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METAL architecture

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Building into a Season of Inspiration

This time of year always seems to bring a renewed appreciation for the places we inhabit and the landscapes that surround us.

One of the highlights of June was spending a few days at the AIA Conference. There is something uniquely energizing about walking the floor, catching up with familiar faces, and hearing about the projects and ideas that are inspiring people right now. Thank you to everyone who took the time to say hello—we always enjoy those conversations.

Speaking of inspiration, one thing that struck me while looking at this year's *Metal Architecture* Design Award winners was how many projects seemed to draw directly from their surroundings. Through bold geometry, carefully selected finishes, and colors inspired by local materials and landscapes, designers used metal to create buildings that feel intrinsically tied to the places they call home.

I love seeing the variety of ways in which this comes to life. Some projects incorporated angles and forms reminiscent of mountains, rock formations, or the natural contours of the landscape. Others relied on coatings and textures that echoed the colors and character of their region. The result wasn't architecture that stood apart from its setting but *belonged* to it.

That ability to balance performance with expression is one of the things that makes metal such a remarkable material. It gives architects the freedom to create buildings that are not only durable and efficient, but also deeply connected to their environment and the people who experience them.

As summer unfolds, I hope you have the chance to slow down, travel, and perhaps find inspiration in the places around you. Sometimes the best ideas are hidden in plain sight.

Thanks, as always, for reading. MA

Melanie Kowal

Melanie Kowal
EXECUTIVE PUBLISHER

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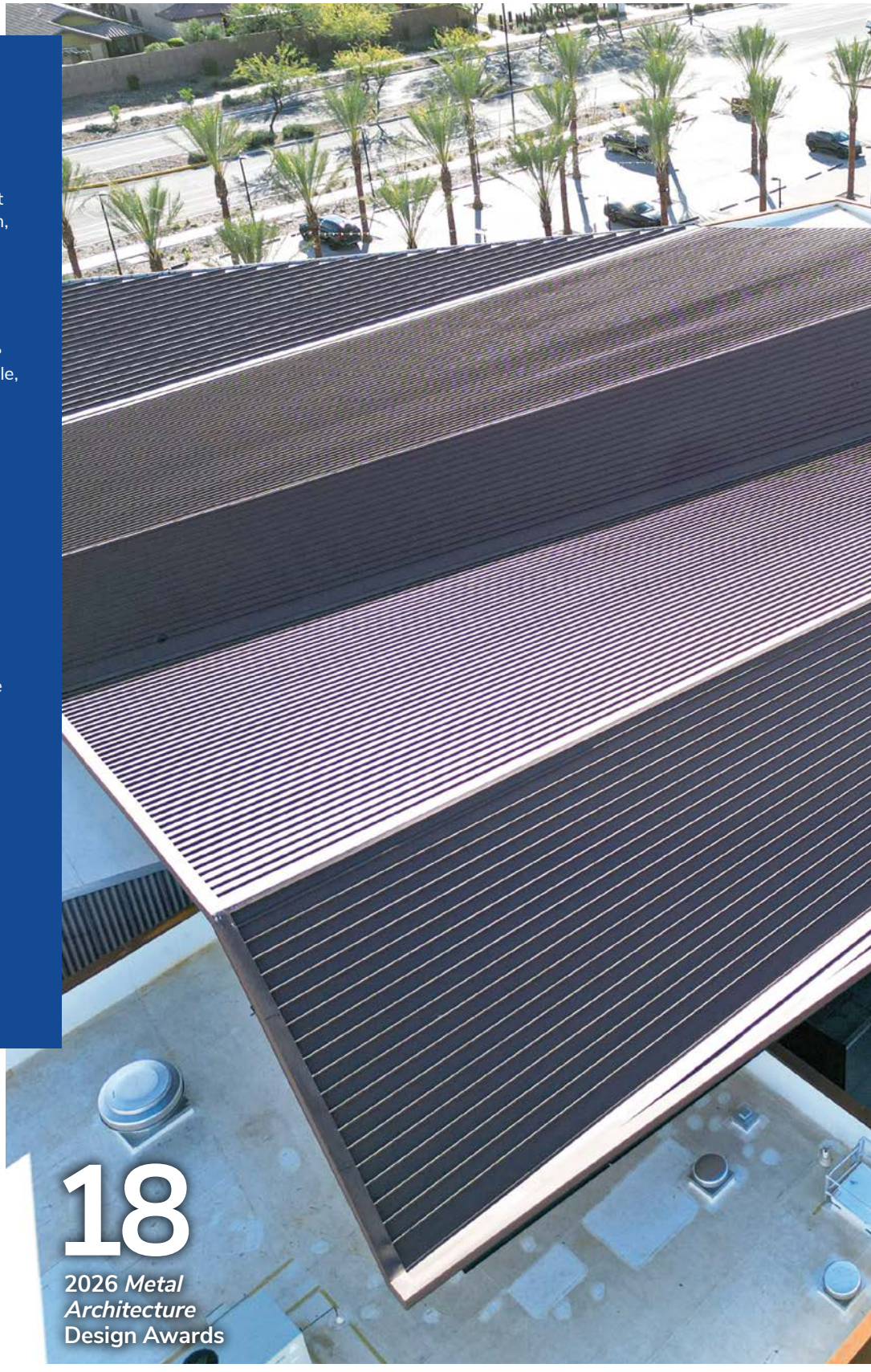

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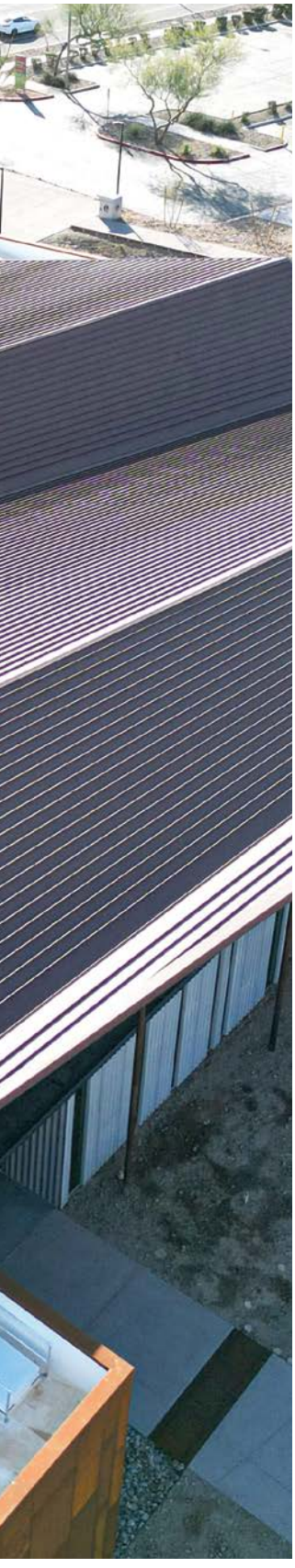

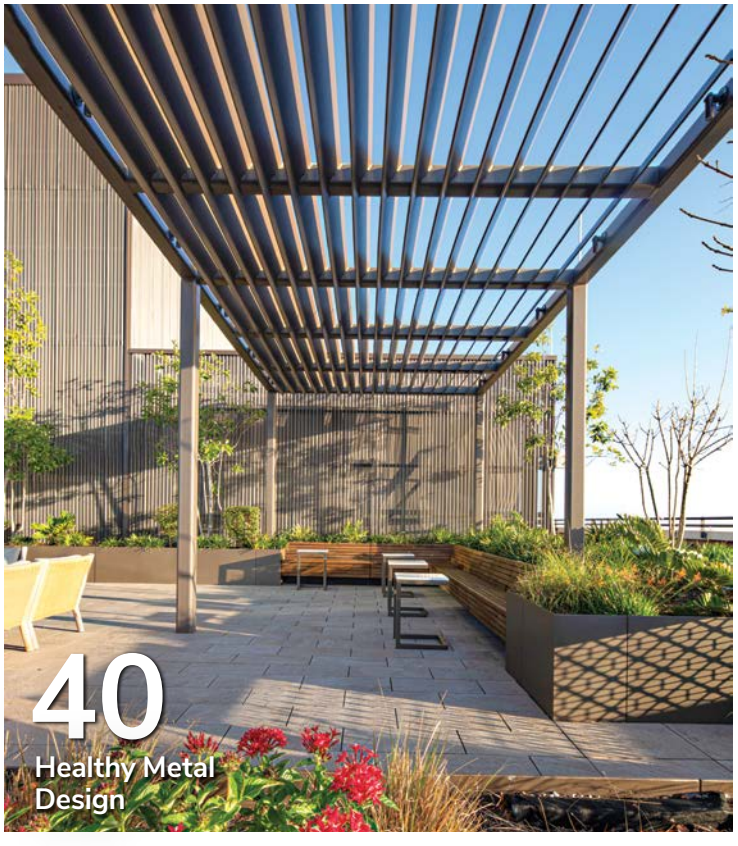

Tech Report:
Caulks & Adhesives

Departments

On The Cover

The John Deere Manufacturing Facility, a 2026 *Metal Architecture* Design Award winner, uses metal to manage annual sunlight exposure. Learn more on page 27.

Photo by SkySite Images/Charlie Sarratt, courtesy Flad Architects

Immersive Architecture and Engineering Solutions with Agencie

By Hanna Kowal

Left: The scope of Agencie's work on JFK's new Terminal One includes seven passenger boarding towers, landside structures including canopies, and design engineering across the envelope, with roof openings, head house glass and secondary steel, and perimeter apron engineering and details.

Photo courtesy The New Terminal One at JFK

Right: The design for the Land Port-of-Entry between Maine and Canada uses a combination of box ribbed and standing seam metal.

Photo by Paul Warchol

Agencie, a N.Y. and N.J.-based architecture, engineering, and design-build firm, finds creative ways to bridge the gap between architecture and engineering, especially when working with metal. The team creates designs with a functional and aesthetic flow across the transportation, residential, commercial, civic, and hospitality sectors.

In this edition of The Firm, *Metal Architecture* connected with Sarrah Khan, PE, principal at Agencie. The firm was founded in 2007 and now employs 15 architects and engineers, with Khan leading engineering operations, and Andrés Cortes, AIA, directing architectural operations.

Mechanical allure

Scaffolding during the construction phase is one area where many do not traditionally consider aesthetic appeal as much as they do function. With a dynamic approach of engineering and architecture under a shared lens, the firm's innovation—urban umbrella scaffolding—uses structural steel and exposed fasteners to create a visually appealing, sculptural appearance for these essential structures. It brings architectural elegance to the building process itself, a testament to the mindful synergy applied to the firm's work.

Large-scale aviation and transportation

In the JFK Terminal One renovation, as an MWBE subconsultant for Thornton Tomasetti, the firm was responsible for connecting the beautiful, and very sizable, curtain wall to the primary structure. Khan explains that, by attaching the aluminum-framed curtainwall to the steel framing, Agencie adopted a "kit or pattern" that enabled them to tackle the large-scale facade in an attainable way. The use of detailed exposed steel offers travelers a bright transitional space.

Also responsible for the design of another major transit hub, in collaboration with MpDL Architecture, Agencie designed the Land Port-of-Entry between the U.S. and Canada in Madawaska, Maine. The 4,645.2 m^2

On this page:

Left: In the Red Hook neighborhood, Agencie's modular housing uses a hot-rolled steel superstructure with a cold-formed lightweight structural steel framing infill, and features zinc panels with asymmetrical ribs.
Photo courtesy Agencie

Right: These urban umbrellas bring style to the construction process, acting as a visually appealing scaffolding.
Photo by James Ewing

(50,000 sf) modern LEED Gold-certified facility replaces one built in 1959, introducing efficient and streamlined state-of-the-art infrastructure. In engineering this project, a key design consideration hinged on timing: the project had to be completed when Maine's seasons were warm enough to build. The design includes standing seam and box ribbed metal panels that were specified to offer what Khan calls a "verticality to the horizontal structure." The building is an angular geometric structure with overhangs, and the steel panels complement the design's shape with a visually appealing texture. In balancing aesthetics with functionality, the port of entry serves as an excellent welcoming point.

Resilience in a modular multifamily residence

In the wake of Hurricane Sandy, Brooklyn, N.Y., residential structures faced complications due to severe flooding. In the Red Hook neighborhood, Agencie's modular housing project provided a necessary, timely housing solution. In collaboration with SHoP architects, the firm engineered this structure, championed by steel.

The building comprises a hot-rolled steel superstructure with a cold-formed lightweight structural steel framing infill. Ideally suited to the limited footprints common in local residential areas, the modular design uses a multi-layered cantilevered structure that stacks to fit comfortably within the available space. Zinc panels make up the eye-catching, stark black facade, featuring a contemporary pattern of asymmetrically spaced ribs. A display of resilience, this modern residence exemplifies the timely design-to-build advantages of modular structures.

Branding blends with space

Gucci stores across America employ a branding-driven design that is rooted in legacy. It was critical to uphold the brand's designs and quality standards and adapt them to the location in Agencie's work in structural and enclosure engineering the Gucci stores in cities across the U.S., including Atlanta, Ga., Washington D.C., Manhasset, N.Y., New York City, N.Y., Scottsdale, Ariz., Troy, Mich., and Miami, Fla. A testament to the quality and consistency required by the client, a steel staircase was imported from Gucci's Milan-based millwright for the Miami store. Metal details add an elegance to the facade, including copper panels sporting a green coating.

Community and creativity in a unique cultural project

The People's Bus is a net-zero vehicle and beacon of community, created for the people of New York City during the COVID-19 pandemic. In the design and build process for this project, Agencie worked with the Illuminate Cities Project—a charitable organization that uses data in art and design to raise awareness among communities impacted by phenomena such as the COVID-19 pandemic—to convert a prison bus into an exhibit. Including bright murals and a map that literally illuminated local spaces in need of support with LEDs, this project converted a metal shell into a truly meaningful interactive symbol.

Looking ahead

Agencie aims to continue its meaningful approach, integrating architectural, engineering, design, and build processes. The firm takes on new designs with their signature collaborative process mindset while building on their experience across project types.

