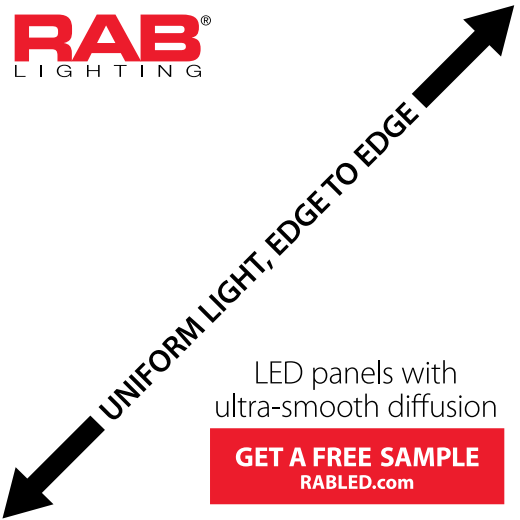


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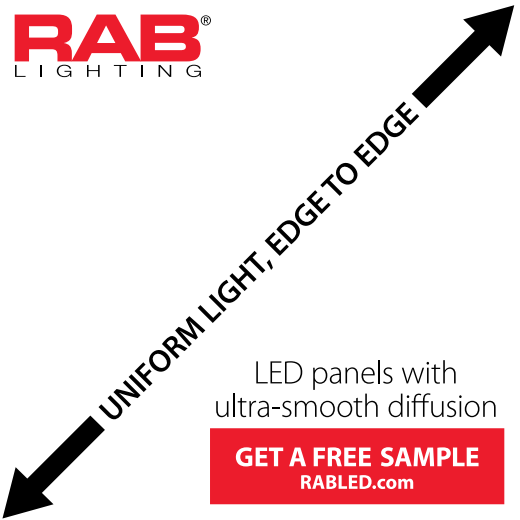


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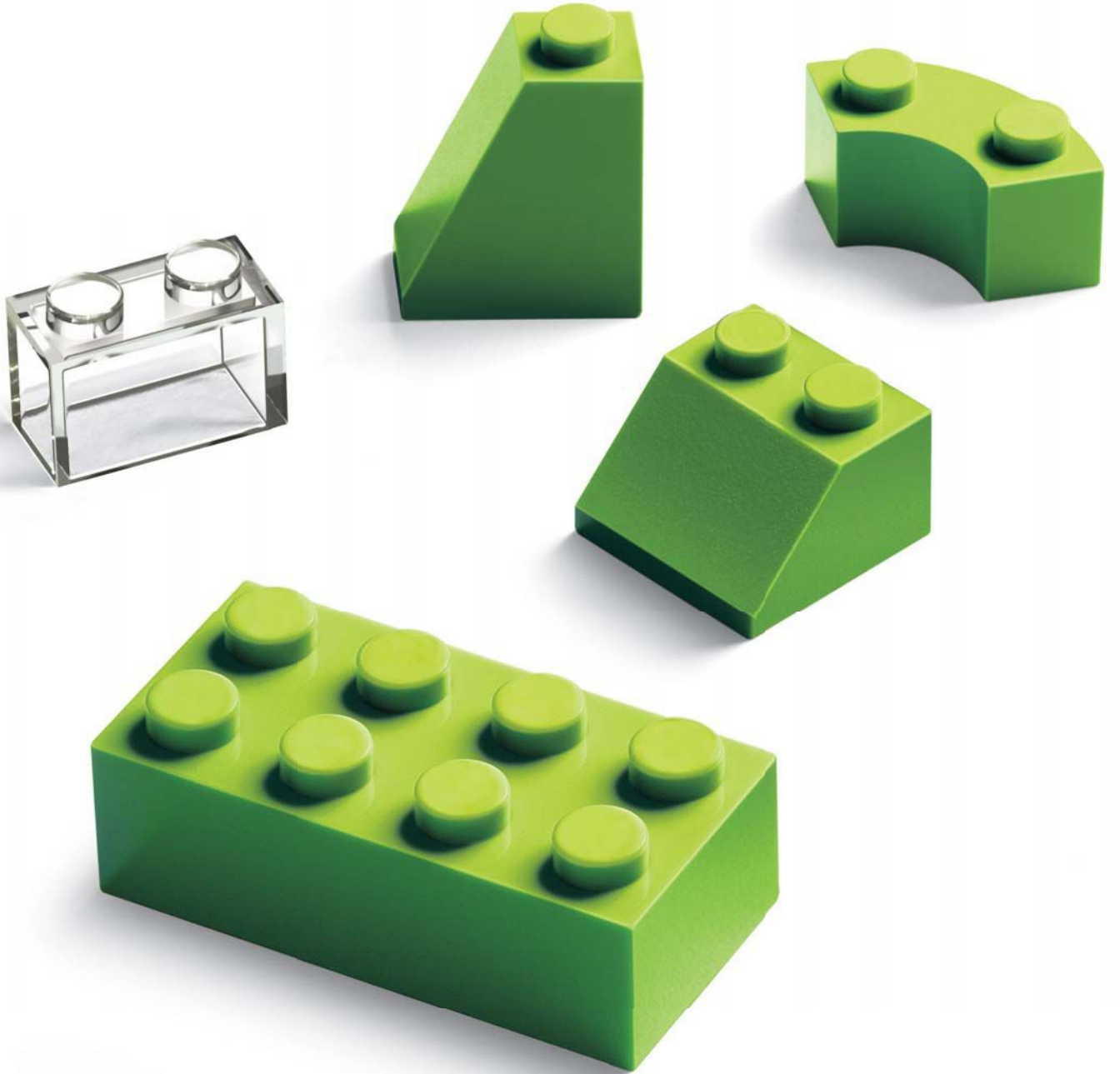




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ON THE COVER

The Weeksville Heritage Center in Brooklyn, N.Y., designed by Caples Jefferson Architects. Photo by Nic Lehoux

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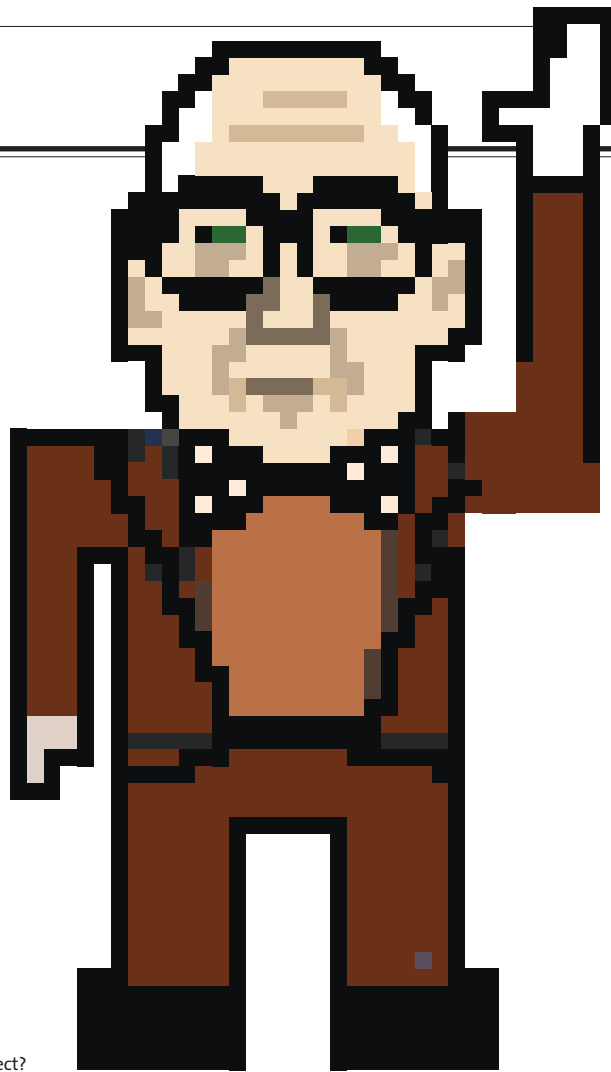
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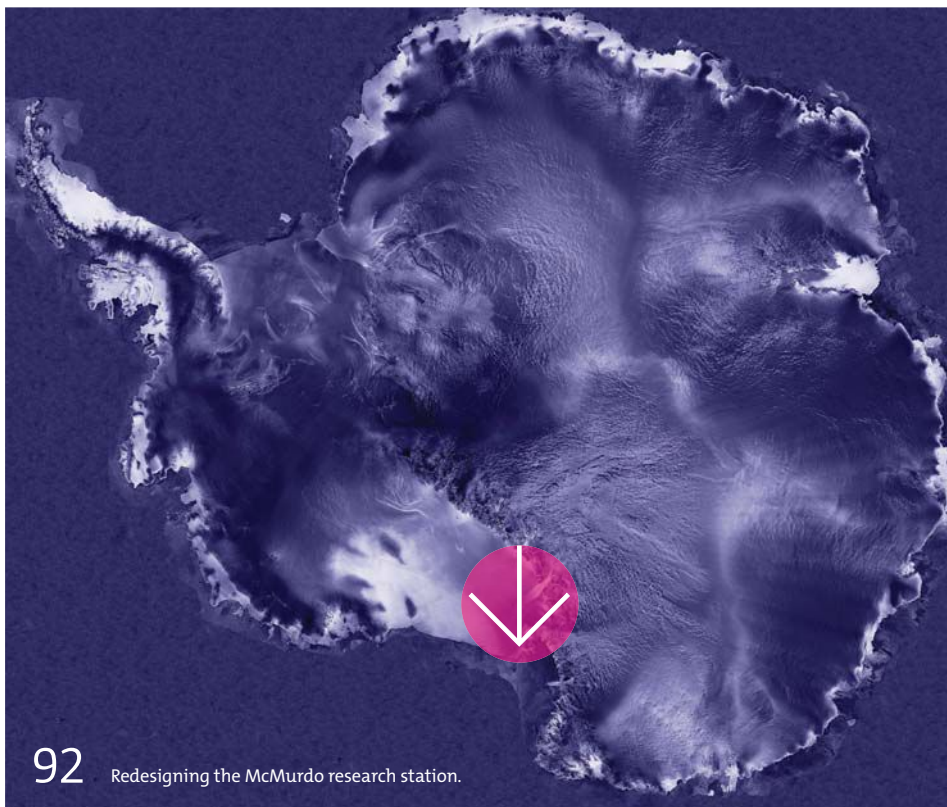
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REFLECTING PRESENCE



As the only building officially on memorial grounds, the **National September 11 Memorial Museum Pavilion** must echo the somber dignity of its WTC environs while admitting thousands of visitors to its exhibits each day. To achieve these diverse goals, **Snøhetta** teamed with consultant **Front Inc.** to design an enclosure that both maximizes the building's security and mirrors its placid surroundings. Through the changing days and seasons, it offers museumgoers a setting for reflection on the past while looking to the future.

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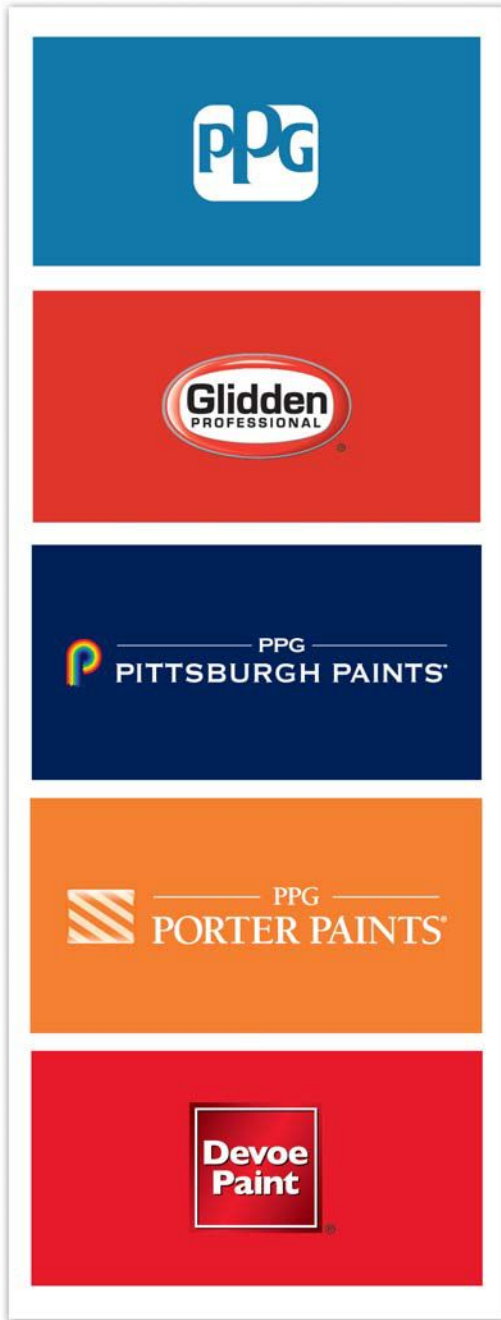
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THE SILLY AND THE PROFOUND

MARSHALL BERMAN RECENTLY PASSED AWAY, AND JOSEPH RYKWERT HAS JUST WON THE RIBA GOLD MEDAL. WHICH MAKES ME WONDER: WHAT EVER HAPPENED TO ARCHITECTURE THEORY?

MY PROFESSORS and classmates would not remember me as an ace student. And they would be entirely correct, because my love of architecture was frequently overwhelmed by my intense academic focus on sleep. So please take the following confession with a generous helping of salt: I've never been big on theory.

