The Only Magazine Dedicated to the Effects of Weather and Climate on Roofing

# ROOFING ELEMENTS

METAL ROOFING MAGAZINE SPECIAL SECTION

www.roofingelementsmagazine.com

SPRING 2024
Vol. 4, Issue 1

# IRE 2024

## WHAT'S NEW & NOTEWORTHY

AN INTRO TO LIVING ROOF SYSYEMS

WHAT ROOFERS NEED TO KNOW ABOUT LIGHTNING PROTECTION

ARMA BULLETIN

ALGAE DISCOLORATION OF ASPHALT ROOFS

BY GARY REICHERT

# STEP BACK TO MOVE AHEAD

You may have noticed that most of our magazines do not include a publisher's letter. Shield Wall Media's magazines are about the subscribers and advertisers — not me or Shield Wall staff. My publisher letters typically announce new objectives or initiatives. This letter is somewhat different.

We launch new magazines as a section in an existing publication as Step One. Step Two is it is delivered as a separate magazine that we poly bag with the existing magazine; and finally the new magazine is registered with the US Postal Service as a publication and mails on its own. We have a benchmark number of subscriptions to transition from Step One and Step Two to the next step.

As a Business to Business free/requested publication we have two audiences: the subscriber and the advertiser. Roofing Elements moved from a section to a magazine based on the number of subscribers.

The reception by potential advertisers was not as warm as by subscribers. The advertising revenue did not support continuing printing a full magazine. We are scaling back Roofing Elements to a quarterly section in Metal Roofing.

The number of subscribers validates the audience for the editorial content. We will continue to explore advertising business models until we find a match for the audience.

No business or endeavor ever progresses according to plan in every aspect. Taking a step back allows us to continue delivering popular content while providing the time necessary to reconfigure the business model.

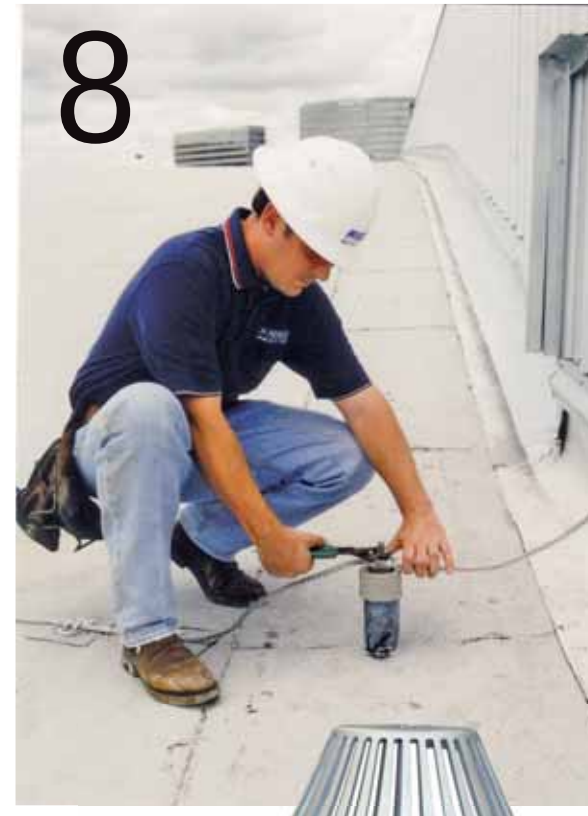
Thank you for your continued support to help Shield Wall Media continue growing our magazines, shows and data generation segments.

*— Gary Reichert, Publisher*

# CONTENTS

## FEATURES








***ON THE COVER: The International Roofing Expo was bustling with activity February 6-8 in Las Vegas.*** *Cover photo courtesy Informa Markets.*


***More than 15,000 roofing industry professionals attended the International Roofing Expo in Las Vegas.*** *Photo courtesy of Informa Markets*

# IRE 2024

## WHAT'S NEW & NOTEWORTHY AT NORTH AMERICA'S LARGEST ROOFING SHOW

By Roofing Elements Staff

***TRUFAST EasySeal™ Retrofit Roof Drain.*** *Photo courtesy of TRUFAST/ Altenloh, Brinck & Co.*

The International Roofing Expo (IRE), which was held in Las Vegas from February 6-8, saw 15,000 roofing industry professionals in attendance. Spanning more than 200,000 sq. ft. of exhibition and show floor educational space, the event hosted nearly 600 suppliers and manufacturers, with 167 companies making a debut appearance.

"This year's expo was nothing short of exceptional, exceeding our expectations in every way," states Rich Russo, Show Director of International Roofing Expo. "With packed exhibit halls, standing-room-only keynote sessions, and an overwhelming enthusiasm to learn and connect, IRE has solidified itself as the most impactful event in the roofing and exteriors industries."

In addition to the exhibition, IRE provided an extensive range of educational opportunities, offering more than 45 sessions on cutting-edge topics such as artificial intelligence, sustainable materials and solar energy, rebuilding and regulatory changes affecting the industry.


