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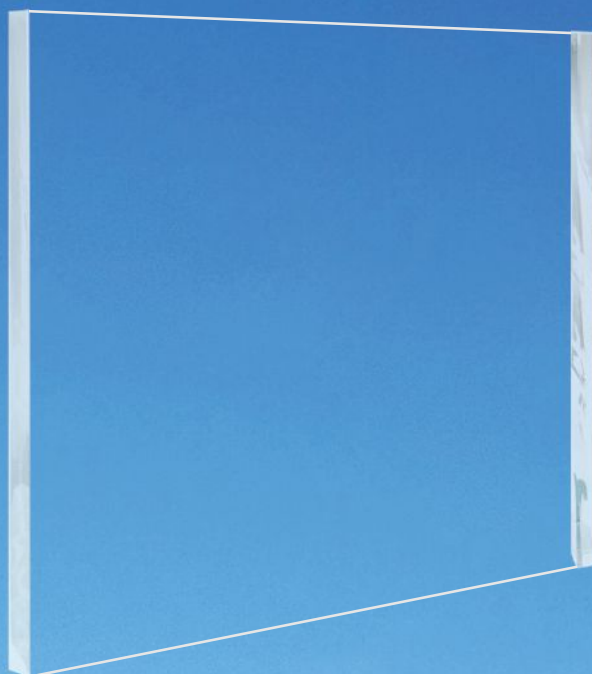
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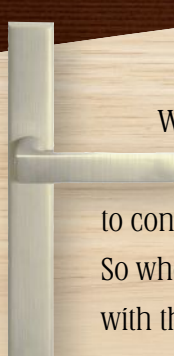
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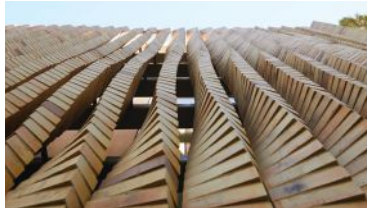
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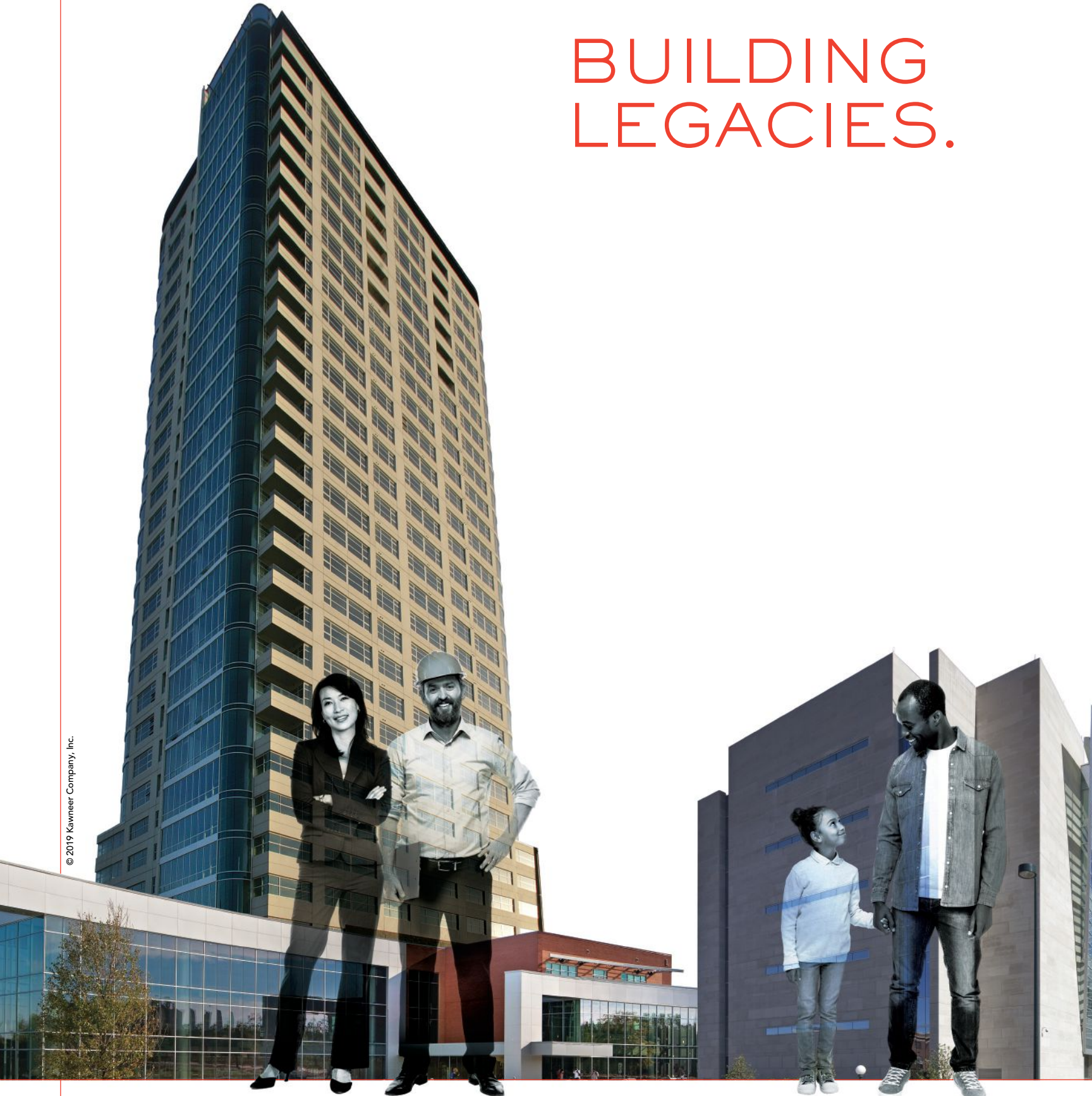
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Facade Designer: SHoP Architects
Structural Engineer and Facade Consultant: Thornton Tomasetti

Instant Replay

With four consecutive Stanley Cup victories in its history, the **Nassau Veterans Memorial Coliseum** is a beloved fixture of Long Island life. When the owner of the 1972 arena decided to reward fans with a renovation worthy of its storied past, it reimagined the venue with an overcladding that would bring new life to the facility. With a design by **SHoP Architects** and **Thornton Tomasetti**, the new folded-ribbon facade of composite aluminum fins connects to the original structure with a minimum of intervention, ensuring thoughtful reuse of a venue that still has a lot of wins in its future. Read more about it in **Metals in Construction** online.

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Shaking Bad

In New York, passing subways can shake entire buildings, but that wasn't an option for Columbia University's new **Jerome L. Greene Science Center**. Home to sensitive laboratory and imaging equipment requiring exceptional stability, the design by **Renzo Piano Building Workshop** relies on a steel structure to reduce floor vibrations to a miniscule 2,000 mips. Even as the elevated No. 1 train roars past, this helps ensure that nothing distracts from the scientific advances being made within the center's unshakable walls. Read more about it in **Metals in Construction** online.

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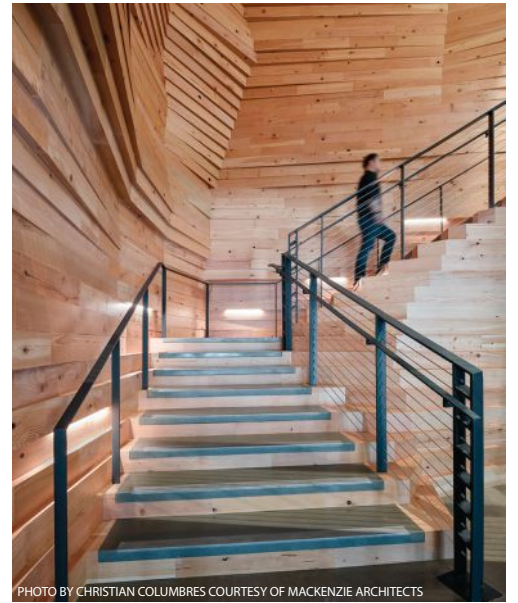


PHOTO BY CHRISTIAN COLUMBRES COURTESY OF MACKENZIE ARCHITECTS

LEFT Complemented by a living green wall, historic heavy timber and nail-laminated wood ceilings dominate tech company Slack's warm and inviting satellite office. TOP RIGHT A dramatic cubist-style all-wood staircase, resembling a 3D AutoCAD model, envelops Autodesk's employees in Douglas-fir as they ascend to offices above.

PUTTING WOOD TO WORK: TIMBER TRANSFORMS TODAY'S OFFICE

Numbered are the days of stodgy office buildings and sterile cubicles, now giving way to large open floor plans characterized by natural materials, exposed timber and ample areas for shared workspaces and collaboration.

Driven by major shifts in demographics, lifestyle and coworking trends, progressive office design is blurring the lines between work, live and play, exemplified by spaces that now include fitness centers, yoga studios, meditation rooms, cafes and home-like amenities. Sometimes referred to as superwides for their spacious floor plates, there is a rising interest in these tenant-winning offices as businesses discover employees are more productive when they commingle, unobstructed, on the same floor.

Mass Appeal

With its nimble construction methods and aesthetic appeal, mass timber is proving to

be perfectly suited for this growing trend in commercial office design. This is something the real estate developer Hines has been capitalizing on, first with their inaugural T3 in Minneapolis, tenanted by online retail giant Amazon, and now with their T3 West Midtown in Atlanta under construction, the second in a series of tall timber buildings they're putting up across the country.

"There is a growing demand for a new type of office that is more textural, more sustainable. It's aligning with the values of today's progressive companies. And when that market demand started to push in, it was married with the development of wood

technology," says DLR Group design leader and principal Steve Cavanaugh, whose firm serves as architect-of-record for the T3 projects.

Biophilic Brands

It's also a way for organizations to express their brand and a commitment to sustainability in a visceral way. Companies such as Slack, Autodesk and Uber (to name just a few) are incorporating wood into their workplaces in a significant way. And such was the case when eco-minded Canadian retailer Mountain Equipment Co-op (MEC) built their new Vancouver-based headquarters.

"The vision for this head office was really

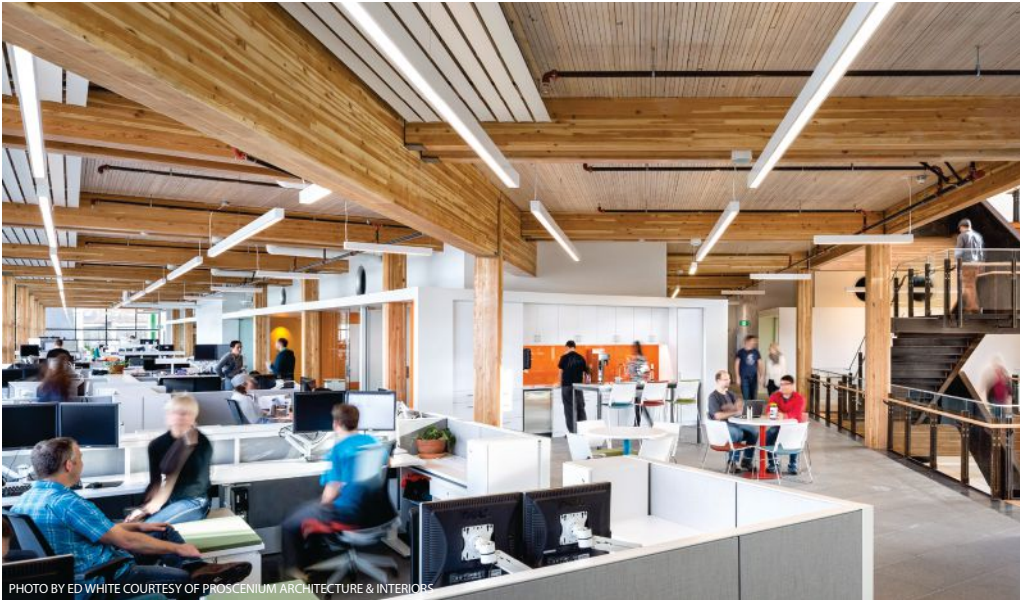


PHOTO BY ED WHITE COURTESY OF PROSCENIUM ARCHITECTURE & INTERIORS

The headquarters of popular Canadian outdoor gear and apparel retailer MEC features a spacious open concept plan, maximizing the warmth and beauty of its nail-laminated timber construction. A double-beam configuration serves double duty; the exposed beams give warmth and architectural interest to the interior and their increased stiffness reduces deflections and floor vibrations.

about creating a space for our staff to show up on a daily basis and bring their best stuff," says Sandy Treagus, chief financial officer for Canada's largest outdoor gear and apparel retailer. "What we are trying to do is bring the natural environment inside the building and by using wood as our material of construction we felt we were able to achieve that."

And drawing nature inside, using timber construction and natural materials, offers biophilic benefits that are increasingly quantifiable, with one study suggesting that exposure to natural wood can help reduce stress, as measured by the sympathetic nervous system*.

Value for Money

Sought after for its warmth and beauty, mass timber can be a boon for lease-rates, with developers such as Hines securing tenants before projects are complete. And when it comes to cost, design teams are

demonstrating to their clients that with all its benefits wood can be a very affordable option, something Tanya Luthi, structural engineer for the MEC Headquarters, recognizes.

"There is a perception that wood is more expensive, but when you take a more holistic view, there are cost benefits. It can go up faster, it's quieter and it gives you a beautiful space that you can leave exposed to view," says Luthi, Associate at Fast+Epp Structural Engineers.

Wood-savvy design teams with a strong understanding of mass timber technologies are essential to the success of these projects. Across the country, architects, engineers and developers are schooling themselves on this new, more sustainable way of building, gearing up for what many see as a trend that is only going to continue to expand. And as many firms are discovering, it can be a great differentiator to help set them apart from the pack.

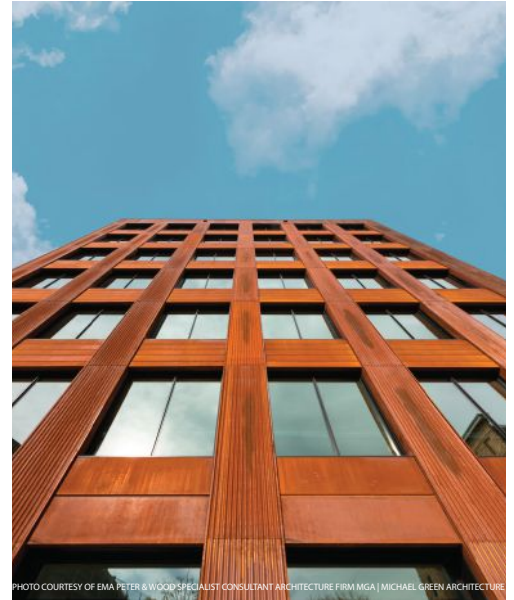


PHOTO COURTESY OF EMA PETER & WOOD SPECIALIST CONSULTANT ARCHITECTURE FIRM MGA | MICHAEL GREEN ARCHITECTURE

TOP RIGHT T3 Minneapolis could be likened to a game changer for commercial office design and a milestone for mass timber. The seven-story high-rise, designed by Michael Green Architecture and DLR Group, was the largest mass timber building in the U.S. when it opened in 2016. BOTTOM RIGHT MEC Headquarters' central staircase framed in mass timber leads to a green roof that serves as a space for outdoor gatherings.

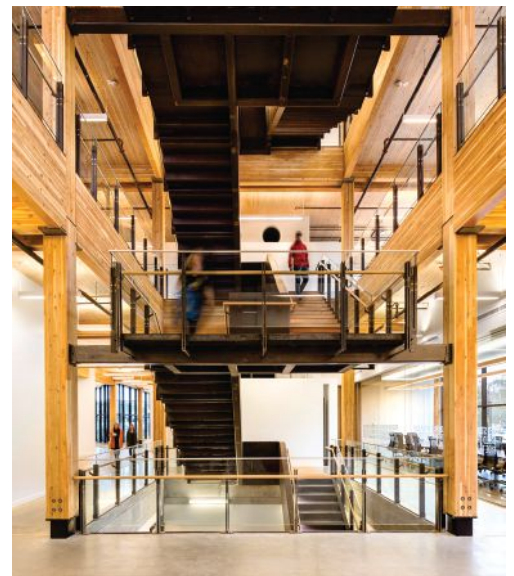


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*Fell, David Robert. 2010. *Wood in the human environment: restorative properties of wood in the built indoor environment.* <https://open.library.ubc.ca/cIRcle/collections/ubctheses/24/items/1.0071305>



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Traditional Excellence

In January, the University of Notre Dame named architect, urbanist, critic, and theorist Maurice Culot the winner of the 2019 Richard H. Driehaus Prize, which recognizes a living architect for his or her “lifetime contributions to traditional, classical, and sustainable architecture and urbanism in the modern world” and comes with a \$200,000 prize. (His Plaza for Val d'Europe near Disneyland Paris can be seen above.) A graduate of L'École de la Cambre in Brussels, Culot completed a residency at Taliesin West in the mid 1960s and is currently the president of Arcas Architecture & Urbanism, with offices in France, Belgium, and Poland. —AYDA AYOUBI

> To read more about Maurice Culot's Driehaus win, visit bit.ly/MauriceCulot2019Driehaus.



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Marvelous Midcentury Modernism

Known to repeat the line, “I am not a decorator,” Florence Knoll Bassett (who died in January at 101) studied under Eliel Saarinen at Cranbrook and Ludwig Mies van der Rohe at IIT, and is best known as the design powerhouse behind Knoll Associates—now Knoll—which she operated with her first husband, Hans Knoll, for almost 20 years. Her Knoll Planning Unit set the standard for the midcentury modern interiors that remain widely popular today. In 1961, she was the first woman to be awarded AIA’s Gold Medal for Industrial Design, and in 2003, she received the National Medal of Arts from President George W. Bush. —KATHARINE KEANE

> To read more about Florence Knoll Bassett’s life and legacy, visit bit.ly/FlorenceKnollDiesAt101.



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Voices of a Generation

Each year, the Architectural League of New York recognizes firms with “distinct design voices and the potential to influence the disciplines of architecture, landscape design, and urbanism” as part of its Emerging Voices program. This year, the eight winners are Mexico City’s Centro de Colaboración Arquitectónica; New Orleans’ Colloqate Design (one of whose billboards for its “Blights Out” project can be seen above); New York’s Davies Toews Architecture; Los Angeles and Brooklyn, N.Y.’s FreelandBuck; Brooklyn’s Modu; Houston and New York’s Schaum/Shieh; Toronto’s UUFie; and Portland, Ore.’s Waechter Architecture. —KATHARINE KEANE

> For more information on all of the 2019 Emerging Voices recipients, visit bit.ly/2019EmergingVoices.

WOW Factor



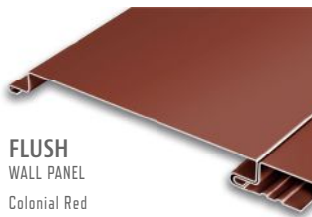
AISD Performing Arts Center, Austin, TX | Owner: Austin Independent School District | Architect: Pfluger Architects
General contractor: American Constructors | Installing contractor: Texas Roofing Co. | Photographer: Tom Coplen
Profiles: Flush Panels, M-42 Panel | Colors: Burgundy, Colonial Red, Terra Cotta, Galvalume

“We thought the metal would give us the ‘wow’ factor from a distance. We first considered using just a single color but the consensus was that we needed something that stood out even more. That’s why we went with the nice three-color combination.”

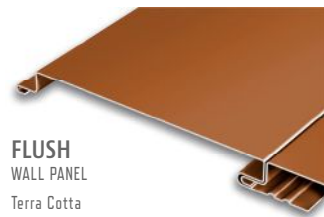
-Jessica Molter, AIA, LEED AP BD+C, Principal, Pfluger Architects



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Best Practices: How to Avoid a Toxic Work Culture

TEXT BY JEFF LINK

Architects work notoriously long hours, often to deliver design deliverables on a tight schedule or to iterate on more concepts. Add to that high-pressure environment office drama, poor leadership, and selfish individuals and you have a recipe for toxic work culture.

Here, several firm leaders share their advice for resisting—and reversing—a negative corporate environment.

“I have a ‘no-assholes’ rule. ... We never hire prima donnas who can’t get along with others.”

—David Keith, AIA, CEO and design principal, Hanbury

Know Who to Hire—and Fire

Hiring the right people is an essential pre-emptive move, says David Keith, AIA, CEO and design principal of Norfolk, Va.-based firm Hanbury. “I have a ‘no-assholes’ rule in hiring and ... find out how people respond to pressure by asking them questions, checking references, and [sending them to] lunch with staff members at similar experience levels,” he says. “We never hire prima donnas who can’t get along with others, regardless of their talent level.”

But even a scrupulous hiring process is no guarantee that employees will exercise civility and professionalism during intense periods of work.

“[Sometimes] people who are typically good mentors blow up at people,” Keith says. After such an incident, his first course of action is to have an honest but constructive conversation with the offender. But if outbursts persist, letting go of insubordinate employees is often the best policy.

“People can get to the point where they feel leadership is not dealing with the situation,” Keith says. “That is very dangerous and very toxic.”

Foster Work-Life Balance

Bob Borson, FAIA, principal of the Dallas-based Malone Maxwell Borson Architects (MMBA) and curator of the blog and podcast “Life of an Architect,” says excessively long workdays are a common, but avoidable, peril of the profession. A carryover from architecture school, the “bragging rights” mentality of pulling all-nighters and high billable-hour requirements—real or perceived—can deprive employees of work-life balance, increase attrition, and be a poor stand-in for work quality. Borson debunks the belief that more time in the office means “you’re a great employee.”

Ultimately, leadership should set clear expectations and standards as excessively long workdays can cause stress and resentment, particularly if senior designers do not share an equal burden. “I’m not going to ask an employee to do something that I myself won’t do,” Borson says. “I have a kid and I don’t want to miss that time either.”

Be Transparent

When a firm is facing major transitions, such as a leadership change or an economic downturn, management should realize that employee morale might diminish. EDI International experienced this firsthand when the lending market crashed in 2008.

“We were working with a sheikh from Dubai [who had] invested with Lehman Brothers. He lost half a billion dollars, and that slowed him down,” says CEO Victor Mirontschuk, FAIA. “We were stiffed for millions and millions of dollars. That’s not good when you’ve got 160 people on payroll.”

Recognizing that secrecy could spark malcontent and a lack of confidence in leadership, the six partners did not try to sugarcoat the impending fallout. In a series of staff meetings, they communicated openly about the developer’s refusal to pay and the need for cuts. They closed their Newport Beach, Calif., office, abandoned plans for a new office, and made personnel cuts: first from support staff members and then from the core design team.

A new salary agreement reduced employee compensation by 20 percent overall but included a provision to pay it back in bonuses when the firm made quarterly goals (which happened three of four quarters that year).

Though this strategy softened the blow, the firm ultimately saw a reduction to 30 employees. Still, honesty was the best course, helping to sustain trust and goodwill among the remaining staff.

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Detail: The Mark Steel Knuckles

TEXT BY TIMOTHY A. SCHULER

Among downtown Seattle's newest icons is the Mark, a faceted 48-story, 750,000-square-foot hotel and office tower designed by the local office of ZGF Architects for Kevin Daniels, president of local developer Daniels Real Estate.

ZGF used paper models and the classic proportions of the human anatomy to explore dozens of designs, says partner Allyn Stellmacher, AIA. "Ultimately, we came back to a disposition of the parts of the building in a way that we thought was more artful, but that also was welded with a more effective [line] for the bracing," he says.

The bracing's stainless steel cladding recedes into the Mark, as if the zigzags are etched into its skin. Behind the cladding, the diagonal mega-brace system transfers wind and seismic load requirements from the building's concrete core to four steel columns slightly inset from each building corner, which Arup, the project's structural engineer, estimates uses 10 percent

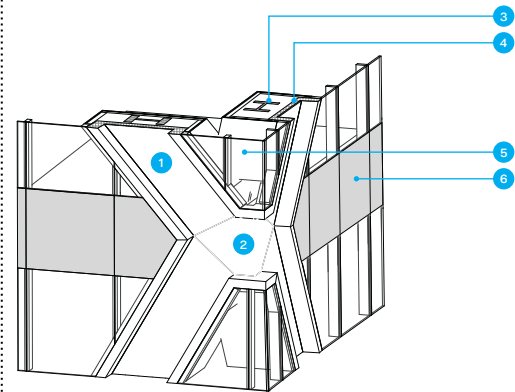
less steel than alternative designs. The 200- to 325-foot-long brace members consist of approximately 30-foot-long wide flange beams that meet at building corners, creating X-shaped intersections dubbed "knuckles" by the design team.

The shop-fabricated knuckles are each uniquely made to accommodate the various incoming angles of the four intersecting diagonal braces, in addition to three floor beams. The brace members were initially bolted to the knuckle during fit up and erection, and then all connections were made permanent via full penetration welds.

Each incoming diagonal member is fixed to the nearest vertical steel column above and below the building corner at which the intersection occurs, creating a "small, triangulated connection that helps reinforce the load transfers," Stellmacher explains. At the building's base, the braces anchor into five-story-tall, 3-foot-square steel box columns, custom-fabricated for the project.

