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An exhausted workforce

The Great Resignation is not so great

by Ambika Puniani Reid

The effects of the Great Resignation are emerging as real challenges for employers—but the problems aren't only about those who left their jobs.

Workers who have remained with their pre-pandemic companies are suffering from burnout and disillusionment, and employers are trying to figure out how to keep these folks happy or risk losing yet another wave of employees.

In April, Eagle Hill Consulting, Washington, D.C., surveyed 1,003 employees from throughout the U.S. and asked them about burnout and retention.

The survey found workload is a major driver of burnout. Of those surveyed, 52% said it is their top problem at work followed by juggling work and personal life at 38%.

Respondents said to help relieve burnout, they would like to see four-day workweeks and increased flexibility.

Alarmingly, one-third of the surveyed workforce plans to depart during the next 12 months; younger workers say they are more likely to leave.

Additionally, an October 2021 survey from the Society for Human Resources Management showed employees are struggling to complete their work and becoming more frustrated and less loyal to their organizations.

So what is the remedy? It seems to be a mixed bag. Some companies have been closing offices for several days to provide employees a chance to recharge. Others have been adjusting their company cultures, such as allowing employees more flexibility with their work schedules and time to socialize with co-workers.

Whether these efforts will help is unclear. But taking time to listen to your employees and improve your company's work environment will help. One thing is certain: Continuing the status quo leaves your company at risk of losing valuable team members.

To read more about employee retention strategies, go to professionalroofing.net.

Ambika

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

CLOSE-UP

When drivers started their engines May 29 at the 106th Running of the Indianapolis 500, race fans saw a new look on the No. 11 A.J. Foyt Racing Chevrolet.

A longtime supporter and friend of A.J. Foyt Racing, ABC Supply Co. Inc., Beloit, Wis., continued its sponsorship of the team in the Indy 500 by gifting a new IndyCar design while bringing attention to Home For Our Troops, a nonprofit organization that builds and donates specially adapted custom homes for severely injured post-9/11 veterans. The car's stars and stripes design celebrated American pride and prominently featured Home For Our Troops' mission of "Building Homes. Rebuilding Lives."

In addition, thanks to ABC Supply's $1 million match of donations made during the event, more than $2 million were donated to Homes For Our Troops. To read more about roofing professionals helping their communities, see "Goodwill to all," page 32.

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


HFOTUSA.ORG
11
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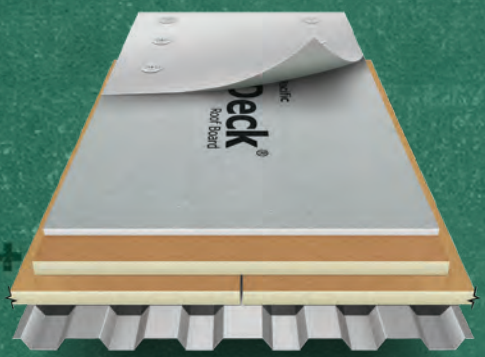
THE THREAT OF COMMERCIAL ROOF DAMAGE COMES IN SIZE 11



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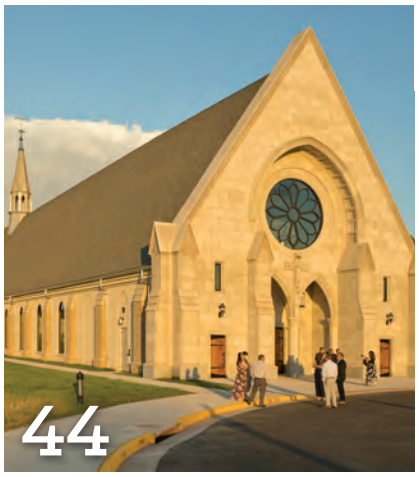

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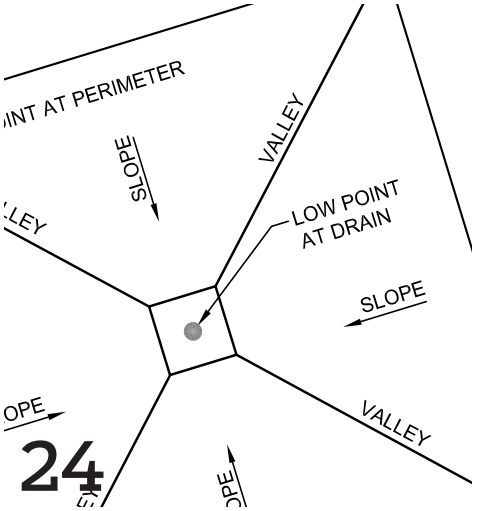

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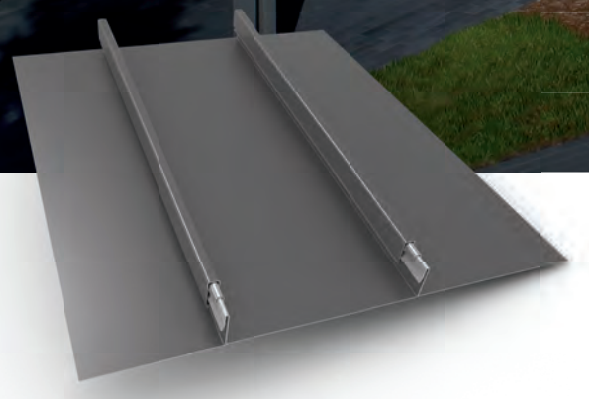
Mission: *Professional Roofing* provides information, insight and innovation to help every roofing professional thrive.

Community Anchor

Snap-Clad metal panels unify the walls and roof of this sleek bank building, pairing perfectly with warm wood elements. "We're hearing the bank has become an interesting and welcoming gateway for this all-new neighborhood."

Tom Hurst, AIA, Dasher Hurst Architects



First Federal Bank, Yulee, FL Installing contr.: Taylor Made Roofing Architect: Dasher Hurst Architects Dist.: ABC Supply GC: Auld & White Constructors Profile: Snap-Clad Color: Graphite Photo: hortonphotoinc.com

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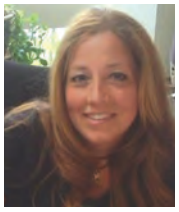

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To read exclusive content related to the articles in this issue, go to **professionalroofing.net**.

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the source for the roofing industry

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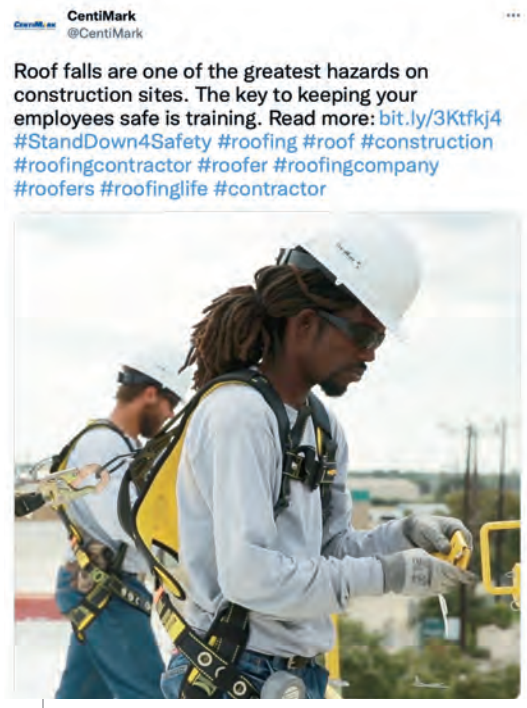
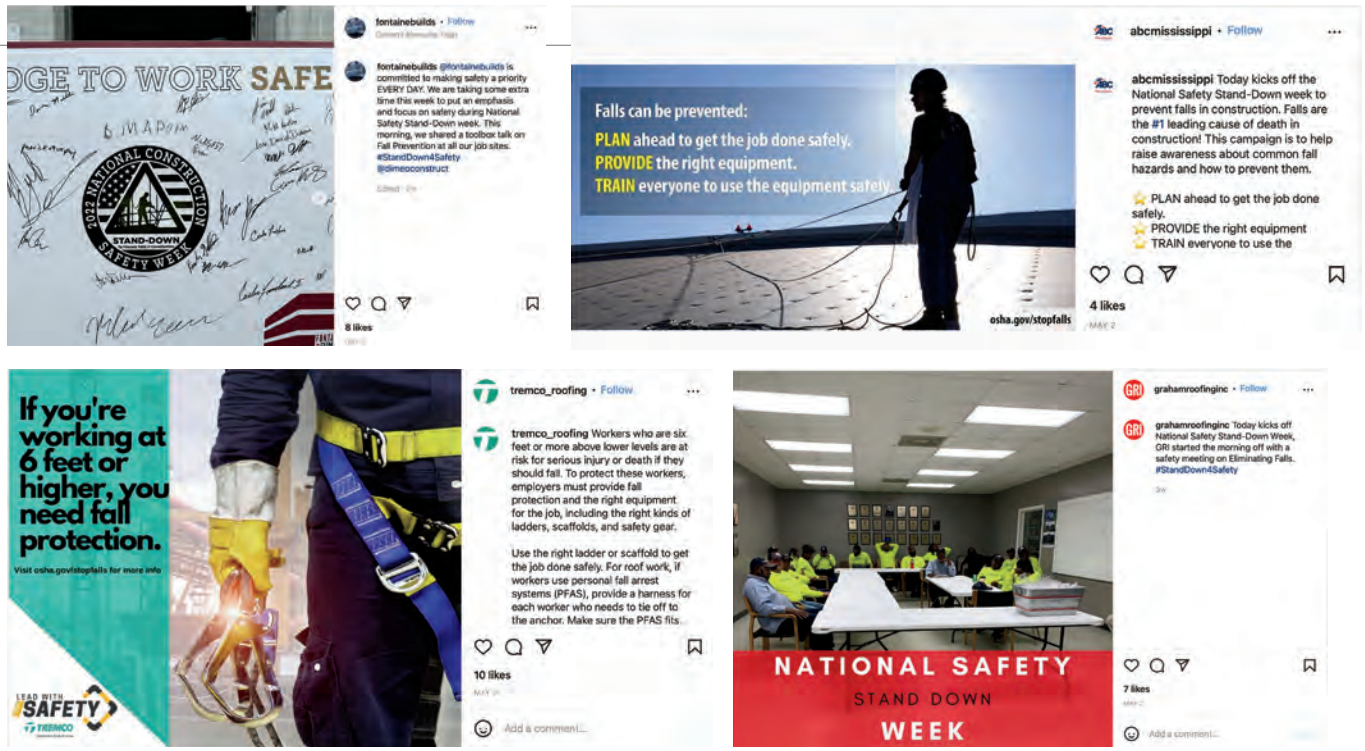
#STANDDOWN4SAFETY

The Occupational Safety and Health Administration held its ninth annual National Safety Stand-Down To Prevent Falls in Construction May 2-6. The goal was to raise awareness throughout the U.S. to prevent fall fatalities and injuries. Check out how the construction industry shared its #StandDown4Safety story!

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NEW IDEAS

Test membranes with leak detection equipment

Detec Systems has announced its IntegriScan™ Electronic Leak Detection testing equipment received approval under FM Approval's new leak detection product classification. IntegriScan equipment is used in conjunction with TruGround® Conductive Primer to detect breaches, holes and seam voids in conventional roof assemblies. Low-voltage IntegriScan equipment features a scanning platform said to test nonconductive and semiconductive horizontal membranes. Semiconductive membranes include black EPDM, cold fluid-applied coatings containing carbon black and membranes with high moisture contents. IntegriScan also includes a roller apparatus used for testing nonconductive vertical surfaces such as walls, transitions and details.

detecsystems.com

Impact-driver bits resist breakage

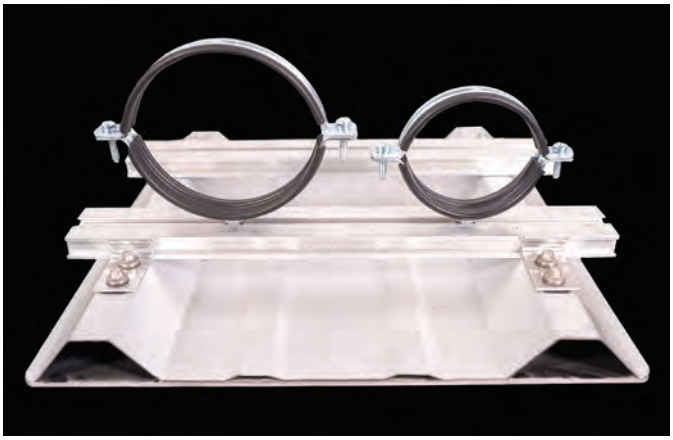
Spyder® has made available its Mach-Blue™ Impact-Driver Bits featuring Mach-Blue Tough Tip™ technology. Designed to resist cam-out, twisting and breakage, Mach-Blue driver bits reportedly last longer than standard impact-rated driver bits. Mach-Blue plating strengthens the bits' drive surfaces and protects against corrosion. In addition, Spyder's IMPACTive™ alloy tool steel and torsion zones flex to dissipate peak impact forces during use. The iridescent blue driver bits can be used in high-torque impacting drivers and conventional rotary drills with three-jaw chucks. Mach-Blue Impact-Driver Bits currently are available in a 25-piece kit, which includes Phillips, slotted, star and square bits, and a 30-piece kit, which includes additional sizes and nut-driver bits.

spyderproducts.com

Conduit clamp is adjustable

S-5! has introduced CanDuit,™ an electrical conduit clamp for metal roof systems. The clamp secures chases and raceways, cable trays, gas piping, condensate lines and other round objects to metal roofs in combination with S-5! clamps or brackets. Made from electro-zinc-coated steel, the CanDuit clamp features two halves that clamp around a pipe or conduit with an EPDM liner pad said to protect against abrasion and a threaded M8 stud that allows for attachment without scratching or corrosion. Each clamp is adjustable to ensure a secure fit. Available in 14 sizes, the CanDuit clamp can be used in residential and commercial settings for a variety of applications, including electrical, solar and plumbing.

s-5.com



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shinglecoloroftheyear.com

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Metal-to-wood screws resist backout

Triangle Fastener Corp. has made available its PANEL-TITE® BURR BUSTER® Metal-to-Wood screws with ZAC® (zinc alloy cast) heads. The ZAC head reportedly eliminates galvanic corrosion between the head of the screw and a panel and resists corrosion in harsh environments. PANEL-TITE BURR BUSTER screws are said to penetrate quickly, minimize burrs and resist backout. The shank of the screw is protected with TRI-SEAL® 1,000-hour salt-spray coating for enhanced corrosion protection. The screws are compatible with aluminum- and zinc-coated steel such as GALVALUME® and ZINCALUME® and can be used with aluminum panels and trim.
trianglefastener.com

Safety glasses for tough conditions

Brass Knuckle® has added Midnight (BKDST-1050AFP) Safety Glasses to its eyewear product offerings. Designed to handle all tough work conditions, Midnight Safety Glasses feature a removable gasket made of EVA foam to protect a user's eyes from dust, flexible SideShield ear pieces for wraparound protection and BK-Anti-FOG+ lens coating. The safety glasses reportedly provide 99.99% ultraviolet protection and resist abrasion and chemicals.
brassknuckleprotection.com

Sliding platform extends truck bed

DECKED has introduced CargoGlide, a heavy-duty sliding bed platform for trucks and vans. CargoGlide is said to make loading and unloading, organizing and accessing gear from the back of a vehicle easier and more efficient. Capable of extending the end of a bed by more than 100%, CargoGlide rolls outward from a locked position with the pull of a lever. Made from powder-coated steel and industrial plywood coated with a thermoplastic top sheet, CargoGlide is durable and easy to install with the provided hardware. CargoGlide is available for most full-size and midsize trucks and cargo vans.
decked.com