***Maze Nails promoted its zinc-diffused coil ring shank roofing nails at IRE 2024.*** *Photo courtesy of Maze Nails.*

***AkzoNobel's CERAM-A-STAR® Select Frost.*** *Photo courtesy of Graber Post.*

IRE 2024 also embraced inclusivity and diversity throughout the event. To ensure a welcoming environment for Hispanic contractors, initiatives such as bilingual signage, staff and dedicated information kiosks were implemented.

## WHAT'S NEW

Many new products were debuted at the Las Vegas event. Here are just a few of them ...

"Just getting back from the IRE show in Vegas and it was a great show!" enthuses Lisa Martin, Marketing Director, Maze Nails. "The new item we are promoting is our zinc-diffused coil ring shank roofing nails. The same great Double Hot-Dipped coating but the zinc is heated to smooth out the zinc-coating allowing the nails to run smoother through pneumatic roofing guns. We also were promoting our Copper Slating & Flashing Nails which drew quite a few attendees into the booth. Overall, this was a great show to promote our American-made roofing nails and connect with our current customers and vendors."


***Combilift exhibited its Combi CB6000 multidirectional forklift at IRE 2024. The multi-directional capability can increase the storage density of a customer's site by up to 50%.*** *Photo courtesy of Combilift.*

Combilift showcased its Combi CB6000 multidirectional forklift. The Combi-CB is more compact than a conventional forklift and can be used as both a side loader as well as a counterbalance truck, which can increase the storage density of a customer's site by up to 50%. "It is the perfect solution for anyone who needs to carry long loads through narrow doorways or racking in sideway mode, or for block stacking products in counterbalance mode, making operations much safer and more efficient," says Maria Sanchez, Marketing Team Combilift. "The multidirectional concept was conceived when a customer wanted to take long lengths of steel straight from inside production to trucks and outside racking without double handling or damaging products, while keeping the product at a safe driving height. This multidirectional feature is especially beneficial for applications involving metal roofing and siding materials since these can often be awkward and bulky loads to handle, as they come in different shapes, sizes, and weights."

AkzoNobel presented several products that are set to enhance the metal coating industry. One such highlight is the introduction of CERAM-A-STAR® Select Frost standard color program, which is designed to support coil coaters, service centers, distributors, OEMs, and regional roll formers. These programs aim to improve product availability, minimize

***Unified Steel's Pine-Crest Shake in Stirling Gray.*** *Photo courtesy of Westlake Royal™ Roofing Components.*

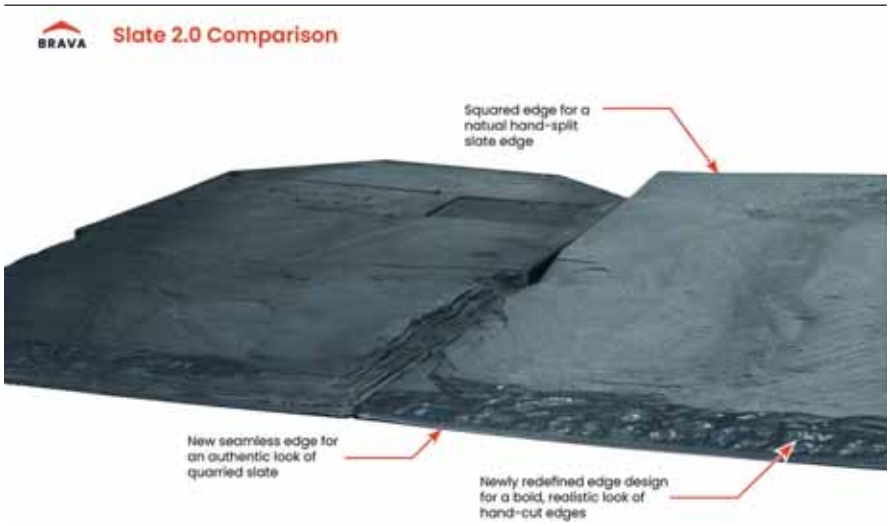
inventory expenses, reduce lead times, and ensure consistent color volume for maximum impact.

AkzoNobel also unveiled the Canopy App for Android at IRE 2024. The mobile app is a tool for accessing metal coating product information. It includes features such as 3D visualization and simplifies the color selection process, offering users the ability to search through the product database. The app also provides tools like calculators and a document library, contributing to a streamlined and efficient customer experience.

Westlake Royal Roofing Solutions launched two products at IRE 2024. The first was the Unified Steel™ Material List Generator, an interactive tool that auto-generates a roofing product list[1], which simplifies the estimating process for both Unified Steel Stone Coated Roofing and Westlake Royal™ Roofing Components. "The Material List Generator integrates seamlessly with roof measurements acquired traditionally or through 3D and geospatial measurement generating software solutions," explained Ann Iten, Director of Marketing for Westlake Royal Roofing Solutions. "There is also no cost to builders and contractors who use it."