Steel fabricator Supreme Steel (formerly Canron Western Constructors) in Portland, Ore., produced the knuckles.

Stellmacher credits the project's success to the collaborative efforts of the designers, engineers, fabricators, and contractor: "The modern tools and trades came together to make the building happen."



1. Stainless steel brace cover with linen finish, 3' wide with 11" inset
2. Custom steel knuckle with full penetration weld to four brace members and three floor beams (beyond)
3. Steel wide flange brace with a maximum 2' depth and approximately 4"-thick flanges; encased in spray-on fireproofing
4. Rigid insulation
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Location:

Columbus, Ohio

Year founded:

2013

Firm leadership:

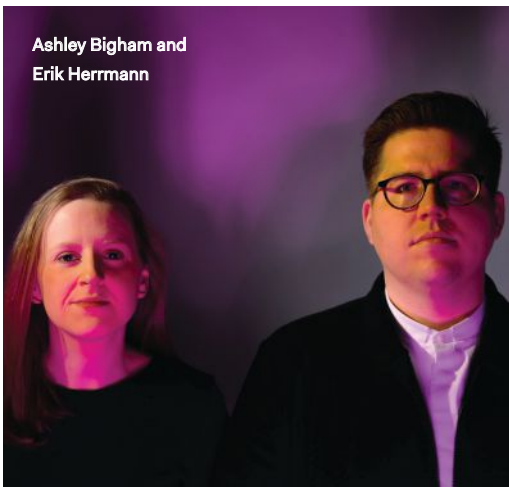
Ashley Bigham and Erik Herrmann

Education:

Both: B. Arch., University of Tennessee College of Architecture and Design; M. Arch., Yale University School of Architecture

Firm size:

Never fewer than two



Ashley Bigham and Erik Herrmann

Mission:

To seek new public audiences through experimental creative production ranging from the serious to the absurd,

often simultaneously. We do this to produce spaces that are unexpected, are unanticipated, and—we hope—ignite curiosity about the built environment.

Origin of firm name:

We actually started with the initials “OO”—they felt right on the page.

At the time we named the office, we had been living in Europe and we felt pretty adrift in completely new cultural contexts—a bit like outsiders. Ironically, the connected world exacerbated that feeling. We thought a lot about the perspective that gave us and the strategic benefits of being an outpost—ideologically and practically.

Now we’re back and practicing in the U.S., but we still work to push boundaries or conventions to stay authentic to our name.

Favorite project:

Another Stack, an experimental environmental design in the commons space of the A. Alfred Taubman College of Architecture and Urban Planning at the University of Michigan. The principal element of the project is a series of large-scale seating platforms that can easily be rearranged and stacked to accommodate a host of functions.

We made these large seating platforms from structural insulated panels, which are typically used (and hidden) in conventional, high-efficiency residential construction. The system features a set of 12 platforms that generate social bodies of different

scales as they are moved and stacked throughout the space: one person can fit in a center cutout, six people can sit around one unit, and it takes three to four people to move each piece.

We were very happy to see faculty and students intermingling among the holes, offsets, and steps.

Second favorite project:

Upstate House is a project that began with a set of compositional studies and has turned into multiple designs for multiple houses. The project, which has had half a dozen names over the past few years, became an excuse to work through a lot of the issues that are foundational to our practice. We like projects that multiply themselves and become design ideas for the future.

Trend that needs to come back:

Polychrome ... we’re working on it.

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Special item in your studio space:

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Tool you would love to invent:

An image search engine with good taste

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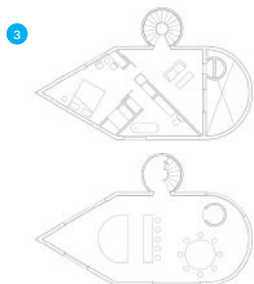
4 ⁵/₁₆" floor clearance vs 12", and 72" panel height vs 58". Specify Gap-Free and Max. Height for double the privacy.

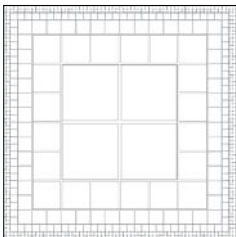
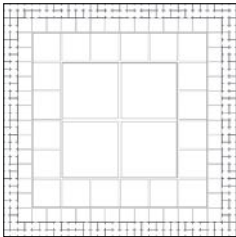
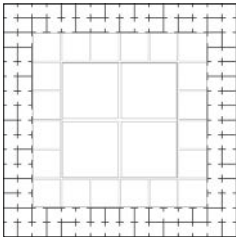
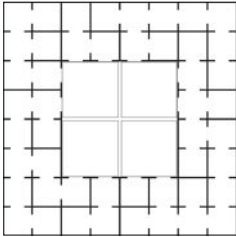
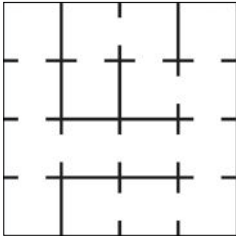
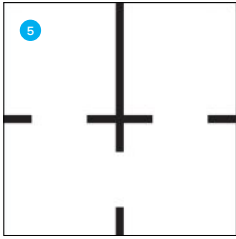


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**Next Progressives:
Outpost Office**





1. Outpost Office's (OO's) entry for the Heavenly Hundred Memorial competition honoring the 2014 deaths of 100 protesters in Ukraine features a hypostyle structure with a floating rooftop garden. 2. Safety Not Guaranteed, exhibited at the University of Michigan, explores architects' role in defense design and "the possibility of even more extreme new typologies of defense, including conditions latent in the mundane neighborhoods of suburbia today," according to the firm. 3. OO combined typical cabin and modern pavilion styles for the Upstate House design plans, which have served as the foundation of some of the practice's other residential projects. 4. The duo utilized elements typical of the theater—lighting, curtains, and rows of seating—for the Inter-Mission storefront exhibit design. Visitors were invited to "scroll" through custom-printed curtains that doubled the available display space. 5. Another Digital exhibit features a physical model with 420 gallery layouts that each contain experimental objects made with different materials in various scales as a means of exploring how computation destabilizes design. 6. Designed in 2017, Another Stack circular and square platforms offer alternative seating and table space based on user preferences.

Products: How to Specify Living Walls in Hospitals

TEXT BY LINDSEY M. ROBERTS

All the reasons that make living walls attractive for commercial spaces also make them desirable for healthcare facilities. They can help remove toxins and particulates from the air, increase oxygen levels, reduce stress, and foster calming environments—all of which are beneficial to patients and medical staff.

Similar to felt or wool acoustical panels, living walls can provide remarkable levels of sound absorption, says Nathan Beckner, lead plant designer at Chicago-based custom living wall manufacturer Sagegreenlife. They can also help projects earn LEED and WELL Building Standard credits, Beckner adds.

However, living walls can increase energy use, says David Briefel, regional sustainability director at Gensler's New York office. "But oftentimes the benefits [to the end users] outweigh the impact."

Here are six considerations for designing a living wall in a healthcare environment.

Light

An indoor living wall should be situated for maximal exposure to daylight, if possible, although LED lights can be added as a supplement. For a living wall to survive under electric lighting, Matt Hills, ASSOC. AIA, a designer for the Reading, Pa.-based interior landscaping company Ambius, recommends ceiling-mounted fixtures with a minimum of 5,000 lux (250 foot-candles) and a 4300K color temperature—similar to properties of the natural daylight.

Plant Selection

Most consultants will provide a list of recommended site-specific plant species, from which architects and designers can then select based on the aesthetic desired. In general, tropical plants are preferred for living walls because they are accustomed to being in a warmer climate year round, similar to that provided by conditioned interior environments. "[We] trick them into thinking that they're still in their climate," Hills says. "If architects are interested in air purification only, then we can design with certain plants that remove more toxins." For healthcare projects in particular, blooming plants that shed petals or release pollen aren't generally recommended because they can trigger allergic reactions.

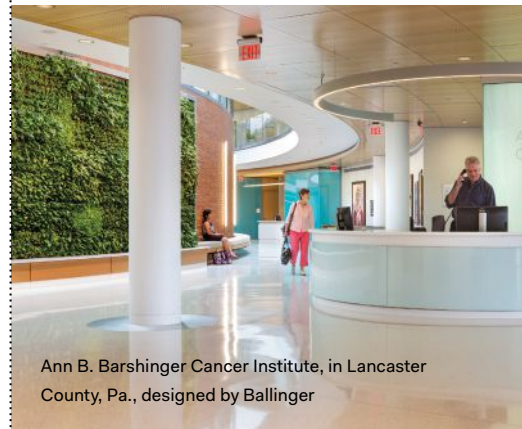
Medium

Certain considerations must be taken into account before installing living walls in hospitals, where infection control is critical, Beckner says. In such spaces, the plant medium must have antimicrobial properties. One suitable example is rock wool.

Systems

Most living wall systems consist of panels or trays. Panel systems are typically modular and feature pre-grown plants. Individual panels can be easily removed to access irrigation lines. The tray system, meanwhile, can accommodate pots, which are replaceable and relocatable within a

wall, allowing for ongoing flexibility and customization.



Ann B. Barshinger Cancer Institute, in Lancaster County, Pa., designed by Ballinger

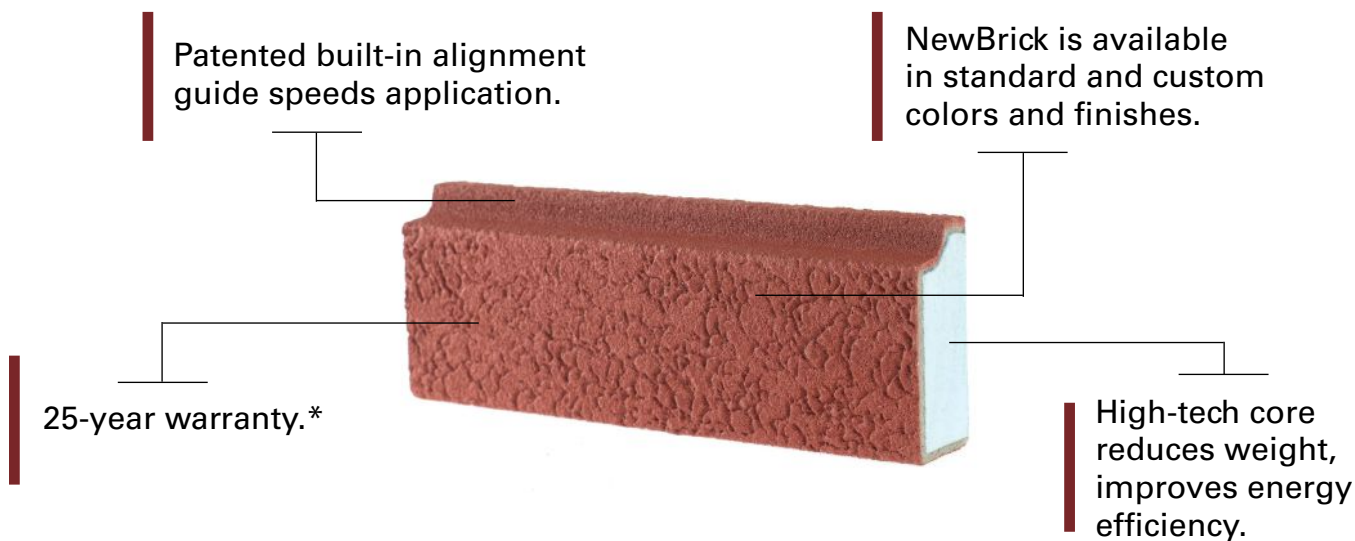
Water

Large living walls often integrate an automatic water irrigation system, which can be configured to run daily or weekly, depending on the plants' needs. Because the system runs automatically, it can be easy to forget that it needs regular maintenance. If a water supply or a drain isn't feasible, Hills says, a pump-and-tank system can manually water the plants using a trough at the base of the wall.

Plant Maintenance

Living walls should be pruned every two weeks, Beckner says, particularly if they are intended to look organic and natural. However, if the intent is a more customized look or if the expanse is very large, maintenance may be needed on a weekly basis.

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Opinion: Elevating EDI in America's Heartland

TEXT BY SAMANTHA MCCLOUD, AIA



Despite significant improvements in recent years, my hometown of Kansas City, Mo., remains one of the most segregated cities in America. Accordingly, it may come as no surprise to hear I rarely encountered diversity, of any kind, during my childhood. Upon graduating from high school, I spent a year in the Philippines, where my mother is from, and developed a passion for building community and learning from others.

That passion led me down life-changing paths at Kansas State University, notably joining its NCAA Women's rowing team and enrolling in its architecture program. In these two ventures, camaraderie is a lifeline. The challenges I faced and successes I had were often shared with others.

I pursue the same sense of allyship in my office and the opportunity to bring inclusion to the forefront in Kansas City, which I still call home. By initiating and destigmatizing conversations about inequity, I have seen—and helped spark—progress since graduating six years ago.

When I started at my current firm, managing partners equally comprised women and men. However, I was the only ethnic minority in the company. By speaking up and participating in recruitment efforts, I helped my

company attract new talent and increase our team's diversity. Today, 15 percent of our 45-plus Kansas City design staff identify as people of color, and our office is burgeoning with new business. Furthermore, the firm makes intentional efforts to support equity, diversity, and inclusion (EDI), not just in our marketing but also in practice, through mentorship, flexibility, transparency, biannual reviews, annual pay audits, two-way communication and engagement across all experience levels, equitable access to project opportunities, and creating my role as director of community involvement, diversity & inclusion.

As a visible thought leader on EDI, our firm has deepened its ability to connect with existing clients and has expanded its reach with new clients. By bringing diverse perspectives to the table, our design teams solve challenges with greater empathy, understanding, and innovation. When envisioning the experience of end users in their future spaces and the relationships our projects will have with their neighborhoods, the conversations are more intimate and human-centered.

Through AIA Kansas City, another vital platform and community, I helped develop an educational outreach program, published an internationally distributed journal celebrating women in the profession, initiated a partnership with the Girl Scouts to teach design-thinking skills, developed mentor and allyship programs among members spanning multiple generations, and

co-founded the component's Equity in Architecture committee to lead a membership-wide study on the local EDI condition. The value resulting from these initiatives helped AIA Kansas City become a Big Sibbs chapter, blowing by the 1,000-member benchmark to reach 1,400-plus members and counting.

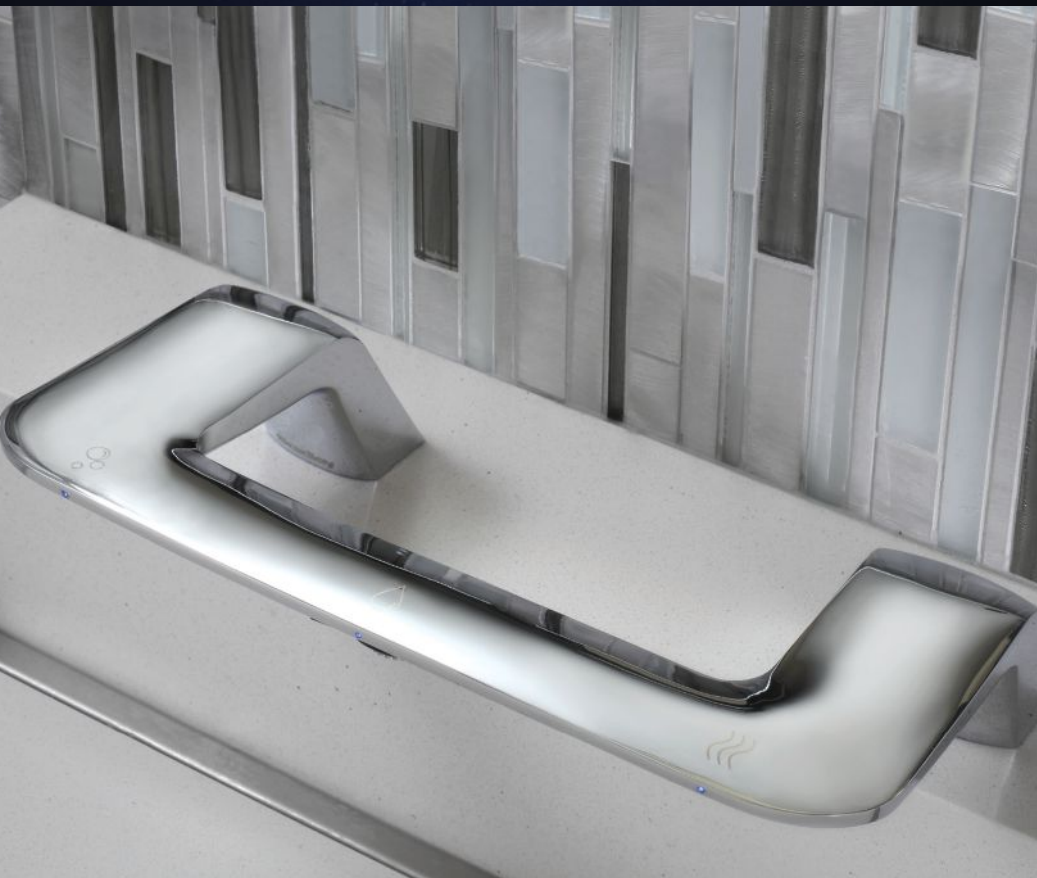
As people begin viewing EDI less as controversy and more as competence, the conversation is sparking interest across industries throughout the city. Barriers are breaking down, and for a fundamental reason: At the core of the EDI conversation is a quest for opportunity—individuals seeking equal access to career growth, firms seeking talent, business developers seeking clients, and designers seeking to better serve our increasingly diverse and globalized society. We all have a story to tell and something to share, and we all have something to learn and to benefit from each other.

In this critical time of visible division on many topic areas, the *how* significantly affects the *what* on EDI actions. In my experience, it takes community to succeed in any goal, and personal investment—intentional effort and time—to build that community. As creators charged with improving the world through design and innovation, architects are a community and we thrive when we ally together.

Samantha McCloud, AIA, is the director of community involvement, diversity & inclusion at GasteringerWalker& in Kansas City, Mo.



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Residential: Brooks + Scarpa with Studio Dwell

TEXT BY EDWARD KEEGAN, AIA

Evanston, Ill., can be a sober place: It took the college town just north of Chicago four decades after the repeal of Prohibition to permit liquor sales within its borders. But when an investment banker with an interest in art and architecture hired Lawrence Scarpa, FAIA, of Hawthorne, Calif.-based Brooks + Scarpa to design his new Evanston house, it was far from clear how the architect would respond to the locale. The client was drawn to a steel house Scarpa had designed in Venice, Calif., and expected something similar. But Scarpa, who partnered with Chicago-based Studio Dwell Architects on the project, had other ideas: "We're in Chicago; we need to do brick," he said.

That decision led to a taut 21-foot-tall brick box that lines a 2,800-square-foot single-family residence. The house's defining feature is its moiré-patterned façade. "It's a simple screen that you can almost pass by without noticing," Scarpa says. "In some ways, it's featureless unless you really look at it."

The screen is made from a series of torqued columns, each formed by stacked Chicago common brick. "It's the throwaway brick," Scarpa says of the locally produced salmon and buff masonry units that owe their unique colors to the region's clay. "People always put it on a building's side, where you never see it." But Scarpa is known for taking materials often seen as junk and transforming them: "Just because it's not perfect, doesn't mean it can't be beautiful," he says.



Street façade with brick screen

Project Credits

Project: Lipton Thayer Brick House, Evanston, Ill.

Client: Robert Lipton

Architect: Brooks + Scarpa, Hawthorne, Calif., with Studio Dwell Architects, Chicago
· Lawrence Scarpa, FAIA (Brooks + Scarpa, lead designer/principal-in-charge); Angela Brooks, FAIA, Jeff Huber, AIA, Arty Vartanyan, ASSOC. AIA, Chinh Nhan Nguyen, Cesar Delgado, Eleftheria Stavridi, Fui Srivikorn, Matt Barnett, AIA (Brooks + Scarpa project design team); Mark Peters, AIA (Studio Dwell Architects principal-in-charge); Jonathan Heckert (Studio Dwell Architects project manager)

Landscape Design: Brooks + Scarpa

Structural Engineer: Louis Shell Structures

Electrical/Lighting/Civil Engineer: Studio Dwell Architects

Lighting Design: Brooks + Scarpa

Specifications: Studio Dwell Architects

General Contractor: Studio Dwell Architects

Size: 2,800 square feet

Cost: \$1.2 million



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Residential:
Brooks + Scarpa with
Studio Dwell

Unlike the house's more prosaic neighbors—which have front doors that directly face a straight path from the sidewalk—Scarpa choreographed an elaborate entry sequence: A diagonal walk across the front yard ensures that visitors experience the changing natural light across the rippled façade as they approach the front door. “You get that whole sense of movement,” he says. “It’s a bit like a journey coming in.”

Unexpectedly, the solid steel door doesn’t lead into the house—instead, it’s the entrance to an open courtyard that forms the heart of the structure. Glazed walls line the living spaces beyond: “You can see right through the house from the alley behind to the street in front,” Scarpa says.

The structure's open floor plan is quite simple, with a double-height great room that accommodates living and dining areas immediately adjacent to the courtyard. The kitchen shares the same space, with its appliances tucked into white millwork along the west wall of the house. An office occupies a small pavilion on the western edge of the courtyard, and it is linked to the living spaces via a glassy corridor. Upstairs, a large master suite anchors the rear of the house, and a small guest suite is located above the office.

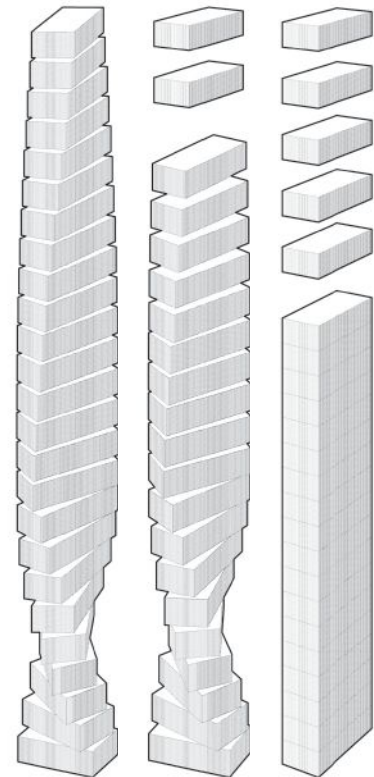
The interior is designed to be neutral, as expressed by its minimal materials palette: Concrete floors on the ground level, wood floors on the second, gypsum board walls, and built-in MDF and oak cabinets. The house

employs conventional wood framing and mechanical systems; radiant heating and cooling make the space comfortable during both the cold Midwestern winters and warm summers.

While impeccably detailed throughout, the house's greatest visual and technical interest lies with its masonry façade. “They’re basically vertical columns,” Scarpa says of the layered bricks. “Think of it like a stack bond and they are twisting as you go up.” Lateral stability is provided by typical mortar ties that are anchored via welded connections to 2-inch-tall by 6-inch-wide horizontal steel sections, mounted at 32-inches-on-center behind the bricks, in lieu of a backup wall.

The idea of the brick screen was informed by Paul Rudolph, for whom Scarpa worked early in his career. “He used to always talk about light,” Scarpa says. “He would describe light coming in while space is escaping, and the balanced tension between the two.” With the Lipton Thayer House, Scarpa has created a remarkably open, yet still very private house with a signature move that attains the spatial poetics of his mentor.

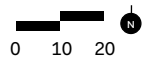
Brick Screen Diagram



First-Floor Plan



Second-Floor Plan





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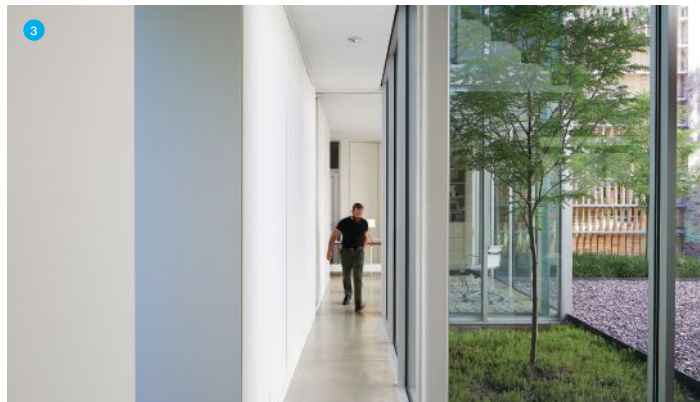
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**Residential:
Brooks + Scarpa with
Studio Dwell**



1. In the entry courtyard, perimeter walls of Chicago common brick give way to a transparent living volume clad in Solarban 80 glazing from Vitro.
2. An open stair in the kitchen area—concrete at the base, transitioning to wood partway up—leads to the upstairs bedrooms.
3. Polished concrete and zero-VOC paint from AFM Safecoat line the floors and walls of this glazed corridor connecting the office to the open living area.
4. The rear, alley-facing elevation is clad in recycled portland cement plaster with an integral finish.



