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Do you hear what I hear?

Honing your listening skills can be an important part of employee retention

by Ambika Puniani Reid



During the past few years, NRCA has talked a lot about retention tactics to keep hard-sought workers. These include beefing up your onboarding and training efforts, providing worker certification opportunities and improving foremen communication skills.

This month, Vice President of NRCA University Amy Staska discusses psychological safety, another powerful tool in any company's retention arsenal (see "There's more to safety than safety," page 48). Staska explains companies that make the effort to help employees feel emotionally and mentally safe will experience less turnover and increased loyalty. And part of providing that safety includes an often-overlooked skill: being an exceptional listener.

Listening—really listening—is hard work. We often are so caught up in our thoughts that to provide someone else with truly undivided attention takes enormous effort.

And as Harvard Business School Research Associate Robin Abrahams and Professor Boris Groysberg note in a recent article they wrote for *Harvard Business Review*: "Listening is vitally important, sadly undertaught, physically and mentally taxing, and in the aftermath of COVID-19 has never been more difficult."

The authors explain that in the current state of social distancing, remote work, texts and emails, and less human interaction, employees need to be heard more than ever, but employers are missing nonverbal cues they typically would pick up on during face-to-face conversations. And this could lead to employees feeling unsafe psychologically and increase their desire to find employment elsewhere.

Abrahams and Groysberg provide a few tips to make you a better listener:

- Repeat a person's last few words back to them, which can provide a needed pause for you to gather your thoughts.
- Don't rephrase what a person is saying unless you truly don't understand. Rephrasing can increase emotional friction.
- Offer nonverbal listening cues, such as nodding and eye contact.
- Pay attention to the speaker's nonverbal cues, such as tone, facial expression and body language, which often can reveal more about a person's state of mind.
- Ask questions to clarify your understanding and minimize distractions.
- Pause before you respond. If you know a topic might be upsetting, calm yourself as much as possible before responding.

Great listening is a difficult skill to master, but following these bits of advice could make all the difference to employees who need to be heard.

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

CLOSE-UP





Advanced Roofing Inc., Fort Lauderdale, Fla., captured the spirit of holiday celebrations with a pink Cadillac boat in the 50th Annual Winterfest Boat Parade in December 2021.

Described by local news station WSVN as a “legendary boat entrant,” Advanced Roofing’s boat won awards, including Best in Show, and was featured on the front page of the *South Florida SunSentinel* newspaper. The 54-foot boat was decorated by Advanced Roofing employees and their families and seen by more than 1 million parade attendees.

“This is another way to give back to our community,” says Advanced Roofing CEO Rob Kornahrens, who dressed as Elvis while his wife, Maureen, dressed as Marilyn Monroe. “This was a big year as we came off the COVID-19 pandemic and wanted to provide cheer for our employees, clients and everyone in the region watching on television.”

To submit a photo to Close-up, email professional roofing@professionalroofing.net.

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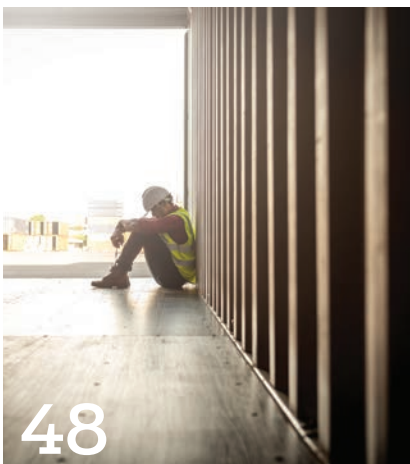
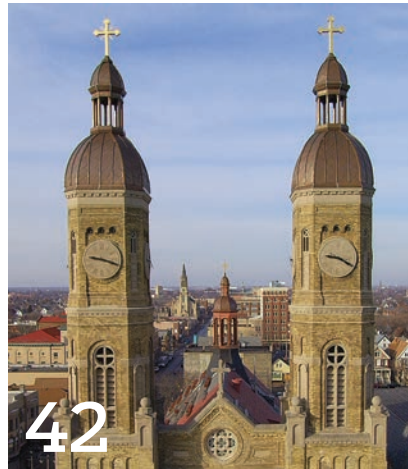
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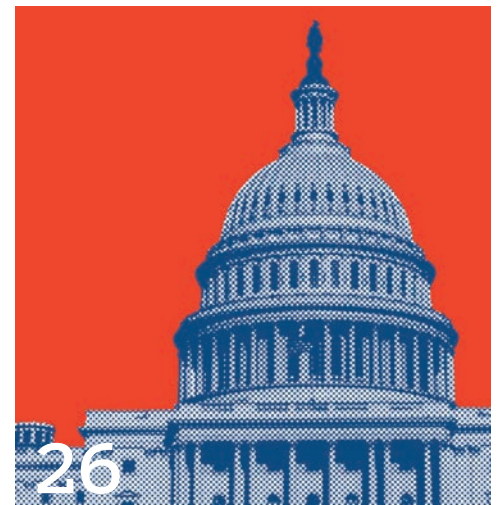
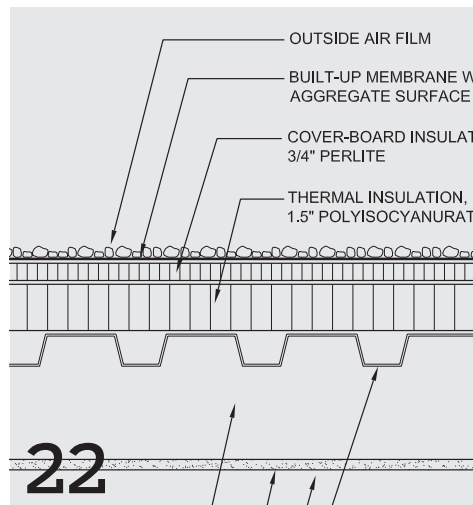
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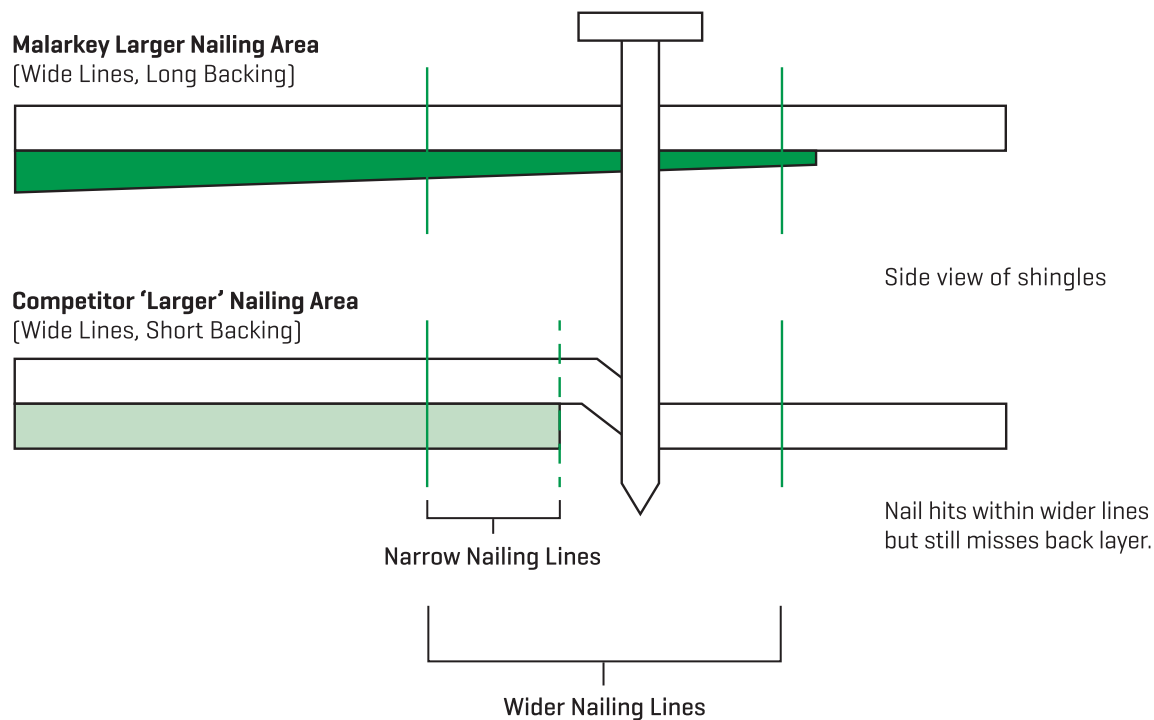
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We dedicate this issue to Keith J. Taylor, who inspired us all to embrace our inner artists during his 16 years as NRCA's desktop publisher.

Oct. 21, 1949 –
Dec. 16, 2021

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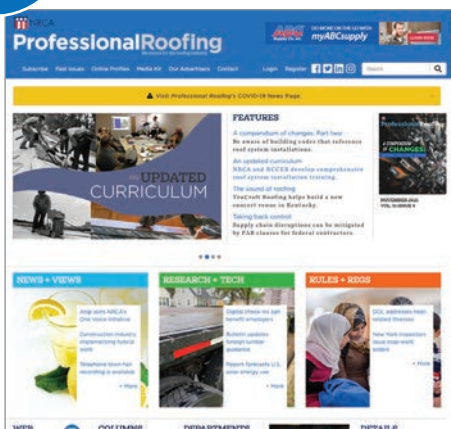
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#GIVINGBACK

Helen Keller said: "The unselfish effort to bring cheer to others will be the beginning of a happier life for ourselves." During the season of giving and beyond, roofing professionals are generous supporters of their communities. Check out how some industry professionals have made a difference by #givingback.



W James Taylor, Inc.
@JimTaylorRoof

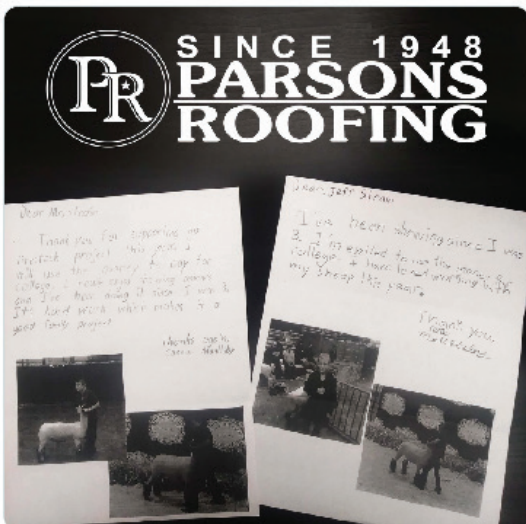
Taylor Roofing crew completed another Habitat for Humanity Roof in O'Fallon, IL. #givingback #roofing



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Thank you for all of the letters and pictures! We are happy to support the local livestock shows!

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Alliance Roofing Canada is at Alliance Roofing Canada.
November 22 at 9:58 AM · Oshawa, ON, Canada

Alliance and team came together and are donating toys and food for the Apollo General Contracting Toy & Food Drive held in support of the @SalvationArmy! #toydrive #givingback

#alliancerooting #allroofing #roofing #roofingcontractor #roofingculture #roofinglife #guolph Rooftop #roofie #roofmaintenance #repairs #construction



Hill Country Youth Ranch
December 14 at 10:38 AM

Thank you Cypress Roofing for for choosing the children of HCYR for your generous #YearEnd #Corporategiving #Donation! Every dollar donated to our Enrichment Programming 2022 Matching Campaign will be matched by the Hal & Charlie Peterson Foundation! Any individual or business that follows the lead of Cypress Roofing by designating your year-end gift will help us meet our goal to continue to provide healing & therapeutic Enrichment Programs for the foster children who call #HCYR home! Donate online today! <https://youth-ranch.givingfuel.com/year-end-2021> Or mail your check in by 12/31/2021!

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Ladder has five position options

Werner has added the multiposition LEANSAFE® X5 ladder to its line of LEANSAFE ladders. Offered in fiberglass and aluminum, the ladder features a one-handed lock adjustment for seamless transitions through five positions: step ladder, stairway ladder, leaning ladder, twin ladder and extension ladder. The LEANSAFE X5 ladder is 6 feet tall and has a maximum reach height of 14 feet. The ladder also features a fully functional leaning top with a magnetic tool bin and nonmarring rubber feet said to protect work surfaces. The twin ladder position allows one user on each side of the ladder simultaneously. The fiberglass ladder can support 375 pounds, and the aluminum ladder can support 300 pounds. wernerco.com/leansafe



Underlayment has anti-glare coating

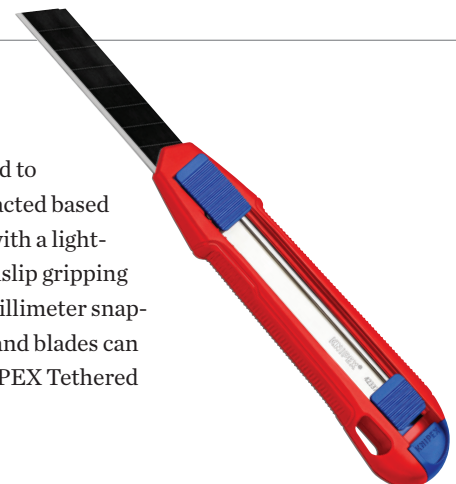
Boral Roofing LLC has introduced Sol-R-Skin BLUE Roof Underlayment. Designed for use under most steep-slope roofing materials, the thermal insulating underlayment reportedly can be applied in any climate and at any temperature. Sol-R-Skin BLUE Roof Underlayment is ultraviolet-resistant and has a blue anti-glare coating. The underlayment combines a radiant barrier aluminum surface that reflects heat with an emissivity rating of 0.03 and a fiberglass mat said to provide a second layer of heat resistance. Offered in lightweight 54-inch by 100-foot rolls, the underlayment can be nailed into place, and an adhesive strip at the headlap offers wind-uplift resistance. Sol-R-Skin BLUE Roof Underlayment's cool blue coating reduces glare, making installation safer than shiny aluminum radiant barrier roofing products. The underlayment's durable aluminum surface reportedly helps prevent leaks at fasteners and won't degrade over time. Each 45-pound roll of Sol-R-Skin BLUE Roof Underlayment offers 450 square feet of product with a 3/8-inch nominal thickness.

boralroof.com

Knife blade resists bending

KNIPEX Tools has made available CutiX, a universal snap knife with a stabilization bar designed to prevent the blade from bending. The CutiX's extendable stabilization bar can be engaged or retracted based on application and reportedly allows a user to apply more pressure directly on the blade. Made with a lightweight magnesium housing, the CutiX also features a hardened steel pin to secure the blade, nonslip gripping surfaces and two sliders—one for the blade and one for the stabilization bar. Suitable for all 18-millimeter snap-off blades, the CutiX comes with two blades that have seven cutting points stored in the handle, and blades can be replaced with a push of a button. A built-in tether attachment point can be used with the KNIPEX Tethered Tools System.

knipec-tools.com



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Welding machine has quality-control features

Leister Technologies has introduced its UNIROOF 700 automatic roof welding machine designed to weld thermoplastic membranes on low- and steep-slope roof systems (up to 30 degrees). The machine features Leister Quality System technology that gives a user control of welding parameters such as speed, temperature and air volume. The technology also documents the welding process and creates an auto-generated data report available via the myLeister app. The UNIROOF 700 also features Monitored Welding Assistant—an electronic assistant that issues a warning sound when actual welding parameters deviate from the set welding parameters. This feature allows a user to take immediate corrective action to maintain quality welding.

leister.com



Solar module skirt is lightweight

S-5! had made available its PVKONCEAL™ module skirt for use with the S-5! PVKIT® Direct-Attach™ solar solution for metal roof systems. Paired with the PVKIT, PVKONCEAL conceals the edges of a solar array for a clean look and reportedly protects mechanical and electrical components underneath the array. The module skirt also helps minimize the intrusion of small animals, debris and unwanted objects. PVKONCEAL is made of corrosion-resistant aluminum with prefinished black polyvinylidene fluoride said to last the life of a metal roof system. The versatile lightweight solution can be used in two orientations to cover module frames 30-46 millimeters thick.

s-5.com

Smoke vent is energy efficient

The BILCO® Company has made available an energy-efficient thermally broken smoke vent. The smoke vent's frame and cover are designed to minimize heat transfer and resist condensation. To enhance energy efficiency, the smoke vent is designed with an element of low conductivity integrated between interior and exterior surfaces of the cover and frame, reducing temperature transfer. The thermally broken components also dampen vibration for improved acoustic performance against outside noise. Three inches of polyisocyanurate insulation with an R-value of more than 20 in the cover and curb are said to improve energy performance, and a special cover gasket minimizes air leakage.

bilco.com



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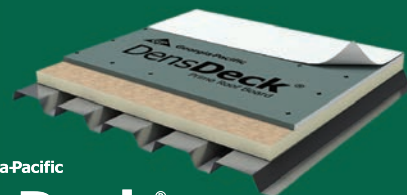
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*FMI roof cover board survey completed in May 2020. Actual results may vary.

