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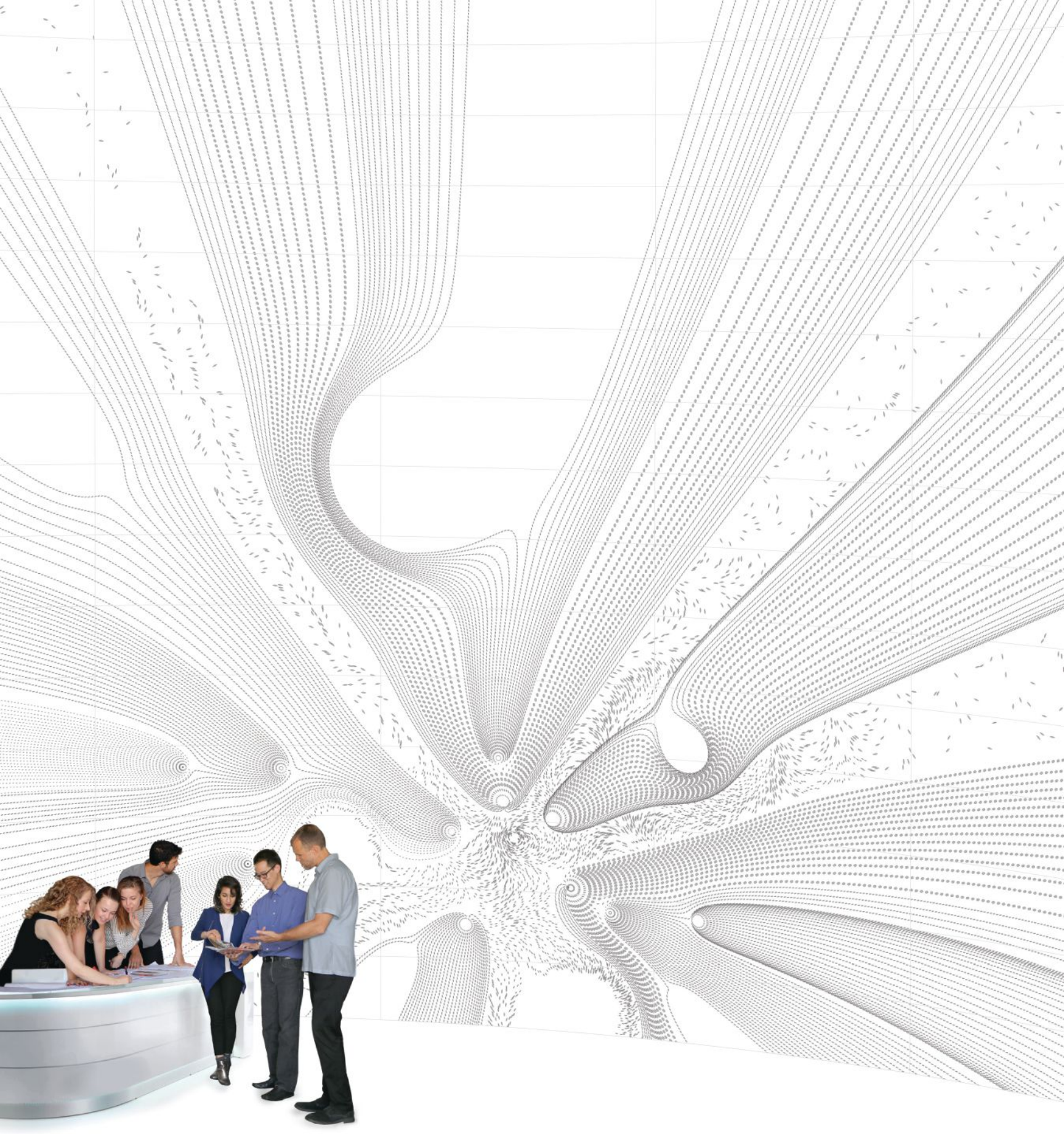

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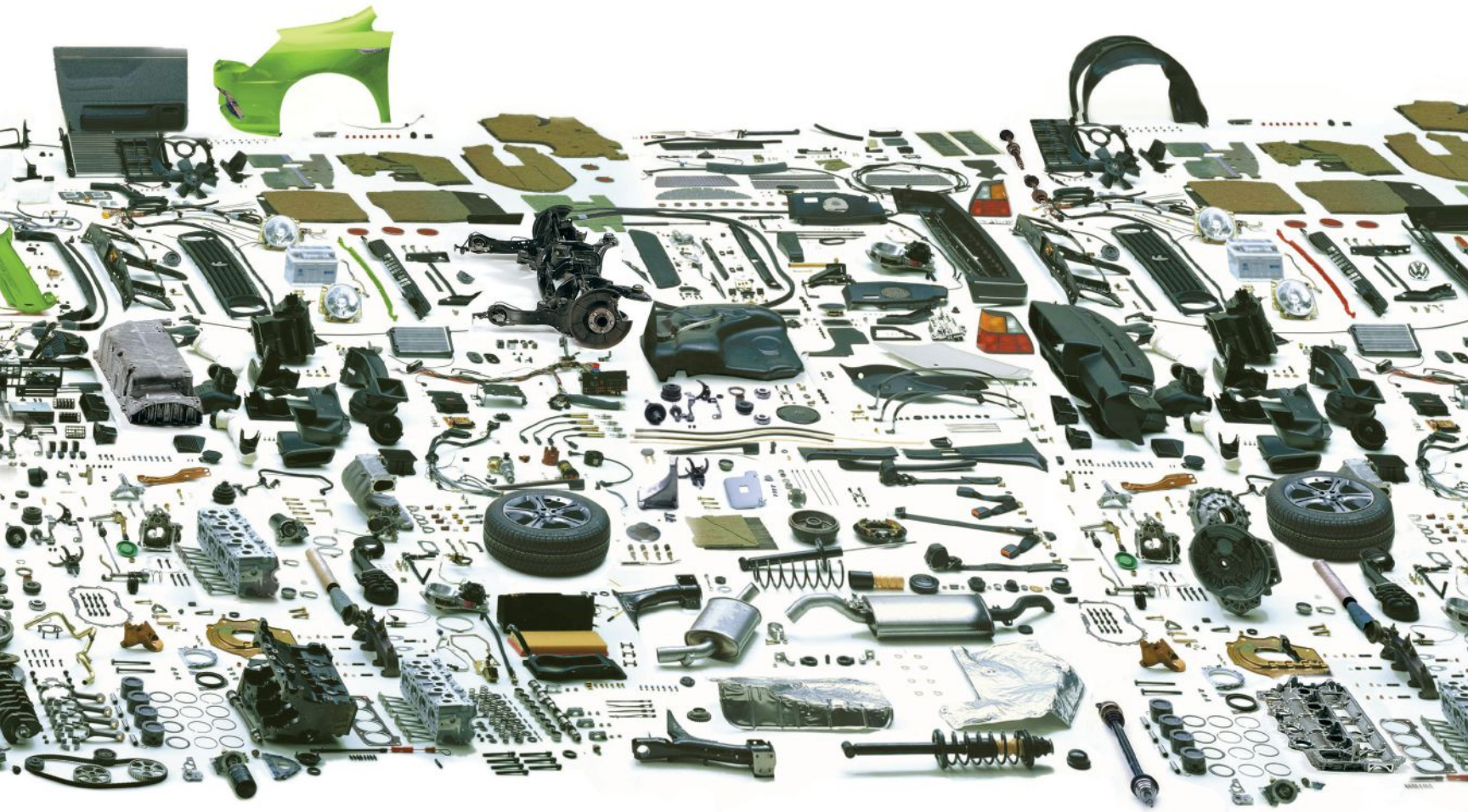

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Volume 105, number 11. November 2016.
On the cover: West Pavilion at the University of Cincinnati's Nippert Stadium by Architecture Research Office
photo by Jeremy Bittermann

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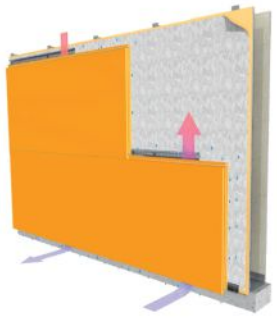

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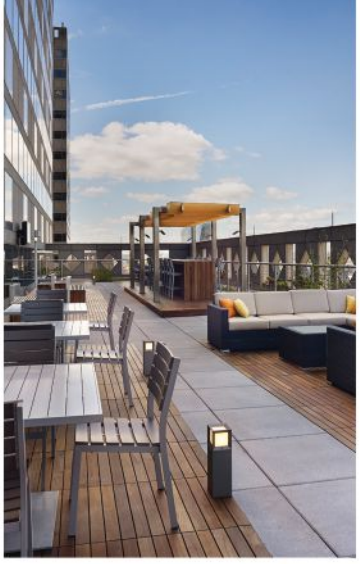

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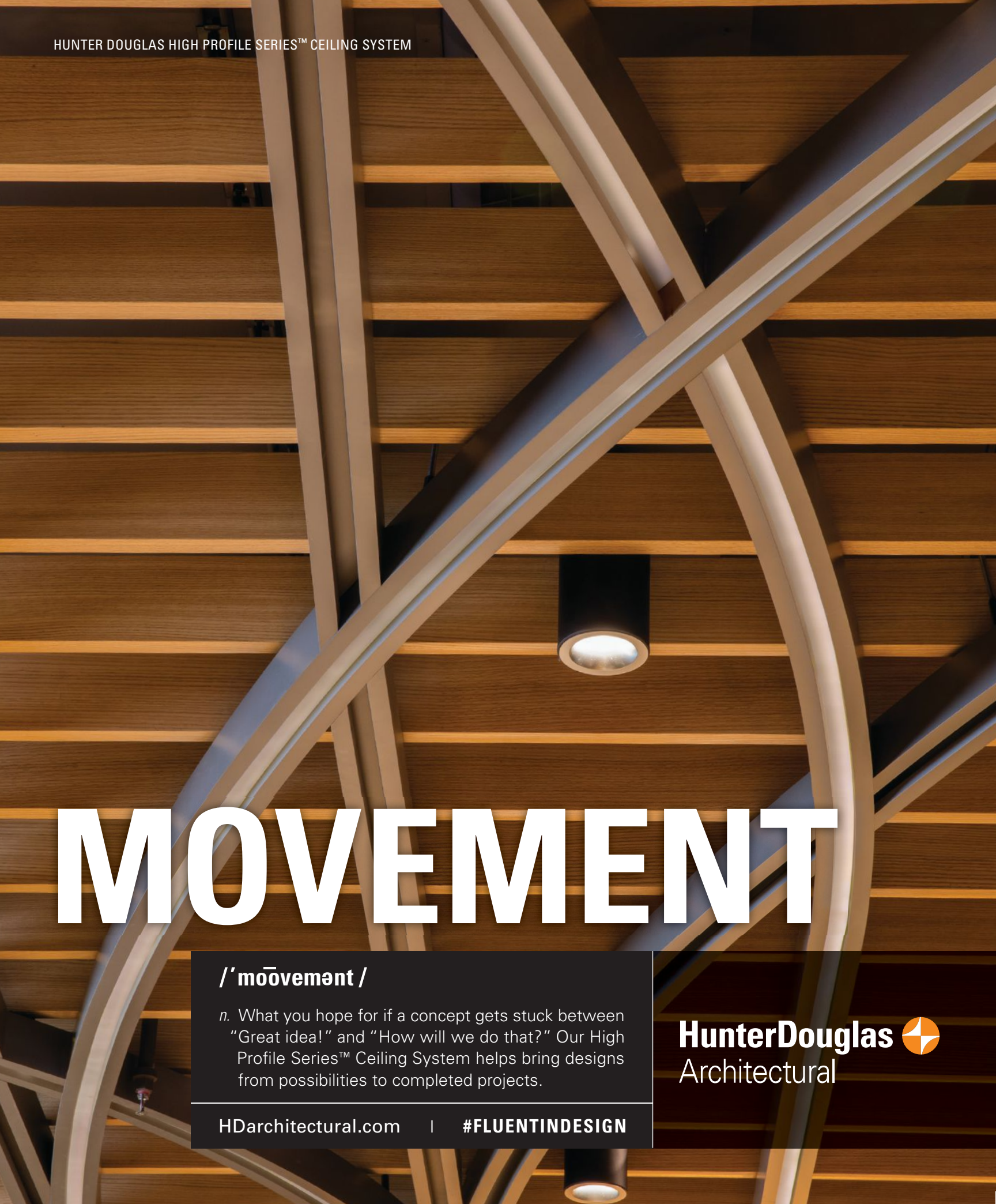
Islamic Worlds

Every three years, the Aga Khan Award for Architecture recognizes projects in places with substantial Muslim populations. The 2016 winners are: Marina Tabassum Architects' Bait Ur Rouf Mosque (above) in Dhaka, Bangladesh; Kashef Chowdhury/Urbana's Friendship Centre in Gaibandha, Bangladesh; ZAO/standardarchitecture's Hutong Children's Library & Art Centre in Beijing; Zaha Hadid Architects' Issam Fares Institute for Public Policy and International Affairs in Beirut; Bjarke Ingels Group's Superkilen in Copenhagen, Denmark; and Diba Tensile Architecture's Tabiat Pedestrian Bridge in Tehran, Iran. —SARA JOHNSON

> *For more information about the winners of the 2016 Aga Khan Award for Architecture, visit bit.ly/2016AgaKhanAward.*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COURTESY GARY HUSTWIT

The Workplace Gets a Digital Makeover

Best known for his Design Trilogy (*Helvetica*, *Objectified*, and *Urbanized*), Gary Hustwit uses film to recount the history of Modernism and modernity. The director's latest project, *Workplace*, debuted at this year's Venice Architecture Biennale and tracks the extraordinary history and inevitable evolution of a very ordinary setting: the modern workplace. The documentary follows Foster + Partners' creation of a new headquarters in New York for the fabled ad agency R/GA. The result is a digitally conscious open workspace, wired with 113 miles of data cable. —CHELSEA BLAHUT

> *Read more about Gary Hustwit's latest film at bit.ly/WorkplaceFilm.*

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The Dymaxion Forest

The Rainforest Solutions Project is the winner of the 2016 Buckminster Fuller Institute's Fuller Challenge, named after the late architect R. Buckminster Fuller. The project, now in its 20th year, has tackled problems related to deforestation, defense of indigenous rights, biodiversity loss, and climate change by setting legal standards for the logging industry and conducting a case study of British Columbia's Great Bear Rainforest. Headed by the nonprofit Tides Canada with environmental advocacy groups Greenpeace, Sierra Club BC, and Stand, the project will be awarded $100,000 for initial funding and upkeep. —SELIN ASHABOGLU

> *Read more about the Rainforest Solutions Project at bit.ly/2016FullerChallenge.*


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COURTESY THE MEDIATED MATTER GROUP

An Artificial House for Bees

The 2015–2016 season marked the second time that bee deaths in the summer—when the insects should be at their healthiest—were comparable to those in the winter. While a conventional apiary is outdoors, a synthetic indoor apiary developed by MIT's Mediated Matter research group showed promising results. Over three months, the 2,200-square-foot apiary was meticulously controlled, from the color of the room (all white) to relative humidity to temperature, and—after an acclimation period—the optimized conditions, bolstered by the lack of natural pathogens, led to a surge in bee population and productivity. —WANDA LAU

> *Read more about the Mediated Matter's apiary research at bit.ly/MITBees.*

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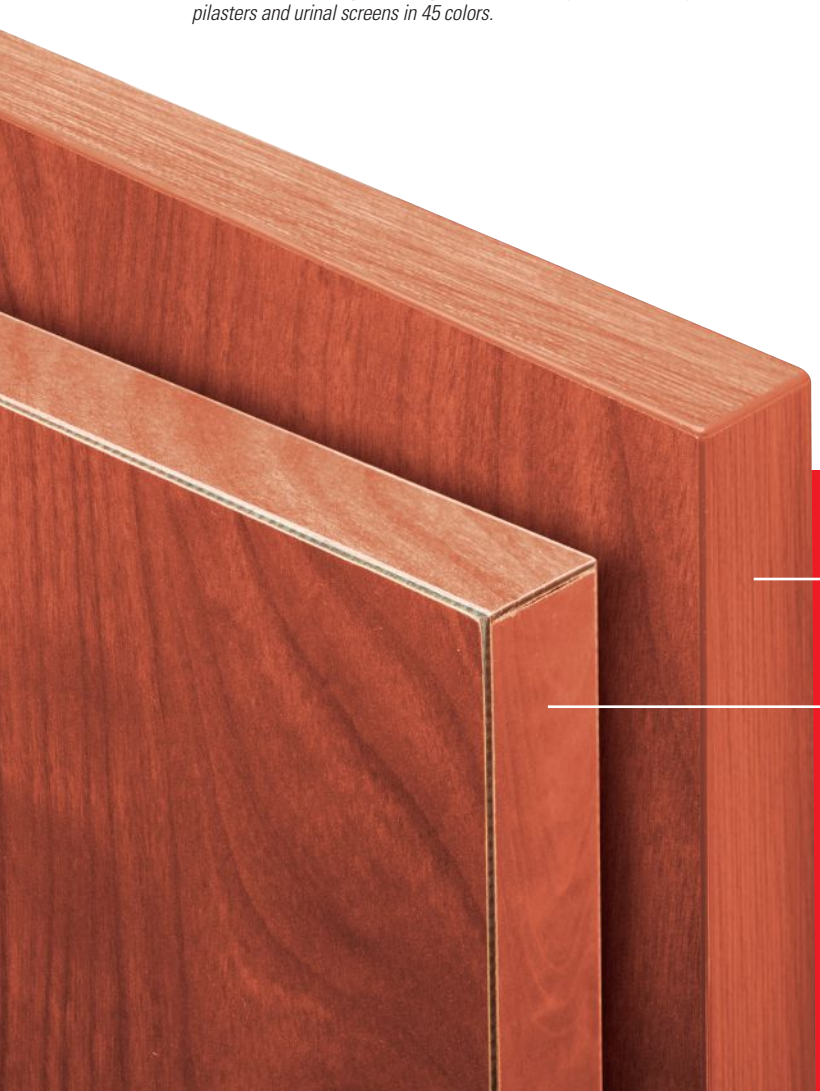

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Saving the Historic Barrio

Each year, the National Trust for Historic Preservation identifies historically and culturally significant areas around the U.S. that are at risk of disappearing, with an emphasis on urban areas in dire need of protection from the wrecking ball. This year's list of America's 11 Most Endangered Historic Places includes the vibrant downtown El Paso, Texas, neighborhoods of Chihuahuita and El Segundo Barrio (shown is a mural and the St. Ignatius Catholic Church in El Segundo Barrio). Known as the "Ellis Island of the Border," the area was settled at the time of the Civil War and has been molded by immigrants since the Mexican Revolution. —SELIN ASHABOGLU

> *Read about the rest of the 11 Most Endangered Historic Places at bit.ly/NTHPEndangered2016.*

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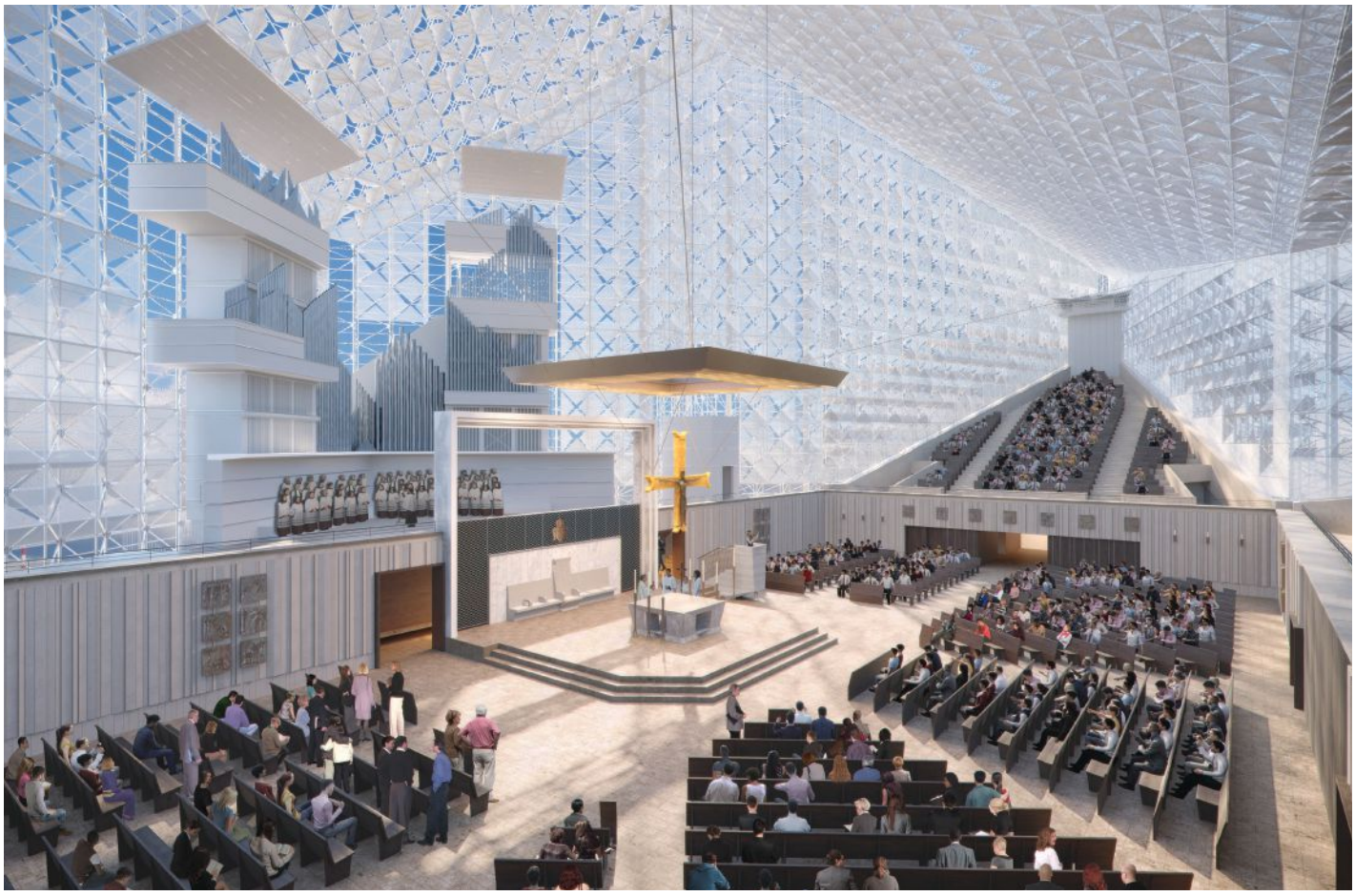

COURTESY JOHNSON FAIN

Church Swap

The Crystal Cathedral in Garden Grove, Calif., designed by Philip Johnson in 1980 for televangelist Robert H. Schuller, was both a destination for the faithful and a broadcasting studio for the pastor's weekly *Hour of Power* television show. But after Crystal Cathedral Ministries filed for bankruptcy in 2010, the 34-acre campus was sold to the Roman Catholic Diocese of Orange. The diocese tasked Los Angeles–based Johnson Fain to preserve and upgrade the exterior and reconfigure the interior to meet the needs of the new congregation. Construction begins this year, and the rededicated Christ Cathedral opens in 2019. —MIMI ZEIGER

> *Read Mimi Zeiger's full article on the Crystal Cathedral renovation at bit.ly/ChurchSwap.*

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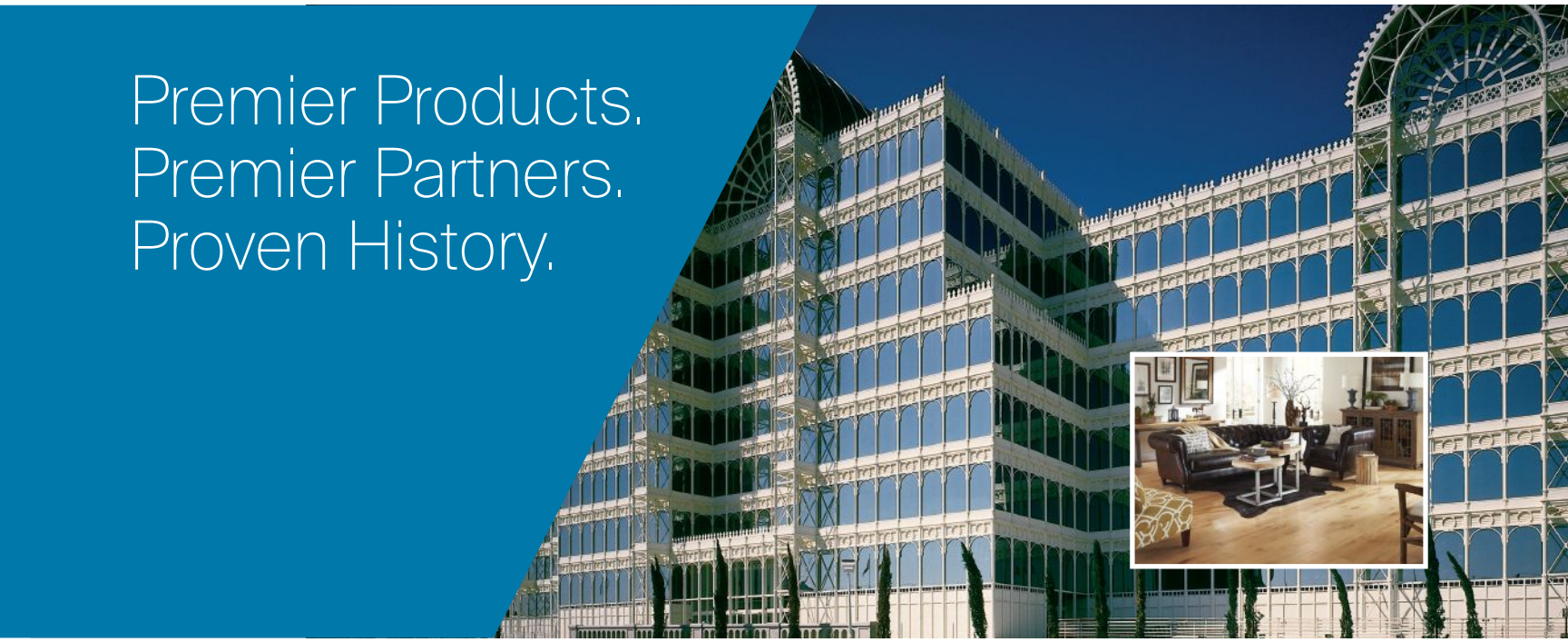

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LafargeHolcim Awards Silver 2014 – $50,000. The Dryline (BIG U) addresses the vulnerability to coastal flooding with a protective ribbon in Southern Manhattan. Embankments that add green areas and spaces beneath elevated roadways are built out with pavilions for public use. New York, NY

LafargeHolcim Awards "Next Generation" 3rd prize 2014 – $25,000. Developed by students at MIT, Pleura Pod: Air purification wall transforming carbon dioxide into oxygen. Pleura Pod is a wall that is composed of multiple layers that are made out of natural or recycled materials. Cambridge, MA

Global LafargeHolcim Awards "Innovation" Silver 2009 – $50,000. Self-contained day labor station is a minimal physical urbanistic intervention with maximum social equity and neighborhood enhancement effects. San Francisco, CA

For more information: application.lafargeholcim-awards.org

LafargeHolcimAwards

Best Practices: Assessing Market Conditions

TEXT BY NATE BERG

Market volatility is inevitable in the building industry. Firms can protect themselves against the inevitable ups and downs through several strategies.