The company also unveiled its new Unified Steel Cool Roof Colors, two hues rated by the Cool Roof Rating Council (CRRC), at IRE. "Each color provides high solar reflectivity and high thermal emittance when solar energy hits the roof surface, detracting sunlight and radiating heat off the roof surface. The colors exceed California Energy Code (CEC) Title 24 Part 6 Cool Roof Requirements and, with a Solar Reflective Index (SRI) greater than 20, also meet Los Angeles County's more stringent SRI requirements. The new colors, Harborwood™ and Stirling Gray™, are offered in both Pine-Crest Shake and Pacific Tile® profiles."

Additionally, Westlake said it has expanded its capacity to manufacture Newpoint™ Concrete Roof Tile in Florida, which is a strong market for this product and one that has struggled in the past to meet customer demand. The added capacity and various production improvements are all coming online in Q1 of this year.




***Brava has updated several colors across its slate, shake, and Spanish product lines. It also debuted its updated Slate Roof Tile profile.*** *Photo courtesy of Brava.*

***Huntsman Building Solutions unveiled its Ultralok closed cell spray polyurethane foam.*** *Photo courtesy of Huntsman Building Solutions.*

PABCO Roofing Products showcased its Prestige shingle line, which was recently certified with a UL 2218 Class 4 impact rating, the highest rating possible for impact resistance. "Achieving UL 2218 Class 4 impact-resistance for our Prestige roofing shingles demonstrates the exceptional quality of our product and our manufacturing processes," said Gerry Kilian, Director, Sales and Marketing, PABCO Roofing Products.

TRUFAST offered roofing industry professionals an up-close look at its latest product innovations, including the EasySeal™ Retrofit Roof Drain, which features a unique mechanical seal and custom tool. Unlike other retrofit drains, EasySeal doesn't have a sealant tape or multiple screws that can only be accessed with a long screwdriver. Every EasySeal drain comes with a special tool to tighten the drain into place, so contractors will always have the right tool for the job.

"At TRUFAST, we have long prided ourselves in advancing the industry with fastening solutions for every surface. IRE is a perfect venue for connecting with customers and demonstrating our commitment to solving their challenges," said Derek Fielding, VP strategic marketing, Altenloh, Brinck & Co. US, Inc. "We're excited to showcase some of our latest innovations, including product offerings that have evolved beyond

mechanical fasteners."

Brava Roof Tile and Aspire Pavers both had products news to share. Aspire Pavers showcased its new 16" x 16" composite pavers, which offer a larger format paver option for faster installation. The brand also showed the recently launched Designer Series Color Collections including nine new paver colors in three color families. "We were also thrilled to debut Brava's updated Slate Roof Tile profile at the show; this is an upgrade to our existing composite slate roofing solution that features a brand-new redesigned edge." Brava has also updated several colors across its Shake, Slate, and Spanish product lines to fit modern trends and better ensure consistent color.

Huntsman Building Solutions unveiled its Ultralok closed cell spray polyurethane foam, an all-new spray foam roofing system. It is a one-step, 2.8-pound solution designed to deliver a high-performance, fully adhered roofing system that insulates, waterproofs and protects over a variety of roof deck substrates. "Ultralok creates a monolithic membrane, eliminating the need for mechanical fasteners, and is ideal for low-slope roofing applications in new and retrofit construction." The product is manufactured using recycled plastic water bottle waste and boasts the incredibly low Global Warming Potential (GWP) value of 1.


***Tapered insulation systems give roofing contractors the ability to create slope in any direction to control the flow of water and direct it toward drainage devices.*** *Photo courtesy of PIMA, www.polyiso.org*

***IKO's Armourshake in Weathered Stone.*** *Photo courtesy of IKO.*

IKO debuted its premium Armourshake Designer roofing shingles, which are designed for upscale homes and have a Class 3 Impact Resistance rating2, potentially reducing home insurance premiums. They're crafted with two laminated fiberglass mats for durability and dimensional thickness. The new shingles are available in four color blends: Chalet Wood, Greystone, Weathered Stone and Shadow Black (also available in Class 4 Impact Resistance rating[2]). Features like algae resistance, UV-protective granules and a strong bonding sealant provide added longevity and performance.

## CHANGING PERSPECTIVES

Polyisocyanurate Insulation Manufacturers Association (PIMA) had a strong presence at the show. Organization president Justin Koscher said that there's a growing interest among contractors to understand tapered insulation systems and how they can be a benefit on existing buildings. Those benefits include design flexibility and the means to correct roof deficiencies. For example, if a roof is experiencing ponding water, tapered insulation is an excellent option to correct the slope of the roof and manage the water flow.

"One thing we see as PIMA is the accelerating momentum in improving building performance," he said. Performance has been noticeable on the new construction side for some time, and people are now increasingly aware of the need to improve existing buildings to operate more efficiently.

"Roof replacements are most common alteration on commercial buildings," he explains. It's not always the best way to think about a roof only when it's leaking. PIMA is trying to help change the way commercial building owners view their roofs. On a typical commercial building, when the roof is replaced with an energy-efficient system, the building performance improves and the energy savings start immediately. "It's a huge opportunity for building owners. Hopefully we're changing the perspective of a roof being an asset rather than a headache."

