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ROOFING SEALANTS
CHOOSING THE RIGHT SEALANT FOR THE JOB

ARMA TECHNICAL BULLETIN
INSTALLING ASPHALT SHINGLES ON LOWER-SLOPED ROOFS

AVOID COSTLY HEAT CABLE INSTALLATION ISSUES

WEATHER & ROOFER SAFETY

BY SHIELD WALL MEDIA LLC


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ON THE COVER:
Heat tape has been installed on the Arapahoe Ski Basin Administration Building, elevation 10,780 feet. Heat tape is from FloTraceUSA. PHOTO COURTESY OF FLOTRACEUSA.

INDUSTRY NEWS

EPDM ROOFING ASSOCIATION LAUNCHES FIELD-AGED MEMBRANE STUDY TO ADVANCE SERVICE-LIFE RESEARCH

The EPDM Roofing Association (ERA) has initiated a field-based research study designed to improve scientific understanding of the long-term performance of EPDM membranes and explore methods for estimating their remaining service life in commercial roofing systems.

The study focuses on EPDM membrane samples from commercial roofs that have been exposed to decades of real-world environmental conditions. This approach incorporates field-aged materials that reflect actual in-service performance, providing an opportunity to evaluate the characteristics of membranes after years of natural aging and compare them with membranes subjected to accelerated aging and weathering.

Collected samples will undergo laboratory testing in their as-collected condition before portions of the same samples are subjected to accelerated heat aging and weathering. The resulting data will be used to evaluate changes in physical properties and help inform understanding of the long-term performance and potential residual service life of EPDM membranes.

The initiative is expected to contribute to:

- Improved understanding of long-term EPDM membrane performance
- Additional data to help inform estimates of residual service life
- A stronger research foundation for future EPDM service-life studies and methodology development
- More informed planning and budgeting for maintenance, repair, and replacement decisions
- More accurate building life-cycle evaluations and potentially Environmental Product Declarations (EPDs) for EPDM roofing systems

ERA sought participation from roofing contractors, roof consultants, building owners and technical/sales representatives with access to EPDM roof systems aged 20+ years, particularly those undergoing scheduled replacement, to provide field samples during reroofing operations. Selection criteria included the use of black, unreinforced EPDM membrane with a nominal thickness of 45 mil or greater.

Sample collection will be completed by December 5, 2026, with an initial research report anticipated in spring 2027. More information about the study can be found at https://epdmroofs.org/predicting-epdm-service-life-study/.

TECHNICAL BULLETIN

INSTALLATION OF ASPHALT SHINGLES ON LOWER SLOPED ROOFS

BY THE ASPHALT ROOFING MANUFACTURERS ASSOCIATION (ARMA)

Asphalt shingles may be used on lower sloped roofs, that is, those with slopes ranging from 2 inches per foot (2:12) to less than 4 inches per foot (4:12), but only if special procedures are followed. Never apply shingles on roofs with slopes lower than 2 inches per foot (2:12).

Use of asphalt shingles on lower slopes can lead to problems since water drains more slowly, creating a greater possibility of water backup and damage from ice dams. Asphalt shingles installed on lower slopes may also be more susceptible to water entry due to wind-driven rain in severe weather events. When applying shingles on lower slopes, the underlayment application methods described below will help ensure that the roof system will perform its intended water-shedding function. Where icing is anticipated at the eaves, refer to ARMA Technical Bulletin "Protecting Against Damage from Ice Dams" for steps to take in addition to those outlined in this bulletin.

There are two methods of applying underlayment for lower slope applications. The first method uses a double-layer underlayment installation of asphalt-saturated felt or synthetic underlayment, as described below.

Apply a strip of underlayment for the first course that is half the width of a full sheet parallel to and starting at the eaves. Starting at the eaves, apply a full-width sheet of underlayment for the second course. Apply the third course of underlayment, overlapping the second course by half the width of a full sheet plus a minimum of 2 inches (51 mm). Overlap all successive courses by half the width of a full sheet plus a minimum of 1 inch (25 mm). End laps shall be a minimum of 4 inches (102 mm) and shall be offset by a minimum of 6 feet (1.8m).

The second method addresses secondary protection of lower sloped roofs with a single layer of self-adhering underlayment, installed and lapped per the underlayment manufacturer's requirements. When an entire roof is covered with self-adhering underlayment, adequate ventilation of the attic space is required. Applying self-adhering underlayment over the entire deck creates a vapor barrier; therefore, the installer must ensure that the ventilation requirements prescribed by the building code are met. See also ARMA's Technical Bulletins entitled "Considerations in Attic Ventilation System Selection" and "Why Ventilation is Important."

Where a lower sloped roof area transitions to a steeper (4:12 or above) sloped roof area, the underlayment applications described above should extend at least 24 inches (610 mm) onto the steeper slope roof. Note: The transition between a lower (2:12 to < 4:12) and a steeper (4:12 or above) slope needs special attention due to the potential for water build-up. Consult the shingle and underlayment manufacturers' instructions for additional information.

See ARMA's Residential Asphalt Roofing Manual for additional information.

