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FALL 2023
Vol. 3, Issue 3

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ARMA Seeks Excellent Asphalt Roofs

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The Asphalt Roofing Manufacturers Association is seeking entries for its ARMA Excellence in Asphalt Roofing Awards Program. The program recognizes the best steep- and low-slope asphalt roofing projects from throughout North America.

Award winners will receive a monetary prize (Gold, \$2,000; Silver, \$1,000; Bronze, \$500), as well as recognition in various

media outlets, including right here in Roofing Elements Magazine.

The entries will be judged for beauty, project challenges, distinction, and why the submitter selected asphalt. Participation is free, and contractors can submit multiple entries for consideration.

Learn more at asphaltroofing.org/excellence. ●

New Form I-9 Now Includes Alternative Procedure for E-Verify Employers to Remotely Examine Documents

Form I-9 from U.S. Citizenship and Immigration Services is used to verify the identity and employment authorization of individuals hired for employment in the United States. The USCIS indicates the revised form is improved and should be easier to complete.

All U.S. employers must properly complete Form I-9 for each individual they hire for employment in the United States. This includes citizens and noncitizens. Both employees and employers (or authorized representatives of the employer) must complete the form.

The new version of Form I-9, Employment Eligibility Verification is now available for use. This version contains changes to the form and instructions, including shortening the Form I-9 to one page and reducing the instructions to eight pages.

WHAT FORM I-9 VERSIONS MAY BE USED

Employers may begin using the new Form I-9 Aug. 1, 2023. The Form I-9 dated “10/19/2019” may continue to be used through Oct. 31, 2023. The version date can be found at the lower left corner of the form. The new Form I-9 expires July 31, 2026.

Beginning Nov. 1, 2023, only the new Form I-9 dated “08/01/23” may be used.

A revised Spanish Form I-9 dated “08/01/23” is available for

use in Puerto Rico only.

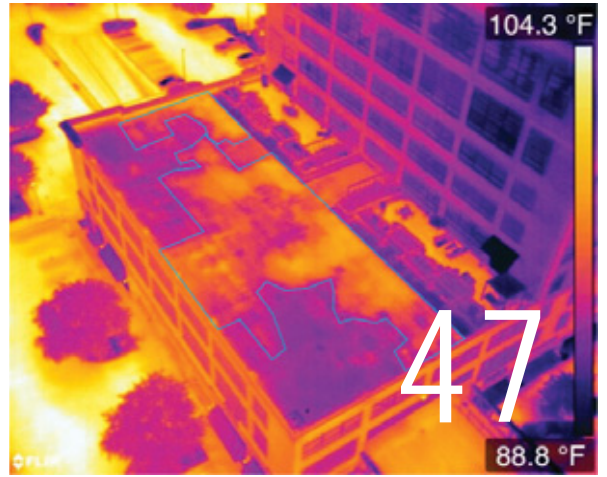
One of the changes on the new form is the removal of “alien authorized to work” in Section 1, replacing it with “noncitizen authorized to work” and the clarification of the difference between “noncitizen national” and “noncitizen authorized to work.” A summary of the changes to the Form I-9 and instructions is available online at <https://bit.ly/44Zf0mY>.

Also beginning August 1, employers may remotely examine employees’ Form I-9 documents provided they are enrolled in E-Verify. The alternative procedure includes, but is not limited to, examining copies of Form I-9 documents and conducting a live video interaction with the individual presenting the documents. The full procedure is detailed in a notice in the Federal Register published on July 25, 2023 [<https://bit.ly/3QvA68m>],

Find out how to enroll in E-Verify on the Enrolling in E-Verify page [<https://www.e-verify.gov/employers/enrolling-in-e-verify>].

More information on the alternative procedure for remote examination of documents as well as document retention requirements is available on the Remote Examination page [<https://www.uscis.gov/i-9-central/remote-examination-of-documents>]. ●

The version date can be found at the lower left corner of the I-9 form.



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 Roofed with Landmark PRO Designer Shingles in Max Def Moire Black. Photo courtesy of ARMA/CertainTeed.

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Gary Reichert,
Publisher, Shield Wall Media

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"WE ARE FAMILY."

MIDWEST ENTERPRISES FINDS THE FAMILY MINDSET ASSISTS GROWTH

By Linda Schmid

In 1983, Jim Ealer Sr. owned Custom Seamless Gutter and he saw a need for a product to protect these gutters from the debris that accumulated in them causing backups and water problems. That's when he developed the first E-Z Gutter Guard. He had no idea that his new business would take off and spread across all 50 states, or that his company would give birth to 25 different gutter guards.

INNOVATION AND GROWTH

Located in Saint Clair, Missouri, Midwest Enterprises' first, signature product, the E-Z Lock quickly spread through St. Louis, across the state, and then throughout the Midwest. Since then, they have refined and developed many different gutter guards. After all, there are many different gutter types and they all require protection.

The company prides themselves on innovation. They have new products coming on board currently including the E-Z Leaf Commander and the E-Z-Valley Control, a stainless steel system that covers the inside valleys and corners of the roof that are often difficult to protect.

According to Jim Ealer Jr., Vice President, as a manufacturing company that only sells their products through distributorships, the company has found it challenging to reach their end users. However, they developed literature that they distributed through their wholesale network.

From one employee, the company has grown to 25-28 people, 12 are family members. Some of their sales people have



Twelve of the Midwest Enterprises staff are members of the Ealer family. PHOTO COURTESY OF MIDWEST ENTERPRISES

come from industry networking, so they know their customers and what they think. In fact, since Ealer Jr. entered sales in 2006, the company's sales value has grown 700%.

A FAMILY AFFAIR

As a family business, they have a culture of taking care of their own; employees are extended family and an integral part of their success. This deep connection is what makes the company work. For instance, when the pandemic hit sales skyrocketed, but people were coming down with COVID-19 at the same time. The team pulled together and worked it out so that if someone was ill, they gave them partial pay to stay home and recover, thereby avoiding further spread. Some employees worked when others were out, disinfecting the work space for the next person to come in and do their part.

When the distribution channels

were greatly disrupted, the company quickly decided to move from a just-in-time inventory system to making big investments in raw materials. They soon had 500,000 lbs. of aluminum, much from the secondary market, sitting on their production floor, so that when many of their competitors ran out of product, they were still running strong.

"We rose to the challenge and got it out the door," Ealer said. "We've worked together for so many years that we can make quick decisions and pull together for the good of the company and our customers."

It wasn't always easy, Ealer admits. "We are family, so competition is normal. Early on when we were all installing gutters that competitive spirit could push the line from improving efficiency and quality to something not so positive. Now we all have our own niches and we all work as a team."

Continued on page 9

THE NEWEST TEAM MEMBERS IN E-Z GUTTER GUARD PROTECTION.

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Continued from page 6

As a team, they have turned many challenges into triumphs. “Every time we’ve come up with a new patentable product, we’ve had to argue the distinctions from other products. We have over 40 product patents and we’ve really had to work hard to earn every one of them,” Ealer said.

CUSTOMER SERVICE

Much of the company’s success is attributable to Jim Ealer Sr.’s teachings, according to Ealer Jr. “Dad told us early on that if a product is good, but service is not, customers will not come back.”

Midwest Enterprises must be doing service right; they have loyal customers who have been returning for 30-40 years.

“We are up front with people,” Ealer said, “I’m an old gutter installer and I know that honesty goes a long way with customers.”

NEW CHALLENGES

Ealer believes their next challenge is rebuilding their website, launching their new products, and generating online sales,



The E-Z Gutter Guard has been protecting gutters since 1983.

an avenue with great growth potential. Further, they still have openings for more salespeople to fill as there are gaps in their national coverage. And of course, there will be new product innovation; it’s what Midwest Enterprises does. ●

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ROOF ATTACHMENT SYSTEMS

CONSIDERATIONS FOR YOUR ROOFTOP

By Rob Haddock, CEO and Founder of S-5I

Building owners are faced with the increasing need to mount essential rooftop HVAC, solar equipment and ancillary mechanicals including screens to hide it, piping and conduit to fuel it, scuttles to access it, and walkways to maintain it.

With no clear industry consensus or standards for the design, manufacture, use or mechanical load-testing of rooftop attachments, ancillaries are often mounted by “hook or crook” violating a roof’s integrity. Sadly, the expected lifespan of any roof can become compromised when forced to function as a mechanical equipment platform.

While rooftop attachments complement the roof — making roofs much more user-friendly — many applications are

not specifically engineered for design loads, nor can they be because of insufficient testing or a lack of quality assurances in production to enable the necessary testing and engineering. This is important to note because these attachments transfer live loads into the roof sheathing and structure.

Excessive weight can cause structural damage or even collapse, causing property damage, personal injury and even death — a life-safety issue and potential liability for contractors, designers and building owners.

No two roof types are alike. They vary in material, service-load capacity and their ability to withstand outdoor elements, so it is often difficult to know what attachments a roof can handle.



THE WRONG WAY

THE RIGHT WAY

Proper installation methods and the use of appropriate materials are essential to achieve — and maintain — total roof integrity. PHOTOS COURTESY OF S-5I

ROOFING MATERIAL CONSIDERATIONS

Compatibility with the roofing material plays a significant role in determining how and what can be safely attached. Materials, such as asphalt shingles, concrete, clay or composite tile, PVC, EPDM, TPO or metal, have varying levels of longevity, durability, service life and prescribed flashing details. An important objective for any roof-top attachment is that the materials, methods and details maintain sustainability for the life of the roof. This includes weatherproofing when the membrane is penetrated. Therefore, the expected service life for any roof is an important consideration.

For instance, the expected service life of metal roofing varies from 20 to 50 and even up to 200 years depending upon the metal and/or its coating type. The expected life of asphalt shingles is generally between 8 and 25 years depending upon the grade of shingle. In the hail belts of the U.S., the expected life is much shorter because shingles become more brittle with age and therefore, more prone to hail damage—indicating geography and climate at the project site also play a part in the “expected roof life.”

“Do’s and Don’ts” also vary by manufacturer within each category mentioned, so it’s imperative to understand the



The WRONG way: Ballasted systems require structural analysis for resulting point loads; the alkali in cementitious ballast corrode coated steel roofing.

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limitations and recommendations specific to the roofing material and its manufacturer. Manufacturers of lower-grade roofing products may not have any guidelines beyond “code compliance” or “standard practice.” Manufacturers of higher-grade warranted products generally offer guidelines on such things as sacrificial membranes, walk pads, etc. Adherence to those guidelines is often a warranty mandate. Making matters more challenging, many roof-top attachments are installed by trades outside the “roofing” industry who know little about the aforementioned issues.

SERVICE-LOAD CAPACITY

Anything attached to a roof’s surface is exposed to service loads: upward, downward and sideways. Service loads are influenced by the weight of the ancillary, as well as the forces of nature, such as wind, snow, seismic and maintenance traffic that push and pull in different directions. Some attachments transfer service loads to the building’s primary and/or secondary structure; others to the deck or roof covering only.

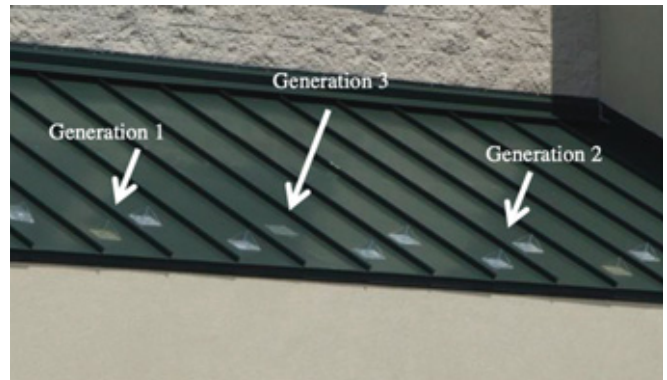
To resist the in-service forces applied to any mounting system, it is necessary to know at what point the attachment fails. Only then, is it possible to calculate the required population and spacing of the attachment(s) so it cannot fail. This may require an enormous amount of testing and job-specific conditions. In many cases, engineering calculations (preferably stamped by a registered professional engineer) should be provided on a project-specific basis and should incorporate the tested ultimate strength of the attachment system with an appropriate factor of safety applied.

OUTDOOR ELEMENTS AFFECTING ROOFTOP ATTACHMENTS

Wind: No matter where a building is located or what materials are involved, there are forces its roof and structure must withstand, including wind uplift forces. So, any attachment must also be strong enough to withstand the design uplift forces determined for the building and site. As uplift forces increase in areas with higher winds, such as hurricane-prone areas, roofs must be more durable. Roof attachments must also be designed to withstand these forces. Failure to do so can result in damage to both the roof and its attachments, posing a safety hazard to people and property below.

Metal roofing lends itself to high wind-prone areas since it can be engineered to withstand nearly any uplift force. Its exceptional performance in high-wind conditions is due in part to its attachment methods and interlocking installation where roof panels are attached to the structure of the building, reducing the ability of wind to disrupt the panels.

Snow & Ice: Snow and freezing rain pose unique challenges for any roof type. Snowpack (the buildup of snow and ice on a roof) can produce significant sliding forces to any roof-mount-



Adhesives diminish in holding capacity over time when exposed on a roof. There are three generations of adhesive snow retention seen on this roof, which was 8 years old at the time of this photo.

ed obstacle. And sudden release of snowpack can dump tons of the fallout below the eaves in a matter of seconds. This causes hundreds of millions of dollars in property damage, personal injury and even death each year.

Re-freezing meltwater on a roof can have extremely damaging effects. The incredible force of freezing water is known to break solid steel engine blocks—and can certainly wreak havoc on a roof and rooftop equipment.

Hail: Building materials absorb hail impact differently. It may cause small dings in siding, gutters or asphalt shingles, but if it is large and dense enough, the possibility of roof membrane fracture or puncture becomes greater.

Metal roof material is the best defense against hail. Potential damage depends upon the size and hardness of the hailstones, type and gauge thickness of metal, and the substrate to which it is installed. Steel roofs do not dent from hail as easily as a vehicle, which uses softer grades of steel that can be easily molded into the sleek lines and curves of an automobile. Divots resulting from even severe hailstorms do not generally harm the functionality of metal roofs although they may be a cosmetic annoyance.

Heat & Cold/Ultraviolet (UV) Degradation: Intense heat and cold fatigue most roof types with constant thermal expansion and contraction. UV radiation causes accelerated aging of most roofing materials. Additionally, UV rays cause the color of roofing materials to fade, looking aged and unattractive. Over time, UV rays can also cause some materials to fatigue, become brittle, crack, peel and blister, potentially leading to leaks and mold, often necessitating costly repairs or even roof replacement.

A standing seam metal roof responds to temperature changes freely and without fatigue by design. Several domestic steel producers now offer material warranties for up to 60 years. Premium factory finishes of polyvinylidene fluoride (PVDF)



The adhesive bond is to paint. If the adhesive does not fail, the paint may fail, leading to corrosion.

paint films offer up to 40-year warranties for film adhesion, excessive fade and chalking.