Diversify, Diversify, Diversify

Though common sense suggests looking for counter-cyclical markets—one that's up when another is down—truly counter-cyclical markets are nearly impossible to find. Instead, architecture firms should be pursuing work in four to five sectors that are affected by different economic forces. Government bonds, for instance, may fuel demand for civic projects one year, while changing demographics may drive up the need for senior housing five years from now.

By working in several markets that are "independently cyclical," firms can cushion themselves against "the blow of a downturn in the economy, or a downturn in any one or a couple of those markets," says Ray Kogan, AIA, president of the strategic planning consultancy Kogan & Co., in Arlington, Va.

Analyze the Markets and Your Firm

Market indicators are available from several sources, including industry-specific billings reported in the AIA's monthly Architecture Billings Index; brokered data from real-estate services; general economic indicators like housing starts or the unemployment rate; and clients knowledgeable about their sectors' economic health. Combining that with demographic trends and knowledge about new legislation and tax incentives can help firms gauge which markets may perform well two to three years down the line.

McMillan Pazdan Smith Architecture chief operating officer Chad Cousins, who works in the firm's Greenville, S.C., office, says following construction indexes from Dodge Data & Analytics and conducting quarterly analyses of the firm's strengths and weaknesses have helped it become more discriminating about which markets to invest in.

"There were some markets ... that we kind of fired and said, 'We're not doing it anymore,'" Cousins says. "Either we couldn't be as effective or it wasn't as profitable, or we didn't think the economic conditions were as good to be involved in that market." For example, some federal government projects weren't worth the amount of preliminary design work, regulatory compliance, and overhead they required.

"We prioritize markets where we're positioned well and the market conditions are good, or where market conditions might be sort of mediocre, but we're well positioned," Cousins says. "And then below that, [we consider] where market conditions are hot and [if] we're within reach of being able to have strong capability in that market."

Understanding "the future of a given market and your current standing [lets you] see what, realistically, you need to do to be a go-to firm and whether the investment is working," Kogan says.

Double-Down on Your Expertise

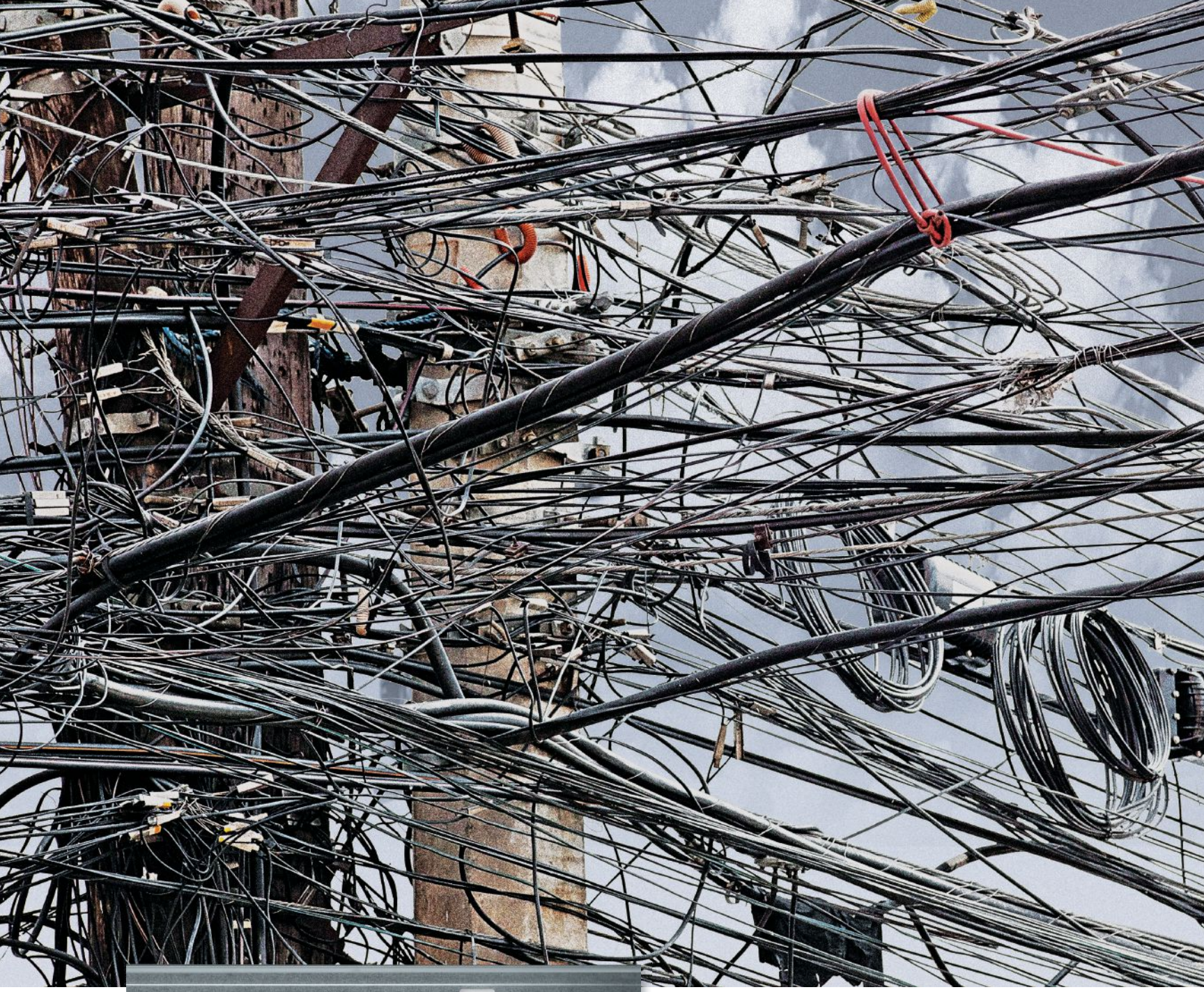
Diversification doesn't necessarily mean operating in disparate markets. Collingswood, N.J.–based Kitchen & Associates (K&A) distributes its efforts within one market: housing. Principal Stephen Schoch, AIA, says the sector is varied enough that its submarkets operate on independent economic cycles. The firm works on projects in affordable housing, market-rate multifamily housing, and developer-driven student housing.

> "If you really know your [particular] market, you can diversify by going deeper instead of wider."
>
> —Stephen Schoch, AIA, principal, Kitchen & Associates

"These are all driven by very different market demographics and sometimes economic factors," he says. "Rarely does every aspect of housing take a strong hit." Even during the Great Recession, the firm's multifamily work remained fairly steady.

K&A's approach is actually conservative, Schoch argues. By focusing on similar typologies that operate under different market conditions, the firm is able to build a self-reinforcing expertise as well as a talent pool that doesn't need to be thinned when one market falters. "If you really know your [particular] market," he says, "you can diversify by going deeper instead of wider."

> *To read more about how architecture and design firms can survive market cycles, visit bit.ly/ARForecasts.*



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Detail:
Grandview Heights Aquatic Centre Roof

TEXT BY TIMOTHY A. SCHULER

The cables supporting the Grandview Heights Aquatic Centre's undulating roof, in Surrey, British Columbia, were designed as steel, to be anchored into concrete capitals atop V-shaped concrete pylons to form a catenary structure, with wood infill. Then Vancouver-based structural engineering firm Fast + Epp noted that wood alone could support the roof's tensile loads. This "aha" moment, says HCMA managing partner Darryl Condon, also in Vancouver, prompted the designers to ask, "Why don't we just use wood?"

The result is the world's longest-span timber-catenary roof, supported by what look like ribbons of Douglas fir up to 188 feet long. The cables enable a remarkably thin roof that defines the 95,000-square-foot structure.

In fact, the thinness of the roof system was more critical than its clear span. A deeper structural system, Condon says, increases the potential for corrosion and condensation buildup due to high humidity of natatoriums.

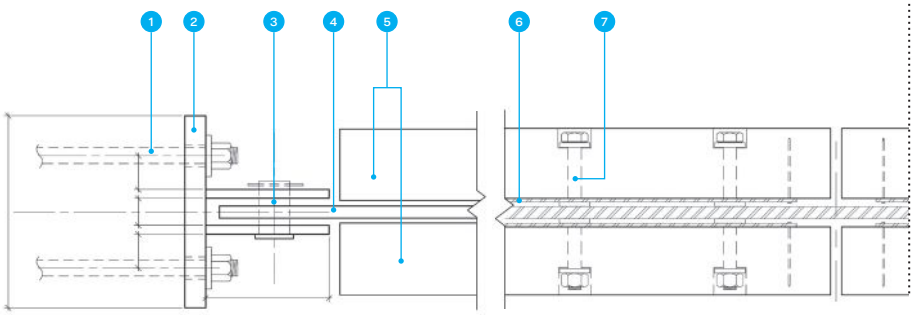
The center's roof is just 18 inches deep, which includes the wood roof deck. Besides its maintenance benefits, a thinner roof is easier to sculpt, says Condon, who employed the catenary to express "a fluid form, something that would be reflective of the idea of water in motion."

The architects modeled the structure in Autodesk Revit, varying the height of the roof according to the building program: higher for the diving platforms, lower for the entrance. Dozens of papier-mâché models followed, with HCMA settling on a sculpted roof form 380 feet long and 150 feet wide, interrupted only by the central concrete tower.

The final roof system is supported by more than 100 glulam cables, coupled and anchored into the post-tensioned concrete supports. By altering the cable lengths and bearing points (which range from more than 70 feet above finished floor to less than 30 feet), HCMA achieved its desired sculptural form using a single radius of 32 feet (down from more than a dozen radii in earlier iterations), lowering the cost of production significantly, Condon says. He hopes the center will further demonstrate the potential of timber structures. Architects "need to be more daring with wood," he says. "We need to challenge ourselves and the challenge the industry to push its limits."

JOSHUA ESTERHUIZEN

Plan Detail



1. Ø29mm × 1500mm steel rod (typ. 2) anchored into concrete slab and 25mm nonshrink grout (not shown)
2. 38mm steel plate
3. Ø57mm pin and 16mm plate (typ. 2)
4. 22mm × 200mm steel plate
5. 5" × 10" deep Douglas fir glulam
6. 220mm × 800mm nailing plate (typ. 2)
7. Ø25mm ASTM A325 bolts, hot-dipped galvanized (220mm o.c.) with wood plugs

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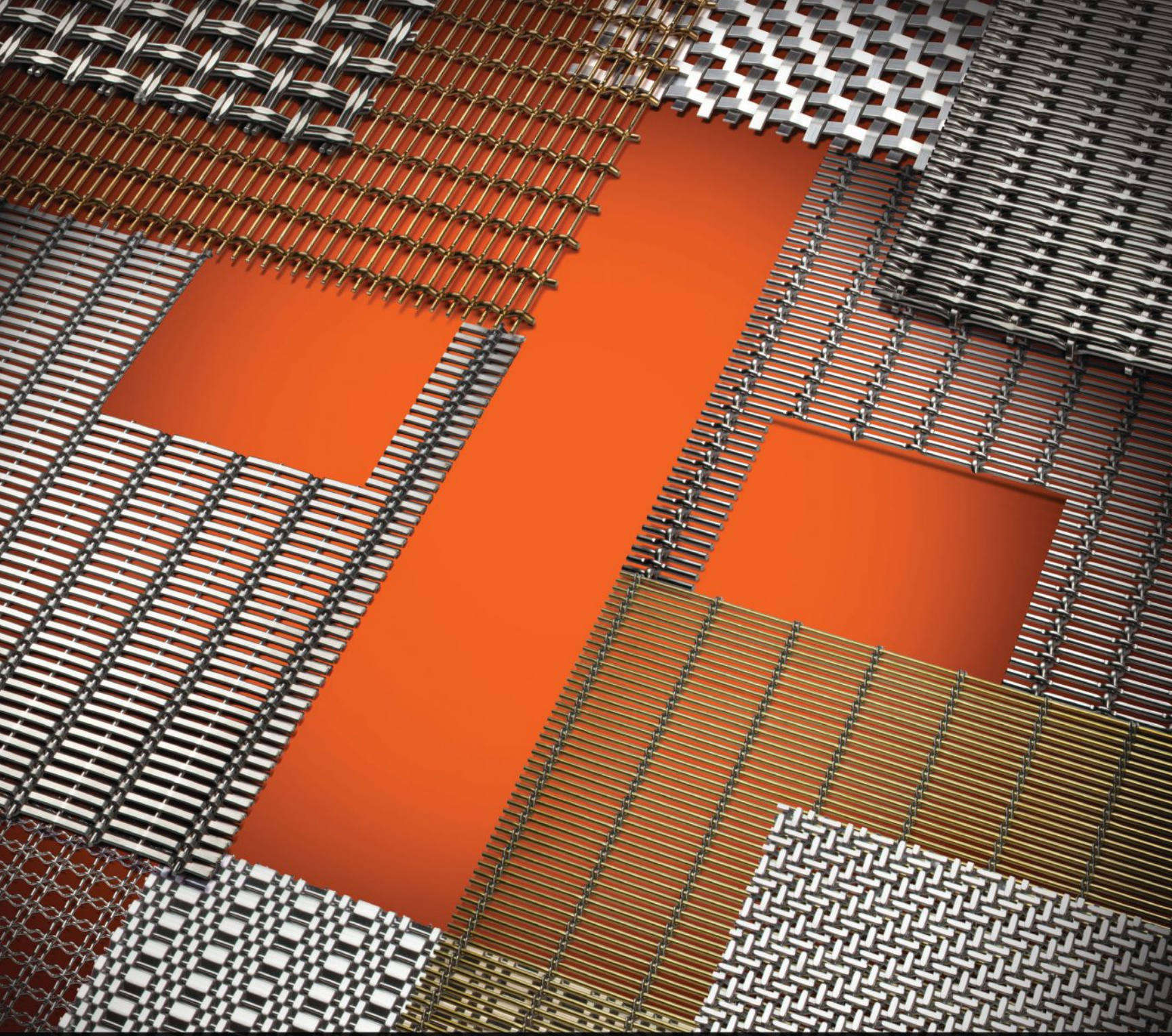

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Homewood Community Center–Homewood, Alabama
Architect: Davis Architects–Birmingham, Alabama

Next Progressives: Innauer-Matt Architekten

EDITED BY DEANE MADSEN

Location:
Bezau, Austria

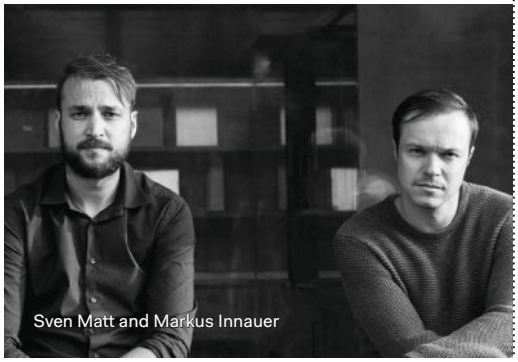
Year founded:
2012

Leadership:
Markus Innauer, Sven Matt (principals)

Education:
Innauer: M.Arch., University for Applied Arts, Vienna; University of California, Los Angeles
Matt: Master of Engineering, Technical University Innsbruck; Technical University Vienna

Experience:
Innauer: Oskar Leo Kaufmann, Dornbirn, Austria
Matt: Dietmar Feichtinger Architectes, Paris; Bernardo Bader Architekten, Dornbirn

Total staff:
4–5 employees


Sven Matt and Markus Innauer

How founders met:
In high school

Mission:
We are heavily influenced by the landscape and buildings of our home region, the Bregenzerwald, in Austria. Our commitment is to create spaces that live through their atmosphere and have a long-lasting formal and social validity. In our work we try to be accurate and restrained without the need to reinvent architecture every Monday.

First commission:
Restaurant Innauer (Dornbirn) was Markus' first commission, in 2009, while Sven built Haus für Gudrun (Mellau, Austria) in 2010. Our first commission as Innauer-Matt was a 2014 residential development called Seedomaine Lochau (Lochau, Austria), in collaboration with Gohm-Hiessberger Architekten.

Design hero:
Markus likes the sexiness of John Lautner's projects.

Modern-day design hero:
Our modern day hero might be Peter Zumthor, HON. FAIA, as he is a master in creating spaces with dense atmospheres, and he is a maniac in regards to detailing and use of materials.

Design tool of choice:
Sketching and physical models.

Special item in your studio space:
We have a ceramic dog that keeps watch over our studio and our work.

Favorite project:
Our favorite project is always changing. Most of the time, it's the one we are currently working on, as with every new commission there is the chance to further develop our principal idea about architecture.

Second favorite project:
Our second favorite project is the Wirmboden Chapel in Schnepfau in 2016. It is by far our smallest built commission but it took three years until completion—that's about six months per square meter. We learned a lot with this project. We saw that the effect a building has on the community is much more important than the formal idea that we, as architects, developed for it.

When we're not working in architecture:
We spend time with our families and friends without thinking about architecture every five minutes or so.

Skills to master:
Staying calm.

Morning people or night owls?
We're both morning people.

Any superstitions?
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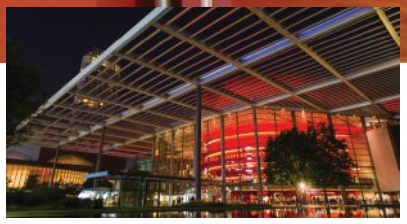
REZE BONNA

DALLAS THEATRE FEATURES SHOW-STOPPING ARCHITECTURAL WOOD DOORS



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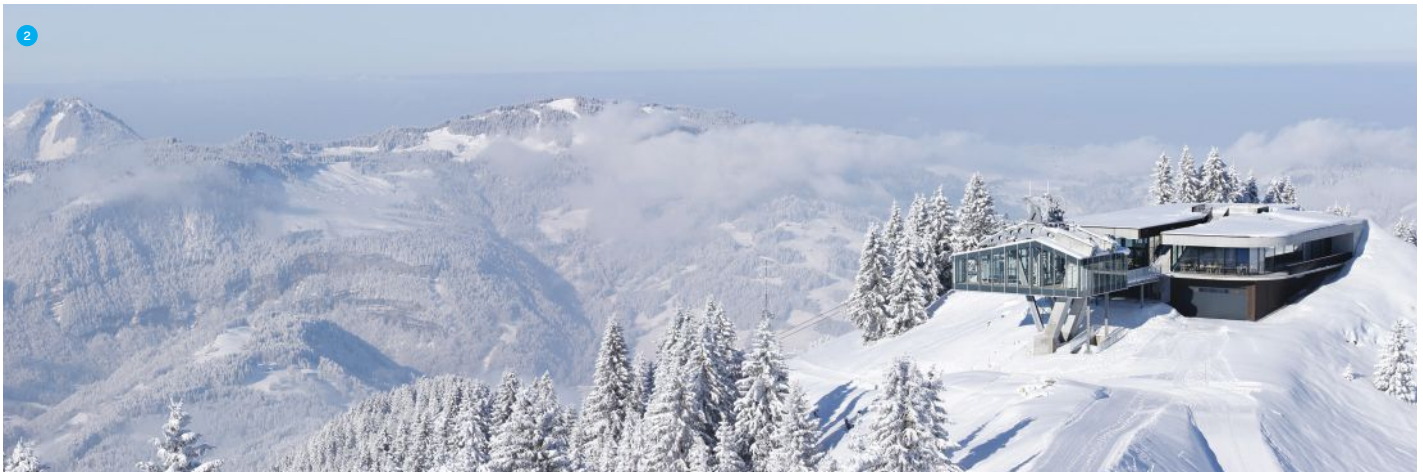
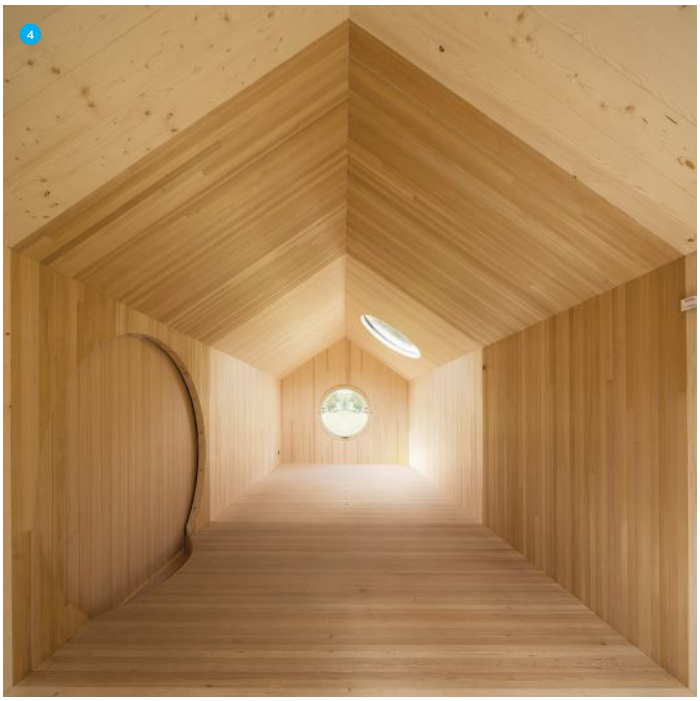


1,4: DAKRO TODORO



1,4. Commissioned by Bezau, Austria–based timber home builder Kaspar Greber, Pavilion KG showcases the potential and craft of the company's products in a demonstration hut that allows visitors—namely, prospective clients—to experience the touch, smell, and ambience of wood construction firsthand. **2,3.** Bergrestaurant, sited atop one of Bezau's many mountain peaks, offers a 360-degree view from its wood-finished dining room. An external stair leading to the rooftop bifurcates the restaurant volume. **5,7.** The clean minimalism of Mellau, Austria, residence Haus für Gudrun is reinforced by thin-plank paneling on its interior and exterior. **6.** Haus Fink is a Schwarzach, Austria, residence passed from grandmother to grandson. Innauer-Matt's renovation leaves the original roof structure intact. Wood-paneled walls and OSB insertions containing a small kitchen and bathroom create clean aesthetic transitions within the open interior.

6: ANNA RITSCH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Technology: T3 Starts the U.S. Tall Timber Race

TEXT BY BLAINE BROWNELL, AIA

Technologies like cross-laminated timber (CLT) and nail-laminated timber (NLT) have enabled high-rises to be realized with an environmental track record superior to reinforced concrete or steel. Several timber towers have been built in Europe, North America, and Australia, and many more are in progress.

Designed by Michael Green Architecture (MGA) and architect-of-record DLR Group for real estate firm Hines, T3—short for "Timber, Technology, Transit"—is a seven-story, 220,000-square-foot structure in Minneapolis. Opening this month, it will be the largest mass timber building in the United States.

MGA associate Candice Nichol says Hines wanted to use mass timber as a differentiator: "Hines understood that the market is looking for office spaces that people actually enjoy working in." The simple, boxy design picks up visual cues from neighboring historic structures in Minneapolis' North Loop district. From a distance, the structure looks like another speculative commercial building with a conventional column grid and repetitive floor plates. Yet how it performs both structurally and aesthetically reveals another story.

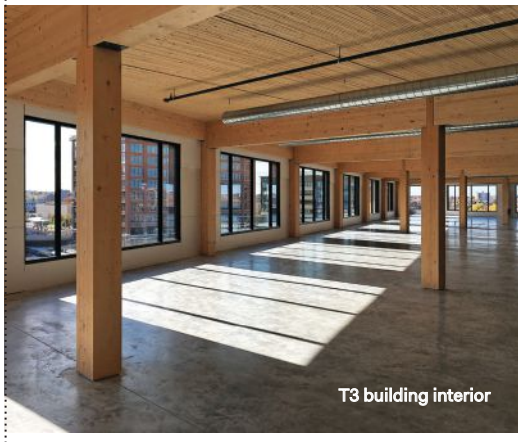
T3 uses spruce-pine-fir NLT panels combined with a spruce glulam post-and-beam frame, and a concrete topping slab. NLT was chosen because it was slightly more economical than other engineered wood systems. "The T3 structural framing system—columns on a 20- to 30-foot-grid, beams running one direction between columns, and panels spanning across the beams—is an efficient one," says Lucas Epp, a structural engineer and 3D manager at Delta, British Columbia–based fabricator StructureCraft. This one-way system enables building services to run parallel to the beams without clashes.

The system's efficiency extends to the material sourcing and construction processes. Most of the project's lumber came from trees in the Pacific Northwest region killed by the mountain pine beetle, and certified under the Sustainable Forestry Initiative guidelines. Classified as a "Type IV–Heavy Timber" system by the Minnesota State Building Code, the sprinklered building is not required to have a specific fire rating. However, Epp anticipates the structure to achieve an equivalent rating of more than three hours based in part on the protective charring phenomenon of wood.

StructureCraft set up a prefabrication facility in Winnipeg, Manitoba, to supervise the manufacture of the NLT panels. Located within a six-hour drive from the jobsite, the facility also reduced transportation costs, ensured quality control, and enabled rapid construction: Construction crews erected 180,000 square feet of timber framing in 9.5 weeks, with 30,000 square feet of floor area installed per week.