Allow me to explain. By theory, I specifically mean French post-structuralist philosophy as applied to architecture. Deep thinkers like Michel Foucault and Jacques Derrida were all the rage when I was in school, in the late '80s and early '90s—to the occasional detriment of actual architectural education, if you ask me. The hipper professors and students among us treasured copies of the brilliant and inscrutable (and now-defunct) journal *ANY*, as though it were Holy Writ, and during reviews the jargon could get so dense as to beggar translation.

The preoccupation with post-structuralism in many ways alienated adherents from the realities of practice and construction and the well-being of clients and occupants. So I wasn't exactly sad when those marvelous cojoined triplets—social relevance, sustainability, and building performance—began to supplant theory in the hearts, minds, and rhetoric of our leading practitioners and academics.

The official transfer of affections arguably began at the 2000 "Anything" conference in New York, organized by *ANY* editor Cynthia Davidson. Her husband, the architect and *über*-theorist Peter Eisenman, FAIA, broke the hearts of assistant professors worldwide by proclaiming from the dais, "Theory is dead." The patron saint of post-structuralism in architecture had renounced the faith.

Fast-forward through 9/11, the wars in Afghanistan and Iraq, the Great Recession, the Arab Spring, and all the other tumultuous events of the past decade, and it would appear that Eisenman was spot on. While he and a few other elder statesmen and -women continue to design the wedges and blobs that post-structuralism helped inspire, on the whole, theory itself seems to have been back-burnered.

Yet two bits of recent news brought theory rushing back to mind: the righteous awarding of the Royal Institute of British Architects' Royal Gold Medal, typically a practitioner's prize, to critic Joseph Rykwert; and the death of philosopher Marshall Berman, author of that seminal analysis of modernity *All That Is Solid Melts Into Air*. And I began to think about what has filled the polemical vacuum in this, our post-post-structuralist moment.

In place of *ANY*, students now carry around *Design Like You Give a Damn* by Kate Stohr and Cameron Sinclair. Greenbuild, TED Talks, and Clinton Global Initiative conferences are hot tickets. In both the academy and the workplace, critical discourse is focused on green architecture, building science, and ethical design. And that's a good thing. The built environment, and civilization as a whole, stand to benefit.

The post-structuralist camp literally twisted architecture to fit an external set of ideas, born out of literary criticism and abstract philosophy. Today's conversation, by contrast, is deeply rooted in the social, economic, and technological implications of architecture itself—how many resources a building should consume, for instance, and whom it should serve. Don't dismiss these concerns as a tactical numbers game. They come with a profound underlying imperative about the well-being of humanity and the planet where we live.

From a strictly theoretical perspective, the pursuit of eco-friendly, net-zero, and public-interest architecture furthers a history of ideas that stretches back millennia to Vitruvius and Imhotep—ideas about structure, and place- and form-making, that are native, inherent to the discipline. Granted, architects have a lot to learn from other fields. But imports should not overwhelm our thinking about architecture *qua* architecture. It all comes down to the building.

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Scottish Rite Cathedral Association, Chicago, IL

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LETTERS



Alpine Retreat, September 2013

I enjoyed reading about your trip to Peter Zumthor's retreat [to discuss his new design for LACMA]. An architect who knows how to compartmentalize is an architect who is allowing his mind to shut off and to allow the inspiration to flow in. LARA SERBIN

Zumthor is Zumthor, an architect whose work reflects sensitivity for its site and context. But the LACMA "scheme" needs to be revisited from various perspectives. If we can get past the unfair architect selection process, the budget issues, and the deteriorating LACMA facilities, the form has potential. BRANDON CAMPOVERDE

An egregious example of architect and ego overwhelming program. Architorture. Nihilitecture. ONLINE COMMENT

EcoHawks Research Facility, August 2013

Congratulations to this year's class. Such a great building. SEAMUS ROBERT MCGUIRE

Simply awesome. Makes me want to go back just for this! KU is so fortunate to have Dan Rockhill. JESSICA NORDLING

Stopped me in my tracks. Excellent and significant contribution. ONLINE COMMENT

Edith Green–Wendell Wyatt Federal Building, September 2013

Impressive building, and I am glad to see a small, capable firm get the design commission. But I would like to see the daylighting studies, as I am not convinced that the west screen will effectively deal with the low, direct sunlight. I have seen far too many so-called daylighting schemes fail because of poor solar and glare control. MICHAEL J. HOLTZ, FAIA

Let's see how valuable the retrofit is by crunching the cost of it divided by the yearly energy savings. All of the Gold this, Platinum that, mean little if it takes decades to recoup the retrofit's cost. Seems as if every article glosses over this obvious fact. ONLINE COMMENT



It's not always easy being green, but these 50 #architecture firms are the best in the business @architectmag bit.ly/1aupn1D

— @NCARB

90% of #Architect50 firms reported #probono work in 2012 at 2.1% of billable hours @architectmag bit.ly/1aEngXO

— @johncary

Could great architecture solve geographic conflicts? t.co/84aZlnE2St

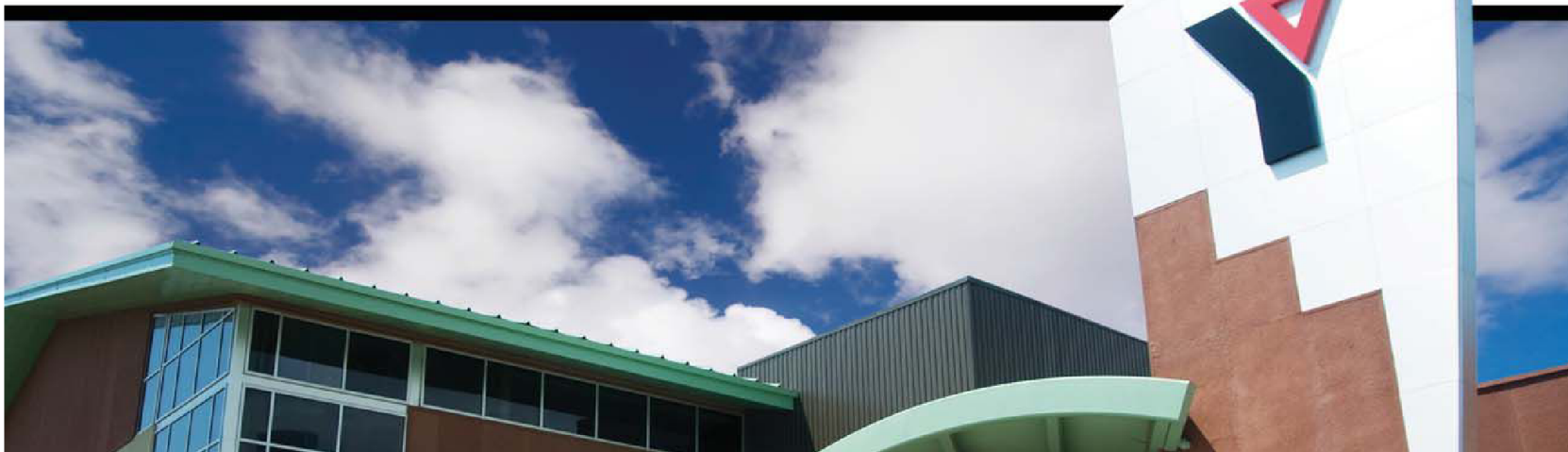
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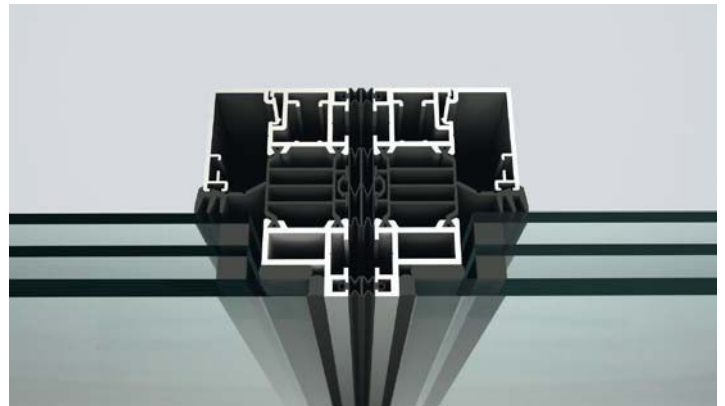
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CONTRIBUTORS



NIC LEHOUX

NIC LEHOUX is a Canadian architectural photographer who works with architects who are pushing the boundaries in design of the built environment. Lehoux is regularly commissioned to document significant buildings around the world, and his images are frequently published in the international popular and architectural press, including such magazines as *A+U*, *Azure*, *Mark*, and *Green Source*.

Lehoux's photography also appears in several editions of *Architecture Now*, a series published in 2010 by Taschen. In addition, the publisher included his work in a survey of projects by Renzo Piano Building Workshop from 1968 to the present. Lehoux's photographs grace recent monographs

by such firms as Bohlin Cywinski Jackson, the Miller-Hull Partnership, Davis Partnership Architects, and Morphosis.

At present, Lehoux is working on several compilations of his work. One of these, a compilation tentatively titled *Detritus: Explorations in the Marginal Environment*, documents abandoned industry, cities, and buildings across North America and Europe—a 10-year project that showcases the fallout of the Industrial Revolution. And concurrent with his work as an architectural photographer, Lehoux has made multiple visits to West Africa to document the people and architecture of the Sahel, the semi-arid region south of the Sahara.

➔ See Nic Lehoux's beautiful photos of the Weeksville Heritage Center in Brooklyn, N.Y. on page 126



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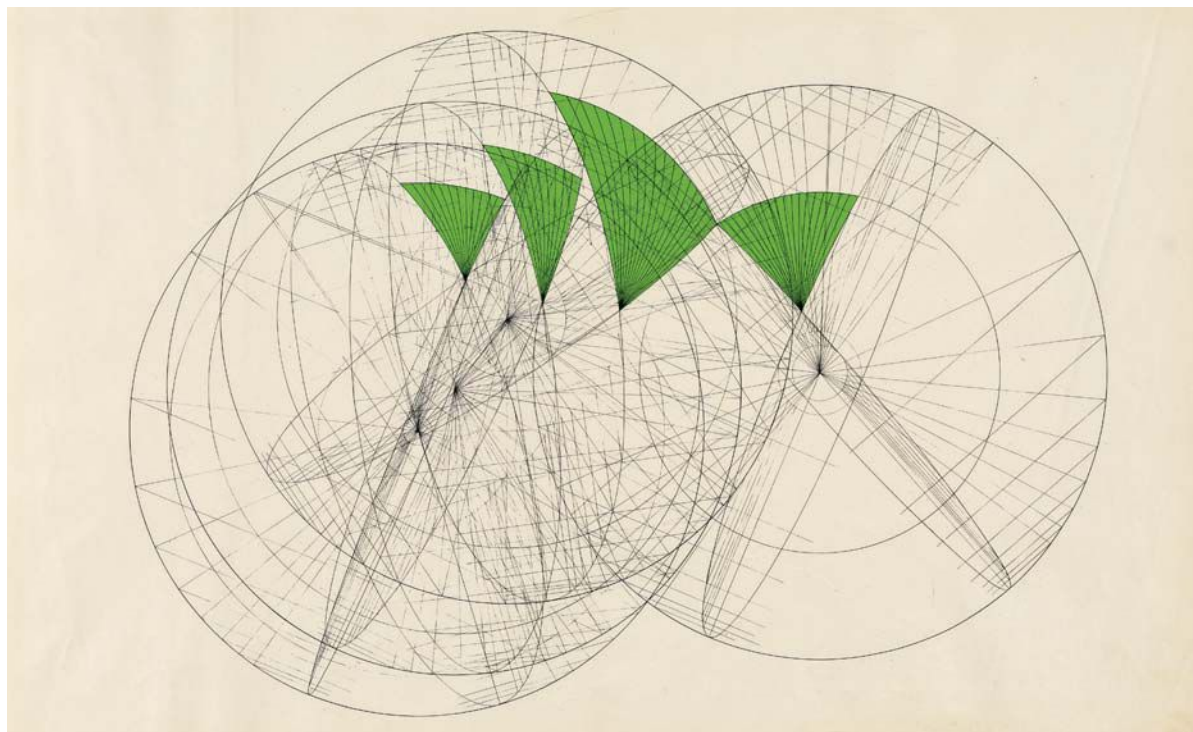
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FRONT



Geometric construction showing the shells of the major hall (elevation), from the 1962 report commonly known as the Yellow Book.

THE FIRST FORTY

THE SYDNEY OPERA HOUSE'S 40TH ANNIVERSARY PRECEDES A NEW MONOGRAPH ON JØRN UTZON, WHOSE EPIC ACCOMPLISHMENT IS RIVALED ONLY BY HIS TRAGIC TALE.

If Jørn Utzon did not exist, we would have to invent him. His story, mostly the legend of that single and singular building, the Sydney Opera House, provides the enduring foundational myth for all contemporary architectural practice. Utzon is our sage Kenobi, our renegade Solo, our heroic Skywalker, all in one. He looked the part, too: an architect out of central casting in the Gary-Cooper-as-Howard-Roark mould, as tall as Rem Koolhaas, as beautiful as Jacques Herzog, as Danish as Bjarke Ingels.

That his professional story ends so unhappily—or rather that it fades out into such a long and poignant anticlimax—makes it all the more inviting to imagine that we might step into his shoes and finish his mission. That his actual work was so inimitable makes it all the more possible to dream of him without any anxiety of influence. He was no immortal—a Corbusier or a Wright—but just an unusually skilled modern architect not so different from you and me at our absolute best; who'd worked and studied with some of the greats (Asplund, Aalto, Rasmussen); who was possessed of a small and uneven body of work; and who, with the help of an enduringly great engineer and a briefly great client, got it extraordinarily, immortally, irrefutably, indispensably, miraculously right. And then, you know, screwed up.

