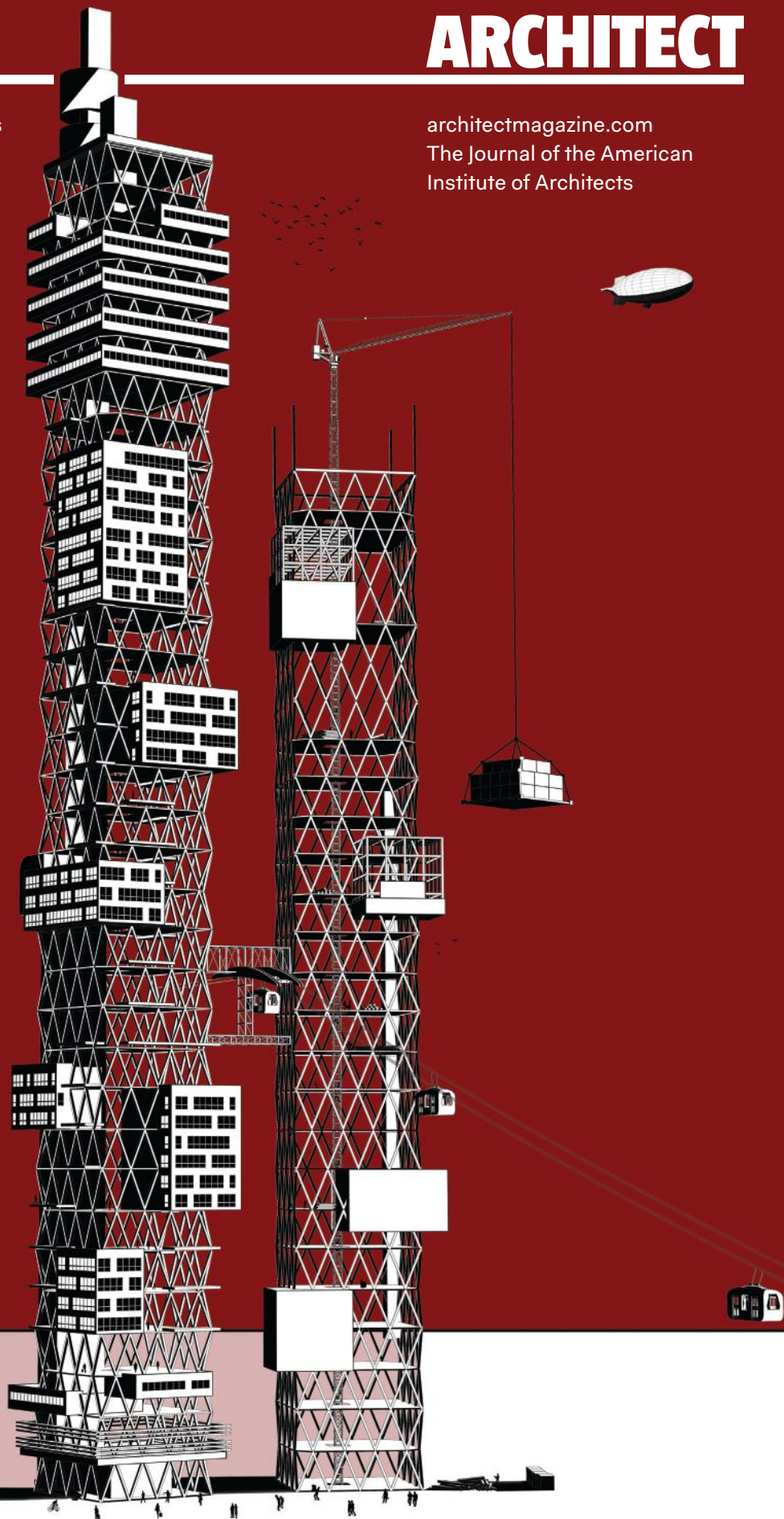


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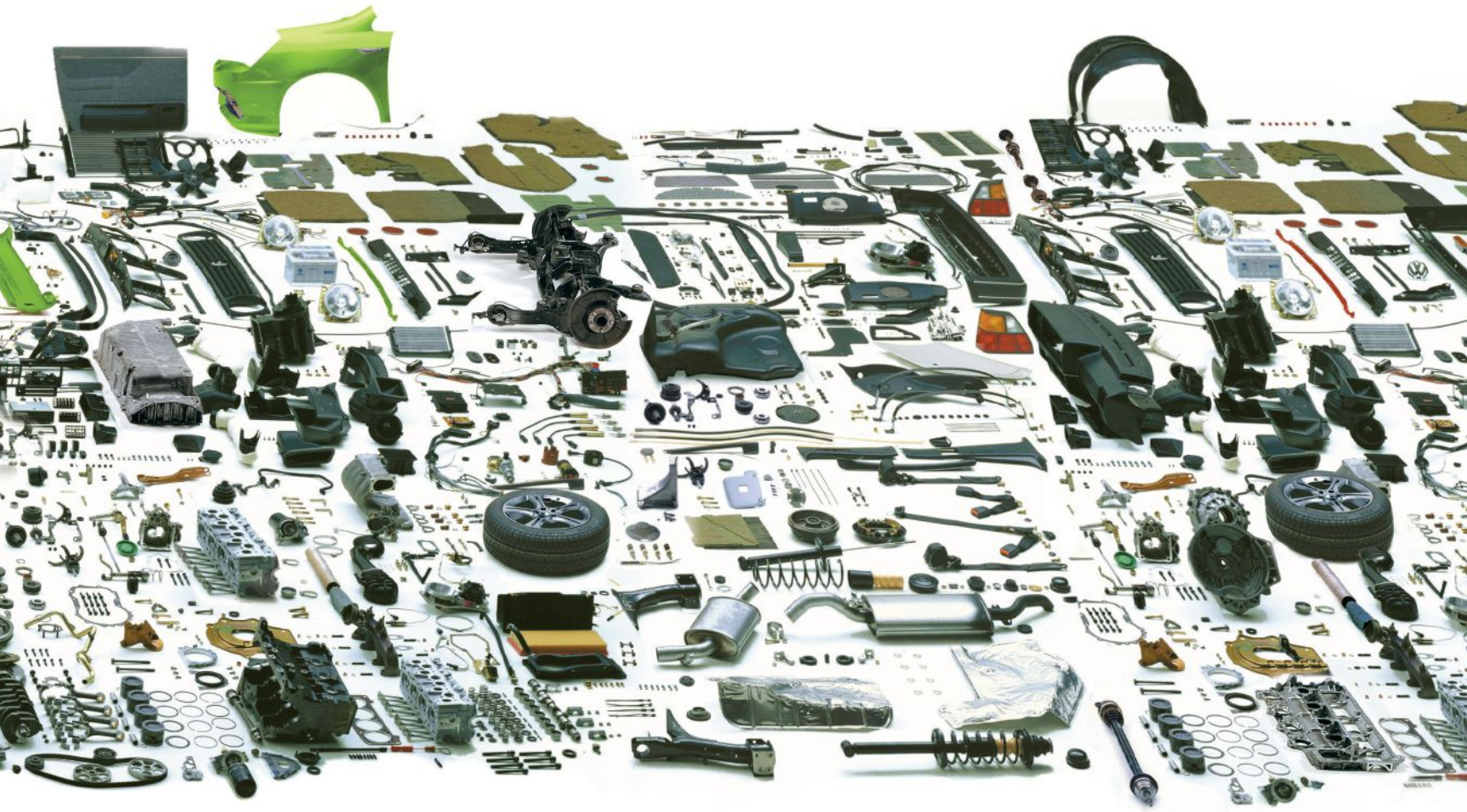
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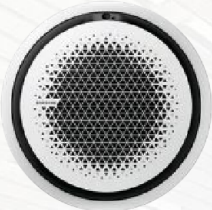


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Pushing the Envelope

Ensuring Water Resistive Barrier Performance in Innovative Wall Designs

When designing high-profile buildings, architects are continually trying to “push the envelope,” creating innovative forms that challenge the status quo. The result can be building envelopes that also challenge traditional approaches to water resistance. With such innovative wall assemblies, how can architects, building engineers and building owners be assured that a water resistive barrier (WRB) will perform as expected?

Limitations of Standard Test Methods

Industry codes and related standardized tests may be of limited help in answering this question. Standard tests used to assess water penetration of WRBs include AATCC 127 and ASTM D779, both alternative methods listed in ICC-ES AC38. The AATCC 127 test evaluates the membrane’s resistance to water penetration under extremely high hydrostatic pressures that will never be experienced in real enclosures. ASTM D779 probes the resistance to water penetration while the membrane floats on a pool of water.



Both of these methods test the WRB in isolation, ignoring common wall features, such as fasteners and other penetrations.

ASTM E331 provides a standard method for testing water penetration of small-scale mock-ups of a complete wall assembly under water and pressure conditions meant to simulate wind-driven rain. This goes beyond single-component testing of just the WRB and toward testing of walls that could be representative of a

“Standards need to be applied using good judgement. You can’t rely on rote anymore; you have to go back to fundamental understanding.”

*John Straube, Ph.D.
Principal for RDH Building Science Inc.*

building — a big step in the right direction. However, it has fundamental limitations, according to John Straube, principal at RDH Building Science Inc. and associate professor of building science at the University of Waterloo in Ontario, Canada.

“Test specimens are almost always blank, featureless walls built by lab technicians in controlled environments. The wall assembly as described in ASTM E331 doesn’t prescribe the same exterior elements or installation sequence specified for your project,” Straube says. “So if you are using this most basic configuration, the results will not be representative of what happens on the actual building.” If a wall has unusual features—such as extreme angles or unusual cladding connections—this “disconnect” between the test and real-world performance will be even greater.

Straube notes that applying a “one size fits all” approach just isn’t sufficient for evaluating the true water resistance of progressive building designs. “Solving this problem requires an experienced

design team that understands the project, making sure that the WRB products and the manner in which they are assembled align with the project requirements.” ASTM standards can provide guidance but performance should be measured within the configuration of the final assembly to be relevant.

A Holistic, Real-World View

Instead of viewing the wall as a collection of discrete elements, architects and building engineers need to view wall assemblies holistically, in the context of the completed structure. In this view, the WRB becomes one piece — albeit a very important piece — of the interconnected design solution. Determining the appropriate WRB and installation methods requires a detailed understanding of the relationship of the outermost cladding through the wall’s other elements. The many environmental factors impacting the performance of the completed wall assembly — from typical wind pressure and rain volume to temperature extremes — must also drive the selection process.

Viewed this way, it becomes clear that some innovative wall designs require equally innovative approaches to WRB selection and to the details of application. To achieve performance expectations, careful consideration of the interaction of all elements within the completed wall assembly along with a host of important questions well before construction begins. For example:

- Will the wall be exposed to extreme wind and water pressures, such as on a very tall building, in a hurricane zone, or due to a steep wall slope? This may demand enhanced detailing, requiring collaboration with product manufacturers and/or alternative testing of the proposed assembly to ensure it delivers a higher degree of water resistance prior to building construction.

JW Marriott Minneapolis Mall of America
Design Firm: DLR Group
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- Does the wall feature open joint cladding? Is the joint baffled or open? This may increase exposure of the underlying WRB to the elements, requiring UV resistance or supplemental detailing.
- Does the wall design call for a high number of windows, fasteners, anchors, or other components that pose water control continuity challenges? These factors may require supplemental sealant at key areas to maintain the integrity of the WRB in the completed assembly.
- Will the wall be composed of pre-fabricated, modular units assembled on-site? Additional detailing may be required as well as special attention to installation sequencing.

Collaboration for Innovation

Working in close collaboration with a trusted and reputable WRB expert throughout the design and construction process can help in the performance of the completed building envelope.

“The architect or building designer is responsible for making judgements about what materials to use and how to use them. However, close collaboration with the WRB manufacturer is extremely important to help the architect select the optimum product and installation details given the specific factors at play in their project,” Straube says.

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Curve Appeal

With its innovative conical indentations, the luminous stainless steel and glass curtain wall of **Pei Cobb Freed & Partners' 7 Bryant Park** becomes an extension of the city's green space. From inside, occupants have a bird's-eye view of surrounding park, while outside, passersby appreciate its reflections. Terminating in a floating canopy sheltering a new plaza—the curved motif successfully underscores this private building's public gesture to the neighborhood around it. Read more about it in **Metals in Construction** online.

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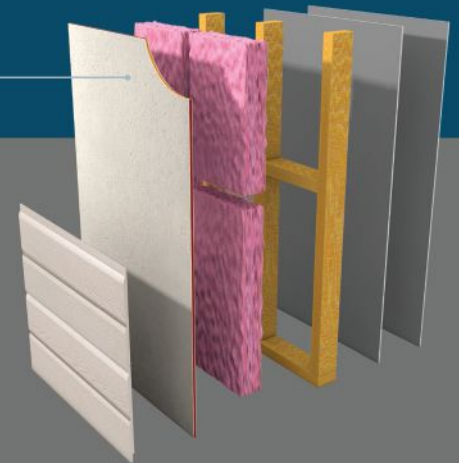
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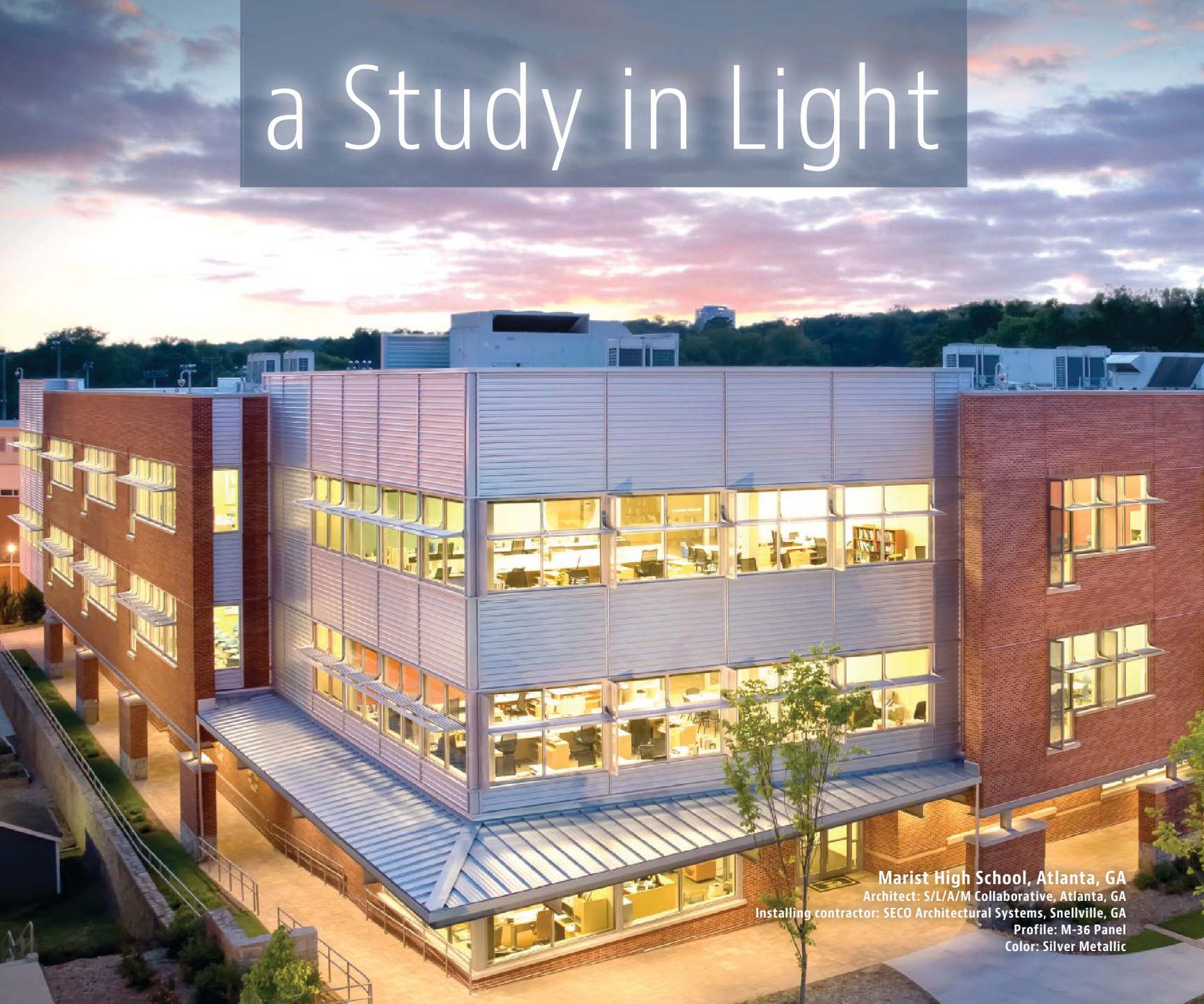
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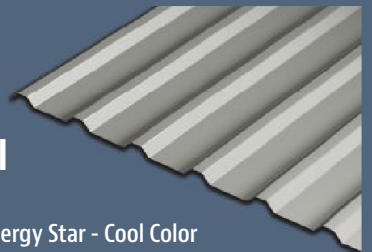
Marist High School, Atlanta, GA
Architect: S/L/A/M Collaborative, Atlanta, GA
Installing contractor: SECO Architectural Systems, Snellville, GA
Profile: M-36 Panel
Color: Silver Metallic

"The M-36 panel is an interesting profile to use on a building like this. It has deep shadow lines that help add lightness and a horizontal feel."

Will Stelten, Architect, S/L/A/M Collaborative

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Mixed-use developments come to life when using a variety of cladding styles

Mixed-use developments continue to pop up in metro environments across the country. They have become popular because of the unique community environments they create for residents. Architects are increasingly incorporating creative elements into their designs for these types of spaces. When designing mixed-use developments, the exterior is an important factor that architects take into consideration.

The façade of a mixed-use development will set the atmosphere for individuals who are enjoying the live, work and play lifestyle. With this in mind, architects are choosing to



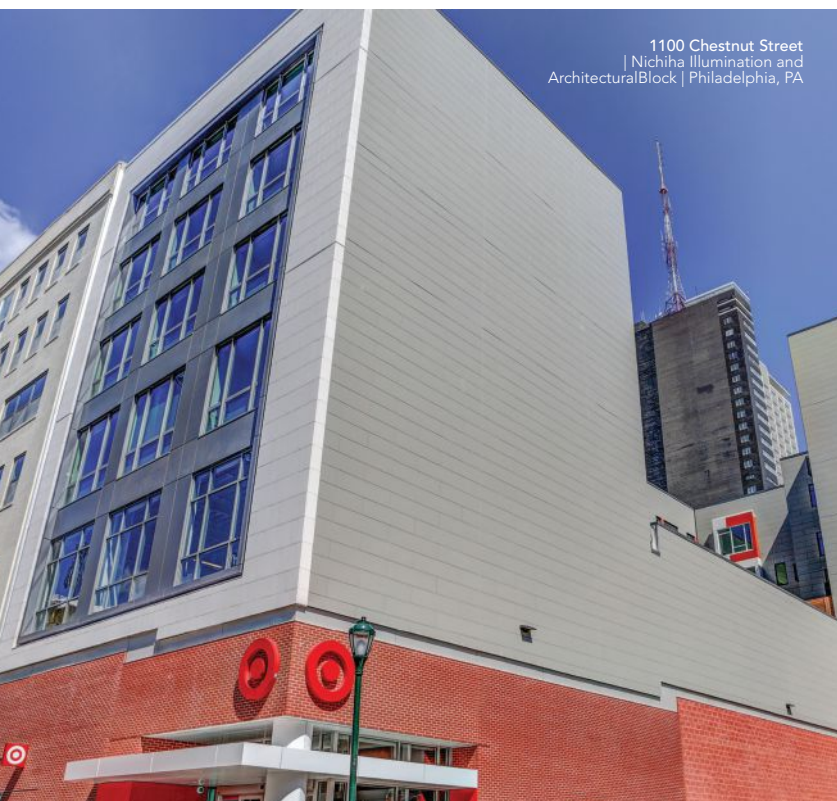
MIXING IT UP ON MIXED-USE EXTERIORS

Cortona | Nichiha Illumination, VintageWood, SandStone and ArchitecturalBlock Panels | St. Louis, MO

design with a variety of cladding materials. They are turning to the look of wood or stone to add touches of character to other materials such as block and concrete.

Mixing materials on mixed-use requires careful consideration and planning during the design process. If choosing to use different products from different manufacturers, multiple installers will most likely be required. This requires more planning and potentially a longer install time leading to an increase in the overall budget of the project. The end look will provide the variety that breathes life into mixed-use developments, but the cost may be greater with having multiple installers onsite.

One solution that architects are turning toward to achieve the variety in cladding without the



1100 Chestnut Street | Nichiha Illumination and ArchitecturalBlock | Philadelphia, PA

extra cost is obtaining all the different looks from one manufacturer. For these architects, Nichiha Architectural Wall Panels are an ideal solution for achieving their design intent. The panels offer durable fiber cement construction and provide an ever-expanding offering of finishes and textures. Nichiha allows architects to achieve the look of metal, block, stone, wood, concrete, brick and much more.

Recently, Blackney Hayes Architects turned toward Nichiha Architectural Wall Panels to help a mixed-use space come to life in downtown Philadelphia. The Chestnut Street mixed-use development was targeting younger professionals and empty nesters with the first three floors of building containing a retail area and the remaining floors containing housing with loft-style apartments. Architects chose Nichiha ArchitecturalBlock to use on the exterior for a classic feel, but also mixed up the look with



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custom-color Illumination panels in Cayenne Red. Nichiha allowed them to obtain a diverse exterior by incorporating different product finishes that were installed with a single installation system.

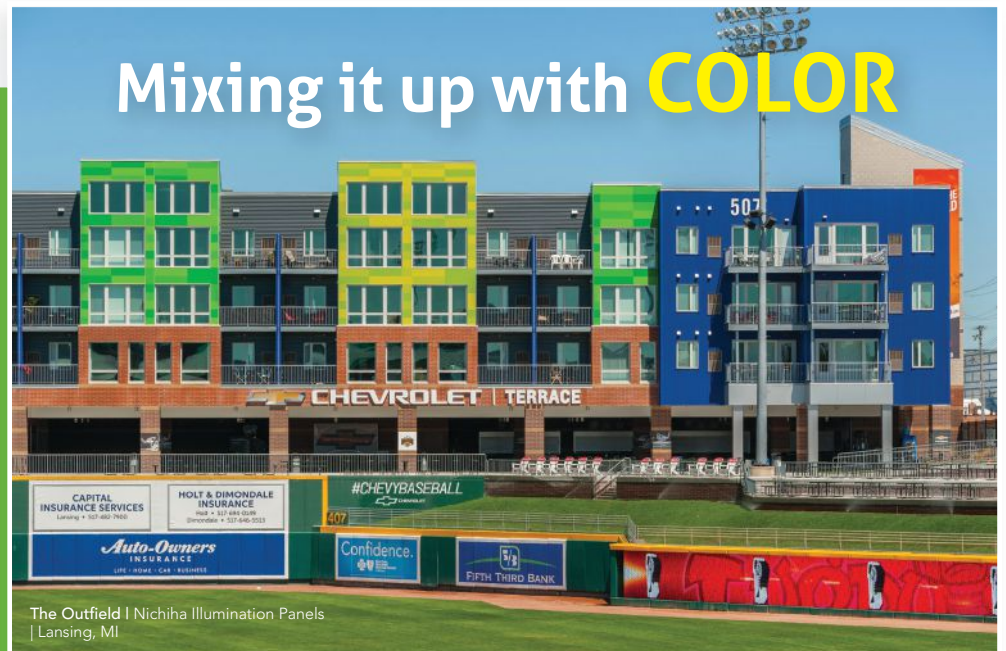
Berkshire Terminus, an upscale mixed-use development in the Buckhead community of Atlanta, also incorporated Nichiha into its exterior design with VintageWood and custom color Illumination panels. Nichiha panels helped the owner achieve the desired look to match the affluent, uptown district. Mixing façade materials was an ideal solution for allowing the building to complement neighboring structures while standing out as a new mixed-use space. The architects of Lord Aeck Sargent appreciated the convenience of receiving multiple product styles from one manufacturer.

Mixed-use communities that are incorporating Nichiha into their designs are able to get multiple looks from one source. All panels provide an integrated rainscreen and simple clip installation system. With Nichiha using the same installation system for all panel styles, only one type of installer is required to complete the work. Nichiha panels eliminate the need for specialized masons or other trade labor, saving time and money. The ability to purchase all cladding from a single manufacturer allows projects to be completed on time and within budget.

Berkshire Terminus
| Nichiha Illumination and
VintageWood Panels | Atlanta, GA



Architects are not only embodying the live-work-play lifestyle by mixing cladding styles, but also by mixing up cladding colors. Bold and vibrant colors exude the type of lifestyle mixed-use dwellers are seeking. Architects at Neumann/Smith architecture worked with contractor Oakwood Companies and installer Construction Ahead, USA to incorporate colorful Nichiha Illumination panels into The Outfield, a mixed-use development in Lansing, Michigan. The Outfield overlooks Cooley Law School Stadium and residents can watch the Lansing Lugnuts baseball games from the comfort of their living rooms. The custom-color Illumination panels featured in bright greens and blues help set the tone for the lively mixed-use atmosphere.



To learn more about how Nichiha is breathing life into mixed-use developments visit [visit nichia.com/mixed-use](http://nichia.com/mixed-use).



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Timber!

The future of mass-timber construction is taking shape. In a recent competition by the Association of Collegiate Schools of Architecture, the School of Constructed Environments at Parsons, and the Binational Softwood Lumber Council—Timber in the City—student teams were tasked with designing a mid-rise, mixed-use complex including affordable housing, a museum, and a new home for the Essex Street Market on Manhattan's Lower East Side. The teams explored the potential for cross-laminated timber (shown above in the second-place Oregon University team's market concept) and other structural wood. —HALLIE BUSTA

COURTESY UNIVERSITY OF OREGON; GREG STACY; BENJAMIN WRIGHT; ALEX KENDLE;
MICHAEL MEER; JUDITH SHEINE; MIKHAIL GERSHFELD; MARK DONOFRIO

> The winning designs will be on display at the Greenbuild International Conference and Expo, in Los Angeles, from Oct. 5 to 7. Learn more at bit.ly/2016TimberCity.

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Healthy Competition

In this year's National Healthcare Design Awards program, the AIA's Academy of Architecture for Health selected seven projects from across the United States by the Yazdani Studio of CannonDesign, EwingCole, NBBJ, Stephen Yablon Architecture, ZGF Architects, and Skidmore, Owings & Merrill (SOM). Finished last year, the 381,000-square-foot Christ Hospital Joint and Spine Center in Cincinnati (above) by SOM was one of four projects recognized in the category of projects that cost more than \$25 million to build. "This is a graceful project that is thoughtfully composed and placed in its context," the jury noted. —SARA JOHNSON

> To read about the rest of the winners in the 2016 National Healthcare Design Awards, visit bit.ly/2016AIAHealthcareAwards.

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Tennessee Contra Mundum

For its 2016 convention last month in Chattanooga, AIA Tennessee partnered with local economic development nonprofit River City Co. on "Passageways," an international competition to redesign four of the city's alleys with year-long installations that can each be built in a week. Why go global for a local event? "The process shows how the Tennessee designers stand up against national and international designers," says program co-director Jared Hueter, AIA. A panel of non-local design professionals judged the entries, with final approval by competition organizers. The five winners hail from New York, Sydney, and, yes, Chattanooga. —H.B.

> To read more about all five winning designs, including the entry from Australian design firm Office Feuerman (above), go to bit.ly/ChattanoogaPassageways.

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With the looming threat of ocean-borne trash, which is on track to be larger than the total weight of fish in our oceans by 2050, Gregor Gomory, CEO of New York- and Los Angeles-based startup ByFusion, decided to find a solution to get rid of all of the inorganic material (literally) floating around. The result is RePlast, a building block made of plastic sourced from the sea and machine-compressed into the dimensions of a typical concrete masonry unit. Still in its early stages, ByFusion wants to explore various applications for the innovative building material—such as in modular low-income housing projects. —SELIN ASHABOGLU

> To read more design-tech news, visit architectmagazine.com/technology.

Making the Grade

Designing a school that would appeal to children and their families while achieving a playful, engaging architecture that would endure for decades were key goals of the Silver Crest Elementary project. Metal roofing panels fit the bill perfectly, providing durability as well as appealing, bright colors, all at an exceptional price point.

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CONTRACTOR: Bud Mahas
PANEL PROFILE: Craftsman™ High Batten (Hunter Green)



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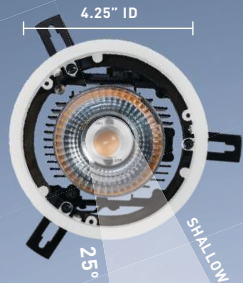




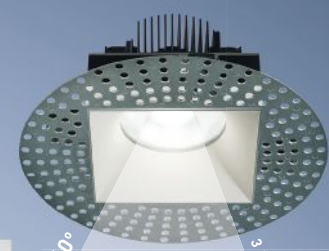
From Sit-In to Motion-Activated

Walk through Terrell Place in Washington, D.C.'s Penn Quarter and see bursting fireworks, blossoming cherry trees, or a panorama of the city, all on an interactive wall installation by New York-based ESI Design. The building is named after Mary Church Terrell, a founding member of the NAACP who in 1951 led a sit-in at the lunch counter of what was then a Hecht's department store. As you stroll through the ground-floor corridors and two lobbies, ceiling-mounted sensors detect your movement and set off the nearly 5 million LEDs in the 1,700-square-foot installation, which was part of a lobby renovation designed by Gensler. —WANDA LAU

> To read more about ESI Design's interactive wall installation, visit bit.ly/TerrellPlaceWall.



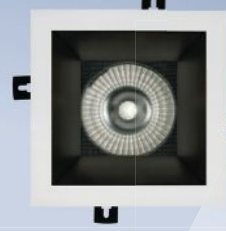
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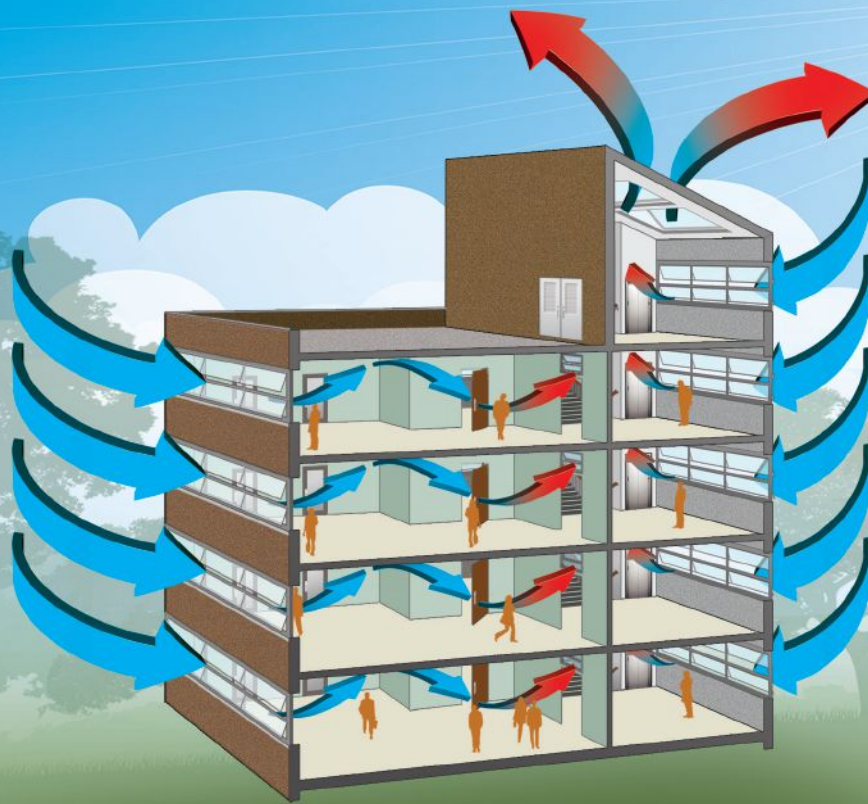
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The Museum of London Gets a New Home

The winner of the design competition for the new Museum of London at West Smithfield, selected from a shortlist of six proposals, is a scheme by local firms Stanton Williams and Asif Khan. Launched in February, the competition required the preservation of 269,098 square feet of Victorian market buildings that have been vacant for three decades. By 2022, the Museum of London hopes to relocate its extensive collection to West Smithfield from its current home, which was designed by Powell & Moya as part of the Brutalist-style Barbican Estate and renovated by local firm Wilkinson Eyre in 2010. —S.A.

> Read more about Stanton Williams and Asif Khan's winning design for the new Museum of London, at bit.ly/NewMuseumOfLondon.

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Preservation in White


The National Park Service has added one of Richard Meier, FAIA's most celebrated residential projects to the National Register of Historic Places: the 4,500-square-foot house for Jim and Jean Douglas that Meier completed in 1973. After denying the couple's initial request to buy the blueprints for his 1967 Smith House, the architect designed a new structure that garnered national recognition for its sophisticated geometric forms. Like the earlier Smith House, the Douglas House uses a dominant Meier design theme—it's painted almost entirely white. In 2007, the AIA named the Douglas House one of America's Favorite Structures. —AUGUST KING

> See more images of Richard Meier's Douglas House and read a statement from the firm on its preservation at bit.ly/DouglasNationalRegister.

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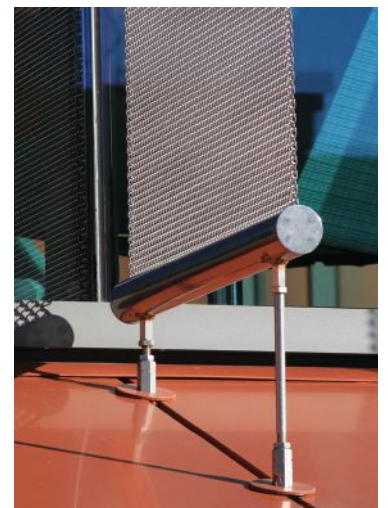


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Best Practices: Making a Monograph

BRIAN LIBBY

Has the proliferation of firm websites killed the architectural monograph? Not yet, say the architects and publishers we interviewed for this story. But not all monographs are created equal. The trick to producing a worthwhile tome requires having enough significant work, finding a collaborative publisher, and picking a graphic aesthetic that reflects the firm.

Choosing What to Publish

Even if a monograph is only a modest seller—and most are, at best—it can be a useful tool for sharing work with clients, other firms, and the public. San Antonio's Lake|Flato Architects created *Lake|Flato Houses: Embracing the Landscape* (University of Texas Press, 2014) to be sold in places such as boutique hotels, museum gift shops, and bookstores to generate publicity, says associate partner Robert Hoang. The firm intentionally focused the monograph on residential design and has sold about 5,500 copies to date.

“Five or 10 years down the road, you ... feel differently about projects than when you designed them.”

—Andrew Freear, director, Rural Studio, Auburn University

The process of revisiting past work to decide what to include in the monograph affords time for reflection, says Andrew Freear, who heads the Auburn University School of Architecture's Rural Studio.

Freear co-wrote *Rural Studio at Twenty: Designing and Building in Hale County, Alabama* (Princeton Architectural Press, 2014), which covers work completed after the 2001 death of the studio's founder, Samuel Mockbee. “Five or 10 years down the road, you come to feel differently about projects than when you designed them,” he says.

A published monograph can even be an unofficial requirement for prominent jobs—something of a gilded calling card—says Lisa Green, a partner at Selldorf Architects, in New York. The firm's second monograph, *Selldorf Architects: Portfolio and Projects* (Phaidon, 2016), showcases 30 of its projects with text, plans, sketches, and ample photography.

Finding a Publisher

When selecting a publisher, firms should look beyond the name to see how it has handled similar projects. Financial terms vary and can include requiring the firm to purchase a set number of copies or to help pay for production and printing. “We never ask for any financial commitment,” says Virginia McLeod, a commissioning editor at Phaidon. “We think it muddies the water of what the book is for and the reasons for doing it.” At minimum, firms are expected to supply images. “We [handle] everything else: the graphic design, the printing, the binding, the distribution, the marketing,” she says. The publisher withholds the firm's share of the profits until it recovers those costs.

Finding a suitable publishing partner can require a bit of shopping around. Lake|Flato sent mock-ups of its recent monograph to several prospective publishers. “Being able to visualize our book and the work that it would include helped our cause,” Hoang says. “We had several offers from different presses. For smaller firms or ones with less notoriety, the mock-up is essential.” A good publisher balances creative freedom with a collaborative spirit. “As architects, we can do graphic design and we can write, but we're not graphic designers and writers,” Green says. “You have to let the professionals do what they do.”

Picking an Approach

Some monographs seek to reinvent the form, like Bjarke Ingels Group's comic tome, *Yes is More. An Archicomic on Architectural Evolution* (Taschen, 2009), or Rem Koolhaas, HON. FAIA, and Bruce Mau's classic *S, M, L, XL* (The Monacelli Press, 1997), which weaves poetry, diary entries, and essays into the presentation of projects. Selldorf's 2016 monograph takes a more straightforward approach to showcasing its portfolio, with text, images, and plans. And Lake|Flato did a little of both, arranging the houses in its new book by landscape type.

The key, McLeod says, is that the approach reflects the firm's identity. “Architect A might say, ‘Our architecture is very minimal and restrained and calm. We'd like a book that reflects that,’” she explains. “Architect B might say, ‘I don't want to do the same old monograph.’”

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Detail: Mid-America Science Museum Treehouse

TEXT BY TIMOTHY A. SCHULER

Nestled into the Ouachita Mountains just east of the Oklahoma border, an evanescent treehouse greets visitors on the skywalk of the Mid-America Science Museum, in Hot Springs, Ark. Designed by Little Rock–based Wittenberg, Delony, & Davidson Architects (WD&D), the 10-foot-by-24-foot structure takes on a winged form, inspired by the insects of the Ouachita National Forest.

Its ephemerality is amplified by the lightness with which it sits on the landscape, an effect achieved by careful siting, an emphasis on natural materials, and the use of slender structural supports. "It was a balancing act of

making sure it's a little bit hidden, and a little mysterious, but still very prominent and a real draw for museum visitors," says WD&D director of design and project co-leader Chad Young, AIA.

Completed in 2015, the treehouse has a material palette of pine, cedar, and Cor-Ten steel to blend in with the forest. White acrylic panels and a bevy of galvanized steel turnbuckles provide lateral bracing (although some turnbuckles provide only visual contrast). The architects designed the treehouse in Autodesk Revit but also built a scale model illuminated by LEDs to test different lighting effects.

