corner region. As a result, Metal-Era supports Eliminailer-T with a 215 MPH Wind Warranty.

www.Metalera.com | **Circle No. 26**

Reinforced EPDM Membrane Offers Tape-to-Tape Technology

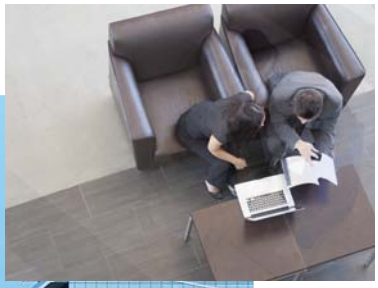
Johns Manville unveils a new reinforced EPDM membrane sheet with tape-to-tape technology, JM EPDM R FIT. According to the manufacturer, the product is field tested and proven to speed up installation by as much as four times, leading to lower labor costs. The expense and time involved when using membranes that require primer is also eliminated since no primer is needed, leading to lower installed costs. The initial bond between tape-to-tape membrane sheets has been measured to be up to 20 percent stronger compared to field-fabricated seams. JM EPDM R FIT enables a longer window of application time since the 10-foot-by-100-foot rolls are completely pre-taped.

www.JM.com/roofing | **Circle No. 27**

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 | **Circle No. 28**



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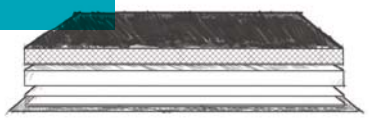

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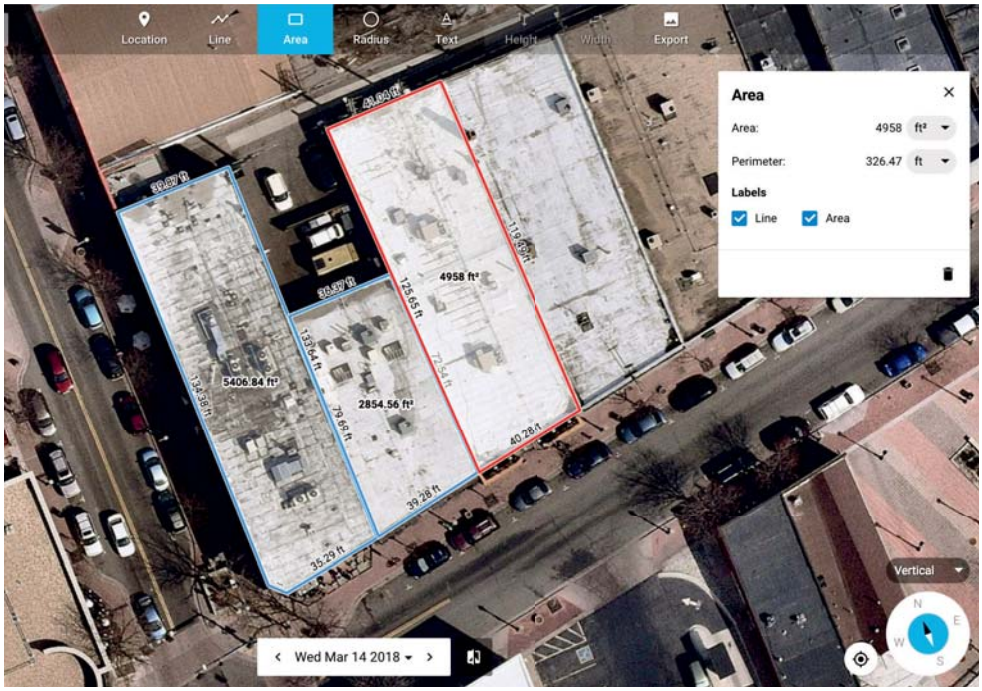
HD Aerial Maps Accelerate Roofing

How aerial photography impacts your bottom line

THE BASIC skills of building, replacing or repairing a roof haven't changed much in centuries. Improvements in materials—from thatch and wood shingles to slate and asphalt tiles—unfolded over this time. But rapid changes in technology, including updated aerial view maps, have helped roofers of every size radically improve their businesses, and do it quickly.

Progressive roofing companies often use a blend of technologies these days. They might combine their standard practices with aerial measurement services that capture aerial views from 15°-45° (a.k.a., "oblique") angles and top-down (or "orthogonal") perspectives. For example, Nearmap offers instant access to HD-quality photomaps of 430 urban areas across the US. Using a web browser on a desktop or mobile device, commercial and residential roofers can pull up crystal clear images of rooftops that are several times sharper and more current than other sources.



Technologies such as free satellite images (think, Google Earth) have been around for years, but are low resolution and often obscured by full tree canopies. Similarly, purchased roof measurement reports often include outdated images and aren't practical for prospecting new business. Even drones that promise close-up views are complex, costly, and hard to scale.

Unfortunately, roofers have tight windows of opportunity to operate. They can become busiest right after a hurricane, a tornado, a hailstorm, or heavy snow coupled with high winds. Your lines may be flooded with calls from damage-sustaining households across a wide area. Even in good conditions, roofing companies are required to continuously prospect, estimate and quote with detailed measurements as they compete for business, one street and neighborhood after another.

In a highly competitive business, roofers need every edge they can get. Prospective customers want accurate repair quotes—and they want them quickly. So why wouldn't you choose a tool that provides both, and—at the same time—enables you to accelerate your business?

High-resolution aerial imagery like Nearmap offers leaf-on and leaf-off views, gives roofers exceptional perspective, and provides a distinct advantage over many competitors. Plus, it can be instantly accessed from any laptop, mobile or connected device.

How does this razor-sharp information help you in your business? After a catastrophe, a roofer's time is scarce. Every hour traveling from one job location to another eats up this precious time when you could just as well identify new prospects in minutes from your desktop. With high-definition aerial imagery, you can instantly scan thousands of rooftops at a tap or a click of the mouse. With a couple of clicks you can switch from vertical to panoramic to oblique views and swiftly identify roofing opportunities.

The most sophisticated visual tools are now available to everyone that let you generate precise measurements of rooflines and areas. Using an oblique feature, you can compare different roofs for accurate estimates of pitch. You can also annotate sections of the images—noting, for example, severe damage in a given corner, the need to pay particular attention to an especially steep area of the roof, or an area of the property with easy access to unload roofing materials. (Of course, you can check these calculations when you visit the site.)

Saving countless hours, operating from the convenience of your office, you can create dozens of accurate estimates per day, as well as get a fix on your underlying costs since you have all the visual information you need right at your desktop (or tablet or mobile device). And you can generate a visually stunning, highly accurate quote for prospects: they can see the damage up close and immediately grasp the extent of necessary work. That sort of presentation builds confidence—an advantage many of your competitors probably can't offer. You build trust, and are more likely to get a "Yes" or "No" from a customer on the spot.

The advantages of aerial imagery include not only leaf-off and leaf-on perspectives. Now roofers can easily navigate from vertical top-down perspectives to oblique angles while measuring height and width of the buildings and roofs. With easy and cost-effective access to rich, high resolution maps, you can work faster and smarter—and thereby increase your business. It's a vital service whether you're a large contractor, a midsize organization, or a mom-and-pop outfit with just a couple of employees.

Roofing may be an ancient profession. But to stay in business, you need every available advantage—today's aerial imagery saves time, lowers costs, and may well be your most productive resource.

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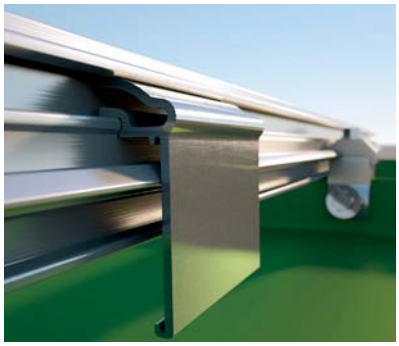
MATERIALS & GADGETS

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 | **Circle No. 31**

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 | **Circle No. 32**

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 | **Circle No. 33**

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 | **Circle No. 34**

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New Product Line Secures Rooftop Pipes and Struts

Custom-Engineered Accessories Available for KnuckleHead Rooftop Supports

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. Pipe supports are attached with standard stainless-steel sheet metal screws, which are supplied with the heads. The Strut Support straps are available in nominal pipe sizes ranging from 1/4 inch to 6 inches. Custom straps are available by special order. These elastomeric straps slide into the strut channel and snap in place, eliminating the need for screws.

"We custom engineered these products to fit the unique shape of our head designs," said Ondrej Pekarovic, Green Link design engineer. "There is growing interest in securing rooftop mechanical installations in the face of high wind conditions and seismic events. These straps will greatly increase the stability of pipes, conduit, channel and related mechanical equipment. Additionally, they satisfy local code requirements." R

"There is growing interest in securing rooftop mechanical installations in the face of high wind conditions and seismic events. These straps will greatly increase the stability of pipes, conduit, channel and related mechanical equipment. Additionally, they satisfy local code requirements."

MAY 2018 ROOFERS' CHOICE Roofing

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 January/February 2018 issue.

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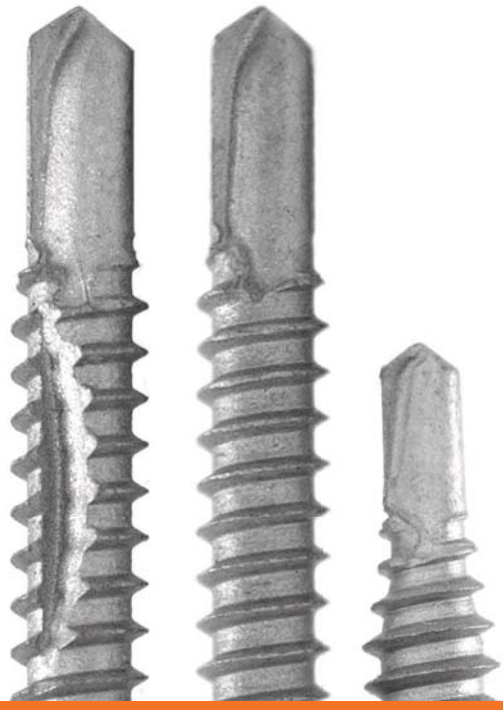

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WRITTEN BY **CAROLINE TRAUTMAN**

Understanding Joint Employment

You Might Have More Employees Than You Think You Do

If you are a contractor in the construction industry, there is a chance that a person who isn't on your payroll is legally considered to be your employee.

If you meet the above description and you operate in North Carolina, South Carolina, Virginia, West Virginia, or Maryland, there is a particularly good chance that's the case.

You might be thinking this is because of employee misclassification — which occurs when laborers are wrongly classified as independent contractors instead of employees. But that isn't the whole story. Increasingly, unanticipated employer liability occurs not because of employee misclassification, but instead due to joint employment — a related but totally distinct issue.

This is happening because the definition of what constitutes employment, and joint employment particularly, has become increasingly broad in recent years. Many courts expanded the definition in response to stricter guidelines the Department of Labor's Wage and Hour Division set forth during the Obama presidency. But this is perhaps most apparent in the Southeast, where, in January 2017, the Fourth Circuit Court of Appeals expanded the definition of joint employment in Salinas v. J.I. General Contractors, Inc. The Salinas decision, along with Hall v. DirecTV, a case involving employee misclassification decided the same day, predate the Department of Labor's June 2017 rollback of the Obama administration's restrictive guidelines. However, despite any efforts by the Trump administration to curtail the expanding joint employment doctrine, the Salinas and Hall decisions still control in the Fourth Circuit — and case law in other jurisdiction still controls as well. It's unclear whether a change in the law is in store anytime soon; however, in January, the United States Supreme Court declined to hear DirecTV's appeal in the Hall case.

The Salinas court found that a general contractor was considered the joint employer of its subcontractor's employees and therefore that the general contractor was responsible for wage violations under the Fair Labor Standards

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Act (FLSA). The Salinas decision and the new standard it set for joint employment represent a significant change from the more than 30-year precedent on joint employment. This means contractors — and other entities who could be considered joint employers — need to understand the risks involved in joint employment and try, to the extent possible, to manage that risk.

DEFINING JOINT EMPLOYMENT

So, what is joint employment? It generally occurs in two scenarios: horizontal joint employment and vertical joint employment. Vertical joint employment is the type at issue in Salinas and the type more likely to be applicable in the construction industry. The typical scenario is one where a contractor arranges or contracts with an intermediary employer to provide the contractor with labor in certain scenarios — in essence, the contractor-subcontractor relationship. Vertical joint employment can also arise when a contractor or subcontractor contracts or engages with a staffing company to provide it with laborers for a certain project or merely to carry out certain employer functions, like administering payroll and benefits.

Due to the Salinas decision, the law in the Fourth Circuit (North Carolina, South Carolina, Virginia, West Virginia, or Maryland) is that alleged joint employers must be "completely disassociated" from the intermediary employer. Otherwise, they will be considered joint employers of the intermediary's employees. The court set forth six factors that determine whether two entities are not completely disassociated. Here are the factors with some analysis of how they could be applied to a general contractor-subcontractor or contractor-staffing firm relationship:

1. "Whether, formally or as a matter of practice, the putative joint employers jointly determine, share, or allocate the power to direct, control, or supervise the worker, whether by direct or indirect means;"

If a general contractor and subcontractor agree — or if they operate in such a way — that the contractor has the authority to direct the subcontractor's employees, set their schedules and work assignments, enforce project site rules, and/or supervise their employees, this factor would support a finding of joint employment. Similarly, if a subcontractor contracts with a staffing firm for laborers and the subcontractor has the authority to set workers' hours and locations, and/or dictate how they perform their work, the subcontractor is probably a joint employer.

2. "Whether, formally or as a matter of practice, the putative joint employers

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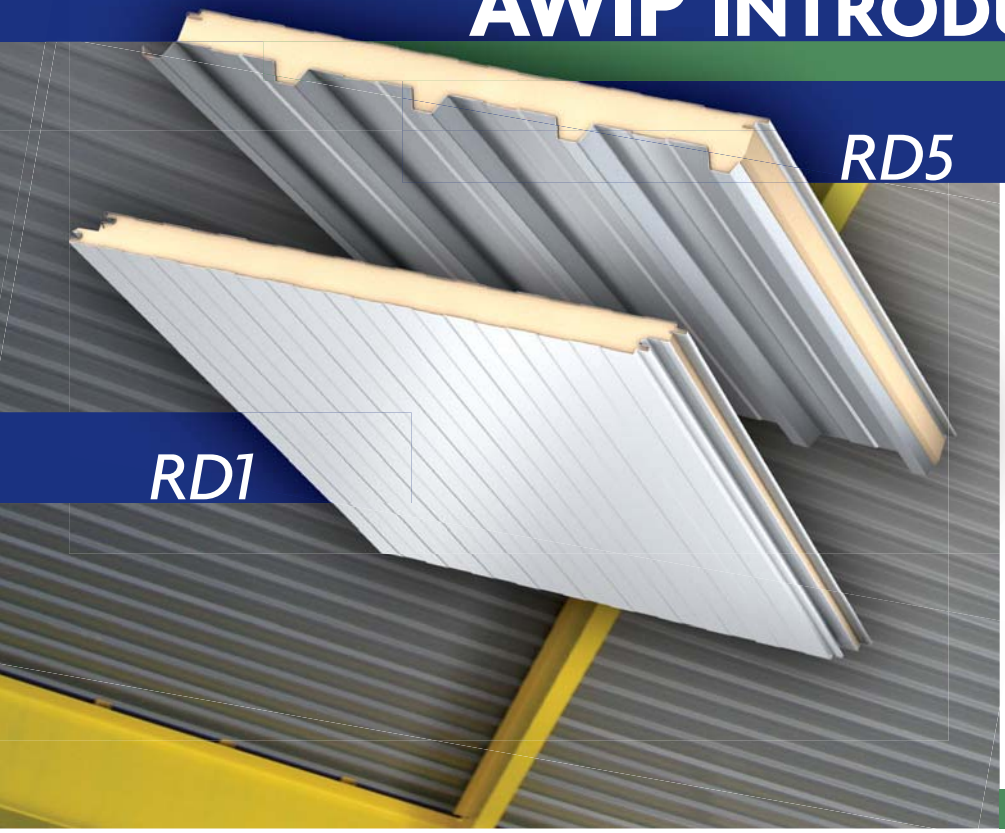

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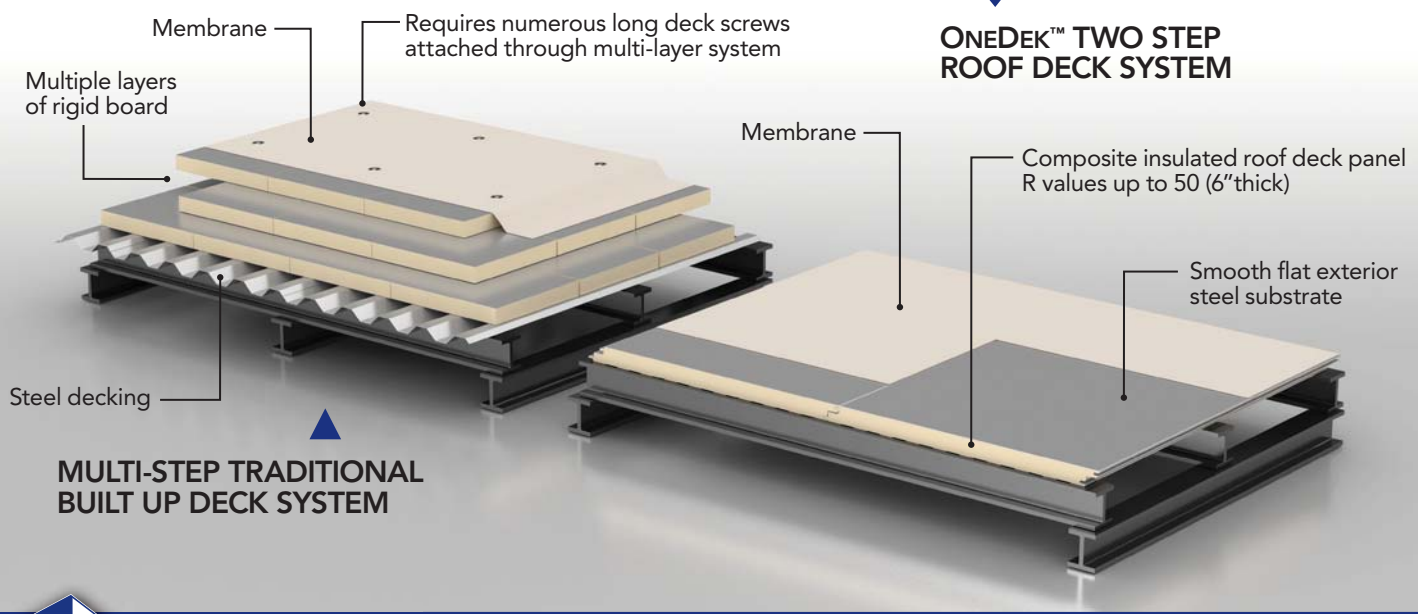

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jointly determine, share, or allocate the power to – directly or indirectly – hire or fire the worker or modify the terms or conditions of the worker's employment;"

When this factor is applied, any contractor who is authorized to assign a subcontractor's or staffing firm's employee to a particular project – or remove the individual from a project site – will likely be considered a joint employer of that individual.