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A heartfelt thank you

A longtime industry professional retires and shares his gratitude for the industry

by Reid Ribble

I hope everyone had a wonderful New Year celebration, and I wish you success as 2022 begins. But with every new beginning comes an end.

Before the end of 2021, I received a note from my friend Brian Whelan, executive vice president of Sika Sarnafil® USA, Canton, Mass., announcing his retirement. It was a thoughtful note written to the industry that he served for several decades. I thought you might enjoy reading excerpts from it:

“My roofing journey started in 1978 after graduating college with a degree in architectural technology. I was fortunate enough to learn the roofing business from some of the industry’s finest, working with Carl Cash, Werner Gumpertz, Dave Adler and others at SGH Consulting Engineers.

“Single-ply roofing was new to the roofing industry in the mid- to late 1970s. I was first introduced to it in 1979. I was on a school roof in Massachusetts as a project manager for SGH. Part of the roof was ballasted neoprene (original rubber roof), and the other part was a product imported from Switzerland called Sarnafil, a PVC membrane. Maybe I

“I will miss the competitive nature of the roofing industry, but more importantly, I will miss the friendships that have come from more than 40 years in the business.”

was ahead of my time, but from what I saw, I believed that reflective, heat-weldable thermoplastic membranes would have a bright future in commercial roofing.

“In 1980, I joined Sarnafil as the North American assistant

technical director. During my 41 years at Sika Sarnafil, I held just about every technical, sales, marketing and management position, including president and CEO. It has been a marvelous experience. We all work in a great industry with great people. I consider myself very lucky to have worked with some of the most talented and dedicated people in the industry.

“It is with much excitement and equally as much sadness that at the end of 2021 I will formally retire as a full-time employee of Sika. I would like to thank all our applicator partners for their loyalty and support. I also would like to thank the roof consultants and specifiers for having the trust and confidence to recommend our company and products to their customers.

“I am most proud of the brand we have

been able to build together. I am extremely proud of our company supporting the annual Community Service Day at the International Roofing Expo.® Since 2010, we have been the lead sponsor of this annual event that has brought together people from across the roofing community to help rebuild or repair homes and community buildings that have often been damaged by catastrophic weather events. The

first year we participated, the IRE took place in New Orleans, and we helped residents still recovering from Hurricane Katrina. I’m proud we can continue giving back through this worthy cause, and we look forward to returning to New Orleans in 2022 after residents faced yet another extreme weather event. It’s another powerful example of how the roofing community comes together to help those in need.

“I will miss the competitive nature of the roofing industry, but more importantly, I will miss the friendships that have come from more than 40 years in the business. I would like to thank NRCA for its leadership and vision of pulling the industry together through its One Voice initiative. The entire roofing industry made it through the toughest times of the COVID-19 pandemic as roofing was determined to be an essential business in part because our one voice was heard. In 2021, One Voice further helped the industry collectively navigate difficult times by educating the industry about the supply chain mess that we are all still dealing with.

“My plan has been to leave the company in a good position to continue to experience success. I am confident my successor, Sebastien Godard, will continue our brand legacy and bring the business to new heights.

“Thank you for your support, loyalty and friendship!”

Congratulations, Brian! I am usually a bit nostalgic to see people retire. But I am also thankful for their work and rejoice in their newfound freedom, finally being able to slow down and enjoy their families even more.

As I have gotten older, more of my friends are retiring. Recently, after 40 years, Bennett Judson retired from NRCA and the Roofing Alliance. I am sure going to miss her. Congratulations, Bennett, and thank you for years of service to NRCA and the industry. You are an amazing colleague, and it’s been an honor working with you these past five years. 🌟🌟🌟

REID RIBBLE is NRCA’s CEO.

@NRCA_CEO

NRCA introduces new fall-protection training course

To help safety professionals comply with Occupational Safety and Health Administration and other requirements and understand the latest fall-protection techniques, NRCA now offers an in-person, interactive training course.

NRCA’s three-day, roofing-specific Fall Protection Competent Person Training is designed for foremen, crew leaders, safety directors and NRCA Qualified Trainers. Participants will learn the latest information about fall hazard recognition (including job hazard analysis); fall-protection system specifications and limitations; detailed inspection protocols for fall-protection equipment and roof deck integrity; self-rescue and assisted rescue from an arrested fall; and effective training techniques.

Additional information is available at nrca.net/education/custom-education/fall-protection-competence.





Safety tips to help prevent drop hazards

Performing overhead construction work poses significant safety concerns, and it is important to know how to prevent drop hazards, such as falling tools, according to constructionexec.com. The Occupational Safety and Health Administration includes the risk of being struck by a falling object as one of the “fatal four” leading causes of injury and death resulting from a construction-related accident.

Anyone on a construction site is at an increased risk for injury from dropped tools when the following conditions are present: overhead work; scaffolds; cranes;

use of power tools; ladders; lifting operations; elevated platforms; performing tasks that require force (pulling, pushing, prying, etc.); and portable equipment put together on-site.

Taking preventive action can help alleviate risks related to drop hazards. Following are some tips to increase safety on job sites.

- Mandate safety equipment. Require hard hats and eyewear to be worn by every person at risk for falling objects. This includes construction workers, managers, property managers and visitors.
- Use barricades or ropes to mark off areas where potential drop hazards exist.
- Use toe boards and screens, ensuring they are secure in place by having them inspected before use.
- Implement the use of shock-absorbing tool lanyards that attach directly to workers to reduce drop risk. Note: This only applies to tools light enough that they would not pull a worker down if they are dropped.
- Practice good housekeeping and maintenance by keeping tools and other materials away from edges or elevated surfaces.
- Always secure tools and materials to prevent movement from external factors, such as weather.
- Require risk assessments before conducting work with drop hazards to help prevent a potential accident.
- Remove excess hazards. Mandating that workers at height only bring the tools required to perform their jobs will minimize the probability of a tool being dropped.

To view OSHA's standard for falling object protection, go to professionalroofing.net.

Assess potential job candidates to avoid harmful consequences

Labor shortages often increase the burden on existing staff members, creating the potential for dissatisfaction, burnout and more vacancies. However, the temptation to hire anyone willing to take the job could have potentially harmful consequences, according to *Harvard Business Review*.

If hiring no one or hiring “just anyone” can be harmful, it's important to know how to assess candidates and decide whether to take a chance on a candidate or keep a position vacant until a more appropriate candidate is found.

Harvard Business Review identifies four traits that most significantly affect a team.

1. Reliability. Use reference-checking skills to try to screen out unreliable workers. Make sure the interview includes behavioral questions that might provide clues, such as asking how the candidate managed an unexpected event; generally, adaptable and resilient individuals are more likely to be reliable.

2. Job readiness. If employees are overworked, some help may be better than no help—assuming the new hire requires minimal training. Beyond task-specific skills, look for candidates with a growth mindset because they believe knowledge and abilities can be developed with effort.

3. A positive attitude. Many employees will change their task workflow to avoid someone negative and difficult. This can affect other employees, who end up accomplishing less work and becoming more dissatisfied.

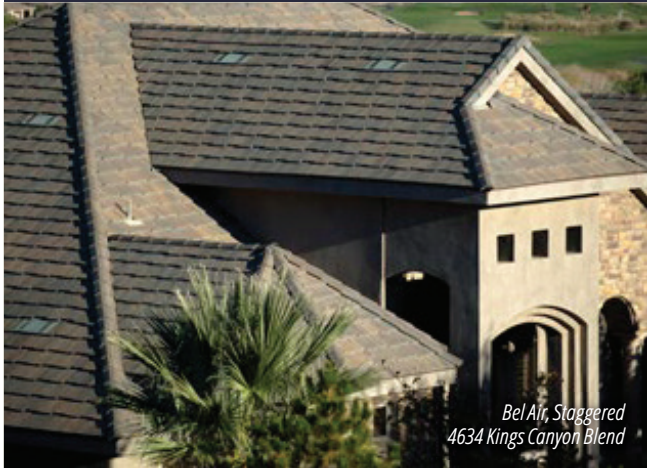
4. Good communication. Being able to communicate well with colleagues is important in any work environment, and for projects that require professionals with different areas of expertise to work together, one individual can derail the whole team. Managers can assess basic communication skills during an interview by looking for clarity and coherence of responses. They also could consider asking the candidate about his or her preferred communication medium to see how it fits with the team's communications.

In the meantime, it is crucial a manager respects, gives attention to and rewards current employees, as well as reassures them the company is looking for someone who would be a good co-worker.



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Owens Corning will expand capacity to meet growing demand

Owens Corning, Toledo, Ohio, has announced plans to accelerate increased production capabilities to support growing demand for its roofing products.

The company's plans for 2022-23 include a multimillion-dollar investment that will increase capacity across its shingle plant network, adding the equivalent of a full shingle line to its shingle production capability.

Owens Corning also will make significant investments in increased inventory levels and warehousing to meet demand surges during peak seasons.

Additionally, the company will expand its fiberglass mat facility in Fort Smith, Ark., which will significantly increase its mat capacity starting in 2023.

The investments also will increase the company's production capacity in roofing accessory products.

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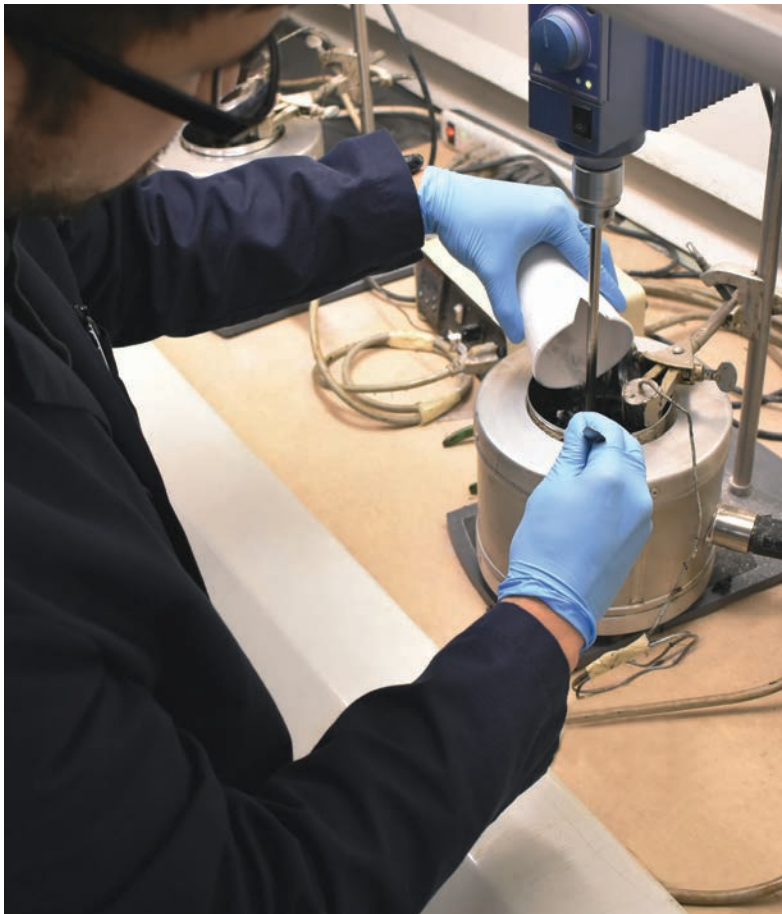