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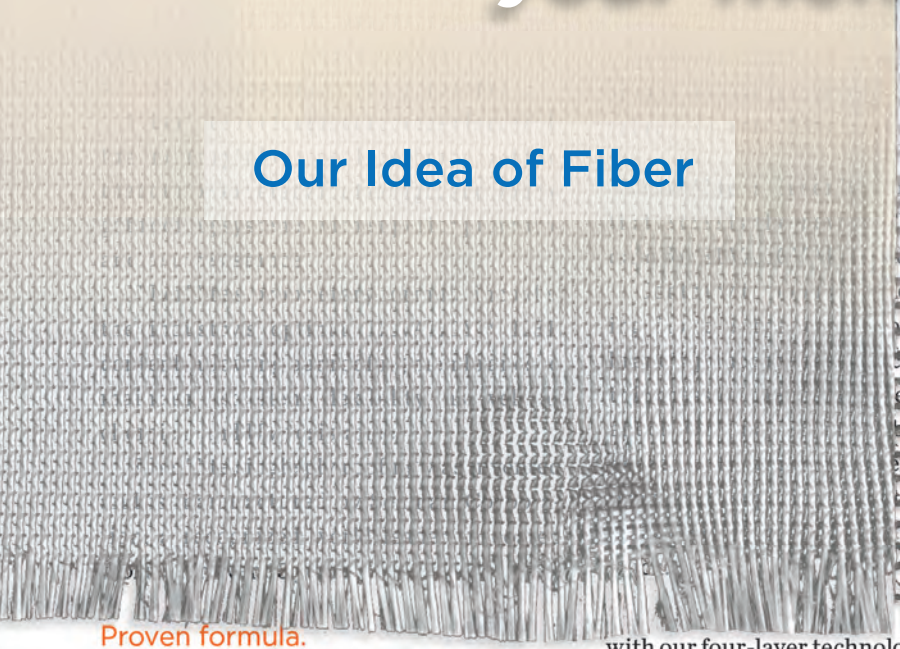
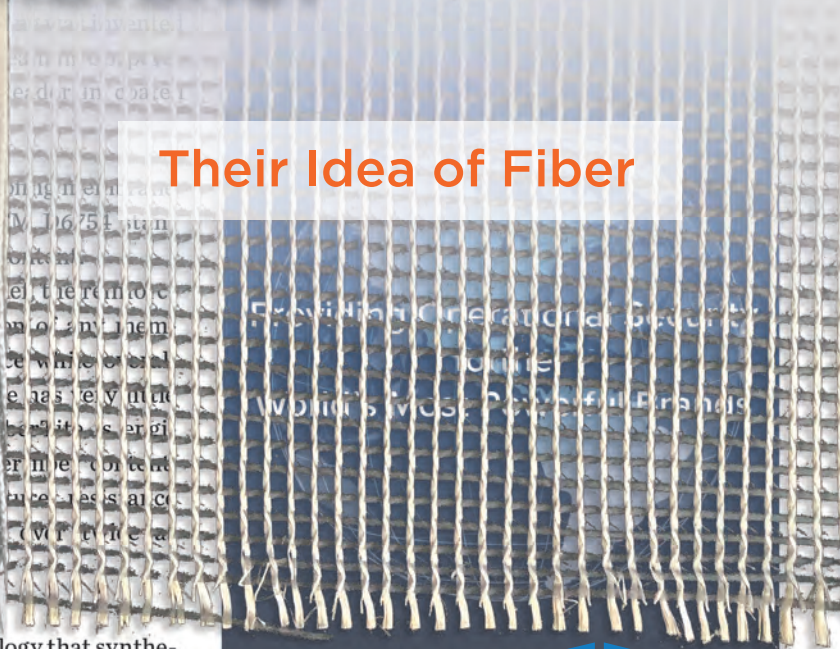
Have you seen what's inside *your* membrane?

Our Idea of Fiber



Their Idea of Fiber



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A constant burden

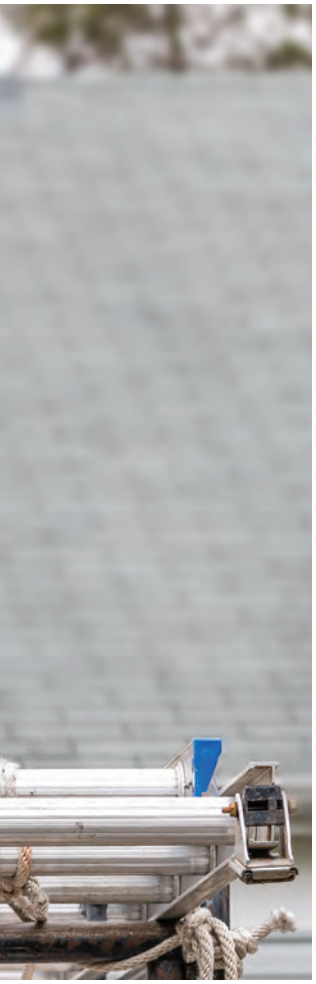
The labor shortage is bad now, but left unchecked, it's going to get worse

by McKay Daniels

The busy roofing season is in full swing and hampered only by a lack of materials and labor. Describing those factors as two minor elements of a thriving roofing company would be like asking Mary Todd Lincoln, "Well, aside from *thaaat*, how was the theater?" Right now, labor and materials are the only things that matter. And though supply chains eventually will function properly again, workforce woes remain an existential long-term issue.

I recently was asked whether the roofing industry is simply fighting for a shrinking slice of a shrinking pie in the labor market. The context behind the question is that fewer people have been entering the trades in recent years and the roofing industry is simply competing within that smaller population pool.

For much of the past few years, that's been true. But it's even worse than simply a lack of workers in the trades because the U.S. population is growing at a smaller rate than ever, too. Not only is the pie of people entering the trades shrinking, but the bakery making all the possible pies in the U.S.



also is shrinking. (I am going to ride this metaphor as far as I can!)

In 2021, the U.S. population grew at the slowest rate since the government began keeping records in 1790, increasing only 0.1% with a net addition of roughly 390,000 people. This was only the second year since the 1930s that raw growth was less than 1 million people ... and 390,000 is well shy of 1 million! There are a few reasons for this demographic crisis.

The U.S. birth rate has been declining for decades and currently is roughly half what it was during the 1960s. For every two parents in the U.S., roughly 1.7 children will replace them versus 3.5 a few decades ago. That figure is not enough to maintain the population let alone grow it. Follow that trend for a few decades, and the effects are felt acutely. This trend has been common in most industrialized nations, and many European nations already have encountered it.

> “Left unchecked, we’re facing incredible demographic challenges that soon will be crises.”

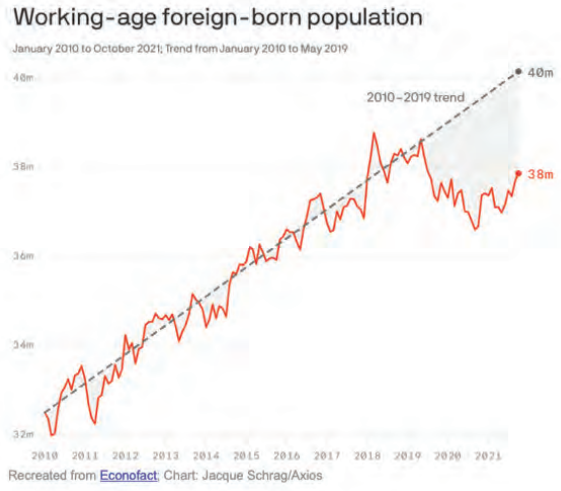
The math works like this—a nation’s net population growth can be thought of as a simple equation:

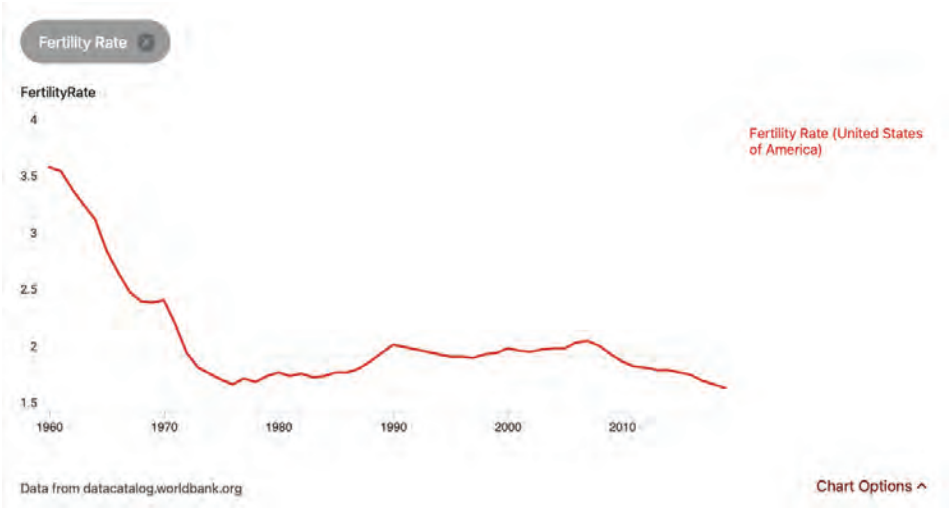
Population growth = Domestic births + Immigration – Domestic deaths – Emigration

With U.S. domestic birth rates declining for decades, immigration growth generally has been offsetting the decline. However, lawmakers declared war on immigration—both legal and illegal—and the COVID-19 pandemic slowed the rate of immigration even further. As recently as 2016, net immigration to the U.S. exceeded 1 million people per year. But immigration has since collapsed by about 75%, falling below 250,000 people in 2021.

Without sufficient immigration, our nation won’t grow.

Now, some may rightly point out the “deaths” portion of the population growth equation and that people are living longer than they did in the 1960s and many are working longer, too. Both are true. In 1965, the U.S. life expectancy was a smidge over 70 years, and in 2019, the average American could expect to live until he or she was nearly 79. But that gain in life expectancy doesn’t eliminate the demographic crisis; it simply delays it in some ways (like allowing some individuals to work longer) and exacerbates other aspects (such as Social Security and pension plans having more users for longer time frames all while fewer young people are paying into the programs, for example).





An aging workforce is something the roofing industry cannot outrun. The Roofing Alliance conducted a demographic study that showed, for example, more than one out of three roofing workers in the Northeast are over the age of 55. One-third of the region’s roofing workforce could reasonably be retired in less than 10 years. Let that sink in.

Left unchecked, we’re facing incredible demographic challenges that soon will be crises.

One path forward is increased immigration via a legal, rigorous but functioning system. That system doesn’t currently exist, but NRCA continues its work to be an active part of the solution and ready for when lawmakers come to the table and are forced to address the issue.

Another path forward is being more efficient—providing the same amount of goods and services with fewer workers. Technology has been improving efficiency since the invention of basic tools, and each round of new technology or improvement in technique allows us to produce (or install) more efficiently and effectively. Think of the difference in estimating a roofing job during the 1960s versus today. Or the roof system advances that have allowed roof systems to be installed more quickly than before. Innovations and advancements will replace some human labor as labor becomes harder to find.

To access NRCA's workforce resources, go to professionalroofing.net.

Training and certification also play roles in efficiency, especially in short to mid time frames. Training helps ensure new staff are equipped and onboarded effectively so they are contributing to the bottom line more quickly. Certification makes sure those on a job are able to complete tasks correctly and efficiently the first time.

NRCA has invested millions of dollars in workforce development resources to help members and the roofing industry and will continue to do so because, candidly, with the smaller demographics pie the industry (and nation) are splitting, we have to.

MCKAY DANIELS is NRCA's CEO.

NRCA launches new certification for roof system installers

NRCA is pleased to announce experienced installers who demonstrate substantial skills and knowledge of metal panel roof systems now can apply to become NRCA ProCertified® Metal Panel Roof Systems Installers. The certification was developed in partnership with the Metal Construction Association and Metal Roofing Alliance.

NRCA ProCertification is NRCA's national certification initiative to create a competent, sustainable and high-performing roofing industry workforce. Certifications now available include NRCA ProCertified Architectural Metal Flashings and Accessories Installer, NRCA ProCertified Asphalt Shingle Systems Installer, NRCA ProCertified Clay and Concrete Tile Systems Installer, NRCA ProCertified EPDM Systems Installer, NRCA ProCertified Metal Panel Roof Systems Installer, NRCA ProCertified Thermoplastic Systems Installer and NRCA ProCertified Roofing Foreman.

Additional information about NRCA ProCertification is available at nrca.net/procertification.

Workers quit jobs because of low pay, lack of advancement

The Pew Research Center reports workers who quit jobs in 2021 blame their departures on low pay, lack of advancement opportunities and feeling disrespected at work, according to constructiondive.com. The think tank surveyed 6,627 nonretired U.S. adults between Feb. 7 and Feb. 13, including 965 people who say they left a job by choice in 2021.

Individuals who quit and are now employed elsewhere are more likely to say their current job has better pay, more opportunities for advancement and more work-life balance and flexibility, according to the Pew Research Center's report.

Thirty-one percent of workers who left jobs in 2021 say they did so because of disruption from the COVID-19 pandemic. Child care challenges led to a high percentage of departures by workers with children younger than 18 living at home.

Workers who quit jobs during 2021 cite low pay (63%), no opportunities for advancement (63%) and feeling disrespected at work (57%), with at least one-third saying these were major reasons they quit. They also cite a lack of scheduling flexibility, inadequate benefits and a desire to move to a different area.

The Department of Labor reported the number of workers who left their jobs as a percent of total employment reached 3% in November 2021—the highest rate since 2000—before falling to 2.8% in January. Job openings in 2021 also hit a record, remaining above 10 million from June 2021 through December 2021.

There were 11.3 million job openings in January, which is close to the 11.4 million record set in December 2021. In addition, the jobless rate decreased from 4% in January to 3.8% in February. The labor force participation rate—the proportion of workers either employed or seeking jobs—increased to 62.3% in February but still is 1.1 percentage points below the pre-pandemic level.

Learn more about the Pew Research Center's job survey at professionalroofing.net.

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NRCA.NET/LEGALCONFERENCE

More women are entering the construction industry

More than 1.2 million women currently are employed in the U.S. construction industry—more than ever before, according to fixr.com. Women are trailblazing their way to various roles in a male-dominated industry, including in management and as company owners.

Women comprise 47% of the U.S. workforce and 11% of the construction industry, according to the Bureau of Labor Statistics. The number of women working in the construction industry increased 54.7% from 802,000 women in 2012 to 1.2 million women in 2021, according to BLS.

One factor drawing women to the construction industry is the comparably small gender pay gap. BLS reports women earn 81.5% of what men earn across all industries. However, women's earnings as a percentage of men's earnings in the construction industry is 94.3%—the lowest gender pay gap across industries measured in the U.S.

Public representation of female construction workers and company outreach efforts also are attracting women to the industry.

"I have noticed an increase in the number of women who contact me about working in construction, which is a direct result of women being publicly recognized on numerous outlets," Joan Barton, general contractor at Dirty Girl Construction Inc., Los Angeles, told fixr.com. "This has also translated into a general awareness about the need for earlier education and opportunity, as well as a specific outreach by some companies to train and hire more women."

> "Women comprise 11% of the construction industry"

Women working in management and professional roles and service roles in the construction industry have increased to 17.1% and 24.6%, respectively. However, fewer women currently work in production, transportation and material moving (3.3%) and natural resources, construction and maintenance (3.7%), according to BLS. Women make up a majority of sales and office roles in construction at 71.3%.

Debra L. Hilmerson, president and CEO of Hilmerson Safety,® Prior Lake, Minn., told fixr.com encouraging young girls to try trade classes in school can help them learn about a variety of career options in the construction industry. Hilmerson already has seen some positive progress in the industry.

"Years ago, women mainly held administrative support positions such as typing, filing and answering phones. However, in the past 10 years, I've seen more women holding leadership positions in the field and executive positions within large construction firms," Hilmerson said. "While this is great to see, we still have a long way to go!"

EPA sunsets ENERGY STAR® specification for roofing products

On June 1, the Environmental Protection Agency ended its ENERGY STAR specification for roofing products.

In 2019, the EPA sent a letter to roofing industry partners announcing it was finalizing the sunset. Stakeholders had been asked to submit comments regarding the sunset proposal, and though feedback was mixed, a range of commenters supported sunsetting the program.