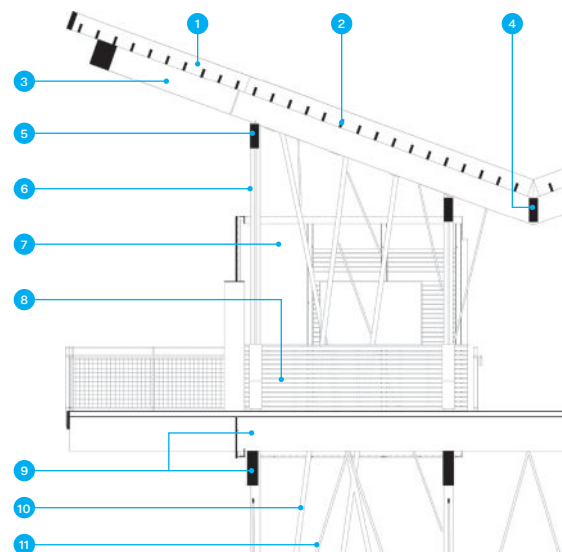
The treehouse's steel frame was the most challenging design aspect, Young says. The thicket of small Cor-Ten tube columns seems to sprout from a series of monolithic concrete footings, embedded 6 feet into the ground. "There are no right angles," he says.

Construction took roughly five months and was complicated by the site's running stream, not to mention the structure's complexity.

Throughout the project, Young says there was an atmosphere of discovery even among the design team: "You're imagining what it's like to experience science from a kid's point of view."



1. 2" × 10" roof rim joist
2. 2" × 6" pine slat (16" o.c.)
3. 6.75" × 16.5" glulam beam
4. 6" × 16" glulam central rafter
5. 6" × 16" glulam joist
6. Ø6" steel tube column (typ. 6)
7. White acrylic panel (beyond)
8. 1" × 3" cedar slat (3.5" o.c.)
9. 6" × 22" glulam floor beam
10. Ø4" Cor-Ten tube column
11. Galvanized steel cross-bracing



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Meejin Yoon AIA (Right)

Founder, Höweler + Yoon Architecture
1-time show attendee



WOOD: ADVANCING ENVIRONMENTAL LEARNING AND LEADERSHIP

The 180 students of **Common Ground High School** do more than study urban farming and sustainability. They live it each day in a building that's now a national model of what is possible in green school construction.

"Find me a high school student anywhere in the country that knows where their school's sheet rock was processed."

It's a provocative challenge and at the heart of a new \$7.5 million, 14,000 square foot addition to an environmental charter high school in New Haven, Conn.

The school is called Common Ground High School, and it offers public school students an innovative curriculum of urban agriculture combined with sustainable land-management practices. Last April it honored that earth-first ethic by opening the doors to the nation's first building to use cross-laminated timber (CLT) as a "stressed skin" assembly. The facility is targeted for LEED Gold certification.

School as Metaphor

The person responsible for the design (and sheet rock challenge) is Alan Organschi, designer and principal at New Haven, Conn.-based Gray Organschi Architecture. Gray Organschi's project portfolio represents an eclectic mix of commercial, educational, and residential projects across the northeastern U.S.

"Common Ground High School asked us for design recommendations," Organschi reports. "I suggested using mass timber as the construction material. I said we would source the wood. We know exactly what forest this wood is coming from. The school will be a great pedagogical lesson for the students. School leadership liked it. They were committed from the beginning."

Black Spruce

Working in close collaboration with design partner and co-principal of the firm Elizabeth Gray, along with respected local timber and structural engineers, Organschi and his team devised a construction strategy that deployed cellulose-based building materials throughout the addition. Black spruce CLT panels act as the tension surface and final ceiling finish. Vertical CLT panels form bearing and shear walls, while glue-laminated rafters and heavy timber trusses span the large ground-floor multi-purpose space.

Black spruce was selected because it's "super dense and has an incredibly high bending stress capacity," Organschi says. "The grain is tight and very beautiful. It's a very exciting material to work with."



“The air is really fresh.” An unexpected outcome for students, faculty, and staff is the air quality, according to co-designer Alan Organschi of Gray Organschi Architecture. “Air quality is the bane of most public school construction. The students at Common Ground tell me the air feels really fresh, just like being outside. I didn’t think that would be the big takeaway. I can only attribute that to the material, wood, quite honestly.”



The sawtooth roof provides diffuse natural lighting for key spaces, allows for simple installation of photovoltaic panels on the south facing slopes, and directing water to the surrounding rain gardens. The architect says artificial light is sparingly used, helping reduce energy expense and improving student and faculty visual comfort.

Supportive Code Officials

City of New Haven building code officials proved to be virtual partners. “The building authorities and fire marshal are incredible. They’re very supportive. They read the documentation. They know all about charring and heavy timber construction and balancing. Sometimes they even present code information that helps us innovate,” reports Organschi.

Gray Organschi Architecture is a long-time advocate for wood-based construction. Organschi started out as a furniture and cabinet maker before making the jump to architectural design. Today their architectural practice includes a workshop (“our laboratory”) and a full-time technician.

Four-Week Construction

“Wood is amazing. It is remarkably durable, protective, and has enormous bending elasticity, a huge seismic benefit. It’s also a beautiful material that looks good even when scuffed. Wood is also forgiving. If you make a mistake in fabrication, you can easily correct it in the field. That’s not easy to do with steel, and you certainly can’t do that with concrete.” Organschi says that the new school building was framed in just four weeks by a crew

of five, using prefabricated materials.

School Spirit

For Organschi, the environmental story of wood is most compelling. “You can talk about wood in terms of energy performance, renewability, and carbon sequestration. There’s nothing like it. We need wood more than ever,” asserts Organschi.

For now, the staff and students of Common Ground couldn’t be happier with their new addition. “It’s a triumph for the school, the state of Connecticut, and education building design.”

“Common Ground students can point on a map where the wood for their school was grown and the CLT fabricated. That’s a connection that matters. Students are proud of their school.”

Owner: The New Haven Ecology Project

Architect: Gray Organschi Architecture

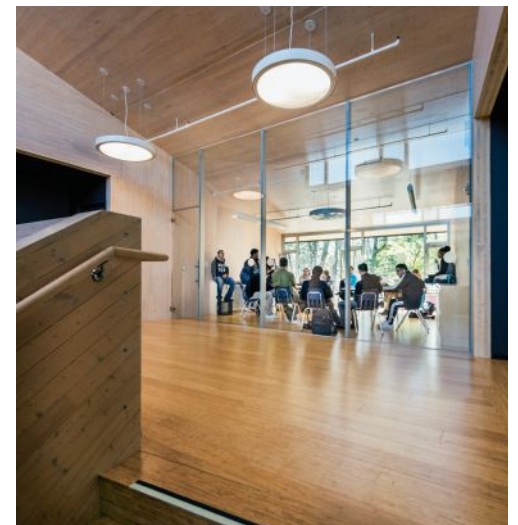
General Contractor: Newfield Construction

Timber Engineer: Bensonwood

Photography: David Sunberg

Location: 358 Springside Avenue,
New Haven, Connecticut

Year Completed: 2016



Black spruce CLT panels act as the tension surface (and final ceiling finish) in a system of prefabricated stressed skin assemblies that span the upper classrooms and circulation spaces. Vertical CLT panels form bearing and shear walls throughout the building.



Innovative Detail, sponsored by reThink Wood, is a monthly presentation in ARCHITECT of distinct building design and modern architecture. Innovative technologies and building systems enable longer wood spans, taller walls, and higher buildings, and continue to expand the possibilities for use in construction.

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Passive Design: Incentives for Affordable Housing

TEXT BY COURTNEY HUMPHRIES

Despite winnowing energy consumption by up to 80 percent, passive design is often seen as an added—and untenable—first cost to building developers. Now, one sector is getting a boost to make the investment more palatable: affordable housing. Starting with Pennsylvania, many states are offering tax credits and incentives for the construction of buildings that comply with the Passive House Institute US' Passive House performance standard.

The effort in Pennsylvania is spearheaded by Tim McDonald, president and CEO of Philadelphia-based design/build firm Onion Flats. Following the firm's 2012 completion of Philadelphia's first certified Passive House project, the Belfield Townhomes (at a budget of \$130 per square foot), McDonald and other architects, builders, and developers met with the Pennsylvania Housing Finance Agency (PHFA) in 2014 to craft a way to promote high-performance projects without requiring new subsidies or regulations.

First, some background. Federal tax credits for affordable housing construction, offered through the U.S. Department of Housing and Urban Development's Low Income Housing Tax Credit program, are allocated by each state's housing finance agency. Through a point-based system called the Qualified Allocation Plan (QAP), each state agency sets its own criteria—such as project location and target resident demographics—for deciding who receives the coveted tax credits, which



Onion Flats' Belfield Townhomes

can subsidize up to 70 percent of a project's cost.

In 2015, the PHFA began offering 10 points out of its 120-point QAP for projects seeking Passive House certification. Developers took notice. Last year, 31 of the 85 proposed new construction projects stated an intent to meet Passive House standards; seven received the tax credits. In 2016, 10 out of the 27 proposed Passive House, new construction projects were successful.

Many housing finance agencies do prioritize sustainability by awarding points for projects aiming to meet the U.S. Green Building Council's LEED standards or the Enterprise Green Communities criteria. Unlike those programs, Passive House focuses solely on energy efficiency. "We chose Passive House because ... it ultimately reduces the cost of operating multifamily

housing," says PHFA senior executive director and CEO Brian Hudson Sr.

McDonald has made it his mission to expand this model. To date, he's contacted housing agencies in 40 states and leads presentations and meetings across the country. He also tracks the progress of Pennsylvania's Passive House projects. "The premium [has been] less than 2 percent," he says.

About a dozen of the states McDonald has contacted have added Passive House certification as a factor to their QAPs in varying formats, and many more states are considering it. Connecticut, for example, added three points for Passive House certification, out of 102 total possible points, to its 2016 QAP. "What Tim did is phenomenal," says Lois Arena, senior mechanical engineer at Washington, D.C.-based Steven Winter Associates. The shift to Passive House, she adds, "is happening very quickly."

One reason for the speedy adoption is that the QAP approach relies on competition for existing incentives rather than adding new subsidies or regulations. "It's a great idea, and we've started working along those lines here," says Greg Hale, senior adviser to the chairman of energy and finance at the New York Governor's office.

McDonald hopes that the incentives for high-performance affordable housing will ultimately lead to more market-rate projects built to Passive House standards. "The way I see it," he says, "we're training the industry."

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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

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Year founded:

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Leadership:

Jennifer Bonner (director)

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School of Design (GSD)

Experience:

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Chipperfield Architects; teaching
positions at Woodbury University,
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First commission:

Made in Opa-locka, a Miami maker hub, under the label Bonner+Stayner (with former collaborator Christian Stayner).

Favorite project:

Domestic Hats is a design and research project that began inside a gallery and now is the basis for a live residential project in Atlanta. Domestic Hats questions the role of ordinary roof typologies in contemporary architecture.

Second favorite project:

Best Sandwiches is the second design and research project in a series that I am working on. Best Sandwiches is colorful, playful, yet also a quite serious, proposal for architecture. Working on the problem

of extrusion, Best Sandwiches looks at nine novel stacks in the form of basic sandwich types: submarine, grilled cheese, BLT, and Dagwood.

Design hero:

John C. Portman Jr., FAIA, is my hero, because Southern architects need Southern idols, and because he showed everyone how to invent a typology ("super atrium") while mastering the architect-developer business model.

Design tool of choice:

Physical models and photography (and all of the other digital tools).

Special item in your studio space:

Eames leg splint.

Memorable learning experience:

In 2004, I was asked to move to Istanbul, Turkey, with Foster + Partners to develop construction drawings for the Palace of Peace (a 62-meter-tall pyramid for Kazakhstan's President Nursultan Nazarbayev in the capital city of Astana).

Social media platform of choice:

Instagram.

Skills to master:

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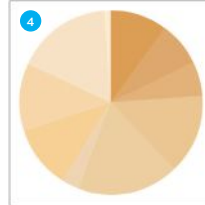
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**Next Progressives:
MALL**



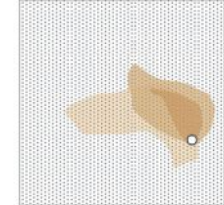
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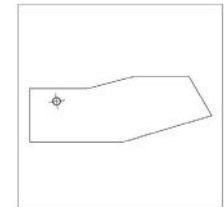
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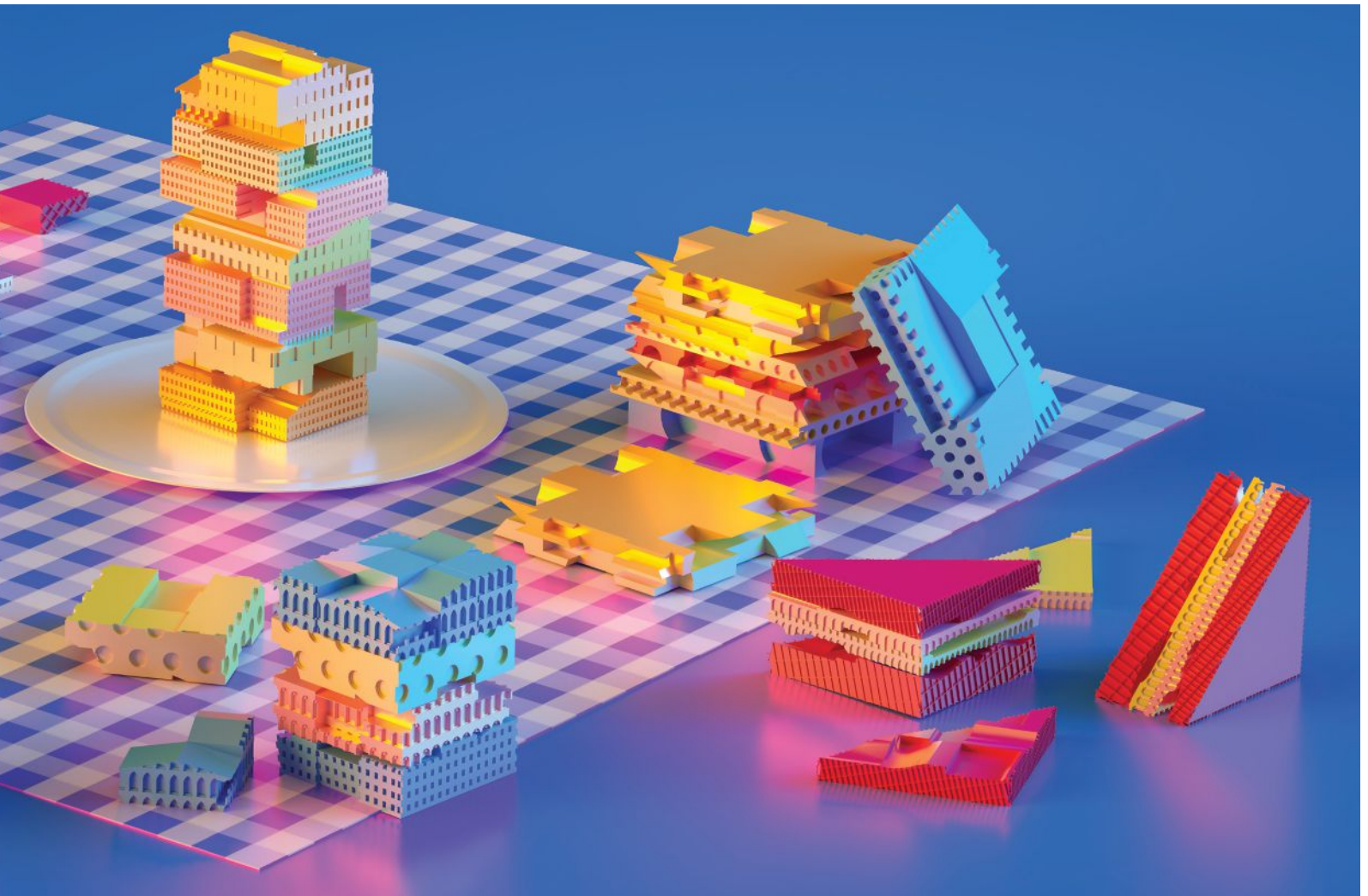


Sculptural Mechanism



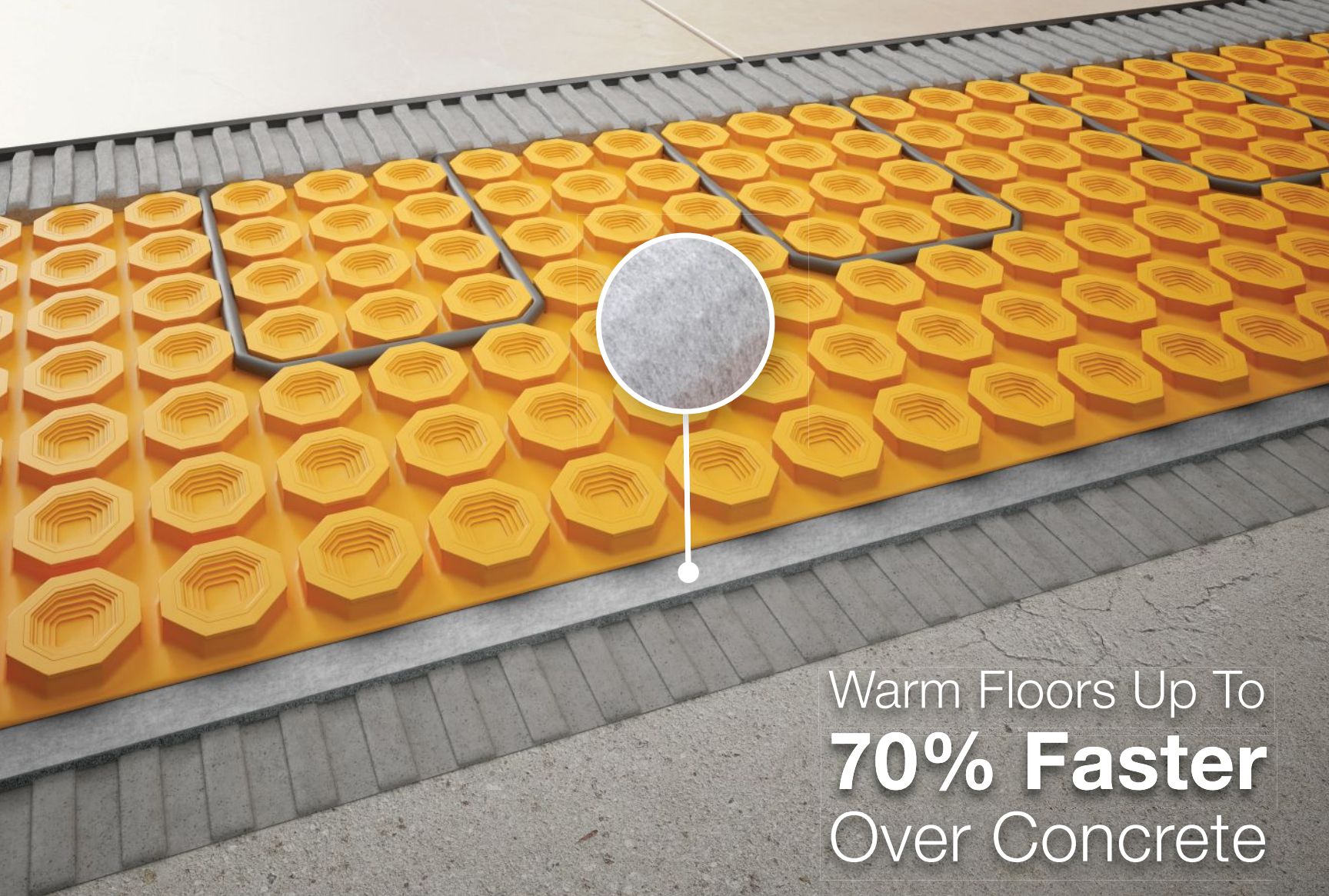
Location in Borden Park





2: COURTESY MALL; 5: PATRICK HEAGNEY

1. Watermarks, a 2011 exhibition at Woodbury University's WUHO Gallery in Los Angeles, examined rising global water levels through simulation of Venice's Acqua Alta, a biannual flooding of Piazza San Marco. **2.** Bonner's 2016 Best Sandwiches exhibition at Boston's Pinkcomma gallery celebrates the layers of buildings, eschewing Miesian vertical extrusions in favor of misaligned stacks, starting with comparisons between MVRDV's Dutch pavilion for the 2000 Hanover Expo and a BLT sandwich. **3–4.** In Olfactory Past, Bonner and Christian Stayner cataloged scents from Edmonton, Alberta's Borden Park and proposed 11 sculptural machines arranged as an odoriferous time line of the park's history. **5.** Domestic Hats studied the rooflines of Atlanta residences in a 2014 exhibition of overscaled massing models that led to design of a single-family house in the city's Old Fourth Ward.



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Adaptive Reuse: Trenton's Roebling Center

TEXT BY CLAY RISEN

"Trenton Makes, the World Takes," exhorts the neon sign on the Lower Trenton Bridge to cars and trains leaving and entering New Jersey, but it's been decades since the state's capital has made much of anything. A manufacturing powerhouse in the 19th and early 20th centuries, the city was gripped by massive deindustrialization and white flight in the 1960s and '70s, and has been grappling with recovery ever since.

Its surplus of abandoned buildings and broken windows makes the sign all the more plaintive, but John Hatch, FAIA, a steadfast Trenton resident (20 years and counting), sees nothing but potential, thanks to the city's low housing costs and location between two major economic hubs, New York and Philadelphia. "We think Trenton is poised to be the next big thing," he says.

By "we," Hatch is referring to local architectural design firm Clarke Caton Hintz, where he is a partner, and HHG Development Associates, where he is a principal. The two entities are spearheading the Roebling Center, a 6.8-acre, \$130 million mixed-use project on Trenton's south side that they, along with city leaders, hope will catalyze development in the neighborhood and throughout the 8-square-mile city.

In 1848, the John A. Roebling's Sons Co., one of the country's leading producers of wire rope, moved its factory from western Pennsylvania to Trenton. Thousands of Roebling workers lived in the Chambersburg neighborhood adjacent to the factory.

The city was also once home to the country's largest ceramics industry, and the A. Exton & Co. cracker factory, built in 1848 and renovated by Hatch and his team into apartments a decade ago, was the birthplace of the oyster cracker.

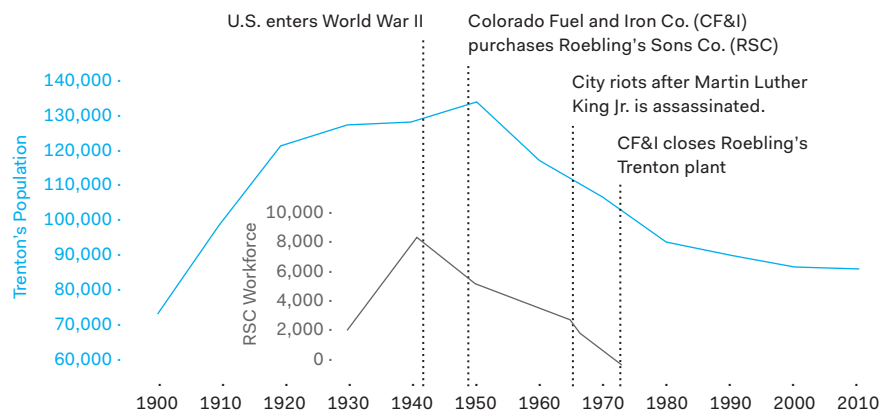
What followed for Roebling and many of the large companies in Trenton was "a pretty standard story in the U.S.," Hatch says. "Smaller companies got bought out by bigger companies, and then by multinational companies, and then they all got shut down." By 1973, the Roebling plants in Trenton were shuttered.

Much the same happened in cities up and down the East Coast during this period, but those in New Jersey were particularly hurt. Despite the recovery of cities such as Hoboken and Jersey City in the late 1990s, Trenton remained stubbornly decrepit.

The Roebling Center's first phase, the conversion of a five-story, former manufacturing hall known as Building 101 into the 138-unit Roebling Lofts, should be done by next April. The project "will provide beautiful loft apartments for people who want to stay here, and it will attract people from the region who want to live here," Hatch says.

The adaptive reuse of two other buildings on site—a boiler and engine house, and a production facility—into residential and commercial space will follow, along with the construction of three new structures.

"The redevelopment ... represents one of the largest private investments in Trenton in many years," says Mayor Eric Jackson. "[It] is a game changer and a catalyst and example of the shape of things to come."



SOURCE: U.S. CENSUS BUREAU; A SOCIAL HISTORY OF ECONOMIC DECLINE (RUTGERS UNIVERSITY PRESS, 1989); INDUSTRIAL DIRECTORY OF NEW JERSEY (NEW JERSEY STATE CHAMBER OF COMMERCE, 1931)



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An addition to the Seattle- and Amsterdam-based studio's Scraplight line, these monolithic white pendant, table, and standing luminaires feature FSC-certified, corrugated cardboard diffusers. The shades are made in Holland in collaboration with a community program that provides locals with careers in the crafts. The collection offers nine shapes, including a moon, drum, and bell (shown). graypants.com



MushLume Cascade Chandy, Danielle Trofe Design

The shades of these pendants are made from a combination of liquid mycelium (the part of a mushroom that grows beneath the soil) and agricultural byproducts, including seed husks and corn stalks, which is then formed in molds, heated, and dried. The 25W wired fixture has an E26/27 base and is ceiling mounted. Measuring 78" tall by 15" wide, it is fitted with spun brass hardware. danielletrofe.com

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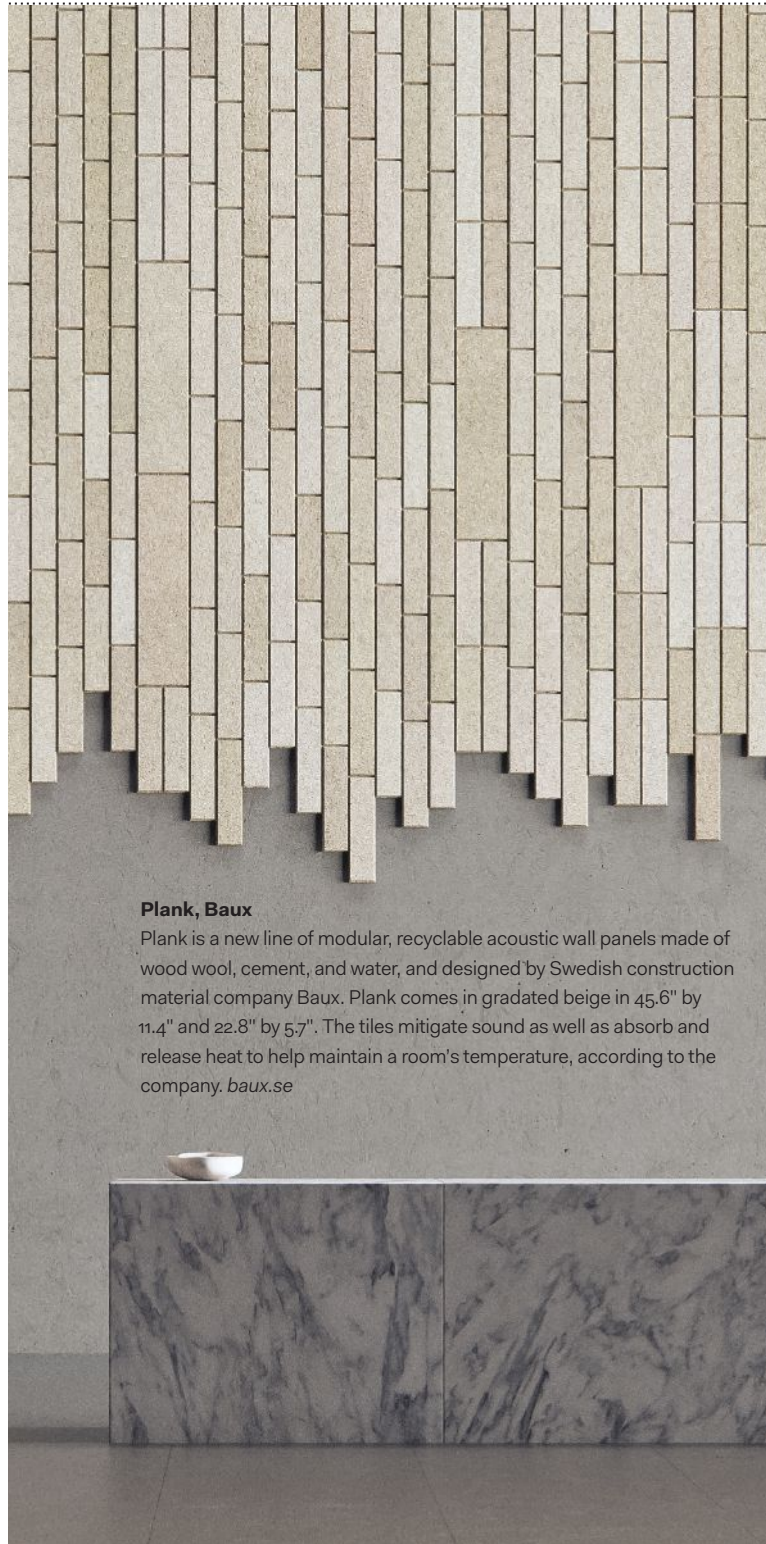
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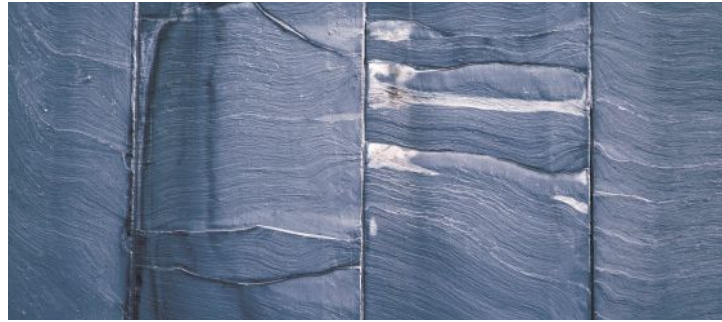
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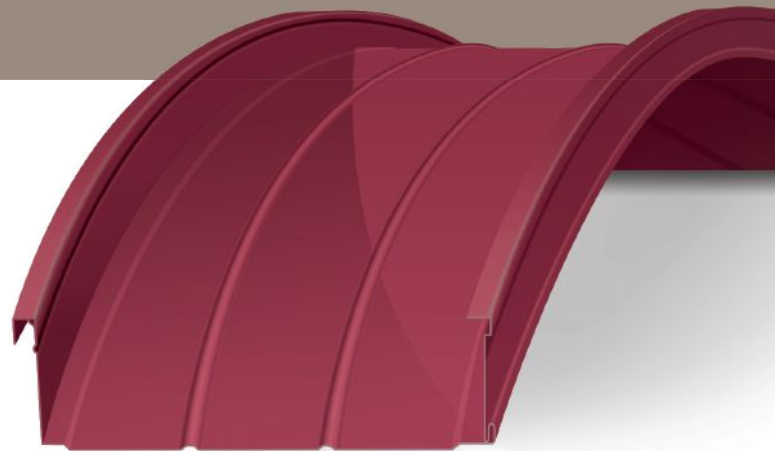


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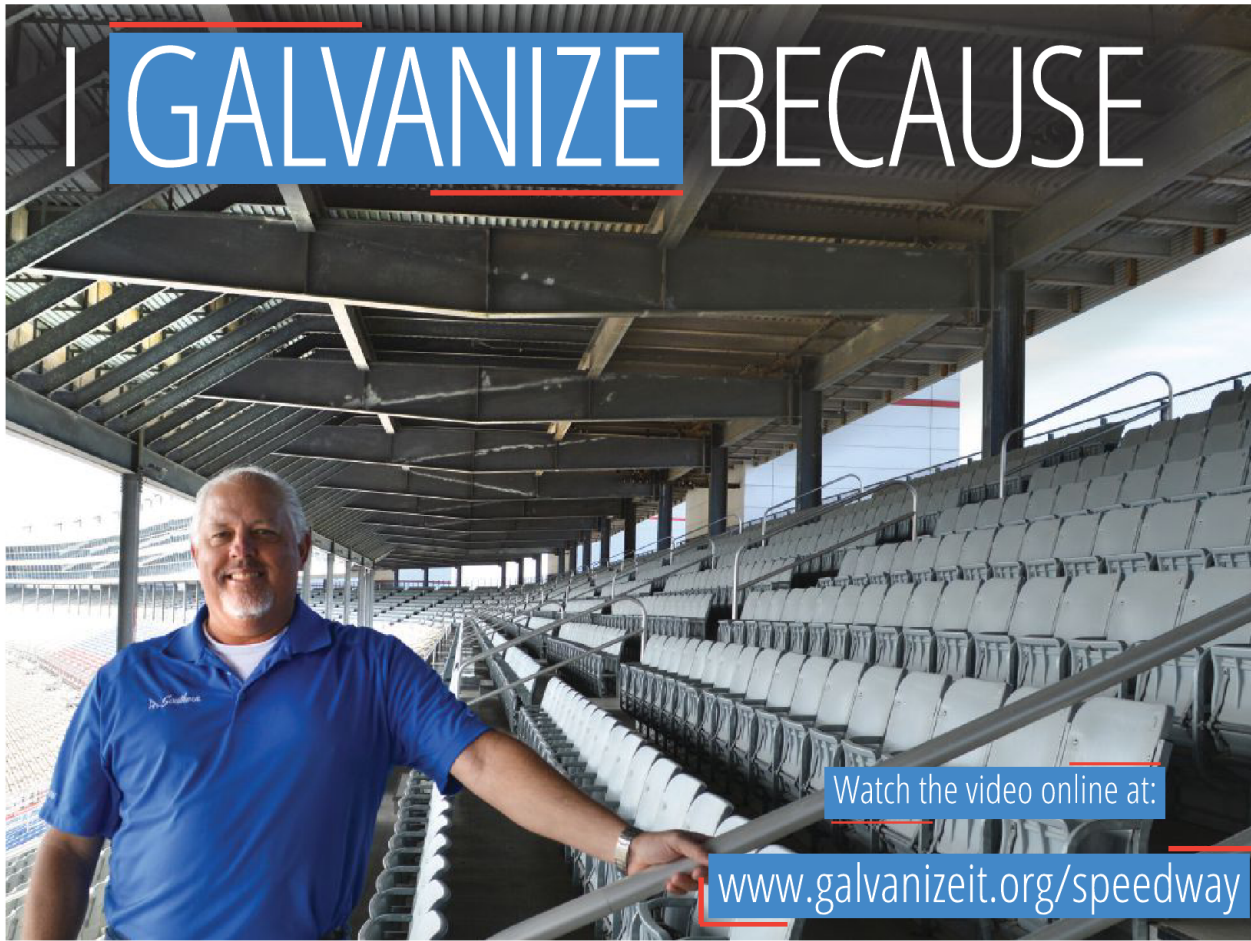


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Architecture's Auteur

Bringing architecture and design to the silver screen.

Kyle Bergman, AIA, who studied both architecture and film in college, has found a way to combine the two in the real world. As the founder and director of the Architecture & Design Film Festival, sponsored by the AIA, he has found a highly public way to bring architecture's best stories to professionals and design enthusiasts alike. Bergman's goal? To raise the level of discourse between architects and their clients.

As told to Steve Cimino

For a long time, photography was how we showed architecture to ourselves and the rest of the world. But with stills the camera setups took quite a while. We went for a long time sharing these photos without having people in the frame. Now that film is as important as—if not more than—stills in showing architecture, we're able to bring the human element back into the story. Photography is seductive and gorgeous, but it can't capture how people interact with a building. It's no match for time and space and scale and proportion, the tools filmmakers have at their fingertips.

A lot of the films that prove most appropriate for the festival are made with a combination of people deeply connected to filmmaking and people from the architecture and design world. Sometimes we get films made by architects that are interesting from a content perspective but not very well-told. Sometimes we get beautiful films from filmmakers that are missing the subtleties of architecture and design thinking. The ones that bring the two worlds together are the ones that stand out.

Part of what we're aiming for is to attract

a diverse audience. As architects, we talk to ourselves all the time, and those conversations are always dynamic and engaging. But film is an opportunity to expand the conversation about architecture's impact on our daily lives, which is something we've pursued since our festival started in 2009. And as we move forward, more and more design films are being picked up by the Tribeca Film Festival, Sundance, Cannes—there's definitely a greater appetite. We're not the reason for that, but I like to think we have contributed.

That said, seeing films is a great way to understand architecture, but the best way is to see a building in person. When you're there, you get to experience it in your own reality. There's no start or finish. You're immersed in the space. **AIA**

The winner of AIA's I Look Up Film Challenge will be screened at the 2016 Architecture & Design Film Festival, which will take place in New York City from Sept. 28 to Oct. 2. For more on the festival, visit adfilmfest.com.



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AIANow

By William Richards
Art Direction by Jelena Schulz

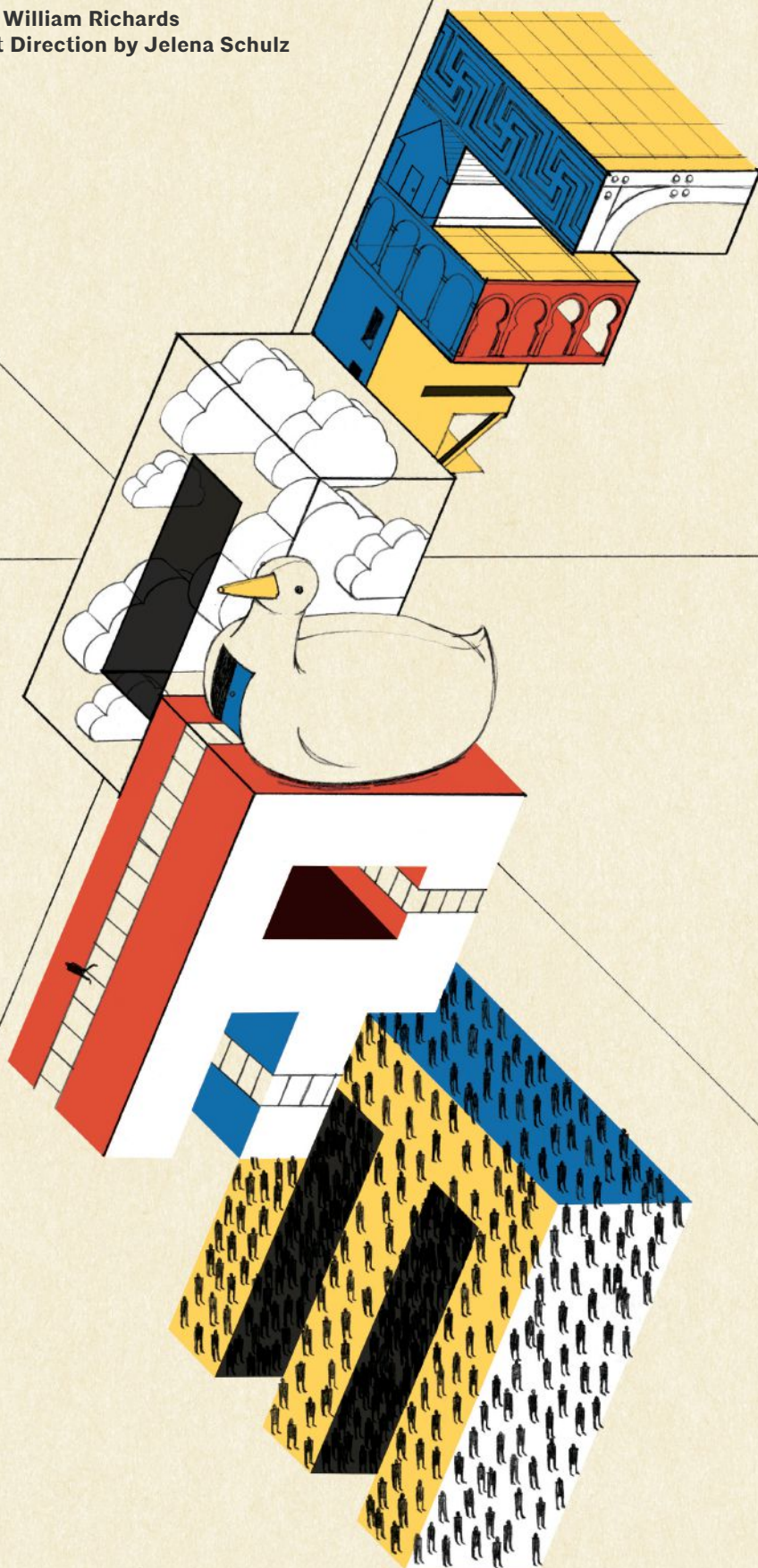


ILLUSTRATION: LAUREN NASSEF

Form Four Ways

It's been nearly 50 years since Bauhaus instructor and artist Johannes Itten died in 1967, but his legacy remains central to architectural education. Itten's time at the seminal German design school was short-lived (a mere four years between 1919 and 1922), but his concept for a preliminary "Basic Course" for incoming students continues in one fashion or another at many American architecture schools. Central to this preliminary course, or *Vorkurs*, was the idea that new students should be self-directed, rather than put through a series of rote exercises.