Another benefit to timber is its lightness. According to Epp, T3's structure weighs about one-fifth that of a comparable concrete building, subsequently reducing the foundation size, seismic loads, and embodied energy. R. Buckminster Fuller, who famously asked architects how much their buildings weigh, would approve.

The timber structure also lends itself to material and cost savings in interior finishes. Though its exterior is clad in weathering steel, its interior is simply wood. "The entire timber structure of T3 will be left exposed and illuminated with a percentage of the interior lighting directed up to the ceiling," Nichol says.



T3 building interior

BLAINE BROWNELL

Rather than re-creating contemporary office buildings, T3 is paying homage to the timber heritage of its surrounding warehouse district neighbors, such as the nine-story Butler Square Building. With the growing attention to construction's environmental impact, more architectural projects will follow T3's return to the original structural framing material: wood.

> *To read more about the historical significance of timber in structural framing, visit bit.ly/T3timberAR.*

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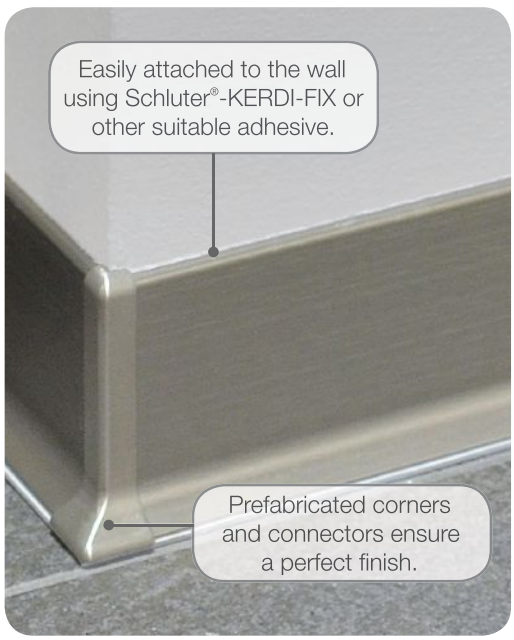

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TEXT BY SELIN ASHABOGLU

Waterfall, Lea Ceramiche
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Rockfon Medical Air, Roxul
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Healing Essentials, EnviroLeather
Decorated with nature-inspired motifs by Pattern Pod, this collection of faux-leather upholstery is PVC-free and withstands more than 200,000 double rubs on the Wyzenbeek scale. *enviroleather.com*

Laura, Davis Furniture
This minimalist, modular lounge system offers numerous configuration options. Its tapered base units can be used as tables, benches, or couches by adding multidensity foam backrests and hard veneer or acrylic tabletops. The units can be upholstered in a variety of the company's fabric and leather options while the tabletops come in beech, maple, oak, and walnut veneer and white acrylic. *davisfurniture.com*

Folio, Steelcase
The modular storage system, composed of bookcases and base and storage cabinets, can be reconfigured according to user needs. Offered in eight laminate and four solid finishes. *steelcase.com*

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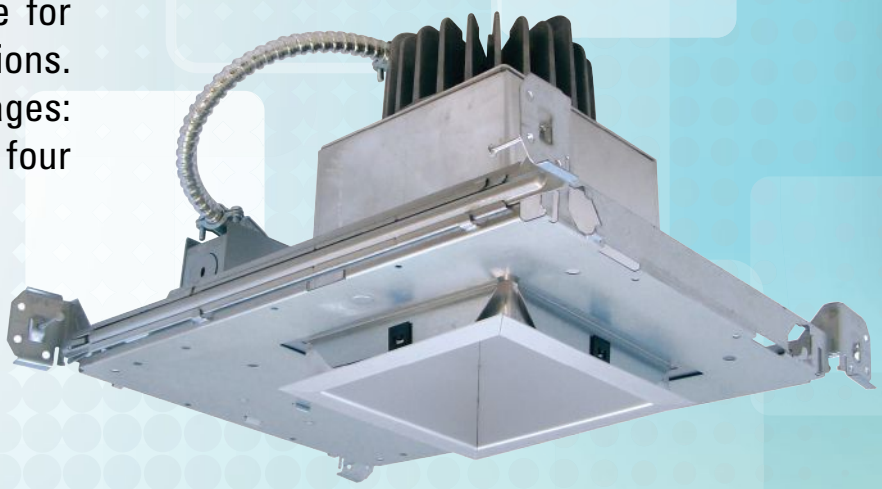

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Designing an Oasis

Residential architecture on a national stage.

Dawn Zuber, AIA, founded Studio Z Architecture in Plymouth, Mich., in 1997. When she received a call to be the featured architect for this year's HGTV Urban Oasis Giveaway, she leapt at the opportunity to demystify the architect-client relationship for a television audience that's likely to hire an architect. It's also an opportunity she's cultivated through AIA's Custom Residential Architects Network (CRAN), for which she serves as 2016 chair.

As told to Steve Cimino

Apparently, the people at HGTV found me through my Houzz profile and my website. I was told they were looking for someone who specialized in remodeling and creating houses that fit the way people live these days. I enjoy working with homeowners, explaining the design process, and helping them move through it. Working with the HGTV team was amazing. It was quite a condensed project. They wanted a very good design, and they got one, but there was a very tight schedule for construction and production that they had to stick to. A house that would normally take four to six months to design? I designed it in one month. I did not have time for a social life and nobody got Christmas gifts, but luckily everyone in my life was understanding. The other tough thing was that I had to keep my work with HGTV a secret until the middle of this year.

Sometimes architects struggle to provide the patient guidance that's required during the residential design process. On the technical side, it's especially hard to help clients envision a space that's not yet real. The house chosen for *HGTV Urban Oasis* was basically in its original condition from the 1930s. The kitchen was a small alcove off the dining room and the two bedrooms were tiny. It wasn't at all designed to meet how people live today. If a client can find the right architect, though, anything is possible. To that end, CRAN was founded to educate the public, and architects, about the value of residential architecture. And the HGTV opportunity was a great way to build on that mission and highlight the value that an architect brings to a project.

Just as selecting the right architect is crucial for a homeowner, picking clients is important, especially when you're a small business. I'm basically a sole practitioner, so I am involved closely with every one of my clients. It's necessary that my clients trust my ability to hear, understand, and integrate their requirements into their vision of a home. Designing someone's home is such a personal process, and working together becomes a personal relationship of sorts. The goal is to make sure that I am going to be valuable to them, that I'll be happy with the project at the end, and my clients will be happy with me. AIA

The American Institute of Architects

I AM AIA

"I became an architect to make a long-lasting impact on communities; to lift spirits, to add value to people's lives and to positively shape the way people live and use space."

Joseph Lai, AIA Member since 2012

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AIANow

By Beau Frail, ASSOC. AIA
Art Direction by Jelena Schulz

ILLUSTRATION: LAUREN NASSEF

Seven Steps to Improve Communities

AIA Austin's DesignVoice is a community outreach committee that leverages partnerships to make real impacts in the surrounding area. Using the steps that led to the design of a new bus stop shelter in an underserved neighborhood, we illustrate how communities everywhere can be strengthened by collaborative architecture.

Identify a need. We discovered that more than 100 of Austin's bus stops with high ridership were shelterless.

Work with community partners. A partnership with Capital Metro, Austin's transit provider, led to a design competition.

Create the opportunity. More than 30 architects, landscape architects, engineers, and bus riders participated in a design charrette; six of the designs were submitted for final review.

Document the project. Before the competition began, the winning team—local landscape professionals Sara Partridge and Melissa Henao-Robledo—entered into a formal agreement to design and build the bus stop shelter.

Facilitate action. The design team is using a crowdfunding partner (and a generous contribution from Capital Metro) to reach its goals.

Share your story. With assistance from the staff at AIA Austin, DesignVoice has used social media, AIA newsletters, and conferences to help architects realize how they can give back locally.

Repeat, learn, evolve, grow. Gather feedback once the design is complete and the project is finished; let your process evolve as new stakeholders and different community needs arise.

AIAFeature

Building Amid the World's Highest Mountains

The Khumbu Climbing Center is a sustainable, earthquake-resistant building—and a symbol of resilience—in the shadow of Mount Everest.

By Kim O'Connell

PHOTOGRAPHY: DEAN SODERBERG

Against a magnificent Himalayan backdrop, a building crew sets the main second-floor truss for the Khumbu Climbing Center.

In the Himalayas there is a constant tension between the towering glory of the world's highest mountains and the ever-present specter of loss. In 2014 an avalanche of ice tore down Mount Everest, killing 16 Nepalese mountain guides—most of them Sherpas, the native porters who have led and assisted climbing teams in these high mountains for more than a century. A year later one of the worst earthquakes in Nepal's history leveled thousands of buildings and left thousands more dead. Against this backdrop builders have been working to complete the Khumbu Climbing Center (KCC), a sustainably designed mountaineering school in the mountain village of Phortse, Nepal.

Conceived and supported by the Alex Lowe Charitable Foundation and designed by students from the Montana State University (MSU) School of Architecture under the guidance of Michael Everts, AIA, the KCC is designed to teach Nepalese climbers best practices, so that they can be safer in the mountains. By earning certification through the school, native climbers are better able to seek their livelihoods as hired guides on climbing destinations like Everest and the other Himalayan peaks. This is paramount considering the ongoing debate over whether Everest has grown too popular, with more-crowded climbing seasons reducing the safety margin for those attempting the summit.

As construction nears completion, the school has been instructive in other ways as well: combining sustainable design elements with seismic strengthening while incorporating vernacular building techniques that reflect the local culture. "We wanted to build a building that would support training Sherpas with technical climbing skills," Everts says, "but we also wanted to make the process as educational an experience as possible for all involved: students, local people, and builders."

It's a process that began years ago, as the founders of the Alex Lowe Charitable Foundation sought a way to give back to a community that has inspired them in both good times and bad.

A Vision for Phortse

Although the area around Everest seems impossibly remote and forbidding, the surrounding Khumbu Valley has been settled for hundreds of years by Sherpa people who originally migrated from Tibet. Historically, local villagers have relied primarily on subsistence farming centered on potato, millet, and root vegetables, which are cultivated over the course of a short growing season in an area that is 97 percent unsuitable for farming due to soil conditions and altitude.

In the last 50 years, mountaineering has become the driving aspect of the local economy. Ringed by snow-covered rocky peaks, pastoral villages in the valley are dotted with monasteries, temples, and lodges where local people host the increasing numbers of people drawn to the so-called "Roof of the World."

One such traveler was mountaineer Alex Lowe, who honed his skills as an alpinist in the Khumbu region, climbing Everest and a half dozen other Himalayan giants. Once named the "world's best climber" by *Outside Magazine*, Lowe died tragically in an avalanche on 8,000-meter Shishapangma in 1999, leaving behind his widow, Jenni Lowe-Anker, and three sons. Soon after her husband's death, Jenni founded the Alex Lowe Charitable Foundation to help the indigenous people Alex had loved. She later married Conrad Anker, Lowe's best friend and climbing partner, who had survived the tragic avalanche. Together, they founded the KCC in 2003 after trekking through Phortse and noticing an abundance of water ice—perfect for climbing instruction.

A green terraced expanse nestled high above two cascading rivers and somewhat off the beaten track to Everest Base Camp, Phortse boasts a significant mountaineering tradition, with more Everest summiters hailing from this village of 350 residents than anywhere else in the world. "Phortse is an island in the sky, surrounded by paper birch forests. ... It's one of the more pastoral villages," Lowe-Anker says. "We knew there was a huge need for more climbing instruction and a dearth of knowledge. Most of the families in Phortse have someone who has either worked on Everest or has summited Everest, and yet when we first went over there [to plan the KCC], no one knew how to do a basic figure-8 knot."

For several years, climbing instruction took place in local lodges and homes, and outdoors on frozen waterfalls in the winter, when villagers were not farming. Initially, the instructors were primarily Western climbers and guides, but the KCC teaching staff are now mostly Nepali, although a team of Western climbing instructors and advisers still goes back every winter.

With the program up and running, the next step was to fund the construction of a permanent building in Phortse that would not only house the climbing center but also serve as

AIA Feature

CONTINUED

a community meeting hall and program space. Local enthusiasm was great, evidenced by the fact that two local Phortse families donated the land for the center's permanent location. From their home base in Bozeman, Mont., the Ankers soon connected with Everts and the architecture school to develop the design.

"We set up a graduate studio right away," Everts says. "In addition to Jenni and Conrad, Bozeman has this incredible density of world-class climbers and adventurers, so we met with them and sussed out this mission of teaching climbing skills. But that wasn't the only mission."

It was quickly apparent to the foundation and the design team that the center would be designed with a multifaceted program, including a library about mountaineering and local history, a place to hold English classes, and even space for climbers to take a hot solar-powered shower and rest. The foundation is raising funds to put a state-of-the-art climbing gym in the building as well.

A Sustainable, Strong Design

Design work on the KCC took place both in Bozeman and in on-site charrettes in Phortse, with about 30 students in total (11 of whom made the trek to Nepal). The major design imperatives were that the building had to be warm and weatherproof, earthquake-resistant, and respectful of its historical context. When complete, the KCC building will be a two-story stone-and-glass structure of about 2,500 square feet based on local house typologies in Phortse and oriented toward Khumbiyula Mountain, a sacred peak at one end of the valley.

Traditionally, local buildings are heated by

"Phortse is an island in the sky, surrounded by paper birch forests. … It's one of the more pastoral villages."
—Jenni Lowe-Anker

IMAGES ON THIS PAGE: MONTANA STATE UNIVERSITY - SCHOOL OF ARCHITECTURE

TOP: Chongba-Dai Sherpa, best-known as the base camp Sherpa in Jon Krakauer's Everest book *Into Thin Air*, explains the initial KCC design models to local villagers. ABOVE: A rendering of the Khumbu Climbing Center shows its vernacular style, modeled after residential buildings in Phortse, Nepal.

burning dried yak dung, which creates noxious fumes; burning wood is largely prohibited because of a Nepalese reforestation program. Based on modeling using Revit and Ecotect software and local weather data, the team found that it was conceivable to heat the building almost 100 percent through passive heating techniques—including a combination of building orientation, direct solar gain, and insulation—as well as Trombe walls that employ a glass skin over a stone wall. The building design has a series of "kinks" that minimize exterior skin exposure and maximize solar gain on the west wing in the morning and the east wing in the afternoon, according to Everts.

Seismic strengthening was also essential, and the team found that it could be accomplished in a way that honored local vernacular building techniques. After starting with dry stacked stone structures, common in Phortse, the designers used gabion caged stone and steel frames that are tensioned together with steel cables for lateral strength.

"The fact that the local people will have an earthquake-safe building is so important," Lowe-Anker says. "When the earthquake happened last year, for months there were aftershocks and many people—including the elderly—just slept outside because they felt safer."

In Phortse the students presented their ideas to village leaders and absorbed their feedback, which became an ongoing iterative process that some students later called "life-changing," according to Everts. They also developed a website where both students and locals could keep tabs on the design as it evolved. The design process won an honorable mention in the 2011 National Council of Architectural Registration Boards annual awards. The jury recognized Montana State for teaching students leadership and communication skills, and for giving them the opportunity to research and work abroad.

ABOVE: Jenni Lowe-Anker of the Alex Lowe Charitable Foundation and Michael Everts of Montana State University meet with architecture student Nick Molinaro to discuss his design ideas for the KCC. BELOW: The KCC is designed to frame views of Khumbiyula Mountain, considered a sacred mountain to the local Nepalese people.

"Architecture literally can make a difference," Everts says, "but in order for it to make a difference there must be a redefinition of what architecture is. More and more it's a process, and the virtual network that you create is integral to the physical building. As a result of this and other community experiences, our first-year architecture program is changing to be more about system thinking."

A Building on the Rise

With the design in place, construction of the KCC building has been slow but steady—hindered by the sheer difficulty in transporting building materials to the remote site, not to mention the setbacks caused by the recent catastrophic avalanche and earthquake. (The foundation diverted resources and building materials from the KCC to local villagers with immediate needs.)

PHOTOGRAPHY: DEAN SODERBERG. TOP: MONTANA STATE UNIVERSITY – SCHOOL OF ARCHITECTURE

AIA Feature

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To reach Phortse, one must fly materials to Lukla Airport—a dangerous airstrip that necessitates a multiday 16-mile trek by porter or yak—or to Syangboche, one long porter day from Phortse. The building site is perched at about 12,500 feet of elevation.

To oversee the construction team of local builders, the foundation hired Brandon Lampley, a craftsman-builder from Colorado who had experience climbing in the Khumbu. Lampley's first task upon arrival was to assess damage from the earthquake; he was pleased to discover that the building had withstood the quake quite well. Construction continues apace, and Lampley estimates that the building will be structurally complete by the end of 2018, contingent on additional fundraising.

"This past spring, we often had 25 masons, four porters, and six laborers quarrying stone," Lampley says. "All of our crew comes to Phortse to live for the work season. We are all builders, and working with tools and demonstrating techniques is a universal language." The team has retained Tenzing Gyalzen, a Phortse resident who has summited Everest multiple times and serves in several community roles, as a local supervisor.

"Everything takes longer in Nepal, and especially way up high in the remote Himalaya," Lampley says. "We trust in the skills of our local workers and craftsmen. My role is to enable their work, and utilize their expertise."

To date, Lowe-Anker estimates that the KCC has educated well over 1,000 indigenous students. She is hoping that Phortse will become more of a destination not just for climbers but also photographers and wildlife enthusiasts, which would be a boon to a local economy that is seeing its young people move away to find work outside Nepal. Creating a safer mountaineering culture in the Himalayas is positive for both the local people and the climbers they seek to work with.

"Everest has been a boon to the country, with all the income and tourism, but also a bit of a cross to bear because of all the loss of life," Lowe-Anker says. "There was a loss of autonomy of the native culture, with tourism flooding in. Things change beneath those mountains, and they've had to share those mountains with the rest of the world. We are hoping that our center is one that honors that culture and history, acknowledges the changes, increases safety, and pays homage to those who have gone before." AIA

PHOTOGRAPHY: DEAN SODERBERG; TOP: MONTANA STATE UNIVERSITY – SCHOOL OF ARCHITECTURE

TOP: This traditional *puja* prayer ceremony is performed before excavation or construction can take place. ABOVE: The crew employs several construction strategies to provide seismic strengthening to the building, including light-gauge steel, stone with gabion cages, and a heavy wood floor truss.

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A New Era of Exams

The transition to ARE 5.0 has begun.

With the calendar's turn to November comes a fresh opportunity for future architects, and the chance to take stock of their progress forward. On the first of this month, the National Council of Architectural Registration Boards (NCARB) launched ARE 5.0, a new version of the exam that will offer candidates a refined path to obtain their licenses.

Most prominently, ARE 5.0 will include six divisions, one fewer than ARE 4.0. Since ARE 4.0 launched in 2008, NCARB has been working with volunteer architects at all levels to adjust the exam structure to better reflect the way architects do their jobs.

"With ARE 5.0 we are going from a vertical alignment of content areas to a horizontal alignment of phases of practice," says Jared Zurn, AIA, director of examination at NCARB. "With divisions like Project Planning & Design and Programming & Analysis, the exams will mirror architecture practice in a much better way."

Emerging architects who have already started in ARE 4.0 will not lose their progress; those candidates will have until June 30, 2018, to finish in the old version. They can also start testing in ARE 5.0 right now and complete all six divisions there, or choose a combination offering: Pass three divisions in ARE 4.0 followed by two divisions in ARE 5.0. Either way, NCARB has made a point to provide numerous self-transition options for candidates who crave flexibility.

As for experienced practitioners who are well beyond all-nighter study sessions, it's important for them to realize that—despite the ARE's need to constantly evolve—these changes aren't meant to undercut the licensure process or lessen the standards that have elevated the profession for so many years.

"I have conversations with architects who ask, 'Is the exam getting easier?'" Zurn says. "Not at all; it assesses an individual's ability to practice architecture. The exam of the past and the exam of the future may have a different structure, but the ultimate goal is always to ensure that people who pass can practice competently." AIA

Steve Cimino

PHOTOGRAPHY: CARL BOWER

Supporting Architects to Build Our Communities

You may say I'm a dreamer, but I'm not the only one. **—John Lennon**

Most architects have probably been accused of being dreamers. I know I have. The ability to form a complete vision of that which is not yet real is an essential design skill for architects. This is often a lonely adventure. Providing the full range of architectural services today and advocating for your client's project are both unique challenges that architects face. The AIA realizes this and is working on two initiatives this fall to provide the kind of support our members need to practice, and our communities need to restore its public buildings.

The first is the Center for Practice, which will concentrate the AIA's resources for practitioners, to help them work smarter. It will build upon the work done by the AIA Board of Directors' Practice and Prosperity Committee, and the Center for Practice will continue to add features to assist small, medium, and large firms. The goal is to provide assistance so that architects may save time and energy on operations and focus more on creativity and providing more value to clients. The second initiative is the Build America Summit, which will focus on infrastructure, public buildings, and facilities that define our communities. The event will be held in New York on Nov. 29 and 30, and will include presentations that will address issues related to improving the social infrastructure in our small towns and cities. The fact is that public buildings in every county and state are in need of significant improvements, and the Build America Summit, will be a way to start that conversation in earnest.

In advance of the Summit, the AIA will gather data nationwide (by working with a reputable polling firm) to find out how Americans feel about their public buildings and facilities. Many Americans have formative memories of an elementary school or public library that defined their childhoods and, ultimately, influenced their adult lives. We all know how critical the public buildings and social infrastructure are to the value of our homes and the identity of our villages, towns, and cities. This poll will provide actionable intelligence for the AIA and its members. These two initiatives will also provide support for members and communities by establishing a practical set of tools and a conceptual framework to address the challenges ahead, so that we can all better realize our dreams. AIA

Russell A. Davidson, FAIA, 2016 AIA President


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THE UNIQUE BENEFITS OF PVC WINDOWS IN MULTIFAMILY HOUSING

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LEARNING OBJECTIVES

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

1. Discuss the market forces driving multifamily housing construction
2. Describe the evolution and implementation of PVC in residential construction
3. Contrast the benefits of PVC to aluminum windows
4. Explain PVC window selection criteria for multifamily residential projects

CONTINUING EDUCATION

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By Aphrodite Knoop

MARKET FORCES DRIVING MULTIFAMILY HOUSING CONSTRUCTION

From rising construction costs to declining homeownership rates, myriad factors have been driving the proliferation of multifamily housing developments over the past decade. Among these are an aging U.S. population, declining homeownership rates, a need for renewable resources and climate friendly solutions, and growing demand for affordable high-performance construction that meets the needs of owners and building occupants.

Need for multifamily housing

In communities across the United States, there's a multifamily housing boom in progress. What has spurred this shift toward multifamily construction? Consider that in the first quarter of 2016, the U.S. homeownership rate fell to 63.5 percent which, according to the U.S. Census Bureau[i], is lower than the fourth quarter 2015 rate of 63.8 percent. This marks the lowest homeownership rate since 1995.

In May of 1995, President Clinton unveiled the National Homeownership Strategy. This initiative drove a boom that continued until 2006–7 when the housing market crisis emerged. In 2008, the Case-Shiller home price index reported its largest price drop in history.

Following a plummeting of the national homeownership rate since 2006 was the decline in the number of owner-occupied housing units and an increase in the number of renter-occupied units (approximately 18 percent) during the same period. Single-family construction has therefore weakened while multifamily construction has risen sharply.

Considering the under-building of multifamily housing during the 2000s and the aging of a population that no longer wants the burdens of home maintenance labor and costs, the current momentum of multifamily construction is needed and will likely to continue.

Solutions through high-performance construction

The demand for multifamily housing has also led to greater need for high-performance construction to help meet key project goals:

- Energy efficiency
- Lower operating costs
- Efficient construction and maintenance
- Occupant comfort and safety

Windows are a critical element of a building's performance as a source of daylighting, ventilation, and visual connection to the outside. However, underperforming windows are also a source of heat loss, excess heat gain, leaks, mold problems, noise penetration, and condensation problems.

The building industry has responded to these problems with new technologies and improvements, including the evolution of unplasticized polyvinyl chloride (uPVC) over other window materials.

Why uPVC for windows? PVC, often referred to as "vinyl," is a thermoplastic material that can be re-melted and recycled. Its composition gives it some unique technical properties that make it suitable for eco-friendly, high-performance construction.

According to PVC.org, a European based non-profit that tracks the PVC industry, PVC's cost effectiveness makes PVC a highly versatile polymer for the building industries. "PVC plays a major role in delivering and sustaining the quality, comfort, and safety of modern life-styles."[ii]

Call for climate-friendly solutions

Increased pressure and incentives from certain municipalities for lowering their carbon footprint are also driving developers, contractors, and owners toward sustainable building solutions.

Because it's made of 57 percent common salt and only 43 percent oil, PVC requires less non-renewable fossil fuel than any other plastic. In fact, PVC is fully recyclable. During the manufacturing process, PVC is easily chipped into reusable waste material and extruded into new products. Ninety-nine percent of vinyl's manufacturing waste can be reprocessed and recycled.

According to the British Plastics Federation[iii], PVC consumes less primary energy in its production than any of the other commodity plastics and has a relatively low carbon footprint. Compare, for example, the CO_2 impact equivalents for producing one ton of aluminum versus PVC: the production of aluminum creates 22,000 lbs. of CO_2, which is more than 5 times the amount created during the production of PVC (4,180 lbs.).

EVOLUTION AND IMPLEMENTATION OF PVC IN RESIDENTIAL CONSTRUCTION

Used in an array of applications ranging from medical to communication to construction, PVC has demonstrated exceptional durability and dependability. However, it was slow to take hold as a building material until a convergence of market forces put pressure on builders to deliver higher performing buildings without sacrificing affordability. Integration of PVC windows made it possible for them to meet market demands successfully.

History of PVC

Now one of the most common building materials in the world, PVC has come a long way since the 1940s. The unplasticized version, used in windows, was developed in Germany during the 1960s.

