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Marking milestones with *Metal Architecture*

The strongest industries continue to develop by building on experience, embracing new ideas, and listening to the people shaping what's ahead.

That spirit of progress is reflected throughout this issue of *Metal Architecture*.

We're proud to celebrate the 70th anniversary of the Metal Building Manufacturers Association (MBMA) with a special report recognizing an organization that has helped shape the growth of metal building systems for generations.

You'll also find the results of our annual Salary Survey, offering a snapshot of compensation, hiring, and workforce trends across the industry.

This issue also marks an exciting milestone for *Metal Architecture* as we introduce our inaugural Editorial Advisory Board. We're honored to welcome seven accomplished architects whose collective experience spans education, healthcare, commercial, residential, civic, and mixed-use design. Representing firms from across the United States, they bring diverse perspectives that reflect the breadth of today's architectural profession.

As trusted advisors, they'll help identify emerging trends, share insight into the challenges and opportunities facing architects, and ensure we continue to deliver timely, relevant, and meaningful editorial for our readers.

To Arnold Swanborn, Charles Blossies, Joshua Zinder, Peter Bafitis, Peter Gaito Jr., Charles Smith, and Jerrard Hall, thank you for joining us on this journey. We are grateful for your willingness to share your expertise and help shape the future of *Metal Architecture*. I know our readers will benefit from your knowledge and perspective. 

Melanie Kowal



Melanie Kowal

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 **Jerrard Hall, Assoc. AIA**, is a design associate at KAI Enterprises whose work reflects innovation, leadership, and a profound commitment to community impact. He has a Master of Architecture from the Georgia Institute of Technology and has delivered transformative projects across multiple states and scales.

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Architecture + Design





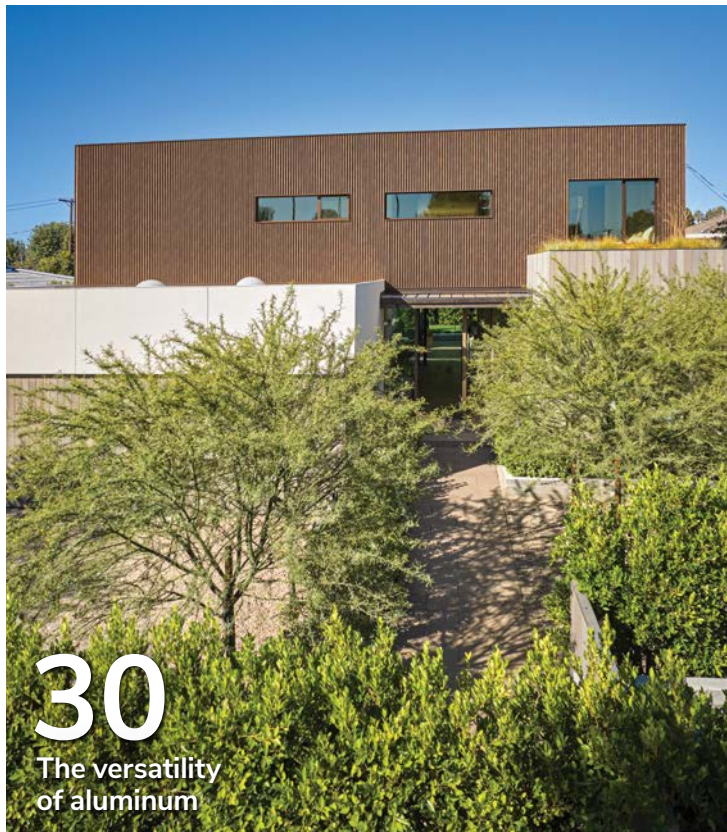
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On The Cover

For this California residence, the design team selected an antique-style distressed aluminum finish that mimics the appearance of bronze and brass in its tone and texture and achieves a warm aesthetic.

Photo by Benny Chan



Aviation and automotive architecture with EMPAD Architecture + Design

By Hanna Kowal

Personal Pitstop Express car wash in Tampa, Fla.

Photo by Mark Borosch/
courtesy EMPAD

EMPAD Architecture + Design is a 23-year-old full-service firm based in Florida that has worked across a wide array of sectors, from commercial to healthcare, and has taken on projects across the U.S. and the Caribbean. The firm has offices located in Tampa and Clearwater.

“Everyone here is a project manager or a project architect, and so everyone is working on their individual projects and is exposed to every aspect of the AEC industry,” explains Chris Culbertson, president and principal architect. “They’re involved with the client, the contractor, and the municipalities in every aspect.”

In conversation with Culbertson, *Metal Architecture* explores the firm’s integrated design process and how metal supports automotive and aviation architecture.

A perfect pair: pre-engineered metal building systems and planes

Aviation architecture always starts with one big metal occupant: an airplane. Designing a building that can support and protect an aircraft requires significant space.

According to Culbertson, “a PEMB is the most common, cost-effective way to get the span that you



Top: Sheltair at the Tampa International Airport.

Photo by Aerial Innovations/
courtesy EMPAD

Bottom: EMPAD's hangar designs use PEMBs for their wide, clear spans.

Photo courtesy EMPAD

need for a hangar." As such, the design of all EMPAD's aviation projects leans heavily on metal building systems.

The firm recently completed a 50,000 sf (4,645.15 m²) project for Sheltair at the Tampa International Airport. For projects of this magnitude, metal delivers a clean, cohesive appearance across the Florida Sheltair facilities while meeting the state's strict hurricane-resistance requirements.

The hangar's exterior roof and walls are made of PBR steel panels. False parapets disguise HVAC units, contributing to a cleaner architectural profile while translucent panels bring controlled daylighting indoors. This particular design includes two office sections surrounding an open area, allowing access for an aircraft tug.

Linear directional variation enriches the facade design of a private hangar for Medallion Homes in Sarasota. This ongoing project, measuring 30,000 sf (2,787.1 m²), combines smooth aluminum composite material panels with vertically and horizontally oriented ribbed panels on the exterior of the facility's office area. The creative, dynamic combination of metal materials brings a distinctive textural spin to a standard PEMB shape.

Metal materiality in a modern car wash

While some projects thrive with pre-fabrication, others use metal with complex framing that requires onsite construction. The results can be extraordinary.

In Tampa, the Personal Pitstop Express car wash creates a striking architectural statement. Culbertson explained how the owner's vision influenced material specification from the start: "His words were 'streamlined and sleek and modern.' Architecturally, that language speaks metal."

Its unique shape emerged from a rough sketch, drawn up by Culbertson and the project architect, senior project manager Juan Ricardes. This was translated into SketchUp and presented to the client along with two additional schemes, each simpler and notably more cost-effective. As the initial design faithfully articulated the client's sophisticated vision, it was selected for the project.

Light-gauge steel framing enabled the unique shape. The structure was clad in corrugated metal panels, fitted into angles that seamlessly align with the design's geometry. As an unexpected byproduct of the dynamic angles, the shadows create a dramatic two-tone look with the same material and finish.



Top: A private hangar for Medallion Homes in Sarasota.

Bottom: The design for these car condominiums in Lakewood Ranch, Fla., includes ACM accents and a metal pergola.

Renderings courtesy EMPAD

Accentuating automotive designs

In automotive designs, metal materials serve as accent elements as well as full-facade cladding.

The design of a car condominium in Lakewood Ranch, Fla., demonstrates this concept well. Its framing is steel, and the facade is primarily concrete; however, aluminum composite material and horizontal metal panels define the building's aesthetic. While used only as an accent around the car condo's welcome center, the material draws attention with its sleek presentation.

This design also includes a metal pergola system that mimics the appearance of wood. The system adds warmth to the automotive center, without the upkeep implications of the natural material it emulates. Culbertson explains, "It's going to last forever with its longevity, no maintenance, and no fading."

ACM is also used at some Tesla service center locations, many of which are designed by EMPAD. Culbertson says, "We use ACM quite a lot on entrance features, usually. It's not typically the entire building. It'll be an entrance feature or a tower." The material draws focus to the accented portions of the structures and enables a clean, crisp representation of the company that will uphold the brand's colors for years to come.

Practicality, creativity, and metal

As a contextual material with an inherent connection to automotive and aviation facility design, metal nods to the composition of the vehicles these building types support. It also fits into the broader context of architectural work, providing everything from crisp aesthetics to structural performance.

Across these projects, the material is used differently depending on the building type: a wide-span system in hangars, sculptural cladding in the car wash, and an accent element in automotive facilities. This demonstrates metal's role in aviation and automotive building design: a comprehensive material strategy for style and structural performance.

Metal architecture enforces cohesive, contextual design in the automotive and aviation facility niche, and EMPAD reflects the scope of its capabilities through its versatile portfolio of sector projects. [Metal](https://www.metalarchitecture.com)

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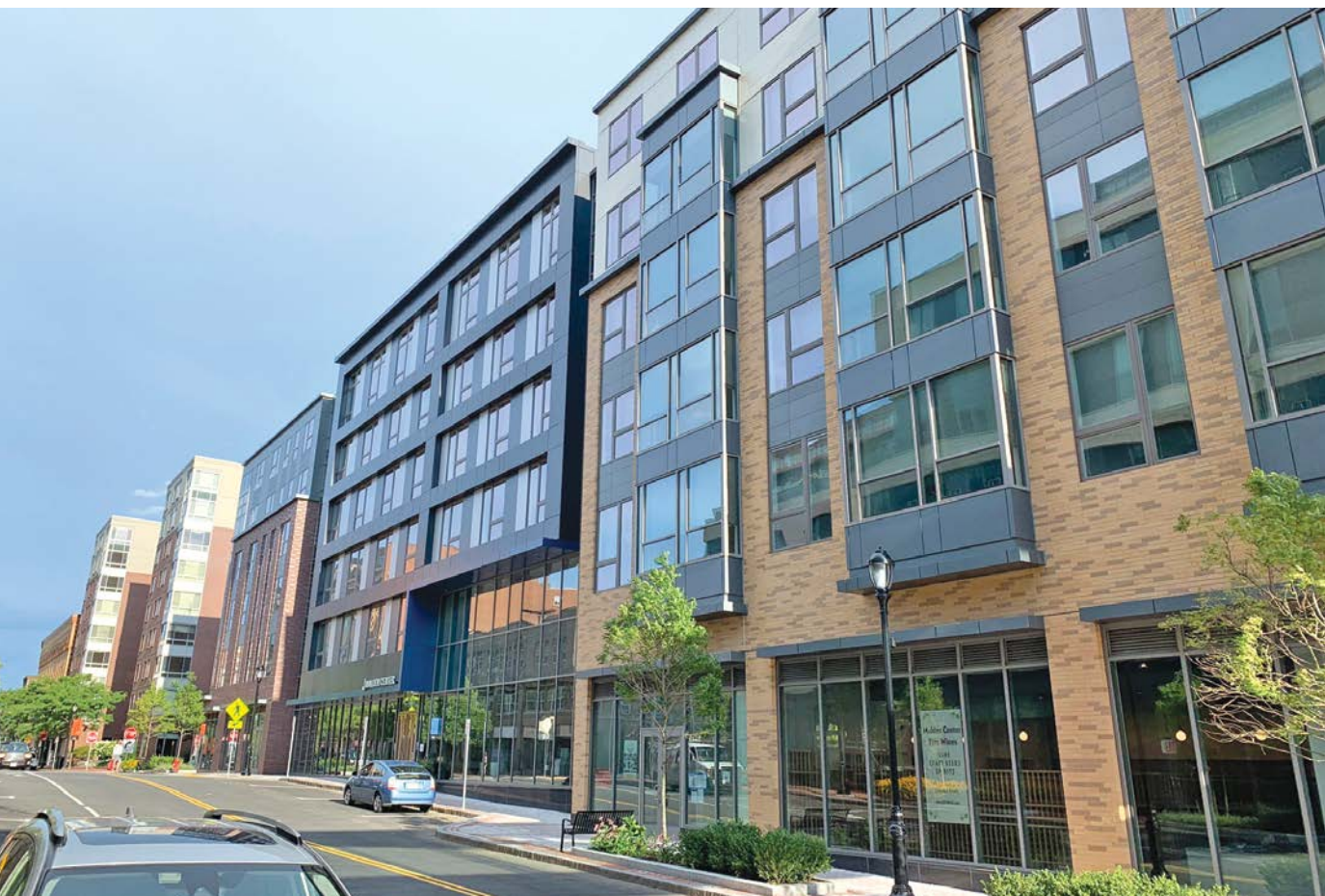
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Maximizing metal performance in mixed-use residential design

By Jason Sherrill

The J Malden Center in Malden, Massachusetts, incorporates aluminum composite material and perforated aluminum plate in its facade.

Photo ©CBT Architects

As mixed-use residential buildings continue to grow in scale, density, and program complexity, the exterior envelope must serve multiple programs. Contemporary projects routinely combine residential units with at-grade retail, office, or hospitality-style amenity spaces, podium parking, rooftop decks, and heavily glazed common areas. Each zone can bring different priorities for weather protection, thermal comfort, acoustics, fire resistance, durability, maintenance access, and visual character. For the enclosure team, the challenge is to design a wall assembly that can perform across changing occupancies, interfaces, and exposure conditions while still reading as a coherent architectural composition.

In metal facades, the most successful buildings treat cladding not as an isolated finish layer but as one component in a coordinated enclosure strategy.

The retail base often prioritizes transparency and durability at the pedestrian level. Residential floors above require comfort, privacy, repetitive opening control, and robust moisture management around balconies and punched windows. Amenity spaces add larger openings and more complicated transitions at parapets and roof edges. The result is a facade with more interfaces and more changes in geometry.