As for guiding his young charges, Itten encouraged *Vorkurs* students to master what he called "expressive forms" and "subjective forms," which derived from his own brand of mysticism and Zoroastrian beliefs. Expressive forms were the things of design itself—a translation of concept into a physical design. They were the products of what he called a student's "inner vision" and, when rendered, representative of a student's "fixed seeing." (Cosmic, right?) Subjective forms, on the other hand, which encompassed composition, color theory, and materiality, had to do with developing a student's vision beyond architectural precedents. In other words, subjective forms could reflect all of the things that other architects had thought about in their design process, but must reject the products of those design processes.

After Itten left, the Basic Course duties were split between Josef Albers and László Moholy-Nagy, and the Bauhaus established a more-defined course of architectural study. But the groundwork he laid for students, whether they went on to become potters, industrial designers, or architects, is worth considering this month as thousands of students report for their first year in both pre-professional and professional architecture programs to unpack what "form" means to them for the first time. By way of guidance, here we offer some definitions of form by architects who know a thing or two about it. —William Richards

ADDITIVE EDITING: "Studying form need not make us 'flashy formalists.' Analyzing one variable away from others can be useful. We are irresponsible only if, in design, we follow functions that give us forms we like, and bar those that don't." —Denise Scott Brown, HON. FAIA

FORM AND THE FOURTH DIMENSION: "Form is more than shape. It is imbued with innate and associative messages and meanings, which are in turn chock-full of culture and history." —Douglas Kelbaugh, FAIA

FORM IS IN THE EYE OF THE BEHOLDER: "People's experiences and emotions, being centric to design, define any given object's form." —Joel Pominville, ASSOC. AIA

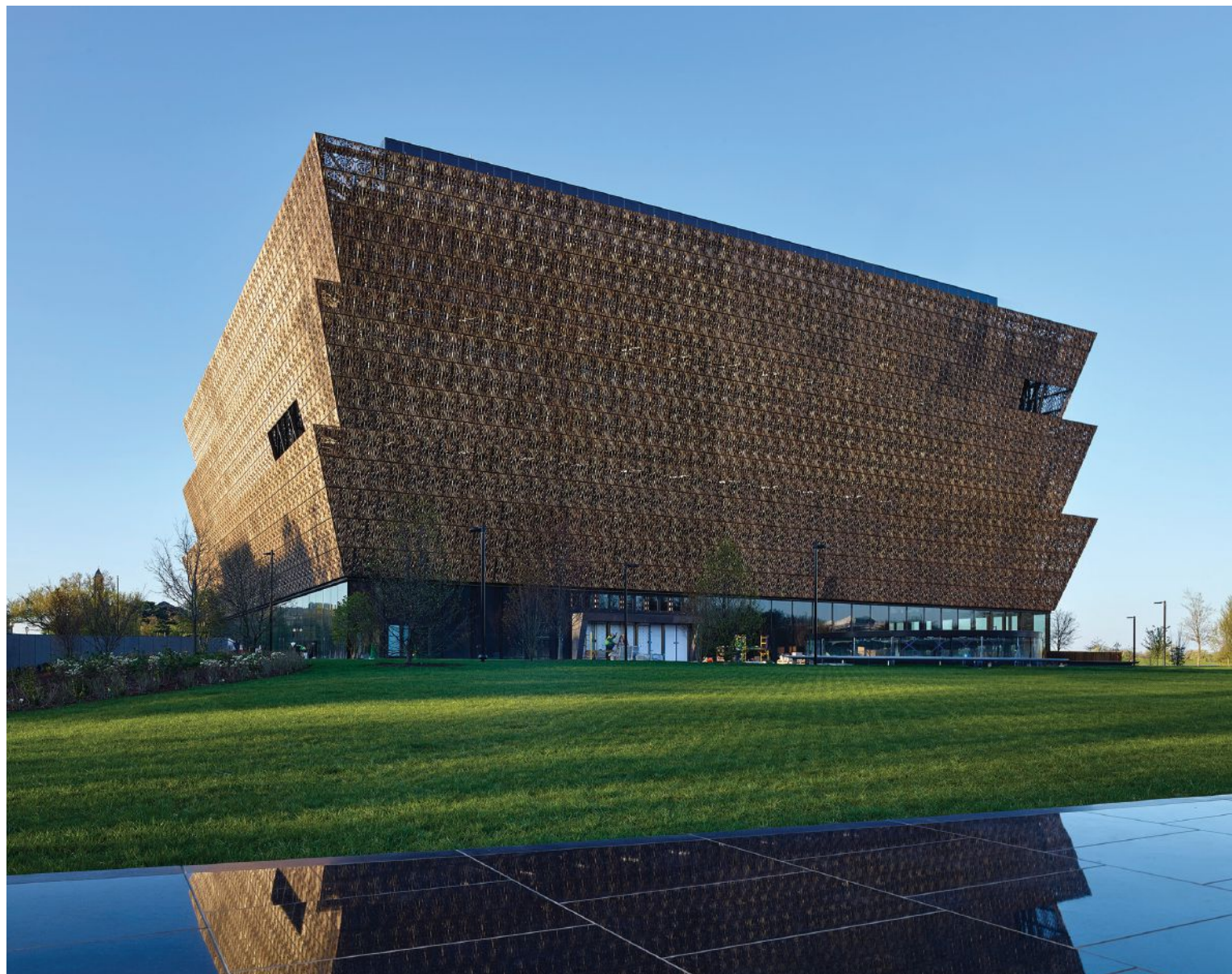
BUILD UPON BUILDING: "Form in architecture is the process of piecing together people and space to create a greater experience than what once existed." —Danielle Mitchell, ASSOC. AIA

AIA Feature

The National Mall Finally Gets Its Crown

As the Smithsonian's National Museum of African American History & Culture opens its doors, the fruits of a groundbreaking and visionary partnership come to light.

By Kim O'Connell

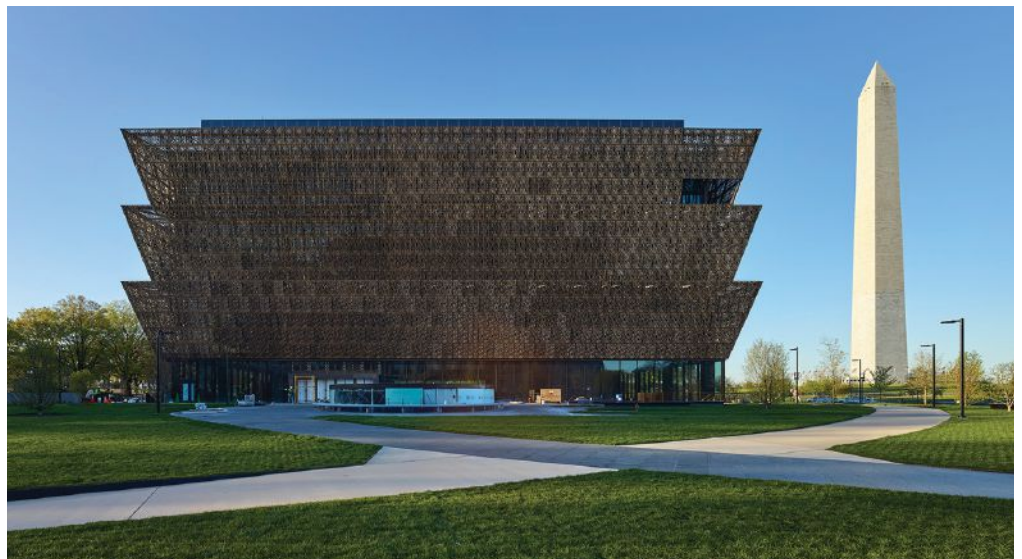


PHOTOGRAPHY: ALAN KARCHNER

On a prominent corner in downtown Washington, D.C., workers are putting the finishing touches on the Smithsonian's highly anticipated National Museum of African American History & Culture (NMAAHC), opening this month. The museum, notable for its three-tiered inverted ziggurat design, sits in a conspicuous spot on the National Mall, with the Washington Monument and the White House just beyond and the National Museum of American History directly adjacent. The placement is indicative of the story the museum is telling, through its design and its collections: The African-American experience of the past 200-plus years is something all Americans should know about and worthy of a place beside monuments to the Founding Fathers.

As the placement is significant, so is the timing. The year 2016 is likely to be remembered as one of extreme conflict, in which Americans were buffeted by a contentious presidential election, brutal episodes of violence, and ongoing clashes between Black Lives Matter activists and others who don't acknowledge or agree with that message. Opening this particular museum in this particular context underscores what its designers and curators understood from the beginning: This museum is not just about the past or progress but the ongoing struggles facing African-Americans every day. And, furthermore, that acknowledging the struggles of the past, present, and future could be a means of uniting the nation rather than dividing it.

"It's a signal that our nation's capital is really paying attention," said one of the design



ABOVE AND OPPOSITE: The museum's parti describes a "corona" and a "porch"—gestures that are both monumental and inclusive.

AIAFeature

CONTINUED

principals, Philip Freelon, FAIA, during a recent construction tour. “It’s an incredible honor to be associated with this project.”

A Historic Collaboration for a Historic Project

An honor, certainly, and a major responsibility: A project with this level of political and historical complexity engendered a partnership that was equally complex. In 2009, after an international competition, the Smithsonian Institution chose a conceptual design submitted by four collaborating architecture firms: the Freelon Group, Adjaye Associates, Davis Brody Bond, and SmithGroupJJR. Their proposal beat out entries from such internationally known architects as Norman Foster, HON. FAIA, Antoine Predock, FAIA, and Moshe Safdie, FAIA. Three of the winning group’s notable architects stood out: Freelon;

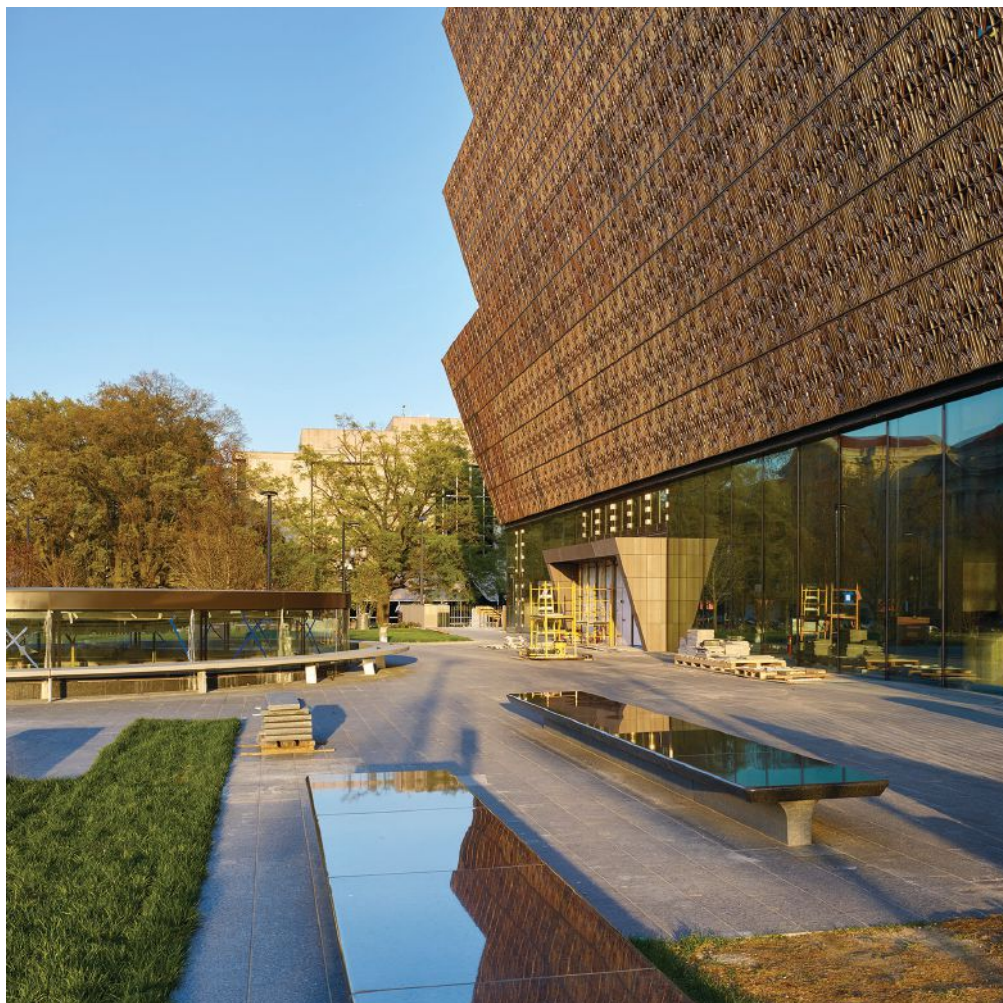
J. Max Bond Jr. (who died in 2009, just as the project was being awarded); and David Adjaye, HON. FAIA. Prior to the design competition, Bond and Freelon had partnered as Freelon/Bond on a two-year planning and programming phase, and together produced the design framework in the form of a six-volume, 1,200-page report for the Smithsonian.

Roles and responsibilities were discussed and agreed upon early [in the process], says Zena Howard, AIA, a principal with Perkins+Will (which acquired the Freelon Group in 2014) who has worked with Freelon on the museum since the initial programming and planning.

“We recognized from the beginning that the team included people who could rightfully say, ‘I can do what that person can do,’” Howard says. “So we talked at length about people’s roles. Everyone brought their unique perspective. You had Max, who was this visionary, able to distill complex ideas

“It’s a signal that our nation’s capital is really paying attention. It’s an incredible honor to be associated with this project.”

—Philip Freelon, FAIA



A liminal zone between museum and Mall, designed by Seattle-based landscape architecture firm Gustafson Guthrie Nichol, creates a less abrupt entry experience for visitors than other similarly situated museums in the District.

and notions and get things done. You had Phil, accomplished renowned architect who knew the design program and our client's aspirations. And you had David Adjaye, who provided an international design perspective. What we were missing was a local firm, which we knew we would need, so we brought in SmithGroup. They had done work with the Smithsonian and brought in that beneficial history with the client."

In addition to written documents, such as a memorandum of understanding, the firms created graphic materials to communicate visually the project's major elements. These helped define which team members would take the lead in which areas, consistent with individual strengths, Howard says. Throughout the project, from design to development to construction, the team held weekly meetings in person, on-site, or virtually. "Every single Monday at noon, except for holidays," says Howard. "That was critical. If you let too much time go by with such a complex team, that whittles away at the team synergy. You can imagine the flow of information. ... We had a compatible design vision, and that was key."

Translating an Idea

In terms of the exterior, the vision consisted of two major features: the "corona," the three-tiered crown shape; and the "porch," an outdoor welcome area that serves as the main museum entrance. As lead designer, Adjaye (a British national who was born in Tanzania) was the driving force behind the corona design, which was inspired by the Yoruban Caryatid, a totemic African column with a crown or corona at its top. Some 3,600 bronze cast-aluminum panels create the corona. Additionally, the porch, or stoop, is an essential aspect of the African-American community experience (and life in the South in general). Metal latticework on the exterior recalls the intricate ironwork created by slaves in the South, according to the architects.

"As a relative outsider, I was not emotionally invested, so I was able to bring a spectral understanding of the whole project," Adjaye says. "I understood that it was not about a singular moment, but rather an exploration and an overview. ... So it takes its cues from that incredible history, but it is also a space for discovery. I can only hope that it has the broadest relevance, and it becomes something that contributes to the discourse of American architecture, museum design, and the cultural

exchange between human beings."

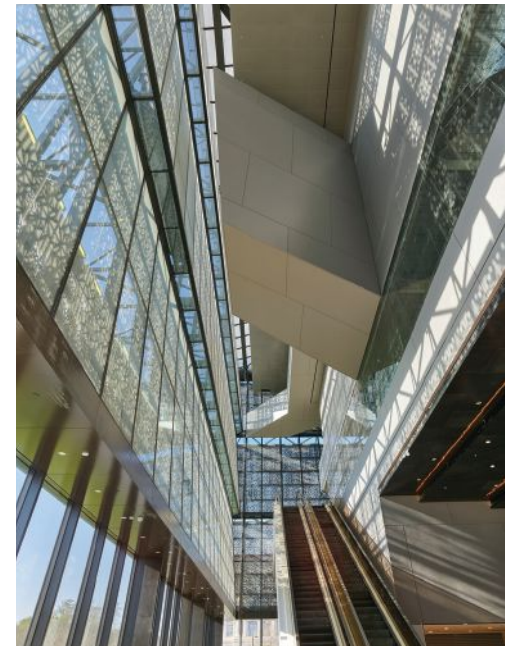
As lead architect, Freelon led the coordination among various consultants and brought his extensive experience designing institutions related to African-American experience, including the Museum of the African Diaspora in San Francisco. Davis Brody Bond also contributed its museum design experience and focused on designing the museum's Oprah Winfrey Theater and its history galleries, which are all below grade. SmithGroupJJR coordinated the design and construction of the exterior envelope and helped facilitate contributions from the many consulting parties including Gustafson Guthrie Nichol, the landscape architect, and Ralph Appelbaum Associates, the exhibit designer. The NMAAHC is expected to be the most sustainable national museum ever constructed, drawing on geothermal heat pumps, rainwater harvesting, daylighting, and more to achieve LEED Gold.

Like the National Museum of the American Indian before it, the museum is a significant departure from the Neoclassical design of most Smithsonian museums and many other buildings in the city's federal core. In addition to signaling the building's intent to create a distinct experience for visitors, the striking design emphasizes the expressiveness of its architects, each with an eclectic portfolio.

"I've enjoyed watching the museum take shape on the Mall, not just for what its collection represents, but because it looks very different from the typical Neoclassical building," says Mary Fitch, HON. AIA, executive director of AIA/DC and the District Architecture Center. "The view of the NMAAHC with the Washington Monument in the background makes such a powerful statement about the architecture of modern Washington and the kind of world capital we are becoming."

An Important View of America

At the same time, the museum nods to its surroundings in both obvious and subtle ways. Along with its African influences, the building follows a classical Greco-Roman form in that it has a base and a shaft topped by a capital (or in this case, a corona). In addition, Howard points out, the angle of the corona tiers is exactly the same as that of the capstone of the Washington Monument. That level of architectural detail may fly over the heads of most visitors, but it's the kind of thing that creates a subconscious sense of connection.



The entry experience, between the museum's central core and peripheral glazing, is about circulation as much as it is about creating a respite from the Mall's sometimes unforgiving scale.

Inside the museum are galleries on several levels that will hold some 33,000 artifacts related to African-American history, community, and culture, covering slavery, civil rights, sports, historic black communities, music, visual arts, and more. Cut into these spaces are several windows—or "lenses," as the team calls them—that frame iconic views of the surrounding city, including the Washington Monument, the Lincoln Memorial and the Reflecting Pool, the Capitol, the White House, and so on. "Museums can be immersive experiences, but we took a different design approach," Howard says. "We thought it was important to provide moments throughout the experience that remind visitors of their location on the National Mall." The idea is to offer a view of America beyond the Mall through the African-American lens.

As an African-American and a woman, Howard feels a deep and highly personal connection to the narratives that the museum represents. "I feel great about this project, but I know I will feel best when I see the people inside the building, people who never thought the story would be told in a true, honorable, and highly public manner," she says. "My parents are from the Deep South and worked in civil rights. I think that now, as a country, we've made a statement that there's a national museum recognizing the importance of this history, it's going to help settle their spirit and that of many others in our country." **AIA**

AIAFuture

Saint Jane, Approximately

A new look at Jane Jacobs may provide the definitive biography of this pioneering thinker.

Jane Jacobs was awarded the Thomas Jefferson Foundation Medal of Architecture by the University of Virginia in 1996, joining the Olympian ranks of architects such as Ludwig Mies van der Rohe, Alvar Aalto, and James Stirling. Yet the writer was cited not for architectural design, but for “the most influential book of our century,” *The Death and Life of Great American Cities* (1961), published 55 years ago. In part, the citation read, “From the publication of this book, one can date the rethinking of U.S. urban renewal policies, the eclipse of modern architecture, the rise of historic preservation, the invigoration of neighborhood involvement, and even vigorous and principled public opposition to large-scale public projects that threaten to destroy the texture and vitality of urban places.” Two years after this honor, Jacobs received a Presidential Citation from the AIA.

Thomas J. Campanella, a professor of urban planning at the University of North Carolina compared *Death and Life* to Martin Luther’s “95 Theses,” which ignited the Reformation. “So thoroughly internalized was Jacobs’ critique,” he said, “that planners could see only folly and failure in the work of their forebears. Daniel Burnham’s declaration, ‘Make no little plans,’ went from a battle cry to an embarrassment in less than a decade.”

Jacobs was always a polarizing figure. She was a housewife without any design training who took on America’s planning establishment, most notably defeating Robert Moses’ Lower Manhattan Expressway. She was tough-minded, often thorny, and always right. Her legacy is impossible to dismiss.

Most of us in architecture recall when we first encountered Jane Jacobs’ work. Assigned a chapter in *Death and Life* at Dartmouth, I devoured the entire book; everything since was measured against Jacobs. As a historian of cities, I taught the town planning literature of Ian Nairn, Gordon Cullen, Camillo Sitte, Kevin Lynch, and Steen Eiler Rasmussen. But no writing by that humanist pantheon had more impact than that of Jacobs, and I carried her precepts with me to New York to study historic preservation.

Now, a century after her birth, Saint Jane has been canonized. “Jane Jacobs 100: Her Legacy and Relevance in the 21st Century” was



Jane Jacobs, as chairman of the Committee to Save the West Village, presents evidence at a press conference at the Lion’s Head restaurant, in New York, in 1961.

the title of a conclave held at Delft University of Technology in the Netherlands. There’s an opera, a Girl Scout merit badge, and the forthcoming *Whole Jane Catalog*. Jacobs mavens take Jane’s Walks in cities as far away as Melbourne and Anchorage. Jacobs has been adopted as the guru of various groups, some of which she would abhor (she would not have gladly walked around Seaside, Fla.).

Stephen Goldsmith, director of the Center for the Living City at the University of Utah, says, “She would be a little embarrassed by all of the attention.” Yet a new biography by science writer Robert Kanigel of the woman who believed that downtowns are for people provides ballast to offset the adulation. *Eyes on the Street: The Life of Jane Jacobs* (Knopf, 2016) is the sort of full-on study, complete with footnotes and bibliography, that Jacobs required.

Dramatic revelations are few: Jane’s grandfather was a slaveholder in Virginia and she was Presbyterian, not Jewish. High school graduate Jane Butzner came to New York in 1934. She wrote for *Vogue* and *Architectural Forum*, and took some geology classes at Columbia. “I walked in the door,” her husband, architect Robert Jacobs, said of meeting Jane in 1944, “and I fell in love.” They bought a house in New York’s West Village, a protagonist in *Death and Life* that she regarded as a front-row seat to a daily urban drama. “The stretch of Hudson Street where I live is each day the scene of an intricate sidewalk ballet,” she wrote. “I make my own first entrance into it a little after eight when I put out the garbage can, surely a prosaic occupation, but I enjoy my part,

my little clang, as the droves of junior high school students walk by the center of the stage dropping candy wrappers.”

The Jacobses raised three children, but Jane was transformed from journalist to the voice of common-sense planning when she represented *Architectural Forum* at a Harvard conference on urban design. The only woman addressing the giants of the profession—including Edmund Bacon, Victor Gruen, and Lewis Mumford—she spoke passionately for 10 minutes about beleaguered neighborhoods. This was the germ of *Death and Life*. Planning was never the same.

In 1968, the antiwar Jacobs family moved to Toronto to keep their sons out of Vietnam. There, Jane got involved in protecting streetscapes and wrote several more books: *The Economy of Cities* (1970), *Cities and the Wealth of Nations* (1985), *Systems of Survival* (1992), and the grimly titled *Dark Age Ahead* (2005).

But the primary achievement of Jane Jacobs’ remarkable Crusader Rabbit life remains the little primer on public housing, neighborhoods, sidewalks, children, safety, and all the messy stuff that contributes to good urban life. Agree with her or not, reading *The Death and Life of Great American Cities* challenges the way one thinks of density or slums or people sitting on stoops. Makers of cities can get too involved in theory and grandiosity, but Jane Jacobs reminded us that we have what it takes within ourselves to make livable cities: Occam’s razor rather than Ville Radieuse. **AIA**

William Morgan

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From Medal to Metal

AIA's Gold Medal will be featured on new \$25 palladium coin from the U.S. Mint.

The paths of numismatic junkies and architecture enthusiasts will cross in 2017, as a new palladium coin from the U.S. Mint will feature a design from the AIA Gold Medal. The \$25 coin, recently commissioned by Congress as the result of the American Eagle Palladium Bullion Coin Act of 2010, will create fervor among collectors when it becomes the first palladium coin ever produced by the U.S. Mint.

Both sides of the coin will feature Adolph A. Weinman's design work. The obverse will feature Winged Liberty, known primarily from the 1916 Mercury dime, and the reverse will feature the AIA Gold Medal's eagle. The scanning of the Gold Medal's original 1907 plaster and the 1907 test strike took place this summer at the U.S. Mint in Philadelphia; the coin itself will be minted in 2017.

"It's great to be working with an organization with such a long history of innovation and pushing the art form forward," says Rhett Jeppson, principal deputy director of the U.S. Mint. "We think we do the same thing."

The AIA Gold Medal—the highest honor that the Institute confers upon an individual or pair of individuals—was designed by Weinman in 1907, first awarded that same year, and mostly recently bestowed on Denise Scott Brown, HON. FAIA, and Robert Venturi, FAIA, at the AIA's 2016 Convention in Philadelphia. Its eagle was chosen as the best-suited of Weinman's historic designs to pair with the sought-after Winged Liberty.

"The craftsmen and designers at the Mint have a lot of commonalities with architects," Jeppson adds. "I heard an architect say, quite proudly, that his work will be around for the next hundred years. And our coins will be around for a hundred years, or more, as well. Both architects and coin makers draw inspiration from the past while trying to look to the future." **AIA**



PHOTOGRAPHY: CARL BOWER

Just Aesthetics

Few would argue that one of the prerequisites for architecture is that it should be beautiful or attractive. Since Vitruvius first defined architecture—the "mother of the arts"—we are obliged to identify how a building or space provides delight to those who experience it. The branch of philosophy known as aesthetics, which was well-established by Vitruvius' time, is a system of thought focused on how beauty is revealed to us and it is pleasurable to all of our senses. But what troubles me is how often the aesthetics of architecture are dismissed. Too often we hear that this or that particular feature of an architectural design does not matter because, after all, it is just there for "aesthetic effect." In fact, aesthetics is more than skin deep, and in its full meaning is about how a building is perceived in its entirety—and how that perception makes us more sensitive and more aware in general.

It is critical for our profession to rebut this dismissal of design features as just—or simply—aesthetics. As architects struggle to demonstrate their relevance to clients, it is important to explain the importance of making architecture pleasurable to the senses in all respects. Clearly, our culture values excellent design and its inherent beauty today, as evidenced by all of the choices we make as consumers. We routinely select an elegant smartphone design, a sleek new electric car, and well-tailored suits for their aesthetic qualities. We also willingly pay more for them.

Earlier this year, I was privileged to be able to spend some time with 2016 AIA Gold Medalist Denise Scott Brown, HON. FAIA. Both Denise and Robert Venturi, FAIA, remind us that beauty or delight are not simply the byproducts of Vitruvius' concepts of "firmness" and "commodity" alone, but also of symbolism and ornament.

I also traveled to the Venice Biennale and saw a range of exhibits curated by the 2016 Pritzker Architecture Prize-winning architect Alejandro Aravena. "We should not forget beauty in our battles," he says, reminding us of the struggle to provide everyday solutions to our neediest communities. While there will be a robust discussion about what constitutes beauty, this is not a reason to dismiss it as critical to the overall value of architecture. We all know that beauty supersedes function in many respects, as we will covet the objects and experiences that delight us long after they cease to work.

The architect's ability to provide delight in design is what differentiates us, in fact, from those who produce minimally engineered structures. We need to improve the way we talk about aesthetics and beauty, not only to demonstrate our own relevance but mostly to inspire our clients and communities to build and rebuild in a way that is pleasurable to all our senses. The analysis of how best to accomplish this is not an issue of function or technology, but is the purview of only one pursuit— aesthetics itself, and just aesthetics. **AIA**

Russell A. Davidson, FAIA, 2016 AIA President

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2. Distinguish the various design options for MDF doors and how they apply in the market.
3. Describe the environmental, sustainability, and safety components of MDF doors.
4. Identify future trends that will impact the door industry.

CONTINUING EDUCATION

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By Parker A. Grant, PhD.

WHY MDF? WHAT IS MDF?

When designing commercial and residential buildings, doors are often the neglected middle children—those that come after the architect's scope and before the interior designer's scope. Doors aren't normally custom designed because they are seen as too expensive. Enter MDF (Medium Density Fiberboard) as an affordable, durable, and desirable alternative for custom-built doors. MDF is an engineered wood product, manufactured with refined wood fiber, resins, and waxes to produce a solid, hard, and machinable product. MDF doors open up a new world of opportunities

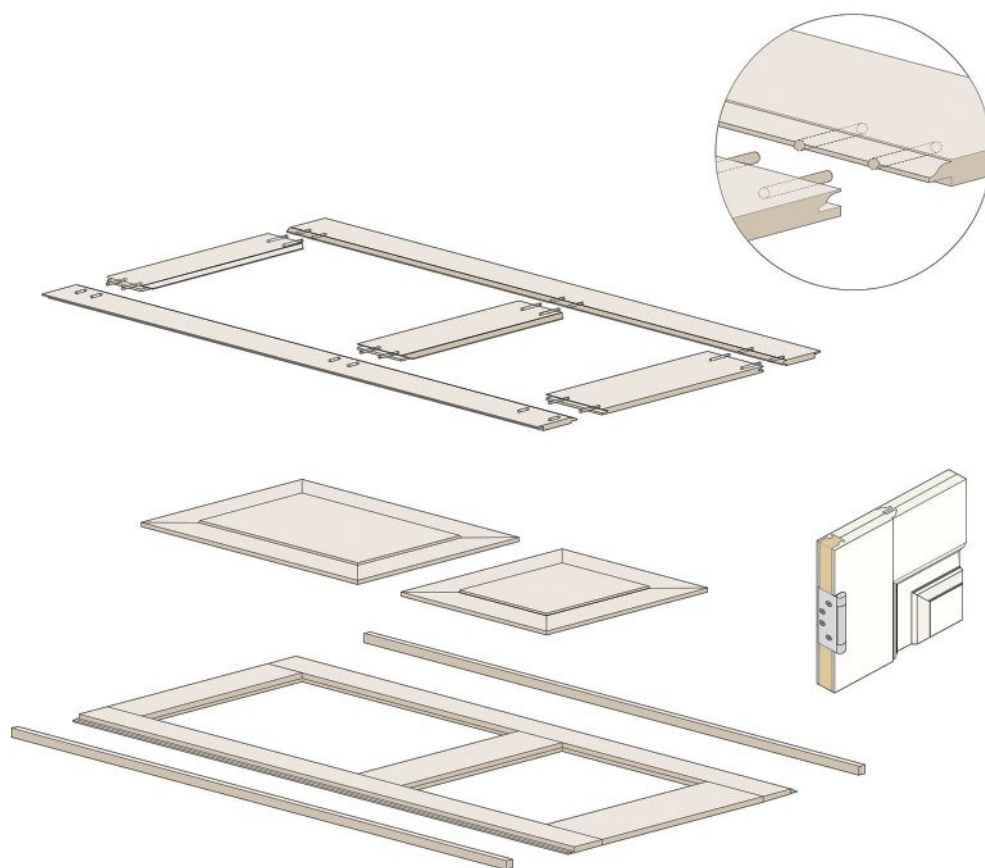
for beautiful door designs. In this era of increasing emphasis on environmentally friendly products, you can now blend design and sustainability by using MDF doors.

This beautiful isotropic product has no grain, so it has no tendency to split, and is more resistant to warping, splitting or cracking, which is not typically the case with traditional woods such as Poplar or Pine. MDF machines well, and takes paint beautifully, allowing for a consistent smooth finish. This double refined wood fiber product contains a minimum of 86% recycled content, making it an exceptionally "green" product.

MDF DOOR MANUFACTURING PROCESS—CONSTRUCTION OVERVIEW

So as to have the most flexibility in the design process of doors, as well as the ability to create the most architecturally correct doors, it is helpful to have an understanding of the three basic methods of construction of MDF doors. Let's review those methods, which are:

- Traditional Stile and Rail Doors
- Routed Doors
- Continuous Lamination Method of Stile and Rail Doors



In the continuous lamination method the stiles and rails of each half are joined using a cope and stick method, and a wood edge channel is grooved into the face of each half door to accept the wood edge.

Traditional Stile and Rail Doors

MDF doors may be manufactured using the traditional stile and rail method, whereby the stiles and rails are coped and stuck, and then clamped together around the panels to create the door. This allows for an architecturally correct door, but may at times compromise the amount of options, or add cost to customized options.

Routed Doors

Using this method, a slab of 1-3/4" or 1-3/8" thick MDF is cut to the size of the door, for example a 3'0" x 7'0" size, and the panel profile is routed into each face of the door in the configuration desired. This method creates only a full thickness panel, and does NOT allow for an architecturally correct panel, whereby the level of the panel sits below the level of the stiles and rails.

Continuous Lamination Method

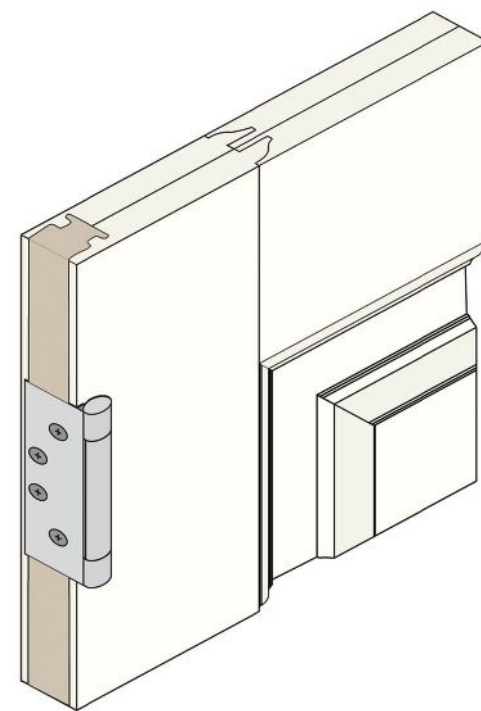
Using this method, the door is manufactured in two halves. The stiles and rails of each half are joined using a cope and stick method, and

a wood edge channel is grooved into the face of each half door to accept the wood edge. A Poplar wood edge is then inserted into the edge channel, and the two door halves are face laminated together over the Poplar wood edges to form a solid engineered door. These keyed-in poplar wood edges run the full length of the stiles, and add stability, durability, and screw holding strength. In the case of a pocket door or barn door, this keyed wood edge is inserted into the top rail as well to add screw holding strength.

Using the continuous lamination method of construction, one is able to customize the size the size of the door and width of stiles and rails for little or no upcharge. Designers can be creative by adding custom size glass, mirrors or applied moldings to enhance the beauty of their door design, as well as the where the doors are being installed.

FEATURES, FLEXIBILITY AND CUSTOMIZATION

Given the superior stability, paintability, and machinability of MDF doors, this sustainable



Keyed-in poplar wood edges run the full length of the stiles, and add stability, durability, and screw holding strength.

product offers the perfect medium to manufacture better quality and more economical paint grade doors than what the industry has traditionally experienced. Let's now identify some other benefits of using MDF doors.

Customizable Designs

Door designs are no longer dull. Architects, general contractors, and building owners now have the opportunity to customize stile, rail, and panel configurations, thereby creating a distinctive, one-of-a-kind door design that is engineered and manufactured to meet the highest quality standards.

Creating your own design can make your project truly one of a kind. You can make any door a feature, rather than just a function. Doors can be a highlight instead of a transition between rooms. Because of this, it is important to be able to distinguish the various design options for MDF doors and how they apply in the market. Let's begin by looking at a few design features.

MDF doors allow you the option to customize the width of your stiles and rails to meet special machining requirements to accommodate unique and unusual hardware you might specify. The same option is available



Architects, general contractors and building owners now have the opportunity to customize stile, rail and panel configurations, thereby creating a distinctive, one-of-a-kind door design that is engineered and manufactured to meet the highest quality standards.

for barn door or pocket door applications where unequal width stiles are called for to create a symmetrical design.

Check with your manufacturer to find out how you can customize the design and layout of your MDF door to meet your specifications. For instance, you could customize split designs, which would be ideal for mirrored closet doors or guest entry doors. You could also come up with various designs for glass and panel combinations or louver and panel combinations. Pocket sliders can even be customized with grooves, glass, and louvers.