Because PVC has proven to be both durable and protective, it has gained widespread adoption in both the medical and food and beverage industries. Pre-sterilized PVC is used for tubing, disposable medical devices, catheters, pill packs, gloves, masks, and more. PVC is also used in food packaging because it is lightweight, reduces waste, and protects consumables by providing a water and oxygen barrier.[iv]

PVC products became essential to the construction industry due to their resistance to light, chemicals and corrosion; their durability and lightness; and their resilience. The first PVC window in the U.S. was introduced in 1964 by Thermal Industries. According to the American Architectural Manufacturer's Association (AAMA), PVC windows accounted for 36 percent of the entire residential market by 1996 and had soared to 68 percent of the total residential window market by 2012[v]. Although PVC windows were initially introduced as replacement options for the remodeling market, within a decade they had also gained greater traction in new construction.

This rise in adoption in both existing and new construction is due in large part to PVC's thermal efficiency. As consumers sought to save energy by replacing old windows, they found the best value in PVC. Vinyl window systems have further proven more durable, easy to maintain, and affordable compared to other window options. Now PVC windows have found a place across all housing markets, ranging from custom and high-end to tract housing and multifamily complexes.

The following three case studies demonstrate how PVC window systems have been used successfully to solve a range of multifamily design and construction challenges. Each of the represented projects had different goals that were met with innovative and sustainable approaches, encompassing the entire "ecosystem" of function and aesthetics.

Photo courtesy of DAS Architects & Halkin Mason Photography

CASE STUDIES

Orchards at Orenco: 3-story, 57-unit, multifamily residential affordable housing complex with 265 windows

Goal: Play key role in the largest U.S. multifamily passive house building

Orchards at Orenco, a residential affordable housing complex in suburban Portland that meets Passive House certification standards, is one of the most ambitious REACH Community Development housing projects to date.

Originating in central Europe, Passive House is an advanced energy-efficiency standard that produces buildings with superior indoor air quality and thermal comfort while eliminating heating energy use. With more than 57,750 square feet of space, Orchards at Orenco is the largest multifamily Passive House building in the United States.

A project that sets such a high bar for energy efficiency requires unique materials and a careful approach to design. "Our superintendent has a sign up on site that says, 'The word 'normally' will not be used on this project.' From the way that we constructed the foundation, all the way through our framing and our waterproofing and insulation strategy, everything is different than the typical project," says project general contractor Marty Houston, quality director for Walsh Construction Co.

Photo courtesy of REACH/Ankrom Moisan Architects

Photo courtesy of REACH/Ankrom Moisan Architects

It is especially important in Passive House projects to find windows and doors that contribute to the building's exceptional thermal performance, air infiltration ratings and durability. The developers selected PVC tilt-turn windows and exterior hinged doors.

The windows and doors proved to be up to the task according to the results of a preliminary air tightness test. A Passive House's air tightness must be demonstrated with a pressure test (the so called Blower Door test), wherein the allowable air change at a pressure differential of 50 Pascals cannot exceed 0.6 times a room's volume per hour.

A preliminary air tightness test of Orchards at Orenco after the windows and doors were installed recorded 0.056—more than 10 times the efficiency required.

The Orchards at Orenco project passes the original and more stringent European standards for Passive Houses rather than the U.S. standards, which have been relaxed to allow for North America's more extreme temperatures.

Oceanside Atlantic City Boardwalk Apartments: 347-unit apartment complex with 2,311 windows

Goal: Rescue of chronic leaking problems

The Ocean at 101 Boardwalk, an immense apartment complex on the Atlantic City Boardwalk, was built in the late 1950s with steel salvaged from old naval ships. Unfortunately, the complex's 347 apartments proved to be less than seaworthy against the harsh coastal storms that frequently hit the area. The windows at 101 Boardwalk leaked drastically. David Coluzzi, CEO of The Esquire Group, the developer who purchased the Boardwalk in a bankruptcy auction in 2012, says the windows were a bigger problem than the developer had realized. The Esquire Group promised tenants that keeping them dry was the priority and selected Craig F. Dothe Architect LLC, an Atlantic City firm, to develop a cost-efficient solution that would not only keep the building dry, but would make the apartments more energy efficient.

The building tenants were skeptical when the latest renovation project was announced in early 2013. Previous owners' attempts to repair the leaky windows only seemed to exacerbate the problem.

This time, the architect called for complete removal of the façade to properly replace all 2,311 windows with 580 PVC tilt-turn windows and 1,731 fixed windows. The tilt-turn windows incorporate multiple locking points and dual compression seals that provide optimal air and water tightness. The multi-chambered walls of the fixed window system increases strength, improves energy efficiency and allows for efficient water drainage. Both systems exceeded New Jersey performance requirements for hurricane and impact-resistance.

The Esquire Group considered numerous window systems before selecting high-quality uPVC windows for their value and their expected payoff from energy efficiency. "Price, quality and workmanship sold the job," Coluzzi said. "We were impressed by the ability to build them quickly and the ease of installation. The windows had to be customized to fit the building and not the other way around."

Prior to the renovation, bathrooms would pond during a hard rain. Now tenants are excited about their dry apartments.

Circa Green Lake: Upscale residential complex with 1,084 windows

Goal: Modern design that maximizes daylighting while providing high levels of energy efficiency

The upscale residential complex of Circa Green Lake, adjacent to Seattle's Green Lake Park, features modern amenities and design elements that appeal to the area's metropolitan lifestyle. To maximize daylighting in the residential units, while maintaining a high level of structural performance and energy efficiency, developers selected a PVC compression-seal casement window design.

Provided as combination units, these windows also feature an architectural bronze exterior finish, achieved by applying an environmentally friendly polymer foil engineered for long-term weather resistance. The result is a visually appealing, reliable window solution that contributes to the overall comfort and satisfaction of Circa Green Lake residents.

The compression-seal projected windows provide high energy-efficiency, structural and acoustical performance, and security. Compression-seal windows generally provide better long-term air infiltration and water penetration resistance than sliding windows because they reduce friction and wear on weather stripping. The system has achieved hurricane impact ratings, providing design flexibility along the coastal regions which require adherence to strict building codes.

BENEFITS OF PVC VERSUS ALUMINUM WINDOWS

The green building community has embraced vinyl window and door systems for their high performance and energy efficiency despite controversy surrounding the manufacture, use, recycling and sustainability of PVC—primarily because of its association with the chlorine industry. Yet much of this argument has been driven by emotion rather than scientific scrutiny.

In reality, vinyl has surpassed aluminum on several fronts:

- Aluminum production creates five times more CO_2 than does PVC.
- Aluminum windows cause up to 60 percent more drafts and twice the potential for leaks.
- Aluminum's thermal conductivity is more than 500 times higher than that of PVC.
- Aluminum window life expectancy is 50 percent less that of PVC windows.

On the other hand, PVC is eco-friendly, energy efficient, fully recyclable and cost effective, and thus ideal for residential projects ranging from single to multifamily construction.

Eco-friendly and sustainable

During manufacturing, PVC is easily chipped into reusable waste material and extruded into new products. Ninety-nine percent of vinyl's manufacturing waste can be reprocessed while millions of pounds of post-consumer vinyl can be recycled.

Aluminum frames cause the highest burden to the environment because of their high energy consumption during production and the dangerous pollutants they release.

PVC is lightweight, so requires less fuel for transportation than do other materials. And its long life and resistance to weathering translate to far less frequent replacements, which conserves raw materials and prevents pollution typically associated with the manufacturing and disposal of alternative materials with shorter life spans.

Visit http://go.hw.net/AR1116Course4 to read more and complete the quiz for credit.

QUIZ

1. Which of the following is not a contributing factor in the recent surge in multifamily housing?
   a. Declining homeownership rates
   b. A need for climate friendly solutions
   c. Need for more transient lifestyles
   d. Demand for affordable construction

2. High performance uPVC window systems offer which of the following benefits?
   a. Lowering operating costs
   b. Occupant comfort
   c. Energy efficiency
   d. All of the above

3. True or False? PVC has a high salt content.
   a. True
   b. False

4. Why are aluminum windows more commonly used than PVC windows?
   a. Aluminum allows more heat transfer
   b. PVC is more commonly used for plumbing pipes
   c. Aluminum has become the default industry standard
   d. PVC is difficult to recycle

5. How do owners benefit from using uPVC windows in multifamily construction?
   a. Easy installation
   b. Value/benefit ratio
   c. Occupant comfort
   d. All of the Above

6. True or False? uPVC is resistant to moisture.
   a. True
   b. False

7. How can high-performance uPVC windows increase a building owner's return on investment?
   a. They meet PHIUS standards
   b. They have better energy performance and thus lower HVAC operating costs
   c. They are available in an array of colors and shapes
   d. They can be recycled into other products

8. What is the role of compression-seal technology in uPVC windows?
   a. Provides a seamless surface for painting
   b. Enables easier cleaning
   c. Maximizes window surface
   d. Keeps treated air sealed in and reduces noise

9. Which of the following is not a benefit of green certification?
   a. Shows curb appeal
   b. Demonstrates positive environmental impact
   c. Helps get rebates
   d. Boosts property values

10. Which is true of performance ratings?
    a. They are mandatory
    b. Help architects make aesthetic choices
    c. Show a products ability to perform to a desired standard
    d. Demonstrate high performance in all weather

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Course valid through November, 2019

MERGING ARCHITECTURE AND LANDSCAPE DESIGNS

Presented by:

VECTORWORKS
A NEMETSCHEK COMPANY

Skylights provide abundant natural lighting in the Gateway Center and Plaza at the University of Minnesota. Design by Antoine Predock Architect PC. Photo ©Tim Hursley.

LEARNING OBJECTIVES

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

1. Understand how architecture and landscape architecture practices can be merged.
2. List the energy efficiency and sustainability benefits of melding site and architectural design.
3. Explain the importance of early planning and coordination with all members of the design and build teams for successful integration of interior and exterior design and features.
4. Describe the benefits to the designer, builder, and occupant of merging indoor and outdoor architectural design strategies and features.

CONTINUING EDUCATION

CREDIT: 1 LU

COURSE NUMBER: ARmay2016.4

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By Andrew Hunt

SITE LOCATION FOR OPTIMAL LIGHT, WIND, AND PROTECTION

Many of the benefits of integrating a building's design with the local environment stem from careful consideration of the chosen building site. Where a building is positioned on a particular site can impact how an architect includes natural lighting features, how natural ventilation functions in the structure, and, on some sites, whether the structure may be protected from the elements.

Some of the issues designers need to consider include positioning windows or skylights to balance heat gain and loss, to control the glare within their own project and with neighboring properties, and to accommodate the variability of available daylight throughout the changing seasons. Designers will make different decisions regarding window size, shape, glass type, reflectivity, and position within the structure depending on the location and climate.

Buildings should be positioned to maximize or minimize solar access for warmth and daylighting, depending on the climate. For example, residential structures in a temperate climate may benefit from larger windows that allow for ample sunlight year-round, where

Built within the jagged mountains of the Swiss Alps, the Monte Rosa Hut has its own water supply provided by the mountainous terrain and was designed to blend with the surroundings and minimize the facility's exposure to wind and snow. Photo courtesy of Holcim Foundation and Wikimedia Commons.

structures in a warmer climate may benefit from designs that promote natural or built-in shade. In northern climates, buildings should be positioned to minimize any shade that may be present on the site's southern boundary. This may include trees, hillsides, or other buildings. In tropical settings, however, a designer may opt for ambient rather than direct sunlight as a way to maximize natural daylight access while also minimizing solar heat gain. These decisions can be included in both residential and commercial projects, as well as new builds and retrofits.

Wind is another important factor in building site selection and use. Designers and builders need to carefully consider the direction of the prevailing wind, local climate, and whether the site has its own microclimate, as all issues can affect a building's natural ventilation, roof and exterior building stresses, local wind tunnel effects, and exterior noise generation.

Both prevailing wind and location climate may be presented in terms of a site's microclimate, and the effects of that climate can greatly impact how a designer positions a building on a site. For example, topography such as ridges and valleys—or even other built structures—are likely to funnel wind and create a wind tunnel effect. There will also be stronger wind closer to the ridge. Open spaces tend to have more wind overall, and so building sites that border large open spaces such as parks, fields, or large bodies of water will need to be designed and positioned with those considerations in mind.

Commonly used ways to mitigate excessive wind on a residential building site include accommodating the direction of the prevailing wind by positioning the building in a way that

The Grandes Combes Courchevel blends with the snowy landscape to preserve the pristine vistas of the French Alps. Photo courtesy of Auer+Weber+Assoziiertte GmbH.

streamlines the wind around it, rather than blocks or buffers it, and positioning frequently used windows and doors away from the prevailing wind. By avoiding the prevailing wind, windows and doors can be kept open even on windy days, and in turn help provide natural ventilation to the building. Another useful strategy on windy sites is to design the building so that rooms that need to be quiet (for example, bedrooms) are situated on a wind-protected side of the residence. Again, on residential properties, designers may also choose to provide physical wind buffers such as fences, hedges, or courtyards. Such designs are best done in conjunction with a landscape architect, who can help fuse the natural surrounding with the building in a manner that helps mitigate wind impact.

PRESERVING VISTAS THROUGH INTEGRATED DESIGNS

Working with the site does more than manage light and wind; it allows architects to design structures that move with the land and preserve stunning, natural vistas. Take The Grandes Combes Courchevel, a resort and recreation hotspot between two mountains in the French Alps. The curving roof and sweeping design mimic the appearance of snow drifts and make the expansive resort blend seamlessly into the Alpine landscape.

BRINGING THE OUTSIDE IN

Designers are doing more than integrating their buildings with the site; they are merging exterior landscape features with interior spaces, offering a wide range of benefits for the environment, as well as its occupants.

Successfully fusing exterior landscape features with interior design requires an expanded

Designers and builders need to carefully consider the direction of the prevailing wind, local climate, and whether the site has its own microclimate, as all issues can affect a building's natural ventilation, roof and exterior building stresses, local wind tunnel effects, and exterior noise generation.

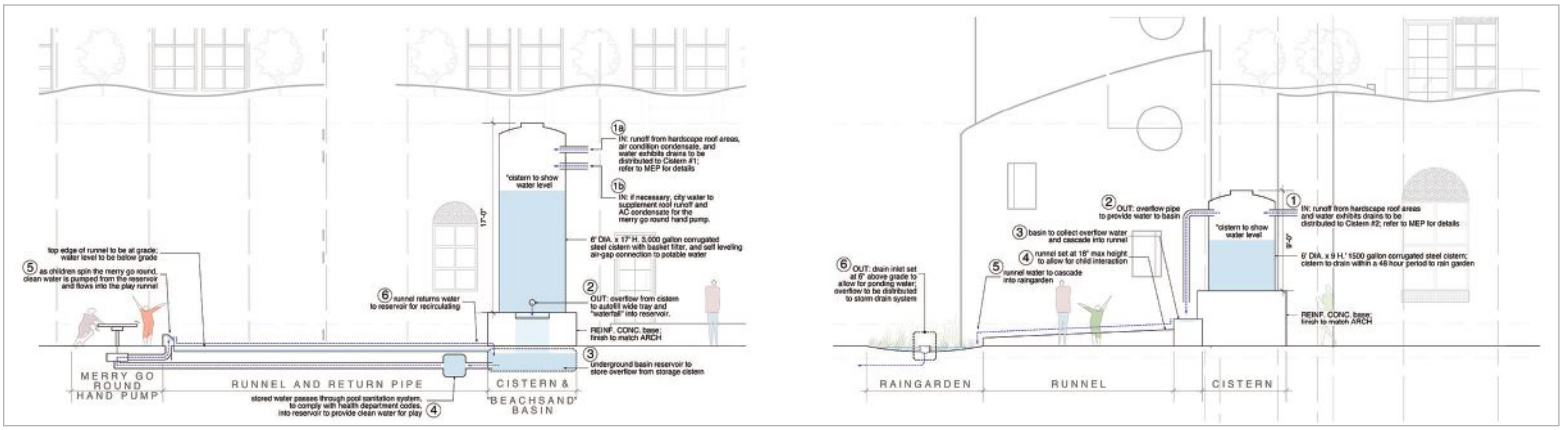
knowledge base, as well as an accommodating workflow, and it starts with a willingness to have all members of the design and build teams working together in early planning. Further, the designer must understand both the benefits of an integrated approach and the common challenges.

WATER CONSERVATION INCLUDING RAINWATER CAPTURE

Landscape and building architects can both benefit from water conservation techniques on a building site, especially if they include plans for water conversation in their early designs. Two of the more common practices are rainwater capture and water recycling. Both practices can work to integrate the natural environment and the built environment in a manner that addresses aesthetic and energy-efficient design choices.

Rainwater capture, also known as rainwater harvesting, catches and stores rainwater from elevated surfaces such as rooftops or rock catchments. In some situations, however, designers may be in a position to create underground collection sites.

Rooftop rainwater collection is simple, and usually involves a combination of gutters and down-pipes that divert the rooftop water into a basin or rain barrel, which may have a screen on top to help filter out sediment. Designers interested in using this technique should consider the health implications of the roofing materials and choose materials that are known to not impact the quality of the water. For example, bamboo and coated or painted roofs may leach



At Moxi, The Wolf Museum of Exploration and Innovation, rainwater capture capabilities are deployed for fun and educational purposes in a raingarden and a childrens' playground. Design by Van Atta Associates, Inc.

chemicals into the water, where galvanized, corrugated iron or aluminum roofs will not. Rain barrels should also be constructed of non-leaching materials, and the roof catchments should be regularly cleaned and maintained to ensure that the collected water is clean.

Another means of collecting rainwater is through ground-level catchments, which can also help improve the water runoff of a property. This technique uses a combination of drains and collection basins to harvest the water from a larger surface area than typical rooftop collection allows. Landscape architects can use this technique to build in water features on the property, such as small streams with storage reservoirs and even dams, if needed, to help provide water during times with less rain. One challenge of this technique is that much water is lost to natural seepage into the ground; another is water quality. The water obtained from ground-level catchments is best used for watering outdoor plants and gardens, rather than home-use.

INNOVATIVE INTERIOR ARCHITECTURAL PRACTICES THAT INCORPORATE LANDSCAPE DESIGN

The process of integrating exterior and interior features often begins with a desire to both physically enhance the occupant experience inside the built environment while also addressing energy efficiency and sustainability goals. Integrating a building into the landscape allows architects to design for the environment and lowers a building's ecological footprint. It also allows the architect to preserve natural vistas by creating buildings that move with the land.

Traditionally, building design and landscape design were done separately with only minimal integration. However, as the lines between architecture and landscape blur, architects and landscape architects may be called upon to collaborate on projects more frequently than they have in the past. Often, the landscape design was completed only after the initial building design was finished. Now, however, when merging the two spaces, collaborative design becomes central to the overall project. For example, a building may be designed to promote a sense of awe of the natural surroundings, or to invite occupants to appreciate the openness of a space. The process of creating this experience can only be done through the close work and shared vision of the building and landscape architects. Often, these designs bring together some of the philosophies of landscape architecture to the building itself.

The Ohio Veteran's Memorial and Museum in Columbus, Ohio is a good example of this kind of merged design. The partly subterranean building was designed by Allied Works and integrates the surrounding parkland landscape. Portions of the building are carved into the surface with a circular, spiraling terrace and curved slope that rises above the ground as a path to the sanctuary. This room will be used for ceremony, celebration, and reflection.

Designs such as the Ohio Veteran's Memorial and Museum are becoming increasingly common in civic structures and in commercial properties, but similar innovative designs are also used for residential properties. Less dramatic designs that merge the local and built environment can also be seen in urban centers, where the lower levels of buildings are designed to soften the urban experience. For example, gardens or small parks with benches may be incorporated into the design in place of traditional concrete surroundings. This practice gives back to the city and invites citizens to engage with the structure, rather than presenting an unwelcoming space.

BENEFITS OF BRINGING NATURAL, OUTDOOR ELEMENTS TO THE BUILDING DESIGN

While the art of creating an aesthetically pleasing or awe-inspiring space often drives architectural design, there are many practical benefits of integrating site and landscape features with the overall building design. For example, the design may present high-ceilinged, open indoor spaces with large windows that overlook vast, open outdoor spaces. Alternatively, the space may fuse exterior gardens with indoor green walls. The design options will depend on the client's needs and on the site itself.

NATURAL LIGHTING BENEFITS

Buildings that are designed to include natural lighting choices, such as floor-to-ceiling windows, glass walls, strategically placed windows, glazed porches, or skylights that maximize the occupants' access to natural outdoor light, have been found to have a number of benefits. From a health and happiness standpoint, natural light—also referred to as daylighting—has been shown to improve the overall well-being of building occupants through increased productivity in workplaces and improved comfort in residential and commercial spaces. The link between natural light and human circadian rhythms is the underlying basis for why access to natural light (as opposed to artificial) is particularly important in

Green space intermingled with walkways make this urban area feel rich and alive. Photo courtesy of Town and Gardens, LTD.

workplace settings, where occupants benefit from the visual and mental stimulation of natural light.

Of course, a downside of natural lighting is that it also increases thermal load on a building. In colder climates, this can lower heating costs in the winter. However, in warmer months, the extended sunlight may require an increase in cooling costs.

NATURAL VENTILATION BENEFITS

Natural ventilation can provide numerous benefits when appropriately included in building design. A primary benefit is energy-savings during warmer months, when a building may be cooled through natural airflow rather than with air conditioners or fans, all while providing fresh, indoor air.

The two most common types of natural ventilation are **wind-driven** and **buoyancy ventilation**. Both types use the pressure differences between the air outside of the building and the air inside. The difference between the two is that, as its name suggests, wind-driven ventilation uses the pressure of naturally occurring wind, where buoyancy uses the air pressure that is created by differences in temperature and humidity.

This article continues on http://go.hw.net/AR516Course4. Go online to read the rest of the article and complete the corresponding quiz for credit.

QUIZ

1. What is the primary benefit of natural ventilation?
   a. Energy savings during warm months
   b. Sensory smells from outdoors
   c. Decrease indoor humidity
   d. Reduce allergens in the work space

2. True or False. Cool tower ventilation only works in low humidity environments.

3. Which of the following roof products may leach chemicals into rain water collection?
   a. Galvanized iron
   b. Aluminum
   c. Corrugated iron
   d. Bamboo or painted tiles

4. True or False: Buildings should be positioned to maximize or minimize solar access for warmth and daylighting, depending on the climate.

5. What typically causes wind tunnel effect?
   a. Manmade cylinders funneling wind
   b. Topography and other buildings
   c. Open areas
   d. Large snow covered mountains

6. Where can green walls be installed?
   a. Indoors
   b. Outdoors
   c. Indoors or outdoors
   d. In greenhouse structures

7. What is a heat island?
   a. Higher temperatures in urban areas
   b. Higher temperatures on structures built by water
   c. Higher temperatures in rural areas
   d. Higher temperatures in higher elevation

8. What is the main benefit of a design-build system?
   a. Allows each builder to work autonomously on their job
   b. Adds multiple people to the chain of command
   c. Puts all the responsibility on the client
   d. Streamlines the project through a single source

9. Who benefits from merging landscape design and building architecture?
   a. Architect
   b. Builder
   c. Owner
   d. All of the above

10. What groups need to work closely in the planning stage to bring together the natural landscape and built environment?
    a. Landscaper and owner
    b. Occupants and contractors
    c. Building architects and landscape architects
    d. Architects and Occupants

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SPECIFYING HIGH-PRESSURE DECORATIVE LAMINATE DOORS

Presented by:

VT INDUSTRIES

LEARNING OBJECTIVES

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

1. Identify the press process and construction method for high-pressure decorative laminate (HPDL) doors.
2. Distinguish the various design options, industry standards, and benefits of HPDL doors.
3. Describe the environmental and safety considerations for HPDL doors.
4. Identify future trends of HPDL doors.

CONTINUING EDUCATION

AIA CREDIT: 1 LU
AIA COURSE NUMBER: ARNOV2016.2

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By Parker A. Grant, PhD.

WHAT IS HIGH PRESSURE DECORATIVE LAMINATE?

Throughout history, the door has been a compelling design element. The arch top doors of the Romans. Medieval doors wrought in bronze. The elaborately carved doors of the Renaissance, the plain doors of the Shakers—all different, all distinctive. No matter what their time period, designers throughout the centuries would no doubt recognize the door as an opportunity to make an aesthetic statement. This is no less true today, as architects choose from an unprecedented array of styles to specify a door consistent with their vision, quality goals, and performance requirements.

In terms of materials, the natural warmth and beauty of wood veneer remains a classic choice for interior doors, complete with the unique physical characteristics that give it depth and interest. However, many architects are now turning to high-pressure decorative laminate (HPDL) doors, which are available in a full range of colors, patterns, wood grains, and custom solutions. The primary difference between HPDL doors and wood veneer-faced doors is simply the face material.

Compared to laminate doors from earlier times, today's versions feature improvements in virtually every element and process, with the results including more detailed patterns, smoother surfaces, stronger bonds to substrates, advanced resin surface chemistry for easier maintenance, manufacturing processes that prevent delamination of edges, and increased recycled content.

While high-pressure decorative laminate (HPDL) is often called "plastic laminate," it is basically a surfacing product that consists mainly of decorative paper for style, Kraft paper for flexibility, and resins for durability. The brown paper that you normally associate with laminate is a Kraft paper that has been impregnated with a phenolic resin to increase its flexibility. The Kraft paper is an unbleached, highly absorbent, and thick grade of paper, similar to what we commonly see in paper shopping bags.

Decorative papers which are the top layer of paper, give the HPDL it's look—such as the color and pattern. They are generally treated with a melamine resin which gives the laminate sheet its durability. The underlying Kraft papers are saturated with phenolic resins and are stacked in layers and pressed under heat. In the press, the resin is cured under high pressure, and the separate layers of paper consolidate and form a single sheet of laminate.

With technological improvements in manufacturing and materials, HPDL materials are becoming an increasingly popular door surface application. These doors offer many design choices, cost benefits, performance achievements, and environmental attributes.

Laminate Grade

When specifying laminates for HPDL doors, Horizontal, General Purpose, Standard (HGS) Grade Laminate should be specified. HGS Grade is commonly referred to as "standard grade" laminate. With higher impact resistance, this is an ideal grade for interior door faces and horizontal surfaces including work surfaces, countertops, and vanity tops. However, standard grade laminates are not recommended for postforming, where laminate is wrapped on a curve. The nominal thickness of HGS laminate is 1/16" (0.048") or 1.2mm.

