

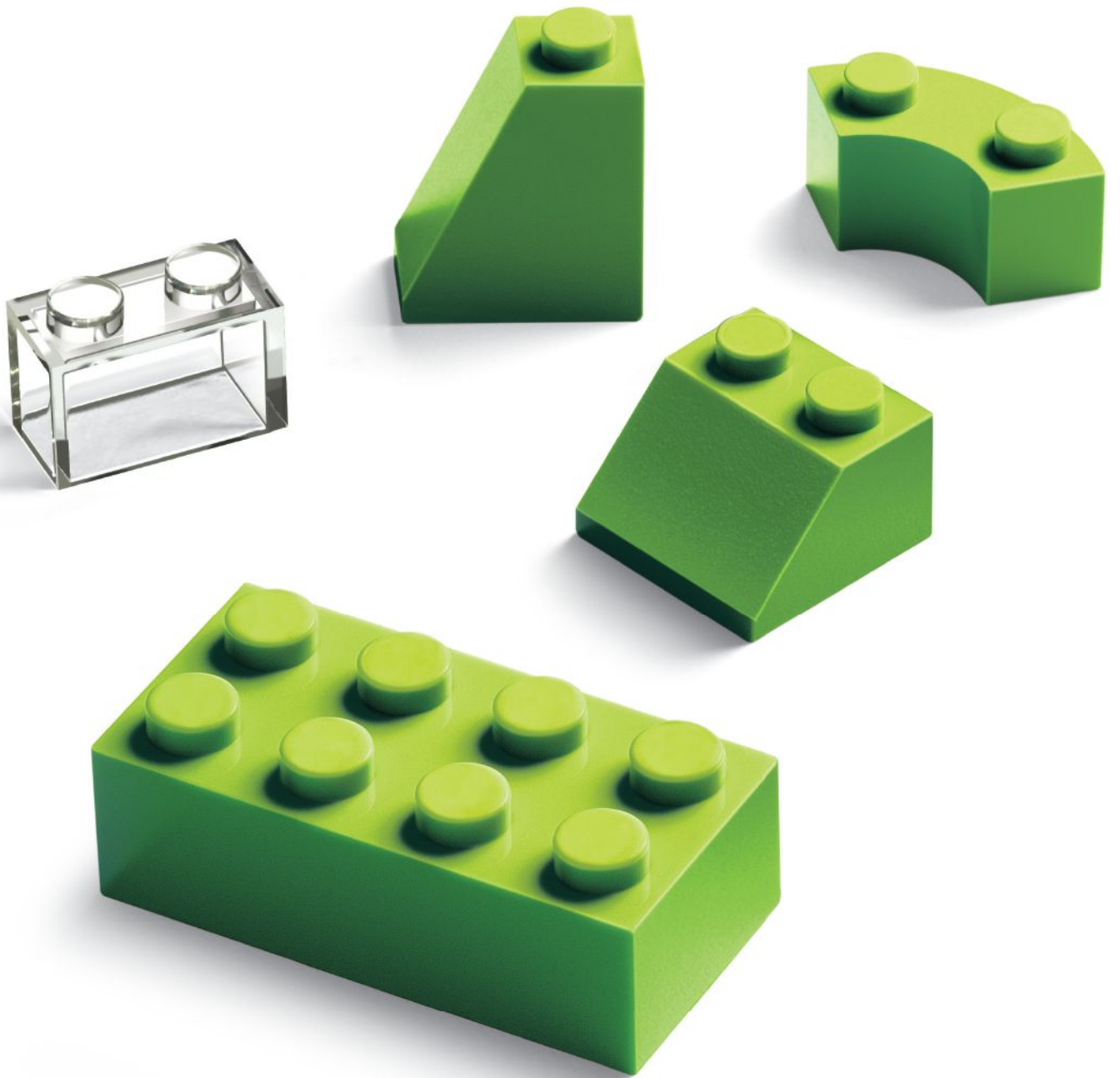
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Learning from Machine Learning
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An Emerging All-American
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The Spirit of '68

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Whitney M. Young Jr.'s
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architecture and civil
rights has lost none
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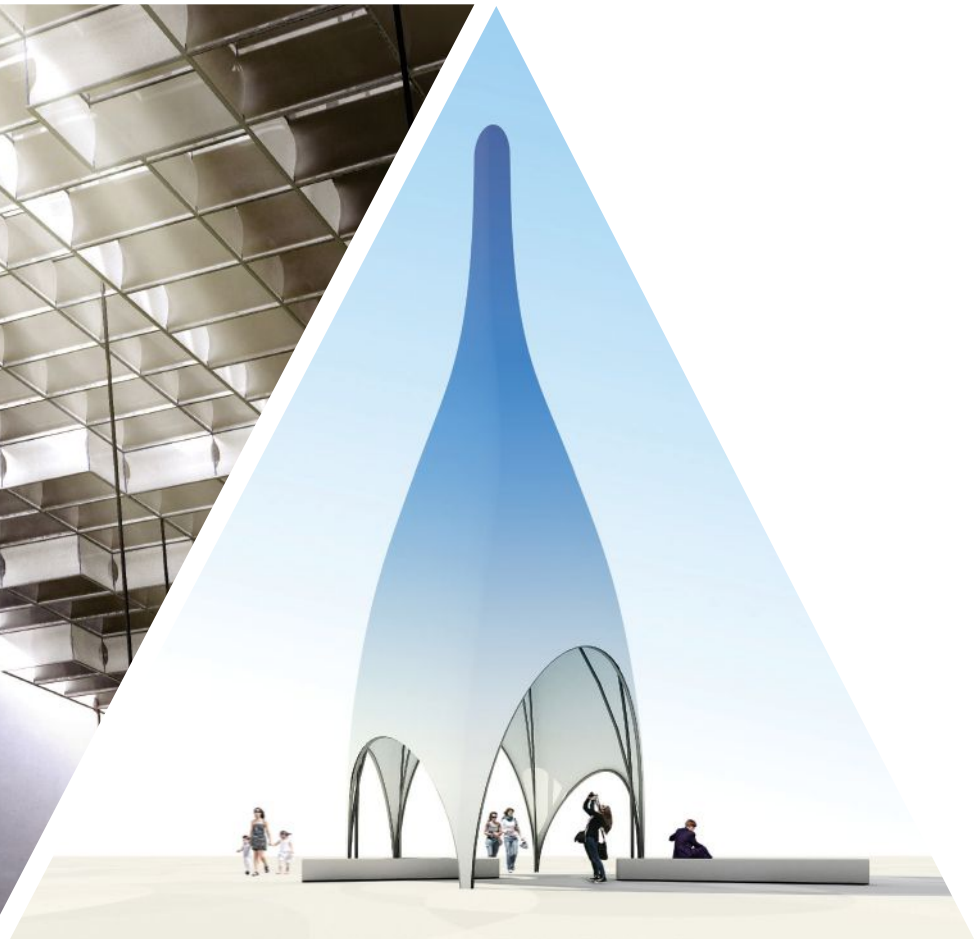
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Page Turner

Queens' new **Elmhurst Community Library** serves one of the most diverse and vibrant communities in New York. Designed by **Marpillero Pollak Architects**, the LEED Silver-rated facility features two structural glass-encased reading rooms that allow light to flood in during the day and offer glimpses of the state-of-the-art library setting at night. Erected by **W&W Glass**, its glazed features have become beacons for the community, drawing its knowledge-hungry members to the wealth of information within. Read more about it in **Metals in Construction** online.

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Shaking Bad

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

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DEADLINES

We anticipate sending out the survey in early June. Check the architect50.com website for a more detailed schedule or for more information about the program.

DAY 1 KEYNOTE

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Postcolonial Utopianism

With "Bodys Isek Kingelez: City Dreams," New York's Museum of Modern Art mounts the first U.S. retrospective of the late Congolese artist's vibrant models of imagined buildings and cityscapes. Kingelez (shown, with his *Étoile Rouge Congolaise*) created these "extreme maquettes" from paper, packaging, and other found objects; each embodied his hope for the future of postcolonial urban environments throughout Africa, and served as a counterpoint to his experience in the haphazard exponential growth of Kinshasa, Congo. "City Dreams" runs May 26 through Jan 1, 2019, with catalog text by David Adjaye, HON. FAIA. —KATIE GERFEN

ANDRÉ MAGNIN

> To read more about and see more images from "Bodys Isek Kingelez: City Dreams," visit bit.ly/CityDreamsMoMA.

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Koning Eizenberg Architecture's Pico Branch Public Library in Santa Monica, Calif., (shown) is one of six winners of the 2018 AIA/ALA Library Building Awards, a partnership between the American Institute of Architects and the American Library Association. "This is a brilliantly creative design that is truly original—it fits in well with the context, brings unusual forms, materials, and patterns to the exterior, and creates an interior that is dynamic, fun, and filled with changing light patterns," the jury noted. The jury also recognized projects in Oklahoma, Texas, Massachusetts, Nebraska, and Maryland. —SARA JOHNSON

> See the rest of the winners of the 2018 AIA/ALA Library Building Awards at bit.ly/2018LibraryAwards.

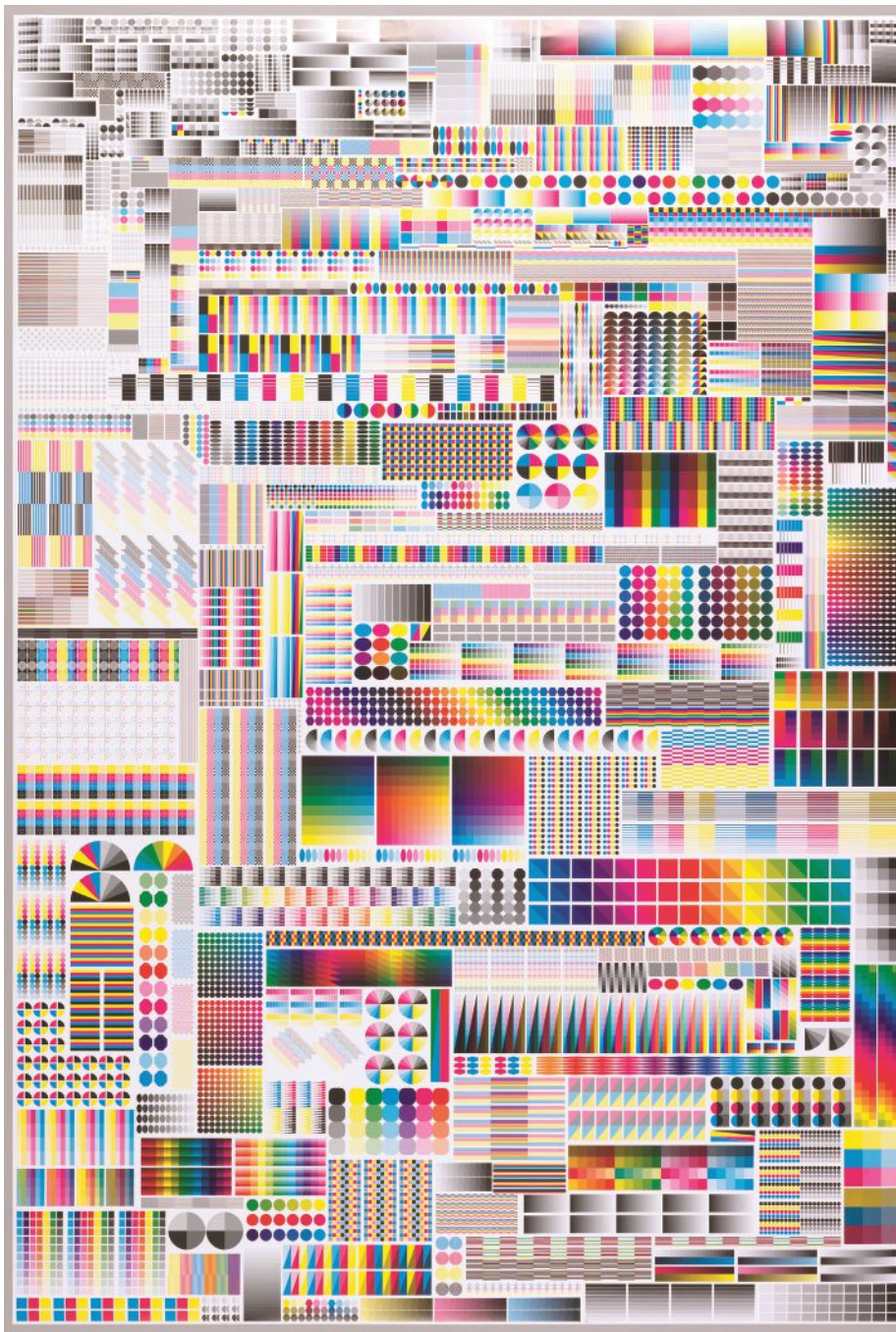
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Ever balked at the small-talk standard: “What’s your favorite color?” Fear not, because the Cooper Hewitt, Smithsonian Design Museum’s “Saturated: The Allure and Science of Color,” on view from May 11 through Jan. 13, 2019, can help untangle the mysteries of how we use and perceive different hues. Featuring 190 artifacts—including Sir Isaac Newton’s color theory texts, the riotous turquoise of Verner Pantone’s *Decor 1 Series* (1969), and Fanette Mellier’s *Specimen* poster (2008, shown)—the exhibition explores the optics, creation, and commercial appeal of color, and the ways new technologies are sparking innovation. —KATIE GERFEN

> To read more about and see more images from “Saturated: The Allure and Science of Color,” visit bit.ly/CooperHewittSaturated.

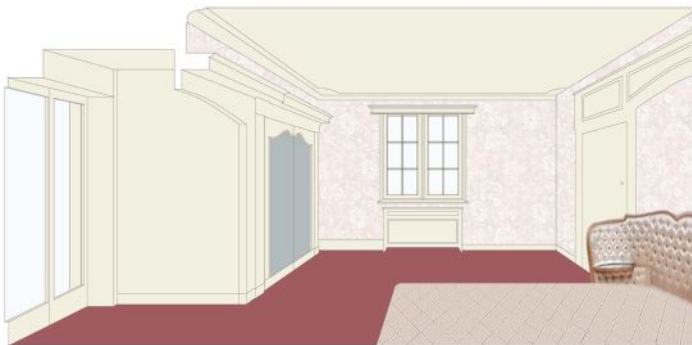
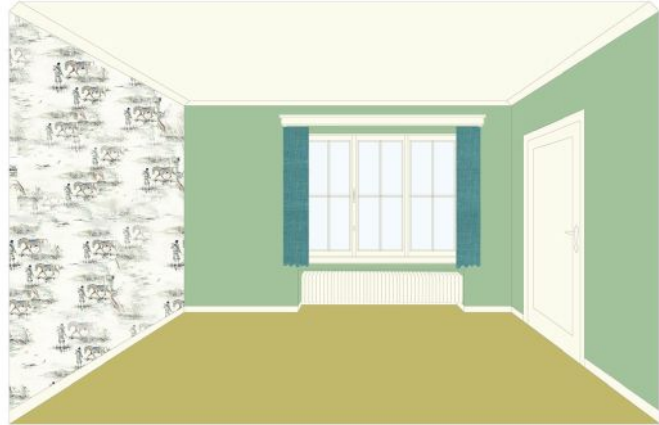
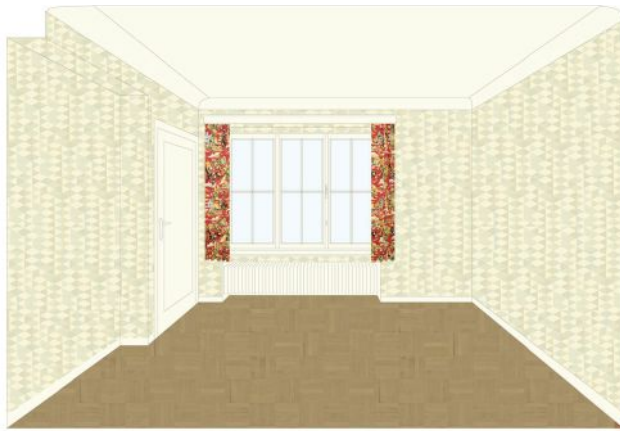
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Aude-Line Dulière Wins the 2018 Wheelwright Prize

The Harvard University Graduate School of Design has awarded this year's Wheelwright Prize, a \$100,000 travel fellowship for early-career graduates of architecture programs, to architect and alum Aude-Line Dulière for her proposal, "Crafted Images: Material Flows, Techniques, and Uses in Set Design Construction." Combining her work in architecture and in movie production, Dulière plans to examine material reuse in film sets, with the idea that these lessons can be applied to the construction industry (collages for *Duelles* [2018], shown). She intends to study sets and studios in India, Nigeria, and the U.K., among others. —SARA JOHNSON

> Read more about this year's Wheelwright Prize competition at bit.ly/2018Wheelwright.

The TGP logo is located in the top right corner of the advertisement. It consists of the letters 'TGP' in a white, bold, sans-serif font, set against a solid red rectangular background.A large, stylized number '1' is positioned on the left side of the advertisement. The top part of the '1' is yellow, and the bottom part is orange. To the left of the top part of the '1' is a yellow hash symbol '#'. The entire graphic is set against a black background that forms a large, irregular shape pointing towards the center of the page.

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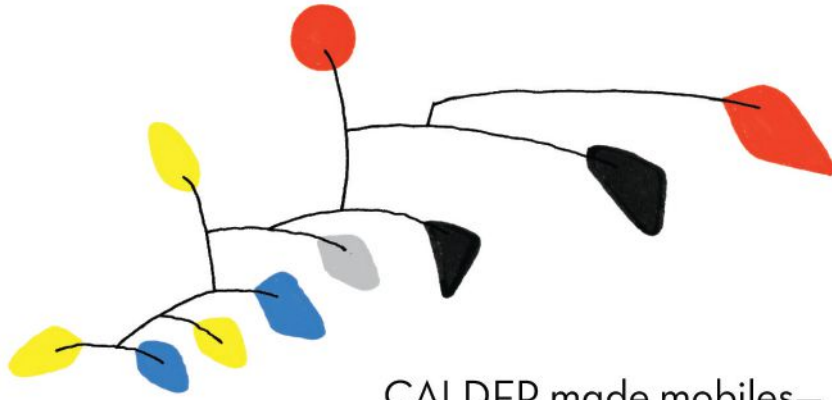
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A Big Gift for Little Architects

Catering to young children of architects and their parents alike, book publisher and author Julie Merberg teamed up with French illustrator Aki to produce an architecture-themed ABC book, *Baby's First Eames* (Downtown Bookworks, 2018). Playful illustrations of modern designs celebrate iconic chairs such as Ludwig Mies van der Rohe's Barcelona (for *M*) and Eero Saarinen's Tulip (for *T*), Jørn Utzon's Sydney Opera House (for *U*), and dozens more. Each spread is accompanied by a cat, looking unimpressed. Don't be surprised when baby's first word is Marimekko (also for *M*). —SARA JOHNSON

> See more images from *Baby's First Eames* at bit.ly/BabysFirstEames.

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AIA Grants \$100,000 for Research

In its 11th year, the AIA's Upjohn Research Initiative provides up to six grants of \$15,000 to \$30,000 for projects that "will advance the future of architectural design and practice." One of this year's four winners, Keith Van de Riet, ASSOC. AIA, an assistant professor at the University of Kansas, plans to produce a mangrove-inspired seawall prototype (shown) as part of a study of biodiverse passive systems for ecologic resilience. The other winners are a study of the impact of biophilic learning environments on academic performance; a microalgae façade prototype; and the development of 3D-printed prefab concrete panels. —KATHARINE KEANE

> *Read more about the latest Upjohn Research Initiative grantees at bit.ly/UpjohnGrants.*



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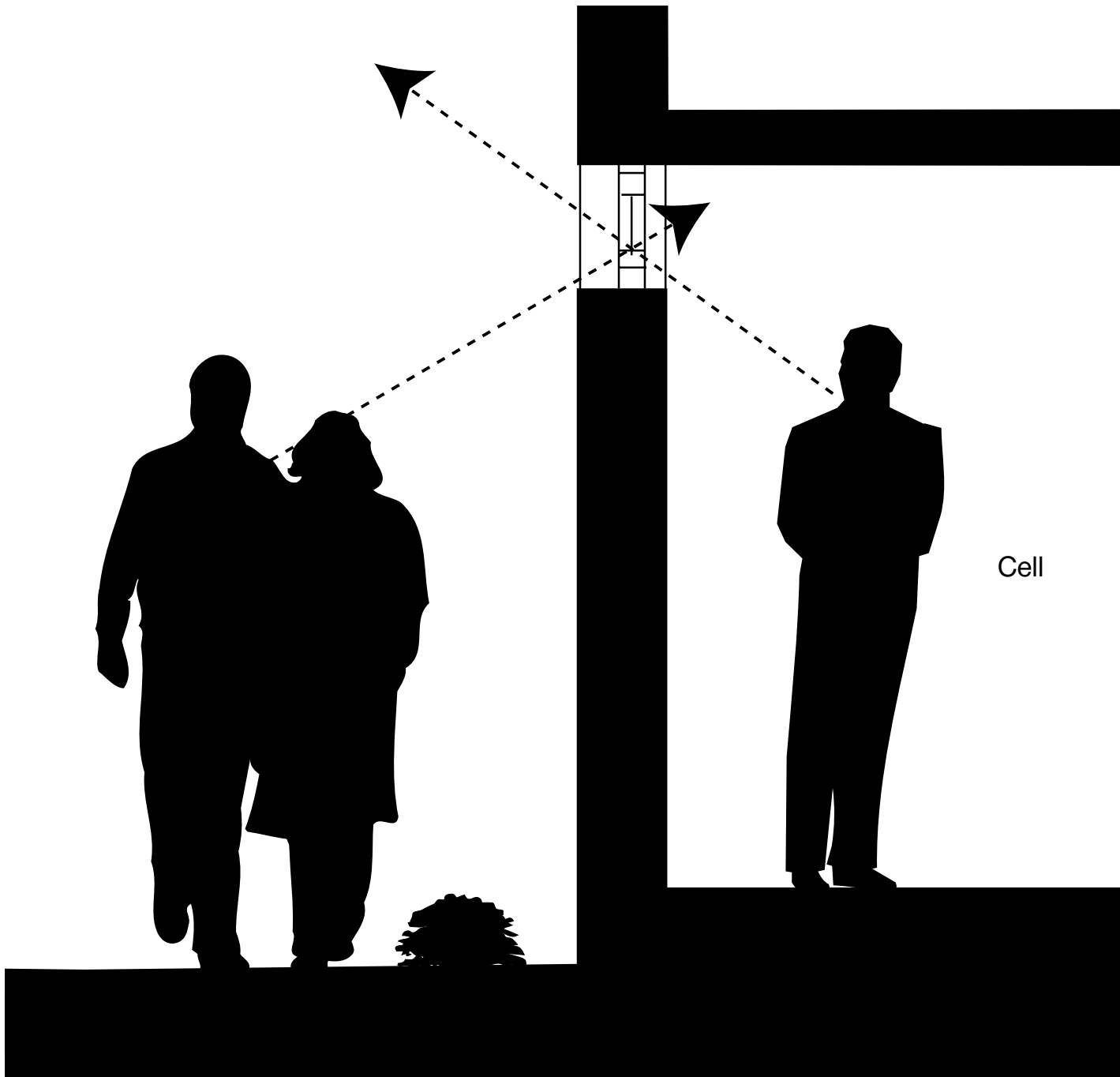
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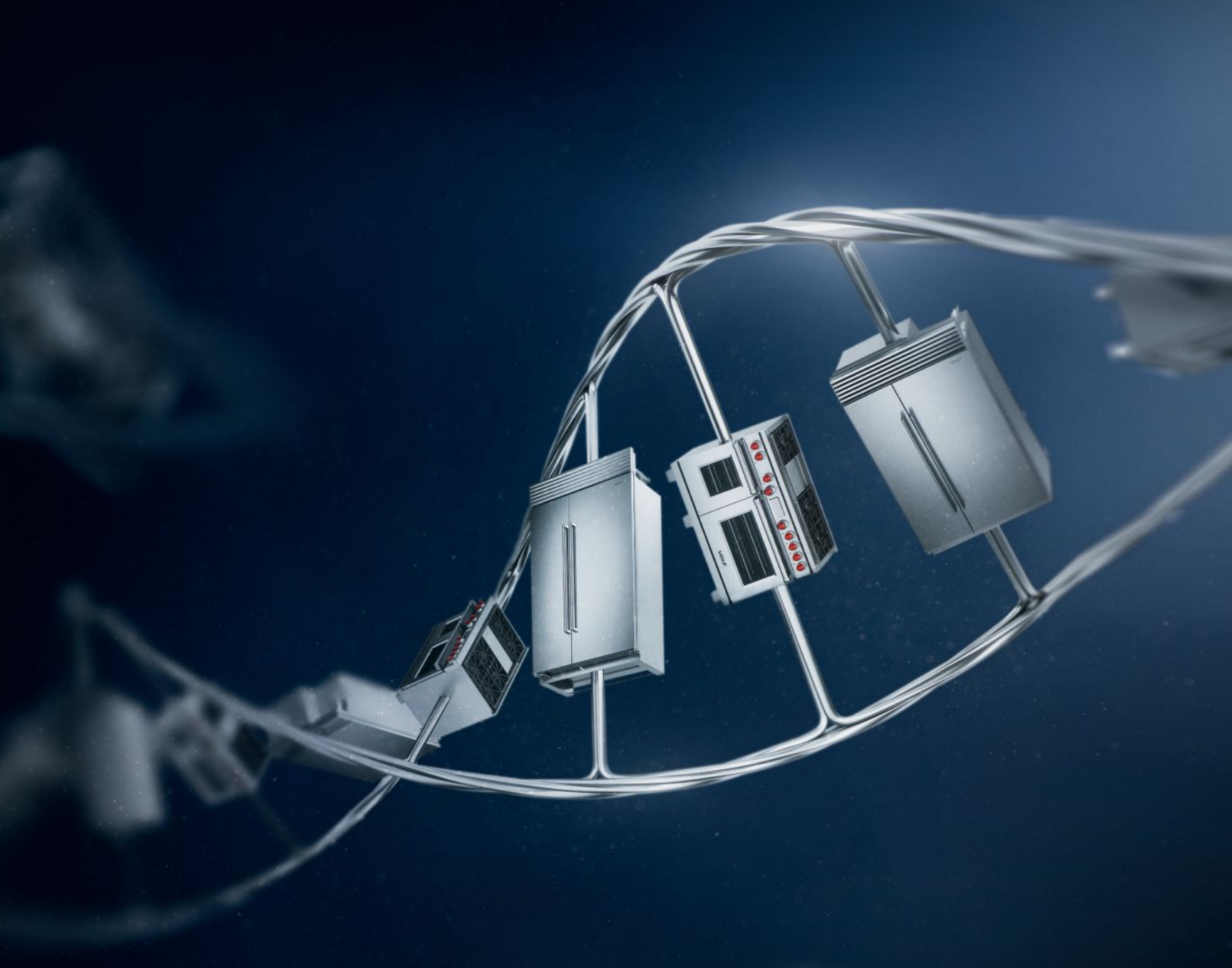
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Drawing for Justice

From a slaughterhouse floor plan to a crowd-control diagram, the nearly 1,000 drawings in Theo Deutinger's *Handbook of Tyranny* (Lars Müller Publishers, 2018) show barriers created by design. He pairs a prison cell section (shown) with an admonishment to fellow architects to "design them as a human habitat, no different from a living room." ARCHITECT columnist Aaron Betsky describes the *Handbook* as "the clearest and most beautiful of a spate of publications in the last few years that have reminded us how architecture is ultimately about command and control, even if we think it is about firmness, commodity, and delight." —SARA JOHNSON

> Read Aaron Betsky's review of *Handbook of Tyranny* at bit.ly/HandbookOfTyranny.



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Designing Boogie Town

Whether you were a regular club kid or never made it past the velvet ropes, the nightclub scene has had an indelible influence on fashion, art, culture, and even design. In “Night Fever. Designing Club Culture 1960–Today,” the Vitra Design Museum in Weil am Rhein, Germany, uses archival photos, furniture, architectural models, graphic design, and film from venues such as New York’s Palladium (shown)—which opened as a club in 1985 with an interior by Arata Isozaki, HON. FAIA, and a mural by Keith Haring—to examine how club design is as immersive as it has been influential. “Night Fever” is on view through Sept. 9. —KATIE GERFEN

> To read more about “Night Fever. Designing Club Culture 1960–Today,” and to see more images from the exhibition, visit bit.ly/NightFeverVitra.

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Sheela Søgaard
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Best Practices: Rebranding Your Firm

TEXT BY JEFF LINK

From tweaking the tone of your firm's marketing materials to changing its name and logo, rebranding can clarify your studio's messaging and ultimately win you more business. Below, brand strategists and architects offer advice for those interested in reappraising their identity and value proposition.

"You're leaving whatever equity you had behind. That's a risky and emotional proposition."

—John Gass, brand strategist, Gensler

Consider Your Goals

For New York-based FXCollaborative—founded as Fox & Fowle Architects in 1978 and known more recently as FXFowle—the decision to rebrand started more than two years ago when the partners and principals began re-examining the firm's mission, says managing partner Guy Geier, FAIA. After agreeing to shift the practice away from recognizing a single individual, firm leaders consulted with branding agency Seventh Art to understand clients' and consultants' perceptions of the firm, and to assess the key components of the existing name.

A branding exercise revealed that "FX" was the memorable hook for the firm. The group decided to keep that part of the name, but opted to combine it with a term many clients said represents their work: "collaborative."

The resulting name—FXCollaborative—touches the firm's history while also distinguishing itself from the saturated New York market. "We examined the names of many other firms and we were the only firm of our peer group that had a name that talked about our work style and culture," Geier says.

For international firm Page, the decision to shorten its name from Page Southerland Page in 2013 reflected both an internal restructuring to an employee stock ownership model and a desire to highlight the firm's ambitions. "If we had just made a business change without rebranding, people would have been a little more reticent to alter the roles they had been playing," says senior principal Larry Speck, FAIA. "[The rebrand] opened possibilities from an internal operational perspective, greatly enlarged our identity, and increased the knowledge clients have of us."

More Than a Name

A rebrand also can include a new communication style guide, mission statement, color palette, and even a new headquarters. "Think of a rebrand as a reset," says John Gass, brand strategist in Gensler's Chicago office. "You're leaving whatever equity you had behind. That's a risky and emotional proposition."