Design Features

MDF doors are available with custom stile and rail dimensions, and therefore, customized panel layouts. This differentiates MDF doors from molded skin doors which have a fixed elevation and dimensions.

Standard Door Designs

MDF doors are available in many heights including 6'8", 7'0", and 8'0" and standard



Some MDF doors offer applications where each opening contains its own piece of glass creating an upscale custom look to the door.

widths between 1'0" and 4'0". Specialized sizing and layouts are available as many MDF doors are built to order. Door thicknesses are available in 1-3/8", 1-3/4", and 2-1/4". MDF wood panel doors may be fire-rated. Glass may be substituted for all MDF wood panels.

Increasing the height of a door even a couple of inches can make a remarkable difference in how a door feels. 7'2", 7'3", 7'4", 7'6" tall doors are as standard as 6'8", 7'0", 8'0" tall doors and are available at standard pricing. Perfect for projects with limited ceiling heights, many upscale projects that don't have the ceiling heights for 8'0" tall doors are choosing 7'6" tall doors.

Standard Glass Door Designs

True Divided Lite (TDL) doors feature individual glass units divided by muntin bars. They offer a wide range of custom options to add natural light or a featured look for residential and commercial applications. Nearly any design can have one or more panels replaced with clear, frosted, or specialty glass.

Glass Sticking

Glass can be substituted for any panel and is available in multiple sticking profiles. Some MDF doors also offer applications where each opening contains its own piece of glass creating an upscale custom look to the door. The standard face dimension of muntin bars is 1/2" wide plus the sticking width. In certain cases, compression glazing is available.

Louver Doors

Louver doors are ideal for residential and commercial applications and are customizable in layout and sizing. Wider louver blades create a more upscale luxurious look. Choose from the many options of louver doors whether fully vented louvers or false louvers. Consider fully vented louver doors where ventilation is a priority or false louvers where design is a priority and ventilation is not a necessity. Some manufacturers will customize your panel layout, and stile and rail widths, whether you are choosing swinging louver doors, bypass louver doors, or pocket louver doors. Visit your manufacturer for technical information relating to louver blade sizes, air flow requirements and mirror insert options. Some manufacturers can adjust the size and angle of the louver blade in special cases to meet specific free air space requirements.

Glass Doors

Glass is a great complement to any door design, and for some MDF doors, any paneled design may be replaced with one or more pieces of clear, frosted, decorative or specialty glass. With many distinct glass options available, MDF glass doors are a perfect option for residential projects looking to add natural light or a featured look to a living space, as well as a great option for commercial projects in need of transparency or added light. Aside from glass paneled doors, some manufacturers also offer a robust lineup of TDL and SDL (Simulated Divided Lite) designs to satisfy a variety of applications. Depending on the manufacturer, you can freely customize or tweak any design to meet your technical specifications.

One of the most popular options—acid etched frosted glass—is of the highest quality available and creates the perfect translucency for residential and hospitality projects. Alternatively, white laminated glass is also a viable option for an even more opaque look.



Glass is a great complement to any door design, and for some MDF doors, any paneled design may be replaced with one or more pieces of clear, frosted, decorative or specialty glass.

Mirrored Glass

MDF doors are also available with mirrored glass. Any design can have mirrors applied to it, and depending on the manufacturer, MDF doors may have a different design on each side of the door. The “split” designs are perfect for hotels looking to have a full-length mirror within the guest room without having to place the mirror on the wall. Additionally, this option has worked well within upper-end single-family homes, where a full-length mirror in a master closet or master bath is often desired. Mirrors are fixed with adhesive, unless otherwise specified, and can be applied to one or both sides of the door; they may be field applied if desired. Glass is available in 1/8" and 1/4" thickness.

QUIZ

1. True or False: MDF is an isotropic product that has no grain, so it has no tendency to split, and is more resistant to warping, splitting or cracking.
2. In which of the 3 methods of MDF door construction is the door manufactured in two halves?
 - a. Traditional style and rail
 - b. Routed
 - c. Continuous lamination
3. True or False: MDF doors allow you the option to customize the width of your stiles and rails to meet special machining requirements to accommodate unique hardware.
4. True or False: Simulated Divided Lite (SDL) doors feature individual glass units divided by muntin bars.
5. Which of the following is a commercial application for MDF doors?
 - a. Hotels and resorts
 - b. Student housing
 - c. Assisted living
 - d. Worship facilities
 - e. All of the above
6. True or False: Typically when MDF doors are installed, a pre-drill technique is used on the hardwood edge, as failure to pre-drill will split the MDF and/or crown the face.
7. True or False: An MDF door cannot be patched, repaired, painted, re-painted, or faux finished using traditional hardwood or paint grade materials.
8. Which of the following can help MDF doors earn LEED points?
 - a. Minimum 86% recycled content
 - b. Low-VOC adhesives and primers
 - c. No Added Urea Formaldehyde material
 - d. Forest Stewardship Council Material
 - e. All of the above
9. True or False: Fire-rated MDF doors look exactly like a non-rated door.
10. True or False: MDF doors can achieve strong STC ratings from STC 32 to STC 38 and in certain cases up to STC 45.

Pocket

Some MDF doors offer optional LVL (laminated veneer lumber) stile components in pocket door applications. This ensures rigidity and straightness of stiles, to ensure no warping in pocket door applications.



This article continues on <http://go.hw.net/AR916Course1>.
Go online to read the rest of the article and complete the corresponding quiz for credit.

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In a world dominated by publicly-traded companies whose main focus is improving near-quarterly term results, Rulon International, a faith-based company, is special and unique. Rulon's image is defined by high-end, innovative products that have helped spur tremendous growth and set trends in the industry. But the manner in which Rulon has grown, the new causes that have given the company purpose and the man that has led the company to quickly become an industry leader, is a story that has remained unheard of until now.

The world of architectural product manufacturing can be highly competitive; it can be easy for a successful company like Rulon International to be viewed as obsessive about success, no matter the cost. We do have a passion for excellence in our products and services, and we believe strongly that we offer the very best wood ceiling and acoustical wood wall systems. But take a closer look at our family and you will experience something very unique: Customers and visitors at Rulon's corporate office and manufacturing plant may expect to see a mundane industrial business, but what surprises many people is how visually appealing and pleasant it is walking into the state-of-the-art office and green manufacturing facility. Visitors also experience first-hand the friendly, family-style work environment and the genuine, positive spirit of all the employees. It is this family of dedicated professionals that keep Rulon International moving forward, and the beating heart of the company is a man responsible for creating the whole thing: Wayne Robison, President and CEO.

Rulon International humbly began in the small town of Souderton, Pennsylvania in the 1970s. A younger Robison, a former U.S. Marine and Vietnam veteran, had the right amount of ambition and drive to start a



Rulon's office interior allows employees to work in comfort while displaying real working products for visiting customers. Photo credit Joseph Lapeyra



Rulon's high-end, quality wood ceiling and wall products have allowed architects and designers to flex their creative muscles.

business and provide for his family. It was 1985 when Rulon branched out into the architectural world with the introduction of our flagship product, Linear Open Suspended Wood Ceiling System, which was first installed at the Marriott Marquis Hotel Theatre on Broadway in New York City. This beautiful high-quality wood ceiling system quickly became very popular, and remains so today. It helped set the tone and pave the way for the rapid growth for Rulon. Rulon continued high-end product development with Aluratone acoustical wood ceilings and walls and Curvalon curved and radiused wood ceiling and wall systems. Another key to success was the decision to employ salaried sales team members instead of independent representatives or distributors. The sales team consists of technically trained experts on all Rulon products and are not distracted by multiple lines of competing products.

When asked about the key to success, the answer has always been to uphold Christian principles, integrity, and fairness. Faith is the obvious driving force behind the leadership at Rulon. Although Rulon has experienced consistent growth since its inception, it wasn't until direct action on an important social issue – with these principles in mind – that the company started on a rapid and steady climb toward success.

Typically, as a company grows and expands, it is necessary to invest back into the company through capital expenditures. Sometimes there is an increase in salaries or profit sharing, which can attract and keep good employees. These are all measures that Rulon has taken. But one major difference in Rulon's story has more to do with investing in children and widows, as directed through God's Word.

Perhaps because of his Christian upbringing and his strong faith, Robison has always felt a strong calling to try and make a difference in people's lives, specifically in those of children. In 2000, Robison discovered a number of struggling foundations and organizations whose sole mission was to take in children who had fallen onto unfortunate and sometimes life-threatening circumstances. Robison decided it was time to make a difference through these organizations.

When Rulon was based in Georgia, the company consisted of two separate steel buildings, which were adequate for meeting all of the production and business needs. A commitment was made to financially assist a few institutions that housed disadvantaged youths. Some were victims of abuse, had alcoholic or drug-addicted parents, or were simply abandoned. Our compassion-filled owner felt moved and compelled to act. Ultimately, Robison made the decision to make the financial support permanent. Various company resources were donated, such as wood ceiling products, technicians, and company volunteers.

Wayne Robison noticed that Rulon's business really started to grow the day Rulon began getting directly involved in helping organizations supporting children. Not long after deciding to financially commit to children in need, Rulon found other similar opportunities. The growth was so rapid that Rulon outgrew the two buildings in Brunswick and needed a larger and more efficient manufacturing facility and office.

In 2006, the need to relocate brought Rulon to St. Augustine, Florida, where a unique opportunity presented itself. Rulon made a decision to build a brand new, state-of-the-art green manufacturing facility. A beautiful modern building was designed and built, not just for the comfort of the employees but also to better serve customers. During this time, Rulon dedicated time and effort to exploring improvements in capability, productivity, and sustainability that would have lasting effects on the business.

The new offices would also serve as a "permanent showroom". When visitors walk through Rulon's office, they travel through high-end interiors where a wide range of Rulon products are installed. The showroom has actual working products suspended from the ceiling and product panels are on the showroom floor for close examination. The corporate office ceilings and walls demonstrate how a beautiful interior can be achieved by using Rulon's products.

Part of the relocation process included management traveling to Italy to learn about efficient facility designs. A highly efficient dust collection system was custom made and installed in the new manufacturing plant, which allows

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Rulon International was started in the suburbs of Philadelphia in the 1970's and operated from a small building in Souderton, Pennsylvania.



Rulon International's corporate office and green, state-of-the-art manufacturing plant in St. Augustine, Florida.

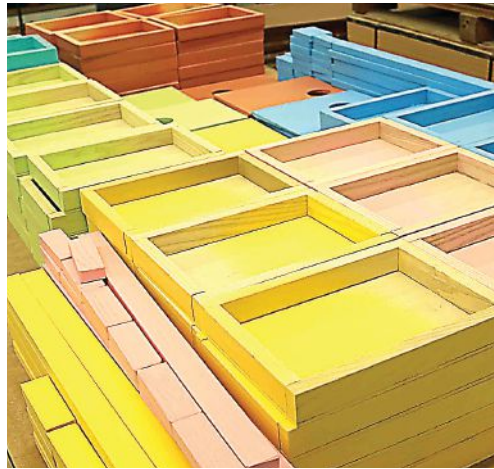
Rulon to be nearly waste-free. The sawdust and scraps generated during manufacturing are collected into special collection trailers and donated to local businesses that use them as biofuel for their operations. High-efficiency and low-energy lighting was also added to allow Rulon to operate with a low carbon footprint. The new corporate office and manufacturing facility allows Rulon to introduce new innovative products of wood ceiling and acoustical wood wall systems. The new building, growth of a dedicated sales team, in-house engineers and staff architects all continue to pave the way for Rulon's success and growth. But one question still remains: Could it make a difference in someone's life?

Not long after relocating to St. Augustine, Rulon became closely involved with a boy's ranch in Palatka, Florida, which houses children with various unfortunate backgrounds and circumstances. A percentage of Rulon's profits are permanently committed to this organization and is a very important part of Rulon's mission. Many employees have become personally involved and

participate in various functions at the ranch. Recently, another Rulon program with the same goal in mind, known as Guitars for Children, has flourished nationwide.

In 2015, Wayne Robison learned of a few individuals making simple two-string guitars out of spare parts and donating them to terminally ill children. Wayne knew his new calling at that moment. Using scraps from the production process, Rulon's employees discovered that they could manufacture simple guitars and have them painted or decorated by clubs, organizations, children, and volunteers. Rulon sends them to children facing and enduring hardships that even the strongest adult would find difficult to endure.

Robison found that the same commitment to resourcefulness and sustainability could be applied to other areas of the Rulon business model, including philanthropy. Something as simple as a handmade two-string guitar, lovingly decorated by one of the many volunteers, can bring happiness into a child's life and brighten their day.



Volunteers, students and organizations from all over the country have become involved creatively decorating Guitars for Children and shipping them to sick children throughout the U.S. and beyond.

As word continues to spread about Rulon's Guitars for Children program, organizations across the country have started to volunteer to decorate the guitars and send them out to hospitals all over the US and also internationally, such as Haiti. Since December of 2015, the number of volunteer groups, clubs and individuals coming forward has increased. Rulon has committed to manufacture 10,000 guitars that will be decorated and distributed to sick children. Since this program started, customers who visit Rulon have become

so moved by the effort, they too have decided to get involved. Stories began pouring in of orphanages in the US taking guitars, decorating them, and forwarding them to other orphanages in Haiti. Businesses have stepped up to participate as well. The Guitars for Children program has truly had an international impact.



Rulon International takes great pride in the quality of our products and services. Our commitment to excellence will not waiver as we challenge readers of this editorial to get involved. Whether you are an architect, designer, contractor, or even a competitor, if you are moved by what you read and want to make a small difference in a child's life with a simple gesture, we ask that you help us in this endeavor. Rulon is continuing to grow and expand the Guitars for Children program and we are always looking for volunteers.

If you or anyone you know would be interested in becoming a partner of the Guitars for Children program, please contact Rulon International: info@rulonco.com or call (904) 584-1400. (www.facebook.com/guitarsforchildren)

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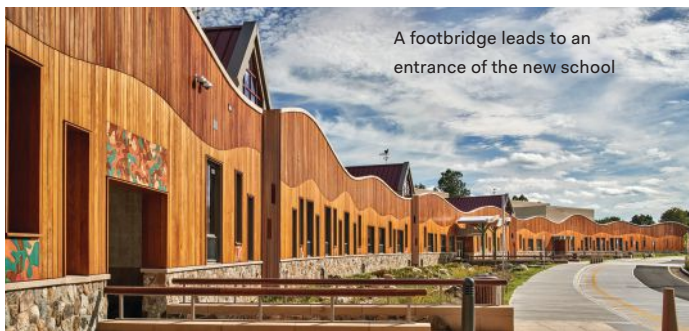
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“I needed a very special firm to take hold of this project. ... I was looking for a firm that really spoke to my heart, that really understood the trauma we had experienced.”

Sandy Hook Rebuilds Its Elementary School by Karrie Jacobs

Of all the memories the residents of Newtown, Conn., have about the former Sandy Hook Elementary School, one of the most popular and poignant ones concerns the ducks. “At the old school, we had a closed-in courtyard,” recalls the school’s head custodian, Kevin Anzellotti. “Every spring the mama duck used to come and lay her eggs and they would hatch in the courtyard. Then we would have to march them through the building when it was time for them to leave. We had to open up the doors and let them walk through the school to let them get out.”

“Over time it just became a tradition,” adds Baxter Hankin, a Newtown resident now entering



his sophomore year at the School of Architecture at Syracuse University. “They had a celebration around it.”

It’s a sweet story, redolent of that childhood classic by Robert McCloskey, *Make Way for Ducklings*. The image of little kids escorting ducklings through the school’s hallways becomes unbearably sad, however, when you think about the memory most people have of Sandy Hook Elementary.

After the shooting in December 2012, which took the lives of 20 students and six adults, the old school, a simple, flat-roofed, brick square constructed in 1956 and configured around a grassy courtyard, was cordoned off. It was a crime scene. The surviving students were sent to a borrowed school building in the nearby town of Monroe. By May 2013, Newtown decided it was best to demolish the Sandy Hook school and erect a new building on the same property. The town organized a search to find an architect to design it on a tight 20-month schedule, using \$50 million given to the town by the state of Connecticut.

A Question of Process

The new school, which welcomed its first students in late August, is unconventional in appearance. Its façade, a long, concave, curving wall—an “embrace” according to the architects—made of vertical wooden planks with a gently undulating roofline, has a look

that is decidedly anti-institutional. “We didn’t believe in straight lines,” says Jay Brotman, AIA, a managing partner at Svigals + Partners, the New Haven, Conn.–based architecture firm that won the commission.

Founded in 1983 by Yale graduate Barry Svigals, FAIA, now partner emeritus, the firm has a track record of designing exceptionally cheerful public schools, buildings typically filled with daylight and lots of artwork. The firm’s signature, though, is its process, which relies on forming a close relationship with teachers, children, parents, and members of a school’s larger community.

The workhorse of Svigals + Partners’ architectural tool kit is something called a School Based Building Advisory Committee (SBBAC). That’s a long title for the simple strategy of gathering as many interested parties as possible to talk about a school as it’s being designed—what it signifies to the community, how it should work, how it should look. The firm brings students directly into the process, by letting them create artwork for their own schools and through “KidsBuild!” workshops, in which the children learn, often from the contractors themselves, about different aspects of construction. More than the firm’s architectural style, this approach to making the community a collaborator is what gave Svigals an edge in Newtown.

After an initial request for qualifications drew some 20 to 30 responses, Svigals was one of seven firms that were asked to submit a detailed proposal. “We didn’t know what was needed,” Svigals told me. “But we do know a lot about making schools.” What he presented to the Newtown officials was the idea that his firm would “create a process” in which the community’s needs could be “discovered.” (By contrast, says Svigals, the next firm to present came in with a model.)

“I needed a very special firm to take hold of this project,” recalls E. Patricia Llodra, the First Selectman of Newtown. “Every single firm that we interviewed was more than qualified and more than capable of taking on the design challenges, but what I was looking for was a firm that really spoke to my heart, that really understood the trauma that we had experienced.”

The collaborative philosophy proposed by Svigals “was very persuasive,” she says. “Because what I heard immediately was the extent to which they understood that this project had to be organic. It had to really engage the community. The community voice was the most compelling piece of the process.”

An Absence of Stuffy Suits

As the architects tell it, the 50 or so members of the Newtown SBBAC, which convened seven times beginning in October 2013, less than a year after the

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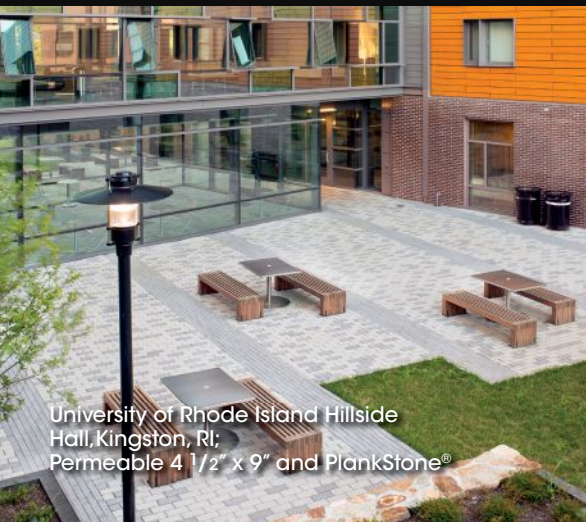
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shootings, are largely responsible for the design of the school. Brotman says, "We brought them along with all the steps. We tried not to be the experts but part of the team." Svigals associate principal Julia McFadden, AIA, adds, "The beauty of having a group like this is we're not pontificating. They're coming to conclusions themselves."

At first, the architects didn't ask about the design of the school or even its programmatic requirements. "The questions we asked at the very beginning were crucial in setting context," Brotman says. One of the first questions they asked was, "What do you love about your community?"

"I'm thinking all these architects are going to come in with stuffy suits and tell us how it's going to be



One of the courtyards behind the school

done," remembers Anzellotti, who's been a custodian with the school system in Newtown for 15 years. "At the very first meeting we sat there and they went to each person individually, in front of everybody, and said, 'What did this school represent to you? What does this town represent to you?' I thought that was pretty cool."

"Everybody shouted out ideas," Anzellotti continues. "They didn't knock anything down, they just listened to everybody."

Of the design process, Svigals now insists, "We can't remember who made any of the decisions. It was so collectivized." Many of ideas discussed at the SBBAC meetings were conspicuously incorporated into the design of the school. For instance, Sandy Hook, which is a small village within the larger municipality of Newtown, is knit together by a series of footbridges across the Pootatuck River. The river and the bridges were one of the things many of the townspeople said they loved.

So the footbridge motif was adapted to the entrance of the school where a "rain garden," a rippling array of plantings designed to absorb the stormwater runoff from the school's roof, hugs the front façade.

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To enter the school you have to cross one of three footbridges, a device that also ensures that everyone is forced to approach the building along one of three well-watched pathways—typical of the inconspicuous ways that security concerns are factored into the building's design. The approach to security, according to McFadden, was driven by a concept called Criminal Prevention Through Environmental Design, which stresses openness and clear sightlines over bunker-building. The classroom doors also lock, whole wings of the school can be isolated, and certain walls and windows have been hardened against gunfire.

The Importance of Nature

In the meetings, participants frequently stressed the town's strong connection to nature. So the design of the school emphasizes the surrounding environment in ways that are symbolic and literal. The undulating façade in front of the building represents the area's woods and hills, with three gabled glass towers that stand taller than the main wall, alluding to the town's church spires. Throughout the building, trees—stylized ones appear everywhere—are a dominant motif.

The old school building was, as Brotman puts it, "a square donut" with a grassy opening at the center. That courtyard was, of course, home to the duck family, and was much beloved, so one committee meeting was devoted to figuring out how courtyards could be incorporated into the new building, which is configured more like an airport. It has a long corridor parallel to the front façade—the school's "Main Street"—linking major spaces, like the library and the cafeteria, and three classroom wings perpendicular to that primary corridor.

As Hankin, then a high school student, recalls: "The firm had a day where they brought in a lot of shapes that represented certain landscaping features, and they had the committee break up into teams, and each team was designing a courtyard." The shapes, Hankin explains, were "little two-dimensional cutouts."

The school wound up with not one but three semi-enclosed courtyard areas. At the rear of the lobby, a two-story-high glass wall—decorated with tree sculptures—looks out onto the main courtyard, formed by the building's pair of two-story classroom wings and planted with young shade trees. A couple of gently sloped amphitheaters, good for outdoor classes and performances, are incorporated into the landscape. There are also two smaller courtyards that have yet to be planted or programmed.

Mostly, the new Sandy Hook School is distinguished by an abundance of thoughtful touches, features that a child might appreciate. In the corridors,

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A bas relief panel designed by Barry Svigals decorates the lobby



One of the "treehouses"

colorful rectangles of linoleum mark the entrance to each classroom, like welcome mats. In the lobby, there's a sculpture on the ceiling composed of slowly moving metal "leaves." And best of all, there are "treehouses." At the end of each of the second-floor corridors is a snug room with a curvy bench where kids can work on projects in small groups or just look out the windows into the surrounding woods. From the outside these rooms appear to be sheds, separate from the main building, supported by the branches of steel trees.

In the effort to make the school come in on budget, it was suggested that the treehouses be value-engineered out. "There was quite a bit of community discussion about that," Llorda recalls. "Everybody in



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the community said, ‘No no no no.’ That it’s important to make sure we have those treehouses because those really were part of how the community saw the role of this school, being part of nature and the woods.”

And, of course, there are ducks. Whether the mama duck of legend returns to lay her eggs remains

to be seen, but ducks in flight are depicted on bas relief panels made by Svigals himself that line the non-windowed walls of the lobby. More ducks in flight are depicted in a mural by a local painter, Robert Reynolds, which adorns the school’s main office. And one of the building’s three weather vanes is topped with a duck trailed by three ducklings.

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A Fresh Start

The circumstances in which the Svigals team worked were uncommonly fraught. As Llodra puts it, “This was a project that was born of a tragedy, so every time you brought people together to talk about it you couldn’t help but understand that you had one foot in this horrible thing that happened to us.” The building itself, however, exudes nothing but good cheer. Although the town is planning a memorial to those who died in the shooting, it won’t be in the school or on its grounds. “Those youngsters and those teachers and those parents who interact with that building need to be in a place that’s full of love and joy and happiness and that is forward-looking,” Llodra says.

I can recall only one other situation as emotionally charged, in which a large number of community members were invited to engage in a restorative rebuilding process. I can’t honestly say that the sentiments of New Yorkers are as well represented by the rebuilt World Trade Center as those of Newtowners are represented by the new Sandy Hook Elementary School. What the Svigals team produced is a deft amalgam of its practiced approach to school design and its long-term investment in community engagement. The end result is a fascinating study in what happens when an architecture firm eschews ego or, more accurately, when a firm invests its ego not in the formal attributes of its buildings but in the quality of its collaboration with the people who will use them. Or as Anzellotti puts it, “It’s almost like we worked for them. That’s how they made us feel. It was really comfortable.”

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“He wasn’t sure what the exhibition had to say to architects like him—that is, to architects who’d like to help change the way housing is built.”

The Ambitious Yet Flawed “House Housing” by Elizabeth Greenspan

Nearly 50 years ago, in 1968, the world's largest cooperative housing development opened its doors on a stretch of swampland in the north Bronx. With 35 towers, each between 24 and 33 stories tall, and seven townhouse clusters, Co-op City offered some 15,000 units at below market rates to middle- and working-class families. Critics hated it. Ada Louise Huxtable decried Co-op City's "uninspired architectural design" and "sterile site-planning" in *The New York Times*. The architect and critic Peter Blake called it "fairly hideous."

The only ones to approve, it seemed, were a newly married husband-and-wife team. In a 1970 essay titled "Co-op City: Learning to Like it," published in *Progressive Architecture*, Denise Scott Brown, FAIA, and Robert Venturi, FAIA, argued that Co-op City was not ugly or sterile but refreshingly "conventional" and "ordinary." Their essay, currently on display at the Center for Architecture in New York as part of the exhibit "House Housing: An Untimely History of Architecture and Real Estate," called upon architects to "accept the ordinary on its own terms and do it well." Venturi and Scott Brown argued that Co-op City was important partly because it challenged accepted notions of "good design," including the degree to which such standards were defined by high prices. "If 'good design' costs twice as much, then good design is out of step and needs redefinition," they wrote.

"House Housing" (which runs through Sept. 10) tackles a big, important history: the evolving relationships between "good design," real estate markets, and housing policy over the past century. Rather than tell one overarching narrative, the curators, from Columbia University's Temple Hoyne Buell Center for the Study of American Architecture, divide that history into 36 "episodes," each of which are briefly written up on tear sheets and paired with supporting media: magazine articles, maps, photographs, reports, and video and audio, broadcast on vintage televisions and radios. The show feels more like an art installation than a history exhibit. The tear sheets are tacked on a wall in chronological order. But the maps, articles, photographs, and TVs, which are displayed on a set of floor-to-ceiling shelves on the adjacent wall, are not arranged sequentially, so as to reveal "surprising repetitions," as the curators put it, across the decades. (Hence the exhibition's claim to untimeliness.)

One could, as I did, read the first tear sheet, wander to the shelves with a map of the artifacts' locations in hand, find the matching objects, and repeat, 35 times. It's the best way to understand the exhibit's perspective. But the arrangement invites, instead, a more free-associative approach: to look at a few objects, read a few histories, and make connections—or not. The arty



Scott Brown and Venturi's 1970 *Progressive Architecture* essay about Co-op City

style allows the curators to leave too much unsaid (I'm still not sure what the title "House Housing" means) but it does reward viewers willing to linger and read old media. "Scratch an architect and you'll find a frustrated low-cost housing designer," Venturi and Scott Brown wrote in the lede to their Co-op City essay. If the exhibition lends itself to an epigraph, this might be it.

Frank Lloyd Wright Houses a Bad Investment?

In 1901, Frank Lloyd Wright, perhaps the original "frustrated low-cost housing designer," published an article in *Ladies Home Journal* headlined, "A Small House with 'Lots of Room in It.'" It presented his plans for an 800-square-foot, two-story home priced for middle-class families. "A simplicity in materials and treatment," he wrote, would allow the home to be affordable. This design never caught on—some historians have suggested it was too modern for the day's home buyers—but Wright continued to pursue ideas for open, light-filled, less expensive houses.

In 1939, the architect applied for a loan from the Federal Housing Administration, a new agency insuring mortgages in the wake of the Great Depression, to build a complex of seven Usonian homes for some Michigan State University professors. But the agency rejected Wright's request because its underwriting criteria prioritized traditional designs, including clear divisions between rooms, so as to facilitate future resale. As the tear sheet puts it: "Frank Lloyd Wright Houses are Declared Bad Investments."

The curators are taken with Wright; they dedicate four of their 36 episodes to his work, and discuss this 1939 rejection in the exhibit's introduction, which explains that the Michigan project was doomed by "the incompatibility of Wright's design with the speculative value of real estate." It's the closest the exhibition comes to a thesis. When speculative value reigns supreme, the exhibit suggests, other factors that families often want in a home—efficiency, livability, not to mention affordability—are overlooked. As Wright's experience illustrates, this is true even when it's the

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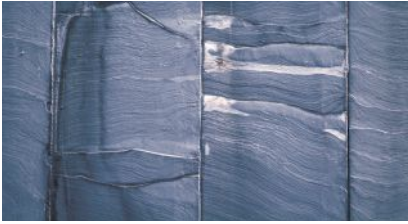
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The episode plays on an association we take for granted today: that high design means higher prices. It's difficult to imagine that a famous architect's hand in designing a house wouldn't automatically increase its value, and yet it wasn't that long ago that Wright's work was not assumed to boost the bottom line. So what happened? How did design become associated with expense?

One of the exhibit's best finds is the first issue of *House and Home*, which spun off from *Architectural Digest* in 1952 and included a story headlined, "Is an Architect Worth His Fee?" Developers, rapidly building prefabricated single-family homes in expanding suburban developments, were occasionally hiring a designer to develop a unique color scheme, say, or customize a few rooms. The article reports that houses with extra design touches would increase the price of a \$12,000 home to \$13,000. For developers, "good design" was that which enabled them to charge more.

As the private real estate industry turned to architects to help drive up profits, it also pushed back against government investment in public housing. The United States Housing Act of 1937 authorized large subsidies to local agencies to build working-class housing, and, by the 1940s, massive towers-in-the-park style developments were adding thousands of housing units to American cities. Almost from the beginning, the real estate industry fought these programs. In 1949, *Life* magazine hosted a 16-hour debate on how to promote the private housing industry. Participants called for the federal government to restrict its purview to housing that alleviated "social or moral" preoccupations associated with slums. Public housing complexes were often constructed in cities' poorest neighborhoods, lest they compete with private development.

In 1973, President Richard Nixon ordered a moratorium on all new housing subsidies, ending robust federal support for low- and moderate-income housing and ushering in an era of public-private partnerships. Early on, nonprofit housing groups filled the vacuum, but then a developer named James Rouse realized that these tax-exempt nonprofits couldn't take advantage of tax write-offs connected to affordable housing. In 1986, Rouse persuaded Congress to transfer these tax credits to private investors, officially creating the Low-Income Housing Tax Credit. In return for investing in the construction and maintenance of low-income rental housing, investors received credit against their federal income taxes. In the exhibition's words, "a public good" increasingly "relied on private capital."

The exhibition's greatest contribution is its telling of these two intersecting stories: how the real

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estate industry gradually folded architects into their business operations; and how policymakers largely abandoned public housing for affordable housing funded by public-private partnerships.

The exhibition explores other themes, including the ways that racism shaped housing design and policy, but these threads are often fragmented and decontextualized. We hear an excerpt from the Kerner Report, the landmark study of the country's 1967 race riots: "White society is deeply implicated in the ghetto.



A selection of the exhibition's tear sheets

White institutions created it, white institutions maintain it, and white society condones it," a voice intones from a radio. But the tear sheet adds nothing else about the study. The exhibition's second-to-last episode features the 2012 shooting of Trayvon Martin, in Sanford, Fla. The gated community of nearly 300 homes where George Zimmerman shot Martin had been undone by the 2008 foreclosure crisis, the tear sheet explains: "At the time of the shooting, 40 properties in the enclave were unoccupied and more than half of its remaining residents were renting." The data is dramatic, maybe even suggestive, but it's not enough to explain how Martin's murder is a story about real estate.

A History Lesson Missed

Presenting history as art has downsides. Associations and juxtapositions too easily substitute for argument and interpretation. The artifacts' non-chronological arrangement is engaging, but it muddies even the exhibit's central stories: the continuing growth of the private real estate industry against the systematic dismantling of the country's public housing. These two stories derive their power not from repetitions but from incredible linear progressions. Given that few viewers are likely to read the episodes in order and track down corresponding objects, they may well

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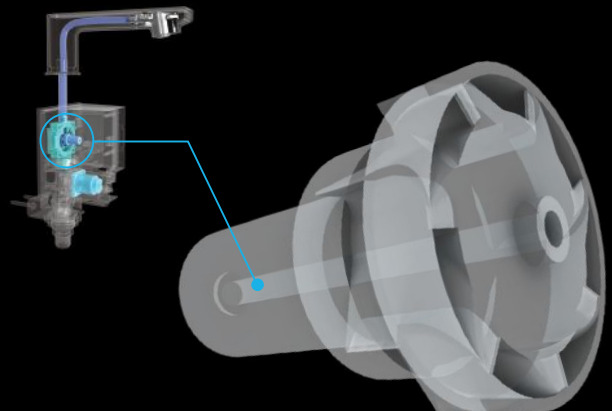
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miss this history lesson.

Towards the end of my visit, I struck up a conversation with an exhibit-goer who had just graduated from architecture school and moved to New York to start a job at a nearby commercial firm. He took the job “just to make money,” he told me. He and his grad school friends are thinking a lot about housing, he said, not least because they can’t easily afford to live in the cities where they work. When he arrived in New York, he had looked to see if city agencies building affordable housing were hiring, and was frustrated to discover that they tend to favor engineers and planners over designers.

He wasn’t sure what the exhibition had to say to architects like him—that is, to architects who’d like to help change the way housing is built. By emphasizing the prevailing macroeconomic and political forces, the exhibit risks rendering individual architects as powerless. The curators published a provisional report to complement the exhibition, “The Art of Inequality: Architecture, Housing, and Real Estate,”



Artifacts curated by the Temple Hoyne Buell Center

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which recommends that architects dissatisfied with inequalities built into the real estate market reject work that comes from it: “The only unambiguous action available is to turn down those commissions,” it says. For a young architect hoping to break into the profession, that could be career-ending advice.

But perhaps the exhibition is speaking to us as residents and voters as much as designers and builders. This past February, the once “hideous” Co-op City was featured in *The New York Times* real estate section, this time under the headline, “Open Spaces and Affordability.” While most co-ops in New York privatized long ago, as soon as the original lease allowed, Co-op City’s residents have continually voted to maintain the complex’s cooperative model rather than sell their apartments on the open market (and make a killing). In January, a three-bedroom, one-and-a-half-bath apartment with a balcony and river views sold for just under \$30,000. (There’s no missing zero.) The waitlist to buy an apartment is years-long.

Maybe, then, we need more co-op cities. But

building them would mean revisiting some long-standing assumptions about property and profit. These days, many big-city mayors, including Bill de Blasio in New York, are creating affordable housing through “inclusionary zoning,” in which a developer incorporates a certain percentage of affordable units into a new development, often in exchange for looser zoning regulations. It’s a newer twist on an older theme: funding affordable housing through profit-making endeavors. Housing cooperatives, by contrast, don’t make a profit for anyone. Owners pay into a cooperative that maintains the building. Even a miniature Co-op City would require political and architectural support: publicly owned land, a government-issued loan, more designers innovating with “ordinary” rather than luxury living. But as the exhibit shows us, it would also require a significant re-evaluation of what the housing industry should provide, and to whom. Lately, it’s provided an opportunity for a privileged subset of individuals to build wealth. We need it to provide everyone else with a good home.

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“What was needed was a proper yet unobtrusive welcoming center. Few substantial changes had been made to Versailles since Louis XVI’s additions—and certainly nothing modernist.”

Dominique Perrault Updates Versailles by Joseph Giovannini

When Daniel Burnham admonished architects to “make no little plans; they have no magic to stir men’s blood,” maybe he was thinking of Versailles. Louis XIV, the Sun King, had by 1682 done everything with his palace outside Paris that the Chicago planner advised in 1907: “Make big plans; aim high in hope and work, remembering that a noble, logical diagram once recorded will never die, but long after we are gone be a living thing, asserting itself with ever-growing insistency.”

Indeed, Louis XIV basically thought like Burnham, extending a core idea to its logical conclusion. From the inventive Baroque interiors to landscape design and city planning, he presided over a project of great scope and seamless scale transitions, a project that was utopian in the sense that it projected and literally mapped the governmental model of the Sun King’s absolute power on the land.

On the grounds behind the palace, where the king lived with his court, he built gardens within parks organized around vast reflecting basins that stretched to the horizon; out front, he organized a trident of avenues originating at the cour d’honneur and

triangulating into the distance, commanding territory through a geometry of spreading control and radiance. It was through this geometry and radiance that the king controlled the country. As he said, he was the state itself. But he was also Versailles.

Building on the Work of Others

From the beginning, Versailles was a composite design, a product of orchestrated collaboration over time. The architect Louis Le Vau famously wrapped the late-Renaissance hunting château of Louis XIV’s father in a vast Baroque envelope, the core building at the center of four wings. The landscape architect André Le Nôtre invented a garden at the scale of the landscape. The painter Charles Le Brun devised a complex program of interior design, creating a gesamtkunstwerk from furniture to frescos, culminating in the Hall of Mirrors, the palace’s living room where the court socialized under cascading crystal chandeliers and a fresco that rivaled any in Rome.