3. "The degree of permanency and duration of the relationship between the putative joint employers;"

Many general contractors establish long-term working relationships with certain subcontractors and/or staffing agencies and work with the same companies repeatedly on many jobs. These contractors are at risk of being found to be joint employers. Likely at an even higher risk are contractors that have few to no employees on their payroll and instead retain all of their workers through an intermediary, such as a staffing firm. These contractors may believe that using staffing firms reduces or eliminates their liability under federal and state employment laws. While it might allow these companies to delegate administrative functions like administering payroll and benefits, the law in the Fourth Circuit won't allow them to avoid much liability.

Many general contractors establish long-term working relationships with certain subcontractors and/or staffing agencies and work with the same companies repeatedly on many jobs. These contractors are at risk of being found to be joint employers

4. "Whether, through shared management or a direct or indirect ownership interest, one putative joint employer controls, is controlled by, or is under common control with the other putative joint employer;"

This scenario is perhaps less common than the others but appears to apply when a contractor controls a subsidiary or affiliate. The contractor could be considered the employer of the subsidiary, affiliate, or indirectly owned entity.

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5. "Whether the work is performed on a premises owned or controlled by one or more of the putative joint employers, independently or in connection with one another;"

Most general contractors or construction management firms are obligated to control and supervise the project site. This factor, as applied to such firms, would establish them as joint employers of subcontractors' and staffing firms' employees.

6. "Whether, formally or as a matter of practice, the putative joint employers jointly determine, share, or allocate responsibility over functions ordinarily carried out by an employer, such as handling payroll; providing workers' compensation insurance; paying payroll taxes; or providing the facilities, equipment, tools, or materials necessary to complete the work."

This factor pertains to the above scenario where entities try to delegate certain employer functions to staffing agencies. Virtually every staffer/client agreement is one where the parties "jointly determine" who has what responsibility for these functions. Even if the staffing agency is in charge of screening, payroll, workers' compensation, and benefits, if the client performs any employer functions — like supervision, hiring, firing, and/or providing instructions, tools, or materials — then the client will likely be seen as a joint employer.

EXAMINE YOUR BUSINESS MODEL

If a court within the Fourth Circuit is faced with any federal employment issue and a joint employment question exists, it will consider the above factors. Such a court would then likely analyze whether the laborers in question are employees or independent contractors — another, separate test. But the Salinas factors alone are enough to cause concern for most contractors who contract for labor.

Because the above factors apply regardless of the terms of any subcontract or staffing agreement, consulting with counsel about how to better draft those agreements is only one step for contractors who are concerned about expanded liability. They also need to consult with counsel about the way they conduct business and whether it still works in light of the expanded joint employment doctrine.

Otherwise, they should understand that they may have more employees than they realized. R

AUTHOR'S NOTE

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WRITTEN BY **ANGIE LEWIS**

Leaving Your Business Legacy

Expert Advice on Exit, Succession and Contingency Planning

When the time comes to retire from your roofing business, will you have all of the proper financial and legal arrangements in place to avoid being clobbered by taxes or ending up in costly litigation?

Planning for your exit or succession requires a series of complex strategies that can take many years, so don't waste any time getting started! Sit down with a knowledgeable, professional advisor who can guide you through the process of preserving your business legacy and securing your financial future.

Business-planning experts Kevin Kennedy and Joe Bazzano explain why roofing contractors need an exit or succession plan, common mistakes made during the process and best strategies for success. They also stress the importance of a contingency plan, which covers you and your business in case of life-changing events such as injury, illness or death.

Kennedy, CEO of Beacon Exit Planning, specializes in exit and succession planning for private business owners. He has firsthand experience with the challenges that come with selling a business after he and his two co-owners sold their 63-year-old roofing company to the business' fourth-generation team. Making a few financial mistakes during the sale, and realizing he didn't have a solid understanding of the technical aspects of exit planning, Kennedy put himself through two years of school to learn everything he could. Now he helps others avoid the same mistakes.

Bazzano, COO at Beacon, is a certified public accountant, certified valuation analyst and certified business exit consultant. His areas of expertise include financial reporting, consulting, business valuations, mergers and acquisitions, exit strategies, and tax planning and compliance for individuals and businesses. Bazzano shows business owners how to increase the value of their companies and save on taxes.

EXIT PLANNING

An exit plan helps you control and visualize the process of transferring and monetizing your business, while also gaining a better understanding of all the financial aspects involved in the transaction.

In most situations, business owners have 70 percent of their wealth tied up in their illiquid business, which means the company and its assets cannot easily be converted into cash.

If you're fortunate enough to sell your roofing business, you could pay up to 60 percent or more in taxes, depending on which state you live in. And if you can't sell your company, you will essentially have to liquidate it, which could leave you with only 10 percent of your wealth.

During the exit-planning process, Bazzano says they look at the three basic circles of a business owner's life: business planning, personal planning and financial planning.

The business-planning circle is about protecting the business — determining valuation, planning for succession, evaluating tax ramifications and managing buy/sell risk. The personal-planning circle involves the emotional side of the business and considers the owner's emotional attachment to the business, whether he or she is ready to leave it and if family members are involved. The financial-planning circle includes identifying the liquid assets business owners need to survive and maintain their lifestyle.

Contractors have several options for exiting their business, including:

- Selling to an outsider (e.g., consolidator, investor)
- Selling to employees/ESOP (employee stock ownership plan)
- Selling to managers (manager buyout)
- Selling to family
- Gifting the company

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Kennedy says the most common type of sale for a roofing business is a manager buyout, which can take from eight to 12 years because the company pays for everything.

"They don't go to the bank and get the big loan," Kennedy says. "The company can't afford to do that. What they do is take their profits, and the profits pay for the owner's stock, which is then given to the managers."

Common mistakes during the exit-planning process include issues with entity structure, taxes, not planning for catastrophic events, being underfunded with buy/sell agreements, and inaccurate valuations.

Bazzano says lessening your dependency on the business as an income source after you leave is a particularly important strategy to keep in mind.

"It doesn't always happen because business owners grow and reinvest in their business," he explains. "But there's nothing worse than being 65 years old and realizing that 92 percent of your wealth is in this business. Basically, you've reinvested everything and you're completely dependent on monetizing this business as you try to retire. That's pretty risky, as opposed to somebody who's got maybe 20, 30 or maybe even 50 percent of their net worth in the business. So taking some chips off the table really helps."

Having a good understanding of your options early on can help you generate more value in your company and lessen your financial risk down the road.

At Beacon Exit Planning, Kennedy and Bazzano use a proprietary process — known as DAD — that covers three phases of actions needed for a successful exit plan:

- Discovery. Interviewing owners to get an understanding of their business, personal and financial goals.
- Analysis. Looking at underlying documents such as wills, trusts, buy/sell agreements, financial statements, tax returns and entity formation, and evaluating whether they support the owners' intentions and goals.
- Design. Putting together a blueprint to solidify goals, going over findings from the analysis phase and presenting alternatives owners can use to exit their business.

The DAD plan can range from 50 to 120 pages. "It's like being fed with a fire hose," Kennedy says. "But we always tell our clients that we when we deliver the plan, it's not the end — it's the beginning."

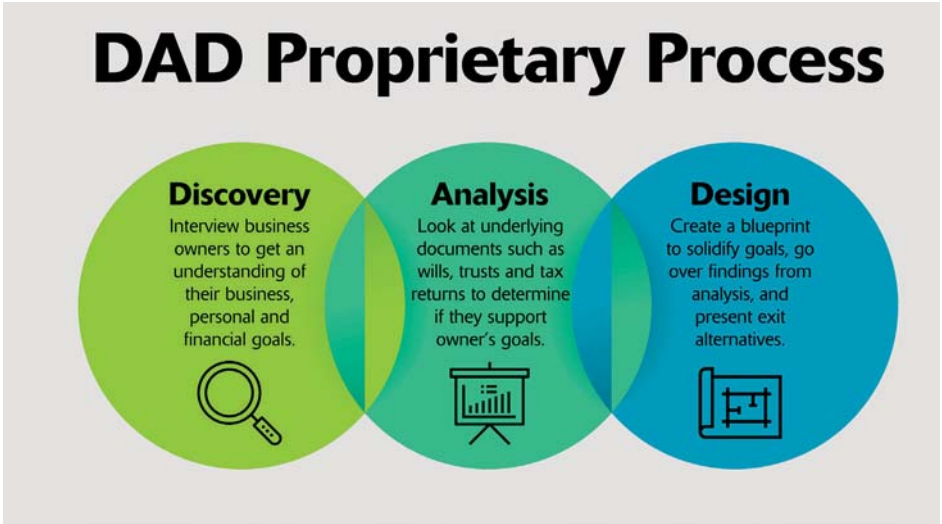
SUCCESSION PLANNING

In contrast, a succession plan prepares your company to succeed without you by moving your managers into leadership roles, then into ownership and eventually establishes the new CEO.

Exit planning focuses on replacing your wealth, but succession planning focuses on replacing yourself, Kennedy explains.

"In a broader sense, it's about building value — creating a culture of continuous improvement that focuses on educating the next generation of owners so they can protect the future of the company," he says.

Fewer than 30 percent of all private companies ever transfer to the second generation, according to Kennedy. This means that 70 percent fail. The statistics are even worse for transferring



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from the second generation to the third generation, which has a 90 percent fail rate. The odds that company founders will transfer their business to their grandchildren are less than 3 percent.

When Kennedy and his partners sold their roofing company via a management buyout, the process took seven years and $250,000.

"Our company overspent millions of dollars in taxes that were unnecessary because of the cookie-cutter advice [we received] from our advisors," he explains. "They weren't specialists. It wasn't a coordinated plan, they didn't have the right advice, and they didn't understand the laws, so we were put in a taxed position."

Succession plans can take anywhere from three to 10 years, depending on the maturity of the management and how much the owner is working. The process requires more time than exit planning because of the learning curve required for new managers.

"At any given time, 40 percent of U.S. businesses are facing the transfer of ownership issue," according to the Small Business Administration (SBA). "The primary cause for failure is the lack of planning."

Some 75 percent of a typical business owner's net worth is tied up in the company, Kennedy adds, citing data from the SBA, and only 22 percent of owners report planning for their succession or exit.

"Wise people plan early and implement slowly," he says. "I like to see people going through the process of visualizing their financial future at least 15 years out. That would be ideal because it may take three or four years to set the plan in motion."

Succession planning may be complicated more when family is involved. Children or other family members who think they're entitled to the company can be poisonous to the process, especially when owners don't hold them to the same standards and accountability as other employees.

Another issue business owners face is that they can't see their financial future and are dependent on their business for their day-to-day lives, Kennedy says.

"If they don't relinquish what duties they have so they can build new leadership, they tend to get stuck in their businesses."

Bazzano shares three important steps for a successful succession:

1. Have a good financial plan so you can understand the future income needs for the company.
2. Get a business appraisal so you understand if you have a value gap. In other words, if you have not saved enough money for retirement, the shortfall is going to come from the sale of the business.
3. Put a good management team in place so it can support you in generating the income the business will need to pay you out. This step typically takes the longest — anywhere from two to 10 years.

"The great news about succession is it always adds to the bottom line, not just the financial value," Kennedy says. "The key is to start early because succession takes time. It's a complex process. The exit plan will get you started and the succession plan will bring everything together to allow a graceful exit from your business and protect your wealth."

CONTINGENCY PLANNING

Regardless of your exit strategy, your plan should also include preparing for the unexpected.

What would happen to your business if you were diagnosed with a life-threatening disease or were critically injured in an accident — or worse? Having a contingency plan for "just in case" can help to cement the future of those you love.

One of the most important parts of a contingency plan is a buy/sell agreement. This document governs what will happen if one of a company's multiple owners and/or shareholders dies or experiences divorce, disability or voluntary/involuntary departure.

"A buy/sell agreement should have the appropriate documentation and appropriate wording to support the owner's intentions," Bazzano says.

This type of agreement allows co-owners to decide who else can buy into the company and how the process will work. It also provides an opportunity for owners to discuss potential scenarios ahead of time to avoid ending up in pricey litigation down the road.

Despite the importance of creating a buy-sell agreement, more than 70 percent of business owners do not have documented succession plans for senior roles, according to the 2014-2015 U.S. Family Business Survey conducted by the consulting firm PwC.

Contingency plans and buy/sell agreements are living, breathing documents and should be started as soon as the business is established, according to Bazzano. They should also be reviewed regularly to account for changes in the company's structure or value, or an

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owner's intentions.

The most difficult event to plan for, of course, is death. The loss not only puts an emotional burden on a family, it can also create a financial one. Without a proper contingency plan in place, a family could lose its income stream and experience financial turmoil.

One of the most common mistakes Kennedy and Bazzano see in contingency plans is improperly structured documents. For instance, the owner of a roofing business may think everything is in place because he/she has a will, trust and insurance — yet each document was set up by different people, none of whom talked to each other during the process.

Another issue in contingency plans is that companies are underfunded with their buy/sell agreements and insurance, Bazzano says, which often includes issues with valuation that prevent a widow from receiving the full worth of the company.

Business owners can also fail to understand how to manage their risk. Bazzano says business owners need to do a better job of protecting their wealth and the companies themselves, which involves understanding insurance requirements and asset protection, and knowing how to structure their estate and the business to limit exposure to frivolous lawsuits and creditors.

Planning to leave your roofing company — whether to retire, pursue another interest or because something unexpected happens — can be an overwhelming and confusing process. However, enlisting the services of an exit-planning professional can help you avoid big headaches and save you countless dollars in taxes.

To find a consultant you can trust, ask questions such as:

- What is your training in exit planning?
- How many exit plans have you delivered?
- How much have you saved your customers in taxes?
- Do you have any referrals from existing clients?

To learn more about Kevin Kennedy and Joe Bazzano, and for access to more in-depth information about the exit planning process, visit www.BeaconExitPlanning.com. R

LEARN MORE ABOUT EXIT PLANING

Altas Roofing is hosting a webinar on exit and succession planning featuring Kevin Kennedy and Joe Bazzano of Beacon Exit Planning on June 18 at 10 a.m. Eastern time. For more information, visit www.atlasroofing.com/atlaswebinar.

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WRITTEN BY **JUSTIN KOSCHER**

Small businesses are now able to deduct the full cost of replacing a roof on an existing non-residential building in the year the project was completed instead of depreciating that cost over a 39-year period, as was previously required.

The Federal Government Is Making Energy-Efficient Roofing Attractive

It is fair to say that Washington, D.C., is far from dull. From the recent Tax Cut and Jobs Act to rolling debates on passing a federal budget, there is a great deal going on at the federal level that impacts the building and roofing industries. In particular, new reforms allow qualifying building owners to expense, or deduct, up to $1 million for the cost of certain building improvements in the year the work is performed, including adding insulation during roof replacement projects to meet or go beyond modern building energy code requirements. The impact can be significant for capital improvement projects. For example, a building owner that expenses the cost of a full roof replacement can reduce the net cost of the entire project by 25 percent to 30 percent.

COMMERCIAL BUILDING ROOF REPLACEMENTS

The Tax Cut and Jobs Act, signed into

PHOTO: SOPREMA

law by President Trump on December 22, 2017, includes a provision that reduces the overall cost associated with re-roofing and significantly improves the cost-effectiveness of commercial roof replacements that comply with building energy codes. The vast majority of state and local governments require minimum insulation levels for both new roofs and roof replacements (but not for roof repairs or recovers). These requirements apply to existing buildings because the most economical time to improve a roof's thermal performance is when the roof membrane is pulled off and replaced. Also, roof replacements are one of the best opportunities for improving energy efficiency in existing buildings, which account for 40 percent of U.S. energy use.

Starting in 2018, the new federal tax law expands the definition of "qualified real property" under the small business expensing provisions of Internal Revenue Code section 179 to include improvements to existing nonresidential roofs. Section 179 allows businesses to fully expense (deduct) up to $1 million (indexed for inflation after 2018) in one year for qualified business expenses, such as equipment purchases and specific building improvements. With this change, small businesses are now able to deduct — in the year completed — the full cost of replacing a roof on an existing non-residential building instead of depreciating that cost over a 39-year period, as was required under prior law. As a mechanism intended to limit the deduction to small businesses, the benefit is phased out for businesses that spend more than $2.5 million (also indexed for inflation) on qualified equipment and real property. This change takes effect in 2018 and, unlike some provisions of the new law, is permanent.