Khan shares a look into current and upcoming projects, explaining, "We've worked a lot in retail and aviation projects; now we're working on retail projects within airports." Reflecting on these signature projects, she is proud of how metal elements integrate seamlessly through the design, engineering, and build processes. MA

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COMMERCIAL ROOFS WINNERS

1

PLANT HALL MUSIC ROOM | TAMPA, FL

1 1/2" FIELD-LOK STAINLESS STEEL

ARCHITECT: ROWE ARCHITECTS
CONTRACTOR: QUALITY ROOFING, INC.
DISTRIBUTOR: SPEC BUILDING MATERIALS

2

DELTA SONIC | VICTOR, NY

Dutch Seam in Brillant Blue

ARCHITECT: COLLIERS ENGINEERING & DESIGN
CONTRACTOR: BAYFORD CONSTRUCTION
DISTRIBUTOR: BAYFORD BRAKE SHAPES

3

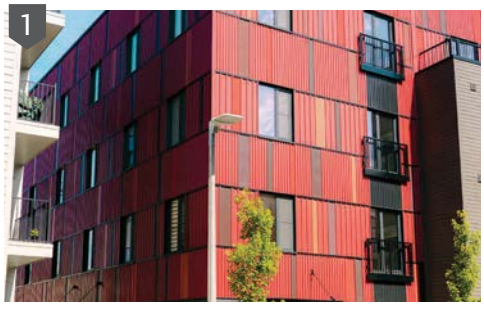
JOEY'S CLASSIC ITALIAN DINING | SYRACUSE, NY

Dutch Seam in Almond

ARCHITECT: WALTON ARCHITECTURAL GROUP
CONTRACTOR: PADULA ROOFING
DISTRIBUTOR: ABC SUPPLY COMPANY

COMMERCIAL WALLS WINNERS

1



BROOKLEY FLATS | BOSTON, MA

Rigid Wall II in Black, Chocolate Brown, Redwood, Mission Red, Brite Red, Boysenberry

ARCHITECT: JGE ARCHITECTURE & DESIGN
CONTRACTOR: LONGARONE EXTERIORS
DISTRIBUTOR: KAMCO SUPPLY CORP. OF BOSTON

2

REACH ACADEMY CHARTER SCHOOL | BUFFALO, NY

Belvedere 6" Short Rib in Siam Blue, Redwood, & Concord Cream

ARCHITECT: LABELLA ASSOCIATES
CONTRACTOR: MELCO CONSTRUCTION SERIVCES INC
DISTRIBUTOR: ARCHITECTURAL BUILDING PRODUCTS

3

MARINERS INN | DETROIT, MI

Design Wall in Ascot White, Regal Blue, Matte Black | Versa-Lok in Ascot White

ARCHITECT: LBBA ARCHITECTS
CONTRACTOR: DETROIT CORNICE & SLATE CO, INC.
DISTRIBUTOR: OAKLAND METAL SALES

RESIDENTIAL ROOFS WINNERS

1

PRIVATE RESIDENCE | MARGATE CITY, NJ

Dutch Seam in Black

ARCHITECT: TJC ARCHITECT
CONTRACTOR: D&A HOME IMPROVEMENT
GENERAL CONTRACTOR: LEEDS BUILDERS
DISTRIBUTOR: ABC SUPPLY COMPANY

2

PRIVATE RESIDENCE | MARGATE CITY, NJ

Dutch Seam in Champagne

ARCHITECT: QMA ARCHITECTS
CONTRACTOR: D&A HOME IMPROVEMENT
GENERAL CONTRACTOR: LEEDS BUILDERS
DISTRIBUTOR: ABC SUPPLY COMPANY

3

PRIVATE RESIDENCE | MARGATE CITY, NJ

Dutch Seam in Custom Color

ARCHITECT: ASHER SLAUNWHITE + PARTNERS
CONTRACTOR: D&A HOME IMPROVEMENT
GENERAL CONTRACTOR: LEEDS BUILDERS
DISTRIBUTOR: ABC SUPPLY COMPANY

RESIDENTIAL WALLS WINNERS

1

PRIVATE RESIDENCE | HARSENS ISLAND, MI

Opaline in Classic Bronze

ARCHITECT: DESIGNTEAM PLUS | **DISTRIBUTOR:** CORE SUPPLY

2

FLOURNOY UNION NODA APARTMENTS | CHARLOTTE, NC

Grand C in Anchor Grey

ARCHITECT: DYNAMIK DESIGN
CONTRACTOR: CHE COMMERCIAL
DISTRIBUTOR: COLONIAL MATERIALS

3

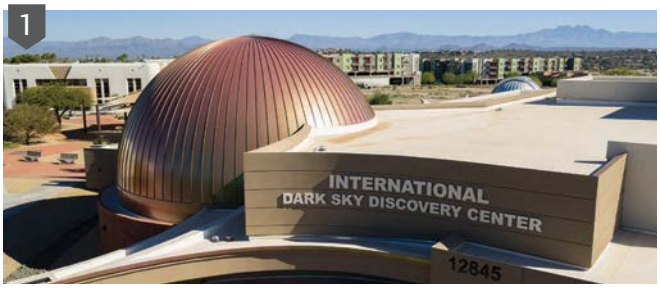
THE TUXEDO | MADISON, WI

Versa-Lok in Dove Grey

ARCHITECT: KNOTHE & BRUCE ARCHITECTS
CONTRACTOR: G RAD INC
DISTRIBUTOR: HOME LUMBER CO.

ACCENTS WINNERS

1



INTERNATIONAL DARK SKY DISCOVERY CENTER FOUNTAIN HILLS, AZ

Custom Curved Panels in Custom Color

ARCHITECT: SWABACK ARCHITECTS & PLANNERS
CONTRACTOR: GLOBAL ROOFING | **DISTRIBUTOR:** MCCARTHY BUILDING COMPANY

2

CAMBRIDGE FIRE HQ | CAMBRIDGE, MA

Metalwërks Series Screen Wall Panels in Custom Color

ARCHITECT: THE GALANTE ARCHITECTURE STUDIO
CONTRACTOR: TJ MCCARTNEY, INC.

3

MILDRED C. HAILEY APARTMENTS JAMAICA PLAIN, MA

Metalwërks Series Perforated Arcwall Spline

ARCHITECT: BARGMANN HENDRIE + ARCHETYPE, INC.
CONTRACTOR: TARA CONSTRUCTION INCORPORATED

SUSTAINABLE WINNERS

1

TRANSEDGE MODIFICATION CENTER | ALLENTOWN, PA

Isoleren ML in Charcoal Grey | SterraCore in Brite Red & Dove Grey

ARCHITECT: MKSD ARCHITECTS | **CONTRACTOR:** BOYLE CONSTRUCTION
DISTRIBUTOR: SCHLOSSER STEEL BUILDINGS, INC.

2

SQUASHBRIDGE | BRIDGEPORT, CT

Isoleren WL in Ash Grey, Regal White 3, Copper Penny

ARCHITECT: ANTINOZZI ASSOCIATES
CONTRACTOR: PREMIER BUILDING ASSOCIATES
DISTRIBUTOR: ABC SUPPLY COMPANY

3

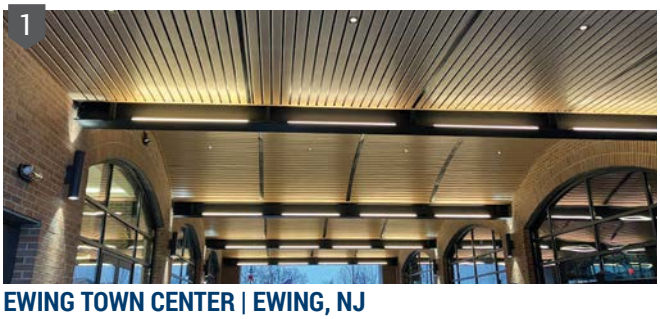
U-HAUL | WEST SENECA, NY

Isoleren IM in Regal White

ARCHITECT: SILVESTRI ARCHITECTS
CONTRACTOR: KULBACK'S INC.
DISTRIBUTOR: SRS DISTRIBUTION

INTERIORS WINNERS

1



EWING TOWN CENTER | EWING, NJ

Lineair Linear Ceiling in Birch

CONTRACTOR: CITY INTERIORS | GENERAL **CONTRACTOR:** FM CONSTRUCTION GORUP LLC |
DISTRIBUTOR: FANTIN SUPPLY HOUSE

2

DONATOS | PLAIN CITY, OH

Lineair Plank in Birch

ARCHITECT: DONATOS
DISTRIBUTOR: ABC SUPPLY | INTERIORS

3

SMOKESTACK PIZZA & BAR IN THE PADEL PLANT RICHMOND, VA

Rigid Wall II in Classic Bronze

ARCHITECT: WPA STUDIOS
CONTRACTOR: JD LEWIS CONSTRUCTION MANAGEMENT, INC.
DISTRIBUTOR: ABC SUPPLY COMPANY

The Architect's Guide

The ALDI Regional Headquarters & Distribution Facility in Loxley, Ala. includes insulated metal panels for energy efficiency, optimized operating temperatures for refrigerated spaces, and the capability to easily expand. The facility uses metal composite materials for the office areas to meet hurricane ratings.

Photos courtesy A M King

A universal goal across the built environment has emerged: designing buildings that will stand the test of time. Metal walls are an increasingly sought-after building product for both interiors and exteriors, as they can withstand environmental wear for decades without significant changes to visual or performance characteristics.

Three types of metal panels offer opportunities for various applications: single skin, metal composite material (MCM), and insulated metal panels (IMPs).

Single skin metal panels are lightweight and cost-effective options, made from any metal—often steel or aluminum—that can be fabricated into a variety of profiles and finishes.

Characteristic	Single Skin Panels
Applications	Applications range from industrial facilities and warehouses to soffits, screen walls, and commercial buildings.
Practical advantages	With many profiles, these panels suit projects that benefit from small-batch custom colors.
Durability	Typically warrantied for 20 to 30 years, these panels often feature advanced anti-corrosion coatings to ensure excellent color retention and minimal maintenance. While less rigid and susceptible to ground-level impact damage, their fire and weather resistance make them a long-term, economical cladding option.

to Metal Walls

MCM panels are a strong, durable option typically composed of two coil-coated metal sheets, bonded to a non-metal core. This panel type is available in a variety of shapes, making it an excellent choice for unconventional facade shapes, including bends, folds, and curves. One of the most common types of MCM is aluminum composite material (ACM), which often features polyvinylidene fluoride (PVDF) or fluoroethylene vinyl ether (FEVE) coatings, and is well-suited to modern facade designs. These coating options allow versatile visual opportunities for metal wall panels. They are also generally long-lasting, weather-resistant, and durable.

IMPs are renowned for their long lifespans and excellence in optimizing the thermal performance of facades. They include a foamed-in-place core surrounded by metal skins, with various profiles and internal insulation material options.

Understanding the specific elements of these options allows architects to specify products best suited to the needs of each building they design. MA

	Metal Composite Material Panels	Insulated Metal Panels
	They are featured in commercial centers, medical buildings, schools, and apartment complexes. They also serve as cladding for tunnels and balcony surrounds.	These panels excel across numerous commercial, institutional, and heavy-duty industrial facilities.
	They are used for ventilated facades and curtain wall infill, wrapping exteriors with soffits, cornices, ornamental accents, screen walls for walls and roofs, and column covers.	These panels are used for horizontal and vertical surfaces, roofs, and temperature-controlled storage.
	MCM panels are highly durable and maintain exceptional surface flatness. Their lightweight design is corrosion-resistant and can withstand harsh weather, offering a lifespan of 20 to 30 years or more. They require minimal maintenance and are impact-resistant, with finishes that retain luster for decades.	IMPs are highly durable and designed to last 30 to 50 years or more. They provide a complete, weathertight building envelope, offering superior thermal performance and consistent R-values. They are strong, require minimal maintenance, and feature specialized coatings that resist corrosion and UV damage, ensuring a long service life.