Or got screwed. Let's review the legend.

For all no-longer-quite-so-young architects in search of a big break, there's the stunning 1957 international competition win at age 38 (not a minute too late, nor too soon, professionally speaking) and the twice-told-tale of juror Eero Saarinen arriving late to the deliberations and rescuing those illegibly moody drawings of entry Number 218 out of the reject pile to which the local yokels had consigned it.

For all architects who draw in poetry and build in prose, there's the further tale of those swoopily expressive but unbuildably indeterminate roof forms being rationalized, with construction already long under way, into notional fragments of a single huge sphere. For mystics, there's that cosmically platonic sphere itself, as well as all that light dancing on water, all that earth ascending into heaven—plus Utzon's accounts from the 1950s of climbing the altar platforms of Mayan pyramids to contemplate clouds and Quetzalcoatl.

For he-men, there's all the nautical stuff: the marine-architect father, the designs for abstractly beautiful (but empirically unseaworthy) hybrid monohull-trimarans, the debatable but irresistible conflation of sails and hulls with the shells of the Opera House roof. For technicians and

tacticians, there's Utzon's extraordinary (and testy) collaboration on the Opera House with structural engineer Ove Arup, who brought some of the earliest of what we might now call computational parametrics to resolving and refining the project's complex geometries.

For would-be Vasaris in search of Medicis, there's Utzon's cultivation of a sympathetic Australian government to mobilize a continent's worth of resources to get onto the map a modern wonder of the Mother Art. For would-be Michelangelos in search of Philistines—for those who suspect that Mother Art at her most sublime is somehow too good for the unbelieving world, and better left unbuilt—there's the cold comfort of Utzon's squalid forcing out, through methodical undermining and political outmaneuvering, by a minister in the government that succeeded the one that hired him.

And for connoisseurs of a good downfall—and who among us architects is not?—there is Utzon's subsequent exile: from the Australia to which he never returned, and from the architectural mainstream. Especially during the shrill mirth of the Postmodern 1980s in which Utzon's tendency toward modernist verities and formalist severity left him expressing ever bigger ideas in buildings that were ever smaller—all the way down to the million-thoughts-per-square-inch summer houses he built for himself on the Mediterranean island of Majorca.

All this and more is to be found in the new monograph, *Jørn Utzon, Drawings and Buildings* (December 2013; Princeton Architectural Press; \$60), written and edited by Michael Asgaard Andersen in time for the Opera House's 40th anniversary. Perhaps in counterpoint to all that operatic drama, the book is sanguine: meticulous in its accounts and assembly of original materials, if a little credulous in its treatment of some of its subject's lesser works and professed methods. The book is organized into six themes, which means that particulars of the geography of suburban Copenhagen get as much attention as the profile of Bennelong Point. Depending on your sensibilities, this will either seem like sober diligence or like a survey of the career of Paul McCartney in which *Band on the Run* gets as much recurring attention as *The White Album*. Yet in its methodical synthesis of Utzon's few built and many unbuilt works, in its application of underreported facts to well-worn legend, Andersen's work is instantly indispensable.

I lived, until the age of eight, a 10-minute ferry ride across the harbor from the Sydney Opera House. It is the reason (along with an ongoing attempt to comprehend my own architect father) that I am an architect. It is my only memory palace. I remember the iridescent finish on the cast-concrete panels that made up its vast plinth and cascade of steps. I remember the surprisingly wide rain gap between those panels, and how their thinness lent all that seemingly solid platform the lightness and intimacy of the surface of a drum.

Today, Sydney's ferry boats are modern and sleek, but back then they were still a motley fleet of steamers and tramps, all rumbling brass and iron under a thousand layers of paint. I remember the ferry we took across the green water, under the leviathan shadow of the Harbor Bridge, to Circular Quay, the dock near the Opera House. I remember the ferryman, languid, practiced, who would secure boat to dock with a coil of rope as thick as his arm, and who would then send the remainder of the rope coiling and falling, center to perimeter, loop after loop into a perfect flat spiral on the floor of the quay. I remember the arc of each length of falling rope, recalling in its fluid gyre from section to plan every nautilus and sunflower, every equation and proportion, as the ferryman resolved coil after coil into a settled circle.

And I remember that this resolution had all the impossible perfection of a film running backward—stones withdrawing from ponds, bullets from windows, drawings from buildings, exiles home from every wilderness, and all the broken world made whole.

THOMAS DE MONCHAUX

August 2013

Architecture Billings Index

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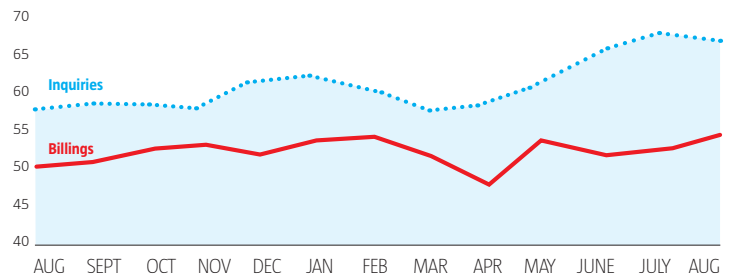
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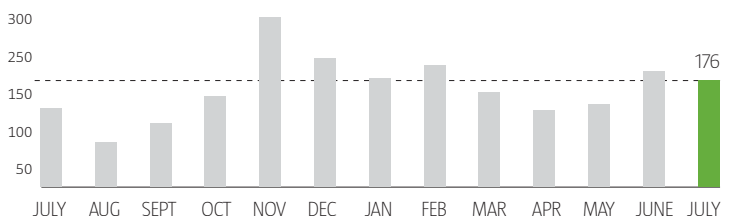
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Artist Dale Chihuly is known for the color of his glass. That's why Owen Richards Architects specified Guardian SunGuard SuperNeutral 62 on clear for the Glasshouse, the centerpiece of the *Chihuly Garden and Glass* exhibition in Seattle. With a visible light transmission of 62%, SN 62 allows the beauty of Chihuly's artwork to be seen from the outside. And with a solar heat gain coefficient of 0.31, it meets the City of Seattle's tough energy requirements as well. For complete performance data and other ways to Build With Light, visit SunGuardGlass.com. Or call 1-866-GuardSG (482-7374).

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GLASS HOUSE

"Mark's House"—the winning entry by London- and Madrid-based studio Two Islands for the Flat Lot Competition in Flint, Mich.—stands as a floating, temporary, mirrored memorial to the foreclosure crisis. Two Islands beat out some 220 entries from more than 35 countries to build the Mylar-coated structure, winning \$25,000 from Flint Public Art Project and AIA Flint. **KRISTON CAPPS**

DAVID CHIPPERFIELD, BIG IN JAPAN

THE ARCHITECT JOINS MORE THAN 100 LAUREATES TO RECEIVE THE PRAEMIUM IMPERIALE, JAPAN'S HIGHEST ARTS AND DESIGN HONOR.



The Japan Art Association named London-based architect David Chipperfield, Hon. FAIA, among the 2013 Praemium Imperiale laureates.

Chipperfield was most recently in headlines for his East Wing addition to the Cass Gilbert–designed St. Louis Art Museum, which publicly opened in June. For that project, the architect added 200,000 square feet of new space topped off with a signature 40,000-square-foot concrete-grid ceiling canopy.

His numerous projects include the Anchorage Museum in Alaska and the restoration of Berlin's Neues Museum. He also served as the director of the 13th Venice Architecture Biennale.

He joins a long line of notable past recipients of this award for architecture, including Renzo Piano, Hon. FAIA, Oscar Niemeyer, Zaha Hadid, Hon. FAIA, Frank Gehry, FAIA, and Peter Zumthor.

The other four recipients of this year's award are Michelangelo Pistoletto for painting, Antony Gormley for sculpture, Plácido Domingo for music, and Francis Ford Coppola for theater and film.

The award carries with it a prize of 15 million yen, which is roughly equivalent to \$151,000. The Japan Art Association has named 129 laureates in its 25-year history. **SARA JOHNSON**

STEP UP, STEP DOWN

BIG MOVES ON THE CAREER LADDER

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Principal
Arup



G. Wayne Clough

Secretary
Smithsonian Institution



Tan Zheng, AIA

Architect
EYP/BIAC



Randall Stauffer

Associate vice president
Woodbury University



Cameron Sinclair and Kate Stohr

Co-founders
Architecture for Humanity



Fifteen years after founding Architecture for Humanity, the industry's most visible do-gooders are stepping down from leadership roles to follow other pursuits.

Sinclair and Stohr, who are married, founded Architecture for Humanity in 1999 from New York, but it was the 2004 earthquake and tsunami in Indonesia that galvanized the nonprofit. Since then, it has grown into a charitable design/build organization with offices around the world.

Stohr is returning to production work in television. Sinclair will continue his role as "chief eternal optimist" until April 2014—the organization's 15th anniversary.

Patricia Rhee, AIA, and Mathew Chaney, AIA

Principals
Ehrlich Architects



Glenn Adamson

Director
Museum of Arts and Design



The new director for the Museum of Arts and Design is also one of its fiercest critics.

In 2011, Adamson—then with the Victoria and Albert Museum—panned the museum in *Art in America*, blasting its then-new building by Brad Cloepfil, AIA.

"Having abandoned its former raison d'être," he wrote, "the museum has little more than indiscrimination to call its own." Presumably, he plans to turn that around.



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HOT-ROD FAÇADE FOR LOS ANGELES

ANGEL-HAIR STAINLESS STEEL WILL GRACE A NEW DESIGN BY KOHN PEDERSEN FOX.

The Petersen Automotive Museum is used to turning heads: Showcasing the 1935 Duesenberg JN once owned by Bill “Bojangles” Robinson will do that. But in July, the *Los Angeles Times* reported that the museum was raising eyebrows by selling some of the classic cars from its collection—that one among them.

Then, in August, *The New York Times* blogger Robert Sass went further, describing in detail some of the cars sold off by the Petersen in an effort to hone the museum’s course and collection. While the museum plans to sell about one-third of some 400 classic cars, Kohn Pedersen Fox (KPF) may play an even larger role in the museum’s efforts to generate more regular return traffic from visitors.

The Petersen Automotive Museum tapped KPF to plan a renovation that will add exhibition space and a dazzling new façade. The new museum exterior by the New York–based firm adds a corrugated aluminum rainscreen to the building’s current façade—and features a signature series of ribbons made with angel-hair stainless steel. As a release on the firm’s website puts it, “The existing building is like a chassis without a body.”

For some auto fans, the new exterior—and several changes to the interior, including increased exhibition space—will be another startling change in direction for the institution, which was founded in 1994. Museum leaders say that the institution’s new focus on motorcycles and classic French cars, displayed in new exhibition space by KPF, will lead repeat visitors to make up as much as 60 percent of the museum’s daily attendance. κ.c.



MAHARAMA

Change keeps coming for textile manufacturer Maharam. A family-run studio for four generations, Maharam was acquired by furniture brand Herman Miller in May. This month, Maharam unveils a series of bags, the first in its home-accessories line. Pictured above is the Frame Bag, designed by Konstantin Grcic. Jasper Morrison and Klaartje Martens also contributed bags, which are available online via the relaunched maharam.com. κ.c.

TWITTERVERSE

#AIACHAT

Q1 What advice do you have for interns getting started with IDP?

—@NCARB

Q1 - Start early and report often. You don't want to be caught by the 6 month rule. #aiachat

—@CGerrity

A1. Make sure you start keeping track asap. It will make things easier down the line #aiachat

—@melissamorancy

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@BuildingMuseum I hear your building is haunted. Is there anything spooky in the collections? #AskACurator

—@7500centfish

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—@BuildingMuseum

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THE 2013 AGA KHAN AWARDS FOR ARCHITECTURE

THE FIVE WINNING PROJECTS OF THIS TRIENNIAL PRIZE REPRESENT ARCHITECTURE AND PLANNING LEADERS GEARED TO COMMUNITY DEVELOPMENT ACROSS THE MUSLIM WORLD, FROM ASIA TO EUROPE TO NORTH AFRICA.

The five winners of this year's Aga Khan Award for Architecture have been announced. Founded in 1977 by the 49th Aga Khan, the awards are given out every three years to projects that exemplify community-building in locales with large Muslim constituencies. This year's projects, which won a total \$1 million purse, span several continents and functions.

The single European project is an Islamic cemetery for Altagh, Austria, by the Austrian firm Bernardo Bader Architects. Completed in 2011, the cemetery serves the state of Vorarlberg, where 8 percent of the population is Muslim.

Two of the winning projects are located in northern Africa. The 63-bed Salam Centre for Cardiac Surgery by Italian firm Studio Tamassociati is located in Khartoum, Sudan. The center features housing for hospital staff built from containers used to move construction materials. French firm Marc Mimram Architecture designed the 2011 Rabat-Salé Urban Infrastructure Project, consisting of the Hassan II Bridge and related infrastructure linking Rabat and Salé in Morocco.

In the Middle East, the Iranian Cultural Heritage and Tourism Organization East Azerbaijan Office is renovating Iran's Tabriz Historic Bazaar Complex. And in Palestine, the Ramallah-based Riwaq Centre for Architectural Conservation is revitalizing the Birzeit Historic Centre. S.J.