A typical scenario under which a commercial building roof replacement is required to comply with a building energy code is one where an older building with a low-slope roof has R-11 or R-12 insulation in the roof prior to the roof replacement. The R-12 assumption is based on a U.S. Department of Energy (DOE) study that evaluated the level of existing insulation in commercial building roofs. For most of the country, current building energy codes require roof replacements to have a minimum level of R-25 or R-30, depending on the climate zone.

The average simple payback period for meeting the energy code is 11.6 years, according to a comprehensive energy modeling study completed in 2009 ("Energy and Environmental Impact Reduction Opportunities for Existing Buildings with Low-Slope Roofs," produced by Covestro).

The payback period is the amount of time it takes for the energy savings to equal the cost of installing the additional insulation. By allowing a building owner to deduct the full cost of the roof replacement, including the cost

for installing additional insulation, the net cost of the entire project is reduced by 25 percent to 30 percent, depending on a tax payer's tax rate. (The Tax Cuts & Jobs Act reduced the corporate tax rate to 21 percent, but the pass-through rates, which are more relevant to small businesses, are closer to 30 percent, which increases the impact of this new deduction.) More importantly, the deduction shortens the average payback period on the cost of installing additional insulation to 8.1 years, making the investment in energy efficiency even more cost effective for the building owner.

of a facility. This allows post-disaster funds to be more effectively used to improve the resiliency of damaged buildings and should create opportunities for higher performing roof systems to replace those damaged in disasters.

While the built environment is likely to benefit under recent Congressional action, other policy priorities for the construction and energy efficient industries have been left unresolved. For example, Congress "extended" several clean energy and energy-efficiency related tax provisions, including the Section 179D deduction

Recent maneuvers by Congressional budget writers provided several positive reforms that will impact the resiliency of buildings in some of the most vulnerable parts of the country.

DISASTER RELIEF REFORMS AND RESILIENT BUILDINGS

Recent maneuvers by Congressional budget writers provided several positive reforms that will impact the resiliency of buildings in some of the most vulnerable parts of the country.

First, Congress passed improvements to the Federal Cost Share Reform Incentive that increases post-disaster federal cost-share with states from 75 percent to as high as 85 percent on a sliding scale based on whether a state has taken proactive steps to improve disaster preparedness. These steps can include the adoption and enforcement of the most recent building codes. This further incentivizes states to maintain robust and current building codes, including the energy code.

Second, under reforms to the Stafford Act, federal disaster relief funds administered by the Federal Emergency Management Agency may be used to replace or restore the function of a facility to industry standards without regard to pre-disaster condition and replace or restore components of the facility not damaged by the disaster where replacement or restoration is required to fully restore the function

for commercial building energy efficiency. However, in head-scratching fashion, this and other tax provisions were only extended through December 31, 2017. This means more work is ahead to preserve the policies for the long term and add much needed certainty to the marketplace. Unpredictable is a polite (and likely understated) description of the policy environment in our nation's capital. You need not look beyond the recent FY2018 budget deal for an example. Building energy efficiency advocates spent countless hours educating lawmakers on the importance of funding federal research led by the Department of Energy (DOE). Fearing a federal budget that would cripple these vital programs by slashing budgets, advocates saw an 11 percent increase to the DOE's Office Energy Efficiency and Renewable Energy budget, which leads research on building energy performance. And while history is a poor predictor of future success, recent action impacting buildings demonstrates that policymakers understand the need for strong policies that encourage and lead to more efficient and resilient construction. R

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WRITTEN BY **DR. MARCIN PAZERA**

Proper Storage and Handling of Polyiso Insulation

Punxsutawney Phil certainly got it right this year; we have had six more weeks of winter – and then some – particularly in the Northeast. As winter turns to spring, building and repair projects which frequently involve the roof get underway. As you commence these new and re-roofing initiatives, here are a few key considerations about the storage and handling of polyiso roof insulation on a jobsite.

STORAGE

Polyiso insulation is typically shipped protected by a plastic wrap, plastic bag or both. This factory packaging is intended for handling the polyiso in the manufacturing plant and during transit; it should not be relied upon as protection at jobsites or other outdoor storage locations unless specified otherwise by the manufacturer.

Material delivery should be carefully coordinated with the roof application schedule to minimize outdoor storage. When short-term outdoor storage is necessary, whether at grade or on the roof deck, the following precautions should be observed:

- Bundles should be stored flat above the ground utilizing included feet or on raised pallets. If possible, the bundles should be placed on a finished surface such as gravel, pavement, or concrete rather than on dirt or grass.

- Unless specified otherwise by the manufacturer, cover the package and pallet with a waterproof cover, and secure to prevent wind displacement.

Note: Polyiso insulation is fully cured and fit for installation upon delivery. No additional storage time is required.

HANDLING

Exercise care during handling of polyiso insulation to prevent breaking or crushing of the square edges and surfaces. Remove the polyiso bundles from trucks with proper equipment. Other means of mishandling, such as pushing pallets off the edge of the truck or "rolling" the pallet across the roof deck, must be avoided.

PRODUCT APPLICATION

Polyiso should always be installed on dry, clean roof decks in dry conditions. Follow the manufacturer's recommendations regarding product application to ensure performance to the intended design life of the roofing system. Apply only as much polyiso roof insulation as can be covered by completed roofing the same day.

CONSTRUCTION TRAFFIC

Avoid excessive traffic during roof construction of or on a completed roof surface. Although polyiso has been designed to withstand limited

PHOTO: SOPREMA

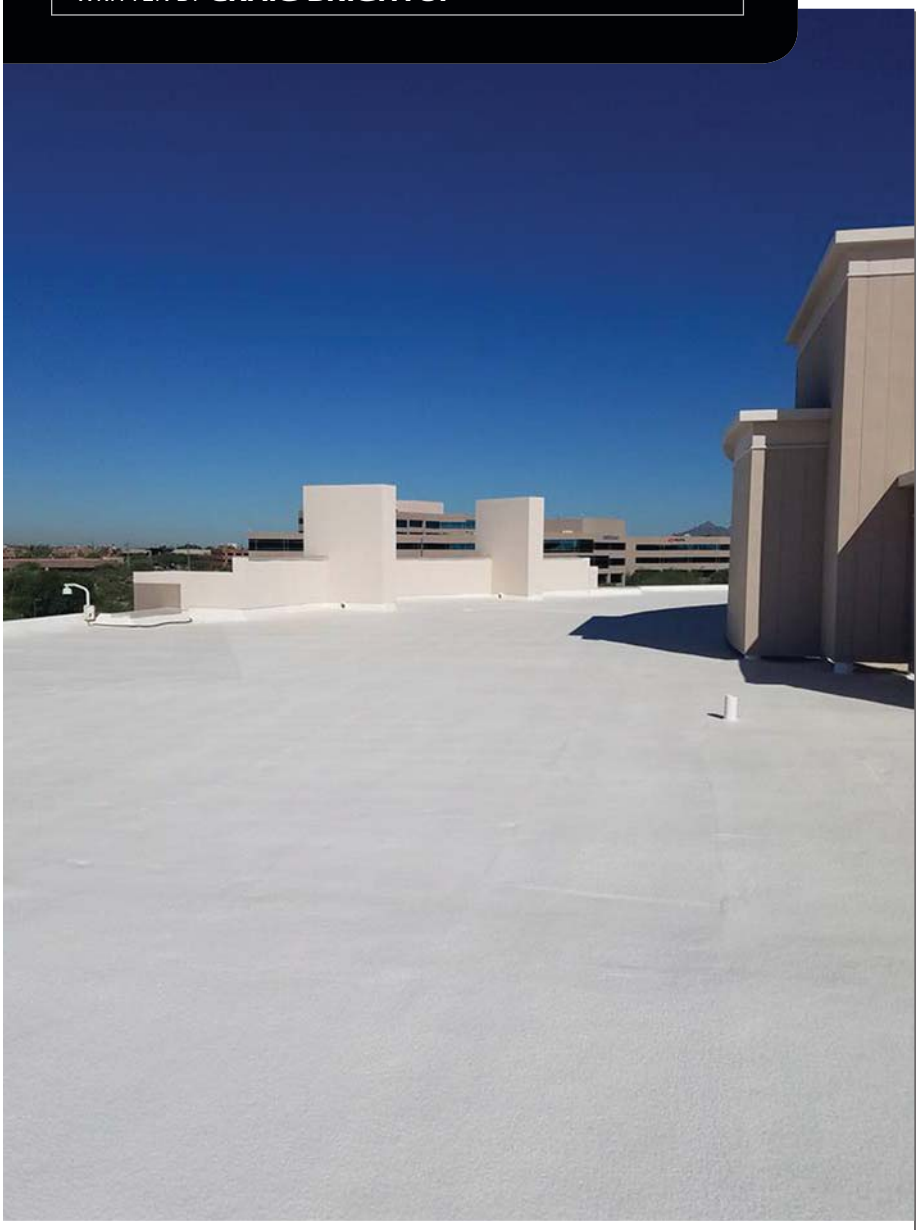
foot traffic, protection from damage by construction traffic and/or abuse is extremely important. Roof surface protection such as plywood should be used in areas where storage and staging are planned and heavy or repeated traffic is anticipated during or after installation.

Some designers and membrane manufacturers specify the use of cover boards as a means of protecting the insulation. If specified, installers should ensure the cover board used is compatible with all components of the roofing system, is acceptable to the membrane manufacturer, and meets specified fire, wind, and code requirements.

Polyiso roof insulation, like other roofing materials, requires a proper understanding of storage, handling, and application to result in a properly constructed roof system. To find additional information about the proper storage and handling of polyiso insulation and for more technical information on polyiso roof and wall insulation, please visit www.polyiso.org. R

PHOTOS: JOHNS MANVILLE

WRITTEN BY **CRAIG BRIGHTUP**



Recent legislation is expected to provide a boost to the commercial roofing industry. A commercial roofing application of Lapolla FOAM-LOK spray foam roofing is shown here.

Tax Cuts and Job Act a Big Victory for Roofing Industry

2017 proved a significant year for the roofing industry. Not only was optimism high and demand still on the uptick in both the new construction and re-roofing marketplaces, but when The Tax Cuts and Jobs Act of 2017 passed in December last year, it marked a huge victory for those involved in roofing. The tax reform essentially opened the door for a series of tax related benefits likely to boost business in 2018 and beyond.

There are a few key areas of the tax reform applicable to roofing entities. One of the key sections — IRC Sec. 179 expensing provision (deduction) — intends primarily to benefit small businesses who can purchase equipment, then write-off the amount of those purchases during the same calendar year. For 2018, qualifying property purchases include most business equipment such as computers, certain vehicle types, virtually all construction equipment and machinery.

"For contractors in our sector specifically, this portion of the reform is key, as it allows them to write off the equipment and vehicles they purchase specific to transporting and installing spray foam roofing on the jobsite," says Kurt Riesenberg, executive director of the Spray Polyurethane Foam Alliance (SPFA). "Some of our members have been quite pleased to learn about these tax changes, and although we worked hard with other groups to make them happen they still seem like one of the best kept secrets. We need to change that so all of our members know about them."

Perhaps one of the most notable aspects of IRC Sec. 179, however, is that the qualified property listed under it now includes non-residential roofs. Hailed as a huge win, the new limit on the total amount of Sec. 179 property that a business can purchase each year before being totally phased out is $2.5 million (up from the previous $2 million), and the annual limit for the deduction itself has been raised to $1 million (up from $500,000). A property owner is now able to write off up to $1 million the same year that a commercial roof is purchased. Additionally, the

PHOTO: ICYNENE-LAPOLLA

"The commercial roof inclusion in the tax reform is likely to spur increased sales and installations of new roofs this year, and we want our members making the most of the opportunity."

– Kurt Riesenberg, Spray Polyurethane Foam Alliance

$1 million annual deduction and $2.5 million business investment limit are now permanent and indexed for annual inflation starting in 2019.

"The commercial roof inclusion in the tax reform is likely to spur increased sales and installations of new roofs this year, and we want our members making the most of the opportunity," adds Riesenberg.

There was one tradeoff made in order to make commercial roofs eligible for Sec. 179 – the elimination of the deduction for the interest on loans to finance the purchase. However, it's still a significant benefit for contractors able to leverage IRC Sec. 179's equipment purchase write-off.

BONUS DEPRECIATION DEDUCTION

Another key area of note is IRC Sec. 168(k) – the Bonus Depreciation Deduction – which the act raises to 100 percent for qualifying new and used property acquired, and placed in service, after September 27, 2017 and before January 1, 2023. Property with a depreciable tax life of 20 years or less generally qualifies and includes: machinery and equipment, furniture and fixtures, computers and computer software, and vehicles utilized primarily for business (with a dollar cap on cars and trucks with a loaded vehicle weight of 6,000 pounds or less).

More broadly, the tax rate for C corporations, or the corporate tax rate, was cut through the new reforms to 21 percent (from 35 percent). Also of note to many roofing contractors and contractor firms, pass-through entities organized as S corporations, partnerships, LLCs and sole proprietorships now receive a 20 percent deduction on taxable income up to $157,000 or $315,000 if filing jointly that is phased out at $207,500 or $415,000 respectively.

Many contractors are structured as pass-throughs and pay their business taxes on individual returns, so it also helps that the top individual rate has been lowered from 39 to 37 percent. However, the rules for pass-throughs are complex and consulting with a tax expert is encouraged.

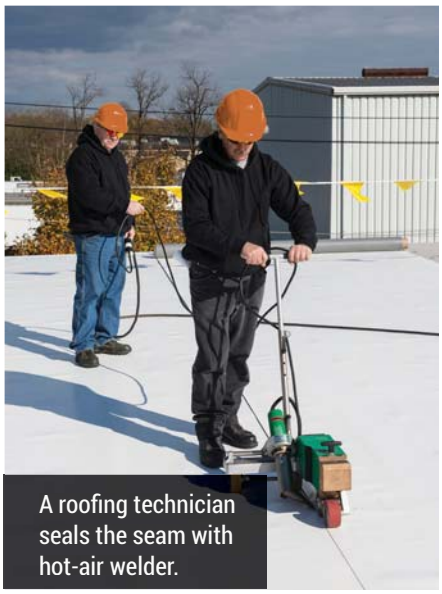
For contractors that are family businesses, the new tax code doubles the estate tax exemption so that estates of up to $11 million ($22 million for couples) are now exempt from taxation. In addition, the Alternative Minimum Tax (AMT) exemption and phase-out amounts for individuals have been sharply increased.

Finally, in a separate bill, Congress renewed the Residential Energy-Efficiency Tax Credit (IRC Sec. 25C), the Energy Efficient New Home Tax Credit (45L), and the Commercial Building Tax Deduction (179D). While renewed retroactively only for tax year 2017, the door remains open for these incentives (tax extenders) to be renewed for 2018 and beyond.

"These incentives help, but the tax act's reforms are a big, long-term win for both the spray polyurethane foam sector and the roofing industry at large," says Riesenberg. "All indications point to this act giving the roofing industry and its many players a boost in business. It's business and jobs that drive the economy, and when you add in the resulting benefits direct to our members, this news hits the trifecta for an exciting and optimistic 2018 and beyond." R

WRITTEN BY **DAVID STASSI**

With induction welding, the membrane is heat bonded to the top of each plate and there are no penetrations in the membrane.



A roofing technician seals the seam with hot-air welder.

Expanding Options for Roof Insulation

Easy-to-Use Discs Enable Induction Welding of PVC and TPO Membranes Over EPS Insulations

EPS insulations can be used in both new construction and roof recovers.

Over the past ten years, North American roofers have begun to adopt induction welding as a fast, simple and secure way to mechanically attach TPO and PVC membranes. The method also helps create a high-performance roof assembly by eliminating fastener penetrations of the membrane.

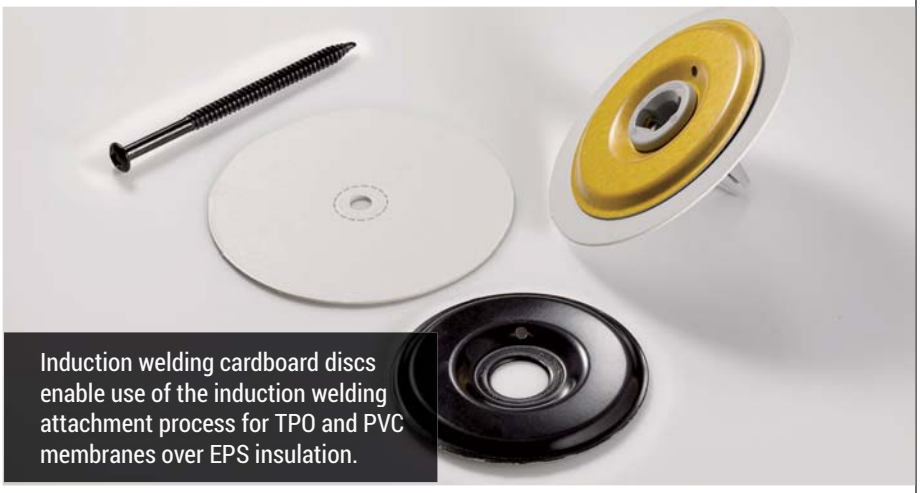
For most of its history, induction welding was limited to installations over thermoset insulations such as polyiso or over other rigid insulations with a cover board. But now, a deceptively simple and easy-to-use disc enables roofers to use induction welding over expanded polystyrene (EPS) insulations that don't have cover boards. The result is faster and more affordable insulation installation and lower fatigue for work crews.

THE INDUCTION WELDING METHOD IN BRIEF

A roof fastener manufacturer pioneered induction welding attachment as a way for roofers to streamline TPO and PVC membrane installation, while avoiding membrane penetrations, for a more watertight roof assembly.