Built as a total work of art, architecture, and planning, Versailles was nonetheless never considered untouchably complete. Some cultures, like the Moors



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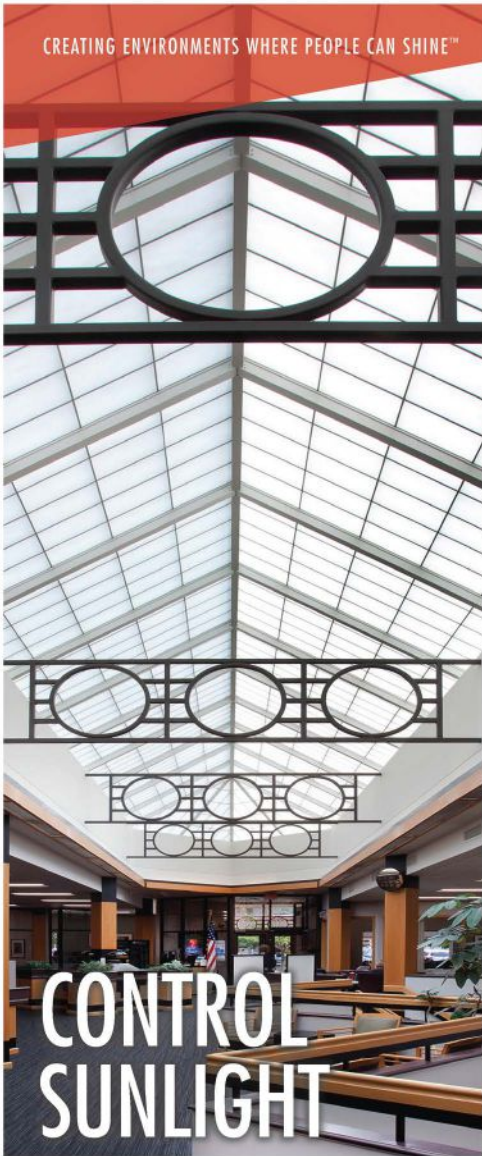
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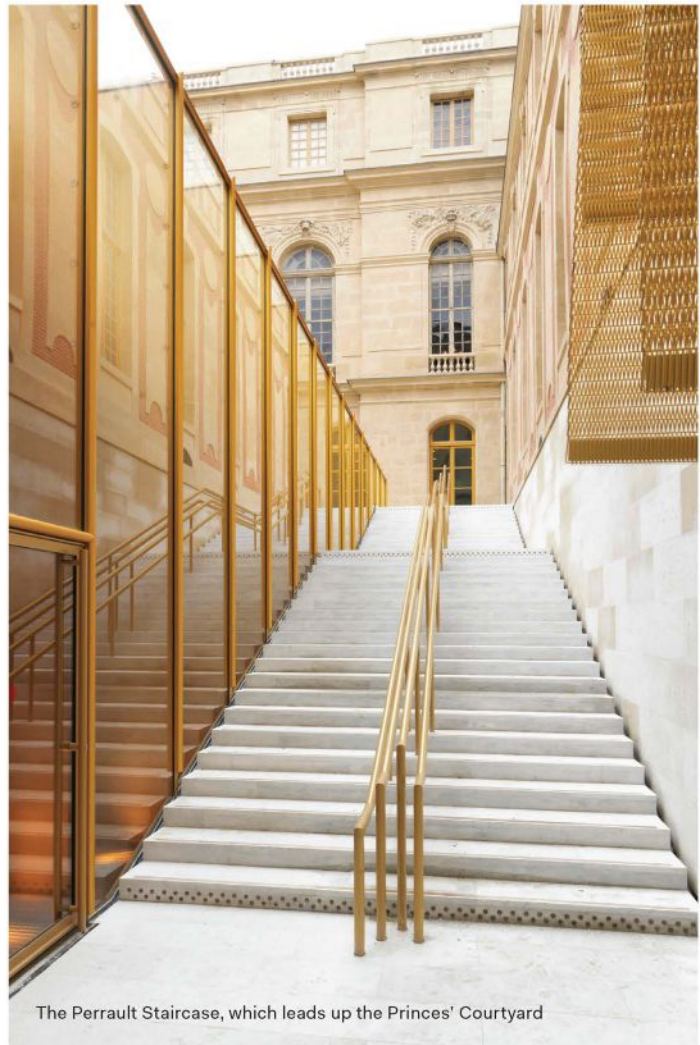


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The Perrault Staircase, which leads up the Princes' Courtyard

in North Africa, demolished palaces with changes in dynasty. At the Louvre, successive kings just extended the palace they inherited, adding wings of their own, building on the work of their predecessors, retaining a sense of the whole. At Versailles, that tradition continued during the reigns of Louis XV and Louis XVI, who both added to the inherited architecture. The palace grew without losing a sense of the whole, the additions always in agreement with the existing structure even if the classical language of the Baroque shifted to Rococo and Neoclassicism.

But Versailles was built as a palace for royalty, the aristocracy and functionaries of the state, not as a museum for 7.5 million yearly visitors, each a potential terrorist to be checked. In recent years, temporary structures set up to screen and process visitors occupied the Royal Courtyard, between the front wings. The welcome was hardly regal. What



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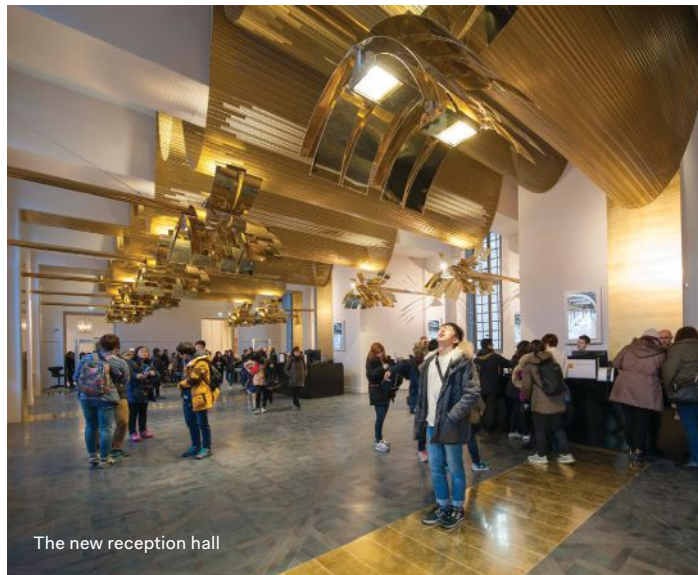


Section of the refurbished Pavillon

was needed was a proper yet unobtrusive welcoming center. Few substantial changes had been made to Versailles since Louis XVI's additions—and certainly nothing modernist. Versailles needed a Pyramid, as at the Louvre, only without the pyramid.

Preserving the Patrimonial Substance

In 2011, Parisian architect Dominique Perrault, HON. FAIA, won a closed competition to reconfigure administrative offices in the Neoclassical Pavillon Dufour and the attached Old Wing into a reception center. Perrault proceeded both cautiously and aggressively. "Culturally and scientifically, we talk about the 'patrimonial substance'—the envelope, the façade, the fabric of the historical building," says Perrault. "I wanted to introduce the present inside, while leaving the patrimonial substance outside intact."



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For Perrault, the principal issue of the project was refashioning the entrance and the exit, and then adapting the upper two floors into a restaurant and café complex. The architect spent four years “designing and redesigning,” he said, in what proved an intricately complex, excruciatingly detailed

commission where every square centimeter counted.

Perrault is a minimalist, and he has often reduced the apparent footprint of a design by going underground, as he did in the early 1990s with the “sacred garden” he planted at the underground entrance level of the National Library in Paris along the Seine, the building that established his reputation.

Indeed, at Versailles, his masterstroke was to extend the basement of the Pavillon and the Old Wing into an underground space excavated beneath the adjacent Princes’ Courtyard. Visitors enter the triumphal portico of the Pavillon, with four majestic limestone columns, under an entablature that reads “To the Glories of France,” before making a circuit of the château that ends in the expanded 3,000-square-foot basement, programmed with the coatroom, bathrooms, and museum shop. Perrault built a simple, split-level loop, a classic, efficient configuration—though on two floors—for moving visitors through a museum without dead ends and backtracking.

With a relatively minor adjustment within the scheme of the whole palace, he made the flow fluid, and the visit cogent. Visitors can peruse the museum shop offerings before grabbing their backpacks and exiting up a sweeping flight of marble stairs, now called the Perrault Staircase, in honor of its architect, to the Princes’ Courtyard. They then proceed to the gardens behind the palace, or back out to the street. The architect essentially reconfigured the palace tactically, by a simple, surgical act of infrastructure.

Only an expanded wall of glass, acting as a skylight to the basement, is visible above ground, in the Princes’ Courtyard. The rectangular box reads like a minimalist work of art, simply a long transparent bar of glass with a glow emitted by the gold anodized-aluminum mullions. The bar resembles a shimmering art installation in glass by American minimalist Dan Graham. The exterior of the Pavillon and the Old Wing were meticulously restored under the direction of Frédéric Didier,



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chief architect of historical monuments of the palace.

With his big move tucked away in the basement, Perrault concentrated his modernist invention in the interior of the Pavillon and the Old Wing. The fabric of the original had already been compromised by a 1920s reconstruction of the failing building, done in reinforced concrete. On the second and third floors, where some of the original paneling survived, he pursued a period restoration, outfitting the spaces for a restaurant complex to be run by Alain Ducasse. On the back part of the third floor, he fashioned a 150-seat theater within a wood-slatted shell shaped like an inverted hull.

Modernizing the Decoration

Perrault was diplomatic about his interventions, confining them inside, within a zone where the original fabric had already been compromised. He was also adroit in echoing Versailles' own traditions. Decoration became the unlikely vehicle for his intervention because Versailles itself had already established an unequivocal precedent, and inspiration, for the architecturalization of decoration. His

“Culturally and scientifically, we talk about the ‘patrimonial substance’—the envelope, the façade, the fabric of the historical building. I wanted to introduce the present inside, while leaving the patrimonial substance outside intact.”

—Dominique Perrault, HON. FAIA

strategy was to reincarnate Versailles' decorative program in a modernist equivalent.

After visitors proceed through checkpoints and ticketing, they enter the château through two meticulously

restored, classically detailed vestibules built of limestone. They are very much a distillation of the exterior by the 18th-century Neoclassical architect Ange-Jacques Gabriel: Perrault is conditioning visitors ceremonially to the spirit of the palace, as though they were guests. Visitors then step into a long reception

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hall that the architect carved from the original structure, where he removed the transverse bearing walls. Wide brass lines inlaid in a bronze floor outline the footprint of the former walls; the bronze floor itself reiterates the famous Versailles parquet pattern, a basketweave of wood inset within a diagonal grid.

Perrault has stripped the new hall down to the shell, revealing its perimeter structure. The fenestration on the two lateral walls is symmetrical, long French windows on each side mirroring those opposite, foreshadowing the Hall of Mirrors in the palace beyond. With doubly loaded, symmetrically placed windows,

he needed no mirrors to give a sense that the room was a pavilion in the garden: He stripped down the room to its essentials to give the space a clarity that opens the room to the flanking courtyards. “The idea was to introduce an absence of architecture, just a transparent open space between the two courtyards,” says the architect.

After the subtraction, Perrault added. The Sun King was captivated by parabolic reflectors—he owned a highly calibrated, scientific example, its concave mirrors reflecting and intensifying the sun. Perrault’s art director and frequent collaborator Gaëlle Lauriot-Prévost reinterpreted the reflectors as “solar” sconces in shiny gold anodized aluminum, slicing the parabolic dishes into segmented arches that reflect light, much as the crystal chandeliers in the Hall of Mirrors refract light.

Perhaps recalling the palace’s ceiling frescoes while also alluding to the parabolic reflector, Lauriot-Prévost draped gold-anodized aluminum wire mesh down the length of the ceiling, which swoops in parabolic contours of varying depth. Their shapely movement abstracts the Baroque gestures of the palace, and the gold tints the light, sustaining Louis’ Sun King metaphor in today’s materials. “We calibrated the tonality by introducing warm metals: bronze, copper, and the gold anodized aluminum,” says Perrault. “I wanted to introduce industrial materials and bring a modern sensibility to this historical context. They act as hyphens across time, from the contemporary to the historic, establishing a dialogue between the new and the old.”

A Sensitive Intervention

By the end of the ancien régime, there had already been many architects, the



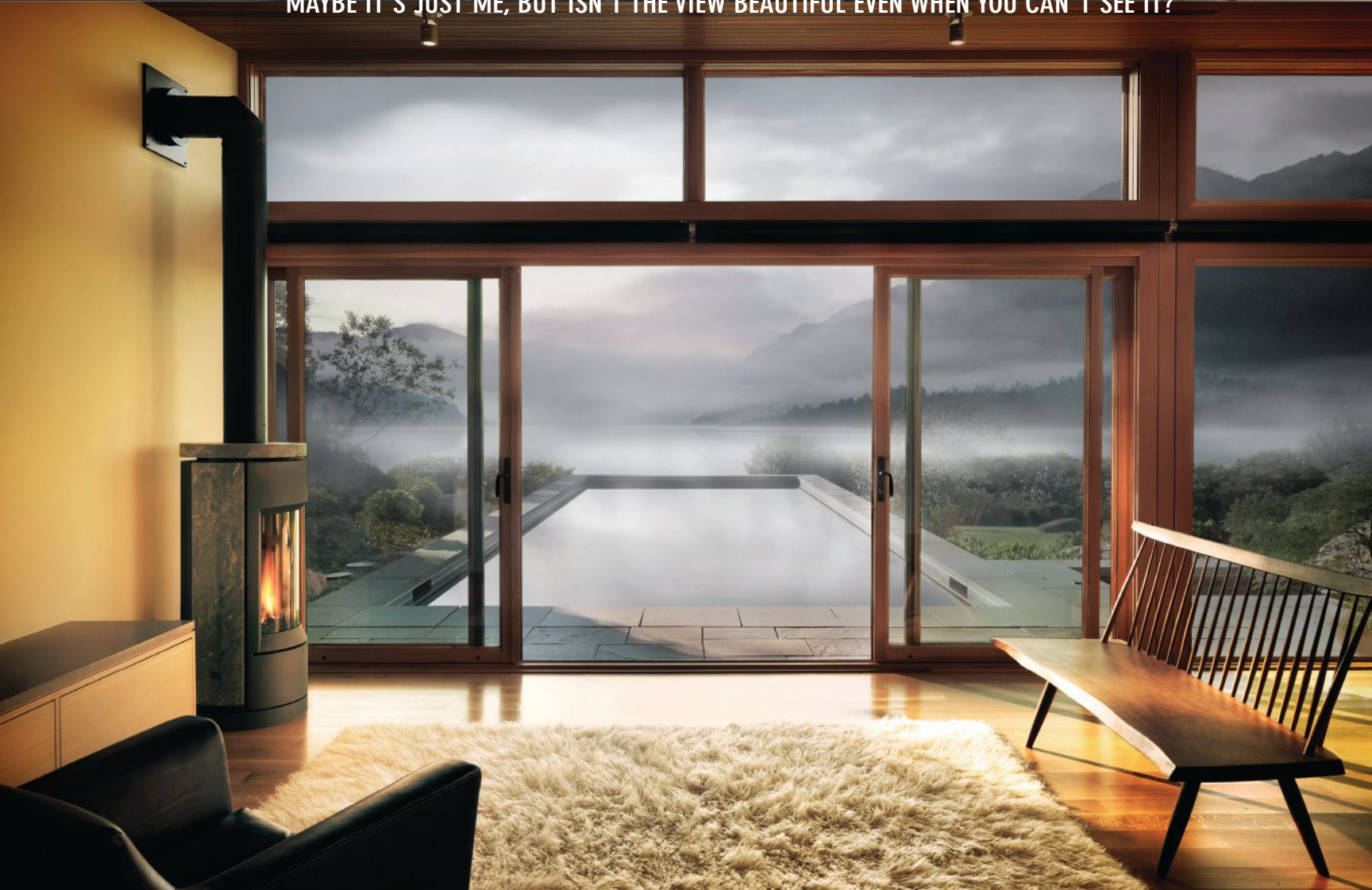
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best of their time, who had altered Versailles and added to it—wings, annexes, garden pavilions. France is very protective of its historic monuments, and especially Versailles, which is sacred cultural territory.

Perrault minimized the risk both to the site and to his reputation when he went underground, and then



The new museum shop

encapsulated his alterations within the Old Wing. His intervention is basically confined to a program of light fixtures, inspired by Versailles' decoration but scaled and deployed architecturally. Regularly spaced in a symmetrical colonnade of light, the sconces are complemented by a draped ceiling that recasts the ceiling frescos of Versailles as an upside-down ocean of backlit metallic waves. The undulating gesture is Baroque in the historic sense, full of fluid movement and placed with a symmetry that affirms the equilibrated balance and calm of a palace in which each element, like each member of the court, knows its place.

Perrault extends the sense of diplomatic ceremony and princely grandeur to the democratic heirs of the public who displaced the original occupants. His Pavillon Dufour now receives the many rather than the few with a grace and dignity worthy of the palace.



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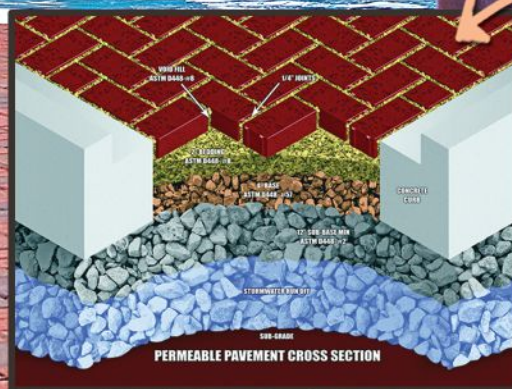
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Robert Frasca, FAIA

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Joseph Collins, FAIA

Braulio Baptista, ASSOC. AIA

Timothy Williams, AIA

Ted Hyman, FAIA

Eugene Sandoval, ASSOC. AIA

Allyn Stellmacher, AIA

Doss Mabe, FAIA

Jan Willemse, AIA

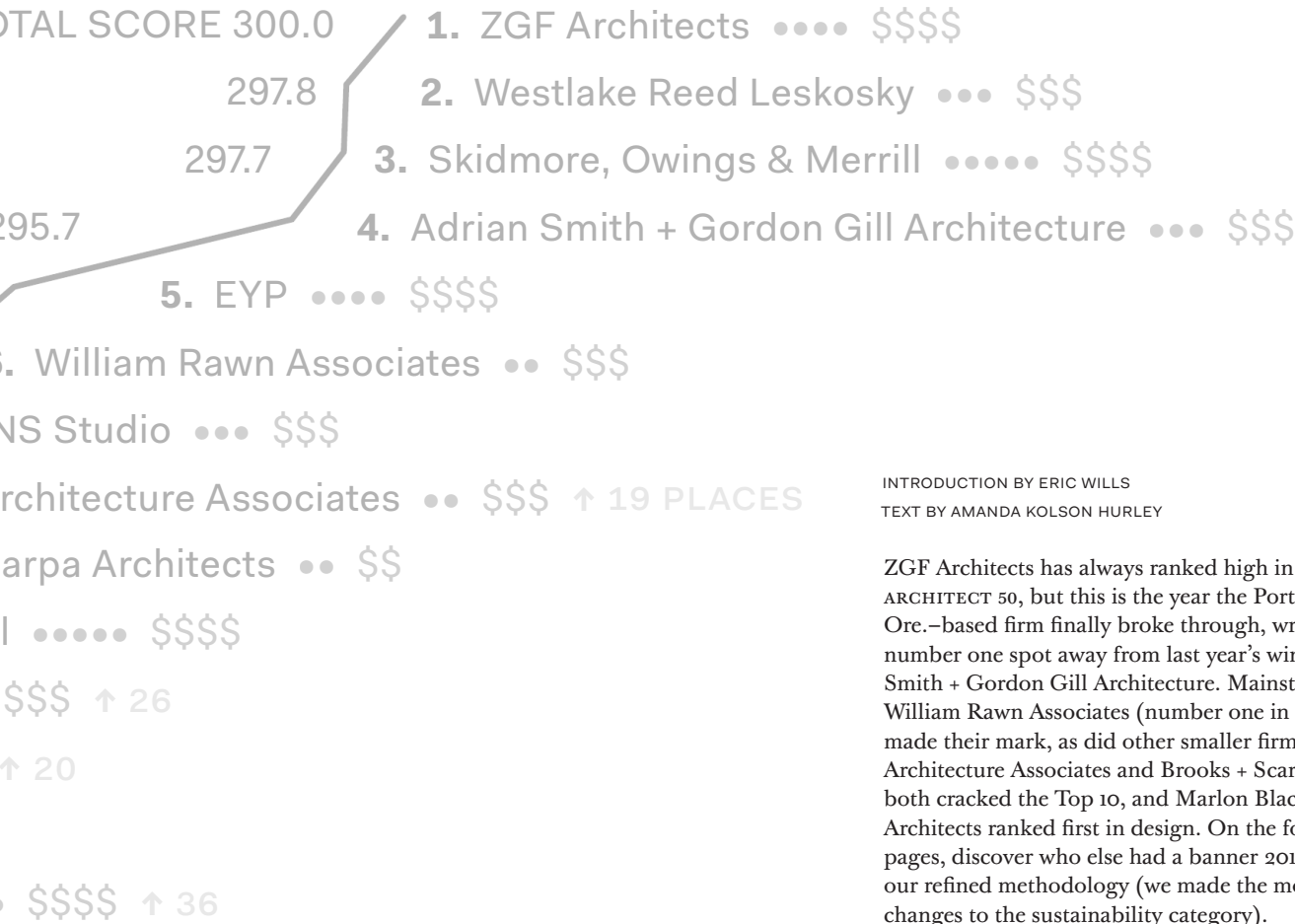
Patrick Cotter, AIA

Robert Packard, ASSOC. AIA

Todd Stine, AIA

Karl Sonnenberg, AIA

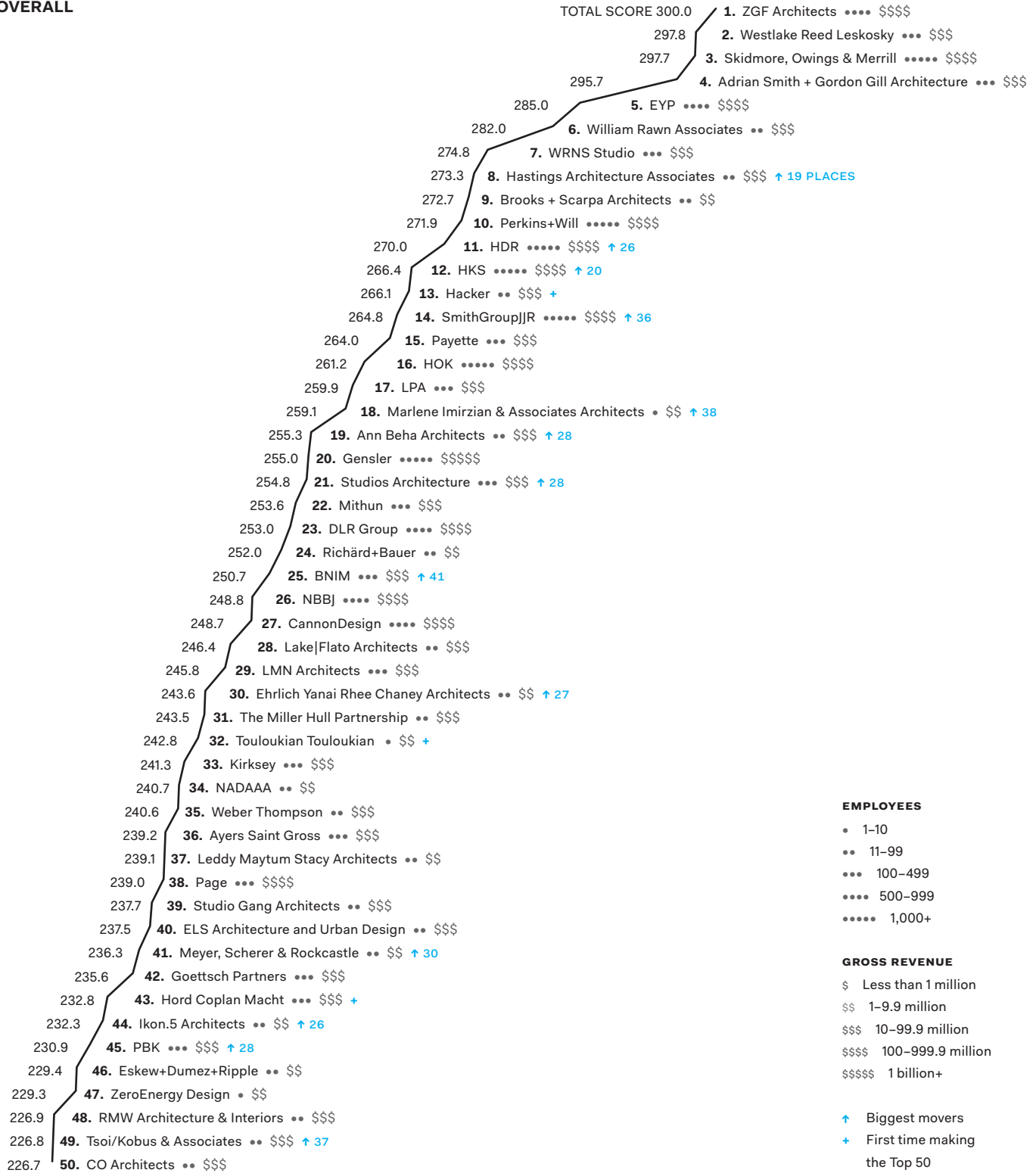
THE 8TH ANNUAL ARCHITECT 50 **ZGF Architects Rises to the Top**



INTRODUCTION BY ERIC WILLS
 TEXT BY AMANDA KOLSON HURLEY

ZGF Architects has always ranked high in the ARCHITECT 50, but this is the year the Portland, Ore.-based firm finally broke through, wresting the number one spot away from last year's winner, Adrian Smith + Gordon Gill Architecture. Mainstays such as William Rawn Associates (number one in business) also made their mark, as did other smaller firms: Hastings Architecture Associates and Brooks + Scarpa Architects both cracked the Top 10, and Marlon Blackwell Architects ranked first in design. On the following pages, discover who else had a banner 2015 and review our refined methodology (we made the most significant changes to the sustainability category).

OVERALL



EMPLOYEES

- 1-10
- 11-99
- 100-499
- 500-999
- 1,000+

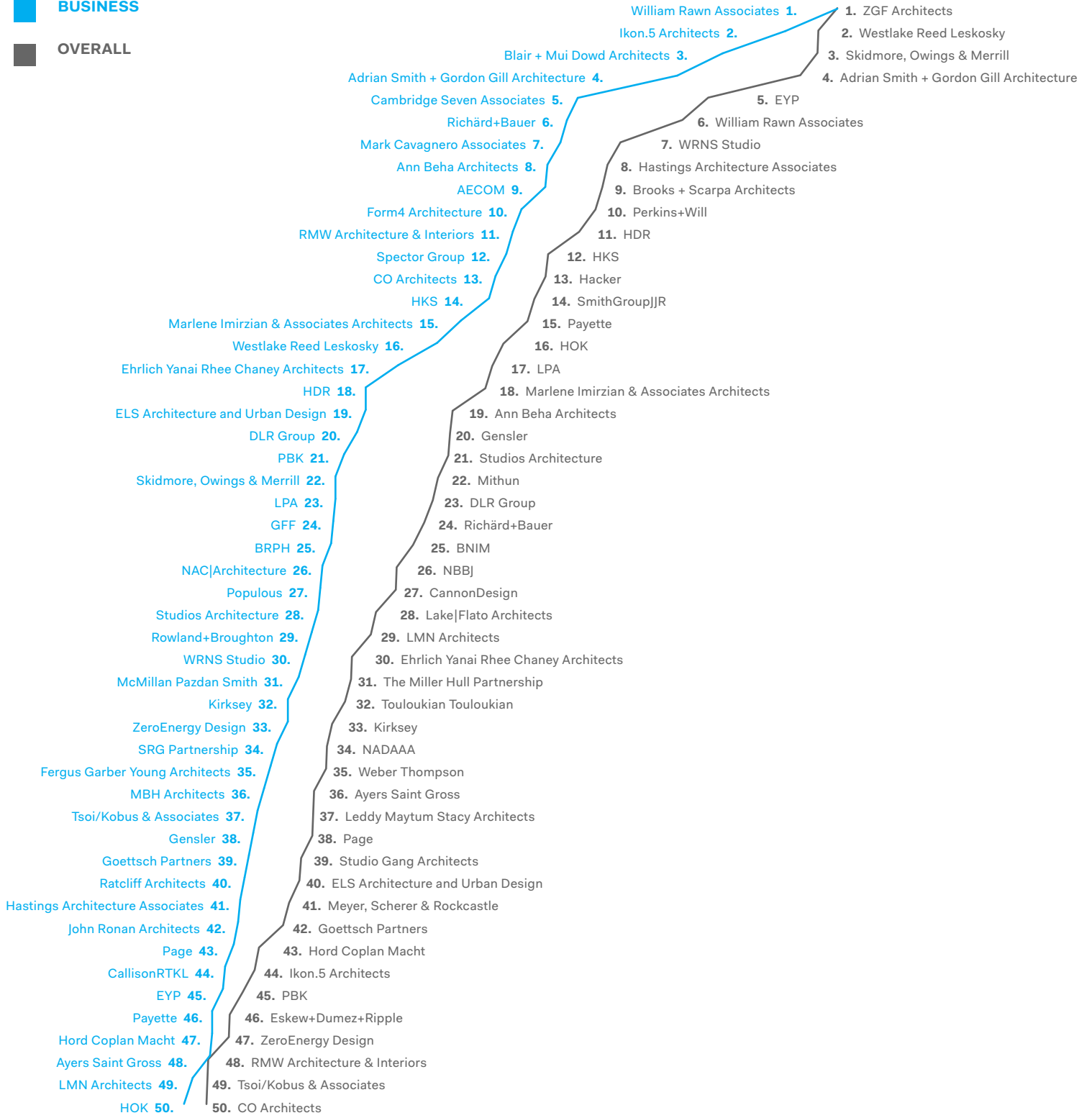
GROSS REVENUE

- \$ Less than 1 million
- \$\$ 1-9.9 million
- \$\$\$ 10-99.9 million
- \$\$\$\$ 100-999.9 million
- \$\$\$\$\$ 1 billion+

- ↑ Biggest movers
- + First time making the Top 50

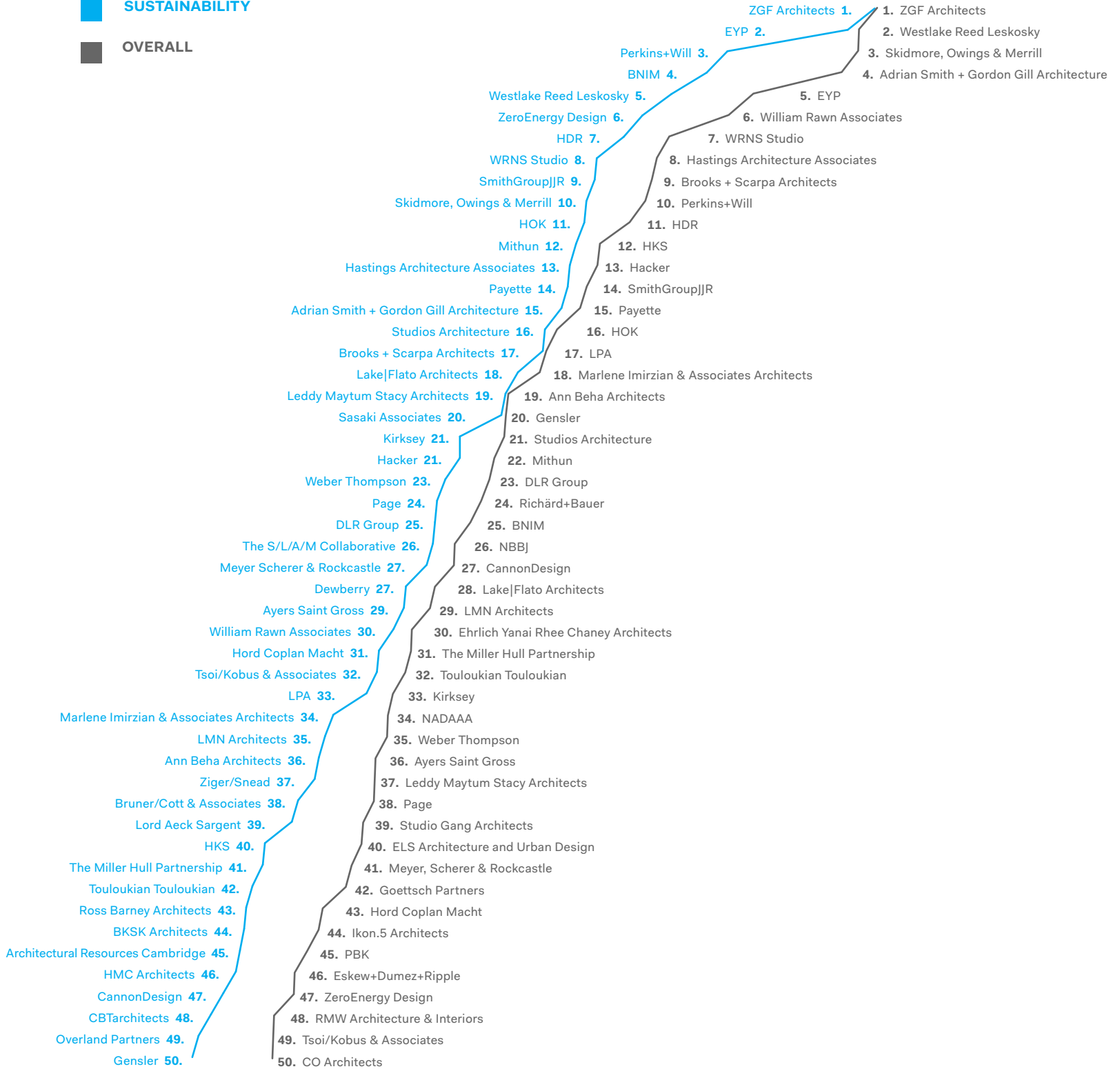


BUSINESS
OVERALL



SUSTAINABILITY

OVERALL



Score

60
200

70
225

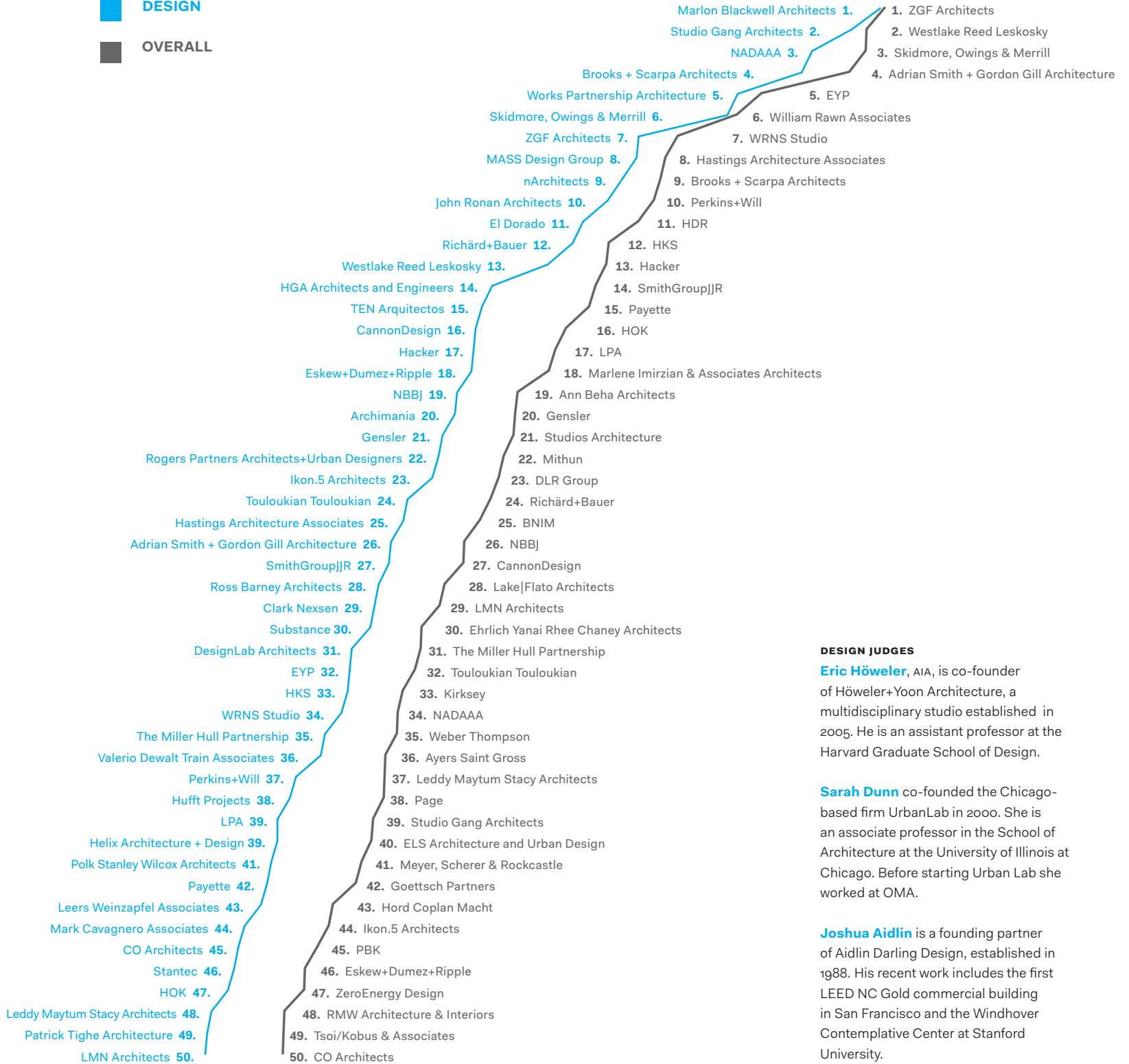
80
250

90
275

100
300

DESIGN

OVERALL



DESIGN JUDGES

Eric Höweler, AIA, is co-founder of Höweler+Yoon Architecture, a multidisciplinary studio established in 2005. He is an assistant professor at the Harvard Graduate School of Design.

Sarah Dunn co-founded the Chicago-based firm UrbanLab in 2000. She is an associate professor in the School of Architecture at the University of Illinois at Chicago. Before starting Urban Lab she worked at OMA.

Joshua Aidlin is a founding partner of Aidlin Darling Design, established in 1988. His recent work includes the first LEED NC Gold commercial building in San Francisco and the Windhover Contemplative Center at Stanford University.

Score



Innovation Beyond Green Rating Systems

ZGF Architects vaulted into the top spot overall and in the sustainability category thanks to the firm's healthy financials (it posted a 17 percent increase in net revenue in 2015) and its relentless push for higher building performance. The two are intertwined, according to managing partner Ted Hyman, FAIA. "They feed off of each other," he says. "If we can show [clients] we're bringing value in terms of design, it affects the bottom line. It takes care of itself."