1: Revitalization of Birzeit Historic Centre, Palestine
Architect: Riwaq Centre for Architectural Conservation (Ramallah, Palestine)
Client: Birzeit Municipality, Palestine
Cost: \$1.45 million

2: Islamic Cemetery, Austria
Architect: Bernardo Bader Architects
Client: Municipality of Altagh
Cost: \$2.98 million

3: Rabat-Salé Urban Infrastructure Project, Morocco
Architect: Marc Mimram Architecture
Client: Agence pour l'Aménagement de la Vallée du Bouregreg
Cost: \$130 million

4: Salam Centre for Cardiac Surgery, Sudan
Architect: Studio Tamassociati
Client: Emergency NGO
Cost: \$18.45 million

5: Rehabilitation of Tabriz Bazaar, Iran
Architects: Iranian Cultural Heritage and Tourism Organization East Azerbaijan Office, Tabriz, Iran
Client: Tabriz Bazaar Community
Cost: Withheld



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“BROADLY SPEAKING, THIS IS NOT ONLY A PROJECT FOR A SCHOOL OF ARCHITECTURE. THE DISCIPLINES OF PLANNING, URBAN DESIGN, AND LANDSCAPE ARE CENTRAL TO [THE SCHOOL’S] MISSION. AND IT’S NOT CLEAR, IN THIS BUILDING OR IN OUR FIELD, WHERE YOU DRAW THE LINES BETWEEN THEM.”

—NADER TEHRANI, ON THE JOHN H. DANIELS FACULTY OF ARCHITECTURE, LANDSCAPE AND DESIGN FOR THE UNIVERSITY OF TORONTO. TEHRANI’S FIRM, NADAA, DESIGNED THE PROJECT, AN EXPANSION TO AN EXISTING COLLEGIATE GOTHIC BUILDING.

Put an Architect in Your Pocket

THE AIA PARTNERED WITH GOOGLE’S NIANTIC LABS FOR FIELD TRIP, AN APP THAT MAKES ARCHITECTURAL EXPERTISE MOBILE.

Design buffs—aren’t we all?—in New York, Los Angeles, Denver, and Washington, D.C., can now hear about those cities’ notable buildings straight from the architects who know them best. The AIA is collaborating with Google’s internal startup Niantic Labs as an audio content partner for its free Field Trip app for iPhone and Android devices.

“This app brings them closer to the underlying reasons that shaped a project, voicing the architect’s insights into its ultimate look and feel,” said AIA’s CEO Robert Ivy, FAIA, in a Sept. 9 press release. “And hearing from the actual designer not only provides unique historical context to projects, but also helps bring buildings and spaces to life.”

Field Trip purports to be a digital tour guide for cities around the world. When you are near a point of interest, the app sends a notification to your smartphone. Here in the District (ARCHITECT’s neck of the woods), you can use the app to learn about the U.S. Capitol Building from Architect of the Capitol Steven Ayers, FAIA, or gain insight on the National Building Museum from chief curator Martin Moeller, Assoc. AIA.

You can turn on automatic alerts and browse nearby attractions in either a map or list format. A Bluetooth or wired headset connection allows you to hear an audio description of what you’re seeing. And you can customize the types of attractions that appear in the Field Trip feed. To date, the AIA has provided landmark information and audio commentary on 164 projects in four cities: 56 in New York, 32 in Los Angeles, 53 in D.C., and 23 in Denver. WANDA LAU



WHAT WE’RE 3D-PRINTING NOW: ROCKET ENGINES

NASA RECENTLY, AND SUCCESSFULLY, TESTED A PRINTED ROCKET ENGINE INJECTOR.

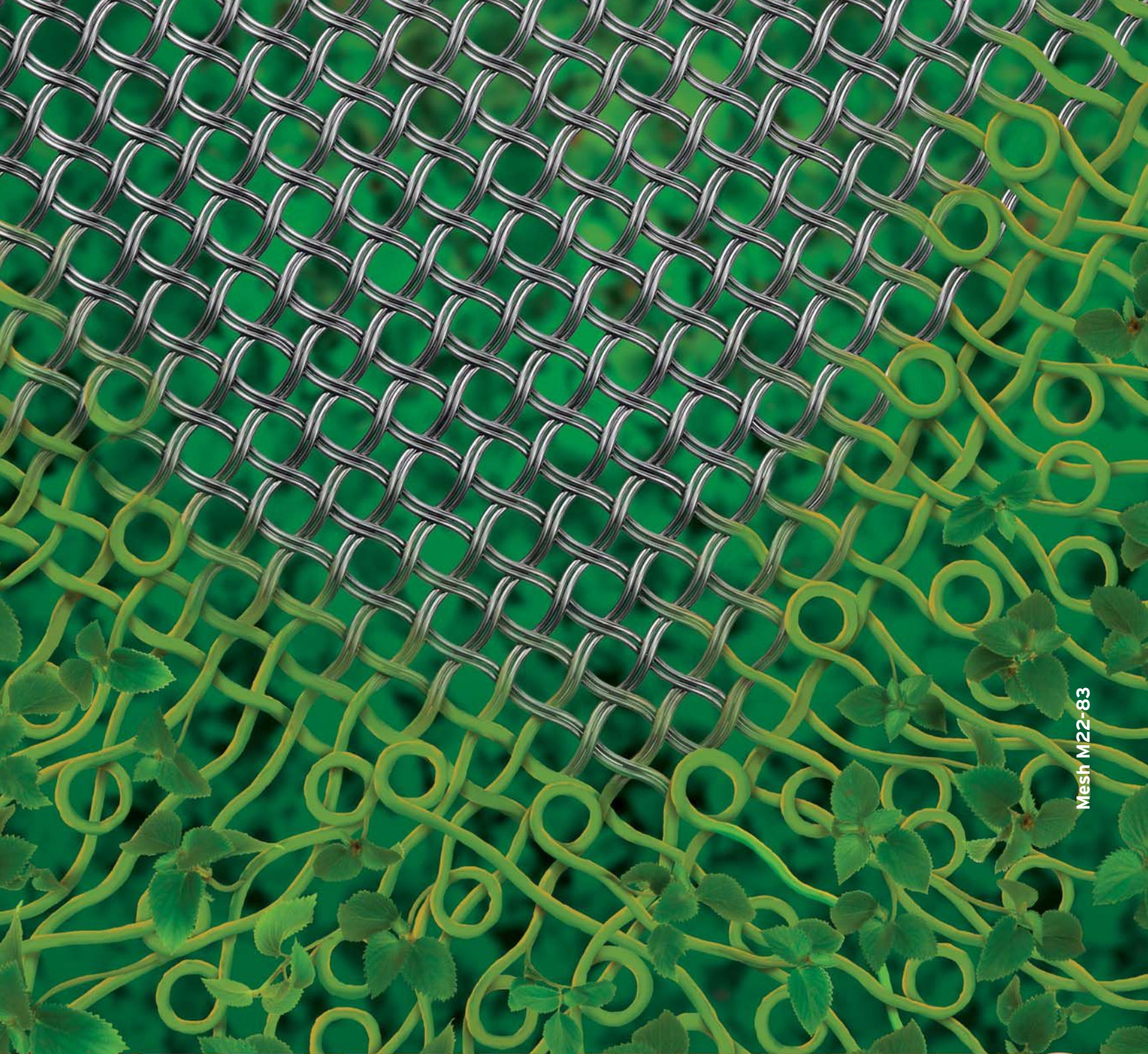
Product design prototyping, architectural components, human organs, and now rocket engines: 3D printing is being applied to an unprecedented array of fabrication efforts, and the speed of industry transformation is palpable.

NASA’s adoption of 3D printing is part of an effort to reduce costs, but it also has potential performance benefits. The agency recently tested their largest 3D-printed rocket engine piece, an injector, which broke records with 20,000 pounds of thrust.

The injector comprises only two parts, as opposed to 115 in prior injectors, and this reduction of components results in reduced assembly time, and perhaps even improved performance. Made with nickel-chromium alloy powder via selective laser melting, the new injector outperformed previous 3D-printed prototypes by a factor of 10.

“We took the design of an existing injector that we already tested and modified the design so the injector could be made with a 3D printer,” said propulsion engineer Brad Bullard in an agency press release. “We will be able to directly compare test data for both the traditionally assembled injector and the 3D-printed injector to see if there’s any difference in performance.”

NASA is also developing 3D-printing technology in other areas, such as a tool printer for the International Space Station crew, and even looking into 3D-printed food for long missions in space. BLAINE BROWNELL, AIA



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BUILDING AN L-SHAPED TOWER FOR DUBAI

THE NEXT LANDMARK FOR THE DUBAI SKYLINE LOOKS LIKE IT WOULD FIT WITH BUILDINGS FOUND FARTHER EAST.

Skidmore Owings & Merrill has been selected to add a new distinctive element to the Dubai skyline—where the firm has already delivered a number of towers, including the Rolex Tower, Cayan Tower, and Burj Khalifa. The new design is a 32-story tower that will serve as the headquarters for Mashreq Bank—a modest design next to several of its peers. “We designed the building to act as a quiet sculptural form within Dubai’s skyline,” SOM design director Ross Wimer, FAIA, said in a release.

While the building stands shoulder to shoulder with several of the tallest skyscrapers

in the United Arab Emirates, it may have more in common with several buildings elsewhere. The central cavity that gives the building its L-shaped floor plate is a hallmark of Rem Koolhaas’s CCTV Tower in Beijing, for example, and the Mashreq Tower bears more in common with Kohn Pedersen Fox’s new Hysan Place than with the Burj Khalifa.

No doubt, the horizontal and vertical shading devices that grace the building’s façades are classic SOM. The building is another example of the performance envelope design that earned the firm a 2011 R+D Award. **K.C.**

High Line Honchos Win the 15th Vincent Scully Prize

JOSHUA DAVID AND ROBERT HAMMOND TOOK THE AWARD FOR THEIR FAMED NEW YORK CITY URBAN REVITALIZATION PROJECT.

The National Building Museum has awarded its 15th Vincent Scully Prize to Joshua David and Robert Hammond, co-founders of New York City’s High Line. The pair formed the community-based nonprofit Friends of the High Line in 1999 to advocate for the High Line’s preservation and to maintain the structure as an elevated public park.

The original elevated line was constructed in the 1930s to lift freight traffic above the streets of Manhattan, and the last train ran in 1980. In 2004, the design team was selected for its renewal project. James Corner Field Operations, a landscape architecture firm, and Diller Scofidio + Renfro, an architecture firm, joined experts in horticulture, engineering, security, maintenance, art, and other fields, to realize what is now one of New York’s most celebrated public spaces.

According to a release, the prize recognizes David and Hammond for “their work in creating one of the most successful urban revitalization projects to date. Under their leadership, the High Line has become an international model for other reuse projects and community activism. Since its first section opened in 2009, the High Line has

served as a catalyst for the redevelopment of Manhattan’s West Side and has prompted more than \$2 billion in investment in the neighborhood.”

The prize is named for Vincent Scully, Sterling Professor Emeritus of the History of Art at Yale University and distinguished visiting professor at the University of Miami. Over the course of four decades, Scully has greatly influenced architects and urban planners. Those who win the award named for him are distinguished for “exemplary practice, scholarship, or criticism in architecture, historic preservation, and urban design,” according to the release.

Like the Friends of the High Line, the Vincent Scully Prize was also established in 1999. Architecture critic Paul Goldberger won the award in 2012. Other winners include architect Phyllis Lambert, critic Witold Rybczynski, Hon. FAIA, and Imam Aga Khan.

David and Hammond will accept the prize on Sept. 30 at the National Building Museum. In their talk “Harnessing Friction,” they will discuss the process of creating the High Line, which involved uniting the forces of real estate, funding, politics, community, preservation, and design. **K.C.**



FUNGUS CHAIR

Philadelphia University industrial design students are demonstrating that mycological biocomposites—that is, fungi—can be used to create sophisticated interior furnishings. For their senior project, Merjan Tara Sisman and Brian McClellan created the “Living Room Project,” with a prototype chair and pendant light made from the mycelial roots of mushrooms. After discovering various ways in which to control root growth within prefabricated molds, Sisman and McClellan crafted objects of unexpected sturdiness and refinement. Their design process—which is similar to that used by another fungal firm, Ecovative—is akin to a zero-energy type of 3D printing. **B.B.**

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DETAILS

Projects must have a client and a completion date after January 1, 2013. Judging will take place in November 2013. Winners will be notified in December 2013, published in the February 2014 issue of ARCHITECT, and honored at a ceremony in New York. For more information and rules and regulations, visit paawards.com