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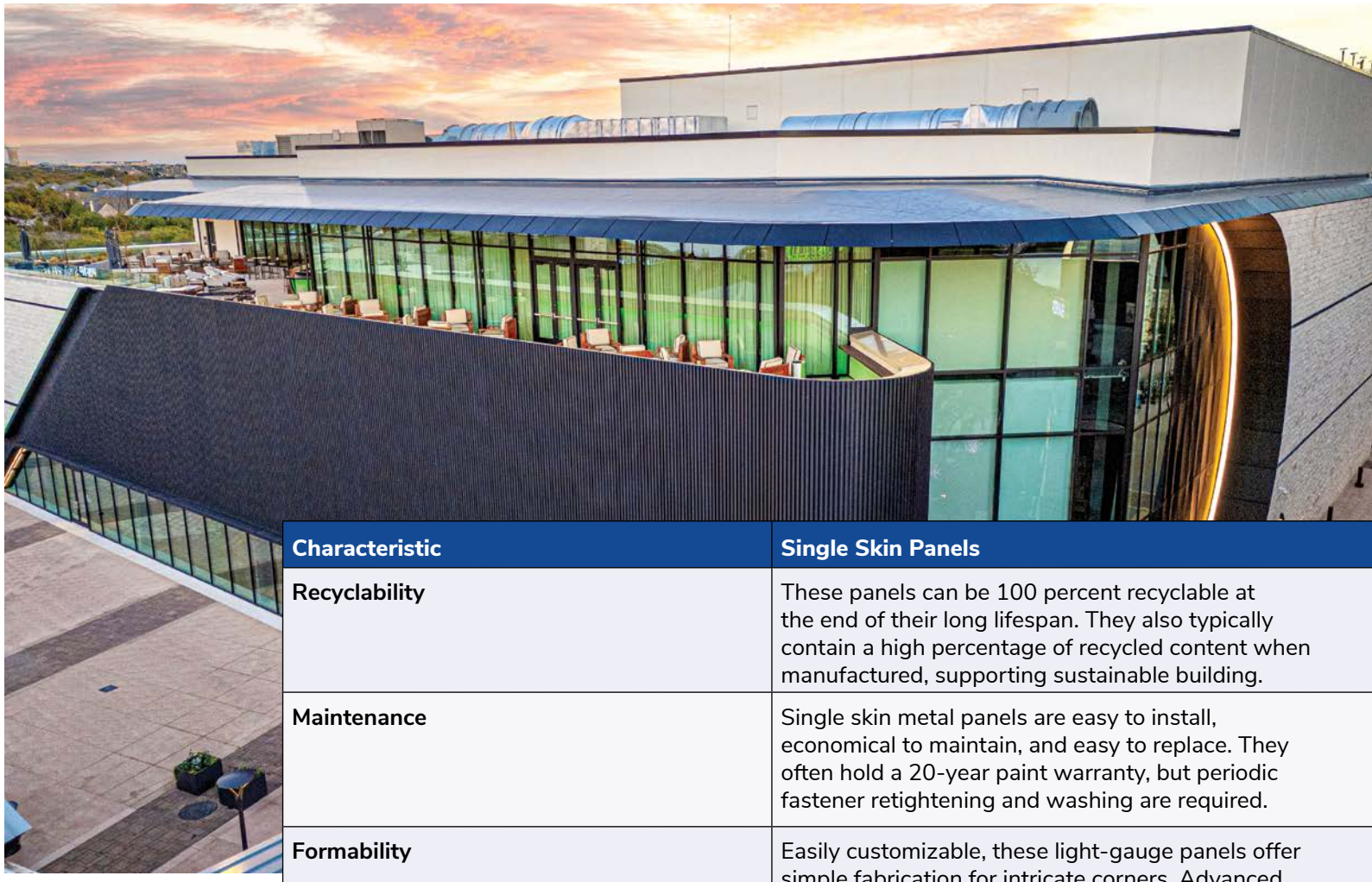

Characteristic	Single Skin Panels
Recyclability	These panels can be 100 percent recyclable at the end of their long lifespan. They also typically contain a high percentage of recycled content when manufactured, supporting sustainable building.
Maintenance	Single skin metal panels are easy to install, economical to maintain, and easy to replace. They often hold a 20-year paint warranty, but periodic fastener retightening and washing are required.
Formability	Easily customizable, these light-gauge panels offer simple fabrication for intricate corners. Advanced roll-forming allows diverse profiles, making small and custom orders readily available.
Cost	Installation costs are low due to simple trim, lightweight, and long panels (fewer fasteners). Factory pre-cutting significantly reduces the cost of field labor.
Installation	Installation is faster and more economical than other metal systems. The lighter mass and adaptability simplify handling, allow for minor field adjustments, and easily correct for uneven backing structure.
Weathertightness	These panels are suitable for installation in virtually any climate or weather without risk of degradation.
Colors and finishes	Offering sleek, textured surfaces, these panels are available in a range of coatings and finishes. Modern paint technology resists discoloration and degradation, enduring saltwater and corrosive settings. They are fabricated from diverse metals (e.g., galvanized, Galvalume, aluminum, and stainless steel) in varying thicknesses.

Left: Cosm Dallas, a reality recreation venue in The Colony, Texas, features a custom single skin 3.175 mm (0.125 in.) powder-coated aluminum panel system with both curved and straight panels.

Photo courtesy Rotary Cinema

Right: 99 Fleet Place, a 21-story residential building in downtown Brooklyn, N.Y. is clad with 4 mm (0.157 in.) aluminum composite material (ACM) panels.

Photo © Eliza Siembida

	Metal Composite Material Panels	Insulated Metal Panels
	MCM panels can be 100 percent recyclable.	With IMPs, steel elements are often made of recycled material and are recyclable, while foam is reusable.
	Modern panels require minimal upkeep, dramatically lowering long-term costs. The cladding's original brilliance and aesthetic appeal are preserved for many decades thanks to advanced coatings. It is recommended to clean them concurrently with windows.	This material is practically maintenance-free and boasts a 20-year-plus finish guarantee. The entire panel assembly and insulation backer must be replaced if necessary.
	They provide superb pliability with sharp, crisp bends and can be easily radiused when required. This material allows for diverse geometric configurations and various irregular or complex shapes.	The intricate production sequence involves a continuous line with dual multi-pass roll formers for both panel faces. Roll forming is just a minor step in this post-cut method.
	Costing is influenced by the material, panel gauge, and system method (e.g., rainscreen). Adding exterior R-value insulation also modifies the total installation expense. Project complexity, core type (fire-resistant/polyethylene [FR/PE]), and labor rates affect final pricing.	Less mass and streamlined attachment methods reduce installation expenses, and simplified fastening systems lower overall project costs.
	Initial build expenses are often reduced as these panels set up more quickly than masonry alternatives, and the work is not strictly sequential. Their low mass reduces the need for structural steel, and installers receive dedicated technical help.	Factory assembly allows for rapid site installation, halving the time of single skin panels. They offer superior span and require fewer supports. However, they require extreme caution during handling, often requiring specialized lifts and certified training.
	Fabricated with a sealant-free joint system, these panels minimize water entry. This dry-fit design removes the need for wet seals, ensuring optimal cavity ventilation. This process effectively expels moisture, significantly lowering the risk of mold, mildew, and material breakdown.	The interlocking panel connection design resists water ingress. Dual tongue-and-groove side seams and butyl sealing compounds produce exceptionally airtight and water-resistant facades.
	Available in pre-set and bespoke hues, with an array of surface treatments. Available options are standard two-layer colors, metallic tones, and Mica effects. They are ideal for brand projects that require precise color matching. Material vendors offer unique color selections, creating numerous aesthetic possibilities.	There are numerous color choices available in coatings made from polyester, siliconized polyester (SMP), PVDF, flurothane (II, IV, V), and plastisol.

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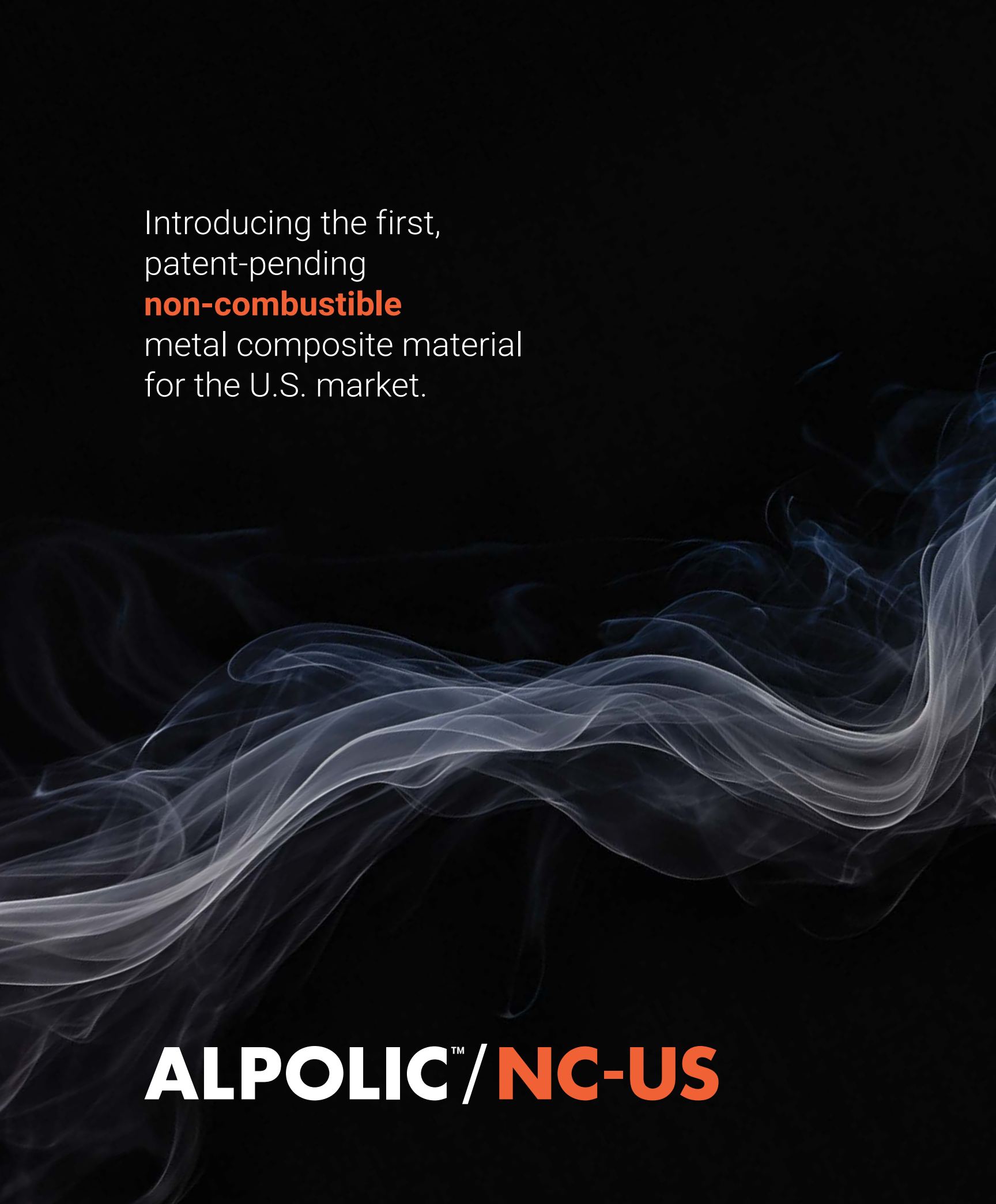

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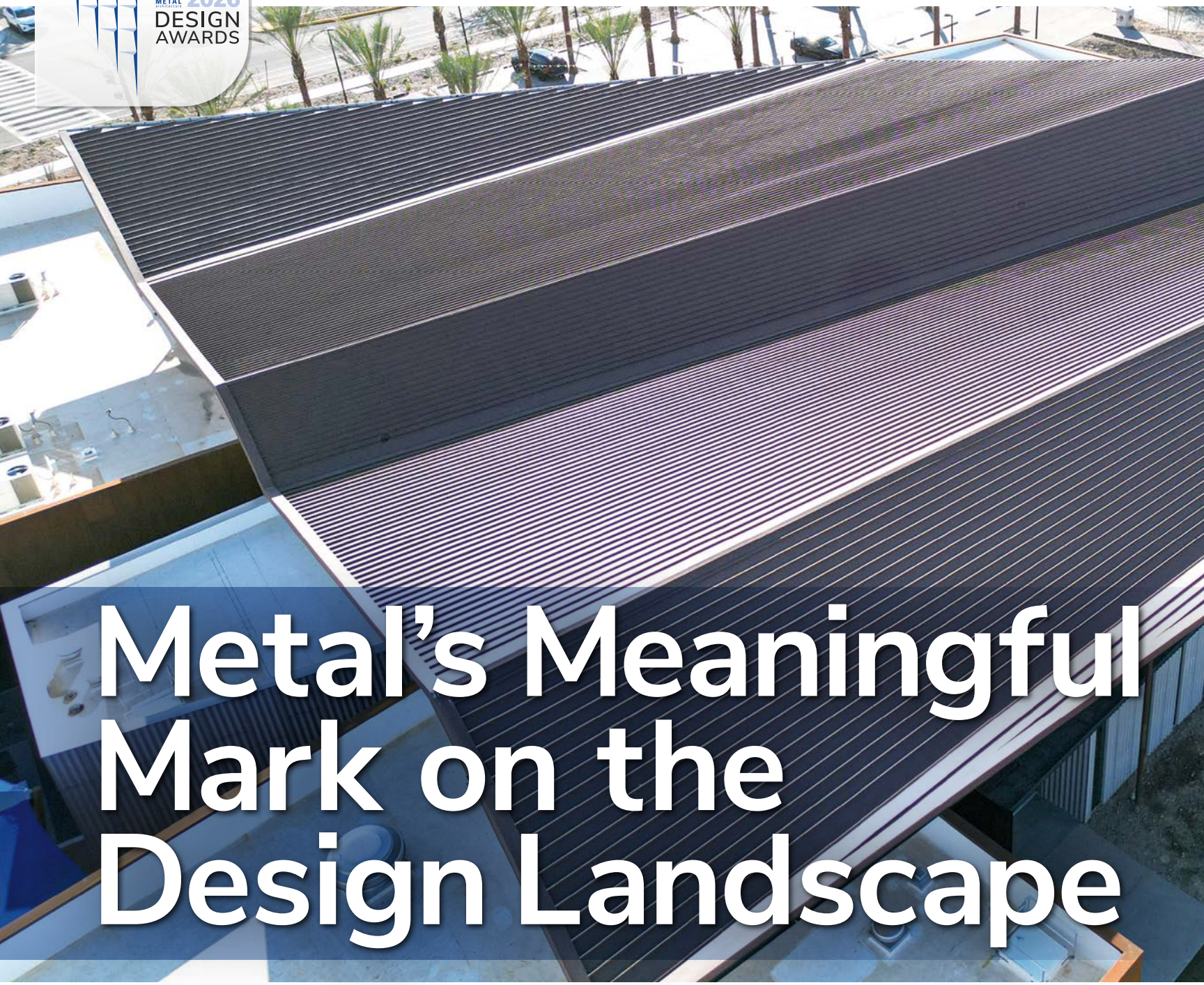
2026 DESIGN AWARDS



Metal's Meaningful Mark on the Design Landscape

Exploring the 2026 *Metal Architecture* Design Award winners

By Hanna Kowal

Photo courtesy Bemo USA Corporation

The use of metal in design is increasingly driven by purpose. Architects explore how a building can reflect its environment and best support the people within it, using the material as a tool to bring this holistic approach to life. The winners of the 2026 *Metal Architecture* Design Awards exemplify the unique possibilities of what metal can do for meaningful community growth.

From a mountain-like metal library roof to an all-in-one building system solution changing the game for hazardous waste disposal, these projects feature outstanding applications that meet modern performance and aesthetic needs across the board.

