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WHEN IT MATTERS™



What makes you sick?

Employee absenteeism is on the rise as sick time definitions widen

by Ambika Puniani Reid



Remember when you had a bad cold or cough but you went to work anyway? I bet nobody thought it was a big deal though many probably said: “You sound awful. You should go home.”

But things are different now. The article, “I Just Wasn’t in the Mood to Work: American Employees Reinvent the Sick Day,” in *The Wall Street Journal* discusses how employees are less likely to come to work if they have even the slightest sniffle.

The newspaper reports: “30% of white-collar workers with access to paid leave have taken sick time, up from 21% in 2019,” and “employees between ages 25 and 34 are taking sick days most often with their use rates jumping 45% from before the pandemic.”

And though the COVID-19 pandemic is partly to blame for the rise in absenteeism (video-based meetings and remote work options, for

instance, make it easy for office workers to stay home if they feel slightly under the weather), it isn’t the only culprit. Generational differences play into it, as well.

The article notes: “Early-career employees aren’t taking cues from older co-workers in the same way now that five days [per] week at the office is no longer the norm.”

In addition, employees in general have less loyalty to employers than they used to, making it easier to call in sick. Add in the emphasis placed on mental health and the popular benefit of using sick time to care for an ill family member, and you can see how quickly absenteeism increases when folks emotionally are not feeling up to it or have other obligations.

“More employers are coming to view sick days as a benefit to help workers cope with the unexpected—whether that’s parental health issues, school closures or a more run-of-the-mill employee cold,” the article notes.

Unfortunately, in this tight labor market, you must accept the new reality and continue to build loyalty and camaraderie among your team members so they want to show up with a slight sniffle.

Ambika

AMBIKA PUNIANI REID is editor of *Professional Roofing* and NRCA’s vice president of communications.

CLOSE-UP





The Fahy Commons building at Muhlenberg College, Allentown, Pa., recently won three sustainability awards: the 2023 Groundbreaker Award from Green Building United, Architectural Excellence Committee on the Environment Award from The American Institute of Architects Pennsylvania chapter and 2023 METROPOLIS Planet Positive Award.

The three-story structure opened in 2023 and features efficient HVAC systems, cutting-edge lighting technology and a super-insulated building envelope that reduces energy use 70%. A 73-kilowatt rooftop solar array generates renewable energy.

ATAS International Inc., Allentown, Pa., manufactured the 24-gauge steel 2-inch Field-Lok standing-seam metal roof panels in classic bronze, and they were installed by Alan Kunsman Roofing & Siding Inc., Freemansburg, Pa. A solar array of 183 panels was installed over the metal roof panels by Endless Energy, Wilkes-Barr, Pa.

The project is on track to become the first Living Building Challenge Core Green Building Certified structure in the world and is pursuing LEED Platinum and Passive House certifications.

To submit a photo to Close-up, email professionalroofing@professionalroofing.net. Submittals should include a photo, as well as a description of the photo.



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Along with observing the company’s seventy years in business, Orndorff & Spaid is proud to reach a milestone of 180 full-time employees and continue an 100% in-house operation.



Members of the Orndorff & Spaid team attribute the company's success to staying dedicated to the founding member's vision. Throughout the years in the roofing industry, Orndorff & Spaid has remained committed to building a team of experienced personnel, performing quality work, and operating a well-maintained fleet. With these three core principles in place, along with a profound focus on customer satisfaction, Orndorff & Spaid looks forward to serving the DC, Maryland, and Virginia area's commercial roofing needs for many more years to come.



Fleet/Equipment
Top: Field/Office Staff

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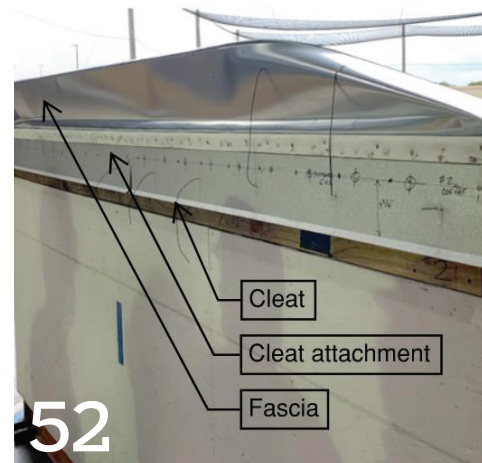
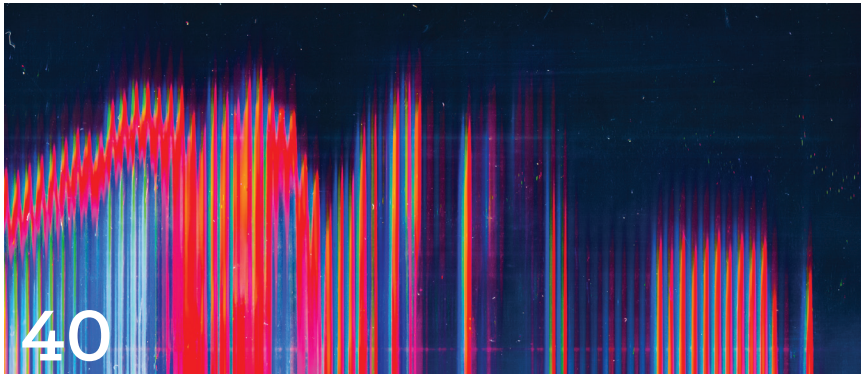
The best learning happens when installers are encouraged to make mistakes.

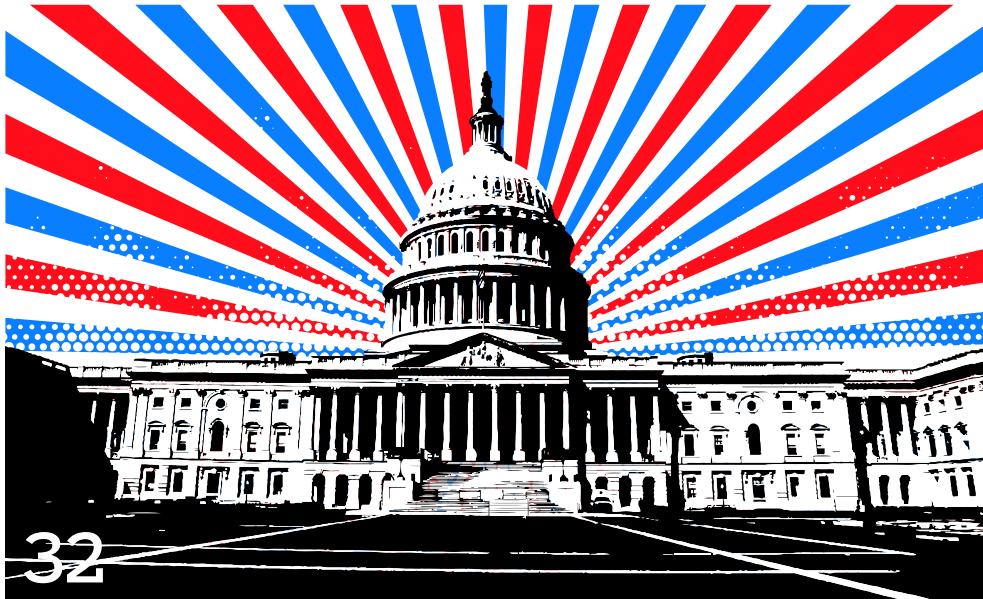
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Mission: *Professional Roofing* provides information, insight and innovation to help every roofing professional thrive.

Judgments, opinions and submitted photography in *Professional Roofing* are the authors' alone and should not be considered an expression of opinion, endorsement or official policy of NRCA. Articles are published for the purpose of stimulating independent thought about matters of concern to roofing professionals.

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the source for the roofing industry

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Photo: horatophotoinc.com

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#GIVINGBACK

According to the National Philanthropic Trust, corporations gave \$21.08 billion to charities in 2022. The roofing industry is known for #givingback to its communities and to many organizations. Check out how roofing companies gave back during the 2023 holiday season!



Accent Roofing Service
November 28 at 7:40 AM · 🌐

🎁🌟 Our Toys for Tots Toy Drive is in full swing, and we're overwhelmed with gratitude for everyone who's contributed so far! 🌟 You can drop off your donations at our office - 885 Buford Drive, Lawrenceville, GA 30043 - until December 20th. Let's make this holiday season brighter together! 🎄🌲 #ToysForTots #SeasonOfGiving #AccentRoofingService #Donate



Next Generation Roofing
December 6 at 7:19 AM · 🌐

It's the Holiday season, that means that the Blue Crew is in full force when comes to volunteering and giving back anything that we possibly can. We have spent the past few days volunteering at the The Salvation Army - Saratoga Springs, NY and with Chamber Angels. We look forward to spending this season coming together as a team to help ensure that our community has everything that it needs!

#nextgenerationroofing #nextgenerationsiding #nextgenerationpaving
#WhatCanBlueDoForYou #volunteer #giveback #holidayshopping #familyownedandoperated



KPost Roofing & Waterproofing
November 27 at 6:00 PM · 🌐

We hope you all had a wonderful and warm Thanksgiving! Our hearts are full as we announce that our company hosted a canned food drive benefiting The Salvation Army Lewisville, and thanks to our team's incredible support, we've gathered a FEAST for those in need! Amazing teamwork. 🍲🙌 Cheers to a season of giving! 🎄🌲

#Thanksgiving #GivingBack #Grateful



NWR National Women in Roofing
November 28 at 12:34 PM · 🌐

#NWiROregoncouncil exhibited at the #OregonTradeswomenCareerFair on Student Day. Over 1,500 #students were bussed in to learn about exciting #careeropportunities in the #skilledconstructiontrades. #communityservice #givingback #oregon #construction #roofing #womeninroofing @oregontradeswomeninc

<https://buff.ly/3MvJzKw>



#HASHTAG



S-5!
@S5_Attachments

#GivingBack is an essential part of the S-5! culture. This #GivingTuesday consider giving back to one of the #CharitableOrganizations that we love and support. hubs.ly/Q02bfg-P0



Legacy Restoration
@legacyrestllc

In partnership with @Vol_of_America, our team was came together to pick out 31 bikes, helmets, & lock sets for our charitable partner, JT's Bikes for Kids. Each bike bringing joy & pride to children receiving them! bit.ly/3R03Yw

#GiveBack #CommunityInvolvement



HUT shinglehutoroofing · Follow

HUT shinglehutoroofing 🎄 Ho-ho-holiday donations for #ToysForTots 🎁 Yesterday, we dropped off toys for Nick Perry's 3rd Annual #ToysForTots campaign!

Did you know? Toys for Tots began in 1947 as the brain child of Marine Corps Reserve Major Bill Hendricks. Actually, his wife, Diane, was the real inspiration. She had a few handcrafted dolls and asked Bill to deliver them to an agency supporting needy children.

When Bill told his wife he could not find such an organization, she instructed him to "start one!". Maj Hendricks and the Marines in his reserve unit in LA collected and distributed 5,000 toys in 1947.

9 likes
3 days ago

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davcoroofing · Follow

davcoroofing This week, Davco made a contribution of \$2,000 to The Nest Academy's 2023 Angel Tree initiative! The Nest Academy is a local, private school dedicated to educating, empowering, and enriching Charlotte's refugee, immigrant, underprivileged, and at-risk children with the goal of cultivating first-generation graduates. The school currently serves 53 students, and Davco has chosen to support 10 of these

21 likes
November 30

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maintenonline · Follow
Tampa, Florida

maintenonline #TeamMaintenX is so grateful to be able to give back to our local community! Thank you to the Salvation Army for giving us this opportunity to sponsor 160 children this holiday season! 🎁 #SalvationArmyUS #AngelTree #SeasonOfGiving #MaintenXGives #FacilityMaintenance #HappyHolidays #MaintenanceExperts

3d

Liked by nrcanews and others
3 days ago

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korellisroofing · Follow

korellisroofing Giving Tuesday is a movement created in 2012 to encourage global and radical generosity. Millions of participants use this day to volunteer money, time, and energy toward doing good in their communities.

This year, #TeamKorellis partnered with the Ronald McDonald House Charities of Chicagoland and Northwest Indiana (RMH). RMH provides housing for parents of sick children, ensuring that the families stay together, and providing a loving and warm home away from home. Korellis assisted in making home-cooked meals for those families staying at the RMH.

You too can collaborate with RMH by

15 likes
November 29

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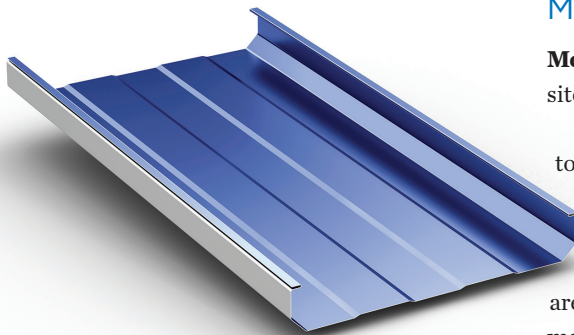
Shingle colors are customizable

BP Building Products of Canada has introduced Signature, a line of nature-inspired multitonned shingles.

To cater to regional consumer preferences, Signature shingles are offered in 12 colors in the East and 10 in the West. Additionally, BP Chroma Color Lab has introduced Profusio™ design patterns, which allow for customization by merging two Signature shades and alternating them over successive rows to create a third color that produces a complementary or contrasting visual effect.

With a reported FM 4473 Class 3 impact-resistance rating, Signature shingles also provide protection against blow-offs and wind-driven rain using Weather-Tite® Plus Technology featuring the Hurricane Band.®

bpcan.com



Metal roofing is symmetrical

McElroy Metal has made available the Trap-Tee symmetrical metal roof system, a site-formed, mechanically seamed system measuring 2 ¾ inches tall.

Offered with Sherwin-Williams PVDF Fluoropon coating, Trap-Tee is designed to resolve common shortcomings of trapezoidal standing-seam roof systems. The oversized seam and special clips increase wind-uplift capacity; site forming eliminates end laps vulnerable to leaking; and the symmetrical design allows for simple repairs. Standard clips are 16 gauge and 8 inches long; super clips are 16 gauge and 16 inches long.

mcelroymetal.com



Solar program generates proposals

EagleView has introduced SolarReady,™ a solution designed to help solar contractors better identify and acquire viable residential properties for potential solar installations, including detailed visualizations and photovoltaic system production modeling. The solution also provides estimated electrical production and system efficiency to help inform project value and determine return on investment.

SolarReady features include API-driven efficiency to generate solar data; data analytics and imagery to give insight into a property's solar potential; and near-instant proposal generation.

Additional data can be unlocked as a homeowner moves through the prospect phase, including quotes, solar potential visualizations and potential system modifications. The ability to unlock data allows contractors to reduce upfront costs.

eagleview.com

Waterproofing membrane is compatible

Tarco has introduced the LeakBarrier® BG700 modified bituminous membrane for waterproofing applications and the LeakBarrier FS500HT, a self-adhering modified bitumen underlayment for metal roofing applications.

With a tear-resistant facer, the LeakBarrier BG700 membrane also features a cross-laminated, high-density polyethylene film layer for waterproofing protection.

A specially formulated rubberized asphalt compound features a pliable shield said to self-seal around fasteners. The surface film is compatible with most construction sealants. The membrane adheres to concrete, plywood, oriented strand board, metal, wood, vinyl, masonry, certain rigid insulations and insulated concrete forms, as well as a range of other substrates, including “below-grade” waterproofing applications. The membrane also is said to ensure a uniform layer of waterproofing extending across the entire surface.

Designed to prevent leaks caused by ice and water damming and wind-driven rain, the LeakBarrier FS500HT is effective in critical roofing areas, including chimneys, coping joints, dormers, skylights, ridges, valleys and vents.

The underlayment is composed of a specially formulated rubberized asphaltic adhesive compound that withstands temperatures up to 250 F and a high-strength, cross-laminated polyolefinic film to provide skid resistance.

A HDPE layer also reinforces the 35-mil-thick rubberized asphaltic adhesive. With a watertight lap seam, the self-adhering compound is said to bond with the film surface even in cold conditions.

tarcoroofing.com



Tool pouch clips on belt

Ergodyne has made available the Arsenal 5568 Tool Pouch with Device Holsters, a multitool pouch that clips on the user’s belt loop.

Made with abrasion-resistant ripstop polyester, the tool pouch features four pockets varying in size to fit small hand tools or personal items such as zip ties, box cutters or cell phones. The pouch’s side also has two D-rings for lanyards or glove clips. A belt loop on the back of the pouch is said to easily secure around belt loops or carts, equipment and fixtures.