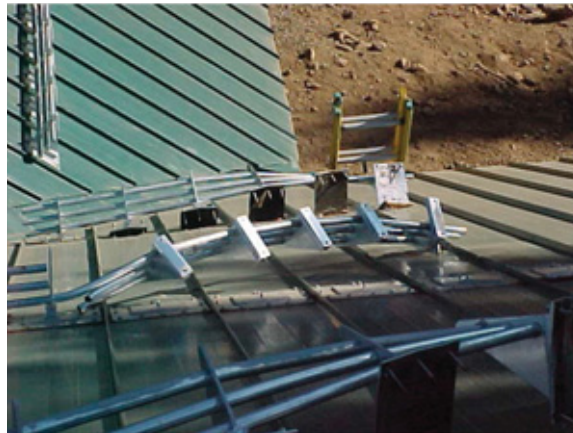
VERIFY THE ROOFTOP ATTACHMENT SYSTEM

Attaching equipment or ancillaries to a roof can compromise its integrity if not properly designed, engineered and installed. Will waterproofing last the service life of the roof? Attachments that puncture the roof can lead to leaks, water damage, or weakened structural support if not waterproofed correctly. Proper installation methods and the use of appropriate waterproofing materials are essential to achieve total roof integrity.

Manufacturer transparency is at the heart of vetting a rooftop attachment system and any related waterproofing. When considering rooftop attachments, make sure to scrutinize manufacturer qualifications and certifications to ensure a safe, time-proven, engineered application and long-term service on every project. This transparency should extend from raw material sourcing through manufacture and product handoff.

Even if the product is installed according to the manufacturer's guidelines, it may fail if it lacks proper testing/engineering documentation. A product cannot perform better than its design. Has the manufacturer demonstrated sufficient experience? How long the company has been in business is irrelevant. The question is, "How long has its system been in

use?" Can the manufacturer substantiate its track record and prove service/durability with interactive load testing tables and real-time engineering calculations? Ask for proof of it! And verify that the manufacturer offers a meaningful performance (not just material) warranty. And always read the fine print of the warranty to validate all sales claims!



Mechanical attachment of a snow guard system can work successfully when tested and engineered correctly. This one wasn't.

Use? Can the manufacturer substantiate its track record and prove service/durability with interactive load testing tables and real-time engineering calculations? Ask for proof of it! And verify that the manufacturer offers a meaningful performance (not just material) warranty. And always read the fine print of the warranty to validate all sales claims!

MAIN TAKE-AWAY

Improperly mounting rooftop attachments can result in dire consequences. It's imperative to prioritize safety, follow recommended guidelines, and seek professional assistance as needed. Ensure regular inspections to safeguard against damage or wear caused by the attachments. Check local building codes and regulations to ensure compliance with any restrictions on roof attachments. If in doubt, seek expert resources, including a professional building envelope consul-

tant. Know your roof and verify the durability of the mounting and attachment system. ●

Rob Haddock, director of the Metal Roof Advisory Group and CEO and founder of S-5!, is a former contractor, award-winning roof forensics expert, author, lecturer and building envelope scientist who has worked in various aspects of metal roofing for five decades.



GUTTERS AND GUARDS

THE SOLUTIONS TO YOUR CHALLENGES

The last thing any contractor wants is to be called back to correct problems, and gutter installations are no exception. Let's take a look at the most common rain handling problems and see what the manufacturers' recommendations are.

STANDING WATER IN THE GUTTERS

Standing water can be the result of different problems. Naturally, organic debris in the gutters could be the issue; a simple matter of gutter maintenance. Clearing out any debris and flushing the downspout should clear it up. Installation of open face downspouts can help with flushing debris and ice out of the system. You might particularly consider the open face downspout on the north side of a building in a cold climate. The clogged gutter system can possibly be avoided if the customer is educated on proper cleaning and maintenance. Another way to help resolve the problem is to install gutter guards.

However, if the gutter is properly maintained, a likely cause of the issue is the pitch of the gutter moving toward the downspout. Manufacturers advise a drop guideline anywhere from one eighth to a half inch every 10 feet. If the run is over

40 feet, pitch the gutter down from the middle of the run to the downspout at each end. If the pitch is off, the problem could be caused by error on the installer's part or environmental factors; snow and ice can bend the hangers.

A function check should be performed after installation to verify that the gutter passageways are clear and there are no water collection areas.

Improperly installed gutters may be fixed by repositioning hangers to facilitate water flow.

WATER OVERFLOW

Improper pitch can also cause water overflow. If the gutters do not channel the water downhill, it may pool in some areas and overflow the gutters. Further, the gutter slope needs to be consistent or there will be areas in which the gutter will be overwhelmed.

Another reason for overflow may be inadequate gutter capacity. A gutter system should be carefully planned, taking into account factors such as the roof area and the expected rainfall capacity, before deciding on the appropriate gutter size.

Proper gutter sizing can be found by multiplying the square

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footage of the drainage area by the roof-pitch factor and the maximum rainfall intensity. This calculation takes into consideration both the individual aspects of the building in question and the climate in which it resides and it can help properly size the gutter to the project.

The system also needs to be designed with the correct size and number of downspouts for the length of the gutters and the anticipated amount of water flow. The design should also take into consideration where those downspouts should be placed. If the downspouts cannot accommodate the amount of rainwater being sent their way, the water will overflow the gutters. Adding additional downspouts in the right areas can help distribute the water more evenly throughout the system.

Finally, clogged gutters can also be the culprit in this scenario.

WATER DRIPS, SIDING STAINS

If water is dripping behind the gutter and staining the siding, it is most likely the result of missing, damaged, or improperly installed gutter flashing. Flashing may even be diverting water between the gutter and fascia. The gutter flashing's sole purpose is to guide the water from the roof into the gutter so that the dripping and staining is avoided, so check that it is properly placed.

If the flashing is not properly installed to divert the water into the gutter system, then the gutter hangers will need to be removed to allow flashing to be reinstalled so that the water runs into the gutter. The flashing should create a tight seal between the roof edge and the gutters to prevent seepage and staining.

This problem can also be a sign that the gutters installed are unequal to the job at hand and, due to their small size, water is splashing behind the gutter.

During installation, ensure that the roof has an adequate overhang that reaches beyond the fascia, and three to four



inches beyond the gutter. If it does not, the water may simply run down the fascia, and staining can be the result. If the gutter is installed too far from the roof's edge, rain blown by the wind may miss the gutter.

Caulked joints or end joints may be cracked and in need of repair, or ice may be blocking the course and when water comes from behind it overflows the gutter.

Leaves and twigs and other debris clogging the gutter can cause water to drip onto siding or other undesirable places also.

GUTTER SAG

This problem often goes back to the design of the gutter system.

If the gutter hangers are too far apart, the weight of the gutter along with rainwater can cause a section of the gutter to sag. When deciding on spacing of hangers, the amount of expected water volume must be taken into account. Depending on the climate, ice and snow may also add to the weight and can be responsible for pulling hangers out or it can damage a section of gutter causing sagging.

Debris in the gutters can add to the weight that gutter hangers must accommodate and should be cleaned out periodically.

Another contributing factor to gutter sag can be how securely the gutters were attached to the fascia board or roof edge. Be sure to follow the advice of the manufacturer in regard to the



fasteners and spacing, which can vary according to gutter material, size, and anticipated weight load; a minimum of hangers every two feet on center is advised.

Sag can also be a function of the strength and quality of the gutters, hangers, and brackets, so particularly in places with high volumes of rainwater and/or snow and ice, a stronger material is called for. Some gutters feature flanges which joined together with hangers can increase stability. Further, screws can be added to hangers for an even stronger system.

When sagging occurs, ensure that the fascia is not rotted. Boards may need to be replaced. In fact, make sure the gutter is unharmed; it will often need to be replaced also.

When sagging occurs, it is important to resolve it promptly to avoid further damage to the gutters. Adding hangers or brackets at appropriate intervals can make the system stronger, redistributing weight and providing support.

SEAM LEAKS

Seams often leak because they weren't properly sealed or the sealant failed. Aluminum rivets can pull out due to expansion and contraction leaving all the work to the sealant which can dry out and get brittle over time.

Seams can be repaired by removing the old sealant, cleaning the area, and applying new sealant to create a watertight bond. Elastomeric sealants are good choices because they won't crack as the gutters expand and contract as temperatures change. Apply one bead of sealant between the joint and one over the joint for double the protection. A brush may be used to work sealant into joints.

When joining gutter pieces, ensure that the uphill section is overlapped over the downhill section so that water flows easily over the seam and actually has to flow uphill to get between the seams if the sealant should fail or weaken.

As gutters age, materials can degrade. Connectors, fasteners, sealants and other components should be replaced and/or reinforced as needed, ensuring proper alignment and stability of the system and reducing the likelihood of leaks. Perhaps a "seasonal check-up" or periodic re-haul of the system

MAIN GUTTER GUIDELINES

1. Plan ahead. Take everything about the roof, the site, and the climate into account to decide on proper gutter size and footage; size, number and placement of downspouts; and type of gutter guards, if desired.

2. Follow the manufacturer's instructions. This is true when choosing the type of gutters or gutter guards and when installing them. They know how their product works best.

3. Educate your customers. No gutter system can be installed and be expected to work properly forever without inspection, cleaning, and maintenance.

is an upgrade you can offer customers.

Gutter leaks can be due to low quality gutters and/or accessories or systems that are not the best choices for the climate in which they were installed.

Seamless gutters are manufactured from a single piece of material, and if a customer has had recurrent problems with leaky gutters, they might want to invest in them.

GUTTER GUARD FAILS

One reason gutter guards may not be performing satisfactorily could be that the type of gutter guard chosen is not right for conditions. Consider the amount of tree coverage, the type of debris the system will contend with, the roof type and pitch, and the type of gutter system involved when choosing a gutter guard. All of these pieces should be compatible. Some questions you should ask before choosing or advising a gutter guard to a customer: Is the gutter profile a K style, a half-round, or a box gutter? Are the roof materials asphalt shingles, metal, cedar, slate, tile, or a membrane? Is the debris largely tiny leaves, large leaves, pine needles, or roof shingle granules? Are the gutter hangers attached to the fascia board or are they suspended from the roof deck? The answers to these questions will help you determine the type of gutter guard you should advise for the gutter system. If it is unclear, consult with a gutter guard manufacturer regarding the particular project at hand.

Sometimes the gutter guards may not be installed correctly; ensure they fit securely and cover the entire length of the gutter. Follow manufacturer instructions when installing.

A clogged gutter guard is not going to perform satisfactorily. Gutter guards need to be periodically inspected and cleaned; ensure that the customer understands that at the outset.

If the environment is debris intensive, then gutter brush inserts, foam filters, or downspout strainers could be integrated into the system to assist with clogging issues. ●

THANK YOU TO THE INDUSTRY EXPERTS!

Mike Milliman, Gutter Supply, www.guttersupply.com
Niles Hickman, Edco, www.edcoproducts.com
Randy Schreiber, GutterBrush, www.gutterbrush.com
Jonathan Giacchi, Englert, www.leafguard.com
Adam Schouten, Advanced Architectural Sheet Metal & Supply,
www.advarchsm.com

PREVENTING HEAT LOSS

ROOF AND ATTIC INSULATION AND R-VALUES

BY JACOB PRATER

Many a mother has said to her child, “Put on a hat so that you don’t catch cold.” The analogy to a house or other building and roof or attic insulation is a good one here. The majority of heat loss in a house is upward through the ceilings, attics, and roofs similar to our heat loss through our heads. This heat loss through roofs and attics is on account of the fact that warmer air is less dense and has a tendency to rise. To combat this heat loss some pretty significant insulation is needed in an attic or roof. How much is needed — or rather how much is recommended — varies between climatic zones. A quick look at the Energy Star website can give you an idea of what is recommended for your locale (See Figure 1, Table 1).

After this you have choices on how

to achieve this R-value metric (Table 2). Certainly going a bit further with a higher R-value for a roof or attic isn’t a bad choice.

First thing: What is an R-value? An R-value is an index of how resistant an insulation is to heat movement. This is the opposite of thermal conductivity, which is the ease of heat flow through a material. Generally speaking, a good insulator is going to have a low density and fewer particle-to-particle contact points in the material to conduct heat as heat moves through solid materials by conduction. So light, fluffy materials are best and its even better if air doesn’t move through those materials because heat can be lost via convection as well (think air infiltration, drafts, and air leaks). This is why products like sprayed on closed-cell foam are such effective insulators. They

seal gaps, don’t allow air movement, and are low density materials.

How low can the density get? Ever heard of aerogel? It’s an insulator developed by NASA and it is 99+% open space; it’s nicknamed “frozen smoke” and it looks like that. It is a phenomenal insulator, but a bit pricey for regular construction; however, it is being manufactured for high-value and small-space applications.

Other than spray foams we have various foam board products, different types of batting, and loose insulation made from various new and recycled materials. What is chosen to insulate the roof or attic with depends on expense, availability, and project demands.

If you are in the Midwest, chances are that you are looking for an R-50 or higher value for an attic or roof. This can be achieved in quite a few different ways.

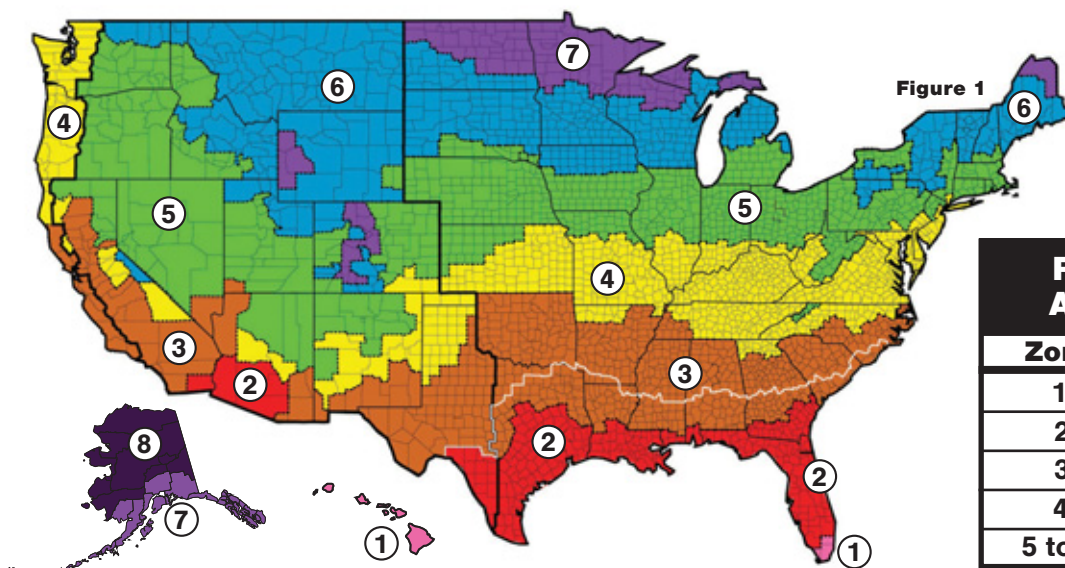


Figure 1

Table 1

Recommended Attic Insulation	
Zone	R-Value
1	R30-R49
2	R30-R60
3	R30-R60
4	R38-R60
5 to 8	R49-R60

Comparison of Insulation Types (R-Values are approximate for comparison)

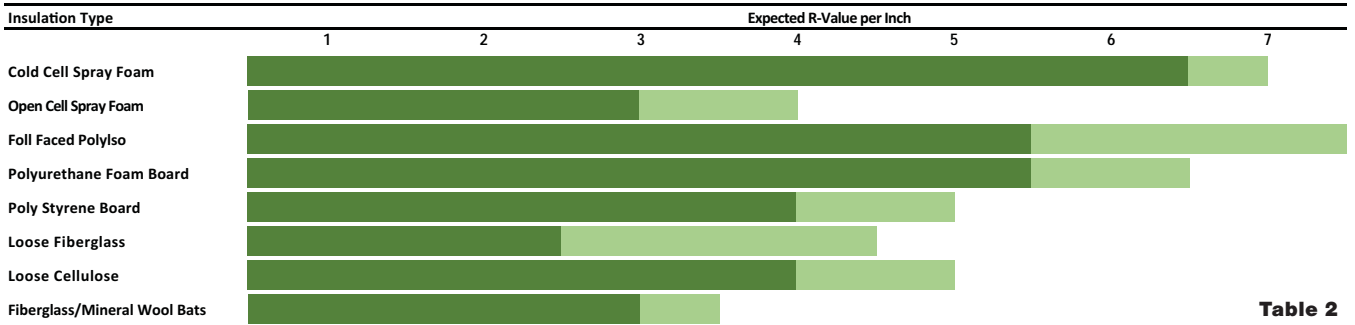


Table 2

If you are using a really high R-value insulation, such as spray foam (which is a bonus because it seals air leaks too) then you can expect to apply 8"-9" of spray foam to achieve this target. That gets expensive.