An early alignment of panel module, support spacing, cavity depth, attachment strategy, opening conditions, waterproofing transitions, movement joints, finish selection, and sequencing is crucial. When those decisions are made in the design and engineering stage, the team can reduce field cutting, absorb construction tolerances more gracefully, and avoid forcing elegant elevations into inefficient attachment patterns or poorly resolved interfaces.



In mixed-use residential work, water management is complicated by balconies, slab edges, frequent penetrations, retail canopies, storefront transitions, and changing wall depths. Building science guidance has long emphasized that drained and screened wall systems should be designed with the expectation that some water will pass beyond the outer cladding and must be safely redirected to the exterior. That principle remains essential for metal cladding. A continuous water-resistive barrier, integrated flashing at every interruption, and a ventilated cavity large enough to manage both drying and tolerances are far more important to long-term success than the finish material alone.

The J Malden Center in Malden, Mass., illustrates how this performance logic can coexist with a complex urban mixed-use program. The approximately 550,000 sf (51,100 m²) development combines residential space with retail, commercial office, and civic functions. According to the project case study, the design, construction, and facade team collaborated early, and the enclosure used a rear-ventilated rainscreen approach with aluminum composite material and perforated aluminum plate.

Window interfaces and transitions warrant the same level of attention as the panel field. A refined panel layout cannot compensate for weak detailing at sills, slab edges, parapets, canopies, or shelf-angle conditions. In mixed-use residential buildings, those are often the locations where occupancies, structural systems, and facade depths change. Mockups can then validate drainage sequencing, closure conditions, and tolerances around windows and adjacent materials.

Projects such as 425 Summit Avenue in Jersey City, N.J., help frame why this matters. The 27-story mixed-use multifamily tower combines residential units, ground-floor retail, amenity space, a rooftop deck, and a green roof in a transit-oriented setting. The facade must support openness and durability at the retail base, comfort and repetition at the residential tower, and carefully managed transitions at roof amenities and highly exposed upper-level conditions. In buildings like this, thermal continuity is repeatedly compromised by clip attachments, slab edges, shelf angles, canopies, and openings.

Reducing these losses means minimizing unnecessary conductive penetrations, coordinating clip

Left: Alternate view of the J Malden Center's mixed-use facade.

Photo ©Greg Shupe

Right: 425 Summit in Jersey City, New Jersey, prominently includes aluminum composite material cladding on a mixed-use multifamily tower.

Photo ©Patrick Lennon



The Bridge District Phase 1 in Washington, D.C., uses 0.125 in. (3.175 mm) aluminum plate and aluminum composite material in a highly customized mixed-use residential facade.

Photo ©ZGF Architects

and rail layouts with continuous insulation, limiting interruptions at slab lines where possible, and resolving window-to-wall transitions to ensure insulation and air barrier continuity is not repeatedly broken.

Coordination becomes even more critical when the architecture relies on varied geometry, custom profiles, or multiple finish transitions. The Bridge District Phase 1 in Washington, D.C., offers a strong example. The development incorporates approximately 78,000 sf (7,246 m²) of post-painted 0.125 in. (3.175 mm) aluminum plate and approximately 2,100 sf (195 m²) of 0.157 in. (4 mm) aluminum composite material. Public project information notes that the scope involved roughly 6,000 custom panels, multiple color schemes, unique angles, welded conditions, and varied returns and profiles. In a project of that scale, performance success depended on the rationalization of panel families, attachment zones, finish sequencing, and delivery rhythm.

Fire and acoustic performance also require assembly-based thinking. Occupant comfort and

life safety depend on both the cladding and on the continuity of the whole wall build-up at joints, floor lines, penetrations, and interfaces with windows and adjacent materials. Guidance from the U.S. Department of Housing and Urban Development on residential steel framing emphasizes that fire and acoustic outcomes rely on complete assemblies rather than isolated components. Similarly, where exterior wall assemblies contain combustible components, compliance pathways may require testing the full wall assembly rather than relying on assumptions based on individual products.

Corrosion resistance and maintainability round out the performance discussion. Mixed-use residential projects may expose facades to de-icing salts, pollution, irrigation splash, rooftop runoff, and repeated cleaning cycles. A panel that works well in elevation can become a long-term liability if exposed edges, fasteners, and terminations are not protected for the specific environment or if access for inspection and replacement is poorly considered. The most resilient projects match finish and material selection to orientation, runoff patterns, and maintenance realities, not simply to first cost or rendered appearance.

For architects and project teams, metal delivers its best results in mixed-use residential design when the moisture control, thermal continuity, movement, sequencing, and visual intent are interdependent. The J Malden Center shows the value of early rainscreen coordination across a complex urban program. 425 Summit illustrates how one building can demand different enclosure responses at retail, residential, and amenity zones. The Bridge District demonstrates that ambitious geometry and finish transitions can succeed when panelization, fabrication, and sequencing are designed with equal rigor. Together, these projects demonstrate how early enclosure coordination helps multifamily and mixed-use buildings achieve moisture control, thermal continuity, constructability, and long-term durability. **Mei**

Jason Sherrill is a co-owner of CEI Materials. With more than 30 years of experience as a business owner in exterior construction services and more than two decades in commercial cladding, he brings expertise in high-rise building access, installation services, 3D scanning, reality capture, and more to CEI's leadership team.

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Optimizing openings in overhead door retrofits

By Heather Bender

Photos courtesy
Clipay Corporation

A historic 1921 theatre in Sidney, Ohio, features clear vertical stacking doors to provide direct access to multipurpose rooms that flank the main entryway.

Driven by the need to update aging buildings to meet evolving building codes, improve energy performance, and streamline daily operations, retrofit and renovation projects now account for a significant share of commercial construction.

Overhead sectional and rolling steel doors are often included in these upgrades, from distribution centers and manufacturing facilities to retail storefronts and mixed-use developments.

When selecting commercial doors for retrofits, architects face a unique set of challenges that differ from new construction. Several issues can surface during demolition or inspection, including hidden structural deficiencies, outdated construction methods, or the presence of hazardous materials. Sequencing, site

access, and coordination with adjacent systems, such as cladding, air barriers, and structural reinforcements, must be carefully planned with flexibility in mind.

Overcoming spatial and structural limitations

In tight urban sites or older industrial buildings, structural elements, mechanical systems, or low ceilings can restrict available space. Door openings may be undersized, out of square, or framed with materials that no longer meet current load requirements. Over time, settlement can also distort openings, introducing tolerance issues that complicate door installation.

As even small deviations can affect door fit and operation, field verification should go beyond basic



dimensions to include the available headroom, side room, and back room. Structural evaluations should include a thorough review of the existing jambs, headers, anchoring substrates, and surrounding wall construction.

Scenario-based strategies

In retrofit scenarios where ceiling clearance is limited or obstructions are present, varied track system options enable full door functionality without major structural alterations.

The Historic Sidney Theatre in Sidney, Ohio, for example, is a 1921 landmark that was restored as a performing arts and community venue. The building needed a way to modernize its street-facing multipurpose rooms without compromising its historic structure or limiting interior flexibility. Replacing the existing bay windows with two full-view vertical stacking doors

created large, transparent openings that connect the theatre to downtown while accommodating the building's existing structural conditions. The retrofit design eliminated the need for extensive ceiling modifications in the century-old building, preserved valuable overhead space for lighting and building systems, and allowed oversized props and equipment to move easily in and out of the rooms.

Sectional doors

Adapting door configurations to existing interior conditions can involve specifying low-headroom tracks for tight spaces, high-lift or vertical-lift for specific clearance needs, and roof-following configurations for angled ceilings.

Mounting and framing

Retrofit-friendly systems can accommodate out-of-square conditions and variable wall construction through adjustable mounting angles, pre-engineered support members, and custom jamb solutions.

Cohesive attachments

Rolling steel doors can include compact coil housings, space-saving motor operators, and reduced side room requirements, enabling installation in tight openings where traditional sectional door systems would not fit.

Code and compliance requirements

Upgrading a door in an existing building often requires compliance with current standards for wind resistance, fire protection, accessibility, and the means of egress. Requirements tied to the International Building Code, NFPA 101, and local jurisdictions may necessitate design adjustments not present in the original building, particularly in change-of-use or adaptive reuse scenarios.

Material engineering aims to meet these standards. Reinforced slats in rolling steel doors and strengthened panel designs in sectional doors allow systems to achieve high design pressures while still accommodating retrofit conditions. These doors can be specified to meet regional wind-load standards without requiring a complete structural redesign.

Where local codes reference the 2015 ICC 500 edition or later, some jurisdictions require dedicated storm shelters in addition to standard wind-load compliance. For these applications, rolling steel storm doors are engineered to meet ICC 500-2020 and FEMA P-361 requirements, withstanding winds up to 250 mph and resisting debris impacts at speeds up to 100 mph. These assemblies use a heavy-gauge steel curtain, guides,



New sectional door designs make it possible to integrate modern aesthetics and convenient functionality without interrupting the ceiling area where lighting fixtures or mechanical systems may exist.

and a bottom bar to maximize impact performance. Specifying this category of door allows a retrofit to satisfy life-safety shelter requirements alongside the broader wind-load and structural considerations addressed elsewhere in the design.

Further, insulated sectional doors with foamed-in-place polyurethane cores offer high strength-to-weight ratios, reducing the load imposed on existing structures. They are also evaluated based on U-factor, which accounts for heat transfer across the entire assembly, including joints, framing, and glazing. Lower U-factor ratings help improve energy efficiency and support compliance with increasingly stringent energy codes, making door replacement an important part of broader envelope upgrades.

Aligned aesthetics

Replacement doors must align with the existing architectural language, whether by preserving historic character, matching adjacent materials, or introducing contemporary design elements without disrupting the building's facade.

Full-view aluminum doors offer considerable design flexibility, allowing them to serve as either a transparent

focal point or a subtle complement to the building facade, depending on configuration, glazing options, included materials, and finish.

At Port Farms in Waterford, Pa., the owners transformed a century-old potato storage outbuilding into Poverty Knob Farmhouse Ales, a taproom that celebrates the property's agricultural heritage while offering a modern gathering space. To achieve the desired blend of rustic character and contemporary design, the project team selected full-view aluminum doors featuring black anodized aluminum frames and insulated tempered glass. The expansive glass panels reinforce the taproom's connection to the surrounding farmland, bringing natural light into the interior and providing uninterrupted views of the landscape.

When opened, the three side-by-side doors create a seamless transition between the taproom and outdoor seating area, expanding the usable space and enhancing the guest experience.

Overhead doors in operation

Operation frequency at peak times, cycle-speed considerations, and integration with loading docks or pedestrian pathways all influence design choices. Determining the level of automation, control systems, and maintenance access needed supports long-term performance.

Features such as variable-speed operation and soft start/stop functionality reduce component wear, extend service life, and improve day-to-day usability. Doors can also sync with building management and security systems and can be remotely monitored. The controller pairs with automatic electronic locks, securing the facility as soon as the door closes. For simplified maintenance, an onboard LCD screen displays clear status and error messages, reducing service calls and downtime.

By combining retrofit-specific engineering with modern performance features, architects design openings that improve how buildings perform, operate, and adapt to current demands, all within the constraints of the existing structure. 

Heather Bender is the director of commercial product marketing at Clopay Corporation. At ClopayDoor.com, she leverages 16 years of experience in manufacturing and building materials to find unique solutions for building owners and designers.

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A photograph of a modern building facade with large glass windows and a tree in the foreground. The building has a brick wall on the left and a glass curtain wall on the right. A tree with green leaves is in the foreground, partially obscuring the view of the building. The text 'The window to healthcare architecture' is overlaid on the image in a large, white, sans-serif font.

The window to healthcare architecture

Multiple systems to achieve daylighting and design goals

By Andres Chavez

Narrow-profile steel frames maximize glazing spans in New York-Presbyterian Hospital's Morgan Stanley Adult Emergency Room facade design for increased access to natural light.

Photo courtesy Technical Glass Products

Access to natural light can reduce electricity demand, promote natural circadian rhythms, support biophilic design, and enhance occupant well-being. However, especially in highly nuanced environments like medical centers, more daylighting does not always mean better.

Planning daylight access often entails balancing natural light with glare reduction, minimizing solar heat gain, ensuring privacy, and more. The metal systems supporting glass—from framing to insulated glass units (IGU) with integrated louvers—help shape how light enters the built environment.

Together, metal and glass can increase access to quality natural light and offer occupants flexibility as daylighting needs change with the day, season, and—in healthcare occupancies—with patient and provider needs. As daylighting strategies often combine multiple systems, project teams must understand how these systems can work together to maximize the multifunctional potential of these approaches.

Metal influences facade glazing

Glass curtain walls and full walls of channel glass are common initial steps in daylight design.



With both systems, the type of glass plays a key role in daylighting strategies. For instance, as they are self-supporting and load-bearing, channel glass systems can be specified in lengths up to 23 ft (7 m) without mullions, in accordance with wind-load tolerances. Channel glass also offers multiple surface textures to control glare, enhance privacy, and support other occupant needs while maintaining a bird-friendly design.

Channel glass walls can also be specified alongside transparent curtain walls to help balance privacy and daylighting.

In the New York-Presbyterian Hospital's Morgan Stanley Adult Emergency Room, the interior channel glass wall softly diffuses light from the exterior transparent curtain wall, balancing natural light

and visual privacy. The two-part strategy also visually separates the waiting area from treatment areas to support intuitive wayfinding and controlled traffic flow.

As this hospital project implies, glass curtain walls allow a significant amount of daylight into a building. Metal framing can influence both the design aesthetic and the ability to optimize daylight access. Steel systems can accommodate large lites and wide spans between mullions and verticals. Further, this material allows for greater overall heights without the need for secondary support systems. Modern fabrication techniques allow narrow-profiled steel frames without compromising the material's inherent strength. As a result, steel-framed curtain walls can maximize glazing area.