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BEYOND ADA: MULTIGENERATIONAL PUBLIC RESTROOM DESIGN

Presented by:



BUILDING VALUE SINCE 1906



LEARNING OBJECTIVES

Upon completion of this course the student will be able to:

1. Describe multigenerational demographics and social trends.
2. Review privacy solutions for achieving inclusive restroom design.
3. Identify accessibility solutions that extend beyond minimum ADA requirements.
4. Describe the needs of special needs and bariatric users and provide relevant design solutions.
5. Identify hygiene-related considerations across multiple user types.

CONTINUING EDUCATION

AIA CREDIT: 1 LU/HSW

AIA COURSE NUMBER: AR032019-3

IDCEC: 0.1 HSW

IDCEC #: CEU-108406



Use the learning objectives above to focus your study as you read this article. To earn credit and obtain a certificate of completion, visit <http://go.hw.net/AR032019-3> and complete the quiz for free as you read this article. If you are new to Hanley Wood University, create a free learner account; returning users log in as usual.

MULTIGENERATIONAL DEMOGRAPHICS AND SOCIAL TRENDS: DRIVING INFLUENCES

According to 2016 analysis of census data by Pew Research Center, a record 60.6 million Americans now live in multigenerational households. In 2009, only 51 million Americans lived in multigenerational households. This means more Americans are living with multiple generations, and going out with multiple generations, than ever before.

Workplaces, too, are becoming more multigenerational. At the 2017 World Economic Forum, it was revealed that by 2050, the number of people over age 65 in the workforce is expected to increase fourfold. This is due to a combination of economic factors and the rising life expectancy. At the same time, Pew Research Center analysis also shows the

number of younger people in the workforce rising. In 2016, millennials surpassed generation X to become the largest demographic in the American workforce. Finally, parents are now spending twice as much time with their children as they did 50 years ago, according to a study conducted by the *Economist*.

More generations must now share the same facilities and resources. In the coming decades, facilities must prepare for populations and workforces that are older than they have ever been while also catering to the preferences and needs of younger generations. Employees in any given company can span four generations and may range from 25 to 75—and that range is expected to expand further.

With the silent generation, baby boomers, generation X, and millennials working together

and occupying the same public spaces, all commercial, institutional, and industrial facilities must adapt to be more accommodating. This is especially true of public restrooms, which, as this course will highlight, tend to magnify generational differences.

Multiculturalism and cultural preferences are also contributing to rising demand for inclusive design. As of 2015, according to Pew Research Center analysis, the immigrant share of the U.S. population is nearing a historic high, as foreign-born individuals now comprise over 13 percent of the total population. In 1970, under 5 percent of the population were immigrants. In the coming decades, satisfying the rising demand for inclusive design will require accommodating the preferences of international cultures with an increased emphasis on privacy solutions.

Multigenerational design is not relegated to any particular vertical market or building type—it affects the design of facilities in every sector in which people live, work and play, including the following:

- Parks and community centers
- Housing facilities and planned communities
- Shopping malls
- Civic and cultural buildings
- Public spaces

The profusion of potential applications brings an abundance of opportunity, even to experienced architects.

Incentives for Universal Design

For architects, developers, and project teams, multigenerational design has both macro and micro implications. From a macro, societal view, according to the American Planning Association (APA), multigenerational planning “takes into consideration all age groups” in “all stages of planning” from needs assessment to design and implementation. Plus, government policies, zoning, and building codes that “ensure generational equality and access” also are important.

Many municipal and state governments today are evaluating universal design as a method for repurposing underutilized real estate. As local governments consider ways to incentivize universal design, such as tax incentives, savvy design professionals must find ways to proactively design for people of all ages and abilities.

On a micro, project-based level, multigenerational design encompasses accommodations, facilities, fixtures and furnishings that serve multiple generations. They need to be better equipped, as well as more comfortable and healthier, and offer improved ergonomics and adaptive environments, resulting in more satisfied patrons.

Overall, the benefits of universal design are more collaboration among more people across different generations; political support and community building; encouraging smart growth to keep citizens active, connected, and safe; more satisfied patrons; and tax and/or government incentives.

Commercial Restroom Architecture and Engineering: Challenges and Liabilities

Multigenerational design has a fundamental impact on the architecture and engineering of restrooms. Floor plans and equipment layouts

require modified turning radiuses, reach ranges and mounting heights, and safe egress and eased navigation.

Multigenerational design also can address social issues, such as gender equity. “Potty parity” laws that have been introduced in some states are a good example. “Potty parity” means the equal or equitable provision of washroom facilities for women and men within a public space. Gender neutral or family restrooms that incorporate facets of multigenerational design are typically seen as acceptable solutions to potty parity issues.

However, greater access for all groups creates a greater need for privacy, elder care accommodation, and proper child care amenities through specialized, purpose-built products such as child protection seats and baby changing stations.

Multigenerational design can be an umbrella solution to many of the liability challenges that designers face. Reducing liability is one of the architect’s or specifier’s primary responsibilities as the design expert for a given project.

Reducing legal liability can be accomplished simply through code compliance with ADA Standards and the Individuals with Disabilities Education Act (IDEA), which mandates that public schools accommodate disabled children.



In a school, for example, multigenerational, code-compliant solutions that reduce liability may include ramps, disabled parking, and bathrooms with wheelchair accessible compartments and a lowered sink. In general, children have special hygiene considerations. Heights must be adjusted for partitions, sinks, mirrors, urinals and towel dispensers.

For people with physical limitations, reducing liability requires awareness of the challenges they face. This refers to all people, including children and seniors. For example, older patrons are at higher risk of falling, stiffness, aches and pains, loss of strength, dementia, and incontinence. With many baby boomers born between 1946 and 1964 now retiring, providing equitable, safe access to appropriate

GLOSSARY

ADA—The Americans with Disabilities Act became law in 1990. The ADA is a civil rights law that prohibits discrimination against individuals with disabilities in all areas of public life, including jobs, schools, transportation, and all public and private places that are open to the general public. The purpose of the law is to make sure that people with disabilities have the same rights and opportunities as everyone else.

Extended Height Privacy Compartments—consist of 72-inch high doors and panels with nominal 4-inch floor clearance and come with standard or full-height hardware.

Individuals with Disabilities Education Act—mandates that public schools accommodate disabled children.

Integrated No-sightline Doors and Stiles—have routed edges that result in an interlocking design with no sight lines.

Multigenerational design—merges a number of social issues, design philosophies, and facility considerations including universal design, accessibility, specialized equipment, maintenance, sustainability, privacy, health and safety, hygiene and aging in place.

- **“Macro” Multigenerational Design**—accounts for all age groups in all stages of planning from needs assessment to design and implementation; government policies, zoning, and building codes ensure generational equality and access.
- **“Micro” Multigenerational Design**—encompasses accommodations, facilities, fixtures and furnishings that serve multiple generations.

Operable parts—include controls and operating mechanisms such as push buttons, valves, knobs, and levers.

“Potty Parity”—the equal or equitable provision of washroom facilities for women and men within a public space.

Self-closing Door Hinges—engineered to close automatically and not swing open by mistake.

lavatory facilities is increasingly important to those who strive for independent living and quality-of-life.

Liability also can take the form of patron dissatisfaction, which can result in complaints and even a public relations crisis if not properly addressed. Meeting privacy needs and accommodating caregivers often can address these more informal liabilities.

Finally, poor traffic flow can result in patron dissatisfaction. This challenge can often be solved by providing wider doorways and pathways, as well as expanded turning radiuses to accommodate those who use mobility equipment. Building owners often view public washrooms as a “necessary evil.” While they are required to provide them by law, they require a large investment upfront and operationally. However, by providing solutions that reduce liability and promote inclusivity, the restroom is imbued with built-in value to help recoup the initial investment.

On a societal level, multigenerational restroom accommodations help create a more inclusive world. All facilities should serve all of its users, including families, elders, the disabled, children, caregivers, transgender individuals, and more. It is a design professional’s responsibility to use

facility design to ensure that certain individuals do not feel discriminated against. Overall, multigenerational restroom design is responsive to a wide range of human needs, challenges, and abilities, creating an atmosphere of inclusivity and reduced liability.

PREPARING FOR USERS

To help form a baseline for the amenities that might be included in a multigenerational restroom, it is critical to be aware of who is using the building. In some cases, adhering to minimum accessibility requirements per ADA standards can be satisfactory. However, some building types may require the minimum ADA requirements to be exceeded to provide for the next-level needs and wants of visitors.

A medical practice, for example, may host dozens of patients per week who use mobility scooters due to a physical disability. Mobility scooters turn differently than wheelchairs and can require more space than the turning radius requires in the 2010 ADA Standards. The following users should be considered prior to building:

- Children
- The elderly
- Special needs users
- Caregivers, such as parents with children and seniors who need assistance
- Pregnant or nursing mothers
- Transgender individuals
- Obese users

Each of these groups has distinct challenges, needs, and wants, which are the design drivers for solutions in multigenerational restroom design.

The needs of these diverse user groups, from infants and children to pregnant mothers and caregivers, all drive the development of innovative restroom solutions that are sustainable, hygienic, and universal. For

example, many parents desire improved hygiene in the restroom. These needs have driven the development of solutions such as anti-microbial coatings on baby changing stations. As parents who bring infants to public establishments become more common, the industry has developed more effective, sanitary disposal solutions that manage odors.

Additionally, people who have diabetes and must use a bathroom stall to self-administer a blood test or insulin injection also desire greater privacy. These needs, in conjunction with the needs of nursing mothers, have led to an expanded array of privacy options, such as interlocking doors and stiles.

Distinct user needs and trends influence design considerations across four major benefit categories:

- Privacy Challenges: Do all users have sufficient privacy to feel comfortable addressing their restroom needs?
- Accessibility: Are all appropriate codes satisfied? Have minimums been adjusted to accommodate the needs of all people?
- Special Needs and Bariatric Users: Can users with disabilities, obese individuals, caregivers, and children all use all features of the restroom?
- Hygiene: Does the design help reduce maintenance while providing a cleanable, healthy environment?

These design challenges, as well as innovation solutions for achieving multigenerational restroom design, will be covered in detail in the upcoming sections.

PRIVACY SOLUTIONS FOR ACHIEVING INCLUSIVE RESTROOM DESIGN

Accommodating growing populations of diverse demographic groups requires designers to provide privacy. An increasing proportion of today’s restroom users see privacy as a key amenity for reasons ranging from personal preference to health needs. For example, nursing mothers may prefer privacy, as would a diabetic individual who must self-administer insulin injections, or an elderly individual who uses a colostomy bag.

Due to evolving societal attitudes and other factors, the needs of the transgender population also have driven significant demand for privacy options across a number of building types, especially educational facilities. Consequently, privacy partitions

PHILADELPHIA INTERNATIONAL AIRPORT



This photograph shows Philadelphia International Airport’s family restrooms, which feature companion care stations that are fully accessible to individuals with disabilities. It was designed to provide additional space to provide improved access for all individuals, including built-in benches and countertops for child and nursing mother accommodation, as well as electrical outlets. The airport also features dedicated nursing stations for mothers, which are private rooms equipped with electrical outlets, for breastfeeding mothers.



and gender-inclusive restroom design often go hand-in-hand. In addition to educational facilities such as universities, owners of office buildings that cater to a younger workforce also have been primary adopters of privacy partitions in recent years.

It is important to note that historically, the United States has caught up to other nations only recently in terms of the privacy options offered. Asia and Europe have had privacy options for years. This is because American manufacturers of metal partitions in the 1920s utilized sheet sizes that produced doors that were 12 inches off the floor—eventually, that size became the standard.

Privacy Options

Integrated no-sightline privacy doors and stiles have routed edges that result in an interlocking design with no sight lines. They come with standard or optional full-height hardware. These configurations typically produce flush styling across a series of doors and stiles to produce a high-end, clean aesthetic.

Extended height privacy compartments consist of 72-inch high doors and panels with nominal 4-inch floor clearance and come with standard or full-height hardware. A combination of integrated no-sightline privacy doors and stiles with extended height privacy compartments provides the most privacy, as it combines both an interlocking design with no sight lines and 72-inch high compartments.

Compare this to the standard sizes of toilet compartment doors and panels. Metal, stainless steel, high pressure laminate, compact laminate and SCRC partitions are typically 58 inches high. High-density polyethylene (HDPE) partition doors and panels are typically 55 inches high. Therefore, maximum height compartments can add as much as an additional 17 inches to the standard door height, depending on the material used.

Both integrated no-sightline privacy doors and stiles and extended height privacy panels typically are available in all four standard mounting configurations. In addition, self-closing door hinges ensure privacy, even if a user accidentally leaves the door unlocked. Self-closing door hinges are engineered to close automatically and not swing open by mistake.

Other privacy solutions not directly related to toilet compartments include the following:

QUIZ

- According to a 2016 analysis of census data by Pew Research Center, how many Americans currently live in multigenerational households?
 - 10 million
 - 25.8 million
 - 51 million
 - 60.6 million
- The largest demographic in the American workforce is _____.
 - Silent Generation
 - Millennials
 - Gen X
 - Baby Boomers
- Multigenerational design is not relegated to any particular vertical market or building type, it affects:
 - Parks and community centers
 - Housing facilities and planned communities
 - Civic and cultural buildings
 - All of the above
- Which users should be considered prior to building?
 - Children, the elderly, and special needs
 - Caregivers
 - Transgender individuals
 - All of the above
- Which option affords the best privacy?
 - Integrated no-sightline privacy doors and stiles
 - Extended height privacy compartments
 - Both a and b
 - Neither a nor b
- The ADA standards for accessible design became law in _____.
 - 1999
 - 2012
 - 2018
 - 1987
- According to the course, what is the first step in achieving compliance and accommodation for a multigenerational user base?
 - Doors and building components
 - The addition of baby changing stations
 - Understanding the building's specific user populations
 - All of the above
- Obesity rates in the US are at an all time high. ____ percent of adults are obese.
 - 40%
 - 50%
 - 60%
 - 70%
- Specialized toilets for bariatric users can tolerate as much as _____ pounds of weight.
 - 500
 - 600
 - 750
 - 1,000
- When designing a restroom, which of the following should be considered when planning for potential hygiene solutions?
 - Hands-free accessories
 - Diaper dispenser and disposal
 - Covered waste receptacles
 - All of the above



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SPONSOR INFORMATION



BUILDING VALUE SINCE 1906

Bobrick is a 100+ year-old global washroom accessory and partition company headquartered in North Hollywood, CA, with six manufacturing divisions across the United States and Canada and business operations in 85 markets worldwide. A leader in product innovation and manufacturing, Bobrick delivers best-in-class products and service, while fostering an environment of collaboration and continuous learning.

FIRE PERFORMANCE OF INSULATED METAL PANEL SYSTEMS

Presented by:



LEARNING OBJECTIVES

Upon completion of this course the student will be able to:

1. Examine insulated metal panels and the differences between metal composite material and aluminum composite material panels.
2. Analyze the various building types and applications for insulated panels.
3. Understand the fire testing and building codes applicable to insulated panels.
4. Demonstrate the global application of fire performance through case studies.

CONTINUING EDUCATION

CREDIT: 1 LU Elective

COURSE NUMBER: AR032019-2

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The building envelope is changing. Demand for energy efficiency and contemporary aesthetics are driving building envelope design that incorporates increased amounts of combustible material in cladding, insulation, and water-resistant barriers (WRBs). These new buildings are taller and incorporate more energy- and performance-conscious design, but it's important not to lose sight of the basic purpose of all structures: to keep people safe. Builders and architects have a responsibility to ensure the structure is not only safe, but also incorporates extra measures to protect and preserve building assets—and people—in case of fires.

As building design becomes more complex, building science is focusing on the “envelope” in response to the movement of air, water vapor, and thermal conditions. These conditions are what designers and builders try to control

from the inside out, but understanding how to deliver high-performance, code compliant buildings can be complex and confusing. With the various types of insulation, cladding, and exterior facades comes a variety of code compliance issues, and now that global regulations are starting to catch up, staying ahead of compliance and best practices can be complicated. Although strict fire codes were not traditionally enforced or included in earlier versions of the International Building Code, they are evolving and becoming more stringent. Fire codes are now integral parts of any updates to the International Building Code (IBC).

High rise fires have become far too common, and in the most extreme examples have already led to catastrophic loss of life. Building codes in the U.S. are some of the hardest in the world to comply with, and enforcement is

lacking—nationwide and abroad. Enforcement agencies and builders are not doing spot checks, there is a lack of knowledge where materials may have changed, and assemblies that may have been tested and rated appropriately in theory were not installed the same way. The results of these scenarios are buildings that may meet minimum codes on paper, but not in reality.

Meeting more than the minimum code requirements is something that all builders and designers should strive for. Finding building materials that satisfy code requirements and the desire for beautiful, modern buildings can be challenging, though. Insulated metal panels (IMPs) offer superior air, water, and vapor resistance and come in a variety of colors, finishes, and textures—meeting the requirements of regulatory agencies and designers alike.

This article will focus on the fire performance of IMPs and why they are a better choice in multi-story and high-rise projects than conventional, multi-part, site-assembled panels. First, it's important to understand what an IMP is and the difference between metal composite and aluminum composite panels. Then, readers will learn the different building applications for IMPs. An extensive discussion of the fire testing and building codes will help readers know what needs to be tested and how to go about it, and finally, the article will highlight global case studies demonstrating the impact of IMPs on the building envelope after extensive fire damage.

KEY DIFFERENCES BETWEEN ALUMINUM COMPOSITE MATERIAL AND INSULATED METAL PANELS



Commercial Application



Retail Application

Although from the outside, aluminum composite materials (ACMs) and insulated metal panels (IMPs) may look similar, there are two fundamental differences in the foam cores. ACMs use foam cores that are thermoplastic. Thermoplastic materials are made with a linear polymer chain structure. This means that it's a solid material, but when heat is added, the material softens and melts. The material solidifies as it cools and is highly combustible. The panels utilize thermoplastic

foam cores when fire is seen dripping off a building. Thermoplastic material is also highly toxic and flammable, and aids in fire spread. Thermoplastic foam cores are typically polyethylene (PE), fire-retarded polyethylene or Phenolic Resin.

IMPs, on the other hand, use thermoset foam cores. Thermosetting means there are cross-linked polymer chains. The chains become linked during the heat-cured manufacturing process. The process of thermosetting makes the foam core material unable to transform into something else, like a solid to a liquid, then back again, like thermoplastic. Thermoset foam cores have various levels of combustibility but can be highly fire resistant. Thermoset foam cores will either be hybrid technology or polyisocyanurate (PIR).

If a building catches fire, the difference in flame spread and damage to EPS and PIR foam cores is dramatic. In fire tests, which will be discussed later, EPS turns into a molten core. There is rapid ignition and panels are broken down immediately. Even after the original heat source is removed, the flames continue to burn through the foam. PIR and hybrid cores are also damaged, but the damage typically doesn't extend beyond the top layer.

WHAT IS AN INSULATED PANEL?

An insulated metal panel (IMP) is a single-component insulated roof, wall, and façade panel system. It is factory-assembled and offers guaranteed high thermal performance, 100 percent insulation continuity, zero moisture ingress, and minimal air leakage. Installation is done via a through-fix to the structure. This is compared to conventional multi-part, site-assembled methods that take longer to assemble, can have multiple layers and joints prone to failure, and suffer from thermal bridging.

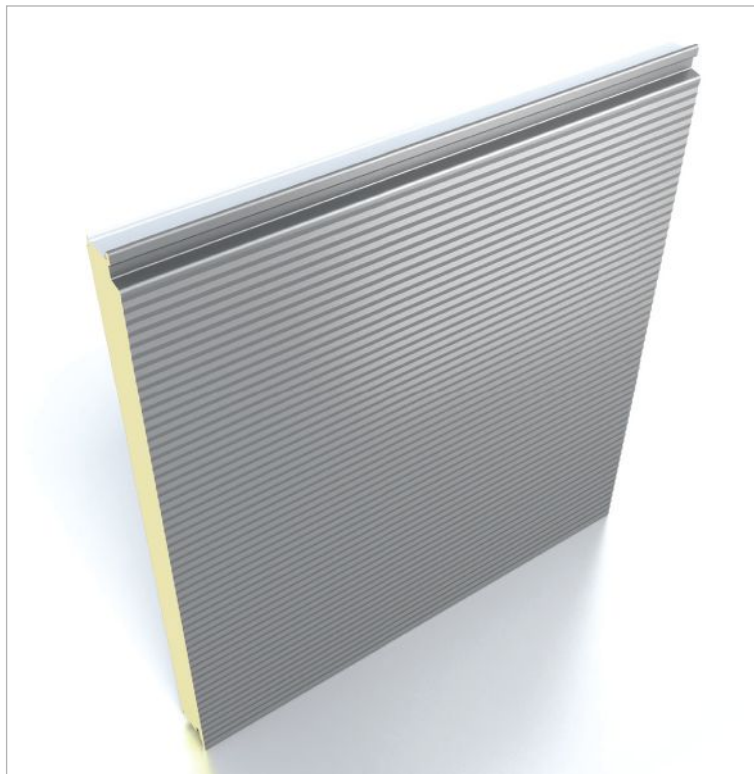
IMPs provide designers with multiple design options. Although this article focuses on the panel core, there are a number of different exterior panel products to choose from. These include aluminum, steel, copper, HPL, Brick and other high-end finishes.

FM approved IMPs can be a preferred method by the insurance agencies, too. They can understand how the building performs, who the manufacturer was, panel ratings, and when the panel was produced by running a black light over the panel. Other panels can have a sticker or embedded steel for easy identification.

Characteristics of IMPs

IMPs when installed properly are extremely weathertight and have exceptional lifetime resilience for 30+ years. They are thermally efficient; buildings are colder in summer and warmer in winter. Roof panels can easily be walked on. The internal liners are pre-coated for a clean internal finish. And the panels themselves are an all-in-one external weather barrier, insulation, and internal liner system.

High quality, factory-engineered solutions, insulated panels provide fast, single-fix, installation with guaranteed high thermal performance³, 100% insulation continuity, zero moisture ingress and minimal air leakage.



The insulation is a Fiber-free high-performance material and offers lifetime performance. The panels' exterior metal skin is a weather barrier, and the interior metal skin is a vapor barrier.

Cladding: Insulated Panels

As previously discussed, there are key differences between thermoplastic and thermoset foam cores. Going further, the cladding for insulated panels comes in six main core types, outlined below.

- Expanded polystyrene (EPS)
- Polyurethane (PUR)
- Polyisocyanurate (PIR)
- FM approved PIR
- Hybrid PIR
- Mineral fiber (MF)

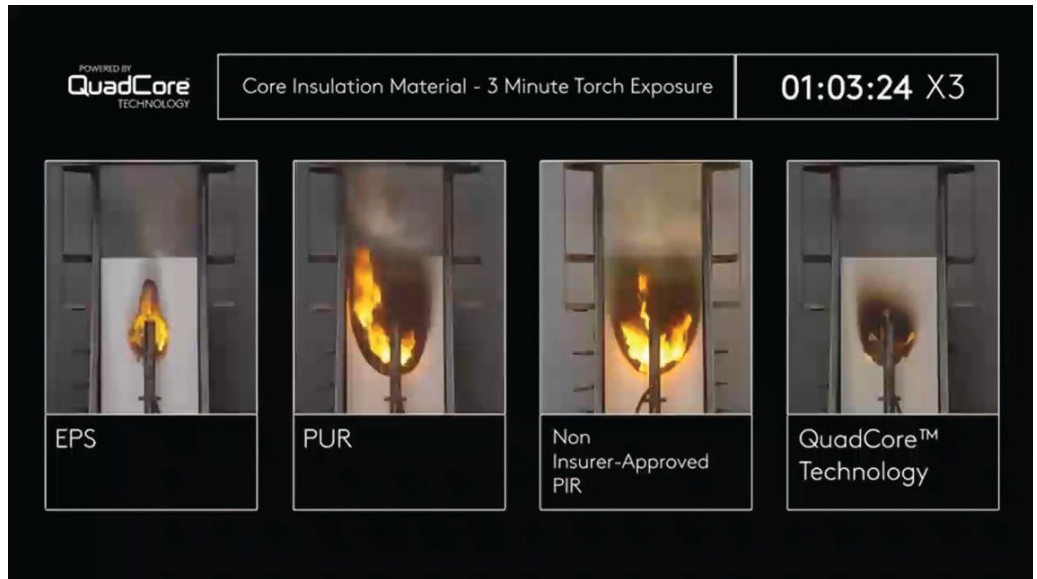
Real-World Application: Fire Testing

The difference between a fire-retardant core and non-fire-retardant core can be easily seen using a welder torch to test the material. Once the heat is applied to the base of the panel, the PE core already has additional fire spread from the torch, which means the material itself is catching fire. There is also fire dripping from the panel. The polyethylene is transforming from solid to liquid as the polymers break down. The flames spread and cause additional damage after less than a minute after a small flame source. But with the fire-retardant polyethylene, the core itself is not catching fire. Once the heat is taken away, there is no additional flame (but some smoke). This same scenario is played out across the globe on real buildings. Once the difference in fire performance is seen firsthand in testing, it's hard to imagine using a non-fire-retardant core in any high-rise or multi-story structure.