WARNING: *Because it is dangerous to walk, climb or work on a roof, ARMA recommends that only trained professionals engage in such activity. If you choose to do so, exercise extreme care, comply with all government safety regulations, and follow all safety work practices, precautions and procedures, including but not limited to manufacturer's instructions, labels, and warnings.*

*DISCLAIMER OF LIABILITY: This document was prepared by the Asphalt Roofing Manufacturers Association and is disseminated for informational purposes only. Nothing contained herein is intended to revoke or change the requirements or specifications of the individual roofing material manufacturers or local, state and federal building officials that have jurisdiction in your area. Any question, or inquiry, as to the requirements or specifications of a manufacturer, should be directed to the roofing manufacturer concerned. THE USER IS RESPONSIBLE FOR ASSURING COMPLIANCE WITH ALL APPLICABLE LAWS AND REGULATIONS.

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BY LINDA SCHMID

PERFECT SEAL

THE RIGHT SEALANT FOR THE JOB

MATCH THE CHEMISTRY TO THE MATERIAL AND THE DETAIL

A tube of sealant may be a small part of a roofing job, but choosing it deserves more attention than a quick check of the color. The product must bond to the materials in the joint, withstand the conditions on the roof, and remain effective as those materials move. A sealant that performs well inside a compressed panel lap may be a poor choice for an exposed flashing edge.

Roofers have several chemistries to choose from, including silicone, polyurethane, polyether and other hybrids, butyl, acrylic, and asphalt-based products. Understanding their differences helps narrow the selection. The final decision comes down to the specific product and its compatibility with the roof.



Butyl tape specifically formulated for use on metal roofs. *Courtesy of Triangle Fastener Corporation*

WILL THE SEAL HOLD?

A sealant needs both adhesion and cohesion. Adhesion keeps it attached to the adjoining surfaces; cohesion keeps the material itself from pulling apart. A bead can fail by separating from the roof material or by tearing through its own body as the joint moves.

"The right choice depends on the roof material, joint movement, exposure, and the roofing-system manufacturer's requirements," said Don Bratcher, VP of OEM Sales, Atlas Building Products.

Many liquid-applied sealants cure into flexible barriers through moisture, chemical reaction, solvent loss, or water evaporation. Non-curing butyl products behave differently. They remain tacky and form a seal when compressed between overlapping materials. In either case, the sealant must maintain contact with the surfaces it is protecting. It does not take the place of the fasteners, flashing, or other components that make the assembly work.

UNDERSTANDING THE CHEMISTRIES

Silicone is a strong candidate for exposed details because it resists ultraviolet light and temperature extremes while remaining flexible. Metal-rated neutral-cure formulations are among the options for metal roofing. Silicone usually cannot be painted, however, and adhesion must be verified for the particular substrate. Its presence also matters during future coating work because some coatings will not adhere over cured silicone.

Polyurethane offers strong adhesion, toughness, and paintability. Weathering performance varies by formulation, and some products need protection from prolonged UV exposure. Contractors should check whether the selected product is intended for an exposed roof detail rather than assuming every polyurethane will perform the same way.

Polyether and other hybrid sealants combine characteristics that make them useful across a variety of details. Many offer broad adhesion, flexibility, good weathering, and paintability or color options. They can be practical choices where a contractor works with varied materials, but the hybrid label does not establish compatibility or performance by itself. The technical data for the individual product still governs.

Butyl is especially useful in concealed, compressed joints. Tape provides a continuous strip of controlled thickness between overlapping panels or flashing components. Non-curing butyl is also available in tubes. These products remain pliable as the adjoining materials move, but they generally are better suited to protected laps than to exposed joints requiring the weathering and movement performance of a cured elastomer.

Acrylic sealants are generally easy to tool, clean up, and paint. Water-based versions can shrink as they dry and are typically better suited to lower-movement applications without ponding water. Asphalt-based mastics are intended primarily for asphaltic roofing and repairs. Their oils can stain adjoining materials, and compatibility with membranes, coatings, and other sealants needs to be checked.

START WITH THE SURFACES

"Pay attention to adhesion needs," said Josh Krohn, Engineering Services Manager, Triangle Fastener. "That starts with identifying everything the sealant will touch, including the roof surface, factory finish, flashing, boot, and any existing coating or sealant. They all need to be compatible."

Compatibility means that the products can remain together without damage or loss of performance, as well as bond initially.

Painted metal deserves particular attention. A product that adheres well to bare steel may behave differently on a factory coating. PVDF finishes, often identified by the Kynar name, can be challenging bonding surfaces. Use a product approved for that finish, follow its preparation requirements, and conduct an adhesion test.

For EPDM, TPO, and PVC roofs, consult the membrane manufacturer's approved products and details. Depending on the system, the work may call for a specific primer, tape, lap sealant, or accessory. Thermoplastic seams are normally heat-welded; caulk does not replace that connection. Solvents in an unsuitable sealant can also damage membranes or nearby insulation components.

Asphaltic materials require the same care. A product suited to metal may not cure or age properly against asphalt, and asphalt oils can migrate into adjoining materials. Concrete can introduce dust, moisture, and loose material.



COURTESY OF ATLAS BUILDING PRODUCTS.

ALLOW FOR ROOF MOVEMENT

Metal panels expand and contract as their temperatures change. Connections between dissimilar materials may experience different amounts of movement, putting additional demand on the sealant. The bead needs sufficient flexibility, bonded area, and appropriate dimensions to accommodate that movement.

Movement ratings are more useful than judging a product by how stretchy it feels. Review the manufacturer's stated movement capability along with adhesion, service temperature, and exposure limits. A high elongation number alone does not establish how a particular joint will perform. Joint design and the conditions under which the sealant was tested matter, too.