Integrated louvers support dynamic lighting and patient privacy in Altru Health System's Grand Forks facility.

Photo courtesy AD Systems

Curtain walls can be specified with integrated cord-and-string-free louver systems, adding flexibility in the amount of light they allow into a building. While the inclusion of integrated louvers might limit free spans, they support daylight optimization by allowing occupants to adjust the amount of light entering a space. These systems can also help reduce noise transfer from the outside and solar heat gain.

Integrated cordless louvers in dynamic daylighting

Flexible visual and auditory privacy adds significant value to healthcare facilities' positive patient experiences and a robust approach to the *Health Insurance Portability and Accountability Act of 1996* (HIPAA) requirements. To this effect, integrated louvers can be specified for exterior and interior curtain walls, skylights, interior openings, and facade windows.

In interior applications, occupants can use these systems to control the amount of light entering a specific space, adjust the direction of light to reduce glare, and even improve solar heat gain coefficients. These applications help maintain visual and auditory privacy, supporting patient confidentiality, dignity, and rest.

Integrated louvers also contribute to better building hygiene and safety. The products' cordless and ligature-resistant nature sidelines choking hazards common with blinds and curtains. This is crucial in most healthcare environments, with an increased importance in pediatric and behavioral health facilities. Further, since these systems are hermetically sealed between glass panes, they are easy to clean and sanitize, unlike curtains and blinds, which may require special care.

For instance, when installed in the doors of a patient room, integrated louvers with dual operators allow patients to adjust how visible they are to those in corridors while also blocking up to 39 decibels of sound according to Noise Isolation Class (NIC) ratings. Likewise, providers can quickly open them to visually check on patients without disturbing

their rest. The flexibility these systems provide can deliver significant operational value.

Design flexibility extends beyond daylighting to how doors operate. Sliding doors minimize spatial requirements for swing arcs, approach and maneuvering clearances, and can allow larger-than-average openings. This can help project teams deliver plans that maximize space-use efficiency without compromising functionality and adaptability.

Notably, the design team behind Pacific Medical Centers' Gately-Ryan Building in Renton, Wash., discovered that by using sliding doors, they could plan for an extra exam room for every 11 in the original design. Space-efficient sliding doors also increase areas where flexible daylighting strategies can be incorporated.

These openings also benefit when built with durable metal framing components. For example, top-hung sliding doors with high-quality, heavy-gauge aluminum frames offer greater wall protection and higher impact resistance. These frames help ensure components are protected from use-and-misuse scenarios typical of institutional occupancies.

Systems align in modern healthcare interiors

Since curtain walls, skylights, windows, and doors all contribute to optimizing daylight access, it is imperative that these systems work together. Harmonizing how these openings and transparent walls control the amount, direction, and intensity of light entering a building's interior can help project teams design more efficient, more functional healthcare environments.

Balancing daylight, connectivity, and privacy were central to the design of Altru Health System's recently completed facility in Grand Forks, N.D. Supporting exterior glazing systems, patient room windows, and sliding glass doors with integrated louver systems enables flexibility, space efficiency, and a hygienic design. Durable aluminum louver systems and impact-resistant perimeter metal frames also provided the strength to withstand typical use patterns in hospital environments without failure. This helps ensure Altru's medical center can provide continuous service to patients in need.

The key takeaway from the Altru Health System project and others that use multiple glass and metal systems to deliver flexible daylighting strategies is that the assemblies used are just one piece of the project puzzle. The process of solving unique challenges and streamlining construction is another. In this aspect of a project, a collaborative, integrated approach to daylighting system design is integral to a dynamic, elevated healthcare facility. [Mal](https://www.specadssystems.com)

Andres Chavez, managing director of doors and windows SBU at Allegion, has more than 20 years of experience in the door and window industry. Working with door hardware, locking hardware, and full door systems, he has had roles in sales, product management, research, and marketing. For more information, visit www.specadssystems.com.

Satisfaction, seniority, and salary

Insights from *Metal Architecture's* first salary survey

By Hanna Kowal

Alongside the work of creating designs, collaborating with communities, and seeing sketches become reality, architectural career satisfaction hinges on far more than a love for the craft.

The results of *Metal Architecture's* first annual salary survey paint a timely picture of the scope of the career, noting compensation, seniority, workplace flexibility, benefits, frustration, economic outlook, and AI/digital tools.

These insights come from architecture, engineering, design, and construction professionals from most U.S. states, with responses from all but 13 states and four territories.

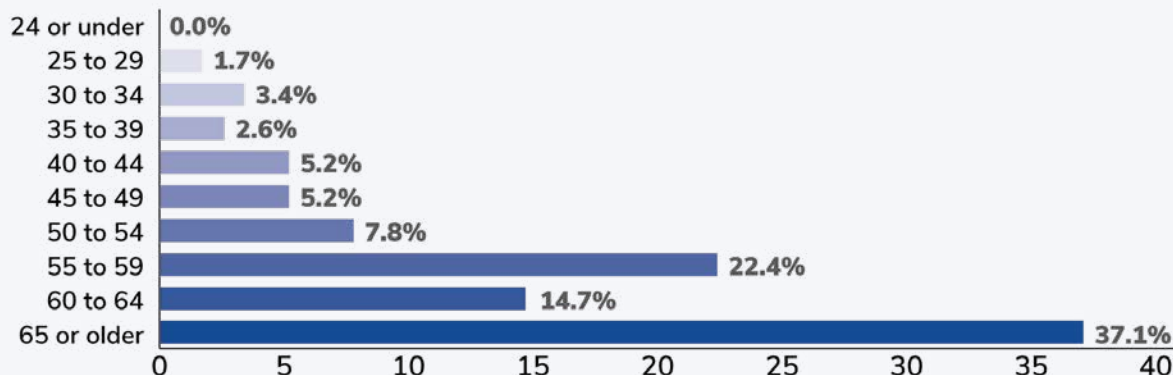
The majority of those surveyed currently work under the title of “architect,” while some take a leadership or marketing role in architecture firms. Construction managers accounted for 8.9 percent of respondents, adding a project-delivery perspective to a survey largely led by architects and design professionals.

Notably, the sample represented in this report is largely senior within the profession. More than four in five of those surveyed have worked in the field for over 25 years; 27.7 percent for more than 40 years; 74.2 percent are aged 55 or older; and 73 percent supervise other employees. Of those surveyed, only 1.7 percent are under 30. As such, the findings are a picture of compensation, benefits, and satisfaction among experienced professionals.

On average, commercial and institutional design accounts for the largest percentage of respondents' business. In descending order, recreational, cultural, and transportation sectors account for an average of 20 to 30 percent of business devotion, and agricultural design accounts for the least at 6.1 percent.



How old are you?



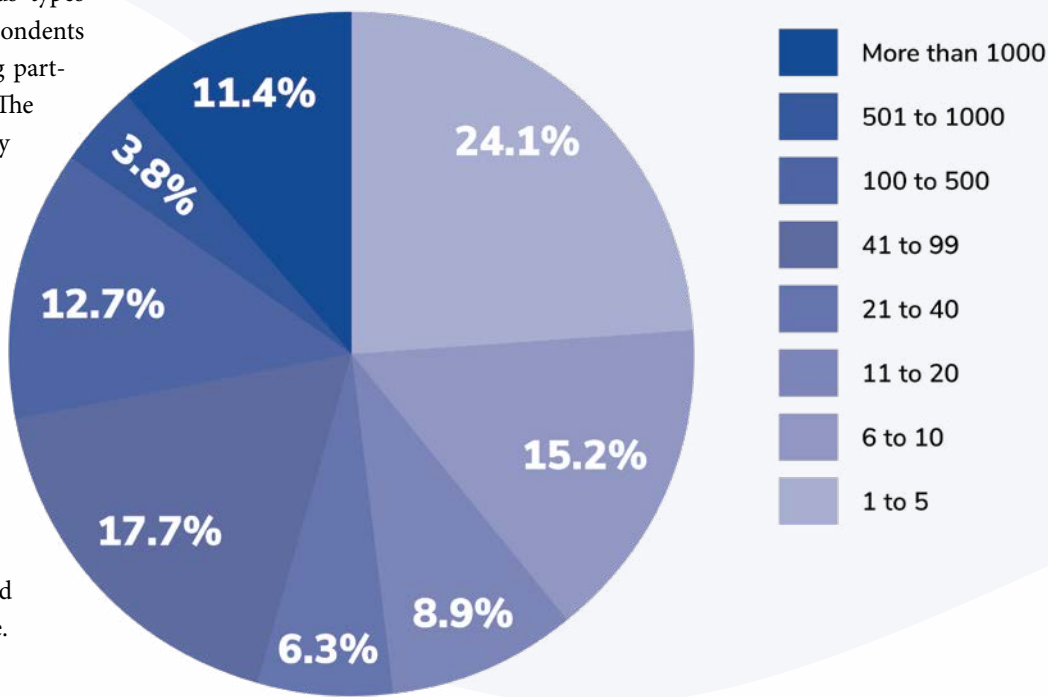
Salaries in 2025

The data consolidates answers from various types of employment. The vast majority of respondents work full-time, with the remainder working part-time (5.3 percent) or freelance (3.2 percent). The information also includes those paid an hourly wage (13.5 percent).

In 2025, 76.2 percent of respondents reported annual salaries of \$100,000 or more before commissions and bonuses, with the largest share (22.7 percent) in the \$100,000 to \$124,999 range. There is a substantial proportion, 11.3 percent, earning above the \$200,000 threshold.

Among respondents, 14.7 percent did not receive a salary raise. The raises received were mostly modest: 56.8 percent received less than a 5 percent raise, and 23.2 percent received a six to 10 percent raise.

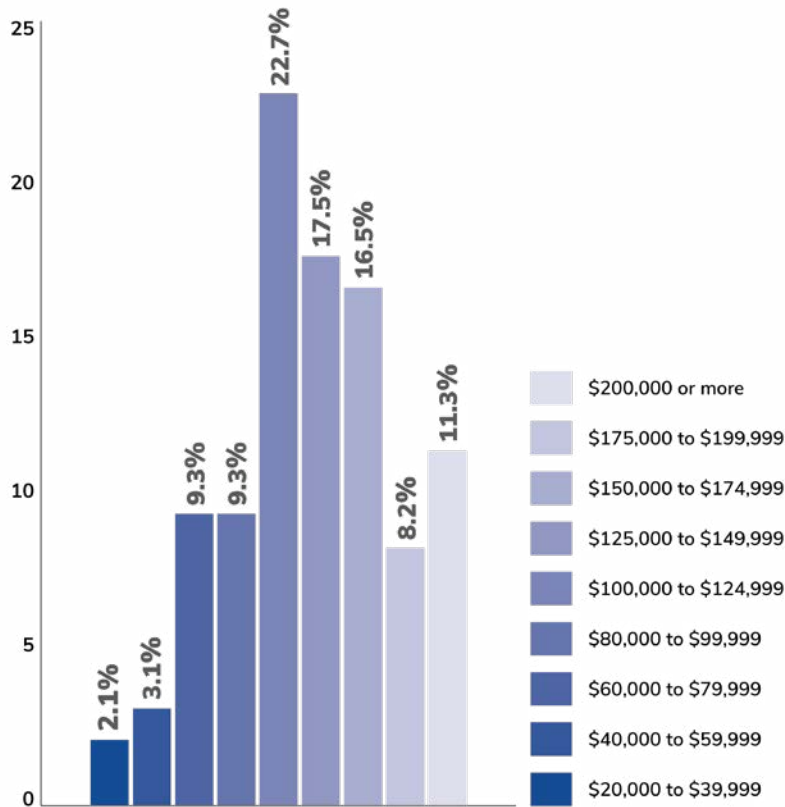
How many people does your company employ?



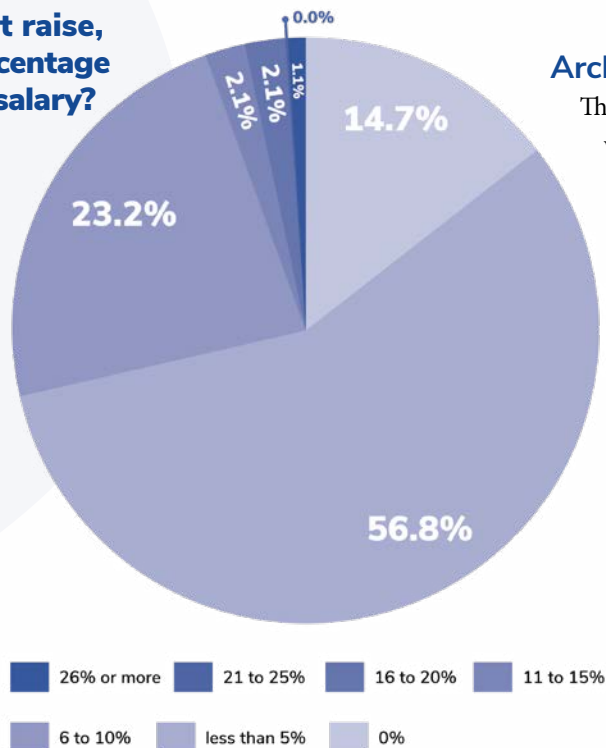
Most common design sectors



Excluding commissions and bonuses, what was your salary in 2025?



How much was your last raise, as a percentage of your salary?



Architects are online

The age of digital has truly changed the way architecture professionals work. In fact, 78 percent of those surveyed can work in a remote or hybrid environment. With this in mind, companies seem to be lagging behind in supporting these conditions. Only 8 percent receive a remote office allowance.