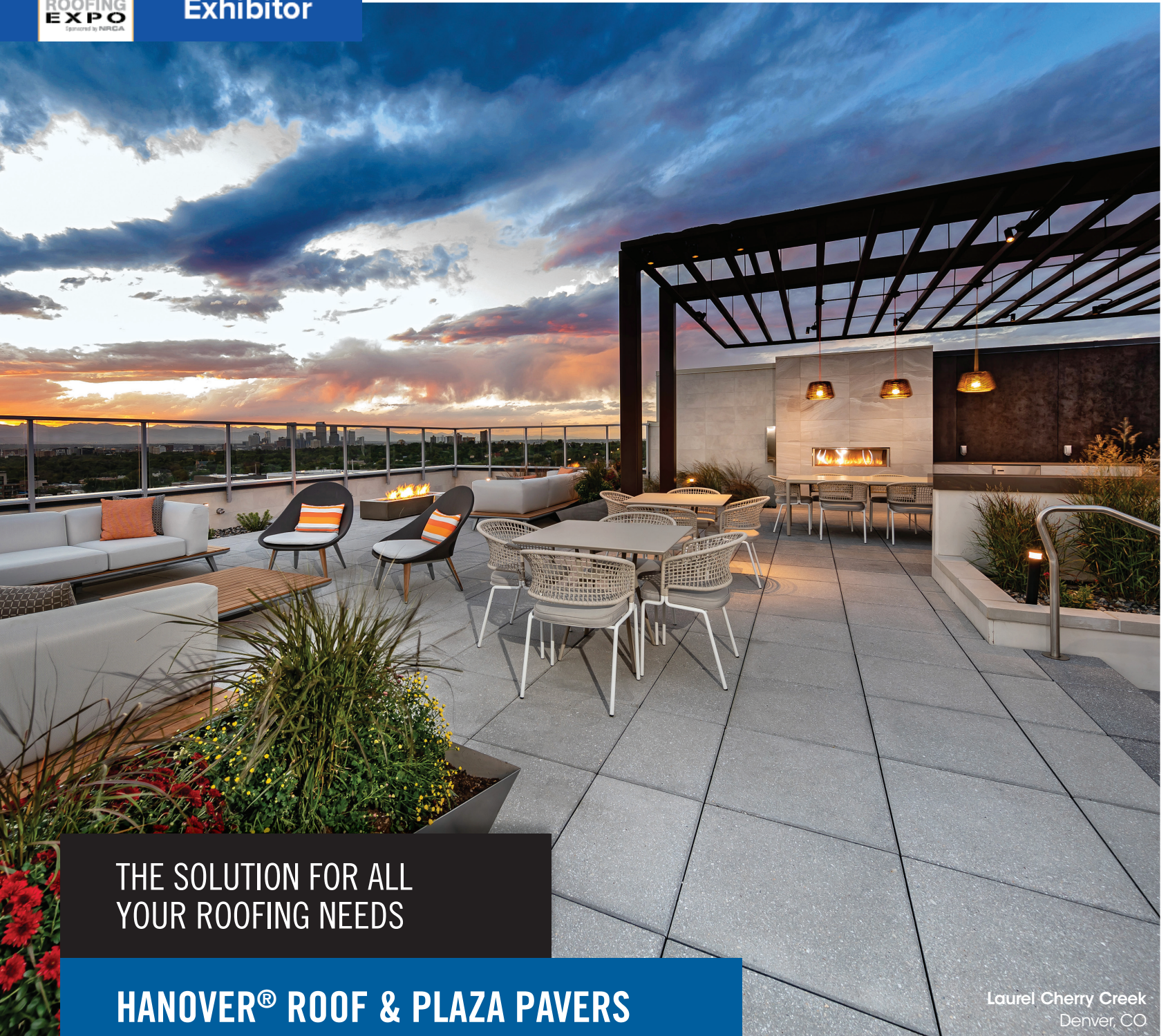
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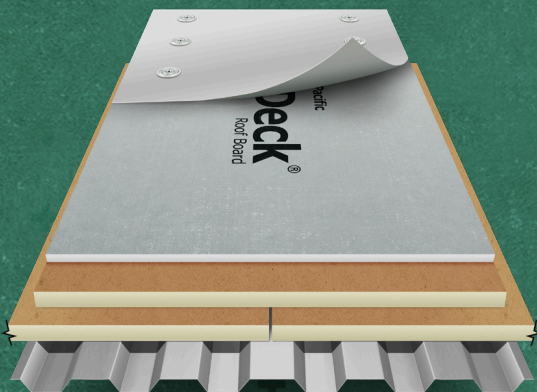
Laurel Cherry Creek
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THE THREAT OF COMMERCIAL ROOF DAMAGE COMES IN SIZE

11



 Georgia-Pacific

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Roof Board

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AVOID DOUBLING BACK.

One of the most frustrating parts of commercial roof damage is knowing you could have helped prevent it. Doubling back to make repairs on a recently completed job can cost time and money. That's why value engineering gypsum roof board out of commercial jobs is a mistake. DensDeck® Roof Boards have a strong, non-combustible gypsum core. They help mitigate common roof risks like puncture damage from foot traffic and maintenance—while also giving you enhanced protection against wind, fire and hail.

Gypsum roof boards are an investment in your future. This way, your crews stay busy working on new roof jobs instead of dealing with costly callbacks. And more than just your roof is covered—DensDeck Roof Boards can help you stay profitable while protecting your reputation.



DensDeck® StormX™ Prime Roof Board was the first gypsum cover board to be FM classified for Very Severe Hail (VSH) in approved single-ply membrane assemblies.



DensDeck® Roof Boards have a non-combustible gypsum core to help slow smoke and flame spread.

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Roof damage comes in all sizes, from the smallest puncture to the largest wind gust. As weather events intensify, your commercial roof assembly must adapt too. Georgia-Pacific sets the new standard for performance with DensDeck® StormX™ Prime Roof Board.

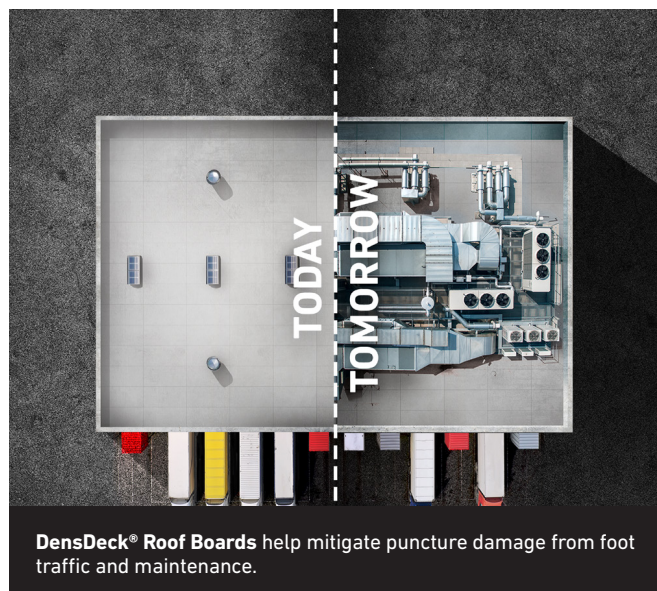
This premium cover board helps commercial rooftops hold strong under severe weather conditions. DensDeck StormX Prime Roof Board has increased density and reinforced glass mat to better protect from wind uplift, severe hail and other kinds of impact, like flying debris. It boasts enhanced moisture resistance and is FM classified for Very Severe Hail (VSH) in approved single-ply assemblies. DensDeck StormX Prime Roof Board can be installed in fully adhered, partially adhered and mechanically fastened assemblies.

EARN THEIR TRUST.

Catastrophic weather events aren't the only threat to commercial roofs. Building owners may not realize the punishment their rooftop may take over its lifetime. HVAC installation and maintenance can be tough on a roof, while solar panels could increase the risk of fire. Green roofs also need versatile roofing systems with a rigid substrate to handle the load.

Let building owners know that rooftop enhancements call for the strength and versatility of DensDeck® Roof Boards. With three performance options based on design intent, you'll find a gypsum-tough solution for every commercial low slope roof.

We understand that sometimes you can know everything about roof board protection and still value engineer it out of a project. That's why we have a team of Building Envelope Specialists who can talk through your questions and help justify the value of keeping a gypsum cover board in your roof assembly.



DensDeck® Roof Boards help mitigate puncture damage from foot traffic and maintenance.



How safe are we, really?

Despite technological advances, deaths in the roofing industry have risen

by McKay Daniels

Roofing is less safe than it once was. That's what the government's data says at least. In 2020, the Department of Labor reported there were 47 roofing fatalities per 100,000 workers. In 2021, that number went up to 59.

For comparison, in the overall economy there were 3.6 fatalities per 100,000 workers in 2021.

How did we go backward?

It's possible, even likely, the data is wrong. If the government is underestimating the amount of workers, the fatalities per 100,000 numbers would be skewed. But presumably the data would be "equally" wrong in both years, wouldn't it? I'm not aware of a massive, one-time, one-year shift in the industry's labor supply that could account for the jump.

Perhaps new workers are less trained and skilled? But that is still an enormous jump from one year to the next. As subcontract labor becomes a larger part of the industry's workforce, there is meaningful concern subcontractors don't possess comparable training to in-house workers because they are likely not receiving the education that comes with a permanent employer. Or maybe there are more smaller



shops that don't have safety professionals on staff?

But perhaps it's complacency among existing roofing workers who have seen safety equipment and practices advance

“If left unaddressed, risk compensation can hold us back from progress”

over the years and are falling victim to risk compensation.

Risk compensation occurs when people's behavior changes as their perceived level of risk changes. If it's a sunny day and you are the only one driving on a straight road, you probably will be a little less attentive to the road than you would be driving down a curvy mountain road with no shoulder on a foggy evening. Your guard naturally goes up in situations you recognize as riskier. But you also may drive faster or more recklessly on that sunny "safe" day than the "dangerous" day, so the actual danger and accident rate balance out.

What if technology has taken those risky moments and made them feel safer? In those situations, a worker can run the risk of adjusting his or her caution, care and diligence downward and reducing the benefits of the safety measures altogether.

Popular Mechanics wrote an article in 2021

about this with the perfect headline: "Construction Workers Take More Risks When They Feel Safe—and Still Get Hurt."

The article discusses how researchers from Clemson University, Clemson, S.C., and Virginia Tech University, Blacksburg, noted fatal falls increased 26% between 2011 and 2016 and determined: "Roofers with more safety gear in place are actually more likely to engage in riskier behaviors, making the workers less safe overall."

The research also was published in the *Journal of Construction Engineering and Management* in 2020 and noted "more safety interventions (i.e., higher levels of fall protection) produced a sense of invulnerability ... and this false sense of security ultimately increased risk-taking behavior by up to 55%."

Working to instill a culture of safety may help overcome these biases in our behavior. For example, before football helmets, players were taught to lead into tackles with their shoulders. Helmets came along and that shifted to players leading with their heads, and one could argue players became less safe. Now, with helmets still in place, players are again being taught to lead with shoulders and not drop their heads. Teaching and culture work in combination with technology.

Maintaining and pushing best behavioral practices even as our safety technology and processes become more universal and robust are critical to improving fatal-fall rates. We need to embrace the spirit of safety technology and the intentions it seeks to drive. If we rely heavily on equipment without enforcing good policies, complacency will set in.

"You can never train too hard for a job that can kill you" is what Marine Sgt. Tyler Vargas-Andrews told his unit in Afghanistan, but it applies to anything in life and certainly

to the risks roofing workers face daily. We owe it to them to not lose sight of it.

We've come a long way as an industry regarding falls, but there's still a long way to go and hundreds of lives to save in the future. If left unaddressed, risk compensation can hold us back from progress. 🌐🔗

MCKAY DANIELS is NRCA's CEO.

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Roofed Right America acquires Upstate Roofing & Painting



NRCA member Roofed Right America, Milwaukee, backed by private equity firm Great Range Capital, Mission Woods, Kan., has announced its acquisition of NRCA member Upstate Roofing & Painting Inc., Rochester, N.Y.

Upstate Roofing & Painting is Roofed Right America's first acquisition. Bob Morgan, president of Upstate Roofing & Painting since 2016, will continue to lead the organization under the Upstate Roofing & Painting brand post-acquisition while making active contributions to the broader platform of Roofed Right America.

"Roofed Right America is a perfect fit for Upstate Roofing & Painting and its people," Morgan says. "We share the same culture, standards and vision for the future."

"Upstate Roofing & Painting has been providing outstanding services for 50 years and has a well-deserved reputation for excellence," adds Adam Brissman, CEO of Roofed Right America. "We are honored to partner with Morgan and his entire organization in achieving future successes."

To read more about succession planning, see "Passing the torch," page 36.

Extreme heat expected to increase cardiovascular deaths

According to a study supported by the National Institutes of Health and published in *Circulation*, cardiovascular-related deaths are predicted to nearly triple from the annual average of 1,651 to 4,320 by mid-century (defined as 2036-2065). Older and Black adults are likely to be the most affected because of chronic illness and socio-economic challenges, according to Bloomberg.

Exposure to high temperatures stresses the cardiovascular system, forcing the heart to work harder, which increases the odds of having a heart attack, stroke or other life-threatening episode.

The authors of the study evaluated county-level data from the contiguous 48 U.S. states during summer months from 2008-2019 and examined the connection between extreme heat (days with a heat index of 90 F or higher) and cardiovascular mortality, with humidity levels and projected population levels taken into consideration.



To view Occupational Safety and Health Administration resources about how to safely work in outdoor and indoor heat environments, go to professionalroofing.net.

The authors model how heat would increase using a middle-of-the-road climate emissions projection and calculated how it would affect mortality, noting the death toll could increase to 5,491 if emissions rise sharply.

The authors call for infrastructure upgrades to help communities adapt to a hotter future. The full study is available at ahajournals.org.

SPFA executive director announces retirement

The Spray Polyurethane Foam Alliance has announced the retirement of Executive Director Richard S. Duncan. Duncan will complete his term with SPFA in April 2024 and will stay on in a consulting role as technical director.



Duncan

Duncan began his role as executive director in 2020, previously serving as technical director since 2008. He also previously held roles as senior marketing manager of spray foam insulation for Honeywell Specialty Materials, Charlotte, N.C., and global director of new product development for CertainTeed, Malvern, Pa.

“I am happy with what the SPFA board of directors, committees and staff have been able to accomplish these past few years,” Duncan says. “I am comfortable passing the torch along, as well as being able to continue with SPFA as technical director.”

The process to identify SPFA’s new executive director is underway.

UL Solutions files registration statement for proposed offering

UL Solutions Inc. has announced it has publicly filed a registration statement on Form S-1 with the U.S. Securities and Exchange Commission relating to a proposed initial public offering of its Class A common stock.

The proposed offering is subject to market and other conditions; there is no assurance as to whether or when the offering may be completed, the number of shares to be offered or the price range.

All shares of Class A common stock to be sold in the proposed offering will be sold by UL Standards & Engagement, a nonprofit organization and sole stockholder of UL Solutions. UL Solutions is not offering any shares of its Class A common stock and will not receive any proceeds from the proposed sale of the shares.

Goldman Sachs & Co., New York, and J.P. Morgan Securities, New York, will act as lead managing bookrunners with Bank of America Securities, New York, acting as a manager bookrunner. Citigroup, New York; Jefferies Group, New York; and UBS Investment Bank, New York, will act as additional bookrunners. Baird, Milwaukee; Raymond



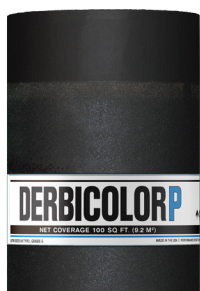
James, St. Petersburg, Fla.; Stifel, St. Louis; Wells Fargo Securities, San Francisco; and William Blair & Co., Chicago, will act as co-managers for the proposed offering.

The offering will be made only by means of a prospectus. When available, copies of the preliminary prospectus may be obtained from Goldman Sachs & Co. at (866) 471-2526 or prospectus-ny@ny.email.gs.com; or from J.P. Morgan Securities at (866) 803-9204 or prospectus-eq_fi@jpmchase.com.

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FirstService acquires Roofing Corp of America

FirstService Corp., Toronto, has announced its acquisition of Roofing Corp of



America, Atlanta. The acquisition complements FirstService's existing portfolio of market-leading essential property services brands and adds to its capabilities in property repair, maintenance and restoration.

Roofing Corp of America operates from 16 regional branch locations in 11 U.S. states and has more than 900 employees. Under the transaction terms, FirstService will acquire a significant controlling interest for a purchase price of \$413 million. Roofing Corp of America's senior leadership team, including Randy Korach, Roofing Corp of America's CEO, will retain the balance of the equity and continue to operate the business going forward.

"We are delighted to be partnering with FirstService, which brings a like-minded culture and strategic vision," Korach says. "FirstService's partnership philosophy, combined with its strong balance sheet, will enable us to continue to drive our growth and vision of becoming the national market-leading player in the commercial roofing industry."

"Roofing Corp of America offers a unique opportunity to add a leading commercial roofing services enterprise with significant scale, strong leadership and a broad geographic footprint," says Scott Patterson, FirstService's CEO. "Roofing shares many of the same attractive characteristics as our other businesses in terms of being an essential property service operating in a large, highly fragmented industry with significant growth potential. We are excited about working together to build the premier roofing contractor in North America."

Small businesses offer more family-friendly benefits

A report from The Best Place for Working Parents, "Making the Connection: How Small Business is Gaining a Competitive Edge through Family-Friendly Policies," shows when small businesses offer benefits such as health coverage, parental leave and flexible work options, it can lead to improvements in employee productivity, motivation, satisfaction and health, according to HR Dive.

The analysis of 49 U.S. employers found those offering health coverage were four times more likely to have high-performing employees. Small businesses offering maternity leave were more than 50 times more likely to have high performers.

The report also shows remote work options and child care assistance increased employee motivation and health, as well as employee satisfaction with personal relationships. Paid time off increased personal relationship satisfaction by more than 16 times.

In a press release accompanying the report, Sadie Funk, national director of The Best Place for Working Parents, says small businesses increasingly offer family-friendly benefits, which is a significant trend considering small businesses account for many U.S. firms and employ nearly 50% of the U.S. workforce.

Additional research supports the trend. Virtual women and family health vendor Maven found 63% of human resources professionals said their companies plan to increase family health benefits and 87% said such benefits are "extremely important" to current and prospective employees.

The Best Place for Working Parents' full report is available at bestplace4workingparents.com.

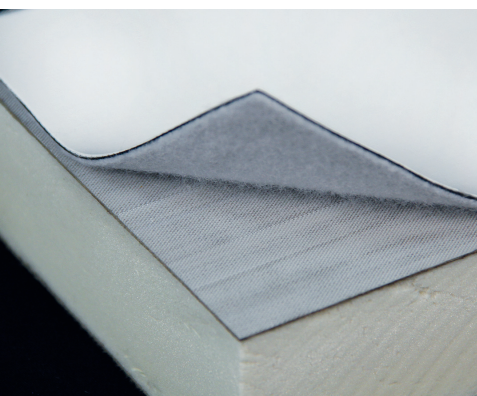




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Maintaining compliance

IPMC® provides code requirements for building maintenance

by Mark S. Graham

The International Code Council®'s International Property Maintenance Code® establishes minimum requirements for the maintenance of existing buildings, including their roof systems, through model code regulations. IPMC 2024 has several roofing-related requirements and can be used as a basis for roofing contractors performing periodic roof system maintenance.