The 12 winning projects span the healthcare, education, civic, commercial, industrial, and residential sectors, and demonstrate how metal can adapt to the needs of every area of the built environment.

Meet the judges

Mindy Aust, AIA, LEED AP, founder of MA Architecture, is an accomplished architect whose career is defined by design excellence and a strong commitment to mentorship and community engagement. With over a decade of leadership across state, regional, and national levels, she has devoted her career to the thoughtful design of public spaces, spearheading multiple award-winning federal government, public library, historic, and university campus projects. Aust is a strong advocate for excellent design, believing in its transformative power to benefit communities. She champions an inclusive design process rooted in stakeholder engagement, ensuring each project reflects the community it serves.

Brent Schipper, AIA, is a practicing architect with 30 years of experience. As founding principal of ASK Studio, Schipper guides design and professional tenets, maintaining a local Midwestern design dialect at the award-winning firm. He provides industry insights for METALCON, *Metal Architecture,* and *Metal Construction News*. Schipper teaches architectural design, design, and ethics as a professor of practice in architecture at Iowa State University, where he has also been a regular guest critic since 2004, and lecturer at South Dakota State University and Dunwoody College of Technology.

Youn Choi, a South Korean native and co-founder/partner and design principal at pod architecture + design, came to the U.S. to attend the UCLA's School of the Arts & Architecture, where she earned a Master of Fine Arts degree in 1993. Following her education, she worked with prominent design firms on major national and international projects, including the Dallas Cowboys Stadium, LAX Airport, Disney Imagineering's Tokyo Disney park, and Qatar Gateways and Cityscapes. At pod a+d, Choi is a visionary place-maker, creating rich, environmental experiences, wayfinding systems, and provocative "built-in identity" branding that support architectural intent and enhance users' interactions.

Doug Pierson, AIA, LEED AP, BD+C, originally from Washington, D.C., received his Master of Architecture degree from Virginia Tech in 1992. After working with firms in Europe and Australia, he joined three California-based firms: first Hodgetts + Fung, then Gehry Partners, and, as a partner, (fer) studio. In Chapel Hill, N.C., he and his wife and partner, Youn Choi, co-founded pod architecture + design, a multidisciplinary studio that has received various awards, including *Metal Construction News'* 2018 Building and Roofing Grand Award for a bourbon distillery design. Pierson also became a professor in practice at NC State University's College of Design, School of Architecture, Raleigh.

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Photos courtesy Bemo USA Corporation

Size: 2,508.4 m² (27,000 sf)
Owner: City of Mesa
Location: Mesa, Ariz.
Architect: Richärd Kennedy Architects
General Contractor: Wilmeng Construction
Metal Installer: Flynn Group
Manufacturer: Bemo USA

GRAND AWARD

Mesa Gateway Library

Waves and ridges define the asymmetrical geometry of the Mesa Gateway Library, a new landmark in Mesa, Ariz. This project features an eye-catching metal roof that extends into a canopy, spanning over 2,322 m² (25,000 sf). The roof, made of 22-gauge galvanized steel standing seam panels features a deep brown coil coating. The material width tapers from 188 mm (7.4 in.) to 351.8 mm (13.85 in.), with the roof peaks and valleys starting and ending on full seams.

When observed from the side, the angular bends in the roof emulate the surrounding mountainous landscape, and when viewed from above, they seem, miraculously, like a floating piece of folded paper. Different types of metal complement one another in the library's cohesive design. The facade's walls sport a rich natural patina on their 1,207.7 m² (13,000 sf) of 18-gauge weathering/corten steel (A606). Pre-weathered panels were added to create a sense of continuity between the outdoors and the building's interior.

The walls visually align with the deliberate custom coating of the steel roof and color-matched exposed metal fasteners for the structure's A606-4 rainscreen panel.

Beyond allowing the synergetic aesthetic of the structure through artistic geometry and wonderfully warm colors, metal supports this project in meeting sustainability goals. The roof overhang reduces solar gain and supports daylighting.

An homage to its desert environment, the use of steel in this project reflects the landscape through its visual presence and long, durable lifespan, while providing a comfortable, thermally controlled space for occupants, given climate considerations. The Mesa Gateway Library's design exemplifies excellence in the use of metal in design and earned the Grand Award by receiving the highest overall score from judges. MA

Photo by Hobe Bronson

K-25 Interpretive Center

This project is the second phase of the K-25 History Museum, a tribute to the history of the construction and operation of the Oak Ridge Diffusion Plant during the Manhattan Project and the Cold War. With its objective to preserve and honor the site's significance, insulated metal panels reflect the historical purpose by upholding an industrial aesthetic, while serving a functional role in a sustainable, resilient structure by drastically reducing thermal bridging.

Size: 892.9 m² (9,611 sf)
Owner: United Cleanup Oak Ridge (UCOR)
Location: Oak Ridge, Tenn.
Architect: Smee + Busby Architects
General Contractor: Geiger Brothers Inc.
Metal Installer: Geiger Brothers Inc.
Manufacturers: Metl-Span, Charleston Steel, Clark Dietrich

Hazardous Waste Facility

A permanent fixture that makes sanitation services accessible to residents of Venice, Fla., this drive-through PEMB is an all-in-one center for delivery, sorting, recycling, transport, and storage of household hazardous waste. The use of a prefabricated system was an asset for the site's unique considerations: a lack of onsite utilities and an impenetrable environmental liner with undocumented depths.

The materials involved support the design's key objective: to serve as a low-maintenance, durable community facility. Installed on a prefabricated steel framing system, insulated metal wall and roofing panels account for 847 m² (9,117 sf) of the cladding and address concerns of animal intrusion, eliminate sagging, and reduce the risk of trapping flammable vapors. The design also promotes cross-ventilation, increasing air changes and reducing vapor concentration, with 576 m² (6,200 sf) of perforated metal wall panels.

Photo by Ryan Gamma Photography

Size: 1,256.8 m² (13,528 sf)
Owner: Sarasota County
Location: Venice, Fla.
Architect: Dale Parks, AIA
General Contractor: Magnum Builders of Sarasota
Metal Installer: Behlen Building Systems
Manufacturer: ATAS International Inc.
Member, Metal Construction Association (MCA)

Photo courtesy Moseley Inc.

Upstate Library

Brightly blending daylighting elements with aluminum composite material panels in light and dark warm, neutral shades, this library design is clean, modern, and stimulating—an excellent study environment for University of South Carolina students. An integrated rainscreen system boosts thermal efficiency, keeping occupants comfortable while reducing operational costs.

Size: 408.8 m² (4,400 sf)
Owner: University of South Carolina
Location: Spartanburg, S.C.
Architect: Moseley Inc.
General Contractor: Thompson Turner Construction
Metal Installer: Tidewater Building Group
Manufacturer: East Coast Metal Systems, Inc.
Member, Metal Construction Association (MCA)

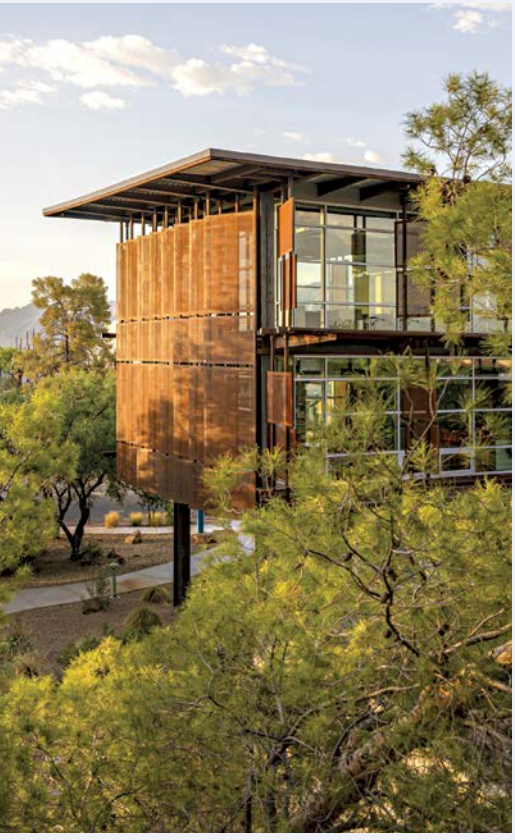
Photos by Mark Kempf

Kingspan Insulated Panels North America's Revitalized Headquarters

After a comprehensive retrofit and expansion, this facility now includes a modern workplace, an innovation hub, and a customer experience center. With sustainability at the forefront of this design, the project avoided demolition in favor of preserving the existing structure and transforming the facade and roof with an array of IMPs. By varying the orientation and profile of the panels, the design attains a unique visual identity. Introducing tapers and color coatings that reflect the local vegetation, this revitalized headquarters feels like it belongs in its surroundings. MA

Size: 2,694.2 m² (29,000 sf)
Owner: Kingspan
Location: DeLand, Fla.
Architect: Epsten Group
General Contractors: Harrell Construction, MEC, Drewry Site Development
Metal Installer: JAJ Metal Solutions
Manufacturer: Kingspan North America brands: Kingspan Insulated Panels, Kingspan Insulation, Dri-Design, Morin, Troldtekt, and Solatube

NATURAL METALS



Size: 2,787.1 m² (30,000 sf)
Owner: University of Arizona
Location: Tucson, Ariz.
Architect: Line and Space LLC
General Contractor: DPR
Metal Installer: JB Steel
Manufacturer: JB Steel

Photos courtesy BradleyWheelerphoto.com

Andrew Weil Center for Integrative Medicine

The biophilic design of this healthcare, education, and research hub uses metal to deliver a holistic approach to wellness. A natural metal finish defines the organic aesthetic of the design as exposed weathering steel reflects the warmth of its landscape through orange-brown hues. Metal shading elements transform the way occupants feel in, about, and around the space.

Sun shades on the facility made of 16-gauge steel with 6.35 mm on 12.7 mm (0.25 in. on 0.5 in.) staggered centers were bent to the required shape and attached to the steel support structure at 406.4 mm (16 in.). The metal in this project enables occupants to engage with the Sonoran Desert environment, bringing in daylight while blocking harsh sunlight and embracing the benefits of natural light in a controlled, comfortable way. MA

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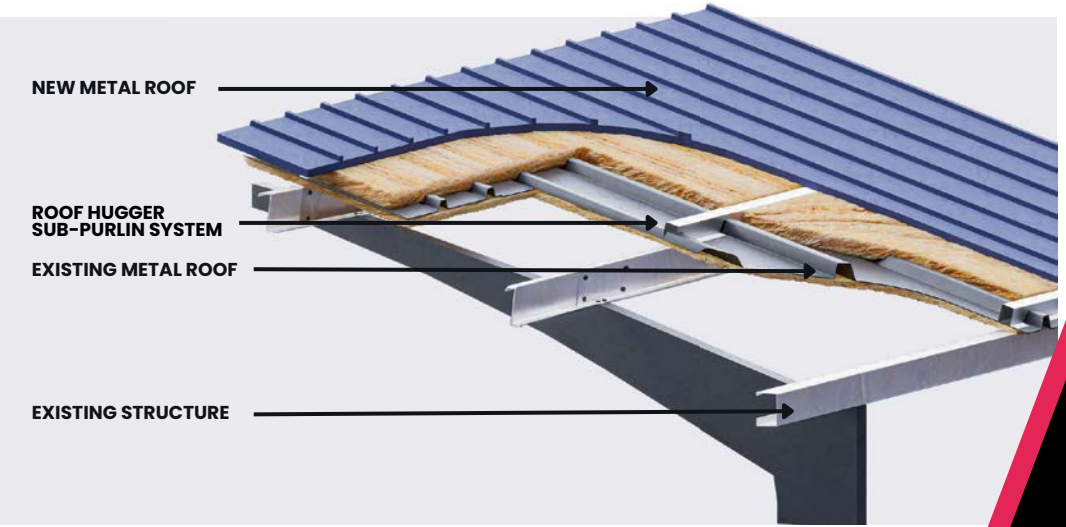

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SINGLE SKIN WALL PANELS (RIBBED)

Photo by Ryan Gamma

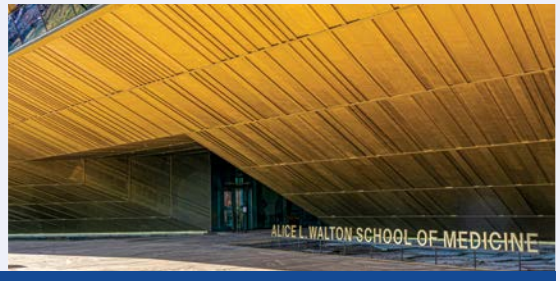
Photo by Kokolakis Contracting

Sanitation Department Building

A sophisticated rectangular structure, this design uses clean lines, 76.2 mm (2 in.) deep square-ribbed aluminum panels, and angular architecture to create an ideal workspace for St. Petersburg sanitation staff. This new building replaces an outdated facility and comprises administrative offices, support spaces, locker rooms, and fitness areas. A synergetic facade transition moves from solid to perforated metal screen panels, allowing controlled daylight and air circulation in a second-floor terrace space. The use of girts that hold the metal panel system provides continuous insulation from the exterior. MA

Size: 1721.3 m² (18,528 sf)
Owner: City of St. Petersburg
Location: St. Petersburg, Fla.
Architect: Sweet Sparkman Architects
General Contractor: Kokolakis Contracting
Metal Installer: Cladding Systems Inc.
Manufacturer: IMETCO

SINGLE SKIN WALL PANELS (SMOOTH)



Photos by Joe Brennan, Brennan Photo + Video

Alice L Walton School of Medicine

A shimmering blend of custom bronze and brass panels and glazing sits prominently amongst the Ozark Mountains, with sharp, angular architecture defining the visual impact of a new, innovative medical school. The building uses a bronze flush-seam panel system totaling 2,787 m² (30,000 sf) for various soffit and wall cladding elevations, 278.7 m² (3,000 sf) of brass fins, 743.2 m² (8,000 sf) of perforated bronze panels as sunshades, all with a rich, warm finish. Further complementing the project's distinct coloring, emulating the limestone shades of the surrounding landscape with light and dark warm metallic hues, the structure includes 696.8 m² (7,500 sf) of non-bronze flush-seam metal panels. MA

Size: 14,307.1 m² (154,000 sf)
Owner: Alice Walton
Location: Bentonville, Ark.
Architect: Polk Stanley Wilcox Architects & Office of Strategy + Design (OSD)
General Contractor: Crossland Construction
Metal Installer: MG McGrath
Manufacturer: MG McGrath, supplied by PAC-CLAD and Metal Sales

Photos courtesy CW Architecture

Desert Wing Residence

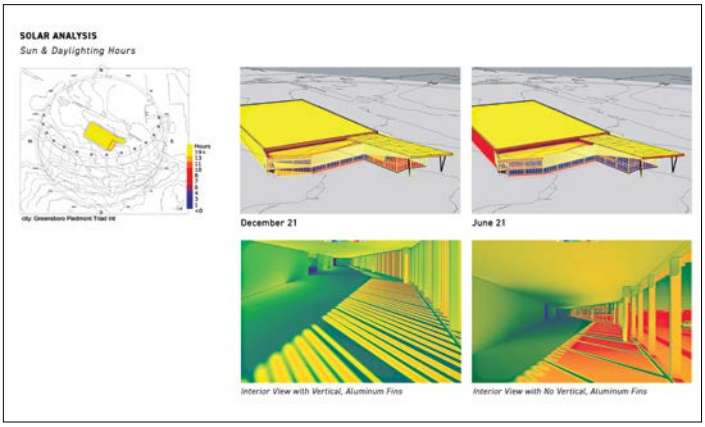
The homeowner of this unique project wanted the roof to act as a dramatic focal point of their home. A bold, angular standing seam 1,021.9 m² (11,000 sf) plane brings that vision to life.