Laminate Sheet Sizes

HPDL sheets and panels can be manufactured in a full range of thicknesses, finishes, and sizes. Standard sizes include the following dimensions:

- 3, 4, and 5 foot widths
- 8, 10, and 12 foot lengths

Some exceptions apply, such as 3'x7' sheets, because they would be used by the door manufacturers. Also, HPDL sheets are generally oversized by 1/2" in both width and length to assist the fabricator during the lamination process. Not all products from all manufacturers are available in all widths and lengths. Check your manufacturer's technical data for more information.

BENEFITS OF HPDL DOORS

Why choose HPDL? Let's take a look at some of the benefits of HPDL interior doors that help architects make this a preferred choice for unique and intentional interior building designs.

Custom Designs

There is a very large offering of colors and finishes for HPDL doors that can meet your custom design needs. In addition, there are many specialty finishes and products for various applications, such as chemical resistant and color-through laminates. Custom HPDL doors are available through the trusted network of door and hardware distributors.

Desirable Consistency

Due to their durability and uniformity of appearance, HPDL doors have considerable appeal where consistency is desirable. HPDL virtually eliminates the inconsistencies that natural wood veneers are predisposed to including: knots and pin holes, excessive grain variation, color variations between heartwood and sapwood, naturally occurring streaks and spots, and the variations that result from the manner in which individual wood veneers accept stain or finishes. HPDL doors are a good choice when uniformity across an organization or a regional or national franchise is a key consideration, such as in offices and hotels, schools and restaurants.

Consistency is also achieved through the adherence to industry standards. HPDL door products meet or exceed Architectural Woodwork Institute (AWI), and Window and Door Manufacturers Association (WDMA) architectural wood door standards.

HPDL doors can be wiped down with general-purpose cleaners to remove smudges or fingerprints and are tolerant of disinfecting detergents used in healthcare facilities.

Easy Maintenance

Today, laminate doors are recognized for their easy maintenance. Some HPDL doors are fingerprint resistant, which is a time and cost-saving benefit, particularly in such facilities as commercial kitchens, school cafeterias and restaurant settings where food stained handprints can leave grime.

HPDL doors can be wiped down with general-purpose cleaners to remove smudges or fingerprints and are tolerant of disinfecting detergents used in healthcare facilities. Stains from pencil marks and inks, such as felt tipped pens, are removed using a solvent such as denatured alcohol, fingernail polish remover, mineral spirits or paint thinners.

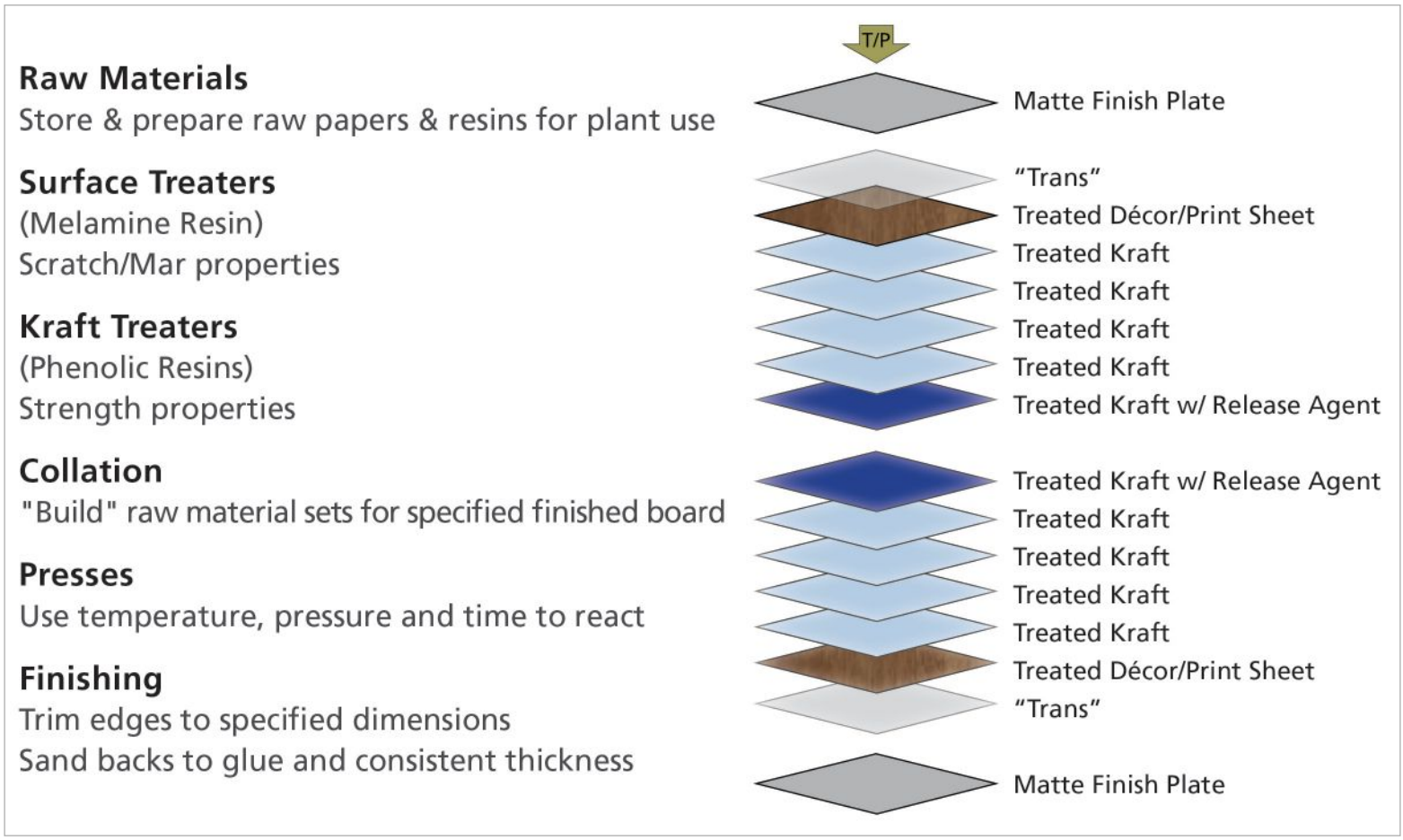
For tough jobs, such as removing paint graffiti from a door's surface, several cleaning products have been successfully tested under controlled conditions. Those products included:

- Hair spray (non-aerosol), which completely removed paint after sitting for 15 seconds, leaving no residue on the surface. For example, at Kent State University, maintenance personnel were able to clean off permanent marker graffiti from HPDL-faced dormitory doors by using ordinary hair spray and a dry cloth.
- Lacquer thinner, which helped to remove the paint after sitting for 60 seconds.
- Citrus-based industrial cleaner, which completely removed paint after sitting for 15 seconds and left no residue on the surface.

Water-based paints are removed with an ammoniated household detergent. In addition, HPDL doors resist the growth of bacteria, or fungus often attributed to wood veneer doors. This is because laminate has a melamine coating and it does not facilitate the growth of bacteria, or fungi. HPDL doors are available with laminated end rails for use in health care facilities or other applications where a smooth, impermeable finish is desired.

Affordable Product

HPDL is very affordable when compared to most other surfacing materials. Regardless of wood grain or pattern, laminates offer more constant pricing and are not subject to the fluctuations that often come with the cost of various species of wood veneer. Decorative laminate doors are cost effective and do not require onsite finishing. Because of today's laminate press technologies and door construction methods, HPDL doors typically have shorter manufacturing lead times as well.



HPDL consists of multiple plies of phenolic resin-coated Kraft papers covered with a high-grade decorative paper layer that is compressed under high pressure and heat for an extended period of time.

PRESS PROCESS AND CONSTRUCTION METHOD FOR HPDL DOORS

HPDL consists of multiple plies of phenolic resin-coated Kraft papers covered with a high-grade decorative paper layer that is compressed under high pressure and heat (a minimum of 1,000 psi at 280–300°F) for an extended period of time.

The number of Kraft/phenolic layers in each sheet of HPDL determines the product being used, as well as its thickness. Various thicknesses are available that meet NEMA requirements. Standard laminate thicknesses meet the WDMA quality performance standards.

Surface textures are transferred from stainless steel plates to the top surface as the paper layers are bonded together during manufacturing. This metal plate determines the finish properties, like matte or gloss.

Once the pressure cycle is completed in a hydraulic press, the backside of the laminate sheet is sanded to provide better adhesion for fabrication and the edges are trimmed.

Cold vs. Hot Press Process

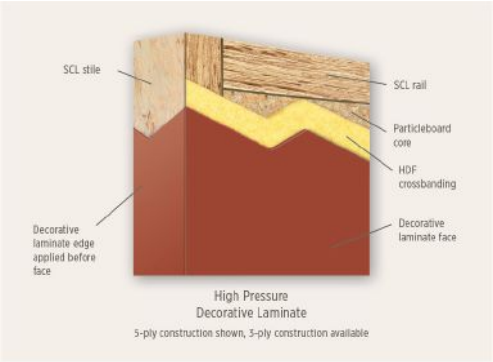
The key to consistency is the press technology. Doors may be hot pressed or cold pressed. The door manufacturer controls all components. The hot press provides control over all steps of the process, whereas the cold press is an uncontrolled process. Cold press takes much longer and cannot produce the quantity or quality that hot pressing does.

The hot press technology controls the four critical manufacturing factors of pressure, temperature, time, and platen. It allows for a uniform bond with Type I glue. Each HPDL door is individually pressed and is now a common process for architectural wood doors.

HPDL Door Construction

HPDL doors are typically specified with 5-ply or 3-ply construction and are manufactured with

	HOT PRESS	COLD PRESS
PRESSURE	CONTROLLED Individually pressed	UNCONTROLLED Bottom door of pile will have more pressure than the top door
TEMPERATURE	CONTROLLED Based on the type of material and thickness of each door	UNCONTROLLED Ambient conditions of the building
TIME	CONTROLLED Based on the type of material and thickness of each door	UNCONTROLLED 30 minutes to 1 hour, plus 4–8 hours to allow glue curing time
PLATEN	CONTROLLED Individually pressed	UNCONTROLLED Stacked door to door to door in one press opening



HPDL doors are typically specified with 5-ply or 3-ply construction and are manufactured with the same core options found in wood veneer doors.

the same core options found in wood veneer doors. This includes particleboard, stave lumber, structural composite lumber, mineral fiber (non-combustible material), and agrifiber board.

In terms of door edges, they are usually finished with the same laminate as the face. Laminate edges applied before the face laminate "lock in" the edge strip for durability and help to prevent chipping. This is because the edge-before-face design minimizes the seams for a more attractive appearance. Alternately, door edges can be painted or stained to match the face.

HPDL doors constructed for high impact areas such as hospitals and emergency rooms, use PVC and mortised stainless steel edge guards to offer increased impact resistance. Furthermore, manufacturers offer laminated or sealed top and bottom rails on HPDL doors to maximize the ability to clean the door and to protect the door against moisture damage which could eventually lead to warping.

Most manufacturers have the capability to factory-machine doors for commercial hardware preparation. More specifically, they can pre-drill pilot holes for hinges and face plates. In turn, this provides quick and hassle-free door installation at the jobsite and prevents damage to the stiles due to incorrect drilling technique during field installation.

This article continues on http://go.hw.net/AR1116Course2. Go online to read the rest of the article and complete the corresponding quiz for credit.

QUIZ

1. True or False: HPDL is basically a door surfacing product that consists mainly of decorative paper for style, Kraft paper for flexibility, and resins for durability.

2. When specifying laminates for HPDL doors, _____ should be specified.
   a. Horizontal, General Purpose, Standard (HGS) Grade Laminate
   b. Vertical, General Purpose, Postforming (VGP) Grade Laminate
   c. Horizontal, General Purpose, Postforming (HGP) Grade Laminate

3. True or False: HPDL doors can be wiped down with general-purpose cleaners to remove smudges or fingerprints and are tolerant of disinfecting detergents used in healthcare facilities.

4. Because of today's laminate press technologies and door construction methods, HPDL doors typically have _____ manufacturing lead times.
   a. longer
   b. shorter

5. True or False: The cold press technology controls the four critical manufacturing factors of pressure, temperature, time, and platen.

6. Laminate edges applied before the face laminate "lock in" the edge strip for durability and help to prevent _____.
   a. scorching
   b. chipping
   c. staining

7. True or False: The matte finish is considered standard for HPDL doors.

8. The use of HPDL materials promotes resource _____ since they can recreate the look of common and exotic wood grains without reducing the world's forests.
   a. usage
   b. access
   c. conservation

9. True or False: Improvements in the visual and physical texture of HPDL woodgrain designs have contributed to the increased acceptance of decorative laminate doors by designers, architects, and specifiers during the past decade.

10. Depending on the application, fire-rated HPDL interior doors are designed to meet fire-resistance ratings of:
    a. 10 to 20 minutes
    b. 20 to 90 minutes
    c. 30 to 160 minutes

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Celebrating 60 years in 2016, VT Industries, Inc. is an industry leading manufacturer of architectural wood doors. With three stunning architectural wood door collections—Heritage, Artistry, and SUPA, VT's wood doors set the bar for quality, design, and environmental friendliness. Add world-class customer service and you have a complete solution for any of your projects' openings.

House in Hermosa Beach, CA by Lapis Design Partners LLC
Photographer: Jesus Martin Ruiz

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"During the postwar years, as architecture moved in a determinedly functionalist direction, Eliel Saarinen's brand of Modernism would come to seem passé. More's the pity."

Revisiting Kleinhans Music Hall by Witold Rybczynski, HON. FAIA

I first became aware of the Kleinhans Music Hall in Buffalo because of a chair. I was researching Eero Saarinen's furniture for my book *Now I Sit Me Down* (Farrar, Straus and Giroux, 2016), and I came across one of his earliest chairs, designed in the late 1930s in collaboration with Charles Eames. The two young men—Saarinen was 28, Eames was 31—were working together in the Bloomfield Hills, Mich., office of Saarinen & Saarinen, a partnership recently formed by Eliel Saarinen and his son. The chair was intended for a new concert hall that the firm was designing in Buffalo.

I was recently in Buffalo and had a chance to visit the hall. Not surprisingly, the chair was no longer in use—few public seats last 75 years. Nevertheless, I found several survivors in the musicians' lounge. The striking design, which uses one piece of lightly padded molded plywood for the seat and back, was

Kleinhans Music Hall, which is located in a leafy Buffalo neighborhood

obviously influenced by Alvar Aalto's molded wood furniture of that period, yet for two novices it remains an impressive accomplishment.

I came to Kleinhans for the chair, but I stayed for the architecture. Not widely known, this building, which opened in 1940, is remarkable in several ways. To begin with, unlike most urban concert halls, it is not downtown but in a leafy residential neighborhood, surrounded by large, freestanding homes on Buffalo's West Side. The hall faces a 500-foot-diameter landscaped circle that is the prominent termination of one of the parkways that Frederick Law Olmsted and Calvert Vaux laid out when they re-planned the city in the 1860s; the other end of the parkway is anchored by H. H. Richardson's monumental Buffalo State Hospital.

Olmsted and Vaux's circle is the key to the Kleinhans partis: a drumlike curved chamber music hall echoes the circular shape; the main hall, a larger curved volume, extends to the rear; the lobby, serving both halls, is situated between. Nothing could be simpler.

An Understated Throwback

We have become used to concert halls that make big bold statements: the looming sculptural forms of the Philharmonie in Paris, the metallic sails of Disney Hall in Los Angeles, the giant glass barrel vault of the Kimmel Center for Performing Arts in Philadelphia. The Kleinhans is curiously elusive. Approaching from the circle, one catches glimpses between the trees of a small drum embraced by a curved walkway and a reflecting pool. No windows and no entrances—there are two in this axially symmetrical building—are visible, just the drum and the pool. The main entrance is on the side, and it is a bit of a surprise since it is dominated by a long concrete canopy that, while structurally elegant, resembles a bus shelter. Mundane but useful; it was raining hard the day I visited, and I thankfully ducked under its protective cover.

The exterior of the Kleinhans is brick. No structural high jinks, no fancy coursework, just multicolored Ohio Wyandotte brick, a rather rustic material that Eliel Saarinen had used extensively at the Cranbrook School in Michigan. A bulky, windowless, brick building sounds like an awkward fit in a residential setting, yet fit it does. The scale of the large hall is reduced by stepping-down emergency stairs that anticipate the exterior stair in Aalto's Baker House; the walls of the chamber music hall—the drum—are enlivened by large panels of buff Mankato limestone. The regular spaces between the panels resemble pilasters and, combined with the reflecting pool, suggest a classical rotunda. Think Pope's Jefferson Memorial.

Inside, the lobby is a 50-foot-wide arced space with curved walls, rounded details, and sinuous stairs leading down to a restaurant and bar in the basement, and up to the second-level lobby. This upper gallery is suspended by steel hangers from the ceiling, leaving the lower lobby column-free. My guide, Ted Lownie, of the local firm HHL Architects, has served as Kleinhans' house architect for two decades, and he speculates that while the exterior shows Eliel's hand, the lobby seems to be Eero's work. Just before joining his father, the younger Saarinen worked for Norman Bel Geddes, the industrial designer responsible for tear-drop-shaped cars, swooshy desk lamps, and curvaceous exhibition pavilions. Bel Geddes is considered to be one of the fathers of streamlining, and his influence on the Kleinhans lobby is unmistakable. It's even apparent in the rounded upholstery of the lobby seating, designed by Eero and Charles.

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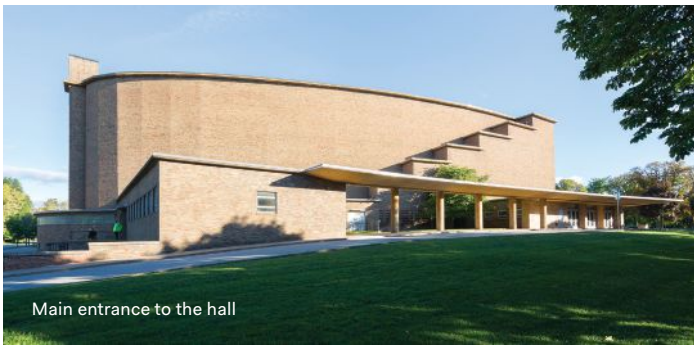
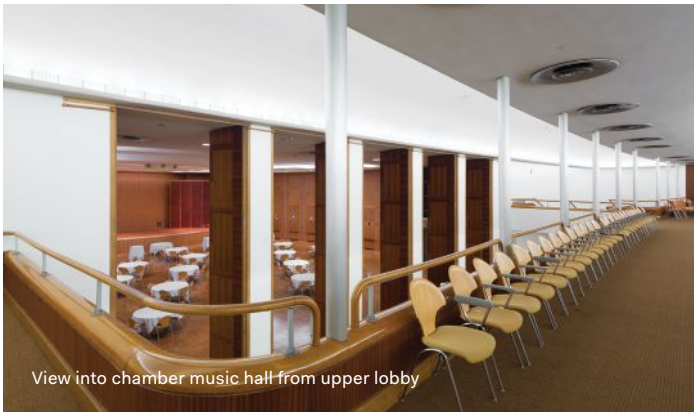
On one side of the lobby, five full-height wooden doors swing open to reveal the chamber music hall. The walls of the hall, like the doors, are zebrawood, and curved rosewood screens flanking the raised stage; the floor is oak and the molded ceiling is white plaster. The decor, as in the lobby, is modernist, but unlike so many buildings today, it is neither over-detailed nor merely celebrates precision. Lighting fixtures are mostly hidden, and the space is illuminated by recessed wall spots that reflect light off the rippled ceiling. Technology is kept in the background; you could call this Low Tech.


Main entrance to the hall

"A Joy to Play In"

The ultimate test of a concert hall is the main auditorium. The acoustics of Kleinhans are somewhat controversial, because the reverberation time is relatively short, which today is considered suboptimal by many acousticians. On the other hand, musicians have generally praised the hall. Sergei Rachmaninoff, who performed in Kleinhans shortly after it opened, considered it "one of the best acoustical arrangements in this country." The violin virtuoso Jascha Heifetz called it "a joy to play in." I attended a Joshua Bell concert during my visit and to me the music sounded clear and precise.

But perhaps I was influenced by the architecture. It's rare that a room takes one's breath away—this


View into chamber music hall from upper lobby


Staircase to second-level lobby

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The main hall, which seats 2,400, during a recent performance of John Williams' "Movie Masterworks"

one does. There is none of the distracting techno-clutter that you find in so many modern concert halls; no suspended sound reflectors and chandeliers, no banks of spotlights, no sculptural wall treatment. The softly modeled plaster ceiling and the subtly shaped wooden walls lead the eye to the stage. There is no proscenium to separate the audience from the musicians. We are all together in this serene space.

Eliel Saarinen was close to music—and to musicians. In Finland, he had known Jean Sibelius and Gustav Mahler, and he was friends with Serge Koussevitzky, the conductor of the Boston Symphony Orchestra. Koussevitzky, who recommended Saarinen for the Kleinhans job, had commissioned him in 1937 to plan the orchestra's summer home at Tanglewood in western Massachusetts. As he did in the Tanglewood "Shed," Saarinen used a fan-shape for Kleinhans, which is a very large hall—the original capacity was 2,800, recently reduced to 2,400 to provide more comfortable seating. But because of its shape all the seats in the steeply raked auditorium, and on the large balcony, are close to the stage. Significantly, new seating and carpeting—both matching the original—are the only notable changes to the hall in 75 years.

An impression of warm intimacy is heightened by the light-colored wood paneling—primavera, the same wood that Mies would use in the Farnsworth House. The paneling is better described as wallpaper, because it is actually a paper-thin wood veneer on a linen backing that is glued to the plaster wall. Randomly spaced sound-absorbing panels are faced with perforated sheets of asbestos-cement, painted to look like primavera. Not form follows function, but form follows the demands of the human eye.

Because Eero Saarinen went on to become famous and is today better remembered than his father, there is a tendency to emphasize his involvement and,

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indeed, the streamlined lobby does anticipate his TWA terminal. But Kleinhans shows all the marks of a mature and seasoned designer, and while Eero was undoubtedly precocious, he was only four years out of school when he started on the building. At Kleinhans, Saarinen *père* took the lead. "Until his death, I worked in the form of my father," Eero later explained in an interview.

Saarinen's Humanism

Kleinhans was Eliel Saarinen's first major American commission outside Cranbrook. By the time that the concert hall was designed he had moved away from the decorative Modernism of his earlier buildings, but the textured brick, the tapestry-like stone panels, the "quilted" wood paneling, even the use of symmetry, mark Kleinhans as a outlier to the then-recently christened International Style. (Henry-Russell Hitchcock and Philip Johnson had pointedly left Eliel Saarinen out of their International Style exhibition at the Museum of Modern Art in the early 1930s.) During the following

"It's rare that a room takes one's breath away—this one does. There is none of the distracting techno-clutter that you find in so many modern concert halls; no suspended sound reflectors and chandeliers, no banks of spotlights, no sculptural wall treatment."

postwar years, as architecture moved in a determinedly functionalist direction, Eliel Saarinen's brand of Modernism would come to seem passé. More's the pity.

While Klienhans includes some Art Moderne touches, and its lobby shows the influence of the then-current fashion for streamlining, its privileging of the tactile and the visual reflects Eliel's considered humanism. In his book *Search for Form* (Reinhold, 1948), he wrote, "the reasons for strength and weakness of form cannot be found in the turmoil of life, but in man himself." Not that Kleinhans ignores the "turmoil of life"—this is a technically advanced building. The spaces are fully air-conditioned; deep steel trusses span the concert hall; hidden I-beams support the hovering cantilever of the balcony; a large portion of the stage acts as an elevator and lowers to accommodate extra seating or an orchestra pit. Yet Saarinen never allows his technological legerdemain to intrude on the musical experience of the hall. That's part of his humanism, too.

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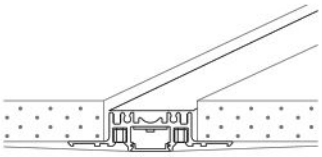

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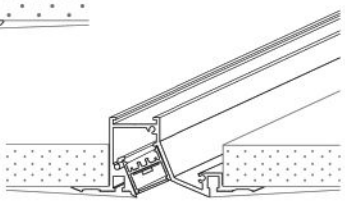

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“De Monchaux is entranced by the power of GIS mapping to identify unclaimed and underutilized urban places. He sees a city’s leftovers as crucial ingredients in creating resilience.”

The Elusive Promise of Big Data by Karrie Jacobs

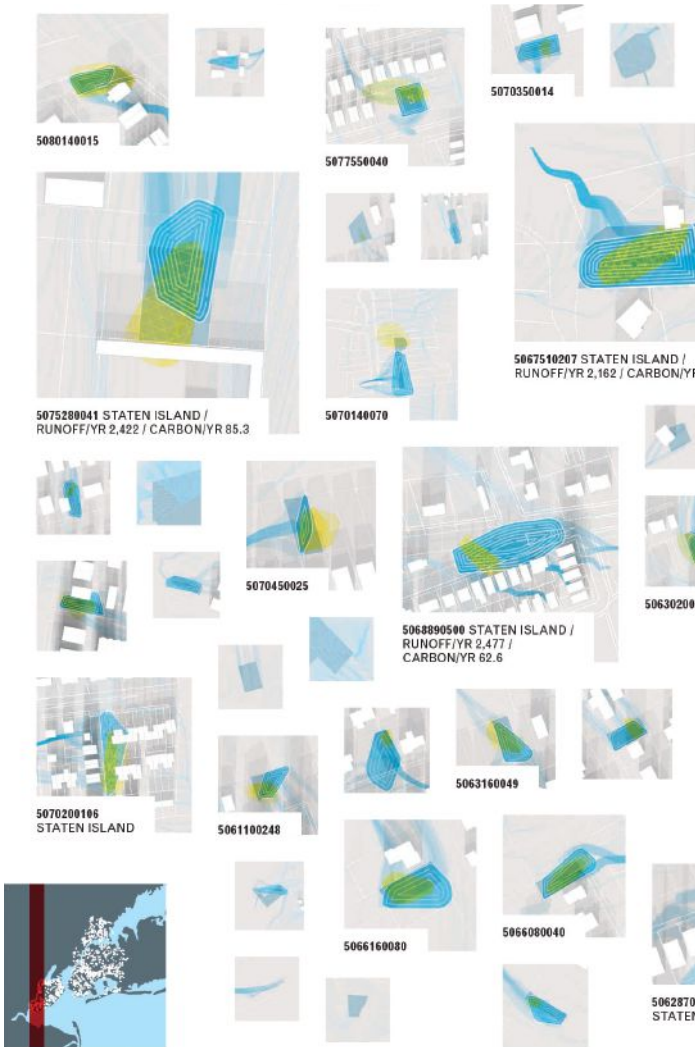
The image that comes to mind is a banquet, a long table piled high with food, at which the guests are equipped only with toothpicks. That's how it feels lately to read about the ongoing megamerger between urban theory and big data. Dramatic changes are happening all around us: the barriers between the tech industry and government bureaucracies, between the world of networked electronics and of brick and mortar, are crumbling. But for all the hype, there are few writers who have managed to tell more than a fraction of the story. At least, that was my conclusion after reading Nicholas de Monchaux's *Local Code: 3,659 Proposals about Data, Design & The Nature of Cities* (Princeton Architectural Press, 2016), a collection of dense essays and data-driven urban concepts, and Ingrid Burrington's *Networks of New York* (Melville House, 2016), a slender volume that decodes the infrastructure of the city's information networks.