## CONCLUSION

The overwhelming consensus from exhibitors polled is that IRE 2024 was a resounding success. Looking ahead, International Roofing Expo 2025 will take place at the Henry B. Gonzalez Convention Center in San Antonio, Texas, from February 19-21, 2025. ●

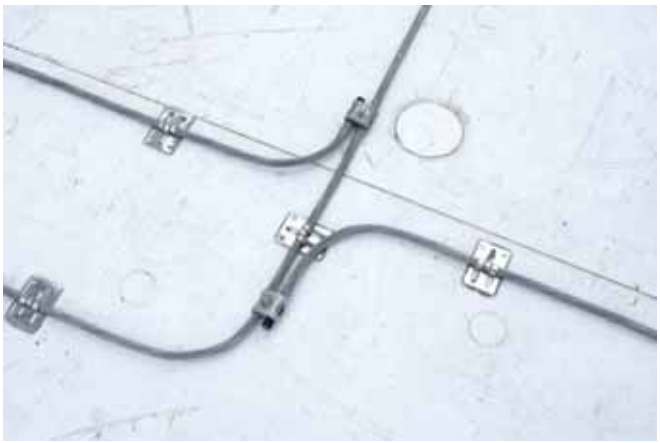
[1]*The statements made herein are subject to the Legal Disclaimer outlined on the Material List Generator website.*

[2]*This impact rating is solely for the purpose of enabling residential property owners to obtain a reduction in their residential insurance premium, if available. It is not to be construed as any type of express or implied warranty or guarantee of the impact performance against hail, of this shingle by the manufacturer, supplier or installer. Damage from hail is not covered under the limited warranty. For further details concerning the FM 4473 standards, visit the FM Approvals website.*

# ROOFERS & LIGHTNING

## INSTALLING, DISCONNECTING LIGHTNING PROTECTION A JOB BETTER LEFT TO SPECIALISTS

By Jennifer Morgan, Director, East Coast Lightning Equipment Inc.



***Lightning protection standards contain specific requirements for conductor coursings, fastener placement and interconnection methods for joining conductors and building systems.*** *Photos courtesy of East Coast Lightning Equipment, Inc.*

***Rooftop lightning protection components correctly installed along the inside of the parapet.***

Roofers deal with new challenges on every job. Installing a watertight roofing system requires attention to every detail from exhaust penetrations and skylights to snow retention and gutters.

No matter how good you are at providing your customers with a watertight roofing — or re-roofing — system, installing, connecting and/or disconnecting a lightning protection system is a task better left to specialists.

The greater part of any lightning protection system is actually installed below roof level, requiring plenty of cooperation and communication between those installing the roof, those installing rooftop equipment and the lightning protection systems contractor. Various components of lightning protection systems are installed before, during and after the roof installation, meaning everyone should be included in the project schedule. Lightning protection system installers are often times one of the first and last trades on the jobsite.

As with all other aspects of erecting a building there are guidelines and standards that must be followed. Installing a lightning protection system is no different. The National Fire Protection Association (NFPA) publishes a document governing lightning protection systems: NFPA 780, which is more than 100 pages. It provides lightning protection system installation requirements to safeguard people and property from the risk of fire and related hazards associated with lightning strikes and has specific requirements for the placement of fasteners, air terminals, conductors and grounding systems.

Those who install metal roofing will be familiar — or should be familiar — with problems caused by the use of dissimilar metals. It's important to know what metal materials you're working with to prevent galvanic corrosion. This is especially true for lightning protection systems, which utilize components constructed from either copper, aluminum or

*Lightning protection conductors must be securely fastened and bends must be gradual to ensure that the lightning current can travel easily within the lightning protection system.*

*A neatly installed, standard-compliant lightning protection system roof network.*

*Re-installing a lightning protection system requires special attention and the knowledge of a certified installer. After completing some roofing work on this project, this system is reinstalled correctly: the conductors are straight, no sharp bends in the coil and it's fastened correctly.*

some combination of both metals. When dissimilar metals come into contact with electrolytes, including condensation, rainwater or other sources such as oil, dirt and airborne particles, it can produce an electrochemical reaction, leading to the corrosion of one or more metals. This can produce staining or even degrade the integrity of the metal itself.

The Lightning Protection Institute (LPI) promotes lightning protection education, awareness and safety, including certifying the installation of lightning protection systems. Underwriters Laboratories (UL) oversees product testing for lightning protection

*This is a properly installed lightning protection system through-roof penetration.*

*An installer correctly connects and fastens a lightning protection system in this through-roof application.*

material components in the factory prior to shipment for listing and labeling. UL Standard 96 addresses the minimum requirements for construction of air terminals, cable conductors, fittings, connectors and fasteners used in lightning protection systems.

UL visits the East Coast Lightning Equipment manufacturing facility and other production plants quarterly to verify continued compliance.