Also, it isn't quite right. Because of the air sealing that comes with spray foam, you don't actually need to hit this target to reduce heat loss to the necessary amount. There are some pretty serious diminishing returns as thicker foam is

applied. Going from 5" of spray foam to 8", you only reduce heat flow about 2% and at a pretty hefty price tag. Plus you have already sealed any drafts or air leaks with the first 2" or 3".

There is a possibility of simply applying a thin coat of spray foam and then another type of insulation, such as loose fiberglass over the top. This approach would achieve the air sealing from the foam and a less expensive way to achieve the desired R-value.

When I asked Dan Heinen, a contractor in Kansas, about this approach, he said, "Yeah you could do that and I have heard of other people doing it, but most of the time if we have someone spraying the foam, we just go ahead and fill it up to hit the R-value we're looking for." So I guess it all depends on the costs associated.

A neighbor of mine used a combo of spray foam and foam board insulation to get the air sealing effect along with the ease of using foam board on a retrofit

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with good results. In this case he applied the foam board first and then spray foamed to seal up any gaps and cover up any odd shapes and corners.

If you are using loose insulation (blown-in insulation) then you need anywhere from 12" to about 20" of insulation in the attic, depending on the product used. The benefit of loose insulation is the ease of installation as you can pretty much blow it in anywhere and easily fill cavities at a lower expense than a spray foam.

But there are downsides. Loose insulation like this settles over time (often unevenly), which can lead to cold spots. My own experience with this showed up in our current home where the loose insulation had settled and was only about 12" thick when I inspected the attic. One could try to fluff that insulation up, but I opted to have a contractor come out and blow in an additional 8" of new material on top. Having settled, the previous insulation was no longer as effective as it had compressed (remember that density thing), which is why I opted to add some new material on top.

An additional issue with loose insulation — and potentially with batts — is rodents. They will tunnel all around in that stuff and make it less effective. Controlling vermin is always in your best interest (I had to put poison out in my attic for this very reason).

If batts are chosen, then you are looking at about 15" of batting that you would need to install to achieve R-50. Something to consider here with batts is the future. While batts may be more difficult to install than loose insulation or spray foam, they do have an advantage when it comes to any future change, addition, or remodeling the homeowners may do. Battas are easy to take out and move around. When retrofitting an attic to make a loft, loose fill can be a bit of a pain.

[There is nothing like shoveling loose insulation in a 115°F attic let me tell you! And what's more, when you cut out that first piece of sheet rock from the ceiling and the remnants slide off into your face... but I digress.]

If the homeowner will be making lots



As loose, blown-in insulation settles, it becomes less effective. PHOTO BY JACOB PRATER.

of future changes such as lighting or modification of an attic this is something to consider.

Obviously, the choice that you make is contingent on the surface you are insulating. When insulating an attic a common choice is loose insulation due to the lower cost of materials and ease of installation. But if the roof has to be insulated then it's either batts, foam board or spray foam due to the angle (yes, if you create closed cavities you can blow in loose fill, but you run the risk of a lot of settling). In a renovation project on my own house, I opened up a loft in my attic and needed to insulate the roof as a result. I didn't have much space to work with so I needed a high R-value product plus it was a slanted surface, so I went with spray foam. In this install we were careful to create a gap between the roof deck and the insulation so that the soffit vents and continuous ridge vent could still function as designed. This was accomplished with 2" x 4" blocking and plywood between the 2" x 12" rafters.

A final concern to take into account is moisture. You really don't want the insulation to get wet as it can cause mold and a reduction in the effectiveness of the insulation. Just like a down-filled coat (an extreme example), insulation will lose its R-value when damp. For

this reason air flow and ventilation are important.

You can insulate a roof directly, but it is better to have some ventilation between the roof deck and the insulation. If it is desirable to insulate a roof directly there are some additional benefits. It seals up cracks and air leaks and it can increase the structural integrity of the roof (basically bonding the decking to the rafters), and provide a meaningful reduction in heat loss through the roof.

An additional consideration is a vapor barrier as part of the insulation plan. Remember that this needs to go on the warm side. Being the beneficiary of a high quality insulation job, my home has a continuous vapor barrier. This was achieved on my house with a plastic-type wrap between the sheetrock and studs as well as the trusses. Spray foam creates its own vapor barrier. A vapor barrier like this helps to prevent moisture from the living space moving into the insulation, while the ventilation of an attic or roof helps to prevent condensation on top of the insulation. ●

Jacob Prater is a Soil Scientist and Associate Professor in Wisconsin. His passion is natural resource management along with the wise and effective use of those resources to improve human life.

TECH REPORT

EFFECTS OF PONDING WATER ON LOW SLOPE ROOF SYSTEMS

By The Asphalt Roofing Manufacturers Association (ARMA)

Editor's Note: *The Asphalt Roofing Manufacturers Association (ARMA) has prepared many technical reports to aid roofers in the proper installation of various asphalt roofing systems. ARMA [<https://www.asphaltroofing.org/>] has granted permission to publish this report for the benefit of roofers.*

Ponding water is defined as water, which remains on a roof 48 hours or longer. It may result from rain, melting snow/ice or runoff from rooftop equipment. The Asphalt Roofing Manufacturers Association is joined by many reputable organizations, such as the National Roofing Contractors Association, the Midwest Roofing Contractors Association, the American Institute of Architects, and the International Institute of Building Enclosure Consultants in recommending that roof designs provide adequate slope (usually min. ¼" per foot) to ensure that the roof drains freely throughout the life of the building, thereby lessening the potential adverse effects of ponding water.

If not addressed, ponding water may result in significant consequences including but not limited to:

- **Deflection/Deformation:** As water accumulates in ponding areas, the load on the roof increases, and may result in deck deflection. The potential for deck deflection increases with the capacity of the area to hold water thereby increasing the potential risk to the structural integrity of the deck.
- **Ice Damage:** Ice formations develop and move constantly with changes in temperature. This movement may "scrub" the roof membrane to an extent that physical damage to the membrane may occur.
- **Biological Growth:** When water stands for long periods of time, it promotes biological growth, such as algae and vegetation. Damage to the roof membrane may occur from chemical and physical attack from the bio-growth as well as the expansion and contraction of the bio-growth during wet and

dry cycles. Additionally, vegetation and other debris may clog drains and cause additional ponding.

- **Dirt/Debris Accumulation:** Accumulation of dirt and debris may support biological growth. If a ponding area dries, the accumulated dirt and debris may contract during dehydration (resulting possibly in "alligator cracking") and pull at the surface of the membrane.
- **Water Infiltration:** If roof membrane integrity is compromised, the risk of water infiltration into the building and subsequent interior damage is amplified.

Best practices to avoid ponding water are as follows:

- A roof's structural frame or deck should be sloped, and drainage components such as roof drains and scuppers should be included.
- Regular maintenance to ensure drains remain unobstructed so that ponding water does not occur due to clogged drainage systems.
- If a deck does not provide the necessary slope to drain, a tapered insulation system may be used to create positive roof drainage.
- Crickets installed upslope of rooftop equipment and saddles positioned along a low-point between drains, may help minimize localized ponding in conjunction with a tapered insulation system.
- Rooftop HVAC condensate lines should be connected to proper drains to prevent condensate from draining onto the roof.

If ponding water does occur, efforts should be taken to eliminate or reduce the accumulation and persistence of water on the roof surface. Failing to address ponding water may shorten the effective life of the roof membrane system.

To obtain specific information regarding the effects of ponding water on particular products and systems, contact the individual roofing material manufacturer. ●

***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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HAIL VS. SHINGLES

IBHS RESEARCH MAKES REAL-WORLD IMPACT, LEADING TO STRONGER PRODUCTS AND MORE RESILIENT HOMES



Researchers at the Insurance Institute for Business & Home Safety (IBHS) launched a field research study in 2012 to collect natural hailstones from across the country. Deployments have continued annually for over a decade. PHOTOS COURTESY OF IBHS

Thousands of hailstorms occur in the U.S. each year, causing an average of \$1 billion annually in damage, according to the National Oceanic and Atmospheric Administration (NOAA). For property owners in hail-prone areas, a home's roof cover acts as the first line of defense against more significant damage.

In the U.S., roughly three out of four residential roofing systems are covered by asphalt shingles, which are statistically poor performers against elemental impacts. Asphalt shingles can also mask minor damage, making it hard for homeowners to detect and address quickly to stop progression. This can lead to more severe issues, such as shingle blow-off, water damage or mold exposure.

Traditionally, impact-resistant asphalt

shingles have been touted as a more resilient option for property owners looking to mitigate the effects of elemental impacts; unfortunately, these products have been proven to fall short in real-world scenarios. Hail can cause cracks, dents and granular loss when impacting asphalt shingles, reducing the roof's ability to shed water and its overall lifespan.

Although traditional standardized roof testing, where metal balls are dropped from high distances, can provide researchers with an understanding of overall resilience, steel balls do not accurately replicate the material properties of real hailstones.

In 2012, researchers at the Insurance Institute for Business & Home Safety (IBHS) launched a field research study with deployments having now continued

annually for over a decade. The study's goal is to collect natural hailstones from across the country to measure their shape, hardness and compressive strength. They also use instruments called disdrometers to measure the velocity of hail impacts. Through this research, the non-profit has revolutionized asphalt shingle impact testing by creating the IBHS Impact Resistance Test Protocol for Asphalt Shingles, a method to assess how impact resistant shingles will perform against hail using lab-created hailstones that more accurately reflect those that occur naturally.

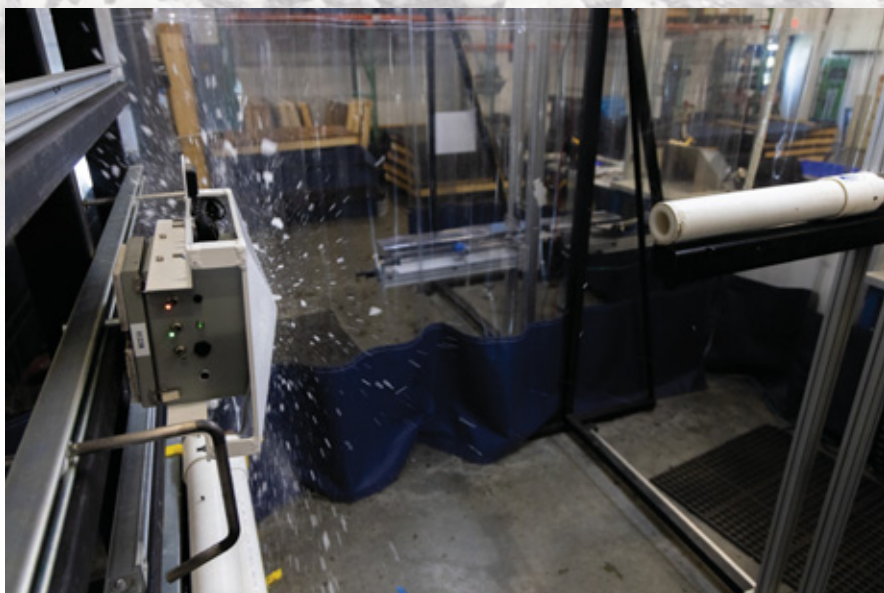
This unique testing method differs from the traditional steel ball test in many ways. Normally, a 2-inch steel ball is dropped on a single shingle twice from 18 feet. This results in granule crushing but does not accurately represent the other forms of damage real hailstones cause. In contrast, the IBHS Impact



By Chris Sanders, Research Project Scientist,
Insurance Institute for Business & Home Safety (IBHS)

Resistance Test Protocol for Asphalt Shingles uses laboratory-made, 2-inch hailstones with real-world properties. Impact-resistant shingles are bought from various building supply stores to ensure the tested batch realistically represents the quality of shingles available to consumers. The shingles are attached to a roof panel as normal, then researchers use compressed air at a high velocity to mimic the kinetic energy of natural hailstone impacts recorded during the hail field studies. Afterwards, researchers examine the shingles for damage and use various degrees of damage severity to rank each product.

The IBHS Impact Resistance Test Protocol for Asphalt Shingles is the only impact testing method that identifies the three individual damage types caused by hail. Granule loss, dents and tears are common and can be caused by hail of any size. Granule loss refers to degradation of granules found on the external layer of the shingle, increasing the shingle's elemental exposure to ultraviolet rays. Dents are formed on impact and can be hard to detect. Damage caused by dents may not be immediate, but over time can lead to weakening of the shingle structure. Tears can lead to water intrusion into the home, and degradation over



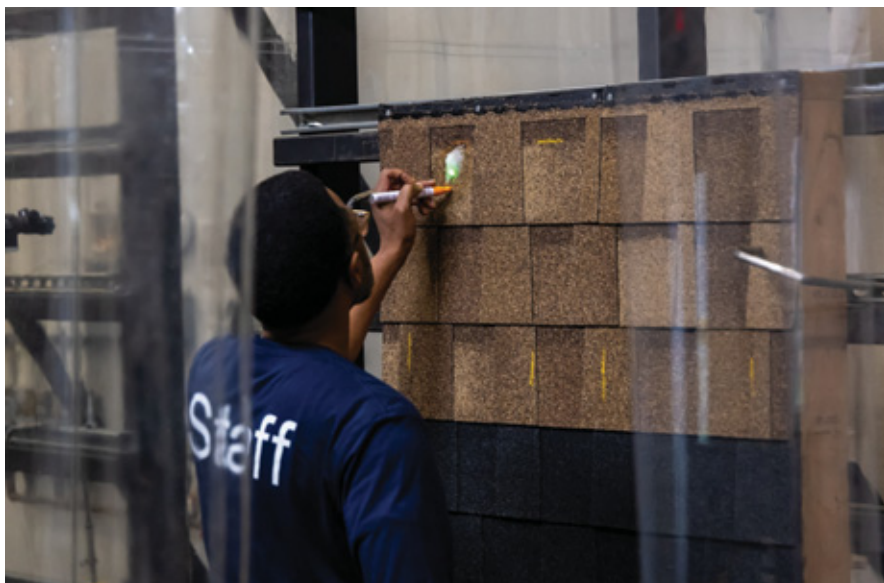
Impact testing in the lab using laboratory-made 2" hailstones.

time, again shortening the lifespan of the roof and potentially leading to costly interior water damage. Differentiating these three damage types is essential to assessing the performance of impact-resistant shingles against hail.