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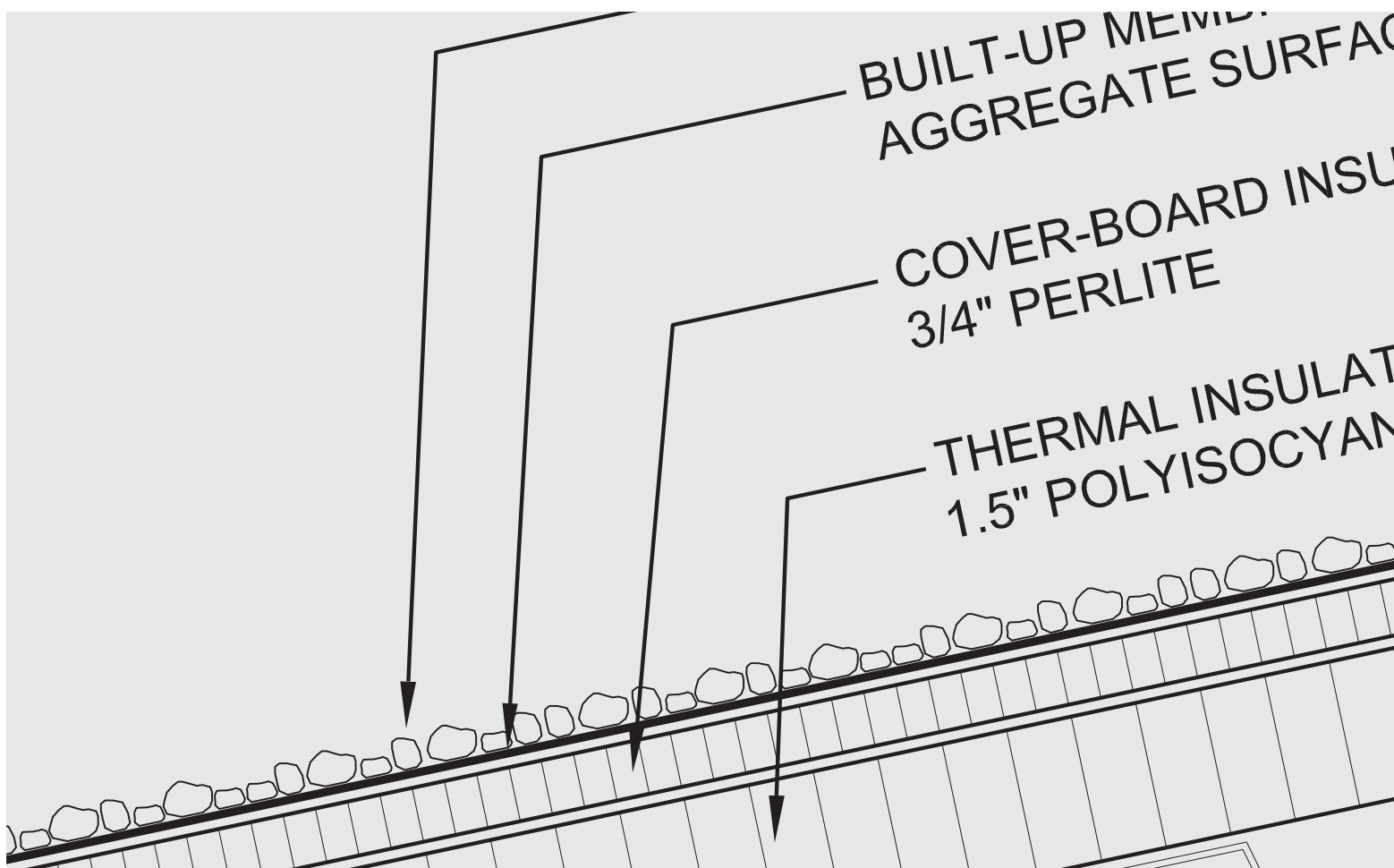
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Understanding R-value

The Federal Trade Commission's R-value rule provides a basis for comparison

by Mark S. Graham

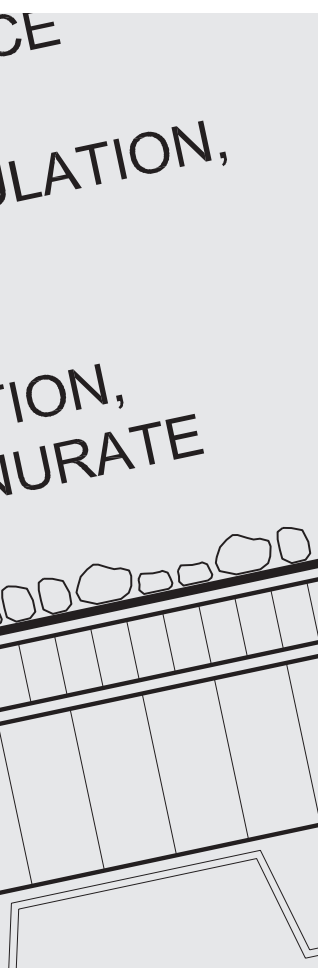
Thermal resistance, commonly referred to as R-value, is a measure used to report the thermal performances of building materials, products, systems and assemblies. In the roofing industry, R-value also is used as a basis for comparing insulation products. It is important you understand how R-value is derived and tested, as well as guidelines and regulations for reporting and product labeling R-values.

R-value

ASTM C168, "Standard Terminology Relating to Thermal Insulation," defines R-value as "the quantity determined by the temperature difference, at steady state, between two defined surfaces of a material or construction that induces a unit heat flow rate through a unit area." In English (inch-pound) units, R-value is expressed as $\text{h} \cdot \text{ft}^2 \cdot \text{F} / \text{Btu}$.

The R-value of homogenous materials and products typically is tested using ASTM C518, "Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus." The testing's outcome is a thermal conductance value, commonly referred to as C-factor, expressed in inch-pound units as $\text{Btu} / \text{h} \cdot \text{ft}^2 \cdot \text{F}$.

The R-value of systems or assemblies commonly is tested using ASTM C1363, "Standard Test Method for Thermal Performance



of Building Materials and Envelope Assemblies by Means of a Hot Box Apparatus.” This testing’s outcome is a thermal transmittance value, commonly referred to as U-factor, and also is expressed in inch-pound units as $\text{Btu/h}\cdot\text{ft}^2\cdot\text{F}$.

C-factor and U-factor are the mathematical inverse of R-value ($R = 1/C$, $R = 1/U$).

The concept of using R-value rather than C-factor and U-factor for reporting thermal performances originated with a Penn State University researcher, Everett Shuman, in the mid-1940s. Shuman contended the R-value

concept was easier for users to comprehend and use. Higher R-values represent higher levels of thermal performance. Also, R-values for multiple materials or products can be readily mathematically added; C-values cannot.

By the mid-1970s, the R-value concept had become more common. Now, it is widely recognized as the basis for reporting thermal performances of building materials, products, systems and assemblies.

R-value rule

The Federal Trade Commission first established an R-value rule in 1979 in response to several unfair and deceptive insulation cost-savings claims and to standardize reporting residential insulation products’ R-values.

The current R-value rule is identified as 16 CFR Part 460, “Labeling and Advertising of Home Insulation: Trade Regulations.” It is

“The FTC’s R-value rule provides a regulatory-backed basis so consumers can rely upon manufacturers’ R-values for residential insulation products”

intended to apply to home insulation manufacturers, professional installers and retailers who sell insulation for do-it-yourself installation and new home sellers. It also applies to laboratories that conduct R-value tests for these entities.

The R-value rule identifies specific testing methods and procedures. For example, testing of mass insulation products is required to be conducted at a mean temperature of 75 F. Tests for polyurethane, polyisocyanurate and extruded polystyrene insulation must fully reflect the effect of aging. Tests for loose-fill insulation products must account for settling on the products’ R-values.

The R-value rule also requires applicable entities to disclose R-value and other relevant information, such as thickness and coverage area per package, on product labels and manufacturers’ product literature.

The FTC has indicated the R-value rule specifically does not apply to insulation sold for use in commercial, industrial, institutional and retail buildings.

Code requirements

The International Energy Conservation Code® requires insulation R-values to be determined in accordance with the FTC’s R-value rule.

The requirement applies to residential buildings covered by IECC’s residential provisions and nonresidential buildings, including commercial, industrial and retail buildings, covered by IECC’s commercial provisions.

IECC also includes additional requirements specific to product labeling.

The International Code Council®’s inclusion of the FTC R-value rule in IECC’s commercial provisions conflicts with and is outside of the FTC’s intended applicability of the R-value rule.

Closing thoughts

The FTC’s R-value rule provides a regulatory-backed basis so consumers can rely upon manufacturers’ R-values for residential insulation products.

ASTM International product standards for most insulation products include minimum R-values derived in compliance with the FTC’s R-value requirement. ASTM C578, “Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation,” which applies to expanded and extruded polystyrene, contains R-values based on 25 F, 40 F and 110 F mean temperatures. ASTM C1289, “Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board,” which applies to faced-polyisocyanurate insulation, contains R-values based on 40 F and 110 F mean temperatures. Designers can use R-values based on mean temperatures other than 75 F for specific design purposes provided R-values based on 75 F are used for code compliance. Designers may want to use R-values other than those based on a 75 F mean temperature when determining vapor retarder placement for cold storage buildings or in cold or hot climates, for example.

NRCA recommends insulation be specified by designers and procured based on its ASTM designation and thickness, not by specifying its R-value.

Additional information about R-values, C-factors and U-factors and rigid board insulation products is provided in Chapter 4-Rigid Board Insulation of The NRCA Roofing Manual: Membrane Roof Systems. 🌱🌿

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

 @MarkGrahamNRCA

ICC and Pakistan Engineering Council develop building code

The International Code Council® and the Pakistan Engineering Council, a statutory body that regulates the engineering profession and education in Pakistan, have developed the Building Code of Pakistan. Based on the *International Building Code,® 2021 Edition*, the Building Code of Pakistan provides minimum benchmarks for the structural safety of building design, construction, operation, practices and installation of allied building systems in Pakistan.

The ICC and PEC's Think Tank Department share a history of holding international development agreements, working toward the overall development of the Building Code of Pakistan. The ICC and PEC officially signed the international publishing agreement in August 2021.

"We are pleased to continue our longstanding global partnership with the Pakistan Engineering Council," says Mark Johnson, executive vice president and director of business development for ICC. "The Building Code of Pakistan contains significant advancements in building safety and is a landmark achievement that reflects Pakistan's commitment in furthering the advancement of building safety in the country."



Report explores obstacles for digital tools in construction

An October 2021 survey from Dodge Construction Network shows 95% of 648 office- and field-level construction industry respondents are ready to take on new digital tools, according to constructiondive.com. Another 95% of field workers say they would be willing to use digital tools to combine or streamline parts of their work.

Still, the construction industry generally has been slow to adopt technology. Only 15% of survey respondents say they have implemented a digital transformation strategy, and 38% of respondents say they have not built out a strategy or it is not a priority.

Dan McCarthy, CEO of Dodge Construction Network, says the industry's desire for accurate data is a good sign. However, employing a digital transformation comes with challenges.

Of the 49% of office workers who had issues

implementing a digital strategy, 42% report hardware and software issues slowed or stopped a project. Thirty-nine percent of those respondents say such issues made the project more expensive overall, and 19% say staff failure to adopt the new strategy stalled the project and resulted in no improvement in their work.

"What's really behind the challenges is that it's hard to organize data and deploy it in a way that it can create value for companies," McCarthy says.

In September 2021, Autodesk released a report showing bad data was costing the construction industry \$1.8 trillion annually. It also found 30% of the report's respondents said more than half their data was "bad" and unusable in their work. Autodesk encouraged companies to employ formal data strategies to make the best use of data collected.



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ROOFING DAY IN

2022

APRIL 5-6, 2022

Be there!

Back to business

NRCA invites all industry professionals to attend Roofing Day in D.C. 2022!

by Deborah Mazol

On April 5-6, the roofing industry will visit Capitol Hill for Roofing Day in D.C. 2022. The industry's biggest advocacy event of the year, Roofing Day in D.C. provides an opportunity for lawmakers to hear the roofing industry speak with one voice regarding key government policy issues. NRCA urges all roofing industry professionals to participate and help demonstrate the breadth and diversity of the industry to Congress.

With more than 400 participants attending the first two in-person events in 2018 and 2019, Roofing Day in D.C. is one of the largest advocacy events of any kind in Washington, D.C. It brings together contractors, manufacturers, distributors, consultants, service providers, field workers and other industry professionals to advocate collectively for the industry's continued success. Roofing Day in D.C. is a collaboration among NRCA members, industry stakeholders, and numerous regional, state and local roofing industry associations and intended to enhance the industry's professionalization and prosperity.

New programming

Although Capitol Hill remains under some COVID-19 restrictions for large gatherings, NRCA is working hard to ensure Roofing Day in D.C. is as

D.C.

seamless and successful as possible. NRCA has retained Advocacy Associates, a Washington, D.C.-based consulting firm specializing in managing large advocacy events, for guidance and reserved additional hospitality space for virtual meetings to be held during the event.

On Tuesday, April 5, an opening program and cocktail reception will be held at the Grant Hyatt® Washington to kick off Roofing Day in D.C. 2022. On Wednesday, April 6, participants will attend a morning program featuring speakers who will discuss the political outlook in Washington, D.C., give tips for congressional meetings and discuss emerging

roofing industry issues. In the afternoon, participants will have three to four meetings with senators, representatives and congressional staff to convey the roofing industry's message. Although not all lawmakers will be available to meet in person because of the pandemic, in-person meetings will be scheduled for as many participants as possible.

A tentative agenda for Roofing Day in D.C. 2022 is available at nrca.net/roofingday.

schedules of congressional meetings, position papers, talking points, links to video meetings, thank-you note templates and other features.

Roofing Day in D.C. participants will be provided with an online platform to access

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

Key issues

All participants will be given position papers and talking points for the key policy issues that will be the focus of the meetings with members of Congress. Selected with input from members of NRCA's Roofing Day Committee, the issues unify all segments of the industry. At press time, the advocacy issues had not yet been finalized but will likely include thanking Congress for passing infrastructure legislation with a strong buildings component and discussing federal legislation to address workforce challenges.

Virtual Roofing Day in D.C. 2021 was wildly successful because of its passionate participants. Since the event, there has been progress and success on most of the issues participants presented to lawmakers.

Congress is expected to pass legislation with an additional \$50 million in funding for career and technical education state grants that can help employers meet their workforce development needs. In November 2021, Congress passed the bipartisan Infrastructure Investment and Jobs Act that has a strong buildings component supported by the roofing industry. Roofing Day in D.C. 2021 participants also helped add co-sponsors to the Energy Efficient Qualified Improvement Property (E-QUIP) Act that allows for 10-year depreciation of energy-efficient roof systems and supported the introduction of the

Workforce for an Expanded Economy Act that creates a new visa program for foreign workers.

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

Register now

NRCA strongly encourages all industry professionals to register now for Roofing Day in D.C. 2022 and bring along one or more field workers. Elected officials will benefit greatly from hearing from the roofing industry's dedicated workforce. The registration fee is \$95 per person for company representatives and \$35 for field workers, students and spouses. It is a meaningful and fun experience you—and they—will never forget.

Additional information about Roofing Day in D.C. 2022 and registration information are available at nrca.net/roofingday.

On behalf of NRCA's leadership and staff, we look forward to seeing you April 5-6 in Washington, D.C., for the premier advocacy event of the year! 🍷🌟

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



To view photos from virtual Roofing Day in D.C. 2021 and learn about advocacy issues during previous Roofing Day in D.C. events, go to professionalroofing.net.

New online portal for OSHA Voluntary Protection Programs

A new online portal for submitting applications to the Occupational Safety and Health Administration's Voluntary Protection Programs now is available at osha.gov/vpp. The portal modernizes the application process for companies that qualify for Voluntary Protection Programs and makes it easier for candidates to start, continue and get assistance with submitting their applications.



"Companies in the Voluntary Protection Programs go above and beyond basic OSHA requirements and strive to create a culture of safety," says Acting Assistant Secretary of Labor for Occupational Safety and Health Jim Frederick. "This important program comprises sites that serve as models of excellence and influence safety and health practices in all industries."

The portal allows OSHA to review applications in real time and help companies correct errors or omissions quickly. Applicants can use the portal to upload electronic versions of supporting documentation, and they can stop and complete their applications at a later time if needed. After completing an applicant profile, an applicant also may download an application form to complete

offline and submit application materials by mail.