IPMC 2024

The IPMC originated in 1996 when a committee consisting of representatives of the three legacy code organizations (Building Officials and Code Administrators International, International Conference of Building Officials and Southern Building Code Congress International) drafted comprehensive guidelines for existing buildings based on the legacy codes' requirements for existing buildings.

In 2000, ICC published the first edition of IPMC using ICC's code development process. New editions have been published every three years since with the most current edition being IPMC 2024.

IPMC 2024 has eight chapters and two appendixes (see figure). The appendixes are not mandatory unless specifically referenced in



a jurisdiction's adoption ordinance.

The code applies to all existing residential and nonresidential structures and is intended to establish minimum requirements to provide a reasonable level of health, safety, property protection and general welfare insofar as they are affected by a building's continued occupancy. Existing buildings that do not comply with the code's provisions are required to be altered or repaired to provide a reasonable minimum level of health, safety and general welfare as required by the code.

Section 102.3-Application of Other Codes indicates any repairs, additions or

alterations must be done in accordance with the jurisdiction's other applicable codes, most commonly the International Existing Building Code,[®] International Building Code[®] and International Residential Code.[®]

Section 102.7-Historic Buildings states the code's provisions are not mandatory for existing historical buildings where the building is judged by the code official to be safe and in the public interest of health, safety and welfare.

Building owners are required to maintain their structures and exterior property in compliance with IPMC 2024 and the code under which the building was constructed except as otherwise provided in the IPMC.

Roofing considerations

A majority of IPMC 2020's provisions specific to roof systems are provided in

IPMC 2024

- Chapter 1: Scope and Administration
- Chapter 2: Definitions
- Chapter 3: General Requirements
- Chapter 4: Light, Ventilation and Occupancy Limitations
- Chapter 5: Plumbing Facilities and Fixture Requirements
- Chapter 6: Mechanical and Electrical Requirements
- Chapter 7: Fire Safety Requirements
- Chapter 8: Referenced Standards
- Appendix A: Boarding Standard
- Appendix B: Board of Appeals

IPMC 2024's chapter and appendix format

Section 304-Exterior Structure. Section 304.1.1-Potentially Unsafe Conditions provides a list of conditions that should be assessed and, if necessary, addressed according to IEBC, IBC or IRC as applicable. Item 2 on the list includes anchorage of roofs to walls or columns and stipulates there should not be distress that appears to reduce load-carrying capacity.

Item 7 on the list includes roofing materials and components that have defects that admit rain, roof surfaces with inadequate drainage, or any portion of the roof framing with signs of deterioration or fatigue.

Section 304.7-Roofs and Drainage indicates roofs and flashings must be sound, tight and not have defects that admit rain. Roof drainage is required to be adequate to prevent dampness and deterioration at walls and in the interior portion of a roof structure. Roof drains, gutters and downspouts are required to be free of obstructions and in good repair. Roof drainage cannot be discharged in a manner creating a public nuisance.

In Chapter 5-Plumbing Facilities and Fixture Requirements, Section 507.1 also indicates roof drainage is not permitted to be discharged in a manner creating a public nuisance.

Chapter 7-Fire Safety Requirements,

Section 703-Fire-resistance Ratings and Section 703.1-Maintenance requires the fire-resistance rating of fire-resistance-rated construction must be maintained. Such elements are required to be visually inspected annually by the building owner and be repaired, restored or replaced if damaged, altered, breached or penetrated. Records of inspections and repairs must be maintained.

Roofing contractors' roles

Roofing contractors who perform roof asset management and maintenance and repair services can assist building owners in complying with IPMC 2024's roofing-related requirements. Specific roofing-related items required by IPMC 2024 (repairing roof system leaks; clearing roof drains, gutters and downspouts of debris; and noting any ponding water conditions) typically are included in roofing contractors' routine roof system service and maintenance programs.

IPMC 2024's requirement for annual visual inspection and maintaining fire-resistance ratings is rather nonspecific and broad in the context of roof systems. Examples of visible surface conditions that may affect a roof system's fire classification include scour of aggregate surfacings, loss of mineral-granule surfacing, and roof coating erosion or flaking. If these conditions exist, they should be noted and reported to building owners.

Other than the annual visual inspection and maintenance of fire-resistance ratings, IPMC 2024 does not specify inspection and maintenance frequency. NRCA maintains its long-standing recommendation that roof systems should be inspected and any necessary repairs be made twice a year. Additional inspections and maintenance may be necessary after severe weather is experienced.

NRCA has published inspection and maintenance documents addressing built-up and polymer-modified bitumen membrane, single-ply membrane, architectural metal panel and structural metal panel roof systems



For a link to IPMC 2024, visit [professionalroofing.net](https://www.professionalroofing.net).

that can be used for conducting periodic roof inspections and maintenance. Each document includes checklists that can be used for documenting inspections and noting any necessary repairs to building owners.

Additional information about repairs for membrane roof systems is provided in *NRCA's Repair Manual for Low-slope Membrane Roof Systems, 2nd Edition*. Repair guidance for asphalt shingle roof systems is provided in *The NRCA Repair Manual for Asphalt Shingle Roof Systems*.

These NRCA repair manuals can be purchased from shop.nrca.net. 🌐📱

MARK S. GRAHAM is NRCA's vice president of technical services.

Article analyzes effectiveness of membrane roll sizes

Interface Magazine has published "All Thermoplastic Rolls Are Not Equal" by Colin Murphy, principal of Trinity | ERD, Seattle. The article investigates claims it is quicker and more cost-effective to use wide-width rolls in mechanically attached systems by analyzing side-lap attachment spacing and seam-welding lengths and comparing use of wide-width rolls with traditional, narrower rolls.

Trinity | ERD researchers used variables affecting installation speed of a mechanically attached roof covering such as number of fasteners installed into a side lap, roll maneuverability and total lineal footage of welds. Findings revealed for single-ply mechanically attached systems, standard 72- and 81-inch wide rolls are faster to install when compared with wider rolls with 6 inches on center side-lap spacing.

For more information about the research, contact IB Roof Systems, Grapevine, Texas, at ibroof.com/contact-us.

Robots work on experimental job site

A team of researchers at the University of British Columbia, Vancouver, demonstrated how its collection of robots could work autonomously on a job site on Mitchell Island in Richmond, British Columbia, according to Construction Dive.

Camera-bearing aerial drones captured details that were used to create digital twins of the job site. Using "as-built" information, AI-equipped cranes and forklifts moved construction materials around the actual site and navigated around obstacles without a human operator.

Tony Yang, a UBC professor, says the impetus for the technology's development stemmed from labor shortages across the U.S. and Canada. Although the robot technology was usable and job-site ready, it is not yet commercially available.

"Our goal is to ensure workers actually become managers instead of doing the physical hard work," Yang says. "They are controlling a machine or giving instructions to machines to do the job."

An autonomous system also can detect whether workers enter an unsafe area. Yang says the software did more than 1,024 checks per second.

In addition, Yang and his team are working with Rogers Communications Inc., a Canadian communications and media company, on a product that would enable contractors to wrap the broader spectrum of digital construction management under the umbrella of a single tech product. The team is also developing a fully autonomous excavator, which will use drawings to dig out the foundation of buildings without human aid.

Yang says the goal of his research is not to take jobs away from workers, though similar claims have been met with skepticism from experts.



To view a video demonstrating the UBC team's artificial intelligence-driven robots, go to professionalroofing.net.

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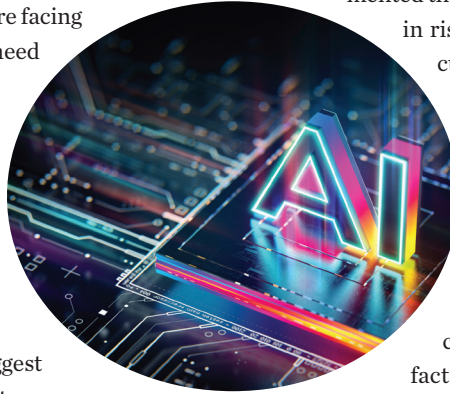
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Study reveals how artificial intelligence is changing work

The rise of generative AI has raised many questions about how the technology will affect the workforce. A global study from the IBM Institute for Business Value shows business leaders are facing talent-related challenges from the skills gap to the need for new operating models.

Executives surveyed estimate 40% of their workforce will need to reskill as a result of implementing AI and automation during the next three years, which could translate to 1.4 billion of the 3.4 billion people in the global workforce, according to World Bank statistics. Respondents also indicated building new skills for existing employees is a top talent issue.

Entry-level employees are expected to see the biggest shift regarding the effects of generative AI. Seventy-seven percent of executive respondents say entry-level positions are already seeing the effects of generative AI; 22% of respondents report the same for executive or senior management roles.



AI can open more possibilities for employees. Eighty-seven percent of respondents believe employees are more likely to be augmented than replaced by AI, though answers vary across functions: 97% of respondents believe employees in procurement are more likely to be augmented than replaced compared with 93% for employees in risk and compliance; 93% for finance; 77% for customer service; and 73% for marketing.

With AI primed to take on manual and repetitive tasks, surveyed employees report engaging in impactful work is the top factor they care about beyond compensation and job security, surpassing flexible work arrangements, growth opportunities and equity. However, surveyed executives indicated impactful work was the least important factor to their employees, putting flexible work arrangements as the most attribute beyond compensation and job security.

The full study is available at ibm.com.

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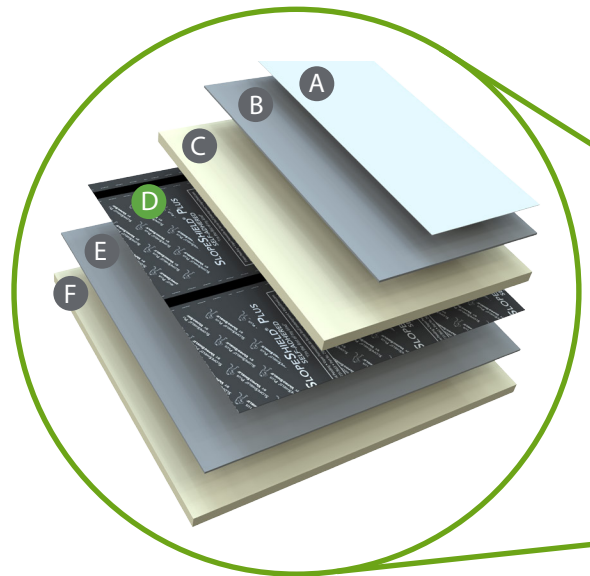
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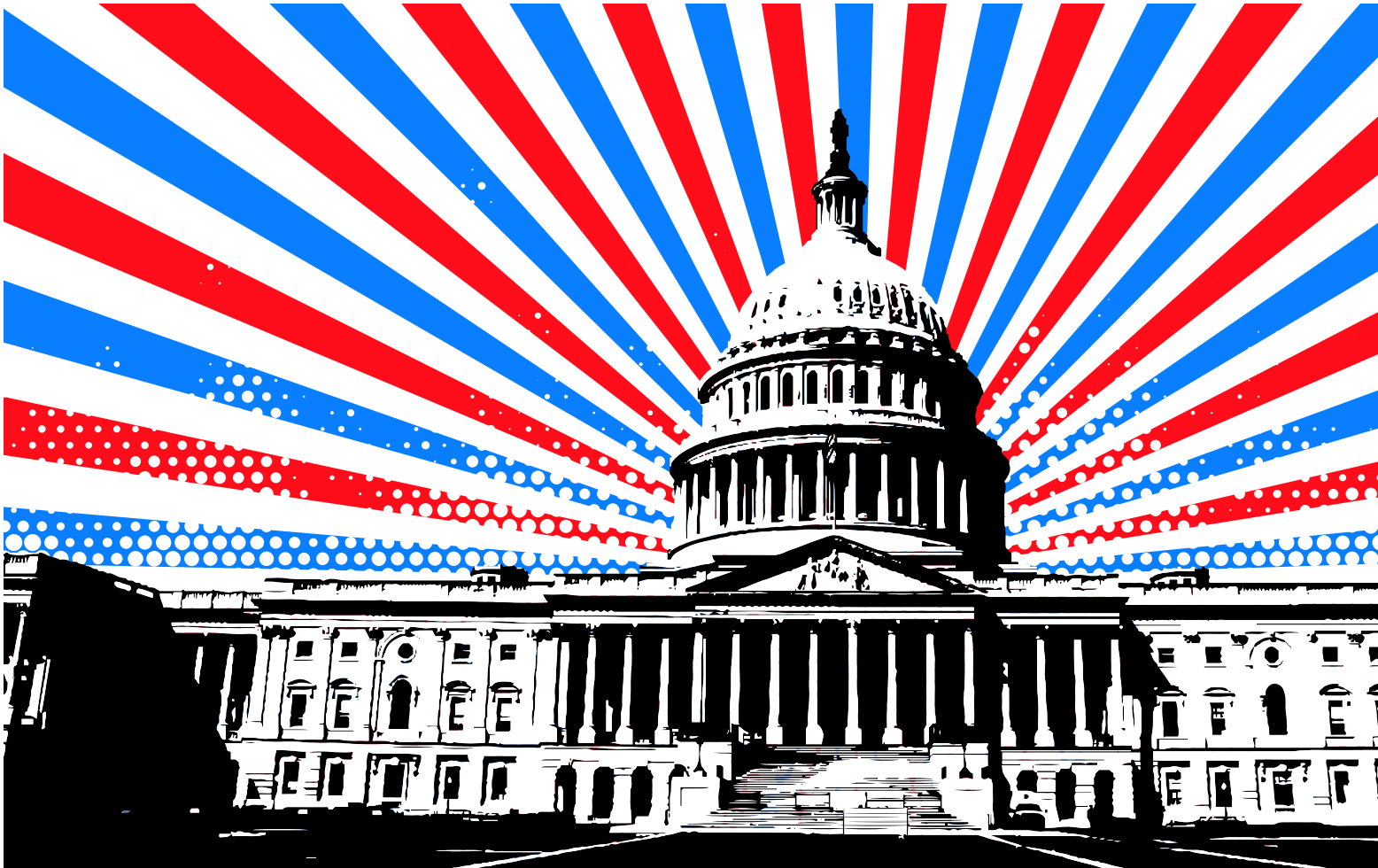
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Newark Airport Reroof

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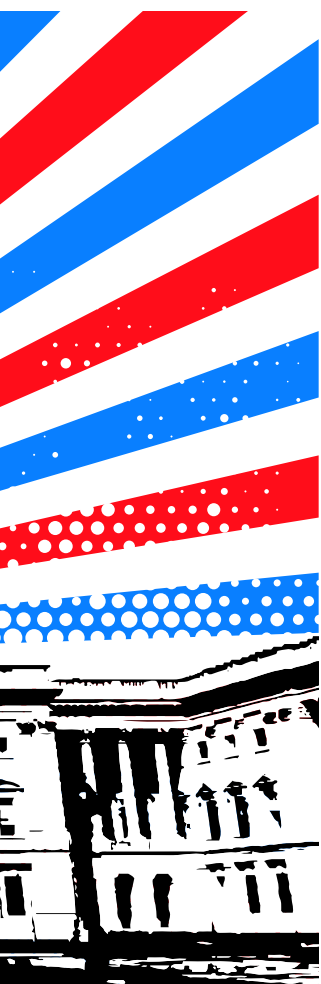
Be seen. Be heard.

NRCA invites all industry professionals to participate in Roofing Day in D.C. 2024!

by Deborah Mazol

On April 16-17, the roofing industry will gather in Washington, D.C., for Roofing Day in D.C. 2024. This annual event provides an opportunity for lawmakers to hear the voice of the industry regarding key government policy issues. As we begin an election year, it is critical the industry is seen and heard. All roofing industry professionals are invited to participate and demonstrate the industry's breadth and diversity to Congress.

With hundreds of participants in years past, Roofing Day in D.C. is one of the largest advocacy events in Washington, D.C. It is the fulfillment of former NRCA CEO Reid Ribble's vision of how the industry can expand its influence and enhance its image with federal policymakers. Roofing Day in D.C. unites all segments of the industry to advocate collectively regarding matters critical to its continued success. The event, designed to expand the professionalization and prosperity of the roofing industry, is a collaboration among NRCA members; industry stakeholders; and numerous regional, state and local associations.



Training and education

Roofing Day in D.C. provides participants with specialized advocacy training, in-depth issue briefings, and numerous educational and networking experiences.

The welcome program, held Tuesday, April 16, at the Grand Hyatt Washington, will feature advocacy training including a mock congressional meeting, a briefing regarding key advocacy issues from policy experts, meetings with team leaders to tailor messages to individual members of Congress and a networking reception. On Wednesday, April 17, participants will enjoy a morning program beginning

with a congressional keynote speaker and an election presentation by Dave Wasserman, senior election analyst for The Cook Political Report and contributor to NBC News.

Wasserman analyzes the current political environment in entertaining presentations tailored to his audience's specific interests and locales. His data-driven forecasting looks at national and local trends, the relationship between consumer brand loyalty and voting, and the future of U.S. elections.

Participants also will hear tips for congressional meetings from current Capitol Hill staff. In the afternoon, participants will have meetings with senators, representatives and congressional staff to convey the roofing industry's message. To make participation as easy as possible, all meetings will be scheduled

by NRCA and Advocacy Associates, a Washington, D.C.-based consulting firm specializing in managing large advocacy events to ensure Roofing Day in D.C. is seamless and successful.