In a typical mechanically fastened membrane system, roofers secure the membrane with 2-inch to 3-inch diameter plates on the seams held down by screws that pass through the membrane and insulation layers to the underlying deck. With the induction welding method, each plate becomes a fastening point for the membrane, and the membrane is heat bonded to the top of each plate. With this method,

PHOTOS: OMG, INSULFOAM



Induction welding cardboard discs enable use of the induction welding attachment process for TPO and PVC membranes over EPS insulation.

crews screw down the insulation layer as usual, then unroll the membrane over the insulation. They then place a stand-up or handheld induction welding tool on the membrane at each plate location. In less than five seconds, the tool heats the plate under the membrane to about 400 degrees Fahrenheit, bonding the membrane to the plate. Heating is accomplished via electromagnetic induction between the tool and the plate, rather than via direct application of heat (think of an induction cooktop compared to conventional stove heating coils). Induction welding meets the FM 4470 approval standard and is accepted by most membrane manufacturers.

Induction welding typically requires 25 percent to 50 percent fewer fasteners and plates than typical mechanically fastened installations, as well as fewer seams, resulting in both labor and material savings. As the fasteners are spread across the roof in a grid pattern, the resulting assembly enhances resistance to wind uplift and reduces membrane sheet flutter.

EPS INSULATIONS AND INDUCTION WELDING

Until now, the induction welding process could not be used with EPS insulations that lacked a cover board, as the 400-degree heated plates caused the insulation to soften and draw back. This resulted in numerous depressions in the roof assembly (at each fastener location), where water could pond.

Induction welding typically requires fewer fasteners and plates than mechanically fastened applications, resulting in both labor and material savings.

To enable use of the induction welding process with a broader range of rigid foam insulations, fastener manufacturers have developed a simple solution. For each fastener, crews place a thin disc between the fastener plate and insulation. This separation medium protects the EPS from the high heat of the induction welding process, without interfering with the bond between the membrane and the fastener plate. Manufacturers typically refer to these separators as "induction

welding cardboard discs." While they are paper-based products, calling them "cardboard" understates their performance, as they are densely compressed and have a moisture-resistant coating, so they work well in high-performance roof systems.

WHY THIS MATTERS

For roofers who prefer using EPS insulations for the products' thermal performance and ease of installation, the discs allow them also to achieve the benefits of the induction welding process discussed above.

While induction welding has always been possible using EPS insulation products that have standard cover boards, the discs make it possible to induction weld over EPS products with glass facers and fanfold EPS with polymeric facers. Glass-faced EPS products can be used in new applications and recovers while roofers typically use fanfold EPS in roof recovers.

Fanfold EPS bundles, like R-TECH FF and others, are available in standard sizes up to 200 square feet, comprised of 25 panels that are 2 feet by 4 feet each, and come in various thicknesses. A typical two-square bundle weighs less than 11 pounds, so it is easy for one person to carry. EPS fanfold bundles require fewer fasteners per square foot than most roofing insulations and are less expensive than virtually every recover board. The man-hours needed to install fanfold bundles are about 60 percent less than working with individual sheets. Material costs are also lower than wood fiber, perlite, or gypsum board. On large projects, the total savings can add up to tens of thousands of dollars. As with other EPS insulations, the product's light weight also means less crew fatigue.

As roofers look for ways to create cost-effective, high-quality roof assemblies, new methods provide the opportunity to boost the bottom line by reducing labor and material costs. A simple, affordable disc now enables you to obtain the benefits of both the induction welding method for fastening TPO and PVC membranes and the advantages of EPS insulations. R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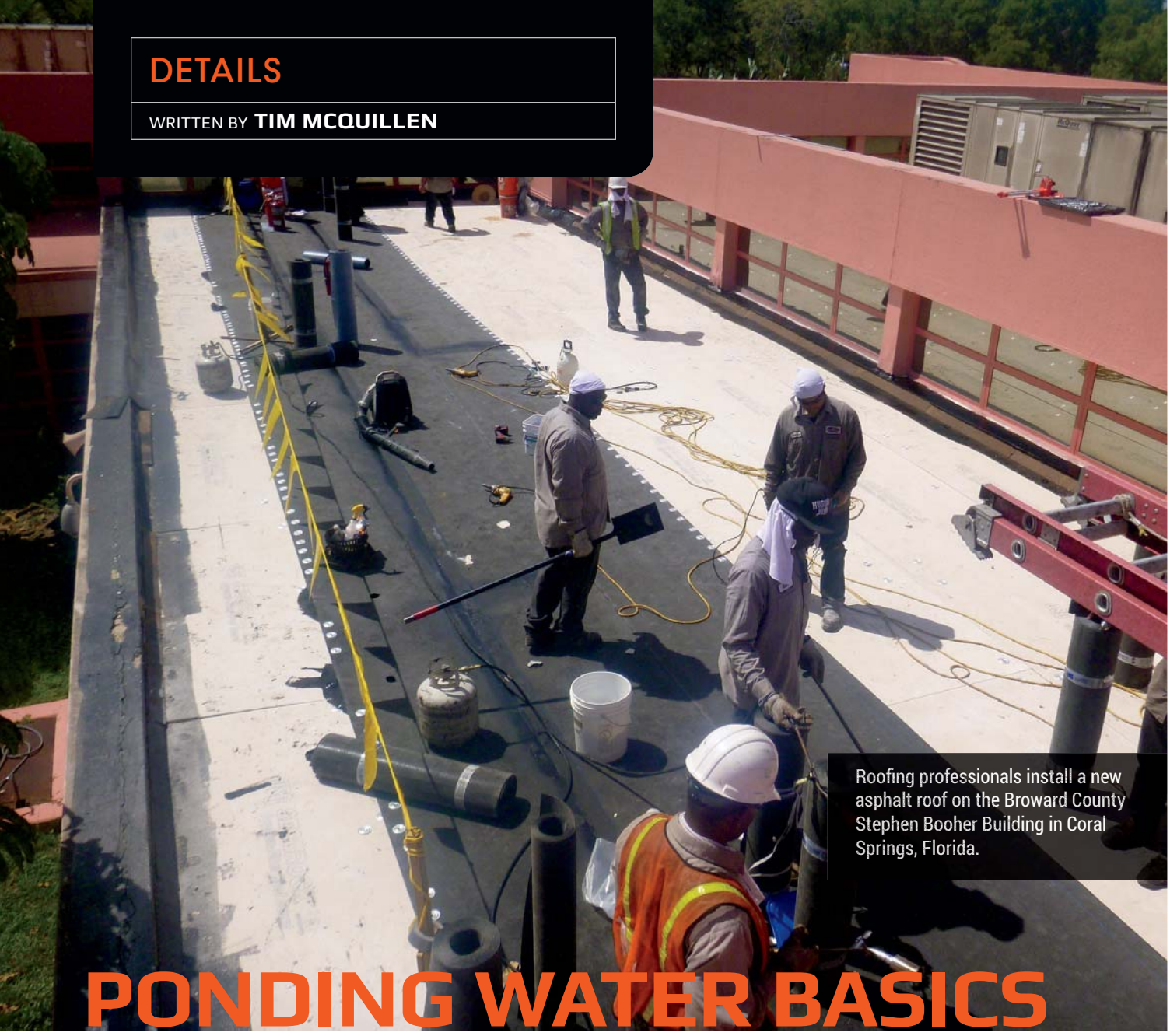
WRITTEN BY **TIM MCQUILLEN**



Roofing professionals install a new asphalt roof on the Broward County Stephen Booher Building in Coral Springs, Florida.

PONDING WATER BASICS

Proper Drainage Design Can Help Ensure the Reliability of Low-Slope Roofs

A low-slope asphalt roofing system is cost effective, durable and reliable. Multiple layers of weatherproof membranes protect a building, its residents and the property it houses. There are a few design elements that will help building owners get the most from their roofing system. Managing ponding water is essential to properly maintaining a roof.

Ponding water is defined as the water which remains on a roof 48 hours or longer. Water may accumulate on a low-slope roof due to rain, snow or runoff from rooftop equipment. Ponding water can have major negative consequences, regardless of the type of roofing system. Proper design, installation and maintenance of roofing structures can prevent this condition and its associated problems.

The adverse effects of ponding water on roofs can include:

- **Deformation of the deck structure:** Ponding water can substantially increase the load on roof decks. As water accumulates, deck deflections can increase, thereby resulting in additional ponding water, which could compromise the structural integrity of the deck.
- **Damage to the roof surface:** Ice formations develop and move constantly with changes in temperature. This movement can "scrub" the roof membrane to such an extent that considerable physical damage to the membrane can occur.
- **Growth of algae and vegetation:** When water stands for long periods of time,

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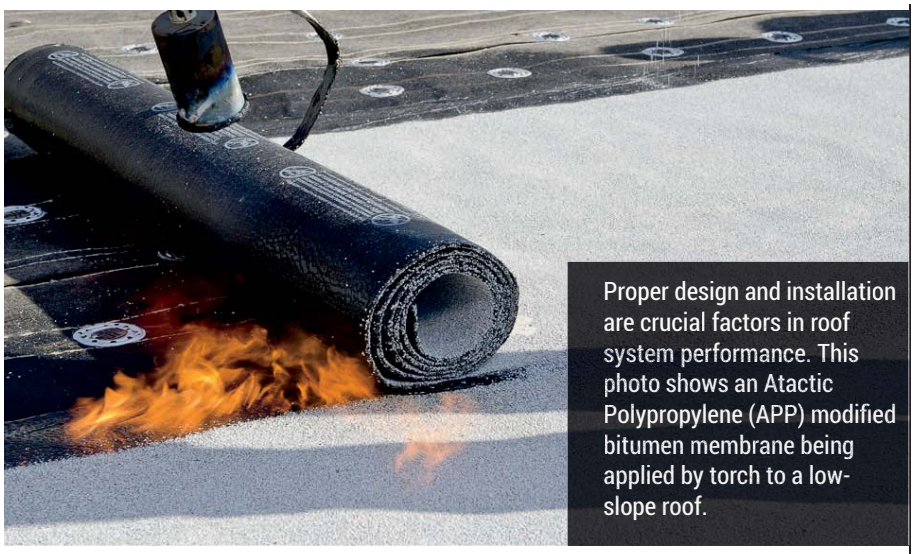


Proper design and installation are crucial factors in roof system performance. This photo shows an Atactic Polypropylene (APP) modified bitumen membrane being applied by torch to a low-slope roof.

algae and vegetation growth will likely occur, and may cause damage to the roof membrane. Additionally, vegetation can clog drains and cause additional ponding.

- **Accumulation of dirt and debris in the ponding area:** Dirt, debris, and other contaminants can affect and damage the membrane surface. The can also lead to clogged drains.

Ponding water may lead to accelerated erosion and deterioration of the membrane surface that can result in failure of the roof system. Allowing even relatively small amounts of moisture beneath the roof membrane may reduce the thermal efficiency of the insulation. More importantly, moisture intrusion can cause serious damage to the deck, insulation, and membrane as well as the building's interior.

The Asphalt Roofing Manufacturers Association (ARMA) recommends that roof designs provide adequate slope (minimum of ¼ inch per foot) to ensure that the roof drains freely throughout the life of the building and to thereby avoid the effects of ponding water. Model building codes also require a minimum ¼ inch per foot slope for new construction projects, and require positive drainage for re-roofing projects. These requirements are intended to prevent water from ponding on roof surfaces.

MANAGING PONDING WATER

Here are a few best practices to manage ponding water:

- Adequate sloping should be taken into account during the design

PHOTO: ARMA

Allowing even relatively small amounts of moisture beneath the roof membrane may reduce the thermal efficiency of the insulation. More importantly, moisture intrusion can cause serious damage to the deck, insulation, and membrane as well as the building's interior.

process. A roof's structural frame or deck should be sloped, and drainage components like roof drains and scuppers should be included in the design.

- In addition, secondary (or emergency) drains may be required by local plumbing codes to help reduce the risk of a structural failure due to clogged drainage systems. Talk to your roof membrane manufacturer and/or roof system designer to determine the proper location of these components.
- If a deck does not provide the necessary slope to drain, a tapered insulation system can be used. A combination of different approaches — single slope, two-way slope, and four-way slope — is often used to achieve the necessary slope and to allow for moisture drainage.
- Additionally, crickets installed upslope of rooftop equipment and saddles positioned along a low-point between drains, can help prevent localized ponding in conjunction with a tapered insulation system.
- Building designers and owners should work with contractors and roof manufacturers to determine which methods are best and appropriate for a roof assembly's long-term performance, whether it's a new construction or re-roof project.

The NRCA Roofing Manual: Membrane Roof Systems—2015, states the following: "NRCA recommends that designers make provisions in their roof designs for positive slope."

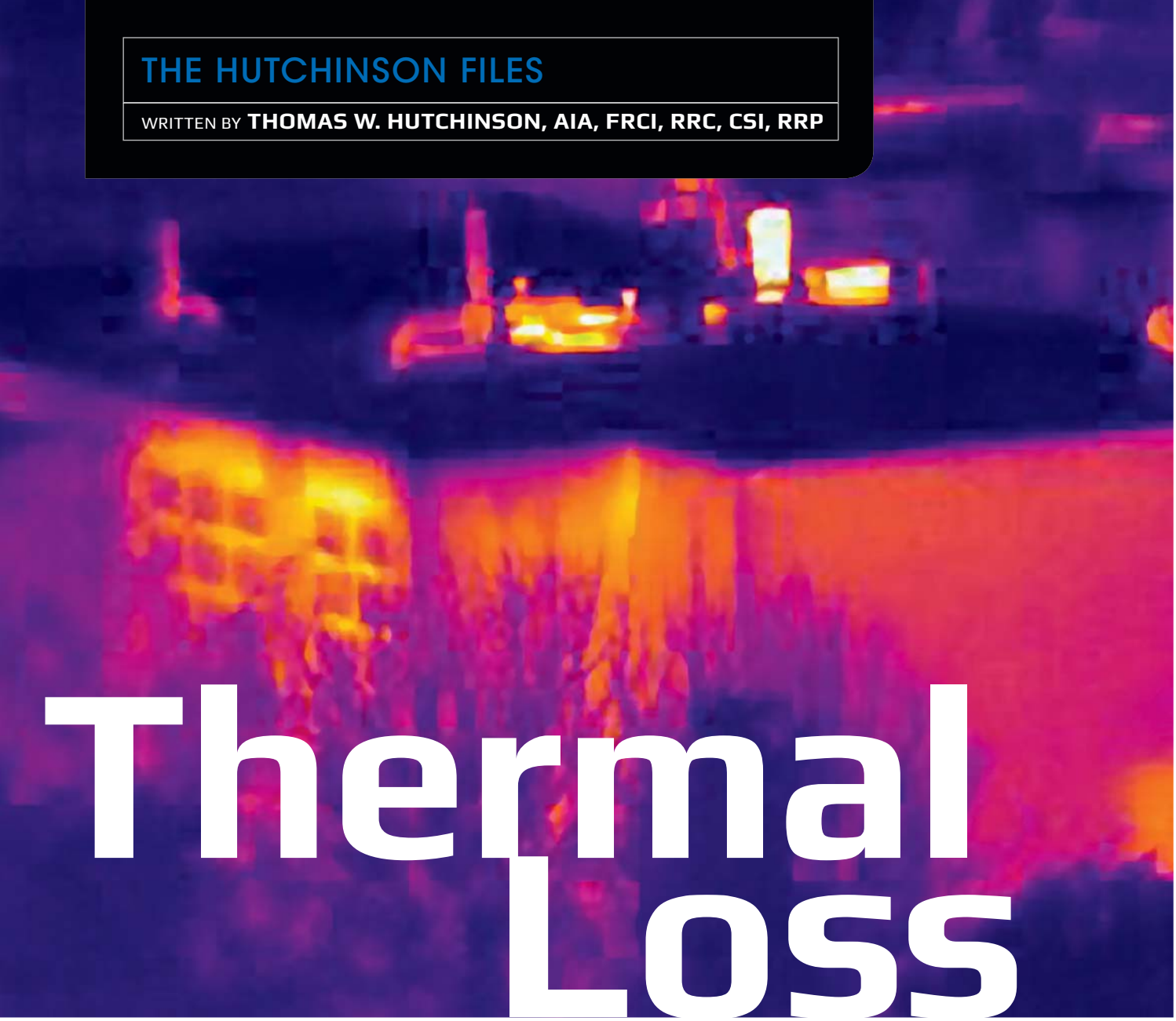
The manual spells out that slope generally is provided by:

- Sloping the structural framing or roof deck
- Designing a tapered insulation system
- Proper location of roof drains, scuppers and gutters
- A combination of the above

By following the proper drainage practices detailed above, building owners can positively impact their low-slope roofing system and help to ensure it will remain durable and reliable throughout its service life.

To obtain specific information about ponding water on particular products and systems, contact your roof material manufacturer. For more information about low-slope asphalt roofing systems, visit www.asphaltroofing.org. R

WRITTEN BY **THOMAS W. HUTCHINSON, AIA, FRCI, RRC, CSI, RRP**



Thermal Loss

Are You Meeting Thermal Insulation Code Requirements?