OSHA developed the portal as part of ongoing efforts to continue representing safety and health excellence, leverage resources, accommodate effective

administration of the Voluntary Protection Programs and support smart program growth. The agency developed the portal with input from external stakeholders and OSHA staff.

OSHA adopted the Voluntary Protection Programs July 2, 1982, to recognize cooperative action among government, industry and labor as a means of addressing worker safety and health issues and expanding worker protection.



Want to learn more about the history of OSHA's Voluntary Protection Program? Visit professionalroofing.net.

Invite congressional leaders to visit roofing companies



The 2022 legislative calendar for the Senate and House of Representatives has been released. The calendar shows when lawmakers are voting, home in their districts and have committee workweeks.

Roofing professionals are encouraged to invite representatives to tour company facilities, meet employees and learn about key issues affecting the roofing industry.

The legislative calendar is available at rational360.com/2022-combined-congressional-calendar.

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- Members: Kick back and relax in the NRCA member lounge.

*See you in
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For additional
information, visit
nrca.net.

An aerial photograph showing a busy port area with numerous colorful shipping containers stacked in neat rows. A multi-lane highway runs parallel to the port, with several vehicles including a green truck, a white van, and a blue car. The water is dark blue, and the overall scene conveys a sense of industrial activity and logistics.

SUPPLY CHAIN CHAOS

Material shortages and price volatility plague the industry

by Chrystine Elle Hanus and Mark S. Graham



First it was toilet paper and flour. Then it was lumber, home gym equipment and home-school supplies. Now it's semiconductor chips, groceries and parts needed for home improvement projects, including roof systems. What started as various industry hiccups at the beginning of the COVID-19 pandemic has evolved into a full-blown breakdown in the global supply chain.

Rising construction material costs and lack of availability is making it difficult to provide estimates for roofing projects, let alone complete them. Roofing companies are struggling to get projects started, and major roofing projects are being put on hold. To navigate through the supply chain crisis, it's helpful to know how the industry got to this point, its current state and where it's headed.

A global problem

Unfortunately, there is no historical precedent for the current supply chain shortage, according to David Dreyfus, an assistant professor in the department of supply chain management at Rutgers Business School in Newark, N.J. The world was not globalized during the 1918 flu pandemic as it is now. Dreyfus notes even the pharmaceutical shortages experienced after Hurricane Maria in 2017 that affected Puerto Rico's manufacturing sector only lasted a few months.

"The entire world experienced the same disruption, this pandemic," Dreyfus said in a November 2021 New England Cable News article. "So instead of it being isolated to a natural disaster like a hurricane or tsunami where it's just one area of the world, the entire world closed down."

Supply chain problems are not new; they existed before the pandemic. There was a shortage of drivers to transport supplies, and online shopping increased the number of goods to be delivered, according to Douglas Hales, a professor of operations and supply chain management at University of Rhode Island's College of Business, South Kingstown. Even with ports in Los Angeles and Long Beach, Calif., operating at capacity, there still are too few truckers, not enough workers in warehouses and distribution centers, and other logistical problems.

"Ships are waiting to unload, and port operators say companies are not picking up their goods quickly enough," Hales says. "Truckers report delays with crane operators and say they are stymied by cross-country trucking regulations. Those rules merit a review."

The head of the Teamsters union in the Los Angeles and Long Beach port areas says supply chain problems are complex.

"The problem is the way the trucking industry in the [Los Angeles and Long Beach] port area is done," said Teamsters General President Jim Hoffa during a Dec. 8, 2021, Zoom presentation. "It's being done on the terrible, terrible basis of [employee] misclassification. It's rotten to the core, and that's why truckers are not showing up. I don't blame them."

During the presentation led by the union, according to the *Los Angeles Daily News*, Hoffa said the problem isn't too few drivers but rather a system in which drivers must bear much of the financial burden themselves, including paying for trucks and fuel while having no regular employee benefits, such as sick pay or health insurance.

Los Angeles Daily News reports Hoffa has spoken with the Biden administration's new labor secretary, Marty Walsh, a former union president, and said he's hopeful something might be done to rectify the situation. California Senate Bill 338, which took effect Jan. 1, penalizes cargo owners who use companies with drivers who aren't employees. However, another piece of legislation, California Assembly Bill 794, would disqualify trucking companies from receiving funding for clean trucks.

"It's a big battle," Hoffa said. "It's going to be a battle all the way."

Despite the supply chain crisis, Los Angeles-area ports are on track for a record year, according to L.A. Biz. As of Dec. 15, 2021, more than 18.5 TEUs (20-foot equivalent units) have moved through San Pedro Bay—up 18.5% from the first 11 months of 2020.

Domestic issues

Compared with other industries, the U.S. roofing industry is mostly domestic in nature. A vast majority

of roofing products and materials used are manufactured in the U.S. from U.S.-sourced raw materials by U.S. suppliers and distributors and installed by U.S. roofing contractor companies. Although the global economy has some effect on many purchasing decisions, the U.S. roofing industry is largely driven by the U.S. economy, interest rates and consumer sentiment.

During the past decade, the U.S. roofing industry has experienced consistent, moderate growth. The materials and products supply chain has expanded, and field personnel have been added to fill the growing need. In many regions, growth has been limited by a lack of adequately trained field personnel.

At the same time, energy code requirements and sustainability incentive programs have resulted in a demand for more energy-efficient roof systems. Mandated increases in insulation values necessitate thicker and greater amounts of insulation resulting in demand for additional materials and installation labor.

By many measures, 2020 was a productive year for the U.S. roofing industry. For example, 2020 was a near-historic record year for asphalt shingle roof system installations. Homeowners invested in reroofing and maintaining their homes during the pandemic, and the roofing industry responded to several weather events involving high winds and hail. Institutional and industrial segments of the U.S. roofing industry experienced similar activity.

But one noticeable change that came with the pandemic is the roofing material and product inventory shrunk considerably as some material suppliers and distributors reduced their inventories during the earliest days of the pandemic. Since the start of the pandemic, far more roofing materials and products are being shipped on a job-specific basis, especially roof insulation, roof covering products and certain specialty products such as fasteners and adhesives.

At the end of 2020, there was a degree of uncertainty in the U.S. economy and within the roofing industry. Contractors were unsure whether roofing would be deemed an “essential” business, and U.S. roofing manufacturers, distributors and contractors placed minimal orders for materials and products. As a result of reduced demand, manufacturers scaled back their off-season production. Because of this, inventories were uncharacteristically low at the start of the 2021 roofing season.

NRCA was successful in lobbying for roofing to be classified as an essential business, and by February 2021,

demand for roofing rebounded in many areas of the U.S. Roofing contractors’ backlogs of work grew significantly spurred by low interest rates and stimulus funding. By March, roofing material shortages were common, and prices were increasing significantly and continue to fluctuate as demand for roofing services is high.

On Sept. 22, 2021, NRCA held a Telephone Town Hall featuring leaders of significant industry manufacturers who shared updates and answered questions regarding the supply chain crisis. During the town hall, manufacturers raised a concern about “ghost orders,” where contractors placed orders with several suppliers for the same job or for materials that would not be used right away, which resulted in excess materials in some contractors’ warehouses while others awaited materials.

Despite ordering issues, asphalt shingle production and installation remained extremely high during 2021, and roofing contractors in many regions are reporting significant backlogs of work well into 2022. Manufacturers are reporting similar demand with anticipated lead times for fulfilling new orders between four and 12 months or longer. Shortages of materials and products are at the point where availability is limiting the ability to perform roofing work to a greater extent than a lack of adequately trained field personnel, a problem that has plagued the industry for years.

It should be no surprise manufacturing prices go up because raw material prices go up. In some cases, the timing for determining the price roofing contractors pay for materials and products also has changed. Recently, several manufacturers have instituted new policies basing pricing at the time of shipment rather than at the time the order is placed. As a result, roofing contractors don’t have accurate material and product pricing at the time they prepare a proposal or bid for a homeowner or building owner. This is an obvious problem for roofing contractors as well as homeowners and building owners because there is likely potential for more price increases.

According to the Associated Builders and Contractors, through November 2021, nonresidential construction material prices increased 24.5% compared with one year ago. Softwood lumber prices have fluctuated wildly and are up 3.5% year-over-year and up 6% from October to November 2021. Iron and steel prices are up 105.1% year-over-year and 3.6% from October to November 2021.

“There is no indication material prices will fall in the near future,” says ABC Chief Economist Anirban Basu. “With the Omicron variant now circulating around the



To access a recording of NRCA’s Telephone Town Hall addressing the supply chain crisis, go to professionalroofing.net.



world and leading to a wave of lockdowns and supply chain disruptions, demand for key commodities will continue to exceed supply. Among the implications is that estimators will be under enormous pressure to predict materials prices amid enormous volatility and uncertainty. Many ABC members expect profit margins to decline over the next several months.”

Further exacerbating the supply chain problem, in some situations, such as the aftermath of Hurricane Ida in 2021, roofing manufacturers were faced with declarations of force majeure (unforeseeable circumstances) regarding supply contracts and shipments from raw material providers, causing raw material slowdowns. In some cases, manufacturers need to find alternative raw material sources, resulting in stoppages in material and product manufacturing that likely have notable effects on material and product pricing.

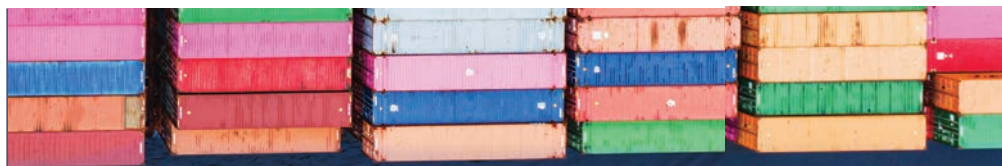
Similar to other industries, the roofing industry continues to feel the effects of shortages of delays in and high pricing for transporting roofing materials and products from manufacturers to suppliers and distributors, roofing contractors’ warehouses and job sites. NRCA expects roofing material and product shortages, long lead times and significant price volatility to continue through this year.

Moving forward

To help alleviate supply chain issues, some manufacturers, such as Owens Corning, Toledo, Ohio, are ramping up manufacturing. The company’s plans for 2022-23 include a multimillion-dollar investment that will increase capacity across its shingle plant network, adding the equivalent of a full shingle line to its shingle production capability. In addition, the company will make significant investments in increased inventory levels and warehousing to meet demand surges during peak seasons.

“Given the industry’s fiberglass mat constraints, we are also excited to share that we have announced an expansion to our fiberglass mat facility in Arkansas that will significantly expand our mat capacity starting in 2023,” says Gunner Smith, president of roofing for Owens Corning. “These investments will increase our production capacity in our roofing accessory products as well, supporting the growth of our Total Protection Roof System.”

NRCA will continue to monitor the supply chain crisis and keep the industry apprised of developments. You can find more information on NRCA’s dedicated supply chain shortage information webpage at nrca.net/resources/



TAKEAWAYS

Commercial property insurer and supply chain resilience expert FM Global® identified six facets of the current supply chain crisis and takeaways:

1. The COVID-19 pandemic has disrupted demand and product supply. FM Global takeaway: Although the pandemic triggered supply chain problems, there are other contributors that are not going away.
2. The supply chain is susceptible to cyberattacks, such as the one on the Colonial Pipeline that disrupted U.S. fuel supply. FM Global takeaway: Cybercrime has become big business, making cybersecurity a key part of business strategy.
3. Port backlog is an issue as goods have accumulated faster than workers can move them; an estimated \$24 billion of goods sit outside of California ports. FM Global takeaway: There are no assurances backlogs and elevated shipping costs will not continue through the middle of next year or longer.
4. Many countries lack enough truck drivers to move the goods that are backlogged in ports and other locations. FM Global takeaway: The truck driver shortage will strengthen the case for autonomous-vehicle development and lowering the interstate truck-driving age.
5. Deadly floods have destroyed communities, severed railway links and disrupted manufacturing in China and Europe. FM Global takeaway: Although no single weather event can be conclusively attributed to a changing climate, flooding is a well-documented effect of warming temperatures and a growing risk to business.
6. A chip shortage has occurred as the pandemic closed factories and triggered a surge in technology demand, affecting auto, gaming, smartphone and medical device manufacturing, among many other industries. FM Global takeaway: Chip booms and busts have been common during technology’s history and likely will recur in the future.

In May 2021, FM Global released its 2021 FM Global Resilience Index designed to help organizations optimize their supply chains by providing data regarding the relative resilience of countries’ and territories’ business environments. The report is available at fmglobal.com.

supply-chain-shortage. This section provides up-to-date news and what you can expect to see in the coming months, as well as a suggested price acceleration clause for your contracts to address unforeseen price increases and a recording of an NRCA supply chain webinar with industry leaders.

NRCA encourages you to share this information with your homeowner and building owner clients, building managers, general contractors and construction managers involved in roof purchasing decisions. 📢🔗

CHRYSTINE ELLE HANUS is *Professional Roofing’s* associate editor and an NRCA director of communications, and **MARK S. GRAHAM** is NRCA’s vice president of technical services.



A N E V O L U T I O N



CONCRETE DECK MOISTURE PROBLEMS CONTINUE TO PLAGUE THE ROOFING INDUSTRY

BY MARK S. GRAHAM



O F K N O W L E D G E

Newly poured and, in some instances, existing structural concrete roof decks present unique moisture migration problems for the roofing industry. This issue is not new—the industry has been facing it for years, and several authors and I have written numerous articles in *Professional Roofing* and other publications about it. Over time, the roofing industry has advanced its knowledge of moisture in concrete roof decks and how to best address it. And NRCA has updated its best practice guidelines for successfully dealing with structural concrete roof decks' moisture.

Concrete basics

There are three general types of concrete: normal-weight structural concrete, lightweight structural concrete and lightweight insulating concrete. Normal-weight structural concrete is what most people think of as concrete; it has a density of about 150 pounds per cubic foot and, when properly designed, can carry structural loads. Lightweight structural concrete has

similar structural load-carrying capabilities as normal-weight structural concrete, but it has a density in the range of about 85 to 120 pcf.

Both normal-weight and lightweight structural concrete are produced by mixing large and small aggregates, Portland cement, water and, in some instances, other additives such as fly ash and various chemical admixtures. Admixtures can add entrained air to the concrete, accelerate the concrete's curing, retain the concrete's excess moisture and/or lengthen concrete's finishing time. The use of admixtures typically is not visually identifiable in the field; microscopic analysis usually is necessary for post-application identification of admixtures.

The primary difference in composition of normal-weight structural concrete and lightweight structural concrete is the type of large aggregates used. Normal-weight structural concrete contains normal-weight aggregates such as stone or crushed gravel, which are dense and typically absorb no more moisture than about 2% by weight. Lightweight structural concrete uses lightweight, porous aggregates such as expanded shale, which will absorb about 5% to 25% moisture by weight. Lightweight aggregate needs to be saturated with moisture—it's often submerged in ponds during storage—before concrete batching. As a result, lightweight structural concrete inherently contains much more water than normal-weight structural concrete.