NRCA has long partnered with Advocacy Associates. All participants will have access to the company's state-of-the-art online platform, which accounts for last-minute scheduling changes and includes necessary information to advocate for the industry such as key legislation research, policy papers and attendee information.

Key issues

Participants can prepare for Roofing Day in D.C. by viewing position papers for key policy issues that will be the focus of meetings with Congress members on nrca.net. Selected with input from members of the Roofing Day Advisory Committee, the 2024 advocacy issues will focus on federal legislation to address workforce challenges and pro-growth tax reform.

Specifically, solutions to address workforce challenges include increased funding for Perkins Career and Technical Education State Grants, reform of the Workforce Innovation and Opportunity Act to allow more employers access to training resources, and immigration reform to meet workforce needs. NRCA will advocate for a new market-orientated visa category under the Essential Workers for Economic Advancement Act and a permanent solution for qualified individuals currently working under Temporary Protected Status of the Deferred Action for Childhood Arrivals program.

To support legislation promoting pro-growth tax policy, the industry will advocate for the bipartisan Main Street Tax Certainty Act and the American Innovation and R&D Competitiveness Act. The Main Street Tax Certainty Act (H.R. 4721/S.1706) makes permanent the 199A Qualified Business Income Deduction for pass-through entities. This deduction is set to expire at the end of 2025 if Congress does not act, disadvantaging many roofing industry employers. The American Innovation and R&D Competitiveness Act

(H.R. 2673/S. 866) restores the ability for businesses to immediately deduct research and development expenses that currently must be amortized over five years for domestic companies.

Thanks to participants at previous Roofing Day in D.C. events, the industry has seen progress and success regarding most issues presented to Congress, but engagement must be year-round and frequent.

Since Roofing Day in D.C. began in 2018, Congress has increased funding for Perkins Career and Technical Education State Grants each year to nearly \$200 million, bringing the total to an estimated \$1.4 billion. This funding is critical

to helping employers meet workforce development needs.

Participants also helped secure passage of the bipartisan Infrastructure Investment and Jobs Act, which included a strong buildings component, into law.

In addition, Roofing Day in D.C. attendees supported passage of the Strengthening Career and Technical Education for the 21st Century Act to ensure workforce development programs work well for the roofing industry and helped pass important provisions of the Energy Savings and Industrial Competitiveness Act, legislation to promote energy efficiency in residential, commercial and industrial buildings.

Additionally, progress is being made on workforce visas through the Essential Workers for an Expanding Economy. This immigration reform has been a long-standing priority for the roofing industry. Roofing Day in D.C. advocacy was also successful in nearly doubling the number of members co-sponsoring the Main Street Tax Certainty Act.

The primary goal of Roofing Day in D.C. is to establish long-term relationships with lawmakers in Congress that ultimately will help achieve important policy goals for the roofing industry's future.



To view a photo gallery and advocacy issues discussed during Roofing Day in D.C. 2023, go to professionalroofing.net.

Strength in numbers

NRCA strongly encourages all industry professionals to participate in Roofing Day in D.C. 2024. All participating companies are encouraged to include one or more field workers; elected officials benefit greatly from hearing from the roofing industry's dedicated workforce. The registration fee is \$95 per person for company representatives and \$35 for field workers, students and spouses. Additional information about Roofing Day in D.C. 2024 and registration information, including a tentative itinerary and hotel links, are available at nrca.net/advocacy/roofingday.

As a roofing industry professional, you need to be a part of this transformational event. Your participation is vital to helping make your business and the industry more successful and prosperous. Lawmakers need to hear directly from constituents regarding issues of importance, and this is your opportunity to make your voice heard.

On behalf of NRCA's leadership and staff, we look forward to seeing you April 16-17 in Washington, D.C., for the premier advocacy event of the year! 🎉🔥

DEBORAH MAZOL is NRCA's director of federal affairs in Washington, D.C.

Florida bill would allow minors to work on roofing jobs

Florida State Senate Bill 460, introduced in November 2023 by Republican state Sen. Corey Simon, would provide exemptions allowing minors as young as 16 to work on roofing jobs and revise requirements to expand career fairs, according to Construction Dive.

The bill would allow minors with Occupational Safety and Health Administration 10-hour certifications to perform commercial and residential roofing work when supervised by a worker who is 21 or older and has two years of experience and an OSHA 10 certification.

The bill also would require annual career fairs at high schools to provide students in grades 11 and 12 the opportunity to meet with employers from industries such as agriculture, construction and nursing to learn about career and technical education.

Critics of the bill say it is a temporary fix to keep job sites staffed. Undocumented workers reportedly have left job sites to work elsewhere since Florida began using the E-Verify System, which allows employers to confirm the eligibility of their employees to work in the U.S.

Under the federal Fair Labor Standards Act, workers younger than 16 only can perform office or sales work in the construction industry. Workers aged 16 and 17 can work on construction job sites, but federal law prohibits them from performing hazardous tasks, such as roofing.

Another bill in the Florida House of Representatives could remove some restrictions regarding the hours minors can work, allowing them to work at later times of day. Both bills have been sent to committees for review before voting from the state legislature.



Utah contractor faces \$2.8 million in lawsuits

Makers Line, the construction arm of Q Factor, a Salt Lake City-based development firm, faces at least 15 lawsuits alleging the contractor failed to pay its subcontractors on several different construction projects in Utah, totaling about \$2.8 million in damages, according to Construction Dive.


Many of the lawsuits include construction lien claims on associated properties, according to court documents. For example, H&E Equipment Services, Baton Rouge, La., filed liens against several properties where Makers Line is involved. The company claims it never received full payment for the rental equipment provided during construction. Similarly, in another lawsuit, LG Concrete, Ogden, Utah, claims Titus, a concrete firm and sister company of Makers Line, failed to pay in full for the construction labor, materials and equipment LG Concrete provided for the project.

Several more lawsuits filed in Utah contain similar allegations. Makers Line has at least eight ongoing projects in Salt Lake City, according to city records.

Makers Line has claimed it cannot pay its subcontractors until it gets paid by project owners, according to the *Salt Lake Tribune*. Only seven states have laws that explicitly make pay-if-paid clauses unenforceable by statute: California, Delaware, New York, North Carolina, South Carolina, Wisconsin and Virginia, according to a survey by law firm Woods Aitken, Omaha, Neb.

However, the survey says nine other states, including Utah, have language on the books or legal precedent that make pay-if-paid clauses unenforceable under certain conditions.

For more information about pay-if-paid clauses, including contract provisions, visit nrca.net/legal.



To view the Woods Aitken survey results regarding each state's pay-if-paid clause, go to professionalroofing.net.

Roofing company faces \$522,527 in penalties after fatal fall

An Occupational Safety and Health Administration workplace safety investigation found Elite Roofing Services Inc., Huntington, N.Y., could have prevented a roofing worker's fatal fall in April 2023 at a Glen Cove, N.Y., job site by following legally required safeguards designed to prevent falls, according to OSHA. Elite Roofing Services is not an NRCA member.

OSHA determined the deceased worker and other Elite Roofing Services employees were installing metal decking on a low-slope industrial roof when the worker fell through an opening to a concrete floor nearly 20 feet below.

OSHA investigators learned Elite Roofing Services did not provide roofing workers with protection against fall hazards such as guardrails, safety nets, personal fall-arrest systems, positioning devices or fall-restraint systems. The work being completed fell under OSHA's steel erection standard; Elite Roofing Services failed to train each employee regarding how to recognize and mitigate fall hazards before conducting the steel erection work.

OSHA issued six willful violations for the fall hazards (one violation for each exposed worker) and one serious violation for not training the workers, totaling \$522,527 in penalties.

NRCA's classes, webinars and products offer information to ensure you can keep your employees safe on job sites. Visit NRCA's bookstore at nrca.net/product for more information.



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PASSING THE TORCH

Succession planning looks different for everyone
by Avery Timmons

For any business owner, it can be daunting to decide what to do with your company when it comes time to step back.

For some, their companies have been the family business for generations and will remain so. For others, selling the company to a trusted employee or another company may be the way to go when it comes time to retire.

According to a 2021 survey conducted by the Society for Human Resource Management, 21% of respondents said their organizations had formal succession plans in place and 24% said they had informal plans. About 20% of respondents did not have a succession plan but intended to develop one, and 35% did not have a plan at all.

The succession planning timeline is different for everyone, but there are success stories to be found no matter the type of transition.

Keep it in the family

The most common and popular option among roofing contractors is to transfer assets and duties from one family member to another. In some cases, generational involvement may even overlap, as it does for Steve Kruger, president of L.E. Schwartz & Son Inc., Macon, Ga. After working in various roles in the company for 16 years, he took over as president in 1994 from his father, Melvin, who currently is CEO; Steve's son, Michael, is vice president of the company.

Despite three generations in the company, the Krugers did not set a formal succession timeline.



L.E. Schwartz & Son Inc.

“We have not really had problems or challenges because nothing has been forced. [Transitions] happen organically or when they seem appropriate,” Kruger says.

It may be intimidating for some to have a parent or loved one involved closely in the company, but for others, it can be beneficial knowing each other’s strengths and weaknesses. Kruger says he has sought his father’s advice at every step of the way, and he and his son, Michael, have a similar relationship.

“I love that we have three active generations still here,” Kruger says. “We don’t have pressure because we cheer each other on; our skills complement each other nicely.”

But for some younger generations, involvement in the family business may not initially be their life plans.

Sherri Miles, president and CEO of Miles Roofing Inc., Chesapeake, Va., started her journey with her family’s roofing company after graduating college with a degree in American studies and theology. Her father asked for help



Sherri Miles

with the family business for “a few months,” but when Miles was not sure what her next move would be between law school, divinity school or teaching, she ultimately stayed with the company and has been there for 32 years. Similarly, Miles’ brother, J.D. Miles IV, president of J.D. Miles & Sons Inc., Chesapeake, Va., worked at Vanderbilt University, Nashville, Tenn., for seven years as a senior management information systems consultant before joining the family business.

The quality of life and being close to loved ones can be a draw to keeping a business within the family, as it was for Miles.

“I have been able to run the company while also raising a family,” Miles says. “My children grew up as I did, surrounded by their cousins and extended family.”

For the Miles family, long-term planning and communication are important so future generations can prepare for eventual involvement in the company if they choose.

“[My brother and I] have had family retreats where we have spoken about the company’s history, our paths to and within the company, how the company has changed and grown, and where [the next generation] could potentially fit in the future,” Miles says.

For the six members of the fifth generation, aged 16-23, Miles says though they have worked with the company during school breaks, they are expected to go to college and gain work experience from somewhere else for at least two years before formally joining the company.

Like Miles, Steve Kruger did not initially plan to be involved in the family business. However, he says the opportunity was always available to him. When he did eventually join the business, he was fully committed and says he would not have done anything differently.

“The decision came as a result of [my involvement] being the best thing for the company at that point in time,” he says. “You have to earn leadership roles, especially in a family business, if you expect people to continue to work with you and strive for success.”

From employee to owner

Another possible succession plan is for a company owner to find a buyer among one of their current employees.

Dennis Runyan, former owner of Dryspace Inc., Cedar Rapids, Iowa, sold his company to Lynn Price, a former employee. Runyan joined the company in 1980 and purchased it in 1989. Set to retire once he turned 70, Runyan began his succession planning with specific values in mind.



Runyan

“As a one-time laborer for the company, I cared about how the new owner’s history would meld with the company’s future,” he says. “I believe in a perfect world, people who become leaders, especially in the construction industry, should spend time getting their hands dirty before they guide a company of people who create the finished products.”

Runyan considered several options but says: “Price was by far the best candidate.”

This type of succession can be beneficial because the owner and employee already having a relationship and trust in one another. Runyan says he asked Price about 10 years before the deal was finalized whether Price had ever thought about owning a roofing company. When Price expressed interest and hesitation, Runyan says they worked together for several years to explore all the ups and downs of ownership to fully prepare Price for the role.

Runyan advises company owners looking to sell to an employee to choose the right person.

“[Handing off the company was] difficult from a friendship standpoint but easy knowing the company would continue with the same values we enjoyed together under the tutelage of Price,” Runyan says.

For Price, who has been the owner and president of

Dryspace since 2020, maintaining company culture between Runyan's departure and his leadership was one of the most important factors in the transition.

"Dryspace wasn't just a roofing company in our eyes," Price says. "It was where our friends worked, and it provided the lifeblood for so many families. This [transition] was our opportunity to make sure the Dryspace name and culture could carry on."

To ensure everything went smoothly, Price says he and Runyan structured the buyout as a "true succession plan," starting the process as early as possible. To prepare, Price, who joined the company in 1997 as a general laborer, enrolled in and graduated from NRCA's Future Executives Institute and worked closely and regularly with financial advisers, accountants, insurance agents, the Dryspace team and the company's clients.

"Looking back, it seemed like it was going to be a long, drawn-out process," Price says. "But I wouldn't do it any other way."

Outside buyers

For owners who do not have family in the business or a plan to sell to someone within the company, there is the option to sell externally, such as to a general contractor or private equity firm.

Bob Morgan, CEO of Upstate Roofing & Painting, Rochester, N.Y., sold his company to Roofed Right America, Milwaukee, after starting as an estimator in 1998 and acting as sole owner since 2016.



Morgan

"I did not have a succession plan in place," Morgan says. "This allowed me to bring in other teammates as equity stakeholders in the new organization and provide stability far beyond my tenure. This wasn't initially on my radar, but the more I looked into it, the more it made sense for myself and my team."

According to *Crain's Grand Rapids Business*, after acquiring a company, private equity firms often will provide strategic and operational support to help the company develop a detailed growth plan, process improvement, address labor challenges and more. Morgan says it is important to conduct research regarding a private equity firm to understand its ultimate goal for one's company.

Similarly, Dave Tilsen, president of Tilsen Roofing Co.,

Madison, Wis., sold his company to a local general contractor after taking over in the 1990s from his father.

Tilsen explored other options, including an employee transition and external transitions with a business broker and merger and acquisition firm, but he ultimately sold to a contractor who worked with the company since it opened, and Tilsen says their business objectives and cultures aligned well.



Tilsen

"It is important to seek a contractor who will act as a partner and support the network post-transaction," Tilsen says. "I am fortunate to have sold to a general contractor who is supportive and respectful of the brand Tilsen Roofing has built in its 70 years in business."

Planning early and taking time to complete the transition process can make it easier for everyone involved. Tilsen still is heavily involved in the day-to-day operations of Tilsen Roofing; he says he does not expect letting go of the company to be difficult when he fully retires because the process will be gradual.

However, both Tilsen and Morgan say due diligence was the most difficult part of the transition because of the amount of work put into it, as well as the acceleration of the process at that point. Carefully choosing the correct advisers and attorneys for the process early on can help everything run as smoothly as possible.

"It was a brutal three-month process," Morgan says. "But I was well coached by peers and my merger and acquisition accountant and attorney. Upstate Roofing & Painting runs a tight ship, so our process was considered smooth, but it was still a heavy lift."

The right path

According to Young Presidents' Organization, 75% of all businesses fail to survive past the first generation of owners whether through a transition to a family member, key employee or third party.

However, with a succession plan in place, as well as keeping in mind important aspects such as communication and timing, these companies are proof success can span well beyond third or even fourth generations. 📞📧🌐

AVERY TIMMONS is *Professional Roofing's* editorial assistant.



For tips on succession planning, go to professionalroofing.net.

The sound of silence



The negative effects of noise exposure are an increasing challenge in commercial buildings

by Antoine Habellion, P.Eng., M.Eng., M.S.

With global urbanization and the increasing density of the built environment, it has become difficult to escape sound completely. For this reason, an additional challenge to the design and construction of commercial buildings has arisen: the need to address noise transmission in high-performance enclosures.

From the acoustical point of view, noise and sound constitute the same phenomenon. However, noise **generally is considered** a disagreeable and undesired sound.

The effects of noise exposure on the health and well-being of building occupants can be serious and profound (see Figure 1). For instance, in commercial buildings, high levels of noise can interfere with communication and concentration, be responsible for a reduction in productivity, create physical and psychological stress, contribute to workplace accidents and injuries by making warning signals difficult to perceive, and even increase the risk of cardiovascular diseases.

In fact, the National Institute for Occupational Safety and Health says each year, 22 million U.S. workers are exposed to hazardous noise levels, which are sounds that exceed the time-weighted average of 85 A-weighted decibels (dBA) over a typical eight-hour workday. NIOSH also says occupational hearing loss, which is permanent, is one of the most common work-related injuries. So it is not surprising that most respondents to a study conducted by the Center for the Built Environment were not satisfied with their buildings' acoustic performances and the dissatisfaction was highest regarding sound privacy.

To resolve this growing issue and devise effective strategies to improve the acoustic performances of commercial buildings, it is necessary to understand, at minimum, some of the fundamentals of sound transmittance and building acoustics.

Sound blockage and loss

Sound is a pressure wave created by a vibrating object that sets particles in air, gas, liquids or solids in vibrational motion, transporting energy through them. As a sound wave travels, it gradually loses energy, and the sound level decreases.

There is a wide range of pressure variation from the weakest to loudest sound a human ear can hear. This amplitude of a sound wave is measured in decibels (dB) and perceived as loudness. The frequency of a sound wave is expressed in units of hertz (Hz), sometimes referred to as pitch. The lower the frequency of a sound wave, the fewer the oscillations.

When sound encounters a structure such as a roof, various properties of the sound and structure influence how well the structure blocks its passage. For instance, a lower frequency sound (defined as a sound with a frequency of 500 hertz or less) has a long wavelength and is difficult to control. This is because such a sound wave transfers less energy to the medium it is traveling through, resulting in a slower loss of energy in the process. Community noises, including aircraft and vehicles, typically range between 50 hertz and 5,000 hertz.