CHOOSE FOR THE DETAIL

Concealed panel laps often favor butyl tape or non-skinning butyl because mechanical fastening compresses the material into a continuous seal. Tape works best where the surfaces and connection allow uniform compression. An irregular gap or exposed termination may instead call for a compatible liquid-applied sealant.

Exposed flashing edges, transitions, and roof boots need a product approved for both adjoining materials and the expected weather exposure. A penetration should have the appropriate boot or flashing assembly, with sealant applied at the points designated in the installation detail. Similarly, sealant over a fastener head will not correct a loose, overdriven, or improperly installed fastener.

Slope also affects the demands on the detail. Steep-slope assemblies rely on properly arranged panels, shingles, and flashing to shed water. Low-slope roofs may drain more slowly and experience temporary ponding, making approval for the expected water exposure particularly important. Follow the roof-system requirements for seams and penetrations rather than substituting a general-purpose sealant for a specified component.

Sometimes specifiers have made the mistake of becoming familiar with a specific brand, using it as their go-to without looking at it closely, and experiencing the consequences. For example, Atlas offers its Ultibond metal-roof sealant in a translucent neutral-cure silicone and color-matched polyether formulations. The two chemistries have different performance profiles despite sharing a product name. That distinction illustrates why contractors should check the exact version being ordered rather than relying on brand familiarity.

PREPARATION AND APPLICATION COUNT

Even the right chemistry needs a suitable surface. Remove dirt, oil, corrosion, loose coating, and old sealant as required by the product instructions. The substrate should be sound and meet the manufacturer's moisture and primer requirements before application.

Temperature affects how easily a sealant extrudes and its malleability, as well as how quickly it skins and cures. Cold can make a product harder to dispense, while heat can shorten working time. Moisture-curing products also depend on humidity, and a thick application may cure slowly below the surface.

"A lot of people think more sealant is better," Krohn said, "but excess material can create problems when the bead becomes too deep to cure properly or doesn't move as intended. Follow the specified bead dimensions rather than filling every available space."

Where the joint design requires it, a backer rod can control sealant depth and prevent adhesion to the bottom of the joint. Bond-breaker tape can also prevent that unwanted third bond. A sealant attached on three sides cannot stretch as freely between the two surfaces that are moving.

"Correct bead geometry is essential because even a high-performance sealant can fail if the joint is too thin, bonded on three sides, contaminated, or subjected to more movement than it is rated to handle," Bratcher explained.

A tack-free surface does not necessarily mean the bead has cured throughout. Allow the specified curing period and protect the application as directed. Before leaving the detail, check for continuous contact and missed areas, leaving a properly formed seal that can do its job through the roof's movement and weather exposure. ●

RESOURCES

- Don Bratcher, VP of OEM Sales, Atlas Building Products, https://www.marmonfasteners.com
- Josh Krohn, Engineering Services Manager, Triangle Fastener Corporation, https://trianglefastener.com/

EASTERN EXTERIOR PARTNERS LAUNCHES WITH ACQUISITION OF PERRY'S ROOFING

A TRUSTED NAME + NEW RESOURCES = A GREAT START

BY LINDA SCHMID

Business owners Doug Behrman and Alex Kerr, co-founders of the investment firm Confluence Point, are committed to excellence in all their undertakings. As they began their investment partnership, they began looking for strong, small-to-medium size service businesses that demonstrate that drive for perfection and have great potential to grow. They found Perry's Roofing.

Perry's Roofing opened its doors for business in New York in the midst of the Global Financial Crisis, or Great Recession of 2008. It was a challenging time in the business world, but Founder and President Perry Verrone didn't seem to notice.

"I didn't see opening my own business or dealing with the economic pressures as challenges that I needed to be concerned about," Verrone said. "I was having fun. I built a team, I was selling jobs, and we were putting on roofs. The only challenge was that there weren't enough hours in a day," he added.



Doug Behrman and Alex Kerr, co-owners, EXP.
PHOTO COURTESY OF EASTERN EXTERIOR PARTNERS

Verrone has the same drive today. His team is of the go-getter mindset; they often start early and end late and strive to be the best they can be. In fact, his company is a GAF President's Club Award Winner, which is a distinction reserved for a select group of contractors who demonstrate high standards in performance, reliability, and customer service.

BUILDING A HOME SERVICES PLATFORM

Perry's Roofing's great reputation and award-winning service and craftsmanship are the elements that caught the attention of Behrman and Kerr. Their goal is to build their home services platform, Eastern Exterior Partners (EXP) one piece at a time, acquiring more companies like Perry's that have a lot going for them, and helping them to grow. EXP is aiming to be the leading exterior home services company in the Northeast and Mid-Atlantic and will look to acquire other strong roofing contractors for its portfolio.

Kerr said, "The roofing and exterior services market in the Northeast and Mid-Atlantic is thriving. The roofing industry has evolved over the last 20 to 30 years into a more sophisticated market where contractor and employee safety and satisfaction are as important as customer satisfaction." He added, "It's a competitive playing field, but there is plenty of room to run."

Perry's Roofing is ready to run. While offering a great variety of roofing options including asphalt, cedar, metal tiles, plus solar panels and tiles, the team stays current through manufacturer training. Their focus is residential work including servicing HOAs. They also do some commercial, but their goal is to be the best in residential. Much of the opportunity in the Mid-Atlantic is driven by a lot of older houses in need of new roofs.