In the 2019 letter, the EPA said it revised its timeline for sunsetting its ENERGY STAR specification for roofing products, acknowledging the long testing period for roofs.

Brand owners no longer can use the ENERGY STAR name and ENERGY STAR mark in association with roofing products. To minimize the cost of labeling changes and increase compliance, brand owners were encouraged to remove ENERGY STAR references on websites and in other collateral materials before June 1.

Any questions can be directed to roofproducts@energystar.gov.

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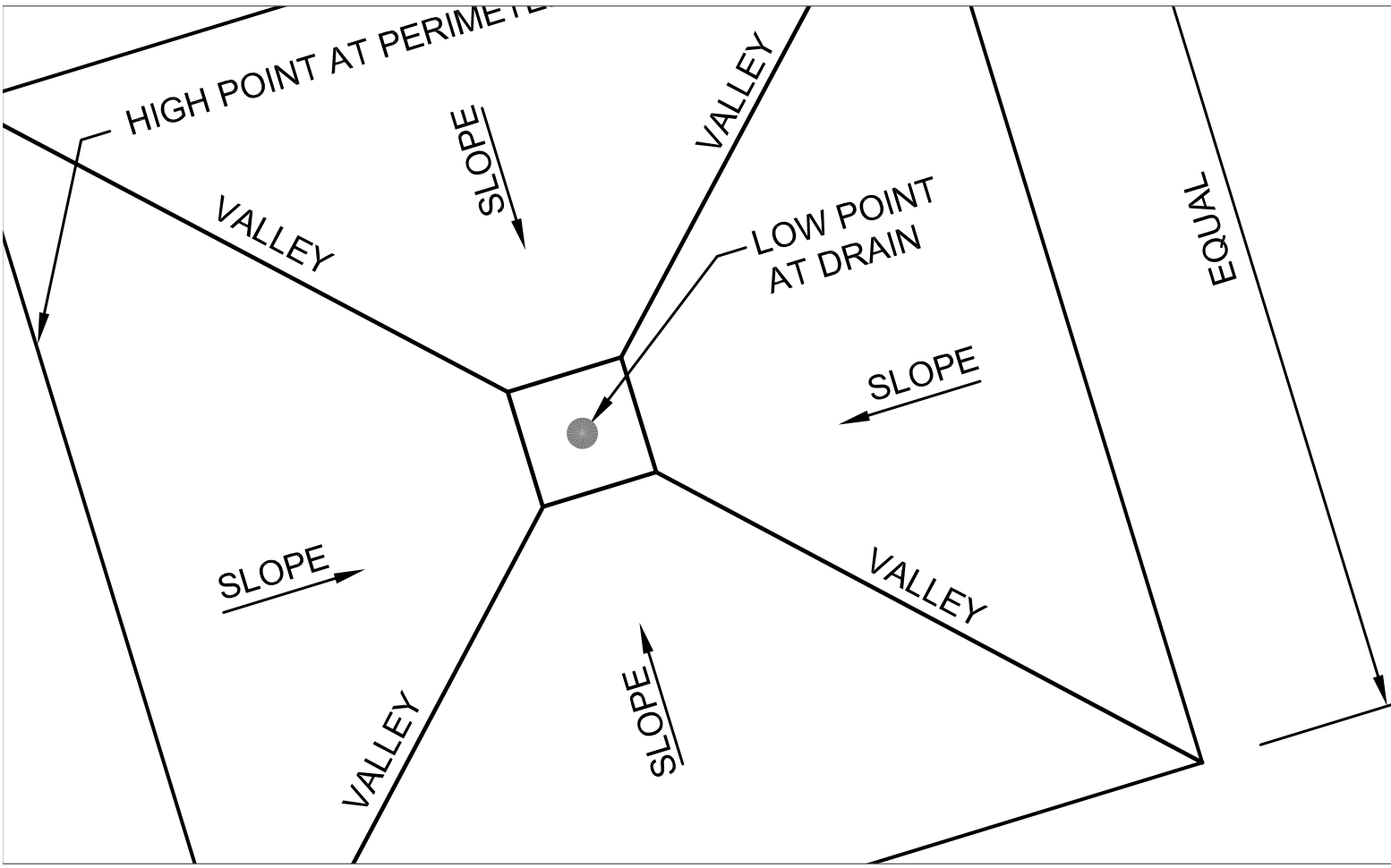

Tapered insulation R-value

A new approach in the energy code provides a revised basis for determination

by Mark S. Graham

A frequent question NRCA's Technical Services staff receives is: How is the R-value of a tapered insulation system determined for code-compliance purposes? Although the International Energy Conservation Code® provides some guidance, the answer depends on the edition of the energy code that applies to the project.

IECC 2018 and previous editions

Up to and including IECC 2018, above-roof deck tapered roof insulation only had been addressed vaguely.

IECC 2018, Exception 1 to Section C402.2.1-Roof Assembly indicates that where insulation thickness varies by 1 inch or less, an area-weighted U-factor is equivalent to the same assembly with the minimum R-value required by the code. In IECC 2015 and 2018, an additional statement indicates this also is intended to address above-roof deck tapered insulation.

The code's commentary provides some useful information for interpreting and using this exception. The 2018 *IECC Code and Commentary* explains when this exception is applied, the variation in tapered insulation thickness for energy code compliance purposes is limited to 1 inch. This 1-inch limitation does not prevent the provision

from being applied to tapered insulation systems that have greater variations; it simply does not allow additional insulation thickness to be factored into the average insulation calculation.

For example, if the thickness variation of a tapered insulation system exceeds 1 inch, it is permissible to determine the R-value at the low point. But the R-value also should be determined where the tapered insulation thickness is 1 inch thicker than the low point. The remaining portions of the roof would be assumed to have the same R-value as the area-weighted R-value for the roof.

Based on this example, for a ¼-inch-per-foot tapered insulation system, the tapered insulation will be 1 inch thicker 4 feet away from the low point. The remaining thickness of tapered insulation provides no benefit for energy code compliance purposes.

IECC 2021

In IECC 2021, the code's requirements for addressing R-values of tapered insulation systems changed.

IECC 2021's Section C402.2.1.1-Tapered, Above-Deck Insulation Based on Thickness indicates when tapered insulation is used as a component of a roof-ceiling assembly R-value calculation, the tapered insulation's R-value contribution to that calculation must use the average thickness in inches along with the material R-value per inch to comply with the minimum R-value required by the code.

> "The method for determining the R-value of tapered insulation depends on the edition of the energy code"

Section C402.2.1.2-Minimum Thickness, Low Point indicates the minimum thickness of above-deck roof insulation at its lowest point, gutter edge, roof drain or scupper must be not less than 1 inch.

IECC 2021's new approach allows building owners to take advantage of the added energy efficiency of tapered insulation beyond the "1 inch thicker than the low point" prescriptive requirement in the code's previous editions.

In some instances, this new approach may allow for the use of less flat-stock fill material beneath tapered insulation systems to achieve the code's minimum R-value requirements.

NRCA was the proponent of the code change proposal that allows the use of the average R-value method.

Closing thoughts

The method for determining the R-value of tapered insulation systems for energy code compliance depends on the specific edition of the energy code that applies to the project.

Although the method prescribed in IECC 2018 and previous editions was ambiguous and often difficult to interpret, the new method in IECC 2021 is clearer and easier to understand. It is also how most tapered insulation suppliers report R-values on their drawings.

For IECC 2024, which has not yet been finalized, the average R-value method will remain for tapered insulation systems with some minor rewording and reformatting. Also, a clarifying statement is proposed indicating the average thickness of roof insulation should be equal to the total volume of the roof insulation divided by the roof's area. This often is referred to as the "volumetric method."

Additional information about tapered insulation systems for use in low-slope membrane roof systems is provided in *The NRCA Roofing Manual: Membrane Roof Systems—2019*, Chapter 4-Rigid Board Insulation, Section 4.14-Tapered Insulation, pages 158-169.

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

ASTM International signs memorandum with Argentina

ASTM International and Argentina's national standards body, El Instituto Argentino de Normalización y Certificación (IRAM), have signed a Memorandum of Understanding. IRAM, a nonprofit private civil association, coordinates the development of standards in Argentina.

ASTM International will focus on enhancing communications to build government and industry awareness of ASTM International as a trusted technical source of information that supports public health and safety, trade and the overall quality of life; encouraging collaboration regarding topics of mutual interest; and promoting standards education and related activities for students and professors. In addition, Argentinian stakeholders will be invited to participate in ASTM International technical committees to ensure ASTM International standards meet and support Argentina's local and global needs for public and private entities and consumers.

Help your employees adapt to new technology

When your company is looking to implement new technology, it is important to help your team realize the benefits, according to forconstructionpros.com.

Employees must understand the new processes and what will change in their daily lives once the technology is implemented. Following are some key factors to help your team adapt.

- **Start small.** Begin with a small rollout to help identify difficulties and questions before all staff becomes involved. Start with tech-savvy employees so they can pinpoint challenges they see with the rest of the team. But you also should choose one or two people with little technology experience who can work alongside the savvy team members to better understand how the technology works. When you roll it out to larger groups, trained members can help answer questions and give advice.
- **Choose a team champion.** Choose someone on the team to be an advocate and expert regarding the technology and function as a go-between for the vendor and company. The team champion should have leadership skills and be a problem solver.
- **Set expectations and goals.** Adoption rates may vary depending on employees' willingness to learn a new tool. Set clear benchmarks that measure your success during the process. Small rewards can encourage participation; for example, you can offer rewards for setting up a user account or completing a training module.
- **Invest in continuing education.** For example, in the case of new software, good training is key. The vendor often will offer some training but consider planning regular training to ensure the technology is used in the most efficient way possible and you are up to date regarding the latest features.

ANSI approves revision of low-slope roofing standard

The American National Standards Institute Board of Standards Review has approved the revision and publication of ANSI/ASSP A10.24-2022, "Roofing—Safety Requirements for Low-Sloped Roofs." The revision replaces the previous 2014 version of the standard.

The A10 committee comprises construction industry stakeholders and acknowledges this is a significant topic in the industry. The newly revised standard is available for purchase at store.assp.org.

NRCA is a member of the A10 Committee on Safety Requirements for Construction and Demolition Operations, and NRCA's enterprise risk management staff participated in the A10.24 subgroup regarding the revision.

SPRI reviews two roofing-related American National Standards

SPRI is reviewing and recanvassing two technical documents for reapproval as American National Standards. In accordance with SPRI's ANSI-approved procedures, standards are reviewed and reapproved every five years.

SPRI is in the process of reviewing ANSI/SPRI/FM 4435/ES-1, "Test Standard for Edge Systems Used with Low Slope Roofing Systems." The standard prescribes methodology for testing roof edge assemblies, excluding gutters, to evaluate their resistances to wind loads. It was previously revised and reapproved in 2017.

Also undergoing review is ANSI/SPRI/RCI NT-1, "Detection and Location of Latent Moisture in Building Roofing Systems by Nuclear Radioisotopic Thermalization." The standard contains information regarding proper handling of nuclear-based moisture survey equipment in the field, as well as calculating and analyzing survey results. It was reaffirmed in 2017.

Individuals who wish to participate in the canvass process can contact SPRI at info@spri.org.

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Critical CTE

NRCA urges members to express support for increased Perkins Basic State Grants funding

by Duane L. Musser

To address the roofing industry's increasingly challenging workforce needs, NRCA continues pursuing expanded opportunities for career and technical education. Demographic trends, supply chain challenges and continuing economic disruption from the COVID-19 pandemic have made finding workers more difficult, and CTE now is more important than ever.

Ongoing efforts

NRCA has been focused on expanding CTE for many years. In 2015, NRCA began working with members of Congress to develop legislation that would reform and expand CTE programs funded through grants to states under the Carl D. Perkins Career and Technical Education Act of 2006. The bipartisan legislation, Strengthening Career and Technical Education for the 21st Century Act, expanded incentives for work-based training and programs that enable students to earn industry-recognized credentials such as NRCA ProCertification.® The bill also required improved ways to measure effectiveness and hold educational institutions accountable for targeting CTE to meet employers' workforce needs.

In 2018, the roofing industry came together during the inaugural Roofing

Day in D.C. to advocate for the legislation. With the active support of the roofing industry, the bill became law later that year. State education departments are finalizing reforms designed to enhance collaboration between employers and educational institutions during the development of CTE programs.

Funding

With the law now in place, sufficient funding from Congress is critical. Funding under the Perkins Act is allocated in appropriations legislation by Congress to Perkins Basic State Grants through which the funding is distributed to state departments of education to be used for CTE. Funding is divided among all states using a complex formula based on population and poverty levels. Increased funding is essential as demand for CTE programs climbs; enrollment in trade schools has increased 40% in recent years according to the National Student Clearinghouse Research Center.

> "With sufficient funding, the law will help more students develop necessary skills to enter the workforce and help roofing industry employers address their workforce needs."

NRCA has prioritized advocacy for increased funding for Perkins Basic State Grants to maximize CTE opportunities because funding increases for these grants have not kept pace with growing demand or inflation.

In 2021, NRCA lobbied for robust funding for Perkins Basic State Grants during fiscal year 2022. Earlier this year, Congress provided an increase of $45 million in funding for Perkins Basic State Grants compared with the previous year, and total funding now is nearly $1.4 billion. NRCA is pleased with this funding increase given current budgetary constraints and competition for finite federal resources. However, for the roofing industry to continue developing the skills needed in the current workforce, Congress must place a higher priority on CTE investments via Perkins Basic State Grants in the future.

Given the importance of this issue, Roofing Day in D.C. 2022 participants again lobbied for increased funding for Perkins Basic State Grants. When roofing professionals speak with one voice regarding important issues, congressional leaders take notice. Following the success of Roofing Day in D.C. 2022, Congress needs to continue hearing from the roofing industry as lawmakers consider funding for next year's federal budget. NRCA urges all members to contact their senators and representatives by visiting the NRCA Grassroots Advocacy Network at roofingadvocacy.nrca.net and sending an email via the "NRCA Action Alert: Urge your members of Congress to support increased funding for career and technical education" link.

Investing in the workforce

Strong investment in Perkins Basic State Grants is critical to the success of the CTE reform law passed in 2018. With sufficient funding, the law will help more students develop necessary skills to enter the workforce and help roofing industry employers address their workforce needs. For these reasons, NRCA will continue lobbying for increased funding for Perkins Basic State Grants in the coming months and years.

DUANE L. MUSSER is NRCA's vice president of government relations in Washington, D.C.

Additional H-2B visas available for fiscal year 2022

On May 16, the Department of Homeland Security and Department of Labor announced the availability of an additional 35,000 visas for the H-2B temporary nonagricultural worker program for the second half of fiscal year 2022. The visas are available to qualifying U.S. employers seeking to supplement their workforces from April 1 through Sept. 30.

The H-2B program has been used by NRCA members for many years to address their workforce needs during peak season. In January, former NRCA CEO Reid Ribble sent a letter to Secretary of Homeland Security Alejandro Mayorkas and Secretary of Labor Marty Walsh urging the administration to provide additional H-2B visas given the roofing industry's significant labor shortage. NRCA commends the DHS action because it will help more seasonal businesses, including many roofing contractors, get the workers they need to meet consumer demand in 2022.

To read former NRCA CEO Reid Ribble's letter to the Secretary of Homeland Security and Secretary of Labor, go to professionalroofing.net.

The 35,000 supplemental visa allocation consists of 23,500 visas available to returning workers who received an H-2B visa or were otherwise granted H-2B status during one of the past three fiscal years. The remaining 11,500 visas are reserved for individuals from El Salvador, Guatemala, Haiti and Honduras.

OSHA may revoke final approval of Arizona's state plan

The Department of Labor has announced a proposal to reconsider and revoke final approval of Arizona's state plan in response to the state's years-long pattern of failures to adopt and enforce standards and enforcement policies at least as effective as those used by the federal Occupational Safety and Health Administration.

State plans are OSHA-approved job safety and health programs operated by individual states rather than federal OSHA. The OSH Act encourages states to develop and operate their programs. OSHA approves and monitors all state plans and provides up to 50% of each program's funding.