Based on this new test method, IBHS released the first Impact-Resistant Shingle Performance Ratings in 2019.

The scorecard is updated every two years comparing and rating the performance of all impact-resistant shingles currently on the market.

The IBHS Impact Resistance Test Protocol for Asphalt Shingles has transformed the impact-resistant shingle market since its development. In the past four years, nearly all oxidized scrim shingles



Analyzing the test results, looking for granule loss, dents, and tears.

ProductTesting

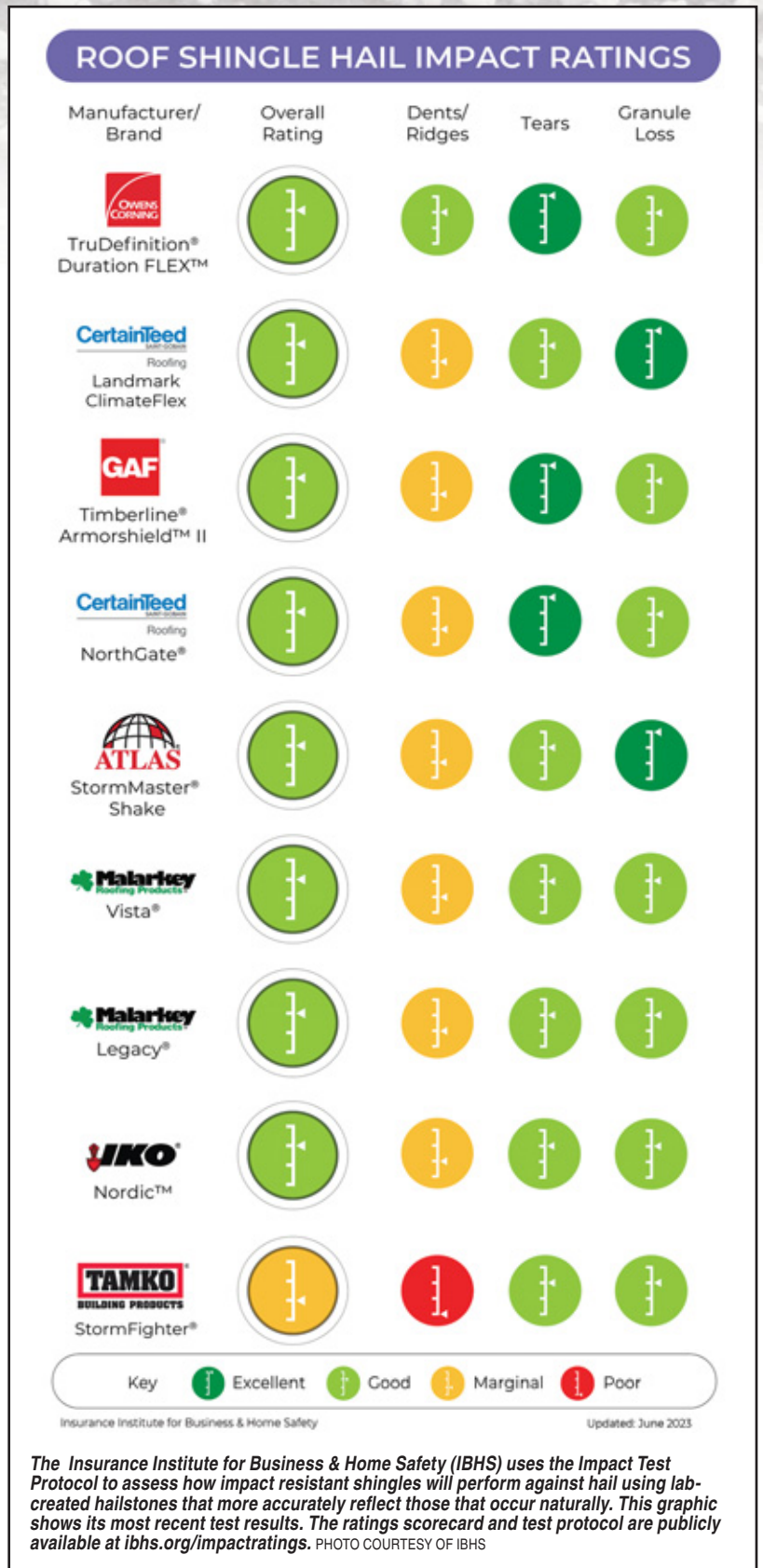
have been removed from the market due to their continuous poor performance. Manufacturers have instead focused on making improvements to polymer-modified asphalt (PMA) impact-resistant shingles, which have been proven to better withstand hail damage. These market improvements are reflected in the research, as the 2023 scorecard shows an increase in tear damage durability. However, a noticeable decrease in the dents/ridges category shows there is still room for product improvement.

This research shows not all impact-resistant shingles are designed equally; differences in manufacturing methods lead to variations in performance and durability. The performance scorecard provides homeowners and insurers with information needed to make informed decisions and choose high-performing products. Severe weather is inevitable, but choosing impact-resistant shingles shown to perform better can mitigate a home's roof against damage.

The hail shingle rating scorecard also identifies which impact-resistant asphalt shingles qualify for the FORTIFIED Home™ — High Wind & Hail designation. FORTIFIED Home is a voluntary construction and re-roofing program designed to strengthen homes and commercial buildings against severe weather.

IBHS plans to expand its hail research, further identifying ways to increase roof system resilience. Researchers recently deployed to collect hailstones from different regions across the U.S., which were scanned and recorded to create 3D models capturing the unique structure of each hailstone. Back at the IBHS hail lab, scientists are developing hailstone prototypes modeled after these realistic 3D models of hailstones collected in the field to mimic naturally occurring hail even better. Researchers hope to use these irregular-shaped hailstone prototypes during future impact testing to compare results with the spherical stones currently made at the IBHS hail lab. This comparison will continue to advance the understanding of the hail vulnerability to asphalt shingles in the real world. ●

About the Insurance Institute for Business & Home Safety (IBHS): The IBHS mission is to conduct objective, scientific research to identify and promote effective actions that strengthen homes, businesses and communities against natural disasters and other causes of loss. Learn more about IBHS at ibhs.org.



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EAGLEVIEW TECHNOLOGIES APPOINTS DORMEYER TO CEO

EagleView Technologies, a provider of aerial imagery and data analytics, has announced the appointment of Piers Dormeyer as its new Chief Executive Officer (CEO). Piers, who has been an integral part of the EagleView team for the past 10 years and most recently served as President of the Commercial Group, brings a wealth of expertise in business strategy, organizational development, and operational excellence.



Piers Dormeyer

As President of the Commercial Group, he successfully spearheaded key initiatives, building strong relationships with customers and partners while expanding the company's market presence.

As Dormeyer takes the helm as CEO, former CEO Chris Jurasek moves into the role of Executive Chairman.

MULE-HIDE PROMOTES GOVAN TO WEST REGION DIRECTOR

Mule-Hide Products Co. Inc., manufacturer of low-slope roofing systems and products, has promoted Derek Govan to West Region director.

A roofing industry veteran of more than 25 years, he had served as territory manager for the company's Rocky Mountain territory since 2019.

In his new role, Govan is responsible for achieving regional sales goals and will lead the region's team of territory managers, who are the company's primary points of contact with contractors, property managers, specifiers and roofing materials distributors. The West region includes Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico,

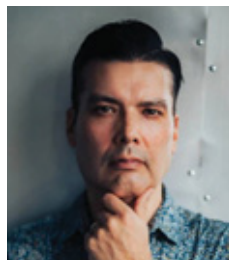
Oregon, Utah, Washington and Wyoming.

Prior to joining Mule-Hide, Govan was at B.R. McCracken Co. in Arvada, Colorado, where he sold low-slope and steep-slope roofing products. Prior to that, he was a superintendent with Pridemark Homes in Denver.

"When Derek joined Mule-Hide, he took over a well-established territory. Under his direction, it continued to grow every year," said Mule-Hide Products Managing Director Dan Williams. "The key to that success was his ability to form strong partnerships with our contractors and distributors throughout the territory."

LAKESIDE CONSTRUCTION FASTENERS PROMOTES VELLIQUETTE TO PRESIDENT

Lakeside Construction Fasteners, Inc. has announced the promotion of Eric J. Velliquette to President. Eric has been with Lakeside Construction Fasteners for 10 years, during which time he held the position of Vice President Sales & Marketing, proving himself by expanding the LCF family brand of products throughout the USA and internationally.



Eric J. Velliquette

Before joining Lakeside Construction Fasteners, Eric had worked as the Vice President of Sales and Marketing for Atlas Bolt & Screw Company, a Marmon Holdings Inc. company, one of largest fastener manufacturing-distributors in the U.S. servicing the metal building industry. During his tenure with Atlas, Eric earned an MBA and selected as an Adjunct Professor at Ashland University's College of Business, located in Ashland, Ohio.

In partnership with owners John and Kyle Lane, Eric has forged continuous growth at Lakeside Construction Fasteners by providing the metal building industry with alternative product solutions, keeping quality a focus, and working to develop long-term customer relationships. Kyle Lane, CEO of the Lakeside Group of Companies, welcomes Eric into his new position. Kyle stated that he is "confident LCF will continue with a strong future, poised to reach even greater heights under Eric's leadership."

EVEREST SYSTEMS HIRES NEW PRODUCTION MANAGER, TECHNICAL SALES MANAGER

Everest Systems, a manufacturer of roof coatings, sealants, and polyurethane foam, has announced Joe Molina as its new production manager. Molina has over 30 years of experience in the polyurethane foam industry and started his career with Polyfoam Products as the company's first employee.

Molina's innate fascination with chemical reactions, coupled with his ambitious nature, renders him an ideal candidate for the polyurethane foam industry. Throughout his career, Molina has garnered extensive experience and expertise, assuming various pivotal roles. These include positions such as operator, production manager, operations manager, plant manager, and manufacturing supervisor. His multifaceted background underscores his comprehensive understanding of the industry, making him a valuable asset to Everest Systems.

"Joe's 30 years of experience will enable us to continue our exponential growth," says John Linnell, owner of Everest Systems. "Our production capacities continue to expand and Joe brings the tools to manage the challenges associated with Everest's rapid expansion."

The company has also announced Andy Eisner as one of its new technical sales managers. Eisner joins the Everest

team with more than 15 years of experience in the coatings industry, having worked extensively on both the contractor and manufacturer fronts.

Eisner has previously served as regional sales manager of distribution/business development for Georgia Pacific LLC, territory sales manager for Tecta America, national sales manager/national accounts at National Coatings, vice president of sales at Truco and Inland Coatings, and business director of coatings division at IB Roof Systems. He holds numerous certifications from the aforementioned coating manufacturers, as well as Karnak, and The Sherwin-Williams Company.

Eisner has played an integral role in numerous successful projects, yet he considers his most significant career accomplishment to be coating the Hard Rock Stadium, the home of the Miami Dolphins.



Andy Eisner

ROOFING CONTRACTOR CHAD CONLEY NAMED TO NSBA LEADERSHIP COUNCIL

Chad Conley CEO of Atlanta roofing company Complete Roofing was recently named to the National Small Business Association (NSBA) Leadership Council. NSBA is the nation's oldest small-business advocacy organization, and operates on a staunchly non-partisan basis. Conley, a recognized leader in the small-business community, joins the NSBA Leadership Council alongside other small-business advocates from across



Chad Conley

the country as they work to promote the interests of small business to policymakers in Washington, D.C.

“As a small-business owner, I experience firsthand each day the profound impact the laws and regulations of our government have on our operations,” said Conley. “By becoming a part of NSBA’s Leadership Council, I am not merely accepting a position — I am embracing a mission to improve the situation of small business owners across the country. This role empowers me to carry the shared message from the heart of small businesses to the ears of those in Congress who may not understand our challenges and the value that we bring to our nation’s economy and people. I am honored to be a voice for our collective cause and I am determined to ensure our perspective is heard, deeply understood and our issues addressed”

Conley co-founded Complete Roofing in 2008 and has served as the company’s CEO since 2019. Complete Roofing specializes in replacing storm damaged roofs that are covered by the property owner’s insurance. Conley served with distinction in the United States Marine Corps for six years. As a passionate consumer advocate, Conley is committed to ensuring that Complete Roofing’s clients receive the highest quality roof replacements achievable within their insurance coverage.

Conley joined the NSBA Leadership Council as part of his efforts to tackle the many critical issues facing small business, including tax reform, regulatory restraint, health care costs and how access to capital will impact small business. The NSBA Leadership Council is focused on providing valuable networking between small-business advocates from across the country while ensuring small business a seat at the table as Congress and regulators take up key small-business proposals.

“I am proud to have Chad Conley as part

of our Leadership Council,” stated NSBA President and CEO Todd McCracken. “He came to us highly recommended and I look forward our coordinated efforts for years to come.”

SPRI NAMES CHADWICK COLLINS AS TECHNICAL DIRECTOR

SPRI, Inc., the trade association representing the manufacturers of single-ply roofing systems and the related component materials, has named Chadwick Collins of TK Sebastian LLC as technical director.

Collins is responsible for leading and managing the technical agenda for SPRI and its members, including identifying, communicating, and assisting in developing action plans in response to activities being undertaken by regulatory and governmental agencies, and other groups that may impact SPRI and its members in the roofing industry. Additionally, he will support SPRI’s strategic initiatives. He reports to the Board of Directors and will report regularly to SPRI’s Managing Director and the SPRI Technical Committee Chair.

“Chadwick brings tremendous technical value and roofing industry experience to SPRI,” said Brad Van Dam, president. “I am very excited that the board has voted not only to expand the technical director’s role, but also that we were also able to find someone as talented as Chadwick. He will have an immediate impact on the organization and our strategic plan, and we look forward to continuing our efforts of working with code officials, other industry organizations, and stakeholders to



Chadwick Collins

achieve our mission as an organization.”

Collins brings nearly 20 years of roofing and advocacy experience to SPRI. For the past five years, he was director of codes and regulatory compliance for Kellen Company, an associations and trade organization management firm headquartered in Atlanta. Earlier he had been with Wiss, Janney, Elstner Associates, an engineering and architectural firm in Indianapolis. He started his career in roofing with John’s Manville where he spent six years first as a technical services representative, eventually becoming a specifier services engineer, and then six years with Firestone Building Products Company, as a senior codes engineer and senior innovation and industrial advocacy engineer.

Collins holds a bachelor’s degree in mechanical engineering from the University of Miami, and is currently a member of ASTM International, formerly known as American Society for

Testing and Materials, the International Code Council (ICC), the Cool Roof Rating Council (CRRC), and the International Institute of Building Enclosure Consultants (IIBEC).

TFC ACQUIRES A PORTION OF CONNECTIVE SYSTEMS & SUPPLY INC.

Triangle Fastener Corporation (TFC) has announced that as of July 1, 2023, it has finalized an acquisition agreement with Connective Systems & Supply, Inc. (CSS). In particular, TFC has acquired the segment of CSS’s business primarily focused on fasteners for roofing, metal building, and mechanical contractors in and around Denver, Colorado.