Perry's team finds that asphalt is still their customers' favorite roofing material; it's 80% of their market. They source 80% of their roofing materials and underlayment primarily from GAF and through New Castle Building Products and ABC Supply. These companies are great partners Kerr said.

CHALLENGES

The EXP partners cut their teeth in the private equity world, so they have experience with different personality types, team dynamics, and deal dynamics. Now they are putting that insight to work, building their own business by acquiring other businesses in the residential industry and helping them reach their potential.

"It's about fulfillment," Kerr said, "we are two accomplished private equity people with an over-arching goal to build great enduring businesses. Our satisfaction comes from facilitating high performing teams."

The partners' plan is to provide business resources, such as strategic financing, finding growth opportunities and helping teams work toward them. Marketing is another area that many small businesses may not have given a lot of attention to, counting on word of mouth as Perry's Roofing has. The partners plan to help them with digital campaigns and ensuring that their websites are working for them through SEO and sales funneling. Sometimes they may assist companies with organization design, helping them filter teams into distinct roles so they can function better as a whole.

Behrman and Kerr have been traversing the 'get-it-up-and-running" challenge at EXP, which is especially challenging when there are only the two of them as they must achieve all the usual new venture requirements along with learning about the new business they have acquired. They are out on the jobsite every day learning the ins and outs of the business, getting to know the people who make up the crew, seeing how they work together. As time goes on, they will be on-site less and less and focusing more on providing resources to enhance and grow Perry's Roofing and EXP's future portfolio of roofing companies. They will be developing the resource teams to work with Perry's Roofing as they discover what they need.

"We are in the same boat as any new business getting underway," Kerr said. "We have many hats to wear including financing, marketing, building relationships, and more, such as consummating acquisitions." He added, "Thankfully, organization and prioritization are important pieces of our skill set."

"CULTURE EATS STRATEGY FOR BREAKFAST."

The best-laid plans will not come to fruition if the people in charge of making it happen are not all on board, and getting everyone on board has a lot to do with company culture.

EXP's business philosophy, which helps define culture, is to treat everyone well. That means customers, employees, subcontractors, vendors – everyone. And they all need to pull together as a team.

Kerr said, "Each and every person in a business needs to understand what the goal is, what they need to do to make it happen, and what the rewards will be if they are successful. Then give them the resources to do their part and set them free. They just may knock your socks off."

The company culture emphasizes working hard to succeed, and their culture meshes well with their new acquisition. Both groups value the Golden Rule, do unto others as you would have done to you, transparent communication, integrity, and meritocracy. Plus, both groups are competitively driven.

"Perry Verrone is a very competitive guy, and it has taken him a long way," Kerr said.

Verrone said, "I work hard, and I will stay as long as it takes to get it right. Employees have been just as driven; I guess if they weren't they wouldn't keep up."



PHOTO COURTESY OF PERRY'S ROOFING/EASTERN EXTERIOR PARTNERS

The parallel values in both groups is no coincidence; Kerr and Behrman look for companies that share similar values, largely because they believe that these characteristics nurture an ethical, competitive, and successful organization.

Now the partners look forward to helping Verrone and his team take their business to the next level.

WHAT ACQUISITION MEANS FOR PERRY'S ROOFING CUSTOMERS

As a roofing company focused on doing the job right, the team would complete a roof and likely have no contact with the customer for twenty years or more. However, EXP has a different business model. As they expand their portfolio of exterior solutions businesses, they will be offering more options to Perry's customers. They hope to leverage the trust and good will that Perry's has earned to entice customers to try EXP's other services.

"This is not a quick, slick sale and the customer never hears from us again," Kerr said, "this is long-term relationship building."



PHOTO COURTESY OF PERRY'S ROOFING/EASTERN EXTERIOR PARTNERS

WHERE THE TAIL WINDS BLOW

As everyone knows there is a housing shortage, and with interest rates high now, many people are unable or unwilling to purchase new homes. Instead they are digging into their equity to repair and improve the houses they already have. Since the country has approximately 32 trillion dollars of value tied up in home equity according to the Federal Reserve, thanks in part to higher home prices, there is a lot of value to tap into. This puts companies that offer repair services in a very good place economically, and exterior home services are certainly part of that niche though not exclusively.

The partners see many opportunities for growth ahead. They can invest in adding more service companies in the Northeast, they can work on building market share and expanding services of the company they have already acquired, such as gutter and siding installation; and they can expand geographically, opening offices in other areas. Right now they are working on expanding into east Connecticut.

It will be exciting to see the growth and momentum this motivated group can bring to the Northeast, the Mid-Atlantic, and perhaps beyond in the years to come. ●

BY DAVID HEWITT, VALIN CORPORATION

HEAT CABLES

HOW TO PREVENT COSTLY ROOF HEAT CABLE INSTALLATION PROBLEMS

When a roofing project includes heat cable, it's easy to assume the most important work happens during installation. However, many of the costliest problems are created much earlier, even before a single foot of cable is installed.

The issue isn't the product itself or the quality of the installation. Alternatively, it's a lack of coordination between the trades responsible for making the system work. Roofing contractors and electricians each bring specialized expertise to a project, but they typically become involved at different stages of the process. Without early collaboration, important decisions are made independently, creating problems that only become apparent after installation is complete. By then, the options for correcting those problems can be both expensive and disruptive.



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PROJECT ISSUES

In many projects, the roofer is the first to identify the need for heat cable. Based on the roof's layout and the areas susceptible to ice buildup, the contractor determines where cable should be installed and completes the installation as part of the roofing scope.