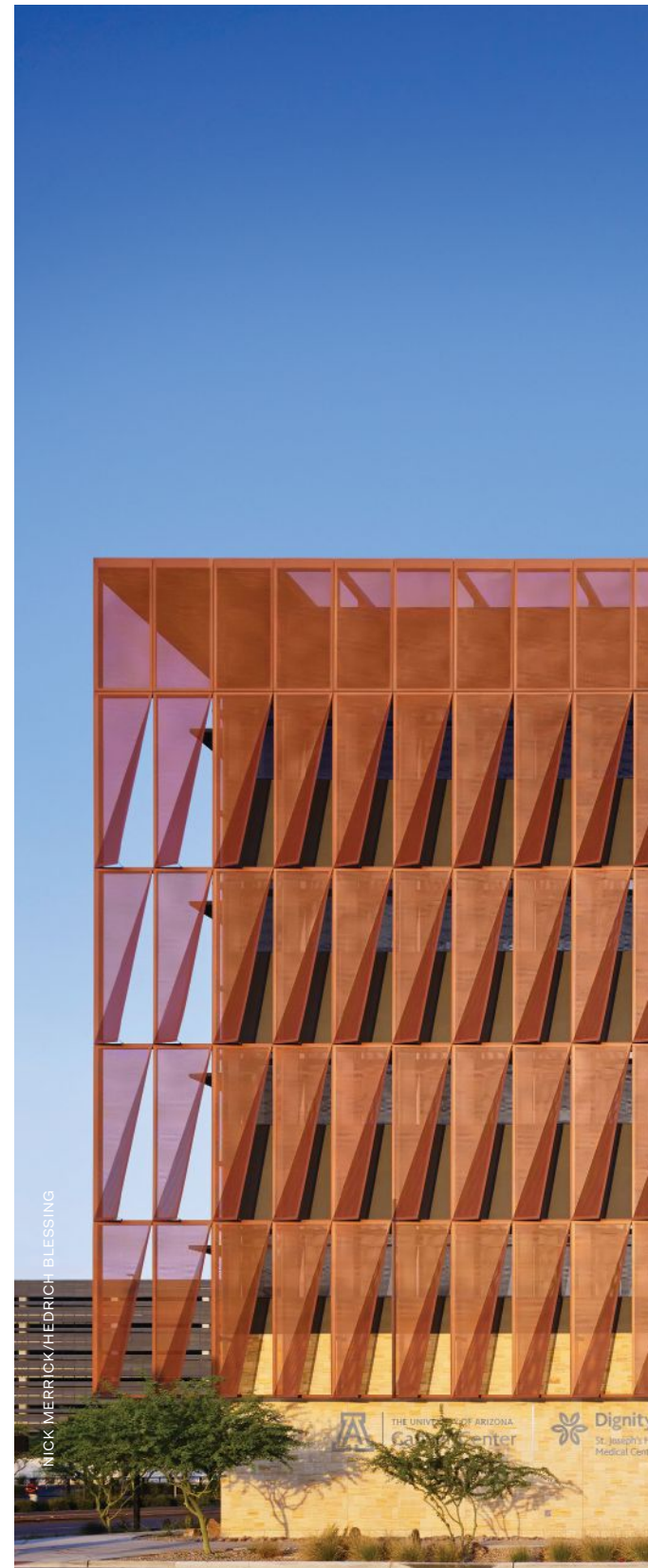
Rather than leave things to chance, though, ZGF recently brought in a chief financial officer who previously worked for two law firms ("he's given us a really different perspective," Hyman says) and a new "chief people officer" to spearhead talent development. The new hires have had a major impact, he says.

But the architecture is what counts, and ZGF has a knack for designing super-efficient buildings that don't skimp on aesthetics. Its design for a future expansion of Nike's world headquarters in Oregon is as kinetic as a runner in motion, while a new cancer center at the University of Arizona (right) echoes its desert surroundings with walls clad in coppery metal sunscreens. The cancer center incorporates the latest evidence-based design principles and technologies, and the Nike expansion is targeting LEED Platinum—a rating the firm also achieved with its headquarters for Clif Bar and the J. Craig Venter Institute for genomics research in La Jolla, Calif.

Then there's a level of innovation so pioneering that rating systems don't recognize it yet. In Basalt, Colo., the architects were tasked with designing a new office for a one of the nation's pre-eminent environmental nonprofits, the Rocky Mountain Institute. Working with a client as committed to energy efficiency as they are, the architects designed a building that has no central heating (in the Rockies!) and that is expected to be net-energy-positive. Months after move-in, "we are getting feedback now that the thermal comfort of the occupants is very high," says partner Kathy Berg, AIA, "and that the building is performing even better than it modeled."

Hyman observes that some technologies ZGF adopted early, like chilled beams and air-sampling systems, quickly entered the mainstream. Now, the firm is trying to anticipate—and drive—the next curve of change. "Net-zero has to become the baseline," Hyman says. "As a group of architects, we all have to figure out how we do that and build a business case for it."

Breakthroughs are more likely to come from outside architecture than within it, Berg believes. "It's really incumbent on us to think about what's going to affect how we create buildings and places, and to work closely with great collaborators" to design the future we want.



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Boosting the Bottom Line, Six Projects at a Time

Boston-based William Rawn Associates (WRA), with the highest revenue-per-employee figure of any ranked firm this year, and a 9 percent increase in billings in 2015, has a financial position that would turn most architects green with envy. You might assume this is because the firm has a full-time rainmaker on staff or a managing director with an MBA—in fact, it’s just the opposite. WRA prospers by letting architects be architects and seeing that they don’t get overextended.

The firm abides by a hard rule, says founding principal William Rawn, FAIA. “We limit ourselves to six projects in design at any given time. If we’re good at selecting six projects that are about getting buildings built, and not trying to be all things to all people, [it] gives us a real focus and a rigor.”

A deep expertise in higher-education, performing-arts, and civic buildings has become the firm’s calling card. Projects have grown in scope and budget, but not number, which means that staffing levels don’t follow the wild peaks and troughs of boom-and-bust cycles. “We’ve been able to grow and have our practice reach a sweet spot somewhere in the mid-30s to mid-40s [in size] and be able to have an impact,” says Cliff Gayley, FAIA, a principal who has been at the firm for 27 years.

In the last couple of years, WRA has innovated on one of its signature building types, the campus performing-arts facility. At the Winsor School in Boston (left) and at Duke University, the architects designed day-lit, multipurpose buildings that give an unusual prominence to the back-of-house spaces—where most of the learning happens. Pushing the envelope on a familiar typology in this way helps keep the work fresh. It’s also opened up new avenues for the firm. WRA is now tackling a healthcare project for the Cleveland Clinic and a net-zero-energy public middle school in Cambridge, Mass.

Does branching out mean the end of the six-project rule? No, Gayley says. “I think that’s so central to how we’re able to manage quality and projects from a design point of view, and delivery of service with our clients.”

“People talk about growth as being an essential component of business,” notes principal Douglas Johnston, FAIA. “In our model, growth is in changing the scale and complexity and consequence of the projects, and the project types, rather than changing the number of projects we take on or the number of employees we would have.”

It’s a starkly different conception of growth from the world-conquering model of a Walmart or Starbucks (or a global design firm, for that matter). But it works. “We don’t have to spend huge amounts of our time out there, rainmaking,” Rawn says. “We want to be architects.”

“This is Design with Conviction”

Having already secured a prestigious Cooper Hewitt National Design Award this spring, Marlon Blackwell Architects has now landed the top spot in the design category of this year's ARCHITECT 50. Indeed, it's been a banner year for the Fayetteville, Ark.-based practice, and a look through its portfolio shows why.

Recent small projects like a Montessori school in Fayetteville and a practice facility for a golf club in the Ozarks demonstrate a rigorous and sometimes daring vernacular Modernism, fashioned on very lean budgets. But the firm's talents don't stop at the jewel-box scale. It has also designed a 356,000-square-foot high school expansion in Fayetteville, and collaborated with James Corner Field Operations to remake Shelby Farms Park in Memphis (the visitor's center is pictured on the right), one of the largest urban parks in the country.

Founder Marlon Blackwell, FAIA, and his partner in work and life, Meryati Johari Blackwell, AIA, say the small size of their office (currently 10 people) allows them to be involved in every stage and detail of a project. “I think the advantage is, you can have control and you are also able to manage all the projects that are in the office,” Johari Blackwell says. On any given building, “we would know what type of finishes [are being used] ... both Marlon and I would get down to that level of detail”—something their clients appreciate, she says.

“From a design standpoint,” adds Blackwell, “being close to the project allows you to edit that project continually because you're engaged. My observation is that a lot of architecture is not edited enough. Too many ideas, too many moves, too many materials, too many voices, all kind of competing for a similar level of attention.”

The designers' willingness to both sweat the details and edit themselves may be the key to how they work wonders on tight budgets. “We have developed an agility, a facility to hang onto the core of the idea, no matter how value-engineered a project can become,” Blackwell says. “If it's a good idea, it can be realized at a variety of price points.” For example, says Johari Blackwell, switching from a limestone to a metal exterior can express the same idea if executed well. “You're still going to get the spatial quality without ... the [same] cost per square foot.”

Their commitment to protecting the essence of a design wasn't lost on the jury. “Of all submissions, this collection of work conveys the most succinct, clear, and rigorous design ethos,” one juror noted. “This is design with conviction.”



TIMOTHY HURSELEY

**Top
Design**
**Marlon Blackwell
Architects**



METHODOLOGY

ARCHITECT advertised the ARCHITECT 50 program in print and online, and also sent direct invitations to firms that either requested entry forms or that had been invited to participate in previous years. In all, 136 firms qualified. Data was from the 2015 fiscal year and was self-reported. Projects completed or in progress during the calendar year were included. Data was checked for consistency, and outliers were fact-checked. Karlin Research, a third-party research firm based in New York City, compiled the ranking and assured the confidentiality of the data.

The ARCHITECT 50 RANKING is based on scores in three separate categories, with data weighted as follows:

SUSTAINABILITY

- 38% Participation in the AIA's 2030 Commitment program, submittal of a report of predicted energy use of all active projects to the AIA in 2015, percentage of predicted energy use intensity reduction from the national average reported, and percentage of gross square footage of projects in design during calendar year 2015 that were demonstrated through energy modeling to meet or exceed 2030 energy targets
- 13% Energy and water metrics: the percentage of gross square footage of a firm's projects that achieved a 20% reduction or greater in regulated potable water use than the standards of the U.S. Energy Policy Act of 1992 and that incorporated energy modeling or daylighting studies, as well as a firm's approach towards resilient design
- 22% The percentage of a firm's design employees with Living Future, Certified Passive House, WELL, Green Globes, Green Roof Professional, or LEED AP or Green Associate credentials (and the specialty LEED credentials represented at the firm), as well as the percentage increase in salary given to employees who achieve LEED AP accreditation
- 18% Green building certifications for projects completed in 2014 (points awarded on a sliding scale for projects that achieved various LEED, Living Building Challenge, Green Globes, Net Zero, Green Guide for Health Care, Energy Star, and Passive House certifications)
- 9% A score for the green project that best demonstrated a firm's commitment to sustainability (scoring by ARCHITECT editors)

BUSINESS

- 50% Net revenue per employee
- 20% Profitability (positive change in net revenue from 2014)
- 15% Business practices, including the percentage of women and minority designers, percentage of new full-time positions, and voluntary staff turnover rate
- 15% Employee benefits, including insurance, ARE benefits, stock options, and the value and scope of other fringe benefits

DESIGN

- 72% A design portfolio, scored individually by three judges whose numbers were combined to create an overall score
- 14% Licensure, as measured by the percentage of designers licensed in their respective fields, the average percentage increase in salary upon licensure, and how the firm mentors young designers
- 7% Pro bono work, as measured by participation in Public Architecture's 1+ program, the percentage of billable hours dedicated to pro bono, and the scope of the pro bono work
- 4% Design awards, including awards issued by ARCHITECT, the AIA, ASLA, and other prominent institutions
- 3% Research, as measured by the percentage of profits invested in it and its scope and significance

The weight assigned to each data point was formulated after consulting with industry experts. After the scores were tabulated in each of the three categories, they were rescaled. The top ranking firm in each of the three categories was assigned a score of 100. The rest of the firms' scores in each of the three categories then were recalculated as a percentage of the top score. Finally, a firm's scores in each of the three categories were added together to create the overall ranking. Those scores were also normalized, with the top firm given an overall total of 300, and all the other firms' scores calculated as a percentage of the top score. Each firm's performance was calculated relative to the performance of other firms. The firm with an overall score of 300, for example, did not necessarily top out on every indicator and category; it accumulated the highest composite score. Any ties in the overall list were broken using the scores ARCHITECT editors gave to the essays firms submitted about why they deserved to make the Top 50.



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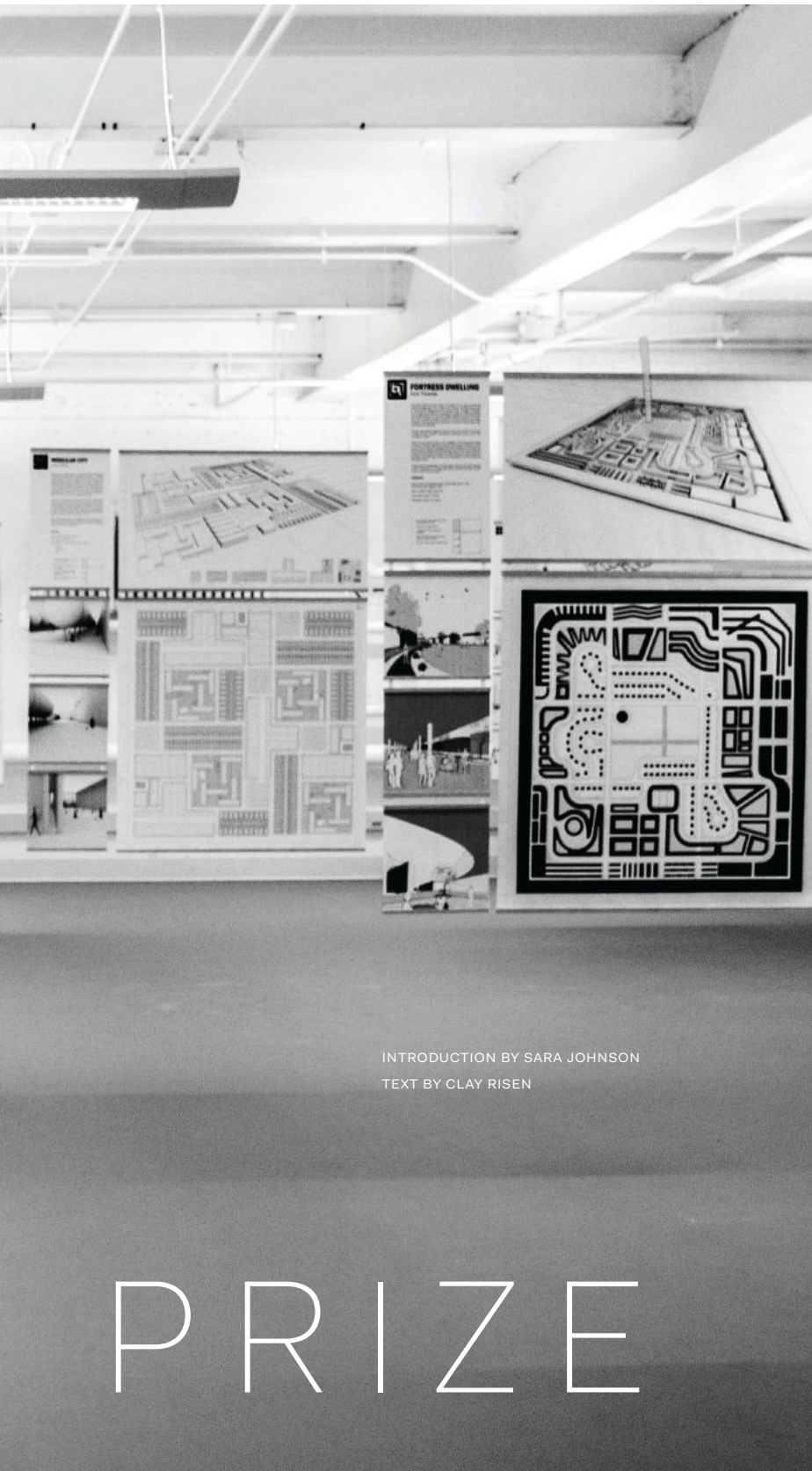
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INTRODUCTION BY SARA JOHNSON
TEXT BY CLAY RISEN

PRIZE

Typically this magazine focuses on extraordinary work by established professionals, but even the most famous architects start somewhere. The new Studio Prize recognizes a quieter, yet equally significant force in architecture: the studio course. The bedrock of architecture education, studios allow future generations of architects to learn through action, explore the central issues of architectural practice, and take risks with relative impunity. Studios also serve as a research lab for instructors, who craft design problems for their students that will push conceptual boundaries and test pragmatic hypotheses.

This year's Studio Prize jury comprised three noted practitioners with exceptional academic credentials: Jeanne Gang, FAIA; Jimenez Lai; and Bernard Tschumi, FAIA. After reviewing 152 submissions from more than 80 schools, the jurors chose six courses for recognition and a share of the \$25,000 purse provided by the program's sponsor, Sloan. One winner received the Sloan Award, which celebrates thoughtful takes on sustainability. The cash goes to those students whose work the instructors chose to submit; no more than five projects per course were admissible.

Overall, the work showcased in these pages reflects the innovation and foresight of seven educators and 47 students, and provides a glimpse into the formation of ideas that will define architecture in the coming decades.

Jeanne Gang, FAIA, is the founder of Chicago-based Studio Gang Architects and a MacArthur Fellow. She has taught at the Illinois Institute of Technology and at Harvard, Yale, Princeton, Rice, and Columbia universities.

Jimenez Lai is the founder of Bureau Spectacular in Los Angeles, a faculty member at the University of California, Los Angeles, and author of *Citizens of No Place: An Architectural Graphic Novel* (Princeton Architectural Press, 2012).

Bernard Tschumi, FAIA, is the founder of his eponymous New York- and Paris-based firm. He was dean of the Graduate School of Architecture, Planning and Preservation at Columbia from 1988 to 2003 and remains a professor there.

Studio Prize

Good Grids

University at Buffalo, The State University of New York
School of Architecture and Planning

Project Credits

Course: Good Grids

School: University at Buffalo, The State University of New York, School of Architecture and Planning,

Level: B.S. in Architecture (year three and four) and M.Arch., with preprofessional degree (year one)

Duration: Summer 2015 semester

Project Site: Chicago

Instructor: Gregory Delaney (clinical assistant professor)

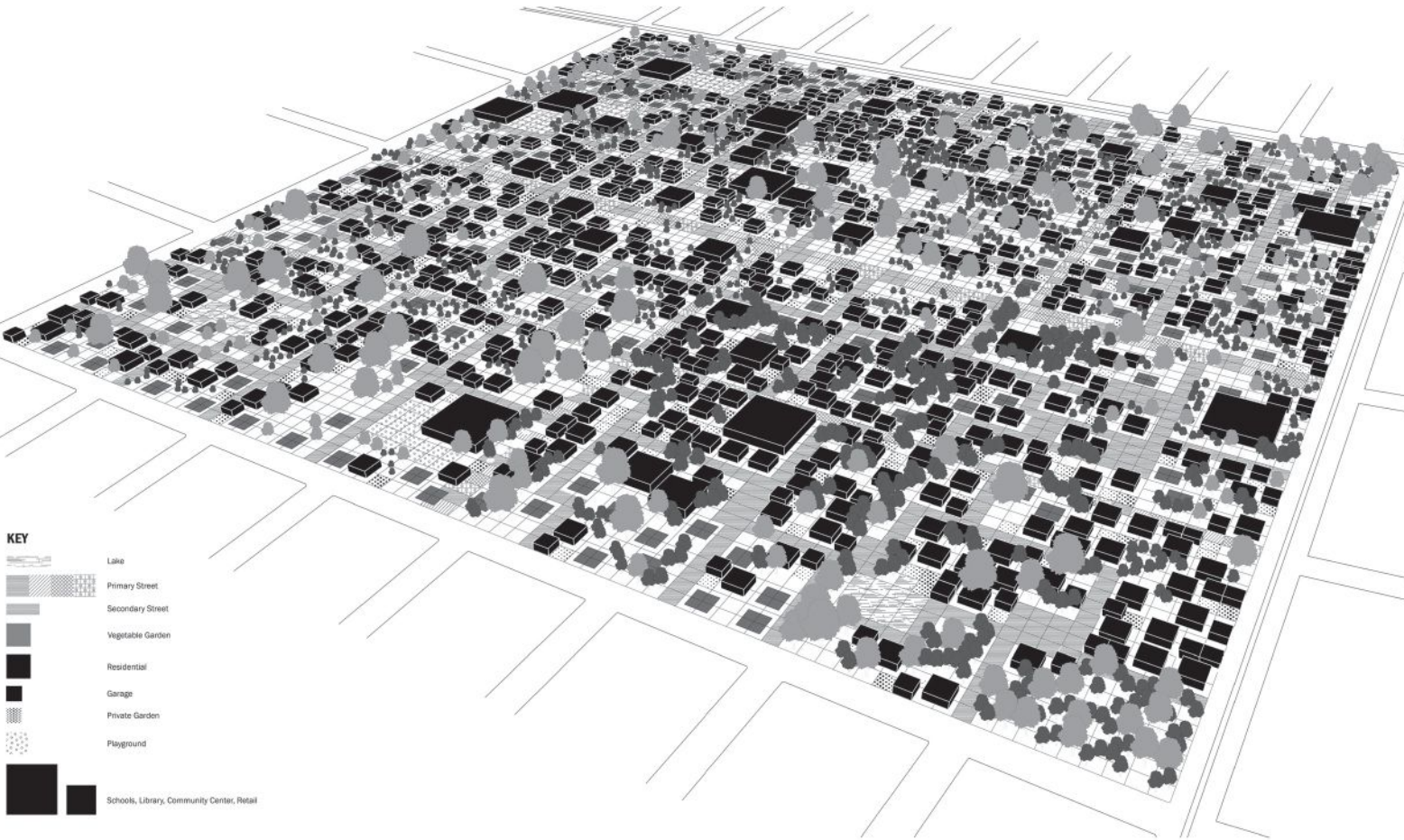
Students: Rachel Chen, Asuka Fujita, David Lin, Patrick Niedzwiecki, Nicholas Traverse (submitted projects); George Behn, Ginny Gallersdorfer, Brandon Hake, Lorrin Kline, Cortland Knopp, Aniket Marathe, Aimée Plante, Dylan Russ, Andres Santandreu, Rohit Walimbe, Veronica Yuqui

Part studio, part traveling classroom, Good Grids took its inspiration from a 1913 competition run by the City Club of Chicago, in which architects and planners offered up new takes on the traditional street grid, which at the time was threatening to turn the nation's rapidly expanding cities into cookie-cutter wastelands.

The summer studio began with a five-week trip around the eastern U.S., looking at how planners and developers implemented grid designs in New York; Boston; Washington, D.C.; and 34 other cities in 19 states. "It's true that you can treat the grid too generally," says clinical assistant professor, Gregory Delaney. "But when you really look at each city, you start to tease out the idiosyncrasies that make some grids better than others."

After returning to campus, the students—a mix of undergraduate and graduate—developed "late entries" to the 1913 competition, keeping with its original restrictions of presenting 2-mile-square swaths of Chicago, in both a plan and aerial view, and entirely in black and white. Some plans contorted Chicago's grid to introduce curves and soft angles; others broke up linear streets to create cul-de-sacs and hidden neighborhoods.

The studio was a one-off, and Delaney thinks its timing couldn't have been better, as cities are focusing more at urbanism and urban forms. "We need to look again at the grid idea, and learn from its successes, and its failures," he says.



Previous Spread: Good Grids exhibition

Above: By Rachel Chen

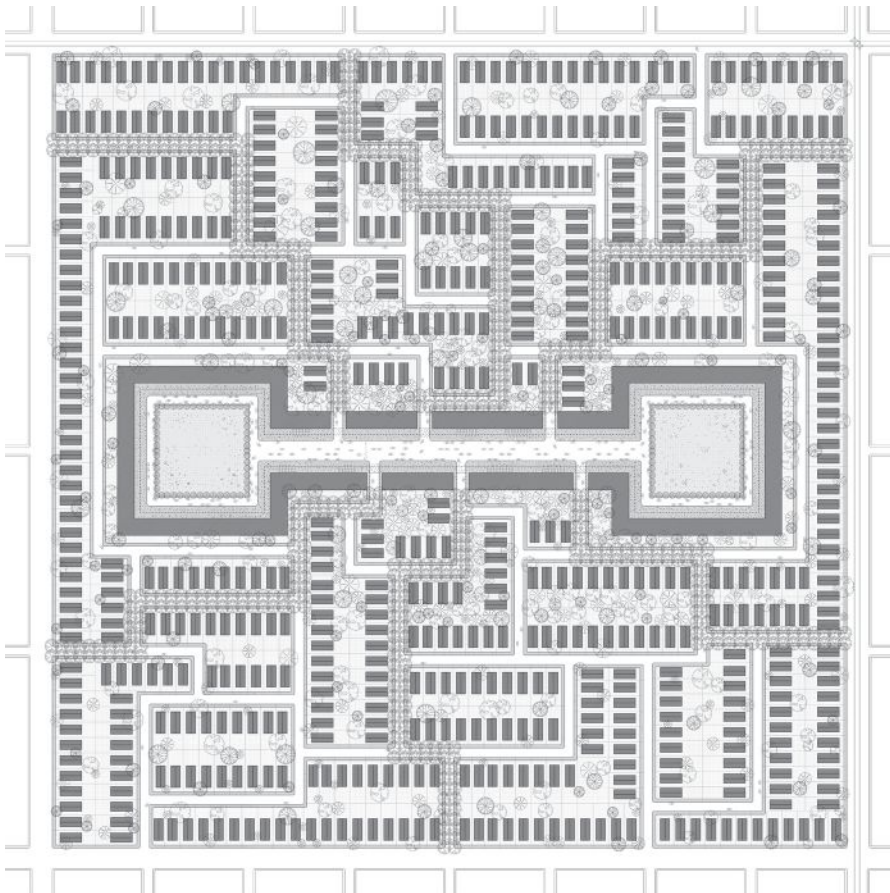
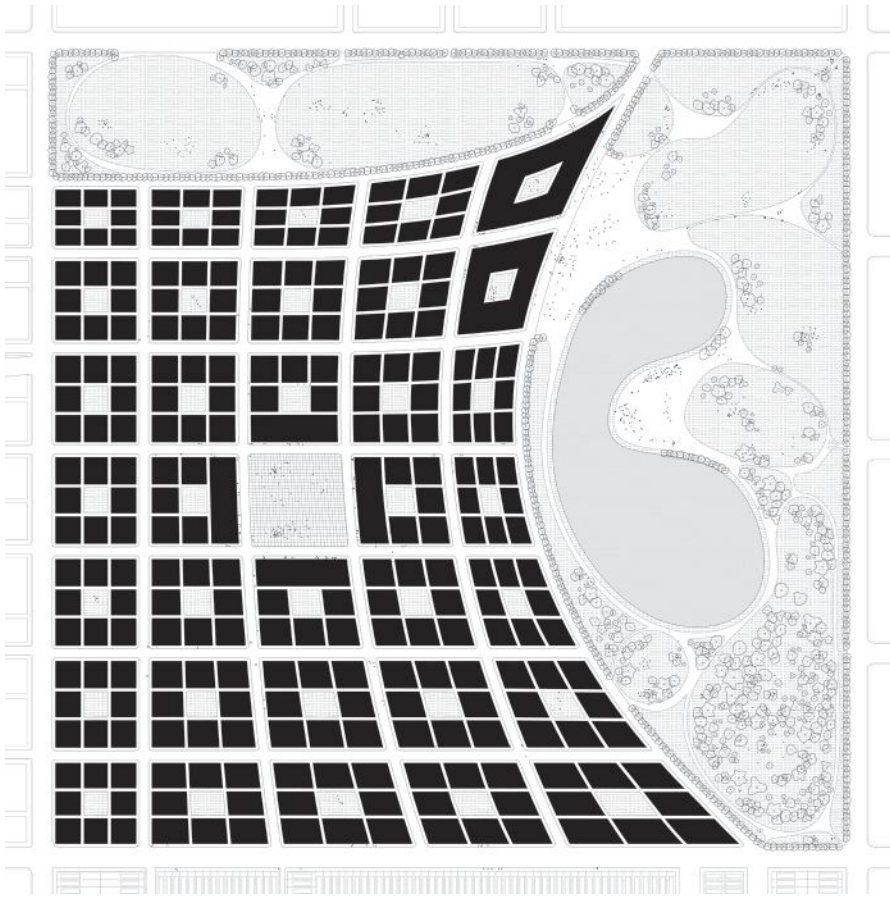
Final models grouped and displayed at studio exhibition



“The studio had a significant body of research and there was a nice frame—no pun intended—for it. The grids made for a compelling variety of studies.”

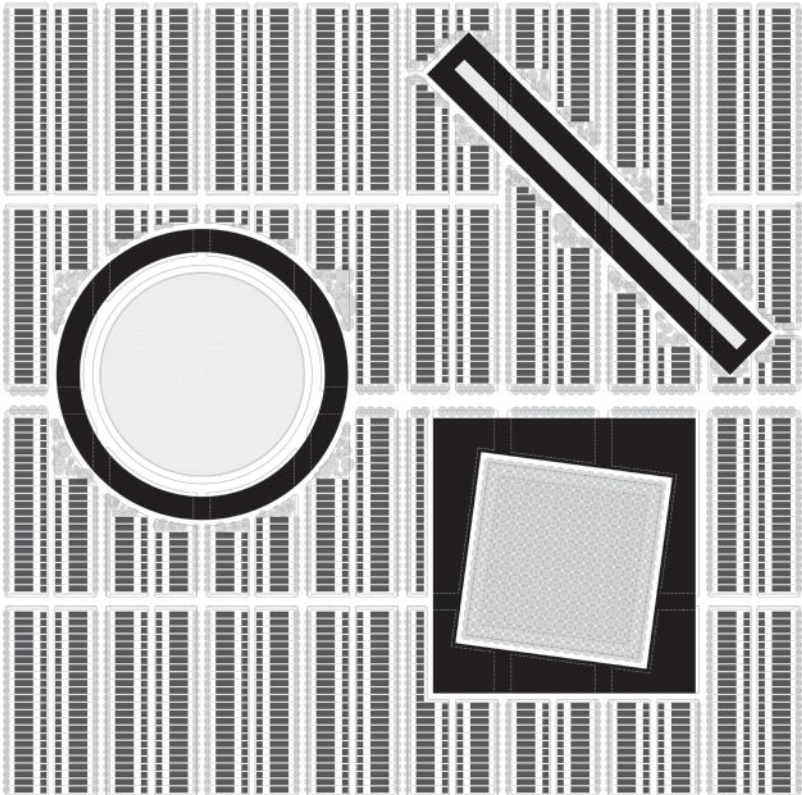
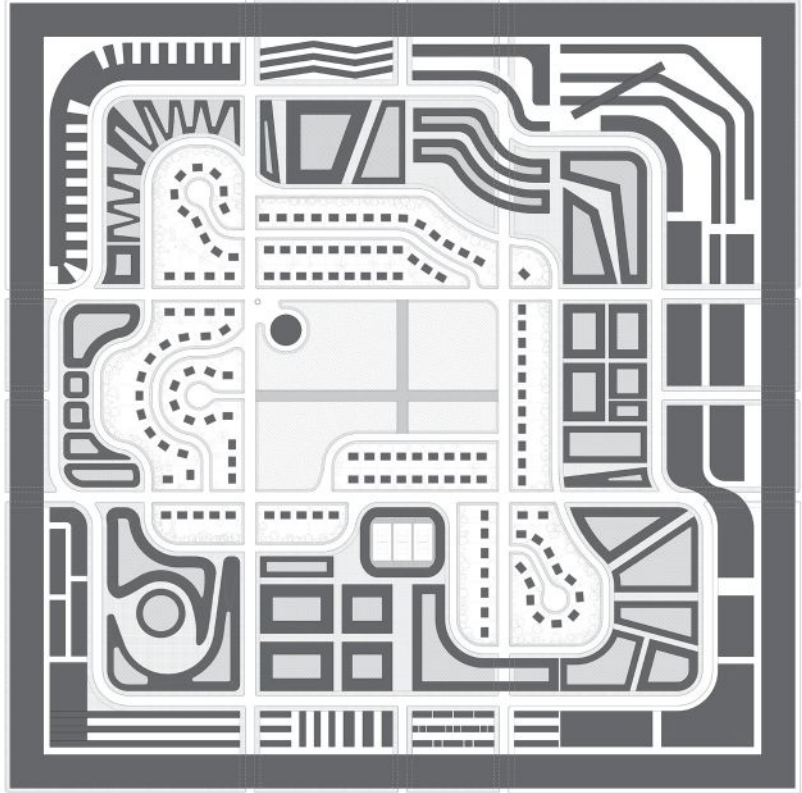
—Juror Jeanne Gang





Top: By Asuka Fujita

Bottom: By David Lin



Top: By Nicholas Traverse

Bottom: By Patrick Niedzwiecki

Studio Prize

Graphic Novels/Novel Architecture

Kent State University
College of Architecture & Environmental Design

Project Credits

Course: Graphic Novels/Novel Architecture

School: Kent State University, College of Architecture & Environmental Design

Level: M.Arch., without preprofessional degree (year one)

Duration: Spring 2016 semester (10-week studio)

Instructor: Jon Yoder, AIA (associate professor)

Students: Abby Baker, Ellie Hertzfeld, Zak Kupniewski, Timothy Ong, James Skimin (submitted projects); Leandra Buchin, Matt Fisher, Saloomeh Gharehgozlou, Pamela Haberman, Danielle Jones, Kyle Matheny, Adam Prtenjak

Workshop Leaders: Richard Buday, FAIA; Jordan Charles; Christopher Darling; Chad Lewis; Nick Sousanis

The first in a series of graduate-level studios looking at the role of narrative in architecture, Graphic Novels/Novel Architecture examined graphic storytelling in architectural design and presentation, including comic strips, animation, storyboards, and graphic narratives.

Over five two-week workshops, the students explored examples of these narratives, from the storyboards of Le Corbusier to the archi-comics of Bjarke Ingels and Jimenez Lai. Each student also developed their own three-panel, 24-by-24-inch comics using techniques like manual printmaking, photo collage, laser cutting, and 3D printing, and revised them over the five workshops based on input from visiting artists and design professionals. Aside from getting students to think critically about their projects, associate professor Jon Yoder, AIA, says the revision process also forced the students to refine their ideas and presentations—good training for their careers.

While future studios will look at video games, text-based books, and film, Yoder says he chose to start with the graphic novel because of the growing importance of images and graphic art in architecture—not just in depicting buildings, but explaining them through visual narratives. The graphic novel form, he explains, allowed students to explore themes that usually get sidelined in architectural imagery, like the political and social implications of design. “The image has never had a more prominent place in architecture than it does right now,” he says.



Above: By James Skimin



Above: By Zak Kupniewski

Opposite: By Ellie Hertzfeld



“It’s nice to see people work with the entire board, instead of creating fragments of the boards where you place plans or sections. There’s a comprehensive effort to design a communication.”

—Juror Jimenez Lai

Studio Prize

Ottawa: You're So Vanier

Carleton University
Azrieli School of Architecture and Urbanism

Project Credits

Course: Ottawa: You're So Vanier
School: Carleton University, Azrieli School of Architecture and Urbanism
Level: B.Arch. (year four)
Duration: Academic year 2015–16
Project Site: Ottawa, Ontario
Instructor: Roger Connah (professor)
Students: Steph Agar, Nahid Ahmadi, Balquis Attef, Neha Bhargawa, Audrey Caron, Shawn Duke, Mia Gommi, Kripa Gyawali, Tori Hamatani, Michelle Harper, Eisa Hayashi, Christina Hoang, Anna Leung, Dawn Ling, Tyson Moll, Heeva Salemi, Sabrina Shen, Jason Surkan, Oliver Tang (submitted projects)
Collaborators: Geoff Heinzman (ModBox), Jamie Kwong, Sophie Lamothe, David Renfroe
Reviewers: Janak Alford, Paul Holmqvist, J-F Jacques, David McRobie, Adrian Ross, Samantha Schneider, Claudio Sgarbi, Robert Van Lin

Ottawa, Ontario's Vanier neighborhood, a francophone section east of the city's downtown, is about as close to seamy as you're likely to get in Canada, says professor Roger Connah, who led a one-time, year-long studio investigating the city's slow but steady gentrification: "I wanted to get my students to engage in a community, which we often don't do at my school."

Though not as big as Toronto or Montreal, Ottawa is developing rapidly, with a thicket of downtown high-rises popping up that Connah considers poorly designed. Before the wave hits Vanier, he wanted his students to imagine a better path toward denser residential development in the area. There's no denying the need for more housing, Connah says, but he wanted his students to understand that there is more than one way to accommodate growing populations. "We're building environments that will embarrass us in 20 years," he says.

The students, all seniors in the school's B.Arch. program, began with a focus on housing, but from there Connah left the brief open-ended as they moved into discussions about how their projects would affect their surroundings in and around Vanier. The students presented their proposals to community groups, and incorporated feedback from those presentations. The studio concluded with an exhibition, along with a book that the students produced. "I wanted to give them training in the logistics of how to do all these aspects of practice at the same time," Connah says.

Previous Page: By Eisa Hayashi,
Christina Hoang, Anna Leung, Sabrina
Shen, and Oliver Tang

This Spread: Studio model

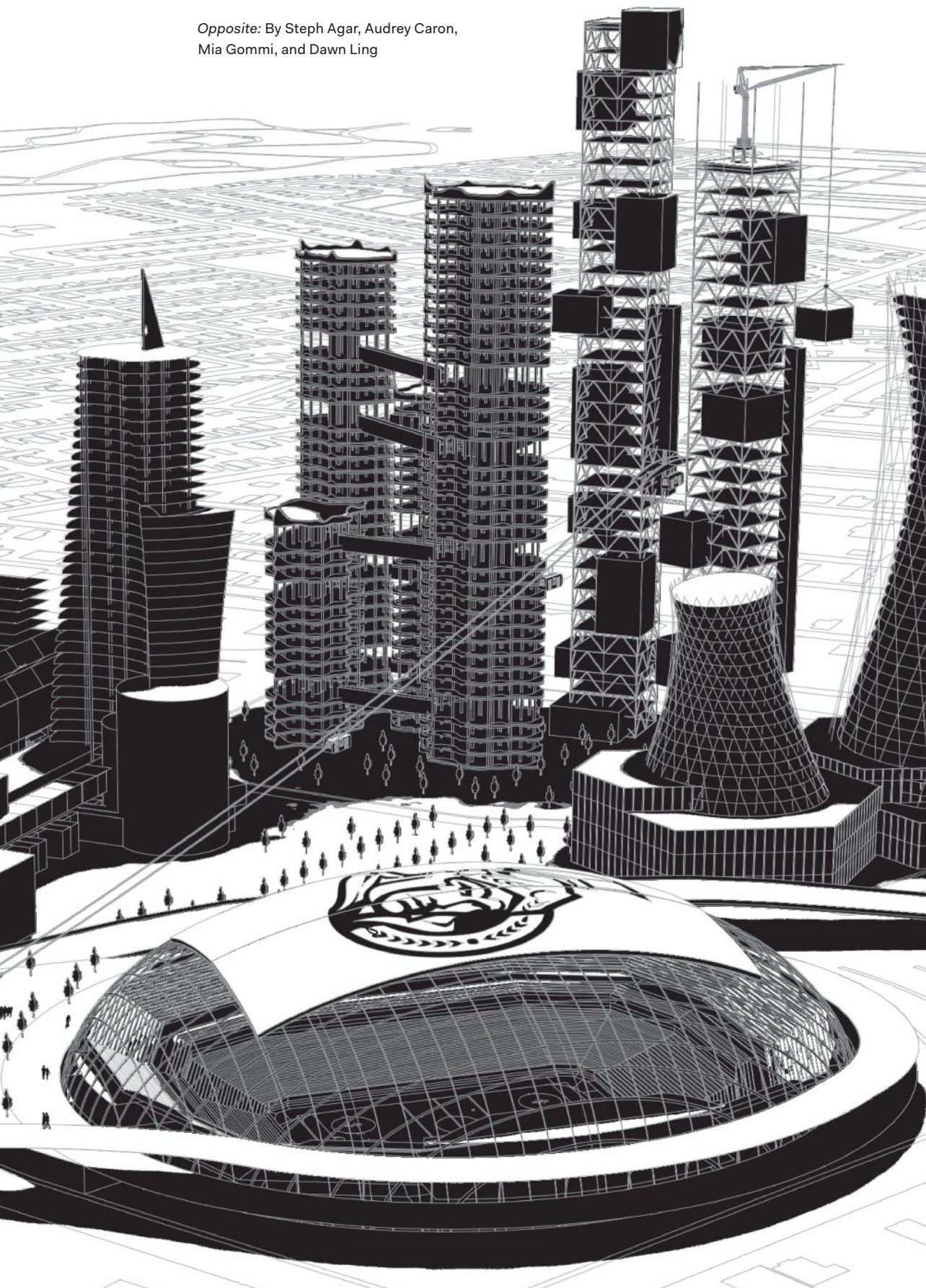
"I was looking for anyone
who engaged outside of the
confines of the school and
went and talked to people.
This studio did that, which I
thought was commendable
and interesting."