Typical Construction Methods and Building Types

Buildings are typically constructed in one of four main ways:

- A multi-component, built up system
- A factory manufactured, single component insulated panel system
- A multi-component, built-up façade system
 - o Mineral fiber back with ACM panel over top
- A pre-engineered façade and rainscreen carrier system
 - o Vapor control areas—like a back-up wall, acting as air-water control systems. Built



Example of Core Insulation Material—3 Minute Torch Exposure.

up facade built up over top attached with different methodology

When it comes to combustibility, the primary concern is the panel core. The four different core types are aluminum, phenolic resin, non-fire retarded polyethylene (PE), and fire-retarded polyethylene (PE). Metal composite panels and aluminum composite panels can both have a metal core. An aluminum core is a honeycombed panel and is rigid and strong. Composites are thermoset phenolic resin, which has very good fire properties. The standard aluminum composite panel has a polyethylene core. Foam cores range from three to six millimeters thick, with two layers of aluminum sandwiched between the cores.

PIR foam core panels can be used in almost any commercial building if FM 4880 approved. Industries that utilize PIR panels include industrial, commercial, distribution, retail, manufacturing, hospitals, healthcare, pharmaceutical, education, leisure, motor, and public. Pre-1950, the typical buildings were low-rise, featured lots of brick, masonry, and stone—and not much in the way of fire performance design or construction. Now, glass facades and high-rise buildings are popular. This translates into all different types of facilities ranging from residential, multi-story, mixed-use, office buildings, education centers, and more. Architects want beautiful buildings that reflect the latest in design and façade trends. The challenge is how to deliver that from a testing and compliance aspect.

GLOSSARY

Aluminum composite materials (ACMs):

Conventional, multi-part metal building panels; contain highly combustible materials.

Insulated metal panels (IMPs): Single-component insulated roof, wall, and façade panel system.

Thermoplastic: Refers to the type of foam cores used in ACM panels. Thermoplastic materials are made with a linear polymer chain structure: a solid material, but when heat is added, the material softens and melts.

Thermoset: Refers to the type of foam cores used in IMPs. Thermosetting means there are cross-linked polymer chains, which become linked during the heat-cured manufacturing process. The process of thermosetting makes the foam core material unable to transform into something else, like a solid to a liquid.

Fire Propagation: Testing in a controlled environment to simulate the spread of fire.

Universal Wall Concept: Approach to design and building that focuses on controlling the air and water vapor on the exterior on any slab, wall, or roof conditions.

Flame Spread: Describes the surface-burning characteristics of building materials.

Thermal Bridging: Heat transfer between gaps in the building envelope.

NFPA 285: The National Fire Protection Association test that determines fire propagation of wall assemblies.

ASTM E84: Testing to determine the fire propagation of building materials administered by The Association for Testing and Materials.

2012 IBC COMBUSTIBLE COMPONENT REQUIREMENTS

The International Building Code (IBC), which governs commercial construction worldwide, was redeveloped in 2012. Past versions did not focus on fire performance as much, but that has since changed and continues to evolve. The new standards look at three major parts of the system: air and water vapor barrier, combustible claddings, and the foam plastic insulation. Anything that's combustible in this assembly is subject to NFPA 285 testing.

There are exceptions to the water-resistant barriers (WRBs) in the 2015 version of the IBC. These exceptions state that if the WRB is the only combustible wall component and the wall has a noncombustible covering, then the WRB is excluded. The other exception are windows and doors and flashing around windows and doors. Further, if the WRB is the only combustible wall component and the following test parameters are met, then it is exempt from 2015 IBC:

- ASTM E84 Product Test: Flame spread index of 25 or less and smoke-developed index of 450
- ASTM E1354 (Cone Calorimeter) Product Test: Incident radiant heat flux of 50 kW/m squared, effective heat of combustion of less than 18 MJ/kg, Peak heat release rate less than 150 kW per square meters, Total heat release of less than 20 MJ per square meters

NFPA 285 testing is a subject that will be heavily discussed in more detail throughout the rest of this article, as there are a number of fire testing standards that new construction must follow under its rules.

Combustible Claddings

Combustible claddings such as metal composite material (MCM), high-pressure laminate (HPL), and fiber-reinforced polymer (FRP) could require NFPA 285 testing depending on certain conditions in the building regulations. Metal composite materials with a polyethylene (PE) core have several options and exceptions for use up to 75 feet above grade. Alternate conditions exist for the use of PE core material rather than a fire-retardant core material (and NFPA 285 test); height above grade often sets the limit with minimized area of use.

QUIZ

1. What percentage of insulation continuity do IMPs provide?

A. 95%	B. 100%
C. 75%	D. 85%
2. IMPs exterior metal skin is a _____ barrier and the interior metal skin is a _____ barrier.

A. Weather/Vapor	B. Vapor/Weather
C. Water/Vapor	D. Moisture/Weather
- 3- IMPs have six different foam core types, EXCEPT:

A. Polyurethane	B. Expanded polystyrene
C. Polyethylene	D. Mineral fiber
4. Metal panels have four different core types. These include _____, phenolic resin, non-fire retarded polyethylene (PE), and fire-retarded polyethylene (PE).

A. EPS	B. PUR
C. PIR	D. aluminum
5. Regarding testing exceptions of metal composite materials with a polyethylene core, what is the maximum feet above grade for use?

A. 75	B. 50
C. 25	D. 85
6. NFPA 285 testing is required for foam plastic insulation EXCEPT in buildings that are no more than how many stories in height?

A. Two	B. Three
C. One	D. None (Testing is always required)
7. How many tests are required under FM Global covering combustibility and fire performance of the building envelope?

A. 10	B. 8
C. 5	D. 3
8. In the test ASTM E84, Surface Burning Characteristics, which class of products has the lowest flame spread levels?

A. A	B. B
C. C	D. D
9. The effective R-value decreases from R-21 to _____ in an example of a six-inch deep cavity when thermal bridging is present.

A. 7.1	B. 7.2
C. 7.3	D. 7.4
10. Not all parts of the wall assembly are tested. Examples of exceptions include:

A. Foam plastic insulation and plastics	B. Steel and aluminum
C. Air barrier materials	D. ACM and MCM panels



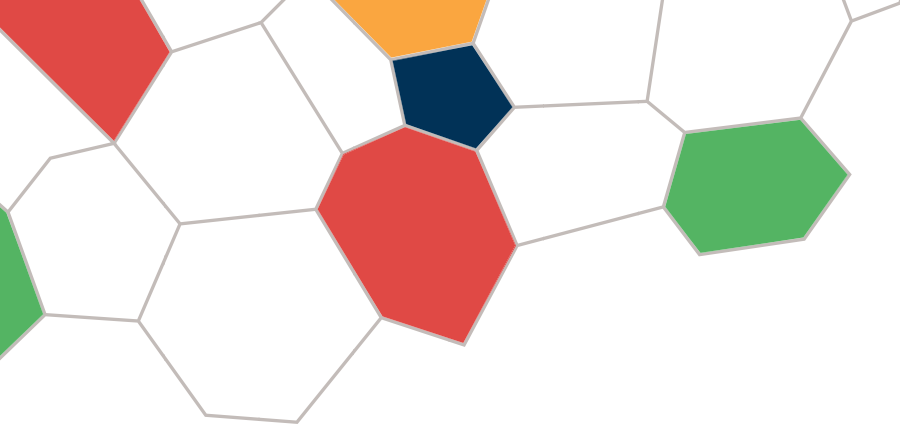
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SPONSOR INFORMATION



Kingspan is a global leader in high performance insulation and building envelope solutions, designed to reduce the carbon footprint of the built environment. Kingspan has five insulated metal panel plants in North America and is one of the largest IMP manufacturers in the world.



QuadCore™ protects against fire, smoke and ordinary design.

Kingspan insulated panels featuring QuadCore™ Technology are designed to make you look good. Inside and out. For starters, the innovative cell formulation inside each panel provides superior fire resistance and unmatched health and wellness certification. Back that up with unrivaled thermal performance, a 30-year thermal warranty and enviable design flexibility, and you'll quickly see how the QuadCore™ portfolio can help bring your design vision to life. Get the full details at [kingspanpanels.com](https://www.kingspanpanels.com).





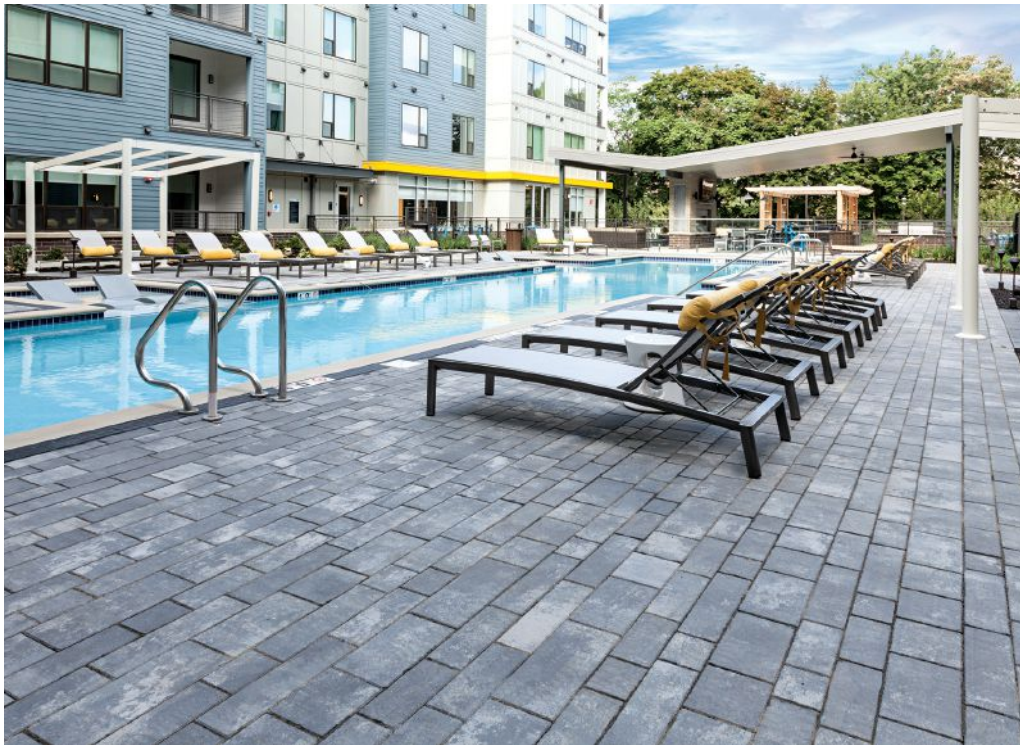
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ROOF DECK HARDSCAPE SYSTEMS PROVIDE OUTDOOR AMENITY SOLUTIONS FOR MULTIFAMILY PROPERTIES

Presented by:

UNILOCK
DESIGNED TO CONNECT.



Edge 1909 Apartments, Pittsburgh, PA, Designer: PVE

“ROOM” WITH A VIEW

For centuries, Europeans have been gathering in public squares for farmers’ markets, community events, and entertainment. This tradition continues in modern day North America with citizens drawn to public spaces to relax or catch up with friends. But think beyond street level plazas and sidewalk cafes and look UP. An appealing outdoor space is one of the most sought-after features in a dwelling, which is why they are increasingly found on rooftops of multifamily and mixed-use buildings. Tenants can escape the confines of their living space and the surrounding buildings to enjoy the view from a rooftop terrace, pool area or courtyard.

The roof deck surface is typically comprised of both green planting areas and hardscape materials such as architectural roof deck pavers

and slabs. These materials allow multifamily building owners to reclaim a functional space and turn it into an attractive destination. They provide landscape architects endless design choices to reflect the surrounding environment, making it easier than ever to create harmony between the building’s outdoor space and the site’s paving materials. Designers can create spaces that are flexible to serve a range of activities by using a variety of colors, textures, and sizes. Taking advantage of the site’s exposure to sun, air, and views, the designer can create a journey through the rooftop’s social and private, open and secluded, active and passive spaces.

AN EXPANDING MULTIFAMILY MARKET

Homeownership is still a vital part of the American Dream, but renting has become

LEARNING OBJECTIVES

At the conclusion of this educational unit, the learners will be able to:

- Examine multifamily housing trends and how luxury properties can meet tenant demands.
- Identify how roof deck systems meet tenant demands for a connection to nature and their community via outdoor amenities.
- Explain the evolution from ballast systems to outdoor roof spaces and the key sustainability criteria for roof deck systems.
- Identify considerations for specifying the most appropriate materials for a roof deck project in terms of their structural performance and durability over time and examine the available customization options for concrete slabs on roof decks.

CONTINUING EDUCATION

CREDIT: 1 LU Elective

COURSE NUMBER: AR032019-1



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more commonplace in many U.S. cities since the 2008 financial crisis. In fact, more people are renting than at any other point in the past 50 years. According to a Pew Research Center report based on data from the Census Bureau, “In 2016, 36.6 percent of household heads rented their home, close to the 1965 number of 37 percent.”¹

And, according to analysis from APM Research Lab, “In 2016 renters outnumbered homeowners in 47 percent of major cities, up from 21 percent in 2006. Not a single city saw a statistically significant decline in the percentage of households that rent, and many saw substantial increases. Nationally, the number of households that rent increased 4.2 percentage points from 2006-2016, representing an increase of 7.3 million renting households.”²

Multifamily building owners and developers need to be clear about the needs of their clients so they can achieve the best possible rental capacity. Members of the baby boomer generation looking to retire seek smaller residences that are easier to maintain and desire to be in urban areas where they can readily access public transit, quality medical care and other lifestyle preferences. Members of the millennial generation want the convenience of living and working in urban areas that offer a wealth of amenities and a variety of transportation or walkable options.

ROOF DECK SYSTEMS MEET TENANT DEMANDS FOR CONNECTION TO NATURE AND COMMUNITY

As the demand for urban housing increases, developers are expected to provide more amenities that add value to housing properties and entice potential renters and condo buyers. They are designing amenities that offer a full outdoor living experience that flows from indoors to outdoors, similar to a single-family home, with designers trying to instill a sense of ownership and connectivity.³ “Don’t think of it as just another amenity box to check,” says Cindy Harvey, principal and project manager at Denver-based KEPHART. “Ultimately, this is the backyard deck your resident would have if they had a single-family house. Make it comfortable and inviting so they feel at home.”⁴

The majority of high-density projects tend to be in urban areas with tight lots that present a design challenge. Because there is less space to spread out, it helps to think vertically rather than horizontally. Roof deck applications allow for more usage of space by providing functionality in an area that is often overlooked, giving developers and owners an opportunity to improve their upper-level amenities with access to views of the skyline, a park or local attractions. Each site presents unique challenges to incorporating all the desired outdoor amenities while making the space desirable to current and prospective tenants alike. And, every competitor at this level has a pool or courtyard, so a unique location with views to a regional or neighborhood feature sets the community apart and all residents can enjoy the view without having to pay penthouse prices.⁵

Creating rooftop space is expensive but residents will pay more, and the return on investment is often only one year. Increasing rent prices, even by small margins, pays off for both owners and renters. Mark Humphreys,

CEO of Dallas-based Humphreys & Partners Architects says, “The evidence we’ve seen on our properties, and with other properties, is that if you don’t have a rooftop amenity, then you just lost revenue.”⁶

One example of this concept is the Ocean 650 Apartments in Revere, Mass.

CASE STUDY



Ocean 650 Apartments
Revere, MA
Designer: Radner Design Associates, Inc.

Fronting onto Revere Beach, one of the oldest public beaches in the country, Ocean 650 Apartments offers its residents dazzling views of the oceanfront and downtown Boston skyline. As part of Revere’s Waterfront Square revitalization project, the multifamily apartment development was designed with the aim of creating a sense of sophisticated coastal living through inviting interior and exterior environments and a variety of modern upscale amenities.

One of the lower levels allows for direct access to an outdoor garden terrace and roof deck featuring a pool, fire pit and grilling area. The outdoor courtyard is complemented by multiple benches, large stone and flower accents and green planter beds, while long concrete pavers in a unique finish tie in all of these elements together, achieving the elegant and picture-perfect look of the residential community space.⁷

WHAT BUYERS WANT—PROVIDING MORE DESIRABLE RENTALS⁸

It’s no mystery why luxury apartment homes are more rentable than old, timeworn units with no amenities. Renters today want all the perks inside their apartment and amenities nearby, like resort style saltwater pools and community spaces such as lounging areas with fireplaces or outdoor terraces, courtyards, grilling areas, putting greens, dog runs and washing stations.

Also, the way we plan and develop neighborhoods and communities has changed and will continue to evolve in response to the way we live as urban centers become more populated and municipalities seek to manage

urban sprawl. And, as apartment units have gotten smaller, the need for outdoor spaces has gotten stronger.

Developers are listening to tenant’s needs. Today’s housing developers seek to meet buyer’s demand by providing communities with an emphasis on common open spaces, amenities that promote social connectivity, and environmentally-conscious forethought. Communities designed in such a way will meet consumer demands and municipal requirements, maximize the use of available land and sellable square footage and provide a distinct brand of sophistication.

Communities with Social Connectivity

Potential buyers are seeking more than a dwelling; they’re looking for a home in a community with a sense of place. Fusing residential, commercial, retail and service, such properties create an engaging environment with things to do, both day and night. Walkable neighborhoods bring people together, create life on the streets and make good neighborhoods, not just good buildings.

Today’s communities have been redesigned to deliver the unexpected, with amenities like recreation centers, pools, dog parks, tot lots, natural spaces and exercise trails. These spaces foster friendships among neighbors and give buyers added reassurance that their home will enhance their lifestyle by serving as a gateway into a close-knit community.

“Residents in urban settings strive to find a balance between the excitement of the city and the vast social opportunities while trying to carve out a little serenity and relationship to nature, seasons, etc.”

—Robert Adams, Halvorson Design Partnership

Connecting with Nature

Whether they’re small pocket parks, larger recreational areas, ample green space, or trails, home buyers want them. Urban and suburbanites alike want to be able to get outside and connect with nature at some level.

Designers must work within the boundaries of each site; using the unique natural attractions of a property is the best way to make one community stand out from the competition.⁹

Connecting with Friends and Neighbors

The division between indoor and outdoor spaces continues to blur, with operable glass

TYPES OF OUTDOOR/ ROOFTOP AMENITIES

Renters today want all the perks inside their apartment and amenities nearby. These may include:

- Resort style saltwater pools and deck
- Community spaces
- Lounging areas with fireplaces or outdoor terraces
- TVs or movie projector in lounge space
- Courtyards/landscaped gardens
- Grilling areas/open-air kitchen
- Dog runs and washing stations
- More unique rooftop amenities
- Putting greens
- Fitness centers
- Wine bars
- Yoga studios

Landscape designers and developers can create a dynamic, interesting space with:

- Divisions
- Multiple seating options
- Water and landscape features
- Courtyards that take a potentially difficult site from good to great by making the best use of the green space.

CASE STUDY



Loews Chicago Hotel¹²
Chicago, IL

Designer: Wolff Landscape Architecture

Located in the heart of Chicago, the Loews Chicago Hotel is known for its high-class luxury. Constructed in 2015, Wolff Landscape Architecture successfully designed a unique urban terrace space.

The expansive rooftop space provides occupants with the ultimate retreat including impressive city and lake views. From grassy lawn areas used for lounging or games, beautifully lined with seasonal flowers and greenery, to lounging cabanas, high top tables and two terrace bar areas this has become a destination for nice weather days and evenings.

Installed on a pedestal system, 24x24 pavers with a granite-like finish in light gray and dark gray were chosen to provide the perfect amenity space floor, covering over 18,000 square feet across multiple terraces. The pavers selected fulfilled the designer's vision and successfully complements the modern surroundings.

walls and wide French doors bringing the outdoors into indoor spaces. Multifamily construction is evolving to accommodate this desire to create a connection between the indoors and outdoors. Condos extend to the balcony; common rooms extend to the roof deck, exercise rooms extend to the pool and living rooms extend to the courtyard. No matter which type of housing is being constructed, home buyers demand space where they can be social, foster friendships among neighbors, and feel like they are part of the community. Amenity spaces have never been more important or more in demand.

In addition to open spaces that provide access or views, a community's residents will enjoy and appreciate small, intimate spaces that offer privacy and security such as small courtyards that are more cloister-like, with controlled access so that only tenants can use them. These could be small sitting areas for private conversations or solitary reading or sunbathing. Larger spaces can be segregated to contain noise and activity, making them feel more intimate as well.¹⁰

THE EVOLUTION OF ROOF DECK SYSTEMS

The solution to tenant demands is roof deck hardscape systems that protect the roof from the elements. The installation technologies behind suitable pavers for rooftops and pedestal systems are transforming elevated and sloped roof surfaces into outdoor amenities that are not only functional but aesthetically beautiful.

Roofs have significantly transformed over the past few decades from utilitarian ballasted roof systems to roof systems with highly programmed, environmentally conscious, people-friendly amenities that promote healthier lifestyles. In the evolution of roofing systems, there are five common types of systems currently used on commercial and large residential buildings. These include conventional ballasted roof systems, extensive roof gardens, intensive roof gardens, pedestal roof systems and outdoor amenities roof spaces.

Conventional ballasted roof systems

Conventional ballasted roofs are the earliest types of flat roof systems, and they are still being used. They require flat roofs with slopes of no more than 2 inches height over 12 inches length (1:6). These systems consist of a membrane or a membrane and a substrate material that is loose laid over a deck using ballast to hold the system in place.

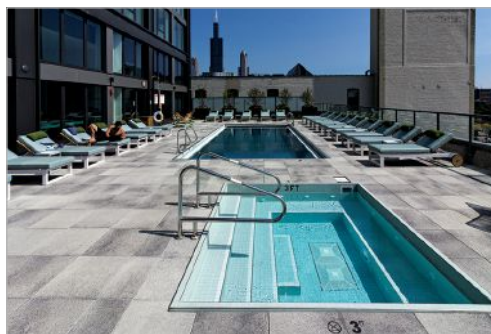
CASE STUDY



1035 West Van Buren
Chicago, IL

Landscape Architect: site design group, ltd. (site)

Chicago's rapidly growing West Loop neighborhood is home to a luxury high-rise apartment with a 30-story tower and 6th-floor amenity roof deck. The terrace and pool deck feature a strong connection to the interior spaces while it complements the modern design of the building. The seamless shared outdoor gathering space uses 24" x 24" architectural slabs finished with a natural granite appearance and stain resistance technology. The deck includes a pool, hot tub and public dining areas with ipe-wrapped, built-in grilling stations, as well as a fire pit and lounge, fitness deck and ornamental garden planters with corten walls and a sun-shade structure.



GLOSSARY

Conventional Ballasted Roof System

System consists of a membrane or a membrane and a substrate material that is loose-laid over a deck using ballast to hold the system in place. The system requires a flat roofs with slopes of no more than 2 inches height over 12 inches length (1:6).

Extensive Roof Garden

Green roofs that have plants growing in low-profile planting mediums placed over almost the entire roof.

Intensive Roof Garden

A green roof comprised of both hardscape and plantings with soil depths ranging from 8 inches up to several feet to accommodate a wider variety of plant types and species, including large trees.

Outdoor Amenity Roof System

These roof systems provide owners and developers with greater options for providing outdoor amenities in the multifamily and commercial building market that include a wide range of components, such as hardscape patio areas, planting areas, walkways, pet play spaces, fire pits, pools, kitchens, dining and bar spaces, and even putting greens.

Pedestal Roof System

Provides a means of creating a level deck space on top of pitched or uneven roof surfaces that would otherwise not be usable. The system includes the concrete structure of the building, waterproof membrane, protection board, insulation, support pedestals, and roof slab tiles or units anchored to the pedestals. Tiles or units can be made of wood, concrete, stone, or porcelain depending on the desired aesthetic.

Slab on a Granular Base

A roof system that includes the building's concrete slab, waterproof membrane, drainage mat, insulation, and finally roof tiles or pavers placed on a sand setting bed and held in place with joint sand.

Slab on Permeable Base

A roof system with slabs on permeable base (chips) can accommodate heavier loads than the pedestal systems and provides optimum drainage, as the porous chips or aggregates maximize water penetration.

Urban Heat Island Effect

Urban areas that are hotter than nearby rural areas due to a large concentration of impermeable, dark surfaces such as pavement and rooftops.

Solar Reflectance Index (SRI)

A criterion used by USGBC that measures values of sunlight and reflectance from built surfaces to determine urban heat island effects in city centers.

Cool Roof

A roof made of materials or coatings that significantly reflect sunlight and heat away from a building to reduce roof temperatures, increase the comfort of occupants, and lower energy demand.