You may have overheard conversations such as this:

New Building Owner: "*You promised energy conservation and savings.*"

Mechanical Engineer: "*We sized the mechanical unit based on the code required effective thermal value.*"

New Building Owner: "*But why are my cost 30 percent above your estimates and I am needing to run my units constantly and they still barely maintain a comfortable environment?*"

Mechanical Engineer: "*We have checked all the set points and systems and they are all working, albeit with a bit of laboring. We don't know why there is not enough heat.*"

New Building Owner: "*Well, someone is going to have to pay for this!*"

Scenarios and liability questions like this are being repeated across the northern North American continent, and to mechanical engineers, architects and owners, the cause is a mystery. Perhaps they should have talked to seasoned roofing professionals and consultants. They could've told them that many mechanically attached roofs, incorrectly promoted and sold as energy-saving systems, were actually energy pigs. One only needed to walk a mechanically attached roof with a few inches of snow on it to see the heat loss occurring. It doesn't take scientific studies and long-winded scenarios to

PHOTO 1. Conditions such as this, in which the fastener plates melt the snow, visually demonstrate the heat loss that is a known entity to roof installers and knowledgeable roofing professionals.

prove this — just get up on the roof and see it. (See Photo 1.)

I spoke on this topic back in 2007 at the RCI Cool Roofing Symposium. I always like being a soothsayer, and several recent studies are demonstrating and attempting to quantify this energy loss that most roofers could tell you was there.

For years the NRCA suggested a loss of thermal value of 7 percent to 15 percent through the joints in a single-layer insulation application and through mechanical fasteners used to secure the insulation. (The NRCA has since removed this figure and suggests that professionals be consulted to determine thermal heat loss.) The NRCA recommended a cover board to reduce this effect. This was at a time when roof covers were predominantly BUR, modified bitumen or adhered single plies. The upsurge in mechanically attached single-ply membranes, brought on by low-cost installation and the promise of energy savings, changed the game. No one was asking, if there could be a loss of 7-15 percent when mechanically attaching insulation, what could the effective R-value loss be when we install thousands of fasteners and plates 12 inches on center (or less) down a membrane lap seam? Gee, haven't we seen that before?

PHOTO 2. When a light dusting of snow blew off this 2 million-square-foot facility in central Illinois, every single mechanical fastener and insulation joint could be identified by the ice visible at their locations. This roof needed to be replaced due to condensation issues several years after installation at a cost of more than $10 million.

PHOTO 3. This is close-up of the roof shown in Photo 2. Heat loss through the screws and fastener plates and through joints in the single layer of insulation melted the snow. The water froze when the temperatures dropped and the ice was revealed when a light wind pillowed the membrane and the remaining snow blew away.

CODE REQUIREMENTS

The code and standard bodies — ICC, IECC, ASHRAE — have been repeatedly raising required thermal insulation values over the past decade in an attempt to conserve energy; that is their intent. They listened to astute designers and prescribed two layers of insulation, and then again to determine the minimum R-value and not allow averages. The intent is clear. The required R-value per ASHRAE zone is to be achieved.

Their goals were laudable, but not all roof systems achieved the in-place R-values required. So, this article is in part an attempt to educate code officials and explain the need for a change.

Words can explain the phenomenon of thermal loss, but photos are worth a thousand words, and since my editor has told me that I cannot have a 4,000-word article, I leave it to the photos to do the talking. (See Photos 2, 3 and 4.)

SCIENTIFIC STUDIES

In their Buildings 2016 article titled "Three-Dimensional Heat Transfer Analysis of Metal Fasteners in Roofing Systems," Singh, Gulati, Srinivasan and Bhandari (Singh) studied the effect of

Table 6. Comparison of $R_{effective}$ Values showing the difference between Prescribed Design Conditions Case (baseline) and final assembly with taking into consideration, the effect of fasteners for all the climatic conditions analyzed.

	$R_{effective}$ ($Ft^2 \cdot °F \cdot h/Btu$)	Atlanta (CZ3)		Orlando (CZ2)		St. Paul (CZ6)	
		Summer	Winter	Summer	Winter	Summer	Winter
1A	Prescribed Design Value	22.6	22.3	22.7	22.3	22.6	22.3
	Actual Value	11.8	11.2	11.8	11.2	11.8	11.2
1B	Prescribed Design Value	22.6	22.3	22.7	22.3	22.6	22.3
	Actual Value	14.7	14.2	14.7	14.2	14.7	14.2
3A	Prescribed Design Value	23.6	23.3	23.7	23.3	23.6	23.3
	Actual Value	23.6	23.3	23.7	23.3	23.6	23.3
3B	Prescribed Design Value	22.6	22.2	22.7	22.3	22.6	22.2
	Actual Value	22.1	21.6	22.1	21.6	21.9	21.6

FIGURE A. The effect of mechanical fasteners below the roof cover in mechanically attached roofs is not negligible as considered by general standards. As can be seen here for systems 1A and 1 B, in which mechanical fasteners are used in the lap seams of the roof cover (systems 3A and 3B have the fasteners below a layer of insulation), the actual thermal value loss caused by mechanical fasteners can be as high as 48 percent, as seen in system 1A with a high density of mechanical fasteners. As the mechanical fastener density decreases (1B), the heat loss also decreases. Thus, a correlation appears to exist in which heat loss due to thermal bridging is proportional to the fastener density.

heat transfer through thermal bridging (mechanical fasteners) in various roof assembly scenarios.

Their study exposes a shortfall in many standards that have as their goal a reduction in energy loss through building envelope systems through prescriptive approaches. For roofing assemblies, standards prescribe a minimum R-value, but they do not take into consideration the heat loss that happens though metal fasteners. There are no guidelines or recommendations in regards to thermal loss, including the loss of heat through roof system fasteners. It's actually ignored.

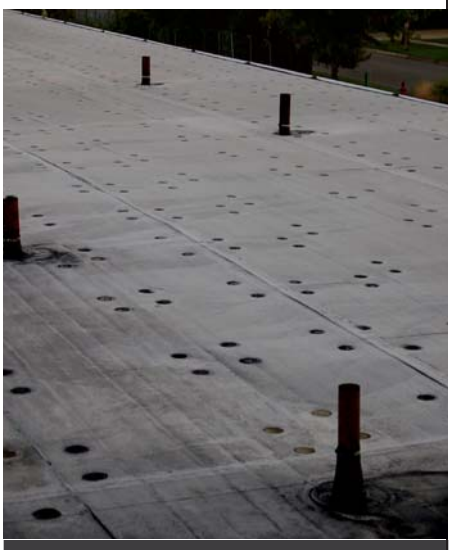


PHOTO 4. Heat loss also occurs through adhered roofs when the insulation is mechanically attached.

The results of the Singh study, as seen in the graph (Figure A), show that the effects of thermal shorts, e.g., mechanical fasteners used to secure the roof cover, is not negligible. In fact, thermal shorts can result in a loss of 48 percent of the effective value. Read that again! The thermal value of the roof insulation layer on which the mechanical engineer has in part sized the mechanical equipment — and which the owner is counting on for significant energy savings — could be about half of what was assumed. Add in gaps and voids, and the loss in the effective R-value could top 50 percent. What that means is that to achieve the code required R-30, say in Chicago, mechanically fastened roof systems need to have R-45 in the design to meet the effective code required R-value. This last sentence is for the code bodies — are you listening?

The value of this study cannot be underestimated, as thousands of buildings have been constructed since its publication that would not meet an effective R-value check in a commissioning study.

CHANGING THE CODE

The energy inefficiency of mechanically attached roof systems in ASHRAE zones 4 and above has been known to roofing crews for decades. Now, with the requisite scientific studies completed, the codes need to be revised to reflect the inherent thermal loss through mechanical fasteners. Additionally, studies from Oak Ridge National Laboratory highlight the energy increase required with inherent air changes below the membrane, confirming the need for air/vapor barriers on the deck on mechanically attached roof assemblies. (See "The Energy Penalty Associated with the Use of Mechanically Attached Roofing Systems," by Pallin, Kehrer and Desjarlais.)

As a starting point for code groups and officials, I suggest the following code revisions:

1. State that if a mechanically attached roof cover is being used that the prescribed thermal R-value shall be increased by 50 percent.
2. State that if a mechanically attached roof cover is being used that an air barrier below the insulation must be used and that it shall be fully adhered to penetrations and roof perimeters.

CLOSING THOUGHTS

The goal of energy conservation is a laudable one. The American Institute of Architects' goal of zero-energy building by 2030 will never be met until real-world empirical information can be presented at code hearings. (For those of you who do not attend code hearings or know the process, information is usually disseminated in two-minute sound bites without documentation.) This lack of information sharing is a travesty and has resulted in numerous code changes that have been detrimental to the goal of energy savings. Time has come for a new way of thinking. R

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WRITTEN BY **CHRIS KING**

The Picture of Health

Metal Roof and Wall Panels Add Sleek, Modern Look to New Medical Complex

PHOTOS: PETERSEN

The CHRISTUS Trinity Mother Frances Herrington-Ornelas HealthPark in Tyler, Texas, houses an urgent care clinic, medical offices, a physical therapy area and a fitness center.

When Brice Harris of Harris Craig Architects began designing a new health complex in Tyler, Texas, he knew his client wanted to maintain continuity with the company's other medical facilities but at the same time update the look. The roof and wall panel systems became the key to meeting both design goals.

The standing seam metal roof and metal wall panel systems are now the signature architectural features of the CHRISTUS Trinity Mother Frances Herrington-Ornelas HealthPark. The new construction project encompasses some 43,000 square feet of space housing an urgent care clinic, medical offices, a physical therapy area and a fitness center.

THE DESIGN

Harris Craig primarily focuses on institutional projects, including schools. About a quarter of the firm's work involves health care facilities. On this project, a merger while it was underway added a few wrinkles in the design process.

"The hospital system is CHRISTUS Trinity Mother Frances," Harris notes. "When we began work on the project, it was for Trinity Mother Frances, and they partnered up with another hospital network, so part of the challenge on this job was switching the branding in the middle of the project. Luckily our overall design fit very well. The branding changes were more prominent on the inside of the building and didn't have much effect on the exterior design."

The property is strategically located at the intersection of two busy roads, and the highly visible site posed some concerns. "We really didn't have a back of the building," Harris explains. "The challenge of the design really was to efficiently present this building well both to the street and to the people who would be approaching it from the opposite side. That actually drove a lot of how the building form turned out, along with our desire to both help modernize the look of the clinic a little bit and to tie it back to some of the existing branding."

The roof was designed to echo the other structures but uses different materials. "They share the prominent use of the gable on the building, but here we brought it forward into a contemporary design aesthetic," Harris says.

For this project the design team specified a standing seam metal roof manufactured by Petersen that encompasses approximately 6,000 square feet. Low-slope roof sections over each wing were covered with 60-mil TPO roof system manufactured by GAF.

Wall panels were used to extend the sleek, modern look down to the ground, in contrast to the many brick buildings in the area. "We wanted to lighten up the look a little bit and bring in some new materials as part of the modernization," Harris says. "We have composite panels, horizontal panels, and wood-look aluminum panels."

Key concerns included making sure the various systems tied together perfectly. "The transition between the wall and roof is a very important detail for us," Harris notes. "The most complicated areas for us on this project would be at the front of the building with the big glass windows and composite panels, and areas where the composite panel ties into the TPO roof and the metal panels. That was probably the trickiest part of the design."

THE INSTALLATION

Tyler Roofing was a natural fit for the project due to its established relationships with the architect and general contractor, WRL General Contractors, headquartered in Flint, Texas. "We do a lot of work in Tyler, and we've worked on a lot of Harris Craig projects," says Tommy Ray Sukiennik, a 24-year veteran at the company, which was founded by his father and uncle 35 years ago. "We're one of the competitive contractors in our area."

The company's share of metal roof and wall panel work is increasing, notes Sukiennik. "We've been doing standing seam roofs for more than 20 years. Lately we've been doing a lot of wall panels — Petersen HWP wall panels, flush mounts, things like that. As far as

Crews from Tyler Roofing installed the metal wall panels, which included PAC-CLAD HWP panels and PAC-CLAD flush panels from Petersen, as well as Longboard Siding in Dark Cherry Wood Grain from Mayne Coatings Corp.

metal goes, we try to be diverse enough that we can install any system that comes out on the plans."

Tyler Roofing installed the roof systems and wall panels on the project, along with gutters, soffits and trim. Work began with the fully adhered GAF EverGuard TPO roof system, which was installed over the metal deck, 4 inches of polyisocyanurate insulation and a half-inch cover board. The low-slope roofs over the wings house the HVAC units, but details involved were straightforward, notes Sukiennik. "It was all pretty basic," he says. "At some points we had to tie in the TPO roof, the metal on the parapet wall, and the metal on the exterior wall all together."

To dry in the gable roof, crews installed 4 inches of polyiso insulation and a self-adhering waterproofing underlayment. They also installed custom-fabricated gutters. "We built a gutter that hangs off the edge of the eave that a starter clip goes on top of, so it's integrated into the roof," Sukiennik notes.

The 18-inch-wide, 24-gauge PAC-CLAD Snap-Clad roof panels in Champagne Metallic were delivered to the site. "We order all of the panels to length from Petersen," Sukiennik says. "One of the plants is here in Tyler, and actually not far from the job, so it was very convenient. All of the rest of the trim, parapets, wall flashings and components we fabricated ourselves in the shop with metal they supplied."

The roof panels were raised to the roof using a SkyTrak lift with specially built cradles. The wide-open jobsite and the flat roofs on either side of the gable made the roof area easily accessible. "It was just a straight run gable roof. There are no penetrations in the standing seam," Sukiennik says. "The panels are easy to install. The Snap-Clad panels just pop together."

Tyler Roofing crews also installed the metal wall panels, which included 16-inch-wide, 24-gauge PAC-CLAD HWP panels in Dark Bronze from Petersen; 12-inch-wide, .032-inch aluminum PAC-CLAD flush panels from Petersen; and 6-inch-wide extruded Longboard Siding in Dark Cherry Wood Grain from Mayne Coatings Corp.

Wall panels were installed using scissor lifts and ladders. "We kept running a laser to make sure everything was horizontal and lined up," says Sukiennik. "Then we finished it off with the trim and the cap. We tied everything into the expansion joints and trimmed it out so it was as clean as could be."

The workload on this project was greater than usual, so skillfully managing the crews was important. "Usually we roof a building, and then we have to wait on the other contractors to do the brick and stucco on the exterior, and then we have to come back and trim it

Herrington-Ornelas HealthPark is located at a busy intersection and is visible from all sides, so the building was designed to present itself well to every vantage point.

The standing seam metal roof and metal wall panels were used to give the complex a modern look, while the prominent gable roof echoes the hospital system's other facilities.

On the gable roof, Tyler Roofing installed 18-inch-wide, 24-gauge PAC-CLAD Snap-Clad roof panels cut to length by Petersen. Tyler Roofing also fabricated and installed trim, parapet metal, wall flashings and gutters.

out and finish," Sukiennik explains. "On this project, we did probably 70 percent of the exterior of the building, so we were working on the building continuously while we were doing other projects."

The good news was that the crews had most of the work under their own control. "There were no issues of expecting someone else to make sure things were done the way we wanted them done. We tied everything in ourselves."

Work was completed in the summer, so the heat was an issue. "When we put the wall panels on during July and August, it was pretty hot, so we had to work on one side of the building in the morning and then switch sides in the afternoon," Sukiennik says, noting that his company is used to coping with extreme conditions. "In East Texas, we can have every type of weather there is within three days almost."

TEAM EFFORT

Sukiennik credits WRL General Contractors for the well-coordinated jobsite. "We work on a lot of projects with the same contractors, so we all watch out for each other," he says. "We do a good job of staying on top of things. We do a lot of work here, and this our family town, so we take pride in our work. We do the best we can."

Comprehensive details and pre-production meetings ensured the installation was uneventful, according to Sukiennik. "The architect does a good job of making sure everything blends," he says. "We usually don't have issues with details and things like that. They try to make it as smooth as could be."

During construction, members of the design and installation teams stayed in touch to make sure everything went according to plan. "This project was only about a mile from our office, so it was convenient to stop by, and it was a project we were really excited about," Harris recalls. "We meet frequently with our installers to discuss details. We like to learn what works and what doesn't work from the crews in the field. We want to listen to the wisdom of the guys who are out there actually doing the work."

It's all part of making sure the building owner is satisfied. "What we were excited about for this project was the opportunity to define a new look for CHRISTUS Trinity Mother Frances to help them match the quality of their facilities with the quality of care in Tyler and the region," Harris says. "We see one of our strengths as building long-term relationships with our clients to give us the opportunity and trust to do that." R

CHRISTUS Trinity Mother Frances Herrington-Ornelas HealthPark

Tyler, Texas

TEAM

ARCHITECT: Harris Craig Architects Inc., Tyler, Texas, www.hcarch.com
GENERAL CONTRACTOR: WRL General Contractors, Flint, Texas, www.wrl-gc.com
ROOFING CONTRACTOR: Tyler Roofing Company Inc., Tyler, Texas, www.tylerroofingco.com

MATERIALS

METAL ROOF PANELS: 24-gauge, 18-inch PAC CLAD Snap-Clad Panels in Champagne Metallic, Petersen, www.pac-clad.com
TPO ROOF MEMBRANE: 60-mil EverGuard TPO, GAF, www.GAF.com

METAL WALL PANELS: 24-gauge, 16-inch PAC-CLAD HWP panels in Dark Bronze, Petersen

FLUSH PANELS: .032-inch, 12-inch Aluminum PAC-CLAD Flush Panels, Petersen
WOOD ACCENT PANELS: 6-inch Longboard Siding in Dark Cherry Wood Grain, Mayne Coatings Corp., www.longboardfacades.com

WRITTEN BY **CHRIS KING**

FIRST Do No Harm

During Hospital Expansion, Contractor Protects Patients — and the Environment

It's not often a roofing contractor installs a new roof on a building before removing the old one, but that was just one of the wrinkles encountered by The Duerson Corporation during the recent expansion of Pella Regional Health Center in Pella, Iowa. The project involved adding a new third floor to the existing two-story hospital without disrupting the care of the patients below.