For professional networking or research purposes, 51.2 percent report using social media. The majority of respondents specifically use LinkedIn and Facebook. Notably, no respondents reported using TikTok.

When asked how they use AI in their work, 27 percent of respondents reported uses outside the scope of the choices we provided, with an emphasis on research and writing for code, standard, zoning, specification, and general purposes. They also use AI to create emails, reports, RFQs, presentations, personnel documentation, streamlined documents, and images.

Autodesk is by far the most popular BIM software, used by all respondents who use BIM.

Nearly half of respondents said they do not use AI within their work, at 47 percent. Of this demographic, only 5.2 percent are under the age of 50.

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Most common benefits



The big question: are architecture professionals happy with their work-life balance?

When asked, “Do you experience significant frustration in your current role?”, exactly half of the respondents said “yes”. Frustration is, of course, a very broad term. And so, this split-even response begs the question: where do these frustrations lie?

According to this survey, fewer than one in five architects report being less satisfied with their careers than five years ago, indicating that frustration at work does not necessarily correlate with career satisfaction for architecture professionals.

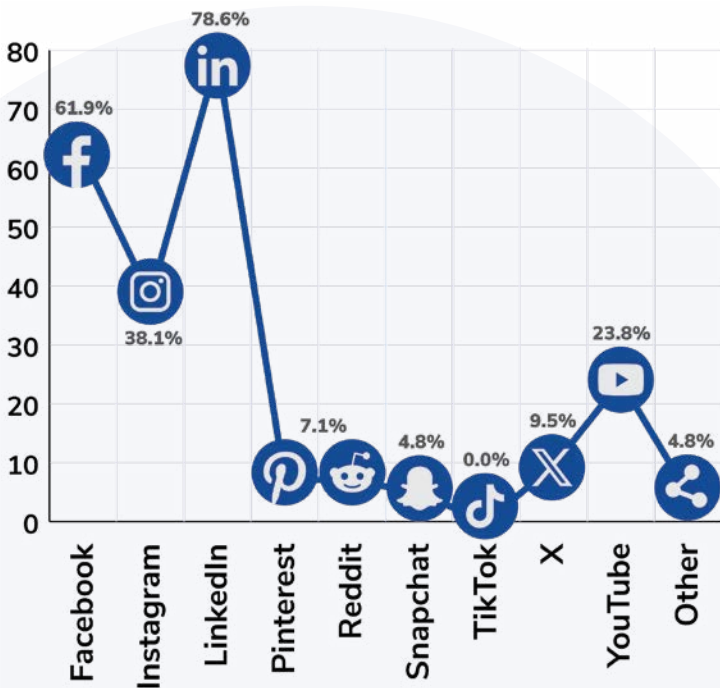
One anonymous respondent explains that frustration “is the nature of the job.” However, opinions vary. In part, in explaining their reasoning, some respondents express discontent with cultural aspects of their companies: the work ethic of colleagues, the under- or over-involvement of management, the amount of work, and restrictions around responsibilities. These frustrations are not occurrences specific to the field.

In terms of architecture-specific frustrations, permitting restrictions, time delays, and taxes are also cited. While 86 percent work 40 hours or more per week, 80.5 percent say they are happy with their work-life balance. This shows that, while architectural careers are demanding, many consider the time commitment reasonable.

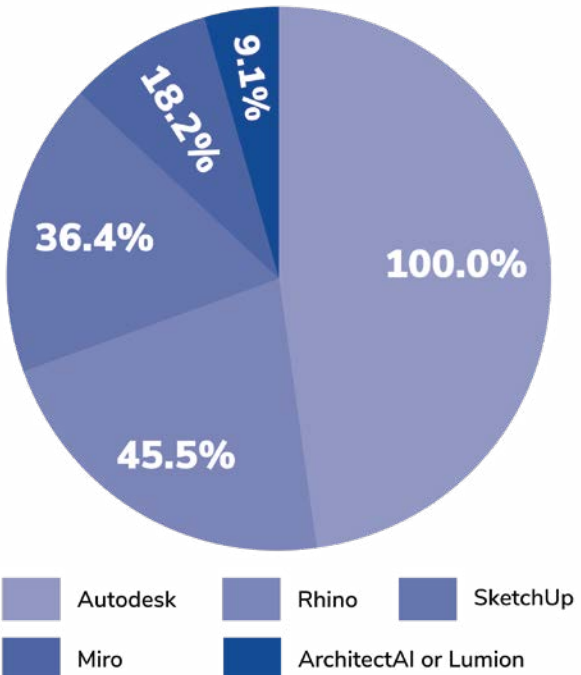
Some company-provided benefits may contribute to this sentiment. Paid personal time is offered to 63.2 percent of those surveyed. At the same time, dedicated parental leave is only available to 27.6 percent.

Another benefit that contributes to well-being, company-provided exercise facilities, is available to 8 percent of respondents.

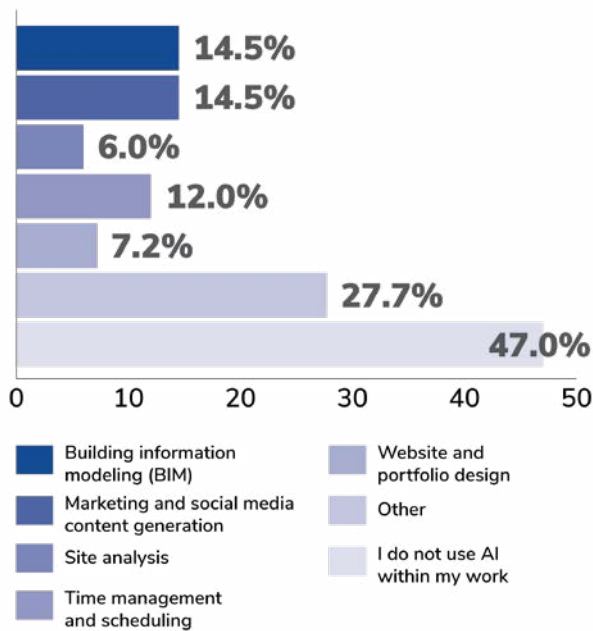
Which social media platforms do you use?



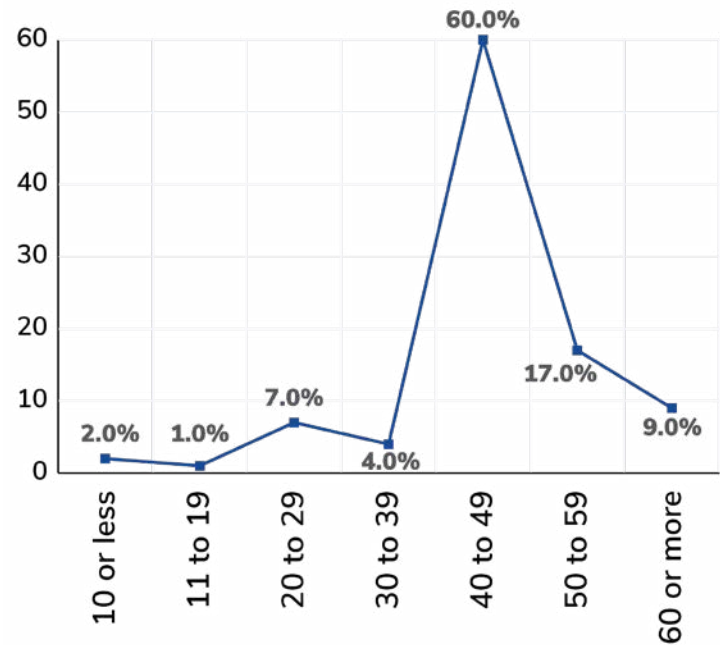
What building information modeling (BIM) tools do you use?



How do you use AI in your work?



How many hours do you work in a week?



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A positive-leaning trajectory

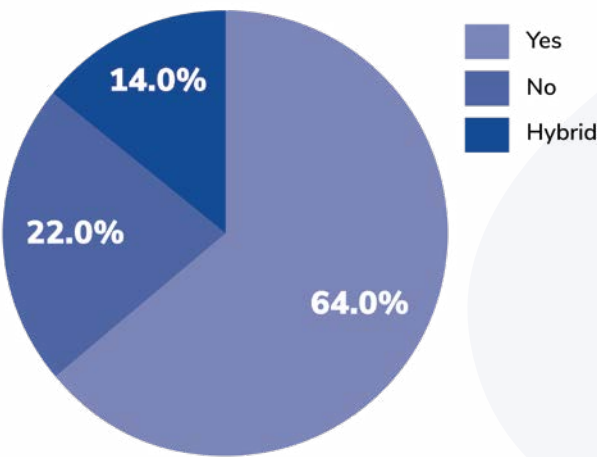
The largest proportion of respondents estimates that their business’s annual revenue is more than \$50 million, at 19 percent.

When asked if they believe the economy has negatively impacted their firm or company, 63.9 percent said “yes”. However, the outlook for their companies’ trajectories over the next five years is relatively optimistic: 43.2 percent expect improvement, 46.9 percent forecast little change, and only 9.9 percent expect conditions to worsen.

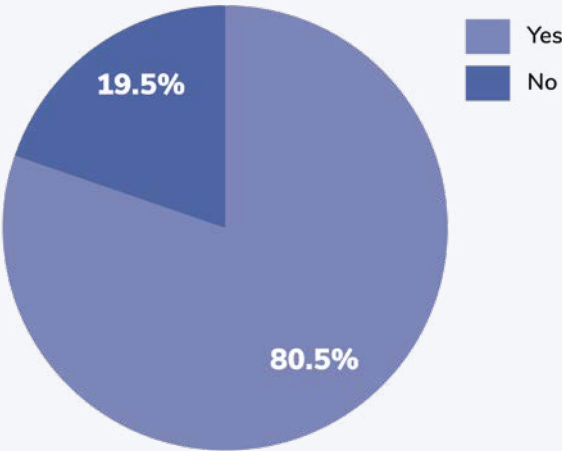
Of those who forecast a decline in the company’s performance over the next five years, respondents cite the government, the economy, and personnel changes as the source of their perspective.

Metal Architecture’s first salary survey shows a senior, well-compensated respondent base that is largely satisfied with work-life balance. Together, the tangible, measurable aspects of architectural careers—salary, benefits, technology, and beyond—suggest a largely positive professional outlook for experienced professionals in the industry. [Ma](#)

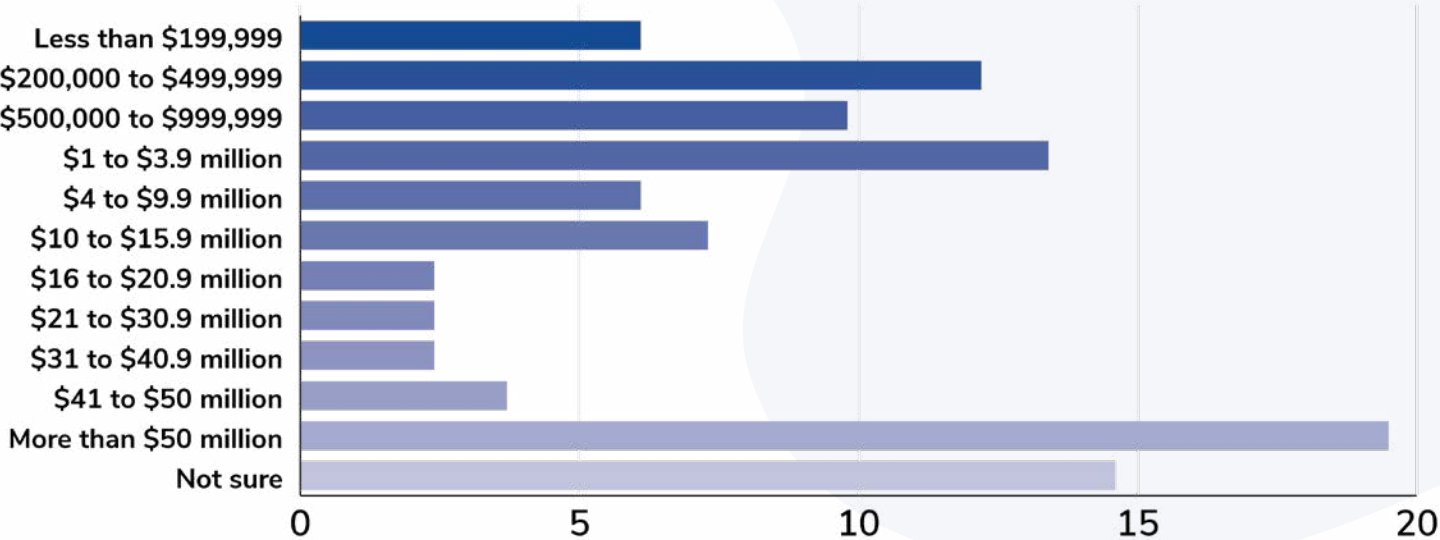
Do you have the ability to work remotely?



Are you happy with your work-life balance?



What is the approximate annual revenue of the business?



AIA26: interconnection, innovation, and the expanding role of architecture



From June 10-13, the 2026 AIA Conference on Architecture & Design at the San Diego Convention Center brought more than 12,000 professionals from across the globe together for continuing education, material and technological exploration, and conversation. Some split their time between local architecture tours and exploring product innovations on the show floor, while others attended sessions offering lessons on everything from abstract design concepts to guidance for career growth.

Across those experiences, a central theme emerged: interconnection.

That spirit was evident at the June 10 Opening Night Party at Bayfront Park, where attendees came together for a lively networking event. More than the food, drinks, and live music, what stood out in this warm welcome to AIA26 was how much architects enjoy learning from one another.