GIS Mapping as a Solution to Resiliency

I don't mean to accuse de Monchaux of being a toothpick wielder. An associate professor of architecture and urban design at the University of California, Berkeley, he's the author of a previous book, *Spacesuit: Fashioning Apollo* (MIT Press, 2011), which treats the title object as a cultural *mille-feuille*. In *Local Code*, de Monchaux sets out to "address the question of how information, cities, and resilience can be considered together." It's an immense topic, but this is a relatively modest book, one that attacks its subject matter obliquely, selectively, and idiosyncratically. In particular, de Monchaux is entranced by the power of geographic information system (GIS) mapping to identify unclaimed and underutilized urban places. He sees a city's leftovers as crucial ingredients in creating resilience.

The 3,659 proposals of the title, distributed at intervals throughout the book, mostly take the form of tiny GIS maps of these urban fragments, little geotechnical canapés. In San Francisco, for instance, he's located 1,500 "unaccepted streets," stretches of pavement or dirt that have been designated as rights-of-way but are not maintained by the city. He doesn't exactly propose a use for each one, but suggests that, outfitted with bioswales, permeable pavers, and gardens, they could economically solve the city's stormwater management problems. He implies a similar approach for making New York City's vacant lots into a "network of physical resilience." Los Angeles, no surprise, has myriad disused sites underneath billboards that could be parklets. And the 212 square miles of the Venice Lagoon, intriguingly, contain more than 60 out-islands, some abandoned and many less than half an acre in size, that de Monchaux proposes as the sites of "cultural and ecological catalysts." The idea, apparently, is that this land would allow for more contemporary developments than can be built in the city's historic core.

De Monchaux's proposals are tantalizing—I love the idea of harnessing urban leftovers for the greater good—but also frustratingly vague. Each city's proposal gets a page or two of description followed by many pages of data graphics (designed by Catalogtree) that say more about computer mapping as an aesthetic than they do about cities. They leave me desperate to know more about how these leftovers might become, as the book jacket copy puts it, "a social and ecological resource."



Nicholas de Monchaux's stormwater proposals for Staten Island

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Matta-Clark's 1974 project *Splitting*, a house in Englewood, N.J.

A Digital History Lesson

Local Code also contains three substantial, satisfying, and wonderfully loopy essays that illuminate the prehistory of digital mapping by probing the lives of historical figures: the architect-turned-artist Gordon Matta-Clark, the mother-of-all-urbanists Jane Jacobs, and the lesser-known Howard T. Fisher, an architect who developed an early marriage of computer mapping and data collection called SYMAP. De Monchaux's essays are as rich as his proposals are thin. They trace obscure pathways through the lives of these figures and lead, slowly and indirectly, to the point where each subject's work dovetails with digital mapping or computerized quantification of urban conditions.

The essay on Matta-Clark, "Fake Estates and Reality Properties," is alone worth the price of admission. The artist purchased 15 oddly shaped, unbuildable slivers of land in New York City real estate auctions, but before his plans for the parcels became clear, he died, in 1978, at the age of 35. In the early 1990s, the paperwork for the transactions were rediscovered, and it has since been exhibited widely, regarded as an important work of conceptual art. It's a "speculation on real estate, property, ownership, and territory," writes de Monchaux, whose land use proposals were clearly inspired by Matta-Clark's project.

De Monchaux traces the artist's career, highlighting his most famous works, derelict buildings cut up in ways that transformed them into sculpture, or houses sawn in two, like *Splitting* (1974), a two-story structure in Englewood, N.J., that is sliced down the middle with the front and back halves canting outward in opposite directions. Then Matta-Clark began to realize that there might be another way to accomplish his "interventions." In 1976, he wrote a letter to Bill Mitchell, who was then teaching at the University of California, Los Angeles. (Mitchell later became the director of the Massachusetts Institute of Technology's Media Lab.) Matta-Clark explained his work, and said he wanted to "catalog a set of more idealized spacial [sic] variation by using computer graphic techniques." He also attempted to get access to computer systems developed for the military at MIT. The implication is that the artist had, by the time he died, begun to understand the power that computer simulations might have in manipulating structure—or, at least, depictions of structure—more than a decade before the architectural profession embraced the same idea.

De Monchaux's Jane Jacobs essay, "Life Attracts Life," tells fascinating stories about her education at the nontraditional Columbia University School of General Studies and her early trips to East Harlem to watch as tenement blocks gave way to housing projects. Eventually he alights on the intersection between the final chapter of *The Death and Life of Great American Cities*, "The Kind of Problem a City Is," and the work of a scientist named Warren Weaver. Weaver helped develop a robotic system that was very effective in shooting down Germany's unmanned V-1 rockets in World War II, and he inspired Jacobs to view cities as examples of "organized complexity." De Monchaux concludes that a city (like the human brain) is too complex to interpret using any single model.

In his third essay, "The Map and the Territory," de Monchaux introduces us to the first punch card reader, an electro mechanical gizmo called the Hollerith Census Tabulator. The earliest product made by the company that eventually became IBM, it was invented to do the counting for the 1890 U.S. Census. De Monchaux's take on the invention of data mapping reads like a prehistory of the 21st century—as does most of *Local Code*, for that matter.

If I were de Monchaux's editor, however, I would have urged him to consolidate his four urban proposals for L.A., New York, San Francisco, and Venice into an essay and to write about them at greater length, to envision the future with the same fluidity and inventiveness with which he investigates the past. (I might also have kept an eye out for factual errors. Jane Jacobs, for instance, was not born in "Scranton, New Jersey," and *Fortune* magazine was never in the "Hearst stable.")

The Ruskin of Today's Infrastructure

While *Local Code* is heady and abstract, *Networks of New York*, by contrast, is grounded and beautifully concrete. It's billed as a "Field Guide to Urban Internet Infrastructure," and that's precisely what it is. Burrington, a writer, artist, and gifted observer, is the John Ruskin of 21st-century infrastructure. She studies the places where the internet manifests itself on the streets of New York, draws what she sees,

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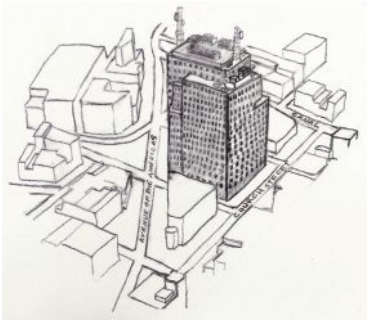
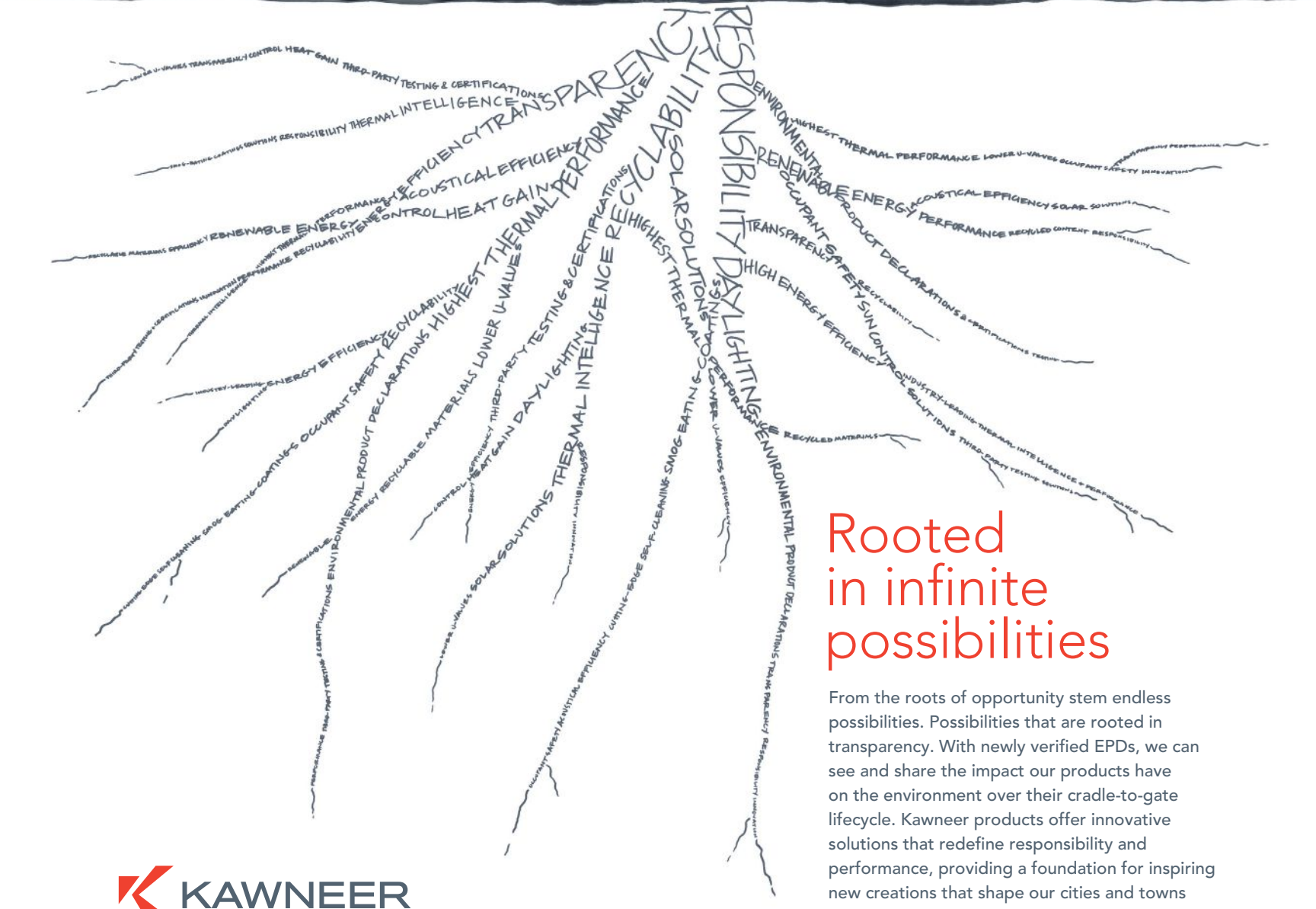
and teaches us to see, too. An "f/o" painted on the asphalt, for instance, indicates underground fiber-optic cable. Each company that provides internet service in the city, meanwhile, has its own distinctive manhole cover. She describes and explains traffic signal controller boxes, the mobile



The 1932 Art Deco data center at Sixth Avenue in Tribeca

license plate readers you sometimes see mounted on the trunk of police cars, and rooftop cell tower farms. My favorite section of the book contains illustrations of five carrier hotels and data centers, the actual buildings in lower Manhattan that house the vast arrays of switching equipment necessary for the functioning of the internet. These facilities include a 1932 Art Deco building on Sixth Avenue in Tribeca that was built as an AT&T office, as well as the universally loathed and windowless Verizon tower on Pearl Street, which has been billed as "the world's tallest data center."

What I loved about reading the two books back to back is that they are telling two different chapters of the same story. The wispy traces of the digital city that de Monchaux discerns from our past come of age and manifest themselves as the mundane objects that Burrington compels us to notice and understand. For all the succulent tidbits they offer up, neither book serves up the full banquet, however: a complete picture of how innovation is driving change in our cities and vice versa, and what our world is about to become.



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Pedro Gadanho on the Unveiling of MAAT by Mimi Zeiger

The Museum of Art, Architecture and Technology (MAAT), whose swooping form hugs the bank of the Tagus River in Lisbon, Portugal, welcomed 22,000 visitors on its opening day in early October. Designed by British architect Amanda Levete and commissioned by the EDP Foundation, the cultural wing of gas and electric corporation Energias de Portugal, the museum is the latest addition to the foundation's historic campus, which includes the renovated Central Tejo power station, whose main building and old boiler and turbine halls have been converted into galleries and art spaces.

MAAT will introduce a global array of art and architecture to Lisbon. But it will also provide an important platform for contemporary Portuguese artists and designers. The museum's director, Pedro Gadanho, was hired a year ago after leaving the Museum of Modern Art in New York, where he was the curator of architecture and design. Gadanho's inaugural exhibition, "Utopia/Dystopia," features *Pynchon Park*, a site-specific work by French artist Dominique Gonzalez-Foerster. Drawing inspiration from the novelist Thomas Pynchon, the work blends sculpture, sound, light, and science fiction to evoke a playful yet eerie scenario that questions the future of our own humanity. In March, a second installment of the exhibition will follow, marking the 500-year anniversary of the publication of Sir Thomas More's political philosophy treatise *Utopia*. The show will feature some 60 international artists and architects, including OMA, Yona Friedman, Superstudio, and media artists Hito Steyerl and Cao Fei.

The entrance to MAAT, which is clad in more than 15,000 ceramic tiles

FRANCISCO NOGUEIRA

Elsewhere on the foundation's campus, "The World of Charles and Ray Eames," an exhibition that MAAT organized in partnership with the Barbican Centre in London, is on display (until Jan. 9) at the Central Tejo building. And "The Form of Form," a pavilion designed for the fourth annual Lisbon Architecture Triennial by Los Angeles–based Johnston Marklee, local firm Brandão Costa Arquitectos, and Office Kersten Geers David Van Severen occupies the power station's courtyard until Dec. 12.

All in all, it's quite a moment for MAAT. The afternoon I interviewed Gadanho—a day after the opening—he was hastily pulling together a pop-up exhibition drawn from the foundation's permanent collection of Portuguese artists. The overwhelming success of the museum's first day meant that more art was needed to fill the new building once a few temporary new media installations concluded later that week. Gadanho had just a few days to assemble the show—a sign of how his new role offers a freedom and flexibility that he never enjoyed at MoMA. We met in his office to discuss his vision for the museum.

The design of the new building by Levete was already in the works when you signed on as director. How does it support your programming?

As soon as I came in, it was evident that the special qualities of that building will [influence how we] display exhibitions. The galleries are organic with no straight walls, which make things very difficult for hanging. So, I started thinking about how the existing power station, which has more traditional gallery spaces, could complement the new galleries. The architectural language of the new building gives us the freedom to be as flexible as possible, given that the building was without a clear brief at the very start.

What do you mean by that?

I mean that [with the initial brief] the architect had almost carte blanche to do what she felt was adequate, considering that the foundation had an art collection and was into new technology. So, the design was more of an open space, like a kunsthalle. When I came in, the building was already pretty advanced, which meant I could not think of changing things too much.

Still, the architects and I both agreed to scrap the "multimedia room"—a volume inside a volume that had its own architectural language and would have been very expensive to produce. It didn't allow for the kind of flexibility [we needed], and it left spaces around it that were unusable. By scrapping that we managed

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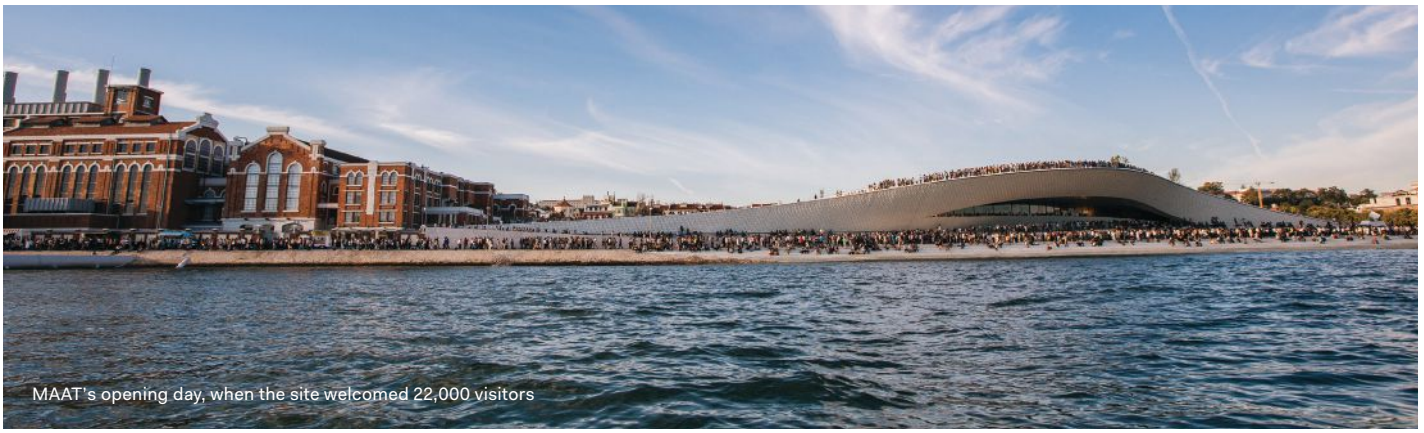
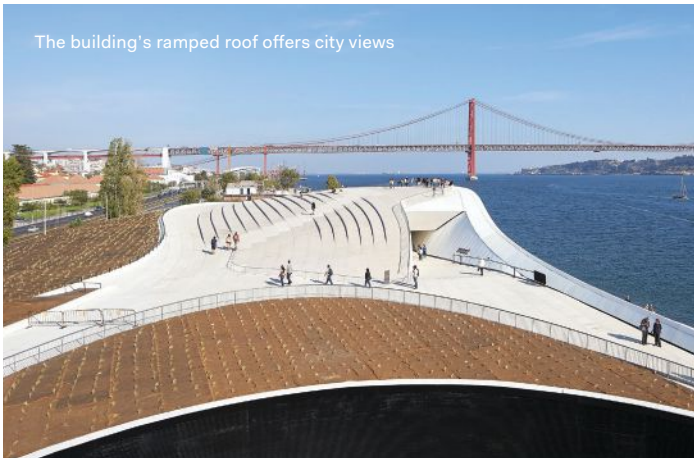
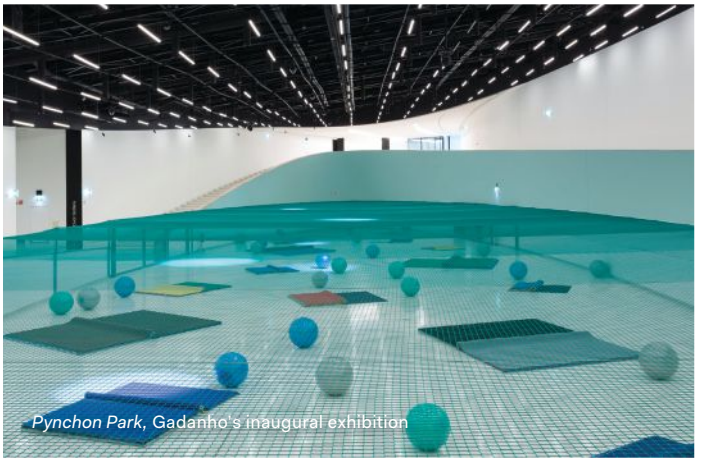


MAAT's opening day, when the site welcomed 22,000 visitors



The building's ramped roof offers city views



Pynchon Park, Gadanho's inaugural exhibition

"The World of Charles and Ray Eames," an exhibition on display in the Central Tejo building

"Form of Form," a pavilion included in the Lisbon Triennial that's staged in the power station's courtyard

TOP: COURTESY MAAT; MIDDLE LEFT: HUFTON + CROW; MIDDLE RIGHT AND BOTTOM LEFT: BRUNO LOPES; BOTTOM RIGHT: TIAGO CASANOVA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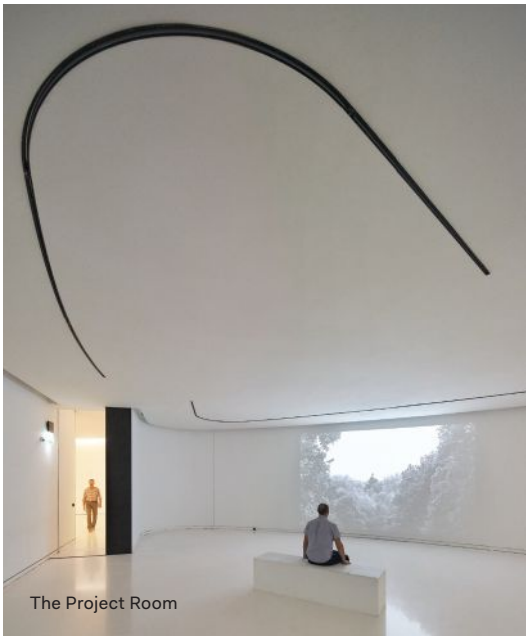
to create the Project Room, a more stable gallery that has a very different proportion from the main gallery, which is a long oval and that you circulate around. This one is more cube-ish, although it has rounded corners.



The Project Room

Crowds of people waited hours to get in on opening day. Was this response anticipated?

We expected a crowd, but not at that scale. Even though Lisbon is attractive and its tourism is growing, it still takes an effort to come here. It's not like passing through London and seeing the Tate Modern on your way to somewhere else. And so we never anticipated such an international buzz, and especially not such a large national audience.

How do you see MAAT in relation to global museum buildings like the Tate Modern or even the original precedent of the icon of a city on a river, the Guggenheim Bilbao?

One difference here for sure is the relationship to the site. Amanda was very aware that this is a place where contextualism is always considered important. This is not just a signature building that is indifferent to its city, that could be either in L.A. or Bilbao; it's a

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"I don't believe in architects doing art installations. I think they are very bad at it, and everybody recognizes it except architects themselves."

building that really tries to adapt to the condition. And it creates a lot of public space rather than just showing off the forms of the building (as in the worst case of Frank Gehry's Fondation Louis Vuitton in Paris, which is absolutely obscene). Although it's architecturally bold, MAAT is discreet in terms of the landscape of the city—it doesn't totally block the view, and, in fact, offers a new view of the city from the roof.

I must be fair and say that Bilbao is a great building by Gehry in the sense that it uses the river, it embraces the bridge, and it creates a contextual connection to the urban tissue. But then with Louis Vuitton, he was only doing flamboyant useless stuff, which is almost a commentary on luxury itself: total obscene, empty, no need for it and in that sense, very shocking. However, Gehry's importance is that he represents openness to progressive architecture. That's the most important aspect, to create an experimental situation here in terms of architecture.

And that's new for Portugal?

Yes, if we had invited a Portuguese architect, it would be more of the same—boxy, conservative, contextual.

The museum was still under construction—the details a little unfinished—as we did the press tour the other day.

I must say that it's not very well received by architects. They look at details and they say, "Oh, bad detail."

As an architect, I know the feeling of looking at every detail and seeing everything that is wrong. But maybe because I've distanced myself from architecture more and more, I'm more interested in ample, generous gestures than if a detail is perfectly finished or not, because that you can correct anytime, the gesture you cannot.

The museum is interdisciplinary in nature. What does it mean to bring art, architecture, and technology together?

I had already experimented with this

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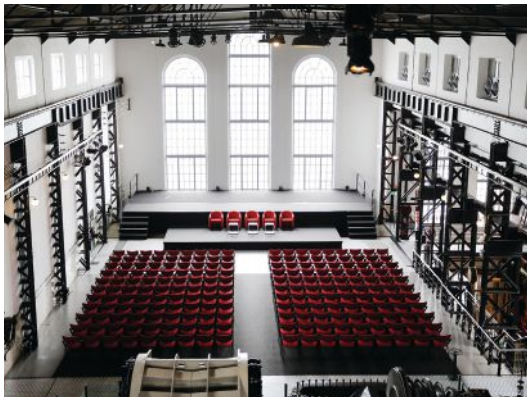
intersection of art and architecture with my previous work at MoMA. That for sure was one thing I wanted to continue—the aspect of technology related to the institution's past as an electricity museum and the fact that we have a large industrial heritage that is also part of the museum's program. We have a building that expresses a precise historical technological condition. But of course, I'm interested in the impact digital culture is having on us. Artists are the ones that are first to react and show us the problems and the issues of these transformations within culture and the city.



Turbin Hall in the Central Tejo building

So, you're using the artist as a way into these different subjects instead of commissioning architects?

I don't believe in architects doing art installations. I think they are very bad at it, and everybody recognizes it except for architects themselves. Of course, the upcoming "Utopia/Dystopia" exhibition will show architects and artists at the same intellectual level, since both contribute historically and contemporarily towards the generation of ideas.

I'm interested in the contribution of these disciplines towards a broader cultural discourse rather than showing them in the typical way—art for art's sake or architecture only presented for the sake of architects.

I intend to bring architecture into the mix a lot more through MAAT's education program and by organizing debates, conversations, and discussions. I'm planning on a big debate here about the whole transformation the Lisbon waterfront. These discussions could generate a lot more impact than a monographic show by a single architect.