Protecting patients and meeting the needs of the hospital were the top priorities on the project, but another key focus was sustainability. Thanks to the initiative of The Duerson Corporation and Duro-Last, the roof system manufacturer on the project, almost all of the components on the existing roof were recycled, including the membrane, insulation, screws and plates.

PHOTOS: THE DUERSON CORPORATION

The recent expansion of Pella Regional Health Center included adding a new third floor to the hospital.

THE GAME PLAN

Based in Altoona, Iowa, The Duerson Corporation has been in business since 1986, specializing in commercial and industrial roofing, both new construction and retrofit. Kirk Duer, the company's president, and Tanner Duer, head of business development, shared their insights on the Pella Reginal Health Center Project with Roofing.

They note that the goal on every project is to meet the client's needs. "The hospital is a good example of that," Kirk notes. "We took care of some maintenance and leak issues in the beginning, and then as time went on and trust was established, we did some re-roofing projects for them. Then they did this addition. It all flowed very well together."

In a nutshell, the expansion plan involved erecting the steel for the new third floor, adding the roof deck, and installing the new roof system. The existing roof was left in place during this phase of construction, as the hospital was still active. After the walls were completed, the old roof system could be removed and recycled, and finally the interior work could be completed.

The first step involved erecting the steel for the new third floor. Kirk credits the hospital administrators for detailed planning before the project even got underway. That was the reason the existing roof was home to multiple 2-foot-by-2-foot boxes, complete with curbs and flashing.

"Those boxes covered the steel from the I-beams that were coming out of the roof, ready to receive that third floor," Kirk notes. "When those boxes were removed, they just took their new steel and went up. It's one of the more unique things I've ever seen in my history in the industry."

As the steel went up, flashing the newly exposed I-beams was the first phase of the roofing work. "In the very beginning, once the general contractor removed those boxes, we added membrane and insulation around the I-beams and made sure they were watertight while the steelworkers erected their steel," Kirk notes. "It was critical to keep it watertight because they still had patients right beneath us."

INSTALLING THE NEW ROOF

The new roof system covered an area of 27,600 square feet, bordered on one side by a long, curved parapet. The roof was installed over a structurally sloped steel deck with internal drains. "The first thing we did was install a vapor barrier over the entire deck," Tanner notes.

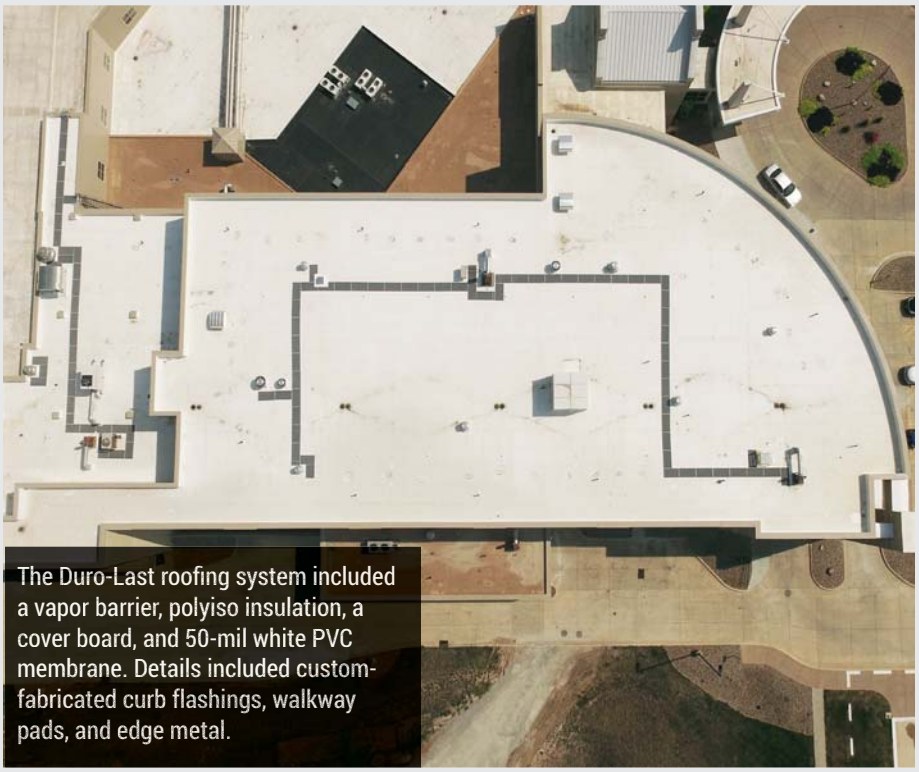
The system consisted of Duro-Guard polyiso insulation with an R-value of 30, DensDeck cover board, and 50-mil Duro-Last white PVC membrane. Details included custom-fabricated curb flashings, Roof Trak III walkway pads, and coping and edge metal from Exceptional Metals.

Hospital administrators wanted a warranty from one source, notes Kirk. "Duro-Last refers to it as edge to edge, deck to sky," he says. "Every component is supplied by Duro-Last and warranted by them for a full-system warranty. This particular administrator is adamant that this is what he wanted, and that's what we delivered for them."

Weather was not an issue, but the crews had to be ready to move quickly in the event of emergencies. "Work took place in September and October, which is about the most beautiful time of the year for us," says Tanner. "The only unusual thing was that we had to have walkie-talkies on us at all times so they could alert us whenever a helicopter was coming in. Plant ops would notify us when a helicopter was coming in, and basically anything we had in the air we had to move down to the ground. We obviously wanted to make sure Pella Regional was not going to have a problem with us when a patient

"We started recycling the roof membrane, and then you realize that there are other things you should think about ... We started looking for ways to recycle everything, and pretty soon a full-blown sustainability program is born."

– Kirk Duer, The Duerson Corporation



The Duro-Last roofing system included a vapor barrier, polyiso insulation, a cover board, and 50-mil white PVC membrane. Details included custom-fabricated curb flashings, walkway pads, and edge metal.

Kirk Duer (left) and Tanner Duer of The Duerson Corporation have made sustainability a key focus of their business.

Pella Regional Health Center

Pella, Iowa

TEAM

ARCHITECT: Shive Hattery Architecture & Engineering, West Des Moines, Iowa, www.shive-hattery.com

GENERAL CONTRACTOR: Graham Construction, Des Moines, Iowa, www.grahamconstruction.com

ROOFING CONTRACTOR: The Duerson Corporation, Altoona, Iowa, www.duersoncorporation.com

MATERIALS

MEMBRANE: 50-mil Duro-Last white PVC membrane, Duro-Last, www.durolast.com

INSULATION: Duro-Guard Polyiso, Duro-Last

VAPOR BARRIER: Duro-Last Vapor Barrier, Duro-Last

COPING: Coping and 2-piece edge metal, EXCEPTIONAL Metals, www.exceptionalmetals.com

COVER BOARD: DensDeck, Georgia-Pacific, www.densdeck.com

was flying in."

The roofing installation was pretty straightforward, notes Kirk. There was one area on the lower roof that was an exception, as the new construction blocked access to the drains. "Originally the roof sloped in one direction, but because of the design of the new part of the building, we had to change the slope," he says. "We had to turn everything around so water would flow in the other direction."

On this section, the existing roof was torn off and removed, and tapered insulation was used to provide the proper slope. It was installed on a concrete deck over a working section of the hospital, so the installation was a

bit tricky. “Rather than starting at the drain, which would be the easiest thing to do, we had to start at the furthest point away,” Kirk notes. “We were adding so much insulation, we didn’t want to create a bathtub, if you will. We had to start at the high point and work our way downhill so when we got to the drain, we’d have the correct elevation.”

RECYCLING THE OLD ONE

Once the third floor was closed in for the winter, it was time to remove the existing roof. “That was the fun part,” Tanner says.

The old roof was removed through a window. “We had an opening that was approximately 5 feet wide and 4 feet tall,” Tanner recalls. “We took a fork lift with a BOXhaul on it and basically went up to the outside of the window and stuck it in there as far as we could without damaging any of the structure and started removing the material.”

No gas-powered vehicles were allowed to operate in the interior space. The fasteners had to be unscrewed and separated by hand. “When we removed the material, we tried to cut along the seams so we could see the screws and plates,” notes Tanner. “We sorted those out, and in the end we had more than 1,000 pounds of screws and plates we took back to our shop to be recycled.”

The existing membrane was cut up into 5-foot strips. Sections were rolled up and bundled for removal using a portable bander. Once the BOXhaul was full, it was taken to a flatbed trailer. “We completely filled the 20-foot trailer with old material to be recycled,” Tanner says. “In the end, there was 7,200 pounds of Duro-Last membrane that we recycled.”

The membrane was recycled as part of Duro-Last’s Roof Take Back Program. The company recycles the membrane, using it to construct products including walkway pads. “We’re lucky enough to have a Duro-Last plant in our state, and I actually took that load of material to be recycled to Sigourney one day,” Tanner says. “When I got there, they took a fork lift out there and unloaded it for me.”

The expanded polystyrene insulation was also removed and recycled. It was taken to Insulfoam, the original manufacturer. “The insulation necessitated a few more trips because it was so bulky,” Tanner says. “We kept an empty tractor trailer on site. In the end, we filled up three of those with approximately 120,000 board-feet of insulation that we took off of that project.”

After the metal roof deck was in place, crews installed a vapor barrier.

The new roof system covers 27,600 square feet of the new third floor in an area bordered on one side by a long, curved parapet.

The Duerson Corporation recycles as much material as it can throughout the year, including scrap metal and PVC membrane, which is stored in Duro-Last approved containers until there is enough to be transported to the plant.

“I thank Katie Chapman at Duro-Last for getting this program up and

running and making us aware of it," says Kirk. "Otherwise, that material would've just ended up in a landfill."

Participating in the membrane recycling program was an eye-opener for everyone at the company. "One thing leads to another," Kirk says. "We started recycling the roof membrane, and then you realize that there are other things you should think about. What do we do with the insulation? What do we do with the screws and plates? We started looking for ways to recycle everything, and pretty soon a full-blown sustainability program is born. It really does change the way you think once you buy into the system."

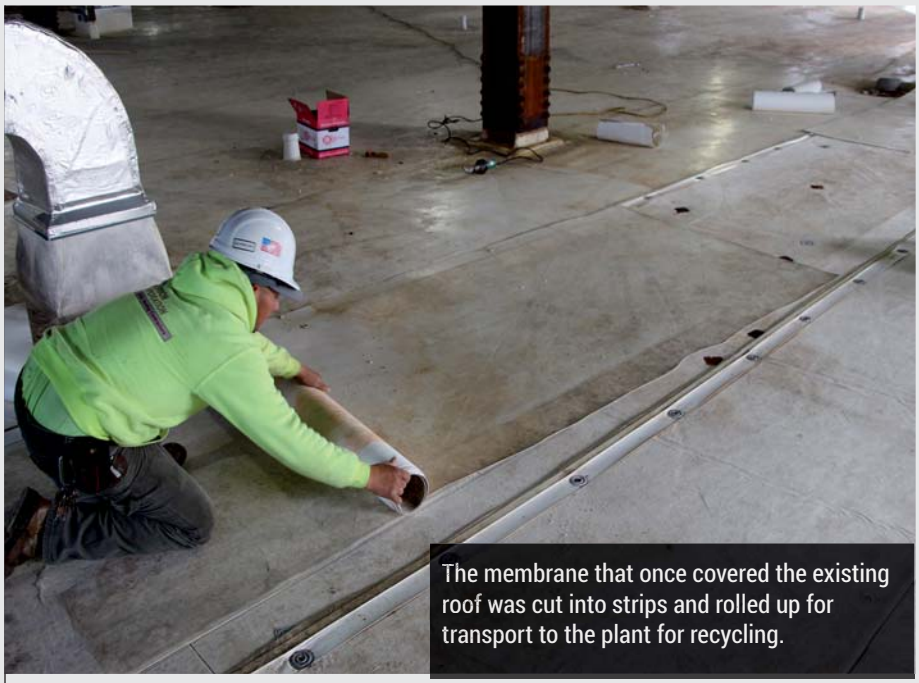
THE NEW FLOOR OF THE HOSPITAL

After the general contractor removed the old vapor barrier with a floor scraper, the new third floor section was converted into a brand-new, pristine Obstetrics and Gynecology unit. The difference between the construction site and state-of-the-art hospital wing is striking.

"What we knew as the concrete roof deck was also designed to serve as the finished floor of the hospital," Kirk says. "The new O.B. unit is just beautiful. If you look at that you can't even imagine, unless you've been through the whole process, that the area with carpet and tile you're looking at months ago used to be the roof."

Safety for the roofing crews is always a priority at The Duerson Corporation, but safety precautions on this project also included ensuring the safety and security of the people in the hospital. "It was critical that we were always aware of the patients underneath us," Kirk notes. "We had to be very mindful about the positioning of our generators, for example, so the exhaust wouldn't be sucked into the fresh air intakes."

Tanner points out that a checklist is prepared for each project to make sure everyone is aware of the client's needs. This is especially important in health care projects like this one. "If someone goes out to take care of a leak call, for instance, we make sure they know everything they need to know to keep the client happy," Tanner says. "With a health center, you have to take extra precautions. This can include items like making sure when you're walking across the open roof that you don't look into a patient's room."



The membrane that once covered the existing roof was cut into strips and rolled up for transport to the plant for recycling.

The third floor of the hospital now houses a brand-new Obstetrics and Gynecology unit.

"We've learned a great deal from working with Pella Regional Health Center in terms of just how mindful of everything we need to be," Kirk says. "We recognize each of our clients, even though they all have a roof over their head, they all do something different for a living. In reality, everybody in any trade needs to recognize what your client does and what you need to do to be mindful of that."

It takes communication to understand clients' needs and build long-term relationships with customers. "We've got clients that we've serviced for 26 years," Kirk says. "We're all here to serve other people. In our case, it's in roofing. Whether it's a hospital or a convenience store, we're serving them, and it all starts with that relationship." R

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Quality of Life

New Roof Provides Security at Senior Living Complex

THE PRESERVE At Palm-Aire is a landmark senior living community in Pompano Beach situated on 13 acres of lush, beautiful grounds in South Florida. Offering both independent living and assisted living programs, the health care facility's primary focus is on preserving residents' quality of life in every way possible.

The independent senior lifestyle at The Preserve At Palm-Aire is all about maintenance-free living, and that philosophy influenced the choice of a new roofing system for the facility.

The re-roofing of The Preserve At Palm-Aire was complicated by Mansard-style roofs and 5-foot to 6-foot high parapet walls that greatly

PHOTO: JOHNS MANVILLE

restricted access to the existing roofing system, which was installed on a lightweight structural concrete deck. The use of trash chutes was impossible, so a large crane and dumpster were used to remove the roofing debris.

"What concerned us most was using such a large crane around an immaculately landscaped property fully occupied by tenants especially sensitive to excess noise and vibration," says Geo Madruga, commercial project coordinator for A-1 Property Services Inc., the Miami-based roofing contractor on the project. Another important concern was that the low-slope roof had numerous penetrations, including those for 30 large HVAC units and various pipes and stack vents.

FINDING A SOLUTION

A-1 Property Services Inc. competed with several other contractors on an open spec bid. With the help of JM Sales Representative Lewis Buckner, A-1 advised the property owner that a 60-mil fleece-backed PVC membrane with DuPont Elvaloy KEE would provide the longevity, energy efficiency and chemical resistance required for the project. "We really pushed the PVC fleece backed as the superior roofing system and a unique solution for this building," says Madruga. "We also felt more comfortable with JM's PVC membrane due to our long track record with the product."

> **"We are specialists, and we don't just walk away from any roofs that we install."**
>
> — Geo Madruga, A-1 Property Services Inc.

Adhered directly to the concrete deck with a water-based adhesive, the fleece-backed PVC exceeded Broward County's 175-mph wind resistance requirement. The PVC membrane's high reflectivity also earned an energy efficiency rebate from Florida Power & Light Company. The product was also easy to install, depite the numerous penetrations, notes Madruga. "While there were definitely many unique penetrations, our 10-man crew had no problems with the heat-weldable PVC membrane," he says.

Madruga's concerns — and his company's name — both reflect A-1's desire to create long-term relationships with clients that include expert maintenance services. "We met the expectations of the owner's roof consultant, but with offices in Washington D.C., the client placed a tremendous amount of trust in the roofing manufacturer and contractor," adds Madruga. "We are specialists, and we don't just walk away from any roofs that we install." R

The Preserve At Palm-Aire

Pompano Beach, Florida

TEAM

BUILDING REPRESENTATIVE: CRP Preserve Palm-Aire LLC, Washington, D.C.

ROOFING CONTRACTOR: A-1 Property Services Inc., Miami, Florida

MATERIALS

ROOFING SYSTEM: 60-mil Fully Adhered Fleece-Backed PVC, Johns Manville, www.JM.com

Walk This Way

Hospital Pedestrian Overpass Poses Logistical and Safety Challenges

"THE MORE complicated and complex the project, the more it is up our alley," says Drew Bade, project manager for Bade Roofing Company in St. Louis, Missouri.

The company's recent work roofing the new 1,200-foot-long elevated pedestrian walkway at the BJC Healthcare/Washington University Medical Center complex in St. Louis certainly qualifies as complex. The fully enclosed walkway connects the parking garages to buildings in the medical campus. Constructed atop 14 concrete pillars at an elevation of approximately 40 feet over busy roadways, the 13-foot-wide structure posed obvious logistical and safety challenges.

Bade Roofing's union-affiliated workforce focuses on commercial projects, and the lion's share of the company's work is in the re-roofing arena. But for this new construction project, designed and executed through a joint venture between KAI Design & Build and Paric Corporation as part of a long-term project to update the medical campus, Drew Bade knew his company was the right candidate for the roofing portion of the job. The successful roofing installation proved him right. "We teamed up with Paric and KAI and made this thing happen," says Bade.