Since lightning protection systems fall outside the scope of what is typically inspected by local officials, it is common for project specifications to call for a third-party field inspection and certification of the lightning protection system. These field inspections of completed installations can be arranged by the Lightning Protection Institute — Inspection Program (LPI-IP) through certified installing contractors.

*All sorts of problems become possible when lightning protection cables are not properly fastened.*

*Anyone working with a lightning protection system must be aware of the problems caused by the contact of dissimilar metals, like copper components on an aluminum air conditioning unit.*

*This lightning protection system was apparently "re-installed" after some roofing work, but it was not installed correctly as the cables are not fastened to the roof and the air terminals are incorrectly located.*

Needless to say, requirements and standards are stringent and necessitate a specific knowledge to install, uninstall or work around a lightning protection system if you want the system to meet standards. Anyone working on the roof also must be sure not to inadvertently disconnect the lightning protection system, possibly rendering the system nonfunctional or voiding the third-party inspection. ●

# TECH REPORT

## ALGAE DISCOLORATION OF ROOFS

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.*

For many years, roof discoloration caused by algae has been observed throughout the United States and Canada. The discoloration usually has a brown to black appearance, and may be mistaken for fungus growth, soot, dirt, moss, or tree droppings.

*Gloeocapsa magma* is probably the most prevalent of several algae species that contribute to discoloration. All species are transported through the air, and tend to collect and grow upon roofing structures. Natural pigments produced by these algae may cause a white or light colored roof to gradually turn dark brown or black. Discoloration may appear as uniform discolorations or streaks. The algae discolorations should not be confused with moss or tree droppings, which typically produce only localized discolorations.

This type of roof discoloration has been most widespread in the Gulf States and along the Northwest and Eastern Seaboards. It is not, however, confined exclusively to these regions. Algae growth occurs to varying degrees in all regions of the country, especially those subjected to warm, humid conditions. It should be noted that almost all types of roofing systems are susceptible to algae discoloration. It is, of course, most readily visible upon light colored roofs, while it is not so visible upon darker shades of roofing.

Algae discolorations are difficult to remove from roofing surfaces, but may be lightened by applying a solution of liquid household chlorine bleach (sodium hypochlorite) and water. Directions for mixing solutions of these ingredients may vary among shingle manufacturers and depend on the amount of discoloration. A typical solution should be one part chlorine bleach and one part water. Other cleaning chemicals or methods should not be used without approval of the shingle manufacturer.

First, gently disperse this solution on the roofing surface. Use normal precautions for handling bleach including eye protection and rubber gloves. Be sure to apply it carefully to avoid damage to other parts of the building and the surrounding landscape. Avoid scrubbing the surface, as this friction may loosen and remove granules. If possible, always work from a ladder and/or walkboards to avoid direct contact with the roof surface. Observe all possible safety precautions when working on or near the roof. The solution should be left on the roof for at least 15 minutes but for no more than 20 minutes. Finally, rinse the solution from the roof by gently spraying the surface with water. Be warned that this solution application and rinse process will make the roof surface slippery and potentially hazardous to walk on during treatment.

The effectiveness of a cleaning technique is only temporary, and discoloration will likely reoccur. However, several types of algae resistant roofing products have been developed and are now commercially available. These asphalt roofing products are specifically designed to inhibit algae growth for extended periods of time.

***Caution!*** High pressure washing systems are likely to damage asphalt roofing and should not be used on asphalt roofing for removing algae or for any other purpose. ●

*Gaco's GacoFlex LM60 has waterproofed millions of square feet of horizontal and vertical surfaces on some of the most sophisticated and aesthetically demanding structures. GacoFlex LM60 is a cold-applied, one-coat, monolithic waterproofing membrane for various surfaces, including the underlayment for vegetative roofs. A 100% polyurethane, solvent-free, liquid-applied, two-component coating, GacoFlex LM60 requires a single application with a squeegee, trowel, spray or brush. Since the LM60 polyurethane waterproof coating is NSF P151 Certified, it is safe for biodiversity and won't impart contaminants into the water draining from a garden roof.* Photo courtesy of Gaco

# GREEN ROOFS

## A CLOSER LOOK AT VEGETATIVE ROOF SYSTEMS

BY JACOB PRATER

A vegetative roof can be a beautiful thing, but it might seem like an unwanted headache without some context. Certainly, building owners might like the look, but there are more reasons that a vegetative roof can be a beneficial thing. Most of the benefits of vegetative roofs center on water and cooling costs with some ancillary benefits to the surroundings such as evaporative cooling of the air. Let's dig in a bit!

Vegetative roofs intercept rainwater that would otherwise hit a hot (likely) roof surface and runoff either to the area around a building or to a gutter and probably over a parking lot or road to a storm drain. Within this sort of landscape where there might be concrete, asphalt, and storm drains, there is an ever-growing issue dealing with stormwater. Vegetative roofs present an option to slow that water down (reducing peak flows and flooding) and divert some of it to plant uptake and transpiration (water the plant uses that goes back into the atmosphere). So, in that context where there are a lot of impervious surfaces a vegetative roof can help quite a bit with reducing flooding and total stormwater.