When California's Williams + Paddon hired branding agency Wow in 2010 to assist with a full-scale rebrand, it altered virtually every aspect of the company except the name. The addition of a three-word tagline—"Involve, Connect,

Delight"—signaled to potential clients and employees "who we are and the work we do," says principal Naaz Alihkan.


Engage Your Team

Before a firm considers how to express a new verbal and visual identity, the staff needs to "get their story straight," Gass says. Employee participation and consultation with a third-party branding and design consultancy can help leadership summon the support of key internal ambassadors and reduce the possibility of a mixed message.

Page turned to consultant Herman Dyal, FAIA—who has since joined Page as a principal and creative director—as well as a small committee of senior principals and members of its internal branding team to help with the refresh. Together, they amended every element of the firm's visual identity, including its website, email and presentation templates, and print collateral—letterhead, business cards, and formatting for internal documents.

The result is "not too corporate, not too buttoned up," Speck says, and the changes have streamlined project pursuits, thereby saving time and improving the firm's brand recognition.

In the end, the little things do matter. At Williams + Paddon, bespoke business cards introduced during its latest branding refresh this year have become a way to win business and make employees feel valued. "It's really helped with onboarding," Green says. "It brings out our more personal side."



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Detail: Agri Chapel Fractal Forest

TEXT BY TIMOTHY A. SCHULER



In Nagasaki, Japan, the one-room, 60-seat Agri Chapel designed by Momoeda Yu Architecture Office (MYAO) is almost a cube, approximately 30 feet in length, width, and height. Once inside, visitors are greeted by an array of stacked tree-like pillars that rise the height of the chapel. Inspired by fractal geometries, the interconnected cedar structure supports the chapel's flat roof.

The structural system divides the chapel interior vertically into three tiers. With each tier, the trunk-like pillars multiply in number—first four, then eight, then 16—while shrinking in size by a factor equal to the square root of two. At grade, wood members are 4.7 inches square; at the next level, 3.5 inches; at the final level, 2.3 inches. Each pillar bundles five cedar posts, which support up to eight angled beams that splay

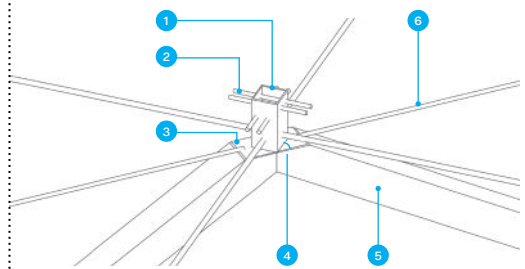
like branches. These boughs either intersect with those of the neighboring trees to support the next tier of pillars, or terminate in space, tying into the base of the overhead tier of trunks via steel tension rods.

Through digital and plastic models, Momoeda and his team realized that simply doubling the number of trees at each tier would clutter the chapel by the second round: The architecture would have no room to breathe. So the designers twisted the trees 45 degrees between tiers, partially embedding several trees in the middle tier as vertical supports for the exterior walls.

Momoeda worked with Jun Sato Structural Engineers out of Tokyo to design the complex structural connections between the trees. Where the angled beams form the base of an

upper pillar—each of which, again, is rotated 45 degrees between tiers—a steel base plate anchors a rectangular steel sleeve that supports the five-post trunk as well as six tension rods. Where the trunk meets its crowning bough, a steel node with angled knife plates works in combination with mortise-and-tenon joints, fitting the branches together like puzzle pieces.

Since its completion in late 2016, Agri Chapel has captured the attention of the public as well as that of the profession. Architects travel from around Japan to Nagasaki to visit the chapel. "It's quite far from Tokyo, but many people come," Momoeda says. "So I'm happy."



1. Steel sleeve for central cedar post
2. Steel bolts (typ.) to fasten surrounding cedar posts
3. Steel base plate
4. 45-degree rotation between tiers
5. Angled cedar beam (typ.)
6. Ø0.63" steel tension rod (typ.)



Construction is expected to begin this year on 500 West Trade, a 354-unit Charlotte, N.C. apartment community, that wraps a 6-story mid-rise podium wood frame structure around a 14-story steel and concrete tower. The hybrid design allows a more diverse rent structure, with the mid-rise portion offering more affordability and unit density. The location is an abandoned 2.8-acre site in downtown Charlotte. Image courtesy of Dwell Design Studio



Top: Jason R. Shepard, AIA, is a principal and director of multifamily housing at Atlanta-based Dwell Design Studio, an architecture, planning, interiors and environmental design firm.

Bottom: David Neiman, AIA, is a principal at Seattle-based Neiman Taber Architects, an urban housing design firm specializing in affordable housing solutions.

WOOD: HELPING POWER AN URBAN RENAISSANCE

Today many of us long to hang up our car keys and return to the simple pleasures of a stroll or bike ride to the store, restaurant, park, or work. Urban infill housing supports walkable communities and wood construction plays a major role how it affordably pencils-out.

It's never been so easy to find great examples of urban infill housing projects.

All across America, new homes, multifamily developments, and mixed-use projects are breathing new life in under-utilized and abandoned urban spaces. Today scores of Millennials and others favor the car-free conveniences of a walkable, sustainable urban lifestyle ... provided affordable housing is available.

That final caveat is often the operating challenge for urban planners. How do you revitalize city neighborhoods with infill housing projects that meet code requirements and generate the kind of profit math that attracts developer dollars?

Two Infill Perspectives

Meet David Neiman of Seattle, Wash. and Jason Shepard of Atlanta, Ga. Both are AIA architects

and leading practitioners of the New Urbanism. In distinctively different ways they are helping reinvent what's possible with constructive infill development.

David Neiman, principal of Neiman Taber Architects, specializes in designing affordable housing in "the little leftover spaces that are difficult to develop using conventional models." One unconventional model is congregate

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Yobi Apartments is a 4-story, 45-unit microhousing community located in an infill site near the University of Seattle. Yobi is an example of congregate housing, characterized by a common kitchen on each floor with the units built like a "ship's cabin with snug dimensions and lots of built in amenities," according to architect David Neiman. The wood frame structure includes an assortment

of energy-saving features, including a high-performance envelope using blown-in-blanket and spray foam insulation. The Yobi Apartments and 500 West Trade (facing page) meet all code requirements for life safety, including an assortment of active and passive fire prevention systems. Photos courtesy of William P. Wright

housing. Congregate housing is a stylish next-generation update of rooming houses, boarding houses, dormitories, and single-room occupancy (SRO) hotels. The two-year-old Yobi Apartment, an infill project in Seattle's fashionable Capitol Hill district, illustrates the approach.

More Affordability

"The Yobi Apartment is a four-story, 14,000 square foot building with 45 micro apartment units. The units range from 147 to 288 square feet," Neiman says. Average rent for a studio in the area ranges from \$1,400 to \$1,800 a month. Congregate housing units rent for about \$1,000 a month.

"One of the keys to making micro housing work is simplicity. You want to build them simply and efficiently, and that's all about

wood construction. Light frame wood construction is the way to do these projects," Neiman explains.

Neiman also likes the thermal properties of wood. "Wood makes it much easier to build an efficient envelope," Neiman says. Based on energy use per person, the Yobi is 70 percent more energy efficient than conventional housing, according to Neiman.

Rent Structure?

For Shepard, the goal is similar but the approach is different.

"I always ask about rent structure first," says the CEO and creative director of Dwell Design Studio, a multifamily and mixed-use development specialist. About 60 to 70 percent of their work is infill driven, according to Shepard.

Hybrid Solutions

"Most of our developers prefer to work with wood. A lot of our projects are five stories of wood frame over two levels of concrete podium," Shepard says. "Most jurisdictions want retail services at ground level to serve the residents. A podium frame is the best way to achieve that street-level experience. We're starting to see more wood frame wrap projects. We just finished one in Nashville and are working on ones in Charlotte and Savannah now. The wood wrap achieves more density, minimizes construction costs, and helps offset land costs."

For Shepard, the development economics of wood are compelling, especially when the rent structure pencils-out to a mid-rise project. "Wood frame has very few limitations," he says. "Anytime you can build with wood, you should. It's a cost effective means for building infill projects."

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Next Progressives: Silo AR+D

EDITED BY KATHARINE KEANE

Locations:

Charlotte, N.C.; Cleveland; and Fayetteville, Ark.

Year founded:

2012

Firm leadership:

Frank Jacobus, AIA; Marc Manack, AIA

Education:

Jacobus: B.Arch., Cooper Union for Advancement of Science and Art; M.Arch., University of Texas at Austin School of Architecture; *Manack:* B.Arch. and M.Arch., Austin E. Knowlton School of Architecture at Ohio State University

How founders met:

Standing in line to get our faculty photos taken at the University of Arkansas.

Firm size:

Four-ish

Mission:

The two quotes that best describe our practice's aspirations and motivations are "Good art should elicit a response of 'Huh? Wow!' as opposed to 'Wow! Huh?!'" by artist Ed Ruscha; and "Less yackin', more stackin'!" from a Cleveland-based masonry contractor named Bob.

Favorite project:

Our recently completed Hillside Rock. It's our most complete work to date, and it brought together many ideas

and techniques that we tested in earlier projects, such as Mood Ring House, Reflects, and our unbuilt Split Personality House. In particular, we love how the house sits on the land, holds shadows, and reframes the landscape. It's both chunky and thin, both a mass and a façade. We call it a "mineral"—something inorganic yet naturally occurring. Silo also built the house, as we sometimes do, so it was indeed a labor of love.

Origin of firm name:

This is a bit cliché and naïve, but we didn't want the firm to have our name. We wanted to be anonymous to create an environment of collaborative authorship and ownership. In the end, we wanted something catchy and we thought naming our firm after a building might do the trick.

Memorable learning experience:

Years ago, we'd told a colleague that the only work we could scare up was deck designs, so why bother? He remarked that he wouldn't turn down any design work if he felt he could make a difference in how well it turned out.

We have kept that comment close to us through the years, and now we try to embrace all opportunities for design as a chance to make something great, no matter the scale.

Architecture hero:

Charles Moore. He had such diverse and open ideas about architecture. Even if



Marc Manack and Frank Jacobus

at times we're not enamored by some of his buildings, we have affection for his approach to the discipline. He seemed to entirely love life; we can think of nothing more inspiring than that.

The best advice you have ever gotten:

Jacobus: "Less thinking, more drawing." I took this to mean that drawing and building are forms of thinking as essential as writing down your thoughts.

Design tool of choice:

Paper Mate Flair M pens

Design aggravation:

Anything overwrought or trying too hard; over-detailed buildings, material fetishism, and romanticism.

Skills to master:

Manack: Drawing upside down for clients across the table. I can't do it, but Robert Maschke, FAIA, is brilliant at it.

Superstitions:

We save all our fortune cookie fortunes.

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The Studio Prize is an annual design awards program that recognizes innovative, thoughtful, and ethical studio courses at NAAB- and CACB-accredited architecture schools. The prize is designed to celebrate the creativity of studio course curricula as well as the sophistication of the work students produce in response. The exclusive sponsor, Sloan, has generously made \$20,000 available for student prizes. The jury will also confer the \$5,000 Sloan Award to students in a winning studio or studios that address sustainability, specifically water conservation.

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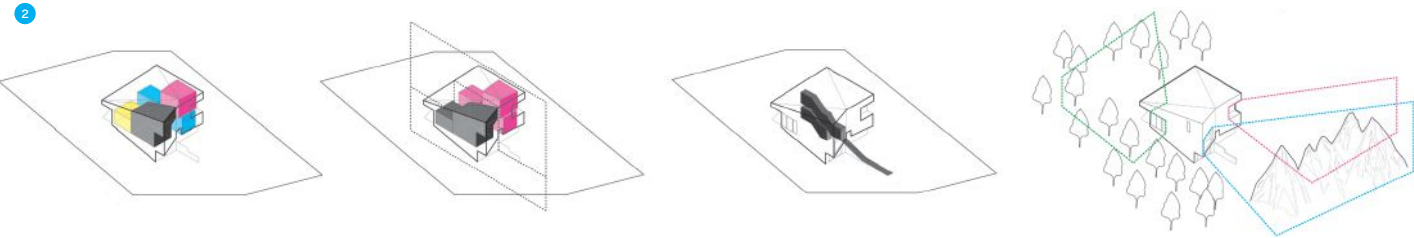
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**Next Progressives:
Silo AR+D**





1. Silo AR+D won a design/build competition hosted by the Cleveland Botanical Garden with its Reflects treehouse pavilion in 2015. A riff on the gabled house, Reflects offers panoramic views and creates a forest-like effect using mirrors that reflect views of the garden outside into the structure. **2.** Completed in 2017, the Fayetteville, Ark., Hillside Rock residence features a corrugated metal envelope that contrasts with the landscape and the wood interior details. **3.** The firm's proposal for combining historic buildings and surrounding existing lots of Charlotte, N.C.'s Belmont neighborhood creates a mixed-use development oriented around a central "agora" rather than a typical parking lot. **4.** Once an industrial warehouse, the sanctuary of the North Presbyterian Church in Cleveland is capped with a hybrid canopy/cathedral ceiling made of patterned panels. **5.** A collaboration with students and colleagues from the University of North Carolina at Charlotte School of Architecture, the Effervesce memorial wall displays 49 built-in bubble guns—one for each of the lives lost during the 2016 Pulse nightclub shooting in Orlando, Fla.

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TEXT BY SELIN ASHABOGLU

The Roque, COFO Design

Inspired by Japanese and Scandinavian design, this short but spacious chair emphasizes simplicity and quality materials. The Roque measures 28" tall by 35.75" wide and has a 27.25"-deep seat. High-density foam upholstered in charcoal or black Italian wool fabric tops a laser-cut and welded steel frame, which comes in brushed copper (shown) or black. The chair's semi-circular Canadian maple or stained Canadian white oak backrest is hand-finished in a clear coat. cofodesign.com



#80 Black, Aggestrup

United by a minimal steel frame, #80 Black is a collection of five modular lounge seating units that can be used indoors and outdoors. A single seating module is 47" tall by 31.4" wide with a seat height of 15". The units are assembled via front and rear brackets. #80 Black has a smoked-oak backing embellished with hand-braided black linen webbing. Seat cushions can be upholstered in fabric or black aniline leather. aggestrup.com



BuzziSpark, BuzziSpace

BuzziSpark turns the traditional waiting area bench on its head by creating an enclosure that facilitates conversations between strangers. The modular seating can be specified with two or three seats and features acoustic paneling on diagonal corners that functions as high backing for both sound absorption and privacy. buzzi.space

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Cove Lounge Chair, Poltrona Frau

Designed by international firm Foster + Partners for Italian furniture manufacturer Poltrona Frau, this semi-circular chair is designed to promote productivity in busy public spaces. Cove integrates a USB charging port and can be specified with a power supply and tabletop. Upholstery options include leather and fabric.

poltronafrau.com



Eddy, Bonaldo

Taking inspiration from the construction of vintage bicycles, Eddy's ergonomic seat sits atop a tubular metal frame. Eddy comes with or without a headrest and measures 39" or 29" tall, respectively. The 31"-wide by 35"-deep chair has a seat height of 16". The chair comes in leather or eco-leather, and can be outfitted with side pockets on its armrests for storage. The metal frame is offered in nine matte finishes. bonaldo.it



Mass Arm Chair, New Works

This armchair is part of a 16-piece modular seating collection designed by Hong Kong-based architecture studio Lim + Lu. The chair is 26.3" tall and 29.5" wide, and has a seat depth of 21". The ash-veneer chair base can be finished in natural or lacquered black. Mass Arm Chair's seat and backing can be upholstered in a range of leathers or fabrics from the Danish textile manufacturer Kvadrat. newworks.dk



Mame, Fogia

Modeled after the shape of an edamame bean pod, this Luca Nichetto-designed armchair offers respite from external distractions through its high, concave backing. Mame measures 47.6" tall by 30.9" wide and has a seat depth of 25" with a seat height of 17.7". Metal legs support its upholstered foam seat, which comes in fabric, leather, or a combination of the two materials. fogia.se






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Technology: Digitizing the Design Feedback Loop

TEXT BY MICHAEL KILKELLY

Despite the effort that goes into design, architects often remain—sometimes willingly—in the dark about how their buildings serve their occupants. Increasingly, data-driven clients want to verify the design goals of their completed projects.

And, as revealing as a post-occupancy evaluation can be, the pre-occupancy evaluation is equally as critical. Documenting the “before” state of an environment provides a solid benchmark from which to calculate the impact of the design. Otherwise, says Mardelle Shepley, FAIA, a professor and chair of the department of design and environmental analysis at Cornell University, “you cannot determine if a transition has been made.”

While experience, best practices, and intuition continue to guide design decisions, and surveys, observations, and building monitoring data inform

occupancy evaluations, architects can now leverage technology to collect user feedback and performance metrics en masse, analyze the information, and distill the results, improving the entire process of design.

Tech for Every Project

With recent advancements made in computing, data-seeking firms now have ready access to apps and machine learning tools.

Global firm IA Interior Architects and Portland, Ore.-based ZGF Architects have each developed custom iPad apps for the pre-occupancy evaluation process. IA's tool, called IA Survey, lists pre-determined variables—for example, the number of occupants in the room, whether they're working solo or collaborating, and if they are sitting, standing, or working with a physical object at a table, such as a computer—

for observers to quickly enter data, snap pictures, and take notes.

IA designed the app in-house and then hired a software developer to build it. Already in its third year of use, the investment has paid off: Observation teams have cut their data collection time in half. The firm also shares the app with their clients for their active participation in the evaluation process.

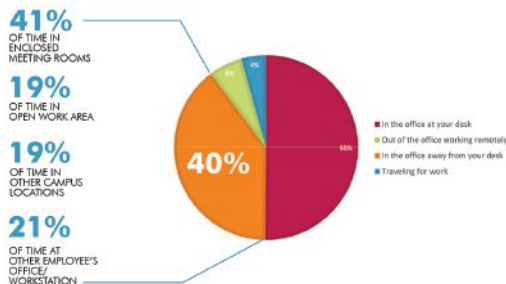
Surveying, long a mainstay of occupancy studies, is also enjoying an upgrade through technology. To automate the process of surveying employee workstations during pre-occupancy evaluations, ZGF is experimenting with machine learning, the field of computer science that aims to develop programs that can learn and adapt over time through observations, artificial intelligence, and real-world interactions with minimal human direction. Instead of having



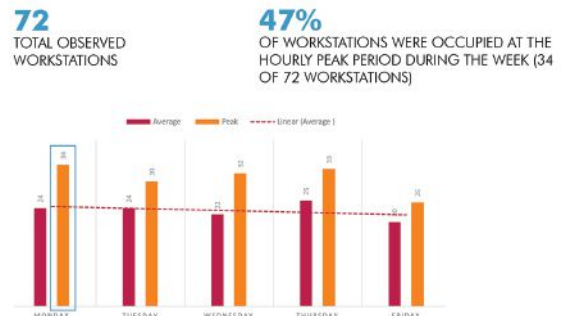
Left to Right: IA Survey's sample field choices and post-occupancy evaluation results showing space underutilization.

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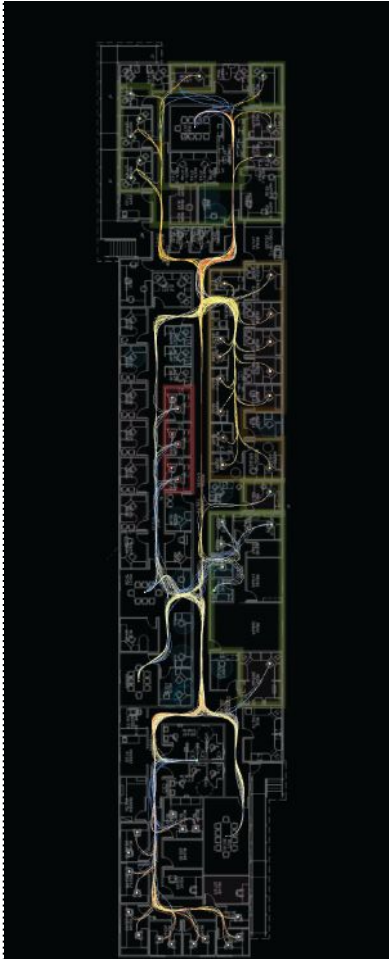
Technology: Digitizing the Design Feedback Loop

an observer tally desktop equipment and configurations, ZGF would use a machine learning routine to identify items from photographs of each desk.

For firms without extensive in-house development resources, startup companies are providing machine learning services in more accessible packages. Prism Skylabs, based in San Francisco, provides a cloud-based image recognition service that can be trained to count objects and faces (which the software blurs to protect privacy). Firms can upload their images to Prism Vision platform and let its machine learning routines run their course.

Not surprisingly, the juggernauts in tech also offer solutions geared toward business users. The Amazon SageMaker platform—by, yes, *that* Amazon—claims to make the development of machine learning applications as easy as creating a website. Likewise, the AWS (Amazon Web Services) DeepLens camera, due in June, utilizes deep learning technology to analyze and react to real-time video footage.

Microsoft's Azure and Google's Cloud Machine Learning Engine platforms are also poised to make machine learning much more accessible. Azure's Machine Learning Studio is a browser-based authoring environment that provides access to sophisticated tools without requiring any programming knowledge from users. Though not as user friendly as Azure, Google offers a free crash course on the basics of machine learning using its platform.



ZGF's employee circulation simulations were informed by many sources, including keycards and security consultants.



Infrared cameras track user speed, direction, peak use times, and collision rates on stairs in ZGF's Seattle office.

Similarly, the increasing prevalence of the Internet of Things (IoT) and capabilities of sensor technology provide more opportunities for information gathering in pre- and post-occupancy evaluations. While issues of data ownership may preclude architecture firms from installing their own sensors into their clients' spaces, those clients might be willing to share any data they collect. Though IA is not receiving much sensor data from clients yet, due largely to the limited number of installed sensors to date, director of design intelligence Guy Messick expects that to change soon: "It's definitely coming and there will be a demand for it."

Sarah Bird, a workplace strategist and change management consultant at IA's Chicago office, stresses the need to balance input from humans and machines. "Technology provides a lot of 'what' but you don't always get the 'why,'" she says. "You need to ask the questions to get the answers to the 'why' questions."

The Why and the How

Before unleashing machines into their clients' spaces, firms must conduct due diligence on what constitutes occupancy evaluations. Cornell's Shepley recommends that architects first read up on formal research methodologies, affiliate with academic institutions, and hire employees with research backgrounds to develop the practice.

International firm CannonDesign staffs evaluation teams with employees well-versed in talking to user groups and who "know how to ask the right questions," says PJ Glasco, AIA, a principal and healthcare planner and designer at CannonDesign's Houston office. The firm also partners newer staff with experienced designers to learn firsthand what does and doesn't work.

Firms interested in testing new evaluation technologies can turn their own workplace into a sandbox. ZGF is currently experimenting with infrared cameras to measure pedestrian flow in its Seattle office. A series of cameras

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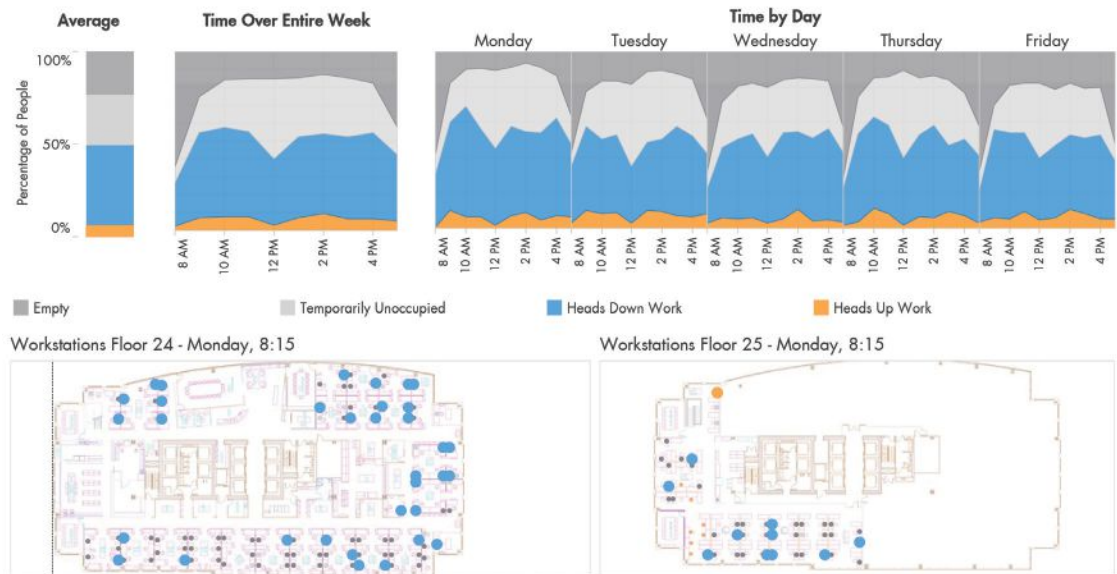
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Digitizing the Design
Feedback Loop**

utilization of space are time-intensive endeavors, as are analyzing and reporting on the information. Unless the project is of a massive scale, the additional fee isn't likely to pay immediate dividends to the owner—or architect. However, technology is helping to reduce the demands on architects' workloads and open occupancy studies to smaller projects.

Sensors are turning data collection into a remote and automated process, where occupancy and building

For example, IA's Survey app exports its data to Microsoft Excel, which then links up to Microsoft Power BI (Business Intelligence) to conduct the analysis. Using a dashboard that automatically tallies daily office and conference room occupancy, teams can quickly organize and share the data internally and with clients via an online portal. Tableau Software's namesake data visualization tool can also help parse numbers into digestible bites for users. At CannonDesign, after the team



ZGF's hourly analysis of workstation utilization helped the firm congregate teams based on work patterns and other required adjacencies.

mounted along a stair tracks the stair's usage rate and the speed of movement among users. This method allows for a continuous occupancy evaluation of the space, says Paul Diaz, a building performance specialist based in ZGF's Seattle office. "A building is really a fluid dynamics problem," he notes. "When you consider it that way, snapshots are not very useful."

Streamlining the Feed

Garnering client buy-in is as essential as understanding the protocols and objectives of occupancy studies. Surveying users and observing the

conditions can be captured continually and fed directly into a database. Mobile observation apps such as KieranTimberlake's Roast, where occupants can opt to answer quick check-ins about their space conditions and comfort level, can also provide invaluable localized data with minimal disruption to the employees' workday.

Closing the Loop

With potentially massive amounts of data in hand, thanks to these digital collection tools, architects can again turn to computing to disinter and present the takeaways.

leading an evaluation shares the results of an occupancy study with the client, it will present the findings to the firm's designers. With the client's permission, the team will also share the findings in an in-house pinup presentation and in marketing case studies.

"Clients are looking for evidence for design decisions," says Dane Stokes, a design technology specialist at ZGF. With the digital tools available now, pre- and post-occupancy evaluations can offer these takeaways with fewer intrusions on everyone's workday. This in turn can strengthen the case for investing in architecture.

AWCI Recognizes Construction Quality

The Association of the Wall and Ceiling Industry's Excellence in Construction Quality Awards demonstrate the inspired design of architects, the project skills of general contractors, the wonderful products of AWCI manufacturer members and the craft and management skills of AWCI contractors. Along with AWCI's award partners—the Gypsum Association, the Steel Framing Industry Association and the EIFS Industry Members Association—we congratulate the six winning teams. [See more at awci.org/awci/awards](http://awci.org/awci/awards).



Ceilings: Winning Project
St. Mark Coptic Orthodox Church
 Troy, Michigan

AWCI Contractor
 Pontiac Ceiling & Partition, LLC

AWCI Team Members
 L&W Supply • PlasterForm, Inc.
 Selleck Architectural Sales, Inc. • USG

Architect DesignTeam Plus, LLC
General Contractor RDF Construction



Drywall: Winning Project
United Methodist Church of the Resurrection
 Leawood, Kansas

AWCI Contractor
 Performance Contracting, Inc.

AWCI Team Members
 CertainTeed • ClarkDietrich Building Systems
 Grabber Construction Products
 Holmes Drywall Supply (AD Building Materials)
 National Gypsum • United Rentals • USG

Architect HGA Architects and Engineers
General Contractor McCownGordon Construction



EIFS: Winning Project
Le Meridien/AC Hotel Denver Downtown
 Denver, Colorado

AWCI Contractor
 South Valley Drywall, Inc.

AWCI Team Members
 ClarkDietrich Building Systems • Colorado Drywall Supply • Gypsum Products (Allied Building Products)
 Hilti, Inc. • National Gypsum • Sto Corp.

Architect HKS
General Contractor Swinerton Builders



Interior Plaster: Winning Project
Minnesota State Capital Repairs, Restoration and Preservation
 St. Paul, Minnesota

AWCI Contractor
 Mulcahy Nickolaus

AWCI Team Members
 ClarkDietrich Building Systems
 Grabber Construction Products • National Gypsum
 Niles Building Products Co.
 Phillips Manufacturing Company • Simpson Strong-Tie USG

Architect HGA Architects and Engineers
General Contractor JE Dunn Construction



Steel Framing: Winning Project
Phillip and Patricia Frost Museum of Science Aquarium Façade
 Miami Beach, Florida

AWCI Contractor
 Kenpat USA, LLC

AWCI Team Members
 Allied Interior Products/an Oldcastle Company – Riviera Beach • GCP Applied Technologies
 Georgia-Pacific Gypsum • MarinoWARE
 Radius Track Corporation • Sto Corp. • United Rentals

Architect of Record Rodriguez and Quiroga
Architect of Design Grimshaw Architects
General Contractor Skanska



Stucco: Winning Project
UCSD Graduate and Professional Students & Mixed-Use Housing – East Campus
 La Jolla, California

AWCI Contractor
 Brady SoCal, Inc.

AWCI Team Members
 Allied Building Products Corp.
 BASF Corporation – Wall Systems
 J&B Materials (A GMS Company)
 National Gypsum

Architect Mithun
General Contractor Hensel Phelps



Residential: David Baker Architects

TEXT BY EDWARD KEEGAN, AIA

Over the last decade and a half, San Francisco's Mission Bay neighborhood—which was created with fill from the rubble of the 1906 earthquake—has swapped 20th-century industrial development for a more holistic community with a University of California, San Francisco campus as its institutional anchor. Next to a planned expansion of Mission Bay Commons park, local firm David Baker Architects recently finished Five88, an affordable housing and mixed-use complex that fills most of a city block.