CSS has been a provider of fasteners and products to construction industry professionals since its founding in 1985. This segment of their business is supported by approximately 20 employees in two locations who achieved

15 million in sales in 2022.

The acquisition of CSS aligns with TFC’s plans for long-term business growth by developing branch locations in the Western United States and expanding its catalog of proprietary TFC-branded products. In addition to the pending opening of a location in San Antonio, Texas, the integration of CSS assets will bring us to a total of 27 US locations, and a marked increase in the company’s presence in the central and Western United States.

Triangle Fastener Corporation was founded as a single location in 1977 in Pittsburgh, Pennsylvania, and has successfully established more than two dozen locations and three distribution centers across the U.S. Through focusing on roofing, metal building, drywall, and acoustical trades, TFC has continually grown its business portfolio. The company takes pride in its wide array of proprietary TFC Brands,

Asphalt Roofing Product Shipments

Shipments (squares)	Q2 2023	Q2 2022	% Change	YTD 2023	YTD 2022	% Change
Shingles – U.S. (including individual shingles)	51,713,740	45,521,069	13.6%	85,541,254	88,449,004	-3.3%
BUR base, ply, and mineral cap sheets – U.S. (not including saturated felts)	1,806,472	2,019,867	-10.6%	3,183,661	3,837,525	-17.0%
Modified Bitumen – U.S.	12,069,534	11,457,575	5.3%	21,703,749	21,315,786	1.8%
Shingles – Canada (including individual shingles)	2,401,536	3,906,364	-38.5%	5,792,325	7,455,919	-22.3%

ARMA RELEASES 2023 Q2 REPORT ON ASPHALT ROOFING PRODUCT SHIPMENTS

The Asphalt Roofing Manufacturers Association (ARMA) has released its second Quarterly Product Shipment Report for the year 2023. The report covers asphalt roofing product shipments in the United States and Canada in the second quarter, as well as year-to-date shipment information and a comparison with the prior year’s data.

“The shipment report provides valuable insight into the asphalt roofing industry to trade professionals and interested parties,” said ARMA’s Executive Vice President Reed

Hitchcock. “Asphalt roofing data is relevant and meaningful to a number of industries.”

Roofing product shipment data is collected from participating manufacturers by an independent third party, Association Research Inc., and aggregated to create this report. Companies that are not members of ARMA may examine the free quarterly summaries, and those ineligible for ARMA membership can subscribe to the full, detailed report on asphaltroofing.org.

including: Concealor®, Blazer®, Panel-Tite®, and APS500®, along with other trademarked and patented products for the construction industry.

CARLISLE CONSTRUCTION MATERIALS OPENS NEW FACILITY IN MISSOURI

Carlisle Construction Materials LLC (CCM) has officially opened its newest facility in Sikeston, Missouri. Local, regional and state leaders joined the manufacturing company's executives in a ribbon-cutting ceremony at the facility in late June.

Carlisle Construction Materials invested more than \$100 million in the new nearly 500,000-sq. ft. production and manufacturing facility.

The manufacturing company chose to open this new polyiso facility in Missouri due to the state's central location, workforce and low cost of business.

The Sikeston facility is the company's second location in Missouri, with more than 50 locations worldwide. It was designed and constructed to maximize energy efficiency and reduce carbon, demonstrating Carlisle's commitment to sustainability. The company is currently pursuing LEED Platinum certification.

POLYGLASS BREAKS GROUND ON WACO, TEXAS, EXPANSION

Polyglass U.S.A. Inc. has announced the expansion of its manufacturing plant facility in Waco, Texas. In 2017 Polyglass opened its fifth manufacturing plant in Waco. It is the largest of Polyglass' state-of-the-art manufacturing facilities. The plant brought economic growth and development to the area when the plant opened, and with the expansion, Polyglass hopes to bring more opportunities to the local community. Polyglass is excited to partner with Corporate Contractors Inc. (CCI), to plan and execute the expansion project. CCI provided the engineering

and architectural design services, as well as the construction management for Polyglass. Polyglass and CCI are also partnering with 15 local companies and contractors to complete the details of the new manufacturing facility.

The expansion consists of three parts: a new production line, warehouse expansion and site improvements. The project comes with some challenges due to the construction occurring while the existing plant continues day-to-day operations. The construction site is tight and requires constant communication regarding the number of trucks incoming for product shipment as well as those related to the construction. The limited space requires quick, out-of-the-box thinking to keep the construction progressing without disrupting the current manufacturing/ shipping processes.

The project is expected to be completed and the facility open for use by the end of 2023.

RICOWI HOLDING FALL CONFERENCE OCT. 10-12

The Roofing Industry Committee on Weather Issues, Inc. (RICOWI) will meet at its Fall 2023 Conference in Rock Hill,

South Carolina from October 10-12.

On Tuesday, October 10, 2023 the RICOWI Foundation Board Meeting will take place at the Hilton Garden Inn with an informal group dinner to follow.

The RICOWI Seminar will be held Wednesday, October 11. Those who acted quickly and were able to snag one of the 50 available spots will tour the Insurance Institute for Business and Home Safety (IBHS) Research Facility in Richburg, South Carolina. Following lunch will be presentations by MBMA and Komodo Fire Shield, which can be attended virtually for a fee.

On Wednesday evening, there will be a RICOWI Foundation Fundraiser at High Seas Miniature Golf, which will be filled with food, fun, raffles, and more.

Thursday, October 12, 2023 will have the RICOWI Committee Meetings, Membership Meeting, and Foundation Annual General Meeting. Following the meetings there is a group dinner at The Pump House.

While the IBHS tour is at capacity, registration remains open at www.ricowi.com for virtual presentations, committee meetings, and group dinners. Transportation to and from events is included with the registration. ●



Presentation at a previously held RICOWI conference. PHOTO COURTESY OF RICOWI

LIGHTNING PROTECTION

2024 BUILDING CODE CLARIFIES INTEGRATION OF ROOFING AND LIGHTNING PROTECTION SYSTEMS

By Brad Van Dam & Tim Harger



In low slope commercial roofing, the edge metal system also serves as the roof's first line of defense when it comes to severe weather. Furthermore, edge metal components are required by code to be tested to resist specific wind loads. As such, there is a concern in the roofing community that an LPS may alter the wind load or system performance of the edge metal system.

A single bolt of lightning can produce anywhere from 100 million to 1 billion volts and contains billions of watts of power according to National Geographic. According to the Insurance Information Institute, US insurance companies paid over \$950 million in lightning-related claims to some 62,000 policy holders in 2022 alone.

“Up to 5% of all commercial insurance claims involve lightning, said Bret Peifer, president of Mr. Lightning of Colorado Springs, Colorado, and member of the board of directors for the Lightning Protection Institute (LPI). “But lightning damage is reliably preventable. A properly designed, installed, inspected, and certified lightning protection and grounding system can virtually mitigate this risk to policyholders and the public.”

LIGHTNING PROTECTION SYSTEMS AND COMPONENTS

According to the National Fire Protection Association (NFPA), there are five fundamental components of a lightning protection system (LPS), including:

- 1. Air Terminals or Strike Termination Devices.** Formally known as lightning rods, strike termination devices are installed on high points of a structure to intercept lightning before it hits the building and leads the electrical charge to the ground.
- 2. Cable Conductors.** Heavy-duty metal cables used to connect the air terminals to provide a path for the lightning current to follow to the below-grade grounding electrode system.
- 3. Bonding Connections.** Bonding connects the LPS to other internally grounded metallic systems on the roof, such as air conditioning units,

vent stacks, and other components, to create a path for the lightning current.

4. Grounding Electrodes. Electrodes are typically 10-foot-long copper-clad steel rods, connected to the conductors and driven into the ground at multiple points around the building.

5. Surge-Protection Devices. Wherever power or signal wires enter a building, surge protection devices specifically configured for lightning are installed.

An LPS should always be installed, inspected, and certified by a certified professional and the installed system should meet the standards outlined in NFPA 780 Standard for the Installation of Lightning Protection Systems or in UL 96A Installation Requirements for Lightning Protection Systems.

UPDATED CODE LANGUAGE

The International Building Code (IBC) is updated in multiple phases, based on annual review cycles. In 2021, updates were made to Chapter 27, to include language referencing the industry's two standards — NFPA 780 and UL 96A.

Neither the updated language, nor the referenced standards, address how LPS should be specially secured to existing roofing components. This led SPRI, Inc., the trade association representing the manufacturers of single-ply roofing systems and the related component materials, to take action to clarify how LPS components should be secured to edge metal and other roofing components. The specific wording added to Section 2703 for the 2024 IBC, under Lightning Protection Systems, reads as follows:

Section 2703 Lightning Protection Systems

2703.2 Installation. Lightning protection systems shall be installed in accordance with NFPA 780 or UL 96A. UL 96A shall not be utilized for buildings used for the production, handling, or storage of ammunition, explosives, flammable liquids or gases, and other explosive ingredients including dust.

2703.3 Interconnection of systems. All lightning protection systems on a building or structure shall be interconnected in accordance with NFPA 780 or UL 96A, as applicable.

ROOFING INDUSTRY CONCERNS & CURRENT CODE LANGUAGE

“The new code specifically references NFPA 780 and UL 96A,” said Amanda Hickman, president of The Hickman Group, a code consulting firm based in Plantation, Florida, representing SPRI, Inc. “This is the first time that those two industry standards are specifically mentioned, but neither address the impact that attaching lightning protection systems to the roof system may have on the tested components of the roof assembly, including the edge metal, roof membrane, and more.”

In low slope commercial roofing, the edge metal system also serves as the roof's first line of defense when it comes to severe weather. Estimates from insurance carriers including Factory Mutual (FM) indicate that the failure of roof perimeters represents nearly 59% of roofing system failures in high wind



Formally known as lightning rods, strike termination devices are installed on high points of a structure to intercept lightning before it hits the building and leads the electrical charge to the ground.



Integrating lightning protection systems with roofing system components often leads to questions surrounding penetrations and sequencing.

events. Furthermore, edge metal components are required by code to be tested to resist specific wind loads. As such, there is a concern in the roofing community that an LPS may alter the wind load or system performance of the edge metal system.

“It is important that when lightning protection systems are used, they are installed with guidance from the roofing system or edge system manufacturer, to preserve the building



Bonding connects the LPS to other internally grounded metallic systems on the roof, such as air conditioning units, vent stacks, and other components, to create a path for the lightning current.



Neither the updated language, nor the referenced standards, address how LPS should be specially secured to existing roofing components, which led SPRI, Inc., the trade association representing the manufacturers of single-ply roofing systems and the related component materials, to take action to clarify how LPS components should be secured to edge metal and other roofing components.

envelope in a wind or weather event” said Hickman. “It’s critical that these components maintain their integrity when lightning protection systems are installed.

“Furthermore, the new wording is focused on installing lightning protection, but there was nothing about maintaining or protecting the integrity of the roofing system, which is covered in

Chapter 15 and a critical consideration in the process,” said Hickman.

Code updates go through a series of review steps, including a Committee Action Hearing. Approval of a proposed change during a Committee Action Hearing is based on a simple majority vote by the Technical Committee.

At a hearing in April 2022, and to the surprise of the SPRI representatives there,

several from the lightning industry spoke out against the proposed new language from SPRI. In the end, the ICC Technical Committee disapproved the proposed language in a resounding 13 to 1 vote.

There were several problems with the proposed language from the lightning industry’s perspective. According to UL and NFPA standards, lightning protection must be installed around the outermost perimeter of a structure, fastened every 3 feet, and installed within 2 feet of the building’s perimeter. The wording from the updated language was in direct conflict with the standards:

1. Lightning Rods are required to be within 2 feet of the outside corner. Not allowing the Lightning Protection industry to attach to the coping, would make this impossible.
2. Lightning Rods are required to be installed around the perimeter at 20-foot intervals, not just the corners. Depending on the coping width, every lightning rod could be affected.
3. Lightning Protection conductors are required to be fastened every 3 feet maximum. Fastening below the coping, puts a ton of holes in the membrane. If we use brackets, that is a ton of brackets which could be problematic when coordinating the exact layout, timing, warranty, etc.

“We were surprised by that hearing,” said Hickman. “We had worked with several from the lightning industry and believed that everyone was on the same page, perhaps without recognizing the potential negative impact that the new wording would have on their industry.”

CONSENSUS BUILDING

The next step was to develop new language and submit it for ‘public comment.’ During the next several months, SPRI reached out to several organizations including UL Solutions, LPI, the United Lightning Protection Association (ULPA), the Asphalt Roofing Manufacturers Association (ARMA), the National Roofing Contractors Association (NRCA), the National Electrical Manufacturers Association (NEMA), the Roof Coating Manufacturers Association (RCMA),

and others to build consensus for acceptable new language.

Eventually, new language was submitted for public comment, and in the Fall of 2022, ICC held Public Comment Hearings and that language was approved by two-thirds of the ICC Governmental Voting Membership and ratified via a subsequent online vote.

“This is a significant update to the code,” said Hickman. “We worked very hard with both the roofing and lightning protection industries to develop language that everyone could agree on. A key part of the language allows registered design professionals to direct the installation of lightning protection equipment when the roofing or edge system manufacturer cannot be identified.”

2024 CODE LANGUAGE

The new language, which will be added as new sub-sections in Section 1511 ‘Rooftop Structures,’ reads as follows:

1511.7.6.1 Installation on metal edge

systems or gutters. Lightning protection system components attached to ANSI/SPRI/FM 4435/ES-1 or ANSI/SPRI GT-1 tested metal edge systems or gutters shall be installed with compatible brackets, fasteners, or adhesives, in accordance with the metal edge systems or gutter manufacturer’s installation instructions. When metal edge system or gutter manufacturer is unknown, installation shall be directed by a registered design professional.

1511.7.6.2 Installation of roof coverings. Lightning protection system components directly attached to or through the roof covering shall be installed in accordance with this chapter and the roof covering manufacturer’s installation instructions. Flashing shall be installed in accordance with the roof assembly manufacturer’s installation instructions and Sections 1503.2 and 1507 where the lightning

protection system installation results in a penetration through the roof covering. When the roof covering manufacturer is unknown, installation shall be as directed by a registered design professional.

“In the end, working with SPRI, UL and others was critically important. We all had different perspectives and concerns that had to be addressed,” said Peifer. “In true consensus building, no one is ever 100% happy with the outcome, and I think that’s what happened here. But we worked together to get to wording that everyone can live with.”

The 2024 IBC will be published in late 2023 and will be available for adoption by individual jurisdictions beginning in 2024. Moving forward, manufacturers of edge metal systems and roofing materials will need to work with the lightning protection industry to provide clear installation instructions for this equipment, in conjunction with the roofing system. ●

CALENDAR OF EVENTS

OCTOBER

Oct. 4-6

Roofing Contractors Association of Texas (RCAT) Texas Roofing Conference, Marriott Marquis Houston, Houston, Texas. www.rcat.net

Oct. 18-20

METALCON, Las Vegas Convention Center, Las Vegas, Nevada. www.metalcon.com

Oct. 18-20

Midwest Roofing Contractors Association (MRCA) Fall Conference, CHI Health Center (Convention Center), Omaha, Nebraska. mrca.org

JANUARY 2024

Jan. 24-25, 2024

Garage, Shed & Carport Builder Show,



Knoxville Convention Center, Knoxville, Tennessee.