A common way to increase a structure's sound-blocking ability is to increase the weight of the materials that constitute it or their thickness. But homogenous material typically increases in stiffness as thickness increases, which can introduce two weaknesses. The first weakness, typically observed at a low frequency, is resonance (the frequency at which the structure tends to want to vibrate if excited). The second weakness, known as a coincidence dip, typically is observed at a higher frequency and occurs at the frequency at which the bending wavelength in the structure equals the sound's wavelength.

In large commercial buildings, noise traveling from the exterior to interior can be blocked by using heavy, thick, monolithic construction, such as concrete, but it is not always practical or desired because many building assemblies use lightweight steel or wood framing.

As a result, a common, efficient way to improve sound-blocking ability without greatly increasing weight is to create a cavity construction, which can be filled with a porous absorber (a sound absorptive material) between two layers of solid material. This can be done, for instance, by introducing one or several layers of stone wool insulation between a roof deck and cover board or the roof deck and the interior finishes between the roof structural members (see photo on page 43).

Another possibility is to introduce flexible connections, such as resilient channels or resilient sound-isolation clips, between the various layers of the system. In a commercial roof system, this could be done on the ceiling side.

The acoustic performance of a roof assembly can be evaluated in a laboratory typically in accordance with ASTM E90, "Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements." The outcome of this test results in multiple transmission loss measurements.

To simplify the assessment of acoustic performances of roof assemblies and allow for overall comparisons, two single-number ratings were developed. The first, the Sound Transmission Class, is calculated by comparing the measured sound transmission loss to a reference contour curve at 500 hertz in accordance with ASTM E413, "Classification for Rating Sound Insulation." The second, the Outdoor-Indoor Transmission Class, is calculated in accordance with ASTM E1332, "Standard Classification for Rating Outdoor-Indoor Sound Attenuation."

As described in ASTM E413, the intent of STC is to "correlate in a general way with subjective impressions of sound transmission for speech, radio, television and similar sources of noise in offices and buildings." Although it is used to compare roof assemblies, STC was developed to rate partitions and is not appropriate for sound sources such as outdoor noises that include strong low-frequency sounds.

For this reason, it is preferable to consider the OITC rating with roof assemblies; it is a better representation of the sound insulation provided by an exterior roof. It is calculated over a frequency range of 80 to 4000 hertz. Similar to the STC rating, the higher the OITC rating number, the better the noise isolation.

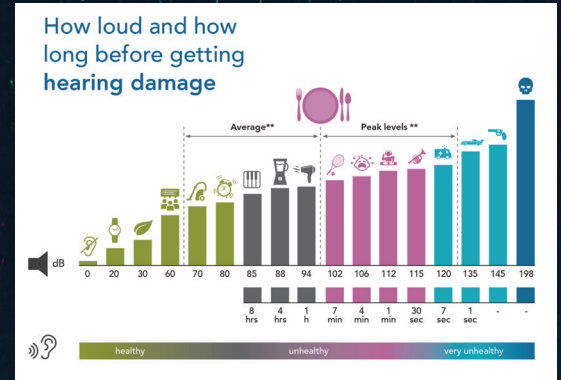


Figure 1: The range of sound and hearing damage

Insulation

From a sound perspective, low-slope roof assemblies can play a role because unwanted noise also originates from air traffic, roof-mounted HVAC systems, rain, hail, etc.

Low-slope roof assemblies require careful design consideration to maximize acoustic performance not only

around airports and flight paths but also for buildings where sound control is considered integral, such as sound stages, schools, hospitals, hotels, residential buildings or senior care facilities.

Furthermore, in modern urban areas, commercial and residential spaces also are often mixed or closer together, so containing sound in the commercial space may also be an important objective. A porous material such as stone wool insulation and, more specifically, a dual-density stone wool roof insulation board can be used as a sound-attenuating layer either by itself or as a facing to a solid barrier. As a porous layer, it contributes to sound attenuation partly by reflecting sound and partly by converting sound energy into heat as sound waves travel through the material. This type of stone wool

product can absorb sound energy by damping the oscillation of the air particles because of its density and air-flow resistance.

During the years, manufacturers of insulation, roof membranes, gypsum cover boards and other products have used external, independent testing laboratories to evaluate numerous roof assemblies that incorporate, for instance, stone wool insulation over metal decks of various gauges and below roof membranes or standing-seam metal roofs. This information, which typically is published by manufacturers and sometimes summarized in acoustic catalogues and brochures, can be used to select the adequate system for a project based on the specific STC or OITC rating desired.

Addressing acoustic performance as early as possible during a project's design phase will allow for a more optimized and cost-effective design. Because the acoustic requirement rarely is the sole objective, opting for a non-combustible stone wool insulation in a roof assembly also may contribute to fire safety requirements. Alternatively, a roof with a hybrid insulation strategy could provide passive fire protection, excellent acoustic performance and added thermal performance while minimizing roof assembly height if a structure is limited in the weight it can carry or in instances where there are specific height limitations. A hybrid insulation assembly is achieved by using stone wool as an insulating cover board or the thermal barrier over a layer of foam insulation such as polyisocyanurate.

The most common strategies to improve the acoustic performance of a roof assembly are:

- **Adding mass.** Mass improves a roof assembly's sound attenuation because mass resists sound energy. The use of dense gypsum board is a common way to do this effectively.
- **Adding absorptive materials.** These materials absorb sound energy as sound waves travel through a roof assembly. Stone wool insulation is a good example of an absorptive material.
- **Decoupling.** This approach removes the rigid connections between the layers of materials that create a path for sound vibrations to easily travel. Decoupling can be achieved, for example, by selecting an adhered system over a fully mechanically fastened one.

Following these principles, the assemblies in the photos illustrate some incremental steps to improve roof assembly performance. Note architecture and design teams should consult with manufacturers and their technical teams for solutions to meet specific performance goals.

Let's consider assembly RWT27 in Figure 2 as a basic design. It achieves moderate STC and OITC ratings of 36 and 28, respectively. This assembly does not include fasteners; with fasteners, the ratings would be lower.

Now, look at assembly RWT12 in Figure 3. By adding mass to the system using a gypsum cover board, increasing the amount of absorptive insulation and adding flute fillers in the corrugation of the deck, the STC rating increased 11 points, and the OITC rating significantly increased seven points. In fact, it is possible to fasten some of the bottom layers without affecting overall

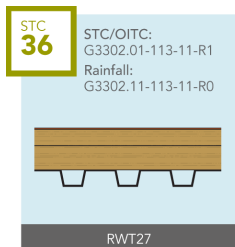


Figure 2: RWT27

| Acoustic and Thermal Performance | | | |
|---|----------|------------|-------------------|
| STC: 36 | OITC: 28 | RValue: 19 | Rainfall: 44.2 dB |
| Assembly Components | | | |
| Membrane: 0.05" Sarnafill® Sikaplan | | | |
| Insulation: 1.97" TOPROCK® DD | | | |
| Insulation: 3.01" TOPROCK® DD | | | |
| Deck: 1.51" Fabral 20ga., Type B, Steel | | | |

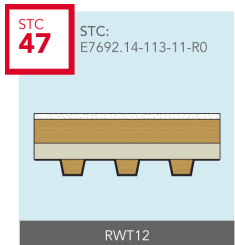


Figure 3: RWT12

| Acoustic and Thermal Performance | | | |
|---|----------|------------|---------------|
| STC: 47 | OITC: 35 | RValue: 21 | Rainfall: N/A |
| Assembly Components | | | |
| Coverboard: 1 - 5/8" GP DensDeck Prime Gypsum Board | | | |
| Insulation: 1 - 3"x4"x4" TOPROCK® DD | | | |
| Insulation: 1 - 2"x4"x8" Polyisocyanurate | | | |
| Flute Fill: ROCKWOOL Flute Filler | | | |
| Deck: 20ga., Type B, grade 80 Steel | | | |

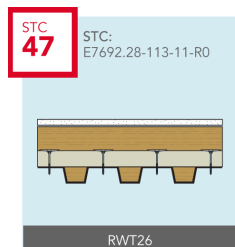


Figure 4: RWT26

| Acoustic and Thermal Performance | | | |
|---|----------|------------|---------------|
| STC: 47 | OITC: 36 | RValue: 21 | Rainfall: N/A |
| Assembly Components | | | |
| Coverboard: 1 - 5/8" GP DensDeck Prime Gypsum Board | | | |
| Securement: Fastening rate of 16/4"x8" Board | | | |
| Insulation: 1 - 3"x4"x4" TOPROCK® DD | | | |
| Insulation: 1 - 2"x4"x8" Polyisocyanurate | | | |
| Flute Fill: ROCKWOOL Flute Filler | | | |
| Deck: 20ga., Type B, grade 80 Steel | | | |

performance. This is demonstrated by assembly RWT26 in Figure 4 with its fasteners sandwiched between the insulation layers to prevent bridging. Longer fasteners penetrating fully through the assembly would decrease its rating several points.

Increasing performance even further is easy to achieve by adding more mass, such as by adding an additional layer of gypsum board above the flutes and/or secondary layer of cover board, as well as increasing insulation thickness. Stone wool insulation can help improve acoustic and thermal performance; adding additional polyisocyanurate in a hybrid stone wool assembly primarily contributes to increasing R-value, and its contribution to acoustic performance is less significant.

Case studies

Roof assemblies incorporating stone wool insulation have been specified for acoustic performance and to meet other performance objectives in a wide variety of high-performance buildings.

One example is when Flynn Canada, London, Ontario, turned a warehouse into an office space, but the noise from the nearby airport needed to be addressed. The new roof assembly, which incorporated a dual-density rigid stone wool insulation board product featuring a higher density top layer, provided a strong point-load resistance and higher mechanical properties as shown in Figure 5.

Valcoustics, Richmond Hill, Ontario, an acoustical consulting company, performed acoustical testing on the building before and after the reroof to assess the difference in noise transmission. Based on the same sound level at the roof for the pre- and post-renovation condition, Valcoustics measured the indoor noise criteria level was reduced from 61 to 39, and the indoor sound level dropped from 58 dBA to 45 dBA. This reduction was determined to be a direct result of the insulation.

Another example involved Lionsgate Studios, a 1-million-square-foot campus of stages, offices, support space and city street backlots in Yonkers, New York. It is one of the largest dedicated video and film production facilities on the East Coast. In 2021, with the construction of the second sound stage underway, TV crews working in the first completed studio space began noticing noise coming from the nearby train station. It was distracting enough inside the sound stage that filming had to pause regularly. Therefore, a new approach was decided for the roof of the second sound stage because

the roof was identified as one of the weak points for sound transmission.

To address this issue, it was recommended to use multiple layers of gypsum board to add mass, a flute filler to insulate the metal deck and level the metal roof, as well as dual-density rigid stone wool insulation board for sound absorption and to reduce the rigidity of the connection between the interior and exterior of the roof by adhering the top layer of gypsum board and the membrane. This allowed the fasteners to be installed in the layers below (preventing bridging).

Using computer modeling and existing test data, the roof was estimated to have an STC rating of 55, which met the client's demanding requirements for this challenging site (though it would have been beneficial, the OITC rating was not evaluated).

A holistic approach

Stone wool insulation can improve the acoustic performance of commercial low-slope assemblies. It provides excellent acoustic characteristics, but additional considerations such as adding mass and decoupling are just as critical to controlling sound and creating an effective roof system.

A key feature reducing sound transmission is the use of a cavity, or air gap, combined with acoustic insulation. Air gaps effectively “decouple” the main components from each other, diminishing the ability of sound to easily transmit through the full roof assembly. The use of resilient channels or other isolators also is a common technique to aid in decoupling and limit sound transfer, which can easily be implemented on a roof system's interior side. Although gypsum is a popular material to block sound within rooms, acoustic ceiling tiles can offer a lighter-weight solution that provides the benefit of adding sound absorption. 🌀🔊



Photo: Installing stone wool insulation between the deck and cover board under the roof membrane or deck can help with sound absorption.

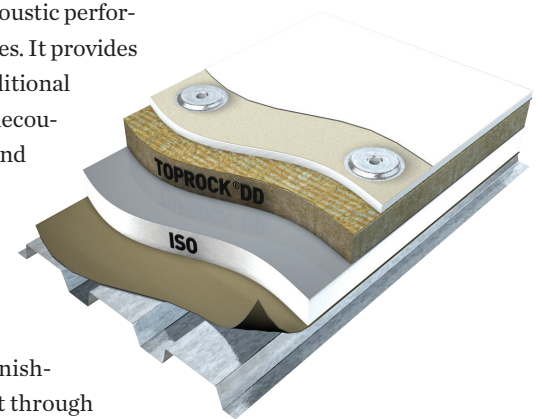


Figure 5: How the roof on Flynn Canada's property was constructed

ANTOINE HABELLION, P.ENG., M.ENG, M.S., is technical director for ROCKWOOL, Milton, Ontario, Canada.



ROOFING a STORYBOOK

GREENWOOD INDUSTRIES HELPS BUILD BOSTON'S
LARGEST GREEN BUILDING

BY CHRYSTINE ELLE HANUS

WHEN you look at Boston University's Center for Computing and Data Sciences, you'll notice its unusual design in the shape of a stack of books. But the building has another remarkable feature: It is the largest fossil-fuel-free building in Boston.

Built in 2022 and designed by KPMP Architects, Toronto, the building's HVAC system uses closed-loop geothermal wells to draw heat from the ground during winter and expel heat during summer. Only sealants and finishes with few or no volatile organic compounds were used during construction to improve interior air quality.

Other energy-efficient features include triple-glazed windows for better thermal and sound transmission performance, as well as exterior shades to mitigate solar heat gain throughout the day while reducing glare on computer screens and whiteboards. Natural light seeps into the building through staircases meant to reduce electricity consumed by elevators and promote physical activity. On-site dining facilities also use electricity, instead of gas, for cooking.

Given its proximity to Charles River, rising water and sudden storm surges were taken into consideration during the design phase. The building is set 3 feet above the elevation of the Charles River dam and 5 feet higher than the city of Boston's suggested guidelines for sea-level rise.

A multilevel vegetative roof system absorbs rainwater, reduces stormwater run-off and helps insulate the building. Greenwood Industries Inc., Worcester, Mass., was selected by the project's general contractor, Suffolk Construction Co., Boston, to install multiple Hydrotech® Garden Roofs and a Sarnafil® G 410-60 EnergySmart 60-mil-thick PVC thermoplastic membrane roof system on the new building.

Vegetative roofs

The building's stack-of-books look is created by multiple overhanging balconies, each housing a vegetative roof. Several of the balconies have a roof above them, so the Greenwood Industries team could not use a crane to load materials to those areas.

"For the roof areas on floors 11 through 17, we transported roofing materials through the building," says Mark McKernan, project manager for Greenwood Industries. "As we worked our way to the 18th and 19th floors, we used interior elevators and loaded materials off hours, requiring second-shift labor commitments as we needed to work around other subcontractors.



Aerial view of one of the vegetative roof systems

"As we neared the end of the project, we secured an enormous 400-foot crane that occupied two city blocks and required coordinated street closures," McKernan continues. "We spent two days setting it up, one day loading materials to the top level and then another two days breaking it down all for one day of work."

To install 32,000 square feet of Hydrotech Garden Roofs, team members hot fluid-applied Monolithic Membrane 6125® in thicknesses of 90 and 125 mils reinforced with Flex-Flash F spunbonded polyester fabric capped with Hydrocap 90FR, a rubberized asphalt protection sheet, and loosely laid Root Stop HD to receive vegetative overburden. For the pavers, a layer of Hydro-rain® AL filter fabric was placed on the substrate followed by concrete-faced HeavyGUARD® roof insulation panels.

A strict project timeline required the vegetative roofs to be installed during winter, so team members had to carefully dry each section for proper adhesion of the waterproofing membrane.

"This process sometimes took hours, reflecting the team's dedication to getting the job done right," McKernan says.

While working on the lower vegetative roof areas, Greenwood Industries workers were tied-off, and a full-time safety officer helped managed the on-site crew.

Membrane roof

For the 11,000-square-foot membrane roof areas on the 20th and 21st floors, the team primed the roof substrate with Sika® SA Primer and applied self-adhering Sarnafil® Vapor Retarder SA 31. To insulate the system, crew

PROJECT NAME: Boston University's Center for Computing and Data Sciences

PROJECT LOCATION: Boston

PROJECT DURATION: October 2021-May 2023

ROOFING CONTRACTOR: Greenwood Industries Inc., Worcester, Mass.

ROOF SYSTEM TYPES: Hot liquid-applied rubberized asphalt waterproofing system with vegetative and insulated paver overburden and PVC thermoplastic roof membrane

ROOFING MANUFACTURERS: American Hydrotech® Inc., a Sika company, Chicago; Clear Corp., Hamilton, Ohio; Sika Corp., Lyndhurst, N.J.



The Greenwood Industries crew installed 32,000 square feet of vegetative roofs on multiple levels.

members laid a combination of 4- by 4-foot Sarnatherm® ISO boards in thicknesses of 2 inches and 2 ½ inches and Sarnatherm ISO tapered boards adhered with Sarnacol® AD Board Adhesive. To complete the system, the team installed an electric field vector mapping grid and adhered the 60-mil-thick Sarnafil G 410-60 EnergySmart PVC thermoplastic membrane.

The crew installed safety rails and parapet clamps to work on the membrane roof and coordinated with Suffolk Construction to ensure all safety standards were followed.

A novel ending

Although the Greenwood Industries team faced logistical and weather issues, the crew completed the project on time and without incident. Thanks to dedicated workers, Boston University's Center for Computing and Data



Overhanging balconies are designed to mimic a stack of books.



To watch a video about Boston University's Center for Computing and Data Sciences, go to professionalroofing.net.

Sciences will provide sustainable benefits for the community for years to come.