Form-based code guidelines provided the 224,370-square-foot building with its basic outlines, but the design details employed on the project give it a distinct presence. "Make big moves," says principal David Baker, FAIA, of his firm's strategy. Marking the southern edge of a residential stretch north of the park, the five-story-tall volume clad in Cor-Ten steel sits above glazed ground-level retail spaces and playfully detailed concrete columns. These "dancing columns," as the architects call them, have become popular on Instagram: "People love textured concrete," Baker says.

Standard storefront doors lead to dual lobbies (one at the north end of the building and one at the south), which are open to the elements as covered portions of an internal courtyard. The building's 200 apartments feature three residential unit types: one one-bedroom and two two-bedroom layouts. The architects varied the double-loaded



Concrete piers contrast with perforated Cor-Ten on the south façade.

Project Credits

Project: Five88, San Francisco

Client/Owner: Related California

Architect/Interior Designer: David Baker Architects, San Francisco and Oakland, Calif. · David Baker, FAIA (principal); Caroline Souza, AIA, Billy Forrest, AIA, Julie de Jesus, AIA (associates); Kevin Wilcock, AIA

Associate Architect: G7A, San Francisco · Irving Gonzales (principal)

Mechanical Engineer: Tommy Siu and Associates

Structural Engineer: DCI+SDE Engineers

Electrical Engineer: AlfaTech

Civil Engineer: Freyer & Laureta

Geotechnical Engineer: Rockridge Geotechnical

Construction Manager: Construction Resource Management

General Contractor: Nibbi Brothers General Contractors

Landscape Architect: GLS Landscape Architecture

Sustainability: Bright Green Strategies

Waterproofing: McGinnis Chen Associates

Acoustical: Papadimos Group

Size: 224,370 square feet

Cost: \$68 million

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Residential:
David Baker Architects

Section A-A₁



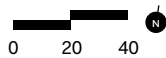
Second-Floor Plan



Ground-Floor Plan



1. Retail
2. Parking
3. Lobby
4. Common room
5. Residences
6. Gym
7. Laundry



interior corridors, but intentionally end most of them with a window. “You can see light down the hall,” Baker says. “It makes a difference in livability.”

Building amenities—including a gym, common room, lounge, and laundry room—are located in a two-story pavilion that sits in the semi-private central courtyard. “It becomes a parterre garden,” Baker says. A children’s play area on the second floor eschews playground equipment, opting instead for a blue artificial turf from Fieldturf.

Keeping the building height below 65 feet allowed the architects to utilize Type V construction, which provided economies not available with Type I or III, which are more typical for a building of this size and use. The western half of the building is wood frame atop a concrete garage podium, while the eastern half is solely conventional wood framing.

Baker explains that the firm approaches affordable housing with a “material budget” in mind. “Make 20 percent of it really wonderful,” he says. Apartment interiors are simple, finished with Shaw Contract carpeting in the bedrooms and Reward Luxury Vinyl Flooring in the living areas. The primary material used on the exterior is cement plaster, which is accented with cedar and concrete at the lower levels. At the northwest corner, a five-story articulated tower is clad in white standing-seam aluminum; the custom Cor-Ten steel rainscreen stretches across half its south façade. Varied perforations, some as open as 50 percent, shield fresh air vents and accentuate the mottled texture of the Cor-Ten. Stormwater management is exploited for playful invention, with downspouts composed of open three-sided rectangular pipes that make musical sounds in the rain, says associate Caroline Souza, AIA.

Baker notes that Five88 is the largest affordable housing building built in San Francisco in the last decade. The architects have created a lively new structure. “It’s very straightforward, but subtle variations make it look more complicated,” Baker says.

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Lori Reynolds NCIDQ CID
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Residential:
David Baker Architects



1. The building's south façade is clad in Cor-Ten panels from Bok Modern.
2. A second-floor lounge opens onto an open-air walkway, one of several community spaces in the building's internal courtyard.
3. A covered open-air lobby on the ground floor contains mailboxes.
4. In addition to covered community spaces, the courtyard also features outdoor gardens designed by San Francisco and Seattle firm GLS Landscape | Architecture.

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HIGH-PERFORMING, RESILIENT WOOD-FRAMED ROOFS

A continuing education preview sponsored by ZIP System® sheathing and tape

Presented by:
ZIPsystem™
 SHEATHING & TAPE

Wood-framed construction is the predominant method for building homes in the United States and has gained steady acceptance in light commercial and mid-rise construction. Building code changes, environmental sustainability and homeowner interest in higher building performance are a few factors placing new demands on this popular approach to framing. Most recently, resiliency in buildings has become a priority, particularly in areas prone to severe weather. In response to these changing needs, building professionals are adopting new products and practices to strengthen wood-framed buildings, with a focus on roofs. The roof is one of the most vulnerable areas of a structure to water penetration, so new standards and products are evolving the way building teams address this critical system.

Designing high-performance roofs consists of a complex interplay of key factors and special considerations. Understanding the basic environmental loads or stressors that a roof needs to endure in a particular project location is the first step. Then selecting the best combination of roof shape, framing technique and materials all contribute to a design that will remain durable and last for its intended life cycle.

ADVERSE WEATHER

Whether in the form of liquid rain, gaseous vapor, or solid snow or hail, water is usually the first thing a roof is designed to guard against. Therefore, designing a roof that properly drains has significant impact on the long-term performance of this critical system. As unvented attic space and managing thermal bridging beyond wall assemblies becomes more common, condensation within



the roof system has gained considerable attention. Additionally, any area that receives a lot of snow needs to address the weight of that snow to not only guard against collapse but also sagging or other movement.

Wind damage is also a common cause of roofing failures. There is wind, and then there is severe wind in high-wind zones that can require or necessitate advanced wind-uplift consideration or a sealed roof deck, in the event the roof covering is blown off and wind-driven rain threatens panel seams. Anticipating these severe conditions in locations where they are common requires extra attention to specifying the continuity of exterior control barriers, especially in transitions.

Next-generation sheathing with an integrated weather barrier and taped seams provides advanced protection against water penetration in storm-prone areas.



Integrated sheathing with built-in air and water barriers helps streamline construction and reduce the chance of water penetration during a high-wind event, if the roof covering is blown off.

The roof construction of a building is a fundamental item to address under the FORTIFIED™ Home standard, which is intended to improve resiliency and possibly reduce property insurance costs.

RESILIENT RECOMMENDATIONS

The Federal Emergency Management Agency (FEMA) recommends taping the seams of roof sheathing panels to provide better protection against water infiltration if the roof covering ever blows off¹. Such infiltration during a severe storm can lead to a tremendous amount of water damage inside the home, according to building products and standards testing by the Institute for Business & Home Safety (IBHS)². Taped seams on roof sheathing panels is commonly referred to as a sealed roof deck. FORTIFIED Home™ is a voluntary program developed by IBHS that recommends a sealed roof deck, among other resilient building products and techniques, to help strengthen new and existing homes.

ROOF SHEATHING AND UNDERLAYMENTS

Serving as a structural skin that ties the rafters or trusses in place, roof sheathing supports the roof covering and transmits the load of this material and the live loads due to snow, ice and wind back to the rafters or trusses. Once the roof deck is fastened in place, the sheathing becomes the base for fastening the roof coverings. In the early 20th century, most roof sheathing was made from cut wood planks. Today, roof sheathing

is typically either manufactured plywood or oriented strand board (OSB).

Traditional OSB can be subject to edge swelling when exposed to moisture and requires H-clips for proper spacing in a roof deck. However, high-performance engineered wood ZIP System® sheathing and tape includes a tongue-and-tongue profile for self-spacing and is manufactured with advanced resin technology for enhanced moisture resistance. Available in three thicknesses, the panel comes in 7/16", 5/8" and 1/2" and carries a Structural 1 panel grade.

Initially used for temporary protection against the elements, roofing underlayment is now an integral part of an overall roof system. It provides an extra layer of weather protection on top of the sheathing panels during construction. In most areas, code requires a number 15 or greater felt underlayment, as do many shingle manufacturers.

A significant material breakthrough involves using wood structural sheathing panels with a built-in moisture-resistive barrier. ZIP System sheathing and tape, introduced in 2006, includes an integrated weather-resistive membrane that makes the panel a combination of structural sheathing and underlayment that eliminates the need for an additional

felt or synthetic underlayment application. This single-step installation streamlines roof construction and rough dry-in, and because the system requires its proprietary acrylic tape over panel seams, it provides a rigid air barrier and sealed roof deck. ICC-ES Evaluation Report ESR-1473 documents the product's code compliance for meeting wood structural panel and roofing underlayment. Backed by a 180-day exposure guarantee and a 30-year Limited Warranty³, ZIP System sheathing and tape is seeing adoption in single-family, multifamily and light commercial structures. The system also helps meet FORTIFIED Home standards for a sealed roof deck at bronze, silver and gold levels.

The full CEU course will explain in-depth the natural environmental forces that affect the design considerations of wood-framed roof systems and the advantages and disadvantages of different types of wood-framed roof systems in terms of their performance capabilities. It will also analyze the importance of roofing underlayment as it relates to both the sheathing and the finished roofing material.



Continue this CEU course at
<http://go.hw.net/Huber518>

¹ FEMA Guide for Coastal Construction, Chapter 8; based on FEMA 488, "Mitigation Assessment Team Report Hurricane Charley in Florida," April 2005
² <https://disastersafety.org/thunderstorms/fight-water-intrusion-with-a-sealed-roof-deck/>
³ Limitations and restrictions apply. See ZIPSystem.com/CommercialWarranty for details.

MODERN HOSPITAL HELIPADS: SUPERIOR, SAFE, AND SUSTAINABLE

Presented by:



By: Kathy Price-Robinson

Helicopter pilots and their crews require a highly functional and safe landing pad because flying and landing the aircraft is extremely complex and potentially dangerous. Anything less than a high-performance helipad will add unnecessary hazards to the flight and landing. Consider the helicopter itself, weighing perhaps several tons, kept aloft by a spinning rotor exerting tremendous lift to the helicopter. The helicopter is very nimble, and with a tip of the rotor can move up and down, back and forth, side to side, or simply hover in one spot. The pilot employs four main controls that are simultaneously operated using hands and feet. Flying and landing a helicopter requires the pilot's full attention. Therefore, the landing site should be highly functioning and without needless hazards.

HELICOPTERS FOR MEDICAL EMERGENCIES VS. GROUND VEHICLES

Consider helicopters deployed for emergency medical flights from accident sites to trauma centers, or from one hospital to another. These tense, often life-and-death flight scenarios increase when the weather is at its worst. A majority of air ambulance flights are generated by automobile accidents, often caused or exacerbated by rain, wind, ice, snow, or other difficult weather conditions, and when the need for emergency care becomes so urgent that a helicopter provides the

LEARNING OBJECTIVES

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

- Discuss the challenges of emergency helicopter landings on a hospital site
- Define the features of a state-of-the-art helipad
- Understand the importance of a snow and ice melting system for a helipad
- Describe the value and features of a green helipad design
- Identify FAA and Trauma Level 1 trauma center requirements for helipads

CONTINUING EDUCATION

AIA CREDIT: 1 LU

AIA COURSE NUMBER: AR052018-3

Use the learning objectives above to focus your study as you read this article. To earn credit and obtain a certificate of completion, visit <http://go.hw.net/AR052018-3> and complete the quiz for free as you read this article. If you are new to Hanley Wood University, create a free learner account; returning users log in as usual.



A state-of-the-art hospital helipad is critical for the safety of the flight crew, the ground crew, and the patient being transported.

GLOSSARY OF HELICOPTER-RELATED TERMS AND ACRONYMS

- Approach and Departure Path—Provides approach and departure airspace clear of hazards to allow safe approaches and departures from the TLOF (Touch Down and Liftoff Area)
- FATO—(Final Approach and Takeoff Area) A defined area over which the pilot completes the final phase of the approach to a hover or a landing and from which the pilot initiates takeoff
- Frangible—Fragile, as in a windsock that will break apart easily if it comes into contact with the helicopter
- LZ—Landing Zone
- PCL—Pilot Controlled Lighting
- Rotor—A rotating system of airfoils that either support in the air (main rotor) or stabilize it (tail rotor)
- Safety Zone—A perimeter area encompassing the LZ with dimensions that are proportional (by equation) to both the TLOF and the FATO
- SIM—Snow Ice Melt System.
- TLOF—Touch Down and Liftoff Area
- WDI—Wind Direction Indicator (often a windsock)



A medical flight often has life and death consequences. Credit: JaroArtImages



Both flight and ground crews need a safe and highly functioning landing area. Credit: Lily Helipads

best and quickest way to get a patient to a trauma center.

Furthermore, the distances associated with rural or remote rescues generate a demand for helicopters as opposed to ground-based vehicles. The nature of flight quickly overcomes great distances, eliminates delay, and bypasses road hazards and issues associated with traffic.

Emergencies involving urgent cardiac care, stroke, and severe trauma, or emergencies occurring in any weather, require the most immediate care and the fastest patient-to-specialist timeline.

At the destination, helicopter takeoff and landing risks increase greatly in wintery weather. Helicopters cannot land or take off safely on a slippery or compromised surface as the rotor transmits an enormous amount of torque through the airframe, potentially creating a catastrophic rollover event.

HOSPITAL CREWS ON THE GROUND

Hospital staff members know that time is of the essence when a medevac (medical evacuation) helicopter arrives. The ground crew and emergency medical staff hurry to and from the helicopter, knowing every second counts in trauma care. The primary goal of the crew: get the patient into the emergency room as quickly and seamlessly as possible.

In the highly kinetic environment of ambulatory and emergency transport, medical technicians risk slipping and falling on compromised landing surfaces and ramp/walkway access to the hospital. A reliably slip and fall free surface from the hospital to the helicopter, clear of snow and ice and free of obstacles, is essential.

THE NEED FOR A SUPERIOR HELIPAD

For these challenging medical flights, today's state-of-the-art helipad needs to not only be functionally safe and built to trauma center code, but also follow U.S. Department of Transportation (DOT) and U.S. Federal Aviation Administration (FAA) requirements. Furthermore, the modern helipad should meet these requirements in the most environmentally friendly and sustainable ways available.

Hospital administrators recognize the value of a high-quality helipad. According to Elizabeth Cisco of Hendricks County Regional Health in Danville, Indiana:

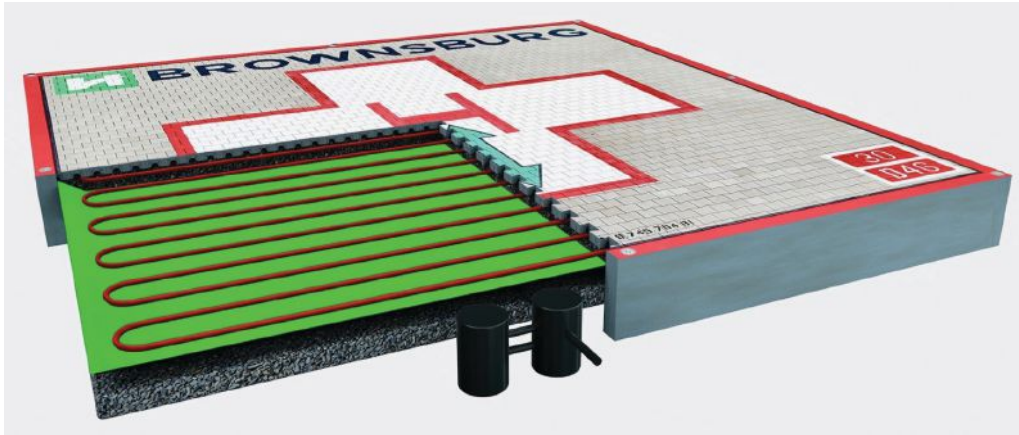
“One of the most critical and impactful services that Hendricks Regional Health can provide to its patients is access. Our all-weather helipad is part of the commitment that we have made to enhance that directive as well as to provide a safe environment for our patients and emergency-oriented physicians and providers.”

Cisco continued: “We believe that without consistent access, the patient may seek treatment elsewhere or elect to go without treatment all together. To us, neither option is the desired outcome.”

Focused on safe access, Hendricks Regional hired a turnkey company to design and build their state-of-the-art, all-weather helipad.



Automatic Snow-Ice Melt System at Hendricks County Regional Hospital, Brownsburg Indiana. Credit: Lily Helipads Stock



Cutaway Image a helipad with an automatic snow and ice melting system, along with fluid capture and groundwater control systems. Credit: Scott Nelson

ELEMENTS OF A SUPERIOR HELIPAD

What goes into a superior helipad? Consider what the pilot experiences. At a low-altitude approach to the hospital, pilots need an obstacle-free flight path, an easy-to-visually-locate landing pad that is well marked with perimeter lights, a well-defined clear and dry landing surface, and a high visibility wind direction indicator. Combined, these provide the best environment for the safest landing.

Here are the elements to consider when designing a state-of-the-art helipad:

Modular Design

As our population grows and ages, hospitals seem to be constantly adding wings, expanding and changing their structural footprint. Rather than demolishing an existing heliport and committing it to scrap, focus should be placed on helipad reuse and relocation. By initially using a modular design, repurposing the initial investment is enhanced and achievable.

The ideal landing pad will be constructed of heavy-duty yet modular units that can be deconstructed and moved as often as required.

Porous Surface

Many helipads are made of standard construction materials such as concrete and asphalt. However, those materials are nonporous and therefore sloping is often required for water to drain from the surface of the helipad. For a helicopter landing pad, a sloped surface is not ideal.

Newly engineered materials feature permeable options that allow water or any other fluids to drain through to the subgrade. The benefit

is a dry, level, and safe landing surface. These engineered products, interlocking concrete pavers, are often made with recycled materials that are environmentally friendly, aesthetically pleasing, and can handle the heavy loads required by a helipad.

Liquid and Water Capture System

Surface liquids such as rainwater or melted snow and ice (created with a heated helipad) are captured by a geomembrane such as a XR5 manufactured by Seaman, and then passed into a water/oil (contaminant) separator. The contaminants—such as spilled fuel, aircraft deicer, and any other aircraft liquids—are



A snow and ice melt heat exchanger. Credit: Courtesy of Lily Helipads

CASE STUDY

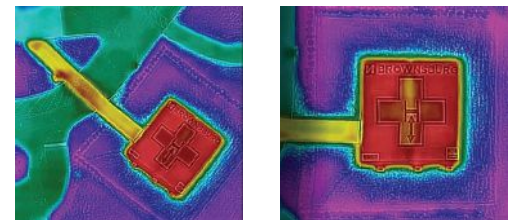


Hendricks County Regional Hospital Level One Trauma Center, Brownsburg Indiana.

- Location: Brownsburg, Indiana
- Facility: 30,000 sq. ft. medical office building housing physician offices in a variety of specialties including a Level 1 trauma center.
- Completed: January 2018
- Construction Company: Wurster Construction, Indianapolis
- Architectural Firm: BSA Life Structures, Indianapolis

The helipad chosen for this new medical center includes an automatic snow ice melt system (SIM) that covers the entire helipad and extends the access ramp from the hospital emergency room to the helipad.

The SIM system extracts existing energy from the hospital boilers through a heat exchanger that circulates glycol through a PEX tubing system to keep the helipad and access ways reliably snow and ice-free.



Arial photos and thermographic images show the SIM system at work to the emergency accesses to the helipad free of ice and snow. Credit: Gabriel Holmes Flir, Lily Helipads Stock

Because it was built on traditionally farmed ground in Brownsburg, the hospital owners had a strong sense of respect for the land and thus sustainability played an important role in choosing a “green” helipad design.

The state-of-the-art helipad is built with a strong interlocking paver that result in a porous surface on top of a geomembrane base that provides capture of any aircraft fluids. That includes spilled fuel or aircraft deicing liquid. Contaminates are separated from clean rainwater for safe recycling.

captured for recycling while the ground water is released into hydrosphere as clean, contaminant free water.

Helipads built with a porous surface in conjunction with a geomembrane and oil/water separators do a tremendous job keeping the helipad green and add a hidden level of safety at the same time.

ICE, SNOW, AND TRADITIONAL REMOVAL STRATEGIES

Ice and snow on the landing pad create many potentially dangerous situations, primarily slip and fall hazards for helicopter and ground crews alike. Snow on the landing site can block the takeoff and landing symbols, including the direction of approach and perimeter danger areas. The helicopter main rotor is the major contributor to whiteout conditions in a snow-landing situation. Winds created by the tail rotor, turning vertically rather than horizontally, can reach speeds more than 100 miles per hour, contributing to zero visibility when turning up snow on the landing pad.

However, the conventional measures taken to remove snow and ice—mechanical and chemical—often create significantly more problems.

In a 2016 document published in the Ohio Association of Critical Care Transport, Bill Fauconneau, safety officer at Med Flight, warns against using corrosive ice melting chemicals such as rock salt on helipads, will harm the aircraft. Fauconneau also warned against the use of sand as it can become a projectile and possibly be ingested by the aircraft engine.¹

The article also warns of the many dangers of snow that is piled up near the aircraft. The aircraft can hit piled snow creating significant whiteout conditions, resulting in zero visibility for personnel in the proximity of the aircraft.

Another negative characteristic concern for repeated use of calcium chloride, salt, or other chemical deicers is known as spalling. Spalling is the erosion and breakup of concrete surfaces caused by ice melt chemicals in a repeated freezing and thawing cycle. The eroded and crumbling surface is as detrimental to helicopter components as sand or gravel.



This article continues on <http://go.hw.net/AR052018-3>. Go online to read the rest of the article and complete the corresponding quiz for credit.



Lily Helipads is the first company to offer a “green”, turnkey helipad. Prioritizing natural drainage, efficient heat sources, high visibility lighting and the available modern safety features, Lily meets or surpasses FAA requirements. Recognizing the need for care access, Lily goes beyond the helipad, offering slip free walkways, ramps and entries for medical staff. For more information, please visit: www.lilyhelipads.com.

QUIZ

- What does the acronym FATO stand for?
 - Fixed Aviation Torque Organization
 - Final Approach and Takeoff Area
 - Federation of Aviation Township Organizations
 - Fixed Approach and Takeoff Agency
- Which rotor of a helicopter is most likely to blow up loose snow and cause whiteout conditions?
 - Main rotor
 - Mid rotor
 - Tail rotor
 - None of the above
- The American College of Surgeons rates trauma centers according to each center's level of comprehensive trauma care. Which of the three levels offers the most comprehensive trauma care?
 - Level 1 trauma center
 - Level 2 trauma center
 - Level 3 trauma center
 - None of the above
- A health center spokesperson made the following statement about the facility's new helipad: “One of the most critical and impactful services that Hendricks Regional Health can provide to its patients is access. Our all-weather helipad is part of the commitment that we have made to enhance that directive as well as to provide a safe environment for our patients and emergency-oriented physicians and providers.” Where is that health center?
 - Danville, Indiana
 - Santa Rosa, California
 - Las Cruces, New Mexico
 - Bozeman, Montana
- What is the benefit of a porous and permeable helicopter landing pad?
 - Rainwater can seep through and be captured below grade
 - Chemicals and other liquids can seep through, separated from water for reuse, keeping the surface free of hazards
 - The landing pad will not need to be sloped to discharge rainwater, which is not ideal for landing helicopters
 - All of the above
- True or False: For removing snow and ice from helipads, walkways, or roads, rock salt is always the preferred method.
 - True
 - False
- A SIM system extracts existing energy from the hospital boilers through a heat exchanger that circulates glycol through a PEX tubing system to keep the helipad and access ways reliably snow and ice-free. What does the acronym SIM stand for?
 - Snow Ice Melt System
 - Sunlight Integration Matrix
 - Systematic Integrated Management
 - None of the above
- Perimeter lighting is extremely important for a helicopter pilot approaching a hospital helipad. Why should the LED lighting contain an infrared element?
 - Because it is considered trendy in the helicopter industry.
 - The infrared elements are soothing to the neighbors.
 - So the pilots can see the lights when using night vision goggles.
 - Because they are cheaper to replace than non-infrared LEDs.
- What does the acronym PCL stand for in the context of this course?
 - Pilot Controlled Lighting
 - Preferred County License
 - Pilots Community Lounge
 - Perimeter Containment Lighting
- True or false: While landing pads were once simple concrete slabs with wind socks, hospitals can now hire turnkey companies that design and install modern helicopter landing pads.
 - True
 - False

SPONSOR INFORMATION

ZERO-ENERGY SCHOOLS

HOW INNOVATIVE CONCRETE SYSTEMS ARE MAKING IT POSSIBLE

Presented by:



Richardsville Elementary School in Warren County, Kentucky, is the nation's first zero-energy school. Architect and photo credit: Sherman Carter Barnhart. MEP Engineer: CMTA, Inc. ICF System: Nudura.

LEARNING OBJECTIVES

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

1. Understand the principles and strategies behind zero-energy school design and construction.
2. Understand how innovative concrete systems such as ICFs are being used to achieve zero-energy schools.
3. Understand how a combination of energy-efficiency strategies, high-performance envelopes and solar power are used to meet zero-energy criteria.
4. Understand the contribution concrete makes to safe and productive schools by providing energy-efficient, quiet and resilient structures.

CONTINUING EDUCATION

AIA CREDIT: 1 LU/HSW
AIA COURSE NUMBER: AR052018-1



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By: Lionel Lemay, PE, SE, LEED AP. Executive Vice President, Structures and Sustainability, National Ready Mixed Concrete Association; James Bogdan, LEED AP, QEP. Senior Director, Sustainability Initiatives, National Ready Mixed Concrete Association



INTRODUCTION

Richardsville Elementary School, completed in 2010, is the nation's first zero-energy school. The 77,000-square-foot building combines drastic reduction in energy consumption with on-site photovoltaic panels that produce more energy than required to run the building. The building is so energy efficient that it returns energy back to the grid.

"We are tremendously proud that since its opening in 2010, we have not paid a single utility bill on Richardsville Elementary School. The reason for this cost avoidance is that the building actually generates more electricity than it consumes. At the end of the school year, we usually get a check back from the utility company in excess of \$30,000," says Jay Wilson, director of safety and energy management, Warren County, Kentucky, Public Schools.

“The easiest way to increase a school districts budget is to reduce energy consumption,” says Kenny Stanfield, principal at Sherman Carter Barnhart and architect on Richlandville Elementary School, along with dozens of net-zero or near-net-zero schools in Kentucky. “And the most cost-effective way to save energy is not to need it,” adds Stanfield.

Stanfield, along with CMTA, Inc., engineers lowered the energy use intensity (EUI) for Richlandville Elementary School to 18.2 kBtu/ft² compared with 73 kBtu/ft² required by the energy code, a 75 percent reduction. Because the energy use was so low and the building construction cost was below budget, the school district was able to absorb the cost of adding a 349 kW photovoltaic array to provide enough energy to power the school and sell a small amount back to the electric utility.

According to Stanfield, the trend towards zero-energy schools, also known as net-zero-energy or zero-net-energy, comes down to three factors:

1. State-of-the-art design strategies and technologies to reduce energy consumption.
2. An innovative building system such as insulating concrete forms (ICFs) that can provide high R-value, low air infiltration at a low cost.
3. Affordable on-site solar energy.

There are several reasons why schools are ideal zero-energy candidates:

1. Schools typically have low energy demand. They operate only nine months of the year, with well-defined and limited operating hours.
2. Occupancy levels are predictable and controlled and after-hours occupancy is limited.
3. Plug loads are low compared with other building types that might run a lot of appliances and computer equipment.
4. Schools are ideally suited for renewable energy, especially in the form of solar panels, since schools are often limited to two stories and have a relatively large roof area to volume ratio, meaning there is plenty of room to install solar panels. Most of the demand for energy comes during the day, when the sun is available to generate electricity.
5. Schools are owner occupied, which means there is an interest in minimizing operating costs, including utilities. School boards have bonding authority to fund long-term projects.
6. School can meet sustainability goals, since zero-energy buildings reduce annual carbon emissions both through energy efficiency and use of renewable energy.

7. A healthier, more comfortable indoor environment can help stimulate learning, help reduce student absences and lead to increased teacher retention, according to the Center for Green Schools.
8. Since many zero-energy schools are built using concrete construction with safe rooms and can generate their own power, zero-energy schools are disaster resilient; they can serve as a community shelter during and after a disaster.

ZERO-ENERGY STRATEGIES

“The key to achieving zero-energy is *drastic* energy reduction and cost shifting to areas that pay dividends. It starts with efficient floor plans that are fully optimized (high net to gross ratio) and less expensive to construct,” says Ben Robertson, engineer with CMTA, Inc. “Sure, any building can be zero-energy, but doing it without spending more money is where true success is achieved,” adds Robertson.

Although installing on-site renewable energy infrastructure such as solar arrays is coming down in price, it still requires an up-front investment. Making the building as energy efficient as possible helps to reduce the size of the renewable power infrastructure needed, thus keeping initial costs down. In addition, using cost-effective construction methods and materials allows room in the budget for the initial investment in power-generating equipment. The following are the key strategies to achieving these goals:

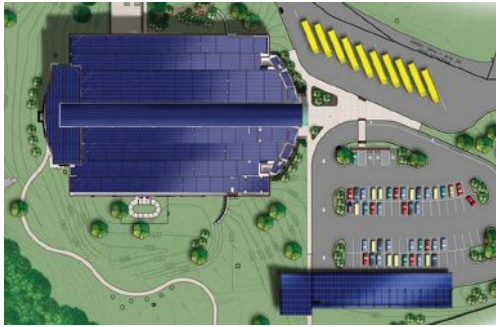
Passive Solar Strategies

Building orientation, daylighting, building volume and thermal mass are all building properties that can be optimized by designers to help reduce energy consumption without increasing cost or compromising function and aesthetics. Passive solar strategies include:

- **East/West building orientation:** If possible, line up the building’s main circulation axis in an east/west orientation with academic spaces along the north and south walls of the building to control natural light.
- **Daylighting:** Use daylighting for classrooms with a combination of exterior solar shades to block sun during high sun orientation or light shelves to reflect light deep into interior spaces during low sunlight conditions. Use clerestories or windows mounted at higher elevation, with ceilings sloped to the interior to allow light to penetrate further. Use aerogel



Richlandville Elementary School is so energy efficient that it generates enough energy to sell back to the electric utility. Photo courtesy of CMTA, Inc.



East/west orientations, daylighting and compact volume helped reduce energy consumption of Richardsville Elementary School. Photos courtesy of Sherman Carter Barnhart and CMTA, Inc.

insulated glazing or low-e coatings to reduce solar heat gain.

- **Compact building volume:** Use rectangular, multistory designs (at least two stories) to reduce the exterior wall-to-floor area, window-to-floor area and roof-to-floor area ratios.
- **Thermal mass:** Use building systems that have high thermal mass, such as concrete for the walls and floors of the structure.