<https://garageshedcarportbuilder.com/show-registration/>

FEBRUARY 2024

Feb. 4

National Women in Roofing (NWIR) Day, Las Vegas, Nevada (just prior to the IRE).

www.NationalWomenInRoofing.org

Feb. 6-8

International Roofing Expo, Las Vegas Convention Center, Las Vegas, Nevada. www.theroofingexpo.com

JUNE 2024

June 19-20

Post-Frame Builders Show, Branson Convention Center, Branson, Missouri. <https://framebuildingnews.com/post-frame-builder-show-registration/> ●

Before making travel arrangements, check with the show producer to confirm there have been no changes to event dates, venue, or show hours. To have events included here, contact Karen Knapstein, 715.513.6767, karen@shieldwallmedia.com.

AI REPORT

AMERICA'S TOP 25 LEAFIEST CAPITAL CITIES

By Nearmap AI

Nearmap, a location intelligence and aerial imagery solutions provider, released a first-of-its-kind report in May: America's Top 25 Leafiest Capital Cities via Nearmap AI, highlighting the country's Top 25 leafiest capital cities. Compiled through its proprietary aerial imagery technology and coupled with location data from its Nearmap AI platform, this is the first and only research of its kind in the U.S. using a high-resolution data set to compare total residential tree cover across capital cities for insurers, commercial construction companies and governments.

Dr. Michael Bewley, Vice President of AI and Computer Vision at Nearmap, explains: "Residential areas with increased trees overhanging gutters and roofs will inevitably lead to more leaves collecting in those areas. If this occurs, it can potentially cause water damage to the walls, roof and even foundation of a home, as rain water within the leaves can eventually seep through cracks or crevices, causing damage. Therefore, this data around leafy areas can help residents and roofing professionals alike understand how the amount of overhang at their property address can affect their properties' well-being, and plan roofing maintenance schedules based around that."

The report identified the top 25 leafiest capital cities and their

percentage of total residential tree coverage as shown in the table.

Tony Agresta, Executive Vice President and General Manager of North America at Nearmap, said: "The volume of tree cover can have a significant impact on public health and safety, from preventing overheating, improving environmental health, and mental and physical health benefits. Beyond that, the

Shown here is Tallahassee, Florida's state capital. Tallahassee is the second leafiest capital city in the United States.

Capital City	State	Percentage of Total Residential Tree Coverage
1. Charleston	West Virginia	74.7%
2. Tallahassee	Florida	56.1%
3. Little Rock	Arkansas	54.9%
4. Raleigh	North Carolina	54.7%
5. Nashville	Tennessee	53.5%
6. Atlanta	Georgia	53.1%
7. Annapolis	Maryland	51.0%
8. Concord	New Hampshire	49.2%
9. Jackson	Mississippi	47.5%
10. Augusta	Maine	46.3%
11. Jefferson City	Missouri	43.3%
12. Austin	Texas	43.2%
13. Olympia	Washington	42.9%
14. Columbia	South Carolina	40.1%
15. Richmond	Virginia	39.9%
16. Albany	New York	39.1%
17. Montgomery	Alabama	34.9%
18. Baton Rouge	Louisiana	34.1%
19. St. Paul	Minnesota	33.2%
20. Des Moines	Iowa	31.4%
21. Topeka	Kansas	30.6%
22. Indianapolis	Indiana	29.5%
23. Springfield	Illinois	27.7%
24. Frankfort	Kentucky	26.3%
25. Columbus	Ohio	26.1%

insights gleaned from this data can be used by insurers, construction companies and local governments to create tangible change in their communities, in addition to tracking progress in the creation of greener cities, reducing natural disaster risk and progressing urban development."

According to the Centers for Disease Control and Prevention, an average of 702 heat-related deaths occurred in the



U.S. annually between 2004-2018. Urban heat islands can also create issues such as higher daytime temperatures, reduced nighttime cooling, poor air and water quality and increased demand for energy resources that can result in rolling blackouts.

Dr. Bewley added: “Data of this detail and consistency has never been possible on such a national scale before. Our Nearmap AI platform uses machine learning to turn high-resolution aerial imagery into information and insights, creating a proprietary dataset that our customers use as a source of truth to make our communities more sustainable, resilient, safe and appealing to residents. The fact that it can be used to make comparisons between current and historical captures is critical. It means that we can help not just to map cities, but actively monitor their change, and to help them quantitatively assess the impact of things like a change in policy, a



Raleigh, North Carolina, lands at #4 on the list of “Leafiest Capital Cities of America.”

natural disaster or a shifting climate.”

Nearmap surveys more than 100 million locations in the United States up to three times per year, making it easy for local governments, insurers and construction companies to continuously unlock AI insights needed to track their performance against goals, identify new areas of concern and measure community impact.

Nearmap recently announced significant updates to its AI solutions at its annual customer event, NAVIG8. The fifth and latest generation of Nearmap AI is enabled by a new deep learning model trained on a much larger data set. The product has grown to an automated map of 78 layers (from 49 layers in the fourth version), and more than 500 facts per address.

Among the new layers are “leaf off vegetation” (which can identify trees without leaves, even in summer) and “vegetation debris” (which identifies broken and damaged vegetation, such as dead wood lying on the floor, or trees that have fallen in a wind event). Coupled with the near infrared capture capabilities of the new HyperCamera 3 system, Nearmap is continuing to evolve its offering in vegetation management, extending to use cases such as vegetation health and wildfire risk management.

To inform the development of the America’s Top 25 Leafiest Capital Cities report, Nearmap pulled historical and current tree canopy high-resolution aerial imagery on residential areas covering more than 275 million inhabitants, and harnessed Nearmap AI machine-learning capabilities to identify and analyze residential tree cover density and changes in capital cities throughout the United States. ●

For more information about America’s Top 25 Leafiest Capital Cities, visit <https://www.nearmap.com/us/en/aerial-view-blog/leafiest-capital-cities-in-america>.





DaVinci's Province Slate has a Class A fire rating. PHOTO COURTESY OF DAVINCI ROOFSCAPES

TAKE IT FROM THE TOP

IS YOUR ROOFING MATERIAL FIRE RESISTANT?

Fire resistance in roofing has always been a consideration, but with more and more wildfires causing distress and destruction it is becoming more important all the time. Even those who do not live in particularly wildfire-prone areas may see unusual stretches of exceedingly dry weather or drought, which of course can increase the risks of wildfires. This would seem to indicate that anyone in the industry should give some thought to the fire resistance of the roofing materials they are providing or installing.

IT'S ABOUT THE WHOLE ROOF SYSTEM

Tom Creigh of Petersen PAC | CLAD said that roofing materials are not fire resistant simply because they are made of metal; it is dependent on the combination of the roofing material and the sub-assembly. Further, metal shingles don't always pass fire resistant tests because they might not be mechanically seamed so flame will find a weakness. Corrugated metal panels with exposed fasteners may not pass because fire can burn through. Some aluminum and copper isn't fire resistant since it melts quicker than steel.

According to EDCO, the Federal Emergency Management Agency (FEMA) recommends Class A roof assemblies in "wildfire regions." The roof assembly includes all of the roof components, the shingles or panels, sheathing, rafters and trusses, flashing, insulation and vapor barrier, if used. The rating system includes classifications of A, B, and C based on their testing performance. Further, FEMA recommends metal, slate, and terra cotta roofing materials. When it comes to fire resistance, tiles can come loose or break leaving the structure less protected, which can be amended by

regular maintenance.

While many people focus on metal, slate, or terra cotta, Kathy Ziprik, DaVinci Roofscapes, a division of Westlake Royal Building Products™ USA Inc., conveys that some composite slate and shake shingles have attained Class A ratings. There is a wide range of Class A fire-resistant roofing options to choose from.

FIRE RESISTANCE REQUIREMENTS

Creigh said that while fires may be more likely to occur in some geographic locations than others, the materials used for fire resistance do not change. In other words, if you put roofs on buildings in the Midwest near the Great Lakes, the fire-resistant materials that you would use to resist fire are the same as those you would use in California in the middle of wildfire country. Further, the only requirements for fire resistance are those in the local code, unless the area is a Wildlife Urban Interface (WUI). DaVinci Roofscapes noted that WUI rules require a building to be “ignition resistant” and the local WUI code may indicate specific approved products. Further, there are requirements for the site of a WUI, such as the distance a building must be from trees or shrubs. Smaller municipal sites that are not covered by the WUI rules may not have any regulations at all regarding fire resistant roofing systems.

“Codes are generally more stringent in big cities,” Creigh said. “Also, it is considered more important to require fire resistant materials for structures like schools, hospitals, and municipal buildings.” Generally it is the architect’s job to ensure that a building plan meets all requirements, he added.

An A rating is the very best; people who are very concerned about fire resistance look for an A rating, Creigh said. If a material is tested but fails, it does not receive a “bad” rating; it is

simply unrated. “Beware the company that states their product is ‘fire resistant rated’ but doesn’t give the rating,” he said. “It’s probably not Class A.”

UL 790

The group most involved with setting the fire resistance codes and testing is Underwriters Laboratory. There are two categories for testing, and it makes no difference whether the building is residential, commercial, or industrial; the tests are the same. The first, UL 790 is a test protocol for the roof and sub-assembly for fire that originates on the exterior of the building, for example sparks from a bonfire or a wildfire landing on the roof. The test is about finding out what the roof material in combination with its sub-assembly can withstand and for how long before the fire begins to burn through into the building.

The tests will include trying to ignite the panels and trying to ignite the joints; the testers are looking for the roof system’s weakness. Witnesses will look for flames during the test and ash afterwards to gauge how well the system held up.

The tests roof systems must pass include the Intermittent Flame Test in which the system is subjected to an intense flame for two minutes then turned off for two minutes. This treatment is repeated 15 times.

The Spread of Flame Test involves applying flame and air current to the roof system for 10 minutes. Finally, a burning brand is placed on the roofing assembly with a high volume of wind behind it. The decking of the assembly is monitored for 90 minutes for fire burn-through. This is the Burning Brand Test, and it is pass or fail; if fire burns through the roof deck at any time during the 90-minute trial, the system fails.

The roof system passes or fails as a whole; for example, a roof system may fail the test, but change out the sub-assembly and it may pass as Class A fire resistant.

This means that it is very important that every component used is exactly what was specified on the UL 790 test certificate.

UL 263

UL263 is the second testing category; this testing protocol is for fire that originates inside the commercial or industrial building. The test is not done on residential structures; Creigh states that most residences would not pass UL 263 due to wood or other flammable materials used in its construction.

The test procedure, according to Intertek, is to subject the roof system to fire, achieving a specified temperature for a specified period of time. The test determines what it takes to transmit sufficient heat and gas through the assembly to ignite cotton waste in the roof. It is also looking at the system’s load carrying ability under these circumstances.

TIPS FOR ROOFERS

- Know the code in your area and whether or not fire-resistant materials are required.
- Although fire-resistant roofing may not be in the code, it’s a good idea to ask a customer if they are interested in it since it may not be something they’ve thought about.
- When a customer is considering investing in fire-resistant roofing, suggest that they check into possible discounts on insurance. This is a good sales tactic for those who are resistant to the higher cost and also a service to those who are already sold on a fire-resistant roof.
- Make sure you know the rating of the roof system you are installing; A is the highest rating and C is the lowest. No rating means the system is not fire resistant.
- When the customer has decided to put on a fire-resistant roof, make sure you follow the architect’s plans to a T. One seemingly insignificant change in components can nullify the fire-resistance rating. ●

ORGANIC IMPACT

PINE STRAW BUILD-UP ON PREPAINTED METAL ROOFING

By The National Coil Coating Association (NCCA), www.coilcoating.org

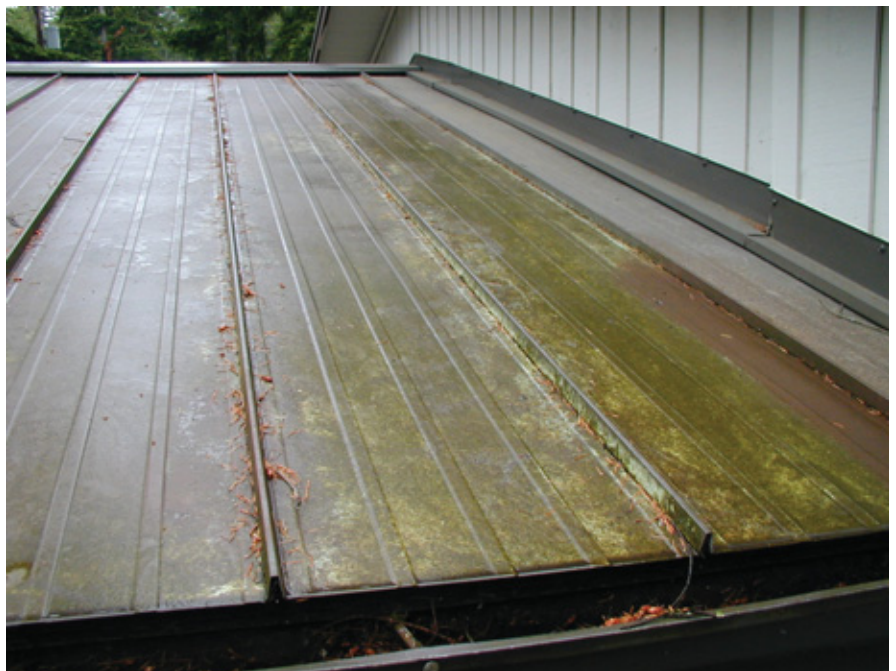
Editor's Note: *Included here is a brief report which was originally published on the National Coil Coating Association's website, www.coilcoating.org. It is printed here with permission.*

Pine trees are ubiquitous in the U.S. They are fast-growing, adaptable to many climates, and mark the Christmas season with their beauty and the smell of pine. But there is an aggressive streak that lies within.

An issue, prevalent in but not limited to the U.S. Pacific Northwest, is the accumulation of pine needles (also called "pine straw") on pre-painted metal roofing. Although metal roofing is better than asphalt shingles when it comes to shedding leaves, twigs, pine straw, and other debris, there will be occasions when build-up occurs.

In many cases, build-up is harmless, but some failures of the pre-painted metal have been noticed where build-up — especially of pine needles — has occurred.

The manner of failure pictured starts with water saturating the pine straw on the roof. Any surface in constant contact with water is a problem waiting to happen. But that's just the beginning. All biologic materials are complex mixtures of many organic compounds. Oak leaves contain tannins, which are mildly acidic. Pine needles are particularly interesting. The various species of pine trees produce



Panel condition after removal of pine needles. PHOTO COURTESY OF STEELSCAPE.

varying types — and varying amounts of — organic compounds. Limonene is the organic compound of greatest concern. It has been formulated into a number of "green" paint strippers and can also be used as a cleaning solvent for removing oils on machine parts. Therefore, it is easy to conceive of a situation where a pile of pine needles, resting on a pre-painted metal roof for months or years, would release enough limonene to attack the painted surface and even the metallic-coated steel or aluminum substrate. Additional information on the

chemistry of pine needles can be found in NCCA Tool Kit #35, Pine Straw Build-Up on Pre-painted Metal Roofing [<https://bit.ly/43IZbPU>].