Normal-weight structural concrete and lightweight structural concrete are used in cast-in-place concrete roof decks with removable forms; composite roof decks where metal form decks remain in place; precast and prestressed concrete planks and tees; and as a concrete topping surface over precast concrete planks and tees.

Once placed, normal-weight structural concrete and lightweight structural concrete cannot easily be differentiated from each other in the field. Visual identification is possible using magnification, typically a microscope used by a trained technician.

Lightweight insulating concrete, which many roofing professionals are familiar with as an insulating, slope-to-drain roof deck topping, typically has a density in the range of 20 to 40 pcf. Lightweight insulating concrete is further differentiated from structural concrete in that lightweight insulating concrete is “nonstructural,” meaning it has limited structural load-carrying capabilities. Lightweight insulating concrete typically is placed over a form deck or other structural roof deck type for support.

It is important to note lightweight insulating concrete roof decks are not experiencing the same moisture migration problems as structural concrete roof decks. The roofing industry has long understood and addresses moisture release in lightweight insulating concrete roof decks with bottom- and/or top-side venting. Based on this, the following information should not be considered applicable to lightweight insulating concrete; it is intended to only apply to normal-weight and lightweight structural concrete.

Moisture and drying

Water is a basic component of a concrete mix design. Upon batching of a concrete mix, a chemical reaction occurs between water and Portland cement creating a cementitious paste that bonds to and fills the gaps between the batch’s large and small aggregates to form a solid concrete mass. This chemical reaction is referred to as hydration.

Hydration initially occurs rapidly then continues to a lesser extent over time. Hydration can continue well beyond the concrete’s 28-day design cure period. This 28-day period is a standard time for testing and evaluating concrete’s compressive strength for structural load capacity. There is little to no correlation between the 28-day design cure period, concrete’s moisture content and its readiness to be covered with a roof system.

Concrete mix designs and batches typically contain considerably more water than necessary for proper hydration. For example, a normal-weight structural concrete mix with a water-to-cement ratio of 0.45 contains about 30 gallons of water per cubic yard of concrete. About half of this water will be consumed during the concrete’s hydration and curing process. The remaining water, referred to as “free water,” is left to dissipate by evaporation and moisture vapor transport over time.

In some instances, additional water beyond that prescribed by the mix design is added to a concrete batch before placement to facilitate transportation and ease placement. This additional water increases the amount of free water that needs to dissipate by evaporation and moisture vapor transport.

Research conducted by the Portland Cement Association, Skokie, Ill., for the flooring industry provides some insight into the amount of time it takes for a newly placed concrete slab to dry. PCA’s research shows measuring concrete’s internal relative humidity can be a reliable means of assessing concrete’s relative dryness and appropriateness to receive floor coverings. Relative humidity values of about 75% or lower typically are considered acceptable to prevent blistering on moisture-sensitive and nonbreathable floor coverings. The research has shown normal-weight structural concrete floor slabs may reach acceptable levels in about 90 days and lightweight structural concrete floor slabs may take about six months to reach the 75% relative humidity level. This research was conducted indoors, with test specimens not subjected to rewetting. The longer drying time for lightweight structural concrete floor slabs is an indication of the greater amount of water contained in lightweight structural concrete design mixes.

Unlike the flooring industry’s 75% relative humidity threshold, the roofing industry has no established guideline for concrete’s dryness before roof system application. However, because the flooring industry’s threshold considers moisture-sensitive materials and blistering potential—both of which also are considerations for roof systems installed over concrete roof decks—the flooring industry’s guideline can serve as a practical basis. Also, a membrane roof system on a concrete roof deck, such as a vinyl floor covering, for example, functions as a vapor retarder on the top surface of a concrete slab preventing upward moisture release.

That said, concrete roof decks and concrete floor slabs differ in two fundamental aspects. First, concrete floor



For articles related to this topic, see “What we know now,” March 2020 issue and “The quest for dryness,” June 2017 issue.



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slabs typically are protected from weather during curing and drying. Concrete roof decks, on the other hand, are exposed to weather and rewetting by precipitation. Rewetting significantly can lengthen the drying time of concrete roof decks.

Second, the moisture vapor transport characteristics are different between concrete floor slabs and concrete roof decks. With floor slabs, there usually is little to no difference in the ambient conditions between a concrete slab's bottom and top sides, which means there usually is little to no temperature-derived vapor pressure differential across the slab that would move any moisture vapor from within the slab. Conversely, with concrete roof decks, the bottom side of a roof deck typically is exposed to conditioned space while the top side experiences changing temperatures, humidity and wind, all of which can affect moisture vapor transport. Temperature differentials across the cross-section of a roof assembly can result in net vapor pressure drive in the direction from warm to cold.

Therefore, during periods of cool or cold outside temperatures, residual moisture vapor from the concrete's free water can be forced outward into the roof system. Excessive moisture accumulation in a roof system can result in damage to moisture-sensitive roof system components and affect roof system performance.

During periods of hot outside temperatures, the concrete's residual moisture vapor can be forced downward into a building's occupied space provided a concrete roof deck was not poured on a metal form deck. With concrete roof decks poured in metal form decks that remain in-place, the metal form deck can act as a vapor retarder restricting inward moisture vapor transport. When conditions result in an inward direction of vapor drive, a building's HVAC system typically helps manage the driven moisture. Mechanical cooling processes, such as air conditioning, can remove large amounts of moisture from air.

Why now?

A question frequently raised when discussing moisture migration problems associated with concrete roof decks

is why is this an issue now when the industry has successfully installed roof systems over structural concrete roof decks for more than 100 years? There are several answers.

First, building construction schedules are more compressed than ever, and the push to get buildings enclosed and watertight sooner has intensified. Once roof systems are installed, buildings' interiors can begin to dry down

sooner and then finishing materials can be installed sooner. The irony of this is roofing contractors often are pressured to install roof systems over concrete decks sooner to expedite the curing and drying of concrete floor slabs to allow for expedited floor covering installation.

A roofing contractor should not decide when a newly placed normal-weight or lightweight structural concrete substrate is ready to be covered

Secondly, legacy roof system types, such as built-up membrane roof systems, usually were installed solidly mopped in hot bitumen to concrete roof decks or installed over rigid board insulation, which was solidly mopped in hot asphalt. In addition to being a roof system adhesive, hot bitumen or asphalt functions as a low-perm-rated vapor retarder, restricting moisture vapor transport into roof systems. With roof system types evolving away from solidly mopped BURs to spot- or ribbon-adhered or mechanically attached roof systems, the vapor retarder provided by the continuous mopping of hot bitumen or asphalt no longer is present.

Finally, many current roofing materials and products are more sensitive to moisture than legacy roofing products. Legacy rigid board roof insulation products, such as fiberglass board, wood fiberboard and perlite board, were able to take on and release small amounts of free water and water vapor without deteriorating. Current-generation faced, rigid board products are more moisture-sensitive, and current wood fiberboard and perlite board products are more moisture-sensitive because of their recycled content.

Roofing industry research

Roofing contractors have shared their experiences with concrete decks and moisture-related problems with NRCA, and NRCA has participated in and conducted several research projects that provide additional insight.

In 2010, NRCA and SRI Consultants Inc., Middleton, Wis., conducted in-situ moisture readings in concrete roof decks below existing roof systems where moisture-related problems had been reported. In each of the roof assemblies analyzed, large amounts of moisture were observed within the roof systems though little to no roof system leakage was reported or found. Relative humidity values ranging from 63% to 99% were recorded in these concrete roof decks, which ranged from 4 to 7 years old. This moisture is believed to be from the original construction.

From 2016-19, NRCA participated in and co-funded a large, multiphase research project at SRI Consultants with the Chicagoland Roofing Council, Chicago Roofing Contractors Association and the Roofing Alliance. The Canadian Roofing Contractors Association; GAF, Parsippany, N.J.; Johns Manville, Denver; and SOPREMA® Inc., Wadsworth, Ohio, provided additional funding and technical support.

In Phase 1 of the research, normal-weight and lightweight structural concrete roof deck mockups were constructed outdoors and indoors; the decks were heavily instrumented. The outdoor mockups were subject to rewetting via precipitation at the test site while the indoor mockups were representative of weather-protected roof decks not subject to rewetting. Specimens also were cast to develop hygrothermal material properties for normal-weight and lightweight structural concrete, and that data was used to develop a basic hygrothermal model addressing moisture mitigation from structural concrete roof decks.

In Phase 2, additional indoor normal-weight and lightweight structural concrete roof deck mockups were constructed and roof systems were added with and without above-deck vapor retarders 28 days after concrete placement. A laboratory-controlled upward pressure drive was induced to the mockups, and moisture gain in the roof systems was measured. This data was used to further expand and correlate the hygrothermal model from Phase 1.

Following are some key findings from phases 1 and 2 of the research:

The indoor normal-weight and lightweight structural concrete roof deck mockups exhibited gradual decrease in internal relative humidity because of hydration and evaporation, and the outdoor mockups experienced relative humidity loss and periods of increased relative humidity resulting from rewetting by precipitation. Also,

though the mockups exhibited visual dryness in their top surfaces, internal relative humidity values remained relatively high.

Hygrothermal material property testing of normal-weight and lightweight structural concrete shows lightweight structural concrete has about half the water vapor transmission rate than normal-weight structural concrete. Considering lightweight structural concrete is batched with more water than normal-weight structural concrete, this accounts for lightweight structural concrete's significantly longer drying rate. Also, the water vapor transmission rates for normal-weight and lightweight structural concrete tested 60 days after concrete placement were noticeably lower than water vapor transmission rates after 28 days. This shows concrete has a diminishing ability to release its free water as hydration and curing continue.

The hygrothermal modeling showed roof systems without a vapor retarder installed over normal-weight and lightweight structural concrete roof decks 28 days after concrete placement exhibited significant moisture accumulation from the concrete roof decks. The roof systems on the mockups with a vapor retarder exhibited only minimal roof system moisture accumulation.

In 2018, NRCA tested the effectiveness of porosity-inhibiting concrete admixtures, sometimes referred to as moisture vapor reduction admixtures. NRCA obtained core specimens of newly poured cast-in-place concrete from a building under construction. This test project included multiple concrete roof decks, several with a moisture vapor reduction admixture and one without. The concrete mix design was reported to be similar for all the concrete decks with the moisture vapor reduction admixtures being the known variable.

Testing results showed the concrete roof deck without the moisture vapor reduction admixture had a permeability value similar to the normal-weight structural concrete specimens from the SRI Consultants' research.

The test data from the moisture vapor reduction admixture specimens showed permeability values greater than those of the specimens without the moisture vapor reduction admixtures; this indicates the moisture vapor reduction admixture specimens are more "vapor open" than the other specimens. These test results contradict claims that a moisture vapor reduction admixture

DID YOU KNOW?

Contract provision language addressing roof deck acceptance is provided on NRCA's website at nrca.net/legal. This language also can be adapted to roof deck acceptance communications with prime contractors, construction managers and building owners.

minimizes concrete's ability to pass and release moisture vapor.

NRCA's recommendations

NRCA maintains its longstanding position that a roofing contractor should not decide when a newly placed normal-weight or lightweight structural concrete substrate is ready to be covered with a new roof system. Direction on a concrete deck's readiness should be dictated by a building's structural engineer, general contractor, concrete supplier and concrete placement contractor, each of whom likely has more knowledge than the roofing contractor about the specific concrete mix design's curing and moisture release rates. It also may be useful for these parties to consult the building's project or roof system designer and the roof system manufacturer.

NRCA's premise and position is consistent with the flooring industry. For resilient tile and textile floor coverings and coatings, floor covering manufacturers generally require quantitative moisture testing be performed before floor covering installation on concrete. ASTM F2170, "Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes," often is used for this purpose.

NRCA also recommends roofing contractors limit their acceptance of concrete roof decks to the top surface of the roof deck being visually dry and broom clean. These criteria also can be used for other roof deck types. Broader roof deck criteria places additional, unreasonable liability on roofing contractors; a roofing contractor may have only limited knowledge of and control over aspects of a roof deck and building structure.

NRCA recommends roof system designers use caution when specifying the installation of membrane roof systems over newly poured normal-weight and lightweight structural concrete roof decks. When adequate dryness of concrete roof decks cannot be reasonably ensured, NRCA recommends a well-adhered, low-perm-rated vapor retarder be specified for installation directly over the concrete roof deck. Then, an adhered or loosely laid ballasted roof system can be specified over the vapor retarder, preferably installed the same day or within several days of vapor retarder installation. Roof system types that involve mechanical fasteners that would penetrate the vapor retarder should be avoided to reasonably ensure


vapor retarder performance. The purpose of the vapor retarder is to isolate the concrete deck's free water within the concrete and minimize the potential for moisture vapor transport into the roof system.

NRCA also maintains its longstanding recommendation the use of curing and finishing compounds be avoided in placing and finishing structural concrete roof decks as these are known to retard moisture release and can affect adhesion of roofing materials. Also, NRCA suggests roof system designers minimize the use of materials and products with organic content over concrete roof decks to minimize the potential for microbial growth in the event moisture from a concrete roof deck infiltrates into the roof system. Examples of roofing products with organic content include fiberglass-reinforced, cellulosic mat-faced polyisocyanurate; perlite board; and wood fiberboard. Coated, fiberglass mat-faced polyisocyanurate insulation is preferred over fiberglass-reinforced, cellulosic mat-faced polyisocyanurate in concrete roof deck applications.

For reroofing situations over existing concrete roof decks where there is evidence of concrete deck-related moisture problems, NRCA suggests roof system designs similar to those recommended for newly placed concrete roof decks.

Closing thoughts

Currently, newly poured and, in some instances, existing structural concrete roof decks present unique moisture migration problems and potential liability for the roofing industry. You should take special care to not assume responsibility and liability for moisture in normal-weight structural concrete and lightweight structural concrete decks.

Additional information about moisture migration in roof assemblies is provided in the Condensation and Air Leakage Control section of The NRCA Roofing Manual: Architectural Metal Flashing and Condensation and Air Leakage Control. Additional information about concrete roof decks and vapor retarders is provided in Chapter 2—Roof Decks and Chapter 3—Air and Vapor Retarders, respectively, of The NRCA Roofing Manual: Membrane Roof Systems. 

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





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PROJECT NAME:
St. Stanislaus Catholic Church

PROJECT LOCATION:
Milwaukee

PROJECT DURATION:
Dec. 5, 2018-Dec. 20, 2019

ROOF SYSTEM TYPE:
Copper

ROOFING CONTRACTOR:
F.J.A. Christiansen Roofing Co.,
a Tecta America company,
Milwaukee

ROOFING MANUFACTURERS:
Canadian Brass & Copper Co.,
Concord, Ontario; Firestone Building
Products Co. LLC; Nashville, Tenn.