Its matte black polyvinylidene fluoride (PVDF) coating, designed to withstand high UV exposure, reduces excessive glare. Crisp lines in both the metal's seams and the larger-scale geometry of the installation lean into a sculptural, deliberate expression that contrasts beautifully with the surrounding sandy desert landscape. It juxtaposes the mountains on the horizon with a flat roof form, achieving a monolithic triangular expression of its own. With its artistic, contemporary design, the wing-like overhang provides a comfortable shaded area for the entryway and the surrounding outdoor space. MA

Size: 1,021.9 m² (11,000 sf)
Location: Scottsdale, Ariz.
Architect: CW Architecture
General Contractor: Charly's Roofing
Metal Installer: Charly's Roofing
Manufacturer: Coated Metals Group - Coil & Sheet

John Deere Manufacturing Facility

Photo by SkySite Images/Charlie Sarratt, courtesy Flad Architects



Careful consideration of how the sun interacts with every material and surface is at the heart of the John Deere Manufacturing Facility design. A controlled, harmonious use of metal allows for both controlled solar-heat gain and a brand identity-driven aesthetic. The use of 276.9 m² (2,981 sf) 50.8 x 203.2 mm (2 x 8 in.) vertical aluminum fins in a yellow-gold powder coating provides shading, reducing glare and solar heat gain, while 291.3 m² (3,135 sf) of aluminum plate panels, 627.6 m² (6,755 sf) of steel decking, and 230.2 m² (2,478 sf) of 22-gauge single skin panels support a smooth visual transition between the shaded canopy entrance area and the facade. As a result of this deliberate design, daylight analysis demonstrates an approximate 8.6 percent reduction in Annual Sunlight Exposure. MA

Size: 10,783.7 m² (116,075 sf)
Owner: John Deere
Location: Kernersville, N.C.
Architect: Flad Architects
General Contractor: Evans General Contractors
Metal Installers: SPS Corporation, New Millennium
Manufacturers: OGI Architectural Metal Solutions, DAMS Inc., Morin Corp., New Millennium Building Systems

2026 DESIGN AWARDS

Metal Architecture's Publisher's Choice Award is presented, at its discretion, to projects that demonstrably reflect key concepts presented by the magazine throughout the year.

PUBLISHER'S CHOICE AWARD

Photos by Tricia Shay Architectural Photography

Froedtert Hospital Parking Structure

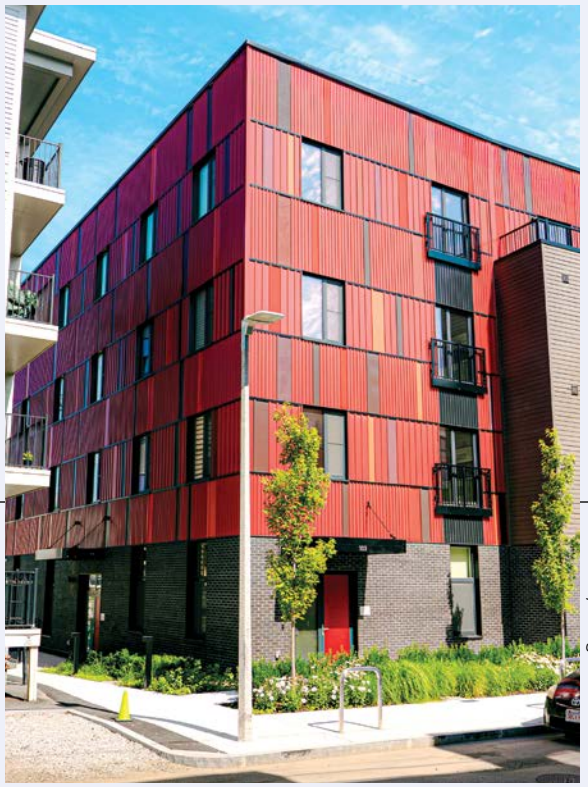
Demonstrating the versatility of metal walls, this hospital parking structure uses a palette of seven different panel profiles, most of which showcase custom perforation patterns. The design includes a remarkable 4,138.8 m^2 (44,550 sf) of custom perforated aluminum panel and substructure. The panels were post-finished with a PVDF coating to provide chemical, corrosion, and UV resistance, as well as color retention. MA

Size: 20,903.2 m^2 (225,000 sf)
Owner: Froedtert & the Medical College of Wisconsin
Location: Wauwatosa, Wisc.
Architects: GRAEF, EUA
General Contractor: CG Schmidt
Metal Installer: CSE Construction Supply & Erection
Manufacturer: American Metalcraft Inc., Finishing Dynamics

PUBLISHER'S CHOICE AWARD

Brookley Flats

Ribbed aluminum panels in various reds, blacks, and browns encapsulate the spirit of occupants at this live/work space. A hub for artists, this affordable housing building in Jamaica Plain features 772.3 m^2 (8,313 sf) of 0.04 in. (1 mm) aluminum cladding with a 70 percent PVDF coating. Its textured, appealing, creative facade draws the attention of passersby. MA



Photos by Longarone Exteriors

Size: 3,530.3 m^2 (38,000 sf)
Owner: Causeway Development LLC and Jamaica Plain Neighborhood Development Corp.
Location: Boston, Mass.
Architects: JGE Architecture + Design
General Contractor: Haycon
Metal Installer: Longarone Exteriors
Manufacturer: ATAS International Inc.
Member, Metal Construction Association (MCA)

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World-class Walls

Unlimited design potential with insulated metal panels

By Karim Muri

Photos courtesy Kingspan Insulated Panels North America

Architects used IMPs at Caledon Industrial Park in contrasting grey and wood-like tones, along with fin products to add depth, dimension, and visual appeal.

The building envelope is no longer expected to do just one job. Owners want buildings that perform. Communities want buildings that contribute to the streetscape. Architects want systems that support design intent without creating complexity in detailing and construction.

Made with metal skins and an insulating foam core, IMPs deliver continuous insulation (c.i.) and strong air and water tightness when properly installed. When used with design in mind, these panels offer the texture and color range needed to create contrast, soften a building's scale, reinforce brand identity, and contribute architecturally to a project's surroundings.

The building envelope as a design tool

With a broader range of profiles, module widths, finishes, textures, and colors now available, IMPs are increasingly drawing more design attention. They can be arranged vertically or horizontally, integrated with other facade materials, and detailed to create sharp lines or subtle transitions.

Those choices influence how a building is read. A vertical layout can emphasize height. Horizontal orientations can stretch a facade visually and reduce perceived bulk. Changes in panel texture can create movement across a surface and alter how natural light interacts with the building throughout the day.

Contrasting colors can break down large masses or call out entrances and gathering spaces.

For architects working on commercial, industrial, and mixed-use projects, that design flexibility is often the difference between a facade that simply encloses a building and one that gives it character.

Dimension, variation, and line

Some of the strongest design uses of IMPs come down to three simple ideas: dimension, variation, and line.

Dimension concerns shadow, depth, and proportion. Even on a relatively simple wall plane, panel orientation, spacing, and profile selection can create visual depth. Variations like changes in color, texture, module width, or panel direction can create rhythm or contrast without making the facade feel busy. This is particularly useful on large-format projects, such as distribution centers and manufacturing facilities, where a single material palette still benefits from a sense of movement to avoid a flat, repetitive appearance.

Lines guide the eye and organize a building's form. They can reinforce a building's proportions or make a large structure feel more approachable. On a facade, line is often where design intent becomes most legible, and IMPs give architects a clean, precise way to establish it.

Designing facilities with texture and movement

The Harry M. Cornell Arts & Entertainment Complex in Joplin, Mo., is a strong example of how IMPs can support a design concept rooted in contrast and changing light. The 3,437.4 m^2 (37,000 sf) facility includes galleries and a 450-seat performance hall. On a building like this, the exterior must do more than

Top: At GlobalWafers America's new facility, subtle variations in color and the reflective blue finish at the facility's entry pay homage to the CD-like wafers produced inside.

Bottom left: At Gilbert Place in Blacksburg, architects used IMPs to create strong horizontal and vertical lines to break up the mass of the six-story mixed-use building.

Bottom right: IMPs help make the facade feel more balanced, dynamic, and integrated with the surrounding architecture.

A combination of smooth and ribbed panels create contrast and texture at the Harry M. Cornell Arts & Entertainment Complex.

achieve the desired thermal performance. It also has to communicate something about the institution inside. For arts and entertainment projects, the facade is often part of the experience.

In this case, a combination of smooth and ribbed panels in contrasting colors created a surface that changes as daylight shifts. Without additional decoration, the design uses texture and light to create visual interest. The interplay between smooth and ribbed surfaces gives the building movement and helps the facade feel responsive to its environment.

A facade does not need complexity to feel expressive. Sometimes, the combination of two carefully composed surface conditions can produce a building that feels distinct and well resolved.

Using lines to break down mass on mixed-use projects

Large mixed-use buildings often face a familiar design challenge. They need to accommodate a substantial program area while fitting into an existing urban context without overwhelming it.

Gilbert Place in downtown Blacksburg, Va., demonstrates how facade composition can help solve that problem. The six-story building combines office, retail, restaurant, and rooftop dining spaces. Because of its scale, the design team had to find ways to reduce the structure's perceived size and help it sit more comfortably within its surroundings.

The solution relied in part on strong horizontal and vertical lines with IMPs. Vertical elements emphasized height and gave the building a sense of proportion. Horizontal lines helped break up the building's mass and create a more grounded appearance. The architects achieved this by overlaying various facade options made possible by IMPs. The resulting composition guides the eye while softening the building's size.

Panels are not just a cladding choice, but a compositional tool. The precision of panel layout and joint spacing can allow for a visual rhythm that supports larger architectural ideas.

Elevating projects through contrast and color

Contrast and color play a key role in how a building is perceived. Changes in tone, finish, and material can highlight entrances, add depth, and break up large facades into more approachable forms. These principles are especially impactful in industrial projects, where buildings have historically been judged almost entirely on utility. That expectation is now changing, as industrial parks, logistics facilities, and advanced manufacturing projects become more visible in suburban and urban areas.

Caledon Industrial Park in Toronto, Canada, used contrasting panel colors to create a more refined and contemporary exterior expression. Fins can fit between the joints of IMPs, providing added depth and helping break up the facade, giving the buildings more visual structure than the typical industrial box.

A similar approach can be seen in GlobalWafers America's facility in Sherman, Texas, where panel color and finish were used to create a sleek, modern facade while reinforcing brand identity. Subtle variations in color and texture draw attention to the entryway, where a reflective blue sheen references the CD-like wafers produced inside.

A more considered facade can help industrial buildings fit their surroundings, reflect tenant identity, and improve public acceptance.

Designing with influence

In today's design landscape, material choices are increasingly expected to work on multiple levels at once. They need to perform technically, fit into the project budget, align with schedules, and still contribute to the architectural goals.

Whether the goal is to create a cultural landmark, soften the scale of a mixed-use building, or elevate an industrial project, IMPs are giving designers more ways to shape the built environment. MA

Karim Muri *is vice president of marketing services and strategy development for Kingspan Insulated Panels North America. His experience includes leadership roles in Australia and the United States across both the residential and commercial building sectors.*

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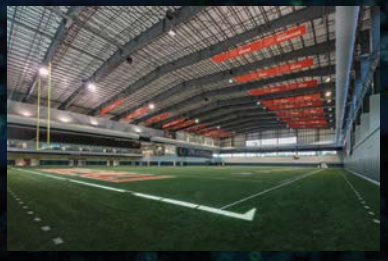

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Power from the Roofline

Maximizing energy performance in agricultural buildings

By Fiona Maguire-O'Shea

As solar development expands across rural America, agricultural projects are finding value in an overlooked asset: the roofline. Ground-mounted systems can generate significant electricity, but can also place solar infrastructure in direct competition with productive acreage. Rooftop applications offer a way to increase energy production without asking the land to do more.

This is where agricultural metal buildings enter the conversation. Rather than converting open land to energy production, farms can use existing buildings and infrastructure to support onsite generation.