At that point, the electrical work often hasn't been fully coordinated. When the electrician arrives to connect the system, they are faced with questions that should have been answered before installation began. How many feet of heat cable have been installed? Which sections belong on which circuits? How much electrical capacity is available? What size circuits are required to support the installation?

Without clear documentation, those answers may not be readily available. In some cases, the installed cable exceeds what the building's electrical system can support. What initially appeared to be a straightforward installation becomes a much larger problem involving electrical capacity rather than roofing. Unfortunately, these issues are often discovered only after the roof work has already been completed.

COST

When an installed heat cable system exceeds the available electrical capacity,

project teams are left with limited choices. One option is to increase the electrical service to the building. While this may solve the capacity issue, it can add significant cost that was never anticipated during bidding.

The most effective heat cable projects begin with communication rather than installation.

The alternative is equally undesirable. Newly installed heat cable may need to be removed so the system can be redesigned to fit within the available electrical capacity. Removing cable from a completed roof can leave behind holes or damage that must be repaired before the project is finished.

These situations create delays and additional coordination between trades. None of these outcomes improve the finished system. They represent costs that could have been avoided through better planning.

COORDINATION

The most effective heat cable projects begin with communication rather than installation. Instead of treating roofing and electrical work as separate phases, successful projects bring both perspectives together early in the planning process. Before cable is installed, the roofing contractor and electrician should understand not only where heat cable is needed, but also what the building's electrical system can support. This allows installation decisions to be made with complete information.

The electrician can establish circuit limitations and electrical requirements while the roofer plans the installation accordingly. Rather than discovering constraints after the work is complete, those constraints become part of the design process from the very beginning.

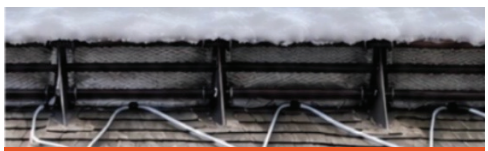
HEAT TRACE SPECIALISTS

This is where a heat trace specialist can play an important role. Instead of replacing either trade, the specialist

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serves as the link between them. They can help translate roofing requirements into a system that aligns with the available electrical infrastructure.

One of the most valuable contributions is system design. By developing detailed layouts and installation drawings before work begins, every member of the project team works from the same plan. The roofer knows exactly where cable should be installed. The electrician understands how much cable is assigned to each circuit and what electrical requirements exist throughout the system.



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EFFICIENCY

Another common misconception is that improving performance simply means installing more heat cable. The truth is that thoughtful design can often accomplish more than simply adding additional cable. The routing of the cable has a significant impact on how effectively the system performs. When the layout is intentionally designed, the available cable can often cover critical areas more efficiently while remaining within the building's electrical limitations.

Good design allows a relatively modest amount of heat cable to accomplish more because every section of the system has been planned with purpose. Instead of treating installation as a matter of placing cable wherever it appears necessary, the process becomes one of optimizing both performance and electrical capacity.

DOCUMENTATION AND PLANNING

Clear documentation is another often-overlooked advantage of early planning. Detailed drawings provide a common reference for every trade involved in the project. Installers have clear guidance regarding where cable belongs. They also know how much should be installed in each location and how the electrical system is intended to support the installation. This shared understanding reduces confusion and minimizes the likelihood of costly changes later in the project.

It also improves communication between contractors by replacing assumptions with documented plans. When everyone is working from the same information, coordination becomes easier.

Design considerations also extend beyond cable layout. The control strategy selected for a heat cable system can influence both operation and energy consumption over the life of the installation. Depending on the project's needs, systems may use relatively simple thermostatic controls or more advanced controllers capable of responding to environmental conditions such as temperature and moisture. Selecting the appropriate control strategy should be part of the planning process so the completed system aligns with the project's goals.

PROCESS

Many of the challenges associated with heat cable installations are not technical problems. They are communication problems.

Roofers understand roofing. Electricians understand electrical systems. Both play essential roles in a successful installation, but neither should have to make critical decisions without input from the other. Bringing those perspectives together early changes the outcome.

When roofing contractors, electricians, and heat trace specialists collaborate before installation begins, projects are designed around the realities of both the roof and the building's electrical infrastructure. Electrical capacity is understood before cable is installed. Installation drawings provide clear direction. Cable layouts are designed for efficiency rather than guesswork. Expensive rework becomes far less likely.

Ultimately, the most successful heat cable projects aren't defined by how quickly cable is installed. They're defined by how well the project is planned. The earlier coordination begins, the fewer surprises emerge later. ●

David Hewitt *is an account manager in Valin Corporation's process heating division. Valin Corporation (www.valin.com), a subsidiary of Graybar, is the leading technical solutions provider for the technology, energy, life sciences, natural resources, and transportation industries.*

BY LINDA SCHMID

UP ON THE ROOF

ENVIRONMENTAL ELEMENTS CAN ALTER ROOFING SAFETY IN A MATTER OF MINUTES

It's very early morning, and a roofing crew foreman is checking the weather forecast. Good, it looks like clear skies and mild temperatures with little wind. The foreman heads out to the jobsite to get the crew started on a roofing job. That is not the end of the precautions needed, though. The workplace changes as the sun rises, clouds move in, humidity climbs, and wind picks up or shifts direction. A roof that offered solid footing at 10 a.m. may be dangerously hot, wet or contaminated by early afternoon. Weather can also affect a worker's balance and judgment, turn a metal panel into a sail, loosen temporary coverings, and scatter materials that were secure only minutes before.