Within five minutes of sitting down at a table, I had spoken with design professionals across the education, recreation, and commercial sectors. As a first-time attendee of the annual AIA conference, I was especially looking forward to connecting with the readers of *Metal Architecture* and those who support their work. I pursued my curiosity with the question: “how do you use metal in your designs?”

Much to my delight, every person I spoke with that evening had a meaningful answer as our conversations touched on residential framing, modular industrial structures, and branded netting details on sports venues.

From learning about ongoing projects to reflecting on how design has changed within sectors, those conversations reflected the range of expertise assembled at AIA26 and set the engaged tone for the days ahead.

By Hanna Kowal

Yiselle Santos Rivera and Padma Lakshmi discuss food, place, and design during the June 11 keynote, “What Food Knows About Architecture.” Lakshmi’s observation that “things are only as good as what they mean to us” reflected AIA26’s recurring themes of value and interconnection.



On this spread:

Left: Metal Architecture associate editor Hanna and executive publisher Melanie at AIA26.

Middle: The Opening Night Party at Bayfront Park on June 10.

Right: The AIA26 exhibit hall.

Metal in the exhibit hall

The exhibit hall included manufacturers and service providers across the building industry, giving attendees opportunities to learn about material advancements directly from the suppliers of architectural metal systems. Demonstrations, material displays, and one-on-one conversations allowed attendees to see and feel materials firsthand and to brainstorm where these innovations fit into their current or future projects.

Expanded metal was featured at several exhibitor booths, demonstrating its range of architectural applications. Full-height walls, varied expansion patterns for sun shading and safety, custom



coatings, and branded installations showed how the material can serve both functional and expressive roles. Other displays incorporated LED lighting, positioning expanded metal as a dynamic facade or identity element. The range in this metal speaks to how buildings and designs must interact with their environment and nods to the interconnected design mindset spread across the show.

Also on the show floor, the Metal Building Manufacturers Association exhibited, helping patrons access information on the design opportunities and resources available for metal building systems including technical whitepapers and educational sessions.

Sessions and design lessons

The conference offered more than 350 AIA/CES-registered sessions, which covered a broad range of topics. Among these sessions, there was an ongoing conversation about how architectural work can respond to the unique conditions of each project. From perspectives on developing codes and standards to scientific concepts that act as apt analogies for design mindsets, the lasting experience a building provides is central to the discussion.

“Reimagining the International Code Council Performance Code,” a session led by Beth Tubbs, P.E., FSFPE, and Ronald L. Geren, AIA, FCSI, examined



the advantage of a performance-based design and evaluation approach. While the ICCPC has not been widely adopted, the session provided a window into how codes may change in the future.

Tubbs explained, “There’s the how-to in the prescriptive code, which works for a lot of buildings.” She added, “In the performance world, we need to justify the result versus ‘match the recipe.’” Her perspective recognizes that architecture is not limited to specific, on-paper criteria that can be applied to every circumstance. Each building exists within a unique set of conditions, and developing codes aim to account for that.

In a session called “Quantum Technologies, Architecture, Urban Systems & the Future of Design,” Adam Viorel, Intl. Assoc. AIA, used quantum thinking as an analogy for architecture’s role in creating cities “capable of learning, adopting, self-optimizing, responding dynamically to environmental and social conditions.” He said that the impacts of climate events, migration patterns, AI systems, digital infrastructure, economic shocks, and public health crises “create highly interconnected and unpredictable urban conditions.”

Bright and early on the second day of the conference, in the session “A Conversation with the 2026 AIA Firm Award Winner,” Duvall Decker Architects principals Anne Marie Duvall Decker and Roy T. Decker shared the story of their firm.

The firm’s philosophy reflected the conference’s recurring emphasis on interconnection. Duvall Decker explained: “In each project, we seek to identify the public value and figure out how we can influence good consequences outside the lot lines of the project.”

Decker explained the architect’s job is “to elevate a community with dignity and surprise.” The conversation left a lasting impression: successful architecture can positively affect the people, environments, and communities with which it interacts.

Though they approached architectural thought from different directions: regulation, theory, and practice, the sessions shared an interest in designing for conditions that cannot be solved through one-size-fits-all responses.

The offerings at AIA26 pointed to a shared design mindset, one with greater attention to context, changing systems, and the public influences of every project. **Ma**



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The versatility of aluminum

For both exterior and interior residential applications

By Rachael Bratager

Left: This California residence uses warm bronze and brass-colored aluminum to achieve a warm aesthetic.

Photo by Benny Chan

Middle and Right: Sleek black panels create a cohesive modern look throughout the design of this Michigan residence.

Photos by Keith King

Residential projects must balance aesthetics with long-term performance, durability, sustainability, and ease of maintenance. Whether designing a coastal retreat or a mountainside residence, architects are tasked with creating distinctive homes that meet performance needs and withstand the realities of ever-changing environments.

Among architectural materials, aluminum has emerged as one of the most versatile options for both exterior and interior applications. As with any material, aluminum is not without its challenges. If a project demands maximum impact resistance, a material to naturally weather, or the lowest possible upfront cost, another metal such as steel, zinc, or copper may be a better fit. However, aluminum combines durability, design flexibility, and lightweight construction, creating distinctive homes that also check the boxes of performance needs.

A climate-aligned modern Michigan design

For one custom residence in Petoskey, Mich., the design intent centered around creating a bold, modern exterior that would remain beautiful despite harsh seasonal conditions.

The homeowners were drawn to the appearance of blackened steel but were hesitant about the maintenance required to preserve its finish over time. Between long winters, road salt, moisture, and significant seasonal temperature swings, the exterior material needed to withstand demanding environmental conditions without regular upkeep.

Rather than compromising the desired aesthetic, the design team at North45 Architecture selected aluminum panels finished to replicate the richness and depth of blackened steel. The lightweight panels reduced the structural demands of traditional steel,



such as attachment hardware, framing, and added material weight during installation and labor.

The blackened steel finish stands out among the natural setting throughout the seasons. Selecting a large, face-fastened profile, the architect created a bold, contemporary style that aligned with the modern metal and glass exterior that the homeowners envisioned. Over time, aluminum remains true to design without the ongoing demand for resealing.

Matching panels were carried inside the home using the same face-fastened application, creating a continuous visual connection between the exterior and interior spaces. The result was an interconnected, sleek aesthetic both inside and outside of the home.

This project teaches how continuity can be achieved throughout the design of a residence. Exterior cladding can seamlessly transition into foyers, ceilings, feature walls, fireplaces, cabinetry, kitchen hoods, bar fronts, and other interior elements. This allows architects to keep a cohesive palette throughout both environments while adding texture and visual interest.

In some projects, this strategy is both a sustainable and an aesthetic choice. Leftover material from exterior fabrication has been repurposed into interior accents, reducing waste while maintaining a cohesive material palette. Rather than serving as freestanding design features, these interior applications are extensions of the home's architectural characteristics.

Working with the weather in a California residence

Many residential projects present unique environmental design considerations. In coastal regions, salt air can accelerate corrosion and weathering. Areas with high humidity create ongoing maintenance concerns for natural wood. In wildfire-prone regions, exterior materials must comply with fire codes while still contributing warmth and character to the architecture. These conditions have led many architects to explore alternatives to wood, steel, and other traditional cladding materials.

In the design of a residence in Los Angeles, Calif., the goal was to create warmth while introducing visual depth. For this, the design team

at OfficeUntitled chose an antique-style distressed aluminum finish that mimics the appearance of bronze and brass in its tone and texture. In addition to appearance, they wanted to use a material that would stand up to the local heat, sun, and any challenges of ocean exposure. Looking for the right material, aluminum with an AAMA 2605 rating was able to offer resistance to both corrosion from salt and chemicals while also achieving the required fire codes with an ASTM E84 Class A Fire Rating.

Rather than relying solely on color, deep corrugated aluminum panels were used to create changing patterns of light and shadow throughout the day. As sunlight moves across the building, the metallic finish reflects light differently, giving the facade a dynamic quality that continually evolves with its surroundings.

The project demonstrates that architectural expression is shaped not only by finish selection but also by profile, texture, and form.

Home-made lessons from versatile expressions

These designs are vastly different: a bold, sleek structure in a cold climate or a warm, textured one in the heat. What they have in common, however, is that they both capture the character of their owners' desired aesthetics and adapt to the conditions of their environments.

Whether reflecting the look of other materials or using crisp detailing, thin profiles, large-format panels, custom perforations, deep corrugations, and complex geometries, aluminum provides vast design capabilities.

Together, these homes demonstrate how modern aluminum finishes can create a wide range of architectural styles, from contemporary and minimalist homes to mountain rustic, coastal, transitional, and even more traditional residences. 

Rachael Bratager is a market development specialist at Pure + FreeForm, where she focuses on high-end residential projects. Working closely with architects, designers, builders, and homeowners, she helps identify architectural metal solutions that balance design and performance.



From basic shelter to building blocks with infinite possibilities

By Tony Bouquot

Photos courtesy MBMA

Fitness Quest facility in
Puyallup, Wash.

When 13 metal building system manufacturers came together 70 years ago as the founding members of the Metal Building Manufacturers Association (MBMA), they did so with the vision to bring high-quality building solutions to the construction industry.

Metal buildings, once viewed only as storage, shade, or basic shelter, are now seen as building blocks with infinite design options. Further, our membership has grown to 44 building manufacturers and 78 associate members.

Turning 70 has us reflecting on past insights. Don Pratt, who served as MBMA chairman in 1983 and on the executive committee for several years prior to his chairmanship, once said: “Our industry has a unique history, and MBMA is a unique organization. It has created a place where competitors can work in cooperation to solve industry issues. This has led to a steady stream of new construction and system building technologies that have changed individual member companies and the industry as a whole.”

Leading the industry in learning and discovery

Through research and education, MBMA has established leadership in the use of metal buildings in the construction industry.

“Modern design and construction environments have changed rapidly, especially in the last decade,” says MBMA director of research and engineering, Jon-Paul (JP) Cardin, PE. “It can be challenging for architects and others in construction to keep up with the pace of change in codes, standards, and manufacturing advancements. The MBMA acts as a strategic partner, equipping professionals with the resources they need to successfully navigate these complexities.”

The latest developments in educational assets

Subcommittees and task groups are always at work within the MBMA committee structure, updating current



Happy 70th, MBMA!

In 1956, Wilbur Larkin of Butler Manufacturing gathered representatives from major metal building companies to figure out how to form an industry association—the Metal Building Manufacturers Association (MBMA). On Sept. 25, 1956, MBMA was chartered with Larkin as its first chair. The official founding date is noted as Oct. 1, 1956.

With that start 70 years ago, MBMA has grown into a technical construction industry leader, dedicated to education and research related to metal building systems. Architects have discovered that metal buildings save clients time and money without sacrificing aesthetics when developing thoughtful spaces.

More updates are planned, including adding details about insulated metal panels to both “Common Industry Practices” and the *Fire Resistance Design Guide*.

“The roster of MBMA associate members providing IMPs has expanded notably in recent years, and we look forward to welcoming more to our group to support future research, data delivery, and education surrounding IMPs and metal buildings,” says Sagan.

Tony Bouquot, general manager of the Metal Building Manufacturers Association.

documents and creating new ones. These resources explain how metal building systems can be designed to comply with energy code requirements across North America.

Among those resources is the *Metal Building Systems Manual*. First published in 1959, the manual is updated every six years to incorporate code and other industry changes. The latest edition was completed in 2024 and reflects updates from IBC 2024 and American Society of Civil Engineers 7-22. We are two years into gathering updates that will come out in 2030.

In 2024, “Common Industry Practices” was published separately from the manual to provide timely revisions. Created for builders, contractors, architects, engineers, owners, and manufacturers, the free guide defines roles and serves as a checklist for necessary documentation. A chapter about building information modeling was added in February 2026, creating the second edition of “Common Industry Practices.”

“Having BIM in an MBMA document is significant because we know how vital BIM is to architects,” notes Vince Sagan, PE, MBMA’s director of codes and standards, highlighting the popularity of a BIM-related FAQ section on the association’s website.

The second edition of the Roof Framing Design Guide for Metal Building Systems was also released in 2026.

Collaborative, comprehensive architectural opportunities

MBMA has created meaningful lunch-and-learn sessions for architects focused on up-to-date field insights. These sessions enhance their understanding of metal building constructability, detailing coordination, sequencing, and common specification gaps, as well as ways to reduce downstream requests for information, redesigns, and installation issues.

The AIA-approved CEU courses, where LUs can be earned, include: “Metal Building Systems 101,” “Creative Design Alternatives Using Metal Building Systems,” “Advanced Sustainability Potential Using Metal Building Systems,” and MBMA’s newest course, “Using Metal Building Systems to Meet and Exceed the Energy Code.”

“MBMA and its Architect Committee have been intentional, and a bit strategic, toward making metal building projects easier for architects. It’s about getting inside architectural conversations and turning perception gaps into action through AIA engagement, targeted LUs, and growing relationships,” says Robert Tiffin, chair of MBMA’s Architect Committee and national sales manager for Silvercote. “Our efforts are



Robert Tiffin, chair of MBMA's Architect Committee and national sales manager for Silvercote.

focused on listening for the 'voice of the drawing set' and using it as feedback about how architects truly learn, to refine and better target how we influence the specification of metal building systems."

He adds, "We are leaning into this front-end design engagement because it sharpens how we show up and solve problems in the field. In return, when I conduct these sessions, I see architects gain not just confidence in metal building systems but a clearer path from intent to spec. This is where good design actually becomes buildable."

Let's get loud about libraries

No library voice required for this one! Help us spread the word about the sixth annual MBMA Student Design Competition, where students are asked to design a library/community knowledge hub constructed with a metal building system.