Pre-painted metal will provide decades of performance, but it is important to avoid pooling water and build-up of water-laden debris, especially pine needles. But don't hold pine trees responsible; they do what they naturally do, and most of the time we all enjoy their beauty, their wonderful smell, and the minimal care needed for them to thrive. ●

TELL 100,000 SUBSCRIBERS ABOUT YOUR NEW PRODUCT

If your company has developed a new product for builders or contractors, email a new product announcement to one of the contacts listed below for possible publication in our business-to-business magazines.

new products
BY RURAL BUILDER STAFF

that captures the fastener by the head, so there's no need for manual adjustments when switching between standard 1 1/2-inch nails and the 2 1/2-inch nails required by code in hurricane and seismic zones.

The JoistPro™150MXP and JoistPro™250MXP come with 5-year limited warranties.

www.servico.com

ALL NEW STRETCH WRAP

All new stretch wrap from Levi's Building Components is a high quality Stretch Wrap banded plastic wrap that has excellent cohesion and holding strength. With 80-90 gauge thickness, Stretch Wrap is not easily punctured or torn.

Available in 5" x 1000', 12" x 1500', 18" x 1500' and 20" x 5000'. A dispenser handle is included in every box of 5" Stretch Wrap and is also available for purchase separately.

levisbuildingcomponents.com

DIABLO STEP DRILL BITS

Diablo has announced the release of their new impact and drill-driver-ready Step Drill Bits. Using innovative technology, these new Step Drill Bits are designed to meet the user's needs when drilling holes in sheet metal, stainless steel, PVC and other plastics. These new Step Drill Bits answer the growing issues confronting users of standard step drill bits: durability, speed and lack of being impact driver ready.

Diablo's new impact and drill driver ready Step Drill Bits feature:

- A Split Point Tip stays sharper longer for easy on-point drilling - no pre-drilling necessary.
- Accu-Grip™ Technology, which delivers strict angle tolerances on each step for minimal bit wear and up to two times faster drilling and hole making.
- Drills clean holes, leaving no burrs and can de-burr holes, as well.
- Impact Strong - An impact drill ready 1/4" hex shank which can be used on standard corded or cordless drill driver as well as cordless impact drills.
- Optimized dust-flute design for jam-free holes and easier chip removal.
- Easy-to-read laser marked steps for accurately drilling holes of varying sizes.

Diablo's new Step Drill Bits include a 1/2" 6-step bit; a 1/2" 13-step bit; a 3/4" 9-step bit; a 7/8" 12-step bit; a 1-1/8" 17-step bit and a drill driver only 1-3/8" 15-step bit.

www.diablotools.com

NEW PRODUCTS

Bosch GST18V-50 18V Brushless Top-Handle Jig Saw

Bosch Power Tools has announced the launch of the GST18V-50 18V Brushless Top-Handle Jig Saw. The cordless jig saw delivers a strong cutting capability with up to 4.9" in wood. Its brushless motor delivers up to 2,500 no-load strokes per minute, extending the motor's runtime and improving cutting performance on tough projects.

The tool-free blade change system permits fast and convenient blade insertion and ejection. A bright LED light illuminates the cut line in dark work areas, allowing workers to tackle tasks on a variety of jobsites efficiently. Complete with a built-in dust blower, workers can clear dust aside to navigate the cut line.

The variable-speed control provides a dial to adjust the operating speed from 0-3,500 no-load strokes per minute. With the variable speed trigger, users can control the operating speed by feathering the trigger. Workers can select the right blade stroke for their specific project by choosing one of the four orbital action settings.

Complete with Bosch Power Tools' CORE18V battery, the cordless jig saw delivers an extended runtime to help carpenters, remodelers, roofers and plumbers get a quick cut done to accomplish a range of projects.

www.boschtools.com

ProVia Coal Black Soffit

ProVia has introduced Coal Black Soffit as an addition to the Universal vinyl soffit product line.

Building products professionals are aware of the popularity of trend-setting color choices for home exteriors - combining black and white, black and gray, and even black with black. This has created a high demand for black materials such as siding, roofing, soffit, and accessories.

ProVia's Coal Black Soffit provides the dramatic dark look that homeowners seek. It's available in full-venn drilled and solid panels.

"We are excited to offer this great new vinyl soffit color to our customers," said Lapp, ProVia siding product manager. "We believe it checks all the boxes - classic styling, a true shade of black, and of course the quality contractors and homeowners expect from ProVia vinyl products."

www.ProVia.com

LP Building Solutions Seam & Flashing Sealant

LP Building Solutions (LP), a leading manufacturer of high performance building products, has announced the launch of LP WeatherLogic™ Seam & Flashing Sealant, which is a solution designed effective sheathing adhesion with premium moisture management technology.

The sealant is a liquid-applied flashing material certified to AAMA 714-19 and is the only liquid-applied sealant approved to seal the panel joints (seams) between LP WeatherLogic panels as part of the LP WeatherLogic system. The sealant can also be used to flash window and door openings, material transitions, and penetrations of any shape.

The sealant has a 10-15-minute tooling time, 10-minute surface tack time and, depending on conditions, will fully cure in 24 hours. Other benefits include being VOC compliant and having joint movement of ±50% for added flexibility.

www.LPCorp.com

SENCO Nailers for Plastic-Collated Nails

KYOCERA SENCO Industrial Fasteners Inc. (SENCO), a global leader in fasteners and power fastening tools, has launched its latest built-in-the-USA pneumatic framing nailer. The SENCO FN81TI fires full round head nails and features more power, improved durability, and better ergonomics than comparable framing nailers.

RED PAPERLESS

As a leader in optimized reinforcement product line: Fiberglass paperless drywall

The benefits as the engineered blowing compound for a stronger and stiffer layer features a construction that multiple diagonal tearing corners, applied with and on factory corners and JO GREEN- which has low indoor air paperless 2-1/8" x

www.fiberglass.com

38 GARAGE ■ SHED ■ CARPORT BUILDER / DECEMBER 2023

Include a clear, high resolution image of the product (no logos or advertisements), along with a brief description of your product and the problems it solves.

Submission is not a guarantee of publication. We reserve the right to edit all submissions for content, length, and clarity.



Metal Roofing Magazine; Roofing Elements Magazine; Rollforming Magazine:

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Rural Builder; Frame Building News; Garage, Shed & Carport Builder:

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EXPO REPORT

ADVANCING THE ROOFING INDUSTRY AT FRSA CONVENTION & EXPO

Kissimmee, Florida's Gaylord Palms Resort & Convention Center welcomed attendees and exhibitors to FRSA's 101st Annual Convention and the Florida Roofing & Sheet Metal Expo July 12-14. Colleagues, customers, and friends packed the two-day show floor, which saw new industry products, interactive demos, and approximately 250 vendor supporters.

Before the Expo opened its doors, it appeared as though it was going to be a busy show for attendees and exhibitors alike. The Expo is free to attend for contractors in the roofing and sheet metal industry; crowds gathered to await the opening and there was an overall atmosphere of excitement. After the opening ceremony ribbon was cut, the doors were wide open for connections to be made.

ROOFING CHALLENGES & OPPORTUNITIES IN FLORIDA

Extreme environmental and weather conditions make Florida the land of roofing opportunity. Those opportunities don't come without challenges. When asked about the roofing industry in Florida and technology advancements in the roofing industry, Jeff Carrillo, President of roof consulting agency IR Aerials (currently rebranding as Structura View), responded, "There is no shortage of roofing work in Florida, but everyone seems to be experiencing the same problems in their businesses today.

"Advancements in technology should continue to aid in buffering labor shortages by increasing efficiency and demand on each laborer," he continued. "From



(ABOVE) An enthusiastic crowd makes its way to the Expo floor after the opening day ribbon-cutting ceremony.



(LEFT) Dan's Custom Sheet Metal has been specializing in metal roofing products for more than 30 years. The company offers standard and custom metal roofing products and accessories.

my perspective, UAVs have revolutionized roof inspection practices reducing liability, expediting assessments, and providing more valuable data collection. There is a lot of talk out there about robotics and the future of roof installs that are quite intriguing given today's labor shortages."

EXHIBITOR FEEDBACK

Exhibitors were overwhelmingly positive about their Expo experience. Heidi Ellsworth, RoofersCoffeeShop, enthused, "The FRSA show was one of the highlights of the year. With record attendance and exhibitors, the show delivered education, information, new products and amazing networking. RoofersCoffeeShop announced the launch of CoatingsCoffeeShop on our LIVE sound stage. [See sidebar.] The interviews, panels and LIVE Coffee Conversation brought the show to viewers across the country through the RoofersCoffeeShop Youtube throughout the show."

IR Aerials' Carrillo opined, "FRSA is always a well-organized conference. It is always a pleasure to meet new folks in the industry and learn how we can all work together as a team to solve property owners problems!"

Zach Harvey, Hershey's Metal Meister, LLC, shared, "We as a company thoroughly enjoyed the show. We had a great response from the Florida industry on our machines and we were very impressed with the knowledge and, overall, the diversity of the market there! We were welcomed with open arms and will definitely look to further our presence at future events!"

The Metal Roofing Alliance's Renee Ramey was also enthusiastic about the event. "As a first-time attendee, I was blown away by the size of this year's FRSA show. Foot traffic was good and the attendees seemed eager to learn more about the products. From the MRA perspective, I was blown away by the number of companies promoting / installing



Stone-coated steel roofing pioneer DECRA has been exhibiting at FRSA for 31 years.

metal roofing. Florida roofers definitely understand the value of quality metal roofing as opposed to other roofing materials. Overall, I was very impressed and MRA will be exhibiting again next year for certain."

Chad Gillyard, Marketing Director for Roof-A-Cide, shared, "The FRSA 2024 Conference was a fantastic event that delivered an exceptional crowd this year. We were very pleased as we had great conversations with decision makers that

RoofersCoffeeShop Launches CoatingsCoffeeShop™ at FRSA

RoofersCoffeeShop®, a website where the industry meets for technology, information and everyday business, has announced a new website: CoatingsCoffeeShop™ [www.coatingscoffeeshop.com]. The new site will focus on all things related to roof coatings, including education, information, and community.

"For over twenty years RoofersCoffeeShop has offered one of the strongest online communities for roofing professionals," stated Heidi J. Ellsworth, RCS president. "Working with APOC, we are thrilled to launch CoatingsCoffeeShop.com for the coatings industry to have access to their own community. We also are proud to have the support of industry associations including the Roof Coatings Manufacturers Association (RCMA) and National Roofing Contractors Association (NRCA) and will share their information along with thought leadership from manufacturers, distributors and service providers daily."

In conjunction with APOC, leading coatings product and service providers will share information for coatings-focused contractors on new products, training, initiatives and services that



improve the industry. With a focus on providing education for the growth and success of coatings contractors, the site offers thought leadership for ongoing business success. ●



Crown Roof Tiles exhibited concrete roof tiles. The company's roof tiles are rated Class A per ASTM E108 Standards – the highest fire rating protection available.



Drexel Metals is a distributor of painted metal for the roofing, architectural and sheet metal industries.



The Foundation Auction is the primary fundraiser for the FRSA Educational & Research Foundation. Exhibitors, suppliers, members and other businesses and individuals donate products, services, gift baskets, vacations and gift certificates to help raise money for the Foundation.



There appears to be a growing interest in metal roofing systems in Florida.

you would not normally find at most shows.”

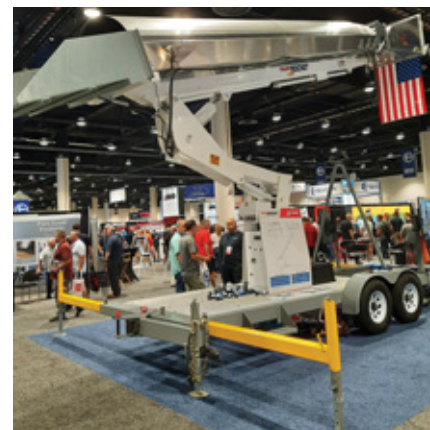
Jaron Proulx, National Accounts Manager at Triangle Fastener Corp, for which this event was its 29th straight appearance at the Expo, shared his excitement: “All of us here at Triangle Fastener know the importance of being part of this great industry event. This show has grown into a must-attend Expo not only for the Southeast, but for the entire country.

“We at TFC value our FRSA partnership and will continue to support their initiatives to strengthen and grow,” Proulx continued. “We are very excited that next year will be our 30th year participating ... mark your calendars and see you next year!”

FUTURE DATES

The dates have been set for the next three years, all to be held at the Gaylord Palms in Kissimmee: June 5-7, 2024; June 4-6, 2025; and June 10-12, 2026. The Friday morning exhibitors' meeting was standing room only. In fact, more than 200 companies have already signed on to exhibit at the 2024 Expo. Mark your calendars and save the dates for 2024. ●

Editor's Note: If you attended the 101st FRSA convention and sheet metal expo, I'd love to learn about what you took away from the event. Message me at karen@shieldwallmedia.com.



The Expo floor held solutions for just about every problem. The Trash Rocket patented roof-to-bin debris disposal system lands debris where it's supposed to go.

LEVERAGING NEW TECH

ROOF INSPECTION GETS AN AI UPGRADE

Manual rooftop and facade inspection methods are time-consuming, potentially hazardous, and often result in missed anomalies. Fortunately, advanced technologies now provide tools that eliminate these challenges and are more cost-effective. Drones with high-resolution cameras and sensors can easily access rooftops without human intervention. Using drones also significantly reduces the time needed for inspection, as drones can cover a large area quickly. For commercial properties, rather than manually walking and inspecting an entire roof with a considerable footprint, a drone can streamline the inspection process and accomplish a more effective inspection in a fraction of the time.

This efficiency translates to money saved on labor costs and reduced downtime. These are obvious benefits of drone technology for inspections, but today's advanced inspection capabilities bring even greater value. Drones themselves are just part of the advanced roof inspection toolkit. The drones capture high-resolution images of the entire roof with a level of detail that can detect even the slightest anomalies, which are difficult to detect using traditional methods. Where the technology opens up tremendous opportunities is with the data that can be derived from the images.

When this imagery is used with AI-enabled software, every square inch of a roof can be objectively cataloged for potential anomalies, providing a fully transparent assessment in min-

utes. Within a software platform like the one we created at Zeitview, each type of anomaly is overlaid on a two-dimensional orthomosaic map that fabricates a reproduction of the roof with enough accuracy to identify the exact location



Using drones equipped with thermal sensors allows customers to proactively find moisture under a roof membrane and potential areas of energy loss. PHOTO COURTESY OF ZEITVIEW.

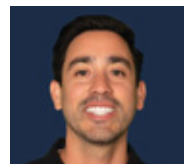
of the most minor signs of damage. The AI/ML technology can detect the most common and costly rooftop anomalies, including hail damage, water ponding, rust, debris, staining or discoloration, moss/algae, and deteriorated membrane. Measurements can also be derived so workers are not needed on the roof during an inspection.

Thermal analysis is another advanced technology that has developed into a vital tool for rooftop inspections. Using drones equipped with thermal sensors allows customers to proactively find moisture under a roof membrane and

potential areas of energy loss around the facade, enabling them to act before it spreads or results in total replacement. The thermal sensors allow the drone to detect the amount of heat radiating from the roof or facade, providing data that can be analyzed to determine areas of heat loss. When combined with AI-enabled software for analysis, the qualitative temperature data and visual reproduction can be used to triage sub-membrane roof anomalies so that a contractor knows where to focus attention.