RESURRECTED ROOFING

F.J.A. CHRISTIANSEN ROOFING RESTORES THE DOMES ON ST. STANISLAUS CATHOLIC CHURCH IN MILWAUKEE

by Chrystine Elle Hanus

St. Stanislaus Catholic Church represents the faith and devotion of Polish Catholic pioneers who originally settled in the southside of Milwaukee. In 1866, 30 families bought a small brick church and dedicated it to St. Stanislaus, a beloved bishop of the Polish people.

With the explosion of the Polish population in the city during the next few years, a bigger church was needed. In 1872, land was secured at the corner of Fifth and Mitchell streets. Each family in the parish was assessed \$30 to secure a loan to build the church. Back then, fishermen earned \$1 per day, so the immigrants' financial sacrifices to secure a church for future generations was impressive and humbling.

A year later, a cream-colored brick building was designed and constructed to reflect the architecture of eastern European churches. In 2016, the church underwent extensive renovations, but dome work was not in the plans until an anonymous donor generously paid for the roofing project in 2018.

"Our prayers were answered, and we moved forward with contracting with F.J.A. Christiansen Roofing, a Tecta America company, Milwaukee, to restore the domes to their original copper brilliance," says George Baird, abbé for St. Stanislaus Catholic Church.

History of the domes

St. Stanislaus Catholic Church was built with two towers 167 feet above street level on the building's east side. A third, smaller tower was placed above the sanctuary on the west end of the roof. All three towers had domes clad

in copper. The east domes had gables on each side, and the west dome had columns to expose a bell. The copper on the domes eventually weathered to patina.

In 1966, in preparation for the church's 100-year anniversary, the building underwent enormous renovations, including significant changes to the domes. The gables and columns were removed from the domes, providing a more streamlined appearance, and the copper on the domes was replaced with aluminum-covered steel with 23-carat gold leaf. By the late 1970s, the gold leaf dulled, leaving the yellow-based paint exposed.

The domes remained in this state until December 2018 when the F.J.A. Christiansen Roofing crew began restoring them.

Inspection and removal

A major element of the project was historical accuracy.

"F.J.A. Christiansen Roofing's knowledge of architecture of the time period when the church was built allowed for easy permitting with the city's historical building commission," Baird says. "The experience and confidence of the company's production team saved us significant funds."

Before working on the two main upper domes, the crew investigated how the domes were constructed and set in place.

"Upon inspection of the existing construction, we determined the upper domes likely were constructed off-site and hoisted into place," says Don Walter, president of F.J.A. Christiansen Roofing. "After discussing our findings with the building owner's project team, the team recalled





repositioned onto their support tubes,” says Todd Samuel, project manager for F.J.A. Christiansen Roofing.

This process also required careful, precise maneuvering to remove each dome from the flatbed truck and stand them upright for restoration work. Once upright, team members erected scaffolding on one side of each dome, and the domes were rotated to access each section.



Clockwise from top: Workers reinstall a new gold-leafed copper cross on a restored dome; one of the domes before restoration; the F.J.A. Christiansen Roofing crew.

a video that documented the installation. The original film, now on DVD, showed a dome being raised to the roof when the domes previously were restored. We then worked to reverse-engineer the hoisting process, which led us to learn how to remove the crosses to access the structural framing for the lowering process.”

Workers detached and removed 6½-foot-tall sheet-metal crosses from each dome. Faced with maneuvering the crosses in windy conditions, crew members wrapped a strap around each cross to stabilize them into a manlift while being detached from the domes.

After the crosses were removed, workers threaded a cable through an existing vertical pipe centered on the dome and then attached it to a turnbuckle created to lift the dome structures safely. Team members unbolted each dome, lifted them off the existing support tubes and lowered each one to street level. The crew temporarily sealed the support tubes to prevent water infiltration until the project could be completed.

“It was an extremely delicate, deliberate process,” says Jeff Keller, superintendent for F.J.A. Christiansen Roofing. “The street in front of the church was closed for two days, with one tower taken down each day.”

With each dome’s “legs” secured using a cast-iron frame specially designed and fabricated for the project by F.J.A. Christiansen Roofing craftsmen, each structure was carefully laid on a flatbed truck and transported to the company’s off-site shop for repair and restoration.

“The legs had to remain in exactly the same position, so when we replaced the structures, the legs could be

Restoration

Despite their age and constant exposure to the elements, the structures were in relatively good condition, allowing them to continue to serve as a substrate for resurfacing. The domes previously were resurfaced when the original copper sheeting was replaced with aluminum-covered steel.

Workers observed some minor structural steel surface rust, so they applied an epoxy coating to inhibit further rust. Then, they installed new steel framing and wood sheathing to serve as a substrate for new copper cladding.

“Working on the upper domes in our off-site shop not only allowed work to progress through winter and inclement weather but it also provided a controlled environment to perform many of the most intricate details for the project,” Samuel says.

Among those details were round columns with spun caps and bases, an ornate soldered cornice and a decorative cap piece.

While working on the upper domes off-site, another crew began on-site work on the lower domes on the two east towers. Team members removed the weather-worn aluminum panels, replaced rotted wood with new wood and applied Firestone CLAD-GARD™ self-adhering underlayment followed by red rosin paper.

Next, workers installed a copper sill and diamond-shaped, 20-ounce 2- by 2-foot copper panels custom-fabricated by F.J.A. Christiansen Roofing craftsmen.

While the F.J.A. Christiansen Roofing crew worked on the lower domes, masonry contractors were working below them, requiring coordination with other trades to access work areas and implement safety measures to protect workers, such as netting to catch material that might fall from dome work.

“We worked diligently with church representatives and masonry contractors throughout the project,” Walter says. “Periodic inspections and coordination with other

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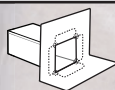

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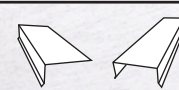
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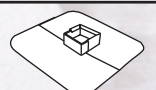
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F.J.A. Christiansen Roofing craftsmen re clad a dome in copper.



The church's two main domes restored

parties helped refine our safety approach and meet unforeseen challenges including unauthorized site access, excessive wind and shared workspaces. We developed a site-specific safety plan to identify potential hazards and ways to mitigate those risks.”

Team members also worked with the scaffolding company to incorporate electric winch systems into the scaffolding design. The winches provided a means to safely lower torn-off material and debris to ground level and hoist new materials to working platforms around the lower main domes.

Installation

Although it took two days to remove and lower the upper dome structures, replacing them was accomplished in one day.

“The reinstallation process was planned for two days, but the first dome structure installation was performed so efficiently, we made the call to install both on the same day,” Walter says. “The entire team came together, working from sunrise to sunset to make the lifts happen safely and successfully, to the great elation of the building owner’s representative.”

The parish priest blessed the new gold-leafed copper crosses before installation. Team members then wrapped the crosses in foam padding and hoisted them to the roof using a boom crane. To prevent fingerprints on the crosses, workers wore white gloves while positioning the crosses into place atop the domes.

Workers placed a sheaf of documents inside the cap piece of one of the main domes as a 100-year time capsule, a fun surprise for a future generation of roofing professionals to discover.

West dome

Except for the cross and lantern elements removed and replicated off-site, all the work on the west dome was performed on-site. Minor structural repairs were made before recladding the dome in new copper. The church bell remained operational for the project’s duration, so crew members had to be mindful of moving parts while working.

The west dome is smaller than the other domes, but its ornamentation is more intricate and includes

curved copper arches. F.J.A. Christiansen Roofing craftsmen collaborated with a team of ornamental sheet-metal fabricators from Heather + Little Ltd., Markham, Ontario, to produce the copper elements.

“We were challenged by the complexity of the cupola, crosses and miscellaneous radius flashings and cornice pieces that we were tasked to produce in copper,” says Marc Jamieson, vice president, sales and projects, for Heather + Little. “In cooperation with F.J.A. Christiansen Roofing’s team, we improved the custom diamond-shaped shingles. Everyone rose to the occasion, and we were more than pleased with the results.”

After the copper cladding was complete, team members used a crane to lift a new gold-leafed copper cross to the roof and reinstalled it on the dome, complementing the new crosses on the east domes.

Back to life

In December 2019, the west dome was completed, bringing the St. Stanislaus Catholic Church roofing project to a close. The congregation aimed to have all the work done before Christmas mass services, and this deadline successfully was achieved by the F.J.A. Christiansen Roofing team, along with no safety incidents.

“During the entire project, the production team worked with absolute professionalism, providing the highest level of craftsmanship,” Baird says. “Safety was never compromised, which was critical. I can give only praise to the F.J.A. Christiansen Roofing team for a job well done. The project exceeded everyone’s expectations.”

Although the crew faced logistical challenges removing the large dome structures from the building, the domes and all building elements successfully were restored to historical details. Thanks to the dedicated team at F.J.A. Christiansen Roofing, a Milwaukee landmark has been restored for all commuters driving on Interstate 94 to see.

“This project was a true company effort,” Walter says. “From our safety manager, operations manager and office management to the mechanics team, warehouse personnel, multiple drivers and others. Everyone helped to make this project a true success.”

For its work on St. Stanislaus Catholic Church, F.J.A. Christiansen Roofing received a 2021 Gold Circle Award from the Roofing Alliance in the Outstanding Workmanship: Steep-slope category. 🏆👑

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



To watch a video of the church’s copper domes being set in place, go to professionalroofing.net.

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Creating a safe workplace goes beyond protecting workers' physical health

by Amy Staska

Do your employees believe they will be punished or humiliated for speaking up with ideas, questions or concerns? What about for making mistakes?

Chances are, even if you answered “no,” your company still has room for improving what leadership experts have dubbed psychological safety.

David Altman, COO at the Center for Creative Leadership,[®] explains: “Psychological safety at work doesn’t mean that everybody is nice all the time. It means that you embrace the conflict and you speak up, knowing that your team has your back and you have their backs.”

Unfortunately, many roofing companies—and roofing crews, in particular—are not psychologically safe workplaces. Occasionally, rejection and humiliation may be punishingly intentional but more often careless and coming from a place of unawareness.

Why does it matter?

If your knee-jerk reaction to this topic makes you want to roll your eyes and mutter about people who can’t handle life in general (much less inside a roofing company), try looking at this concept from different perspectives.

First, you need employees, and generally, when you are trying to get more of something, a productive strategy is to cast a wider net. One way to do that is to consider your company’s culture and working

conditions and determine whether you may be keeping your net too small.

Are you mostly able to retain individuals who seem impervious to harsh comments, teasing and having a high bar for approval? This has been a typical roofing company culture; however, those entering the workforce or looking to change jobs know they have their pick of many good jobs and companies. In an employee-driven market, people do not need to accept or keep jobs in companies that don’t value them. Psychological safety in the workplace allows people to feel they are welcome to bring their full selves to work. Expecting people to buck up and do their work without question is a practice of the past.

Another reason to address psychological safety is innovation.

Presumably, you want increased efficiencies in production, fewer quality issues and better customer service, which will lead to repeat business. Sure, you and your senior management team can sit around a conference table and come up with new ideas and better ways of doing things, but how much better would those ideas be if those who do the work felt like they could tell you where things are falling through the cracks and how crews could gain efficiency?

Your employees know exactly where significant problems and limiting practices exist. And all the way down the line, employees need to believe they are not risking their self-image, status or career advancement

LET NRCA HELP YOU

NRCA supports creating psychologically safe workplaces and offers several ways to help your company achieve this goal:

- **Training for Roof Application Careers** is designed to provide novice employees with terminology and concepts to reduce barriers to asking good questions, help them engage with colleagues and allow them to make mistakes in safe spaces rather than on active job sites.
- **NRCA's Qualified Trainer Conference** stresses the importance of having a professional trainer usher new and existing employees through learner safety by teaching them to connect with their trainees and address their skills gaps. A qualified trainer helps people learn from their mistakes.
- **Foreman Leadership Training, Levels 1 and 2**, prompts diverse discussions about communication and leadership concepts and techniques. Specific exercises focus participants' ideas about leading their crews, including focus on disciplinary conversations and intervention.
- **Senior Leadership Training, Levels 1 and 2**, addresses frustrations that stem from owner and customer expectations not matching the realities of job-site time frames, workforce obstacles and quality concerns. The Level 2 program provides a framework for leading and managing effectively and focusing on the value of understanding a company's organizational culture to effect successful outcomes.
- **Owner Leadership Training** allows participants to engage in confidential, personal and candid conversations addressing their companies' vision and mission statements, decision and value alignment, culture shaping and emotional intelligence.
- **Future Executives Institute** focuses on leading and managing a roofing business. This three-year program offers participants an in-depth look at leadership theory and practice while developing their management and communication skills.

by speaking up. Incidentally, senior management is not immune to this, either, and will not present ideas if their peers or bosses lack good-natured curiosity.

Innovation and growth require new ideas and perspectives, but not feeling safe psychologically has a chilling effect on people being willing to share insights.

Four stages of psychological safety

How can you tell whether your company is a psychologically safe workplace? According to Timothy Clark, author of *The 4 Stages of Psychological Safety: Defining the Path to Inclusion and Innovation*, there are four levels of psychological safety necessary for employees to progress through before they feel free to consider making valuable contributions or challenge the status quo.

Stage 1 is inclusion safety.

Humans have an innate need to connect with others and belong to a group. At a basic level, this is satisfied by family and friend groups. The corollary at work is the company, department or crew. When employees experience a sense of belonging from co-workers, they feel accepted for who they are, including their unique characteristics and ideas.

Beyond a paycheck, there is little value to staying at a company where there is no feeling of inclusion. People enter the workforce not only to earn a living but also to make meaningful connections with others as they engage in their work. The opportunity to feel part of a team is not achieved in as

many spaces as the opportunity to earn a paycheck. If it is missing, your most innovative employees will seek it elsewhere.

Stage 2 is learner safety.

Learner safety satisfies an individual's desire to learn and grow. Fully engaging in a learning process involves risk of asking questions, giving and receiving feedback, and experimenting and making mistakes. When there is no safety for individuals to expose their lack of knowledge or skill, they are likely to say they know how to do things when they don't and try to figure things out as they go.

This results in slower work and heightened anxiety and increases the likelihood of mistakes that are likely to be hidden, costing your company time and money.

Stage 3 is contributor safety.

Contributor safety encourages employees in their desire to make a difference through meaningful contributions.

Abraham Maslow, an American psychologist best known for developing his classic hierarchy of needs, classified this desire as "esteem" needs: esteem for oneself (including dignity, achievement, mastery and independence) and the desire for reputation or respect from others (including status and prestige). People want to be regarded as competent and be respected, and there are few places where they exhibit their competencies more than in their workplaces.