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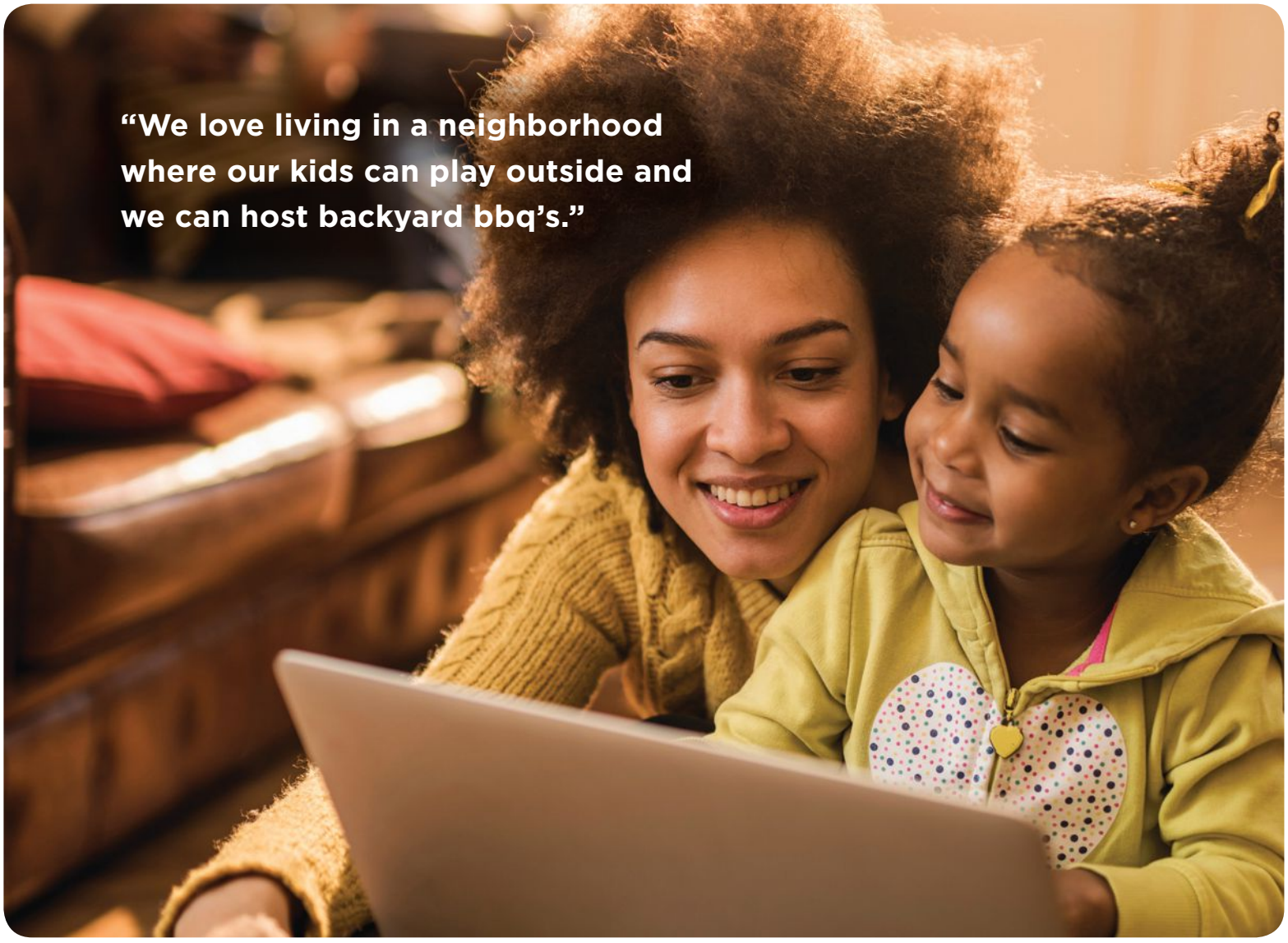

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Kent State Center for Architecture and Environmental Design
Kent, Ohio
Weiss/Manfredi Architecture/Landscape/Urbanism

TEXT BY KATIE GERFEN

PHOTOS BY ALBERT VECERKA/ESTO

Walking on the Kent State University quad on a balmy fall evening, Mark Mistur, AIA, dean of the College of Architecture & Environmental Design, came across the school's marching band. Rather than walk by, he invited the group into the campus's newest building—tubas, drums, and all—and encouraged them to "play the space." "The energy that filled that space was simply incredible," he says. "When they stopped, it took about four seconds for the building to calm down, it was so full of acoustic energy. It was remarkable."

The structure that the band was playing in with John Philip Sousa–fueled fervor wasn't a new concert hall, but rather the open studio space in the new Kent State Center for Architecture and Environmental Design. Designed by New York–based Weiss/Manfredi Architecture/Landscape/Urbanism, the 117,000-square-foot facility unites all of the university's design students under one roof for the first time in recent memory: For years, the departments has been scattered across three facilities—a classroom space, a repurposed gymanium, and a disused dorm—Mistur says, and at the new facility's opening, a faculty member told him: "This is the first time I feel like we are one college."

Sited on a plot that connects the main quad to a residentially scaled neighborhood to the east, the building is a four-story brick bar, carefully scaled to match the larger campus buildings without overwhelming the adjacent houses. The architects worked with Belden Brick to create a honey-hued iron spot brick, which was fired in a beehive kiln to create natural variation in the color. "We thought it would be interesting to take a typically traditional material and push it to find a combination of old and new," says design partner Michael Manfredi, FAIA.

Courses of regular bricks are interrupted with vertical fins made from bull-nosed units. These fins are arranged in what the architects call "syncopated meters." Bands of fins, stacked vertically on the façade and offset from one another, create an overall pattern that is almost textile in nature and enlivens the façade as light and shadow play across it over the course of the day.

But the most conspicuous exterior moves are not in the brickwork, but rather in the interruptions of it. On the east and west ends of the building, expansive glazing reveals ground-floor public spaces such as a café, lobby, and reading room. Wedges of glazing project from the upper portions of the north façade, and a ribbon of glass highlights an enclosed fire stair that runs diagonally down the south.

Inside, the architects looked to create spaces that best serve all of the design students, across a variety of disciplines. "We created settings, as opposed to spaces, where teachers could teach in different ways, recognizing that how we teach and the tools we use five to 10 years from now are going to be very different from the tools we use right now," Manfredi says. A vast, three-tiered open studio steps down from the top floor, with glass-lined critique rooms on each level that provide pin-up and review space. The floors are connected by a wide stair on the building's northern edge, which is peppered with informal lounges outfitted with the firm's signature brightly colored furniture. "We like warm colors," Manfredi says. Faculty offices and labs for CNC milling, 3D printing, and more are clustered in a core on the south side.

The layout builds upon "our preoccupation with section and sectional connections, which we have explored in projects like the Diana Center in New York, the Krishna P. Singh Center in Philadelphia, and even the Olympic Sculpture Park in Seattle," design partner Marion Weiss, FAIA, says. "We felt the idea of a topographic connection that allows all levels to feel like they're part of a community under one roof would be a compelling way to envision a school of design."

The difference between this building and those projects Weiss cites as precedents, is that previously the terraced spaces for informal interaction were one piece of a larger overall concept. Here, the terraces are themselves the concept. The aim is to encourage a cross-pollination of ideas between students—desk assignments even commingle studios of different years and disciplines. "As faculty members at various institutions ourselves, we feel you need to have opportunities to see and be seen for the real teaching and learning of architecture to occur," Weiss says. "Students learn far more from those who are side by side in a studio with them than from the directed instruction of a professor."

Weiss/Manfredi also took the idea of the glass-enclosed, cantilevered fire stair they employed at the Diana Center and widened it on the southern face of the Kent State project. Not only does the stair provide a relief from the intensity of studio—"it's like you've walked outside," Mistur says—but it's also being put to good, if unintended, use. "I routinely walk down and see classes being taught in that stair," he says.

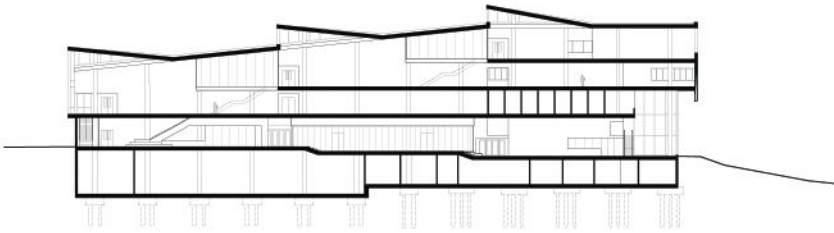
It is those serendipitous learning opportunities that Mistur hopes the building will continue to encourage. The visit from the marching band spurred a collaboration with the music department, which practices in the building so that the design students can learn about acoustics. The new building is turning out to be more than just a new consolidated facility. It is, as Mistur says, "an instrument for what we are setting out to accomplish."

Third-Floor Plan

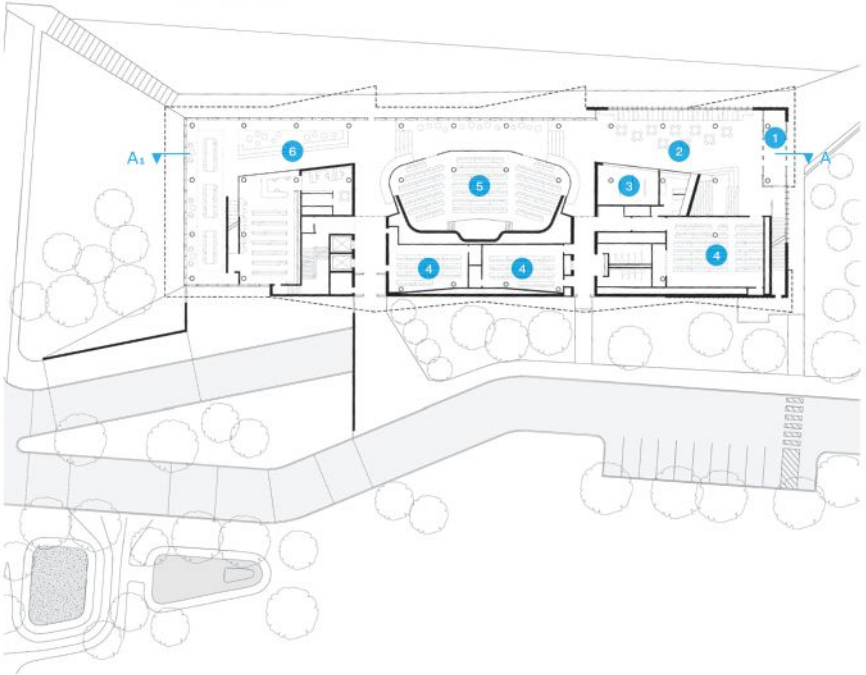
Fourth-Floor Plan

Second-Floor Plan

Section A–A₁

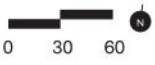


Ground-Floor Plan

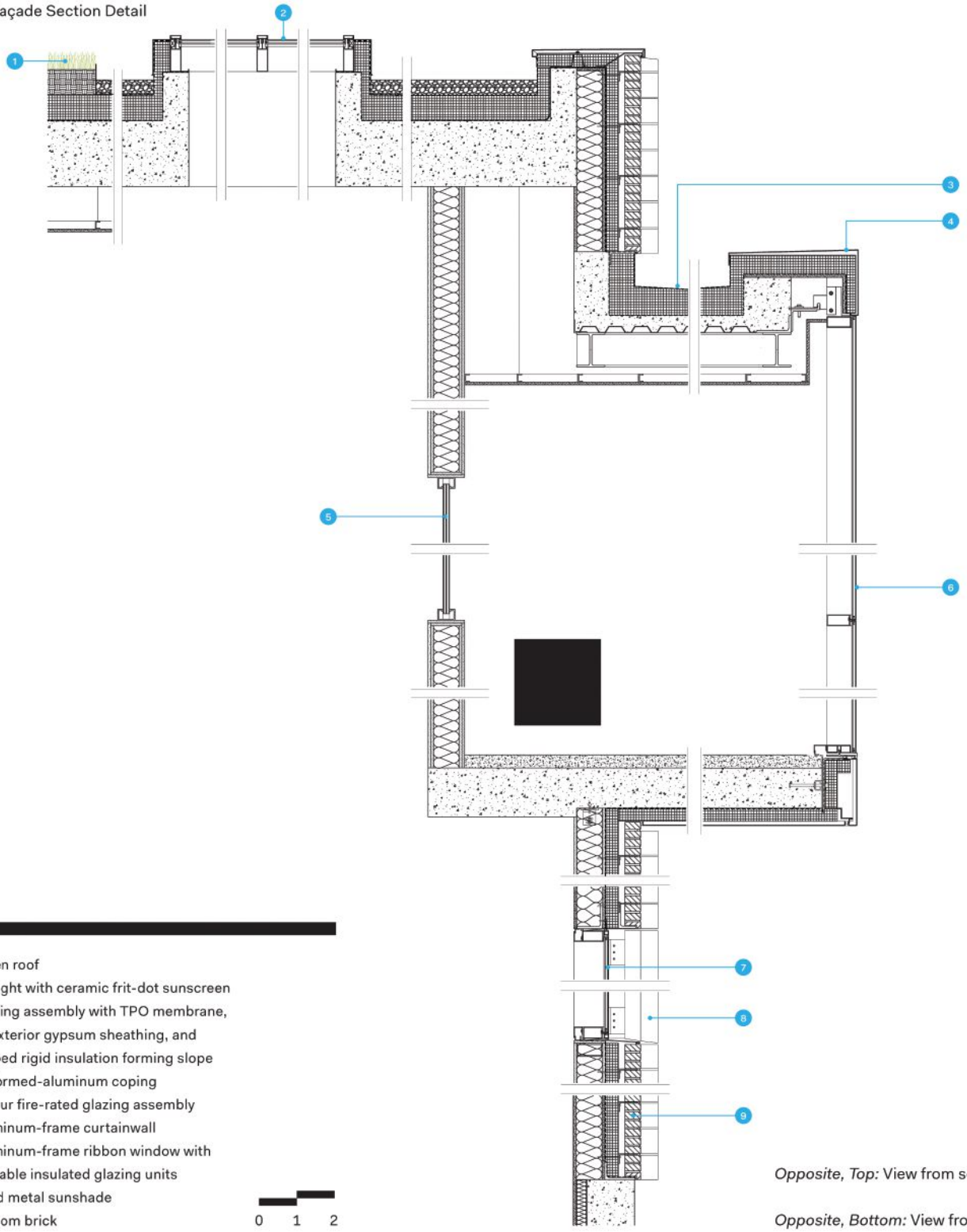


Previous Spread: Southeast corner, showing neighborhood context

1. Entrance
2. Café
3. Gallery
4. Classroom
5. Lecture hall
6. Library
7. Studio
8. Administration suite
9. Faculty suite
10. Critique room
11. Lab
12. Seminar room



South Façade Section Detail



1. Green roof
2. Skylight with ceramic frit-dot sunscreen
3. Roofing assembly with TPO membrane, ½" exterior gypsum sheathing, and shaped rigid insulation forming slope
4. ⅛" formed-aluminum coping
5. 2-hour fire-rated glazing assembly
6. Aluminum-frame curtainwall
7. Aluminum-frame ribbon window with operable insulated glazing units
8. Fixed metal sunshade
9. Custom brick

0 1 2

Opposite, Top: View from southwest

Opposite, Bottom: View from north

Interior view looking north, showing ground-floor entry and café and second-floor studio

View from fourth-floor studio looking east, showing enclosed critique rooms on south side

Above: Glass-enclosed classroom

Opposite: View of ground-floor library reading room

Project Credits

Project: Kent State Center for Architecture and Environmental Design, Kent, Ohio
Client: Kent State University
Architect: Weiss/Manfredi Architecture/Landscape/Urbanism, New York · Marion Weiss, FAIA, Michael A. Manfredi, FAIA (design partners); Mike Harshman, AIA (project manager); Bryan Kelley, David Maple (project architects); Hugo De Pablo, Darius Woo, AIA, Julia Schubach, Olen Milholland, Seungwon Song, Michael Blasberg, Patrick Armacost (project team)
Architect of Record: Richard L. Bowen + Associates
M/E/P/FP/Vertical Transport Design Engineers: Jaros, Baum & Bolles
M/E/P/FP Engineer of Record: Richard L. Bowen + Associates
Structural Engineer: Thornton Tomasetti
Civil Engineer: Resource International
Construction Manager: Gilbane Building Co.
Landscape Architect of Record: Knight & Stolar
Lighting Designer: Lighting Workshop
Fire Protection Engineer: Dynamix Engineering
IT Consultant: TEK Systems Design
LEED/Sustainability Consultant: Doty & Miller
Facility Performance/Commissioning Consultant: Four Seasons Environmental
Size: 117,000 gross square feet
Cost: Withheld

Taubman Complex at Lawrence Technological University
Southfield, Mich.
Morphosis and Albert Kahn Associates

INTERVIEW BY JOSEPH GIOVANNINI
PHOTOS BY NIC LEHOUX

How did the project come about?

Thom Mayne, FAIA (design director, Morphosis): Lawrence Technological University did an invited short list. Our presentation focused on our interest in academic work, which included the whole direction toward a social pedagogy, transparency, and discourse as well as the work itself. They called former clients, and I think they liked our reputation for carrying a project through, and for being very hands-on at a sophisticated level.

How did the design develop?

Mayne: I think it is one of the most straightforward projects you're going to find in our oeuvre over the last 20 years. We did an assessment of the existing campus, which has three new buildings and some existing stuff—one by Charles Gwathmey. We were probably selected to design an icon building. Our buildings have been somewhat complex and maximalist. But as we looked at this project, we decided it needed the opposite. We were very conscious that once we decided to do this, it would be interesting for us to do and for other people to watch us what we did.

The building is very simple, and a lot of people wouldn't expect this from us—including the client, in the beginning. This building was built for about $370 a square foot—$370, right? That's half to one-third the cost of most of our academic projects. I'm not saying that as a negative. I'm saying that really guides you and is a creative challenge. The way you innovate has to be really, really taut.

We have this single bar with white fabric on it; it's a line and it's going to grow maybe twice as large as the school expands. Incredibly minimalist. The object of desire is the smooth black lozenge in the middle, and for that we used carbon fiber. The school has a research group in engineering that specializes in carbon fiber. It's a state-of-the-art material—it's what my Tesla is made out of—and it's a symbol of their technology at this point in history. But it's still crazy enough in this country; it took quite a bit of work.

Aleksander Tamm-Seitz (project architect, Morphosis): It's definitely the lightest façade we've ever done, because the carbon fiber is the actual building enclosure, not just a cosmetic panel. It is a new material and a new potential technology in the field of architecture, and without previous architects having done a certain level of work, we wouldn't have been able to push it further. Composites are still in their infancy in architecture.

How does your building fit into the rest of the campus? And what is the strategy for future expansion?

Mayne: Our building is the last piece that defines the quad, and then it continues into the forest to form more of an external gesture to the nearby freeway. At night, when it's lit, it's this bar of light you see going down the highway in the forest. It becomes quite a long line that represents the school to the outside world.

Tamm-Seitz: We were also given the constraints of connecting the two existing buildings on either end of the quad. We lifted the building up, creating a gateway to the quad along this extruded section which can be phased and extended however many times they want.

We were interested in looking at the idea of flexibility and universal space—ideas that Albert Kahn and Mies were dealing with, but in relation to interdisciplinary studies in universities. There are a lot of different programs in this building—engineering, robotics, biomedical engineering, and life sciences are the primary ones in this first phase, and subsequent phases may introduce architecture as well—and because they don't know how those programs will grow, they don't know which classrooms need to be larger next year versus this one. The section that we set up allows for a zone of flexible space that can be reconfigured to accommodate different disciplines, class types, and sizes. You have labs with support spaces stacked on one side, and then you have a light-filled flexible space with a clerestory on the other. And that section is extruded the length of the building.

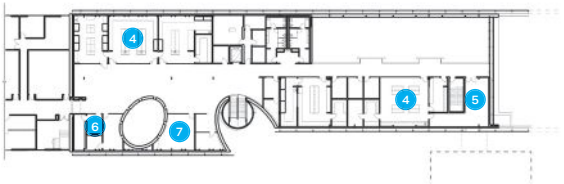
What is the material of the white fabric scrim, and what role does it play in the design?

Tamm-Seitz: It's stretched ETFE—a thin plastic, basically. It's held off the façade approximately 18 inches outside the building enclosure, with clerestories behind it. This takes out the glare that would come into those laboratory and flex spaces. We used it for the reasons that we use perforated screens on many buildings. It's a new, next-generation scrim.

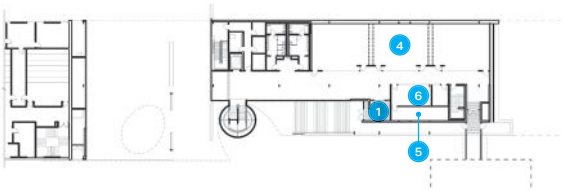
Mayne: It's an interesting fabric in that it doesn't look like fabric. It has a reflection like glass. And if you see it on the building, you would think it's a hard material because it's reflective. The windows behind it are high up because the instructors and professors want as much counter- and workspace as possible, so we brought as much daylight into those spaces as possible through clerestories.

The building is essentially a large garage. And it's not that different from our astrophysics building at Caltech. For that, we were going, "Oh man, this

Third-Floor Plan

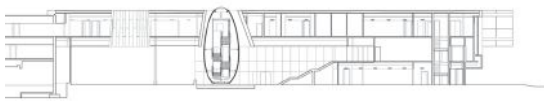


Second-Floor Plan

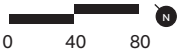


Ground-Floor Plan

Section A–A₁



1. Entrance
2. Breezeway
3. Carbon-fiber lozenge, containing stair
4. Lab
5. Mechanical
6. Office
7. Conference



could be a super complex job. Nothing could be more complicated than what these guys do." And in the end—since it is all serviced by incredibly complex technology which is brought in, changed, and being built—they wanted a garage. Same thing here. Like our studio, it's essentially one long, linear open space that they can use any way they want. They bring in the technology, and the technology has a short shelf life—it's changing continuously. The building wanted to have maximum flexibility and neutrality so they can use the space for research they don't know exists yet.

The simplicity that you decided on here, as you note, is rather surprising given your portfolio. Does it represent a different direction in your work or is it project-specific?
Mayne: We're going to have to wait to answer that one. We're having a discussion and we're aware that it's kind of boring that we've been typecast in a certain way which is not really accurate. But we do admit that if you look at the work, a lot of it is formally complex and comes out of a strategy of using multiple systems to solve things. And there is a discussion that it would be interesting to use our same ambitions and talents and the direction of the office to produce something like this. It is a conversation we're having, and it will be pursued.

But let me add, for me personally, this would have been a much more difficult project to do 20 years ago when I felt compelled to prove the nature of this firm and myself, in terms of what we can do in architecture. I'm 72 years old, and I can now look at a project and accept that this is a straightforward, simple project and I can respond with what I think is appropriate, without bringing anything to the project about my personal ambition or my personal goals as an architect. Simple problem, simple solution. And I would argue that a lot of architecture needs more of this. Every building can't be an icon. That's a strategic choice, if they need some particular statement, and in many cases the answer is "No." I would say that's one of the biggest architectural problems today: An overinvestment in icons which keeps devaluing them.

Previous Spread: The Taubman Complex's main façade, viewed here from the southwest, features an ETFE scrim that wraps the third floor, and a carbon-fiber-clad black "lozenge" element that marks the entry.

A two-story breezeway through the structure forms a new gateway to the quad (at right). An oculus brings daylight to third-floor corridors and conference spaces.

Opposite: The black lozenge on the south side of the structure encloses a central stair. An oculus in the carbon-fiber envelope brings daylight into the enclosure.

Above: Hallways running the length of the building, like this one on the second level, are programmed with breakout spaces for students to collaborate, and give access to all of the facilities in the new complex, including the Marburger STEM Center, which supports the development of new science and technology programs for the university.

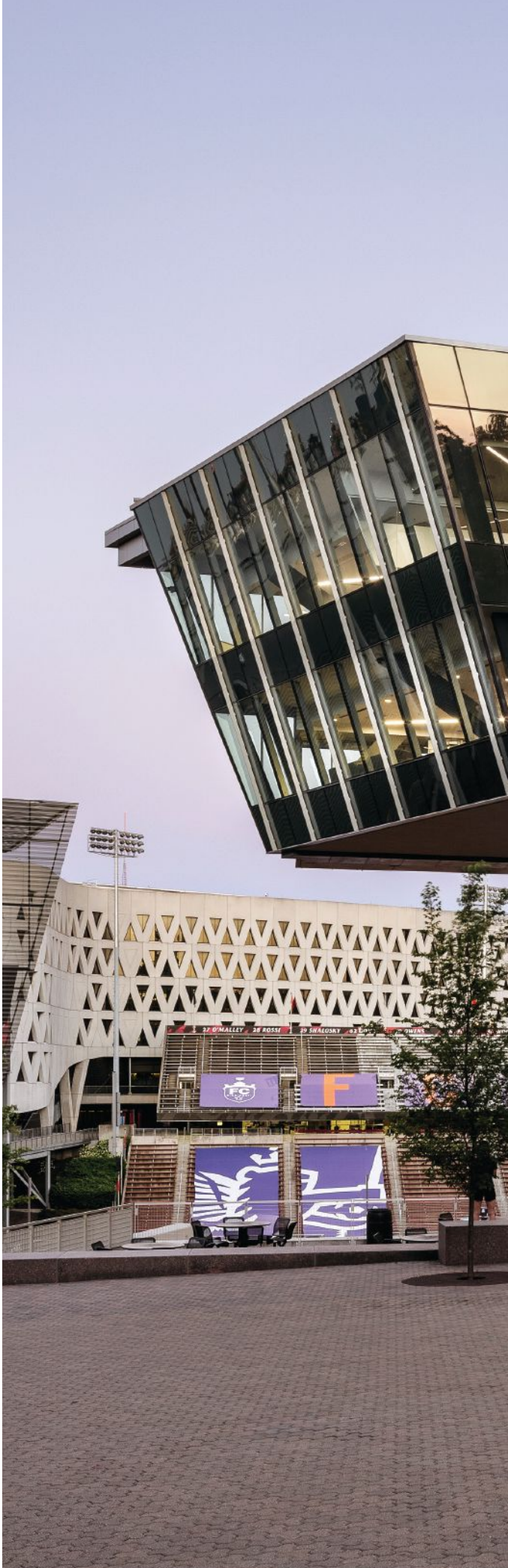
Above: A lab space at the building's northeast corner (at left) pairs ETFE-clad clerestory windows with full-height glazing. The double-height space is overlooked by a third-floor corridor (at right) and is designed to be flexible, accommodating different departments as they grow as well as new equipment for future research.