High-Performance Envelope and Structure

Sherman Carter Barnhart, along with other architects highlighted in the case studies below have come to the realization that ICFs incorporate all the properties needed for zero-energy school construction. ICFs are used for the following reasons:

- They act as load-bearing walls with super-insulation, thermal mass and air barrier all in one. ICFs create one of the tightest envelopes available. You can achieve low air-infiltration rates with other systems, but it is significantly more complex.
- They reduce sound transmission from outside and between classrooms, and for gymnasiums, music rooms and theaters.
- They keep students and teachers safe from Mother Nature's wrath. Concrete systems are resistant to fire, tornados, hurricanes, floods and earthquakes.

Energy-Efficient HVAC Systems and Technology

The use of energy-efficient mechanical systems and active control technology is critical to keeping energy use intensity (EUI) as low as possible. Strategies include:

- Use efficient geothermal HVAC systems with variable-speed heat pumps. Use one heat pump for two classrooms.

INSULATING CONCRETE FORMS

Insulating concrete forms (ICFs) combine two well-established building products: reinforced concrete for strength and durability, and expanded polystyrene (EPS) insulation for energy efficiency. ICF walls are made up of two layers of rigid insulation held together with plastic ties to form ICF units with a cavity in the center. The ICF units are stacked in the shape of the wall, reinforcing steel is added into the cavity and then concrete is placed into the form. The result is a reinforced concrete wall with a layer of insulation on each side. What makes ICFs different from traditional concrete construction is that the forms remain in place after the concrete is cured to provide thermal insulation. The combination of reinforced concrete and insulation provides an ideal load bearing wall, thermal envelope, air barrier, fire barrier and sound barrier.

Ease of Construction

The efficient construction process is what sets ICF building systems apart from other building systems such as wood frame, steel frame and masonry construction. ICF construction can help contain construction costs and reduce construction time because of the inherent efficiencies of the installed assembly that serves nine functions:

1. Concrete form (that stays in place)
2. Thermal barrier
3. Air barrier
4. Moisture barrier
5. Fire barrier
6. Sound barrier
7. Substrate for running utilities
8. Substrate for attaching finish materials
9. Reinforced concrete structure



Richardsville Elementary School used the Nudura ICF system. Photo courtesy of Sherman Carter Barnhart.

In other forms of construction, these functions are installed by several different trades, usually at significantly added cost. General contractors can realize a number of on-site efficiencies, including fewer trades, reduced crew size and accelerated construction schedules. Because construction schedules are usually much shorter with ICF construction, the general contractor is able to finish on time and within budget. The building owner is able to put the building into service sooner, cutting short financing costs.

There are many different ICF manufacturers with similar ICF systems. The blocks range in size from 48 to 96 inches long and 12 to 24 inches high depending on the manufacturer. The most common configuration of an ICF unit is made up of two layers of 2 3/8- to-2 3/4-inch-thick EPS insulation spaced 4, 6, 8, 10 or 12 inches apart depending on design requirements. The most common spacing is 6 inches or 8 inches for most low- to mid-rise buildings. But for taller buildings, taller walls or exceptionally large loadings, thicker walls are necessary. For simplicity, ICFs are generally called out by the width of its cavity, hence an ICF with a 6-inch cavity is called a 6-inch ICF and so forth.



ICF wall and floor components. Image courtesy of BuildBlock.

ICF manufacturers have a variety of ICF blocks to accommodate any design condition and have outstanding technical support, including design manuals, design details, engineering support and all the test reports needed for school construction, such as fire, energy and noise. They have special components including straight blocks, corner blocks, brick ledges, angled blocks, curved blocks and half-height units, minimizing the need for field modifications that further reduce construction time.

Another benefit of ICFs is that construction projects can continue through the coldest and hottest weather because of the insulating quality of the ICF forms. This means that concrete will continue to gain strength within the protective formwork despite freezing conditions, and not overheat during extreme summer conditions. In addition, all ICF systems have furring strips integrated into the plastic ties that permit easy attachment of any interior or exterior finish.

There are also ICF concrete floor and roof systems. The concept is similar in that the ICF floor or roof is made with rigid insulation to function as a one-sided form at the bottom surface. The forms are installed to span between concrete walls, reinforcing steel is installed and then concrete is placed onto the forms. The result is a reinforced concrete floor or roof with rigid insulation on the bottom. Other types of floor systems often used in combination with ICF walls include precast hollow-core plank and composite concrete floors over steel joists.

- Use occupancy sensors for lighting and other occupancy-dependent systems.
- Control outside air ventilation with dedicated outside air systems, heat recovery wheels and demand control ventilation based on occupancy.
- Use automated dimming to reduce artificial-lighting requirements—although if using LED lighting, automated dimming can be eliminated since LED lighting is extremely energy efficient.
- Use ENERGY STAR convection ovens as a healthier option to traditional fryers and skillets, as they eliminate the need for energy-intensive type I ventilation hoods.
- Use ENERGY STAR laptops on carts that permit computers to be transported to classrooms instead of having dedicated computer labs with energy-intensive desktops.
- Use dark sky approach to exterior lighting. Use security lighting with motion sensors to alert local police if there is activity on school property after dark.

On-site Power Generation

Most schools, including Richardsville Elementary, use photovoltaic panels as the main source of on-site power generation. Solar panels are becoming more common at schools across the United States. According to the Solar Energy Industries Association report *Brighter Future: A Study on Solar in U.S. Schools*, there are approximately 5,500 K-12 schools with solar photovoltaic installations in the country. A precipitous decline in the cost of solar panels has made installations financially viable. According to National Renewable Energy Laboratory, the cost of commercial solar installations has fallen to \$2.80 per watt in 2017, compared with \$7.24 per watt in 2010, a 60 percent decline in just seven years. This explains why 61 percent of the solar capacity in K-12 schools has been installed in the last five years.

That said, there is still a capital cost of solar panel installation that must be accounted for to meet strict budget limitations of most school boards. The following are key strategies:

- Minimize the EUI of the building using all the strategies previously mentioned. According to the New Building Institute, the target EUI for zero-energy schools is 20-24 kBtu/ft² or lower if possible.
- During construction, utilize design strategies and building systems that are efficient and cost-effective to help offset the initial cost of solar panel installation.

QUIZ

- The main components of ICFs are:
 - Steel and plastic
 - Insulation and concrete
 - Plastic and aluminum
 - Wood and masonry
- ICF walls are most frequently used as _____ walls to support vertical and horizontal loading
 - Frame
 - Bearing
 - Partition
 - Clerestory
- One of the reasons ICFs are cost competitive is that they serve nine functions, including:
 - Exterior finish and roofing
 - Photo voltaic panels and sunscreen
 - Thermal barrier, air barrier and moisture barrier
 - Columns and beams
- To attach interior and exterior finish to an ICF wall one must first install wood furring strips.
 - True
 - False
- Even though ICF construction costs about the same as wood, steel or masonry, they are often used in school construction because of reduced:
 - Winter months
 - Wall lengths
 - Transportation distances
 - Construction time
- Floor systems often combined with ICF walls in school construction include:
 - Precast hollow-core plank
 - ICF floor systems
 - Composite concrete floors over steel joists
 - All of the above
- Which three attributes of ICFs contribute to energy efficiency?
 - High insulation value, thermal mass and low air infiltration
 - High insulation value, thermal bridging and low air infiltration
 - Thermal mass, thermal bridging and high air circulation
 - Thermal mass, thermal bridging and convection
- A zero-energy school should set a target energy use intensity (EUI) of _____ or less:
 - 20–24 kBtu/ft²
 - 120–130 kBtu/ft²
 - 73 kBtu/ft²
 - 40–44 kBtu/ft²
- The concrete core of an ICF wall system offers:
 - Noise and vibration control
 - Fire resistance
 - Thermal mass
 - All of the above
- Once concrete is placed into ICF forms and concrete hardens, the forms are removed for re-use.
 - True
 - False

SPONSOR INFORMATION



Build with Strength, a coalition of the National Ready Mixed Concrete Association, educates the building and design communities and policymakers on the benefits of ready-mixed concrete, and encourages its use as the building material of choice. No other material can replicate concrete's advantages in terms of strength, durability, safety and ease of use.



This article continues on <http://go.hw.net/AR052018-1>.

Go online to read the rest of the article and complete the corresponding quiz for credit.

Textbook Strength:

Why insulated concrete forms make the grade for schools.

There's nothing more important than keeping our communities and children safe. But one of the easiest ways to do this might surprise you—and that's using ICFs in all new school construction. ICFs are stronger, safer and more resilient. It's one of the only building materials that stands up to anything and everything, including extreme weather events, natural disasters and fires.



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BUILD WITH STRENGTH

A COALITION OF THE NATIONAL READY MIXED CONCRETE ASSOCIATION

SEEKING RESILIENT, LONG-LASTING BUILDINGS? GLASS-MAT AND HIGH-PERFORMANCE WALLBOARDS ARE THE SOLUTION

For highly trafficked durable spaces and buildings requiring higher resilience, architects are turning to enhanced-performance gypsum and glass-mat interior wallboard for their wall and ceiling designs.

Presented by:



Glass-mat interior panels offer enhanced protection against water and air infiltration, and is available as a abuse-resistant product, with fire protection and acoustical benefits. Photo courtesy: USG.

With hurricanes Harvey, Maria and Irma, western wildfires, and other weather and climate-related disasters wreaking havoc across the nation in 2017, the U.S. incurred a record \$306 billion in damages during the year, according to the U.S. National Oceanic and Atmospheric Administration.

As a result, the need for building resilience has reached a crescendo among building owners, who are now urgently seeking resilient building design, products, and construction. And architects are thinking twice about the interior products they are specifying.

Key to all this is selecting the right wallboard for the application. Use of products like non-paper-faced gypsum board, recognized by the U.S. Federal Emergency Management Agency as a floodwater-damage-resistant material, can potentially enable a building to recover more quickly after a natural disaster.

In tandem with this push toward resilience, facility owners are also very interested in abuse-resistant products, particularly for highly trafficked applications.

“The floors and walls in educational buildings, for example, are exposed to an extraordinary amount of wear over their lifetimes, so it is important that we select materials that will withstand that abuse without a lot of maintenance,” says Mark Walsh, AIA, CDT, LEED AP-technical director, principal, Perkins+Will, Chicago.

While abuse-resistant products typically are sufficient for school and healthcare settings, in applications such as correctional facilities impact-resistant products will likely be required.

Architects must also anticipate which parts of the wall are most vulnerable to abuse, such as the bottom half of office walls, which frequently rub up against chairs and office furniture.

THE IMPORTANCE OF HIGH-QUALITY WALLBOARD

Among the myriad of building products that go into a facility, wallboard plays a key role in providing resilience, longevity and durability.

LEARNING OBJECTIVES

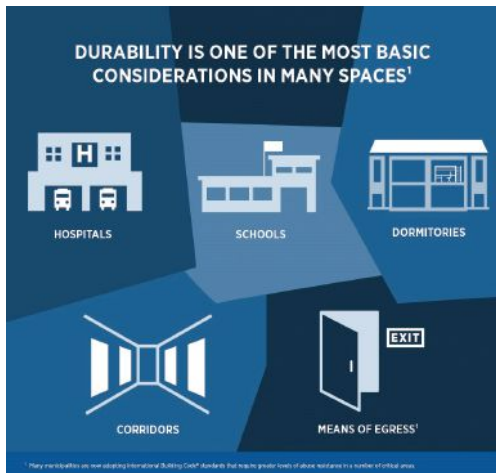
1. Highlight the growing importance of moisture and mold resistance, good indoor air quality, and long-lasting interiors.
2. Spell out the pros associated with selecting enhanced gypsum and/or glass-mat wallboard panels.
3. Delineate the abuse- and impact-resistant, acoustical, fire-resistant, and moisture- and mold-resistant properties of wallboard.
4. Compare the enhanced durability, mold resistance and pre-rock construction advantages of glass-mat wallboard usage with standard gypsum products.
5. Understand the levels of finish and how finishing glass-mat panels may require additional coats.

CONTINUING EDUCATION

AIA CREDIT: 1 LU/HSW
AIA COURSE NUMBER: AR052018-4



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In highly trafficked spaces such as hospital, schools and dormitories, durability and abuse resistance are key for wallboard products. Image courtesy: USG.

This is particularly important for heavily used facilities such as schools, health-care facilities, federal buildings, sports facilities, apartments, hotels, dormitories, correctional facilities and garages.

Designers are seeking robust products for main locations that are most prone to surface abrasion and indentation, such as operating rooms, cafeterias, corridors and lobbies. The same applies to spaces most susceptible to wall penetrations, including classrooms, gymnasiums, mailrooms, loading areas, workshops and psychiatric wards.

“Highly trafficked areas are especially susceptible to damage, wear, spills and increased cleaning frequency,” says Daniel Colli AIA, LEED AP



Abuse-resistant gypsum panels protect against scuffs, scratches and dents, and impact-resistant gypsum panels guards against surface abuse and impact damage. Image courtesy: USG.

BD+C, associate principal, Perkins Eastman, Boston. At the same time, he adds, “long-term durability enhances the building’s sustainability and reduces the owner’s long-term maintenance costs.”

Nick Mira, AIA, LEED AP BD+C, partner, Propel Studio, Portland, Oregon, says in his company’s blog that low maintenance design is “design that’s thoughtful; that understands fully its user and exposure ... knowing when something is appropriate and when something is not appropriate.”

GOOD, BETTER AND BEST

As a proven, highly effective wallboard product, gypsum is popular for many building applications. However, it’s critical to choose the right product for the given application, as there are a number of gypsum product types to choose from and one size does not fit all.

Starting with traditional paper-faced gypsum, these products are durable, versatile, affordable, can contain a noncombustible core for excellent fire resistance and are a great choice for more lightly trafficked applications.

For applications where a higher level of moisture resistance and/or abuse resistance is required, alternative high-performance wallboard options need to be considered. Moisture, for example, is of particular concern because it can be introduced in many ways—for instance through high humidity common in spaces like locker rooms and bathrooms.

Explaining the path that uncontrolled moisture will travel within the wall, Colli says water wicks up drywall and can reach heights of 16 to 20 inches. “Drywall that has been damaged may lose its structural integrity,” adds Colli. “Water present in drywall can move to the adjacent insulation and, in extreme circumstances, corrode metal studs.”

Fortunately, specialty paper-faced moisture-resistant wallboard panels are available to better control and manage moisture in buildings. Similarly, architects can choose enhanced fire- protection paper-faced gypsum.

THE BENEFITS OF GLASS-MAT

The best-in-class option, glass-mat wallboard, delivers a higher level of durability and better resistance against mold for both interior and exterior applications, as well as wet and non-wet tiled areas.



The construction of framing and gypsum board partitions is fast, efficient and very flexible. Photo courtesy: USG.

Made with a fiberglass facing, “the deletion of the paper backing greatly enhances the product’s resistance to mold growth,” says Colli.

This diminished concern for mold and mildew also makes glass-mat appropriate for the more damp areas within a building.

“Glass-mat is also a stronger, more durable facing material than paper, so it’s less susceptible to structural failure or delamination,” says Dave Lick, a Parts Quality Assurance (PQA) inspector and training development specialist for the British Columbia, Canada-based Master Painters Institute in a *Durability + Design* article. “Glass-mat gypsum can withstand incidental wetting such as an unexpected downpour before the building has a roof and windows.”

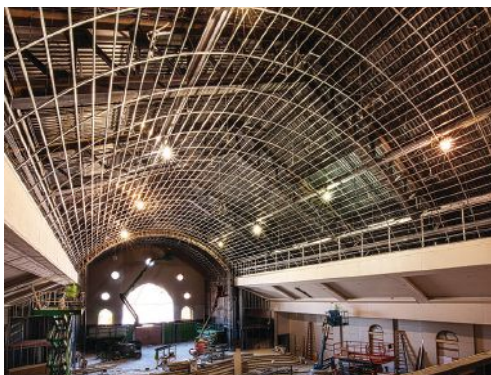
Glass-mat is treated with an acrylic coating for moisture resistance, which creates a hydrophobic, non-absorptive surface. The coating on the mat’s surface also fills any voids and openings in the mat itself, delivering additional protection for the gypsum core and shielding the mat from the elements. By eliminating the moisture source from wicking or capillary action, the technology essentially delivers enhanced moisture protection.

PRE-ROCK IN ACTION AT EASTERN WISCONSIN SCHOOL

In designing the 170,000-square-foot Christian Education Leadership Academy in Pewaukee, Wisconsin, Plunkett Raysich Architects specified glass-mat sheathing for the exterior of the building, as well as both the mold-resistant glass-mat panels and the ultra-lightweight, fire-resistant paper-faced panels.

To complete the entire school project in just 12 months, glass-mat interior panels with added mold-resistant protection were used to enable pre-rock application before the building envelop was fully enclosed. "The project was complex because of the design and the timing," says Justin Gelhausen, project manager for the subcontractor Wall-Tech, DeForest, Wisconsin.

A 14-foot, 6 ½-inch barrel vault ceiling, breaking at 65 feet above the school's chapel, presented another challenge. Fortunately, the manufacturer that provided the enhanced glass-mat and wallboard panels also had the resources to support both the design and installation of the elegant ceiling design.



For the barrel vault ceiling and walls of the Christian Education Leadership Academy in Pewaukee, Wisconsin, a combination of interior mold-resistant glass-mat panels and lightweight, fire-resistant panels were specified. Photo courtesy: USG

Because the product is less susceptible to environmental damage, glass-mat allows greater flexibility in delivery and storage. Furthermore, the panels' water-resistant nature enables interior drywall installation before the building is closed in.

While a relatively newer approach to building construction, pre-rock—also referred to as top-down or topping-out—effectively increases efficiency, lessens overall costs and reduces scheduling conflicts.

"This ability for a contractor to begin the gypsum board installation prior to building dry-in can help accelerate the schedule and allow for earlier building completion," says Walsh.

To appreciate the efficiencies and quality assurance leveraged by pre-rock—enabled by products like glass-mat panels—traditional construction involves a complicated process of installing wallboard around duct and pipe penetrations since the MEP infrastructure has to be installed prior to the drywall. Unfortunately, this creates the possibility that quality and fire-resistance ratings could be compromised at these difficult-to-reach joints and penetrations.

With pre-dry-in construction, the drywall tradesmen first install the metal framing and then hang interior wallboard in the plenum above the finished ceiling plane. Afterward, the MEP tradesmen install the ducts, conduit and pipes that penetrate the plenum walls. In the plenum space, joint finishing can usually be done quickly and simply by fire-taping the joints.

In fact, some glass-mat panel manufacturers offer a 12-month exposure warranty, essentially

guaranteeing that their products can withstand this duration of exposure to the elements. At the same time, the warranty is not all-inclusive and does exclude circumstances where there is excessive moisture, cascading water, or weather events such as tornadoes, hurricanes and major thunderstorms that combine wind and water.

"Architects should consider glass-mat products for spaces where both moisture and impact are anticipated," says Walsh. "These products should also be considered for projects with very aggressive construction schedules that can take advantage of the ability to install gypsum board partitions prior to the completion of building enclosure."

"If you have a condition where speed of construction is essential, the probability that the surfaces of the facility will be subjected to unusually high levels of moisture or the IAQ concern is very high," says Colli.

As spelled out on the Gypsum Association's website, glass-mat gypsum panels offer:

- Extended protection against water and air infiltration
- Enhanced mold resistance on account of their glass-mat facers and anti-microbial core treatment
- Enhanced fire resistance with very low tested values for flame spread and smoke generation
- Exterior systems compatibility, including wood, masonry, metal, vinyl and stucco systems
- Versatile, practical and easy-to-apply application for streamlined material procurement, reduced material and

labor costs, and tightened construction schedules for exterior walls.

- Better noise attenuation

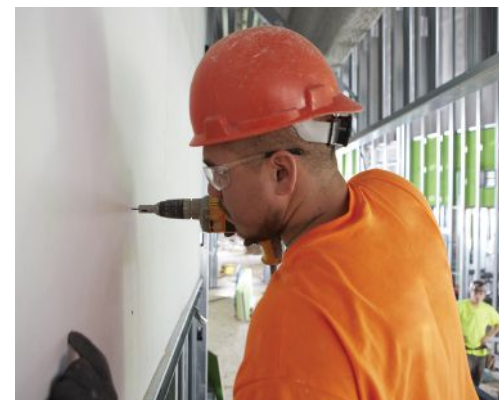
Initially, interior glass-mat wall products were installed only in the plenum space above the ceiling plane, thereby offering partial protection from the roof or floor deck above to make sure water did not collect and pool where it would be in direct contact with the gypsum panels. But now that this has become a more established practice, pre-dry-in construction has come to include hanging the wallboard over the full floor-to-ceiling height of the wall.

"In the past, glass-mat wallboard was used primarily as exterior sheathing for exterior wall assemblies because of its moisture resistance," says Lick. "Now, however, we see it specified more frequently for interior environments subject to extensive moisture or liquid exposure, such as hospital walls that endure constant cleaning and where the potential for mold growth is unacceptable."

When evaluating glass-mat gypsum products, projects with more of a life cycle approach to product selection are more likely to appreciate the technology's overall benefits, despite the higher upfront cost of this premium product.

In many cases, the cost efficiencies achieved by a shortened construction schedule are enough to justify the added first-cost expense.

"Because glass-mat gypsum products may be specified in wet or damp locations, they may offer a cheaper alternative to traditional concrete board usage over metal stud construction, or even concrete masonry unit wall construction," says Brad Swank, RA, project architect, Fanning Howey, Dublin, Ohio.



Interior glass-mat and paper-face wallboard are widely available and offer a large pool of skilled workers familiar with the product and its installation. Photo courtesy: USG.

As a low-maintenance option, Propel Studio's Mira says this caliber of products is often not given a fair shake when building teams are evaluating product options without keeping the big picture in mind.

While a product like glass-mat panels may initially cost more, once material replacement, renovation, disposal and the disruption to business are considered, the cost-benefit equation changes.

There is a "tradeoff for doing things the right way the first time versus the life cycle costs of doing things cheaper to save money upfront," says Mira in his blog "The Importance of Low Maintenance Design."

ABUSE AND IMPACT RESISTANCE, FIRE PROTECTION, ACOUSTICS AND MOLD RESISTANCE

Delving into more details on the benefits and features offered by high-performance gypsum wallboard, abuse and impact resistance top the list.

Offering some insights, Swank says that abuse-resistant products are designed to resist surface abrasion, which reduces the amount of maintenance the wall surface requires throughout its lifetime. Meanwhile, impact-resistant gypsum board is designed to reduce cracking penetrations into the wall cavities.

"The abuse-resistant products are provided with an enhanced high-density gypsum core and a heavy abrasion-resistant paper face," Swank says, "and impact-resistant products incorporate an enhanced high-density gypsum core along with heavy abrasion-resistant paper and a glass mesh reinforcement."

Impact-resistant wallboard panels are manufactured with an Underwriter Laboratories (UL)-classified Type X core that may replace any 5/8-inch Type X gypsum board in approved fire-resistant systems.

Swank adds that these abuse- and impact-resistant products have been shown to provide an enhanced level of durability in the various abrasion and impact American Society for Testing and Materials (ASTM) C1629 testing.



Visit <http://go.hw.net/AR052018-4> to read more and complete the quiz for credit.

QUIZ

- If moisture builds up inside of a building, this can cause:
 - Wall rot
 - Compromised insulation
 - Corrosion of the cladding
 - All of the above
- What properties enable glass-mat wallboard to resist moisture?
 - An absorptive surface
 - Small holes and voids on the surface
 - An acrylic coating
 - None of the above
- True or false: A newer ultra-lightweight gypsum wallboard product is currently available on the market.
 - True
 - False
- When installed as part of an UL-rated wall assembly, Type X gypsum board offers fire ratings of up to how many hours?
 - One
 - Two
 - Three
 - Four
- The ASTM D3273 mold test always shows how well a wallboard product will perform on-site.
 - True
 - False
- Compared with paper-back gypsum, glass-mat is much more moisture- and mold-resistant due to:
 - Its organic makeup
 - Its inclusion of mineral wool
 - Its acrylic coating
 - None of the above
- Pre-rock construction for glass-mat panels:
 - Can significantly speed up the construction process
 - Is typically supported by a six-month warranty
 - Means that the ducts, conduit and pipes are first installed, followed by the metal framing and wallboard
 - Is also available with paper-based products
- Which level finish is recommended for applications where the wall is brightly lit and/or where non-textured flat paints are specified?
 - Level 2
 - Level 3
 - Level 4
 - Level 5
- For Level 4 and 5 finishes, what minimum percentage of pigment, resin and additives—i.e., higher solids—is recommended?
 - 20 percent
 - 30 percent
 - 40 percent
 - 50 percent
- The ASTM D 4977 test for surface abrasion subjects a gypsum board sample to how many cycles?
 - 50
 - 70
 - 90
 - 100

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AIA Architect

AIA Voices



PHOTOGRAPHY: CARL BOWEN

Status Quo, Interrupted

Making a difference starts with being heard.

Zhanina Boyadzhieva, ASSOC. AIA, and Juliet Chun, ASSOC. AIA, are designers at Boston-based Leers Weinzapfel Associates (LWA), a firm that was started in the 1980s by two women—Andrea Leers, FAIA, and Jane Weinzapfel, FAIA—and prides itself on being forward-thinking. As such, Boyadzhieva and Chun have leveraged an atmosphere of curiosity and professional support into a project known as Girl UNinterrupted. It's a chance for the two to engage with emerging professionals in Boston and beyond, shining a light on issues that matter to the next generation of architects and recommending solutions that could help build a more equitable profession.

As told to Steve Cimino

Boyadzhieva: LWA has always been a candid, collaborative environment. On International Women's Day in 2017, we had a two-hour office-wide discussion about the issues affecting women in architecture. From that conversation, Juliet and I started wondering what architects and designers from our generation struggle with at work: wage gap, discrimination, sexism, and other major concerns. That led to Girl UNinterrupted.

Chun: The project is broken into three phases. The first was a survey we sent to emerging professionals [EPs] in the Boston area. We were trying to get a sense of the current climate through filters like gender, office size, and years of experience. We received over 500 responses and had the data analyzed by volunteering professionals. The second phase was a conversation series with female leaders in the area, discussing challenges they faced and any advice they might have for EPs. The third phase is a manual, where we'll have information from the surveys, all our interviews, and tips for both leaders and EPs on how to build a better profession.

Boyadzhieva: We call the project Girl UNinterrupted because we're young female designers, but we've focused from the beginning on representing EPs in general. Both Juliet and I have been lucky to find an open-minded and equitable environment. Yet we're very aware that we're in a double bubble—working in Boston at a progressive firm—and we know that's not the case for others. We felt a responsibility to start something that could make an impact—and step in where many architects and designers can't—to collect and amplify the voices of others.

Chun: In our research we found that the gender gap increases as you get older. When future architects start school, there's usually a 50/50 balance of men and women. Then the drop-off begins, which increases as the years go by and ultimately leads to fewer women principals. As EPs, we have the chance to identify the issues affecting us right now, which will make them easier to tackle as we move into more senior positions. The more information that we can compile and put out there now, the better. **AIA**

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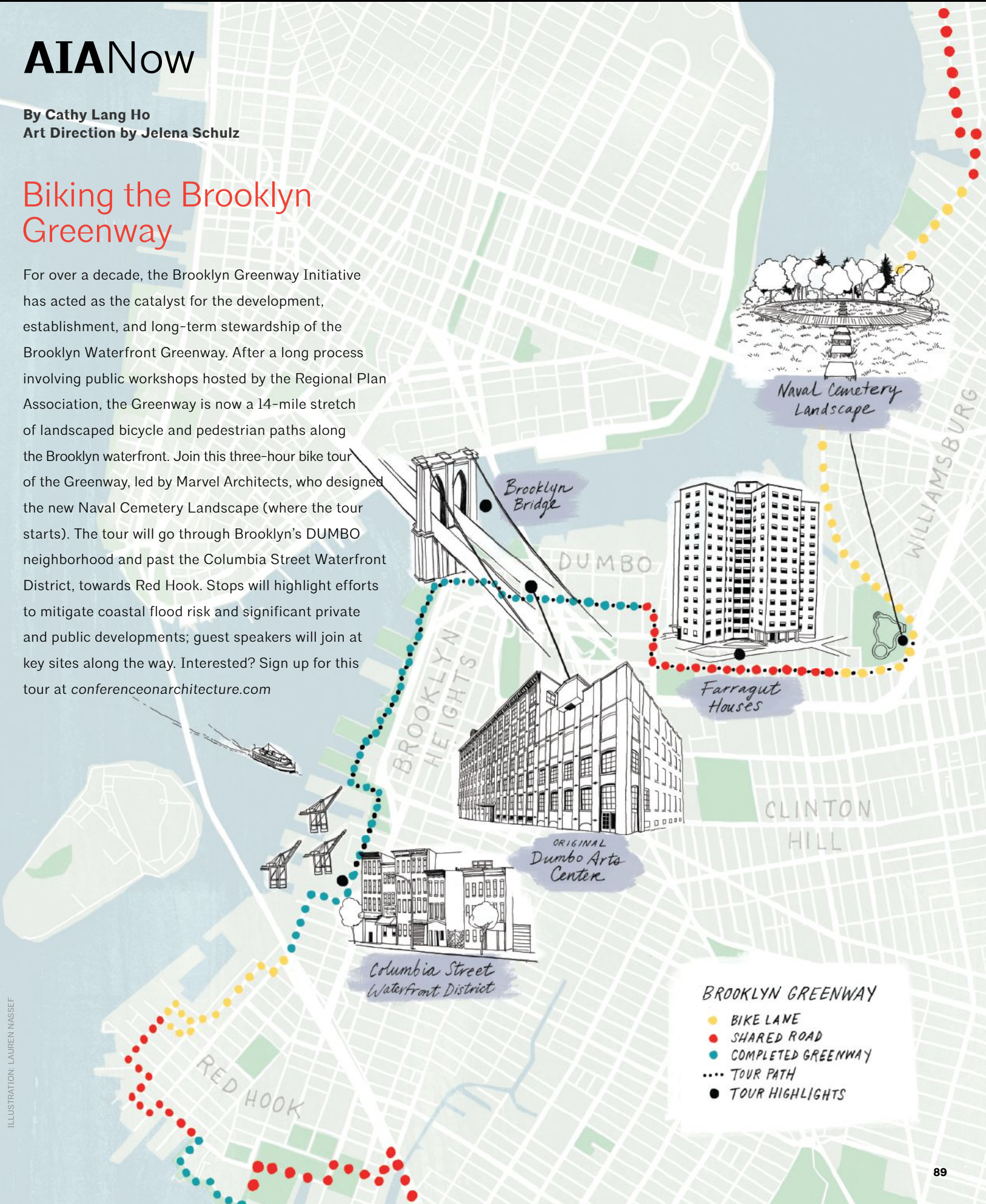
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conferenceonarchitecture.com

AIANow

By Cathy Lang Ho
Art Direction by Jelena Schulz

Biking the Brooklyn Greenway

For over a decade, the Brooklyn Greenway Initiative has acted as the catalyst for the development, establishment, and long-term stewardship of the Brooklyn Waterfront Greenway. After a long process involving public workshops hosted by the Regional Plan Association, the Greenway is now a 14-mile stretch of landscaped bicycle and pedestrian paths along the Brooklyn waterfront. Join this three-hour bike tour of the Greenway, led by Marvel Architects, who designed the new Naval Cemetery Landscape (where the tour starts). The tour will go through Brooklyn's DUMBO neighborhood and past the Columbia Street Waterfront District, towards Red Hook. Stops will highlight efforts to mitigate coastal flood risk and significant private and public developments; guest speakers will join at key sites along the way. Interested? Sign up for this tour at conferenceonarchitecture.com



- BROOKLYN GREENWAY**
- BIKE LANE
 - SHARED ROAD
 - COMPLETED GREENWAY
 - TOUR PATH
 - TOUR HIGHLIGHTS

ILLUSTRATION: LAUREN NASSEF

NOTICE

of AIA Candidates & Convention Business Items

CANDIDATES FOR INSTITUTE OFFICERS

Elections for the Institute's 2019-2021 At-large Director on the AIA Board of Directors, 2019-2020 Secretary, and 2019 First Vice President/2020 President-elect, will be held at the AIA Conference on Architecture, June 21-23, 2018. If no candidate for First Vice President or Secretary obtains a majority of the votes cast during the initial round of voting on June 21, 2018, a run-off election will take place on June 22, 2018. The following members have declared themselves candidates for national office.