Barns, storage buildings, and support structures are often topped with corrugated or trapezoidal roof panels and, in some cases, standing-seam systems. Metal roofs are widely used in agricultural settings because they are durable, weather-resistant, environmentally friendly, and easy to install. As a result, they are a logical platform for rooftop solar, allowing agricultural buildings to play a larger role in onsite generation while making more efficient use of the built environment.

Maximizing spaces with rooftop solar

Rooftop solar in agricultural settings places generating capacity on underutilized surfaces. That matters on working farms, where land supports production, access, and the flexibility needed for daily operations. A ground-mounted system may generate clean energy, but can also create conflicts with machinery movement, storage, loading, and future site changes.

Roof-mounted systems eliminate much of that tension. Instead of asking a farm to dedicate separate acreage to energy production, they allow solar to be integrated into existing structures already central to the operation. In practical terms, that can simplify system placement, preserve flexibility at grade, and reduce the likelihood that solar infrastructure will disrupt the farm's operations over time.

At Leas Family Farms in Indiana, that logic shaped the project from the start.

Preserving and enhancing productive land

The Leas operation wanted to generate its own electricity without giving up productive land or creating conflicts with equipment, vehicles, and day-to-day farm operations. The solution was a 100-kW grid-tied solar photovoltaic (PV) system installed on the south-facing metal roofs of two hog barns rather than on a separate ground-mounted structure.

That kept the solar installation out of the way of everyday activity, underscoring a basic truth of agricultural design: where a system is placed can influence movement through the site, operational flexibility, and day-to-day efficiency as much as energy output.

Metal roofing for sensible solar solutions

Those same qualities make metal roofs well-suited to rooftop solar installations. Their long service life and compatibility with direct-attach mounting can simplify installation while helping preserve roof integrity.

Metal roofs can accommodate direct-attach solar PV systems, eliminating the need for rails and additional mounting hardware. That means fewer components, lower labor demands, and less added weight, while helping preserve roof integrity and simplifying installation, as explained in Figure 1.

In the Leas Family Farms project, the use of a rail-less system reduced installation time by 40 percent compared with a conventional rail-mounted approach. For agricultural owners balancing upfront cost with long-term operating performance, that kind of efficiency can be decisive.

With a recyclability rate of 98 percent, metal roofs can help reduce waste and support a cleaner built environment. When solar is paired with a material already valued for its long life and low maintenance, the roof becomes part of a broader strategy for resource efficiency and lifecycle performance.

The roof as a part of building performance

At KC Bailey Orchards in New York, the roof takes on a more active role.

The orchard uses multiple metal buildings for apple storage and distribution, with five roofs supporting

On this spread:

Left: This 1.73 MW solar project in Santa Paula, Calif., integrates solar into a metal canopy roof structure built over a reservoir.
Photo courtesy REC Solar

Right: A solar array mounted on an exposed-fastened metal roof on a hog barn at Leas Family Farms.
Photo courtesy S-5!

FIGURE 1

Graphic courtesy S-5!

direct-attach solar PV systems. In these cold storage buildings, the roof directly affects refrigeration demand and operating costs.

Before solar was added, the reflective metal roof surfaces were already helping to reduce heat gain and improve cooling efficiency. The space between the installed solar panels and the roof provides shading that can lower roof surface temperatures.

For architects, engineers, and contractors working on agricultural facilities with controlled interior environments, the question is no longer just whether a roof can support solar panels, but how the combined roof-and-panel assembly affects the building below.

Looking beyond the barn

The same mindset can extend beyond occupied buildings. Agricultural infrastructure can also become a platform for energy generation when the design approach focuses on adding value to surfaces already in use.

In Santa Paula, Calif., a 1.73-MW irrigation project put that idea into practice by integrating solar into a metal canopy roof structure built over a reservoir. The result combines power generation with essential water system infrastructure, rather than requiring a separate solar field on open land.

The common thread in these examples—from apple orchards to hog farms to irrigation systems—is that solar is most effective when it is integrated into the everyday structures and systems that already support agricultural operations.

A practical alternative to field conversion

Rooftop solar is not the only way renewable energy is integrated into agriculture. Agrivoltaics, which combines farming and solar energy generation on the same land, has generated growing interest in recent years. Rooftop systems offer a different path, one that removes the question of field conversion altogether.

Roof-mounted solar preserves acreage for production, avoids creating a separate energy zone in the site plan, and uses buildings already central to the farm. It can also reduce some of the visual and operational disruption associated with ground-mounted installations, especially in settings where access, maneuvering room, and flexibility at grade remain essential.

This does not mean rooftop solar is the right answer for every project. Most farms do not have enough roof space to support the same scale of generation as a ground-mounted system. Roof orientation, structural capacity, electrical demand, utility interconnection, and return on investment still shape what is feasible. Even so, where metal buildings are already in place, rooftop solar offers a clear and often underused opportunity.

Expanding the role of agricultural buildings

For the metal building industry, the greater point is not simply that agricultural roofs can carry solar, but that solar expands the role of the agricultural buildings themselves.

These structures have long been valued for economy, speed of construction, durability, and low maintenance. Rooftop solar adds another layer of performance to those same strengths. A metal roof can protect livestock, shelter stored crops, improve thermal efficiency, and generate electricity simultaneously. This fundamentally changes how the building contributes to the operation.

For architects, fabricators, and contractors designing the next generation of rural facilities, rooftop solar offers the opportunity not to expand the farm's energy footprint, but to increase the value of the structures and systems already in place. MA

Fiona Maguire-O'Shea *is a seasoned writer for S-5!, the inventors of the world's first rail-less solar mounting system for metal roofs.*

Climate Zone Care in Metal Building Design

Perfecting air barrier placement

By Q. Jonnie Hasan, PE, BECxP, CxA+BE

Cold weather can challenge the adhesion of liquid-applied air barriers. In this case, a self-adhered primer was installed to ensure proper bonding, illustrating how field adjustments are often necessary to maintain performance in less-than-ideal conditions.

Photo courtesy of IMETCO

Effective air and vapor control in metal buildings is not one-size-fits-all. Climate plays a decisive role in how air barriers should be designed, located, and integrated within the building enclosure.

As energy codes tighten and building performance expectations rise, designers are being asked to think beyond product selection and focus on system behavior. In metal buildings, where assemblies often involve multiple trades and interfaces, this challenge becomes even more pronounced.

Understanding moisture risks

The consequences of unmanaged condensation escalate rapidly into major building science failures. Metal panels and steel structural framing are highly conductive, quickly dropping below the dew point in cold temperatures. Sustained condensation can lead to aggressive rust and corrosion on the metal wall panels, fasteners, and purlins. It can also create a "sweating" effect, causing liquid water to drip into the interior space.

Further, persistent moisture trapped in the envelope creates an ideal breeding ground for mold and mildew, which severely compromises indoor air quality (IAQ). As wet insulation acts as a thermal bridge rather than a thermal break, HVAC systems must work harder to compensate, resulting in massive spikes in heating and cooling energy use.[1]

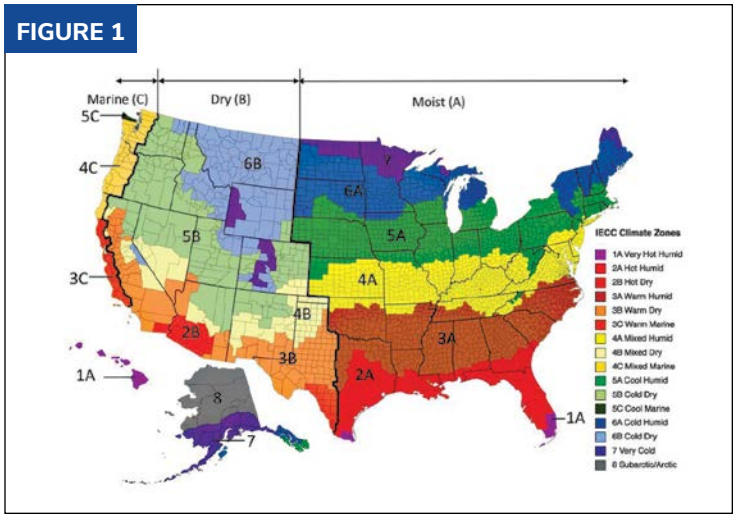
Over time, these problems can lead to increased maintenance costs and a shorter building lifespan. Conversely, a well-designed system that responds to climate conditions can improve energy performance, enhance occupant comfort, and reduce long-term risk. While some air barrier strategies may involve higher upfront costs, they often deliver value through improved durability and reduced operational expenses.

The role of air and vapor control

While often discussed together, air barriers and vapor retarders serve different purposes. Air barriers control the movement of air through the enclosure, which is the primary driver of moisture transport. Vapor retarders limit the diffusion of moisture through materials. [1]

Common vapor retarders are primarily used on the "warm" side of the insulation and include polyethylene plastic sheets, foil-faced insulation (which doubles as a radiant barrier), and low-permeance fabrics used as the visible facing in banded liner systems. Common air barriers include fluid-applied elastomeric membranes, self-adhered rubberized asphalt "peel-and-stick" sheets, closed-cell spray polyurethane foam, and

FIGURE 1



The IECC/ASHRAE climate zone map's geographic zones dictate the required selection and positioning Air-Water Barrier (AWB) according to *International Residential Code* (IRC) and IECC regulations. Cold, heating-dominated climates (Zones 5 through 8 and Marine 4C) require an interior vapor retarder and a highly breathable, vapor-permeable exterior AWB. In hot, humid climates (Zones 1, 2, and 3), interior Class I and II vapor barriers are prohibited because they trap moisture behind drywall.
Map by IECC and ASHRAE/courtesy IMETCO

mechanically fastened rigid polyisocyanurate (polyiso) foam boards with securely taped seams.

In most cases, air leakage carries far more moisture into an assembly than vapor diffusion. This means that a continuous, well-detailed air barrier is one of the most critical components in preventing condensation and maintaining performance.

Climate-driven design principles

The primary factor influencing air barrier placement is the direction of vapor drive, which varies with temperature and humidity differences between the interior and exterior. Manufacturers engineer products with specific technical metrics intended to align with ASHRAE climate zones (displayed in Figure 1) and the *International Energy Conservation Code*.[2] Specifiers must look closely at vapor permeance ratings, application temperature constraints, allowable UV exposure limits, and code compliance testing for air leakage maximums.

Validating assembly design with hygrothermal modeling

To eliminate the guesswork of membrane placement, building science professionals rely on hygrothermal modeling software, such as WUFI (Wärme- und Feuchtetransport instationär). These advanced simulation tools analyze the dynamic transport of heat and moisture through multi-layer building assemblies over time.[3] By inputting specific local climate data, material properties (like thermal conductivity and vapor permeance), and expected indoor conditions, designers can digitally stress-test an envelope assembly before construction begins.

Cold climates: interior control strategy

Placing the primary air barrier closer to the interior side of the insulation helps prevent warm, moist interior air from reaching cold areas where condensation can occur.

Design considerations include:

- Ensuring continuity of the air barrier at all transitions, including roof-to-wall interfaces.
- Coordinating with vapor retarders to avoid trapping moisture within the assembly.
- Protecting interior air barrier materials from damage during construction.

Hot and humid climates: exterior control strategy

The dominant vapor drive is from the exterior toward the interior in hot and humid climates, particularly when buildings are cooled. In these conditions, locating the air barrier toward the exterior side of the insulation can help limit moisture intrusion.

Key considerations include:

- Selecting materials that can withstand UV exposure and weather during construction.
- Integrating the air barrier with water-resistive barriers (WRBs) and roof underlayments.
- Detailing penetrations and seams to maintain continuity under field conditions.

Mixed climates: balancing competing conditions

In regions that experience hot and cold climates, designers must balance competing vapor drives and consider assemblies that can dry in both directions.

Strategies may include:

- Using air barriers that also provide moderate vapor permeability.
- Avoiding double vapor barriers that can trap moisture.
- Designing assemblies with drying potential for both the interior and exterior.

The goal is not to eliminate all moisture movement, but to manage it so that it does not accumulate or cause damage.

The importance of continuity and transitions

The most common failures in air barrier systems occur at transitions and penetrations. Achieving continuity requires clear design intent, detailed drawings, and coordination during construction.

Design teams should focus on:

- Providing clear, buildable details for all transitions.
- Identifying responsibility for air barrier installation across trades.
- Incorporating inspection and testing into the construction process.

Integration with underlayments and roofing systems

Air barrier design cannot be separated from the broader enclosure system. Roof underlayments, insulation layers, and cladding all play a role in how air and moisture move through the building. In metal roofing systems, underlayments can act as secondary water control layers and may influence vapor permeability.

The general rule for enclosure sequencing is "bottom-up, inside-out." Before outer metal wall panels and high roof flashings are set, the structural framing and sheathing must be in place, followed closely by the continuous installation of the roof-to-wall transition membrane.

Championing climate control

Designing air barrier systems for metal buildings requires a climate-informed approach that considers not only where the barrier is placed, but how it interacts with the entire enclosure. As the industry continues to emphasize energy efficiency and resilience, climate-specific air barrier design will remain a critical component of successful projects. MA

Notes

[1] Lstiburek, J. (2006). Understanding Air Barriers. Building Science Digest, Building Science Corporation.

[2] ASHRAE. (2021). ASHRAE Handbook—Fundamentals. American Society of Heating, Refrigerating and Air-Conditioning Engineers.

[3] Künzel, H. M. (1995). Simultaneous Heat and Moisture Transport in Building Components: One- and two-dimensional calculation using simple parameters. Fraunhofer Institute for Building Physics.

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Healthy Metal Design: Exploring the WELL Movement concept

Designs can directly affect how people experience buildings. Exploring what it means for a space to keep people happy and well, *Metal Architecture* speaks with the International WELL Building Institute (IWBI) specialists in this exclusive Q&A series.

A recognized global authority on health and wellness in the built environment, IWBI has outlined the WELL Standard—the evidence-based roadmap that organizations worldwide use to measure and improve health—with 10 WELL Concepts that define the criteria for occupant health and well-being. Further, the incorporation of metal at the design stage by architecture, engineering, and design (AED) professionals can help projects meet certain WELL Certification requirements.