QUIZ

- In 2016 renters outnumbered homeowners in _____ percent of major cities, up from 21 percent in 2006.
 - 25
 - 33
 - 47
 - 62
- Creating rooftop space is expensive but residents will pay more, and the return on investment is often only _____.
 - 1 year
 - 2 years
 - 3 years
 - 4 years
- Communities designed with an emphasis on common open spaces, amenities that promote social connectivity, and environmentally-conscious forethought provide which of the following benefits?
 - Meet consumer demands and municipal requirements
 - Maximize the use of available land and saleable square footage
 - Provide a distinct brand of sophistication
 - All of the above
- Which of the following describes a conventional ballasted roof system?
 - Consists of a membrane or a membrane and a substrate material that is loose laid over a deck using crushed stone to hold the system in place
 - Has plants growing in low-profile planting mediums placed over almost the entire roof
 - Comprised of both hardscape and plantings with soil depths for plantings ranging from 8 inches up to several feet
 - Provides a means of creating a level deck space on top of pitched or uneven roof surfaces that would otherwise not be usable
- Which roof system provides the best combination of the intensive roof garden, green roof, and hardscape, while still providing water protection for the roof?
 - Pedestal roof system
 - Outdoor amenity roof
 - Intensive green roof
 - Conventional ballasted system
- Which city with an aging stormwater system is offering cash incentives to help multifamily building owners cover the cost for green roofs to mitigate watershed issues?
 - New York City
 - Boston
 - Washington D.C.
 - Chicago
 - Both C and D
- The preferred layout for a pedestal roof system is _____.
 - Orthogonal
 - Curvilinear
- Which construction system used for amenity roof applications is the most widely used, as it is easy to install and maintain and provides a system for leveling uneven roofs?
 - Pedestal system
 - Slabs on granular base
 - Slabs on permeable base
 - None of the above
- Which concrete paver manufacturing process results in a surface that is almost fade proof and UV-resistant?
 - Standard thru-mix with the same aggregates used throughout the slab
 - Two-step process that combines a base of coarser aggregates with a top of finer aggregates
- Potential LEED credits are available for products with a Solar Reflectance Index greater than _____, which is typically provided by manufacturers with their color options.
 - 20
 - 23
 - 30
 - 33

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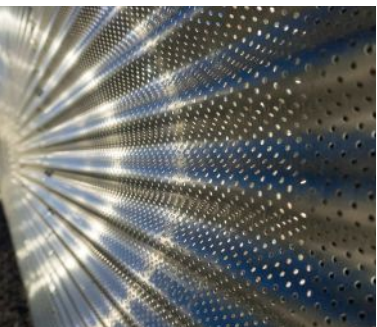
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AIA Architect

AIA Voices



PHOTOGRAPHY: GRACE O'CONNOR

Those Who Can, Teach

Exploring what architecture can do starts with understanding what's been done before.

Danielle Willkens, ASSOC. AIA, is an assistant professor of architecture at Auburn University's College of Architecture, Design, and Construction who combines the old and the new in her teachings. As the recent winner of an AIAS/ACSA New Faculty Teaching Award, she's finding that her unique blend of technology and history resonates well with today's students.

As told to Steve Cimino

I am very much a product of the amazing mentors I had in school, from my undergraduate studies through graduate school. I saw how they used academia as a platform for outreach, and thought it was a phenomenal way to make an impact. Not only are you shaping young minds, but you're instilling new ideas as to what architecture can do, beyond just bricks and mortar.

I'm a self-described techie who also loves sitting in an archive and researching, and I try to marry both sides in my teaching style. It can be a struggle to prepare students for practice in a digital age while also helping them grasp traditional techniques and become more aware of their surroundings. Nothing has been taken off the plate for architectural education; we're only adding to it. Our goal is to make a design education feel more like a network, where everything interrelates and comes together in numerous ways. There's no perfect method for practice or education; we want to give our students room to develop their own voices and take advantage of the tools at their fingertips.

I was fortunate to be educated in both the United States and the United Kingdom. As much as the two countries think they speak the same language, they really don't. Seeing different approaches that were being taken was hugely beneficial, and the styles of design thinking that I picked up in school have been invaluable to how I approach my historical work. You're able to view things quite differently than if you had been trained as a typical historian.

When it comes to diversifying architecture, it's great to see our schools at roughly 50 percent female—but there is still that major drop-off when it comes to licensure. I'm fortunate to be part of a great movement working to amplify the voices of female designers and trying to highlight those who have been overlooked in the past. There are still stories left to be told and interesting research to be done, and we're benefiting from being in a digital age where archives are digitized and the past is made available in ways never seen before. It opens a very interesting path for students, who are helping to uncover histories while building their own. **AIA**

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30 percent of architecture firm leaders report that finding qualified staff is their top business concern for 2019.

By Michele Russo

Nearly a third (30 percent) of architecture firm leaders rate finding qualified staff with appropriate technical and project-management skills as one of their top three priorities for 2019—making it the top business concern for 2019, according to the AIA November 2018 Work-on-the-Boards survey. It is the first time in three years that firm profitability was not the top-listed concern, although that is still a top concern for 26 percent of firm leaders.

The largest jump from 2018 to 2019 relates to the unpredictability of the economy—while only 15 percent of architecture firm leaders cited that as a concern in 2018, it jumped dramatically to 25 percent. Conversely, negotiating fees had the largest decrease—15 percent report it as a top concern for 2019, whereas 23 percent rated it highly in 2018.

AIA Feature

The High Stakes of the High Line Effect

Can infrastructure reuse projects in the High Line Network learn from the faults of the original?

By Katherine Flynn



Historic Fourth Ward Park, reopened in 2011 as part of Atlanta's Beltline project, offers 17 acres of green space to city residents.

PHOTOGRAPHY: CHRISTOPHER T. MARTIN

It's been called the "High Line effect," and it's stronger than ever. Fifteen years ago, the idea of redeveloping a city's obsolete infrastructure into a photogenic public amenity wasn't at the forefront of any urban planner's mind.

Today, following the success of the blockbuster 1.45-mile-long elevated park in Manhattan, nearly every major city in the country is eyeing its abandoned or underutilized rail lines, airfields, and industrial waterfronts in hopes of transforming them into places that people will want to visit. The large scale and rapid pace of these transformations, however, can be whiplash-inducing.

The High Line, which opened to the public in 2009 after being fought for by high-profile advocates like Diane Von Furstenberg, has been praised as an icon of contemporary landscape architecture, but it has also been criticized as an example of what can happen when big money enters a public space equation. A Jan. 7 *New York Magazine* article by architecture critic Justin Davidson described the High Line as an "elevated cattle chute for tourists ... squeezed between high glass walls and luxury guard towers." It has ushered in a boom era for development on the surrounding blocks, and it was visited by an estimated 8 million people in 2016. High Line designers James Corner Field Operations and Diller Scofidio + Renfro are spearheading a third phase of the project slated to open later this year.

"We wanted to do it for the neighborhood," High Line co-founder Robert Hammond told *CityLab* in 2017. "Ultimately, we failed."

Hoping to rectify some of the High Line's mistakes, Hammond's latest project is the High Line Network, a group of 19 ideologically

united infrastructure-reuse projects across the United States and Canada. Heralded as the "next generation of public spaces," the 19 projects have the shared goal of harnessing the "transformative potential" of underutilized urban places. Some projects have already been completed, and some are still in progress. Ideally, all hope to better their cities without displacing long-time residents.

"We want to make sure that we create this common ground around the impacts and the benefits of these projects," says Ana Krejcarek, a manager at the High Line Network. "How can we make sure that it's an equitable process?"

Who Is the Space For?

The 11th Street Bridge Park in Washington, D.C., is on track to become the city's first elevated public park. At the center of the plans lies a strong intentional approach to the ways in which it plans to serve the adjacent community in the process.

Scott Kratz, the 11th Street Bridge Park's executive director, says that after a 2014 design competition to formulate a vision of what the park could look like, "we started asking ourselves, internally, what role we could play in investing not only in this park, but also in the broader neighborhood."

The park is slated to be completed by 2023. Located on the piers of a former freeway bridge spanning the Anacostia River, it will serve as a literal and symbolic connection between the

more affluent neighborhoods of Navy Yard and Capitol Hill to the west and Anacostia and Congress Heights to the east. "It became very clear that we had a unique opportunity to play this role as a convener, to see what we could do," Kratz says. Communities "east of the river" have historically received less economic investment than other parts of the city, and access to fresh produce and healthy food is a major concern for many of their residents.

Kratz is acutely aware that a project like the 11th Street Bridge Park has the potential to bring change to the area—but he wants it to happen in a way that will, first and foremost, benefit the people who already live there. Once it's finished, the park will include outdoor performance spaces, playgrounds, public art, urban agriculture, and more. Hundreds of hours of community meetings have attempted to focus on the priorities of existing members of the neighborhood.

"It [the development] needs to be community-driven, we need to have this level of intentionality; and perhaps most importantly, we need to be thinking about this early," he says. "Once the market really starts to move, it's going to move much faster than we can possibly respond to it."

The park, which is estimated to cost \$45 million, released a set of equitable development goals in 2015 emphasizing job creation and affordable housing. Strategies include tenants' rights workshops, a home buyers' club and a community land trust. The

AIA Feature

CONTINUED

park's nonprofit arm is also buying property in the neighborhood with the intention of creating below-market-rate housing.

"It's been an iterative process to identify where the needs are," Kratz says. "There's an enormous amount of economic pressure that's about to jump across the river. And this was really the last chance, I think—not to be alarmist—but this is the last chance to really get it right in D.C."

Context Matters

In Detroit, a city with a history of low urban density and disinvestment following the decline of the auto industry, there was an acute need for a public space that would give residents a safe place to congregate, exercise, and spend time outside.

"Detroit is very spread out, and we don't have a strong network of pathways that bring people together," says Mark Wallace, president and CEO of the Detroit RiverFront Conservancy. The Conservancy owns and maintains the Dequindre Cut, a High Line Network project that is a two-mile trail along a former Grand Trunk Railroad line.

Designed by SmithGroup, the first section of the Dequindre Cut opened in 2009 as a predominantly below-street-level greenway accented by urban artwork and graffiti. "For us, a place where families can be safe and kids can make memories like that is really important to restore community," Wallace says.

The Cut is different things to different people. To some, it's a bicycle-friendly transportation alternative. To others, it's a park or public safety infrastructure. "It really functions as all of those things, which is what makes it special," Wallace says. "It's become a place where people can interact with nature in a very different way. In the Dequindre Cut, people can, literally, escape the hustle and bustle of a very urban environment." According to a recent intercept survey, about half of the visitors to the Cut are Detroit residents.

"Between transit, jobs, and housing, those goals are what we aim for to create affordability in Atlanta."

— Jenny Odom



The Angier Springs Monumental Work on the Eastside Trail, designed by Studio Tim Frank, won a 2018 Merit Award from AIA Georgia.

PHOTOGRAPHY: THE SINTOSES

While Wallace acknowledges that the Detroit RiverWalk (which opened in 2005, with almost 4 miles of the 5.5-mile vision currently complete), in tandem with the Dequindre Cut, has spurred real estate development in the surrounding areas, the Conservancy is committed to maintaining the riverfront as a public space as much as possible. A more recent project, the Dequindre Cut Freight Yard, repurposed nine shipping containers for use by food and beverage vendors from the months of May to September, providing a spot for walkers and bikers to rest, refuel, and socialize.

The High Line Network, Wallace says, has been a "tremendous resource." "It's great to have an opportunity to talk to peers in real time who are interested in the same topics, and trying to find solutions to similar issues," he says. "It's been really great to have that cohort pull together."

Controlling the Ripple Effect

In Atlanta, where the more extensive 22-mile Beltline project has been expanding in increments since 2008 (predating the High Line by a year), there has been a bit more backlash surrounding the new development spurred by the planned loop of parks, trails, and transit. (Atlanta Beltline, Inc., the development's parent company, is aiming to complete the project, including a light rail component, by 2030.) In July 2018, hundreds of protesters picketed downtown Atlanta, decrying the rising cost of housing

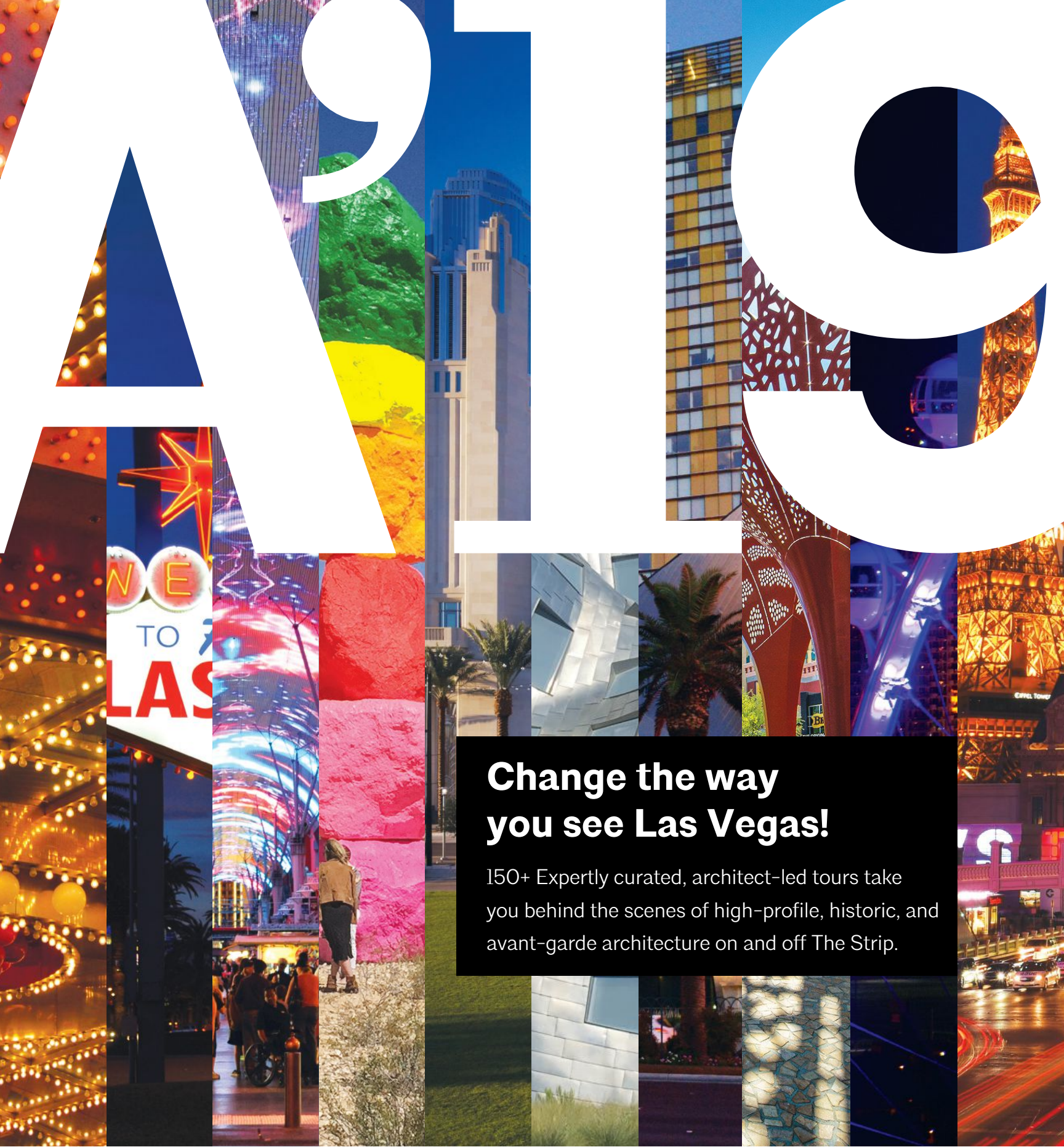
near the Beltline. At the time of its founding, the Beltline committed to creating 5,600 units of affordable housing by the time of its completion. As of 2017, according to the *Atlanta Journal-Constitution*, it had only funded 785.

Despite these local controversies, the Beltline is booming, attracting an estimated 2 million visitors annually. "What started out as kind of an Atlanta destination for walking or moving between neighborhoods, or bike commuting, has turned into a tourist destination for people across the state and across the country," says the Beltline's media relations manager Jenny Odom. She emphasizes that the Beltline tries to address affordability as "a bigger picture," of which there are three pillars: housing, job opportunities and job training, and transit.

"Transit creates those connections to jobs," she says. "So between transit, jobs, and housing, those goals are what we aim for to create affordability in Atlanta."

The High Line Network convened in Atlanta at the beginning of December 2018, and Odom says that talking about the connections and shared challenges between each of the projects is helpful in strategizing solutions.

"Everyone is having an affordability crisis of some kind," she says. "Projects like this spur desirability, and spur an increase in property values. I think everyone is cognizant of that and wants to mitigate that and put those tools in place." **AIA**



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AIA Future

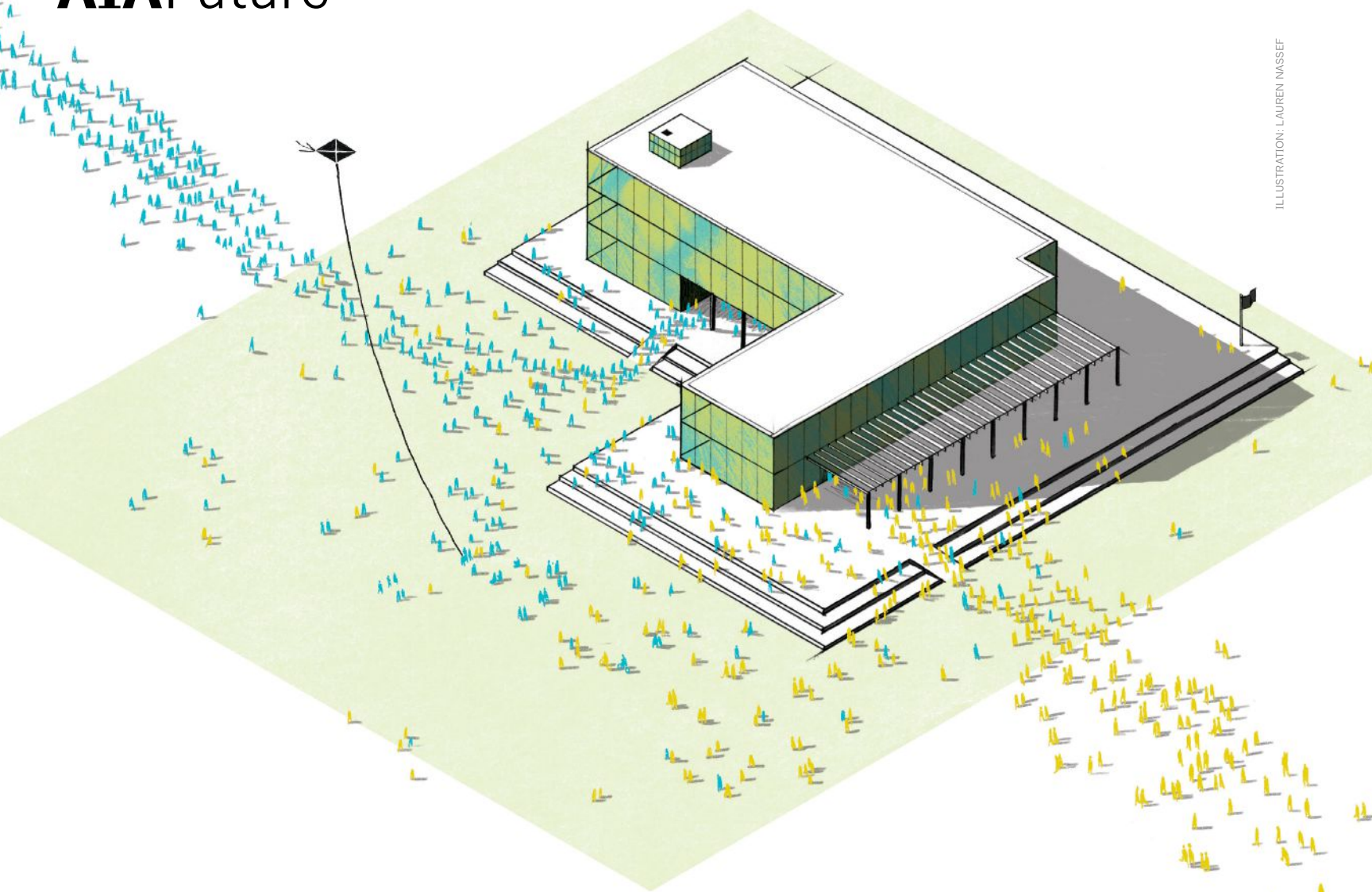


ILLUSTRATION: LAUREN NASSEF

Neighborhoods that prioritize robust social infrastructure are more connected, and therefore more resilient.

Is a New Day Dawning for Social Infrastructure?

How can architects reinforce the essentiality of public buildings?

By Steve Cimino

In November 2016, AIA released the results of a public opinion poll as a supplement to the Institute's Build America Summit. The takeaway was clear: 94 percent of Americans felt that having supported and well-maintained public buildings was important to the future of their community.

These buildings—community centers, public schools, and libraries, among others—comprise a large chunk of what's been dubbed "social infrastructure," and architects are at the forefront of bringing them to life. That birthing process can be a rocky one: Despite praise in polls, on Election Day they're often regarded as luxuries, not necessities, and kept out of the larger conversation around public funding. Yet if you dig deeper into what social infrastructure really means to a community, you'll find they are legitimately as valuable as the power grid or the water system.

"My introduction to the idea of social infrastructure came from a study of the heat wave in Chicago in 1995," says Eric Klinenberg, author of *Palaces for the People: How Social Infrastructure Can Help Fight Inequality, Polarization, and the Decline of Civic Life*. "I discovered that social infrastructure—parks, playgrounds, libraries, healthy sidewalks—could truly be the difference between life and death. Neighborhoods with robust social infrastructure wound up being more resilient, better protected, and better connected than neighborhoods with social infrastructure that was neglected or degraded, even if they were across the street from each other and had practically identical population demographics. When I saw that, I understood that social infrastructure is vital."

"The private sector can produce social infrastructure: barbershops in African-

American neighborhoods, pubs in England, coffee shops in gentrifying neighborhoods,” he adds. “But there’s very little that we can do to generate businesses that are also social infrastructure; where we have leverage is in the domain of public institutions and public projects. And, frankly, that’s the best place to make an impact anyway.”

The Need to Prioritize

Case in point: Manhattan Beach Library in Manhattan Beach, Calif., designed by Johnson Favaro. It’s a testament to the value of good design, but also to the role an architect plays in pushing community leaders to make smart choices for their citizens.

“Infrastructure across the board needs to be rebuilt and updated,” says Steve Johnson, AIA, principal at Johnson Favaro. “But what’s just as important—and takes just as much leadership—is helping a community plan, build consensus, and prioritize.”

The library was completed in 2015, but the project originally emerged in 2008 as part of a comprehensive master plan. The city commissioned the firm to review all its public facilities, including libraries and parks, and help craft a strategy to recover from decades of neglected investment.

“Most of the facilities dated back to the 1960s, when land in California was plentiful,” Johnson says. “You’d see a big empty piece of land, plop a single-story building there, throw in a surface parking lot, and expand in whichever direction you wanted. But then the metropolis that is Los Angeles started gobbling up everything around it; suddenly, open areas and parks and community spaces—social infrastructure—were a real need.”

The city reviewed Johnson Favaro’s recommendations and ultimately decided to replace the previous one-story facility with a modern two-story structure that also opened up new green space near the adjoining civic center. There’s a common refrain that libraries are outdated—“What do they need a library for when they can access everything at home?”—but the response of the Manhattan Beach community to the amenities and space that the new library provided reinforced just how wrong that sentiment is.

“As cities grow denser, places like libraries and parks become necessities,” Johnson says, “especially for families who want to live there but know they’ll lack their own green space or a backyard. They depend on this community infrastructure. And local leadership is realizing that they need to deliver.”

Building Enthusiasm

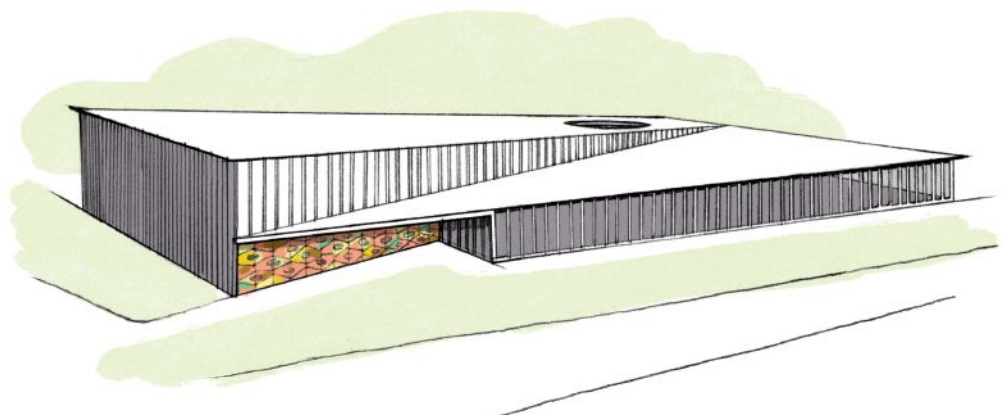
What can architects do to position themselves as social infrastructure experts? For Joseph G. Tattoni, FAIA, principal at Ikon.5 Architects, it starts with who you know. All architects recognize the need to find good clients, and it’s not hard to guess where public projects come from. “Over the years, I’ve noticed that there are community leaders that are more attuned to building,” Tattoni says. “They like to build; they see it as a sign of progress and advancement. If you can find some of those people, they tend to like to talk to architects. And I love that.”