2019-2021 At Large Director (one will be elected)



Jessica Sheridan, AIA
AIA New York Chapter/
AIA New York State



Rob E. Walker IV, AIA
AIA Birmingham/
AIA Alabama



James Wright, FAIA
AIA Washington, DC

2019-2020 Secretary



Jason Winters, AIA
AIA Chesapeake Bay/
AIA Maryland

2019 First Vice President/2020 President-elect



William J. Carpenter,
PhD, FAIA
AIA Atlanta/AIA Georgia



L. Jane Frederick, FAIA
AIA South Carolina

ACCREDITATION

Delegate accreditation for the AIA Conference on Architecture will take place online beginning in early April 2018, and for those not accrediting online will also take place at the Javits Center in New York City on Wednesday, June 20, 2018, from 10am to noon. Only accredited delegates may take part in the annual meeting or vote for candidates.

ANNUAL MEETING

The Institute's annual meeting will begin promptly at 4pm in the Javits Center on Wednesday, June 20, 2018. Delegates who fail to claim their voting keypads and to use them to register their presence at the start of the meeting, will not be able to vote at the meeting.

PROPOSED BYLAWS AMENDMENTS

The AIA Board of Directors is sponsoring amendments to the Institute's Bylaws, scheduled for consideration by the delegates at the annual business meeting at the Javits Center in New York City on June 20, 2018. Bylaws amendments require approval by an affirmative two-thirds majority of the votes cast (or accredited to be cast) by delegates at the meeting, determined in the manner prescribed in Section 9.011 of the Bylaws.

Bylaws Amendment 18-A

State organizations, chapters, and sections chartered by the Institute are referred to as components. The Board is sponsoring an amendment that would release sections without required membership from certain obligations that apply to state organizations, chapters, and sections with required membership.

Bylaws Amendment 18-B

Under the Institute Bylaws, an architect of esteemed character and distinguished achievements who is neither a U.S. citizen nor a resident of the United States and who does not primarily practice architecture within the domain of the Institute (that is, within the United States or its territories) may be admitted to Honorary Fellowship. (AIA Bylaws, Section 2.51.) These criteria seem designed to ensure that architects will be eligible for Honorary Fellowship only if they practice primarily outside the United States and have only limited ties to the United States. The Board is sponsoring amendments to the Bylaws that would remove the ban on Honorary Fellowship for U.S. citizens, and specify that an architect would not be eligible for Honorary Fellowship if he or she is entitled to practice architecture in any U.S. jurisdiction.

Bylaws Amendment 18-C

The Board is sponsoring amendments to the Bylaws that would affect eligibility requirements for Emeritus membership.

RESOLUTIONS

Delegates accredited for the Institute's annual business meeting will also be asked to consider resolutions, which require approval by a majority vote of the delegates present and voting.

To view candidate speeches, visit aia.org/2018candidates. For candidate information and the proposed Bylaws amendments and resolutions visit conferenceonarchitecture/aibusiness.



AIA Knowledge

ILLUSTRATION: MICHAEL KIRKHAM



47 Percent of All Employees at Small Architecture Firms Have an Ownership Stake in Their Firm

Salary data for small architecture firm employees reveal that 24 percent are a sole proprietor (file an IRS Schedule C or C-EZ) and 23 percent are an owner/partner (not a sole proprietor). Another 47 percent are firm employees that report their wage data through a standard W2 form, while 6 percent of employees at small firms are long-term contract employees who receive a 1099. **AIA**

Source: AIA Small Firm Compensation Survey Report, 2018

→ Learn more aia.org/smallfirm

—Michele Russo

AIAFeature

Renewing Kingston for the Second Time

How one Hudson Valley city is weaving together neighborhoods in the aftermath of urban renewal.

Ben Schulman



Looking down on Kingston's Midtown neighborhood, you can see the railroads and the now-demolished granite-and-limestone Post Office building. That building's demolition spurred a groundswell of support to preserve Kingston's remaining built legacy.

PHOTOGRAPHY: BOB HAINES.

Architect Scott Dutton first visited Kingston, N.Y.—a Hudson River town 90 miles north of New York City—after graduating from the Pratt Institute in Brooklyn. Fresh with architecture credentials, yet saddled with empty pockets, Dutton left New York looking for a less expensive place to call home. “I came up to the Hudson Valley one weekend and that was it,” he says. “I remember the moment distinctly: This was home. There was something about the architecture of the city of Kingston that drew me in.”

Dutton visited in the summer of 1994. He’s been living and working in Kingston ever since.

“In 1999, buildings in the Midtown area of the city were selling for four, five dollars a square foot, and just about everything was for sale,” he says. Dutton stumbled upon a vacant 28,000-square-foot brick building in the heart of Kingston. He cobbled together financing sources, borrowing \$10,000 for a down payment and attracting attention (and an additional loan) from the Kingston Local Development Corp. and eventually other local banks to acquire and begin the rehab of the property. Dutton grew attached to the adaptive reuse project—one of many that his firm has completed—to the point of moving his office into the building. After lobbying for and receiving a residential zoning variance, his family followed.

“People thought I was nuts,” he says. Yet businesses started moving in, and in a few years seven new companies occupied Dutton’s building alone. Other businesses started popping up around the neighborhood, and residents, too. “Slowly, one by one, I started to see more lights on in second- and third-floor windows,” he says.

Zoning restraints weren’t the only reason those lights had been dark. Kingston, like many Hudson Valley towns, had seen its economic underpinnings shift, altering its development patterns and points of growth. The city’s history is, in many respects, the history of its transportation.

“Even before European settlement, Kingston was an important hub of trading routes for the native Esopus people. Following the arrival of the first European explorers, the Hudson River, with its radiating tributaries and canals, emerged as a superhighway for goods

and settlers into the interior of the continent,” says Tim Weidemann, senior economic developer for the Ulster County Office of Economic Development. “The [Delaware and Hudson] canal had a relatively short life but defined the Rondout, N.Y., area in its early growth, and later in its decline.”

Rondout grew as an independent port city, taking advantage of its prime position as a natural port where Rondout Creek spits into the Hudson River. Railroads, and then cars, would supplant the predominance of Kingston’s river connections. And as preferred transportation modes changed, the vitality of the Rondout community was challenged by massive urban renewal works.

Lynn Woods, co-director of the film *Lost Rondout: A Story of Urban Removal*, which acts as a definitive document of this period in Kingston, notes that local historian Edwin Ford said the city received \$35 million dedicated to urban renewal. Equal amounts were doled out for projects focused on the Uptown Stockade district, home to the city’s colonial-era stone building stock and a still-extant urban plan drafted by Peter Stuyvesant; and to Rondout, located downtown. (The two areas, which were once separate cities, are connected by the 4-mile-long Broadway corridor in the Midtown district; many of the displaced people moved to Midtown, which suffers from high rates of poverty.)

Rondout, whose advantageous harbor would become an economic afterthought that betrayed the surrounding dense, vibrant, and close-knit community, bore the brunt of demolition, losing nearly 500 ante- and post-bellum structures. This included “the nerve center of the old city, the Cornell Building,” Woods says, referencing what was

the headquarters of the Cornell Steamboat Co., once Rondout’s most prominent business. A four-lane arterial highway and bridge crossing Rondout Creek was constructed after the demolition, bypassing the fragment of the old city. It looms over the neighborhood like a concrete finger shaming the port below.

Beyond the architectural loss of Rondout, the displacement of residents foisted upon an integrated working-class neighborhood—comprised mainly of African-Americans, Jews, and the descendants of the Italians, Poles, and other ethnicities that had immigrated to the area in the previous century—instigated a forced segregation, especially as replacement housing meant to keep residents in place was foiled by restrictive covenants or proved illusory.

“Urban renewal basically wiped out downtown,” Woods says, speaking of the devastating impact on Rondout. “At that time, all the economic activity was moving to Uptown.” She notes that while businesses had been moving from downtown to Uptown since the late 1950s, “urban renewal was certainly the nail in the coffin.”

In the Stockade, urban renewal was mainly a program of selective demolition to accommodate parking structures. “Kingston is like two cities that always competed with each other,” Woods says. “Clearly Uptown won out, though its shopping district would in turn become obsolete, replaced by strip malls. Only in the last five years, with Brooklynites migrating en masse to Kingston, has it recovered.”

Urban renewal is often considered a fissure between one era and another, with top-down prescriptions delivered onto an unwitting populace and landscape.

AIA Feature

CONTINUED

Yet seen through the prism of Kingston's history as a transportation corridor, urban renewal becomes a continuation of the city's node as one concerned with the most efficient movement of goods and people. As Weidemann, the economic developer, says, "It takes recognizing the transportation history and how it has shaped patterns of development and growth in Kingston."

The ambitious scale of urban renewal in Kingston also catalyzed opposition as demolition projects proceeded apace. The Friends of Historic Kingston emerged in the late 1960s to protect and steward the Stockade district's intact built colonial heritage. After losing the classically ornamented stone-and-brick post office building to demolition, public opinion towards urban renewal soured, as illustrated in Woods' film.

In paradoxical fashion—despite the damaging physical, economic, and social effects that urban renewal had in Kingston—one could argue that the era layered a more coherent sense of self onto its dispersed geography. This eventually led to the more positive developments—like Dutton's adaptive reuse project—that are taking root today.

RUPCO is a Kingston-based nonprofit developer that aims to "build for everyone," chief executive officer Kevin O'Connor says. "We're best when we're working with a community, not in a community." Being



Architect Scott Dutton, working with the nonprofit developer RUPCO, transformed Kingston's Lace Mill into affordable housing for artists and enlivened the building's public spaces with galleries.



Urban renewal projects brought a four-lane arterial highway and bridge crossing over Rondout Creek, allowing traffic to bypass the old Rondout neighborhood. The highway looms over the neighborhood like a concrete finger shaming the port below.

PHOTOGRAPHY: CAMERON BLAYLOCK (LEFT); DAVID R. MILLER (BOTTOM LEFT)

"somewhat expert at bringing resources" to complex financing environments, RUPCO incorporates both equity and lasting design principles into its projects.

The Lace Mill, which opened in 2015, is the rehabilitation of an abandoned circa 1903 brick factory into 55 affordable housing units and workspaces for low-income artists. Energy Square is a forthcoming mixed-use project that will house the Center for Creative Education in the Midtown Arts District. (Dutton designed both projects.)

Another commercial development, Metro, aims to make RUPCO's "community wealth building" credo tangible, with the conversion of an old warehouse into a 70,000-square-foot marketplace. The structure will also serve as home to Stockade Works, actress Mary Stuart Masterson's nonprofit focused on media and film production that will have a workforce-training component for locals.

RUPCO works to facilitate buildings with programs that attract and retain creative-leaning demographics, but also provide amenities for longtime residents—especially as the city has seen an influx of capital and newcomers that has accelerated the transformation of Rondout and energized the Stockade. "We're very aware and proactive to include people who have been disenfranchised with everything we do," O'Connor says. "Anyone who comes into the Metro as a user will [commit to] creating pathways to opportunity."

This commitment to public engagement and inclusive design is informing other pathways as well. The Kingston Greenline is an active transportation and placemaking project being spearheaded by the Kingston Land Trust, in partnership with the City of Kingston and Ulster County. The Greenline

intends to activate underutilized and discarded spaces within the city by weaving them into a connected whole of walking, biking, and commuting trails, marrying some of the active transportation elements of Chicago's 606 with the more manicured aspects of New York City's High Line.

For the past several years, Ulster County Executive Mike Hein has championed the establishment of a county-wide and nonmotorized transportation system, recognizing that the evolution of transportation modes continues to influence development in and around Kingston.

"These antiquated transportation corridors are holding our communities back in many ways," Hein says. "By transforming them into interconnected walking and biking trails, I believe they can serve instead as connective threads, weaving back together disconnected neighborhoods."

In the process, Hein and the partners and volunteers who are spearheading the development of the Kingston Greenline believe that the evolution of transportation can once again reinvent Kingston. "This time, by asking people what they want, and then listening and trying to incorporate what they say in what we do, we aim to achieve an economic transformation that benefits the whole community," Hein adds.

"Neighborhoods need a mix," says Dutton, "a cultural mix, a mix of business, a mix of residential. When urban renewal wiped out entire neighborhoods, that was lost. Why didn't those places thrive? Because they lacked what George Allen, the former director of the Kingston Library, describes as the 'yeasty cultural mix' that's so important to making a neighborhood. And now we're starting to see that." **AIA**

AIA Practice

What Does Race Have to Do with Architectural Education?

Sharon Sutton on why Columbia University's story should matter to students—and architects—today.

The new book by Sharon E. Sutton, FAIA, *When Ivory Towers Were Black: A Story about Race in America's Cities and Universities* (Fordham University Press, 2017), weaves oral histories together with social history to create a unique narrative about power structures and personal determination at Columbia University. The story played out over more than a decade, from the late 1960s through the 1970s, when many U.S. architecture schools were disrupted by the cultural transformations of the era. Sutton narrates one of the most significant disruptions in the country, which occurred at Columbia's Graduate School of Architecture, Planning and Preservation. There, students and faculty organized to change the school's dominant pedagogies and policies, as well as its overwhelming whiteness. She draws on her own trajectory from an affirmative action recruit at the school to a distinguished career as an activist architecture educator and scholar.

How did university imperialism prompt architecture students to cast a critical eye toward their education in the 1960s?

Columbia had been a Beaux-Arts school, and since the 1930s had been trying unsuccessfully to modernize its curriculum. The students wanted an education that was relevant to the social problems of the day. The school was in disarray by the 1960s, and had been for many years. Angst over the Vietnam War and the university's relationship with Harlem only heightened their dissatisfactions. During the April 1968 campuswide rebellion, students at the School of Architecture became more fully aware of these political issues as well as the corporate underpinnings of the school itself. They were dissatisfied with their position within the hierarchy—the big fist—of the university, and were also incredibly upset with the university's heavy-handed dealings with Harlem. Thousands of mostly black and Puerto Rican residents had been displaced for university expansion, and foundations for a gymnasium were being dug in Morningside Park that were obliterating

its remarkable landscape. The architecture students, in particular, were not OK with that.

Your book ties the “arc of insurgency” among architecture students to a rapid increase in ethnic minority graduates between 1966 and 1974, and then an equally rapid decline through 1982. What is the legacy of affirmative action at architecture schools in the 1960s and ethnic minority recruitment in the early 1970s?

The arc of insurgency isn't just about the School of Architecture or its students. It was happening in relation to the Black Power Movement and black student activism. There was a belief among black college students that they should help ghetto dwellers transform their communities—that “we'll all go up together” or break through those barriers together. And that didn't happen. Black student activists became increasingly assertive, which turned off whites who had supported nonviolent protesters. Then the violence of working-class black males intersected with Nixon's war on black people, framed as a war on drugs—and that turnabout in social vision extinguished what could have come out as a truly high moment in history. And the economic crash in 1973 only made white backlash against educational equity worse.

At the same time, the broader civil rights movement, which had been going on for a long time before the 1960s, also fueled that arc of insurgency. For example, due to affirmative action policies and the allocation of financial resources, an unparalleled number of African-Americans matriculated in colleges throughout the country in 1969. The students who got in the door first really opened up all the professions, and Columbia was a major player in architecture. Up until 2007, Columbia had graduated more African-American architects than all but the historically black colleges and universities, largely due to those affirmative action recruits. Forty years later, when the Obama generation became the movement's second brood, the fleeting trajectory of growth among black architects had been almost completely flattened.

You claim that your work on this book uncovered a story that proved to be “quite unlike” the one you assumed to be true. As an actor in this history, and as someone who has covered it, what were those assumptions?

Writing this book took me way beyond the affirmative action scholarship program that I thought was the entire story. In fact, I had to rewrite the book after I discovered that those scholarships were part of a university-wide

community outreach effort and that the recruitment wouldn't have worked so well without that piece of the puzzle.

This story emerged during a sabbatical in 2013, after formerly confidential files had been opened up at Columbia University's Butler Library. These files revealed that Ford Foundation funding had paid for much of the scholarship program as well as the community outreach projects. Not only that but Charles Abrams, at the time chair of the School of Architecture's planning division, was at the forefront of the recruitment and outreach effort. He had expected that the planning division would get its own Ford Foundation grant, but unexpectedly the university received an unsolicited \$10 million grant for “urban and minority affairs” with Harlem envisioned as the locus of research and action. Though the School of Architecture, which included architecture and planning, had to compete with the entire university for a piece of the pie, the Ford monies underwrote the scholarships and the community outreach that are central to this story.

James Polshek, FAIA, the AIA's 2018 Gold Medal recipient, spearheaded the expansion of Avery Hall, Columbia's architecture school, which you cover in the book. How did his appointment facilitate Alexander Kouzmanoff's design for the expansion?

The university was in an economic crisis and was in debt due to increasing faculty salaries and construction costs. Tuition increases couldn't cover that debt, and there were rumors that the architecture and dental schools would be closed. At the same time, the school was experiencing a number of crises due to all the curricular and administrative changes, which contributed to the architecture program receiving a provisional accreditation in 1970. Without full accreditation, the university decided to halt the court proceedings that would have allowed the use of two endowments to expand the library in Avery Hall. In the wake of all this upheaval, Kenneth Smith resigned as dean, and the university threatened the school with receivership if a new dean couldn't be found immediately. Since there had never been a viable search for a dean before then—university administrators had always just appointed someone of their choosing—this would be a test of the school's experiment with democracy. That's where Kouzmanoff, as a long-time faculty member at Columbia, comes in. He was appointed chair of the search committee and did a yeoman's job of getting the university to commit to a strategic direction for the school. Ultimately, Max Bond recruited Polshek [to be dean], who negotiated a very favorable contract

AIA Practice

CONTINUED

for himself, including that faculty could be commissioned to design university buildings. So the terms of Polshek's contract allowed Kouzmanoff to be hired as the architect for Avery's expansion.

Polshek's appointment also meant that the funding for the Avery Library expansion could go forward, and I got my first job after graduation working for Kouzmanoff on the expansion. His design concept was hands-down brilliant—to create found space underground for the expansion—and it was fascinating to work on as my first project. It had so many constraints and a very active review panel of architecture faculty and historic preservationists. A lot of things never came to pass, such as skylights that were eliminated due to fear of leakages and so on. But the overall concept is still something I appreciate every time I return to Columbia.

So the project didn't turn out the way it was designed, and my first job didn't turn out the way I had hoped it would, either. I was doing design work in the office, but when the secretary went on vacation, I volunteered to do some of the secretarial work, too. Late one night, when I was working all alone in the office, I couldn't resist the temptation to rummage through the books with all the financials. I was devastated to see with my own eyes that I was being paid less than the other two recent grads who had also been hired for the Avery project—because I was a woman and I was black. Absolutely devastating to see that, right there in the books. I never confronted him on it, because I couldn't bring myself to admit to snooping through the books. So I quit—and I was unemployed for 13 months after that. That's the bad news. But the good part was that, during my months of unemployment, I came up with a strategy: I studied for my architecture licensing exams, I applied to doctoral programs, and I also eventually began teaching at Pratt. But I earned a living, actually, as a printmaker—which grew out of working in an interior design office. I found I could make prints, sell them to the interior designers, not carry liability insurance, and have fun.

And—I have to tell you—the day I got accepted into the doctoral program at City University is the same day I got my license from New York State—two envelopes, one fat the other slim, sitting in the same mailbox. And so out of tragedy came the definition of my career. I never looked at my early career as one straight ladder I needed to climb, or one path I needed to follow. It was important to me to create many different options for myself. **AIA**

AIA Perspective



PHOTOGRAPHY: GABRIELA MARKS

Accelerating Change: Disruption or Progress?

In his 2016 book *Thank You for Being Late* (Farrar, Straus and Giroux), Thomas L. Friedman posits that we have crossed a threshold into the Age of Accelerations characterized by change so rapid it exceeds human capacity to readily adapt to it. An understandable response is to find it overwhelming and disorienting. Yet every day presents new reasons for amazement and optimism. In field after field, revolutionary innovation unimaginable even a decade ago has become the new normal. The blistering pace of change frustrates attempts to assess its impacts. Does change mean progress (a better tomorrow) or disruption (tossing time-honored ways into the dustbin of history)?

There is plenty of evidence for the Age of Accelerations in the architectural profession, from how we build to the tools we use and even the services we provide. Less the handiwork of carpenters and masons, increasingly buildings are fabricated assemblies installed by technicians. Virtual reality and 3D printing are supplanting pencil sketches and chipboard models. Established business models are becoming too confining in an increasingly entrepreneurial world.

Two MIT faculty, Neri Oxman and Antón García-Abril, are challenging conventions of how buildings are made. García-Abril pushes the limits of off-site construction. Part of his explorations are technological, experimenting with materials and fabrication processes. But

García-Abril also experiments with form and space, seeking architecture that emerges from new ways of building. Oxman's work is strikingly futuristic, from employing robotics that 3D print building-scale structures to emulating nature's construction techniques.

In his 2015 TED Talk, Marc Kushner, AIA, made the case that super-realistic computer-generated imaging has the power to transform our relationship with clients and the public. Using powerful visualization tools, even people who "can't read plans" can experience buildings as they are designed. Fear of the unknown can be eliminated. Engagement in and understanding of architectural thinking can be taken to new levels.

What does it mean to be an architect? Is architectural practice defined only by the terms of the Standard Form of Agreement Between Owner and Architect? In 2017, members of the AIA National Strategic Council created the Communication, Advocacy, and Policy of the New Urban Agenda (CAPNUA) work group to explore ways to demonstrate the relevance of the U.N.-adopted New Urban Agenda that seeks to define 21st-century urbanism. AIA Columbus got involved as social entrepreneurs by organizing a community visioning workshop in Franklinton, an underserved neighborhood in their city. The workshop produced a set of principles to guide development that welcomes new investment while enhancing opportunities for current residents and businesses. AIA Columbus went outside its comfort zone to bring the power of design to a community in need.

For me, every nostalgic tear turns into a tear of joy when I catch a glimpse of the limitless possibilities of innovation in the architectural profession. Our future is bright. **AIA**

—Carl Elefante, FAIA, 2018 AIA President

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“Houston is being forced to consider the possibility that it can no longer engineer a solution—that it will instead have to bend to the will of a changing climate.”

Houston's Post-Harvey Reckoning by Reed Karaim

Cities have their conceits. New York is certain it sits at the absolute center of everything that matters. Portland knows it's hipper. Chicago knows it's tougher. Houston's conceit is that it's the best engineer, a city that knows how to solve problems and seize opportunities with good old-fashioned, mechanical know-how.

Identity, as always, is tied to history. Houston was initially a railroad hub, and then, thanks to the dredging and widening of the 50-mile Houston Ship Channel, a flourishing inland port. Since the early 20th century, it has thrived as the center of the U.S. oil and gas industry. All cities are engineered creations, of course, but the largest city in the American Southwest was built on a particular faith in humanity's ability to extend its dominion over the natural environment.

The natural environment has a nasty habit of disputing that dominion, however, and in Houston that reckoning arrived in full force last August with Hurricane Harvey. In a four-day period, the storm dropped more than 40 inches of rain across much of the city. The peak recorded rainfall in the greater metropolitan area was an almost unbelievable 51 inches. That much rain would wreak havoc anywhere, but Houston lies low and flat on the gulf coastal plain, and is crisscrossed with roughly 150 miles of bayous, which are essentially marshy, slow-moving streams. The bayous have been channeled, widened, and deepened in areas to handle more water, and the city has engineered its landscape and buildings in other ways to cope with flooding—a problem since Houston was founded. But as anyone who watched television last August knows, it wasn't enough. Harvey submerged much of the city as if it was a waterlogged bath toy. It overflowed the bayous, swamped highways, and swept through neighborhoods, wrecking homes and businesses. In the end, the toll from the storm was more than a 100 dead and damage estimated at as high as \$125 billion overall.

Harvey, what we now love to call a "super storm," got plenty of attention. Less publicized was that it was the third 500-year flood in Houston in the last four years. The other two storms, the Memorial Day flood of 2015 and the Tax Day Flood of 2016, were not as severe, but still resulted in significant damage and at least 17 deaths, according to the *Houston Chronicle*.

I traveled to Houston to see how the city was recovering from Harvey and how its urban planners and architects are reshaping the city's infrastructure in response. What I found was a proud city quietly wrestling with many of its deeply held convictions about itself.

Houston Mayor Sylvester Turner and Edward Emmett, the chief executive officer for the surrounding

Harris County, have proposed a range of measures to increase the metro area's capacity to deal with severe storms, which climate scientists believe are likely to become more frequent as the oceans warm. "Both of them were adamant, saying that Harvey changed everything," says Guy Hagstette, FAIA, the former director of planning and development for the Houston Downtown Management District.

The proposals include building several underground tunnels to carry floodwaters from the bayous to the ship channel (a project that would cost billions), a third reservoir to hold water during storms (at an estimated cost of \$500 million), the further widening and channeling of some bayous, and the increased use of flood warning systems and flood gates (barriers that rise when the water reaches



A flooded house in the Energy Corridor post-Harvey



Brays Bayou just south of the Texas Medical Center

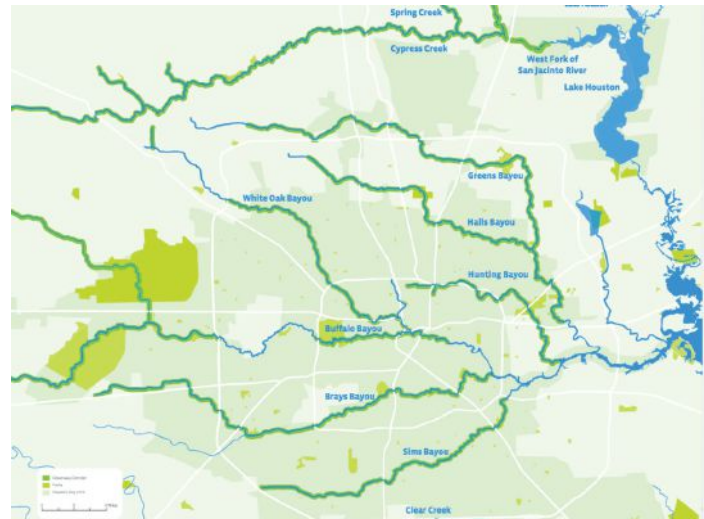
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them) to protect downtown buildings from flooding. Architects, urban planners, the city’s park board, and private foundations are also tackling the problem of how to make Houston more resilient. “The concern is community wide,” says Patrick Walsh, the city’s director of planning and development.

As Houston considers which proposals to pursue, the question is how far the city is willing to go in examining its central conceits. The answer to that is unclear. But for now, Houston is being forced to consider the possibility that it can no longer engineer a solution—that it will instead have to bend to the will of a changing climate.

A Measured Retreat

On a gray day this winter, Hagstette took me on a tour of post-Harvey Houston. We started with the Texas Medical Center (TMC), which advertises itself as the largest medical complex in the world, with 106,000 employees and a campus that encompasses 50 million square feet of developed space. In 2001, Tropical Storm Allison swamped much of the center. In response, Hagstette says, “It got its act together, put in flood gates, isolated the buildings, raised up the electrical system, put in an early warning system at Brays Bayou—something that needs to happen throughout Houston.” TMC’s approach worked. It came through Harvey, a far worse storm than Allison, relatively unscathed.

Later that day, Adrin Biagas, a senior land acquisition manager for the Houston Parks Board, showed me another defensive measure that the city is undertaking: creating more green space around the bayous. The parks board has been working to expand hiking and biking trails—which would double as a flood buffer—through its Bayou Greenways 2020 initiative. City voters supported a \$100 million bond referendum for the initiative, and the board was closing in on a goal of raising another \$120 million



Top, Left: An aerial of bayou greenways

Top, Right: The Bayou Greenways 2020 plan (anticipated new trails and parks appear in dark green)

This Image: The White Oak Bayou bike trail near downtown



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A 1959 house designed by Arthur Steinberg (right) in the Meyerland neighborhood was elevated by its owner before Harvey and survived largely unscathed

in private funds. “This started before Harvey,” Biagas told me.

In a simplified way, these strategies represent the city’s response to the threat posed by storms like Harvey: Put the right kind of physical or mechanical safeguards in place and stubbornly stay put. Houston has building code elevation requirements for new construction in the flood plain, but it hasn’t stopped or limited building there. Since 2008, about 1,400 new structures have been built in the floodway, the most vulnerable part of the zone, as a *Houston Chronicle* investigation revealed in December. That’s hardly a surprise. The city is known for its lack of zoning, predicated on a deeply rooted faith in the virtues of economic libertarianism, a belief that the productive forces of capitalism flourish when left unencumbered by government regulation. In early April, the city council did pass a measure to raise the elevation requirements for new buildings in the flood plain—an idea originally proposed by the mayor—but the issue was politically contentious and underscores the continued opposition to more stringent codes.