THE ROOF SYSTEM

The heated and air-conditioned walkway features carpeting, LED lighting, security intercoms, windows and metal wall panels. It also features a durable roof system. "It's a walkway, but this thing was built like a tank," notes Bade.

The roof is a Firestone TPO system that includes R-20 polyiso insulation and a half-inch DensDeck cover board from Georgia-Pacific. The 60-mil UltraPly TPO membrane was attached using Firestone's InvisiWeld induction welding system. The base of the system is the walkway's 18-gauge steel deck, which features interior drains, scuppers and downspouts. Tapered insulation was used to provide proper drainage.

To make the project's logistics even more complicated, work was scheduled on the fly as different areas of the walkway were completed. "There were some areas that weren't built yet when we started to put this roof on," Bade recalls. "It was a fluid situation. It was a challenge just to keep up with the changes, and we had to bounce around a lot. We couldn't just start at one end and roof our way over to the other end. We had to hop around and handle what was finished at the time, tying the sections in together as they were completed."

The short parapet walls were capped

PHOTO: PARIC CORPORATION AND KAI DESIGN & BUILD

with edge metal after the roof was installed. "In some spots, after the roof was put on, it was more like a drip edge than a parapet," Bade says. "At the highest, it was about 8 inches. We installed edge metal that tied into the metal wall panels they used on the sides of the bridge. It was all integrated together."

Loading components proved tricky. "Getting material to each section and moving it around was a challenge in itself," Bade explains. "We had to coordinate certain time frames that we could get our crane into an area to drop the material off. Because of how the safety systems were set up and how narrow this bridge was, you couldn't really transport material along it very far. The crane essentially had to put the material right where it was going to go for that day."

Loading the roof was usually done first thing in the morning, as use of the crane could mean blocking off roads or going into gated areas. "We'd try to beat all of the other trades in there," Bade says.

THE SAFETY PLAN

The key to executing the project was finding the right safety plan. Initially the team explored the use of a temporary guardrail system, but it proved infeasible due to the short parapet walls. "We use temporary guardrails on almost 100 percent of our projects, but the engineer came back and said the parapet walls weren't strong enough to support a guardrail system," Bade recalls.

The company looked for other options. "We looked at a special system that is more commonly used on road bridges during construction," he says. "It uses a cable that runs between stanchions, and crew members can clip off to the cable."

The system chosen was the Beamguard lifeline stanchion system from Guardian Fall Protection. The posts were attached to the steel I-beams every 30 feet. "We had to cut the metal deck out and clamp the posts to the I-beams," Bade explains.

Crew members' personal fall arrest systems were connected to the lifeline, but only two workers could tie off to the cable in between the stanchions. "We were tied off 100 percent of the time," Bade says. "Safety was a huge issue for everyone on this project. There were no warnings. Everyone knew that if someone wasn't tied off, they'd immediately be thrown off the job."

The cable system posed some limitations on crew movement, which affected the delivery of materials. "With the cable system, you could only go so far because only two people could be tied off to a 30-foot section at a time. Essentially you had two guys walking 30 feet to hand insulation boards to the next two guys. It was kind of like a chain gang, moving material down each section of the roof."

Ensuring the safety of pedestrians and vehicles below was also crucial. "There was a sidewalk area in the parking garage that was fully functional during the project, as there was a walkway constructed of scaffolding that offered overhead protection," Bade notes.

However, other areas of sidewalk and roads had to be closed in order to complete work on some sections. "It depended where you were working that day," Bade says. "Some areas of sidewalk had to be closed, and sometimes we had to redirect traffic. If you were working in areas without scaffolding, you would have to have two guys on the ground with flag lines directing traffic and blocking people off."

One crucial section over a busy road posed some additional challenges. The three-lane road could only be shut down on one weekend. All of the trades had to complete their work that weekend, so the roofing installation had to be completed in just one day. "We did a 120-foot stretch of the roof that crossed this main road, and we did it all on a Saturday. It was the only opportunity we had. Otherwise we would've had to pay to shut the road down lane-by-lane, as we went. We were lucky that we were able to get in there on that one day and finish the whole length."

Communication between all of the companies involved in the project was essential, notes Bade. "The foremen for every trade met every morning before work started. All of the contractors on the project had their meeting every week to plan and go over everything," he says. "There were multiple forms you had to fill out every morning. The paperwork on this project was flying like you wouldn't believe."

After the work was completed in each section, the safety system had to be disassembled and removed. The last chore completed on each portion of the roof was to fill in the patches of roofing material where the stanchions had been. Workers completed these last steps tied off to a snorkel lift.

Despite the logistical hurdles, the project went smoothly and feedback has been positive, notes Bade. "It ended up being a great project for us," he says. "It turned out really nice."

It's just another tough project now in the rear-view mirror. "The coordination, the safety, and the complexity of the actual roof system itself — not that it was necessarily a difficult roof to install, but given where it was, and how difficult it was to access — it all shows how dedicated and skilled our company is," Bade concludes. "I don't think there are a lot of companies out there that could do this project." R

BJC Healthcare/ Washington University Medical Center Pedestrian Overpass

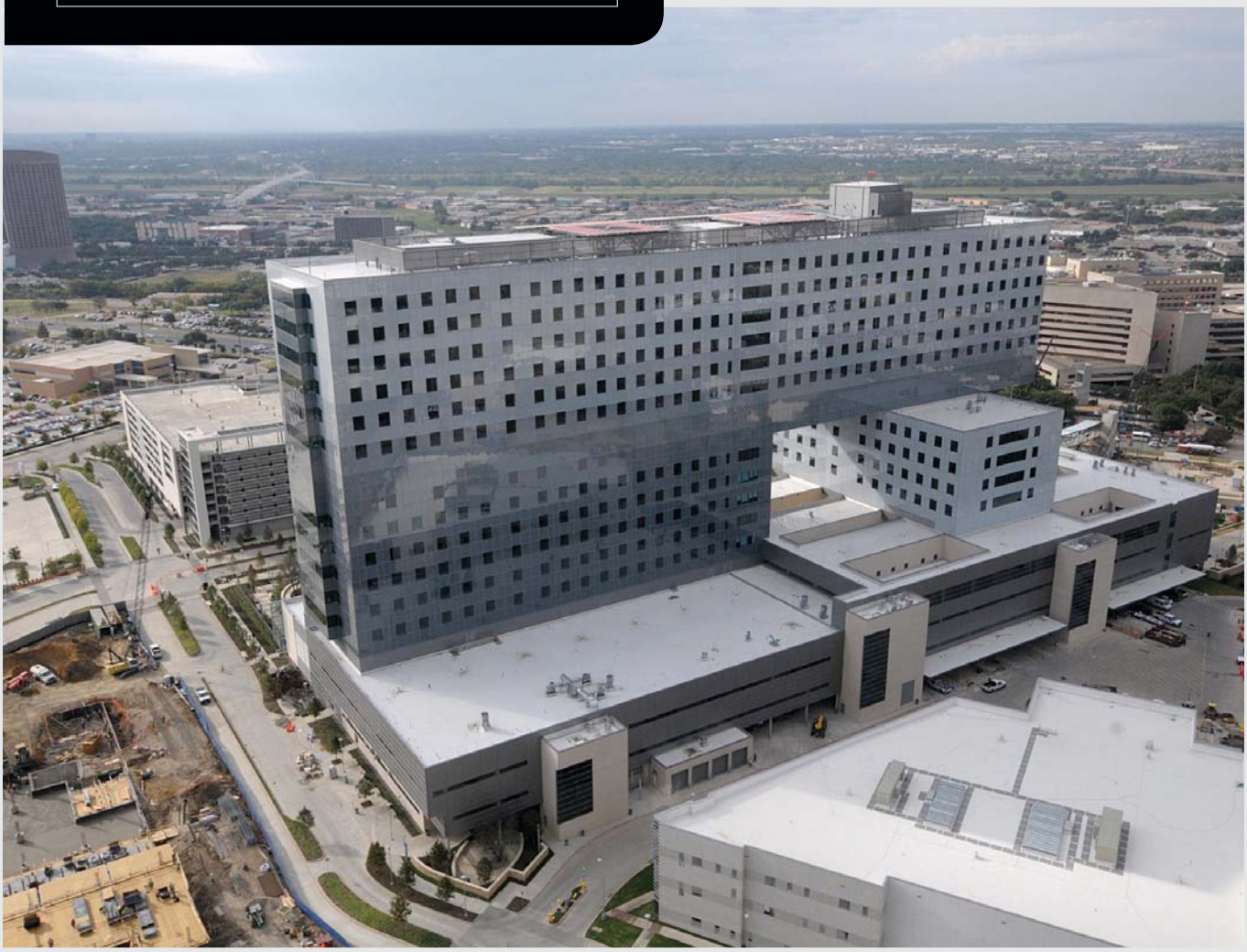
St. Louis, Missouri

TEAM

ARCHITECT: KAI Design & Build, St. Louis, www.kai-db.com
GENERAL CONTRACTOR: Joint venture between KAI Design & Build and Paric Corporation, St. Louis, www.paric.com
ROOFING CONTRACTOR: Bade Roofing Company, St. Louis, www.baderoofing.com

MATERIALS

MEMBRANE: 60-mil UltraPly TPO, Firestone Building Products, www.firestonebpco.com
COVER BOARD: DensDeck, Georgia-Pacific, www.densdeck.com



BIGGER IN TEXAS

The New Parkland Hospital Is Already a Dallas Landmark

WHEN IT was time to replace the Parkland Memorial Hospital – a Dallas, Texas, landmark constructed in 1954 that served as a safety-net facility for Dallas County for over half a century, and which held notoriety as the location where President Kennedy was rushed after being shot in 1963 – everyone recognized they would be undertaking a high-profile project. This became even more apparent when the plans for a new Parkland hospital were unveiled: a 2.1-million-square-foot, 17-story, state-of-the-art, 862-bed, full-service acute-care facility located on a 64-acre health care campus in the Southwest Medical District. The $1.33 billion project resulted in one of the largest health care facilities ever constructed as a single project.

Because of the scale of the new Parkland hospital project and the fact it

PHOTO: AERIAL PHOTOGRAPHY INC.

was being funded with public dollars, a conservative and careful approach to the planning was paramount. A planning and construction team was assembled to tackle the mammoth project, which included two architecture firms — HDR Inc. and Corgan Inc. — and four large contracting firms — Balfour Beatty, Austin Commercial, H.J. Russell & Company and Azteca — that formed a joint partnership called BARA for the job. A "collaborative project delivery" model was adopted to keep all the stakeholders on the same page, which included the designation of a central "co-location" office where members of various involved firms could meet, collaborate and concur on direction. Numerous consultants were brought in, and through a careful planning process over a period of two years, designs, material specifications and additional partners were analyzed and selected.

Early in the planning process, SOPREMA's local sales partner, Conner-Legrand Inc., was brought into material specifications discussions with the architects and contractors planning the project. The planning team recognized the importance of finding the "best roof they could put in place" for this critical environment that was designed to last for decades. After numerous rounds of careful vetting, a final qualified roofing system was chosen that fit that criteria: a SOPREMA-manufactured, high-performance, two-ply, SBS-modified bitumen roofing system.

"Consistency and reliability in the marketplace don't develop overnight, and in the case of a project like the new Parkland hospital, everyone accounts for that," says Luke Legrand of Connor-Legrand Inc. "You're dealing with the most discerning audience you can imagine, and while it takes time to make decisions, the final choice of materials speaks volumes. The decision-makers wanted one reputable manufacturer that could provide everything from the primer to the cap sheet and offered a strong warranty, and not every manufacturer has the horizontal and vertical breadth to provide that. In this case, however, the planning team found what they were looking for in SOPREMA.

RAISING THE ROOF

The new hospital featured flat rooftops at multiple levels that all needed to be made watertight for decades to come. The roofing system needed to be designed in a way that accounted for a helipad, consistent rooftop traffic, extensive rooftop equipment, lightwells and various utility platforms. A lot stood in the way of Anchor Roofing, the installer, but the meticulous planning for the project meant that all contingencies had been considered by the time application of the waterproofing system began.

After installing insulation, a vapor barrier and SOPRABOARD, the Anchor Roofing team started on the two-ply roofing application. They first put down a layer of SOPRALENE Flam 180 SBS-modified bitumen base-ply membrane to provide waterproofing protection for the building. The various other tradespeople who needed to work on the rooftop could then go about their business, and any necessary repairs were made to the waterproofing base layer before a SOPRASTAR Flam SBS-modified bitumen reflective cap ply layer was installed on top. The chosen cap layer was not only functionally strong and long-lasting, but also white and highly reflective, providing energy savings and ultimately contributing to the hospital's achievement of LEED Gold status from the U.S. Green Building Council.

The two-ply SBS-modified bitumen roofing construction was also chosen because the waterproofing system can be easily refreshed 25–30 years down the road to extend the roof's lifecycle without a full tear-off. The foundation of the system can stay intact while the top layer is rejuvenated, giving the option for an additional warranty and ensuring the building is protected against the elements for another 20–30 years. This not only helps the health system to save money in the long run and avoid contributing unnecessary waste to landfills, but also helps the hospital avoid disruption to operations in a sensitive environment where recovering patients must be protected from invasive construction processes.

A DALLAS LANDMARK

Throughout the course of construction, 162 professional staff members and 1,400 on-site workers collaborated to construct the new Parkland hospital. It was officially dedicated in March 2015, and patients and staff had all moved in by August. The facility now averages more than 1 million patient visits per year, with roughly 30,000 people traveling through its doors each day. The roof has performed well, and all stakeholders in the project have felt confident that the right waterproofing system for the job was chosen. Given the careful planning, beautiful design and strong material choices that went into the project, it has already received a number of awards and is well positioned to remain a Dallas icon for decades to come. R

Parkland Memorial Hospital

Dallas, Texas

TEAM

ARCHITECTS: HDR Inc., Dallas, Texas, www.HDRinc.com, and Corgan Inc., Dallas, www.corgan.com

GENERAL CONTRACTOR: BARA, a joint venture partnership formed by Balfour Beatty, Austin Commercial, H.J. Russell & Company and Azteca

ROOFING CONTRACTOR: Anchor Roofing, Fort Worth, Texas, www.anchor-roofs.com

MATERIALS

MODIFIED BITUMEN BASE PLY: SOPRALENE Flam 180 SBS, SOPREMA, www.soprema.us

MODIFIED BITUMEN CAP SHEET: SOPRASTAR Flam SBS, SOPREMA

COVER BOARD: SOPRABOARD, SOPREMA

ROOFTOP LIVING

WRITTEN BY **CHRIS KING**

The three-story homes are built on narrow lots without a backyard, so the decision was made to offer a roof deck package to provide an area to enjoy the outdoors.

On Top of the World

Rooftop Decks Add Outdoor Living Space to Sacramento Town Homes

More and more, builders, architects and designers are looking to the rooftop as an area for usable living space — especially in urban areas, where lots are narrow. For a new town home development in Sacramento, the idea to add rooftop decks emerged late in the design process, but it's proved so popular the builders are not only glad they made the change — they are considering making it a standard feature in future projects.

Designed by Ellis Architects and built by The Grupe Company, the neighborhood is known as 20 PQR. "The project fronts on 20th street in mid-town Sacramento and runs from P Street down to R Street," notes Ron Rugani, vice president and purchasing manager for Grupe. "Q Street runs down the middle of the project, so that's how we came up with the name 20 PQR."

The 32 town homes are arranged in four groups of eight. The three-story residences have two different floor plans, one with 1,750 square feet and the other 1,850 square feet. "It's an interesting concept," Rugani says. "They are really considered single-family homes. They have their own lot, and they are detached from the next unit. There is a 6-inch space between the units, and they don't share a common wall. However, the way we trim out that space, on the top and sides, you would view the eight units as one building, but they are actually eight individual single-family detached town homes."

The narrow lots left no room for a yard, so that's what inspired the idea to create usable outdoor space on the roof. "If you can imagine the urban setting — the fronts of these units are right on the city sidewalk. All of the units have two-car garages in the back and are accessible through a common alley. But there is no outdoor living space, and so that's essentially what's driving these roof decks," Rugani says. "The backyard is where people are going to have outdoor living in a typical single-family home, and the rooftop deck is where they are going to have outdoor living in a town-home setting."

The low-slope roofs were designed with internal drains and parapet walls. A GAF TPO roof system was specified. When the decision was made to add the rooftop living area, Ellis Architects recommended installing rubber roof deck tiles from sofSURFACES on top of the TPO roof. "The architect steered us in this direction because they liked the product," notes Rugani. "After the roofer installs his regular TPO roof, it gets inspected to make sure there are no leaks before the roof deck tiles are installed. It's a really unique product. It allows water to go through to the TPO roof for drainage. It has an excellent warranty, and so we have a long-term warranty for the entire roof system."

APPLYING THE ROOF SYSTEM

The TPO roof system was installed by PetersenDean Roofing and Solar, Fremont, California. "We are a roofing subcontractor for Grupe on several projects in the Northern California area," says Mark Vogel, president of

PHOTOS: THE GRUPE COMPANY

"The backyard is where people are going to have outdoor living in a typical single-family home, and the rooftop deck is where they are going to have outdoor living in a town-home setting."

— Ron Rugani, Grupe

PetersenDean's Builder Division. "We have built a great relationship with them over the years."

There was approximately 900 square feet of roof area on each structure. PetersenDean crews mechanically attached the 60-mil GAF EverGuard TPO membrane over quarter-inch Georgia-Pacific DensDeck roof board and rigid insulation. "It is a flat roof with low slope conditions," Vogel says. "This is absolutely a great system for this type of work."