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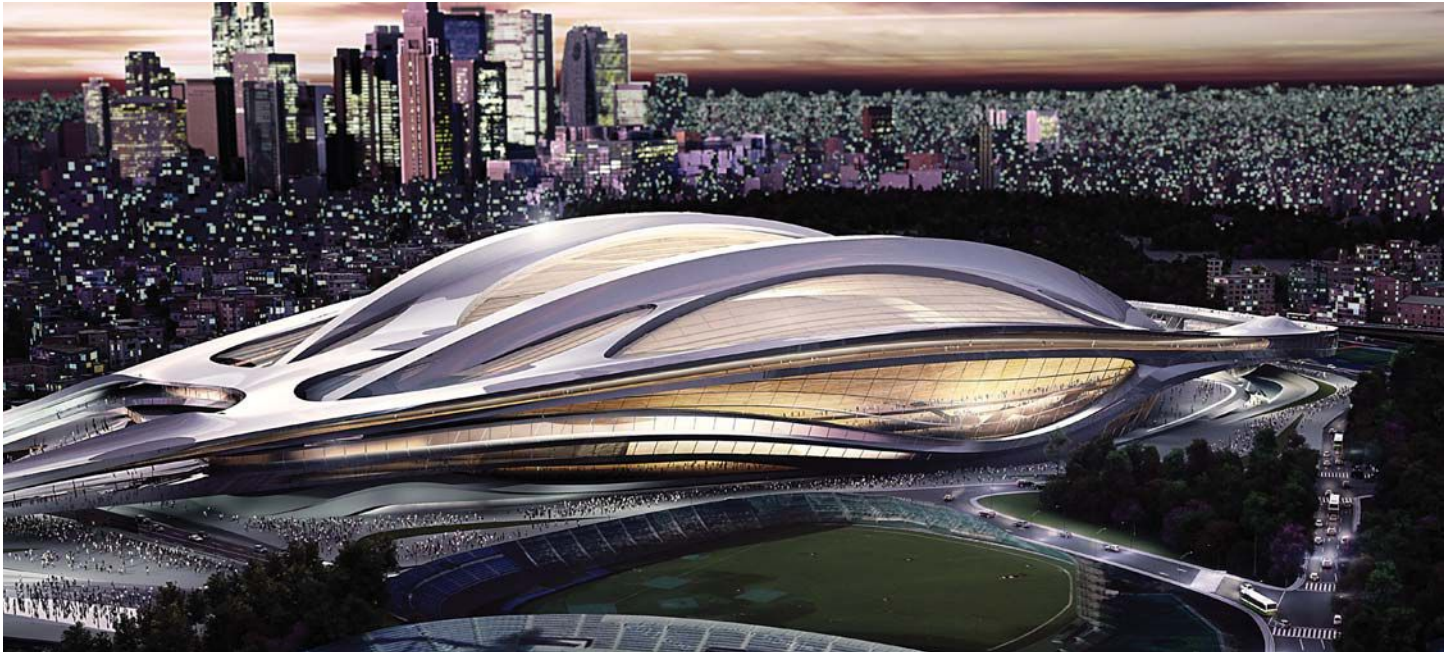
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Three Takes: Zaha Hadid's National Stadium

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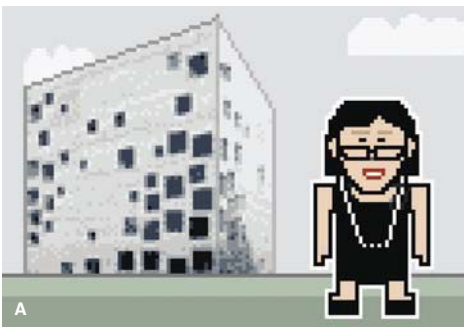
—MARK LAMSTER

"I ONLY WISH IT COULD ACTUALLY BE MADE OF LYCRA, AS IT APPEARS IN THE RENDERING."

—ALEXANDRA LANGE

"I FIND THE DESIGN EXHILARATING, EVEN, DARE I SAY, SEXY."

—AARON BETSKY



A



B



C



D

MINI-BOSSSES: 8-BIT RETRO PORTRAITS

Italian architect Federico Babina has done the planet an immense solid with a retro series of pixelated portraits of the world's greatest architects. His 8-bit depictions capture many of the modern masters (from Alvar Aalto to Zaha Hadid, Hon. FAIA) alongside their projects (Riola Parish Church and Vitra Fire Station, respectively). Each portrait looks like a mini-boss guarding his or her level. Can you name these architects and their designs? These *should* be easy ... K.C.

A) LE CORBUSIER, WITH THE CHAPEL OF NOTRE DAME DU HAUT; B) ARATA ISOZAKI, WITH PALAU SANT JORDI; C) KAZUYO SEJIMA, WITH THE ZOLLNERIN SCHOOL OF MANAGEMENT AND DESIGN; D) REM KOOLHAAS, WITH THE CCTV TOWER.

➔ More images at architectmagazine.com

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Pier 6
Brooklyn, N.Y.

PORTFOLIO

BIG

The so-called *Manta ray* design for Brooklyn Bridge Park's Pier 6 is typical Bjarke Ingels Group—a torquing stepwise pyramidal form. And, also typical of BIG, the project promises to transform its site. The rising pier will punctuate the southern end of the waterfront, providing views of the Statue of Liberty and Manhattan while serving as civic bleachers for taking in the park. It is one more in an increasingly diverse series of winning proposals from the firm, which includes (but is not limited to) a house for LEGO and a ski slope-shaped incinerator. Check them out at architectmagazine.com. K.C.



The Grove at Grand Bay
Miami



Lego House
Billund, Denmark



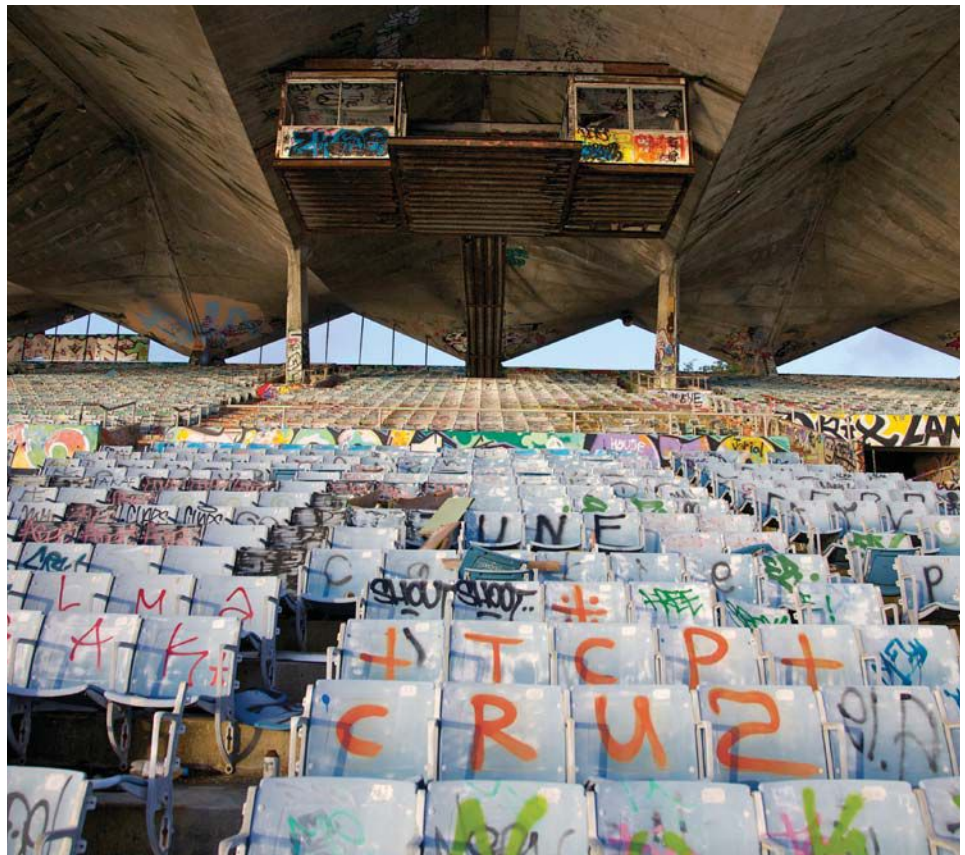
Gammel Hellerup Gymnasium
Hellerup, Denmark

Mining the Miami Marine Stadium

A NEW EXHIBIT LOOKS TO THE BUILDING'S PAST AND FUTURE.

In some ways, the Ralph Munroe Marine Stadium became a more important part of Miami's civic identity after it was shuttered in 1992. Designed in 1963 by Cuban architect Hilario Candela, it provided a venue for watching professional speedboat racing while also serving as the set for the 1967 Elvis Presley film, *Clambake*. Since it was damaged by Hurricane Andrew, however, graffiti artists and skateboarders have given the abandoned building new (and unofficial) purpose.

Through Jan. 5, an exhibition at the Coral Gables Museum in Florida looks at the building's famous past and notorious present—as well as to proposals to restore it for a different future. From vintage photography from the stadium's heyday to films of athletes practicing Parkour there today, "Concrete Paradise" aims to show how the building's evolution over time has inspired suggestions for new uses—maybe even in the near future. K.C.



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A TALK WITH...

EVA FRANCH I GILBERT, DIRECTOR OF THE STOREFRONT FOR ART AND ARCHITECTURE IN NEW YORK, ON THE U.S. PAVILION PROJECT FOR THE VENICE ARCHITECTURE BIENNALE IN 2014.



What kind of things will viewers find at the U.S. Pavilion?

What are the physical things one will encounter? We are still discussing. Everything is a re-representation. We want to understand what an archive means today, the value that exists between the physical and the digital.

What is the range of projects that will appear in the exhibit?

We are assessing the social, economic, political—colonizing as an ideological process. As much as we insist on building national pavilions, we all know that architecture has become one of the most global languages. We want to turn all these different stories that ultimately shine a beam of light on where we want to go—a history of building and a history of being, from the U.S. perspective.

We are still debating how people will engage visually and materially. All these questions are still open. We are developing it right now. How many times have you been?

To the Venice Biennale? Two times.

What is the longest you stayed in one pavilion?

Maybe one hour.

I ask many people and they say once, and maybe five minutes. What is the value of Venice? For us, we are interested in making the experiment and for people who visit to understand the nature and the strength of the experiment. When you leave, it's not that you will have gotten all the answers, but you will leave with a lot of questions that you were not aware you were carrying when you entered. κ.c.

➔ Full interview at architectmagazine.com



MASONIC YOUTH

Virginia Tech's design/build lab offers students opportunities to practice long before licensure through collaboration with local professionals. Esto photographer Jeff Goldberg has documented the construction of three of the program's built works, including the Masonic Amphitheatre in Clifton Forge, Va. The project employs materials salvaged from a warehouse that occupied the site prior to its conversion. See the projects in detail at architectmagazine.com. DEANE MADSEN

Introducing the Next Curators for the U.S. Pavilion

The U.S. Department of State has selected the Storefront for Art and Architecture, with *Praxis* journal, to organize the U.S. exhibition for the 14th Venice Architecture Biennale in 2014. The exhibition at the U.S. Pavilion—titled “OfficeUS: Criticism by Re-Making”—will be curated by Storefront's Eva Franch i Gilbert, MIT architecture professor Ana Miljacki, and *Praxis* co-founder and editor Ashley Schafer.

“OfficeUS” will feature two central components: an exhibition archive of 1,000 U.S. architectural projects around the world from the last 100 years (“the Repository”) and an incubator space for invited specialists to re-make this material (“the Office”). The samples to be included in the Repository will reflect diverse architectural typologies and firms.

Ten people will work in the Office at any given time during the exhibition's run. Five of them will be permanently established in the space for the six-month duration; the other five will include visiting architects, academics, politicians, philosophers, and other experts.

At present, there are plans to invite some 90 people from around the world to participate in “OfficeUS.” The curators have named some of them, including figures from Storefront, *Clog*, Architizer, Ennead Architects, and more. κ.c

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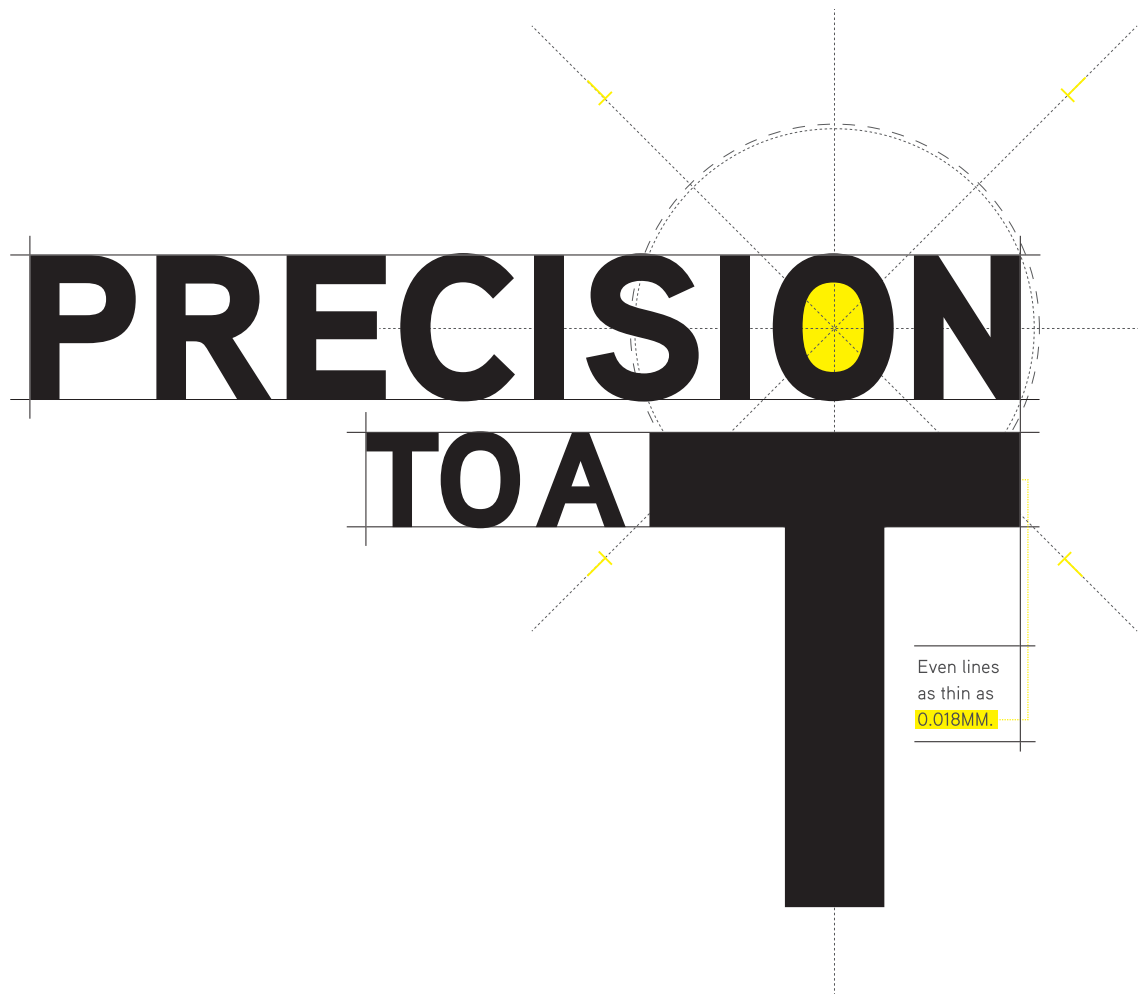
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AIA VOICES

NO MERE FABRICATION | TECHNIQUE AND EXPRESSION ON THE DIGITAL FRONTIER

Neri Oxman is an assistant professor of media arts and sciences at the Massachusetts Institute of Technology (MIT), where she explores how digital design and fabrication technologies work within the environment to transform the construction of objects, buildings, and systems. Oxman directs the Mediated Matter research group at the MIT Media Lab and holds a Ph.D. in design computation as well as a diploma from the Architectural Association School of Architecture (London), for which she completed studies at Technion-Israel Institute of Technology (Haifa) as well as the Department of Medical Sciences at Hebrew University (Jerusalem).