The county has, on a voluntary basis, been buying

out homes in the flood plain—about 3,000 homes during the last 17 years, according to Hagstette. Which sounds like an impressive number until you realize, as Rice University architecture professor Albert Pope told me, that there are 150,000 structures in the zone. In the wake of Harvey, the county recently announced it would ask voters this summer to approve a bond measure that could raise up to \$2 billion for flood control measures, including an expanded use of voluntary buyouts. Federal and state aid will provide additional money for buyouts—if sellers are willing. “The amount being tossed around for buyouts, when you throw in the federal money, is in the billions of dollars,” Hagstette says.

Still, the voluntary nature of the buyouts leaves some neighborhoods suspended in a kind of half-life. During my tour, we traveled through residential blocks near the bayous where vacant lots surrounded houses that were still occupied: Southwestern brick ranch homes, their lawns tidied up, floated like islands of middle-class defiance amid desolate pockets of emptiness. Even in the midday, the lack of density gave the neighborhoods a forlorn air. The floods have

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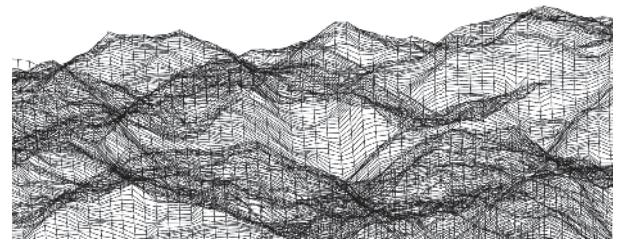
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also inspired a strange Frankenstein architecture, as some home builders have taken advantage of federal aid programs to raise their ranch homes above the flood level, putting in first floors that are used as garages, storage space, or rec rooms, and that are built with concrete or brick walls and floors that can be easily cleaned when floodwaters recede.

The proportions of a classic one-story ranch, of course, often do not lend themselves to being raised another 7 to 10 feet in the air, and driving through Meyerland, an otherwise attractive middle-class neighborhood along Brays Bayou that has flooded three times in the last four years, the effect was disorienting, as if some of the houses had started sneaking steroids and now towered aggressively above their neighbors. One house in particular, little more than a hollowed-out stick-frame shell propped up on a set of temporary stilts as it was rebuilt, struck me as a particularly good example of the absurdity of the approach.

Pope, whose current work is focused on the urban

implications of climate change, believes Meyerland is an example of how Houston's engineered response to flooding has reached its limits. "Engineering is over. We've done what we can. We can no longer assume there's an engineering fix to this," he says. "Now we have no choice: We have to pull structures out of the flood plain."

Pope is working with his students on a plan for Meyerland that would do just that. Downstairs in the Rice University architecture building, spread along a hallway wall, he showed me sketches of a staged withdrawal for the neighborhood. The series of renderings showed homes slowly retreating from the bayou as higher density development rose along the back edge of the neighborhood. It all had a logical, ordered sense of progression, but I wondered if there's any chance of it actually happening. The problem with any large-scale plans to reshape communities is that they affect groups who have come together in a reflection of shared needs, values or identity. Take Meyerland, which has a proud history,

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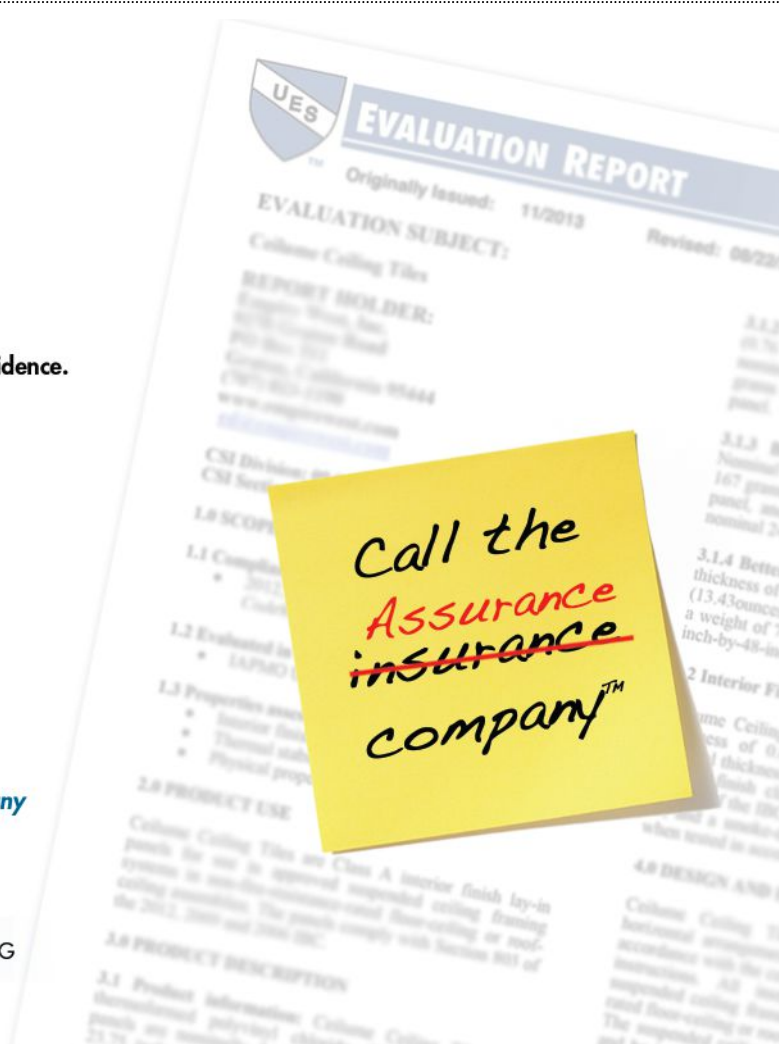
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dating back to the 1950s, as the center of Jewish life in Houston, and remains a desirable neighborhood for many residents today.

“Real people live in these homes,” Hagstette told me when we were discussing buyouts. “These communities have reasons they’re here, whether it’s schools or because they’re on a bus route or because the housing is affordable.” As long as federal aid exists that allows families to rebuild, it seems likely many will, even if it’s the third or fourth time, and even if it means raising your ranch house on concrete stilts.

Still, when the plans are ready, Pope intends to present them to citizens in Meyerland and the city as a whole. If nothing else, he hopes to inspire more active urban planning in the city. “If there was ever a call for that higher level of planning to occur, it was Hurricane Harvey,” he says. “A lot more things are going to have to be designed because of the changing climate. We cannot assume a viable future for Houston if we don’t plan. We want that recognition to come sooner rather than later, and the way we can

“Engineering is over.
We’ve done what we can.
We can no longer
assume there’s an
engineering fix to this.
Now we have no choice:
We have to pull structures
out of the flood plain.”

—Albert Pope, Rice University architecture professor

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do that is by showing the benefits of planning sooner rather than later.”

A City Torn Between Two Strategies

During my visit, I didn't speak to anyone who disagreed with the notion that Houston could use better planning to deal with flooding. The pushback begins when you mention the possibility of zoning. I got a strong sense that many of those involved in planning and development in Houston are tired of hearing their city described as a “no zoning” Wild West where anything goes. “We don't have zoning, but we have regulation,” says Walsh, “and lots of our regulation comes through the building codes.”

He also points out that a storm like Harvey would have been devastating anywhere. “If we had had zoning, we still would have flooded with 51 inches of rain,” he says. “We just would have been a zoned city that flooded.”

Walsh believes that a couple things could help mitigate flood damage: better transportation policy,

such as discouraging the building of new roads that encourage exurban growth, as well as revisions to the building codes that incorporate revised 100-year and 500-year flood levels. (Several people I spoke to expected FEMA to raise those levels significantly.) The city has a Redevelopment and Drainage Task Force that Walsh said is focusing on flood plain mitigation, including greater water detention capacity in the bayous and overflow areas, and the clearing of obstructions to drainage on streets and rights of way. The city plans to submit applications for federal funds to help pay for \$700 million in projects that would include raising six bridges to cope with flooding, creating detention basins in an old golf course, and digging a new canal that would divert water from downtown.

Will Cannady, FAIA, a Rice professor and long-time Houston resident, believes the city has far from exhausted such an approach. “There is a way to solve the problem from an engineering point of view,” he says. “We just don't want to do it.”



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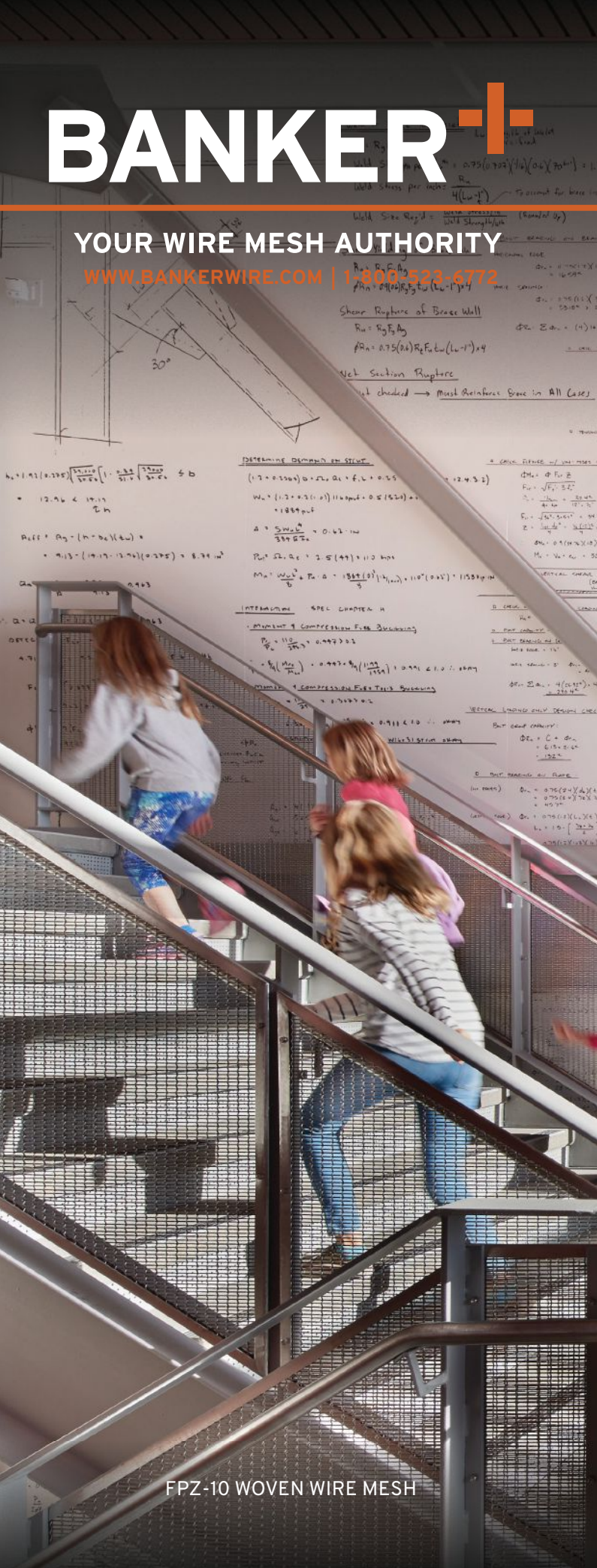
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Ron Witte, AIA, another Rice University professor, thinks Houston is currently torn between two different strategies. “One way would be to manage the water,” he says, “the other way is to manage the damage the water can do.” One way is reflected in the plans for new reservoirs and further engineering the bayous. The other involves, at least in part, a managed retreat.

Harvey as Catalyst

One of the oddities of my career is that I have now been sent to three different cities to see how they were recovering from historic floods, including Grand Forks, N.D., following a 1997 flood along the Red River; and New Orleans and the Mississippi Gulf Coast after Hurricane Katrina in 2005, the costliest hurricane on record before Harvey.

I’ve discovered that badly flooded neighborhoods all have a surface similarity: towering piles of trash, torn-out drywall, paneling, carpet, and ruined furniture lining the curbs, often more than it seems like the houses behind them should be able to hold; stray garbage still stuck in bushes and grass; and odd things tangled high in tree branches, higher than you can imagine water reaching. Many years later I can still remember a queen-size mattress lodged ridiculously high in the branches of a massive oak on the Mississippi coast.

Houston has done a better job of cleaning up in a shorter time than I remember the other cities managing. Meyerland, in particular, looked surprisingly far along. But less affluent neighborhoods in the northwest that Biagas took me through had not fared as well. Many of the homes were clearly deserted; some appeared to be barely standing. Piles of refuse still stood on street corners and lots remained trash-littered. “A lot of these homes are probably abandoned,” Biagas told me. “This entire area was just underwater. Up to the rooftops in a lot of cases.”

I understand the draw of community, but looking at the damage, I wondered why anyone would want to stay. Witte, the Rice architect, expressed a sentiment I heard repeatedly: “I see Harvey as a catalyst for change. The model we should be looking at is not recovery, not making Houston whole, but coming out ahead of where we are.”

Both Grand Forks and New Orleans eventually had to accept significant changes in their communities. Houston, in the end, seems unlikely to escape the same reckoning.

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“Montiel’s project highlights the fact (already hinted at by Doshi’s Pritzker win) that the best work is taking place not in this country but in Asia and South and Central America.”

It is no longer enough just to make a pretty building to win the glittering prizes. That is the clear message of the past year of architecture awards, when some of the most important ones—including the Pritzker Architecture Prize, awarded to Balkrishna Doshi, HON. FAIA—have gone to architects who combine social activism or the use of innovative technology with good design. Finally, the discipline appears to be recognizing the hard work of those who provide housing, design social catalysts, and introduce working methods not necessarily taught in traditional schools—all while making objects and spaces of great beauty.

The trend has continued with my favorite of the recent competitions: the biennial Mies Crown Hall Americas Prize for emerging architecture award (or MCHAP.emerge), a companion prize for young architects to the MCHAP award given to “the best realized works of architecture in the Americas.” This year’s emerge winner, announced in mid-April, was Common Unity, a project by Rozana Montiel, an architect based in Mexico City. Along with the other

three finalists, Montiel’s project highlights the fact (already hinted at by Doshi’s Pritzker win) that the best work is taking place not in this country but in Asia and South and Central America.

Rethinking a Housing Project

What is particularly remarkable about Common Unity is that it is resolutely not a building in the conventional sense. Rather, it’s a series of improvements to courtyards in the middle of a social housing project in Mexico City. The design reflects a concerted effort by Infonavit, Mexico’s social housing lender and manager, to upgrade the quality of both existing and new housing projects it has built all over the country. Infonavit is concentrating as much on upgrading building exteriors and surroundings as it is on providing the basic amenities that all the inhabitants, regardless of their socio-economic status, deserve. The lender has hired famous architects such as Alberto Kalach, as well as younger designers such as Montiel, and has tasked them with designing





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Montiel's project, at a housing complex on San Pablo Xalpa Avenue, involved renovating areas that were left over and underused—filled with trash and lean-tos—and relied on the simplest of means to turn them into community assets. Over the years, some inhabitants had taken over parts of what were meant to be shared spaces and privatized them. Montiel persuaded them that they would benefit from the shared improvements, which she had designed based on conversations with the residents about their needs and desires.

New slatted-wood paving, raised slightly off the ground, provides a safe and easy-to-clean surface. Steel structures with corrugated metal roofs offer shade and places for both informal gatherings and small classes. A small lending library has brick walls but remains open to the outside. There are places to play, complete with swings; verandas where the inhabitants watch movies on warm nights; and semi-outdoor rooms that support many other activities. The design is open, flexible, very economical, and variable according to location and need, yet it still provides a variety of visual anchors that are astonishing in their effect. The project has no particular style but is elegant, well-proportioned, and even playful in its details, refuting the idea that public housing has to be plain or even unattractive.

As Montiel herself says in her prize submission: "People sweep the space early in the morning, young people come and exercise, ladies sit in their knitting club, old folks play chess, and at night there are open-air cinema shows. There are school tutoring classes, Zumba and yoga classes, parties, religious celebrations. The space has access to free Wi-Fi and now people gather around to work with their laptops. The spaces we design engage people in daily routines of rapport and exchange that give them a sense of pride and ownership. Our horizontal intervention of common spaces creates a democratic horizon: It rebuilds society as a whole."

In a way, the award also recognizes Infonavit's program. Long a government bureaucracy that produced or supported housing of low quality with little regard for either social or environmental

From Top to Bottom: Axonometric of Common Unity; the project's lending library; and a play area for children, including swings and a climbing wall





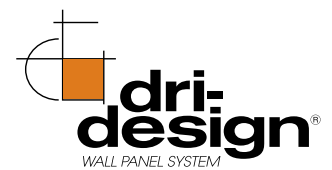
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From Top to Bottom:
The other three finalists
for MCHAP.emerge: the
Children Village; the
Embodied Computation
Lab at Princeton; and the
María Montessori School

TOP: LEONARDO FINOTTI; MIDDLE: MICHAEL MORAN/OTTO; BOTTOM: ONNIS LUQUE RODRIGUEZ

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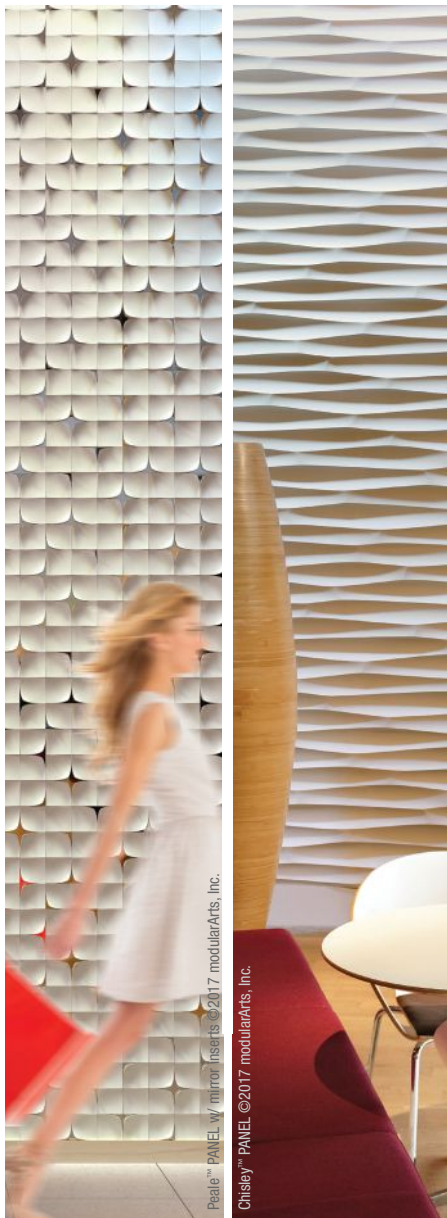
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concerns, it seems to have taken a new direction thanks in part to the leadership of Carlos Zedillo Velasco, the Yale-educated son of a former Mexican president, who in 2012 was named the head of its Research Center for Sustainable Development. The fact that so much of Infonavit's focus is not on making more cookie-cutter housing blocks but on the reuse

The message seems to be:
To be a good architect,
do the right thing and build
(for) community—and,
for now, look to the south.

and expansion of existing facilities—on creating the frames that connect the inhabitants, the spaces where they become communities, and the images that allow them to understand where and who they are—is all the more praiseworthy.

Montiel, a native of Mexico City who was educated there and in Barcelona, runs a studio whose commissions range from designing highway rest stops that connect visitors to the surrounding landscape to utility buildings and private homes. In Lagos de Puente Moreno, just outside Veracruz, Mexico, Montiel built a large structure that, like her award-winning project in Mexico City, provides a variety of services and gathering places for the inhabitants of the surrounding housing project, but here all under one large and open shed. In all her designs, she uses the simplest materials and forms, without fetishizing details, and has a preference for keeping her projects as light and open as possible. In her research, she looks not only at abstract planning issues, but also at what kinds of fencing one finds in a city, or what kind of tools she can use to examine and document the urban environment. Her approach is tactical rather than monumental.

Montiel has collaborated with other architects in Mexico with similar approaches, including Francisco Pardo and Tatiana Bilbao. (Montiel was a member of a team Bilbao assembled to design the stops and facilities that are part of a master plan for the pilgrimage route to the Virgin of Rosario.) These collaborations are typical of an approach that no longer obsesses over design by a “genius” architect of a single, shiny, new object.

Looking to the South

One senses a similar spirit from the other three MCHAP.emerge finalists. The project that reflects the most traditional approach to the making of

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architecture is the María Montessori School, in Mazatlán, Mexico, designed by the Mexican firms EPARquitectos and Estudio Macías Peredo Arquitectos. A compact collection of two-story hexagons made of hollow brick with a concrete structure, the project creates a true village of forms rotating around open courtyards. The school's deep skin blocks the region's strong light and gives students cooler places to gather and move. The design's signature triangular openings encourage breezes to enter, the interiors illuminated by the light that bounces up from the ground rather than what comes down from the sky. The "ludic geometry," as the architects describe it, allowed the project to be built in stages and to avoid appearing as a monument. It is, in other words, not an object, but a playful assembly of forms.

Much larger and more intricate is the Children Village in Formoso do Araguaia, Brazil. Designed by Aleph Zero and Rosenbaum, it consists of eight dormitory blocks (four each for boys and girls) covered by a gently sloping roof. Located in the Brazilian savanna, this structure, like the one in Mazatlán, is open to the environment and includes shaded breezeways and courtyards. Its rooms are Spartan, but what matters is the shared spaces for play and learning that the architects created using the blocks and the other defining elements. A lattice structure of local wood, reinforced where necessary with steel, creates the appearance of a village of scrims and screens.

The lone U.S. finalist was the Embodied Computation Lab at Princeton University, designed by David Benjamin and The Living. (For more detailed coverage of this project, including how the firm monitors and studies the thermal performance of the recycled-wood exterior, check out ARCHITECT's January issue.) The lab is a basic box that opens up to the outside thanks to a garage door clad in translucent plastic, but it's a box with beautiful proportions and a lack of pretense.

Let's face it: The U.S. is falling behind. It seems unable or unwilling to invest in its infrastructure—or to create decent places to live, work, and play for the 98 percent who can't afford its glittering high-rises and culture palaces. We should look to South and Central America, where decades of tactical urbanism, innovative solutions for building with no money, and a concentration on improving the environment and society is producing the kind of results of which we can only dream. Those results are as much about open spaces as they are about buildings, and they are as much about tactics as they are about solutions.

The message seems to be: To be a good architect, do the right thing and build (for) community—and, for now, look to the south.

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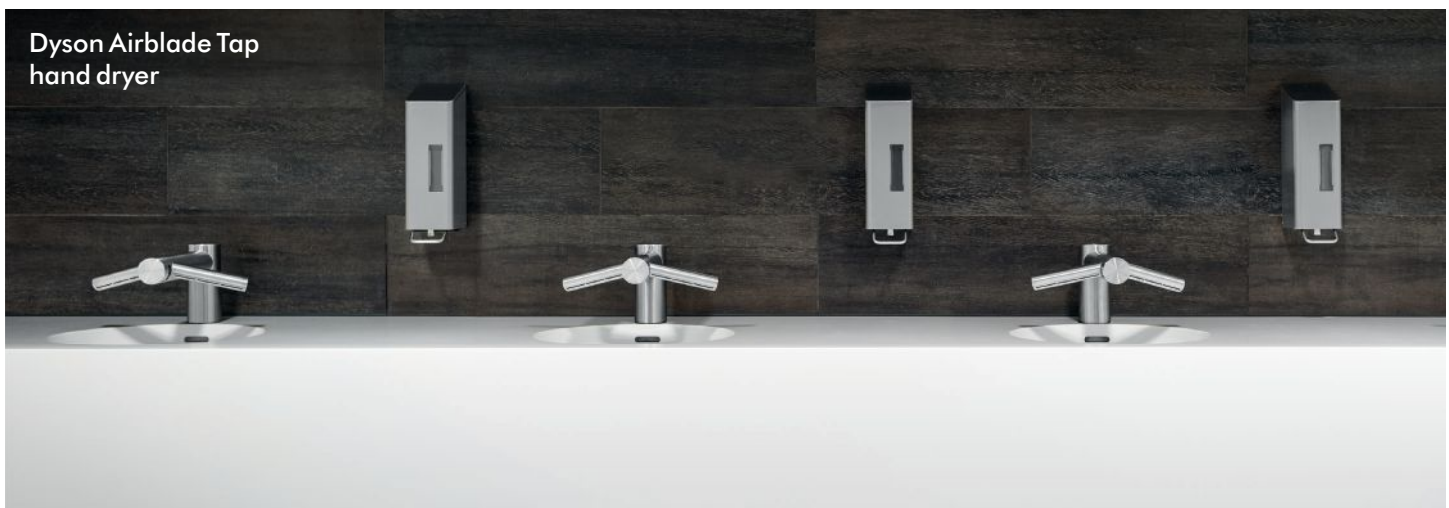
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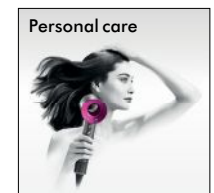
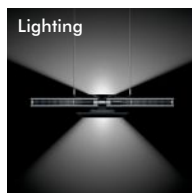
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Architecture, Equity & Activism:



TEXT BY NED CRAMER

1: ANT FARM; 9: WALTER OLESKY

Few periods in modern U.S. history have proven as momentous as the year 1968. It was a time of awakening conscience, and of loss and protest. Martin Luther King Jr. was assassinated, sparking violent reactions in cities across the country. Robert Kennedy, too, was gunned down, while campaigning for president. Cesar Chavez underwent a hunger strike on behalf of Chicano migrant workers. Two hundred Native Americans met in Minneapolis to form the American Indian Movement. Women's liberation groups picketed the Miss America Pageant in Atlantic City.



6: MICHAEL ROUGIER/THE LIFE PICTURE COLLECTION/GETTY IMAGES

It was a pivotal year for architecture as well. Uber-modernist Ludwig Mies van der Rohe completed his late-career masterpiece, the National Gallery in Berlin, while James Stirling pointed the way to a less formally rigid, postmodern idiom with his History Faculty building in Cambridge, England, and Lina Bo Bardi championed humanitarian regionalism with her São Paulo Museum of Art in Brazil. In San Francisco, Chip Lord and Doug Michels founded Ant Farm, introducing counterculture to a decidedly establishmentarian profession. Buckminster Fuller published *Operating Manual for Spaceship Earth*, a foundational document of the green movement. Architecture students participated in protests in New York, Paris, and elsewhere, ultimately compelling the reform of university design

curricula. But arguably the most significant event for the profession, at least in the United States, was the keynote that black activist and National Urban League executive director Whitney M. Young Jr. gave at the convention of the American Institute of Architects.

“You are not a profession that has distinguished itself by your social and civic contributions to the cause of civil rights, and I am sure this has not come to you as any shock,” Young told the assembled crowd. “You are most distinguished by your thunderous silence and your complete irrelevance.”

How do Young’s words apply today? How much progress has architecture made? Is the 1968 spirit of activism still alive? Fifty years later, after a succession of institutional and individual efforts toward greater inclusion, the architecture profession remains predominantly white and male. The demographic data make it plain. According to the Bureau of Labor Statistics, as of 2017, 28.6 percent of architects are women and 2.1 percent are black. Simply put, much more work must be done.

This issue of ARCHITECT celebrates the anniversary of Young’s speech, recalls key moments, organizations, and heroes in the ongoing struggle for equity, and profiles emerging leaders who are working hard for positive change. The making of this issue has been a group effort, its content developed in conversation with prominent practitioner-activists from across the country. The printed result does not, however, claim to be encyclopedic, to encompass the full breadth and scope of the issues at stake. There are far too many people and positions and experiences for that. Instead, this is a starting point for a dialogue that will continue in subsequent issues and online, where we welcome all to share their stories.

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THE SPEECH



At the 1968 AIA Convention, **Whitney M. Young Jr.**, executive director of the National Urban League, chastised architects for failing to support civil rights. A half century later, black practitioners revisit the text as the benchmark for a continuing struggle.

IF I seem to repeat things you have heard before, I do not apologize, any more than I think a physician would apologize for giving inoculations. Sometimes we have to give repeated vaccinations, and we continue to do so until we observe that it has taken effect. One need only take a casual look at this audience to see that we have a long way to go in this field of integration of the architects. I almost feel like Mr. Stanley looking for Dr. Livingston—in reverse—in Africa. I think I did see one and wanted to rush up and say: Dr. Livingston, I presume! **1**

[A]s a profession, you are not a profession that has distinguished itself by your social and civic contributions to the cause of civil rights, and I am sure this has not come to you as any shock. You are most distinguished by your thunderous silence and your complete irrelevance. **2**

Now, you have a nice, normal escape hatch in your historical ethical code or something that says after all, you are the designers and not the builders; your role is to give people what they want. **3**

Now, that's a nice, easy way to cop out. But I have read about architects who had courage, who had a social sensitivity, and I can't help but wonder about an architect that builds some of the public housing that I see in the cities of this country. **4** How he could even compromise his own profession and his own sense of values to have built 35- or 40- story buildings, these vertical slums, and not even put a restroom in the basement and leave enough recreational space for about 10 kids when there must be 5,000 in the building. That architects as a profession wouldn't as a group stand up and say something about this, is disturbing to me.

1.

PHILIP FREELON | FAIA |

is design director at Perkins+Will and architect of the National Museum of African American History and Culture in Washington, D.C., and the Mississippi Civil Rights Museum in Jackson, Miss.

PF: Young was not addressing the black architects—very few were in the audience that day. Of course, the issues he spoke about were and are top of mind for the 2 percent of architects who are African-American. We offer an “Amen” chorus. Unfortunately, many of the points he made in 1968 still resonate today, and that is a sad state of affairs. I encourage you to put the “reaction” question to some of the 98 percent of our profession who are not Black.

As we speak, the U.S. Secretary of Housing and Urban Development, Ben Carson, is scaling back the Agency's Fair Housing enforcement. *The New York Times* states that this action seeks “to roll back the Obama administration's attempts to reverse decades of racial, ethnic and income segregation in federally subsidized housing and development projects.” The AIA could and should speak with force and urgency against such efforts to re-legitimize discriminatory practices.