His firm’s contribution to the social infrastructure space is the Training Recreation Education Center in Newark, N.J. It’s a product of the Newark Housing Authority, which recognized a need for educational programming in the city’s South Ward that would help, as Tattoni puts it, “retool residents for the digital age.” To entice locals to come in and sample these programs, they equipped the facility with a gymnasium, a yoga studio, and a nutritional kitchen.

“It echoes updated programming in public libraries across the country,” he says, “and an emphasis on flexible public spaces within the facilities as much as the core services of the facilities themselves.”

Tattoni acknowledges that his firm wouldn’t be in the conversation for these community projects if they hadn’t reinforced themselves as key players in the field: “With community leaders that have a real propensity to build—and you know who they are; they pass bills—talk to them. Pick their brain. Many times they’re in the position to put forth more of these projects, and they need good architects to get involved.”

The Training Recreation Education Center in Newark



“I discovered that social infrastructure—parks, playgrounds, libraries, healthy sidewalks—could truly be the difference between life and death.”
—Eric Klinenberg

Sometimes, one of these designs may turn heads beyond simply strengthening the social fabric of a community. “We designed a library once in a fairly conservative area,” Tattoni says, “and there was a local leader who was pushing for something iconic, edgy, and striking. So we did just that; after it was built, there were stories in the newspaper for months and months about whether it was appropriate or not. One day, I got a call from the conductor of the city orchestra. He said, ‘I’m going to send you tickets to an upcoming performance. I’ve been following the response to the library, and it’s so fantastic that people are finally talking about architecture and its importance on their lives. It’s something we need to discuss all the time, and we didn’t until your design.’”

Ups and Downs

Unfortunately, there are just as many stories about projects stalled or halted for reasons big and small.

AIA Future

CONTINUED

“I don’t think we’re fully at the point of emphasizing that these buildings are essential infrastructure,” says Taryn Sabia, ASSOC. AIA, director of the Florida Center for Community Design & Research and 2019 chair of AIA’s Regional and Urban Design Committee. “We’re still seeing them being value engineered; the design component, at least, is not a high priority.”

Sabia knows the cost of lost social infrastructure firsthand. Her children attended historic Lee Elementary School in Tampa, Fla., which burned down after Hurricane Irma in 2017 and caused a major ripple in the fabric of their community.

“When it closed, you could see the impact it had on the neighborhood,” she says. “It became a dead block. There was no lighting and no activity; vandalizing and crime increased. It really left a hole in the community. You used to see kids playing, parents going in and out, even festivals in the neighborhood. You lost all of that.”

Fortunately, Sabia and other community leaders led a push to ensure the school was fully reimbursed by the insurance company. An architect has even been hired to bring the school back, preserving the exterior while fully modernizing the interior. But the reimbursement process took over a year, and the rebuild has yet to begin.

“These projects do take time, and they take money,” Tattoni says. “But I believe social infrastructure is a growing concern in people’s minds. I’m seeing more RFPs about it all the time. Even if it stems from politicians saying, ‘I have to build a library to get votes,’ that’s fine by me. We don’t care where it comes from, just that it happens.”

“The problem is that social infrastructure has not existed as a category or a concept until now,” Klinenberg adds. “But I think it’s really salient as a policy idea. We’re about to spend billions on infrastructure, here and around the world, and if we embrace the concept of social infrastructure we embrace a whole new set of options for how to invest that money.”

So how can an architect guarantee his or her designs will really count? “Make sure every public project you complete matters,” Tattoni says. “Find out what the community really wants and fulfill those needs. We finished a library project a while ago that was a huge success: a beautiful, natural place for discourse with a park next door. All of a sudden another community in that county wanted one. And then another one! If you make it the best it can be, there will be pressure—good pressure—to repeat it.” **AIA**

AIA Perspective



PHOTOGRAPHY: GABRIELA MARKIS

Telling the Story

Our world is changing, and architects have a key role to play.

Social infrastructure—which includes public buildings such as schools, courts, libraries, affordable housing, and community centers—reflects our compassion, creativity, and sense of equity and justice. In the near term, the social infrastructure we create fulfills present-day needs by providing places to learn, heal, live, work, and relax. In the long term, the social infrastructure we leave behind tells the story about the values and priorities of our society and our time.

Realizing the lasting, equitable, and sustainable solutions we seek in key policy areas such as affordable housing and school safety—as well as the mitigation of climate change by reducing the impact of the built world on the environment—requires that the voice of architects be central to the discussion.

It is clear to me that the architects’ mixture of technical expertise, innovative spirit, dedication to good design, and desire to advance the common good are essential to achieving the solutions our society needs to advance and to grow.

The ability of architects to produce dramatic reductions in the carbon footprint of the built environment is one good example. In the decade preceding the Paris Agreement on climate change, the United States added 20 billion square feet of building stock; yet thanks

to smart energy-efficient design, total energy consumption remained mostly flat. That’s an essential piece of achieving a more sustainable and just future.

There is another part of achieving this future: managing the ongoing global trend of urbanization. Four decades ago, a little more than a third of the planet’s population lived in cities. Two decades later, 45 percent of a larger world population lived in cities. Today, a majority—54 percent—of the world’s even larger population lives in cities. By the end of the century, some estimates are that almost nine in 10 people will live in cities—making it clear that the demand and the need for smart, safe, sustainable, and equitable social infrastructure will significantly grow.

That places architects at the center of efforts to improve safety, increase social mobility and economic opportunity, and secure basic human dignity for all, no matter the country, continent, or hemisphere.

Our focus—as a profession and as global citizens—should be to use our unique skills to improve the common good, and to inspire and elevate the human experience through the power of design.

While architecture and architects alone cannot solve all the issues of our time, we can use our dedication to creative compromise and constructive collaboration to provide leadership towards lasting, positive, and meaningful change in our communities, country, and global society.

William Bates, FAIA, 2019 AIA President

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“I asked her the obvious:
How does preserving
a sense of place square
with Walmart’s long
history of generating
mind-numbing
placelessness?”

Soon after I'd landed at Northwest Arkansas Regional Airport (XNA), it became impossible to ignore the fact that I was in Walmart country. For starters, the airport owes its existence, in large part, to the efforts of Alice Walton, daughter of Sam and Helen Walton, who founded Walmart, the \$500 billion mega-retailer, more than a half-century ago. On the 20-minute drive to the company's home base of Bentonville, Ark., population 49,000 and booming, I traversed a landscape punctuated by a series of massive Walmart distribution centers in the chain's familiar battleship gray. And then, in the picturesque downtown square, over a spread of granola and avocado toast at the Pressroom, a supremely hip café (which happens to be owned in part by Tom Walton, grandson of Sam and Helen), I spied the Walmart museum, housed in one of the family's original five-and-ten stores. It features a full-sized replica of "Mr. Sam's" office and tells the Walmart story in as much artifact-laden detail as anyone could possibly desire.

In short, I felt like I was deep in a symbiotic landscape, eating artisanal fare in a perfectly calibrated, pleasantly walkable downtown that, in a stroke of irony, largely owes its existence to a major producer of hideous, car-centric sprawl. Everything around me was willed into being by either Walmart or its founding family, now the wealthiest in America.

Sitting across from me at the Pressroom during my recent visit, Karen Minkel, soft-spoken but implacable, wasn't thrilled by this observation. A former Fayetteville, Ark., city planner, Minkel is now the director of the Home Region Program, a Walton Family Foundation initiative that aims to improve the quality of life in the surrounding area—namely, "the communities where Sam and Helen Walton first found opportunity." I was here to learn more about the Northwest Arkansas Design Excellence Program, which Minkel started in 2015 with an ambitious mission: to "preserve a sense of place." I asked her the obvious: How does preserving a sense of place square with Walmart's long history of generating mind-numbing placelessness?

Minkel emphasized that the boundary between the Walton Family Foundation, with its \$575.5 million in annual grants, and corporate Walmart is distinct and impenetrable. She then argued that, based on her experience in city government, "the policy structure for land use fully supports the strip-mall development that you're talking about." In other words, the sprawl created by big-box merchants has as much to do with the desire of local governments to generate tax revenues as it does with the strategies of the retailers themselves. Nevertheless, it remains a paradox



The Pressroom

that a foundation funded, directly or indirectly, by proceeds from Walmart is trying to compensate for the radical changes Sam and Helen helped embed in the American landscape. That the Walton family has embraced "a sense of place" as one of their core projects is not the most astonishing thing, however. It's that they're very, very good at it.

More than Just a Columbus Redux

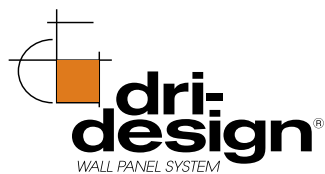
Minkel, who works in a suite of offices directly upstairs from the café, explained that the idea of using "design excellence" to preserve a sense of place began as an amalgam of some of the foundation's ongoing concerns. For example, the region, over the past decade, has constructed an impressive network of off-road bike trails, anchored by the 36-mile Razorback Regional Greenway, a \$38 million project that was initiated and partially paid for by the foundation, with additional funds from federal TIGER grants and numerous local governments. The foundation had also been pursuing a variety of downtown revitalization and open-space preservation plans. That downtown Bentonville exudes vitality and boasts a dedicated shop for mountain bikers, a bakery for dogs, several good restaurants, and one fantastic art museum (the Moshe Safdie, FAIA-designed Crystal Bridges Museum of American Art) is, in no small part, due to the contributions of the Waltons. For instance, Minkel's office and the Pressroom are part of a two-building complex that was developed by Walton Enterprises, the financial services company that manages the family's holdings.

According to Minkel, the Design Excellence Program was modeled on the architecture program that the Cummins Foundation started in 1960 in Columbus, Ind., which famously supported the construction of scores of landmark buildings by the likes of Eero Saarinen and Robert Venturi. Minkel, however, didn't think that it was enough to simply commission architecturally significant buildings. One question the foundation asked itself at the outset was: "How do we do that in a way that complements our existing

FORM + FUNCTION.



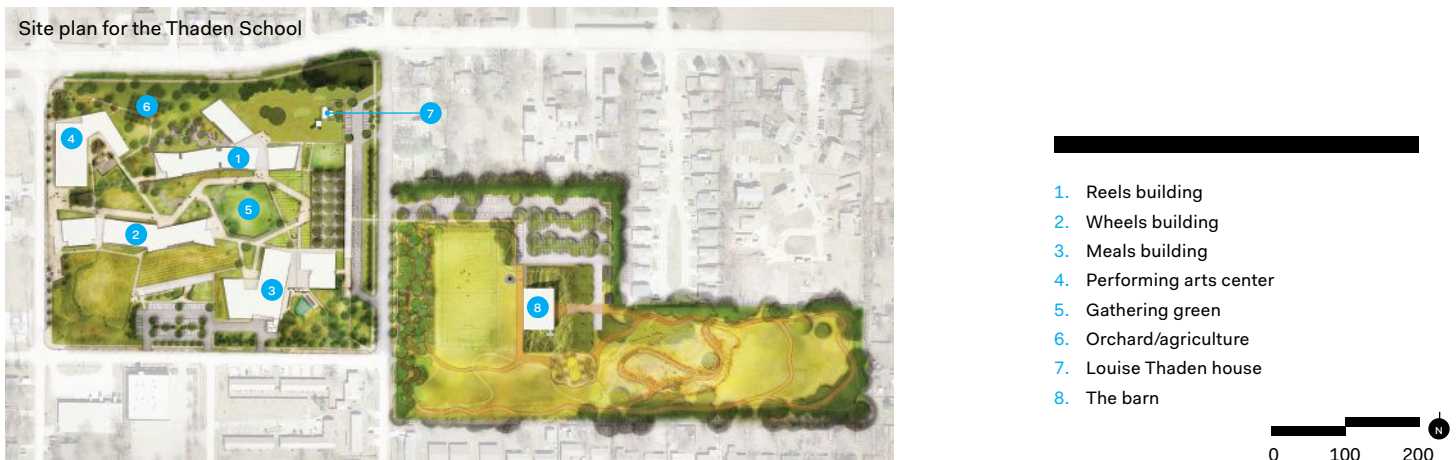
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urban fabric so you don't have a region of unicorns?" By unicorns Minkel meant "beautiful buildings that don't necessarily connect to your community or help create that sense of place." So the foundation not only created a list of design professionals for projects it funds—now over 50 firms long—but also included landscape designers, to make sure every project had a clear connection to its surroundings.

The results, so far, are impressive. The foundation has built a roster of firms—chosen in open calls in 2015 and 2016—that includes leading experts in "parks, green spaces, and plazas," such as Michael Van Valkenburgh Associates and DLandstudio. When the application process opened for a third time in February (deadline March 15), it placed new emphasis on attracting "those with experience in landscape architecture and urban design in small communities." A few of the firms on the list are based in Arkansas, but most are celebrated outfits from across the country, including Lake|Flato Architects and WXY Architecture + Urban Design. The foundation picks deserving projects to fund, and the project administrators—usually local officials or the leaders of nonprofit organizations—choose the architects from a shortlist provided by the foundation.

The Design Excellence projects I visited (11 are currently underway) were surprisingly ambitious, both architecturally and programmatically—but none more so than the Thaden School, a collaboration between the local firm Marlon Blackwell Architects and Eskew+Dumez+Ripple (EDR). An independent private school, Thaden will eventually serve grades 6 to 12 and feature a core curriculum called "Wheels, Meals, and Reels," which will use bicycles, food, and moviemaking to help teach math, physics, history, sociology, urban planning, and other subjects. Backed by the foundation (with heavily subsidized tuition for those in need), Thaden promises to be an oasis in a world where most schools teach to the standardized tests.

Currently, classes are housed in a complex of tidy white trailers near the center of Bentonville.

Under construction across the street is a Marlon Blackwell–designed classroom building for Reels—an exceptionally long, lean structure with a dramatic up-slope at one end that will double as an outdoor movie screen. The firm is also working on a radically updated barn that will provide a venue for dances, "knock around space," as well as bike storage. EDR, meanwhile, designed the Meals building that will, naturally, house the dining hall, plus a library and lounges. One corner of the campus will be anchored by a simple gabled house dating from the 1890s—relocated to the site—that was the childhood home of Louise Thaden, a pioneering female aviator, for whom the institution is named. While most schools today are doing everything they can to isolate themselves from the dangerous world outside, the premise at Thaden is that the school should be as immersed in the surrounding community as possible. As Clayton Marsh, the founding head of Thaden, told me: "We don't have fences around the campus."

The school's newly constructed buildings represent a revamped Ozark vernacular. Unlike the long mass-production chicken sheds that dot the countryside or the big-box stores that line the highways, these buildings, mostly clad in wood, use industrial style consciously and expressively, zigging and zagging in unexpected places. Blackwell waxed poetic as he gave me a tour of the Reels building, noting how the roof pitches steeply upward, because it's like a chapel: "The feeling is something that is uplifting." We strolled through a curving corridor that runs from one end of the building to the other: "It will be done in a green gold metallic flake," Blackwell told me. "It's based on a 1967 Mustang."

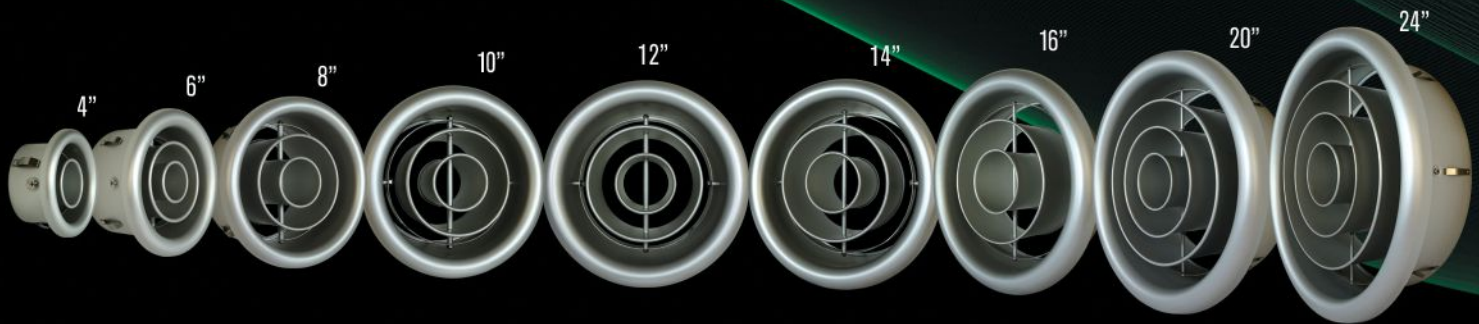
A Theater that Lures the Public Inside

The TheaterSquared building, located near the University of Arkansas campus in Fayetteville, roughly 26 miles south, is another glowing example of a foundation-sponsored project. Partially funded by the Waltons, along with the city of Fayetteville and other

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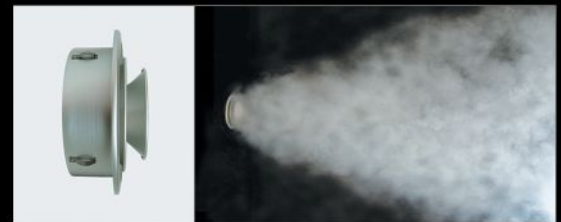
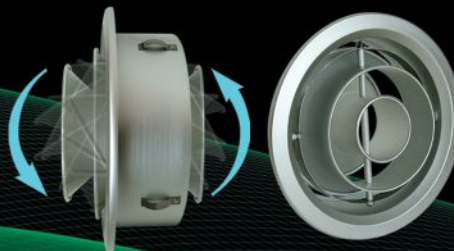
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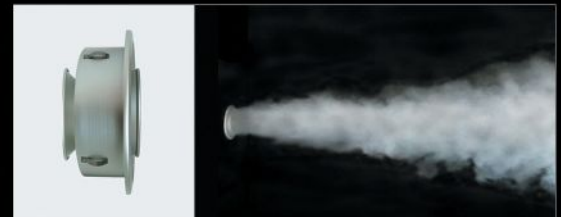


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1. The Reels building at Thaden 2. The Meals building at Thaden
3. The Cultural Arts Corridor in Fayetteville 4. TheaterSquared



donors, the \$34 million building, scheduled to open in June, will be home to a professional theater company, the only one in northern Arkansas. It was designed by Marvel Architecture, the New York–based firm that recently reworked an old tobacco storage building into a stunning new home for Brooklyn’s experimental theater, St. Ann’s Warehouse.

Since 2005, the Fayetteville theater company has hosted productions in a space formerly occupied by a beer distributor, a 178-seat hall that is unusually wide and shallow and that engendered a close relationship between performers and audience. “We’ve gotten addicted to this expansive, immersive experience,” the company’s executive director, Martin Miller told me. Which is what he told Marvel: “This intimacy, this is why people come to find us.”

The new building, assertively boxy, clad in wood and board-formed concrete, maintains that intimacy with its two performance spaces (the larger one will seat up to 280 and the smaller one will hold 99) along with dedicated spaces for scenery construction, costume making, and housing for visiting performers. Most significantly, the building projects the inner life of the theater onto the street. A rehearsal space features a massive window that gives passersby a glimpse of works in progress; the public will also be lured inside by a glass enclosed, all-day café.

As with many foundation projects, TheaterSquared is just one element of something larger—in this case, a new “cultural corridor” designed by Charlottesville, Va.–based Nelson Byrd Woltz Landscape Architects, also part of the Design Excellence portfolio. The corridor scheme will transform the parking lot across the street into a park, establish a bikeway that will run past the theater, and create connections between a host of cultural institutions.

The most emblematic Design Excellence project—all public space, no unicorns—may well be one of the more modest ones. Bentonville’s neighbor, the city of Rogers (population 66,000), is less aggressively rehabilitated but boasts what Mayor Greg Hines proudly told me is one of the best bike parks in the nation—the Railyard, which, like much of the local bicycle infrastructure, is built specifically for mountain bikers. Now, the city’s director of community development, John McCurdy, is working closely with Ross Barney Architects to rehabilitate Frisco Park, a long, narrow space that runs alongside the railroad tracks that bisect the town. It’s currently home to a railroad-themed playground, plus a random set of railroad-related artifacts. Ross Barney led an open house where residents, as Ryan Gann, ASSOC. AIA, framed it, “Used our little tool box.” Locals were asked



to finish the sentence, “I want Frisco Park to be ...” Dots were placed on maps. Post-it notes were scribbled on.

The architects studied narrow parks across America, including the Railroad Park in Birmingham, Ala., and came up with ways to use Frisco’s odd dimensions



One proposal for a redesigned Frisco Park

as an advantage. One possible approach uses as its centerpiece a 300-foot-long, snaking picnic table that could seat 250 people. Another proposal features a series of water towers that would feed splash pads. “It’s striking how they’ve been able to capture the feel of a rail yard,” McCurdy observed. “It doesn’t become like a Disneyland Park.”

The Frisco Park project is part of a larger effort to make Rogers a more urbane place—better connected to transit, and better able to leverage the bicycle traffic that rolls into town via the greenway. Using its own funds, the town has even engaged walkability expert Jeff Speck to understand how its intact historic center can be more pedestrian oriented.

Intensifying a Region’s Latent Qualities

Part of the Design Excellence magic, of course, is in the chemistry between clients, architects, and projects. To that end, the foundation relies on a selection committee that consists of Peter MacKeith, ASSOC. AIA, the dean of the Fay Jones School of Architecture and Design at the University of Arkansas in Fayetteville; John Hoal, ASSOC. AIA, a professor of architecture and urban design at Washington University in St. Louis; Elizabeth Meyer, a professor of landscape architecture at the University of Virginia; and Amale Andraos, ASSOC. AIA, dean of Columbia University’s Graduate School of Architecture, Planning and Preservation.

By the time I visited MacKeith at his office in Fayetteville, I had started to think that the foundation may not be preserving a sense of place so much as inventing one. After all, not every neighborhood in every town in the region has a rich character that merits preservation. MacKeith put a different spin

on it: “I think it’s about expanding the sense of place beyond either the generic or the stereotypical.” That expansion necessitates bringing in design professionals from the outside who aren’t necessarily imposing their own vision so much as they’re finding value in what locals might take for granted. As MacKeith frames it: “I would say importing the ability to see what has not been seen before.”

Elizabeth Meyer echoed this idea in an email: “I sought designers who knew how to intensify the latent qualities of a site or region through design.” In other words, designers with the vision to translate “the latent into new forms and experiences.”

Fayetteville’s mayor, Lioneld Jordan, told me that the “foundation doesn’t impose its ‘sense of place’ on a community. It provides assistance so that each community can realize what makes up its most unique attributes.” That said, it’s difficult to achieve community-wide consensus about the need for new forms and experiences. In a survey of public opinion about Fayetteville’s Cultural Arts Corridor, for instance, a plurality of respondents did indeed want lawns, gardens, and cafés on the block across the street from the new TheaterSquared, currently a parking lot. But a vocal minority agitated for more and better parking.

Still, the foundation has largely rallied local public officials to its causes and has had a conspicuous—and positive—impact on at least some aspects of the area’s landscapes. When I asked MacKeith to name the region’s best existing project, he didn’t give the obvious answer: Thorncrown Chapel by E. Fay Jones, the celebrated rustic shrine in Eureka Springs, Ark. Rather, he told me, “The best work of design is the 35-mile greenway that connects Fayetteville to Bentonville that you can walk and cycle. Because of what it is already, but also because of what it projects, which is a different way of living and working in this landscape.”

I understood his point immediately, because for most of my time in Bentonville I had stayed not in the lovely downtown but at a chain hotel on a heavily trafficked four-lane boulevard. The hotel was ringed by parking lots and neighbored by even more chain hotels. Sense of place was a lost concept here. It took me a day or two to realize that if I cut through one of the adjacent parking lots, I could access the greenway and run, undisturbed by traffic, for miles in either direction. Snaking through pastoral landscapes and past housing complexes and malls, the trail was a small, insistent miracle. And, like the placemaking efforts of the Walton Family Foundation, it doesn’t make the asphalt desert willed into existence by the likes of Walmart disappear, but it does offer an alternative path, a respite from an otherwise intractable set of problems.