OSHA has grown increasingly concerned because actions by Arizona's state plan suggest the state is unable or unwilling to maintain its commitment to providing a program for worker safety and health protection as the OSH Act requires. For example, Arizona reportedly has failed to adopt adequate maximum penalty levels, occupational safety and health standards, National Emphasis Programs and the COVID-19 Healthcare Emergency Temporary Standard.

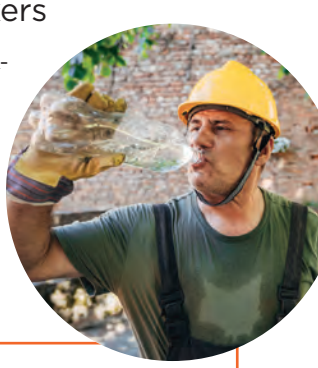
If OSHA determines a state plan is failing to comply with its obligation to remain at least as effective as OSHA, the agency may initiate proceedings to revoke final approval and reinstate federal concurrent authority over occupational safety and health issues covered by the state plan.

The proposal is available at federalregister.gov. With the publication of its proposal, OSHA marks the start of the revocation process. The notice does not make any substantive changes to the Arizona state plan or give federal OSHA the authority to enforce occupational safety and health standards in Arizona.

To view OSHA's Arizona state plan revocation proposal and read public comments, go to professionalroofing.net.

Comments about the proposal were due May 26. If necessary, OSHA will hold an online hearing Aug. 16 at 10 a.m. EDT. Once OSHA has considered comments and reviewed testimony and evidence collected in the event of a hearing, it will publish a second *Federal Register* notice announcing its decision regarding revocation of final approval.

Report suggests climate change poses risk to construction workers



A report from the nonpartisan California Legislative Analyst's Office suggests climate change poses a particular risk to California workers, including construction workers, who cannot avoid outdoor exposure, and the risk is increasing, according to constructiondive.com.

To read the California Legislative Analyst's Office report and AGC of America's climate change task force recommendations, go to professionalroofing.net.

The analysis reveals construction workers face increased occupational risks and health hazards from greater exposure to elements such as heat and air pollution. Construction workers also are at greater risk of decreased productivity and disruptions from extreme heat and wildfire smoke threats, for example, that cause delays and make work less stable and predictable.

According to the report, low- and middle-wage workers and Latinos are at higher risk because those population groups make up about 60% of California's outdoor workforce.

California faces five major hazards resulting from climate change: higher temperatures and extreme heat; more frequent and intense drought; increased flood risk; worsening wildfires; and coastal flooding and erosion. Based on the report's findings, the California Legislative Analyst's Office suggests taking preemptive steps to help workers and industries adapt could lead to better long-term health outcomes and fewer economic effects.

The California Legislative Analyst's Office encourages state lawmakers to consider the role the state should play in addressing climate concerns; for example, in its budget and climate action planning, the legislature could consider the increased costs for its employees fighting wildfires and other climate effects.

Although the report focuses specifically on climate effects in California, many of the points can apply to construction workers throughout the U.S. Construction organizations and companies are collaborating regarding how the industry should respond to climate change. For example, Associated General Contractors of America has a climate task force that in 2021 released recommendations for reducing construction's climate effects, and contractors often make plans for extreme weather conditions during the early stages of projects.

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Roofing professionals strengthen their communities through philanthropy

by Chrystine Elle Hanus

Goodwill helps people reach their potential, eliminates barriers to opportunities, provides a sense of unity and belonging, and brings people together to support causes bigger than themselves.

During the past year, roofing professionals extended goodwill to others by sharing talents and skills, volunteering, fundraising and participating in a variety of activities that support and strengthen their communities.

Every summer, *Professional Roofing* recognizes a few of the individuals and companies that have helped in times of need, demonstrating the compassionate and generous nature of our industry.

> "I am a citizen of the world, and my nationality is goodwill."
>
> —Socrates

Englewood Arts

If art is an application of creative skills typically viewed in visual form, the team at Cornell Roofing and Sheet Metal Co., Independence, Mo., created a piece of art on top of a first-of-its-kind community center in Independence.

In February 2021, Englewood Arts, a nonprofit organization assisting the community through art programs and events, began a $2 million capital campaign to renovate a vacant medical building it purchased and convert it into a contemporary community arts center. One of the most significant and needed donations came from Cornell Roofing and Sheet Metal located a few blocks away.

Mary McNamara, owner and CEO of Cornell Roofing and Sheet Metal, learned about the community arts center project and visited the building. Right away, she noticed a 6-foot hole in the roof caused by vandals who stole air conditioners off the roof.

"We anticipated doing temporary patches, but Mary noticed the entire roof system was in bad shape and felt strongly we could not be successful by constantly patching and worrying about the roof," says Michael Baxley, director for Englewood Arts. "Mary generously offered to replace the roof system and solicited for materials on our behalf."

Thanks to McNamara's efforts, Division 7 Sales Inc., Shawnee Mission, Kan., and Performance Roof Systems™ Inc., A SOPREMA Group Company, Kansas City, Mo., donated all the materials needed for a new roof system valued at $130,000.

The Cornell Roofing and Sheet Metal team removed the existing built-up roofing


Goodwill
to all
VOLUNTEER

GSM Roofing, Ephrata, Pa., gifted a new roof system to Bethel AME Church, Lancaster, Pa., through its annual Great Roof Giveway.

The Hamlin Companies, Garner, N.C., assists Purr Partners Feline Rescue by being a corporate sponsor for fundraising events.

Kalkreuth Roofing & Sheet Metal Inc., Frederick, Md., provided much-needed material to Sleep in Heavenly Peace, an organization that builds beds for children in need.

Giving TUESDAY

Created in 2012, Giving Tuesday is a day that encourages people to give back. The event is held each year on the Tuesday following Thanksgiving, and Americans have raised more than $6.2 billion since 2012.

On Giving Tuesday 2021, Americans worked together to set a record for the special day by donating $2.7 billion—a 9% increase over Giving Tuesday in 2020.

from the three-story, 30,000-square-foot building and replaced damaged metal decks. After making repairs, crew members attached insulation boards followed by a torch-applied DERBIGUM® roof. The team finished the roofing project with new fascia, soffits and a gutter system with downspouts.

Cornell Roofing and Sheet Metal not only made the building watertight, but McNamara's generosity also had a rippling effect. The story of Cornell Roofing and Sheet Metal's goodwill was told to others and used as a template for giving. When painters from a painting company came forward and offered to paint the building, the painters asked Sherwin-Williams® to donate the paint, and Sherwin-Williams agreed.

"The same came true for the 90 new windows donated to our building," Baxley says. "We would never have received these tremendous donations had it not been for Cornell Roofing and Sheet Metal being the first to make a major commitment to our organization.

"The new roof is one of the most important aspects of our building and allows us to be worry-free for many decades to come. It is one of the most tremendous gifts we could receive. Thank you Mary McNamara and the Cornell Roofing and Sheet Metal team."

Great Roof Giveaway

For the past nine years, GSM Roofing, Ephrata, Pa., through The Gooding Group Foundation, has been giving the gift of a new roof system to local communities through its annual Great Roof Giveaway.

All Lancaster County 501(c)(3) organizations are eligible to submit an entry to the GSM Roofing Great Roof Giveaway for a chance to win a new roof system or receive roof system repairs and related services. The winners of the 2021 GSM Great Roof Giveaway were announced Sept. 17, 2021, during the Gooding Group Customer Appreciation Golf Outing.

Bethel AME Church, Lancaster, Pa., received $15,000 for roof system repairs for its cultural center. However, when the GSM Roofing team was on-site making repairs, it discovered repairs weren't enough and the $15,000 gift grew to more than $100,000 for a new roof system.

"Reed Gooding, president of GSM Roofing, has been a blessing in the life of our church," says Rev. Edward Bailey. "He doesn't even know what a blessing he's been and what God is going to return to him because he's been a blessing to us."

In addition to the $100,000 roof system donation to Bethel AME Church, GSM Roofing donated $2,500 each to American Legion Post 429, Ephrata; Good Samaritan Services, Ephrata; and Lancaster Lebanon Habitat for Humanity, Lancaster.

Purr Partners Feline Rescue

For Purr Partners Feline Rescue, Youngsville, N.C., The Hamlin Companies, Garner, N.C., proved to be an equal blessing. The Hamlin Companies has assisted the nonprofit organization by being a corporate sponsor for fundraising events and providing money to purchase vouchers for low-cost spay and neuter procedures.

It also has provided the funds to trap, spay/neuter, vaccinate, treat and feed more than 30 cats that live in a feral colony near The Hamlin Companies office.

"Katherine Anne Hamlin, vice president of The Hamlin Companies, has been most helpful," says Lawanna Johnson, founder and president of Purr Partners Feline Rescue. "She and her family have adopted cats that came from The Hamlin Companies property and given them a safe and loving home. Without the support from corporate sponsors like The Hamlin Companies, our mission of preventing unwanted births and saving cats from certain death would be nearly impossible."

Sleep in Heavenly Peace

Making sure children get a good night's sleep is a mission of employees at Kalkreuth Roofing & Sheet Metal Inc., Frederick, Md. The company recently provided much-needed support to Sleep in Heavenly Peace, the only

Peck Brothers Roofing LLC, Elmwood Park, N.J., and GAF, Parsippany, N.J., donated a new TPO membrane roof system to a Veterans of Foreign Wars facility.

charity that provides handmade beds to children who don't have beds of their own.

Founded in 2012, Sleep in Heavenly Peace has 200 local chapters and has donated more than 95,000 beds across the U.S. Thanks to donations and a team of dedicated volunteers, beds are built, assembled, delivered and set up with bedspreads, pillows and blankets for children who would otherwise be sleeping on couches and floors.

As a result of a generous donation from Kalkreuth Roofing & Sheet Metal, volunteers now can dip the beds in a solution to prevent bed bugs.

"Without the materials, the process of getting beds to children slows down," says Ernie Giancola, founder of the Hagerstown, Md., local chapter. "With the help of Kalkreuth Roofing & Sheet Metal, we are fulfilling our mission of 'no kid sleeps on the floor in our town' and have more time to help children."

Additionally, since 2007, the team at Kalkreuth Roofing and Sheet Metal's Wheeling, W.Va., office has sponsored a four-day amateur golfing event benefiting Easterseals Rehabilitation Center, Wheeling, an organization that provides rehabilitative medical care for children with disabilities, developmental delays and special needs. In 2015, the event turned into an annual Kalkreuth Vendor Invitational event that includes a dinner for vendors and a Kalkreuth Amateur Golf Championship event that hosts more than 300 golfers.

During the past seven years since Kalkreuth Roofing & Sheet Metal began hosting the event, the company has raised $200,000 to help children. During 2021, the company presented Easterseals with a check for $58,480.

Veterans of Foreign Wars

The Veterans of Foreign Wars, Nutley, N.J., auxiliary members annually donate 9 million hours to community service projects, relief efforts and local veterans' affairs facilities. To help the organization continue serving veterans, the teams at Peck Brothers Roofing LLC, Elmwood Park, N.J., and GAF, Parsippany, N.J., collaborated to provide much-needed roofing assistance at the Nutley VFW Post 493 facility.

In September 2021, Peck Brothers Roofing and GAF provided a new TPO membrane roof system on a canopy roof over the main entrance and made repairs on a roof over the banquet hall. The three-day roofing project was made possible with materials donated by GAF as part of its GAF Community Matters social impact initiative and installation labor provided by Peck Brothers Roofing through its newly launched PB Purpose program dedicated to serving the local community.

"We are so grateful to GAF and Peck Brothers Roofing for their generous collaboration," stated Maria Hamlin, commander at VFW Post 493, in an article in *Nutley Neighbors* magazine. "They have helped bring longevity to our aging building, and they have raised the roof in more ways than one."

United Way

During 2021, the team at R.H. Marcon Inc., State College, Pa., raised and installed the roof during United Way's annual Day of Caring.

Since 1993, United Way's annual Day of Caring has been one of the largest annual volunteer events in Centre County, Pa. Each year on the first Thursday in October, Day of Caring volunteers work on improvement projects throughout Centre County for all qualifying nonprofit organizations, community recreational facilities, historical sites, municipal parks and other relevant areas. Projects consist of landscaping, painting, repairs and general upkeep.

During the 2021 event, the team at R.H. Marcon

Giving TRENDS

The average donor age in the U.S. is **65 years old**

The average donation is **$813**

The average online donation is **$204**

Donations made in October, November and December represent **37%** of charitable giving

Total charitable contributions in 2020 were **$471.44 BILLION**

Following is a breakdown by recipient type:

- **28%** RELIGION
- **15%** EDUCATION
- **14%** HUMAN SERVICES
- **12%** GRANTMAKING FOUNDATIONS
- **9%** HEALTH
- **8%** PUBLIC-SOCIETY BENEFIT
- **6%** INTERNATIONAL AFFAIRS
- **5%** ARTS, CULTURE AND HUMANITIES
- **3%** ENVIRONMENTAL/ ANIMALS

Sources: The Blackbaud Institute's *2021 Charitable Giving Report* and Giving USA's *2021 Annual Report on Philanthropy in America*

Employees at R.H. Marcon Inc., State College, Pa., installed a new roof system during United Way's Day of Caring.

Every year, the team at Texas Traditions Roofing LLC, Georgetown, provides a dozen soccer scholarships for youth to participate in a local league.

To see videos of various charitable work mentioned in this article, go to professionalroofing. net.

provided the labor to install a new roof system on a Strawberry Fields group home. Strawberry Fields, a member agency of United Way, provides comprehensive services and support for people with developmental delays, intellectual disabilities and mental illness.

"It is with deep appreciation that we acknowledge R.H. Marcon's contribution of a full roof system replacement on a Strawberry Fields property as part of our 2021 Day of Caring," says Leanne Lenz, executive director for Centre County United Way. "Your amazing act of generosity is testimony to your commitment to the community and making State College a place to live united."

Youth Soccer League

The team at Texas Traditions Roofing LLC, Georgetown, believes sports can help unite people and get youth out of their comfort zones while teaching valuable life lessons.

Knowing some families are unable to financially support their children in youth sports, during the past two years, Texas Traditions Roofing has sponsored the Georgetown Parks & Recreation Youth Soccer League. Each year, the company has donated a minimum of 12 scholarships to help youth participate in the league.

In addition to financial support, the Texas Traditions Roofing team attended the opening days to support young soccer players. The team interacted with families in the community, cheered on players and made sure everyone stayed hydrated by providing free water for all.

"Through its generosity, Texas Traditions Roofing has provided scholarships for local youth who otherwise would not be able to participate in our Youth Soccer League," says Riggin Anderson, recreation program coordinator for Georgetown Parks & Recreation. "We are grateful for our continued partnership, and we also enjoyed having the Texas Traditions Roofing team out on opening day to meet participants and families."

Sumner Center

Thanks to the generosity of the team at TLC Pro Roofing LLC, Gallatin, Tenn., community members are receiving much-needed assistance when life gets challenging.

For many years, the congregation at Northfield Church in Gallatin had a vision of providing a community center and raised $1.3 million to remodel a building on its property. After the TLC Pro Roofing team provided a much-needed new TPO roof system, the Sumner Center at NorthField became a reality.

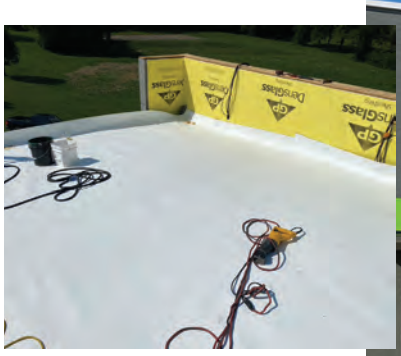
"The work TLC Pro Roofing provided free of charge saved us about $25,000," says Mackenzie Mailander, director for the Sumner Center at Northfield. "It kept our construction costs down and enabled us to get the project done under budget and on time. They worked with the general contractor and church leaders to go above and beyond to provide additional items we requested and still did not charge us a dime. They tied the roofing work into a sign wall on an existing building in a way that is watertight and beautiful.