According to Marcella Bremer, author of *Why do you need to make a difference*, every person wants to matter. She suggests once you determine you do not care about making a difference, you have limited some part of yourself to avoid failure or disappointment, protect status or possessions, avoid the hassle, stay safe or some other reason. In other words, lack of psychological safety at work may cause employees to determine it is not in their best interests to bring their ideas, thoughts and efforts into the workplace if they don't believe they will be well-received. Because of this, a business will lose out on potential ideas, revenue and the full creative genius of employees.

Stage 4 is challenger safety.

Challenger safety opens the gates for employees to consider how to make existing situations better. Do employees feel safe speaking up and challenging the status quo? Do they believe there is an opportunity their insights will be received, or are they more likely to be rebuffed?

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Anecdotal evidence suggests many roofing contractors believe they have open-door policies and think their employees feel free to talk to them and make suggestions; however, many employees do not believe this to be the case. This results in a complex problem because not only do employees not feel free to speak up but employers think they do and believe all is well when, in fact, it may not be.

Increasing psychological safety

Employing people who feel included and encouraged to learn is foundational to developing effective work teams. Employing people who feel safe to contribute to and challenge the way things are done is foundational to ensuring effective feedback loops, correcting inefficient practices and developing a workforce that acts on critical thinking skills.

The first two types of safety—inclusion and learner—may make or break an employee's tenure at a company. Employees who don't feel they have a place on the team will respond in many ways: Some will soldier on; some will be content to keep to themselves and do their own thing; some will leave; and some will stay and become disgruntled.

To avoid creating an unsafe environment, there are ways to increase inclusion and learning safety:

- Expect those who supervise others to exhibit welcoming postures and hold them accountable for including everyone on the team.
- Consider a budget for donuts or lunch on a new employee's first day with his or her team.
- Train company employees regarding communication skills and personality differences.
- Assess skills gaps for all employees and establish learning plans for everyone.
- Hire a company trainer whose full-time job is to manage the learning function.
- Incorporate training as a necessary phase of working at your company.

Employees who develop roofing proficiency will enjoy the satisfaction of being contributors at least in terms of their specific work. When the learning function operates effectively, people can contribute to projects and ply their craft, putting their minds to installing quality roof systems, creating solid estimates or confidently engaging with customers.

Contributing also means offering new ideas. Do you discount them? Not all employees want to engage in this

type of contribution, but those who do will quickly discern whether you're interested in what they can bring. Good ideas can come from senior leadership or a young person who has never worked in the office. These are the people who will leave to start their own companies if their present employer is unwilling to let them express their creativity.

What are some ways to increase contribution at your company? You can:

- Be willing to listen to someone with a contribution.
- Incentivize ideas for growing the company.
- Recognize employees who bring ideas that end up getting implemented.

Creating an environment that communicates psychological safety for employees to offer challenges only happens with intention, resolve and courage. Those in positions of authority often have dominant personalities and intense focus on attention to detail. Because of this, they are naturally wired to think they see the best ways to do things and generally do not seek (and often do not welcome) input.

If there is not safety to challenge existing methods and practices, you might miss out on a better way of doing business or identifying problem employees who are causing people to quit and, more important, you may foster an atmosphere of cynicism and negativity.

What are some ways to increase the safety to challenge at your company? You can:

- Affirm those who challenge you.
- Ask for solutions to problem areas and implement good ideas, showing people at all levels of the company their ideas are welcome.
- Be curious. Not all challenges will be easy to hear but try to set aside defensiveness and determine whether there is merit in challenges.

Go beyond the physical

Safety usually conjures images of ladders, personal protective equipment and fall-protection systems, but you could have the safest company in the world according to the Occupational Safety and Health Administration and still be unsafe in psychological ways that matter.

People seek workplaces where they and their ideas are welcome, and creating a psychological safe environment within your company is a significant component of recruiting and retaining employees. 🧠🔗

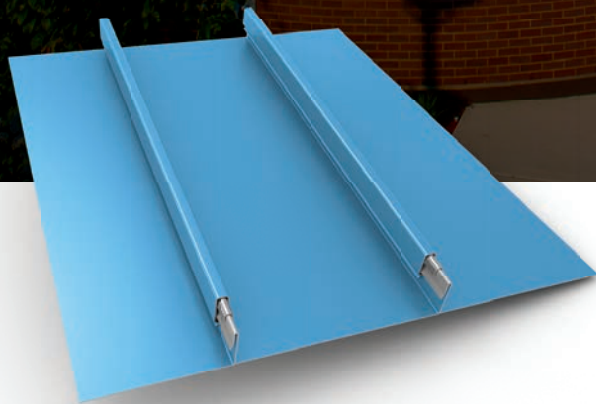
AMY STASKA is vice president of NRCA University.

Whimsical Roofline



Vibrant Dynamic Blue Snap-Clad metal panels brighten the playful roof shapes and walls of two interior courtyards, invigorating this mixed-use building that houses a Chicago Public Library, childcare center and community meeting space.

Altgeld Family Resource Center, Chicago Installing contractor: Progressive Dynamics Architect: KOO LLC
Owner: Chicago Housing Authority Photo: hortonphotoinc.com



Snap-Clad
Metal Roof and Wall System
Custom Dynamic Blue



View the
case study
and video



VISIT US AT THE SHOW: IRE BOOTH 1019

by Trent Cotney



SUBCONTRACT WITH CAUTION



THERE ARE CRITICAL CONSIDERATIONS TO UNDERTAKE BEFORE HIRING SUBCONTRACTORS

Editor's note: This article is for general educational purposes only and does not constitute legal advice.

For the past several years, a lack of skilled labor has been one of the most significant challenges the construction industry has faced. The issue has been exacerbated during the COVID-19 pandemic as more employees leave employment for a myriad of reasons, including safety concerns, working conditions, and mask and vaccine mandates.

One option for combating the labor shortage is using subcontractors. However, before you go this route, be sure you understand all the requirements, as well as the potential pitfalls.

Proper classification

Employee misclassification is a hot topic, and the Biden administration has made enforcing proper classification a priority. Essentially, if you classify a worker as an independent contractor, you are not required to pay his or her benefits, unemployment insurance, payroll taxes and other full-time employee necessities. However, you must be able to prove the subcontractor is not acting as an employee. A government agency inspecting the classification status of a subcontractor is looking at the subcontractor's degree of independence. Does he or she work for others; have a website; wear his or her own safety gear; and operate as a business? Or is he or she simply a misclassified employee of the prime contractor?

Checking references

When you begin the process of hiring subcontractors, take time to get referrals and talk to other contractors about their work. Make sure any subcontractor you hire is properly licensed and insured and carries workers' compensation insurance. Meet with the subcontractors you are considering and talk to them about your goals and priorities. You want to be certain they share your ambition. Also, request to see their safety records, and remember their work will reflect on your company.

Careful oversight

If you choose to use subcontractors, know that for the arrangement to be successful, you will need to ensure quality control and production. If you know the

DID YOU KNOW?

NRCA offers the contract provisions mentioned in this article and many others as part of its legal resource center at nrca.net/legal.

subcontractors well, you may trust them easily and feel confident they will deliver good work. However, if you are hiring them for the first time, you may need to be on the job site regularly to check their output.

Multi-employer worksites

Keep in mind for projects involving multiple employers, the Occupational Safety and Health Administration could determine one employer is responsible for the actions of others. So depending on the employment relationship, OSHA could hold you responsible for your subcontractors' safety violations. On a multi-employer worksite, OSHA categorizes employers based on their involvement in hazardous conditions or their supervisory authority.

Crucial contract provisions

To protect yourself when entering into agreements with subcontractors, be sure you review your contracts and include several key provisions such as:

- **Anti-controlling contractor provision:** This clause stipulates you are not a controlling contractor, meaning you are not expected to recognize and prevent all worksite safety issues. Instead, the subcontractor understands and acknowledges all required safety standards and is responsible for maintaining his or her safety on the job site.
- **Reporting injury, illness or dangerous conditions provision:** Per this provision, the subcontractor is required to complete all work in an expeditious and safe manner. He or she should follow OSHA regulations and comply with all laws, statutes, codes and rules for the safety of the project's property and participants. In addition, the clause directs the subcontractor must report any injuries, accidents or illnesses that occur on-site that involve his or her workers. The subcontractor also must notify the prime contractor of any unsafe conditions.
- **Indemnification provision:** If the subcontractor or his or her employees fail to comply with any safety regulations or if their acts or omissions result in damage on a project, this provision stipulates the subcontractor will hold you harmless for any related liability, expenses and/or fees.

For an article related to this topic, see **"Weighing the risk,"** March 2019 issue.

- **Safety training and safety inspection responsibilities provision:** This provision makes the subcontractor solely liable and responsible for establishing safety protocols, working prudently and safely, and training his or her employees. You have no obligation to train a subcontractor's workers. If any injury or property damage results from the subcontractor's actions or any violation or incident extends from his or her work, he or she will be named as the at-fault party.
- **Independent contractor provision:** If you have clearly proved the subcontractor is an independent contractor, be sure to include a related provision in your contract. This clause confirms the subcontractor is not your employee or partner. Further, it states the subcontractor is solely liable for all federal and state taxes related to performance, including workers' compensation, unemployment insurance and Social Security payments.
- **Liability provisions:** Without the appropriate provisions governing construction defects in your contract, you can be held solely liable for any defects caused by a subcontractor. Be sure to include clauses stipulating the subcontractor is responsible for any construction defects resulting from subpar work and will correct those defects. The scope of this liability varies among states, so check your local laws.

Final advice

Using subcontractors may be vital for your business, and when you work with respected, reliable subcontractors, you will see positive results. However, there are many details to keep in mind when you enter a subcontracting agreement. Double-check your subcontractors are insured and licensed, and make sure they understand your expectations. Also, review all the provisions mentioned here and consider adding them to your contracts. Their insertion will eliminate any confusion about who is responsible for safety protocols, violations, training, defects and other pertinent issues on a construction site. 📌🔍

TRENT COTNEY is CEO of Cotney Attorneys & Consultants, Tampa, Fla., and NRCA's general counsel.



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MANUFACTURER NEWS

TAMKO® Building Products announces cash-back program

TAMKO Building Products LLC, Galena, Kan., has announced its cash-back rewards for 2022, benefiting certified and noncertified roofing contractors enrolled in The TAMKO Edge™ contractor loyalty program.



Through the new 2022 Edge Rewards program, noncertified Team TAMKO roofing contractors in The TAMKO Edge program are eligible for up to \$4 cash back per sales square of qualifying TAMKO Building Products purchases, depending on product and volume, once contractors reach a minimum purchase requirement. Eligible products in the program include all TAMKO Building Products asphalt shingles, including hip and ridge and starter shingles. Contractors can register for a free rewards program account in The TAMKO Edge contractor portal. The program runs Jan. 1 through Dec. 31, 2022.

TAMKO Certified Contractors are eligible for rewards through the 2022 Pro Rewards program. The Pro Rewards program features higher per square cash-back amounts, lower minimum purchase levels and rewards for more TAMKO Building Products items than the Edge Rewards program.

Additional information is available at tamko.com/edge.

Georgia-Pacific Building Products partners with Chip Wade

Georgia-Pacific Building Products, Atlanta, has partnered with HGTV star Chip Wade for a residential project. The project will feature donated ForceField® Weather Barrier System, DensElement® Barrier System, Tough-Rock® Gypsum Boards and DensShield® Tile Backer products.



Wade

Pinhoti Peak, a modern luxury home in northern Georgia, is designed to showcase the building envelope, and Georgia-Pacific Building Products' materials will play a key role. In particular, ForceField Weather Barrier System and DensElement Barrier System will serve as a line of defense against the elements, helping to reduce the risk of water damage and air leakage and prevent weather damage. Pinhoti Peak is scheduled to be completed in early 2022.

"Throughout all of our projects, we want to use innovative building products that protect our investment, tight timelines and reputation," Wade says. "We are excited to work with Georgia-Pacific Building Products and experience firsthand how their integrated sheathing products not only protect the building envelope but save time and money during installation."

ATAS International president receives award

ATAS International, Allentown, Pa., has announced Dick Bus, president of ATAS International, received an Icon Honors Award Nov. 4, 2021. Icon Honors Awards recognize Greater Lehigh Valley business leaders for their notable success and demonstration of strong leadership within and outside of their chosen fields. The awards celebrate recipients' leadership skills and dedication to their communities.

Bus has served as president of ATAS International since 1995. He also is vice president of ATAS International's sister company, BRIGHTSMITH Coaters. Currently serving on the boards of the Metal Construction Association and NRCA, Bus has served and supported numerous industry associations for many years. He currently is president of the Metal Roofing Alliance, a member of the Construction Specifications Institute and a former president of MCA.

Although the third generation of his family now is involved in the management of ATAS International, Bus will continue to help develop innovative building products, services, education and training and participate in industry and local organizations.



Bus

TAMKO Building Products chairman emerita passes away

Ethelmae Humphreys, chairman emerita of Galena, Kan.-based TAMKO Building Products LLC, passed away Dec. 27, 2021. She was 94.



Humphreys

As the daughter of TAMKO Building Products founder E.L. Craig, Humphreys was involved in the roofing shingle manufacturing business for more than 70 years. Her first industry job was sacking nails at a shingle plant. She assumed control of TAMKO Building Products' daily operations in 1950 and later served as chairman of the board and CEO. Humphreys and her husband, J.P. (Jay) Humphreys, longtime president of TAMKO Building Products, helped grow the business to become one of the largest privately owned roofing manufacturers in the U.S. She also created and managed the E.L. Craig Foundation and J.P. Humphreys Foundation, charitable organizations that have donated millions of dollars to support individual rights, free enterprise and civil society.

Humphreys was preceded in death by her parents and husband, Jay. She is survived by her three children, David (Debra), John (Martha) and Sarah (Paul Atkins); 12 grandchildren and several great-grandchildren.

CONTRACTOR NEWS

Venture Construction Group of Florida sponsors ALS walk

Venture Construction Group of Florida, Boca Raton, sponsored the Palm Beach Walk to Defeat ALS® Nov. 13, 2021. The virtual walk was held throughout Palm Beach County.

The Walk to Defeat ALS is an opportunity for communities in the U.S. to show their support for people diagnosed with ALS and bring awareness to the urgent need for a cure. More than 1,300 people in Florida suffer from ALS, and donations received from statewide fundraisers directly affect the local community by helping to fund care and research. The Palm Beach Walk to Defeat ALS raised \$34,240.

"We are committed to increasing awareness of ALS and raising money for a cure. We're so grateful for the amazing work that the ALS Association and Florida Chapter are doing for so many," says Stephen Shanton, president and CEO of Venture Construction Group of Florida.

OTHER NEWS

MCA releases white paper series

The **Metal Construction Association** has released a three-part white paper series, "Metal Roofing & PV Solar Systems Parts 1, 2 & 3." The papers contain technical guidance for optimal installation and mounting of photovoltaic solar systems on metal roof systems. The papers are available at metalconstruction.org.