You are employers, you are key people in the planning of our cities today. You share the responsibility for the mess we are in terms of the white noose around the central city. **5** It didn't just happen. We didn't just suddenly get this situation. It was carefully planned.

I went back recently and looked at ads when they first started building subdivisions in this country. The first new subdivision—easy access to town, good shopping centers, good schools, no Negroes, no Jews allowed—that was the first statement. Then they decided in New York that that was cutting the market too close, so they said the next day,

2. SHARON SUTTON | FAIA Member Emeritus

is the author of *When Ivory Towers Were Black*, which chronicles the late 1960s activism at Columbia University that spurred changes in recruitment and curriculum, leading to greater numbers of black architecture graduate students. Sutton was the 12th registered African-American woman architect in the United States.

SS: I don't actually recall the first time I heard Young's speech, or rather its oft-repeated line about thunderous silence and complete irrelevance. I might have heard it recited in real time when I was a student at Columbia University.

I do, however, recall my reaction when I sat down and actually studied the speech, which was in 2011 when I received the AIA Whitney M. Young Jr. Award. At the time, I was researching the Civil Rights Movement and its powering, at my alma mater, of the nation's boldest recruitment of ethnic minority architecture and planning students.

Due to these investigations, I was well aware of the explosive racial context that prompted the AIA to invite Young to its convention.

In studying the text, I was surprised that Young was able to characterize so many aspects of this context in his lengthy speech. Leaving from topic to topic, story to story, he covered racialized income inequality, the Kerner Commission Report on civil disorders, negative racial stereotyping, government-sanctioned housing segregation, inadequate subsidized housing quality and quantity, white middle-class pathology in promoting materialism and war-mongering, young people's leadership in advocating social change, and on and on.

I was also surprised to learn that Young had sought out the advice of a Yale architecture student before making his speech. The student's advice—ask architects to be more relevant, more activist, more diverse, more community-engaged—reflected all the demands the Columbia students were making, which led to this very bold recruitment effort.

In response to Young's speech, the AIA made a considerable investment in an activist agenda, including establishing local community design centers, setting about recruiting more black members and appointing them to leadership positions, developing K–12 programs aimed at attracting ethnic minority students into the field, initiating a minority/disadvantaged scholarship program, and establishing the Whitney M. Young Jr. Award as a reminder of the challenges he articulated.

3. ZENA HOWARD | FAIA

principal and managing director at Perkins+Will, worked on the International Civil Rights Center & Museum in Greensboro, N.C., and the National Museum of African American History and Culture.

ZH: Oftentimes our "escape hatch" today is to shirk this responsibility and blame others: developers, policy makers, etc., while we continue to design buildings and environments that predominantly serve the elite or our own egos.

More needs to be done in our profession to define and celebrate great design as that which represents the values of the communities it serves and engages them in the design process—particularly those who have been historically disenfranchised or denied a voice in the design of their own communities.

As architects, we have a responsibility to help stop systematic displacement that results in environments lacking multicultural and multigenerational communities, [such as the historical examples of] Jim Crow, redlining, and urban renewal, and now rampant gentrification. ... This responsibility begins by associating ourselves with clients, partners, projects, and initiatives that recognize the value of design that reflects economic and social diversity and design processes that include robust engagement of the community.

4. JENNIFER NEWSOM | AIA

is co-founder of Dream the Combine, the Minneapolis, Minn.–based firm that was the winner of the MoMA PS1's 2018 Young Architects Program.

JN: Architecture is a service profession. We each need to answer the question: What are you working in service of? To whom much is given, much is required.

I am cautiously optimistic about work that is happening on a variety of spectrums, from academic research to on-the-ground social justice initiatives that are engaging architectural concerns directly. I think people of all stripes, especially our younger people, are waking up, especially given the events of the past year. They have a desire to shape the world into a more just, beautiful, and healthy future.

There is still the issue of representation, which I think has a significant impact on people feeling like they have access to this profession. As a female person of color in the field, sometimes you are sent searching, seeking out others in a safe space where you can have different sorts of conversations, such as the Black in Design conference held at Harvard Graduate School of Design last year. Everyone kept remarking how beautiful (and rare) seeing all those brown faces felt. It was this wonderful declaration: *We are here*. But much of the time, in our home cities and institutions and firms, you are going it alone.

“No Negroes allowed.” And then they got cute when they thought everybody had the message, and they said “restricted, exclusive neighborhood, homogenous neighborhood.”

Everybody knows what those words mean. Even the Federal Government participated.

They said [there] must be compatible neighborhoods for FHA mortgages, homogenous neighborhoods. The Federal Government participated in building the nice middle-class housing in the suburbs, putting all the public housing in the central city. It took a great deal of skill and creativity and imagination to build the kind of situation we have, and it is going to take skill and imagination and creativity to change it. We are going to have to have people as committed to doing the right thing, to inclusiveness, as we have in the past to exclusiveness.

You are also here as educators. Many of you are in educational institutions. I took the time to call up a young man who just finished at Yale and I said “What would you say if you were making the speech I’m supposed to make today?” **6** Again, not quite as sedate and as direct as your young student here because he did have some strong observations to make. He did want you to become more relevant; he did want you to begin to speak out as a profession, he did want in his own classroom to see more Negroes, he wanted to see more Negro teachers. **7** He wanted while his classwork was going on for you somehow as educators to get involved in the community around you.

When you go to a city—Champagne-Urbana, the University of Illinois is about the only major institution and within two or three blocks are some of the worse slums I have seen in the country. It is amazing how within a stone’s throw of the School of Architecture you have absolutely complete indifference—unless

5. MABEL WILSON₁

a professor at Columbia University Graduate School of Architecture, Planning and Preservation, is senior fellow at the Institute for Research in African American Studies and co-directs the Global Africa Lab.

MO: What a speech, but timely more than ever! The only difference is that there aren’t many “chocolate cities with vanilla suburbs” given that state-funded private redevelopment has gentrified many of those neighborhoods. And those neighborhoods that are left, they have been decimated by drug policies, incarceration, unemployment, resource-starved schools, dwindling social services, and deadly policing.

An essay published in March in *The Atlantic* by Abdallah Fayyad, “The Unfulfilled Promise of Fair Housing,” says it all, but boils it down to the basics: white wealth (has always) required black and brown poverty. Or as Michel Foucault said of the modern state in [his 1976 lecture] “Society Must be Defended,” the liberal state is structured to either “make live or let die.”

The current state of affairs is rooted in what was put into place first by the Declaration of Independence and then was structured into the Constitution—that land and resources, along with tools (guns) to defend that property, were available to select white Europeans. You had to own land to be a citizen. Citizenship has always been racially coded white, which is why you needed the 14th Amendment after the Civil War to clarify rights so that former slaves could become citizens. That “whiteness,” as Cheryl Harris [in a 1993 issue of the *Harvard Law Review*] succinctly wrote, has been wielded as property. Therefore, I would argue that architects, as a modern European discipline and profession of building, are agents of the development of that property and its value.

6. GERMANE BARNES

is designer-in-residence for the Opa-Locka Community Development Corp. in Florida and a lecturer in the School of Architecture at the University of Miami.

GB: Similar to the young student mentioned in the speech, I too dealt with an absence of black role models in academia. It is unfortunate that the average school of architecture employs less than two black full-time faculty members. Minority recruitment is devoid of the proper voices that can relate to the intended audience.

Architecture continues to be an elite white male's profession. However, strides have been made in closing the gender gap. Perhaps those pleading for a solution to the racial gap simply have to wait their turn, an additional 50 years. Most architecture institutions prioritize tectonics, history, and design. It is rare for an institution to create a platform for interdisciplinary research on race. If architecture as a whole is really concerned with interrogating its appearance as a homogeneous profession it has to create paths for diverse discourse.

Additionally, this idea of the unpaid internship and intense studio culture needs to be erased. One of the biggest deterrents for students of color is the unaffordability of architecture. Most cannot afford a college education without gainful employment to supplement their loans or scholarships. If a student must work a job to attend classes, when does that student have the opportunity to design given the time and intensity required on studio projects? One must have a sustainable financial infrastructure to pursue this field. That is a fundamental flaw.

8. V. MITCH MCEWEN

is an assistant professor at Princeton University School of Architecture, principal of McEwen Studio, and co-founder of A(n) Office.

MM: It speaks volumes that the magazine that represents the professional wing of U.S. architecture cannot be bothered to commission the words of a black person in America about the state of black architects in America. This speaks volumes about architecture criticism, about respect for Black professionals and intellectuals within the field, and

7. VICTOR JONES

is founder and principal of Los Angeles-based Fièvre+Jones and editor of the book *(IN)Formal L.A.: The Space of Politics*.

VJ: Young's message remains hauntingly alive 50 years later, as I and many others try to not lose our heads over the racial inclusion we still DO NOT SEE in architecture.

What is most infuriating are the quantities of deans and faculty of architecture schools, principals and partners of firms, not to mention the constellations of others who are okay with an entire segment of society missing in the education and practice of architecture. There are simply too few students, too few teachers, too few deans, too few prize-winning architects, and too few historians of color. If we expect architecture to maintain any cultural relevance, this shameful state of affairs must change.

Let's start by destroying the general anonymity that shrouds the contributions of architects and designers of color. And I am not just talking about present contributions but historical as well.

I remember visiting antebellum plantation houses with my history professor back in the '80s. I remember their majestic stature, fawning over their exacting proportions, and my teacher whispering the names of the great architects that designed them. I also remember the deep discomfort I had as I thought about all the nameless slaves that built them.

Coming to terms with that experience has been at the core of my own struggles to find my place as a gay African-American teacher, practitioner, and scholar.

you have a federal grant for research, and even then it's to study the problem.

I hope you accept my recommendation for a moratorium on the study of the Negro in this country. He has been dissected and analyzed, horizontally and vertically and diagonally. Thank you, very much. And if there are any further studies—I'm not anti-intellectual—I hope we'll make them on white people. And that instead of studying the souls of black people we'll be studying the souls of white people; instead of the anatomy of Watts, we'll do an anatomy of Cicero, an anatomy of Bronxville.

What's wrong with the people in these neighborhoods? Why do they want—themselves just one generation removed from welfare or in many cases just one generation within the country, where they have come here sometimes escaping hate and have come here and acquired freedom—why do they want to turn their backs and say in Cicero, “Al Capone can move in, but Ralph Bunche can't?” Why are they so insecure? **8** Why do people want to live in these bland, sterile, anti-septic, gilded ghettos, giving sameness to each, compounding mediocrity in a world that is 75 percent nonwhite, in a

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—WHITNEY M. YOUNG JR., 1968

**“ARCHITECTURE IS A
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**WE EACH NEED TO
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MUCH IS REQUIRED.”**

—JENNIFER NEWSOM, 2018

world where in 15 minutes you can take a space ship and fly from Kennedy to South Africa? Why would anybody want to let their children grow up in this kind of situation? I think this kind of affluent peasant ought to be studied. These are people that have acquired middle-class incomes because of strong labor unions and because they are living in an unprecedented affluent period. But in things aesthetic and educational and cultural, they leave a lot to be desired. They wouldn't know the difference between Karl Marx and Groucho Marx.

This is where our problem is. We can move next door to Rockefeller in Tarrytown, but I couldn't move into Bronxville. Any white pimp or prostitute can move into Bronxville. A Jewish person could hardly move into Bronxville, incidentally.

As a profession, you ought to be taking stands on these kinds of things. If you don't as architects stand up and endorse Model Cities and appropriations, if you don't speak out for rent supplements or the housing bill calling for a million homes, if you don't speak out for some kind of scholarship program that will enable you to consciously and deliberately seek to bring in minority people who have been discriminated against in many cases, either kept out because of your indifference or couldn't make it—it takes seven to 10 years to become an architect—then you will have done a disservice to the memory of John Kennedy, Martin Luther King, Bob Kennedy and most of all, to yourselves.

You are part of this society. It is not easy. I am not suggesting the easy road, but the time has come when no longer the kooks and crackpots speak for America. The decent people have to learn to speak up, and you shouldn't have to be the victim to feel for other people. I make no pretense that it is easy. **9**

9. MARCIA YOUNG CANTARELLA

is Young's daughter. In March she delivered a speech at the AIA's Grassroots conference in San Diego that played off her father's 1968 address.

MYC: The question is how can you see yourselves solving problems that may not be fully of your creation but may well be created by your clients who don't have the creative vision or sense of social responsibility that you could potentially bring to a planning process.

My father spoke of the rightness of doing these things, but the reality is that he also spoke, often one at a time to CEOs, about the business imperative of doing this work. You are not operating in isolation; find the thought partners like [research psychiatrist] Mindy [Fullilove] or other scholars and then take the lead with your clients—some of whom may have a progressive streak of their own and only need to be led—to make social change that will truly impact the quality of life for the society we will inhabit. ... I make no pretense that it is easy.

10. YOLANDE DANIELS

is founding partner of Long Island City, N.Y.-based Studio SUMO.

YD: I do not read anger in Young's words. I read directness and bluntness. Somehow, even now it seems when a black person speaks directly, their words are received as anger and as anger diminished.

I believe that Whitney Young's criticisms hold in the face of mass gentrification and urban displacement, mass criminalization/incarceration and premature death, and other seemingly benign entitled views that are based upon white supremacist values. Is it really okay in the 21st century to be in a restaurant or store or town and see perhaps only one person of color eating dinner or shopping or listening to a concert—except for servers? How many are shunted or die so that one may thrive?

Finally, let me dwell on your role as men, because I think this probably more basic than anything. Sure, you're architects. You're a lot of things—you're Republicans, Democrats, and a few John Birchers. You're a good many things but you're a man and you're a father. I would hope that somehow you would understand that this issue, more than any other of human rights, today separates the phony from the real, the man from the boy, more than anything else.

Baseball's Rickey solved the problem of attitudes and how long it takes. I agree with you that it takes a long time to change attitudes. Doesn't take any time to change them overnight. When he brought Jackie Robinson to the Dodgers, there was this ballplayer who said I'm not going to play with that "nigger." He thought Rickey would flap like most employers. I imagine most architects thought he would say that he'd pull away.

But he didn't know Rickey very well. Rickey was kind. He said, "Give him three or four days." Well, at the end of a few days, Robinson had five home runs, stolen many bases and this fellow was reassessing his options. He could go back to Alabama and maybe make \$20 a week picking cotton, or stay there with the Dodgers and continue

11.

KATHRYN PRIGMORE | FAIA |

a senior associate Shalom Baranes Associates, is adviser to the president of the National Organization of Minority Architects (NOMA).

KP: [Young] was asking each of us—no matter what our race, or gender or condition—why we refuse or are reluctant to funnel some of our energy and passion to improving the lives of those less fortunate than we are. He was asking us why, once we reach a certain stature, do we isolate ourselves from our more humble pasts?

Thankfully, architects are making progress toward overcoming "our thunderous silence" and our "complete irrelevance." Mobilization of the profession to address Young's challenge took many forms. Some, like NOMA, began immediately and have evolved into sustained institutions with equity in the profession as a primary mission. Others were later additions to the cause, such as the powerful ArchVoices, which purposefully dissolved after achieving its primary goals and stimulating the introduction of many initiatives through which architects and others can focus on

specific aspects of disparity within the built environment.

Architects and students regularly reach beyond the boundaries of our profession through a broad range of programs such as Construction and the Rural Studio. Pipeline programs such as Architecture in the Schools expose diverse groups of young people to the possibility of becoming an architect. Initiatives aimed at making us more aware of the shortcomings within our profession, such as Equity by Design, and aimed at supporting diverse populations within the profession, such as Riding the Vortex, currently thrive.

Young addressed many ills of society and of inequities in the built environment that planners, engineers, developers, bureaucrats, politicians, or others are more able to affect than practicing architects. In response to this aspect of his challenge, our academic communities acknowledge

they are training not just professionals but individuals with backgrounds in architecture who will fill roles within the entire spectrum of professionals involved with conceptualizing, designing, and constructing the built environment. As more individuals trained in architecture become policymakers and financiers, the better our physical environments will become, not just for those who can afford to commission an architect but for everyone.

Today, as in 1968, there is no simple answer to the questions Mr. Young posed. As long as change happens within the existing sociopolitical environment we can only achieve modest gains. For true parity to be achieved, we need to dissolve the laws and institutionalized policies that provide the foundation for inequity in our profession, in America, and throughout the world.

to work and, now it looked like Jackie would get him into the World Series and a bonus of \$5,000, which he did. The only color he was concerned with was green.

We see it happening in Vietnam. White boys from Mississippi in Vietnam develop more respect and admiration for their black sergeant in one week because they too have made their own assessment and have decided to be liberal white boys from Mississippi instead of a dead white bigot. They're interested in survival and the sergeant is skilled in the art of surviving, and they say "Mr. Sergeant"—changed overnight.

Why is it that the best example of American democracy is found in the muck and mire of Vietnam? Why is it that the greatest freedom the black man has is the freedom to die in Vietnam; and as they die, why do his loved ones, their kids and their wives and their mothers have to fight for the right to buy a house where they want to?

There is something wrong with that kind of society.

So, what's at stake then is your country, your profession, and you as a decent civilized human being. Anatole France once said, "I prefer the error and enthusiasm to the indifference of wisdom." For a society that has permitted itself the luxury of an excess of callousness and indifference, we can now afford to permit ourselves the luxury of an excess of caring and of concern. It is easier to cool a zealot than it is to warm a corporation. **10**

An ancient Greek scholar was once asked to predict when the Greeks would achieve victory in Athens. He replied, "We shall achieve victory in Athens and justice in Athens when those who are not injured are as indignant as those who are."

And so shall it be with this problem of human rights in this country. **11 12**

12. SHARON SUTTON

SS: In *The Fire Next Time*, James Baldwin argued that black people are needed to disrupt white people's investment in the status quo. Because black people don't benefit from the status quo, they are more capable of envisioning alternatives (as are young people).

As black people—a people that has experienced segregation, cultural fragmentation, and spatial displacement over centuries—I believe we can frame the single most urgent question of our time: Namely, how can architects create narratives that help restore humanity and its lost relationship to the material world? Or as Whitney Young might have put it: How can architects create narratives that transcend materialistic values—that are less concentrated around things than around people and their relationship with place?

> To read the complete responses by black practitioners to Young's speech, visit architectmagazine.com/equity.

LEGEND

- MALE
- + FEMALE
- BLACK/AFRICAN-AMERICAN
- ASIAN
- HISPANIC/LATIN
- WHITE

AIA GOLD MEDAL WINNER ○

'69 ○ ○

1968

In his keynote address to the AIA National Convention in Portland, Ore., **Whitney M. Young Jr.**, head of the National Urban League, challenges architects on issues relating to social responsibility and diversity within the profession.

1970

The AIA and the American Architectural Foundation establish the AIA/AAF Minority Disadvantaged Scholarship, supporting some 20 students per year. In 2014, it is renamed the "Diversity Advancement Scholarship."

1971

A group of 12 black architects meet at the AIA Convention in Detroit and establish the National Organization of Minority Architects (NOMA):
[William Brown](#)
[Leroy Campbell](#)
[Wendell Campbell](#)
[John Chase](#)
[James Dodd](#)
[Kenneth Groggs](#)
[Nelson Harris](#)
[Jeh Johnson](#)
[E.H. McDowell](#)
[Robert Nash](#)
[Harold Williams](#)
[Robert Wilson](#)

TOWARD A HIST

The crowdsourced AIA Diversity Timeline, an online record excerpted from and expanded upon here, celebrates many of the heroes and campaigns for inclusion in the decades since 1968.

1972

Following the death of Whitney Young in 1971, the AIA creates an award in his honor to recognize architects and organizations engaged in relevant social issues. The first recipient is NOMA co-founder **Robert Nash**.

*New York architect **Judith Edelman** founds the Alliance of Women in Architecture.*

1973

At the AIA Convention in San Francisco, delegates pass a resolution that “the AIA take action to integrate women into all aspects of the profession as full participants.”

1974



The AIA hires black architect **Robert Coles, FAIA**, as deputy vice president for minority affairs, to develop “a master plan for minority awareness” in concert with Leon Bridges, FAIA, and Marshall Purnell, FAIA, to establish the Commission on Community Services.

1975

Katrin Adam, Phyllis Birkby, Ellen Perry Berkeley, Bobbie Sue Hood, FAIA, Marie Kennedy, Joan Sprague, and Leslie Kanes Weisman establish the Women’s School of Planning and Architecture.

1977

*The Architectural League of New York, through its recently established Archive of Women in Architecture, organizes “Women in American Architecture: A Historic and Contemporary Perspective,” curated by **Susana Torre**, in conjunction with a book by the same name.*

The Aga Khan IV establishes the Aga Khan Award for Architecture, celebrating architecture, landscape, and urbanism for Islamic societies.

TORY



Judith Edelman, as head of the newly formed AIA Task Force on Women in Architecture, presents a report showing that only 1.2 percent of registered U.S. architects are women. At the time, only coal miners and steelworkers have a lower proportion.

Edelman (1923–2014) was a pioneer for women in architecture. In 1973, she had challenged the AIA to help, co-authoring a resolution, “Status of Women in the Architectural Profession.” The preamble noted, “In society at large we are in the midst of a struggle for women’s rights brought into sharp focus by the current feminist movement. AIA and the architectural profession have not responded to this climate of change.”

But there was, too, her acumen and legacy as an architect. With Stanley Salzman and her husband Harold Edelman, she founded Edelman Sultan Knox Wood / Architects. While much of the coverage on Edelman over the years focused on her advocacy, and rightly so, her politics and activism carried over into the types of projects she championed and designed, notably affordable housing.

Edelman opened doors for people both through her architecture and activism, says her friend Beverly Willis, FAIA. “We, as women, and the profession as a whole owe her a great deal of gratitude.”

—ELIZABETH EVITTS DICKINSON

||
In the [AIA] national membership, there are 24,000 men and 300 women, a pretty appalling statistic.

In 1970, women represented 3.5 percent of the 56,214 practicing architects in the US.

—Ada Louise Huxtable,

“The Letterhead is Solidly Male,”
The New York Times,
May 19, 1974

AIA GOLD MEDAL WINNER
PRITZKER PRIZE LAUREATE

1980



Norma Merrick Sklarek, becomes the first black woman to be elevated to the AIA College of Fellows. When Sklarek (1926–2012) achieved licensure in 1954, she was the third African-American woman—after Georgia Louise Harris Brown and Beverly Loraine Greene—in the history of the profession in the U.S. to attain the certification. However, this is one of only a few instances when Sklarek was not “the first” during her trailblazing career.

In 1950, she graduated from Columbia University as the first black woman to earn a B.Arch. degree, and four years later, she became the first African-American woman to be licensed in her home state of New York. In 1960, after five years working for Skidmore, Owings & Merrill (SOM), Sklarek moved to Los Angeles to work for Gruen Associates, where she became the firm’s first female and first black director. (She was also the first African-American woman to be licensed in California.)

In 1980, Sklarek was the first African-American woman to be elected a fellow of the American Institute of Architects; and in 1985, Sklarek became the first African-American woman to form and run an architecture practice when she co-founded Siegel-Sklarek-Diamond with Margot Siegel, AIA, and Katherine Diamond, FAIA. She spent the last four years of her career as a principal at the Jerde Partnership.

But trailblazing did not come without its complications. Prior to Sklarek’s hiring at SOM, she received 19 job application rejections and was forced to take a junior draftsman job in the New York State Department of Public Works. During her time with Gruen Associates, Sklarek was initially under intense scrutiny. In her later career, she told a story of carpooling with a white, male colleague who was often late: “It took only one week before the boss came and spoke to me about being late. Yet he had not noticed that the young man had been late for two years. My solution was to buy a car since I, the highly visible employee, had to be punctual.”

—KATHARINE KEANE

1983

I.M. Pei, FAIA, wins the Pritzker Architecture Prize, the first person of Asian descent to do so.

1985

Chicago-based *Arquitectos, The Society of Hispanic Professional Architects* is established.

1989

In the last two decades, the number of architects in the U.S., according to Labor Department statistics, has roughly doubled. The number of female architects, less than 1,500 in 1970, now approaches 5,000. The number of black architects has grown from about 1,000 to 2,000, remaining at about 2 percent of the total.

—Robert Coles, FAIA,

“Black Architects: An Endangered Species,” *Progressive Architecture*, July 1989

1990



President George H.W. Bush signs the *Americans with Disabilities Act*, in part because of the groundbreaking work of **Ronald Mace** (1941–1998). Mace, who used a wheelchair after contracting polio at age 9, was a pioneer in the field of accessible design. A 1966 graduate of the design school at North Carolina State University, he “completed school as the result of the tenacity of my family,” he later wrote. “They devoted a large portion of their lives for the six years I was in school to ensure that I was carried whenever necessary through an inaccessible, and even hostile, environment. There was neither assistance nor accommodation made.”

The experience helped inspire the work that become his calling. In 1973, he helped develop an accessible-building code for North Carolina—the first of its kind in the U.S. and a model for other states. He was also instrumental in the passage of the Fair Housing Amendments Act of 1988, which prevented discrimination based on disabilities.

In a speech he gave at a universal design conference in 1998, just a month before his death, Mace was still working to spur change: “We tend to discount people who are less than what we popularly consider to be ‘normal.’ To be ‘normal’ is to be perfect, capable, competent, and independent. Unfortunately, designers in our society also mistakenly assume that everyone fits this definition of ‘normal.’ This is just not the case.” —ERIC WILLS



1991

Bradford Grant, AIA, and **Dennis Alan Mann** publish the first edition of the *Directory of African American Architects*.

Bryan Bell, AIA, founds *Design Corps*, a nonprofit that brings design to underserved communities.



1992

Meeting in Indiana, the new AIA Diversity Task Force develops the "New Harmony Accords," advancing the premise that the "organization commands strength in proportion to its inclusiveness."

Philadelphia architect **Susan Maxman, FAIA,** becomes the AIA's first woman president since its founding in 1857.



1993

Publication of Paul R. Williams Architect: A Legacy of Style (**Karen E. Hudson, Rizzoli**) reintroduces the pioneering work of the legendary African-American architect.

In Atlanta, a joint meeting of the AIA Diversity Task Force, the Minority Resources Committee, and the Women in Architecture Committee—who together dub themselves the "Diversity Squadron"—sparks the idea for the first AIA Diversity Conference.

"Design Diaspora: Black Architects and International Architecture 1970–1990," an exhibit produced by **Carolyn Armenta Davis, HON. AIA,** highlights contemporary design by 50 black architects from 11 countries in the Americas, Europe, and Africa, with a 1993–2000 world tour.



1994

AIA membership totaling 41,685 includes 7.3 percent "all minorities," 10.45 percent women, 0.99 percent minority women.

The AIA's inaugural Diversity Conference is held in Washington, D.C., with the title, "Breaking the ICE: Building New Leadership." Six more diversity conferences occur through 2000.

'95



1996

Washington, D.C., architect **Raj Barr-Kumar, FAIA,** becomes the first AIA president of color.

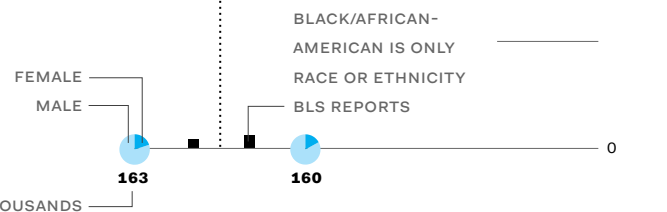
Denise Scott Brown, HON. FAIA, becomes first woman to receive the AIA Topaz Medallion.



Architects **Samuel Mockbee** and **D. K. Ruth** found the *Rural Studio* in Hale County, Ala. The Auburn University studio designs and builds housing and other facilities for poor communities in the area.

MEASURING INCLUSION

Since 1995, the Bureau of Labor Statistics (BLS) has tracked the demographics of various occupations, including architect. While not a perfect mirror of reality, the results do provide a rough measure of diversity in the profession.



TOTAL ARCHITECTS, IN THOUSANDS

AIA GOLD MEDAL WINNER
PRITZKER PRIZE LAUREATE

1997

'98
○ ○

1999

Cameron Sinclair and **Kate Stohr** found Architecture for Humanity to promote humanitarian design. The nonprofit grows to nearly 60 chapters around the world. Sinclair receives the \$100,000 TED Prize in 2006.

'00 '01
● ○ ○ ○ ○

2002

*Publication of **Designing for Diversity: Gender, Race, and Ethnicity in the Architectural Profession** by **Kathryn Anthony**.*

Gordon Chong, FAIA, becomes the first Asian-American AIA president.

*Formation of the nonprofit **Beverly Willis Architecture Foundation**, with its mission of "advancing the knowledge and recognition of women's contributions to architecture."*

○

2003

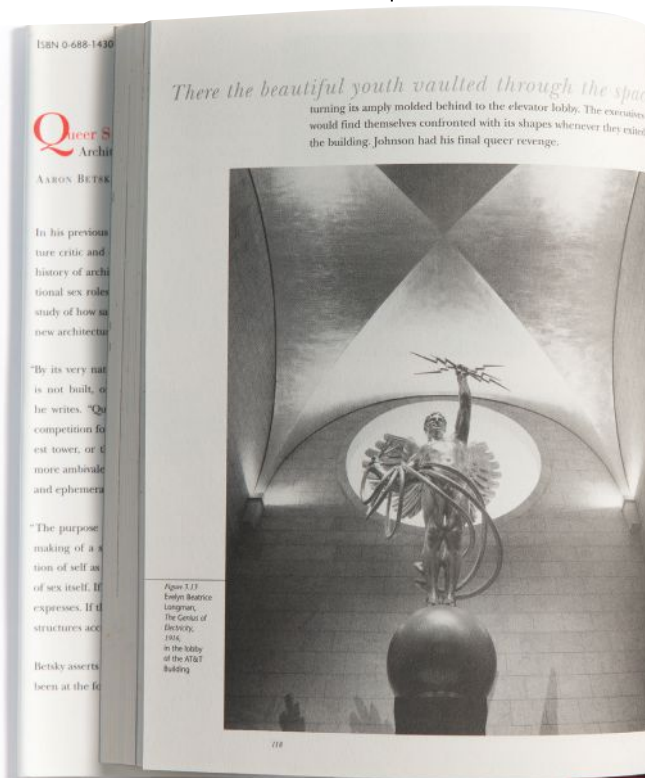
The thoughtful essays in this publication should move us beyond the lamentations of what ought to have happened in the past 35 years to the kind of substantive action that can change architecture in the coming decades. ... The need to meet market demands, an understanding that different perspectives bring richness to professional discussions, and the simple recognition that intellect, creativity, and hard work are not the exclusive province of white males have diversified law and medicine while architecture has remained largely unchanged.