"The work also included a metal roof system at the entrance, gutter work, metal coping work and metal trim work. In addition, they contributed funds toward the construction of the center, and volunteers from the company work in the center on a regular basis, helping with food distribution and special needs services. Our thanks go out to TLC Pro Roofing for its contribution to the center and service to our community."

Because of the assistance extended by the team at TLC

DID YOU KNOW?

If your company is doing great work to help an organization, you can nominate the project for a CNA/NRCA Community Involvement Award. The winning project will receive $5,000 payable to the charity. For more information, contact NRCA Manager of Online Communications Alyssa DeSantis at adesantis@nrca.net.



TLC Pro Roofing LLC, Gallatin, Tenn., helped build a new community center.

Venture Construction Group of Florida Inc., Boca Raton, was the Premier 2021 Statewide Partner for the ALS Association Florida Chapter and sponsored numerous fundraising events in 2021.

Pro Roofing, the Sumner Center opened Nov. 6, 2021, and provides those in need in the community with free dental care services, a food and clothing pantry, job interview training, accounting services, housing assistance, free legal assistance and counsel, and more. Future plans include the addition of a 32-unit multifamily, transitional and safe housing community next to Sumner Center.

The ALS® Association Florida Chapter

For many years, the team at Venture Construction Group of Florida Inc., Boca Raton, has been an avid supporter of goodwill initiatives that support research and advancement of ALS (Lou Gehrig's disease) treatments to ultimately find a cure.

According to ALS.org, ALS (amyotrophic lateral sclerosis) is an always fatal neurodegenerative disease in which a person's brain loses connection with the muscles. People with ALS lose their ability to walk, talk, eat and eventually breathe. More than 5,000 people are diagnosed with ALS every year. The average life expectancy for people living with the incurable disease is two to five years.

"The fight to defeat ALS is near and dear to my heart," says Stephen Shanton, CEO and president of Venture Construction Group of Florida. "I lost my father to this disease. He was a fighter and fierce advocate for remaining positive throughout his journey with ALS. He always said that attitude determines altitude! We're dedicated to supporting ALS research and finding a cure."

Venture Construction Group of Florida was the Premier 2021 Statewide Partner for The ALS Association Florida Chapter in Tampa. Established in 1987, the organization provides free services and assistance to persons diagnosed with ALS and their families and caregivers.

Venture Construction Group of Florida also sponsored numerous ALS fundraising events throughout the year in Florida, including ALS Ring of Honor Golf Classic in St. Augustine; Broward Walk to Defeat ALS in Davie; Central Florida Walk to Defeat ALS in Orlando; Florida Ride to Defeat ALS in Kissimmee; Gainesville Walk to Defeat ALS; Greater Tampa Bay Walk to Defeat ALS; Hope & Health Symposium (virtual); Jacksonville CEO Soak; Jacksonville Walk to Defeat ALS; Miami Walk to Defeat ALS; Orlando CEO Soak; Palm Beach Walk to Defeat ALS; Sarasota Walk to Defeat ALS; South Florida CEO Soak at Dania Beach; Southwest Walk to Defeat ALS; Tallahassee Walk to Defeat ALS; and Tampa Bay CEO Soak.

"Participation in these events has an enormous impact on people living with ALS and their families," says Cal Brooks, vice president of The ALS Association Florida Chapter. "We're grateful for the support of Stephen Shanton and the team at Venture Construction Group of Florida."

"The programs and services The ALS Association Florida Chapter provides wouldn't be possible without philanthropic leaders like Venture Construction Group of Florida," adds Ray Carson, president of The ALS Association Florida Chapter. "They make it possible for us to make a difference in the lives of hundreds of families in Florida every single day."

A will to do good

From roof system giveaways to fundraising events to adopting animals in need, roofing professionals are goodwill ambassadors who always find ways to support and advocate for their communities and neighbors in need. Goodwill is contagious. Once an individual or organization contributes to a cause, others take notice and join in to help.

What charitable project is your company working on? Motivate others by sending your story to professional roofing@professionalroofing.net.

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

FOR ARTICLES RELATED TO THIS TOPIC, SEE:
"In it together," July/August 2021 issue
"Heroes among us," August 2020 issue
"The heart of roofing," August 2019 issue

UPDATING

THE STANDARD

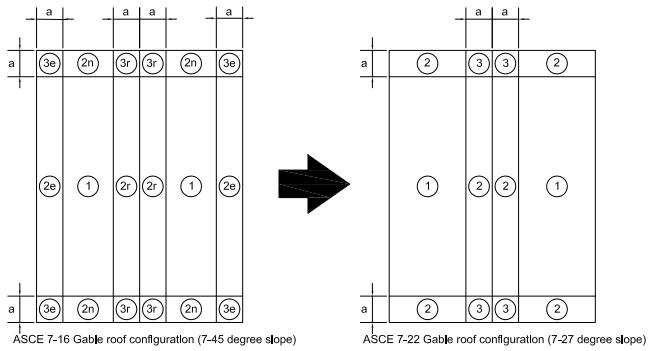
Be aware of roofing-related changes in ASCE 7-22

by **Kurt Fester**

In December 2021, the American Society of Civil Engineers published an updated edition of ASCE 7, "Minimum Design Loads and Associated Criteria for Buildings and Other Structures," (ASCE 7-22). Because ASCE 7-22 will be referenced in the International Building Code,® 2024 Edition, as the basis for design wind uplift load determination for all roof assembly types except asphalt shingles and tile, you should be aware of the changes.

ASCE 7-22

ASCE 7-22 specifies wind design procedures for buildings and organizes them into two categories: main wind force-resisting systems, and components and cladding elements. Main wind force-resisting systems are the structural elements assigned to provide support and stability for an overall structure. Components and cladding are elements of the building envelope that do not qualify as part of the main wind force-resisting system. Roof systems and edge-metal flashing systems are considered components and cladding.



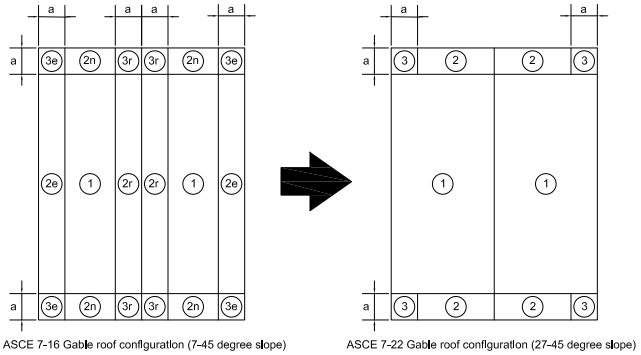


Figure 1: There are two gable roof pressure zone maps in ASCE 7-22, and the gable roof pressure zone map is different depending on the roof's slope.

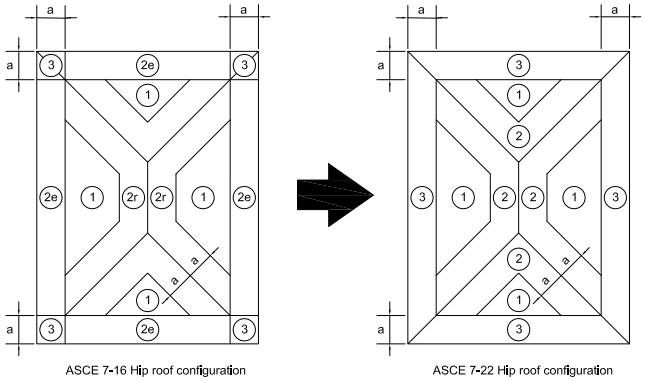


Figure 2: Hip roof configuration also changed in ASCE 7-22. Zones 2e and 2r were eliminated.

Requirements for wind loads are found in Chapters 26 to 30 in ASCE 7-22. Chapter 30-Wind Loads: Components and Cladding specifically addresses components and cladding. Design wind uplift pressures, which are used by designers to determine aspects like fastener spacing for roof systems, are calculated using the equations, tables and figures found in these sections of the standard.

The calculation

Understanding how design wind uplift pressure is calculated provides the background necessary to understand the changes made in ASCE 7-22. The equation for design wind uplift pressure in pounds per square foot is $p = q_h K_d[(GC_p)-(GC_{PI})]$ where velocity pressure $q_h = 0.00256 K_z K_{zt} K_e V^2$, leaving $p = 0.00256 K_z K_{zt} K_e V^{2*} K_d[(GC_p)-(GC_{PI})]$.

This calculation may appear confusing at first glance, but it all comes down to a dynamic pressure calculation. Dynamic pressure, which is different from atmospheric pressure, is the additional pressure resulting from air moving rather than sitting still and is proportional to its kinetic energy per unit volume. Kinetic energy of moving air is easy to figure out using the mass per volume of air (density) and velocity (wind speed). Dynamic pressure = $\frac{1}{2}\rho V^2$ where ρ is the density of air at normal temperature (59 F) and pressure (1 atmosphere) and V is the wind speed. The density air can be obtained by taking the weight per volume of air (specific weight, γ) and dividing by gravity, g.

For example, $\rho = \gamma / g$ where $\gamma = 0.00765$ lbs / ft^3 and g = 32.17 ft / s^2 results in $\rho = .0023769$ lbs * s^2 / ft^4.

Lastly, so wind speed can be applied in miles per hour, the relationship V^2 (ft/s) = 2.15 * V^2 (mph) is included, leaving: dynamic pressure = $\frac{1}{2}\rho V^2$ = $(\frac{1}{2})*(0.0023769)*(2.15)V^2 = 0.00256V^2$.

To look at this equation rearranged slightly, design wind uplift pressure $p = 0.00256V^2 K_z K_{zt} K_e * K_d[(GC_p)-(GC_{PI})]$.

In summary, design wind uplift pressure basically is dynamic pressure multiplied by many factors and coefficients. These factors and coefficients increase or decrease the design wind uplift pressure value to account for a building's unique characteristics such as shape, size, location, elevation, wind direction, surrounding landscape, enclosure classification and zone within the roof.

Changes

ASCE 7-22 contains multiple roofing-related changes, and some will affect design wind uplift load determination.

Maps and tables

Basic wind speed maps have been updated. Maps in Section 26.5.1-Basic Wind Speed were updated to reflect new information collected since the release of ASCE 7-16. Although basic wind speeds for many areas of the U.S. have been unaffected by the update, areas like hurricane-prone regions saw modest increases. Detailed

information regarding wind speeds for regions outside the continental U.S., including Hawaii, Puerto Rico and the U.S. Virgin Islands, now can be found online via the ASCE Wind Design Geodatabase at https://asce7hazardtool.online.

Appendix F: Wind Hazard Maps for Long Return Periods and Appendix G: Tornado Hazard Maps for Long Return Periods also were added. The maps have mean recurrence intervals of 10,000, 100,000, 1 million and 10 million years available for designers to use. Mean recurrence intervals are the estimated average time between events that, in this case, would produce the wind speeds listed on the maps. Maximum wind speeds included on the maps approach 290 mph.

In addition, the wind directionality factor K_d was moved from the velocity pressure equation to the design wind pressure equations. This has no effect on design wind pressures as the coefficient gets factored in either way.

Table 26.10-1-Velocity Pressure Exposure Coefficients, K_h and K_z was updated. The K_z values for Exposure B and Exposure C decreased for most building heights by about 2%.

In Section 26.8—Topographical Effects, Conditions 1 and 2 addressing when K_{zt} should be included in the determination of wind loads were removed, increasing the likelihood K_{zt} needs to be considered.

Chapter 30 of ASCE 7-16 contained several methods for determining the design wind pressure, including two simplified methods that distilled the equation to a couple of tables. Both methods and their respective tables were removed, leaving only equations 30.3-1 and 30.4-1.

Section 30.3-2—Roof Zone Configurations and Pressure Coefficients contains the remaining changes for Chapter 30 of ASCE 7-22.

The gable roof pressure zone map changed from one map to two. The gable roof pressure zone map is different depending on the roof's slope.

It can be seen the locations of zones 2 and 3 flip and the ridge goes to zone 1.

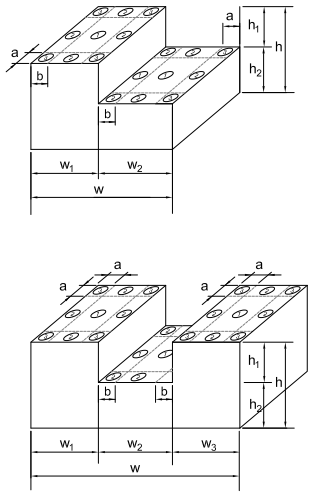
Hip roof configuration also changed. The updated hip roof configuration shows zone 3 at all eave edges and eliminates zones 2e and 2r.

Stepped roof configuration gets quite a bit more confusing. See Figure 3 for a comparison of ASCE 7-16, Figure 30.3-3—Components and Cladding and ASCE 7-22, Figure 30.3-3—Components and Cladding. The zone map more closely resembles the low-rise flat roof configuration, and the criteria for when to use stepped roof configuration (found under notation in the 7-16 version of Figure 30.3-3) has been removed from the standard and comments.

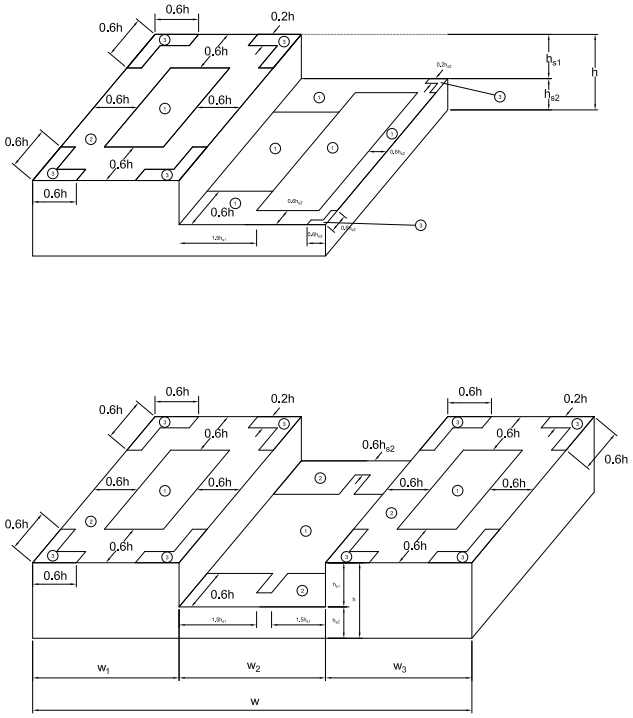
A new chapter

ASCE 7-22 features a new chapter devoted to designing for pressures from tornadoes. More data and information regarding tornadoes have become available to civil engineers, and it now is clear tornadoes are significant events that require specific design guidelines.

The goal is to reduce the probability of failure from tornadoes to be equal to that of failure from other winds. The tornado wind speed maps use 1,700- and 3,000-year mean recurrence intervals, the same recurrence intervals wind maps for risk category III and IV buildings use, respectively. The design tornado speed for a given geographic location will range from Enhanced Fujita Scale EF-0 to EF-2 intensity, depending on the risk category and effective plan



Notation
Diagrams
a = 10% of least horizontal dimension or 0.4*h*, whichever is smaller, but not less than either 4% of least horizontal dimension or 3 ft (0.9 m).
b = 1.5h_h, but not greater than 100 ft (30.5 m).
h = Mean roof height, in ft (m).
$h_i = h_1$ or h_2; $h = h_1 + h_2$; $h_1 \geq 10$ ft (3.1 m); h_i/h = 0.3 to 0.7.
W = Building width.
$W_j = W_1$ or W_2 or W_3 in Fig. 30.3-1. $W = W_1 + W_2$ or $W_1 + W_2 + W_3$; W_i/W = 0.25 to 0.75.
θ = Angle of plane of roof from horizontal, in degrees.
Notes
On the lower level of flat, stepped roofs shown here, the zone designations and pressure coefficients shown in Fig. 30.3-2A shall apply, except that at the roof-upper wall intersection(s), Zone 3 shall be treated as Zone 2 and Zone 2 shall be treated as Zone 1. Positive values of (*GCp*) equal to those for walls in Fig. 30.3-1 shall apply on the cross-hatched areas shown here.