AI/ML and thermal technologies make drones a crucial inspection tool and provide additional value for property managers when used for continued operations and maintenance. Drones have become increasingly more affordable at the baseline than they were even five years ago. The sensors and lenses that can outfit drones for specific purposes have followed the same pricing trajectory, making adoption into the roofing industry viable and even cost-effective compared to the hours and manpower needed for traditional inspection methods. Incredibly, this technology can already provide a more comprehensive evaluation of an entire building, including hard-to-reach areas. Moreover, innovations in flight automation continue to open more opportunities for drone use in the whole life-cycle of construction. ●

Jose Giraldo is the General Manager of Property Solutions at Zeitview (formerly DroneBase).



DRONE DATA

IOWA COMPANY LAUNCHES DRONE-ENHANCED ROOF ANALYSIS SOLUTION

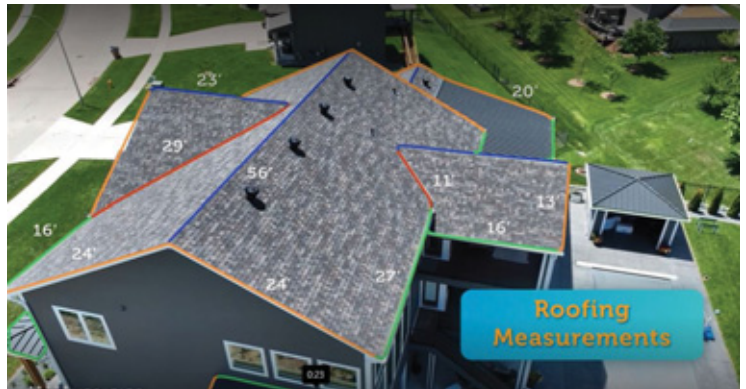
Verified Data Analytics (VDA) now offers its property assessment applications to contractors nationwide. In early 2022, the applications were awarded the Owens Corning Pinnacle Innovation Award.

Developed over the past three years, VDA Pro and VDA Drone collect data of the exterior elements, provide measurements of the roof, gutters, and downspouts, and help identify and document damage, defects, and maintenance requirements. Using algorithms and artificial intelligence, the solution combines the physical data collected via mobile phone application and drone footage to provide property owners, contractors and insurance companies with the measurements, documentation and reports needed.

“It is common knowledge that in construction, accuracy, consistency and time can impede the restoration process,” said Chandler Steffy with Verified Data Analytics. “By providing data-driven measurement and reporting, we’re giving everyone involved complete, accurate, indisputable information. The property owner can compare estimates, the contractor can professionalize their presentations, tighten supply ordering and if needed, provide documentation for a streamlined claims process. Everyone involved appreciates the transparency our system provides.”

“The depth and accuracy of the data and the quality of the presentation give property owners a high level of confidence in our ability to do the job right,” said Daniel Cowin, owner Daniel Cowin Construction who estimates he’s climbed more than 65,000 roofs in his career. “They can see we have nothing to hide and VDA eliminates the human error that’s always a concern with the traditional tape measure and note pad method of estimating.”

Following an Iowa hailstorm, property manager Keith Denner had a roofer inspect 70 buildings, including his own home. The roofer found damage on three buildings and Denner started the insurance claim process. While speaking to the adjusters, he



Verified Data Analytics provides accurate roof measurements and damage documentation. PHOTO COURTESY VDA.



learned that drone technology was being used to document claims and speed approvals.

“I called a contractor that utilized VDA, and they were able to identify and record damage on all 70 buildings,” recalled

Denner. “My insurance company approved every claim. I wouldn’t have known about the damage, or filed the rest of the claims, if it hadn’t been for the data and in-depth reporting. I know that the data provided by VDA played a major role in securing approvals for more than \$5 million in claims. I’ve shared this with my peers in the property management industry, because it’s a valuable service, everyone needs to know about.”

VDA Pro enables users to document properties by capturing images from the ground and record detailed documentation. VDA Drone autonomously controls the drone from take-off to landing and employs precise flight plans in direct correlation to the property address to generate 2-D and 3-D HD images of the property for review. The web portal integrates the data into a finished product.

“Ultimately VDA is designed to come along side our clients’ current processes and enhance their ability to provide professional, consistent documentation, reports and estimates,” said Steffy. “By repairing roofs in a timely fashion, clients can prevent further damage and ultimately save money.” ●

THERMOGRAPHY CERTIFIED

HOW TO TELL IF YOUR THERMOGRAPHER IS QUALIFIED

By Karen Knapstein

Thermal imaging can be an effective tool for evaluating a roof assembly for moisture and other damage. Not only can it save time and money, but it can also contribute to a more accurate roof assessment. However, the person doing the thermal imaging — whether that’s the roofer or someone that’s contracted — must understand the imaging technology, the roofing system, and building science in general.

Jeff Carrillo, owner of Structura View, a company that specializes in providing thermal evaluation services of commercial roofs and vertical assemblies, has a Level II Thermographer certification with a Registered Roof Observer (RRO) designation. He explains that certification courses provide the necessary foundational knowledge to learn “the technology and science about how it works so you can take the basic understanding of functionality and apply it to things in the real world.”

It’s never been easier to get access to thermal imaging equipment. But Carrillo says there are a lot of misconceptions about what thermography is. Therefore, when roofers are contracting out thermography services, it’s important that they work with someone who is qualified and reputable.

Knowing the right questions to ask will help roofing companies discern whether their thermographer is qualified. Carrillo begins, “Having a thermographer certification is a validation that they understand the science and principles behind thermography.” But thermography is just the beginning.

He continues with a list of desirable qualifications:

- Make sure they have general liability insurance.
- If they use drones, they should have a Remote Pilot Certificate from the FAA. Look into the background of the company: Ask for references. If [the roofer] can get a referral from a colleague from within the industry, it can be a good testament to

the thermographer’s capability.

- Ask for a sample report. A sample report will show how and if they can provide what’s needed.
- Give them the roof specs and have them ask questions. The questions they ask will indicate if they understand what’s needed.

Drones have had a significant impact on the field of thermography providing value in different ways compared to traditional

hand-held inspections. Carrillo explains that there are many service providers who know thermography and know drones, but don’t understand building science. Thermography is not a good fit in every situation. When interviewing prospective thermographers, he advises, “Ask questions that would require them to indicate whether they have knowledge of roof construction and the type of roof that [the roofer] needs help with. The responses will show if they understand what they’re doing. A modified bitumen roof with insulating concrete will be a much more challenging



Areas highlighted in blue are suspected to be wet.
PHOTO COURTESY OF STRUCTURA VIEW

survey than a modified bitumen roof with isoboard. And ask what other types of roofs and projects they’ve been involved in.”

Getting accurate thermal readings depends on timing and conditions. If a thermal scan is taken at the wrong time of day, anomalies can show up causing an inaccurate reading. Furthermore, it takes experience to learn to differentiate between the effect of moisture and the lack of insulation, a patch, a leak, debris buildup, ponding water, or other things that can show up on a thermal scan.

Being familiar with thermal imaging technology is just the beginning. The proper application and interpretation of that technology – including knowing under what circumstances it should be used – is critical. “You have to learn through time and experience,” Carrillo says. “The certification courses give you the foundational knowledge and know-how, and then you can begin learning through experience.” **RT**



RESIDENTIAL RESTORATION

100-YEAR-OLD HOME IN KNOXVILLE, TENNESSEE RESTORED

Enhancing this 100-year-old home while maintaining its original character was key for the Smith Roofing & Exteriors team! Upon removing the preexisting roof, the experts completed an evaluation. After assessing the situation, they determined the previous decking was insufficient, and a full overlay of solid decking was necessary to ensure a solid foundation for the new, lifetime metal roof system. When preparation concluded, a

beautiful, 26 gauge, Light Gray, DuraLock Standing Seam metal roof — manufactured by True Metal Supply — was installed.

The lapped, wood siding was then replaced with James Hardie Straight Edge Shake siding. Finally, in order to ensure the customer's desired aesthetic was achieved, the exterior was enhanced with Sherwin Williams' Toasty Brown color palette accents. ●



PROJECT OVERVIEW

LOCATION:

Knoxville, Tennessee

INSTALLER:

Smith Roofing & Exteriors,

Knoxville, Tennessee

<https://smithroofingservice.com/>

ROOF SIZE:

2500 sq. ft.

ROOFING PANELS:

True Metal Supply DuraLock

Standing Seam Metal Panels,

26 ga., Light Gray

COATING:

Sherwin Williams WeatherXL®

Coil Coatings

UNDERLAYMENT:

True Metal Supply True Synthetic

Underlayment (Marco Industries

Hydrashell)

FASTENERS: SFS

SEALANT: Atlas UltiBond

OTHER: James Hardie / Straight

Edge Shake Siding

TRUE METAL SUPPLY

Knoxville, Tennessee

www.truemetalsupply.com

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RE FALL 2023

CSI: The Good & Bad (Not Ugly)

Our Mid-Year Survey included questions about concerns and additions for the remainder of 2023. Some things remained constant across “All Respondents,” “Roofing Contractors” and “Metal Roofing Contractors,” “Other Roofing (Gutters)” and “Roofing Elements Subscribers,” but there were some interesting differences.

All groups listed three of the top five things being added in 2023 as the same. All were planning to add Support Employees, Construction Employees or New Products. The only real variation was that Roofing Contractors were less likely to be adding New Products (20% vs. 30-35%).

The remaining additions were similar with slight difference. Metal Forming Equipment, Manufacturing Equipment and Jobsite Equipment are similar and all represent some level of capital expenditure.

The remaining variation was that Roofing Elements Subscribers

also included Trucks in the top five and were the only roofing-related category to do so.

The Concerns were even more similar. Inflation, Interest Rates, Finding Employees and Cost of Materials were the top four. Roofing Elements was the one category with a difference in the fifth spot. Cost of Energy and Transport was fifth with 30%. Retaining Employees did not make the top five and placed seventh, after Banking Crisis or Instability.

Some nuggets looking at the data: Retaining Employees was listed as a concern by 26% of Roofing Elements Subscribers, significantly lower than all other categories.

All roofing categories were adding significantly more personnel than all respondents or the more general segments of contractors and builders.

One positive is that a Resurgence of COVID was essentially not a concern for any groups and was listed last across all categories. ●

TOP 5 ADDITIONS IN 2023

All Respondents		Roofing		Metal Roofing	
Employees - construction	33%	Employees (construction)	32.35%	Employees (support)	35.42%
Employees - support	33%	Employees (support)	26.47%	Employees (construction)	33.33%
New products or building types	30%	New products or building types	20.59%	New products or building types	33.33%
Manufacturing equipment	28%	Jobsite equipment	20.59%	Metal forming equipment	29.17%
Trucks	25%	Metal forming equipment	20.59%	Manufacturing equipment	29.17%
		Other Roofing (gutters)		Roofing Elements	
		Employees (support)	40%	Manufacturing equipment	34.78%
		Manufacturing equipment	35%	Employees (support)	30.43%
		New products or building types	30%	Jobsite equipment	30.43%
		Metal forming equipment	30%	Trucks	30.43%
		Employees (construction)	25%	New products or building types	26.09%

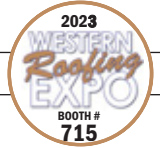
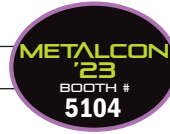
TOP 5 CONCERNS IN 2023

All Respondents		Roofing		Metal Roofing	
Inflation	59%	Inflation	61.76%	Inflation	60.42%
Interest rates	51%	Finding employees	58.82%	Finding employees	54.17%
Finding employees	49%	Interest rates	50%	Interest rates	52.08%
Cost of materials	45%	Cost of materials	47.06%	Cost of materials	47.92%
Retaining employees	32%	Retaining employees	35.29%	Retaining employees	31.25%
		Other Roofing (gutters)		Roofing Elements	
		Inflation	75%	Inflation	56.52%
		Finding employees	65%	Interest rates	47.83%
		Cost of materials	50%	Finding employees	43.48%
		Interest rates	50%	Cost of materials	39.13%
		Retaining employees	45%	Cost of energy and transportation	30.43%



Kirsch Building Products

METAL OF HONOR AWARDS: 2 ■ WEBSITE: www.sharkskinroof.com ■ PHONE: 877-742-7507



"In an eagle, there is all the wisdom of the world."

Lame Deer,
19th century Lakota leader

Eagle Feather Metal Roof Honors Native American Heritage & Culture

Kirsch Building products has a product for every roofing and wall barrier project. Sharkskin Ultra SA® was chosen as the roof and wall underlayment for Montana State University's American Indian Hall, which honors Native American cultures, beliefs, and traditions.

Of special note on the Bozeman, Montana campus building, which has been in the works since 2004, is the metal roof designed as an eagle feather.

Prior to the standing seam roof and metal wall panels being installed, Sharkskin Ultra SA® provided excellent protective qualities, which included long term UV resistance and excellent high wind uplift resistance.

The beautiful eagle feather metal roof detail was designed and specified to last. The roof is comprised of 22-ga. 70% PVDF-coated Galvalume panels that transition from Silver Metallic on the left end to Slate Gray as the middle tone to Dark Bronze on the right end. The Sharkskin Ultra SA® was selected as the roof underlayment beneath the multi-colored feather-shaped metal roof and metal wall panels, as it will provide long term moisture resistance.

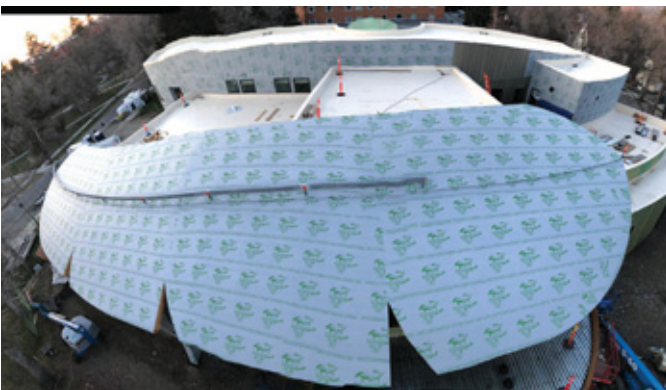
Beneath the standing seam metal roof and wall cladding, Sharkskin Ultra SA® is also providing high-temperature resistance.

In addition to benefitting the roofing system, Sharkskin Ultra SA® has benefits roofers will appreciate. Benefits include its excellent adhesion properties ... it will adhere to the roof and wall substrate, at 10° F and rising, without the need for "primer" which saves the roofer time = labor dollars.

Another important benefit: Sharkskin Ultra SA® is slip-resistant — even when wet — allowing for a safe walking surface no matter the conditions during installation.

Sharkskin Ultra SA® is designed to perform in the most challenging circumstances. It is Miami-Dade County, ICC-ES, Florida Building Code and Texas Department of Insurance approved. The high-performance underlayment also has no VOCs, contributes to LEED, and recyclable.

Kirsch Building Products offers a Sharkskin product for every roofing and wall barrier project. Visit www.sharkskin-roof.com today for more information.



Photos, top & middle: Montana State University & Chris Kamman (SkyLab Media House). Bottom: Zach Kilwein, Beartooth Metal Roofing.

Metal Roofing Manufacturer:
Sheffield Metals International, Sheffield, Ohio

Roofing Contractor: Zach Kilwein, Beartooth Metal Roofing, Billings, Montana