DIGITAL FABRICATION ENABLES THE AUTOMATION OF LARGE-SCALE, geometrically complex, and materially sophisticated processes that were achieved in the past predominantly through craft and manual labor. CNC (computer numeric control) weaving of carbon-fiber structures combines the ability to tailor material properties inherent in craft with the power of programming and automation in architectural scales. Our mission is to invent, design, and implement biologically inspired fabrication technologies that enhance the relationship between the designed object and the environment. We named this approach “Material Ecology,” and it considers computation, fabrication, and matter as inseparable dimensions of design. Our early work focused on nature as a model for computation and form-generation, while our current work looks into nature as a model for digital

fabrication. The Silk Pavilion, a polygonal dome of nonwoven silk spun by silkworms, exemplifies these two notions, exploring the relationship between digital and biological fabrication as we move up in scale and in material complexity.

In our Mediated Matter lab, we design the tools and technologies with the intention that some will mature into full-scale architectural projects, and vice versa—some of the technologies appear as a result of working on an architectural environment. The SpiderBot, for example—a cable-suspended 3D printing platform modeled after the Skycam technology—is currently being revisited in the context of a larger installation for the Lisbon Architecture Triennale.

The free-form printing technology, on the other hand, was developed inadvertently out of an attempt to robotically “weave” in 3D. All our works have in common the ambition of enabling variation of material properties and behavior as part of the fabrication process. We don’t regard ourselves as problem solvers but as solution finders to problems that may not yet exist. You know that you’re doing something great when the outlier becomes the norm.

Architectural expression has always been tied to technique. This is true for adobe brick construction in the Citadel of Arg-é Bam in Iran as much as it is true for modern steel-frame constructions—and digital fabrication is at the heart of a new age where technique and expression unite. —As told to William Richards **AIA**



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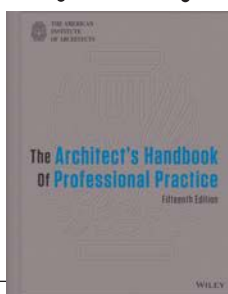
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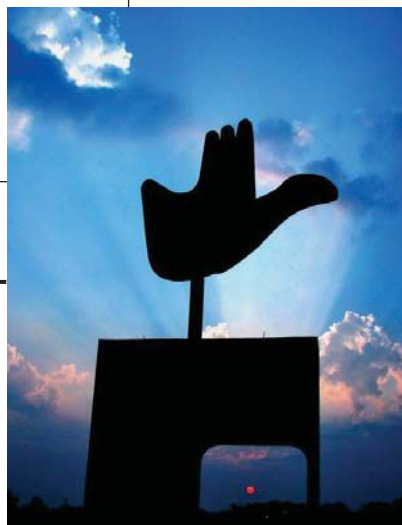
Compiled by William Richards



1 Design in the Desert
Oct. 18–19



4 Practice Makes Perfect
Nov. 15



3 Don Your Façades
Oct. 19



2 Front of Mind
Oct. 24–25



5 Boundary Conditions
Dec. 12–13

1 Design in the Desert. Design/build, local materials and regional sourcing, and stewardship of the built environment are all central to today's conversations about architecture. But they've also been central to Frank Lloyd Wright's Taliesin Fellowship curriculum for the last 81 years. That last point about stewardship—and, in particular, “compatibility”—will be the subject of the 2013 AIA Taliesin Colloquium (Oct. 18–19 at Taliesin West in Scottsdale, Ariz.), titled Design+History and sponsored by the AIA Historic Resources Committee.

➔ [Learn more at aia.org/hrc](http://aia.org/hrc).

2 Front of Mind. There's been a lot of talk lately about how architects can reposition themselves in the marketplace. Sure, integrated project delivery and building information modeling have been game changers for design and construction. But if architects don't have the native skills to think collaboratively, technology won't do much to help them find new business. Join the AIA Center for Integrated Practice, AIA Utah, and the University of Utah College of Architecture + Planning (in partnership with the Association of Collegiate Schools of Architecture) for Forefront: Architects as Collaborative Leaders (Oct. 24–25, Salt Lake City), to find out what's next for design and practice.

➔ [Learn more at aia.org/cip](http://aia.org/cip).

3. Don Your Façades. New York's Storefront for Art and Architecture has hosted a wonky architect-centric Halloween party for the last two years. Attendees have included everyone from a walking envelope (representing the “The Politics of the Envelope”) to a conjoined couple (masquerading as Le Corbusier's “Open Hand Monument” for Chandigarh, India). The organizers for this year's theme, Corporate Avant Garde, have asked participants to reflect on the “favorable and feared” aspirations of architecture for the Oct. 19 party.

➔ [To learn more, visit storefrontnews.org](http://storefrontnews.org).

4 Practice Makes Perfect. If you work in an architecture firm of any size, you probably have at least one copy of the AIA's *Architect's Handbook of Professional Practice*. As practice has shifted over the years, the handbook has responded with chapters on everything from personnel management to marketing to ethics. The 15th edition, which will be published next month by Wiley, may be the most responsive yet—with an emphasis on perfecting a small-firm practice, fostering diversity, and engaging public interest design.

➔ [Learn more at aia.org/practicing](http://aia.org/practicing) or [look for the book at wiley.com](http://wiley.com).

5 Boundary Conditions. Since 1994, the International Union of Architects (UIA) has convened its Professional Practice Commission to make recommendations on global standards for professionalism. This year's meeting in Beirut (Dec. 12–13) will address implementing the UIA Accord on Recommended International Standards of Professionalism in Architectural Practice, first adopted in 1999, and enhancing its Architectural Practice Around the World database. The database offers comparative data by country and subject and is focused on assisting architects in transnational practice.

➔ [Learn more at aia.org/ppc](http://aia.org/ppc) or uia-architectes.org.

Rosannah Sandoval, AIA
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AIAPRACTICE

AN ETHICAL INQUIRY, PART III | THE TRANSACTIONAL AND THE SENSORY



ILLUSTRATION: VIKTOR KOEN

ASKING AN ARCHITECT TO DESIGN A SAFE STRUCTURE IS LIKE asking a chef to cook a safe meal: It is at once a high ethical requirement and a very low expectation. Food and shelter are absolutely essential to human survival. Because of this, their quality (or lack thereof) rises to an ethical concern that society takes seriously, protecting the public from getting sick or injured through a great umbrella of testing, codes, inspectors, and regulated professions.

Currently the legal authority of architects rests with their licensure, just as their moral authority rests on their unified commitment to high professional standards. But what if the raw primal power of aesthetics could trump that of law or ethics? If so, aesthetics may be the key to unlocking the real authority of architects, and therefore of architecture, to shape society.

Aesthetics is not what it used to be. Around the mid-19th century it became associated with ideas of beauty and taste. But this recent definition was a sharp detour away from its foundations in perception, sensing, and understanding. In Greek, it's *aisthethikos*, or "pertaining to sense perception," from *aistheta*, "perceptible things" and *aisthenasthai/aesthesis*, "to perceive." In Latin, it's *percipere*, "to seize wholly" or to "see all the way through."

The philosopher Immanuel Kant saw this definitional detour coming and tried to stop it, from fear of losing a crucial conceptual tool. If, as he believed, an aesthetic experience is simply a perceptible one (just as a medical anesthetic renders us unable to perceive), then to master such a fundamentally human kind of knowledge is to connect to the essence of life in a way that ethics never can. Aesthetics deals with physical truths, while ethics deals with social constructs dependent upon those truths. Peter Zumthor, Hon. FAIA,

agrees and has said, "We all experience architecture before we have even heard the word." Or, as the poet and essayist Joseph Brodsky once said, "Aesthetics is the mother of ethics."

Nobody chooses a restaurant based on whether the meal will be safe; modern science makes food safety virtually a given. This allows chefs to move beyond the science, beyond the merely ethical and the merely edible, and on to the aesthetically engaging. And as with safe food, there are many actors who contribute to the ethical project of building safe shelter: building officials, licensing agencies, examiners, materials testers, engineers, contractors, and lawyers. Since architects contribute nothing unique to this arena, they should channel their inner chef and seek their competitive advantage with aesthetics—in the timeless sense not merely of beauty, but of profoundly understanding how humans interact with their surroundings.

Ironically, it is in this completely ungovernable, amoral arena of pure design, where nobody else is legally excluded, that they should find almost no competition. Aesthetics is the value architects add—better than anyone else—to safe shelter. Strong ethics can unite the profession, but strong aesthetics will distinguish it.

Furthermore, where ethics is transactional, aesthetics is sensory; and where ethics involves obligation, aesthetics involves instinct. Architecture, therefore, as the mother art, with a scale larger than most any other art, has the raw instinctual power to move people, to direct culture and society more than any moral code ever could—to inspire rather than regulate us toward lives better lived. Architects need only honestly and unabashedly embrace design to assume their natural authority. —Victoria Beach, AIA **AIA**





Scalable and Sound

Cities pay dividends, but only if we pay attention to the data. —BY BILL MILLARD

EVIDENCE-BASED DESIGN (EBD) HAS LARGELY BEEN ASSOCIATED with health facilities, but the principles of EBD are not domain-specific. They are increasingly recognized as a paradigm for public space, bringing more rigor, accountability, and persuasiveness to design processes.

“When I was in medical training in the early 1970s,” says Dr. Richard Jackson, Hon. AIA, professor at the UCLA School of Public Health and host of the recent PBS series *Designing Healthy Communities*, “an awful lot that we were taught seemed to have its origin in the craft of medicine and the experiences of experts. Medicine has become much more data-driven.”

And those data sets point to environmental changes at the urban scale, rather than just the scale of the building. “If we think we’re going to turn around these epidemics by simply giving clinical care, we’re fooling ourselves,” Jackson says, noting the higher rates of chronic disease globally. “We have got to start thinking about upstream changes. And that’s where architects come in.”

Caveat Emptor

As changing disease patterns shift the emphasis from external agents to behavior, the process of analyzing a built space’s variables and health effects resembles medicine’s process of diagnosis, hypothesis development, treatment, and monitoring on a communal rather than individual scale. Fields where architects and planners can “diagnose” and “treat” a community include neighborhood design, density, transportation, and availability of features like healthy food, recreational facilities, and green space.