“Because of its shape and multiple levels, Greenwood Industries faced many challenges from finding ways to load and transport materials through the facility up to the roof to completing the project during inclement weather,” says Emma Houston, director of marketing and corporate communication for Sika Roofing, a division of Sika Corp., Lyndhurst, N.J.

“Greenwood Industries’ roof system and paver installations on Boston University’s Center for Computing and Data Sciences allowed us to be part of one of the most sustainable and energy-efficient buildings in Boston,” adds Ginny Pitcher, director of marketing and corporate communications for Greenwood Industries. “We are honored to have worked on the unique project.” 🌱🌿

CHRISTINE ELLE HANUS is *Professional Roofing's* associate editor and an NRCA director of communications.



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Intentional Training

The best learning happens when installers are encouraged to make mistakes

by Jared Ribble and Amy Staska

W

hile teaching one of NRCA's Qualified Trainer Conferences recently, we heard someone exclaim: "I'm definitely not going to just stand there and let him make a mistake!"

The students were working in two groups when we overheard the loud voice coming from one group. The members in the other group stopped what they were doing and looked over to see an instructor and participant energetically discussing the pros and cons of allowing trainees to make mistakes.

The participant was an excellent, experienced roofing professional. He had risen to senior superintendent during a successful 30-year career. Allowing his

trainees to make mistakes was so untenable to him, he likened it to suggesting children put their fingers into electric sockets to teach them about electricity. As other participants agreed with him, we discussed it.

We explained intentional training means having time and space to conduct skills training—it's not something that happens during active installations where production is the goal. Allowing trainees to make mistakes means having mockups available in the shop and materials available for trainees to ruin.

Intentional training is one of the most efficient, effective ways to increase production while improving employee retention.



Benefits of allowing mistakes

Mistakes can be productive and desirable in the proper context. Exposing learners to challenging situations and allowing them to make mistakes and spend time figuring out why the mistakes were made means trainees actively engage in problem solving. This type of learning increases retention, and mistakes learned during training are less likely to be made when it matters most.

The following anecdote exemplifies the importance of making mistakes.

While working in an unfamiliar town, the driver of a roofing crew takes a wrong turn on the way to the job

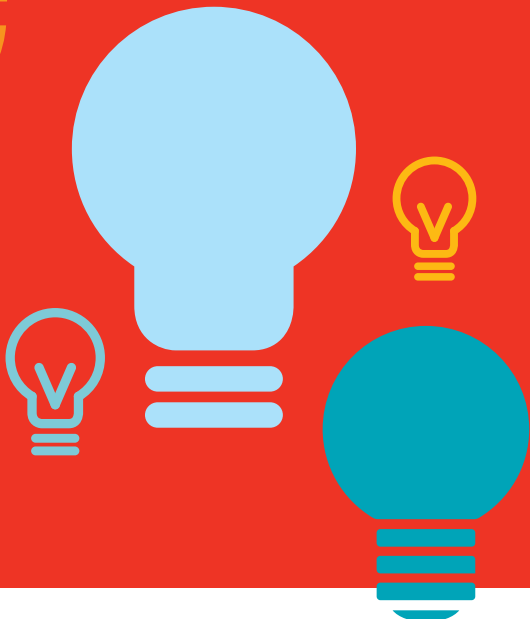
site. He forgot his phone in the hotel room and couldn't check directions, so he meanders his way through the town based on what he remembers from a previous trip. He sees the sun rising and knows the job site is on the opposite side of town. He also recognizes a restaurant, so he can orient himself. He makes a few more wrong turns before finding his way to the correct address.

The next day when the crew is on their way to the job site, they encounter a new and unmarked detour. Thanks to the driver's unintended drive through many back roads the previous day, he aptly navigated his way to the job site and the crew arrives 15 minutes earlier than anyone else.



QUALIFIED TRAINER CONFERENCE

NRCA has developed its Qualified Trainer Conference, a state-of-the-art classroom and two-day hands-on educational program that empowers employees to become expert trainers who can educate others to develop a strong workforce. Qualified trainers become equipped to successfully train employees on-site without loss of productivity. To learn more, contact Jon Goodman, NRCA's roofing subject matter expert, at jgoodman@nrca.net.



Critical thinking

The moment the driver realized he took a wrong turn, his brain needed to process things differently than when he was following a repetitive pattern. He had to think about what he knew and did not know at that moment.

He had to consider his options as well as his resources. He was not in any danger, so he could relax. He could see where the sun was rising, so he knew the job site was on the opposite side of town. And he recognized a landmark—the restaurant—to help guide him.

Critical thinking is being able to objectively assess a situation to make decisions. In this case, the driver was able to quickly assess the facts and arrive at the job site without too much stress or delay. And the next day, he used what he learned from his previous mistake to make his way through the detour.

Greater engagement

The driver in our example had to pay keen attention to his surroundings, street signs, and any information he had or was given. The only way to find one's way through unfamiliarity without exact step-by-step guidance is to focus on making the best decisions possible. Because of his focus during uncertainty, the driver recalled what he experienced and was able to access that learning the next day.

Retention

Retention is enhanced through making decisions in the face of uncertainty and during the process of fixing mistakes. The more someone needs to think, consider options and make choices, the more learning will be retained.

If the driver turned down a dead-end street or ended up going the wrong way on a one-way street, not only is he more likely to remember to go the right way the next time but he also will remember why

he needs to go the right way. He will find his way out of tricky situations and solve problems until he ends up where he needs to be. The act of problem solving solidifies information.

Confidence

Allowing a person to figure out how to do something in the face of many options increases confidence. However, we want to stress trainers always should explain and demonstrate skills thoroughly before expecting trainees to try skills.

For example, after a thorough demonstration and explanation of a pipe boot installation, a trainee should be allowed to install one without assistance—forcing him or her to think about the steps and the several ways he or she might not do it exactly right.

Then, after completing a skill, trainees always should be encouraged to assess their own work regarding whether their installation is on par with the trainer's installation and determine discrepancies. The process of figuring things out rather than just doing what a trainee is told is deep learning.

Dedicated trainers

Having a dedicated trainer on staff is one key ingredient of successful training. Whether a trainer is full- or part-time, productive training requires someone who is responsible for setting up intentional training. This kind of training also must include time separate from productive installation work.

Often, roofing companies default to training on roofs during active jobs. Foremen are tasked with most of it while simultaneously managing jobs and crews in locations where trainees absolutely cannot make mistakes. This is a setup for frustration and stress: Foremen are pulled in too many directions, and new employees feel inadequate.

The best training system in the U.S. is in the military. Boot camp, also known as basic training, comprises six to 12 weeks of nothing but training conducted by training specialists on dedicated training bases. According to the Army's website, about 90% of recruits complete boot camp and go on to be soldiers. These soldiers are from the same pool of young adults we often accuse of not wanting to work hard or having no work ethic.

No one expects contractors to offer 10 weeks of hard-core training. However, 10 hours of full-on training by dedicated trainers in a specific training space could make all the difference.

What do dedicated trainers do?

Someone who has the wherewithal to focus intentional energy on establishing good training will take the time to clearly define several things:

- *Learning outcomes.* These are explicit intentions for what each trainee will be able to do as a result of his or her training—overall and for each individual session.
- *A consistent schedule.* Developing a training schedule—over time and within each individual session—maximizes efforts.
- *A systematic approach to each skill.* Allow trainees time to understand what they are learning, attempt skills on their own, evaluate mistakes and repeat efforts until they achieve consistent success.

The value of dedicated space

Naval Station Great Lakes, Great Lakes, Ill., is where all U.S. Navy boot camps occur. It has a massive destroyer simulator called the USS Trayer. Designed by award-winning Hollywood set designers, it allows trainers to put recruits through the paces of various skills and situations in a realistic setting but without danger. Many industries use simulators so employees can learn how to do their jobs without drowning at sea, crashing planes or being lost in space.

Although the scale and hazards are different, mockups in a corner of a roofing shop serve much the same purpose as the USS Trayer. Mockups are made for practice. Once a task is complete and evaluated, it can be torn off and tried again.

Roof system installers can learn and practice new skills without many of the hazards they will experience on a rooftop. They also are not under the pressure of being on

an active site where accuracy is critical and time is of the essence.

A dedicated trainer can allow a trainee to work alone because he or she is not surrounded by job-site pressures and will think more clearly to experience more successes and learning.

The only time a trainer should intervene is when a trainee is engaging in hazardous behavior without taking proper precautions. If a trainee is not in danger, forgetting PPE is a valuable debrief conversation. But if the trainee is not wearing gloves and starting to work with chemicals, a trainer needs to intervene before the trainee begins the task. Safety always is paramount to learning.

Taking it to the job site

Of course, the aim is not to remain on a mockup. Trainers prepare employees to implement their skills into their jobs. Ideally, a trainer will be able to take trainees onto job sites and work with them there, helping them to integrate mockup skills and mindsets into real roofing work.

Mistakes on an active job site might not be received with the same patience and tutelage of a training session. However, an installer used to recovering from mistakes during mockup training will be more equipped to manage situations more effectively than an installer who only knows how things are supposed to work. Intentionally trained workers will use their tools of critical thinking, experience and confidence to regroup and figure out how to fix mistakes.

Installers with intentional training skills also will be better poised to apply their skills in various and unique situations and from one job to the next.

Allowing trainees to make mistakes not only develops skills but problem-solving capacities, and it does so in an environment that demonstrates respect for the individual and the learning process. 🧠🔧

JARED RIBBLE is vice president of certifications, and **AMY STASKA** is vice president of NRCA University.





**LIVING ON THE
EDGE**

The background of the page features a dark blue color with a pattern of light blue, hand-drawn style swirls and wavy lines. On the left side, there is a stylized orange folder icon with a tab pointing upwards.

Everything you wanted to know about ES-1

by Elizabeth Grant, Ph.D., AIA, James Kirby, AIA, and Erica Sherman, Ph.D.

Recently, storms of increasing intensity have been occurring worldwide. In an *Environment & Energy News* article republished in *Scientific American* at the end of the 2022 hurricane season, author Chelsea Harvey noted: “even weak hurricanes are getting stronger as the climate warms.” We in the roofing community would be wise to take note and carefully consider how we can better protect roof corners and edges.

Following the ES-1 test methods can be a solution to some known vulnerable roof system areas. The test methods were developed to assist designers and installers with providing wind-resistant edge-metal systems on low-slope membrane roof systems. Wind tunnel testing of full-scale systems is another approach that can uncover vulnerabilities and failure modes that ES-1 testing can't capture.

What is ES-1?

ES-1 refers to ANSI/SPRI/FM 4435 ES-1, “Test Standard for Edge Systems Used with Low Slope Roofing Systems.” The latest edition was released in 2022 though the standard first was released in 1998 as ANSI/SPRI ES-1-98. It was first referenced in the International Building Code,® 2003 Edition and remains in subsequent editions. In 2011, it merged with FM Standard 4435, “Approval Standard for Edge Systems Used with Low Slope Roofing Systems.”

Understanding the interaction of ES-1 with the building code is important for designers and contractors. In IBC 2021, the standard is referenced in Section 1504.6, which also calls for edge metal to be designed for wind loads in accordance with Chapter 16. Chapter 16, in turn, references ASCE 7-16, “Minimum Design Loads and Associated Criteria for Buildings and Other Structures.” In IBC 2021, “metal edge systems,” except gutters and counter-flashings, must have ES-1-tested edge metal on all built-up, polymer-modified bitumen and single-ply roof systems with slopes less than 2:12.

As states and jurisdictions adopt IBC 2021, more newly installed roofs will fall under the umbrella of the ES-1 standard.

ES-1 test methods

ES-1 is composed of three test methods. The first, RE-1, addresses a roof covering being pulled at a 25-degree angle from the edge metal that serves as

its securement point. The left-hand graphic in Figure 1 shows how the test is conducted in the lab, and the right-hand graphic shows how we can understand its relevance in a real-world scenario.

RE-2, shown in Figure 2, simulates horizontal wind load pulling off a fascia, gravel stop or flat perimeter edge metal and, by inclusion, the ability of a continuous cleat to prevent this pull-off.

RE-3 in Figure 3 is composed of two tests of metal copings. The first tests the front leg and top simultaneously, and the second tests the top and back leg simultaneously.

Importantly, ES-1 tests a specific geometry of edge metal, and the size and spacing of fasteners that hold it onto a building.

There are things the three ES-1 tests do not cover. For example, they do not govern the design of the blocking, cladding or other material to which the edge metal is affixed nor do they address gutters. Designers need to reference the appropriate section of the building code in effect to determine the loads to be resisted by these building elements and

design overall roof-to-wall construction and load paths accordingly.

The article “Small components, big effects,” in *Professional Roofing’s* November 2008 issue, stated:

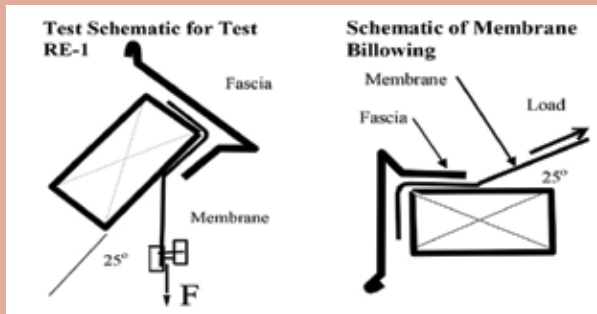


Figure 1: Test RE-1 schematics

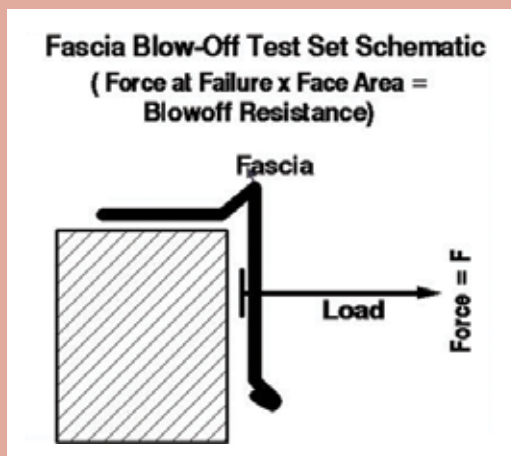


Figure 2: Test RE-2 schematics

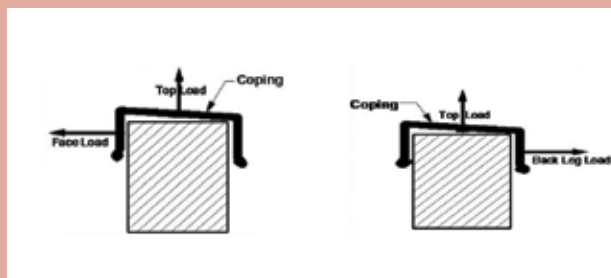


Figure 3: Test RE-3 schematics

“A cleat’s gauge is critical to edge-metal system performance” and recommended “generally, cleats should be one gauge heavier than the edge metal.” ANSI/SPRI ED-1 2019, “Design Standard for Edge Systems Used with Low Slope Roofing Systems” makes this same general recommendation.

Note sheet metal gauges are even-numbered. For example, one might use a 24-gauge coping with a 22-gauge cleat. James Kirby, building science, industry relations and compliance architect for Siplast, Irving, Texas, and one of this article’s authors, echoes this recommendation and suggests cleats two gauges greater than the edge metal they engage can be appropriate.

Critical components

NRCA has found cleat deformation and cleat disengagement from the hemmed edge of fascias and copings is a common cause of failure mechanism in ES-1 testing. Laboratory tests conducted by the authors at the Wall of Wind Experimental Facility at Florida International University as part of the Wind Hazard and Infrastructure Performance Center show how crucial it is to have continuous engagement of a cleat.

As part of a team of scholars and industry partners forming the Wind Hazard and Infrastructure Performance Center, we conducted research to understand how different edge-metal configurations and fastening locations perform in high winds. We completed a series of full-scale tests in the WoW at FIU in February 2022. The WoW has an array of 12 fans that can produce wind speeds up to 157 mph.

We tested four edge-metal systems using different combinations of cleat and fastener locations. Each system was tested by constructing a roof corner with edge metal extending along two sides of a test platform measuring 11 feet wide by 11 feet deep by 6 feet high. The sides met at the corner and were fastened in one of the four configurations.

Because a primary intent of this research was to determine whether fastener placement for a cleat affected wind resistance capacity, mitred corners were intentionally not used. It was presumed the use of a mitred corner would have significantly strengthened each of the tested configurations to the level that the intent of the research would not have been met given the size of a mitred corner relative to the size of the test deck.

In each edge metal system tested, an 8-inch, 24-gauge

steel fascia was fastened into 2- by 6-inch wood blocking through the edge metal’s 4-inch horizontal flange. The drip edge of the fascia measured $\frac{3}{4}$ of an inch. Figure 4 details the test configurations.

All cleats were 22-gauge steel and positioned and fastened in the following configurations:

- Configuration 1: 6-inch cleat fastened $1\frac{3}{4}$ inches above the drip edge
- Configuration 2: 6-inch cleat fastened $4\frac{1}{2}$ inches above the drip edge
- Configuration 3: 8-inch L-shaped cleat fastened $\frac{3}{4}$ of an inch downward from the cleat’s top
- Configuration 4: 8-inch L-shaped cleat fastened $\frac{3}{4}$ of an inch inward from the cleat’s top

The test roof was a simplified version of a typical roof assembly with a 60-mil TPO membrane induction-welded to $1\frac{1}{2}$ inches of polyisocyanurate insulation atop a $\frac{3}{4}$ -inch plywood deck. The edge condition consisted of 2- by 6-inch wood blocking running horizontally around the perimeter and a 2- by 6-inch wood fascia backed by a 2- by 8-inch rim joist oriented vertically to receive the cleat fasteners where applicable (as in Configurations 1 and 2).