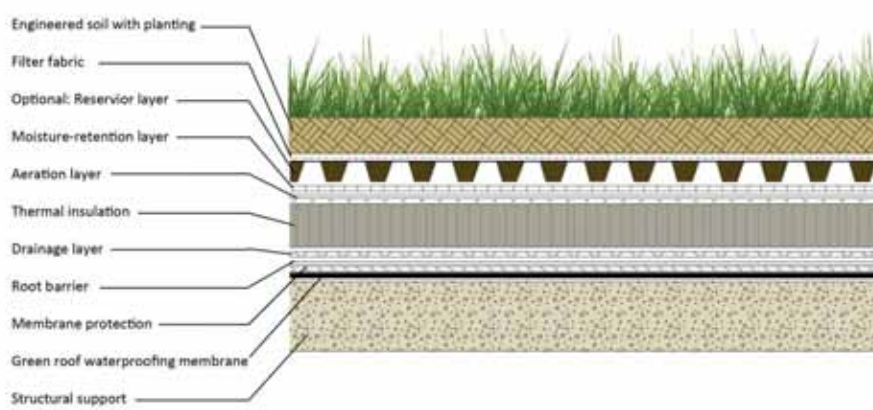
Cooling costs of buildings are going up as energy costs rise and a vegetative roof can help here as well. The vegetative roof soil material acts as an insulating blanket and, more than that, the water retained and used by plants is going to contribute to evaporative cooling of the roof top. These things together can reduce overall cooling costs and potentially heating costs due to the insulating factor of the vegetative roof in the winter.

With all those benefits: pretty, hydrology, cooling cost; why not put these everywhere? Well, at the beginning I suggested that vegetative roofs might seem like a headache, but let's call them a *challenge* instead. If you want to do this

for any of the aforementioned reasons, then you should keep several things in mind: water, load, and plants.

Most roofs are designed to shed water as fast as possible. That is not what a vegetative roof does. Instead, it is designed to retain some water. Given this retention of water, it becomes very important that the roof does not leak and is water-tight. This is very different from a standard metal or asphalt shingle roof. Those standard roofs are water-tight so long as the water moves downward off of them. Even a flat rubber membrane roof is going to have drains to rapidly decrease the amount of water on the roof. So, with a vegetative roof we are going to be leery of leaks and we have to use different materials and techniques for construction. Also, water is heavy which leads to the next consideration: load.

Not only is water heavy, but we are going to have soil on the roof, too! How much does soil weigh? Your standard topsoil is going to be about 2 million pounds for an acre of it 6" deep (that got drilled into me in introductory soil science so I am sharing it). And that is dry weight! Basically, this amounts to about 92 lbs. per cubic foot of dry soil. That soil wet can pick up 20-30 lbs. per cubic foot making this wet soil potentially as much as 120+ lbs. per cubic foot! That's going to quickly exceed the standard for a residential roof at 20 lbs. per square foot for a load rating. Even the top end of 100 lbs. per square foot on residential is going to be exceeded and we didn't even add any snow! There is good news here though. You don't have to use regular topsoil and I would argue that you shouldn't even if you wanted to build out the structure to handle it. Instead, there are lighter materials and engineered green roof soils that use things like peat, perlite, and other fluffy materials that will support plant growth and retain some moisture without being so heavy on their own. These engineered vegetative roof soils can reduce the weight by about 50%. Even so you will need to build to handle a much larger load than normal. And we didn't even touch on securing that load… Flat roofs are easier, but there are ways to secure vegetative roofs on sloping surfaces too.




The last thing to keep in mind is the plants. Previously I wrote an article about elements that degrade an asphalt shingle roof, and now here I am writing an article about vegetative roofs where you are going to do the exact opposite. If you read that previous article (in Roofing Elements, Fall, 2022), the basic premise was that you wanted to shed water, keep the roof clear of debris, and kill anything that might grow on the roof. Well, we are doing the exact opposite now ... but I digress. Plant roots explore and expand cracks and break stuff. We mow landfill caps so that tree and shrub roots won't penetrate the cover of the landfill. Herbaceous plants may not be as aggressive as shrubs and trees, but they will try to do the same so we have to control those roots and at the same time give them what they need to grow or else we won't have the vegetation on the vegetative roof. For this reason a root barrier is part of the design of a vegetative roof.

***High Line in New York City.*** *Photo courtesy Holcim/ZinCo.*

Building a vegetative roof has challenges, but those challenges can be overcome. Here's how: Building codes still apply so check those out for load bearing requirements. This is especially important if there is to be open public access to the vegetative roof as a green space or public garden.

Let's stay on the simpler side for now and focus on a private property scenario. In this case, as mentioned above, you need to have an idea of the load on the roof. And this includes the soil material, water, plants, and potential snow. The plants and amount of soil material or growing media go together. Plants that need more moisture and root deeper will need a deeper rooting depth and thus more soil; the opposite is also true. Depending on the climate and ability to "over-build" for a large load, one could opt for something that looks more like a xeriscape or desert-type environment that can still be quite green and vegetated, but won't require much soil and can handle extended dry periods without irrigation (yes, some people irrigate green roofs; no, I don't think it's a great idea because it seems to defeat the purpose). Building a green roof to have 6" of growing media and plants would likely require your design to be able to handle an additional load of 50-60 lbs. per square foot above the regular load requirements (including potential snow load).