This edition of "Healthy Metal Design" explores the WELL Movement concept and how it can help chart a path for architecture, engineering, and design (AED) professionals toward healthier buildings.

Meet the expert

Vienna Williams, MPH, PMP, WELL AP, is vice president of standard development and the WELL Movement concept lead at the International WELL Building Institute. She co-leads the team responsible for developing, maintaining, and evolving the WELL Standard—the evidence-based roadmap that organizations worldwide use to measure and improve health. Her work spans the full arc of the WELL Standard and WELL program: from shaping technical requirements and program rules to developing the tools and resources that help organizations put WELL into practice. She holds a Master of Public Health in Epidemiology at Columbia University's Mailman School of Public Health.

The WELL Movement concept

The thinking behind WELL Movement is to promote physical activity in everyday life through environmental design, policies, and programs, thereby ensuring that movement opportunities are integrated into the fabric of our daily routines, buildings, and communities.

Key terms

Active buildings and communities: Buildings and communities that go above and beyond to support physical activity by including specific design elements that encourage rather than prohibit movement.

Circulation network: Corridors, stairs, lobbies, and other occupiable areas within a building that support the movement of occupants throughout the space and the adjacent community.

Point-of-decision signage: The point at which a choice or decision must be made. Point-of-decision signage and prompts may include physical or digital signage or other cues to educate, encourage, and/or motivate individuals toward a desired behavior or selection, such as opting to use the stairs instead of an elevator.

Visible stairs: Stairs designed to be visually prominent or include open or transparent elements that allow occupants to see into the stairs.

Unpacking movement in design

Metal Architecture: *According to the WELL Standard, what is required in the design of an active building?*

Williams: The WELL Standard approaches active building design through holistic design strategies that make movement a more natural part of our daily rhythms and the way we use the spaces where we spend our time. The goal of the Movement category in the WELL Standard is not to mandate a gym membership, but to make a healthy choice the easy choice.

Roughly 25 percent of adults and 80 percent of children worldwide fail to meet recommended physical activity levels, and the built environment is one of the most powerful levers we have to change that.

WELL's Movement concept asks project teams to select design strategies that best fit their context, such as stair design, active commuting infrastructure, onsite fitness opportunities, or broader site selection criteria that prioritize walkability. The common thread is intention: every design decision is an opportunity to invite more movement.

Design-based strategies refer to WELL v2 strategies: V01, V03, V04, V05, V08.

Metal Architecture: *What are the main considerations for designing an optimized circulation network?*

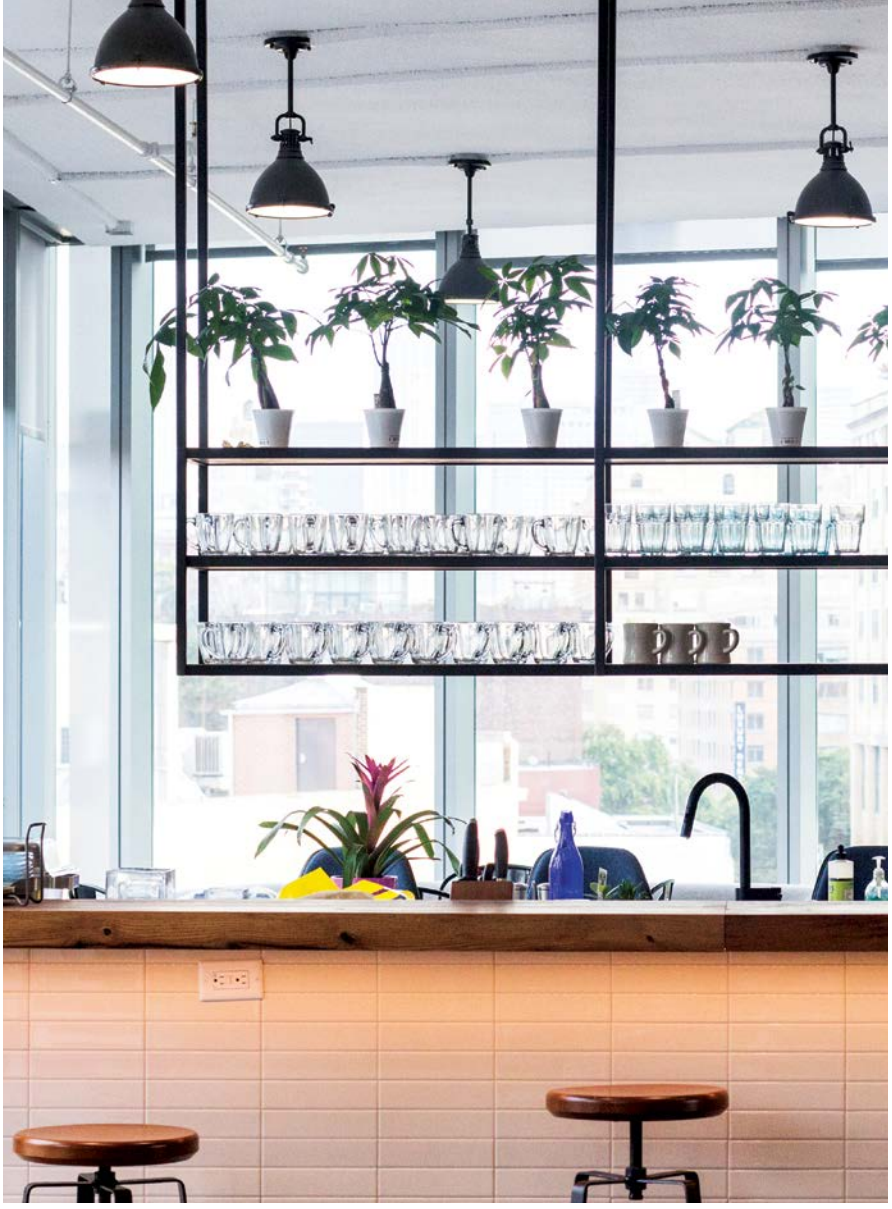
On this spread:

Left: The Heron's rooftop terrace in Water Street, Tampa encourages occupants to move around.

Photo by Robin Hill/ courtesy CookFox Photo and Strategic Property Partners

Right: The metal staircases in Citi Tampa's building act as a focal point for occupants.

Photo courtesy IWBI



The Delos office at 860 Washington Street in New York City, N.Y., uses metal to provide a fluid environment that invites movement in an indoor-outdoor space.

Photo courtesy IWBI

Williams: Circulation routes are where designers have an outsized opportunity to influence everyday behavior for all people without requiring people to make a conscious decision to exercise.

While WELL strategy V03 focuses on the activation of stairs, these principles can also be extended to horizontal circulation routes throughout the building. Focusing beyond the stairs to the broader floor plan and travel routes makes this design intention more inclusive.

Three strategies stand out in the evidence base. First, visibility matters. Stairs located close to entrances and encountered before an elevator are more likely to be used for everyday travel.

Second, point-of-decision prompts and signage are effective at motivating stair use across multiple building types, including offices, transit stations, healthcare facilities, and retail environments. Incorporating signage into the architecture and aesthetic of the building is also an area where designers play a key role.

Lastly, beautiful stairs get used. Evidence suggests aesthetic improvements to stairwells can increase stair use.[1] And there is so much creative latitude that designers can use to create inviting stairs through materials and finishes, art installations, lighting, and more.

Refer to WELL v2 feature V03 Parts 1,2,3.

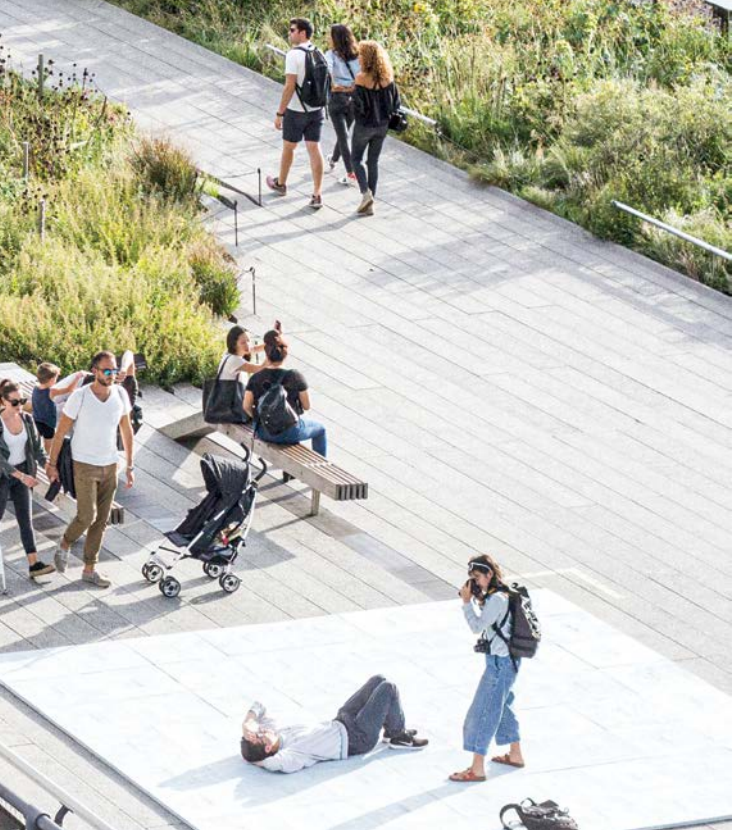
Metal Architecture: *What facilities can be incorporated into designs to support active building occupants?*

Williams: End-of-trip facilities are among the highest-impact investments a building can make to promote physical activity. Secure indoor bicycle parking is consistently one of the most effective amenity provisions for encouraging active commuting, valued more highly by cyclists than outdoor alternatives. Onsite shower facilities are also associated with increased rates of cycling to work.

While the emphasis can appear to focus heavily on people cycling to work, these facilities support everyone who is moving throughout their day and encourage moving before, during, or after work as a cultural norm.

Beyond commuting infrastructure, proximity to fitness space matters. Research shows that closer proximity to and higher density of fitness facilities are associated with greater frequency of physical activity. WELL asks projects to provide a dedicated indoor physical activity space—either onsite or within 200 m (656.2 ft) of the project boundary—and no-cost access to at least one outdoor physical activity space within a short walk.

Refer to WELL v2 features V04 Parts 1 and 2; V08 Parts 1 and 2.



Metal Architecture: *How can a building's design become pedestrian-friendly?*

Williams: WELL's approach centers on five core themes supported by robust research: proximity, connectivity, density, safety, and aesthetics.

While many of these elements relate to the broader surrounding community, there are a number of ways that designers can influence the impact that an individual building has on the pedestrian environment around that location.

Incorporating variation in facade materials and color, and offering transparency into the space provides a more inviting environment surrounding a building, and these tactics are associated with increased pedestrian activity.

Architects and manufacturers specializing in metal materials have ample opportunities to leverage the building's frontage and facade, incorporating metal as part of their holistic strategy to support pedestrian activity around the building. Varying materials by incorporating metal, expanding intrigue and refuge through metal awnings or overhangs, or connecting the building to the surrounding community through artistic installations are just a few of the many ways that metal can be used to support the goals of the WELL Standard.

Refer to WELL feature V05 Part 1. MA

Notes

[1] Learn more about the merit of aesthetically appealing staircases with "A Systematic Review of Interventions to Increase Stair Use" from the American Journal of Preventive Medicine, 2016; 52, 106-114

Photo courtesy Strategic Property Partners

The Heron in Tampa, Fla., uses metal sun reflectors to encourage movement across the surrounding plaza.

Movement in design practice

By Yan Tai, WELL AP, WELL Faculty, senior vice president of communications at IWBI

Metal, often perceived as industrial, can be a powerful unifying design element when thoughtfully integrated into architecture and the surrounding landscape.

Through its versatility in form, finish, and reflectivity, metal can echo local context—tying buildings to their natural or cultural setting while reinforcing a cohesive visual identity across a site or community. At the same time, metal elements can do more than define aesthetics; they can actively shape how people move through space.

Several WELL Certified projects exemplify the thoughtful incorporation of metal in architectural design and successfully promote movement for people actively using each space.

Trailblazers in Tampa

At The Heron—part of Water Street Tampa, the first WELL Certified Gold community in the United States—copper sun deflectors on the building add a sculptural dimension to the architecture, casting dynamic patterns of light and shadow throughout the day. The installation not only distinguishes the space within its urban context, but also draws people in, encouraging movement and everyday activity across the plaza.

A metal sunshade defines the Thousand & One rooftop terrace in Tampa, Fla., pairing structural resilience with a refined, modern aesthetic. Beyond weather protection, the design creates a comfortable, visually cohesive outdoor environment that invites occupants to move, gather, and engage more freely.

A third project in Tampa, Fla., the Citi Tampa building, features centrally located metal staircases, which serve as both architectural focal points and functional pathways, encouraging employees to choose movement throughout the day. By elevating visibility and design, the stairs become a natural alternative to elevators, supporting more active daily routines.

Walking meeting by design

At EDGE West in Amsterdam, the designers introduced a room made specifically for walking meetings. At its center is one big square walking belt that functions like a treadmill so that people can walk as they talk.

Motion in Manhattan

At the Delos office, a WELL Certified Platinum workplace overlooking Manhattan's High Line, metal and natural materials are integrated to reflect the park's industrial-meets-organic character. This visual and spatial continuity between inside and out fosters a fluid environment that invites movement—from wellness breaks to walking meetings—throughout the day.

From sculptural staircases and inviting walkways to shaded canopies and articulated facades, these projects showcase how metal can guide circulation, create visual cues, and encourage exploration—supporting more dynamic, engaging environments that align with the WELL Movement concept. MA

Where Metal Meets Metal

Integrating caulks and sealants into design

By Sean Comerford

Photo © Nikcoa | Dreamstime.com

Fundamental to the long-term success of metal buildings, sealants and joint design are more than simply accessories applied at the end of construction. They are integral to managing movement, controlling moisture, supporting energy efficiency, UV/weather resistance, adhesion, and preserving aesthetics.