—Juror Jeanne Gang



Below: By Shawn Duke and Tyson Moll

Opposite: By Steph Agar, Audrey Caron,
Mia Gommi, and Dawn Ling



PRIVATE COMMUNITY GARDEN
PLANTED IN CLOSE PROXIMITY
TO EXISTING SCHOOL - FOR
EDUCATIONAL PURPOSES
AND CULTIVATION

INCREMENTAL PASSIVE
HOUSING

OBSERVATION AND
INFORMATION DECK

STATIONARY STREET BIKES
ENERGY PRODUCTION
THROUGH HUMAN ACTIVITY

INCREMENTAL FRAMEWORK

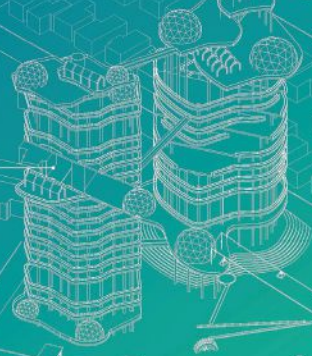
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OBSERVATION BALCONIES

BIKE PATH

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+ FOOD PRODUCTION

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TENNIS AND BASKETBALL
COURTS LOCATED IN CLOSE
PROXIMITY TO HOUSING AND
SCHOOLS

COMMUNITY MARKETPLACE
OPPORTUNITY FOR SALE AND
TRADE OF PRODUCE

COMMUNITY GARDENS
LOCATED NEAR HOUSING TO
ENABLE AND ENCOURAGE
CULTIVATION

SOCIAL INFOGRAPHIC HUB

MICRO ECO BUSINESS

WALKING PATH

BIO SOIL

URBAN PLAZA

GEODESIC GREEN HOUSES

URBAN FARMING
PRODUCTIVE ECOBOX



Studio Prize

The Radical and The Preposterous: Mind the Gap

University of Michigan

A. Alfred Taubman College of Architecture and Urban Planning

Project Credits

Course: The Radical and The Preposterous: Mind the Gap

School: University of Michigan, A. Alfred Taubman College of Architecture and Urban Planning

Level: B.Arch. (year four)

Duration: Winter 2016 semester

Instructor: Dawn Gilpin (lecturer IV, and co-director, Adams + Gilpin Design Studio, Ann Arbor, Mich.)

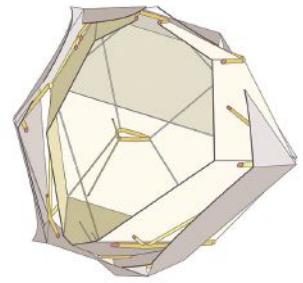
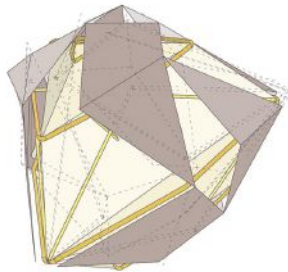
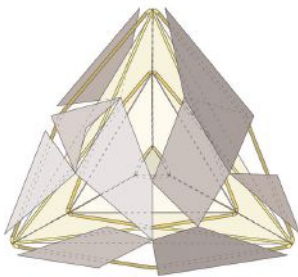
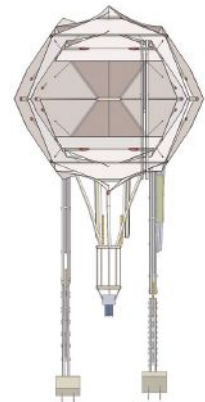
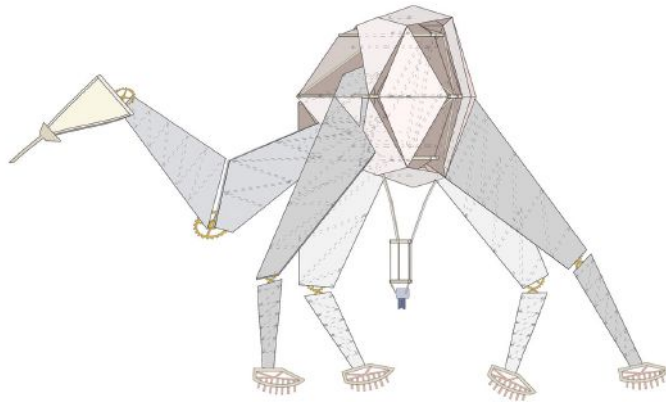
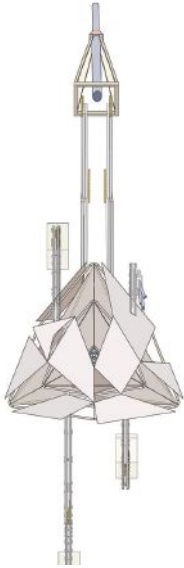
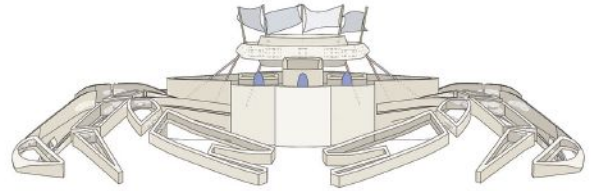
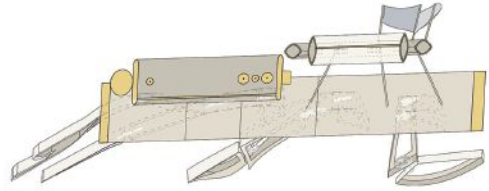
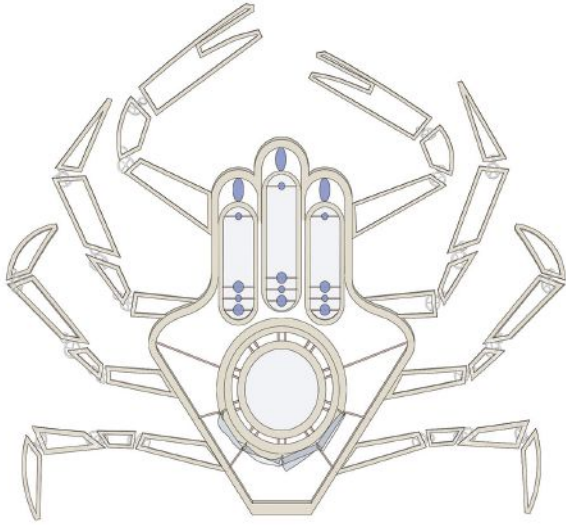
Students: Kati Albee, Dyan Castro, Diego Garcia, Trevor Herman Hilker, Yurda Surya (submitted projects); Jenna Atkinson, Gage Belko, Marshall Hebert, Joshua Knost, Chloe Lee, Vassillissa Semouchkina, Ian Ting

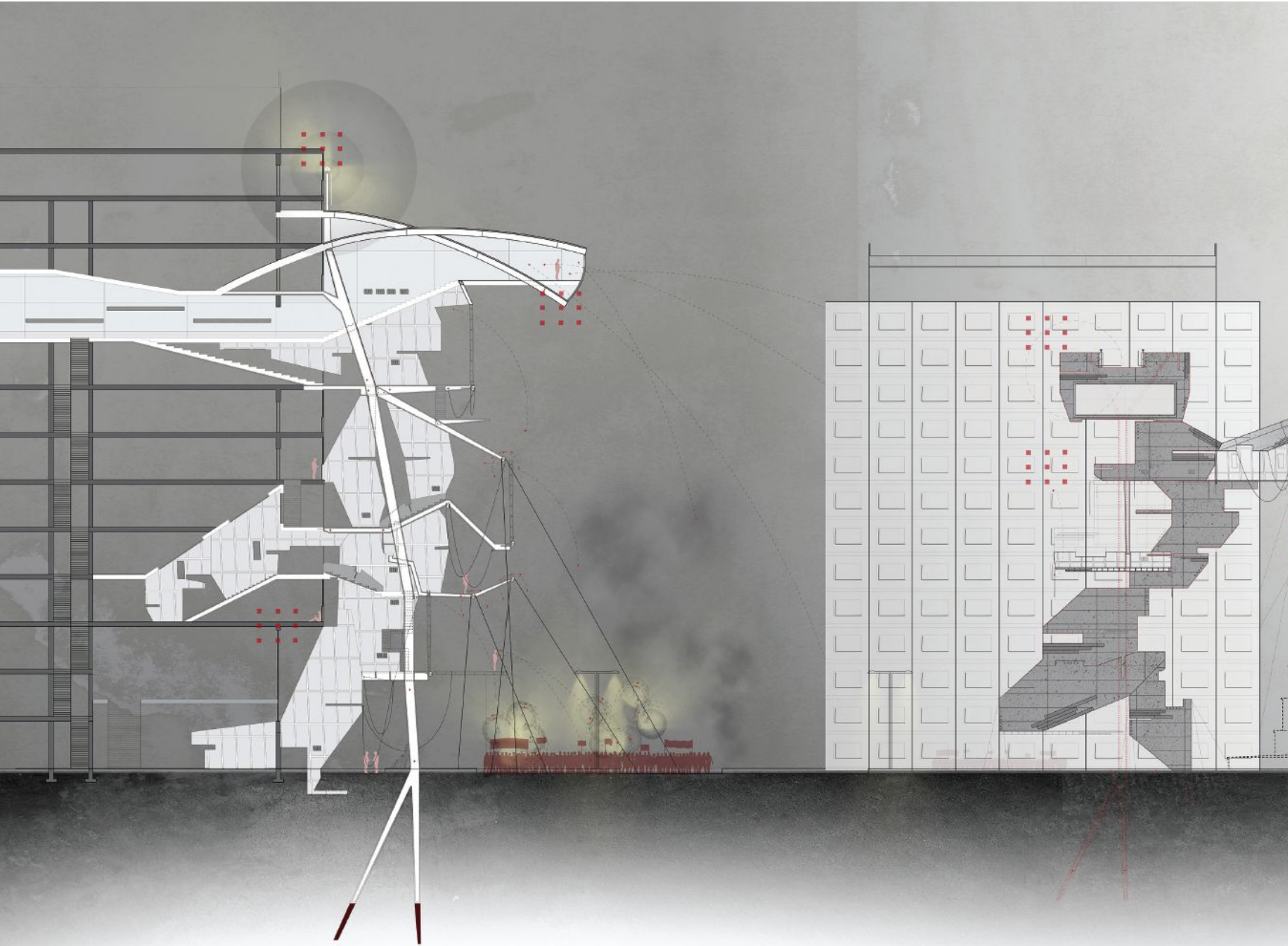
Collaborators: Carey Treado (chief academic officer), Mary McFarland (international director, Jesuit Commons: Higher Education at the Margins)

Years before he saved thousands of Hungarian Jews during the Holocaust, Raoul Wallenberg was a University of Michigan architecture student. Since 1987 the school's architecture and urban planning college has run an annual studio in his honor, examining the intersection of design and humanitarian issues.

Recently, the studio concentrated on the global refugee crisis, from the political and religious refugees flowing into Europe to the hundreds of thousands displaced by natural disasters in Japan, South Asia, and Africa. Lecturer Dawn Gilpin, who ran this year's course, says that her goal was to get the seniors to focus on a pressing global concern and to expose them to architecture's political and social context, which, she adds, is too often left out of curricula. "It's important to give that context to architectural history so that students understand why they're doing what they do," she says. Before starting their projects, the students read works by thinkers like Hannah Arendt and Beatriz Colomina. "It's almost as if a seminar was taught within a studio format," she says.

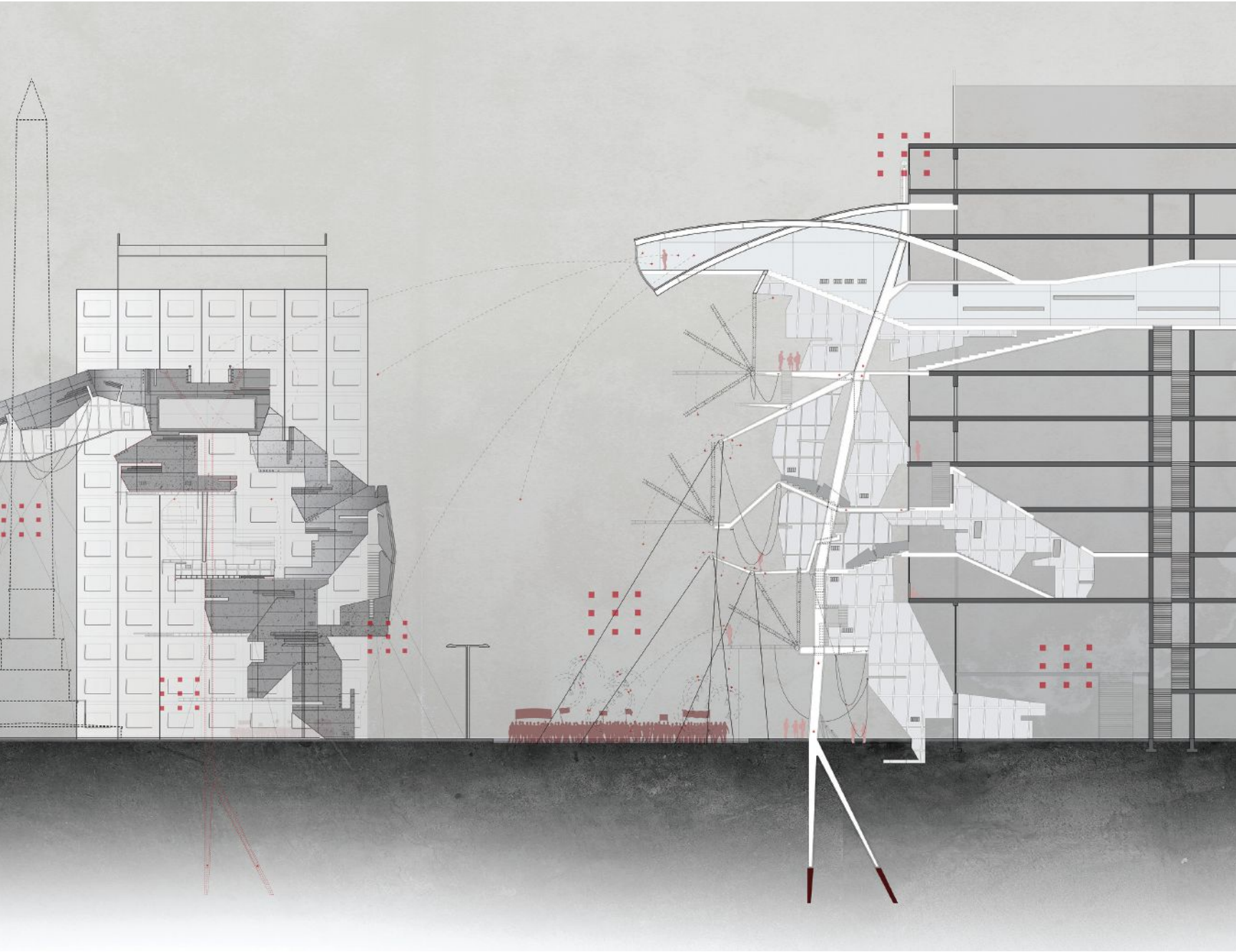
But it wasn't all theory; via Skype, the students interviewed educators in refugee camps. Each student then developed a thesis proposal for an architectural response to an aspect of refugee life, from emergency housing to facilities like schools and community centers. When the course was over, a blind jury awarded travel grants, up to \$20,000, to three students.





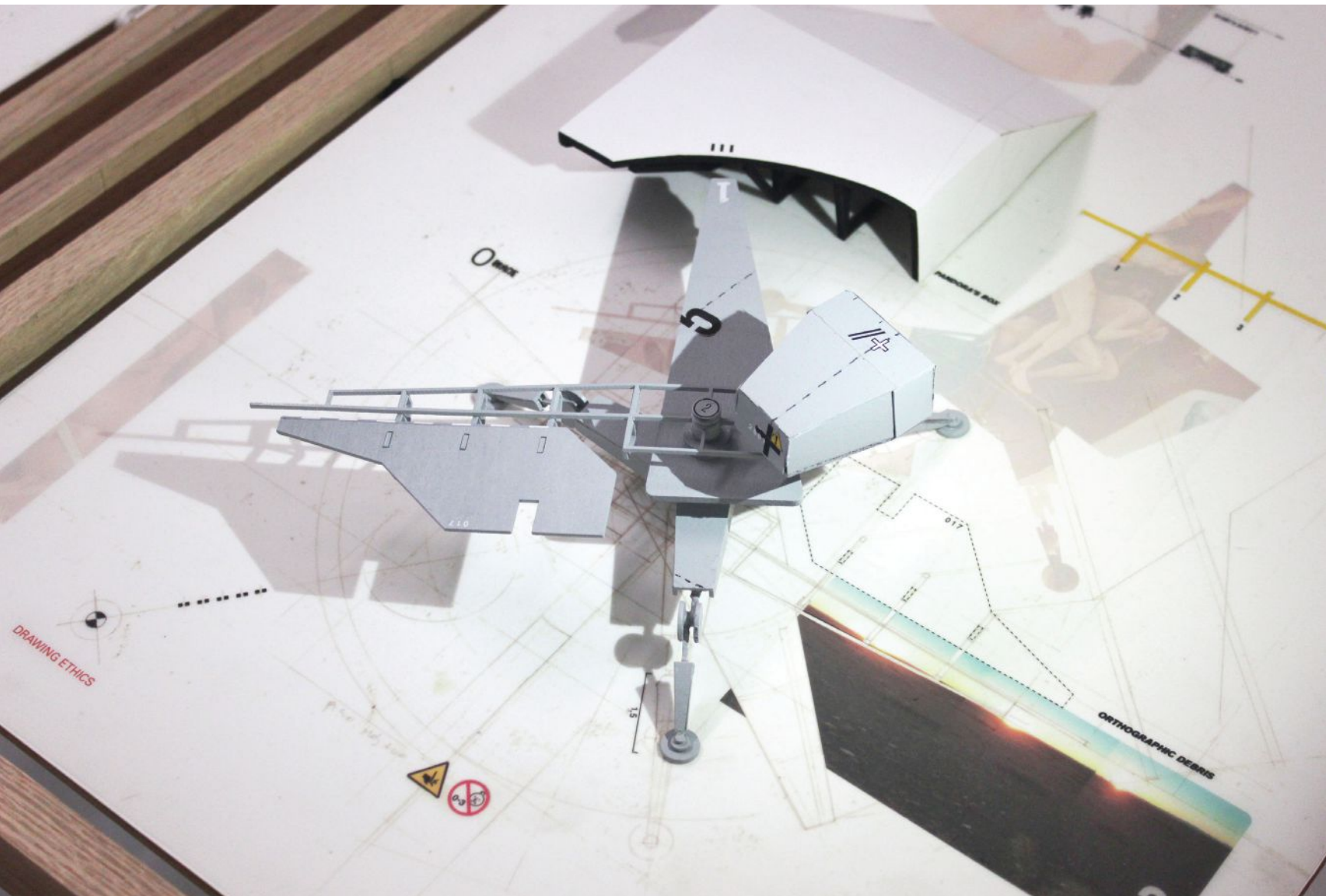
Previous Page: By Kati Albee

Above: By Diego Garcia





Above and Opposite: By Trevor Herman Hilker



“As far as representational techniques go, these are highly sophisticated.”

—Juror Jimenez Lai

Studio Prize

Hybrid Residential Infrastructures in Rio de Janeiro: Urban Occupations & Typological Corrections

Columbia University
Graduate School of Architecture, Planning and Preservation

Project Credits

Course: Hybrid Residential Infrastructures in Rio de Janeiro: Urban Occupations & Typological Corrections

School: Columbia University, Graduate School of Architecture, Planning and Preservation (GSAPP)

Level: M.Arch., without preprofessional degree (year three)

Duration: Spring 2016 semester

Project Site: Rio de Janeiro

Instructors: Juan Herreros (professor of architecture, and founder-partner, Estudio Herreros, Madrid); Ignacio G. Galán (adjunct assistant professor, and principal, IGG-Office for Architecture, New York and Madrid)

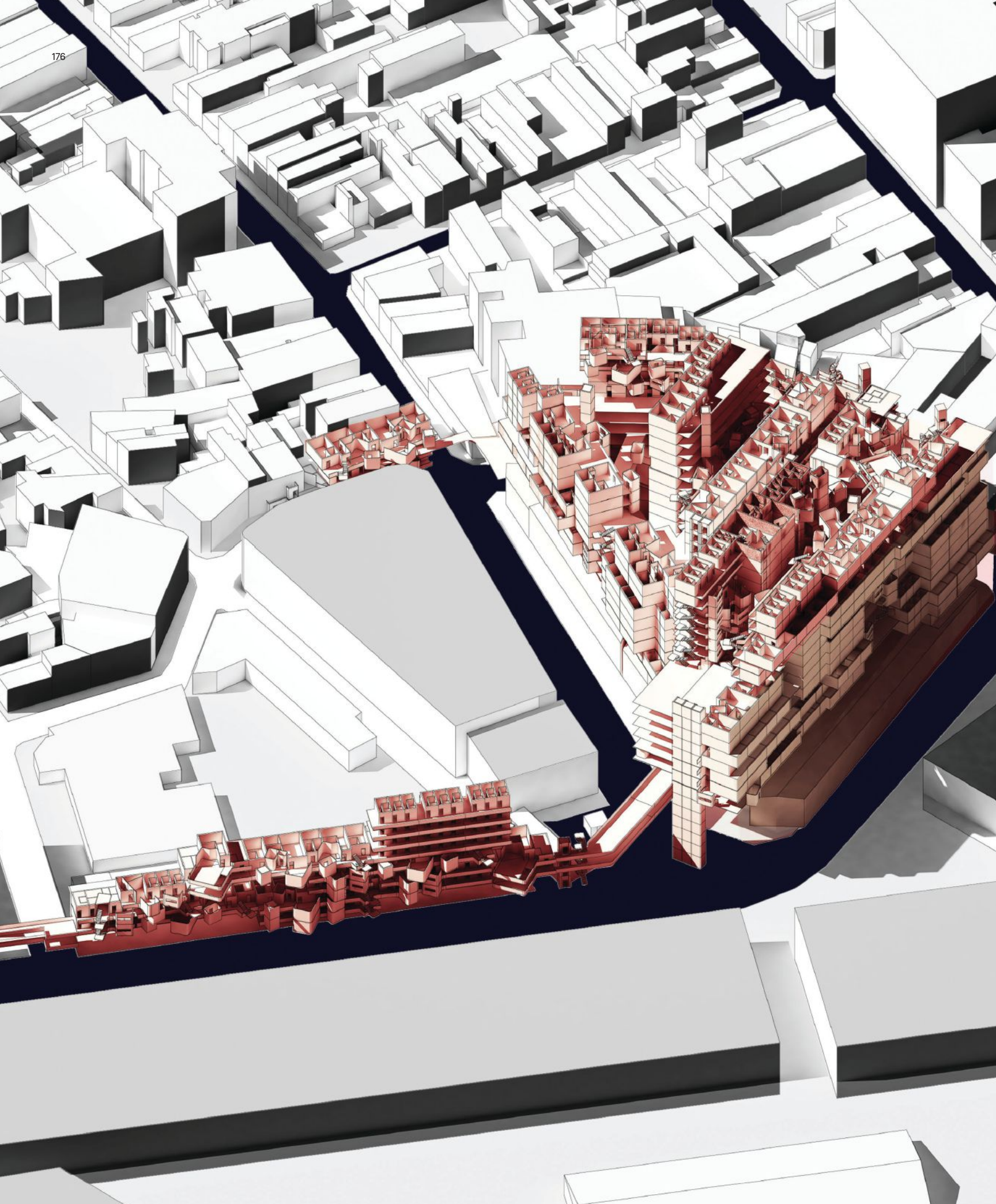
Students: Mohammed Khesroh, Songkai Liu, Sai Ma, Mohammad Sadegh Dadash, Jingshu Wang, Yi Wu, Angela Yang, Haochang Yu, Weiyao Zhang (submitted projects); Abdullah Edrees, Makenzie Leukart, Jaewoo Park

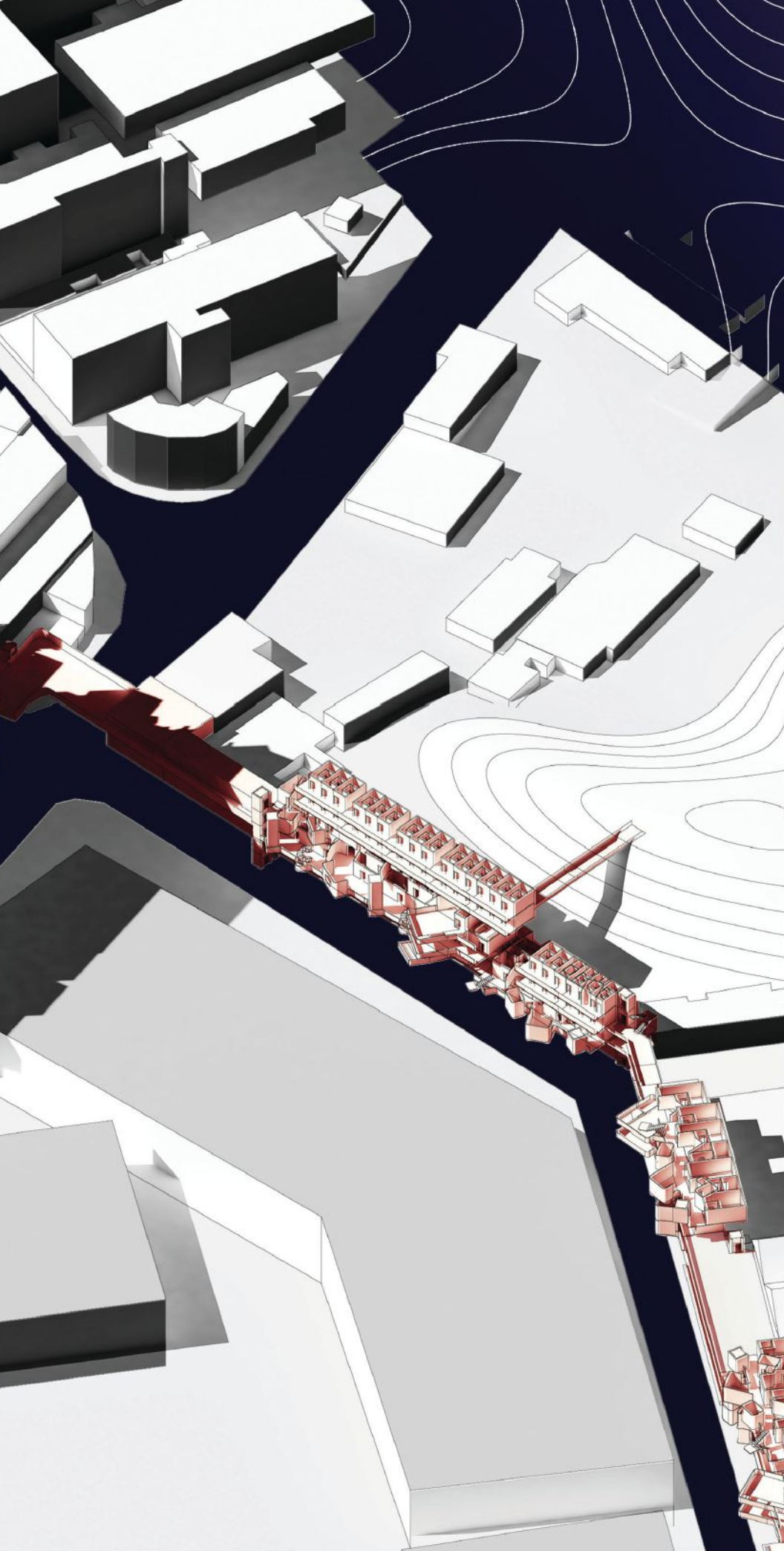
Collaborators: Pedro Rivera (director of GSAPP Studio X Rio de Janeiro)

Many studios start with an empty site, an effectively blank canvas (or CAD file). But not this graduate studio: Here, students adapt existing, commercial-ready buildings in a dense city center for residential use. “From a pedagogical point of view, I’m trying to put students far from the idea of creating buildings from scratch,” says professor Juan Herreros, who has taught the course since 2008 and co-taught this semester’s studio with adjunct assistant professor Ignacio G. Galán. Herreros wants students to understand cities as evolving sites shaped by economic and political power, and to see how architects can help tip the scales back to aid the underprivileged.

In the past, the studio has tackled sites in Manhattan’s Chinatown and Harlem; this past spring, it focused on the center of Rio de Janeiro, which was once riddled with favelas. In recent years, the city has been pushing many low-income residents out of their homes and renovating those sections for commercial tenants—spurred, in part, by preparations for the 2016 Olympics. Herreros wanted his students to think of ways to push back against that trend, and tasked them with developing proposals to renovate or expand existing buildings for affordable residential use. Students visited their project sites and met with community members to better understand their needs and the impact that an intervention in one building—adding more apartments, expanding ground-level retail and services—might have on the whole neighborhood.







Previous Page: By Angela Yang

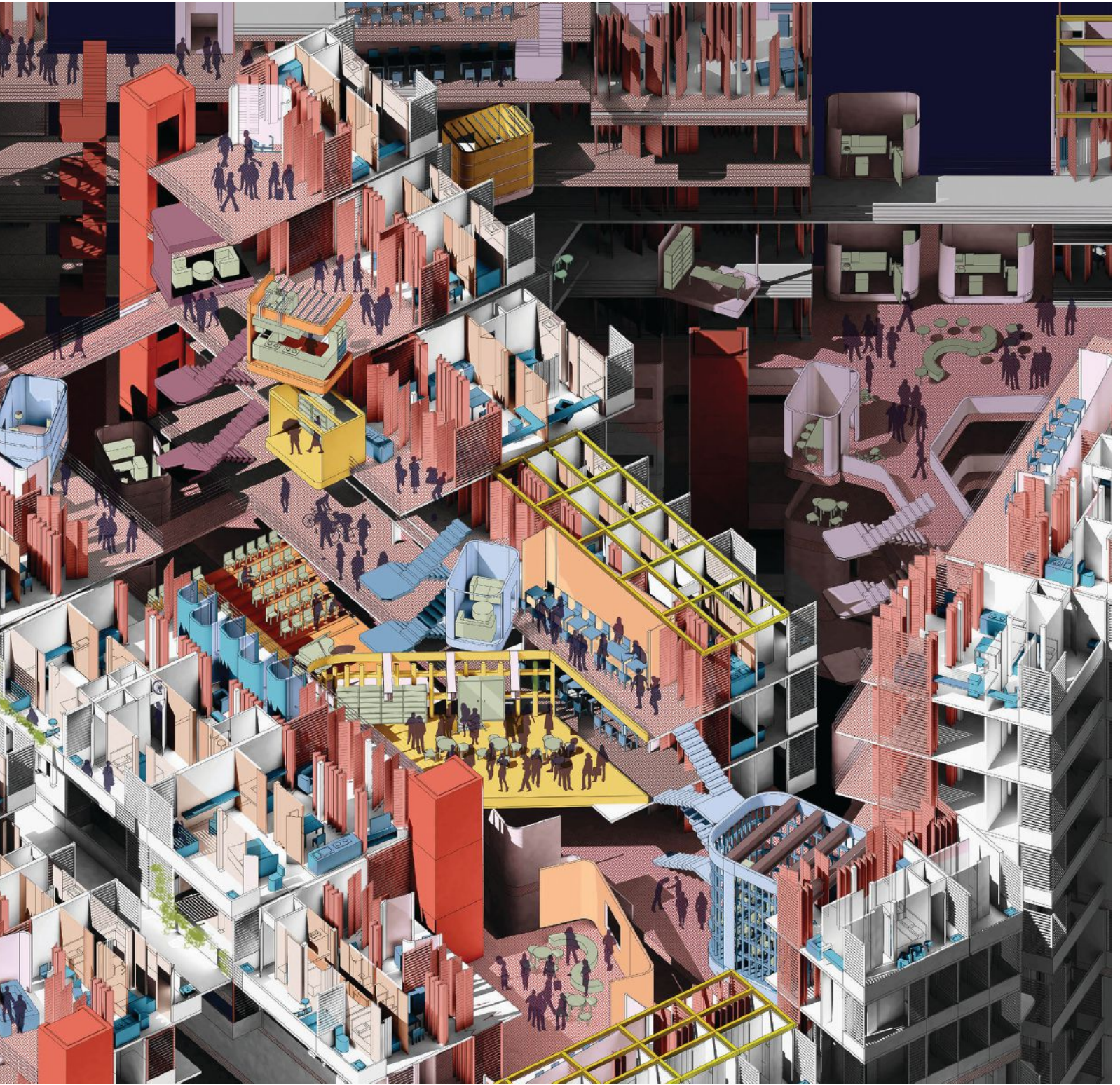
Left: By Sai Ma and Weiyao Zhang

“The number of studios based on a city has been growing exponentially, and many of them are nothing but a sociological, tourist view of exotic cities. So to address the question of densification—redensification, as they call it—I thought was good.”