Last year's competition awarded \$32,000 to 10 winners and their faculty advisors across the graduate and undergraduate divisions. This year, the prizes are expected to again go above \$30,000.

As readers of Metal Architecture, we are asking you to reach out to your favorite professor, tell your interns, or contact a local university's architecture school. All the details are at www.mbmaeducation.org.

Students and the MBMA

Lunch-and-learn sessions represent only a fraction of the comprehensive educational programs developed by MBMA. Six years ago, the MBMA Student Design Competition was launched to give architecture students a way to explore metal building designs under the guidance of their professors. This year's contest is to design a library/community knowledge hub.

Past innovations focused on other categories, like a botanical garden and events center, a new campus recreation center, a new nature center and environmental research facility, a fire station and department headquarters, and a one- or two-story elementary school to house approximately 200 students.

Cardin, who manages the design competition with a panel of architecture professors, practicing architects, and industry experts, says, "The competition challenges students to develop innovative designs using a metal building system to meet the needs of their community. The fifth year of the MBMA Design Competition had 93 students from nine different schools put forth a total of 80 entries. That was the most submissions ever, and we are excited to see what inspiring designs come in this year."

Creating a legacy

Evident in what architects are creating with metal building systems—schools, museums, car dealerships, retail stores, offices, restaurants, breweries, churches, and more—their growing popularity would not have happened without the MBMA.

In fact, our members represent billions of dollars in annual steel shipments. Their custom structures account for more than one-quarter of the total non-residential, low-rise construction market in the United States.

The creation of MBMA set in motion 70 years of growth and change focused on influencing and interpreting building codes, participating in product testing, and committing to quality accreditation. None of this happens without collaboration among members and a partnership with architects. Together, we are a powerful force that is positively impacting the built environment. **Ma**

Tony Bouquot is the general manager of the Metal Building Manufacturers Association, headquartered in Cleveland. You can reach him at tbouquot@mbma.com, and more details can be found at mbma.com.

Champions Run

A case for metal building systems in the future of recreational design

By Tobin Spangler

Photos by Blake Lacey

Recognizing the growing popularity of pickleball, Champions Run Golf Course in Omaha, Neb., developed a new year-round facility designed to provide an inviting environment that complements the quality and character of the existing property.

While pickleball is traditionally seen as a seasonal activity, the owners of Champions Run, Clark Horgan and Julia Horgan Wurth, saw an opportunity to create a space where members could enjoy the sport year-round. By investing in a modern, flexible facility, the recreation hub continues to enhance the overall member experience on both the golf course and the pickleball courts.

With large, clear-span spaces, efficient construction timelines, and adaptable layouts that can support future changes, metal building systems have emerged as fully customizable solutions that support the needs of today's recreational facilities.

At a premier facility like Champions Run, the building must perform year after year through temperature swings, moisture, and daily member use while maintaining its appearance with minimal maintenance. BVH Architecture oversaw material selection, and Architecture Inc. oversaw metal building coordination for this high-end, budget-efficient design.

Compared to conventional masonry and structural steel construction, the metal building system offered significant cost savings through efficient engineering, reduced material waste, and faster installation. The shorter construction schedule also allowed the owners, Clark Horgan and Julie Horgan Wurth, to open the facility sooner, minimizing costs and enabling members to enjoy the new amenity more quickly. While speed and cost were important considerations, the decision ultimately centered on achieving the best overall value without sacrificing architectural quality.

A major design objective was ensuring the new pickleball facility blended seamlessly with the existing clubhouse and surrounding campus. The design team carefully coordinated building proportions, rooflines, color palette, and exterior materials to maintain a cohesive architectural identity. Precast masonry panels, architectural metal finishes, and carefully detailed entrances complement the existing Champions Run aesthetic



CHAMPIONS RUN PICK BALL FACILITY FINISH PACKAGE
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- BUILDING IN RANGE DOES NOT REFLECT FINAL ARCHITECTURE. IMAGE IS USED ONLY FOR FINISH SELECTION REFERENCES.
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The finishes of the new Champions Run facility include shades of black, bronze, grey, and white.

Graphic by BVH Architecture/
courtesy Blake Lacey

while creating a contemporary recreational facility. Branding was incorporated through coordinated exterior colors, signage locations, and architectural detailing that reinforces the Champions Run identity without overwhelming the building's clean design.

The finished building combines a pre-engineered structural steel frame, insulated metal wall panels, a standing-seam metal roof system, architectural canopies above entrances and windows, and precast masonry panels at the base of the building.

The metal building system selected for the pickleball courts combines structural steel framing, insulated metal wall panels, a standing-seam metal roof system, canopies above all windows and doors, and precast wainscot panels to create a durable structure designed for long-term performance. The structural steel framing provides large, clear-span spaces that eliminate interior columns, creating unobstructed pickleball courts and maximizing flexibility for future programming. The standing-seam metal roof offers exceptional weather resistance, long service life, and low maintenance while providing superior protection against water infiltration.

The insulated metal panels create a continuous thermal envelope with minimal thermal bridging while serving as both the exterior finish and insulated wall assembly. The IMPs are 3 in. (76.2 mm) with an R-Value of 24.

The roof system uses 8 ft (2.4 m) full cavity batt insulation with an R Value of 35, helping maintain consistent indoor temperatures, reduce HVAC loads, and improve overall energy efficiency. Factory-applied finishes resist fading, chalking, and corrosion, eliminating the need for periodic repainting associated with many traditional exterior systems.

At the lower portion of the building, precast masonry veneer panels provide the appearance of traditional brick construction while significantly reducing installation time and maintenance requirements.

Energy efficiency was another key factor in the building's exterior wall selection. By combining insulated metal panels with the specified precast architectural panels at the feature elevations, the project achieved both the desired architectural appearance and a highly efficient building envelope. The insulated panel system supports compliance with modern commercial energy codes, including those based on *IECC* and *ASHRAE* Standard 90.1, which are recognized by the U.S. Department of Energy as the benchmark for energy-efficient commercial construction.

For Champions Run, the result is a durable, low-maintenance exterior that provides long-term thermal performance, lower heating and cooling demands, and an attractive finish that complements the club's campus while helping reduce operating costs over the life of the building.

For athletic and recreation facilities like the new pickleball building at Champions Run Golf Course, metal building systems provide the open interior spaces, clear heights, and long-term flexibility required for modern environments. **Ma**

Tobin Spangler is actively involved with industry organizations, including the Metal Building Manufacturers Association (MBMA) and the Metal Building Contractors and Erectors Association (MBCEA), supporting collaboration, education, and best practices throughout the industry. He is the vice president of sales at Quick Veneer and vice president of business development at Lacey Construction Inc.



Bracing for the future

Metal building design for seismic and weather events

In metal building design, owners want to know the cost and delivery. Architects think about openings, elevations, space planning, and how the building will function. Engineers work through load paths and code requirements. Erectors focus on how the building will actually come together in the field.

Bracing sits in the middle of all of that. It can affect bay spacing, framed openings, interior flexibility, equipment layouts, field labor, inspection, and the way the finished structure supports the architect's intent.

It can also significantly affect how a metal building withstands natural disasters.

On February 22, 2011, Christchurch in New Zealand experienced a 6.3 magnitude earthquake, causing severe damage across Christchurch and Lyttelton, killing 185 people and injuring thousands more.¹ For engineers, manufacturers, and builders working in New Zealand,

it was a serious reminder that structural performance depends on the details.

Connections matter. Load paths matter. Ductility matters. Bracing systems matter.

Research published in the Bulletin of the New Zealand Society for Earthquake Engineering found that steel structures generally performed well during the Christchurch earthquake sequence. The notable exceptions were localized fractures in some eccentrically braced frame links, brace connection failures in which connections could not develop the brace's full strength, and widespread collapse of industrial storage racks associated with connection failures and local column buckling.²

That distinction is worth remembering. The lesson here is not that steel buildings failed as a category, but that real-world performance depends on how

By Michael Ryan

In the design of this Idaho retail building, a higher-capacity tension bracing system reduced the roof bracing layout from five braced bays to two.

Photo courtesy Donovan Group



the full structural system is detailed, connected, and installed, and how it responds under extreme demand. Bringing these insights to North American metal building design allows for adaptable consideration of seismic and weather events across the continent.

Christchurch did not produce a single North American metal building standard that can be traced directly to the event. Its influence was broader. The Canterbury Earthquakes Royal Commission recommended changes to New Zealand design practice and standards, including a specific recommendation that NZS 3404 be amended to require redundancy in structures that use eccentrically braced frames for seismic resistance. The Commission also emphasized that designers must clearly define load paths and ensure that details have sufficient strength and ductility to perform as intended.³

For the metal building industry, the lesson is less about one new prescriptive rule and more about a design mindset: bracing, connections, ductility, redundancy, and constructability must be considered together as part of the complete lateral-force-resisting system.

In practice, the load is prescribed. The solution is designed.

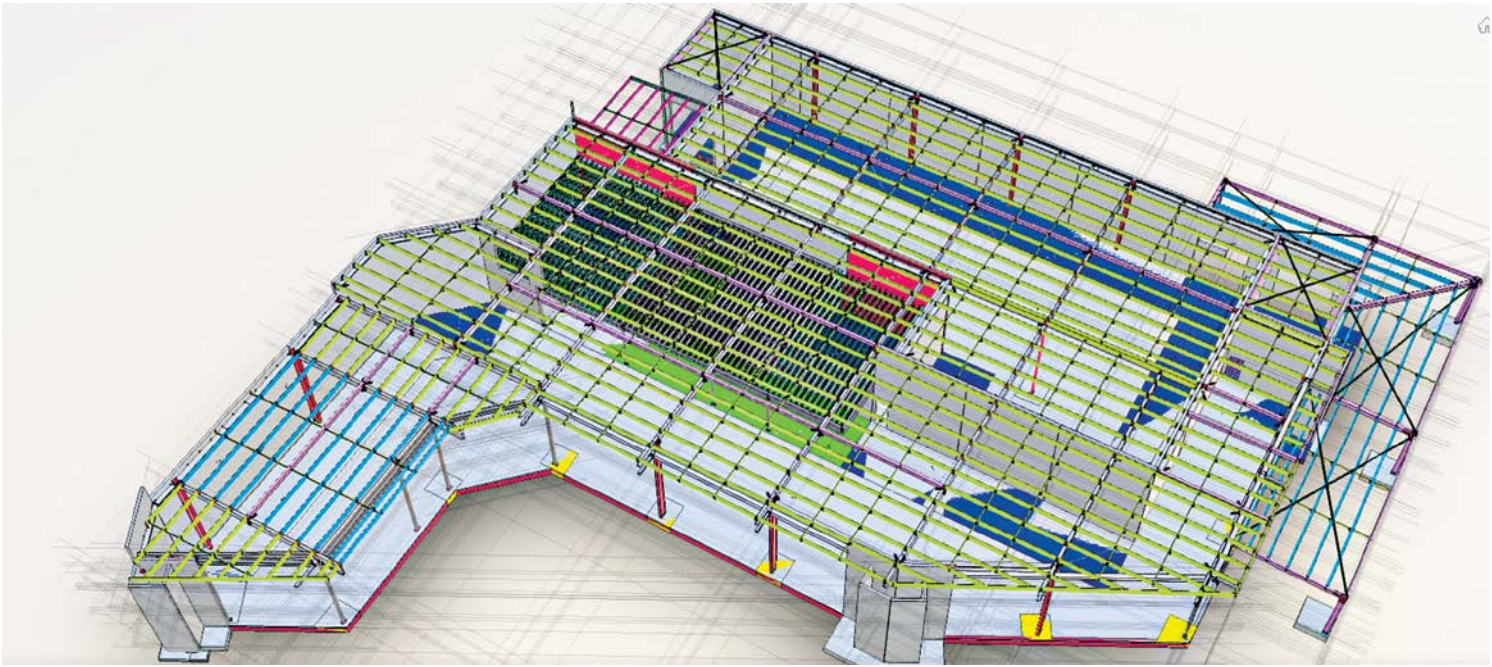
Bracing requirements are driven by the applicable building code, site-specific loading conditions, building geometry, and use. Depending on location, a structure may need to resist wind, seismic, snow, or a combination of loads. Those forces establish the required structural demand, but different bracing systems can meet that demand in different ways.

A storage facility for Beck's in New Madrid, Mo., illustrates how site conditions can drive the lateral system. Seismic demand was a key design consideration, requiring a robust bracing solution. In the cited application, higher-capacity tension bracing was used in place of standard 3 x 3 in. (76.2 x 76.2 mm) angle bracing. The structural requirements did not change, but the way the building resisted the load did. Lighter components reduced the amount of material the erection crew had to move and position, while the bracing could be installed as framing progressed. That became particularly valuable after weather delays placed pressure on the construction schedule.

Building function can shape bracing in a different way. At a 150,000 sf (13,935.5 m²) manufacturing facility in West Jordan, Utah, a building was designed to support the production of mobile data centers. Crane bays created steep brace geometries and introduced additional connection and installation considerations. A conventional rod-bracing approach would have required custom slope washers at some locations, while double-rod bays would have created the potential for turnbuckle conflicts.

The project team coordinated a higher-capacity tension bracing system that reduced double 1.25 in. (31.75 mm) rod X-bracing to a single 1 in. (25.4 mm) X-bracing system in the cited application. The required capacity was still governed by engineering, but the selected system worked within the physical constraints created by the facility's function. The benefit was not simply aesthetic. In a manufacturing environment, every structural element must be coordinated with equipment, material flow, crane access, maintenance zones, and worker circulation. By reducing the amount of rod bracing required in the cited locations, the lateral system became less congested and easier to coordinate with the building's operational needs.