Todd Meinhold, owner of Ridgeline Safety Systems, H&D Quality Builders and Cool Roofs, said crews need to evaluate conditions throughout the day and prepare for the worst likely change, not simply the weather they see when work begins.

"Prep is paramount," Meinhold said. "Always plan for the worst-case scenario."

HEAT, HUMIDITY, AND SOLAR EXPOSURE

Air temperature tells only part of the story. Humidity, direct sun, wind, physical exertion, clothing, and the heat absorbed or reflected by the roof all contribute to a worker's total heat load. OSHA notes that weather reports and heat-index readings are generally based on shaded conditions; direct sunlight can make conditions feel substantially hotter, while a heat-absorbing roof adds a source the forecast cannot measure.



A hazardous slope for roofers. PHOTO COURTESY OF RIDGELINE SAFETY SYSTEMS

On metal roofing, contact burns are another concern. Meinhold compared touching sun-heated metal roofing with touching a hot curling iron. Dark finishes without "cool roof" coatings can become especially hot, but highly reflective surfaces can also redirect solar energy toward a worker. Gloves must provide suitable grip and thermal protection for the material being handled. Long pants and light, breathable long sleeves can help protect skin without adding unnecessary heat burden.

Heat illness may first appear as changes in coordination, balance or behavior, which are particularly dangerous at elevation. A co-worker may notice trouble before the affected person does. Meinhold said co-workers should watch for loss of balance, unusual fatigue, confusion, cessation of sweating or shivering in the heat. OSHA advises moving a symptomatic worker to a cooler place and beginning active cooling. Possible heat stroke is an emergency requiring immediate medical help.

There is no universal temperature at which every roofing crew must stop work. A humid, still 70-degree day can challenge a worker differently than a hotter day with air movement. The working plan should account for workload, acclimatization, sun exposure, roof temperature and PPE. Periodic water, rest, and shade are the foundation, but schedules may also need to shift. In hot climates, crews may start earlier, pause during the worst afternoon heat, and return later when conditions permit.

DEW, CONDENSATION, RAIN, AND WET SURFACES

A clear forecast does not guarantee a dry roof. Dew can form as roof surfaces cool overnight, particularly when humid air is present. Condensation, mist and light rain may be difficult to see on smooth metal, membranes, and underlayments. Water can reduce friction and conceal dust, pollen, loose fasteners, or wrinkles beneath a worker's boot.

Meinhold's crews wait for the sun to burn off dew rather than treating the first hours of daylight as automatically workable. After rain they reassess both the walking surface and what lies beneath the finished roof. Synthetic underlayments and high-temperature self-adhered membranes vary in surface texture and installation requirements, so crews should follow the manufacturer's instructions and not assume all products provide the same traction.

Rain also changes the consequences

of an incomplete roof. Before a storm open penetrations must be covered and underlayment, tools, panels and trim bundles secured. When crews return a competent person should inspect temporary coverings, staples, and fasteners before the rest of the crew resumes work. Loose paper, a raised edge, or a screw dropped from a pocket can become the first link in a fall.

WIND, GUSTS, AND CHANGING DIRECTION

Wind is one of the most complex roofing hazards because it acts on workers, access equipment, and materials at the same time. Long metal panels have a large surface area and can behave like sails. The hazard increases with panel length, building height, roof geometry, handling position, and gust direction. Conditions at roof level may be stronger and less predictable than conditions on the ground.

Meinhold recommends watching tree movement, cloud cover, and the direction of the wind, but observation should supplement rather than replace a reliable forecast and on-site measurement when appropriate. A crew must also consider whether it can control the particular panel being lifted. A short sheet carried eight feet above the ground presents a different exposure than a 40-foot panel being handled at the eave of a two-story building.

On one airport reroof, wind rose while Meinhold's crew was handling 40-foot sheets. The experienced foreman increased the number of workers assigned to each panel, then proceeded cautiously. The incident illustrates the judgment required, but it does not establish a universal formula. More hands do not automatically make a lift safe. If gusts prevent workers from maintaining control or safe footing, the lift and the roofing work must stop.

"Less is more," Meinhold said. "Don't risk anyone's life to get two more pieces on. I'd rather see my crew show up for work the next day."



The ladder is tied off on this project so no wind can move it. PHOTO COURTESY OF RIDGELINE SAFETY SYSTEMS

SEVERE STORMS AND LIGHTNING

Thunderstorms can bring wind shifts, lightning, hail, and intense rain with little warning. A weather app is useful only if someone is responsible for monitoring it and the crew plans accordingly. Emergency plans should identify the person authorized to stop work, the route off each roof area, the location of safe shelter, how materials will be secured, and how an injured or suspended worker will be rescued.

Workers should not wait until the roof becomes unmanageable to descend. The National Oceanic and Atmospheric Administration (NOAA) advises going indoors when thunder is heard; no outdoor location is safe during a thunderstorm. A substantial, enclosed building or hard-topped vehicle is preferable to sheds, open structures, or remaining on an exposed roof. Crews should follow current lightning guidance and re-inspect the work area after the storm.

COLD, FROST, ICE, AND SNOW

Winter weather combines traction problems with cold stress, reduced dexterity, and hidden conditions. Frost and thin ice can be nearly invisible, particularly on light-colored or reflective roofs. Snow can hide skylights, penetrations, roof edges, loose material, and variations in elevation. Gloves and bulky clothing may reduce dexterity or interfere with harness fit if the PPE system was not selected and adjusted for cold-weather use.