—Juror Bernard Tschumi



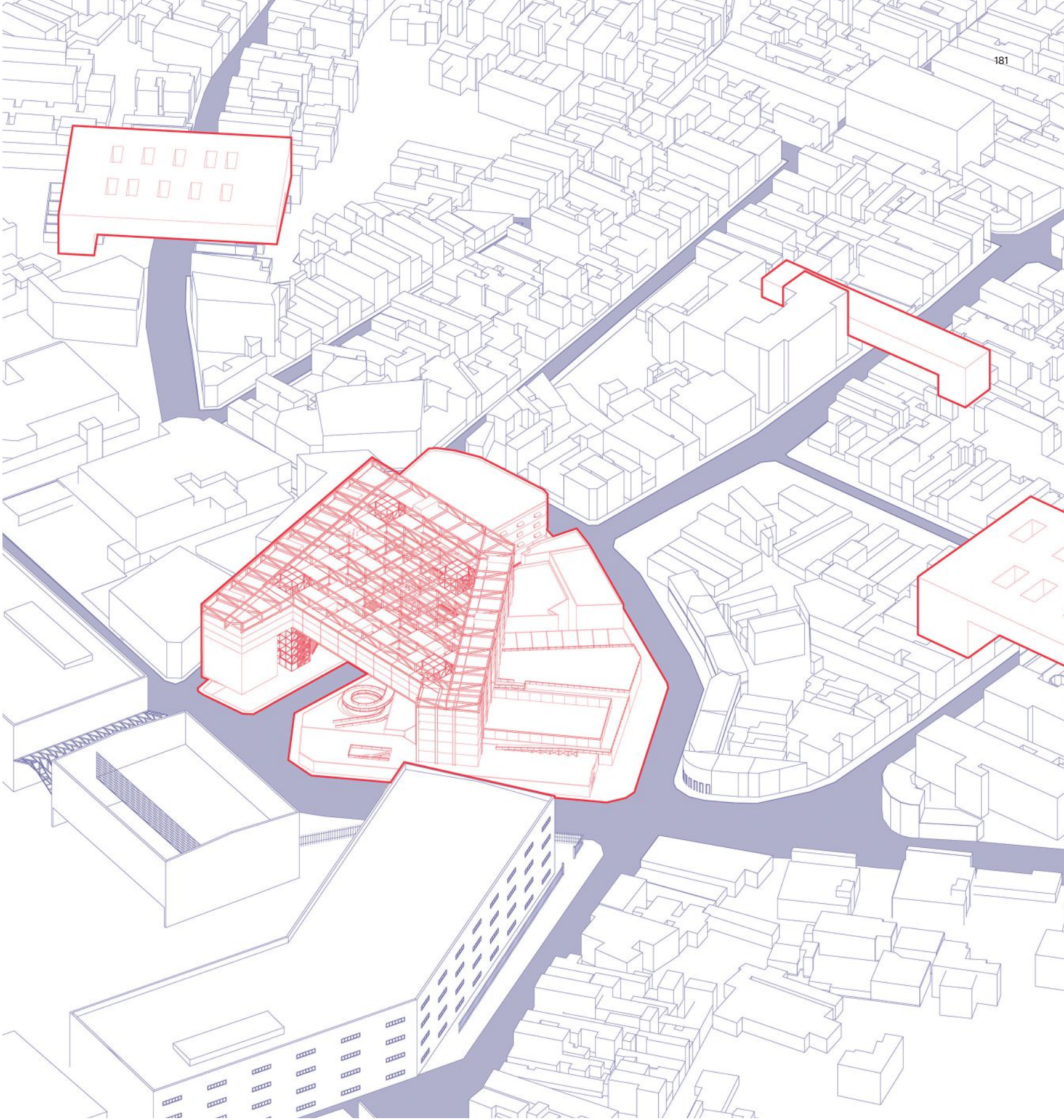
Above: By Sai Ma and Weiyao Zhang





Above: By Jingshu Wang and Yi Wu

Opposite: By Songkai Liu and Haochang Yu



Sloan Award

School Without Classrooms: Micro-Weather Futures of Education Technology

Columbia University
Graduate School of Architecture, Planning and Preservation

Project Credits

Course: School Without Classrooms:
Micro-Weather Futures of Education
Technology

School: Columbia University, Graduate
School of Architecture, Planning and
Preservation

Level: M.Arch., without preprofessional
degree (year two)

Duration: Spring 2016 semester

Project Site: New York City

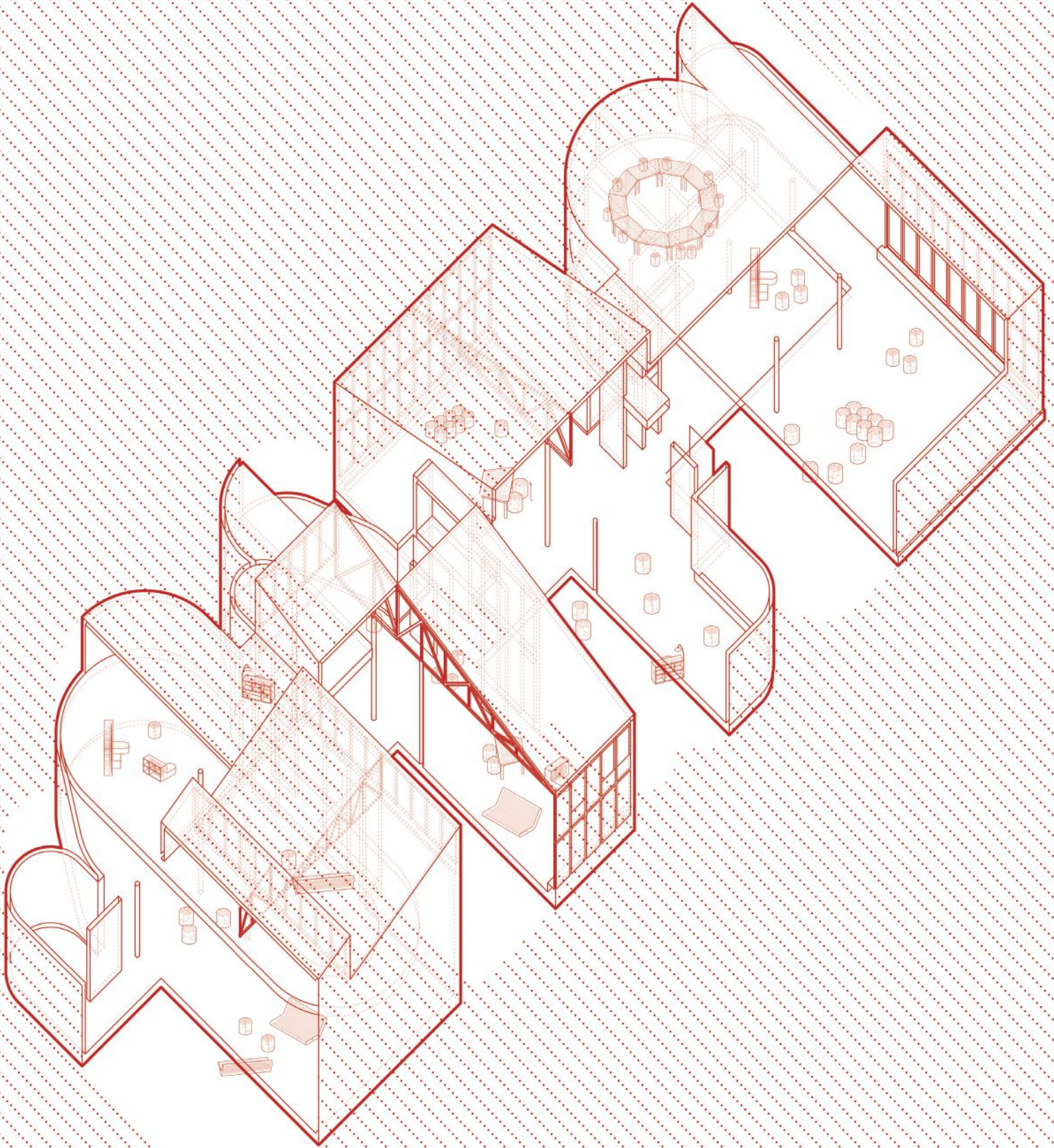
Instructor: Phu Hoang, AIA (adjunct
assistant professor, and director, Modu,
New York)

Students: Shu Du, Jonathan Izen, Alex Loh,
Julia Pedtke (submitted projects); Mark
Borrelitz, Jennifer Fang, Amanda Hibbs,
Ilijana Soldan, Andrew Weber, Kathy Xiao

Collaborators: Nicole Mater, ASSOC. AIA
(teaching assistant), Nadir Abdessemed
(climate engineer, Transsolar), Radley
Horton (climate scientist, Columbia
University Earth Institute), Adam Sobel
(climate scientist, Lamont-Doherty
Earth Observatory)

As the world comes to grips with the impending effects of climate change, technology is keeping pace and increasing our understanding of “indoor weather”—variations in temperature and humidity from room to room and floor to floor. School Without Classrooms, a new graduate course led by adjunct assistant professor Phu Hoang, AIA, examines the intersection of these environments. In this first iteration of the studio, he asked each student to design a primary school in the Brooklyn Navy Yard under one of three climate scenarios: extreme climate change, status quo warming trends, and a “fixed” climate that returned to normal, pre-climate change patterns. He encouraged students to envision schools in which traditional educational structures were broken down, designed around flexible zones that correspond as much to indoor weather patterns as they do to education demands.

Each student devised a comprehensive plan for a school, but many zeroed in on a particular aspect: one proposed radiantly heated furniture to create pockets of heat within a cooler, more energy-efficient building; another proposed breaking up the program into small structures. “The students were very good at taking emerging technologies and asking what they mean for architectural design,” Hoang says. A consistent theme in the proposals was the argument that digital technology could help reorient these spaces to be more efficient and humane, while also being more responsive to climate change and indoor weather pressures.





Onions



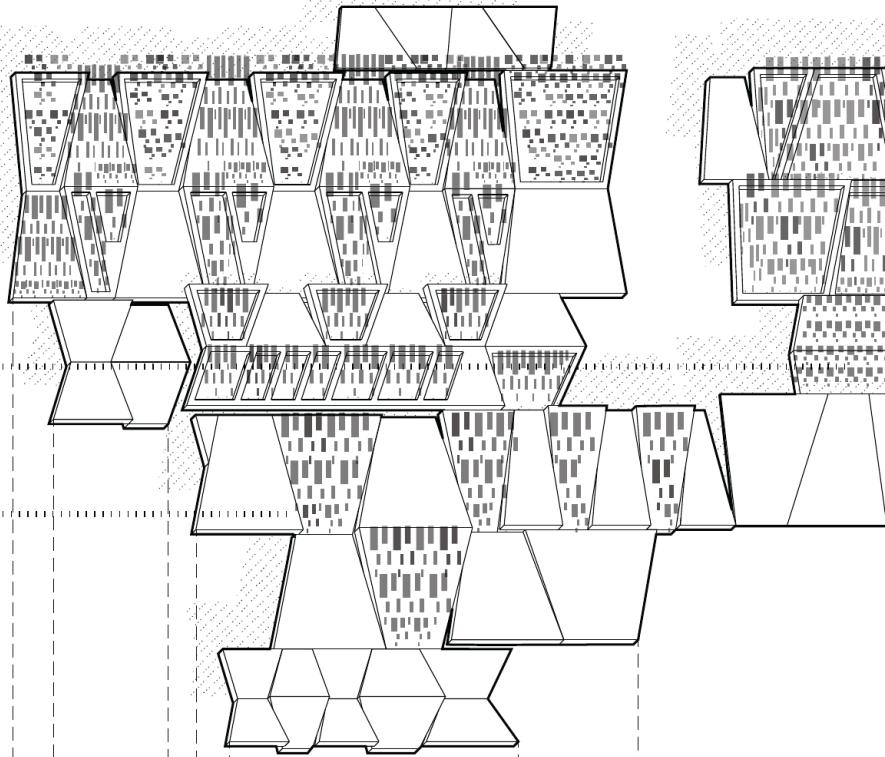
Carrots



Potatoes



Spinach



Previous Page: By Jonathan Izen

This Spread: By Alex Loh



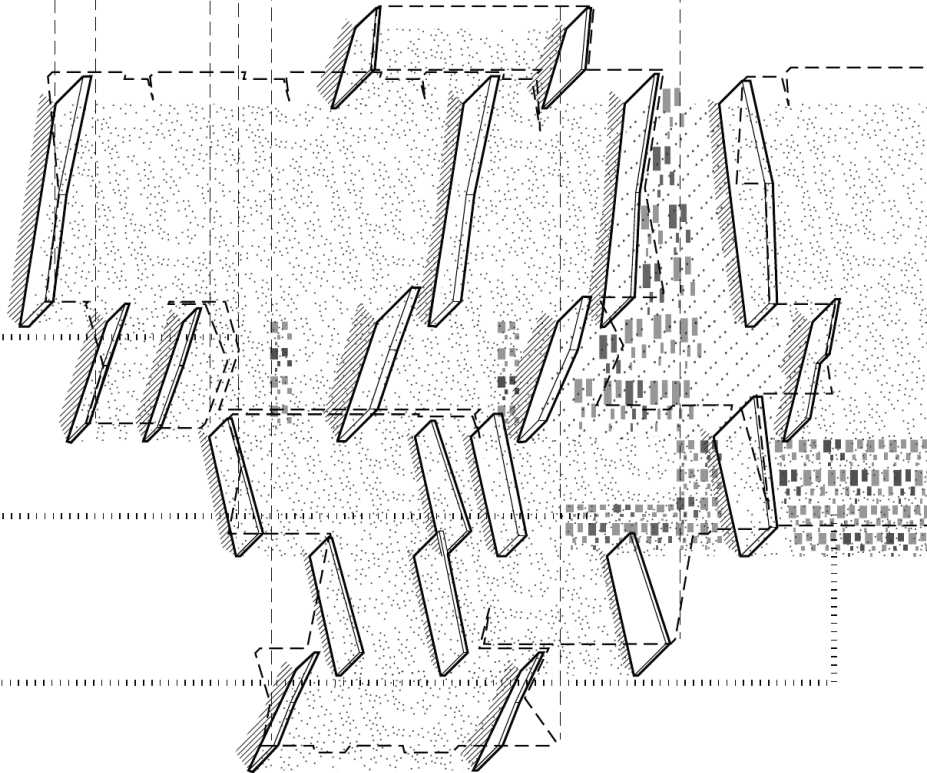
Cabbage

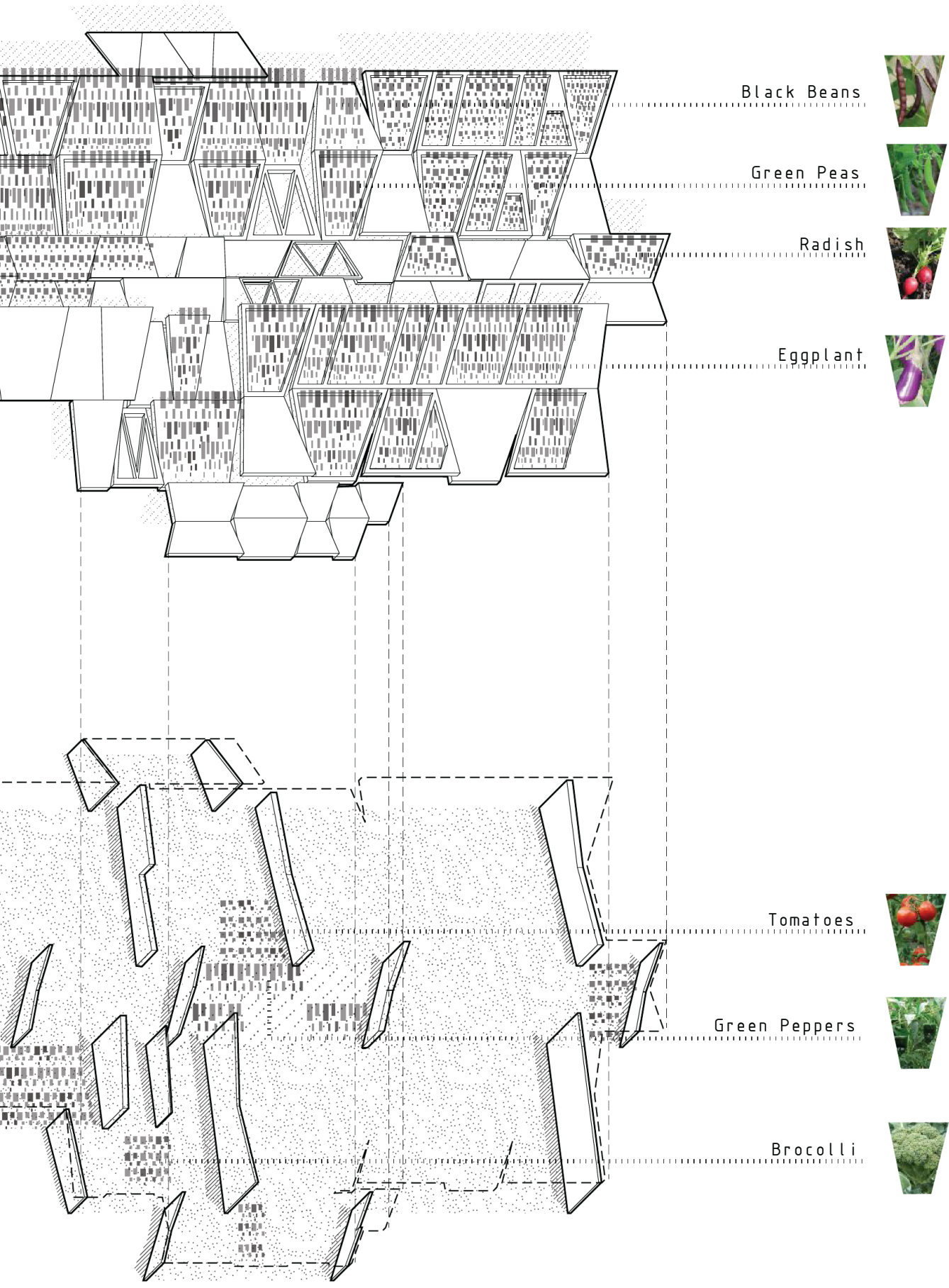


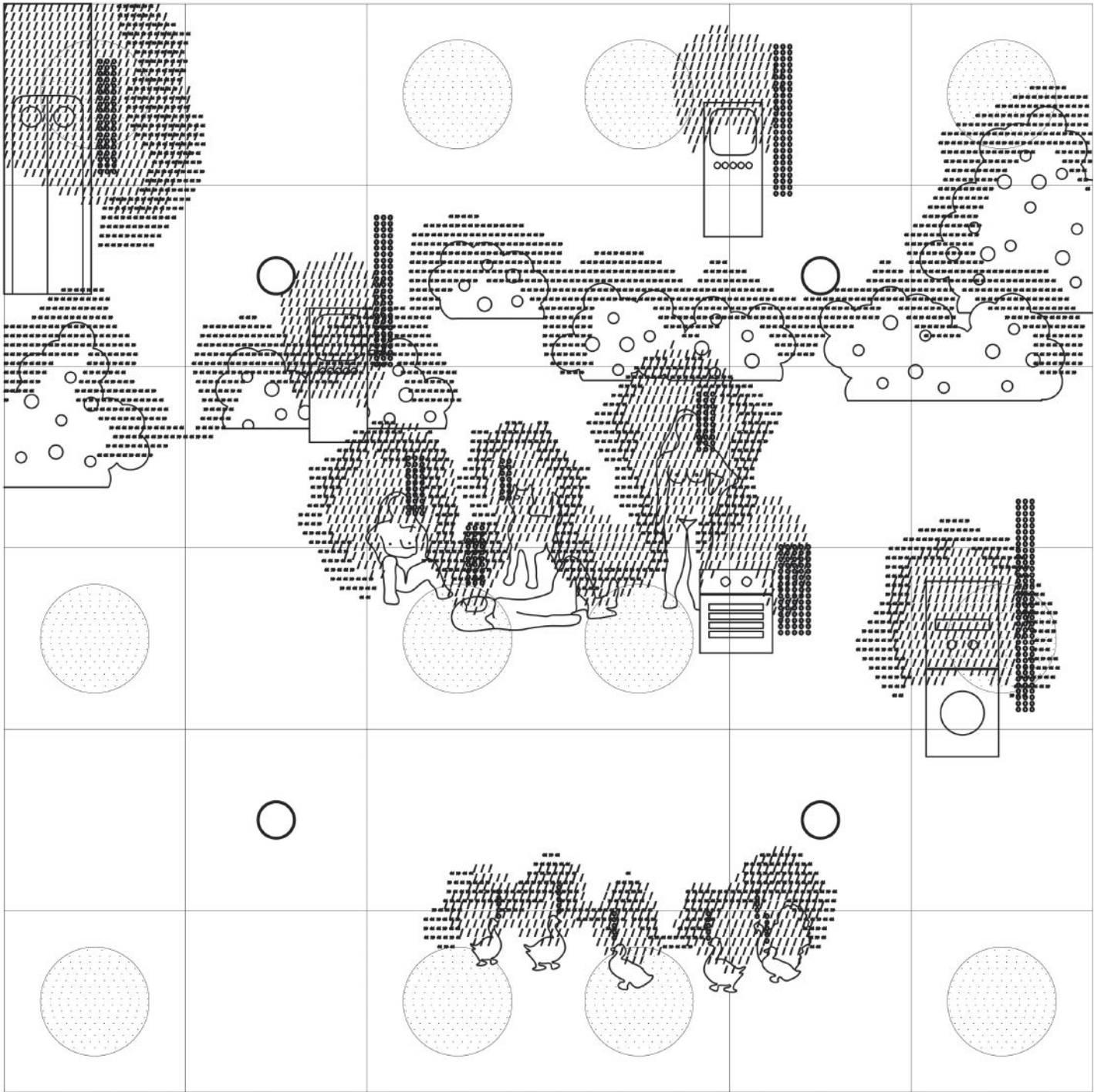
Strawberry



Lettuce





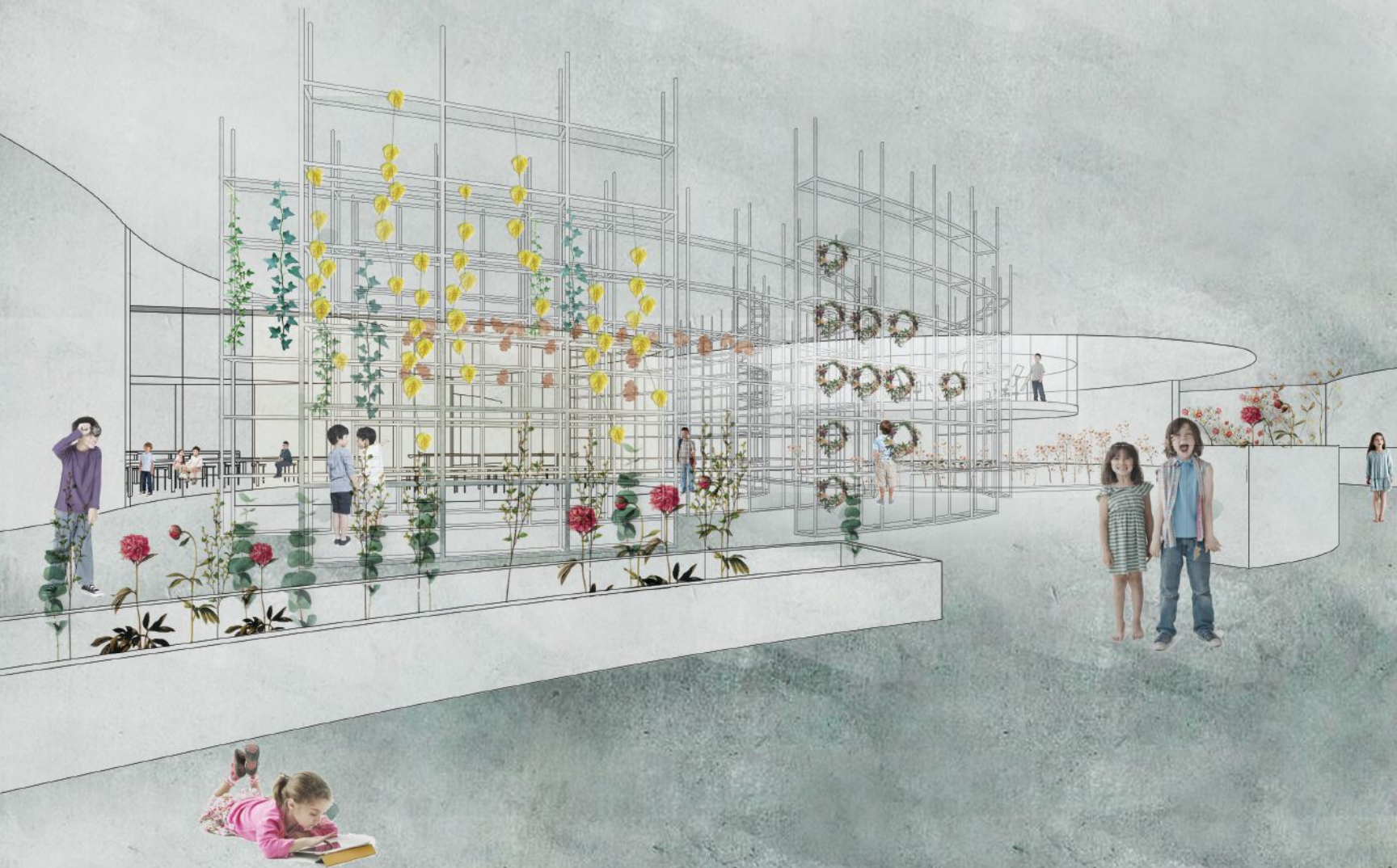


Above: By Julie Pedtke

Opposite: By Shu Du

“The way they explored
microweather in
architecture and indoor
urbanism was quite
interesting.”

—Juror Bernard Tschumi



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Residential:

Within View of Manhattan, Artist Rachel Whiteread's Concrete "Cabin" Freezes a Small-Scale Interior in Perpetuity

TEXT BY SARA JOHNSON

Although many of Rachel Whiteread's sculptures resemble architecture, these casts of interiors in plaster, concrete, or resin, are more like its antithesis—a physicalization of architecture's intangible negative space. Following casts of a parlor ("Ghost," 1990), a boathouse ("The Gran Boathouse," 2010), and a house ("House," 1993–94, now demolished), the London-based artist has installed "Cabin," an inside-out "New England-style shed," on the Hills, West 8's new landscape on New York's Governors Island. The permanent low-scaled sculpture contrasts with the city's skyscrapers—like Skidmore, Owings & Merrill's One World Trade Center—less than half a mile away.



TIMOTHY SCHENCK

> Read more about the Hills on Governors Island at bit.ly/GovernorsIslandHills.

Granny's Floral Meets Regimented Stripes on This Heirloom-Inspired Upholstery

TEXT BY SELIN ASHABOGLU

KnollTextiles creative director Dorothy Casonas gets personal with her design of Andissa, an upholstery whose curvaceous, tapestry-like florals counter the linearity of its corresponding stripes. Andissa is from the company's new Odyssey Collection, and was inspired by a rug that was hand-woven for the designer's grandmother in 1913. It contains 27 percent post-consumer recycled polyester, 61 percent cotton, and 12 percent nylon. The textile has an abrasion resistance of 40,000 double rubs on the Wyzenbeek scale, and is available in three colorways (night flower shown). knoll.com



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Klismos chair

Sitting Pretty: A History of the Chair and How it Became a Work of Art

TEXT BY ERIC WILLIS

A few years ago, Witold Rybczynski, HON. FAIA, reviewed Tadao Ando, HON. FAIA's new Dream Chair for ARCHITECT. It didn't exactly live up to its billing: A cutout in the seat dug into Rybczynski's tailbone. Then he sat in Hans Wegner's Shell Chair, also on display in the showroom. Now that—that was a chair. Why had Wegner succeeded when Ando had failed? The experience inspired Rybczynski to write *Now I Sit Me Down: From Klismos to Plastic Chair: A Natural History* (Farrar, Straus and Giroux, 2016). Illustrated by the author, the book chronicles the evolution of this humble object and the cultural and physiological factors that influenced its design.



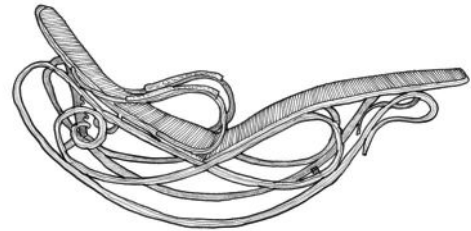
Monobloc plastic patio



Wegner's Valet chair



Mies' Tugendhat chair



Thonet's Schaukensonfa

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Shelton Marshall Residence
Kansas City, Mo.
El Dorado

TEXT BY CHARLES D. LINN
PHOTOS BY MIKE SINCLAIR



The Residential feature is proudly sponsored by Jenn-Air.



Unless you are a rock climber, you won't be entering the Shelton Marshall Residence from the street: That western end of this Kansas City, Mo., site is an outcrop of sedimentary rock peppered with fragments of an old foundation and dry-laid stone retaining walls. The geology is seemingly kept from bursting by a lattice of trees, shrubs, and vines so overgrown that the house's deeply set front porch, which cantilevers out more than 20 feet above the curb, is barely visible.

Josh Shelton, AIA, a principal at Kansas City firm El Dorado, and Destiny—his wife, design collaborator, and horticultural muse—bought the land in 2010 when they moved into a house across the alley at the east end of the site, and it served as a backyard—complete with tire swing and chickens—for their family until construction began in 2012. “The experience informed our decisions, seeing the seasonal transition of the plants, and the way the air flows, and the light,” Shelton says. “It makes you think of how you shape your house, and can create outdoor rooms in an urban context.”

That's because, despite the raw cliff at one end, this house is not in rural Missouri, but rather in the north end of Westside, a century-old urban neighborhood that retains a bucolic feel. Overlooking downtown Kansas City to the east and a freight yard to the west, tightly packed, narrow lots contain a bit of everything: Victorians, brick row houses, wood bungalows, new bistros in old corner stores, light-industrial buildings, and oversized shelter-magazine-cover wannabes.

Entering from the alley at the east end of the site, one could be forgiven for thinking the house isn't built yet. As you walk past a black-stained cedar-clad garage and studio, you find yourself in a meadow of wildflowers and native grasses. But as the eyes focus, you realize that what you're looking at is actually the green roof of a three-bedroom, 2,000-square-foot house a story down, its sleeping and kitchen-dining wings bridged by the living room.

The house's U-shaped form embraces a 15-by-15-foot terraced entry courtyard, which is bound on three sides by oversized sliding glass doors. The interior is finished in light-colored beech with white walls, and every room in the remarkably open house has abundant access to daylight. Fresh air, carried by convection up the west slope of the site, is filtered by the trees and flows in through a second wall of sliding glass doors to the cantilevered porch.

“We're next to one of the smallest houses on the block, and that guided our decision to keep the house low and to expand our house using outdoor rooms instead of building up,” Shelton says. “Studying the way your house will affect theirs is so important. These are the people you are going to be living with.”

Upper-Level Plan



Lower-Level Plan

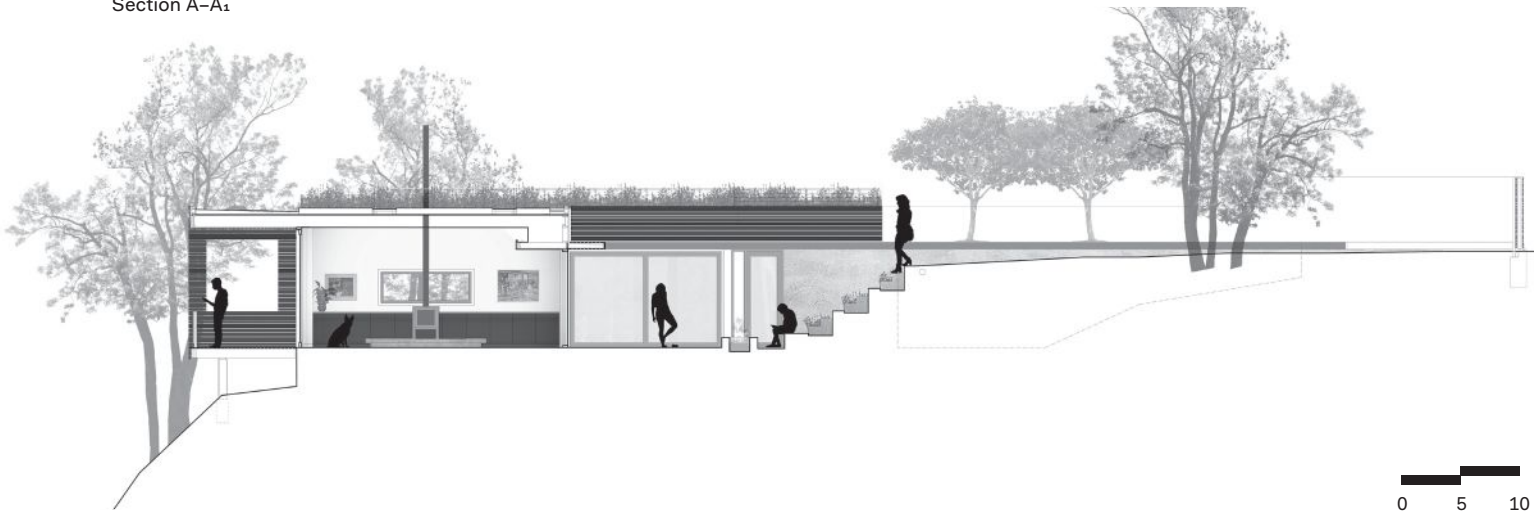


Opening Page: View of green roof and sunken courtyard from east, with garage and studio volume to left

Opposite: View of cantilevered front porch from west



Section A-A.





Living room interior, with view of terraced, landscaped courtyard and studio-garage pavilion





Above: Dining area, with view out to cantilevered porch at left

Right: Kids' bedroom with custom storage and loft bed

Project Credits

Project: Shelton Marshall Residence, Kansas City, Mo.
Client: Josh and Destiny Shelton
Design Architect: El Dorado, Kansas City, Mo. · Josh Shelton, AIA (principal-in-charge); Steve Salzer, AIA (project architect)
Structural Engineer: Bob D Campbell & Co.
Mechanical/Electrical Engineer: PKMR Engineers
General Contractor: Josh Shelton
Landscape Designer: Destiny Shelton
Lighting Designer: El Dorado
Custom Carpentry: Kelley Construction
Size: 2,000 square feet (main structure), 500 square feet (detached structure)
Cost: Withheld





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Editorial:

Is It Me, or Is PoMo Making a Comeback?

I caught the first inklings of an '80s revival more than a decade ago, when arty club acts like Fischerspooner, Miss Kittin, and the Scissor Sisters started riffing on classic New Order. Social media has proven fertile ground for '80s-philias, especially the visual platforms such as Pinterest, Flickr, and Tumblr. Tap around and you'll find parachute pants galore, GIFs from *Tron* and *Blade Runner*, Nathalie Du Pasquier prints, and renderings of Peter Eisenman, FAIA's Roman numeral houses. At this point, enthusiasm for the era has reached the centers of popular culture. Netflix's latest hit, the Duffer Brothers' sci-fi series *Stranger Things*, is a forthright ode to the work of John Carpenter, Brian De Palma, Ken Russell, Steven Spielberg, and other auteurs of the day. The '80s are back, my friends. And Postmodernism is coming along for the ride.

Some architects will shudder at the prospect of revisiting PoMo, however glancingly. After all, many dismiss the movement as an unhealthy deviation from Modernism's long march of progress. In 2001 (the year the Scissor Sisters got together) my colleagues and I at *Architecture* magazine did a "Where are they now?" issue about '80s greats and put Robert Venturi, FAIA, on the cover, with the quote, "I am not now and never have been a Postmodernist." Venturi chose his words carefully, echoing the boilerplate repudiation of Communism so many made during the Red Scare of the 1950s. These are strong words, especially coming from a man regularly described as the father of Postmodernism. When the Pope turns apostate, you can bet the faith is lost.

But Postmodernism didn't go away entirely, it just started wearing a lot more black. Rem Koolhaas, HON. FAIA, is an obvious case in point. His first freestanding building in the U.S., the 2003 McCormick Tribune Campus Center at the Illinois Institute of Technology, plays with the conventions set by Ludwig Mies van der Rohe just as puckishly as Venturi and Denise Scott Brown, HON. FAIA, tweaked the American commercial

vernacular. The difference was that Koolhaas stuck to sanctioned modernist references: I-beam good, billboard bad.

Koolhaas raised a generation—Bjarke Ingels, Jeanne Gang, FAIA—that is equally beholden to Postmodernism, but perhaps less squeamish about it. PoMo influences were all over last year's Chicago Architecture Biennial, in work by emerging talents Andreas Angelidakis, Jimenez Lai, Norman Kelley, Onishimaki + Hyakudayuki Architects, and others. And at just about any architecture school these days, students borrow freely from Venturi and Scott Brown, Michael Graves, Arata Isozaki, HON. FAIA, Aldo Rossi, James Stirling, and other PoMo masters.

Where established architects may feel uneasy about having participated in a movement that fell so spectacularly out of fashion, younger designers and students can approach Postmodernism with an open mind. And that's good. Because Postmodernism has a lot to teach them, and all of us. As Charles Jencks' famous flowcharts illustrate, a happy cacophony of -isms were born and flourished under the big tent of Postmodernism: critical regionalism, traditionalism, New Urbanism, deconstructivism. And if there's anything the world needs now, it's to embrace the values of plurality and difference.



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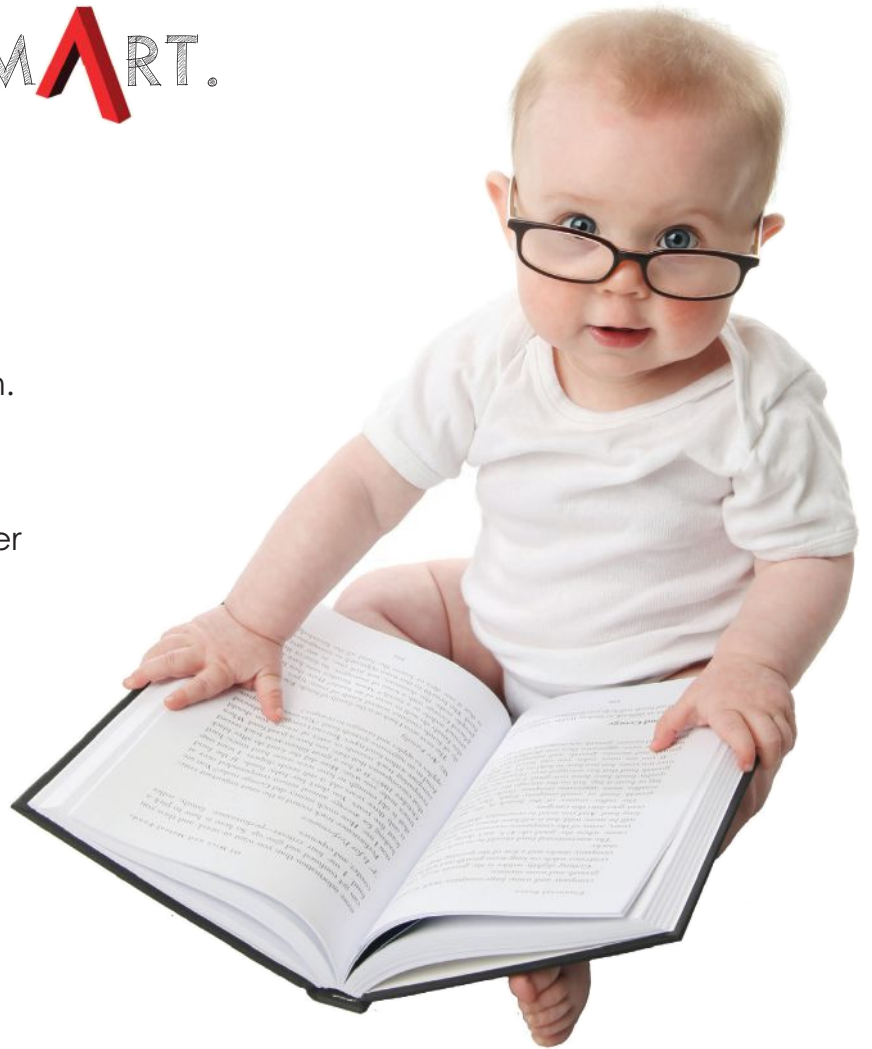
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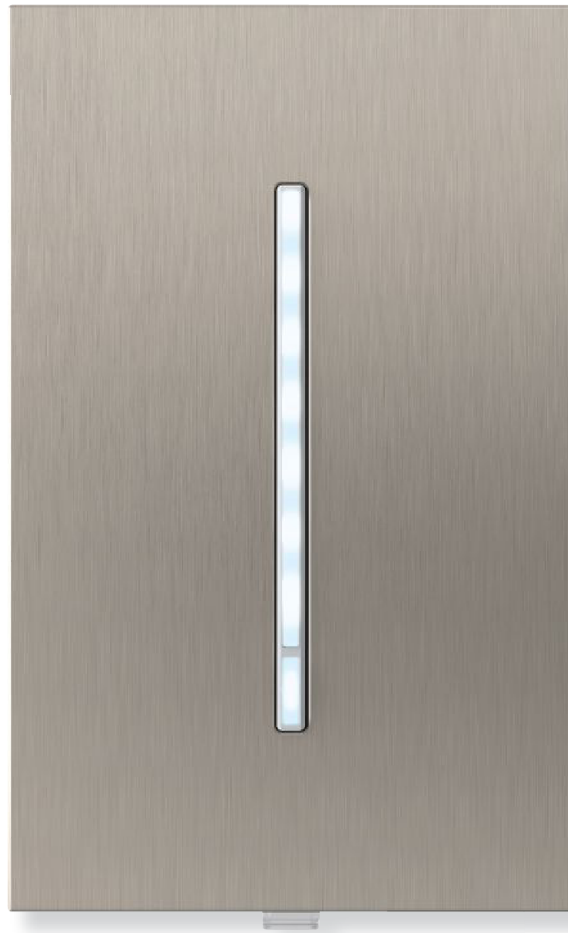
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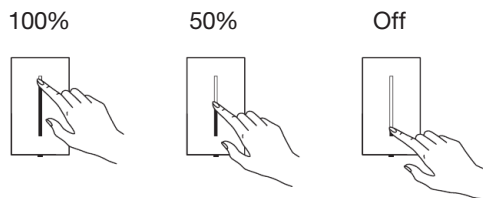
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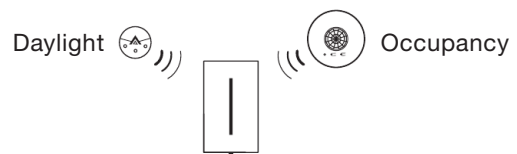


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