—**Ted Landmark**, "Introduction" to *20/20 Vision: Perspectives on Diversity and Design* [Linda Kiisk, ed.], published by the AIA Diversity Committee and Boston Society of Architects, 2003

○
+

2004

***Zaha Hadid** becomes the first woman to win the Pritzker Architecture Prize.*



*Publication of the seminal design-theory text **Queer Space: Architecture and Same-Sex Desire** (William Morrow) by **Aaron Betsky**.*

BLS BEGINS REPORTING FOR "HISPANIC OR LATINO"

169

158

194

BLS DOES NOT RELEASE ACCURATE DATA FOR 2000-2001

197

BLS BEGINS REPORTING ON ASIANS AND ADDS DISTINCTION "EXCLUDING NAVAL" FOR ARCHITECTS.

180

207



LEFT: APRIL GREER; RIGHT: PIERO CRUCIATTI

'06



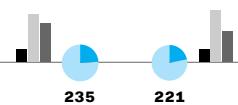
2005

In 2005, law firm Holland & Knight published a report on diversity at the behest of the AIA, to help establish who was entering the field, who was succeeding, and why. One of the primary findings: At that time, comprehensive demographic data (on race, gender, sexual orientation) didn't really exist.

The AIA's own membership numbers cast the issue of diversity in sharp relief: At the end of 2004, approximately 2 percent of its members were Hispanic/Latino, 3 percent were Asian, 1 percent were Black, and 12 percent were women. The report also relied on more than 10,000 responses to a web-based survey, as well as focus groups and in-person interviews, to establish why women and minority architects were leaving the profession.

The responses were, in many cases, all too predictable: Women selected "personal/family circumstances" and "inflexible hours" as their primary reason for not practicing three times as often as the men did. And more than two times as many men as women completed the Intern Development Program in less than three years.

—ERIC WILLS



2007

Marshall Purnell, FAIA, becomes the AIA's first black president.

Leers Weinzapfel Associates is selected as the first woman-owned recipient of the AIA Architecture Firm Award.

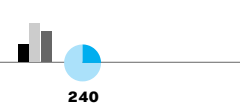
The MIT School of Architecture and Planning and the Robert R. Taylor Network convene the conference "Architecture, Race and Academe," resulting in creation of an online black architects timeline.



"The number of black women architects has quadrupled in 15 years. But four times a fraction of a percent doesn't amount to much."

—Hannah McCann, "0.2%," ARCHITECT, March 2007

Steven Lewis, FAIA, convenes "Perspective: A Symposium on Race and Architecture" at the Harvard Graduate School of Design.



2008

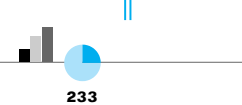
Only 1.5 percent of America's architects are African-American (at a time when the U.S. Census Bureau shows that African-Americans comprise approximately 12 to 13 percent of the total population)

—Robert Ivy, FAIA, "Room for All Our Talents," *Architectural Record*, May 2008

Norma Sklarek is selected as the first female recipient of the Whitney M. Young Jr. Award.

"The American Institute of Architects (AIA) reports that in March 2008, 16 percent of firm principals and partners were women, up from 12 percent in 1999. Anecdotally, it is known that most of these female principals and partners are sole proprietors or owners of small firms. This common wisdom is consistent with research studies of managerial demographics in the United States. While women occupy 40 percent of all managerial positions, only 6 percent of the most highly paid executive positions are held by women."

—Rena Klein, FAIA, "Labyrinth to the Top," AIA, May 2008



2009

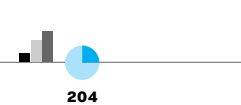
The first AIA Women's Leadership Summit occurs in Chicago.

Adoption of the NOMA/AIA Memorandum of Understanding, and adoption of AIA Diversity Action Plan, 2009–2013, with strategies to "1.) expand the racial/ethnic, gender, and perspective diversity of the design professions to mirror the society we serve; and 2.) nurture emerging professionals and influence a preferred future for the internship process and architecture education."

Beverly Willis Architecture Foundation releases the documentary A Girl is a Fellow Here: 100 Women Architects in the Studio of Frank Lloyd Wright.

Across the country, design-centered high schools are helping increase the number of African-Americans and Latinos in the field.

—James Murdock, "Diversity in Design: The Diversity Pipeline," *Architectural Record*, May 2009



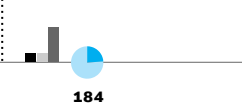
2010

AIA Board unanimously adopts policy favoring passage of the Employment Non-Discrimination Act prohibiting discrimination in hiring and employment on the basis of sexual orientation or gender identity.

When [Marshall Purnell, FAIA] became the youngest president of the National Organization of Minority Architects 25 years ago, African-Americans made up just above 1 percent of the profession. Today, a couple of years after he ended a term as the first black president of the American Institute of Architects, the leading trade group for licensed architects, the percentage is no better.

—Maya Payne Smart, "Building the Pipeline of Minority Architects," *Savoy*, Feb. 25, 2010

The National Architectural Accrediting Board's 2010 "Report on Accreditation in Architecture Education" finds that among full and associate professors in U.S. accredited schools of architecture, 75 percent are male, and 25 percent are female.



AIA GOLD MEDAL WINNER
PRITZKER PRIZE LAUREATE

2011

Architect Barbie makes a controversial debut at the 2011 AIA National Convention in New Orleans. A related contest to design Barbie's "dream house" causes a similar stir.

||
Only 1,444, or 5.3 percent, of the 27,478 students in programs certified by the NAAB identify themselves as black or African-American. The numbers get much smaller as these aspiring architects climb the professional ladder: Of the 104,300 registered architects in the United States, roughly 1,860 of them—less than 2 percent—are black

—Jenna McKnight, "Why the Lack of Black Students?," *Architectural Record*, Nov. 19, 2012

||
Architect Barbie can't do all the work. Deeply held attitudes about women must shift before architecture becomes a profession that truly embraces diversity.

—Despina Stratigakos, "What I Learned from Architect Barbie," *Places Journal*, June 13, 2011



2013

||
According to the NAAB's "2012 Report on Accreditation in Architecture Education," women comprise 32 percent of faculty members in accredited schools of architecture, and 43 percent of students in architecture degree programs. The report also documents ethnicity of faculty and students.

AIA San Francisco initiates "The Missing 32%" petition, which leads to the formation of the group Equity by Design.

Syracuse University architecture professor Lori Brown, co-founder of the group Architexx, publishes Contested Spaces: Abortion Clinics, Women's Shelters and Hospitals (Routledge).



2014

||
Julia Morgan (1872–1957) becomes first woman to receive the AIA Gold Medal.

||
Racial and ethnic minorities made large gains in the last decade, and now represent about 20 percent of staff at firms, an increase of 4 percent from 2005. The percentage of minority licensed architects also witnessed a nice bump. Women also made inroads at firms, especially among licensed architects: 26 percent are women, versus 20 percent in 2005. But the percentage of women principals and partners only ticked up slightly.

—Eric Wills, "Five Key Metrics from the 2014 AIA Firm Survey Report," *ARCHITECT*, Oct. 17, 2014



2015

||
At the 2015 AIA Convention, delegates adopt Resolution 15-1, "Equity in Architecture."

||
Women comprised 38 percent of aspiring architects who completed the IDP in 2014, compared to 25 percent in 2000. Women also accounted for 35 percent of candidates who completed the ARE in 2014, a percentage that has nearly doubled since 2000.

—Caroline Massie, "NCARB Report: The Architecture Profession Is Growing, Attracting More Women and Minorities," *ARCHITECT*, June 19, 2015

||
Architecture for Humanity declares bankruptcy, lays off staff, and closes its San Francisco office. The following year, local chapters form a new organization, Open Architecture Collaborative.



2016

||
One in five women worldwide say they would not encourage a woman to start a career in architecture."

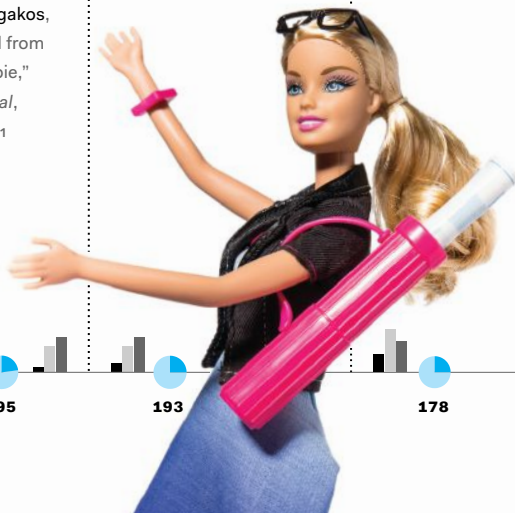
—Sabrina Santos, "Women in Architecture's 2016 Survey Finds Widened Gender Disparities," *ArchDaily*, Feb. 29, 2016

||
The AIA awards the Gold Medal to **Robert Venturi, FAIA, and Denise Scott Brown, HON. FAIA**, changing the rules to allow more than one recipient.

||
The AIA's Diversity in the Profession of Architecture survey, completed by 7,522 people in 2015, indicates that women and people of color perceive more career obstacles and lower job satisfaction levels.

—Rebecca Seidel, "AIA Releases Results of Diversity Survey," *Architectural Record*, March 9, 2016

||
Joel Sanders, AIA, and Susan Stryker publish "Stalled: Gender-Neutral Public Bathrooms," responding to the growing "moral panic" over transgender people's use of public toilets.



2017



Paul Revere Williams (1894–1980) is the first black person to receive the AIA Gold Medal.

Michael Ford hosts the first Hip Hop Architecture Camp.

2018

Tamara Eagle Bull, FAIA, is the first Native American recipient of the Whitney M. Young Jr. Award.

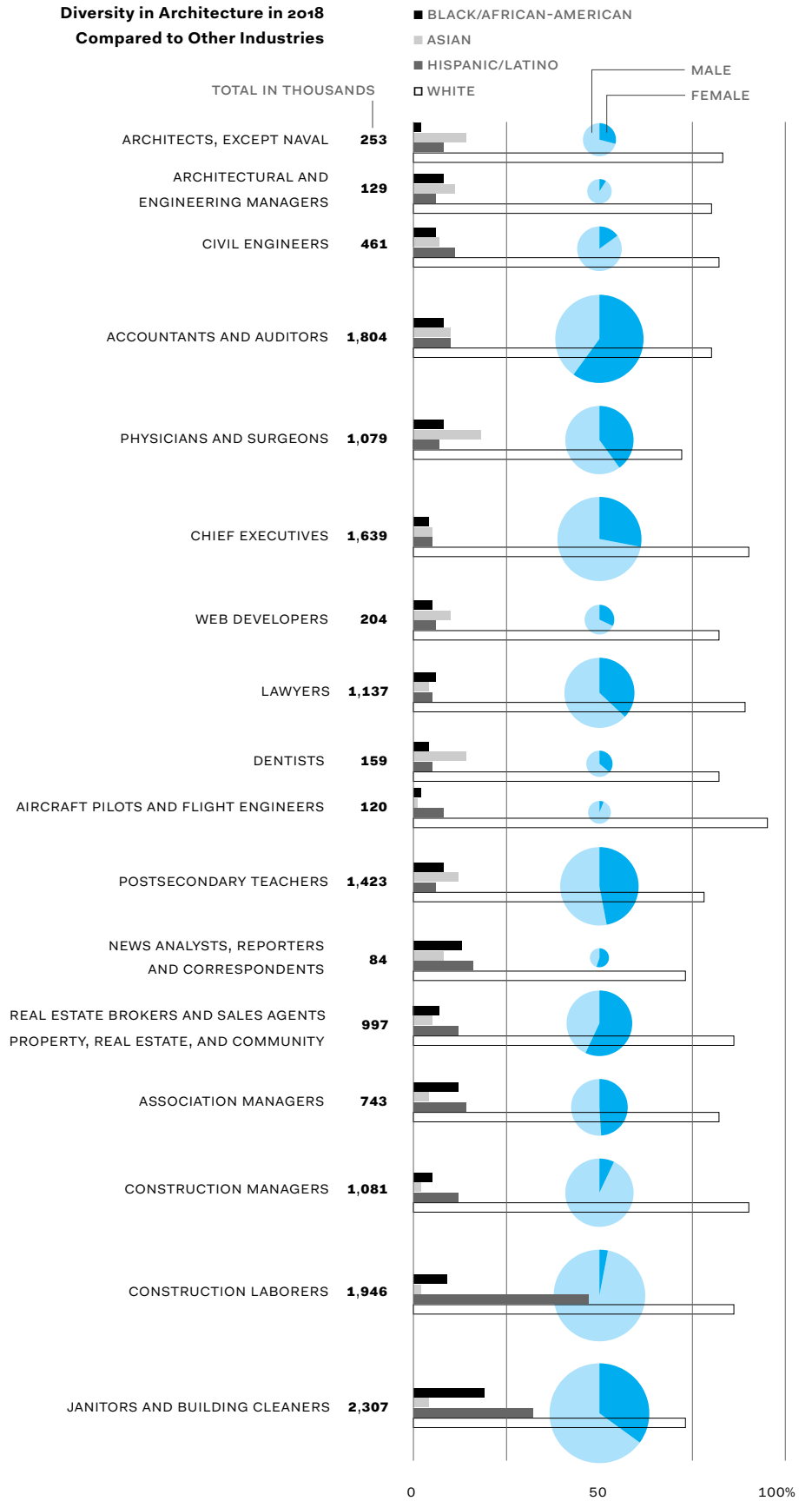
In The New York Times, five women accuse AIA gold medalist Richard Meier, FAIA, of sexual misconduct.

AIA New York rescinds 2018 chapter honor awards from Meier and from Peter Marino, FAIA, another architect facing harassment allegations.



Emulating the widely publicized "Shitty Media Men" list, an anonymous #MeToo advocate creates a crowdsourced online spreadsheet titled "Shitty Architecture Men," where victims detail sexual misconduct allegations against numerous powerful men in the architecture and design industries.

Diversity in Architecture in 2018 Compared to Other Industries



> To celebrate the 50th anniversary of Whitney Young's speech, the AIA and the Architects Foundation are hosting an exhibit about diversity in the profession at the Octagon Museum in Washington, D.C.

100%

50

253

WORKERS PROGRESS

A new generation is propelling the movement toward equity in architecture.

We contacted Teddy Cruz, Peggy Deamer, Raphael Sperry, Susana Torre, John Cary, Beverly Willis, FAIA, Michael Murphy, Rosa Sheng, FAIA, and other established architectural activists to help us identify and celebrate the field's emerging champions of social change.





IN

BRYAN LEE JR. AND SUE MOBLEY COLLOQATE DESIGN

Last summer, as New Orleans removed statues of confederate leaders from some of its most important public spaces, Bryan Lee Jr. and Sue Mobley founded their nonprofit practice Colloqate Design (a combination of the words colloquial, locate, and collocate). They had long been active in grassroots campaigns to remove the statues, but now they were embracing an official role. Funded by grants from the Ford Foundation and the Foundation for Louisiana, Colloqate is leading the city's public engagement effort to determine what should happen to these sites. "The goal is to establish a system of memory," Lee says, "that explores histories that haven't been part of the main narrative."

Lee became dedicated to the issue of equity in design as an undergraduate architecture major at Ohio State University; he was so disturbed by the racial homogeneity of his classes that he questioned his future in the field. But he completed a master's in architecture at the New Jersey Institute of Technology in 2008 and landed a job at Eskew+Dumez+Ripple. A few years later, he left for the Arts Council New Orleans, where he developed programming to teach kids about design and advocated for greater social justice in the field. "Our profession has been derelict of duty when it comes to cultural competency," he says.

Colloqate calls its two-year project "Paper Monuments." It hosts monthly storytelling and art events; works with schools and public libraries; and, most visibly, is commissioning a series of provocative posters that celebrate unrecognized events and people, like the General Strike of 1892 and the San Malo Maroons. "We're trying to reach every resident about what should be honored in our public spaces," says Mobley.

Over the coming months, the firm will work with the city to design semi-permanent markers for the empty sites. Raphael Sperry, president of Architects/Designers/Planners for Social Responsibility, says the firm is demanding nothing less than "racial, cultural, and social equity for all. Colloqate is demonstrating that architecture can advance more humane values than the market forces of capitalist accumulation."

Liz Ogbu defines her design philosophy as being in direct contrast to the transactional “box-checking” approach that typically characterizes how architects work with communities. She returns to one question again and again: “How do you engage people who don’t have a seat at the table and think about them as co-designers in the process?”

It’s a difficult question. Ogbu says she often feels like she has two clients—the one paying and the one using the space she’s helping design. “In most of my projects, it’s the wrong problem outlined in the brief,” Ogbu says. “You can only right-fit it by talking to people.”

Ogbu first studied architecture at Wellesley College in the mid-’80s, where architectural historian Alice Friedman encouraged her to design her own major. In addition to taking studio courses at MIT, Ogbu studied sociology and economics. She completed her master’s in architecture at the Harvard Graduate School of Design, and then worked for a couple of nonprofits—Public Architecture and Ideo.org— before launching her own practice in 2012.

She tends to partner with other design firms to facilitate intense, long-term collaborations between residents and clients. “Liz Ogbu uniquely and bravely uses design to do the hard work of community healing, by acknowledging buried pain and trauma that is too often overlooked,” says John Cary, author of *Design for Good*.

Ogbu is currently part of a team that’s reimagining a 32-acre stretch of concrete in a historically working-class, African-American community in San Francisco, left empty when Pacific Gas and Electric Co. dismantled a power plant. Ogbu oversaw a series of in-depth conversations with residents, over multiple years, that led to the design of a temporary event space on the site and the creation of a new public shoreline trail.

Ogbu hopes her work will spur other architects to re-evaluate how they work with local communities. “When architects look at me, they say, ‘She’s the community engagement person, she can lead a good community meeting,’” Ogbu says with a knowing weariness. “But the engagement I do is really a means to an end. We can create better design.”



LIZ OGBU,
STUDIO O



**JULIA
MURPHY,
SKIDMORE,
OWINGS &
MERRILL**

Julia Murphy, AIA, restarted Skidmore, Owings & Merrill's Women's Initiative in 2010 when she and her colleagues realized the firm didn't have any women partners. "It was somewhat palpable," Murphy says, of the lack of female leadership at the time. Marilyn Jordan Taylor, FAIA, had first launched the initiative in 2004; Murphy and her colleagues took the reins and helped the firm confront unconscious bias and make structural changes. They focused in particular on professional development, including preparing young hires for accreditation exams. After its first year, 33 percent more women became licensed at SOM than in the previous year.

Today, each of the firm's offices has its own iteration of the Women's Initiative, overseeing programs that include annual shadowing internships, public speaking training, and mentoring. Murphy, who has been at SOM for a decade, is now an adviser to the Women's Initiative rather than its leader. She's particularly mindful not to steer younger women away from revisiting problems the initiative tackled in the past. "We are talking about cultural change and the pace of that is often quite slow. There are certain conversations that we have to revisit often in order to keep goals in sight," Murphy says.

This past March, the Beverly Willis Architecture Foundation (BAAF) awarded Murphy its Tribune Award, which recognizes leadership in improving gender equity. BAAF executive director Cynthia Phifer Kracauer, AIA, says that Murphy continues SOM's tradition of empowering "a few extraordinary women who are able to 'break through' into the public view." Two years ago, with BAAF, Murphy launched the Emerging Leaders program, which helps young professionals to connect with the design field's most accomplished female leaders. "We've gotten master class notes from the generation pioneering before us," Murphy says of the program, noting that she sees a great generosity across generations. "Women want to help each other make it through."


 A portrait of Jeffrey Mansfield, a man with dark hair and a light beard, wearing a dark blue button-down shirt. He is looking directly at the camera with a slight smile. The background is a wall of weathered, light-colored wood with dark, vertical streaks.

**JEFFREY
MANSFIELD,
MASS
DESIGN
GROUP**

At MASS Design Group, Jeffrey Mansfield has worked on an impressive range of projects, including the Gallaudet University Sixth Street competition and a master plan for the Rwandan Institute of Conservation Agriculture. But it was a recent research project on hospital design, investigating how evolutions in medicine and healthcare practices have shaped how hospitals look and function, that particularly inspired him.

Mansfield was born profoundly deaf. He attended the Learning Center for the Deaf outside of Boston for his primary and secondary school education, always attuned to the meanings encoded in his physical and natural environments. As an undergraduate at Princeton in the mid-aughts, he took a seminar with Sarah Whiting, Assoc. AIA (now the dean of Rice University's school of architecture), on the emergence of Chicago as a modern city, and began to think that his interest in the built environment could lead to a career as an architect.

In 2015, while researching hospital designs at MASS, Mansfield noticed similarities between hospitals and deaf schools, and he wanted to learn more about the institutional

design typologies he saw. "I grew interested in exploring how the architecture of these schools reflected or contributed to evolving attitudes towards deafness in our society, and more generally towards what constitutes 'normal,'" Mansfield says.

Last year, he won a grant from the Graham Foundation for his project, "The Architecture of Deafness: Two-Hundred Years of the Deaf School as an Architectural Type in the United States, 1817–2017," which will culminate in an atlas and exhibition. "Jeff has challenged me to think about utilizing all of our senses to create spaces that shape behavior and advance a narrative of inclusivity, which we need now more than ever," Michael Murphy, co-founder of MASS Design Group, says.

Mansfield is particularly interested in the tension between deaf schools as exclusive, stigmatizing spaces and as empowering, subversive spaces. "You might say that through architecture, I began to understand my own deafness in a broader cultural context," Mansfield says "and started to see my own identity as a culturally deaf person as a form of cultural resistance."

DEANNA VAN BUREN AND KYLE RAWLINS, DESIGNING JUSTICE + DESIGNING SPACES

Deanna Van Buren knew she wanted to be an architect from the age of eight or nine, when she spent afternoons building cities in her family's basement, turning pieces of Styrofoam into townhouses. She studied architecture at the University of Virginia and Columbia University before designing shopping centers overseas with her mentor, the late architect Eric Kuhne.

Then, her career took an abrupt turn. Soon after she returned to the U.S. in 2005, she heard Angela and Fania Davis talk about restorative justice at a Martin Luther King Jr. birthday event in Oakland, Calif. "The criminal justice system was familiar to me, but I had no idea how to address it," Van Buren says. "Restorative justice seemed like a real way out." She began to think about how the practices of reconciliation, which encouraged a series of difficult conversations between offenders and victims, required its own architecture.

Working with Barb Toews, a restorative justice practitioner, and supported by a Loeb Fellowship, Van Buren developed design guidelines for peacemaking centers, creating spaces

that are calm and soothing rather than institutional or confining—spaces, in other words, that are nothing at all like our courthouses and prisons today. In 2015, Van Buren and Kyle Rawlins founded Designing Justice + Designing Spaces, which aims to redefine the architecture of the entire criminal justice pipeline, including housing for high-risk youth just out of foster care. Rawlins, a developer with expertise in building affordable housing, oversees the development wing of the firm, which has completed three restorative justice centers in New York and California; its current projects include a center in Oakland with a restaurant in which low-income and formerly incarcerated individuals will be trained for work in the fine dining industry.

Van Buren frequently uses the word "infrastructure" rather than architecture when discussing her work. "When you think at a systems-wide level, it includes housing, sources of economic access, education access," she says. For Raphael Sperry, this systemic approach is part of what distinguishes the firm: "Their work challenges the racism of mass incarceration head-on."





CHELINA ODBERT AND JENNIFER TOY, KOUNKUEY DESIGN INITIATIVE



When Chelina Odbert, co-founder and executive director of the Kounkuey Design Initiative (KDI), visited the eastern Coachella Valley in Southern California in 2010, she immediately recognized residents' lack of basic amenities. It reminded her of Kibera, the largest informal settlement in Nairobi, Kenya, where KDI had just been working. "I thought it was being exaggerated," Odbert says, of living conditions in the valley. She was shocked to see moms wrapping their kids' shoes and pants in plastic bags so they wouldn't arrive at school covered in mud (and be teased by classmates) after trudging through mucky, unpaved roads, just as moms did in Kibera.

Odbert had founded KDI with Jennifer Toy a few years earlier, when they were students at the Harvard Graduate School of Design. (Odbert studied city planning and Toy landscape architecture.) Interested in public amenities and infrastructure in underserved communities, they had traveled to Kibera for a summer research project and vowed to return to build a public plaza they had discussed with residents. "Most people in Kibera were used to being asked questions and to nothing else happening beyond that," Odbert says.

After graduation, Odbert and Toy participated in a social

incubator course at Harvard Kennedy School, which helped them find funders for KDI. They ran the practice on the side while working at established firms, and they did eventually return to Kibera, where they worked with residents to build a bridge and shade pavilion over land that frequently flooded. In 2010, when she visited the eastern Coachella Valley, Odbert decided to run KDI full-time; in 2014, Toy followed suit. The firm has been roughly doubling in size every year since. It now employs 40 staff evenly between California and Kenya, where the majority of employees are Kenyan.

KDI's participatory design philosophy means that very little is fixed when it begins a project, not even the site. It works closely with residents to determine what they need and where a new playground or plaza or park should go. Today, KDI is overseeing seven active projects in the eastern Coachella Valley, including a 5-acre park on the North Shore, and has begun to work on transportation plans, environmental justice, and policy initiatives, including helping low-income communities gain access to funds that the state legislature is earmarking for public space. "As much as we love design and love its power, design alone is not enough," Odbert says. "We were very lucky to learn that really early on."

Tiffany Brown, ASSOC. AIA, who along with Michael Ford and Eryk Christian co-founded the nonprofit Urban Arts Collective (UAC) in 2017, wants underserved and underrepresented kids to know that the design profession needs their skills and talent. "I'm not working in a field that looks like me," Brown says. "It's time for me to go back and seek out those kids who need to be designing those spaces."

Like Ford and Christian, Brown grew up in Detroit in the 1980s and '90s, in unsafe neighborhoods and public housing complexes. She studied architecture at Lawrence Technological University, in Michigan, and now works at SmithGroupJJR in Detroit. Last fall, she won a Knight Foundation grant for "400 Forward," a series of camps, workshops, and school events she's creating to teach African-American girls, in particular, about art, architecture, and planning. Rosa Sheng, FAIA, of SmithGroupJJR, says that Brown's work is crucial because it is "spreading awareness about the lack of licensed architects who are black women and championing that future for black girls."

Ford and Christian, a professional DJ, both studied architecture at the University of Detroit Mercy. Ford has earned a measure of fame as the creator of the Hip Hop Architecture Camp: weeklong sessions that teach design through hip-hop culture and music—which, as Ford notes, was created in public housing. (He sardonically calls Le Corbusier "the real father of hip-hop.") Now based in Madison, Wis., Ford is helping that city's planning department make its work more inclusive and is running an after-school version of his camp for at-risk youth in public schools.

Brown, who loved to draw as a kid and dreamed about working for Disney, never thought about a career in design until a recruiter came to her high school and encouraged her study architecture. She believes it's essential for kids to see people who look like them working to change their homes and neighborhoods.

"I want to give everything I have learned to girls who are walking my path," she says. "I want to make sure they know it's up to them to advocate for our communities."

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Editorial:

We Have to Try Harder

What do I know about discrimination? My upbringing was about as Wonder Bread as imaginable: prosperous, suburban, Midwestern, conservative, Christian, and Caucasian. The stuff of John Hughes movies, really. You'd probably think I had it made, and in many ways you'd be right.

But for all my privileges, I grew up gay in the 1980s, which was a frightening and lonesome reality, with the AIDS crisis raging and attitudes toward LGBT people going from bad to worse. All that homophobia—yep, I internalized it, and I'll never completely shake it, even though public opinion lately has started to turn.

Feeling the need to hide your love life from the world is bad enough. Imagine walking into a room every day where no one else looks like you, losing a job opportunity just because your name fits a minority stereotype, or getting arrested when you ask to use the restroom in a Starbucks. For folks who aren't white, cisgender, and male, that's too often what it's like to live and work in our purportedly meritocratic United States of America. And, it follows, that's too often what it's like to be an architect.

Civil rights legislation offers an important course of redress, but it hasn't stopped prejudicial behavior in the office. According to a 2016 American Psychological Association report on the relationship between stress and discrimination, "For all groups surveyed, the most commonly reported experiences of major discrimination relate to employment."

The report concludes that people of color, women, people with disabilities, LGBT people, the young, and the poor all experience inordinately high levels of stress—not only at work, but in general. And it is well-documented that stress has direct, deleterious effects on health, career, and family life.

The demographic with the least stress? Straight white male baby boomers.

Most practice leaders and professors are straight white male baby boomers. And despite decades

of well-meaning diversity initiatives, other groups remain underrepresented on every step of the ladder. Architecture culture doesn't help the situation, with its cults of hero-worship and tacit permissiveness toward bullying.

I'd like to think that architecture harbors few overt bigots, especially given increasingly progressive standards for workplace behavior. But then overt bigotry, while reprehensible, doesn't strike me as the core problem. More likely, the culprit is institutional oppression—those innumerable barriers of law, custom, and practice that produce inequity. For white-collar white guys like me, who hold most of the plum jobs, power, money, and influence, it's shamefully easy to accept the lie that the system and our own actions are faultless. The delusional narrative of a color-blind, classless, equal-opportunity America can only seem real when civilization has been designed in your image.

Discrimination is tragically prevalent in our society, but that's no reason to settle. Architects rightly believe that their work can change the world for the better. It's time to put that belief back into everyday practice, by designing more equitable communities and reforming professional culture. Architecture should be a paragon of inclusivity, but it will take a profound effort, soul-searching, and change from the top.



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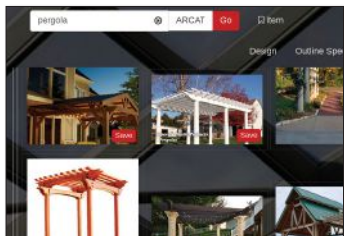
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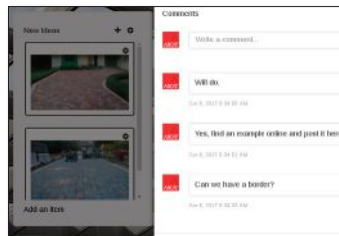
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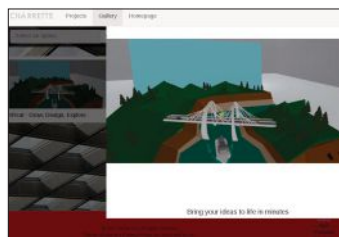
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