Meinhold tends to schedule stone-coated metal work during winter months because its factory-applied granules can provide more traction than smooth metal, and in his experience, sometimes it's more traction than the asphalt roof beneath it. That relative advantage does not make the surface slip-proof. Snow still must be removed without creating new hazards, fall protection remains necessary, and changing temperatures can produce meltwater that refreezes.

If snow is expected Meinhold may tarp an area in advance, building the additional labor and cost into the job. His crews also use leaf blowers for light snow removal where conditions and site rules allow. Any removal method must avoid obscuring hazards with snow or damaging the roof surface.

DUST, POLLEN, SMOKE, AND AIR QUALITY

Not every weather-related hazard falls from the sky. Wind carries agricultural dust, pollen, wildfire smoke, sawdust, and debris from nearby trades. Dry particles can act like small bearings beneath a

boot on smooth metal. Rain or dew may turn the same material into a paste that changes traction again. Pine needles, leaves, and granules can also accumulate in valleys or behind equipment.

Meinhold has seen seasonal tilling dust and corn pollen affect roofs in agricultural areas, while wildfire smoke has forced contractors to pay closer attention to air quality and scheduling. Employers can use the EPA AirNow Air Quality Index and local advisories to plan work. Where wildfire smoke or another airborne hazard is present, the response may include rescheduling, moving work to a period with cleaner air, reducing exertion by enforcing extra breaks, providing filtered indoor recovery space, or implementing a respiratory-protection program when required. A disposable mask handed out without hazard assessment, proper selection, and training is not sufficient.

GLARE, LOW LIGHT, AND RAPID VISIBILITY CHANGES

Bright sun reflecting from metal can make seams, edges, and surface contamination harder to see. Low sun angles can create glare in the morning and late afternoon, while clouds, smoke, fog, and early darkness can reduce contrast. Tinted eye protection may help in bright conditions, but lenses must still allow workers to see footing and transitions when the light changes. Work lighting should illuminate the task when needed without creating new glare or adding cords or trip hazards.

THE ROOF ASSEMBLY CHANGES THE RISK

Material and installation sequence affect how long a roof remains exposed and where workers must travel. Smooth standing seam, exposed-fastener panels, stone-coated metal, asphalt shingles, and different underlayments do not offer identical traction. Metal panel systems may also have installation patterns that limit where a crew can begin and how quickly both sides or multiple planes can be dried. A method that works on asphalt cannot automatically be transferred to metal.

Temporary traction aids must be compatible with the roof and used only as intended. Roofers have used ridge-hook ladders, carpet remnants, or protective bubble-foil material where appropriate to provide access or prevent scratching. Magnetic roofing footwear and high-traction shoes may improve grip on compatible steel surfaces, but they are not fall-protection systems and can create false confidence. Workers must remain connected to a properly designed fall-protection system as required.

SECURE THE SITE BEFORE LEAVING

A storm plan must cover the ground as well as the roof. Meinhold secures stacked metal with ratchet straps or another suitable restraint and secures tools, trim bundles, and loose products before detrimental weather is expected to arrive. Materials should be staged according to manufacturer requirements and restrained against anticipated wind without creating sharp-edge, crushing, or trip hazards.

After any weather event, the first person back on the roof should be fall-protected and assigned to inspect the roof. That inspection should look for displaced underlayment, raised fasteners, pooled water, windblown debris, damaged anchors and lifelines, shifted ladders, unsecured openings, and material deposited by other trades.

Conditions can change while the roofer is working. Meinhold recalled sawdust from OSB cutting scattering across a roof and then being carried away by the wind. The lesson: Keep looking for possible danger.

SAFETY DEPENDS ON COMPANY CULTURE

Written rules matter, but crews take their strongest cue from what supervisors reward. The fast, determined employee who always wants to finish one more section can be valuable, Meinhold said, but that personality needs a couple of things — an understanding of who has the authority to stop work and a company culture that places safety ahead of production.

Contractors should begin with OSHA requirements, manufacturer instructions and recognized industry best practices, then tailor a written plan to the company's climate, crews, roof systems, and typical projects. Coastal wind, Midwest frost, mountain sun, and tropical afternoon heat call for different operating details. The standard should identify who monitors conditions, how hazards are measured, when work pauses, who inspects after a change, and how workers report a concern without being pressured to continue work.

"You don't know what you don't know," Meinhold said. "First have knowledge of industry best practices; then tailor them to your environment and your company." ●

RESOURCES

- AirNow, https://www.airnow.gov/wildfires/
- National Institute for Occupational Safety and Health, https://www.cdc.gov/niosh/cold-stress/about/
- Occupational Safety and Health Administration, https://www.osha.gov/heat-exposure
- National Weather Service, https://www.weather.gov/safety/lightning
- Ridgeline Safety Systems, https://ridgelinesafety.com/
- U.S. Environmental Protection Agency, https://www.epa.gov

SOLAR ROOFING

ARIZONA CONDO CLUBHOUSE TO RECEIVE PHOTOVOLTAIC SHINGLES

Belgravia Group announced continued progress on the architecturally distinctive clubhouse at Atavia, the 88-unit luxury condominium community rising in North Scottsdale. The slab has been poured, the pool has been dug, and piping is underway as the steel structure prepares to go vertical in the coming weeks. Designed by KTGY, the clubhouse draws inspiration from Frank Lloyd Wright's Taliesin West, featuring linear forms, sloped rooflines, expressive structural members, and wood-grain stucco stained to resemble natural wood.