In addition, MCA has made available the new Metal Architecture Academy. The academy includes eight courses that provide opportunities to learn about metal walls and roof systems as sustainable and flexible solutions for modern architectural challenges. The academy illuminates the variety of wall and roof systems available, inspires with award-winning designs, and demonstrates the value of lightweight metal panel technologies to meet and exceed energy codes while providing health, safety and wellness features to benefit occupants.

The Metal Architecture Academy is available at continuingeducation.bnpmmedia.com/academies/metal.



Copper Development Association accepting award submissions

The **Copper Development Association Inc.** is accepting submissions for the 2022 North American Copper in Architecture Awards.



The NACIA Awards honor building industry professionals for their exceptional use of architectural copper in new construction and restorations, particularly in projects demonstrating copper's versatility and beauty.

Architects, designers and sheet metal contractors are encouraged to submit projects completed during the past three years in the U.S. or Canada featuring copper architectural elements. Judges will evaluate all submissions based on system design, integration of copper alloys, craftsmanship of installation, excellence in innovation or restoration, and green/sustainable building strategies.

Project submission forms are available at copper.org/applications/architecture/awards. The submission deadline is Feb. 28.

EVENTS

FEBRUARY

8-10

NAHB International Builders Show

National Association of Home Builders
Orlando, Fla.
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buildersshow.com

22-24

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MARCH

10

Virtual LEGALCon 2022

NRCA Legal Resource Center
Online
Contact: Alison LaValley, NRCA's vice president of strategic initiatives and partnerships
(800) 323-9545, ext. 7573, or alavalley@nrca.net
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17-22

2022 IIBEC International Convention and Trade Show

International Institute of Building Enclosure Consultants
Orlando, Fla.
Contact: IIBEC
(800) 828-1902 or ajohnson@iibec.org
iibec.org

APRIL

5-6

Roofing Day in D.C. 2022

NRCA
Washington, D.C.
Contact: NRCA's Washington, D.C., office
(800) 338-5765
nrca.net/advocacy/roofingday

19-20

NRCA's Virtual Qualified Trainer Conference

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21-23

Roofing Alliance Member Meeting

The Roofing Alliance
Sarasota, Fla.
Contact: Jessica Priske, NRCA's director of meeting services
(847) 493-7517
roofingalliance.net

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CERTA Train-the-trainer

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DISTRIBUTOR NEWS

Gulfeagle Supply acquires Quality Building Supply

Gulfeagle Supply, Tampa, Fla., has acquired Quality Building Supply Co., Chicago.

The acquisition expands Gulfeagle Supply's presence in the Chicago metropolitan area to better serve contractors in Chicago; Elgin, Ill.; and Itasca, Ill.

Gulfeagle Supply now has more than 85 locations in the U.S.

ABC Supply acquires Siding Sales

ABC Supply Co. Inc., Beloit, Wis., has acquired the assets of Siding Sales Inc., Bowling Green, Ky. The acquisition includes locations in Bowling Green; Glasgow, Ky.; and London, Ky.

The acquisition allows ABC Supply to enhance its services in existing and new markets and strengthen relationships with professional contractors across central and southern Kentucky.

"We couldn't be more excited to have the talented individuals from Siding Sales join our team," says Tom Kuchan, vice president of ABC Supply's Northeast region. "We're confident current associates and customers will quickly feel at home with ABC Supply. Contractors will also enjoy access to a wider selection of product options and delivery capabilities."

ABC Supply now has 11 locations in Kentucky.

THE INDUSTRY ONLINE

Gulfeagle Supply has launched its new website, gulfeaglesupply.com. Designed to provide a better user experience, the website features a products page, branch locator and information for roofing contractors.

UP THE LADDER

OMG® Roofing Products has named **Mohammed Loutfi** and **Mark Parker** key account managers.

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Alpha Commercial Roofing LLC, Atlanta

Alternative Roofing Solutions, Santa Rosa, Calif.

Anchor Products LLC, Colleyville, Texas

Andrea L. McBride Architecture, Cincinnati

Bros Roofing LLC, Grand Junction, Colo.

Chisholm Trail Roofing & Construction,
Yukon, Okla.

Crawford Engineering LLC, New Orleans

DB Architecture of Acadiana, Lafayette, La.

EXP Services Inc., Burnaby, British Columbia

GreenPro Ventures Private Ltd., Vadodara,
Gujarat, India

Guangdong Nenghui New Material Technology
Co. Ltd., Guangzhou City, Guangdong, China

Herreras Construction, Chaparral, New Mexico

Jacobs, Arlington, Va.

Kore Roofing, Scottsdale, Ariz.

L P Roofing LLC, Nokesville, Va.

Loyalty Roofing Solutions, Marlborough, Mass.

Luttrell Architecture LLC, Tampa, Fla.

Mayflower Roofing, Plymouth, Mass.

Newman Construction Consulting, Chicago

Owens Roofing Inc., Smithfield, N.C.

Redbird Roofing, Plano, Texas

Renova Roofing & Construction, Ridgeland, Miss.

Reynolds Exteriors and Coatings,
Marion, Ill.

Spartan Roofing and Construction,
Dallas

Steinberg Hart, Los Angeles

Superior Roofing & Contracting, Peachtree
Corners, Ga.

The Browning Group, d.b.a. Roof Masters,
Yorktown, Va.

TopProTec, Metairie, La.

Wade Engineering Ltd., Edmonton, Alberta



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TheRoofingExpo.com/Exhibit

Metal Deck 101 Videos released

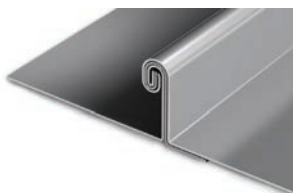
A.C.T. Metal Deck Supply announces the release of Metal Deck 101 Videos, which give industry professionals

a resource to enhance their knowledge about metal decks and metal deck accessories and addresses FAQ. The video library, in English and Spanish versions, will be housed on A.C.T. Metal Deck Supply's website, mobile sites and YouTube channel. The videos range from product knowledge, what is and isn't a metal deck to accessories and company history. Visit metaldecksupply.com or call (800) 894-7741.



TITE-LOC metal roof system: performance and style

PAC-CLAD® | **Petersen's** TITE-LOC metal roof system combines structural performance with architectural aesthetics. TITE-LOC panels are mechanically seamed in the field to 90 or 180 degrees. The PAC-CLAD 70% PVDF finish is covered by a nonprorated 30-year warranty. Panels are available in 46 colors on steel and aluminum. Most colors meet LEED®, ENERGY STAR® and cool roof certification requirements. For more information, visit PAC-CLAD.com or call (800) PAC-CLAD.



Helicopter material transportation



Midwest Helicopter Airways has pioneered the lift business since 1968, specializing in precision load setting and rooftop equipment transportation. The S-58T aircraft is capable of transporting each load within minutes and has a 4,500-pound lift capacity. (One hundred lifts can be completed in about three hours.) Palletized roofing material, insulation, solar panels and rooftop units can be lifted with ease, saving you valuable time and labor. For more information, visit www.midwesthelicopters.com or call (800) 323-7609.

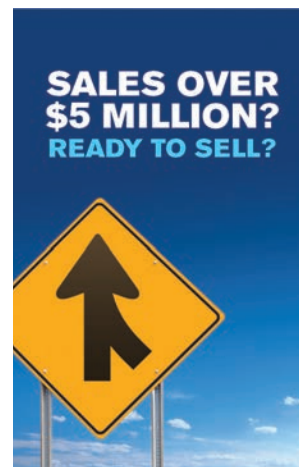
It's not just what you know but who you know. You need to know Dave.

What is your true value? Would you just like to know what's out there? Do you have estimating software experience? Don't make a career change until you speak with **Dave Peterson**. Dave has helped hundreds of roofing professionals obtain better jobs, get the pay they deserve, get better working conditions and move up the career ladder. If you are considering a change, contact Dave at dave@onlinepcg.com or (800) 269-7319, or visit onlinepcg.com. All information is confidential; fees are paid by the employer.



Are you considering selling your roofing, sheet metal and/or HVAC business?

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



Maintenance and repair roof flashing

Offering exceptional strength and elasticity, **Mule-Hide Products'** Seal-Fast Repair Hero roof flashing is an all-system, all-weather maintenance

and repair product. A universal solution, the solvent-based, fiber-reinforced terpolymer sealant adheres to all roof substrates, including asphalt, polymer-modified bitumen, metal, TPO, EPDM, PVC, Kynar®, concrete, Elvaloy®/PVC, Hypalon® (CSPE) and polyisobutylene (PIB). Contact Mule-Hide Products at (800) 786-1492 or mulehide@mulehide.com, or visit mulehide.com for more information.





NRCA

ROOFING DAY IN D.C.

2022

April 5-6

Join hundreds of roofing professionals as we converge LIVE on Capitol Hill for the most important advocacy event of the year!

Members of Congress need to meet with you—and your key employees—to hear about the critical issues facing your company and the roofing industry.

Be part of this unique, fun and unforgettable experience!

Register today at nrca.net/roofingday.

WE'RE GOING BACK TO D.C.!



Harnessing the power of the wind for roof system securement

Affected by material shortages of conventional fasteners and adhesives? **Carlisle SynTec Systems'** VacuSeal™ Vent Secured Roofing System is a revolutionary, wind-ballasted system that uses a loose-laid membrane and specialized vents that harness the power of wind to create negative pressure, securing the roof in place. There's no need for extensive installation equipment, adhesives or fasteners, which means less noise and fewer disruptions during the installation process. Plus, there are no adhesive odors, volatile organic compounds or cold weather limitations.



Industry-changing adhesive application method

Versico has been at the forefront of two-component low-rise urethane adhesive applications for more than 20 years and continues to lead the industry with its high-performing Rig Splatter Application for Flexible DASH Adhesive. This application method is approved for insulation and VersiFleece® membrane attachment over a variety of substrates, providing unique benefits not found with traditional bead or spray application. With splatter-applied Flexible DASH, you can achieve consistent application of the adhesive plus improved coverage rates, performance and aesthetics.



LEGALCon 2022

Join us March 10 from the convenience of your home or office to receive in-depth information from NRCA legal and technical experts about contract law, employment law and roofing technology you won't find anywhere else. Don't miss this opportunity to manage risk effectively and maximize your company's productivity! Register now at nrca.net/legalcon.



Save time and labor with ADESO® Self-Adhered Technology

Complete roofs faster and safer with **Polyglass'** dual-compound self-adhering membranes. ADESO Self-Adhered Technology revolutionized the polymer-modified bitumen industry by manufacturing dual-compound self-adhering membranes using a true APP or SBS formulation on the top weathering side and an aggressive self-adhering formulation on the bottom side of the reinforcement. ADESO Self-Adhered Technology integrates patented features that enhance lap sealing and allows product design with a variety of customized surfaces. To learn more, visit polyglass.us/adeso.



SpeedStand speeds up jobs

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



SpeedStand Warning Line System

Increase profits by better managing your construction labor

Workyard's construction time tracking helps capture accurate time data using the industry's most precise GPS tracking—saving you payroll costs and providing the data you need to run even more profitable projects. See for yourself and sign up for our free 14-day trial using the QR code.





NRCA
LEGAL RESOURCE CENTER

LEGALCon 2022

March 10 Virtual Event

A word cloud graphic featuring various terms in different sizes and orientations. The most prominent words are 'contracts', 'liability', 'regulatory', 'compliance', 'insurance', 'prevention', 'bidding', 'codes and standards', 'employment law', 'payment provisions', and 'safety'. The words are arranged in a way that they appear to be floating or scattered, with some overlapping.

NRCA Legal Resource Center's newest conference, **LEGALCon 2022**, gives you the opportunity to learn the latest developments from the brightest legal and technical experts in the roofing industry in one information-packed day.

From the convenience of your home or office, you can maximize your company's productivity and receive in-depth information about contract law, employment law and roofing technology you won't find anywhere else.

Don't miss it!

Register now at nrca.net/legalcon.



MICHAEL A. TROUT

WHAT IS YOUR POSITION WITHIN YOUR COMPANY? I am project executive for Wayne's Roofing Inc., Sumner, Wash.

WHAT IS THE MOST UNUSUAL ROOFING PROJECT OF WHICH YOU HAVE BEEN A PART? Installing an insulated EPDM roof system on a home made from three shipping containers welded together

WHY DID YOU BECOME INVOLVED IN THE ROOFING INDUSTRY? I wanted a career working outdoors, and I was not afraid of hard work. I fell in love with roofing work because of the view it provided me and the challenges of each job. I also loved how roofing enabled me to support myself and learn a trade as a young adult who was just starting out.

WHAT WAS YOUR FIRST ROOFING EXPERIENCE? Installing a steep-slope tile roof system on a custom log house in Oregon



WHAT IS YOUR ROOFING INDUSTRY INVOLVEMENT? I have worked for Wayne's Roofing for 22 years. I currently am enrolled in NRCA University's Future Executives Institute—Class 10.

WHAT SONGS ARE YOU LISTENING TO OVER AND OVER? "A Country Boy Can Survive," by Hank Williams Jr. and other country or 80s rock songs

WHAT WAS YOUR FIRST JOB? Working at Ernst Hardware in the lumber department in Milton, Wash.

PEOPLE WOULD BE SURPRISED TO KNOW ... I went to nine schools before graduating high school.

IF YOU COULD TRAVEL ANYWHERE IN THE WORLD, WHERE WOULD YOU GO? WHY? Machu Picchu. I would love to experience the beauty of the ancient ruins and try to understand the challenges the builders had to overcome based on the city's location.



WHAT DO YOU CONSIDER A WASTE OF TIME? Worrying about something I cannot change or do anything about. However, I am horrible at this and stress quite often even though I know it's not productive.

WHAT QUALITY DO YOU MOST ADMIRE IN A PERSON?

Honesty—don't be afraid to be honest about your mistakes.

WHAT'S THE MOST EXCITING/ADVENTUROUS THING YOU'VE DONE? Aside from racing motorcycles for a short time and scuba diving, raising my two sons. Every day is an adventure.



WHAT ARE YOUR FAVORITE STRESS RELIEVERS? Camping with my family and riding motorcycles with my sons

WHEN YOU WERE A CHILD, WHAT DID YOU WANT TO BE WHEN YOU GREW UP? I always wanted to race pro motocross, but too many injuries changed that.

MY FAVORITE PARTS ABOUT WORKING IN THE ROOFING INDUSTRY ARE ... The great people and the sense of accomplishment I feel when a job is done and seeing the planning, coordination and hard work that goes into every project come together.

WHAT IS YOUR FAVORITE ROOFING MATERIAL TO WORK WITH? WHY?

I like SBS polymer-modified bitumen membrane roof systems. The redundant layers provide a robustness that lasts a long time and brings a sense of security.

BIG CITY OR SMALL TOWN? I like the slower pace and feel of a small community.

WHAT DO YOU CONSIDER YOUR MOST REWARDING EXPERIENCE? Helping to raise my boys with my wife





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