As demonstrated in this design, a more streamlined bracing layout can reduce conflicts around crane bays and equipment zones, simplify connection detailing, and limit the number of components competing for space within the same braced bay. It can also make the finished structure cleaner and easier to navigate visually, which matters



in facilities where large equipment, overhead movement, and clear work zones are part of day-to-day operations.

The influence of bracing selection can also be seen in the number of locations required to resist lateral forces.

On a 57,500 sf (5,341.9 m²) retail building in Jerome, Idaho, a higher-capacity tension bracing system reduced the roof bracing layout from five braced bays to two. Lateral forces are the sideways forces a building must resist, most commonly from wind or seismic movement. The building's location, size, exposure, occupancy, and site conditions help determine those forces. Once established by code and engineering analysis, the bracing system becomes one of the ways those forces are collected and transferred through the structure.

In Jerome, the roof bracing was part of that lateral-force-resisting system. By using a higher-capacity tension bracing system, the design team was able to resist the required demand with fewer braced bays. Traditional rod-bracing systems often rely on multiple rods, turnbuckles, and connection components. Turnbuckles allow rods to be tensioned, but they can also add congestion where rods cross or where multiple components meet.

Fewer braced bays meant fewer roof locations with diagonal bracing, fewer connection points to coordinate, and less work for the erection team at elevation.

Again, the required structural performance did not change. What changed was how the resistance was distributed through the structure. For the erection team, fewer braced bays meant less work at elevation. From a broader design perspective, reducing the number

of brace locations can also create more options when coordinating openings, circulation, and other building requirements, although the final brace layout remains an engineering decision.

Brace capacity, connection details, and the number and location of braced bays can affect framed openings, equipment layouts, circulation, and field labor. The design process, therefore, becomes a coordination exercise.

Owners establish how the facility must function. Architects define space, access, and openings. Engineers establish the load path and required capacity. Metal building manufacturers and construction teams then help turn that design into a system that can be fabricated and erected efficiently. **Ma**

Notes

- ¹ Learn more about the Christchurch earthquake with *NZ History*, "Christchurch earthquake kills 185."
- ² Read the "Steel structures damage from the Christchurch earthquake series of 2010 and 2011" by Clifton, Bruneau, MacRae, Leon, and Fussell from the *Bulletin of the New Zealand Society for Earthquake Engineering*.
- ³ Read the "Royal Commission of Inquiry into Building Failure Caused by the Canterbury Earthquakes".

Michael Ryan is the director of sales and operations in North America for the Donovan Group. He is an Allied member of the American Institute of Architects (AIA), an active member of the Metal Building Manufacturers Association (MBMA) and the Metal Building Contractors and Erectors Association (MBCEA).

This top-down rendering illustrates how bracing contributes to the building's overall structural system.

Rendering courtesy Donovan Group

Opposite page:

Top: The seismic demand on this Missouri storage facility required higher-capacity tension bracing, which was used in place of standard 3 x 3 in. (76.2 x 76.2 mm) angle bracing.

Photo courtesy Donovan Group

Bottom:

Photo courtesy Behlen Building Systems



Education, advocacy, and metal building excellence

MBMA members *mark the moment* in MA's 70th anniversary Q&A

"The metal building system gave us freedom in having taller spaces than normal," says Doug Larson, the architect for this North Haven, N.Y., private residence.

"The central pavilion has a big double-height space, the flanking wings have a floor inserted, and the second floor has a cathedral ceiling."

Photo courtesy Hance Construction

Metal building systems extend far beyond the basic, box-like structures that many architects may still associate with them. Today, they support complex designs, varied exterior materials, tall and clear-span spaces, and a wide range of architectural applications.

Members of the Metal Building Manufacturers Association see significant opportunities in schools, municipal buildings, data centers, sports facilities, and other projects where speed, cost efficiency, durability, and code compliance are priorities. They say education and collaboration will be key to helping more architects

understand—and adopt—the possibilities of metal building systems.

As the MBMA celebrates its 70th anniversary, Metal Architecture asked four members to reflect on the industry's past, present, and future. Their responses highlight the resources, community, and architectural opportunities that continue to shape metal building construction.

Robert Tiffin, national accounts manager at Silvercote, offers a uniquely integrated perspective from his ongoing work connecting architects and architecture students with knowledge of metal



building systems. Tiffin also chairs the MBMA Architect Committee, and is the past president of the Metal Building Contractors and Erectors Association (MBCEA).

Amy Wirth, CEO of Sunward Steel, offers the perspective of a newer MBMA member, having joined the association less than five years ago.

Robert Major, vice president of Schulte Building Systems and Inland Buildings, represents companies closely connected to the association: Schulte has been a member since the company's inception in 2005, and Inland is a charter member.

Rob Haddock, founder of S-5!, has been in the industry for five decades and provides a perspective as a member of the MBMA for since 2010.

Their responses celebrate the resources, community, and architectural opportunities unique to metal buildings and the MBMA.

MA: Metal building systems have changed significantly over the past 70 years. What do architects most often misunderstand about today's metal buildings?

TIFFIN: A common misconception is that metal building systems have condensation problems and they're leaky. In metal building systems, you put in the amount of insulation for the code, but make sure that you—in the purlins or the support for primary structure—fill that space, because if you don't, then you have condensation, which then perpetuates part of the misconception.

WIRTH: That a metal building has a certain aesthetic. That it's just a box and it's steel, so it's commercial or industrial. There is such great versatility in a metal building and the applications in which it can be used. As it becomes more accepted with architects and with

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“By being part of the MBMA, we have learned what are architects are interested in, how the AIA works, and we have learned some of our own limitations.”

building departments, there are a lot of opportunities for metal building manufacturers.

MAJOR: There’s a misconception that we can’t create complex structures. We can. I’ve done buildings over 80 feet tall in the metal building world. We can be creative. We run into architects who do not really know the versatility that a metal building can bring them. When it comes to what the building looks like as far as the exterior skins, it’s not just a metal panel look. You can use brick, block, insulated metal panels, and many options that don’t look like the old corrugated boxy-type wall panels.

HADDOCK: Architects once viewed pre-engineered metal buildings primarily as basic shade and shelter structures. Because metal buildings were prefabricated, pre-engineered, pre-designed,

or designed by a contractor, the architect was largely left out of the equation. Over the past five decades, that perception has shifted as the pre-engineered building community has incorporated a broader range of materials and design concepts. They’re not just metal sheds anymore. There was a time when the metal building was considered the ugly duckling. Today, you could say it’s become a swan.

MA: How has MBMA membership strengthened your work with architects?

WIRTH: Through the education and code compliance, our engineers continue to be updated on the rapidly changing environments, and as the building departments continue to change as a result of many variables, including climate change, for example, with fire and wind and snow, in the extreme weather events that we see throughout the country. There’s also a lot of value in the collaboration with other manufacturers. We all have the same challenges, and being able to have a peer group that has experience in those same kinds of challenges as we continue to grow is something that I think we can take advantage of and lean on.

TIFFIN: By being part of the MBMA, we have learned what are architects are interested in, how the AIA works, and we have learned

some of our own limitations. For example, some specific data centers have to be able to withstand incendiaries or explosive results because of the critical nature of the server's interior. Fiberglass-encased wall systems do not stop that, hence the reinforced concrete getting its fair share of the data center market.

MAJOR: The MBMA is so intertwined with knowing the market and trying to see ahead of the game. Many companies, not just in the metal building world, are very reactive. Being part of the MBMA helps you be more proactive with trends in the market before they become commonplace. The Architects Committee is getting the word out on the versatility that a pre-engineering metal building can bring. It was an ingenious move by the MBMA to partner with architectural schools, offer scholarships, and make a student competition. That has really helped bring awareness to young architects as they go into the

workforce. There is a huge benefit to having some architects that you work with on a project-by-project basis and, when we're quoting a project, that we are quoting it to the most current code.

HADDOCK: It's helped increase acceptance of metal building construction within the architectural community. The standing seam roof has played a prominent role in that evolution and has become more and more popular among architects and building owners. S-5! attaches ancillaries to those roof types.

MA: Where do you see the strongest architectural opportunities for metal building systems?

WIRTH: I think that there is a lot of opportunity in the municipality, schools, and private businesses that are really looking for a cost-effective alternative to conventional construction.

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“There was a time when the metal building was considered the ugly duckling. Today, you could say it’s become a swan.”

TIFFIN: Data centers, indoor sports, schools, and vocational training centers. Because of the number of communities with fixed or limited budgets, a metal building system for a primary or secondary education facility is ideal. It meets all the codes for the county and is quick to assemble. It has clear spans. And it can be erected in a short period of time. This is also true in municipal works—from water treatment centers to other public works to arenas—as well as in office and mixed-use developments. In some particular retail environments, metal building systems are fast. For example, at O’Reilly Auto Parts, as a retail operator, your cash register is ringing in 45 days from the day you cleared your dirt. Costco: 100 days.

MAJOR: When it comes to educational facilities, you see a lot of that opportunity with metal buildings. As we all know, school systems have a budget. They also want something that has curb appeal, that blends in with the surrounding community.

HADDOCK: The strongest opportunity is in buildings that are intended and designed to last for a long time. That includes municipal buildings, educational buildings, commercial buildings of nearly every kind, with the possible exception of a shopping center developed with the intention to fill leases and sell within five or 10 years.

MA: Looking ahead, what do you hope to see in the partnership between MBMA members and the architectural community over the next decade?

WIRTH: I really hope to see a lot of growth and collaboration in making metal buildings more of a solution for architects. Especially with the changing environments, steel is much more fire resistant, for example, than wood, so they can really better understand the cost effectiveness and the efficiencies that steel can bring to a project.

TIFFIN: We hope to evolve from awareness to adoption to advocacy. With the MBMA having so many engineers, we have so many white papers. They researched everything. They have explored pre-engineered metal buildings so extensively, including how they perform in hurricanes, earthquakes, condensation, energy consumption, and more. Every metal building system can meet an energy code, they can meet wind ratings, they can meet earthquake ratings. I hope to see architects wonder ‘Why would you not have a metal building?’

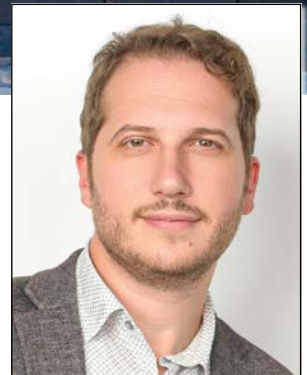
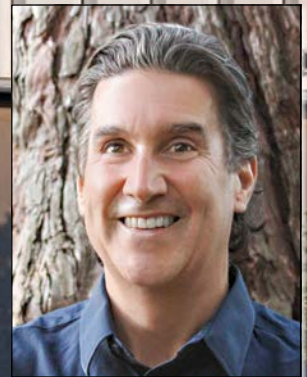
MAJOR: Architects have associations that they’re members of, and collaborating more with those associations is something that I would like to see in the future. I think the more opportunity we have to interact with the architectural community, the better it will become for the flow and the speed of the project.

HADDOCK: There was a time when MBMA membership consisted of 100 percent metal building manufacturing members. Since then, the association has made huge strides in developing cooperative efforts with related trade associations and trade groups like the MBCEA and the MCA. An association, by definition, brings together people with shared interests and a common purpose. Cooperative efforts involving other trade groups and people from across all sectors of metal construction support the broader acceptance of this type of construction within the architectural community.

The message from MBMA members is clear: Metal building systems are not limited to simple, utilitarian structures. They can deliver design flexibility, clear spans, rapid construction, code compliance, durability, and cost efficiency across a wide range of projects—from schools and municipal facilities to sports complexes and commercial buildings.

As manufacturers, architects, engineers, educators, and related trade groups work together to share knowledge and engage students and architects, they demonstrate what today’s metal building systems can do.