Notation
h = Mean roof height, ft (m)
w = building width

Notes
On the lower of the flat, stepped roofs shown here, the zone designation and pressure coefficients shown in Figure 30.3-2A shall apply. For the upper figure, the zones for the ,owe height roof are to be applied from the edgeof the roof inward towards the taller building.

Top: ASCE 7-16, Figure 30.3-3. Bottom: ASCE 7-22, Figure 30.3-3.
Figure 3: Stepped roof configuration now is more complex. The criteria for when to use stepped roof configuration in ASCE 7-16 has been removed from ASCE 7-22.

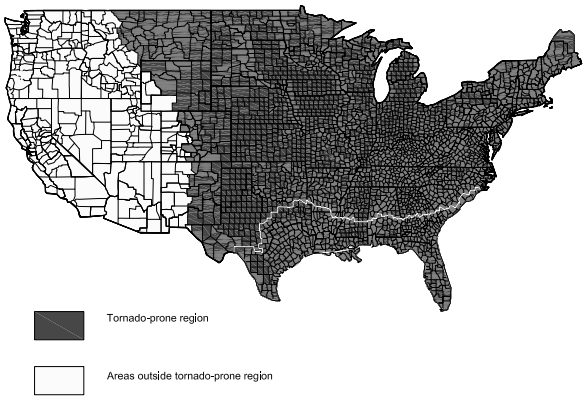


Figure 4: A map of tornado-prone regions in the U.S.

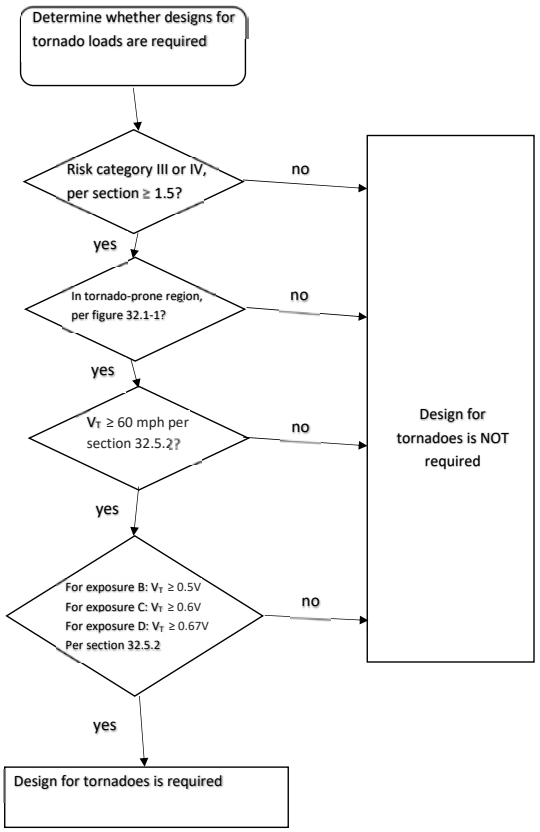


Figure 5: This flowchart is included in ASCE 7-22 to help designers determine whether design for tornado loads is required.

area of the building or other structure.

The intent is not to design buildings, components and cladding to withstand a direct hit from an EF-5 tornado but rather design for near misses from weaker tornadoes, which often still cause damage that can be more easily prevented.

Determining whether design for tornado loads is required for a project depends on a few factors. The primary factor is location.

The flowchart in Figure 5 is included to help make the determination.

Tornado speed V_T is determined from one of 16 wind maps (32.5-1A to 32.5-2H) depending on risk category and building area.

Design tornado pressures are determined using an equation similar to the design wind uplift pressure equation in Chapter 30.

In the equation $P_T = q_{hT}[K_{dT}K_{VT}(GC_P) - (GC_{PiT})]$ where $q_{hT} = q_{zT} = 0.00256\, K_{ZTor}K_e V_T^2$, K_{dT} is the tornado directionality factor (Table 32.6-1-Tornado Directionality Factor, K_{dT}), K_{VT} is the tornado pressure coefficient adjustment factor for vertical winds (Table 32.14-1-Tornado Pressure Coefficient Adjustment Factor for Vertical Winds, K_{vT}) and K_{ZTor} is the tornado velocity pressure exposure coefficients (Table 32.10-1-Tornado Velocity Pressure Exposure Coefficients, K_{zTor} and K_{hTor}).

For explanations of the coefficients used to calculate design wind-uplift pressure and examples of design tornado loads, go to professionalroofing.net.

GC_P and GC_{PiT} are the same as Chapter 30 values.

In general, for low-rise buildings, especially those 30 feet high or less with effective plan areas greater than 1 million square feet in Arkansas, Kansas, Missouri and Oklahoma, Risk Category III Exposure C start to yield design tornado pressures that can exceed wind pressures. The difference between the two values increases with building area and is more severe for Risk Category IV buildings.

For example, a 30-foot-high, 1 million-square-foot roof area, Category III, Exposure C, building in Oklahoma City has an ASCE 7-16 and ASCE 7-22 design uplift pressure value of 30.5 psf in Zone 1′. The same building has a design tornado load of 36.3 psf in Roof Zone 1′.

A similar 30-foot-high, 1 million-square-foot roof area, Exposure C, building in Oklahoma City that is Risk Category IV has an ASCE 7-16 and ASCE 7-22 design uplift pressure value of 33.2 psf in Zone 1′ and a design tornado load of 50.4 psf in Roof Zone 1′.

Stay informed

Wind design is complicated and has become even more complex with the release of ASCE 7-22, and calculations should be left to designers. NRCA's Roof Wind Designer online application, roofwinddesigner.com, includes design wind uplift load calculations based on ASCE 7-16's simplified approaches in Parts 2 and 4 and will be updated with much of the latest material from the new standard before it is adopted by the building code bodies.

ASCE 7-22 can be purchased through ASCE's website, asce.org. ASCE 7-22 will not appear in building codes until jurisdictions adopt the 2024 IBC or specifically reference ASCE 7-22; nevertheless, it's always smart to stay informed of upcoming changes.

KURT FESTER is NRCA's project engineer.

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Gothic roofing

Ruff Roofers helps build a new church in Virginia

by Chrystine Elle Hanus

After more than two decades of prayers and gathering in school gyms, on May 2, the parishioners of Corpus Christi Catholic Church, Aldie, Va., celebrated their newly constructed church during a Rite of Dedication and Mass. The church now is a focal point for a rapidly developing community in the northern Virginia suburbs.

Designed by McCrery Architects, Washington, D.C., the church was built in a Gothic style and has a 1,100-seat capacity. After reaching its $5 million fundraising goal, the parish broke ground for the new church in 2019. Ruff Roofers Inc., Baltimore, was selected by the general contractor, Forrester Construction Co., Rockville, Md., as the roofing contractor for the project.

Main roof

The Ruff Roofers team began working on the church in July 2020, employing several boom lifts, scaffolding, pick boards, mountain-climbing gear and personal fall-arrest systems tied off to anchor points to work on the daunting 18:12 slope.

Workers placed a base layer of 3-inch-thick Hunter H-Shield polyisocyanurate insulation on the metal roof deck followed by 5-inch-thick Hunter Cool-Vent composite ventilated insulation boards mechanically fastened using 10-inch-long Hunter SIP SD Fasteners.

Next, team members fastened CertainTeed WinterGuard® underlayment on all eaves, valleys and rooftop penetrations. On the remaining roof areas, workers secured TAMKO® No. 30 Asphalt Saturated Organic Felt with TAMKO Grip-Cap® Plastic Cap Nails. The crew completed the roof system with CertainTeed Landmark® asphalt shingles fastened in a six-nail pattern.

Photos courtesy of Ruff Roofers Inc., Baltimore.

Top to bottom: The roof was designed with a sweep across the bottom where the slope transitions from 18:12 to 2:12 along a curve; the church during construction; after the steeple was tied in, a stainless-steel cross was added.

Challenges

The Ruff Roofers team faced its first challenge when it began installing wood blocking along an eave. The church roof was designed with a sweep across the bottom where the slope transitions from 18:12 to 2:12 along a curve.

"The roof system design called for us to sheath this area with ¾-inch-thick plywood, but it is impossible to manipulate plywood to fit this curve without modifying it in some way," explains Matt Higgins, project manager for Ruff Roofers. "Our superintendent had the idea to kerf cut the underside of the plywood incrementally to allow it to flex. This worked well and provided a smooth, rounded transition that met the design intent."

Because of various materials fastened together, the framing of the sweep was not perfectly square.

"We shimmed, gapped and cut out sheathing as needed to ensure the shingles and drip edge installed above would have a straight and uniform appearance," Higgins says. "We originally planned to pre-cut all the plywood to expedite installation, but because of variances in the framing, we quickly found the cutting had to be done as work progressed."

The next major challenge was above the sweep. The 18:12 slope made work difficult for team members to move around, slowing work as they needed to reposition themselves and equipment to complete each task. Safety precautions for the ground level were crucial at this stage.

"Any dropped objects from the unusually steep slope would head toward the ground at a dangerous velocity," Higgins says. "We always kept a controlled access zone around our work area to protect workers on site. It was a daily coordinated exercise to jockey around the other exterior trade workers, but it was necessary and ultimately successful."

Another consequence of the steep slope was visibility. With such a high slope, the roof is particularly noticeable from the ground, making any imperfections stand out. The biggest concern for the Ruff Roofers team was the joints between the composite insulation boards. If they were not flush, the lines would telegraph through the shingles.

As a result, a Ruff Roofers quality-control manager inspected each board to ensure manufacturer instructions, such as fastening pattern and properly driven screws, were met and to check the joints between adjacent panels were flush. In many cases, team members added screws to draw down the insulation boards and added spacer blocks to widen the air gap. Team members also added metal straps along the hips to hold joints together.

"Although it was not visible in the end, this was one of the most crucial exercises in workmanship on the project," Higgins says. "The fact the insulation board joints are not discernable is a testament to outstanding workmanship."

Steeple

A major part of the roofing project included a 57-foot-tall steeple considered the "crown jewel" of the building. The steeple was constructed from reinforced concrete with steel framing and sheathing.

Before the steeple was lifted in place, Ruff Roofers craftsmen placed self-adhering GRACE ICE & WATER SHIELD® over the sheathing followed by 20-ounce Revere FreedomGray® Z-T Alloy™ Coated Copper.

Although working on the ground was easier than working on the roof, this required extensive planning to install the copper while leaving room around the bottom of the steeple to later tie into the church structure.

"Through field measurements and calculations, we established a point where our cladding would stop, leaving just enough room to tie-in to the roof," Higgins says. "If we were incorrect, we would not find out until the steeple already was in place. At that point, any rework would accrue exorbitant costs."

The team anticipated needing about six weeks to complete the copper ground-level work. However, the steeple wasn't ready for the crew to work on until 30 days before

To view a video tour of the Corpus Christi Catholic Church, go to professionalroofing.net.

the crane would arrive to lift the steeple to the roof. As a result, the team worked seven days each week, weather permitting, to complete its work on time—installing the final pieces of metal minutes before the crane rigging began.

"We had planned to outsource much of the fabrication so as not to tie up our sheet-metal shop, but by the time the framing was ready for field measurements, that no longer was an option because of lead times," Higgins explains. "So we fabricated each individual component in our shop."

Ruff Roofers craftsmen created templates in the field and brought them back to the shop so the pieces could be formed to fit exactly right. Two craftsmen were dedicated to fabricating pieces with others helping as needed.

"The finished product is spectacular," Higgins says. "The bottom tier consists of diamond-shaped, flat-seam interlocking panels. The middle tier is made up of alternating arches and lanterns that echo the Gothic-arched motif from the church's interior while pediments atop the lanterns mimic similar design elements at the west limestone façade. Inside, the floor is insulated with boards and clad with triangular, soldered flat-seam panels. The ceiling above mirrors that design.

"The upper tier tapers upward, employing a chevron-inverted standing-seam pattern that provided our craftsmen a chance to exhibit technical mastery of hand-bending work. Between each tier are ornate cornices. Not only is the metal work aesthetically pleasing but it also is a fully weathertight system."

The final challenge was keeping the building dry while lifting the steeple to the roof and setting it into place. By the time the steeple was on the roof and fully connected, it was late afternoon, so the crew dried in the roof before returning the following days to complete the tie-in.

"The planning and preparation up front paid off as our roofing work tied in neatly to the metal at the base of the steeple," Higgins says. "The steeple work was added into our scope of work after the project had begun, so we worked directly with the design team to synchronize their vision with constructability.

"I have seen our sheet metal craftsmen do some incredible things, but given the magnitude, scope and time restraint, this is the most impressed I have been. With all the different shapes and features, plus some flair added by our craftsmen, the steeple is truly a one-of-a-kind structure."

After the steeple was tied in, it was crowned with a stainless-steel cross fabricated by the church's blacksmith.

A community landmark

In February 2021, Ruff Roofers completed its work on the Corpus Christi Catholic Church project. Visible from several miles away, the steeple is a testament to the team's dedication to quality and craftsmanship throughout the project.

"We went above and beyond standard techniques and methods to provide the local community with a robust and inspiring final product," Higgins says. "It was rewarding hearing directly from the church's pastor and parishioners how impressed with and proud of the building they were. The parish had been without a stable home for many years and to provide the community with a beautiful, inspiring place to gather and call their own is extremely gratifying."

Despite the amount of physically relentless and intensive work required for the project while working seven days per week, the Ruff Roofers team completed its work on time.

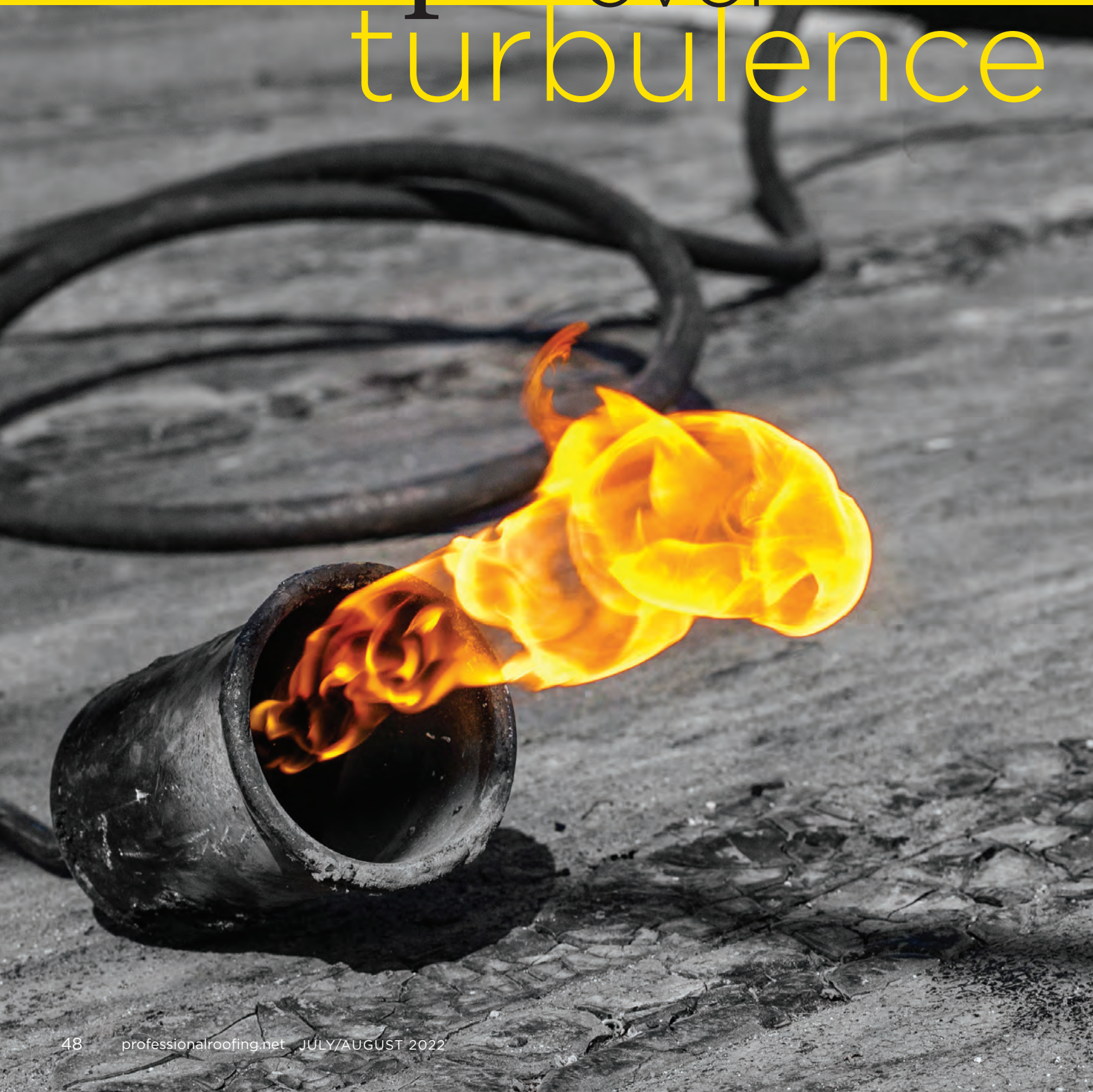
"The team met all the schedule milestones for the project and provided superior quality," says Rev. Michael Taylor, pastor for Corpus Christi Catholic Church. "The tenacity, commitment and artistry of Ruff Roofers are proudly displayed through the outstanding roofing work on Corpus Christi Catholic Church. It was truly impressive to watch such a group of professionals at work. We were honored to have worked with them on this significant and exceptional project."