There is another factor yet that must be considered and that is wind. If you have an appreciable amount of plant

material or taller plants on this roof then there is going to be significantly larger windshear forces on the roof as compared to regular roofing materials. The good news is that failure is mostly going to be loss of the plants, but this should still be considered. If you are in an area with lots of wind or intense wind, I would consider shorter plants. Additionally, the plants themselves are their own anchoring system and depending on their rooting density and development they will be able to handle stronger winds. In the event that you have very well-established tall plants, it may be important for there to be ballast (usually rocks or gravel) as part of the green roof system. Because the plants act like a sail, you may need additional weight to hold the roof system down. This ballast does add weight and must be considered in the load requirements. If there will be a large green roof area and/or taller plants, it is quite reasonable to consider having a wall (or parapet) around the outside edge to block most of the wind. This might be desirable anyway as a railing of sorts if people are going to regularly access the vegetative roof. Design parameters for handling wind are based on risk or probability that a particular intensity of wind event happens in a particular time frame. These and other wind design factors can be found at ANSI_SPRI-RP-14-2016-Wind-Design-Standard-for-Vegetative-Roofing-Systems.pdf and elsewhere.

The load requirements make retrofits pretty tricky as it might be difficult to add to an existing structure in order to handle the additional load of a vegetative roof. This has gone poorly in some cases that I have seen where people simply started adding green roof elements (essentially large trays of plants) over an existing rubber membrane roof topped with gravel. You might get away with a little bit of this, but if significant loads are added to the non-engineered un-reinforced roof, given enough time, problems will develop.

Is this all rather daunting? You bet. Consultation with a vegetative roof organization and/or training is probably a good idea. There are a lot of helpful websites with information on how to start, as well as design considerations. Accessing these materials will help you determine whether a green roof fits a building, location, and client's budget. Alternatively, you could massively over-build and use some of the modular vegetative roof products to accomplish your goals (I would still investigate all the information I could and set myself up for success). Either way, you should be cognizant of local building codes and requirements for vegetative roof installations and retrofits. ●

**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.*

***Western Specialty Contractors workers installing new Hydropack roof garden system.*** *Photo courtesy of Western Specialty Contractors.*

# MINISTRY HQ GETS NEW ROOF GARDEN

Western Specialty Contractors–Peoria, IL, Branch was part of the team that painstakingly transformed a seven-story historic building in downtown Peoria, Illinois, into OSF HealthCare's new Ministry Headquarters.

Western replaced the building's old roof with a low-maintenance roof garden system designed to alleviate stormwater runoff, extend the life of the roof, and add aesthetic value.

The building for OSF HealthCare's new Ministry Headquarters, located at the corner of Adams and Fulton Streets, was originally constructed in 1904 for the Schipper & Block department store, which later became Block & Kuhl. Most recently owned by Caterpillar, the building along with the Peoria Professional Building and an adjacent parking lot were donated to OSF HealthCare in January 2018. The building had been slated for demolition and was in various stages of disrepair.

The building's $150 million, four-year restoration, with two years occurring during the global pandemic, was completed in January 2021 and consolidates 500 OSF HealthCare employees sharing 275,000 square feet of historically restored space. (OSF HealthCare is an integrated health system owned and operated by The Sisters of the Third Order of St. Francis, Peoria, Illinois.)

***Hydropack roof garden system.*** *Photo courtesy of Western Specialty Contractors.*

## HOLCIM ACQUIRES ZINCO TO ADVANCE GREEN ROOFING SYSTEMS

Holcim has acquired ZinCo, a leader in advanced green roofing systems based in Germany with global operations across Europe, Asia and the Americas. With its integrated green and solar roofing systems Zinco is expandingHolcim's specification selling approach. Working with partners across the value chain, ZinCo's tailored solutions are able to bring more nature into cities, improving urban wellbeing from reducing heat island effects to improving air quality.

ZinCo's roofing expertise, from urban farming to stormwater management and biodiversity, is complementary to Holcim's existing roofing business and its overall mission to lead the transition to sustainable building. ZinCo, which willretain its brand name post-acquisition, has provided sustainable roofing solutions for a wide variety of projects, including the High Line in New York City and the Stavros Niarchos Foundation Cultural Center in Athens.

With this acquisition, Holcim is advancing its goal of expanding its Solutions & Products business to 30% of Group netsales by 2025, entering the most attractive segments of construction, from roofing systems to insulation and renovation. ●

The project general contractor CORE Construction hired Western's Peoria branch to replace the building's existing roof with a vegetative roof system and IPE wood patio pavers specified by Dewberry Architects.