The edge condition used in this research, though not a typical flush edge condition, was consistent in all configurations, allowing appropriate comparisons between the four configurations, specifically fastener placement of the cleat. It is unknown whether the lack of flush edge blocking had any effect on the wind speeds at failure.

Where failures occurred

For each configuration, we conducted tests starting at 77 mph and ramping up in 8- to 9-mph increments of three minutes each to a maximum wind speed of 134 mph. Pressures were not recorded during failure testing; calculating an equivalent “real-world” pressure for an actual building would not be appropriate.

The FIU study was a comparative test using wind speeds and differing cleat geometries and attachment locations. For the testing, design wind pressures are not

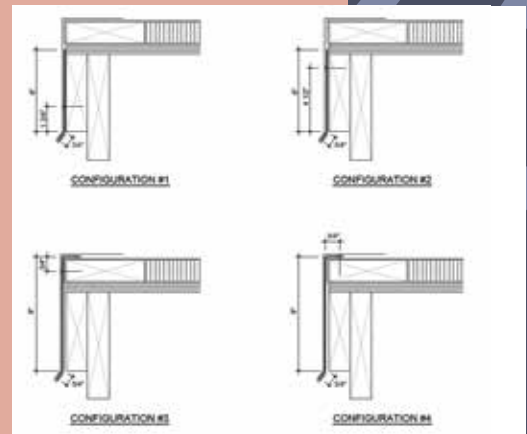


Figure 4: The four configurations used in the WoW research

determinable. The tests were run with winds at 0, 45 and 90 degrees to the face of the configuration being tested. Failure was defined as detachment and rotation of the cleat and fascia upward toward the roof surface. This research was conducted under specific laboratory conditions, and wind speeds at the point of failure are not necessarily representative of actual field results.

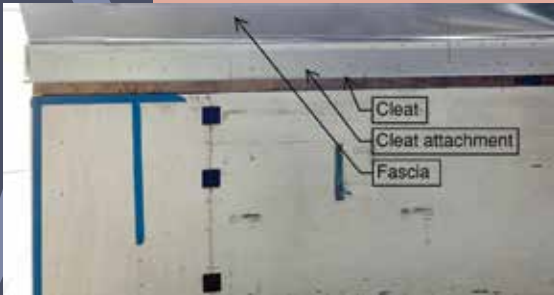


Photo 1: Failure mode for Configuration 1

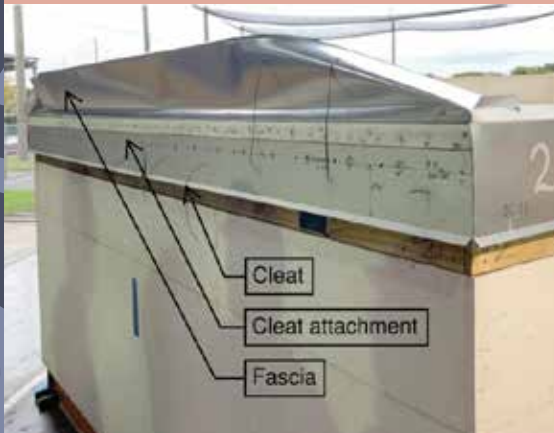


Photo 2: Failure mode for Configuration 2

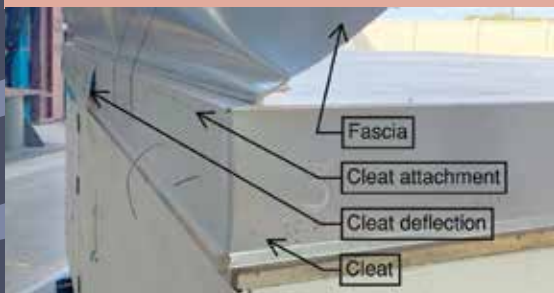


Photo 3: Failure mode for Configuration 3

mph because of cleat disengagement and corner fluttering during the wind speed ramp up; however, there was some minor outward deflection of the cleat before failure (see Photo 3).

Configuration 4 also sustained winds up to 134 mph before it failed. The fluttering in this configuration began

at lower wind speeds and outward deformation of the cleat and fascia was more pronounced than in Configurations 2 and 3 because of the lack of fastening of the lower leg of the L-shaped cleat. In Configuration 4, the failure occurred in two ways. Closest to the corner, the cleat disengaged from the fascia and rotated upward. Further from the corner, the cleat and fascia bent upward from the roof edge and disengaged from one another at some point during the failure (see Photo 4).

What we learned

Following the tests conducted at the WoW, we were able to come to several conclusions:

- Nail placement, in these tests, did not affect the results because all the configurations ultimately failed at 134 mph. Rather, the lack of significant cleat engagement was the variable that led to the early, unexpected failure of Configuration 1 at 77 mph. This slight construction error occurred even in the protected, well-controlled environment of the lab has telling implications for what could happen in the field where installation conditions are often far from ideal.
- Counter to industry experience suggesting otherwise, cleats nailed high on the vertical surface or on the horizontal surface (in the case of L-shaped cleats) sustained wind speeds as high as cleats fastened lower on the vertical surface. The main differences between the 6-inch cleats and the 8-inch L-shaped cleats were the L-shaped cleats bent outward by the wind-uplift forces and the cleat itself flipped upward in a portion of the roof edge in Configuration 4, leaving the roof edge vulnerable to water entry.
- If we rely on the test methods found in ES-1, specifically RE-2 that exerts a horizontal force on the front face of a fascia, gravel stop or flat perimeter edge metal, Configurations 3 and 4 were expected to fail at lower wind speeds than Configurations 1 and 2 because the cleats were fastened high. The fact that Configurations 3 and 4 sustained the same wind speeds as Configuration 2 in the wind tunnel test suggests an additional test method could be developed to better predict the wind resistance of edge-metal systems with cleats fastened higher than current designs. Further testing in-situ or on a larger scale could confirm this finding.

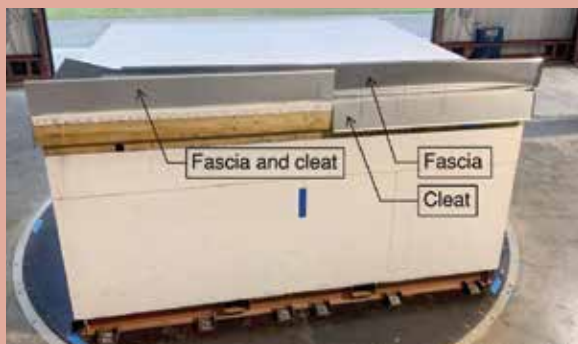


Photo 4: Failure mode for Configuration 4

- Researchers should look at “high-nailed” L-shaped cleats more carefully to see whether they work this well in future tests.
- The advantage of an L-shaped cleat is the top leg allows for easy, consistent placement on the roof edge as it relates to the fascia it is securing. Aligning the cleat with the top and front of the roof edge creates a better probability that cleat engagement also will be more consistent than with more common flat cleats. In cases where there is only one layer of blocking at the top of the roof edge, the simplest, most viable fastening point is on the vertical face of the blocking or its horizontal surface. This is the situation tested in Configurations 3 and 4. However, if a viable substrate (such as additional blocking, masonry or metal cladding) is available lower down, installers can choose to fasten L-shaped cleats there instead.

Future considerations

The WoW showed higher uplift pressures in certain areas of the corner zones (within 2 feet of the corner), and this bears further examination. As an industry, we don’t want to underestimate the actual negative pressures on roofs.

The most important finding from the testing is the need for good engagement of cleats with drip edges of fascias (and copings). Even in a carefully controlled experiment such as a laboratory, a small discrepancy in placement of the cleat led to failure at wind speeds well below what was designed.

We encourage the use of L-shaped cleats to reduce risk of misalignment and reduced engagement with edge metal. We also recommend lengthening a cleat’s drip (the portion that engages directly with the drip edge of the fascia and the drip edge itself).

Many specifications and listed edge-metal assemblies call for a ¾-inch leg on the cleat; a longer leg on the cleat might be beneficial but should be tested to verify any benefits. This will allow for slightly more room for error in installation and less risk to designers, installers and building owners. Some designers and building owners may object to the aesthetics of a longer drip edge. If this is the case, we suggest adopting a detail such as the one from NRCA’s ES-1 certification program where an extended flat drip edge and corresponding cleat are used.

Ensure compliance

There are several pathways to ensure edge metal is ES-1-compliant. One way is to go through NRCA’s third-party certification program for sheet metal shops. The sheet metal provided by these companies has been tested and certified by UL Solutions or Intertek Testing Services N.A. These third-party certifiers also conduct audits where they inspect the machinery with which sheet metal is fabricated, verify the mill certificates of the metal that is used and ensure edge metal is appropriately labeled. Specifiers often will require sheet metal furnished by shops with an NRCA Authorized Fabricator Agreement to get this quality assurance.

UL’s Product iQ, Intertek’s SpecDirect directory and FM Approvals’ RoofNav database also provide similar services to help specifiers and installers identify appropriate ES-1-tested edge-metal systems.

Roofing professionals should note the edge metal verified through ES-1 must be installed as tested. No deviations from the method of attachment, including size and spacing of fasteners, or the geometry of the edge metal itself are permitted. This means any unique designs must be tested.

The more we learn by evaluating edge metal using these test methods, the better we can protect against catastrophic loss of life and property caused by roof system failure. 🌀🌪️

To learn more about NRCA’s ES-1 testing of shop-fabricated edge metal, go to nrca.net/technical/guidelines-resources/shop-fabricated-edge-metal-testing.

ELIZABETH GRANT is building & roofing science research lead for GAF, Parsippany, N.J.; **JAMES KIRBY** is building science, industry relations and compliance architect for Siplast, Irving, Texas; and **ERICA SHERMAN** is residential R&D process engineering manager for GAF.

MANUFACTURER NEWS

GAF donates roof system

GAF, Parsippany, N.J., has provided a new roof system to Maitri Path to Wellness, Peru, Ill., a nonprofit organization dedicated to providing care for individuals struggling with addiction and mental health.

“GAF’s involvement is catalyzing profound change in the lives of those on their recovery journeys,” says Kelly Jones, licensed clinical social worker and certified alcohol and drug counselor at Maitri Path to Wellness.

GAF donated all materials needed for the roof system installation as part of GAF Community Matters, a social impact initiative focused on making a positive difference as neighbors and partners in a community by leveraging roofing expertise, resources and products to help build resilient communities.

Additionally, as part of GAF Community Matters and in support of Second Harvest Food Bank of South Georgia, Valdosta, 22 GAF employees worked alongside community volunteers to distribute pantry boxes to citizens in more than 865 cars and direct traffic to ensure safety.

“Our community was impacted by Hurricane Idalia and many people are still displaced from their homes or recovering from the damage,” says Daniel Duston, plant manager at GAF’s new Valdosta facility. “Supporting the city and its residents is a top priority for GAF as it becomes a member of the community.”



ATAS International celebrates anniversary

ATAS International Inc., Allentown, Pa., celebrated its 60th anniversary in November 2023.

Founded in 1963 by Jacobus Bus from his home in Rochester, N.Y., ATAS International expanded in 1985 when the company moved to Allentown. Since then, Bus’ sons, Dick and Jim Bus, have taken over as president and executive vice president, respectively, and the third generation has assumed management roles.

ATAS International has two locations in Allentown, as well as facilities in Mesa, Ariz., and University Park, Ill. BRIGHTSMITH Coaters, ATAS International’s sister company, has facilities in Morrisville, Pa., and Trenton, N.J.



EagleView launches online portal

EagleView, Bellevue, Wash., has launched EagleView Developer, a portal providing a single point of access for the company’s application programming interfaces and developer resources. Designed with documentation, tools and technology for partners to build their own applications and solutions, the portal can help developers more easily use EagleView’s geospatial intelligence and analytics solutions.

EagleView Developer assists architects, engineers and developers who aim to innovate with improved geospatial data solution tools, guides and documentation designed to jumpstart integrations and access a self-serve model to generate user credentials, modify webhooks and receive instant access to test data without additional support.

More information about EagleView Developer is available at eagleview.com.

Elevate™ alters sales team

Nashville, Tenn.-based **Holcim Building Envelope**’s Elevate brand has reorganized its U.S. sales and leadership team. Elevate’s internal U.S. sales team is organized into east and west divisions, each led by a senior sales director. David Finn has been promoted to senior sales director for the east division, and Allen Sopko has been promoted to senior sales director for the west division.

Additionally, Jennifer Hamgesberg has been promoted to the newly created role of vice president of supply chain and customer experience. The role will focus on end-to-end optimization, collaboration across the organization and providing customer service. Elevate aims to reinforce its commitment to improved customer centricity and provide more regionally focused customer support.



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CONTRACTOR NEWS

Bliss Roofing wins competition

Bliss Roofing, Clackamas, Ore., has been announced as the winner of the Best Residential Metal Roofing Project competition for the third quarter of 2023 by the Metal Roofing Alliance and Metal Coffee Shop.



The winning project was a roof system completed on an 8,700-square-foot home in April 2023 and is Bliss Roofing's largest residential project to date. The roof will provide long-term energy efficiency and all-season protection for the home, which is located on a 72-acre estate. The company used 275 squares of Kynar 500® Easy-Lock™ standing-seam steel metal panels in dark bronze manufactured by Taylor Metal Products, Auburn, Wash.

"The winning project demonstrates how architects, builders, installers and manufacturers can successfully work together to ensure quality not only when it comes to long-term performance and reliability but also incredible style," says Renee Ramey, MRA's executive director.

More information about MRA's Best Residential Metal Roofing Project competition is available at metalroofing.com.

Advanced Roofing celebrates anniversary

Advanced Roofing Inc., Fort Lauderdale, Fla., recently celebrated its 40th anniversary. The company has received awards such as the 2022 Florida Roofing and Sheet Metal Contractors Association STAR Award for low-slope roofing; additionally, in 2023, Terry Tilson, Advanced Roofing's senior construction manager, received the Roofing Alliance's Most Valuable Player Best of the Best Award.

"It's the faith of our clients and the dedication of our team that has shaped Advanced Roofing's legacy," says Rob Kornahrens, CEO of Advanced Roofing. "Here's to many more years of crafting success stories together."

An anniversary highlight video can be viewed on Advanced Roofing's YouTube channel.

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DISTRIBUTOR NEWS

Beacon Building Products announces CFO transition

Beacon Building Products, Herndon, Va., has announced Frank Lonegro, its executive vice president and chief financial officer, has left the company to become chief executive of a publicly traded company outside of the building products industry.



"We are thrilled for Lonegro to have the opportunity to lead a company and wish him continued success," says Julian Francis, Beacon Building Product's president and CEO. "Since joining us in 2020, Lonegro has been a tremendous asset for Beacon Building Products. Together, we set the company on a new trajectory, and we are well on our way to unlocking its full potential."

ABC Supply opens new location

ABC Supply Co. Inc., Beloit, Wis., has opened new branches in Tucson, Ariz., and Valdosta, Ga.; the branches are the company's 15th location in Arizona and 18th location in Georgia.

ABC Supply has also moved its Akron, Ohio, location to a new facility in Barberton, Ohio. The company operates more than 600 locations in the U.S.

ACT Metal Deck Supply opens new warehouse

ACT Metal Deck Supply, Aurora, Ill., has opened a new warehouse in Orlando, Fla. The warehouse is ACT Metal Deck Supply's 15th distribution center in the U.S.



Elite Roofing Supply CEO receives award

Elite Roofing Supply, Glendale, Ariz., has announced its CEO, Sarah Weiss, has been named 2023 CEO of the Year by *Phoenix Business Journal*.



Weiss

Qualified nominees are reviewed each year by a committee of experts; the award is presented to an executive who has demonstrated leadership, creativity and generosity, among other qualities.

Weiss was named CEO in 2019 after serving as the company's COO for several years.

"The past ten years have been filled with moments of doubt, humility and pride. It has all been worth it because of our 520 amazing employees who make my role so incredibly rewarding and have made our company into what it is today," Weiss says.

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The advertisement features a background of corrugated metal decking. It includes the company logo, website, and phone number. A call to action asks for metal deck replacement, stating they have it in stock. It promotes being a one-stop shop and provides a booth number for an IRE event. Key benefits listed include large inventory, 15 locations, and knowledgeable staff. It also mentions being a proud member of industry associations.

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- **ADVOCACY**

Take advantage of all NRCA membership has to offer. Explore your benefits at nrca.net/benefits or let us guide you through them. Call us at (800) 323-9545.

OTHER NEWS

RT3 announces 2023 Innovator of the Year

Roofing Technology Think Tank has presented the 2023 Innovator of the Year award to John Kiesel, president of Division 7 Roofing, Galena, Ohio. The award was announced during the 2023 Best of Success Conference in Frisco, Texas, and recognizes a roofing contractor who contributes to the advancement of the roofing industry.

“Kiesel’s development and use of photogrammetry and 3D models, as well as augmented reality, is leading the industry into the future,” says Anna Anderson, CEO of Art Unlimited, Angora, Minn., and past RT3 board president. “In addition, he is sharing these technologies with local trade schools and hiring summer interns to show the appeal of a career in roofing.”



THE INDUSTRY ONLINE

Roofing Technology Think Tank has made available **technology resources** for roofing contractors, featuring three key components: a business maturity guide designed to help contractors develop strategies and technology that support continued growth and success; technology landscape, a guide defining industry technology solutions, problems they solve, questions to ask vendors, considerations for scaling and expected price ranges; and a technology solution directory, where contractors can browse tools and apps to help solve urgent business issues. RT3 technology resources are available as a downloadable PDF or in an interactive format online at rt3thinktank.com/resources.

UP THE LADDER

ABC Supply Co. Inc. has promoted 12 individuals to branch manager. A list of the branch managers is available at abcsupply.com/media-center/press-release.

Tarco has promoted **David Snowden III** to president and **David McCumber** to vice president of sales and named **Josh Bailey** business manager for building envelope products and **Jim Tolleson** southwest regional sales manager.