A major part of the roofing project included a 57-foot-tall steeple.

Project name: Corpus Christi Catholic Church
Project location: Aldie, Va.
Project duration: July 2020-February 2021
Roof system types: Asphalt shingles and copper
Roofing contractor: Ruff Roofers Inc., Baltimore
Roofing manufacturers: CertainTeed LLC, Malvern, Pa.; Hunter Panels, Portland, Maine; Revere Copper Products, Rome, N.Y.; TAMKO® Building Products Inc., Galena, Kan.

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

triumph over turbulence



THE CERTA PROGRAM HAS EVOLVED BUT REMAINS A TREMENDOUS SUCCESS

BY TOM SHANAHAN, CAE

"We have lost our appetite for underwriting roofing projects where torches are used."

This was CNA's bottom line when meeting with NRCA in 2002. CNA representatives were concerned about the upward trend of annual fire-related claims related to torch-applied roof systems; the $14 million in losses were proving too rich for CNA's appetite. But after many discussions, CNA was willing to apply a risk management approach to the roofing industry's need for insurance coverage for the popular roof system application process. NRCA was asked to devise a plan to present to CNA's leadership.

The challenge

Creating such a plan was a significant request and test of the then 22-year NRCA-CNA partnership.

To start, NRCA reached out to the Midwest Roofing Contractors Association, which already had a certified roofing torch-applicator program known as CERTA, and asked MRCA to form a partnership to create a national program. MRCA agreed, but at the time, there only were a few trainers qualified to teach the MRCA CERTA class, so finding a way to build a cadre of trainers was key to train a significant number of torch applicators.

Luckily, NRCA had been awarded OSHA training grants for various subjects. The most recent grant awarded was for creating a train-the-trainer safety program. The grant helped make development of a torch-specific, train-the-trainer program a natural fit. Instructors who passed the CERTA trainer course would be authorized to teach applicators using what would become the revised CERTA program. Successful trainers and applicators would receive cards that reflected trainers' and applicators' accomplishments and were valid for three years (after which reauthorization or recertification would be required).

NRCA's presentation to CNA was well-received, and CNA gave NRCA one year to develop and implement the CERTA program by 2003. In addition, CNA changed its underwriting guidelines so an insured contracting company that had a torch-related claim would be covered for that loss only if the roofing worker using the torch had earned his or her CERTA applicator card. The requirement added a significant incentive for CNA-insured contracting companies that installed torch-applied roofing material to train their field workers in CERTA practices.

In 2004, NRCA began offering its CERTA Train-the-trainer 10-hour class. Classes were well-attended, and newly authorized trainers were teaching field roofing workers at a significant pace. More important, insurance claims and claim dollars were halved. On average, this downward trend continued, and torch-related losses stabilized to an acceptable level.

As the claims experience news spread, more non-CNA insured contractors sent employees to the train-the-trainer program. CNA's trust in NRCA's assertion that awareness training would address the issue paid off not only for its book of business but also the industry at large.

To read more about the change in CERTA best practices, see "New torch-safety guidelines," February 2019 issue.

A second challenge

Part of the NRCA/MRCA CERTA program included developing best practices for torch-applied roof system installation and safety. These practices provide guidance for applying roof membranes safely and inspecting roofs properly to mitigate fires. However, by 2007, it became evident when torch-applied flashings installed via the commonly used torch-and-flop method weren't always the right choice for proper adhesion. Members of NRCA's technical and safety committees met with representatives of some of the affected manufacturers to address the issue, which resulted in a recommendation to revise CERTA's best practices.

Research was performed on torch heat transfer through various roofing products and showed how well other products served as thermal barriers. Armed with these results, CNA agreed to update the best practices to add cold adhesives; mop applying hot bitumen; and direct torching (using a single burner, low-output [105k Btu or less] "detail" torch with specified instructions for combustible and noncombustible substrates) to the torch-and-flop option. The addition of these options improved the program, highlighting the importance of working together with manufacturers and technical committees as complications emerge.

Risk management

As the years progressed, claims and dollar values continued downward. When losses occurred, they were subjected to scrutiny to ascertain program viability and whether further changes were needed. However, when a high-profile loss occurred, such as the loss of a historical building, it was not unusual for the incident to cause a greater level of scrutiny and analysis of processes and protocols.

This was the case in 2018 when a spate of costly, high-profile fires occurred as a result of torch applying polymer-modified bitumen directly to combustible roof decks. Consequently, the 2019 volume of The NRCA Roofing Manual no longer recommends the use of torches over combustible decks because of the inherent fire risk.

Although certain aspects of the CERTA program historically aligned with and refer to NRCA recommendations, this change brought attention to the unique space CERTA occupies between the safety and technical realms. During all the years I have been a part of roof safety discussions, never has one set of safety practices overlapped so significantly with the viability of roof system performance as CERTA.

It is because of this unique overlap that subsequent intense discussions occurred about how the CERTA program addresses the desire to eliminate fires while acknowledging torch-applied polymer-modified bitumen roof systems over combustible decks are not only an insurable risk but also being installed regularly throughout the U.S.

This type of tension isn't new to the roofing industry. The industry always has had the challenge of figuring out how to do its work accurately and safely. It is no small feat, and, for example, though it might make sense from a safety standpoint to require every roof to have proper anchors installed for fall protection, this isn't a practical reality. As a result, we must have alternative fall-protection methods and procedures available to accommodate the uniqueness of the roof and system being installed. The industry continually examines ways to do its work while minimizing if not eliminating risks. Often, that requires looking at solving problems from different perspectives.

Such was the case with torching to combustible roof decks. Although it is appropriate for CERTA to forbid torching directly to such decks, it is important to recognize there are ways to greatly minimize if not eliminate a fire via certain work practices when torching over a combustible deck.

Armed with the challenge of how to approach good risk assessment and management, NRCA's Health and Safety and Technical Operations committees went to work. The result is a thoughtful risk management hierarchy of controls-type response.

The first control is to see whether the hazard can be eliminated. NRCA committee members agreed CERTA no longer will permit torching to occur directly to combustible decks under any circumstance.

The second control is substitution. NRCA encourages contractors faced with a specification or owner request to install a polymer-modified bitumen roof system over a combustible deck to consider alternative applications. If a specifier or customer will not agree to other options, the contractor should consider a control designed to reduce the fire hazard by enhanced protections for the combustible substrate. NRCA committee members devised several protocols that essentially render a combustible deck noncombustible and ready to accept a torch-applied membrane. In addition, there are personal protective equipment, fire watches and other protocols to keep workers and buildings safe.

A continued success

Over the years, the CERTA program has successfully addressed the inherent risk of open flames on roofs. And a major success has been how those responsible for the program's integrity have worked to find solutions to the succession of challenges the program faced.

TOM SHANAHAN, CAE, is NRCA's vice president of enterprise risk management and executive education.

CNA NRCA

Simple rules keep little slips from becoming big falls.

CNA Risk Control experts know that roofing fatalities occur at nearly twice the rate of other construction trades. That's why as part of our fall protection program, we recommend a 100% tie off with fall exposures over six feet. It's a guideline that helps limit injuries to bruises and scrapes, and helps our clients avoid financial disaster.

Learn more about how our risk control programs help NRCA members operate more safely. Contact your independent agent or visit cna.com/nrca.

Photos courtesy of Diversified Fall Protection, Westlake, Ohio.

The APRON approach

A new, proactive way to address rooftop hazards for building owners

by Kevin Kelpe

Unintentional injuries killed 200,955 people in 2020, according to the Centers for Disease Control and Prevention. Twenty percent of those deaths resulted from falls, making falls the second-leading cause of accidental death in the U.S. followed only by automobile accidents. A majority of the deaths happened at home. However, an unacceptable amount of work-related falls continue to occur each year.

During 2020, 805 people died from workplace falls, and 211,640 people were injured badly enough to need days away from work, according to the Bureau of Labor Statistics. And one does not have to fall from heights to be seriously injured—of those 805 deaths, 136 fell on level ground.

Although nonfall-related workplace fatalities have decreased 26% during the past 30 years, fall-related fatalities have increased 17% during the same time frame. The Occupational Safety and Health Administration noticed this trend, updated its 1910 General Industry Standards Subpart D—Walking-Working Surfaces in 2018 and has made fall prevention a top priority. OSHA's annual National Safety Stand-Down To Prevent Falls in Construction represents that push. Luckily, falls are preventable, but you must take fall protection seriously and be proactive to protect yourself, your employees and your business.

Bad for people and business

Each year, OSHA inspectors visit thousands of worksites in the U.S. and issue citations for regulatory violations. To boost safety awareness and compliance, OSHA published its Top 10 Most Frequently Cited Standards for 2021. Four fall-related standards made it into OSHA's top 10. The most-cited standard is fall protection, and coming in third is ladders. Scaffolding and fall-protection training came in fourth and seventh.

The reality of how many workers in the U.S. are not receiving proper protection from falls is apparent. Fall-related fatalities are trending upward, and unfortunately, without a focused effort by employers to increase fall-protection safety, the trend will continue. The amount of pain and suffering for individuals and their families caused by accidents is incalculable. Providing employees, contractors and vendors with safe working environments free from recognizable hazards not only is a legal and moral obligation but also is an intelligent business decision.

The monetary cost and reputation damage caused by accidents can permanently cripple a business. A serious accident often can result in expensive medical bills, regulatory fines, loss of productivity, increased insurance costs, lawyer fees, settlements and loss of future business.

Although it is an employer's responsibility to provide a safe work environment, effective safety measures require a team effort. It is everyone's responsibility to adhere to safe working practices and identify hazards. The more people you have to identify hazards and the more people work together to create safe job sites, the safer your workers will be.

Fall protection is not equal

Some forms of fall protection are more effective than others, and it is essential to understand the hierarchy. First, the most effective way to address a hazard is to eliminate it. For example, instead of accessing a roof with a ladder, take the stairs. Doing so prevents employees from being exposed to the risk of climbing a ladder.

If you cannot eliminate the hazard, the next best option is passive fall protection. Some examples of passive fall protection are guardrails, roof hatch rails and skylight screens. Passive fall protection works without any user interaction and does not require any training to be effective. This is a significant benefit because it eliminates the potential for user error present with many other forms of fall protection.

Also, passive fall protection does not require certification or inspection and has a longer lifespan than other fall-protection options. When you combine all these factors, passive fall protection is one of the best ways to keep employees safe from falls.

Horizontal lifeline systems are an example of travel restraints.

Next in the hierarchy are travel restraints, which act like leashes and prevent workers from getting near fall hazards. An example is a harness with a 6-foot lanyard attached to certified anchorage 10 feet away from a fall hazard. With travel restraints, employees cannot fall from heights because they cannot physically reach the fall threat.

Single anchorage connectors are suitable for fall restraints. However, they sometimes can restrict mobility too much. This lack of freedom of movement can encourage workers to disconnect completely or force them to disconnect and reconnect to different anchorage connectors as they move around a work area. This means workers must have multiple lanyards or go unprotected for a portion of the time.

A better option for fall restraint is a linear system, such as a horizontal lifeline or a rigid rail system. These systems encourage freedom of movement and allow workers to be tied off 100% of the time while accessing the entirety of their work areas.

Next on the list is one of the most commonly used forms of fall protection—fall-arrest systems. An example of a fall-arrest system is a worker wearing a harness with a self-retracting lifeline connected to certified anchorage. Fall arrest is an effective form of fall protection, but the user must be involved in a fall for it to work. Think of it as a seatbelt: It can save your life, but you need to be in an accident for it to save you, and you could suffer some injuries. Fall arrest is your last line of defense, but it always is better to prevent a fall than to be saved from one.

Finally, the fifth and least effective fall-protection method is administrative controls. These are rules created by management represented by warning lines or controlled access areas. They alert employees when they are nearing a fall hazard, but they offer no protection if a worker does not notice them or ignores them.

Warning lines are one of the most commonly used forms of administrative fall protection. For example, you often will see stanchions instead of cones with flags strung every 6 feet, forming a barrier around a roof's edge. For a warning line to be OSHA-compliant, it must be 15 feet or more away from the fall hazard for nonroofing workers. In addition, employees must not work between a warning line and fall hazard, and an employer must have rules to prevent workers from passing the warning lines.

Complacency

It is easy to become complacent about the dangers we encounter daily. For example, 38,824 people died in motor vehicle accidents in the U.S. in 2020, according to the National Highway Traffic Safety Administration. Yet in any major U.S. city, you can see people texting on their phones, eating a meal or putting on makeup while driving over 65 mph on a busy highway. These drivers have become complacent, but they would give driving their full attention if they recognized the actual danger.

It often takes someone to be involved in an accident to become aware of the hazards in his or her world. Unfortunately, fall hazards have become the same way for many trades. For example, maintenance workers and service technicians spend most of their workweek climbing onto and moving around roofs with little to no fall protection available. They may recognize the roof's edge as a hazard, but they can be blind to multiple other threats consistently present.

The APRON approach

Tightening regulatory scrutiny and the upward trend of work-related falls means a new approach to fall prevention is urgently needed. Diversified Fall Protection, Westlake, Ohio, is confronting the issue using its APRON approach to rooftop hazard assessment.

APRON stands for access points, perimeter, rooftop equipment, openings and navigation. It is a learning technique that will help you quickly remember the five most common rooftop hazards and keep them top of mind the next time you are on a roof or conducting a fall-hazard assessment.

An example of a fall-arrest system: a worker wearing a harness with a self-retracting lifeline connected to certified anchorage.

Access points

It is common to find fixed ladders with little to no fall protection, and every time you climb a ladder to access a roof, you are at risk of falling. However, changes to OSHA's standard for walking-working surfaces, 29 CFR 1910.22, adopted in 2018 means building owners must look at their ladders to ensure safety and compliance.

Newly installed and

renovated ladders that extend 24 feet or higher above a lower level no longer can use safety cages to protect users. Instead, they must have ladder safety systems or personal fall-arrest systems to comply with the new regulations.

Perimeter

Many roofs do not have fall protection installed to protect workers from falling over the edge. However, if workers are required to come within 15 feet of a roof's edge, they need fall protection, which means after-market solutions are necessary.

Even roofs with parapet walls may not provide enough protection. For example, if you measured the height of an average parapet wall along its entirety, you might be surprised how low it can be in certain areas. Often, parapet walls are not high enough to satisfy OSHA regulations, which require they be at least 39 inches from the working surface to be considered fall protection.

Therefore, even if there is a parapet wall, you still may need additional fall-protection measures to keep workers safe and comply with the OSHA standard. To address this issue, installing guardrails, a horizontal lifeline or a rigid rail system is a viable option.