Western started the project by removing the building's existing modified roof and flashings down to the deck. During the roof's removal, it was discovered that the cementitious topping on the existing terra cotta roof was crumbling and unusable. Western was instructed to remove all the topping on the 13,000-sq.-ft. main roof and temp it to prevent water intrusion into the interior finishings nearing completion on the seven floors below.

Western crews then installed a vapor barrier of R-30 Polyiso insulation and Carlisle SynTec 115 mil Fleece-back EPDM membrane, all set in a low-rise adhesive, then fabricated and installed new copings, counterflashing and soffits at the canopies.

Western then installed 3,000 sq. ft. of IPE wood patio pavers on the roof, plus a 4,800-sq.-ft. Hydropack Roof Garden System manufactured by Carlisle which consisted of modules of pre-planted and established Sedums — a perennial plant (commonly known as stonecrops) with succulent green foliage, shallow roots and clusters of star-shaped flowers that bloom from midsummer to fall. The easy-to-grow and hardy foliage is a favorite of pollinators and ideally suited for green roofs.

The Hydropack modules are pre-grown for at least a year prior to shipment, providing a fully vegetated product with a two-week lead time for standard plant mixes. The modules are shipped on a flatbed truck containing up to 3,100 sq. ft. of product and arrive on pallets that are easy for the contractor to handle and raise to the roof.

Hydropack Roof Garden Systems have several benefits, which include:

**Stormwater Management**: Roof gardens help to alleviate stormwater runoff through absorption and retention of precipitation. The Hydropack system is designed to maximize stormwater retention using an intelligent reservoir system. The reservoirs contain expanded aggregates that allow wicking of stored stormwater to the plants' root systems.

**Extends Roof Life:** Hydropack modules protect roof membranes from ultraviolet radiation, extreme temperature fluctuations, punctures, and other physical damage which can improve the long-term performance of the roofing system.

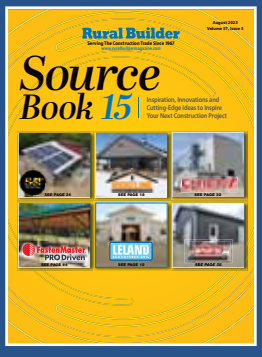
**Adds Aesthetic Value**: Hydropack Roof Garden systems provide visually pleasing landscapes in urban environments and add value by converting unused rooftops into amenity space for building occupants and wildlife.

**Low Maintenance**: Low-maintenance Hydropack modules arrive at the jobsite fully vegetated with established plantings. Maintenance requirements vary based on the system installed.

To complete the roof project, Western installed cold applied waterproofing on the roof's elevated sidewalk, followed by a pedestrian deck coating in the roof's penthouse and carbon fiber on its interior beams. ●

# SUBSCRIBE NOW!










***Shield Wall Media brands are dedicated to serving the information needs of construction professionals.***

**SCAN TO SUBSCRIBE**

**SUBSCRIBE ONLINE**: shieldwallmedia.com/subscribe or fill out & mail form below.

FRAMEBUILDING NEWS · METAL ROOFING MAGAZINE · Rural Builder · Rollforming Magazine · GARAGE · SHED · CARPORT BUILDER · ROOFING ELEMENTS · Metal Builder

## FREE 3-YEAR SUBSCRIPTIONS!

**1.** Please check one or more boxes, sign & date:

**I wish to receive:** ❑ **Metal Roofing** ❑ **Garage, Shed & Carport Builder** ❑ **Metal Builder** ❑ **Rural Builder** ❑ **Frame Building News** ❑ **Rollforming** ❑ **Roofing Elements**

Signature (REQUIRED): _____ Date: _____

Print Name: _____

Company: _____

Address: _____

City/State/Zip: _____

Phone or Email (REQUIRED): _____

❑ Check this box if you wish to receive the email newsletter associated with the magazine subscription(s) above.

I would like to receive my subscription:
❑ By Mail
❑ Digitally

SWM2024

**2.** Choose which title applies:
- ❑ President/Vice President
- ❑ Principle/Shareholder
- ❑ Sales Manager or Rep
- ❑ Foreman/Crew Manager
- ❑ Engineer/Architect
- ❑ Other:_____

**3.** Describe your business:
- ❑ Builder/Contractor
- ❑ Dealer/Distributor
- ❑ Manufacturer
- ❑ Engineer/Architect
- ❑ Other:_____

**4.** Please check all of the types of building or manufacturing you are involved with:

- ❑ Post Frame
- ❑ Metal Frame
- ❑ Fabric
- ❑ Agricultural
- ❑ Residential
- ❑ Commercial
- ❑ Equine
- ❑ Roofing
- ❑ Metal Roofing
- ❑ Trusses/Columns
- ❑ Foundations
- ❑ Gutters/Snow Retention
- ❑ Rollforming
- ❑ Trim & Flashings
- ❑ Insulation/ Moisture Control

SHIELD WALL MEDIA LLC

**MAIL TO:**
**Shield Wall Media**
**ATTN: Barb Prill**
**PO Box 255, Iola, WI 54945**