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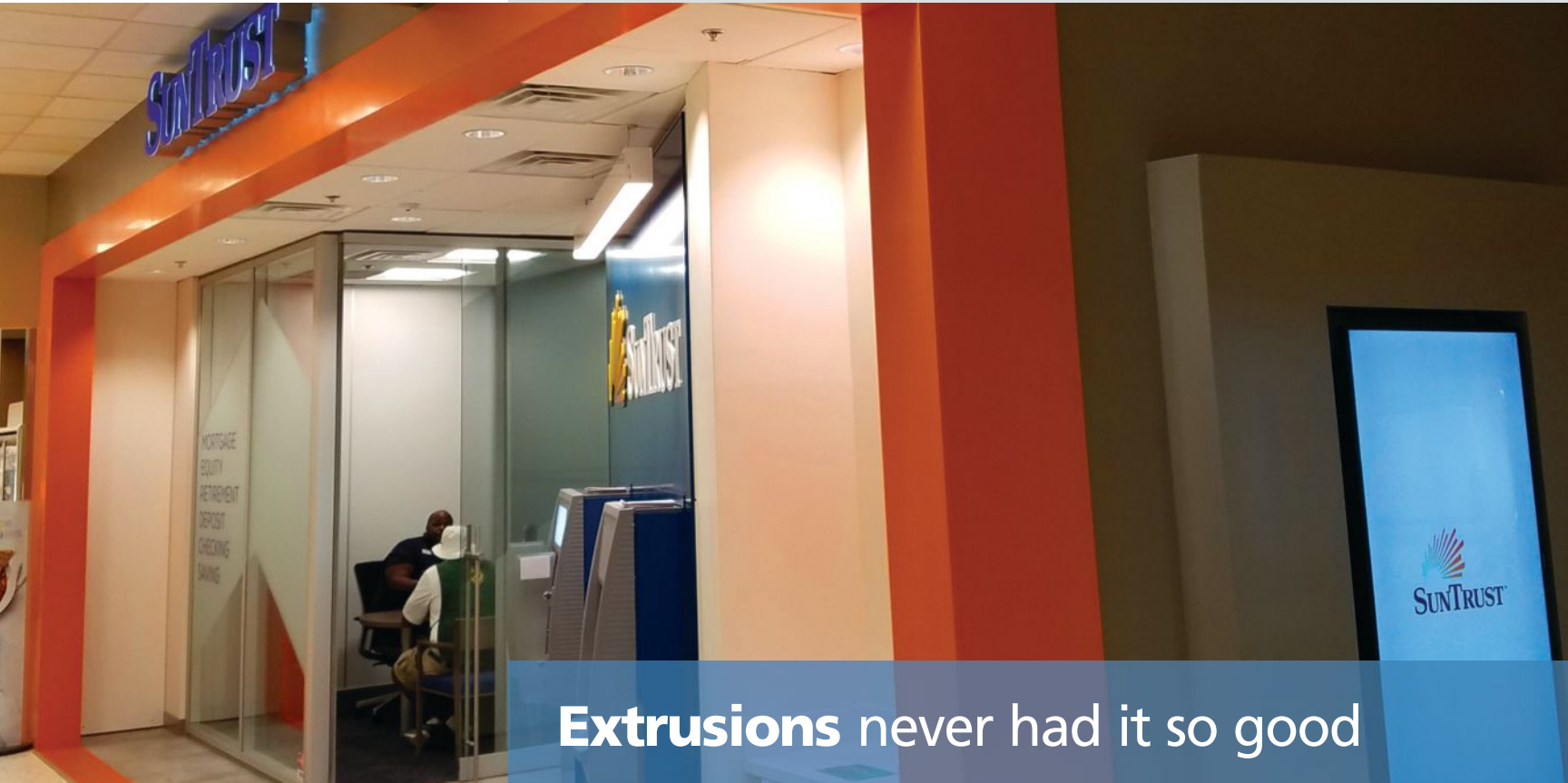
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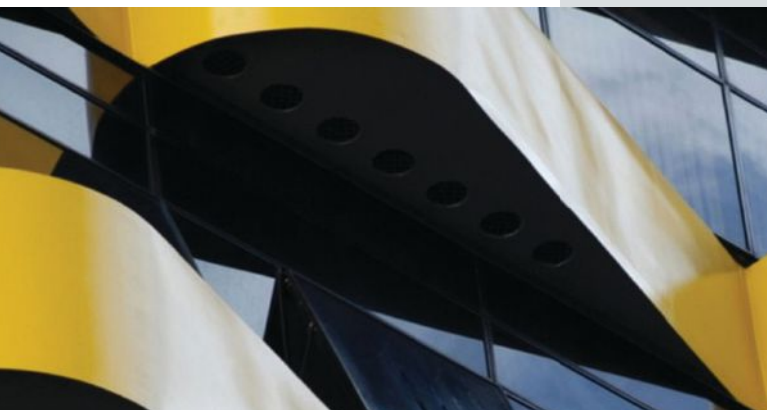
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“Ithra will either help inspire a nationwide movement for more open minds, or it will help burnish the kingdom’s reputation while atrocities persist behind closed doors.”

By any superficial account, Norway and Saudi Arabia share one thing in common: oil. Saudi Arabia has the world's second-largest proven reserves; Norway has the world's largest oil-based sovereign wealth fund. Otherwise, the contrasts almost defy comprehension: taiga and desert, democracy and autocracy, civil liberties and Wahhabism. One other difference: Saudi Arabia has no international architecture firms of note, which helps explain why the Saudis turned to Snøhetta, the celebrated practice founded in Oslo, to design the King Abdulaziz Center for World Culture in Dammam.

The center is a rollicking multiuse complex, covering over 1 million interior square feet, that is as aesthetically impressive as it is ethically unsettling. A gift to the people of Saudi Arabia from Saudi Aramco—the national oil company that, with annual revenues topping \$450 billion, is the most valuable company in the world—the project was meant, in part, to mark the 75th anniversary of Aramco's founding. Snøhetta won the commission in 2007, just before the firm earned international renown with its glacier-inspired Oslo Opera House. After a series of delays, the center was dedicated in December 2016 and opened in stages during the following two years (landscaping work continues today). It is not only Saudi Arabia's first bona fide work of starchitecture; it is also, by some measure, the kingdom's first attempt at a tourist attraction. It is open, at no charge, to all Saudi citizens and visitors—though the kingdom does not issue tourist visas, and business visas are tightly controlled. As envisioned by Saudi Aramco, the center (which goes



The King Abdulaziz Center for World Culture

by “Ithra” in Arabic, meaning “enrichment”) started as a library but grew into a far more ambitious \$800 million complex that is neither museum, nor theater, nor conference center, but rather all of the above.

Ithra occupies a rise on the northern edge of the company's headquarters, a mini city in its own right, not far from the “Prosperity Well” that started the oil boom

in 1938. Overlooking tanks, pipes, and other trappings of the petroleum industry, it is an inauspicious site for an extravagant work of architecture. Dammam is largely a bedroom community for tens of thousands of Saudi Aramco employees—a drab sea of cinder blocks along the Persian Gulf that features little in the way of a city center and essentially no cultural amenities. Snøhetta's challenge was to incorporate, under one roof, a series of institutions that in most cities would occupy landmark structures in their own right. Ithra has all the ambiguity of a presidential library, many of the functions of a college campus, and possibly no real precedent.

Snøhetta also had to invent, or at least reinvent, the notion of public space. Public institutions in Saudi Arabia have grown especially scarce since 1979, when the kingdom turned to a socially conservative version of Wahhabism. The country's most notable museums are Riyadh's National Museum and the Masmak Fort, the now-restored historic site that Ibn Saud captured in 1902, establishing what would become the Saudi dynasty. Much of Saudi social life, at least among wealthier classes, takes place in private, behind the walls of lavish residential compounds. Ithra aspires to change that dynamic, championing the sort of cultural creativity and innovation that has long been frowned upon in conservative Saudi society.

Stones in a Zen Garden

I visited Ithra on an uncharacteristically mild, rainy day in November, when the building's grayish exterior nearly blended in with the sky. The design of the complex, like that of the Oslo Opera House, draws loosely on geology—a cross between programmatic design and abstraction, with echoes of Zaha Hadid's fondness for curves and Daniel Libeskind, FAIA's fondness for clashing geometries. Comprised of six buildings, the tallest rising to 18 stories, Ithra is meant to resemble a pile of stones smoothed by desert winds and arranged organically yet harmoniously, as if in a Zen garden. No two views of the center are exactly alike; only the central “Knowledge Tower” is visible from all angles. Each of the “stones” is clad in over 200 miles of pipes—4-inch metal tubes that cover nearly the entire exterior and also some interior ceilings and walls. The symbolism is obvious.

Ithra's interior organization, on the other hand, follows an appealing contrivance: that of past (below grade), present (at grade), and future (above grade). As with oil drilling, most of the action takes place underground. The main entrance is a tunnel that extends horizontally some 65 feet down before opening up into the complex's centerpiece, the Great Hall. The hall feels and functions like an airport concourse, with



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appendages extending at odd angles, suggesting the potential for adventure around every corner. It is vast enough to feel like an outdoor space, with concrete pillars rising like trees and concrete walls that are artificially weathered to resemble rammed earth, one of the only durable building materials in pre-modern Saudi Arabia. The hall may eventually become one of the kingdom's great public spaces, on par with its indoor shopping malls, with throngs of visitors crisscrossing it en route to performances or exhibitions. But midmorning on a Tuesday, when I visited, the crowd was sparse—mostly mothers and their toddlers visiting the children's wing of the museum.

The five main public components of Ithra—the museum, library, conference center, cinema, and performing arts hall—draw on different stylistic tropes, each clean and modern, but varied enough not to feel monotonous. The convention hall is the simplest but most self-consciously spectacular space. A roughly pillow-shaped structure, its domed ceiling spans a multipurpose space for banquets, lectures, and the like. Perforated copper siding covers the walls and ceiling; backlighting creates a celestial effect that makes the entire room feel like a planetarium.

The library—futuristically clad in bone-white paneling—sits directly above the Great Hall; visitors access it by escalator, to dramatic effect. The library's three levels surround an atrium that overlooks the hall, an effect reminiscent of the Guggenheim Museum in New York (and of Snøhetta's new Calgary Central Library). Designed to hold 200,000 volumes, the library was, at least when I visited, far from fully stocked.

The most breathtaking part of Ithra may well be the proscenium-style performing arts space, if only for its existence in a country where live performances are as rare as churches. Three semicircular balconies hang over the orchestra section of the theater, giving it the feel of a diminutive opera house. The cinema, in contrast with the theater's crimson color scheme, takes a jauntier turn: Its multicolored seats look like they were plucked out of a bag of tropical Skittles.

The most formless of Ithra's major components, meanwhile, is the museum. Located entirely below grade, it descends three levels, each level going progressively further back in time—contemporary art, then historical decorative arts and artifacts, and finally natural history displays, including animated projections that turn entire rooms into habitats for primordial beasts. The museum surrounds an atrium that is Ithra's most explicit, if disturbing, homage to petroleum. The floor of the atrium is tiled in black and features a replica of the rigging for the original Prosperity Well—a display that resembles a dystopian set from a *Mad Max* film.

Ithra, of course, is an ode to innovation as much as anything else, and that's reflected most clearly in the "Do Tank," an egg-shaped space that will host students and entrepreneurs who are developing everything from business plans to gadgets. Groups will present their products in a small lecture hall and can develop them in a lab with 3D printers. From there, capitalism presumably runs its course (as long as the entrepreneurs in question are men). Ithra expects to host 2,000 workshops, seminars, and brainstorming sessions each year, but the Do Tank remained unused when I visited.

A Celebration or a Mea Culpa?

Aesthetically, Ithra rivals recent showpieces constructed in the Gulf region, including I.M. Pei, FAIA's Museum of Islamic Art in Doha, Rem Koolhaas, HON. FAIA's Qatar National Library, and Jean Nouvel, HON. FAIA's Louvre Abu Dhabi. Many of those projects take cues—however distant—from regional traditions or principles of Islamic architecture, or they reflect their respective architect's idiosyncrasies. Ithra, however, looks self-consciously novel and organic, as if designed by the hand of nature itself. When carried to its ultimate conclusion, the center aims to put Saudi Aramco out of business—by inspiring Saudis to embrace an economy based on innovation rather than extraction. It's a tall order, especially for a building.

Any exhilaration the project inspires must be tempered by the knowledge that Saudi Arabia's social strictures still hang over the country like a veil. The center's niceties—gift shops, screening rooms, and the promise of a knowledge-based economy—stand in sharp contrast to the kingdom's reputation for human rights abuses. Are the center's stylistic flourishes a celebration or a mea culpa? As with many things in the kingdom these days, it is probably both and neither. The Saudis have, for years, acknowledged the risks of an economic monoculture based on oil as well as the environmental risks of carbon emissions. The kingdom's "2030 Vision" for economic development promises openness and seeks international business collaborations. Likewise, Crown Prince Mohammad bin Salman has liberalized aspects of Saudi society, lifting bans on movie theaters and, most famously, on women driving. And yet, as the murder of the dissident journalist Jamal Khashoggi reminded us, the kingdom remains an autocracy that tends to trample on civil rights. That includes, of course, the right to assemble.

Ithra is not necessarily a symbol of the Saudi government or the royal family. Notably, it is located on property owned by Saudi Aramco, which may be a state-owned enterprise but is a cosmopolitan one, operating with the efficiency of any other multinational

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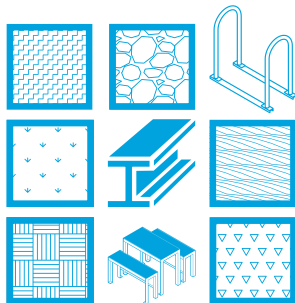


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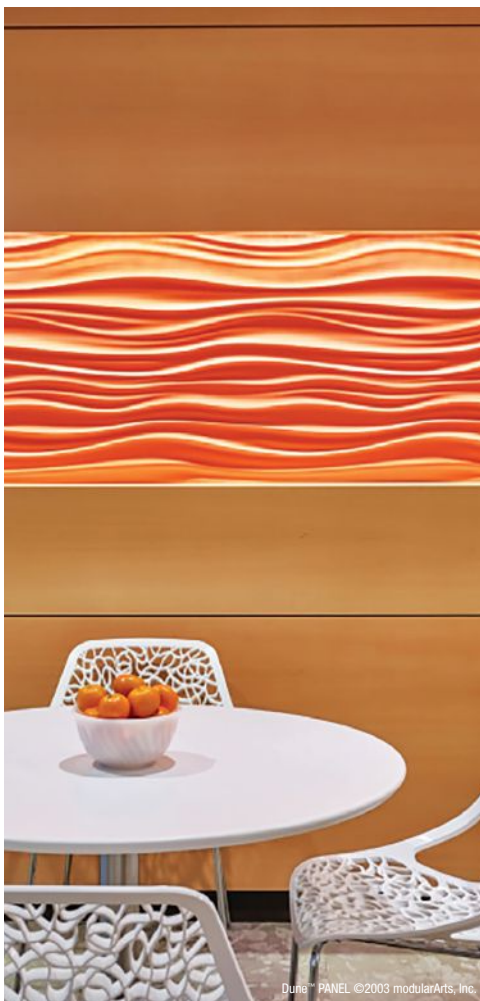


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The escalator
from the Great
Hall to the library

juggernaut. Aramco can give the “gift” of Ithra to the Saudi people without the government sanctioning its contents and programming in their entirety.

Which brings us to Snøhetta, which undoubtedly earned a tidy fee for the project (the firm declined to comment for this article). It is hardly the first studio to work for a repressive regime: Zaha Hadid Architects, Adrian Smith + Gordon Gill Architecture, and Henning Larsen all have active projects in Saudi Arabia. But none of those commissions—metro stations, office towers, and the like—relate as directly to Saudi Arabia’s public image. Ithra clearly projects a progressive vision that the government can strategically tout. It celebrates all the right things: assembly, free speech, history, and cosmopolitanism. The question is whether Ithra will serve as a catalyst to promote these values or whether it will serve as a diversion. As impressive as Ithra is, it is still a bauble. As welcoming as Ithra is, it is still a barbed-wire-ringed compound. As cosmopolitan as Ithra is, it is still a tourist attraction in a country that does not admit tourists.

Ithra, then, represents a true test of architecture’s ability to promote social change. As one of the only venues for (relatively) free thinking in the kingdom, it will either help inspire a nationwide movement for more open minds, or it will help burnish the kingdom’s reputation while atrocities persist behind closed doors. Either way, two things seem certain in the short term: the oil pumpjacks will keep pumping in Saudi Arabia, and the glaciers will keep melting in Norway.

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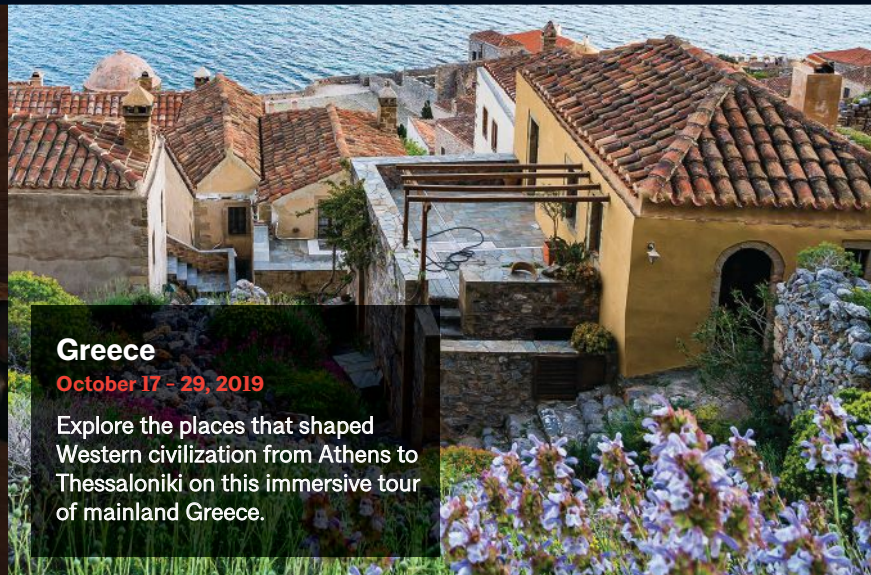


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Photo ARCHEA ©Antinori/Savorelli



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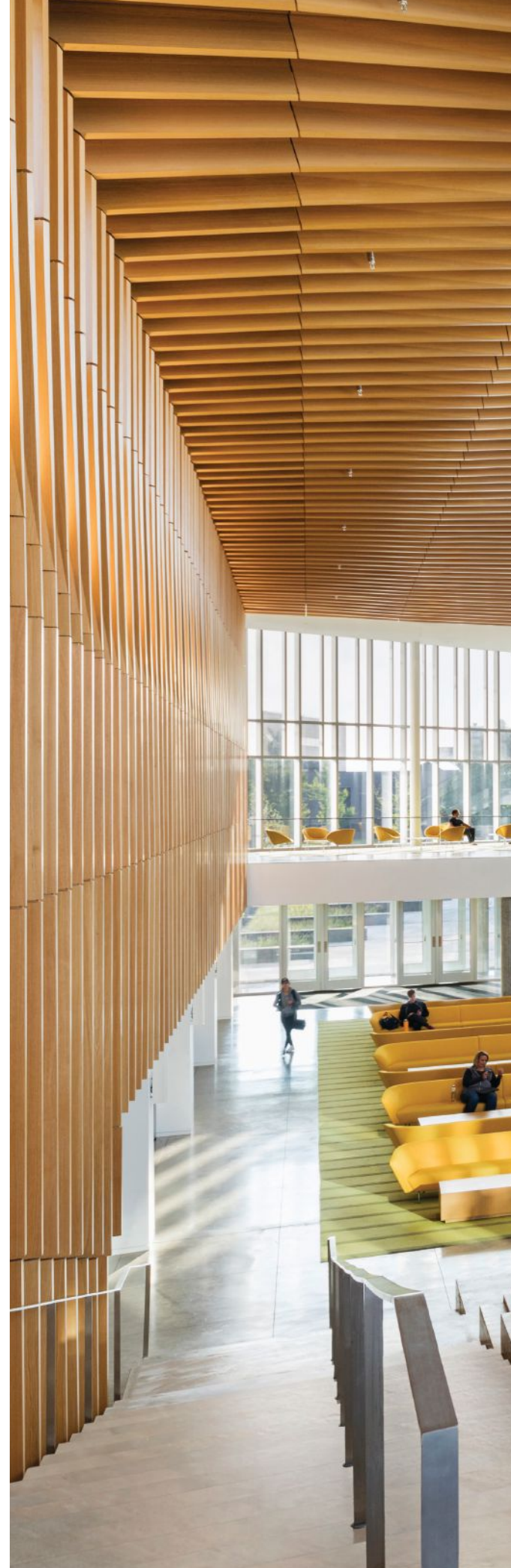
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**Cornell University College of
Veterinary Medicine
Ithaca, N.Y.
Weiss/Manfredi Architecture/
Landscape/Urbanism**

A new gateway brings architectural clarity, and much-needed gathering space, to this veterinary school campus.

TEXT BY IAN VOLNER
PHOTOS BY ALBERT VECERKA/ESTO







A smiling professional appears and informs you that your Labrador is fine and probably just ate some tinsel. You might thank them—or activated charcoal—but you might also thank a small ring of buildings on the outskirts of Ithaca, N.Y., where the Cornell University College of Veterinary Medicine (CVM) has been responsible for educating more specialists and developing more innovations than any of its peer institutions. The school's influence is nearly ubiquitous. "It's really the premier program of its kind. ... They've even been helping the Chinese government," says Weiss/Manfredi design partner Marion Weiss, FAIA, referring to the school's multiple initiatives abroad, including a new quasi-affiliate in Hong Kong.

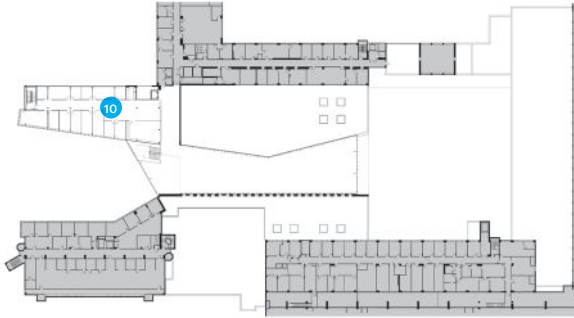
Until now, the department has not had the most charming of digs, with students, doctors, and teachers being squirreled away (so to speak) in an unwelcoming compound on the university's eastern side. Now, thanks to Weiss and partner Michael Manfredi, FAIA, the CVM finally boasts a physical presence commensurate with its international prestige.

The subcampus includes facilities for research, students, and doctors. The problem until now, Manfredi says, is that "there was no place for those three worlds to combine." The warren of structures that had accumulated over a half-century afforded no

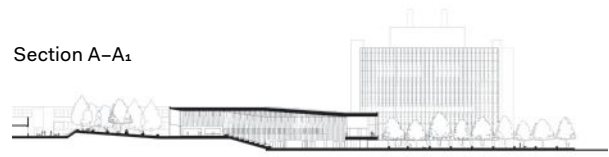
common area that could knit the various parts into a cogent whole. To create one, Weiss/Manfredi cut into the compound on its western side, inserting an oblong volume fronted by a landscaped entryway; the structure rises slightly to face another courtyard in the rear. Along the building's central axis, the designers created an airy atrium that acts as both a lounge and a connector, its interior lined in ribbed wood and with a custom carpet whose vivid green mimics the exterior forecourt. "It's like having a year-round garden," Weiss says—a key asset in a city where winter lasts for nearly the entire academic year.

Along the atrium's flanks are a suite of amenities that include a cafeteria, a flexible classroom/amphitheater, and a library; these complement additional interventions, among them the recladding of an existing high-rise to match the new structure. The result is a visually coherent gateway to the veterinary compound and a quietly monumental endpoint to Tower Road, the major east-west corridor between Cornell's historic Arts Quad and its growing technical and research satellites. For the animal saviors of tomorrow, so long accustomed to dark and dreary environs, the renovation is a welcome change, creating order out of the architectural chaos. As Manfredi puts it, "We cut the Gordian knot."

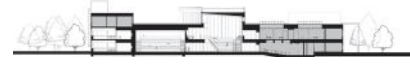
Third-Floor Plan



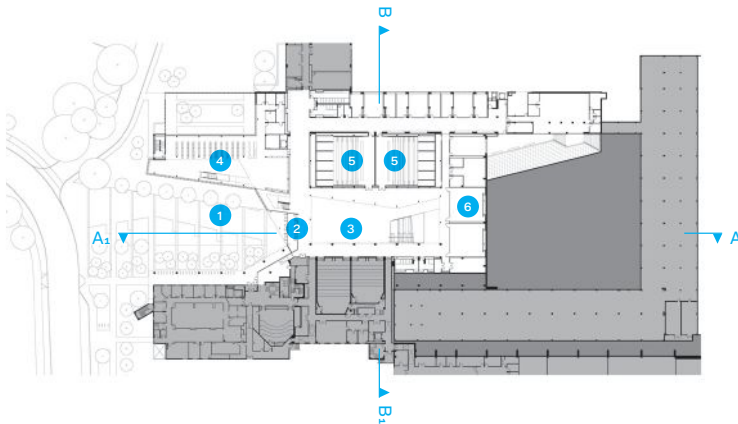
Section A-A₁



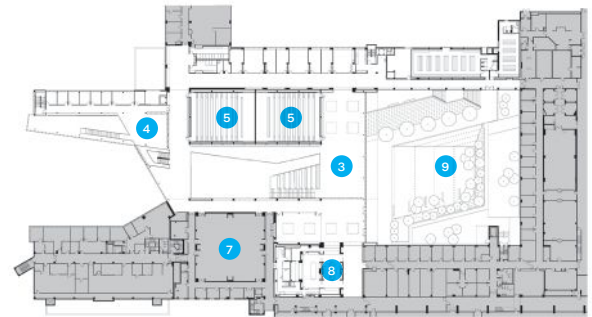
Section B-B₁



Ground-Floor Plan



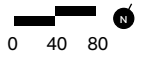
Second-Floor Plan



- 1. Entry Plaza
- 2. Entrance
- 3. Central gallery
- 4. Library
- 5. Lecture hall
- 6. Classroom
- 7. Dry lab
- 8. Servery
- 9. Courtyard
- 10. Dean's suite

Previous Spread: Wood-lined central gallery, looking west toward entry plaza

Opposite: Landscaped courtyard







Opposite: Central gallery, with view to landscaped courtyard outside east entrance

Top: Library

Above: Lecture hall

Project Credits

Project: Cornell University College of Veterinary Medicine, Ithaca, N.Y.