Rooftop equipment

Often, the safety of maintenance personnel is not considered when designing a building. For example, OSHA requires nonroofing workers be protected from a fall when they come within 15 feet of an unprotected edge. However, many pieces of rooftop equipment are placed within 15 feet of a roof's edge and offer no fall protection. Guardrails, certified anchorage, lifelines and rigid rail systems are solutions to this common issue and allow workers to access the equipment safely.

Openings

Roof hatches can be hazardous. If one is unintentionally left open, it is easy for someone to accidentally step into it and fall to a lower level. Protecting roof hatches with guardrails and a swing gate is the best way to prevent an accident. Without these measures, you rely on employees to close a hatch after they enter a roof. It's better to place a passive system that continually protects employees regardless of whether a roof hatch is left open.

Skylights and vents also are hazards. Covers may offer sufficient protection from a fall. However, the covers must be engineered to withstand a person's weight so they do not break if they are fallen on. When protecting roof openings, you need an engineered solution. Do not assume something is strong enough; confirm it is. Guardrails and screens are solutions for skylights and hatches because you can maintain functionality while ensuring safety.

Installing ramps, crossovers, service platforms and elevated walkways allow workers to navigate a roof safely.

Navigation

Ductwork, piping and other rooftop equipment can make navigating a roof hazardous. For example, imagine a maintenance worker wandering across a snow-covered rooftop within 15 feet of an unprotected edge. You can see how this situation can be dangerous and why building owners must take steps to create safe walkways for employees to move around rooftops.

If employees do not have a designated route, they will create their own, which may involve stepping over or ducking underneath equipment, exposing them to slips, trips, falls and other hazards. By designating a safe path for employees to access the areas they need, you can eliminate hazards and ensure employees do not walk into dangerous or restricted areas. Installing ramps, crossovers, service platforms and elevated walkways will allow workers to navigate a roof safely.

To read OSHA's Top 10 Most Frequently Cited Standards for 2021, go to professionalroofing.net.

Be proactive

It takes careful planning and proactive measures to protect your employees and company from falls. Conducting periodic fall-hazard assessments of your facility using the APRON approach is a great way to prevent falls and other accidents. If you need help assessing your hazards, fall-protection professionals are available to assist.

KEVIN KELPE is continuing education manager for Diversified Fall Protection, Westlake, Ohio.

MANUFACTURER NEWS

CertainTeed® recognized for environmental efforts

CertainTeed LLC, Malvern, Pa., has achieved GreenCircle Certification for Recycled Content for some of its residential roofing products.

Recognized by the U.S. Green Building Council, the GreenCircle Certification is an esteemed environmental verification that ensures certified organizations are implementing comprehensive and effective sustainability practices.

After a third-party audit, GreenCircle Certified LLC verified CertainTeed's manufacturing facilities in Fremont, Calif.; Shakopee, Minn.; Jonesburg, Mo.; and Portland, Ore., were using pre- and post-consumer material as raw material to manufacture new roofing products, thereby limiting substantial amounts of waste during the product development process.

"We've found using recycled content in product development is one of the most effective ways to advance the future of green innovation in the manufacturing process, and we are proud to play our part in reducing the environmental footprint of construction and home building and renovation," says Amanda Boyer, product manager for CertainTeed Roofing Products Group.

In addition, Saint-Gobain, through its building products subsidiary CertainTeed, has announced plans to invest $100 million during the next two to three years to expand its roofing shingle manufacturing facility in Peachtree City, Ga. The expansion will add more than 65,000 square feet of manufacturing and warehouse space and more than double production capacity. The plant, which began operations in 1976, currently employs 83 workers. The expansion will create at least 27 new full-time operations jobs.

IKO® opens new production facility

IKO, Wilmington, Del., has opened a new production facility in Hagerstown, Md.

The 460,000-square-foot production and warehouse facility is IKO's first manufacturing site for thermoplastic polyolefin. The plant also produces polyisocyanurate insulation products for distribution in North America. The $70 million facility employs 40 people with the possibility for future expansion to meet consumer demand.

Metal-Era® and Hickman Edge Systems reduce prices

Metal-Era LLC and **Hickman Edge Systems,** owned by parent company MTL Holdings, Waukesha, Wis., have reduced prices up to 12% for five contractor-friendly products in their fascia and coping lines.

Because of expanded manufacturing capabilities, including investment in new equipment and automation, Metal-Era and Hickman Edge Systems have increased capacity and are passing the cost savings to their customers in a price relief program.

"The entire industry is fighting against inflation and supply chain delays," says Brad Van Dam, vice president of sales for MTL Holdings. "To continue our industry recovery together, it seems appropriate to pass along relief when we have the ability to do so."

DISTRIBUTOR NEWS

ABC Supply opens Iowa branch

ABC Supply Co. Inc., Beloit, Wis., has opened a new branch in Tiffin, Iowa.

The branch will provide roofing, siding and other exterior building products to local customers. This is ABC Supply's seventh location in Iowa.

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OTHER NEWS

SPRI reports increased roof membrane shipments

SPRI has announced the U.S. single-ply roofing industry experienced a 12.2% increase in roof membrane shipments during 2021. During 2020, shipments decreased 4.1%.

Thermoset membrane shipments increased 7.5%, thermoplastic membrane shipments increased 14% and modified bitumen shipments increased 9.7% in 2021.

"In spite of the ongoing impact of the COVID-19 pandemic, labor market and the unprecedented supply chain issues, 2021 showed some resilience in single-ply membrane output," says Brad Van Dam, president of SPRI. "Manufacturers received increased demand at a rate not previously seen and were able to ship more membranes than any prior year."

Regionally, year-to-year shipments increased 20% in the Northeast, 13.5% in the South, 10.7% in the north central region and 6% in the West.

The Roofing Alliance welcomes new members

The **Roofing Alliance** has welcomed two new Governor level members: Gorman Roofing Services Inc., Phoenix, and Benchmark Inc., Cedar Rapids, Iowa. Benchmark is the Roofing Alliance's 180th member.

Since its inception, Roofing Alliance members have committed more than $13.3 million to fund research, educational and technical projects such as partnerships with top construction management schools to expose college students to roofing as a career choice; sponsorship of a national construction management student design competition; national survey of roofing workers; and helping to develop NRCA ProCertification.®

NCCER releases roofing curriculum in Spanish

The **National Center for Construction Education and Research** has announced Roofing Level 1, Second Edition, now is available in Spanish. The Spanish translation effort is part of NCCER's goal to help organizations train skilled craft professionals in an increasingly diverse workforce.

The Spanish translation of Roofing Level 1 meets the Department of Labor's standards for a time-based apprenticeship program. New Steep-Slope Roofer and Low-Slope Roofer interim credentials from the program provide additional specialized career paths to learners. The Spanish translation of Roofing Level 2 will be available later this year. The programs are available at vitalsource.com/products.

In addition, NCCER has made available a translated resource page at nccer.org/workforce-development-programs/disciplines/translated-resources.

UP THE LADDER

ABC Supply Co. Inc. has named **Adam Bruce** North Florida District manager, **Leon Clark** Mountain West District manager, **Steven Money** Pacific Northwest District manager and **TJ Neil** Rocky Mountain District manager.

Jobba Trade Technologies Inc. has named **Steven White** chief transformation officer.

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NRCA NEW MEMBERS

ARCHITECTS/ENGINEERS/ CONSULTANTS

4EA Building Science, Seattle

GCI Consultants LLC, West Palm Beach, Fla.

Greening Geospatial LLC, Ypsilanti, Mich.

HCGW Holdings, Mount Pleasant, S.C.

Luminary Forensics, Sandia Park, N.M.

Tsai Ming Nan, Wenshan District, Taipei, Taiwan

Waterproofing Consultants LLC, Albuquerque, N.M.

CONTRACTORS

AdvantEdge Roofing & Construction Inc., Des Plaines, Ill.

All Seasons Roofing LLC, Jefferson City, Mo.

AnyWeather Roofing, Cold Spring, Ky.

Approved Contractors Inc., Bensalem, Pa.

Arnold Roofing and Restoration, Simpsonville, S.C.

Best Nest Renovations LLC, Carrollton, Ga.

Boblits Enterprises LLC, Hughesville, Md.

Christian Brothers Roofing LLC, Gladstone, Mo.

County Roofing Systems, Melville, N.Y.

DAVCO Roofing and Sheet Metal Inc., Charlotte, N.C.

Dwight & Sons Contracting Inc., Center Conway, N.H.

Eager Roofing, Tulalip, Wash.

Eldridge Commercial Improvements Inc., Spring, Texas

Florida Roof Restorations, Ocala

Fortis Roofing Systems, Weatherford, Texas

Frank's Restoration, Brooklyn, N.Y.

Gates Enterprises, Lakewood, Colo.

H. Kulak & Son LLC, Plainville, Conn.

Integral Roofing and Restoration LLC, Paducah, Ky.

LAP Services LLC, Baton Rouge, La.

Master Renovations Inc., Orrville, Ohio

Maxxim Construction and Roofing, Fleming Island, Fla.

MDR Nola LLC, d.b.a.

Mighty Dog Roofing 152, Metairie, La.

Osgood Roofing Co., Marblehead, Mass.

Paul Meissner Roofing, Dubuque, Iowa

Peach State Restoration Consulting, Loganville, Ga.

Primo Roofing Co., West Rutland, Vt.

Pritchett Brothers Inc., Bedford, Ind.

Proteck Roofing & Sheet Metal Inc., Etobicoke, Ontario

Reliance Roofing & Exteriors, Brentwood, Tenn.

Rellek Roofing & Construction, Keller, Texas

Roof Experts Inc., Grapevine, Texas

Semper Solaris Inc., El Cajon, Calif.

Sentri Roofing, Chattanooga, Tenn.

Sierra Group Roofing & Solar, Blytheville, Ark.

Sinclair Construction, Panama City, Fla.

Smitty's Roofing & Construction, Cleburne, Texas

Stevens Roofing Corp., Norfolk, Va.

Storm Recovery Roofing & Siding LLC, Moline, Ill.

The Dantzler Group Inc., Jacksonville, Fla.

V3 Roofing & Renovation, West Jordan, Utah

Veteran Roofing, Denver

DISTRIBUTOR

John Stortz & Son, Philadelphia

SERVICE PROVIDERS

Agora Systems Inc., Walnut, Calif.

Solid Rock Roofing LLC, West Haven, Conn.

ONE VOICE NEW MEMBER

Limitless Roofing GPO, Richardson, Texas

EVENTS

JULY

20-22
FRSA's 100th Annual Convention and the Florida Roofing & Sheet Metal Expo
Florida Roofing and Sheet Metal Contractors Association Inc.
Orlando, Fla.
Contact: FRSA
(407) 671-3772, ext. 100, or frsa@floridaroof.com
floridaroof.com/convention

AUGUST

11
CERTA Train-the-trainer
NRCA
Elgin, Ill.
Contact: NRCA's Customer Service Department
(866) ASK-NRCA (275-6722) or info@nrca.net
nrca.net

SEPTEMBER

14
Virtual Foreman Leadership Training, Level 2
NRCA
Online
Contact: Jeff Jarvis, NRCA's vice president of membership, sales and business development
(800) 323-9545, ext. 7512, or jjarvis@nrca.net
nrca.net

24-26
Western Roofing Expo
Western States Roofing Contractors Association
Las Vegas
Contact: WSRCA
(800) 725-0333 or info@wsrca.com
westernroofingexpo.com

27-29
2022 RCAT/MRCA Conference & Expo
Roofing Contractors Association of Texas and Midwest Roofing Contractors Association
Fort Worth, Texas
Contact: MRCA
(800) 497-6722 or mrca@mrca.org
mrca.org

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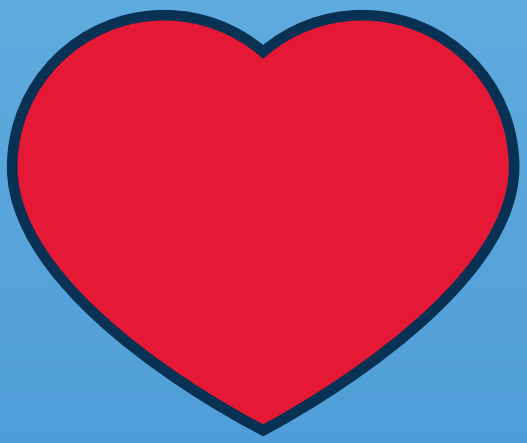

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CHRIS RHOADES

WHAT IS YOUR POSITION WITHIN YOUR COMPANY? I am national field technical leader for Owens Corning, Toledo, Ohio.

WHAT IS THE MOST UNUSUAL ROOFING PROJECT OF WHICH YOU HAVE BEEN A PART? The project wasn't unusual, but the location and timing were unique. I worked on a three-story project in Richmond, Calif., that overlooked the San Francisco Bay and AT&T Park. It was an incredible sight to see the stadium lit up on a cool October evening during the 2012 World Series.

WHY DID YOU BECOME INVOLVED IN THE ROOFING INDUSTRY? I started a job in the industry right after high school to make some money until I figured out a career path. Little did I know I would still be in the industry 34 years later.

WHAT'S YOUR FAVORITE ROOFING MATERIAL TO WORK WITH? WHY?
Asphalt shingles. During my career, I have worked with all types of roofing products, and shingles are the easiest to use and teach others to install. In addition, the available shingle options give homeowners several styles and colors to choose from at a reasonable cost.

WHAT WAS YOUR FIRST ROOFING EXPERIENCE?
I worked for a small company in Rocklin, Calif., tearing off wood shake roof systems and installing felt and battens for concrete tile roof systems.

WHAT IS YOUR ROOFING INDUSTRY INVOLVEMENT? I currently serve on two NRCA committees and offer information regarding content development and initiatives.

WHAT IS THE MOST HIGH-TECH ITEM IN YOUR HOUSE? Alexa

BIG CITY OR SMALL TOWN?
Small town

WHAT'S THE MOST EXCITING/ADVENTUROUS THING YOU'VE DONE? Learning to become a pilot and flying over the city lights at night

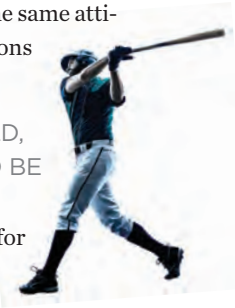
WHAT WAS YOUR FIRST JOB?
Working at Rico's Pizza in Sacramento

WHAT IS YOUR FAVORITE STRESS RELIEVER?
Bowhunting in the mountains with my closest friends

WHAT DO YOU CONSIDER YOUR MOST REWARDING EXPERIENCE?

Being a father to a beautiful daughter and seeing her happy in life and successful in her own career path

WHAT QUALITY DO YOU MOST ADMIRE IN A PERSON? Courage. John Wayne once said: "Courage is being scared to death but saddling up anyway." As a former entrepreneur, these words ring true; I try to live by them daily. And as a leader, I try to impress upon others to have the same attitude when facing tough situations and achieving goals.



WHEN YOU WERE A CHILD, WHAT DID YOU WANT TO BE WHEN YOU GREW UP?
A professional baseball player for the San Francisco Giants

MY FAVORITE PART ABOUT WORKING IN THE ROOFING INDUSTRY IS ... Helping others. Whether I can help a new roofing worker who is just starting out or help a seasoned business owner work through a tough situation, there is no greater feeling than helping someone succeed.

WHAT SONG ARE YOU LISTENING TO OVER AND OVER?
"Best Shot," by Jimmie Allen

Backpack and Applicator Kit

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- Application is up to 3 times faster than traditional primer in a pail
- Eliminates potential spills or kicked-over cans of primer that create a mess and waste product
- No need to worry about primer curing in a pail that has been improperly sealed
- Increased coverage rate

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[1] 25-year StainGuard Plus™ Algae Protection Limited Warranty against blue-green algae discoloration is available only on products sold in packages bearing the StainGuard Plus™ logo. See *GAF Shingle & Accessory Limited Warranty* for complete coverage and restrictions, and qualifying products.