"We weren't trying to copy Taliesin West, we were inspired by it," said Jonathan McCulloch, CEO of Belgravia Group. "The repeating roof angles, exposed structural elements, and wood detailing create something more visually interesting than what we're used to seeing in clubhouse design."

The clubhouse will feature a solar-integrated roof system using CertainTeed's SunStyle photovoltaic shingles, which resemble overlapping dragon-scale tiles. McCulloch discovered the innovative solution while exploring renewable energy options and was drawn to its proven track record, with more than 15 years of successful performance across Europe.

Now, with SunStyle's partnership with CertainTeed®, the technology is gaining popularity throughout the U.S. Atavia will become the first-ever project in Arizona to feature SunStyle solar roofing, setting a new benchmark for luxury, design-forward sustainability in the region. The high-performance solar roof is expected to generate 55,000 kWh of power annually, which could offset most, and potentially nearly all, of the clubhouse's annual energy consumption.





The clubhouse at Atavia condo community in North Scottsdale will be the first project in Arizona to feature CertainTeed's SunStyle solar roofing. *Photos courtesy of Belgravia Group/CertainTeed.*

"We wanted the sustainability component to feel fully integrated into the architecture," McCulloch said. "We didn't want to apply traditional rectangular panels on the roof, which can detract from an otherwise beautiful design. This product allowed us to incorporate renewable energy in a way that complements the design rather than competing with it."

Jessie Schiavone, general manager of CertainTeed Solar Solutions, expressed pride in partnering with the Belgravia Group and KTGY on the clubhouse project, noting that it reflects a strong alignment of design, sustainability, and performance.

"SunStyle delivers a fully integrated solar roofing system that generates clean energy while preserving architectural integrity," Schiavone said. "We're proud to contribute a solution that enhances both the aesthetics and functionality of the space, and we hope the Atavia community will enjoy it as a place to gather and connect for years to come." ●

SNOW GUARDS USED WITH SYNTHETIC ROOFING

When Desmond Tse installed his new roof during the summer of 2025, he had no way of knowing that the upcoming winter would be one for the record books. In December there was two feet of snow at his Edmonton, Alberta property in Canada—about triple the monthly average.

Although Tse had installed a smooth Euroshield® rubber roof in the Vermont Slate style, he had no worries about the snowfall and how it would affect his slippery slate roof because he installed Everest Guard® EG16 ultra-strong snow guards at the same time. Instead of avalanching off his roof in large masses, the accumulated snow was held back by the snow guards and melted off slowly and safely.



SECOND ROOF INSTALL

This wasn't Tse's first roof installation. But it was only his second. With 25 years experience as a self-taught solo siding contractor, Tse is known on Instagram as "The Siding Guy" and has more than 299,000 followers.

Several years ago he decided to try his hand at roofing. He installed a composite slate roof on his home in Canada, along with ST 9 snow guards from Rocky Mountain Snow Guards.

SLICK ROOF SOLUTIONS

Due to the slick nature of synthetic roofing, Tse also knew he'd need snow guards for his first roofing installation. "We get snow from Halloween to May in Alberta," says Tse. "Sometimes up to 48 inches in a season. With synthetic slate, I know that snow can avalanche off the roof as it starts melting. To help prevent that, I reached out to Rocky Mountain Snow Guards (RMSG) to ask for their recommendations for a solution."

After evaluating the roofing plan for Tse's home, the experts at Denver-based RMSG recommended Snow Tracker (ST) Series snow guards in a 9-inch length. The durable, low-profile snow guards were specified around the entire home; 198 snow guards were suggested in a Dark Bronze Kynar coated aluminum to complement the Castle Gray color of the Province Slate roofing tiles.

SNOW GUARD INSTALLATION

As viewers watched around the world, Tse showcased a video of the installation of the TS 9 snow guards on the roof. "The snow guards were very easy to install," says Tse. "I can tell they'll be beneficial in helping with the snow retention.



Installing synthetic slate roof tiles and heavy-duty snow guards to stand up to Canadian winters. *Photos courtesy of Desmond Tse/The Siding Guy.*

"Synthetic slate roofing is relatively new in our area. We actually had neighbors who thought the snow guards were a visual design element. They didn't realize they have a functional role to play on the roof."

Although a dozen neighbors asked him to re-roof their homes, Tse decided to keep his feet on the ground. He's sticking with his commitment to siding.

ONE MORE TIME ...

While Tse thought his time on the roof was a "one and done" experience, a close-by property he owns was begging for a new roof this past summer. So, once again he got out the ladder. This time he decided to try a different synthetic slate product. Vermont Slate from EuroShield brought him durability and aesthetic appeal in a lightweight material.

The tiles are slick and required Tse to again seek the suggestions of the RMSG experts for a snow retention plan. For this rooftop, Everest Guard EG16 snow guards were recommended.

At 16-inches in length with an 11.8-inch strap, Everest Guard EG16 is powder-coated steel with a pad area of 4.28 square inches.

CONCLUSION

"I've gone through a few winters on my own house with the DaVinci roof using the Rocky Mountain Snow Guards products on the roof. They function exactly as they were supposed to. This winter season we had almost four feet of snow in our area. I'm really glad my properties have these snow retention systems." ●