Opposite: The ETFE scrim wraps much of the third floor, seen here at the building's northeast corner. The scrim covers clerestory lab windows and, when backlit, transforms the building at night.

Project Credits

Project: Taubman Complex, Home of the Marburger STEM Center, Southfield, Mich.
Client: Lawrence Technological University
Architect: Mophosis, Culver City, Calif. · Thom Mayne, FAIA (design director); Brandon Welling (project principal); Aleksander Tamm-Seitz (project architect); Chris Eskew, Michael Nesbit, Atsushi Sugiuchi (project team); Cory Brugger, ASSOC. AIA, (advanced technology); Natalie Abbott, Carmelia Chiang, Sam Clovis, Thomas Day, Ryan Docken, Bart Gillespie, Mauricio Gomez, Parham Hakimi, Jonathan Kaminsky, Hunter Knight, Sarah Kott, Katie MacDonald, Nicole Meyer, Derrick Whitmire, Pablo Zunzunegui (project assistants); Jasmine Park, Nathan Skrepcinski, Sam Tannenbaum (visualization)
Executive Architect/Landscape Architect: Albert Kahn Associates, Detroit · Alan H. Cobb, FAIA (principal-in-charge); Michael Giovanni, AIA, Megan Martin-Campbell (project design and laboratory planning); Robert Hubbard, AIA, Ken Herbart, AIA (project architect); Gregory Gertsen, Gary Collins (structural engineers); John Cole, Scott Kemp, Oscar Cobb (project mechanical engineers); Kevin Jones (project electrical engineer); William Howerth (project IT engineer); Chris Trupiano, Tania Swider (project interior design); Stephen White, Riccardo Pappini (landscape architects); Joyce Vander Weide, Jeff Gaines, AIA, Brian Eady, Chapin Cornillaud, Breanne May, Robert Vander Werff (project assistants)
Structural/M/E/P/FP Engineer of Record: Albert Kahn Associates
Civil Engineering: PEA
Cost Estimator: Kirk Value Planners
Geotechnical: The Mannick & Smith Group
Size: 36,700 square feet
Cost: $13.47 million

West Pavilion at Nippert Stadium
Cincinnati
Architecture Research Office
with Heery International



TEXT BY CLAY RISEN

PHOTOS BY JEREMY BITTERMANN


TANGEMAN UNIV

New York–based Architecture Research Office (ARO) is perhaps better known for its careful, cerebral urban planning studies than its completed buildings, making the firm, at first glance, an odd choice to design an addition to a Midwestern college football stadium. This is especially true for the University of Cincinnati campus, which is famed for its collection of modern architecture designed by the likes of Frank Gehry, FAIA, Thom Mayne, FAIA, and David Childs, FAIA.

But ARO—founded in 1993 by Stephen Cassell, AIA, and Adam Yarinsky, FAIA (a third principal, Kim Yao, AIA, joined later)—turned out to be an inspired choice for a surprisingly tricky brief: part of an $86 million renovation to the 114-year-old Nippert Stadium, one of the country's oldest collegiate sports facilities. The 450-foot-long, 115,000-square-foot addition on the western side of the stadium had to cram luxury boxes, press facilities, lounges, and concession space into a narrow triangle between existing seating and the Tangeman University Center, designed by Gwathmey Siegel Kaufman Architects (Mayne's Campus Recreational Center is just south of the new building).

"I wouldn't say we woke up one morning and said, 'Hey, we'd like to do a sports stadium,'" Cassell says. But when Mary Beth McGrew, AIA, the university architect, called to request an interview, ARO accepted right away. "We came to it by way of doing complex projects in which design matters," Yarinsky says. "Steve was an all-American tackle at Princeton," he jokes.

Kidding aside, the firm's lifelong interest in urban planning—among other things, it developed prescient strategies for New York City to cope with rising water levels, long before Superstorm Sandy—made it a natural fit for a site that abuts an active loading dock and fire lane, and sits along MainStreet (a major north-south corridor between classrooms and dorms) and on top of a dense network of major campus utilities that runs underground. Not to mention that construction would have to begin and end within a year, since, in the meantime, the Cincinnati Bearcats would have to play downtown at Paul Brown Stadium, at a price of $1 million a game plus lost ticket and concession revenues. "It had everything we liked in a project: a complicated program, a complicated site, and a clear, focused client," Cassell says.

The school wasn't looking for a trophy building, McGrew says, but was as interested in ARO's understanding of urban space as it was in its design abilities. Twenty years ago, the university was a largely commuter school, covered in parking lots. But since then it has transformed itself, adding density through strategically placed buildings designed by top architects known for their appreciation of context.

"Some people call us a petting zoo of architecture, but we're not that—the campus is a compositional whole," McGrew says. "We wanted someone who could play in the orchestra, not compete with the other buildings." Though less established than Gehry or Mayne, ARO fit the bill perfectly.

Fortunately, ARO didn't have to start entirely from scratch: In 2013, the university hired Heery International—an Atlanta-based architecture firm with nearly 50 years of experience designing sports facilities—as the architect of record, and it conducted a series of preliminary studies of the site.

Heery quickly realized that the tight space was just one of the constraints. The university wanted luxury boxes to align with the field's 50-yard line, but extending the building northward would block views from Bearcat Plaza, where students gather to watch games. Massing at its southern end would block views from the president's office behind the stadium and the Tangeman Center, where Charles Gwathmey had installed a picture window that overlooks the field.

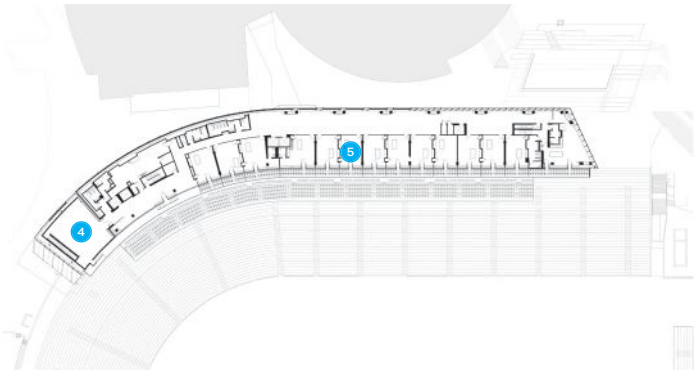
By the time ARO arrived on the project several months later, Heery (which also served as sports architect) had developed a basic massing solution for the project, says Mike Holleman, AIA, the senior vice president for sports at Heery. The luxury boxes at the north end of the structure cantilever over one end of Bearcat Plaza, while the south end sits lower to the ground, preserving the president's view and creating an attractive, multifunction terrace that can be rented out.

ARO lifted the addition off the ground, preserving space for north-south foot traffic and opening up ground-level views into the stadium. Supporting it are three cast-in-place concrete structures, which house concessions, elevator banks, and mechanical rooms. This also facilitates access to the field, realizing another goal for the university: The stadium is now as much a central commons as it is home to its football team. In fact, since it opened last fall, the addition has been used for more than 150 non-football events.

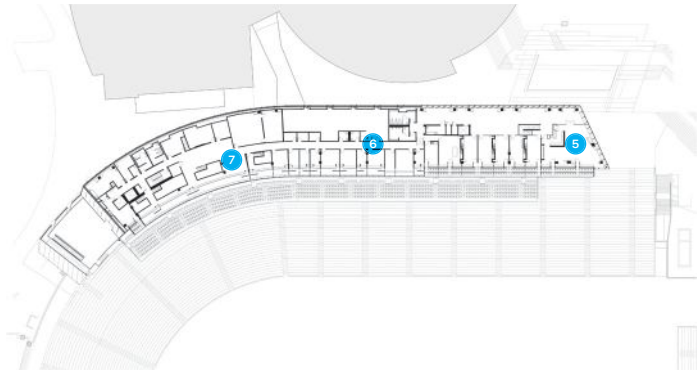
ARO and Heery developed an innovative and visually striking X-braced structural truss that serves as the building's basic frame. The system's self-bracing efficiency saved 50 tons of steel, according to ARO, while enabling dramatic double-height spaces across the interior. A footbridge connects the addition to the Tangeman Center.

In a single urbanistic gesture, the new addition to Nippert Stadium enhances the university's athletic infrastructure while at the same time tying it into the campus' dense fabric. "Heery told us the primary goal was to reinforce the campus, not to reinforce football," Cassell says. Clearly, they've done both.

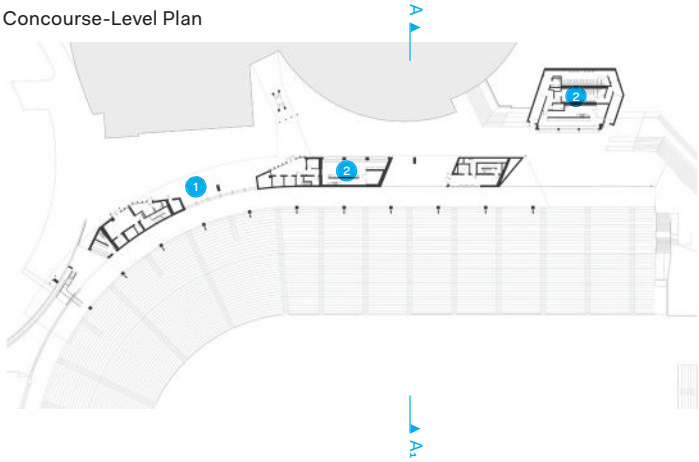
Third-Level Plan



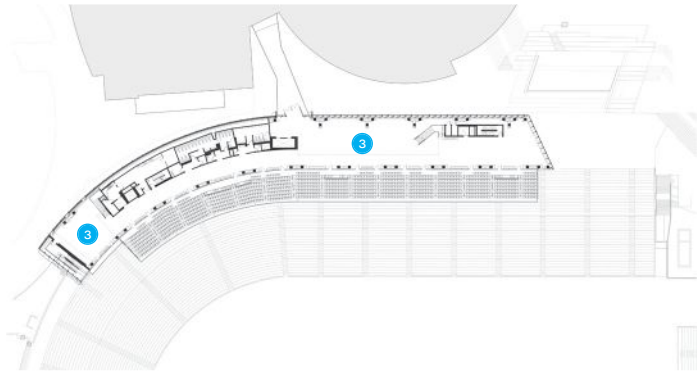
Fourth-Level Plan



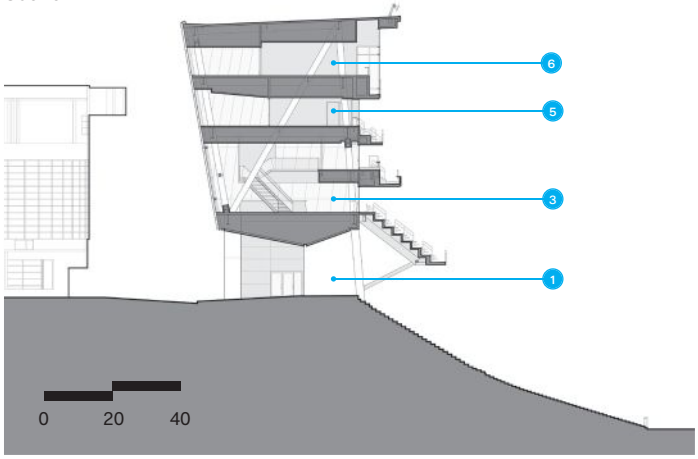
Concourse-Level Plan



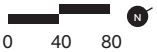
Second-Level Plan



Section A–A₁



1. Concourse
2. Concessions
3. Lounge
4. Terrace
5. Suite
6. Office
7. Press box



Previous Spread: View from west with Bernard Tschumi Architects' Richard E. Lindner Center beyond.

View north toward Bearcat Plaza from footbridge connecting ARO's addition (at right) to Gwathmey Siegel Kaufman's Tangeman University Center

View north to field beneath upper-level seating

View from north along length of addition, with suites and club level above concourse

Project Credits
Project: West Pavilion at Nippert Stadium, University of Cincinnati, Cincinnati
Client: University of Cincinnati
Design Architect: Architecture Research Office, New York · Adam Yarinsky, FAIA, Stephen Cassell, AIA (principals-in-charge); Jeff Hong, AIA (project architect); Neil Patel, AIA, James Henry, Zac Stevens, AIA, Danielle Brown, Jason Kim (team)
Sports Architect, Architect of Record, and Interiors: Heery International · Mike Holleman, AIA, Gordon Smith, AIA (principals-in-charge); Todd Ballew (operations); Kenneth D. Hawthorne, AIA, Phillip Lough, Dan Ludington, Jacob Vagts, AIA, Heath Washburn (team); Lydia O'Neal, Amy Griffin (interiors)
Structural Engineer: THP
M/E/P/FP Engineer: Heapy Engineering
Civil Engineer: WSP | Parsons Brinckerhoff
Geotechnical Engineer: Clifton Engineering
Construction Manager: Turner Construction Co.
Landscape Architect: Vivian Llambi & Associates
Lighting Designer: Lighting Workshop
Code Consultant/Expeditor: Preview Group
Graphic Design: Perkins+Will, University of Cincinnati Planning+Design+Construction
Size: 115,000 square feet
Cost: $65 million

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Residential:

A Raw Renovation Designed to Honor That Which Came Before It

TEXT BY DEANE MADSEN

The Royal Institute of British Architects awards its annual Stephen Lawrence Prize to a project with a construction budget of less than £1 million ($1.22 million) that was designed by an emerging U.K. architecture firm. This year's winner, House of Trace by Tsuruta Architects, is a reconfiguration of a previous expansion to a 110-square-meter (1,184-square-foot) London residence. The renovation leaves new structural elements exposed inside, and incorporates the exterior wall of the previous addition into its new façade. The London-based architects specified finishes thoughout such as plaster and custom brass and copper fittings that will patinate over time, so that the inhabitants' daily activities will leave subtle yet perceptible traces of occupancy.

TIM CROCKER

> *Learn more about House of Trace in ARCHITECT's Project Gallery at bit.ly/HouseOfTrace.*

A Chair that Neatly Amalgamates Brazil's Complicated Colonialist and Rationalist Pasts

TEXT BY SELIN ASHABOGLU

With its elegantly rounded arcs, the Pudica Chair has a subtext that reads far deeper than its ostensibly minimalist design. For inspiration, Brazilian designer Pedro Paulo Venzon turned to two architectural styles while designing the chair: Portuguese Colonialism and early 20th-century Rationalism. Pudica's defined arches are inspired by historic religious structures in Brazil—formerly a Portuguese colony—while its restrained and exacting lines derive from a Rationalist background free of ornamentation. The stackable chair is available in carbon steel or solid brass (shown). According to Venzon, he selected the former material to reference the prevalence of steel in the Brazilian furniture of the 1950s, and the latter for its timeless quality. The Pudica Chair measures 33.46"-tall by 13"-wide. *pedrovenzon.com*

> *Read about Venzon's Pudica Chair online at bit.ly/PudicaChair.*

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Architect Peter Pennoyer on Designing His "Carved, Beautifully Detailed Box"

Architect Peter Pennoyer, FAIA, applied his firm's "forward-looking interpretation of history" to his own Greek Revival–inspired house in New York's Hudson Valley. He and his wife, interior designer Katie Ridder, collaborated on the house, which they document in a new book, *A House in the Country* (The Vendome Press, 2016). Pennoyer spoke with ARCHITECT about the project.

ERIC PIASECKI

INTERVIEW BY SARA JOHNSON

In the book, you're quoted as saying: "We didn't want it to be just another white Greek Revival house." Could you elaborate?
I thought that there was no point in building a pattern book reproduction. Not that those are terrible. Some architects do that really well, but what I wanted was a house that took cues from Greek Revival architecture and then made them into a form that was more comfortable with the way we live today.

How does this project reflect your past ideas about design?
I'd always thought about my own house as being essentially a carved, beautifully detailed box. And I've been fascinated by architecture that is there for its own sake and serves no real practical purpose, like the column screen on the front of the house. All it's doing is celebrating architecture.

What did you learn from the process?
I've learned that you can actually leave out the doors in major rooms and get a kind of open-plan feeling—so you can have rooms that look very traditional but they're completely open. I don't think I've ever gone quite that far with a client yet.

> *Read more of the conversation with Peter Pennoyer at bit.ly/PennoyerHouse.*

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JOSAI I-House Togane Global Village
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Studio SUMO

TEXT BY NATE BERG

KAWASMI KOBAYASHI KENJI PHOTOGRAPH OFFICE

Japanese universities aren't typically in the housing business. Students at most schools live at home or rent private apartments nearby—dormitories are all but nonexistent. So there was room to experiment when New York–based Studio SUMO was commissioned by its longtime client, Josai University Educational Corp., to build a dorm for international students at its Josai International University campus in Togane, Japan, outside of Tokyo.

The program for the structure—the first building on a new campus expansion—called for a relatively straightforward combination of residential uses and common spaces, as well as a gallery honoring Prince Takamado, who helped broker the deal between Japan and South Korea to jointly host the 2002 World Cup. (A nearby soccer field is also named after the late prince.) The dorm project also needed to minimize construction costs to keep room rents low. Studio SUMO responded to this brief with a long, skinny rectangular structure—an intentionally small footprint to allow for the campus to expand—wrapped on three sides by a scrim of horizontal aluminum bands.

"The motivation was to have this thing which somehow disguised or blurred what the program of the building was," says partner Sunil Bald. "We decided that the front façade should really be this statement. You shouldn't be able to discern how many floors the building is or what the purpose is."

Triangular balconies project from the top four of five stories along the southwest façade, and the façade's aluminum bands block some of the rural area's winds as well as provide shade for the corridors that run behind them. These open-air walkways and balconies are the main public spaces, accessed through sliding doors from interior corridors. "The idea was to try to make a vertical community for the students and to have pockets of space where they can gather," says partner Yolande Daniels.

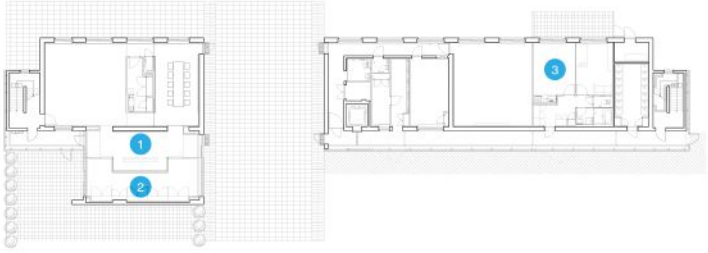
Other public areas include the gallery, a second-floor terrace, an event space, and a group kitchen, but most of the interior is dedicated to 44 units for 133 residents. The university wanted to accommodate relatively wealthy students as well as those from low-income backgrounds, so Studio SUMO designed a variety of room configurations, ranging from single-occupancy suites with private bathrooms to four-bed rooms with shared bathrooms down the hall. Spaces in the four-bed rooms are available for about ¥8,300 (roughly $80) per month.

The building's structural design was optimized to increase the number of dorm spaces. By using thicker walls in strategic places, Studio SUMO avoided the need for interior support beams. That enabled the firm to squeeze in an extra floor but still comply with the university's height limit, creating even more space for the burgeoning on-campus population.

Second-Floor Plan

Third-, Fourth-, and Fifth-Floor Plan

Ground-Floor Plan



1. Reception
2. Gallery
3. Single-occupancy unit
4. Common room
5. Group kitchen
6. Double-occupancy unit
7. Quadruple-occupancy unit
8. Communal bathroom
9. Coffee room

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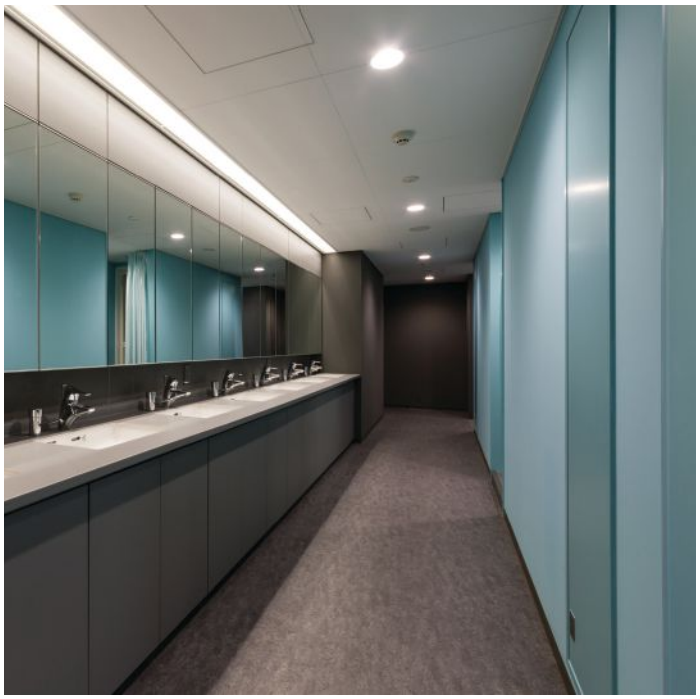
Above: Dorm rooms line the building's northeast side, providing views of rice fields beyond.

Previous Page: A breezeway, marking the entrance, is cut through the first and second floors of the five-story building.

KAWASMI KOBAYASHI KENJI PHOTOGRAPH OFFICE

Above: Visitors enter the building from the northwest side of the breezeway, which also offers circulation and a terrace.

Opposite: The dorm rooms are accessed via an open-air corridor behind the aluminum louvers on the southwest façade.



Above, Left: Residents of the multiple-occupancy dorms on the third, fourth, and fifth floors share communal bathrooms at the building's center.

Above, Right: The four-person dorm rooms on the upper three floors contain loft beds with desks below.

Opposite: A group kitchen on the second floor sits adjacent to a common room and terrace.

Project Credits
Project: JOSAI I-House Togane Global Village, Togane, Japan
Client: Josai University Educational Corp.
Design Architect/Interior Designer: Studio SUMO, New York · Sunil Bald, Yolande Daniels (partners in charge); Edward Yujoung Kim, Teo Quintana, Jae-Hyun Kim, Kevin Sani, Yezi Dai, Youngtack Oh, Masahi Takazawa (project team)
Architect of Record: Obayashi Corp., Tokyo · Koji Onishi (general manager); Toshimichi Takei (manager); Atsuko Mori (deputy manager); Mao Shigeishi, Hikaru Takei
M/E/Structural/Civil/Geotechnical Engineer: Obayashi Corp.
Construction Manager/General Contractor/ Landscape Architect/Construction Supervision: Obayashi Corp.
Lighting Designer: Studio SUMO, Obayashi Corp.
Size: 30,168 square feet
Cost: ¥1,600 million ($15 million)

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p/a

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18. I certify that all information furnished on this form is true and complete. Signature and title of Editor, Publisher, Business Manager, or Owner — Ron Spink, Group President, 9/22/16

Editorial: Ten and 2,000 Years Later

In my very first editorial, in the very first issue of ARCHITECT, I promised to abide by Marcus Vitruvius Pollio's ancient architectural principles of *utilitas*, *firmitas*, and *venustas*. In 1624, English polymath Henry Wotton translated those three Latin words as "commodity," "firmness," and "delight." Today, one might say "business," "technology," and "design," as we do at ARCHITECT. Knowing that the design media has historically focused on aesthetics, sometimes to the exclusion of all else, we have from the outset been determined to promote a more well-rounded, Vitruvian practice of architecture, one that encompasses the discipline's technical, economic, environmental, and social qualities. Because a decade has passed since that first issue hit the desks of architects nationwide, this, our 10th anniversary issue, seemed like a good time to reiterate the philosophy.

We originally ran portraits on our covers, to shift attention away from the conventional depiction of buildings as fetishized art objects. This was not a popular move, but it did make plain the differences in our editorial focus. The subjects usually weren't famous, and rarely were they design stars. Instead, we spotlighted experts and exemplars of a broad range of issues—building performance, for instance, and professional diversity—that we found important and deserving of greater attention.

Nowadays, the buildings themselves take pride of place, but our inclusive notion of architecture has not wavered. We continue to celebrate the profession's inner geek, with the annual R+D Awards program as well as regular coverage of material science, digital design, and innovations in fabrication. We still investigate and encourage smart and healthy approaches to business, as in our Best Practices series and our annual ARCHITECT 50 program, which recognizes firms that excel financially, provide a positive environment for employees, meet stringent sustainability standards, and deliver exceptional design to clients and users. And we champion innovation and emerging talent through our Progressive Architecture Awards, Studio Prize, and Next Progressives profiles of groundbreaking practices and practitioners.

So has anything changed since the publication launched in late 2006? Well, the world went through the worst financial crisis since the Great Depression, the Middle East imploded, the iPhone debuted, social media remade the way humanity communicates, partisanship overtook national politics, and globalization became a fact of life. So yeah, a lot's been happening, and architecture—as well as ARCHITECT—has changed apace. The website and magazine look and feel different than they did a decade ago.

Given the tumult at home and abroad, there has been a real benefit in basing our editorial policy on "a 2,000-year-old premise," as I wrote 10 years ago. As journalists, we are constitutionally inclined to scramble to cover the latest firm merger, the hottest new project, the most awe-inspiring technological advance. Doing so through the lens of *utilitas*, *firmitas*, and *venustas* keeps us grounded. It gives us the benefit of the long view. Because, while architecture has undergone a world of change in 10 years, the tenets that Vitruvius articulated in *The Ten Books on Architecture*, back in the first century B.C., still apply.

STEPHEN VOSS

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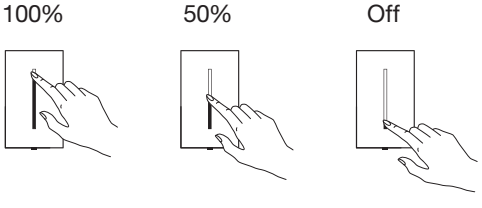

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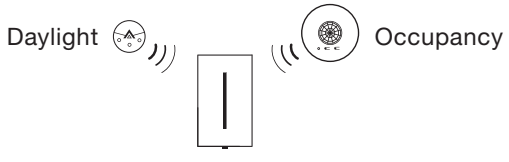

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