Client: Cornell University

Architect/Site Design: Weiss/Manfredi Architecture/Landscape/Urbanism, New York · Michael A. Manfredi, FAIA, Marion Weiss, FAIA (design partners); Clifton Balch (project manager); Matthew G. Ferraro, ASSOC. AIA, (senior project architect); Michael Steiner, AIA (project architect); Noah Z. Levy, Lee Lim, Johnny Lin, AIA, Joe Littrell, Charles Wahl, AIA (project team); Christopher Ballentine, Michael Blasberg, Ann Charleston, ASSOC. AIA, Claire Edelen, Melaney Gorman (additional team members)

Interior Designer/Landscape Architect: Weiss/Manfredi Architecture/Landscape/Urbanism

M/E/P Engineer: Altieri Sebor Wieber

Structural Engineer: Silman

Civil Engineer: T.G. Miller

Geotechnical Engineer: SJB Services; Empire Geo Services

Construction Manager as Agent: Whiting-Turner Contracting Co.

General Contractor: Welliver

Lighting Designer: Brandston Partnership

Laboratory Consultant: Jacobs Consultancy

Curtainwall Consultant: Heintges

Consulting Architects & Engineers

Acoustical/AV Consultant: Shen Milsom & Wilke

Sustainability/LEED Consultant: Atelier Ten

Cost Estimator: Dharam Consulting

Food Service Consultant: Davella Studios

Code: Code Consultants

Hazmat: Watts Architecture & Engineering

Vertical Transportation: Jaros Baum & Bolles

Size: 117,000 square feet (67,000-square-

foot expansion, 50,000-square-foot

renovation)

Cost: Withheld



New west entrance, with landscaped plaza



COLLEGE OF VETERINARY MEDICINE
606 TOWER ROAD

**Beaver Country Day School Research + Design Center
Chestnut Hill, Mass.
NADAAA**



A nontraditional library addition brings research, fabrication, and study space to middle and high schoolers outside Boston.

INTERVIEW BY KATIE GERFEN
PHOTOS BY JOHN HORNER



Tell me about the Beaver Country Day School campus. What was your design responding to?

Katherine Faulkner, AIA, principal-in-charge: The campus has been added to maybe four times since the 1920s. The structure that we were focusing on was a 1960s concrete-frame library, which really sticks out as a modern Brutalist building in a field of iterative Georgian additions. The school had done a master plan, called “the ring of knowledge,” that was all about bringing their campus up to accessible standards, and that was very much the genesis of this project: How do we line up and connect all of the buildings so that one person can get to every corner of the campus without going outside? The school has also really made a name for itself among middle and high schools that have embraced technology. This addition was going to be a library, but one rebranded into a research and design center. It’s got a strong fabrication component, and its notion of how a library is used is really quite different from any library addition we’ve ever done.

Nader Tehrani, design principal: There is a connection between the physical distribution of spaces in the addition and pedagogical model the school is working with. They eliminated what you would traditionally call the front door to the library and the insularity of a reading room, and the new ring that connects the auditorium wing, the arts wing, the fabrication wing, and the science wing flows around a courtyard. Essentially the library as we would know it has been exploded around this ring in its entirety and encompassed that continuity of space. The library is seen as a lively space where people come to learn how to do their work, to collaborate, and to make things.

Tell me about the character of the spaces you designed.

Tehrani: We added one floor at the very top of the existing library structure, and the rest of the project is about carving out existing conditions and elongating them because of the way it wraps around the courtyard. Spatial typologies that would otherwise be cut up into rooms were attenuated into these long stringy conditions of stairs and ramps. Along that journey you get study carrels and bleachers, and things like that.

Faulkner: The great thing about this client and their method of teaching is the idea that you can take these spaces along the path and program them so that there are small and medium rooms for meeting, and larger classroom spaces—all occurring along what is essentially a ramp that allows an accessible route.

The school’s idea of precedent for the space was looking at how people are working these days. What

are the kinds of spaces where people go when you are not in the classroom, or on the ballfield, or in the lunchroom? Where is the space that you go to do your project work or to meet with your teacher?

At the center of it all is the courtyard. How did you approach the design for that space?

Tehrani: The courtyard was a collaboration with landscape architect Gary Hilderbrand, and there was an intended dialogue between a bosque of birch trees that he had conceived of in the courtyard and the façades. We went through many different iterations of timber cladding elements—they became thinner, and thinner, and then they became louvers. You’re seeing one iteration out of several that we drew in order to accentuate the kind of dynamism of the circulation as you walk around this building in different directions, but also the way the birch trees wave in the wind.

Faulkner: It’s a funny space, that courtyard, because they always had it. It wasn’t fully enclosed, but it was this really charming space that existed between the buildings with no obvious way to get to it. As we began to develop the architecture around it and this circulation, which would constantly have you confronting it—either coming down the gallery stairs as you look north or looking south from the fabrication space, it became clear how central it would be.

What was your materials strategy for the interior?

Faulkner: The interior is very bare because, certainly for the first-floor fabrication level, the idea is that it’s a workshop. We used Baltic birch plywood upstairs, and we spent a lot of time with [acoustical engineer] Acentech aurally modeling the space, figuring out what could be hard and reverberative, what needed to be soft and absorptive. Our palate always tends toward the natural because you can do a lot with that.

Tehrani: Schools are like public spaces. They’re designed to get beaten up and battered, and our general philosophy toward concrete, fabrics, and plywood is that they’re going to get a lot of wear and tear. The plywood is well-crafted, but it’s a raw detail, and it doesn’t matter if it gets beaten up a little bit because it adds to its patina.

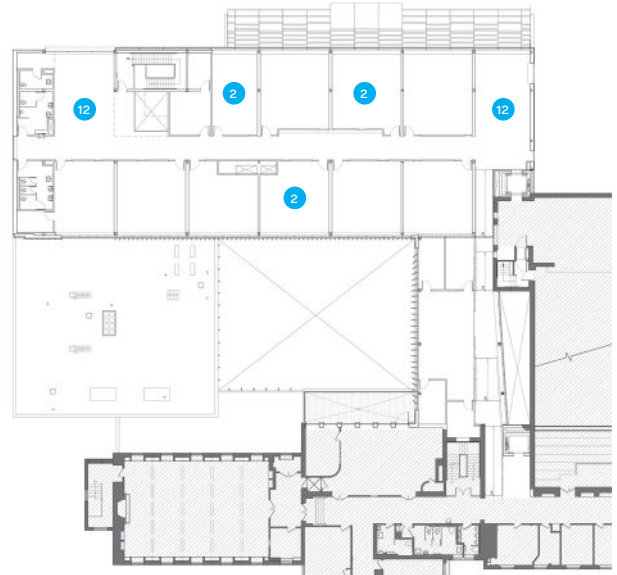
Overall, this project also became an exercise about articulating and framing a didactic space of teaching and learning with certain details that trigger in the students’ minds that something in architecture is happening here. It’s not business as usual.

This interview was edited for length and clarity.

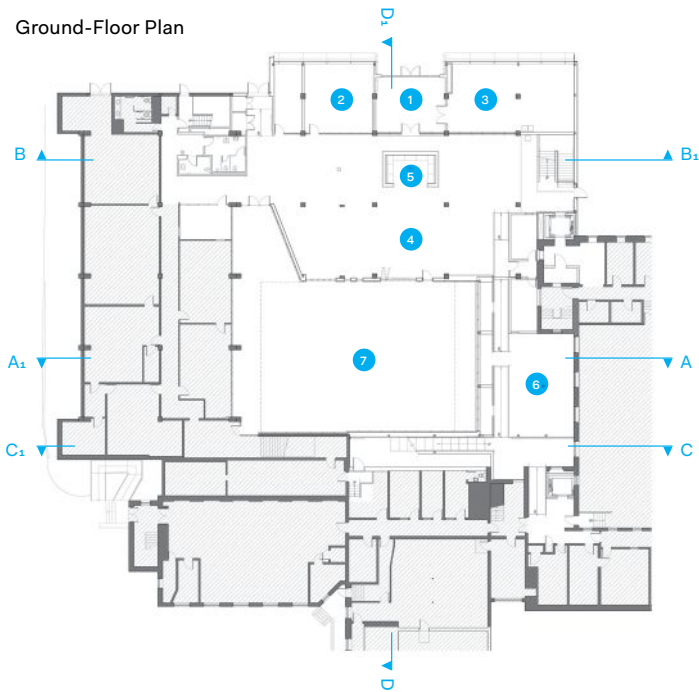
Second-Floor Plan



Third-Floor Plan



Ground-Floor Plan



Previous Spread: In the north-facing research workspace on the second floor, the architects exposed the existing waffle slab ceiling.



- 1. Entrance
- 2. Classroom
- 3. Workshop
- 4. Studio
- 5. Huddle space
- 6. Library stacks
- 7. Courtyard
- 8. Research workspace
- 9. Librarian's office
- 10. Study carrels
- 11. Gallery
- 12. Lounge





A flexible first-floor amphitheater blends the functions of a library, study room, corridor, and gathering space. Baltic birch plywood furniture provides book storage, study carrels, and lounge seating.

Section A-A₁

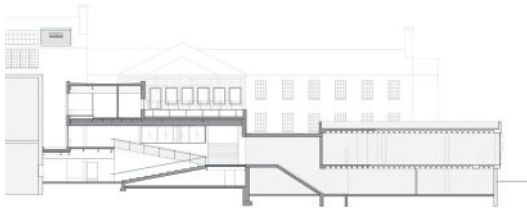


NADAAA added a third floor to the existing library structure to accommodate 10 classrooms and additional breakout space. A light well connects the new level to the research floor below.

Section B-B₁

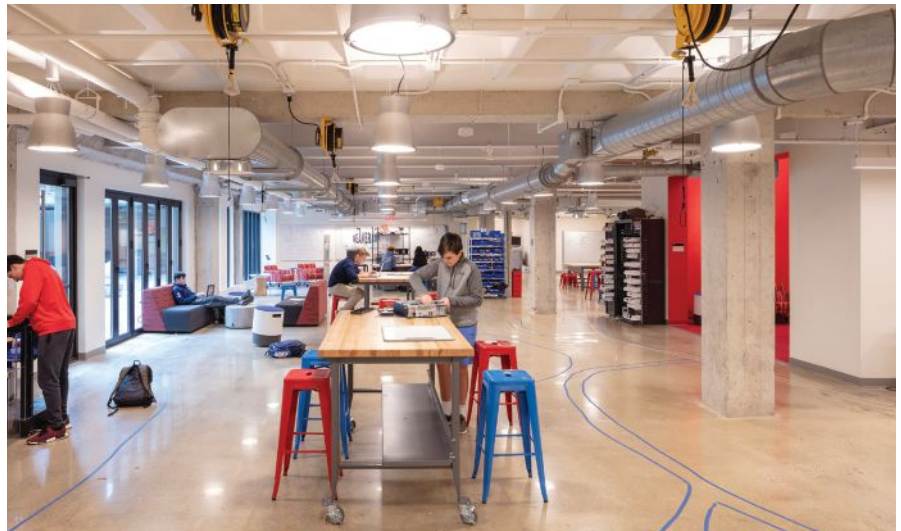


Section C-C₁



A series of ramps wrap the courtyard to connect the new construction to existing and renovated spaces in the surrounding buildings. With the addition of the ramps, students and faculty can navigate the entire complex without needing to go outdoors.

Section D-D₁



The first-floor research and development space contains a fabrication shop and robotics lab. A red double-height huddle space (at right) punches through to the research level above (seen on the opening spread).

Project Credits

Project: Beaver Research + Design Center, Chestnut Hill, Mass.

Client: Beaver Country Day School

Architect/Interior Designer: NADAAA, Boston · Katherine Faulkner, AIA (principal-in-charge); Nader Tehrani (design principal); Arthur Chang, AIA (project manager); Gretchen Neeley (project coordinator); Jin Kyu Lee, Thomas Tait, Tim Wong, AIA (project team)

M/E/P Engineer: AGA Consulting Engineers

Structural Engineer: Souza, True and Partners

Civil Engineer: Nitsch Engineering

Geotechnical Engineer: McPhail Associates

General Contractor: Erland Construction

Landscape Architect: Reed Hilderbrand Associates

Lighting Designer: LAM Partners

Envelope Consultant: Studio NYL

MAAB Updates Contractor: C&L General Contractors

Acoustical/A/V/I.T. Engineer: Acentech

Owner's Representative: Ron Axelrod

Accessibility/Code Consultant: Hastings Consulting

Signage: Whitney Veigas

Size: 39,700 square feet

Cost: Withheld



On the new north façade, a sloping glass curtainwall—its chevron profile determined by the addition of a third floor—admits diffuse light to the interior and preserves the view of an adjacent cemetery.



An existing central courtyard (now enclosed by the new addition) is lined in a rainscreen clad in wood-grained FunderMax phenolic panels. The panels were oriented to minimize solar gain, and to signal the pattern of movement along the programmed interior ramps.





**University of Miami School of Architecture
Thomas P. Murphy Design Studio Building
Coral Gables, Fla.
Arquitectonica**



A new studio building in Florida
nods to the existing campus while
creating an open environment for
architecture students.

TEXT BY CLAY RISEN
PHOTOS BY ROBIN HILL



For decades, the heart of the University of Miami School of Architecture has been a row of long, thin buildings on the southern shore of Lake Osceola. Designed after World War II by Marion Manley—one of Florida’s first licensed women architects—to serve as dormitories for returning soldiers, the buildings were later adapted to include offices, classrooms, and studios. But because they began life as a residential facility, they are shot through with structural columns and load-bearing walls, constraining the sort of open, flexible spaces that today’s architectural education requires.

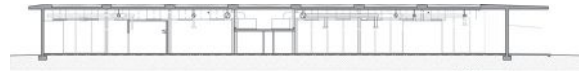
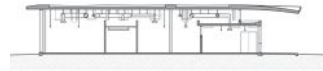
Enter Miami-based firm Arquitectonica, with a brief from the university to create a new studio building—this time with expansive flexible spaces to accommodate classes, lectures, and crits. But the result is more than just an open-plan box: A low-slung, 20,000-square-foot shed made almost entirely of raw concrete, the Thomas P. Murphy Design Studio Building is both a striking marker on the architecture campus and a teaching tool for the classes within.

Internally, the studio is defined by a rigid, 25-foot grid with minimal internal supports, which can accommodate a variety of desk and class configurations. Outside, it is defined by a curvy concrete cantilever—what Raymond Fort, ASSOC. AIA, the partner-in-charge of the project (and son of Arquitectonica founders Bernardo Fort-Brescia, FAIA, and Laurinda Spear, FAIA) calls the “oversized eyebrow” of the building—which provides both passive cooling and an overhang to accommodate outdoor events and classes.

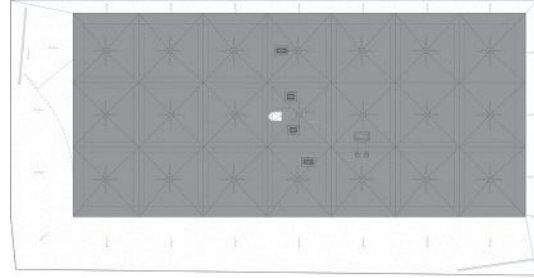
Despite the new building’s expressive curves, it also includes a nod to the original Manley structures. The structure is 25 feet wide and about 175 feet long, the same overall dimensions as the Manley buildings. “So we basically took a bunch of those buildings and pushed them together,” Fort says.

As a pedagogical tool, the building offers a series of ready-made lessons for students. To demonstrate structure, the 18-foot-tall ceiling is supported by thin steel columns, leaving the interior almost completely open save for a concrete core that holds the mechanical, electrical, and plumbing systems. Permanent internal walls stop short of the ceiling to show they are not load bearing. To define space elsewhere, for crits or lectures, for example, the architects turned to retractable red curtains that pull double duty as sound barriers.

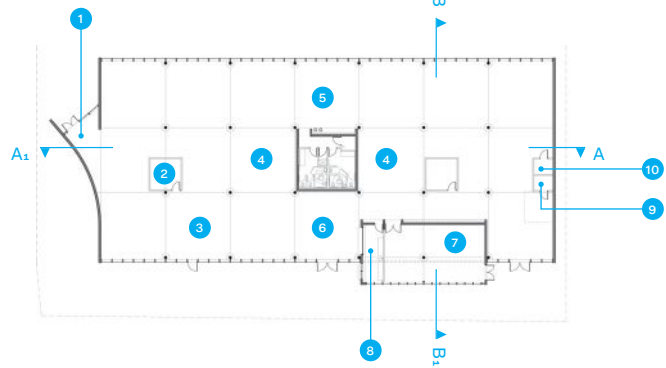
By working almost exclusively in concrete, Fort and his team turned the building into a master class in the use of a single material—the floors, ceiling, and several walls are concrete, as are the countertops. “We tried to show how that material—how any material—can be used in many ways,” he says. “It doesn’t have to have a singular purpose.”

Section A–A₁Section B–B₁

Roof Plan



Floor Plan



1. Entrance
2. Faculty office
3. Open studio
4. Presentation area
5. Print/plot station
6. Lounge
7. Digital fabrication lab
8. Café
9. Electrical
10. I.T. room





Previous Spread: West façade with curved concrete wall concealing entry

Top: Northwest corner, showing western entrance and glazed north façade

Above: South façade



Red curtains that double as sound baffles separate presentation areas from the open studio.



A portion of the studio space on the north side of the building is devoted to a printing and plotting station.



Lounge furniture lies between the west entrance (foreground) and a faculty office (at center)—one of very few enclosed areas on the studio floor

**Project Credits**

Project: University of Miami School of Architecture Thomas P. Murphy Design Studio Building, Coral Gables, Fla.

Client: University of Miami

Architect: Arquitectonica, Miami · Bernardo Fort-Brescia, FAIA; Raymond Fort, ASSOC. AIA; Sherri Gutierrez, AIA (architect of record); Alfonso Jurado, AIA; Rafael Guissarri, AIA

Interior Designer: ArquitectonicaInteriors and University of Miami Interior Design, Office of the University Architect

M/E/P Engineer: Stantec

Structural Engineer: Garcia Mullin Group

Civil Engineer: VSN

Geotechnical Engineer: NV5

Construction Manager/General Contractor: Coastal Construction

Landscape Architect: ArquitectonicaGEO

Lighting Designer: Miami Lighting Design Associates

Sustainability Consultant: SUMAC

Acoustical Consultant: Shen Milsom & Wilke

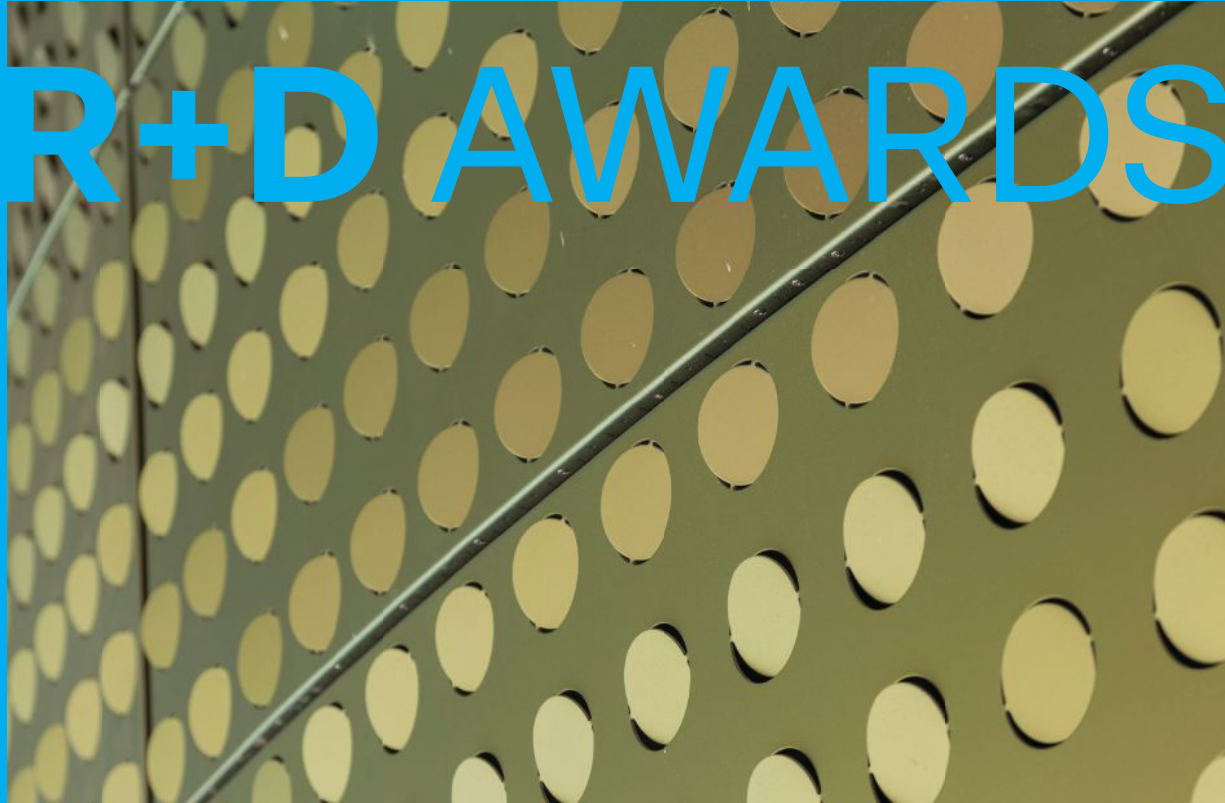
Size: 13,125 square feet

Cost: Withheld

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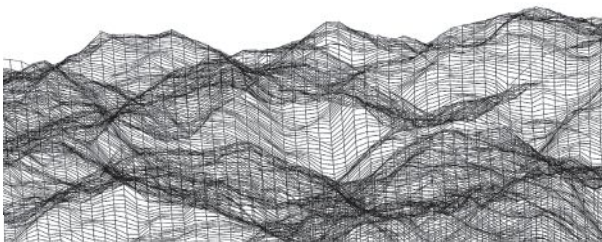
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Editorial: The “Architect” of the Capitol

Shouldn't it go without saying that the Architect of the Capitol needs to be an architect? But there it is, right in the job description: “Architectural training and licensure a plus.” Not a requirement, mind you. *A plus.*

The Architect of the Capitol, according to the official government website, is “the builder and steward of the landmark buildings and grounds of Capitol Hill.” The position holder is responsible for a federal agency of the same name, with some 2,000 employees, responsible for 18.4 million square feet of facilities, 570 acres of grounds, thousands of artworks, and, at present, more than a billion dollar backlog.

The job is a 10-year presidential appointment, subject to Senate advice and consent. Senator Roy Blunt of Missouri is leading a 14-member committee drawn from the leadership of both the House and the Senate, which will make recommendations to the president. Executive search firm JDG Associates is managing the process, and AIA is consulting.

The outgoing officeholder, Stephen Ayers, FAIA, announced his resignation last October, having received AIA's Thomas Jefferson Award for Public Architecture earlier in the year. During his tenure, Ayers oversaw the completion of the Capitol Visitor Center and the repair and restoration of the Capitol Dome and Rotunda, and his sustainability efforts led to a 30 percent reduction in energy consumption on the Hill. Engineer Christine Merdon, Ayers' chief operating officer, is now acting architect of the Capitol.

How attractive is the job? The broad scope of responsibilities, exemplified by the office's annual budget of some \$740 million, considerably narrows the pool of possible candidates, and the reported salary of \$172,500 will likely mean a step down financially for anyone with a suitable background. On top of that, whoever gets the nomination will also have to navigate the highly fractious climate in Washington, D.C.

How did Ayers pursue sustainability and resilience imperatives with politicians still debating whether to

acknowledge the scientific reality of climate change? It's not easy to hold an officially nonpartisan role working amid the most divided body in the land, with one's every move under scrutiny. In 2017, for instance, Ayers' office got drawn into a fight over a student contest-winning painting of a pig-like policeman shooting black protesters, inspired by the protests in Ferguson, Mo. A Democratic congressman and the artist sued the Architect of the Capitol for complying with then-Speaker Paul Ryan's demand to remove the artwork from exhibit in a Capitol hallway.

The hard-headed and hot-tempered need not apply. Not that that should be a problem: Successful architects learn early on how to balance vision and pragmatism, and how to steer prickly clients toward a positive outcome with diplomacy.

Money shouldn't be an issue either. How many architects do you know who are in it to get rich?

The Architect of the Capitol shouldn't be an architect simply because it's the right skill set. That's obvious. The job should go to an architect because architecture is more than a career. It's a calling. It's a lifelong pursuit for individuals who have a passion to serve society, preserve civilization, and build a brighter future. Capitol Hill can always use more people with those qualities.





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