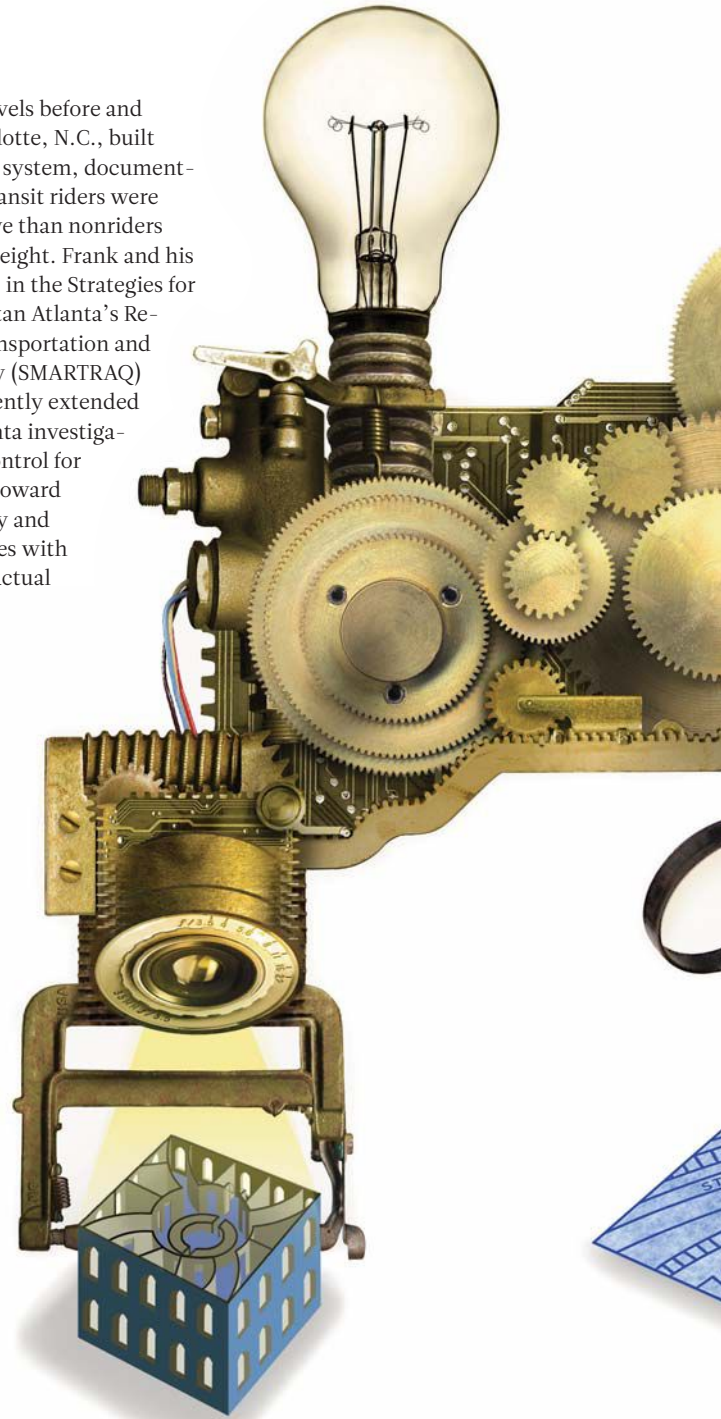
Ray Pentecost, FAIA, director of healthcare architecture at Clark Nexsen and president of the International Academy for Design and Health, cautions that the term EBD is sometimes used loosely as “a cliché for business development” and risks losing credibility.

“Not all research findings can be called evidence,” he says, noting that methodological rigor in EBD requires “generalizability,” internal and external validity, appropriate controlling, attention to the distinction between causation and association, assessment of alternate explanations, public documentation, and replication. “Because best practices change, design should be drawn from a running brook, not a stagnant pond.”

A credible EBD firm builds post-occupancy evaluation and research into its standard procedures, including its contracts and its approach to intellectual property. Methodology complicates the spatial implementation of EBD, however. Funding, politics, and logistics sometimes weigh against analyzing and honoring the evidence. “Longitudinal studies are risky,” says Lawrence Frank, director of the Health & Community Design Lab at the University of British Columbia. “You’re relying on something to happen that hasn’t happened yet. Someone said they’re going to build a train line, there’s a change in administration, and the next elected official doesn’t want to build that—it was the last person’s idea. So there you are with half a million dollars invested and no return.”

Yet some jurisdictions see the value of outcome studies. In 2008, University of Pennsylvania researchers studied body mass index and

activity levels before and after Charlotte, N.C., built a light rail system, documenting that transit riders were more active than nonriders and lost weight. Frank and his colleagues in the Strategies for Metropolitan Atlanta’s Regional Transportation and Air Quality (SMARTRAQ) group recently extended their Atlanta investigations to control for attitudes toward walkability and mismatches with subjects’ actual



neighborhoods, establishing that built-environment variables still account for differences in walking, car use, and obesity—even when self-selection is factored in.



In another study of activity, SMARTRAQ members distinguished between mixed-use development and areas where retail is close to street frontage. The latter neighborhoods had greater social capital than districts dominated by surface parking. “Just having shops and services in your neighborhood doesn’t mean you’re going to get out and walk around and enjoy your neighbors more,” Frank says. “What does? Having it done in a way that supports a local pedestrian environment.”

“When you’re talking public space, the notion of public good becomes more difficult,” says Mallika Bose, chair of the Environmental Design Research Association. “How many people use it? Do people feel happier when they are there? How you define the problem often provides a boundary for the answer,” she says. Other public space analyses are systematic without being quantitative. Enrique Peñalosa, former mayor of Bogotá, Colombia, has one word for that metric: “Happiness.”

“It’s not scientific,” he says, “but you can measure that very easily by how people behave and by asking them. But you don’t necessarily say ‘happy.’ You talk about the intuitive—comfort, image, access, linkage, activities, uses, and sociability.”

Broader Channels of Investigation

New York City has been an active design epicenter, with municipal agencies collaborating with AIA New York as well as scholars representing institutions such as Georgia Tech, Johns Hopkins University, and the Society for Public Health Education to produce the “Active Design Guidelines” (ADG) and its supplements.

Karen K. Lee, senior adviser at the New York City Department of Health and Mental Hygiene (NYC DOHMH), notes that the ADG series has gone national. Its newest addenda, “Affordable Designs for Affordable Housing,” which highlights cases from San Antonio and Atlanta as well as New York City; and “Active Design: Shaping the Sidewalk Experience”—which draws on contributions from Louisville, Ky., Nashville, Tenn., Birmingham, Ala., Portland, Ore., and Seattle—have made a notable impact on how built environmental design and metrics can remake the city. And AIA New York’s annual Fit City symposium series—now in its eighth year in partnership with NYC DOHMH—has spawned FitNation conferences in New Orleans, Washington, D.C., and New York (also co-organized by NYC DOHMH and AIA New York), with funding from the U.S. Centers for Disease Control and Prevention, and the participation of the U.S. Department of Housing and Urban Development.

Lee acknowledges that the messages conveyed through research and the political and economic processes that have shaped the U.S. built environment can sometimes appear as being at odds. In this instance, however, that perception is flawed. “The assumption that because something is more effective that it might be more expensive. is not necessarily playing out,” Lee says.

For instance, affordable housing case studies often conclude that active-design interventions for various building typologies were low-cost or cost-neutral. And when cities designate certain streets as “play streets” in the summer months, the unexpected benefits anecdotally reported by community organizers often include increased socialization among neighbors.

Jackson argues that investment in healthier spaces would lighten economic burdens, and he is optimistic about what’s achievable if research guides civic design, even if it takes a generation or more to unfold. “I remember telling one of my kids that people once smoked on airplanes,” he says. The reply: “Dad, you’re making that up.” If a future generation comes to view cul-de-sacs without sidewalks and hour-long commutes the way that today’s kids view lighting a cigarette on an airplane, it may be because today’s architects, planners, and developers saw the built environment less as a short-term profit center and more as the object of verifiable public knowledge. **AIA**

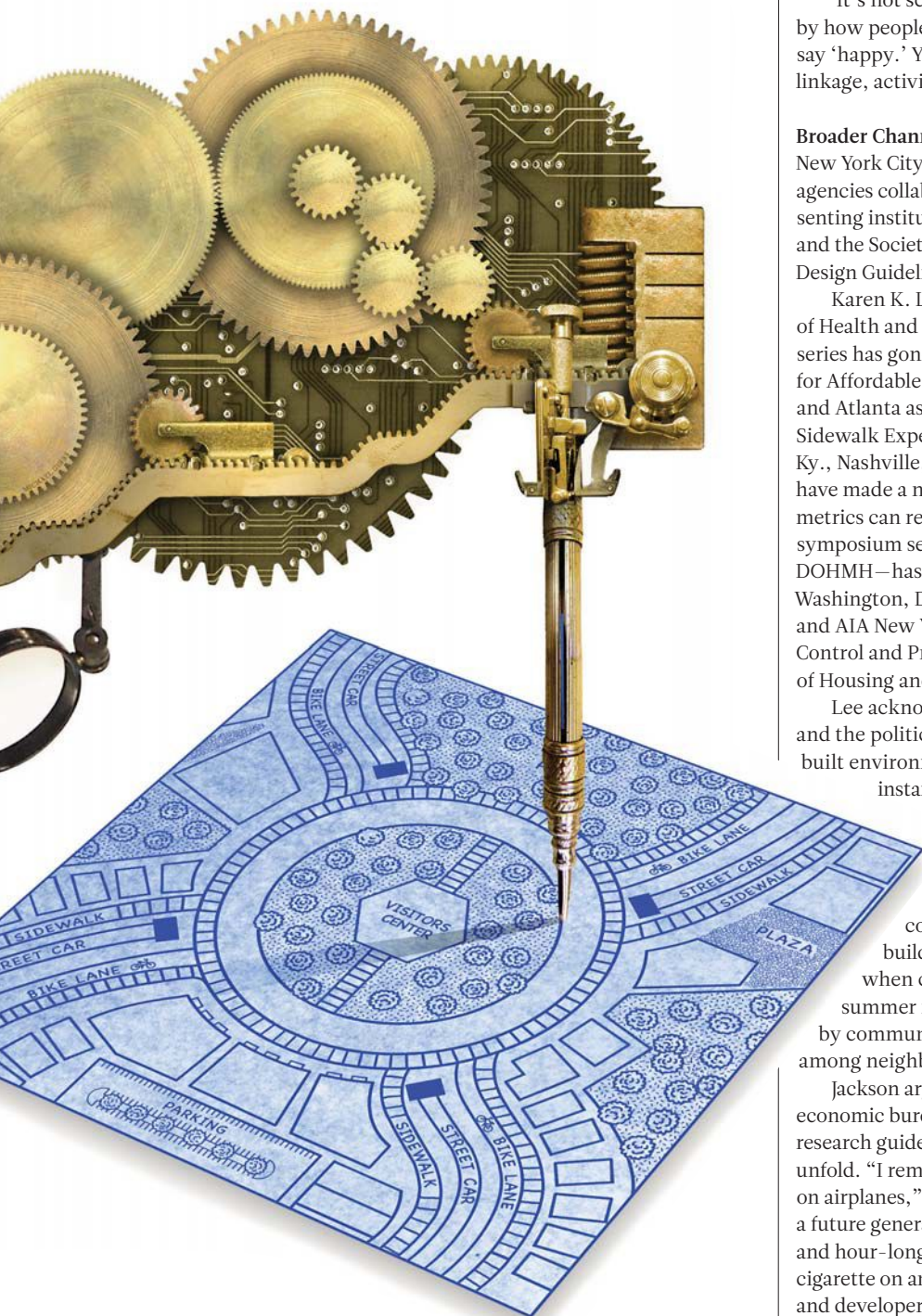


ILLUSTRATION: MICHAEL GIBBS

AIAPERPECTIVE

OTHER VOICES



PHOTO: WILLIAM STEWART

THIS PAST SUMMER I RECEIVED AN EMAIL FROM MINDY FULLILOVE, a professor of clinical psychiatry and public health at Columbia University and a research psychiatrist at New York State Polytechnic Institute. She wrote to me about a conference organized by AIA New York, AIA New Jersey, and AIA Connecticut:

“I think this conference was an example of a new position for AIA: It took place in Newark. It brought together people who hadn’t met before. It built on early successes in [Superstorm] Sandy volunteering, and it opened the deeper conversation of what architects might bring to the regional project of managing rising tides. There was lots of diversity in the room. The meeting provided a strong platform from which to build a relevant place in the future.”

As one of the AIA Board’s two public directors, Fullilove shines a light on the value that this position on resilient design brings to the deliberations which ultimately lead to the policies and positions that guide the AIA.

The position of public director, which was created 36 years ago, possesses all the rights and privileges of a board member, including debating and voting at board meetings. Coming from widely different backgrounds, the AIA’s public directors represent a way to reach out to their constituencies in government, science, business, media, and the arts. Even more important is the perspective that they bring to board discussions. They open up new avenues of exploration as we discuss how to elevate and enrich the public’s understanding of the many ways architecture improves the quality of life.

When I was a director representing the Florida/Caribbean Region, I had the privilege of getting to know Richard Jackson, Hon. AIA, who at the time served as the board’s public director. The former head of the CDC’s National Center for Environmental Health, Jackson opened my mind to an understanding of the profound interaction between health and the environment. His

insights enriched the board’s thinking, as can be seen by the 2011 launch of the AIA’s Health and Design Initiative.

Through the influence of Jackson’s research, knowledge, and leadership, the Health and Design Initiative points out that inactivity, the onset of disease, and obesity are matters that can be addressed by promoting the benefits of design on health as a major factor in creating sustainable buildings and communities.