W.R. Meadows of Pennsylvania has named **Pablo Gamez** sales manager.



SEAL-FAST® Liqui-Flash

Seal-Fast® Liqui-Flash is a one-component, non-shrink, advanced technology polyurethane sealant. It is used in the construction of liquid flashing systems and for sealing pitch pockets & pans, metal roof seams & fasteners, inlaid gutters, polyurethane foam, asphalt modified bitumen, acrylic & silicone roof coatings, PVC and EPDM roofs. It may be used on TPO roofs when primed with Mule-Hide Si TPO Primer.

Features & Benefits

- Ideal maintenance and repair product
- No fabric reinforcement required
- One-step application
- Easy to apply and brush
- Excellent elongation and strong tensile strength
- Non-yellowing, UV stable
- Excellent adhesion to a wide variety of substrates
- 100% solids
- No stirring required
- Shelf life of 2 years



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mulehide.com



ALL IN



ROOFING DAY IN D.C.

2024

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APRIL 16-17

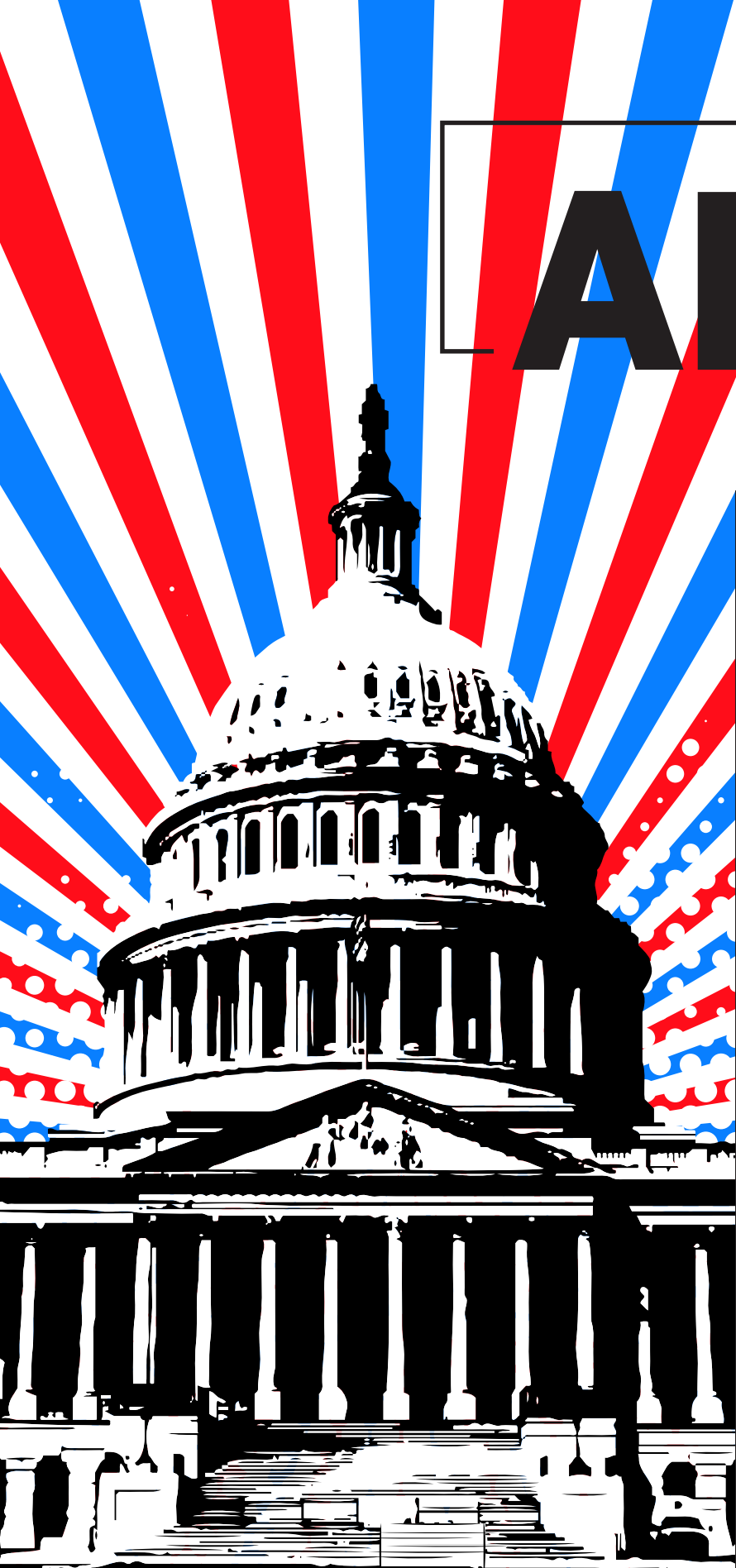
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INSCRÍBASE AHORA

HAZTE VER. HAZTE OÍR.

16-17 De Abril



EVENTS

FEBRUARY

5-8

NRCA's 137th Annual Convention

NRCA

Las Vegas

Contact: NRCA's Customer Service

Department

(866) ASK-NRCA (275-6722) or info@nrca.net

nrca.net

6-8

International Roofing Expo®

Informa Markets

Las Vegas

Contact: Informa Markets

(800) 684-5761 or [info@theroofing](mailto:info@theroofingexpo.com)

[expo.com](http://theroofingexpo.com)

theroofingexpo.com

7

Foreman Leadership Training, Level 1

NRCA

Las Vegas

Contact: Informa Markets

(800) 684-5761 or [info@theroofing](mailto:info@theroofingexpo.com)

[expo.com](http://theroofingexpo.com)

theroofingexpo.com

MARCH

3-6

SprayFoam 2024 Convention & Expo

Spray Polyurethane Foam Alliance

Las Vegas

Contact: Kelly Marcavage, SPFA's deputy

director

(800) 523-6154 or kmarcavage@sprayfoam.org

sprayfoam.org

8-11

2024 IIBEC International Convention & Trade Show

International Institute of Building Enclosure

Consultants

Phoenix

Contact: IIBEC

(800) 828-1902 or [meetings@iibec](mailto:meetings@iibec.org)

[.org](http://iibecconvention.org)

iibecconvention.org

20

Virtual CERTA Train-the-trainer

NRCA

Online

Contact: NRCA's Customer Service

Department

(866) ASK-NRCA (275-6722) or

info@nrca.net

nrca.net

APRIL

16-17

Roofing Day in D.C. 2024

NRCA

Washington, D.C.

Contact: NRCA's Washington, D.C.,

office

(800) 338-5765

nrca.net/advocacy/roofingday

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Deep Drawn Model



The Code Compliant Choice

Advanced Model 477

Until now, there was no way to use an out-of-the-box roof cap for venting dryers. Code disallows screens and requires a damper. Even when modified, other vents are too airflow restrictive.

Seamless Galvalume® Hood

The DryerJack® is *the* choice specifically designed to meet the demanding needs of clothes dryers. Visit DryerJack.com to learn how the patented curved damper delivers superior efficiency and helps minimize a very serious fire risk.

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DryerJack.com



NRCA NEW MEMBERS

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Cissell Investigative Engineering,
Clinton, Conn.

EH&E Inc., Newton Center, Mass.

Madsen Kneppers & Associates,
Longwood, Fla.

MTV Claims, Alpharetta, Ga.

O'Rear Architect, New Orleans

Roof Leak Detection Co., Lake
Worth, Fla.

CONTRACTORS

Albert J. Jackson Inc., Crownsville,
Md.

Aldrete Roofing and Construction,
El Paso, Texas

Brink Roofing, Erie, Pa.

Bumble Roofing of Greater
Philadelphia, Newton Square, Pa.

CAT Construction Inc., Summerset,
S.D.

Central Roofing LLC, Mattoon, Ill.

Clear Choice Exteriors, Fostoria,
Ohio

CMM Roofing Inc., Port Charlotte,
Fla.

Coastal Roofing Co. Inc., Costa
Mesa, Calif.

CTT Exteriors, Helotes, Texas

Durable Roofing LLC, Birnamwood,
Wis.

Epic Roofing & Exteriors, Calgary,
Alberta, Canada

Excel Roofing Co., Wilmington, N.C.

EXT Construction, Raleigh, N.C.

Felix Roofing Inc., Pacifica, Calif.

Giannola Construction, Saint
Joseph, Mich.

Gradient Roofing & Construction
LLC, Dallas, Ga.

GT Roofing & Construction Co.
LLC, San Antonio

Hampshire Roofing Co. LLC,
Lumberton, Texas

Home Pride Contractors Inc.,
Omaha, Neb.

House Transformers Inc.,
Glen Burnie, Md.

Indigo State Roofing, Irmo, S.C.

JP One Construction Services,
Louisville, Ky.

Magnum Construction LLC,
Vestavia Hills, Ala.

Manzelli Roofing and Construction
LLC, Weatherford, Texas

Meadowwood Roofing LLC,
Canton, Ga.

MLK Construction LLC, St. Louis

OKC Roofers LLC, Oklahoma City

Pink Roofing LLC, Rockville, Md.

Premier Home Renovations,
Hamilton Township, N.J.

Pro Squared Roofing Solutions
LLC, Smyrna, Ga.

Raptor Roofing, Garner, N.C.

RBC Roofing, Augusta, Ga.

Ringco Roofing, Bethany, Okla.

Roofing by Solar Tech, El Cajon,
Calif.

S & M Roofing, Baltimore

Tactical Roofing Solutions LLC,
Cape Coral, Fla.

Titan Construction of Tacoma
LLC, Tacoma, Wash.

Urban Enterprise Construction
LLC, Orlando, Fla.

Valor Roofing Group LLC, Frisco,
Texas

Western Urethane, Saskatoon,
Saskatchewan, Canada

Zeus Exteriors, Dallas

SERVICE PROVIDERS

Fireworks IT, Aurora, Colo.

ITEL Inc., Jacksonville, Fla.

Jackaroo Roofing and Construction,
Saint Charles, Mo.

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NRCA
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March 26-27

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- Participate from the convenience of your home or office.
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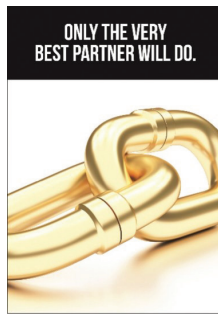
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Are you considering selling your commercial roofing and/or sheet metal business?

With a solid financial base, available capital and an appreciation for what's already working in your business, our group has a solid track record of creating successful alliances. We can tailor the sale to meet your needs. If you have an interest, email acquisition.pr@gmail.com. All responses will be kept confidential.

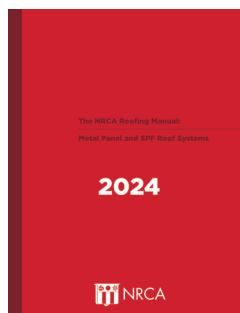


The NRCA Roofing Manual: Metal Panel and SPF Roof Systems 2024

The latest volume of The NRCA Roofing Manual provides you with comprehensive information about the design, materials and installation techniques applicable to metal panel and spray polyurethane foam roof systems used in low- and steep-slope applications.

With two complete sections, Metal Panel Roof Systems and SPF Roof Systems, this manual is a welcome addition to your technical library.

Buy it today at nrca.net/shop/technical.



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SpeedStand products are engineered to save labor. Compact one-piece stands set up instantly, are spaced 40 feet apart and meet OSHA requirements. They are made of durable welded steel with rubber pads to protect the roof membrane. A tilted post increases the work area. To see why SpeedStand has been in the industry standard for 18 years, call (800) 460-7579 or visit qe-1.com.



Mule-Hide Seal-Fast Liqui-Flash

Seal-Fast® Liqui-Flash is a one-component, nonshrink, advanced technology polyurethane sealant designed for filling and sealing pitch pockets and pans, metal roof seams and fasteners, inlaid gutters, polyurethane foam, aged smooth asphalt and modified bitumen, aged PVC and EPDM roofs.

It may also be used on TPO roofs when primed with Mule-Hide Si TPO Primer. Liqui-Flash is compatible with Mule-Hide acrylic and silicone roof coatings. Available in white, black or gray, Liqui-Flash is packaged in 10-ounce caulk tubes, 20-ounce sausage tubes, 1-gallon pails and 3.5-gallon pails. Contact Mule-Hide Products at (800) 786-1492 or visit mulehide.com for more information.



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performance exam
demonstrations.



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win FREE applications
for your roofing crew!
(Limit four.)



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Get your crew NRCA
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nrca.net/procertification

ANDREW ROGERS



WHAT IS YOUR POSITION WITHIN YOUR COMPANY? I am general manager of Progressive Roofing Inc., Phoenix.

WHAT IS THE MOST UNUSUAL ROOFING PROJECT OF WHICH YOU HAVE BEEN A PART? There are two. The first was a steel- and concrete-reinforced bunker inside a California military base. I was a foreman for the project, and we installed a four-ply gravel built-up roof on the structure. The clearance between the bunker's roof and the existing building's roof was 36 inches—it was difficult. The second was being part of a team that waterproofed a portion of State Farm Stadium, Glendale, Ariz. It was unusual because the entire playing field is mobile and is moved in and out of the stadium for events.



WHY DID YOU BECOME INVOLVED IN THE ROOFING INDUSTRY? I am a fourth-generation roofing contractor. You could say I was born into the trade.

WHAT WAS YOUR FIRST ROOFING EXPERIENCE? When I was 4 years old, my father used to take me to work with him. His instructions were simple: Sit behind the pipe and do not let go until it is time to go. I absolutely loved it!

WHAT IS YOUR ROOFING INDUSTRY INVOLVEMENT? I am on NRCA's Industry Image and Outreach Committee and Membership Steering Committee. I have also served on a committee for the Arizona Roofing Contractors Association and donated time to Habitat for Humanity.

WHAT SONG ARE YOU LISTENING TO OVER AND OVER? "Simple Man" by Lynyrd Skynyrd

WHAT WAS YOUR FIRST JOB? Delivering newspapers at 9 years old

WHAT DO YOU CONSIDER YOUR MOST REWARDING EXPERIENCE? Being a father—there is not a more important role a man could have.

PEOPLE WOULD BE SURPRISED TO KNOW ... I was accepted to the Los Angeles Police Department, but I never saw it through because of the academy's waiting period being too long at the time.



The Rogers family

IF YOU COULD TRAVEL ANYWHERE IN THE WORLD, WHERE WOULD YOU GO? WHY? Bora



Bora: It has beaches, crystal-clear water, lush jungles, an extinct volcano and gorgeous resorts. There is plenty to explore.

WHAT QUALITY DO YOU MOST ADMIRE IN A PERSON? Integrity

WHAT DO YOU CONSIDER A WASTE OF TIME? Sleep. I am not fond of sleeping and get an average of three to five hours per night.

IF YOU COULD MEET ANY HISTORICAL FIGURE, WHOM WOULD YOU MEET? WHY? George Washington. He was a fearless leader who didn't expect others to do difficult things he was not willing to do himself.

WHAT'S THE MOST EXCITING/ADVENTUROUS THING YOU'VE DONE? Next to fatherhood, rock climbing and rappelling

WHEN YOU WERE A CHILD, WHAT DID YOU WANT TO BE WHEN YOU GREW UP? A gang unit detective

MY FAVORITE PART ABOUT WORKING IN THE ROOFING INDUSTRY ... has evolved. Initially, I loved the pride I would get out of installing roof systems faster and of higher quality than my peers. Now, it's being able to make a difference in people's lives and help them achieve their goals.

WHAT'S YOUR FAVORITE ROOFING MATERIAL TO WORK WITH? WHY? I am partial to wood shingles: It is the first type of roof system that my father, uncle and grandfather taught me to install. The smell of cedar still brings me back to being an 11-year-old boy working with great men.



WITHOUT TOTAL PROTECTION HOMEOWNERS ARE EXPOSED

SEAL. DEFEND. BREATHE.®

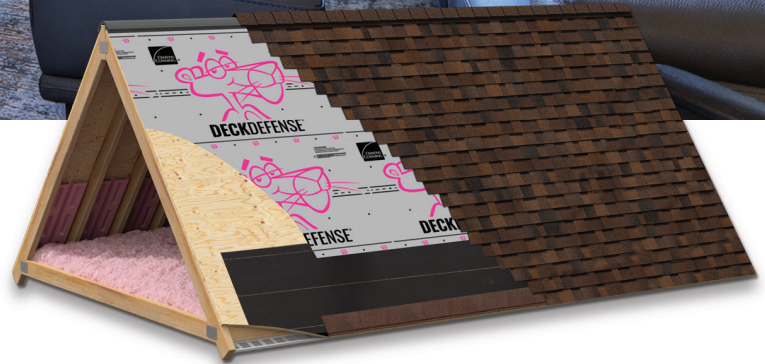
Homeowners depend on their roofs, so know what it takes to keep them protected. Underlayment to **SEAL** out moisture, durable shingles to **DEFEND** against the elements, and ventilation to **BREATHE** and create a balanced airflow.

That's the Owens Corning Total Protection Roofing System®. Peace of mind that a beautiful roof will last.

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Ultra High Definition Shingles



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Featuring our patent-pending Dual Shadow Line, LayerLock® Technology and the StrikeZone® Nailing Area, 20% heavier weight, new 30-year StainGuard Plus PRO™* limited warranty against blue-green algae discoloration, and the opportunity for Master Elite® contractors to offer 30 years of workmanship coverage, Timberline® UHDZ™ shingles go beyond any GAF shingle you've been able to offer to date. Visit gaf.com/uhdz

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* 30-year StainGuard Plus PRO™ Algae Protection Limited Warranty against blue-green algae discoloration is available only on products sold in packages bearing the StainGuard Plus PRO™ logo. See *GAF Shingle & Accessory Limited Warranty* for complete coverage and restrictions, and qualifying products.