Through education, collaboration, and advocacy, the MBMA continues to make metal building systems a more familiar and compelling option for architectural design. **Ma**



Beyond the glass box

Quality daylighting design

Daylight has long been one of architecture's most valued design elements, improving occupant satisfaction, well-being, and connection to the outdoors. Yet as buildings have become increasingly transparent, many projects have revealed an

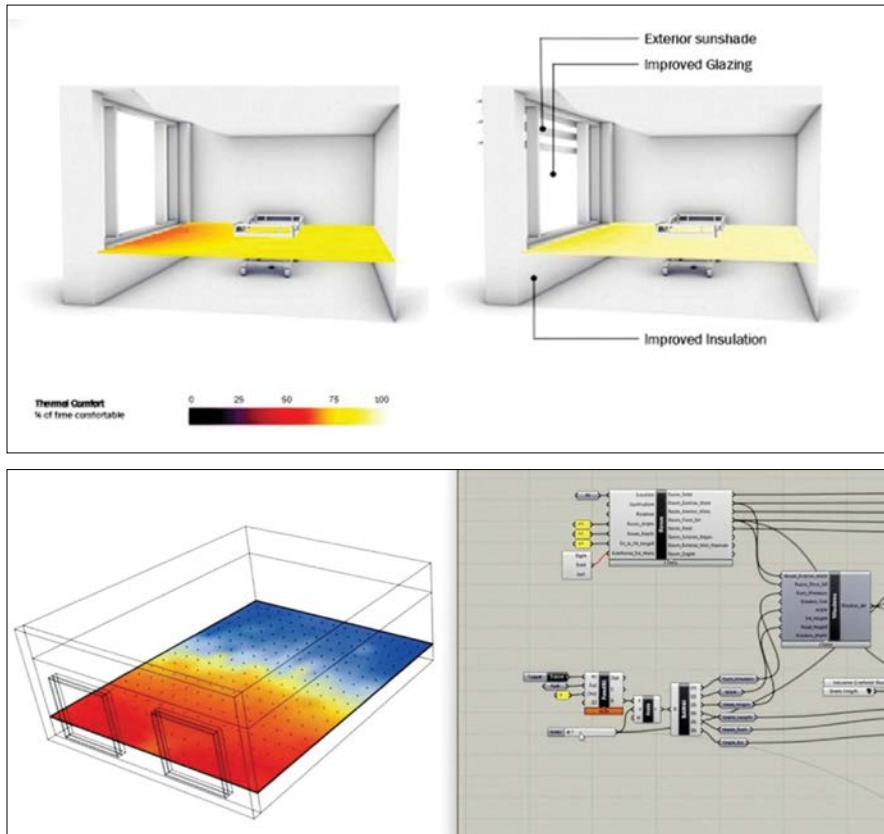
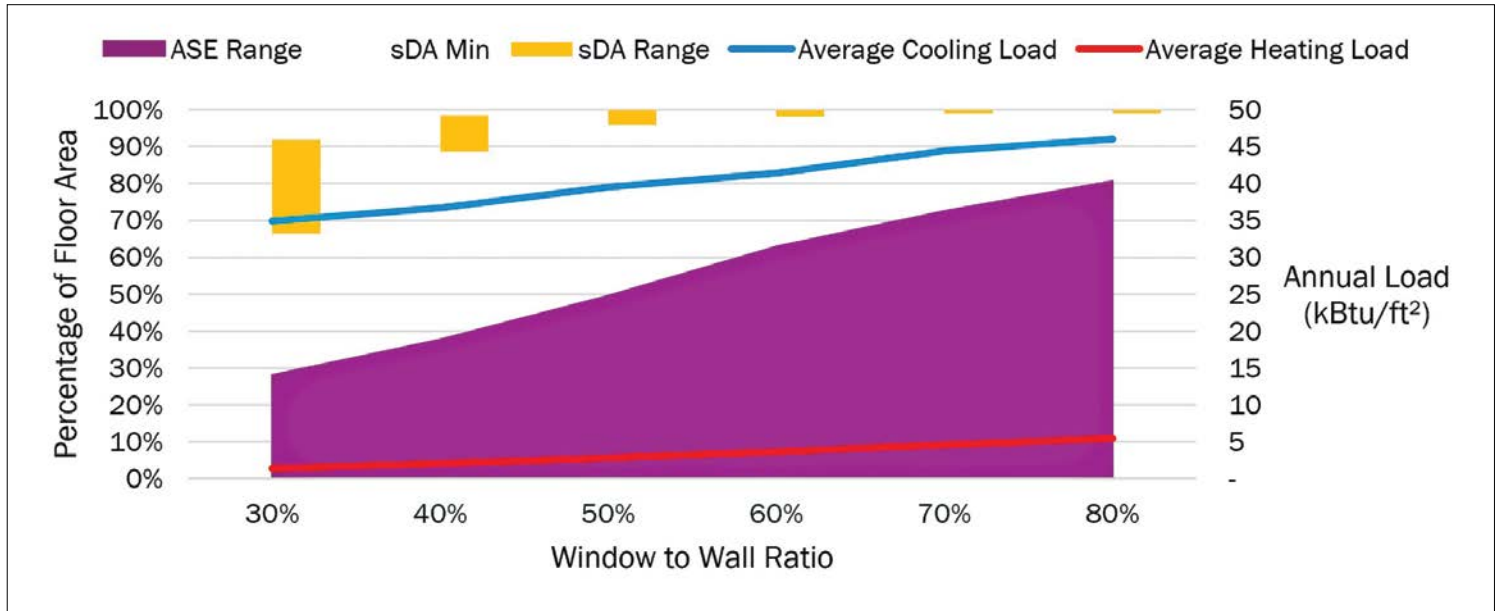
uncomfortable truth: more glass does not necessarily produce better daylighting.

As architects seek to create healthier, lower-carbon, and higher-performing buildings, the focus is shifting from maximizing glass area to optimizing

**By Alan Scott and
Elliot Glassman**

Metal vertical fins on the facade of the Chemistry Building at the University of Wisconsin at Milwaukee reduce direct sun entering windows.

Photo © Peter McCullough



bearing little resemblance to actual daylight conditions. These visualizations often ignore the physics of daylight, solar angles, and climate conditions. Consequentially, clients and design teams may underestimate the risk of glare and direct solar exposure.

Real occupants experience daylight differently. They encounter bright patches of direct sunlight, excessive contrast between surfaces, reflections on screens, and thermal discomfort from solar heat gain. A controlled crossover study published in the peer-reviewed journal *Building and Environment* found that providing occupants with access to daylight and exterior views, while controlling glare, improved cognitive performance, increased environmental satisfaction, and reduced eyestrain.¹

To understand how daylight will truly behave within a space, architects must rely on climate-based daylight modeling and glare analysis.

Integrated performance modeling enables simultaneous assessment of daylight, glare, thermal comfort, energy use, peak loads, and carbon impacts. These simulations evaluate daylight performance throughout the year, accounting for local weather patterns, seasonal solar angles, and changing sky conditions.

Metrics such as Spatial Daylight Autonomy and Annual Sunlight Exposure help designers understand not only how much daylight reaches a space, but whether occupants are likely to experience excessive direct sun (high ASE). Parametric analysis can then be used to test alternatives, allowing teams to optimize

daylight quality through strategies like building performance simulation.

Renderings versus reality

Whether produced conventionally or with AI, architectural renderings frequently depict lighting conditions that are visually appealing but not photometrically accurate,



An AI-generated rendering of a patient room with soft diffuse light. In reality, a highly glazed facade may lead to harsh conditions where direct sun disturbs the patient during certain hours.

Image generated using CannonDesign's generative AI platform, Billie.

Opposite page:

Top: Results of this parametric analysis show that excellent daylight can be achieved with lower window-to-wall ratios. The percentage of daylight floor area reaches a maximum after a certain point and is accompanied by increased thermal loads and a risk of glare. The ranges represented are due to the other parameters studied, such as glazing selection and exterior shading.

Middle: Exterior shading can contribute to enhanced thermal comfort for occupants by blocking direct sun.

Bottom: Parametric analysis of facade elements such as window size and location, and optical properties of the glass, helps maximize levels while reducing glare. The same model can be used to evaluate the impact on thermal loads and comfort criteria simultaneously.

Graphics © CannonDesign

daylight performance while maintaining design intent. Metrics such as sDA and ASE are generated through climate-based daylight simulations that analyze a 3D building model using local weather data throughout the year. Parametric analysis can then be used to rapidly evaluate design alternatives, allowing teams to optimize daylight performance while maintaining design intent.

These tools can also inform space planning decisions. Areas with greater tolerance for direct sunlight, such as circulation spaces and waiting areas, can be located where solar exposure is highest, while workstations, classrooms, patient rooms, and other visually sensitive spaces can be protected from excessive glare.

Finding the right amount of glass

Floor depth often has a greater influence on daylight performance than glazing area. On a recent project in the southern United States, where occupied spaces were generally less than 20 ft (6.1 m) deep, parametric analysis showed that an approximately 80 percent window-to-wall ratio could be reduced to roughly 40 percent with little change in useful daylight area. The optimized facade reduced energy use, lowered peak cooling loads, improved thermal comfort, and reduced direct solar exposure.

This illustrates an important principle: beyond a certain threshold, additional glass provides diminishing daylight benefits while increasing performance penalties.

Buildings with higher glazing ratios often require more sophisticated glazing systems such as triple glazing or closed-cavity facades, increasing both cost and embodied carbon. Some jurisdictions, including New York City, now limit the degree to which efficient lighting and HVAC systems can compensate for poor enclosure performance, making facade optimization even more important.

As glazing assemblies generally carry higher embodied carbon than opaque wall systems, optimizing window area can improve both operational and embodied carbon performance.

Orientation is often more important than overall glazing quantity. East and west facades can be particularly challenging because low-angle morning and afternoon sun is difficult to control, even with vertical shading devices. Occupants frequently respond by lowering interior blinds, reducing both daylight and views.

North-facing glazing typically provides diffuse, high-quality daylight with minimal glare risk, while south-facing facades often offer the best balance, allowing designers to control higher-angle summer sun through



D'Youville University's Health Professions Hub in Buffalo, N.Y. employs a nuanced facade composition, pairing varied glazing, shading, and enclosure elements to respond to orientation and the programmatic needs within.

Photo © Laura Peters/
courtesy CannonDesign

horizontal shading devices while potentially capturing beneficial winter solar gains.

The critical role of exterior shading

When it comes to controlling solar gain and glare, exterior shading remains one of the most effective design strategies available. While its value is often evaluated only through annual energy savings, exterior shading can also reduce peak cooling loads, improve visual comfort, enhance occupant satisfaction, and increase resilience during extreme heat events.

Unlike interior blinds, which react after sunlight has entered the building, exterior shading intercepts solar radiation before it reaches the glazing. This also allows interior blinds to remain comfortably open for more hours throughout the year, maintaining visual connections to the outdoors while still benefiting from daylight.

Inspired by the geometry of protein structures, the vertical anodized aluminum fins at the University of Wisconsin–Milwaukee Chemistry Building became both

a defining architectural feature and a high-performance shading strategy. Integrated as standard snap-on components of the curtain wall system, they simplified construction while reducing low-angle solar heat gain and glare. Working in concert with carefully balanced opaque and transparent facade areas, the fins preserve daylight and views while supporting energy efficiency and occupant comfort in a laboratory building with exceptionally high ventilation demands.

This project is one example of how metal in exterior shading applications offers durability, dimensional stability, and customizable options. Beyond vertical fins, metal sunshades can be fabricated into horizontal sunshades, perforated screens, and other architectural elements that improve visual comfort while maintaining daylight and views.

Integrated performance design

Project type also influences daylighting priorities. At D'Youville University's Health Professions Hub,



which combines clinical healthcare services on the lower floors with teaching spaces above, the design team used sun-angle studies and daylight simulations to optimize the southwest facade and the central atrium. An integrated “egg crate” shading system of horizontal and vertical elements was carefully tuned to reduce glare and unwanted solar heat gain while preserving daylight and views. This balanced the distinct needs of healthcare spaces, where occupant comfort and accurate viewing of clinical information are critical, with educational environments that benefit from abundant, well-controlled natural light.

In healthcare facilities, daylight and views promote healing, but direct sunlight on patient beds can cause discomfort for recovering patients with limited ability to reposition themselves. Designers must also consider sunlight falling on monitors used by caregivers to view critical patient information. As a result, daylight analysis often includes evaluation

of vertical surfaces in addition to horizontal work planes.

In educational facilities, daylighting strategies must prevent direct sunlight from falling on student work surfaces, whiteboards, and presentation screens. Similar project-specific criteria apply to laboratories, offices, and civic buildings, reinforcing the importance of tailoring daylight performance goals to the activities occurring within each space.

Achieving these outcomes requires close collaboration among architects, facade consultants, mechanical engineers, daylighting specialists, and owners from the earliest stages of design.

Designing for human-centered daylight

As buildings become increasingly focused on health, resilience, and carbon reduction, daylighting strategies must adapt alongside them.

The future of daylight design is not about maximizing transparency. It is about creating spaces that provide the right balance of daylight, views, comfort, energy performance, and occupant well-being.

Performance simulation does not limit creativity; it enhances it. By pairing simulation with computational design exploration, unique architectural expressions can be generated that effectively regulate the forces of the external environment acting on the interior. **Ma**

Notes

¹ Read “Access to Daylight and View in an Office Improves Cognitive Performance and Satisfaction and Reduces Eyestrain: A Controlled Crossover Study” in *Building and Environment*, Vol. 165, 2019, Article 106379, at <https://tinyurl.com/e8ca4ty9>.

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By Hanna Kowal

Photos courtesy EcoSteel

A port-inspired metal design for West Harbor

In San Pedro, Calif., West Harbor is boldly reimagining the LA waterfront “as Southern California’s next great coastal destination”.

The \$500 million, 42-acre development replaces Ports O’ Call Village, a waterfront retail and recreation destination developed in 1963. Led by Jerico Development and The Ratkovich Company—in partnership with SSA Marine and the Port of Los Angeles—West Harbor spans one mile of direct waterfront access, and features a harbor promenade, boutique amusement park, and a curated mix of dining and entertainment.

Phase 1B of the development, which has achieved LEED v4 Platinum certification, incorporates three pre-engineered metal buildings supplied by EcoSteel that meet the area’s demanding seismic design requirements. The structures provide open interiors intended to accommodate future tenant needs.

This section of the development, designed by Studio One Eleven and built by Matt Construction, faces a public waterfront promenade and play area, making the durability and visual quality of the exterior envelope especially important.

Set along the waterfront, the buildings are exposed to wind-driven rain, salt spray, and corrosive coastal air. The metal facade system functions as a rainscreen, as marine-grade coatings protect the interior and exterior metal panels. The custom finish withstands corrosion and chalking in its coastal location, helping the design maintain its clean, sleek profile over time.

Standing seam insulated metal roof panels support the structure’s industrial aesthetic, provide continuous insulation, and serve as an air and water barrier. The system’s stark white coloring and profile complement the panels on the facade, coated in gray and white finishes. Large glazed openings and exposed steel framing complement the clean architectural style. 



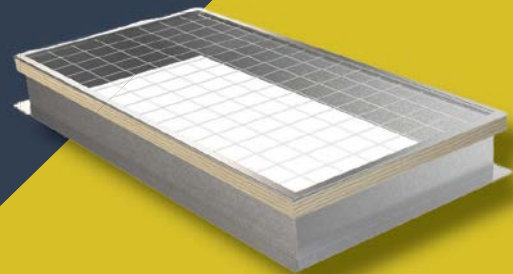
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