Where metal moves, the seal must follow

The first design reality in metal buildings is movement. Metal expands and contracts with temperature swings, and that movement can be substantial over long panel runs, roof systems, and exposed exterior surfaces. The resulting stress is concentrated at seams, laps, penetrations, and transitions, where sealants must stretch, compress, and maintain adhesion over time.

That makes flexibility one of the most important sealant selection criteria. Movement capability comes up repeatedly in practice, especially in roofs and joints where thermal cycling is constant.

Silicone sealants are often favored in these situations because they generally offer greater elasticity and can better accommodate expansion and contraction.

Exposure conditions matter as much as the substrate

Metal itself may be broadly compatible with many sealant chemistries, but the service environment is what often determines whether a seal lasts.

Exterior metal assemblies are exposed to environmental impacts such as UV radiation, moisture, freeze-thaw cycling, standing water or salt, and wide temperature swings. Roof systems, gutters, wall panels, and facades each present a different combination of those stresses.

For this reason, a one-size-fits-all approach rarely works well.

Specifying for performance

It is crucial to understand the scope of the performance attributes an assembly needs, including movement capability, weather resistance, adhesion to coated metal, compatibility with adjacent materials, and paintability.

Some critical assemblies require deferring to the metal system manufacturer's tested recommendations for penetrations, laps, and transitions.

Silicone sealants

Silicone sealants perform well in exterior and wet environments. They support movement and resist UV exposure, making them appropriate for gutters, downspouts, and exterior seams.

Some professional-grade silicone sealants have specific advantages including:

- curing tack-free in 30 minutes and fully curing in 24 hours.
- performing in temperatures ranging from -59.4 C to 232.2 C (-75 F to 450 F).
- accommodating approximately 25 percent joint movement, helping accommodate the expansion and contraction of metal assemblies.

Polyurethane sealants

These sealants are known for their strong adhesion, flexibility, and compatibility with various substrates, making them ideal for metal construction applications such as gutters and ductwork.

Some formulations support sustainability goals and provide durable, weather-resistant seals over a temperature range from -40 C to 82.2 C (-40 F to 180 F). This versatility is beneficial in metal building systems where movement and moisture exposure are common.

High-heat sealants

High-heat components require materials rated for elevated temperatures. High-heat silicone maintains structure around boilers, vents, and flues. Some high-heat sealants perform in temperatures ranging from -62.2 C to 315.6 C (-80 F to 600 F) with ±25 percent joint movement, supporting seals exposed to continuous or intermittent heat.

Roof and flashing sealants

Choose petroleum-based flashing sealants only when compatible with surrounding materials, as some can negatively affect rubber components.

Key sealant applications in metal architecture

Sealants are used throughout metal buildings, each application presenting unique challenges and requirements.

Metal roofs

Roof systems must withstand direct UV exposure, temperature extremes, and standing water, while also allowing limited access for repairs. Accurate placement of penetrations is critical, as mistakes are difficult to conceal once panels are installed. Sealants must maintain flexibility and adhesion to prevent leaks over time.

Wall panels and facades

Architectural facades often feature exposed joints where sealants are both functional and visible. These joints must accommodate daily thermal movement. resist weathering, and maintain visual consistency. Sealants that adhere well to coated surfaces and retain flexibility are essential in these applications.

Gutters and drainage systems

Gutters and downspouts are constantly exposed to moisture and experience frequent expansion and contraction. Sealants must withstand these cycles without cracking or separating, particularly in freeze-thaw climates.

HVAC and ductwork

Metal duct systems introduce additional variables such as vibration and airflow pressure. Sealants must work in conjunction with mechanical fasteners to maintain airtight connections under dynamic conditions.

High-heat areas

Applications involving vents, flues, and mechanical equipment require sealants rated for elevated temperatures. Standard products may fail under these conditions, making high-heat formulations essential.

Balancing performance and design intent

Visual presentation is often as important as performance. Exposed joints, panel seams, and facade details demand careful attention to sealant appearance.

Design considerations include:

- Color matching: Sealants are available in a range of colors to blend with metal finishes.
- Clear options: Transparent sealants can minimize visual impact where color matching is difficult.
- Tooling and application: Clean, consistent lines enhance appearance and reflect craftsmanship.
- Paintability: Not all sealants accept paint; specifying paintable options is critical when coatings are applied.

Sustainably sealing metal facades

Sealants are not always the first material category discussed in sustainable design, but they still matter. The use of certain paints, coatings, sealants, and adhesives can also help a building earn LEED certification points. Use low- or zero-VOC sealants and caulks for all applications to improve and maintain indoor air quality (IAQ).

At the same time, a sealant that fails prematurely and requires frequent replacement is inherently less sustainable than one that performs reliably for years under the same conditions. MA

Sean Comerford *is the manager of inside sales and tech support at Oatey Co.*

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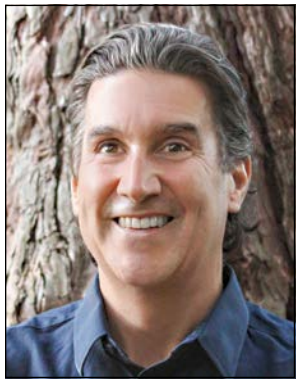

How metal supports core infrastructure for the built environment

By Alan Scott

Left: Photo © thianchai sitthikongsak/courtesy Alan Scott via Getty Images

Right: Photo © dowell/courtesy Alan Scott via Getty Images

The U.S. solar market is entering a new phase, one defined less by incentives and more by economics, resilience, and necessity. Solar is no longer a niche sustainability strategy; it is becoming core infrastructure. Metal construction, especially metal roofing, lends itself well to the integration of rooftop solar arrays and solar-ready construction.

While the expiration of residential tax credits and the phased reduction of commercial incentives have created uncertainty in parts of the market, the demand for solar continues to grow because the underlying drivers are stronger than ever.

Electricity costs are rising rapidly, with U.S. rates increasing significantly in recent years and expected to continue climbing. At the same time, grid constraints are intensifying, driven by electrification, data centers, and aging infrastructure.

Resilience is now a priority, not a luxury.

The case for solar-ready design

Not every project can include solar and energy storage at the time of construction. However, designing for future integration is both practical and cost-effective, and the use of metal in these designs can create buildings that are ideally adaptable for integrated solar systems.

Metal materials, such as standing seam panels, enable roofing additions and attachments using clamps. This avoids penetrating the roof, a relatively costly endeavor that can lead to additional concerns. Designing roof structures to accommodate the future loads of solar

arrays and installing conduit pathways from roofs to electrical rooms are key forward-thinking steps toward making a roof solar-ready.

Other steps include allocating space for inverters and battery systems and aligning electrical infrastructure with the National Electric Code (NEC) and net-zero-ready design best practices.

These relatively minor steps can significantly reduce the cost and disruption of future installation, protecting long-term asset value.

Where solar works now

One of the most important shifts discussed across the industry is the growing limitation of the electrical grid itself. Transmission infrastructure is aging, constrained, and expensive to expand. This reality is accelerating the shift toward distributed energy resources (DERs), with generation located close to the loads they serve.

Commercial integration

Commercial rooftop solar is particularly well-positioned. Mark Schottinger, president and chief legal officer at Solar Landscape, says it "represents one of the most immediate and scalable solutions to provide rate relief by increasing generation where electricity is consumed." It avoids land-use conflicts and NIMBY resistance, can be deployed quickly, makes energy proximal to its load, and reduces transmission losses and interconnection delays".

Front-of-the-meter rooftop solar has become increasingly attractive to commercial real estate owners due to its low operational complexity. In this model, the developer owns and operates the system, while the property owner receives predictable income without investing capital or managing the asset.

Storing solar onsite

While solar alone is compelling, the real transformation happens when it is paired with battery energy storage. This combination unlocks multiple, stacked benefits from energy savings, returns from net metering rates, preparedness for grid outages, and additional revenue streams.

Jon Miller, development director of renewables with McKinstry, explains, "Combining solar with storage multiplies the benefits; it transforms a static generation asset into a flexible energy resource".

Angela Crowley-Koch, executive director of Oregon Solar + Storage Industry Association (OSSIA), highlights the rise of virtual power plants, where distributed systems are aggregated to support grid stability, creating new value streams while improving resilience.

Aligning with LEED v5: solar as core strategy

The emergence of LEED v5 further reinforces the role of solar and storage in high-performance buildings. The new framework emphasizes:

- Decarbonization: Onsite renewable energy directly reduces operational carbon emissions.
- Electrification: Solar supports the transition away from fossil fuel-based systems.
- Grid-interactive buildings: Solar with storage enables buildings to respond dynamically to grid conditions.
- Resilience: Distributed energy supports continued operation during outages.

In LEED v5, climate risk assessment and resilience strategies are integrated into early design phases. Solar and storage systems are no longer optional add-ons; they are increasingly central to achieving certification goals and meeting owner expectations.

A clear direction forward

The solar market is becoming more economically grounded, more resilient, and more integrated into the built environment. The implications are clear:

- Solar and storage should be considered early in design
- Buildings should be designed as energy assets
- Distributed energy systems are becoming core infrastructure

Despite policy shifts and market adjustments, the fundamentals of solar have never been stronger. Costs are down, demand is rising, the grid is constrained, and resilience is no longer optional. Solar, especially when paired with storage, uniquely addresses all of these challenges at once. It reduces operating costs, lowers carbon emissions, enhances resilience, and increases asset value.

The opportunity now is not simply to install solar and storage, but to integrate it into the DNA of building design and construction. Projects that do so will not only perform better but also be more adaptable, more resilient, and better aligned with the realities of a rapidly changing energy landscape.

For the metal building sector, the opportunity is especially compelling. Long service life, adaptable structural systems, and durable roof assemblies provide an ideal platform for integrating solar systems, while also supporting simplified maintenance, future flexibility, and long-term compatibility with evolving electrification and resilience strategies.

For the design and construction community, the question is no longer whether solar makes sense, but how quickly it can become standard practice. MA

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Preserving Perishables

with the Food Bank of the Rockies' IMP-powered facility

By Hanna Kowal

Photos courtesy Kingspan Insulated Panels North America

Food insecurity is on the rise, according to the U.S. Department of Agriculture, Economic Research Service's "Household Food Security in the United States in 2024" report. Fortunately, in the Colorado and Wyoming areas, the Food Bank of the Rockies' new 25,083.8 m^2 (270,000 sf) facility with 5,388.4 m2 (58,000 sf) of cold storage in Aurora, Colo., serves locals on a large scale to combat this crisis. The structure provides cold storage with substantial capacity for perishable food items, capitalizing on the thermal regulation capabilities of insulated metal panels.

Empowered by hundreds of hunger relief partners and a strong force of volunteers, employees, and donors, this food bank accepts and distributes loads of varying sizes of dry, refrigerated, and frozen goods.

A joint effort between Chamberlin Architects and Industrial Refrigeration & Design, the design aimed to create an environment with streamlined logistics and a dynamic aesthetic, completed on a tight timeline to meet urgent local hunger relief needs.

The IMPs that make up the building's envelope feature interlocking joints and minimize heat transfer with continuous insulation and R-values of up to 8.0 per 24.5 mm (in.). They create an air- and weather-tight environment, making them ideal for cooler and freezer storage spaces.

Providing visual flow to the building, the panels' ribbed profile offers a clean, textured appearance with both vertical and horizontal installation. The project used 934.1 m^2 (10,055 sf) of 76.2 mm (3 in.) IMPs on the facade and 6,047.2 m^2 (65,092 sf) of 127 mm (5 in.) IMPs on the interior, enabling seamless installation in just two months.

This high-performing design signifies growth as the Food Bank of the Rockies expands its capabilities to serve the increasing needs of the Colorado and Wyoming population. MA

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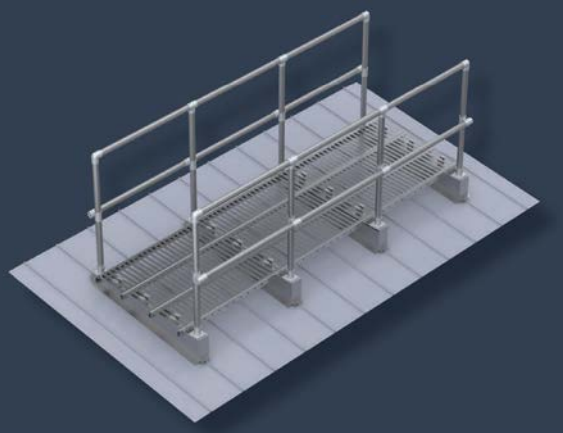

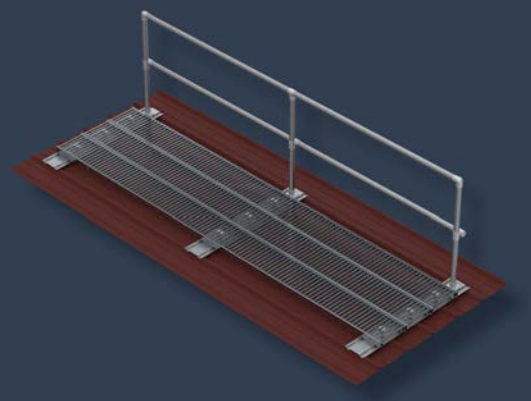

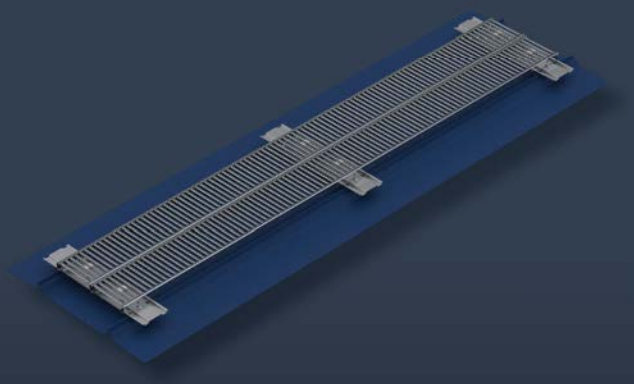

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