The parapet walls greatly simplified the safety plan, but safety is never taken for granted, according to Vogel. "We have 22 safety engineers nationwide, with 14 in California," he says. "Safety is our biggest concern, and we invest to ensure we send everyone home at night. Our workers are considered our most valuable asset and we strive to maintain a world-class safety culture. Having a skilled and talented workforce that truly cares about safety drives everything that we do."

Everything on the project went smoothly, notes Vogel. "It was not tough to coordinate the work with the other trades," he says "It is what we do, and there is no one better. We are a full-service roofing contractor and solar power installer. We handle estimating, design, permitting, and installation for roofing and solar roofing systems for all our clients and this project is a great example of this."

INSTALLING THE ROOF TILES

The deck area on each roof encompassed approximately 700 square feet. The interlocking duraSTRONG tiles are made from recycled rubber and are ideal for outdoor rooftops, walkways and patio projects, notes Chris Chartrand, director of marketing

The low-slope roofs were covered with a TPO roof system, and the deck areas were topped with interlocking rubber paving tiles.

for sofSURFACES. "This space was ideal for our product as the rooftops are flat and have proper slope with a contained edge," Chartrand says. "The design allows for efficient drainage of surface water."

The tiles were applied by a manufacturer-certified installer, Leonard's Construction of Fontana, California. "Coordinating delivery and installation of our product within Grupe's required timelines was a fairly easy task, as we were the last phase of the project," notes Chartrand.

Paulo Carrillo, installation supervisor, typically installs the product in gyms and playground areas, but recently he's found himself doing a lot of work on terraces and rooftops. After the roof system was completed on the homes at 20 PQR, a second sheet of TPO membrane was installed as a protective barrier. "We chalked our lines on that," Carrillo notes. "We measure out the whole rooftop and chalk it off into a 2-foot-by-2-foot grid. Every other square is a keystone — those are the tiles that we put in first that hold everything in line."

After the keystones are glued in place, the crews cut pieces to fit along the perimeter and then begin to add tiles in strategic lines. After those tiles cure, tiles are laid in opposite directions, both horizontally and diagonally. "We do it step by step," Carrillo notes. "When we put the final squares in at the end, they are all interlocked together. After we do the final step, we glue each seam, so everything is 100 percent glued."

The tiles all interlock, and compression allows for expansion and contraction. "Every tile is 24-1/8 inches, but they go into a 24-inch space," Carrillo explains. "They are all compressed. With any perimeter cuts, we add another 1/8 of an inch to get our compression."

PHOTOS: SOFSURFACES

STACKING THE DECK

According to Rugani, Phase 1 and Phase 2 of the 20 PQR have been completed and are sold out, while Phase 3 and Phase 4 are currently under construction.

Originally the roof deck area was offered as an option, but it's proved so desirable all of the units in the last phase are being built with decks. "It's been an interesting dynamic," says Rugani. "When we started, we weren't sure how many people would want this option. For the first phase, we had to spec those, so, we said, let's build six of the eight with the roof deck. It started to gain in popularity, and the price didn't seem to be an issue, so in the last phase, we said, let's build them all. It's become very popular."

Based on the success of the roof decks at 20 PQR, Grupe is exploring roof deck options for other projects in development. "We are building a mid-rise apartment complex just a few blocks away, and we said from the get-go in that project that we are going to have some type of roof deck for outdoor living space for the tenants," Rugani says. "For that project we did develop a rooftop deck, and I believe that is going to be the M.O. moving forward in any project we do. Otherwise there might be no place for tenants to gather on site and have some outdoor living space. It makes perfect sense to go to the roof. So, yes, I see this as a trend, especially in urban settings."

In the 20 PQR project, the homes were not originally designed with roof decks, and the decision made to add them later meant a lot of extra time and work for engineers and architects. "A lot of people might walk away from that and say it is too much work," Rugani says. "We said, this is something we need to do, and it's going to benefit the people who buy it. We were happy in the end that we spent the time and effort to do it." R

20 PQR Town Homes

Sacramento, California

TEAM

ARCHITECT: Ellis Architects, Sacramento, California, www.ellis-architects.com
GENERAL CONTRACTOR: The Grupe Company, Stockton, California, www.grupe.com
ROOF SYSTEM INSTALLER: PetersenDean Inc., Fremont, California, www.petersendean.com
RUBBER PAVING TILE INSTALLER: Leonard's Construction, Fontana, California

MATERIALS

RUBBER PAVING TILES: duraSTRONG, sofSURFACES, Petrolia, Ontario, Canada, www.sofsurfaces.com
ROOF MEMBRANE: 60-mil TPO, GAF, www.GAF.com
COVER BOARD: DensDeck, Georgia-Pacific, www.densdeck.com

Row, Row, Row

Zinc Roof and Wall Panels Add Sense of Movement to Chicago Boathouse Project

The new Eleanor Boathouse at Park 571 in Chicago's Bridgeport neighborhood creates the opportunity for greater community recreation and environmental stewardship of the Chicago River. Designed by Studio Gang Architects, the 19,000 square-foot facility is the last of four new boathouses and river launches created by the Chicago Park District to reclaim the Chicago River as a major system of parks and water-based recreation.

The unique form of the two-building boathouse reflects the movement of rowing, according to Studio Gang's founding principal Jeanne Gang. The design, incorporating alternating roof trusses, was influenced by studying the rhythm and motion of rowing. "The Chicago River boathouses are part of a new environmentally friendly vision for the city's river," says Gang. "By making the riverfront a destination for recreation, anchored by dynamic sustainable architecture, we hope to catalyze

PHOTOS: COURTESY STUDIO GANG, © TOM HARRIS

The Eleanor Boathouse at Park 571 is the last of four new boathouses and river launches created by the Chicago Park District to reclaim the Chicago River for water-based recreation.

The unique form of the 19,000 square-foot facility was designed to reflect the movement of rowing

long-term stewardship and support of the river's remediation."

The striking design incorporates zinc panels from Rheinzink in both roof and facade applications. Approximately 23,000 square feet of Rheinzink prePATINA blue-grey Double Lock Standing Seam Panels cover the roof of both buildings. An additional 10,000 square feet of the company's Flat Lock Tiles clad the facade in a diagonal installation.

Zinc panels were also used to clad one of the other four boathouses completed earlier and also designed by Studio Gang Architects. The WMS Boathouse at Clark Park on the northwest side of the city was the second of the new boathouses to open and utilized 7,000 square feet of vertically-oriented Rheinzink Flat-Lock Tiles for the facade.

The panels for both projects were fabricated by Rheinzink systems partner Sheet Metal Supply Ltd. (SMS), Mundelein, Illinois. Installation of the panels on the Eleanor Boathouse was done by Bennett & Brosseau, Inc., Romeoville, Illinois.

The panels chosen for the project were the result of an exhaustive search that ruled out more expensive alternatives. "Rheinzink reduced the cost and provided the great diagonal look that Studio Gang wanted," says Bennett & Brosseau project manager Ryan Broom. "It's a 'full zinc' job with both the facade and the roof and really turned out nice."

SMS vice president Ben Kweton credits Broom with providing the invitation to become involved in the project. "When Bennett & Brosseau approached us with the value engineering opportunity, we jumped at the chance to provide pricing and to remind the design team of the success of Rheinzink on the earlier boathouse project," Kweton says.

The design team also opted for a slightly hybrid version of traditional flat lock panels. "The tiles we fabricated had a slight offset at the top to bring the panel overlaps more into plane and to create a slight reveal," Kweton says.

Broom finds working with zinc rewarding, noting, "It provides a great quality look and allows more architectural detailing than can be done with many other metals."

Eleanor Boathouse at Park 571

Chicago

TEAM

ARCHITECT: Studio Gang Architects, Chicago, www.studiogang.com
METAL FABRICATOR: Sheet Metal Supply Ltd. (SMS), Mundelein, Illinois, www.sheetmetalsupplyltd.com
INSTALLER: Bennett & Brosseau, Inc., Romeoville, Illinois, www.bennettandbrosseau.com

MATERIALS

ROOF PANELS: prePATINA blue-grey Double Lock Standing Seam Panels, Rheinzink, www.rheinzink.us
WALL PANELS: Flat Lock Tiles, Rheinzink

SPOTLIGHT

WRITTEN BY **CHRIS KING**

NWIR Goes Viral

National Women in Roofing Taps Into a Powerful Force

IN 2014, an organization devoted to helping advance the careers of women in the roofing industry was just an idea. Since then, the idea has become a movement. National Women in Roofing (NWIR) was officially launched at the International Roofing Expo (IRE) in 2016. The volunteer-based organization focuses on connecting and empowering women, and it has the support of more than 1,000 members — many of them men — and nearly two dozen sponsors. They all share the goal of working together to raise the professionalism of the roofing industry, bring more people into the field, and provide the education and training necessary to ensure its future success.

This February, Heidi Ellsworth handed over the position of NWIR chair to Shari Carlozzi. The two women shared their insights on the founding of NWIR with *Roofing*, detailing its current initiatives and plans for the future.

A MOVEMENT IS BORN

Carlozzi and Ellsworth first discussed the idea of an organization to support women during a break at a meeting of the Midwest Roofing Contractors Association in 2014. As they shared their thoughts about working in a male-dominated industry, a light bulb went on. "We started talking, and we realized there are a lot more women in this industry than people give it credit for," Carlozzi says. "There's a lot of women! And we said, 'We should start an organization where women can gather to network, to learn from each other, to mentor one another, and to help empower each other' — because we are in an industry that we love."

Ellsworth and Carlozzi shared the concept with Steve Little of Dallas-based KPost, who was then MRCA president. "He said, 'That's a great idea! We'll help incubate you.' And that's how we got started," Carlozzi remembers. "It went viral."

As they traveled the country in their respective work roles — Ellsworth as a partner in RoofersCoffeeShop.com and Carlozzi as national sales manager for HAPCO Inc. — they soon realized that a lot of other women had the same needs. Many were even exploring the same idea. "At every trade show we went to, both of us would hear this from so many women," Ellsworth says. "They would say, 'We need to spend time together. We need to network.' And networking is a big one because it's sometimes a lot easier for guys to get together to network and women are left out. It was something that a lot of women truly believed in."

After talking to others in the industry, it became clear the organization had to have a national presence. "We looked ahead to the IRE in New Orleans in 2015 and decided to have a little get-together and see if people

PHOTOS: NATIONAL WOMEN IN ROOFING

were truly interested," Ellsworth recalls. "We had 75 women show up. It just grew from there."

The group formed a leadership committee and held meetings at industry trade shows throughout 2015. "It was at IRE in 2016 that we officially launched National Women in Roofing," Ellsworth says. "We realized very quickly that there was a tidal wave — a tsunami — of women behind us who really needed this. We realized we had to take this to a national level, and we did."

THE FOUR PILLARS

Overarching goals of the organization are exemplified by its four pillars: networking, mentoring, education and recruitment.

"Our four pillars we started with — networking, mentoring, education and recruitment — have been the focus of what we've wanted to do from the start," Carlozzi says. "Some people are a little bit more involved in education, some people are a little bit more involved in networking — it all depends on what works for you. We've stayed true to our four pillars, and that has been extremely helpful in giving women opportunities to engage in what's most important to them."

Ellsworth agrees, pointing out that networking events and mentoring initiatives developed hand in hand. "Our first events were networking events," she says. "One of our themes is 'from the rooftop to the boardroom,' and we had top leaders at companies including GAF, ABC, Owens Corning, Johns Manville — all of these ladies showed up early and then stayed on and helped to drive this. We partnered with 28 founding sponsors that first year."

Mentoring relationships seemed to blossom. "I wish we could all take credit for it, but it just happened so naturally," Ellsworth says.

NWIR is launching a mentoring program this year, under the leadership of Mallory Payne and Melissa Walker, who head up the mentoring committee. "Mentoring has always been a big part of what we do," Carlozzi says. "Men have more mentors than women do, and we want to change that."

The education committee, led by Shelly Duhaime and Jennifer Keegan, is working on a full slate of educational

Officers and directors of National Women in Roofing include (from left) Jennifer Stone, vice chair, executive committee; Jennifer Ford-Smith, secretary; Ellen Thorp, executive director; Shari Carlozzi, chair, executive committee; and Heidi Ellsworth, past chair, executive committee.

"We realized very quickly that there was a tidal wave — a tsunami — of women behind us who really needed this. We realized we had to take this to a national level, and we did."

— Heidi Ellsworth, NWIR

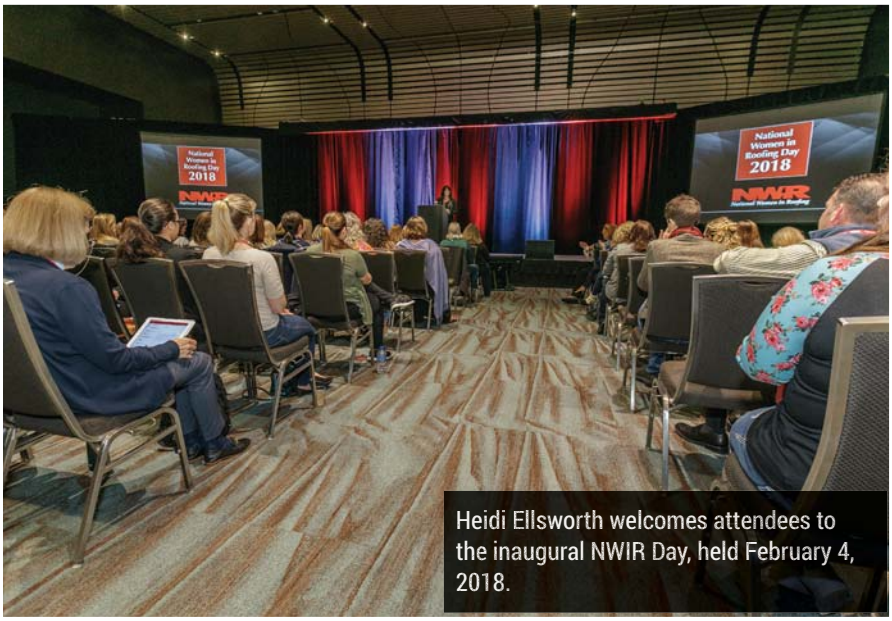
sessions at industry events, as well as a series of webinars on topics such as networking, safety and business management. "Our education committee is on fire this year," says Carlozzi. "People crave information. The only way we can excel in what we do is to keep learning."

Carlozzi points to the NRCA's ProCertification program as a model for educating the industry's workforce and boosting professionalism. "We have to elevate the perception of the roofing industry," she says. "We share the same values as the NRCA, and we want to speak with one voice to get the message across to people that this is a viable career option for you, whether you are a man or a woman in the trade, or whether you are looking for a career as a chemist, or an engineer, or a salesperson, or in data entry. It is a solid, reputable industry."

It's also an industry facing a worker shortage, so recruiting a new generation of workers is essential. The recruitment committee, led by Michelle Boykin and Chelsea Welsh, is active at employment fairs and career days, and NWIR is reaching out to other trade groups across the country to increase the visibility of the industry.

Part of the recruitment effort includes a commitment to helping women in crisis find employment and pursue a true career path.

Shari Carlozzi thanks the founding sponsors of the organization at NWIR Day.



Heidi Ellsworth welcomes attendees to the inaugural NWIR Day, held February 4, 2018.

Kelly Wade, CEO of North American Roofing, gives the keynote address at the National Women in Roofing's Mentor Reception during the 2018 International Roofing Expo.

MEMBERSHIPS AND SPONSORSHIPS

The organization might be national, but it is also active at the local level. NWIR is developing councils across the country to cater to local educational needs and reach out to area community service opportunities. There are 29 local councils now, with a goal of reaching 50 by the end of 2018.

"It's the best of both worlds for everybody because they get that national input through our epicenter — our newsletter and our website — and they can apply the information to what they are doing locally," Carlozzi says. "We give local councils a lot of latitude to put together what works for them as long as they stay true to our four pillars and our national outreach program with women in crisis."

Carlozzi and Ellsworth encourage all women and men to join the association. The membership fee is $60 per year. Half of the membership fee goes to develop and support local councils. "We made a very conscious decision to keep our membership dues very reasonable, and they are owned by the member," Ellsworth notes. "If your career path takes you to another company, the membership goes along with you."

Companies can help NWIR as sponsors. There are four levels of sponsorships. "We are also in the middle of our sponsorship drive, and that is a great way to get involved as a company," Ellsworth says. "The value to the company — and its employees — is incredible."

A BRIGHT FUTURE

Looking back at her tenure as the first chair of the organization, Ellsworth is proud of the group's achievements and thankful for the friendships she's made along the way. "It's one of the greatest experiences I've had in my life," she says. "The women I have met and the experiences we've had have been so empowering."

As Carlozzi takes the helm, she plans to lean on the talented team of women ready to take the organization into the future. "It's a little overwhelming when you look at it at first because we came so far, so fast, and we have to keep that momentum going," says Carlozzi. "In the process, we've had some exceptional, outstanding women who have stepped up and taken on the leadership roles that are needed to develop and maintain a national organization like this."

When the industry taps into everyone's talents, everyone wins. Carlozzi sees that spirit every day at NWIR. "Everyone comes up with new ideas of how to make things better," she says. "Everyone is open to new ideas and assistance, and everyone is freely offering it. No one feels threatened — we're all empowered. That's the beauty of it."

For more information about NWIR, visit www.nationalwomeninroofing.com.

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Swenson Shear	(877) 588-8748	www.SwensonShear.com	52-53	51, 52
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Triangle Fastener	(800) 486-1832	www.TriangleFastener.com	54	53
Trufast	(800) 443-9602	www.Trufast.com	57	55
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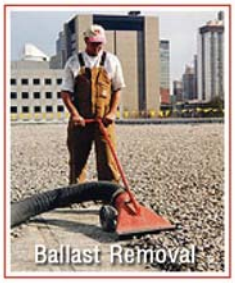

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