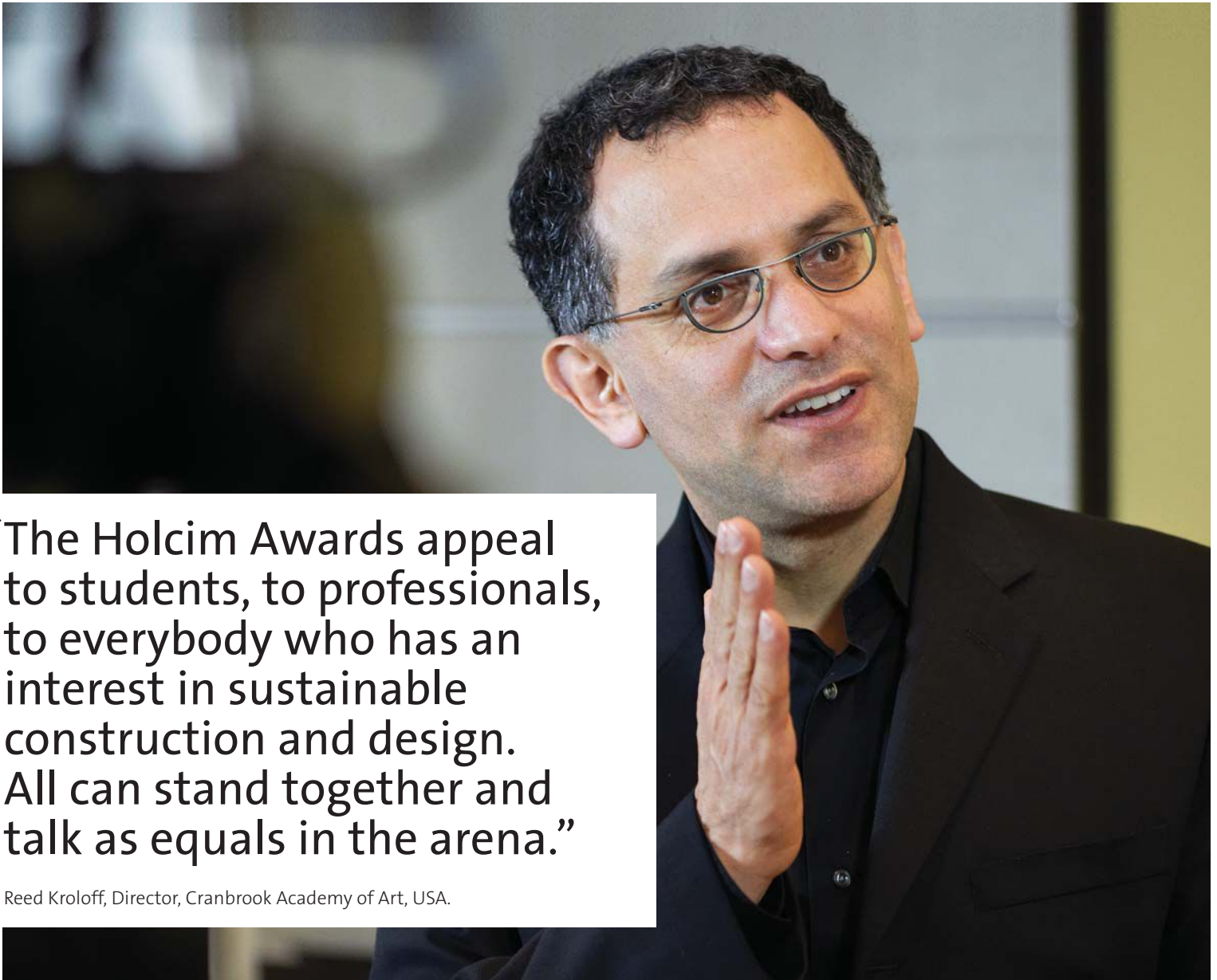
To make an empirical case that good design makes a difference in healthy living, the AIA has partnered with several powerful allies. These include a 10-year pledge with the Clinton Global Initiative to study the relationship between design, public health, and sustainable communities; a grant program for universities to complete evidence-based research on design and health; and collaboration with MIT’s Center for Advanced Urbanism to study patterns of designed public space and health, and to develop prescriptions for redefining the effect that health has on sustainable communities.

This is a bold way of thinking. It reflects a new direction and purpose for the AIA. Tapping into the resources of those outside our profession is an essential element for this kind of innovative thinking. Ours is, after all, a collaborative profession enriched to the degree that we listen carefully to other voices.

Whatever the issue—health or resilient communities—the insights of thoughtful collaborators such as Jackson are vital incentives for new thinking. Field reports from keen observers such as Fullilove benchmark our progress in repositioning the AIA to build leaders who think far beyond our status quo. These collaborations, and this new thinking, reinforce the importance these partnerships play in elevating public awareness that the critical issues of the 21st century are design issues. **AIA**

Mickey Jacob, FAIA, 2013 President





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PRODUCTS



RITUALS

The weightless appearance of Japanese paper lanterns inspired the design of Rituals by Italian architects Ludovica and Roberto Palomba for Foscarini. Made of blown glass in a satin finish, the table lamp's pattern of horizontal lines in varying thicknesses modulates the intensity of the light that shines through. Available as a tabletop fixture or as a pendant, with a G9 or E27 lampholder. foscarini.com Circle 100

**TRACE**

Thanks to heavy traffic in healthcare applications, patient chairs are generally discarded after a few years of use. Trace from **Wieland** offers interchangeable fabrics and components that can be switched out on site when they wear out, extending the chair's lifespan. A metal frame and contoured plywood back and seat panels update the look of traditional patient chairs. The 43"-tall chair offers two seat sizes: 22"-wide-by-18"-deep and 30"-wide-by-18"-deep. An optional ottoman nests beneath the seat. wielandhealthcare.com Circle 101

Text by **Jennifer Brite**
Edited by **Hallie Busta**

**MARCEL**

Jeffrey Goodman and Steven Charlton of New York-based design firm Goodman Charlton first designed this geometric furniture and cabinetry hardware in 1999 for the city's upscale Marcel Hotel. Now produced by **Du Verre Hardware**, the Marcel collection of knobs and pulls is made from recycled aluminum and is hand-finished in antique brass, black matte, or polished aluminum. duverre.com Circle 102

METAL-ART

These decorative high-pressure laminates emulate embossed metal to give contract interiors an industrial look at a more economical price. Metal-Art from **Lamin-Art** comes in 4'-wide-by-10'-tall sheets and is suited for vertical and nonwork horizontal surfaces. The line is available in aluminum, stainless, champagne, and bronze brushed finishes, and in five patterns (Striations, shown). laminart.com Circle 103

**VIRTUE**

Marble is beautiful, but it can be fragile and prone to staining. Virtue by **Crossville** has the look of the natural stone but the resilience of porcelain tile. It comes in unpolished and satin finishes, and in modular field sizes from 3"-by-6" to 24" square, and in 2"- and 3"-square mosaic sizes. Trim pieces include chair rail, crown molding, base molding, single bullnose, cove base, and inside and outside corners. crossvilleinc.com Circle 104

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MANUKA LIGHT

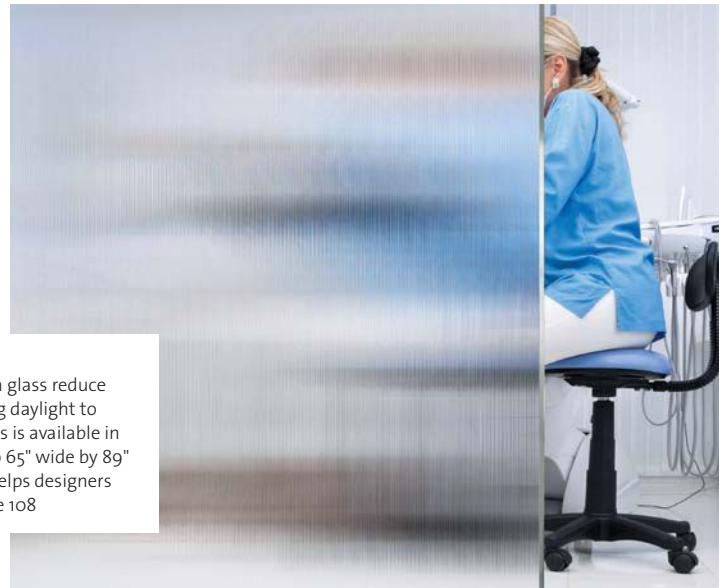
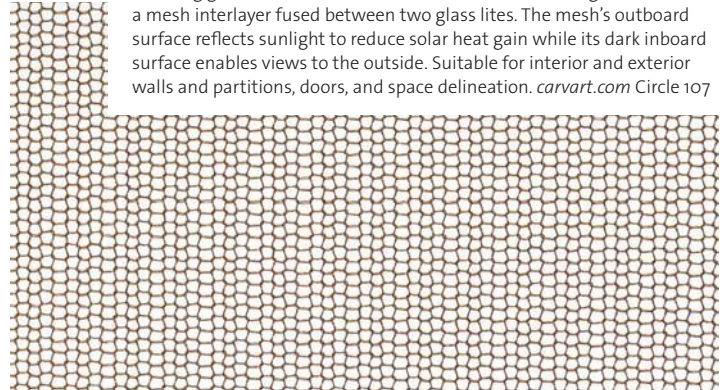
The five-pointed blossoms that give the Manuka Light its unique form are similar to those found on New Zealand's Manuka tree. Conceived by lighting designer **David Trubridge**, the bamboo plywood luminaire comes in two diameters: 800mm and 1,100mm. The former uses an E27 lamp and the latter (shown) uses LEDs embedded at the center of each blossom. davidtrubridge.com Circle 105

**POSTCARDS FROM MYSELF**

Johannesburg-based designer Ruan Hoffmann reimagines the sights and sounds of his global travels in a whimsical collection of encaustic cement tiles for **Clé**. Postcards from Myself features 25 bold patterns (Love-buzz, shown) hand-lithographed onto 8"-square white tiles in blue and red colorways. The tiles can be used on floors and walls in indoor or outdoor applications, including wet rooms. cletile.com Circle 106

**METALLIC**

Designed to improve a building's performance by shading its interior and reducing glare, **Carvart's** Metallic collection of laminated glass features a mesh interlayer fused between two glass lites. The mesh's outboard surface reflects sunlight to reduce solar heat gain while its dark inboard surface enables views to the outside. Suitable for interior and exterior walls and partitions, doors, and space delineation. carvart.com Circle 107

**HOUDINI GLASS**

Microribs on the surface of **Bendheim's** Houdini low-iron glass reduce glare and obscure the objects behind the panes, allowing daylight to reach spaces requiring privacy. The 5mm-thick, clear glass is available in annealed, tempered, and laminated panels in sizes up to 65" wide by 89" tall. Designed for use as walls and partitions, the glass helps designers enclose contract interiors creatively. bendheim.com Circle 108



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Text by **Brian Libby**



DYNAMIC FAÇADE

CAPABILITY: Regulating heat gain
DESIGNER: Decker Yeadon Biological homeostasis—the ability to regulate internal conditions with kinetic movement (think goosebumps)—inspired the Homeostatic Façade by Decker Yeadon, in New York. The experimental, double-skin system sandwiches silver-coated elastomers that expand and contract in response to interior conditions. Shading can be localized to specific interior zones.



CAPABILITY: Electrically charged coatings control glare and solar heat gain without sacrificing views **MANUFACTURERS:** Sage Electrochromics, View Inc. The cost of electrochromic glass “has decreased over the last few years,” says Bethany Johnson, AIA, of SmithGroupJJR. The firm specified SageGlass (shown) for a Chicago project after energy models showed it would reduce the building’s cooling load one-third more than other shading options.

IN TRANSITION

Five years ago, Johnson was frustrated that electrochromic glass panels couldn’t be manufactured “in sizes large enough to incorporate into most of our curtainwall systems.” Today, size is no longer an issue because the glass manufacturers have expanded their production facilities in response to architects’ demands. SageGlass by Sage Electrochromics and Dynamic Glass by View Inc., are now available in sizes up to 5 by 10 feet.

Advancements in controls are allowing designers to leverage electrochromic glass’ behavior with other building systems. Sage recently partnered with Lutron Electronics to create a lighting controls system that coordinates SageGlass’ operation with motorized shades and artificial lighting fixtures to maximize daylight and minimize electric illumination.

The technology behind electrochromic glass continues to advance and gain functionality. In August, researchers at the Lawrence Berkeley National Laboratory announced the development of a window coating in which users can control solar heat gain and visible light transmittance independently. Current products on the market control these performance properties together.



PROGRAMMABLE HELIOSTATS

CAPABILITY: Directing natural light inside
MANUFACTURERS: Kennovations, Heliotrack The One Central Park condominium by Jean Nouvel, Hon. FAIA, uses Kennovations heliostats—movable mirrors—with Device Logic controls to bounce sunlight from a roof to an adjacent building, and then into an atrium. The technology’s positioning and light intensity are “very adjustable and programmable,” says Nouvel partner Bertram Beissel von Gynmnich.



PHASE-CHANGING INSULATION

CAPABILITY: Regulating temperature through a material’s physical properties
MANUFACTURERS: Phase Change Energy Solutions (PCEs), BASF, National Gypsum For two Seattle projects, ZGF Architects used PCEs’ BioPCM to supplement other insulation. “It melts at a human comfort range—about 72 F—so it keeps the building within that range as long as possible as the temperature heats up,” says Ed Clark, ZGF’s sustainable strategist.



BREATHING FENESTRATIONS

CAPABILITY: Regulating air changes
DESIGNER: The Living in collaboration with Columbia University’s GSAPP Through sensors embedded in Living Glass transparent silicone surface, the surface opens and closes like gills in response to metrics such as carbon dioxide levels. “The movement itself becomes information and starts to communicate to the people in the room,” says David Benjamin of The Living, in New York.



PHOTOCATALYTIC CEMENT

CAPABILITY: Cleaning itself and the air
MANUFACTURERS: Essroc Italcementi Group, HeidelbergCement When exposed to UV light, Essroc’s TX Active cement contains a photocatalyst that accelerates the oxidation process in which electrons break down bacteria and VOCs into carbon dioxide and water molecules, allowing them to decompose and disburse from the cement. Essroc says that its product can also neutralize air pollutants.



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The skin of the 140,000-square-foot Pietro Barilla Children's Hospital, designed by Open Building Research, is partially wrapped by a vibrant array of aluminum fins.

DETAIL

With Flying Colors

OPEN BUILDING RESEARCH DESIGNS A CHILDREN'S HOSPITAL THAT HUMANIZES AND ENLIVENS THE STERILE MEDICAL ENVIRONMENT.

Text by **Heidi Moore**

BEHIND EVERY children's hospital project lies a design conundrum. To serve and save the lives of its occupants, the building must be machinelike: sterile and tech-driven. But a cold and clinical environment provides little comfort to young patients already enduring hardship and time away from home.

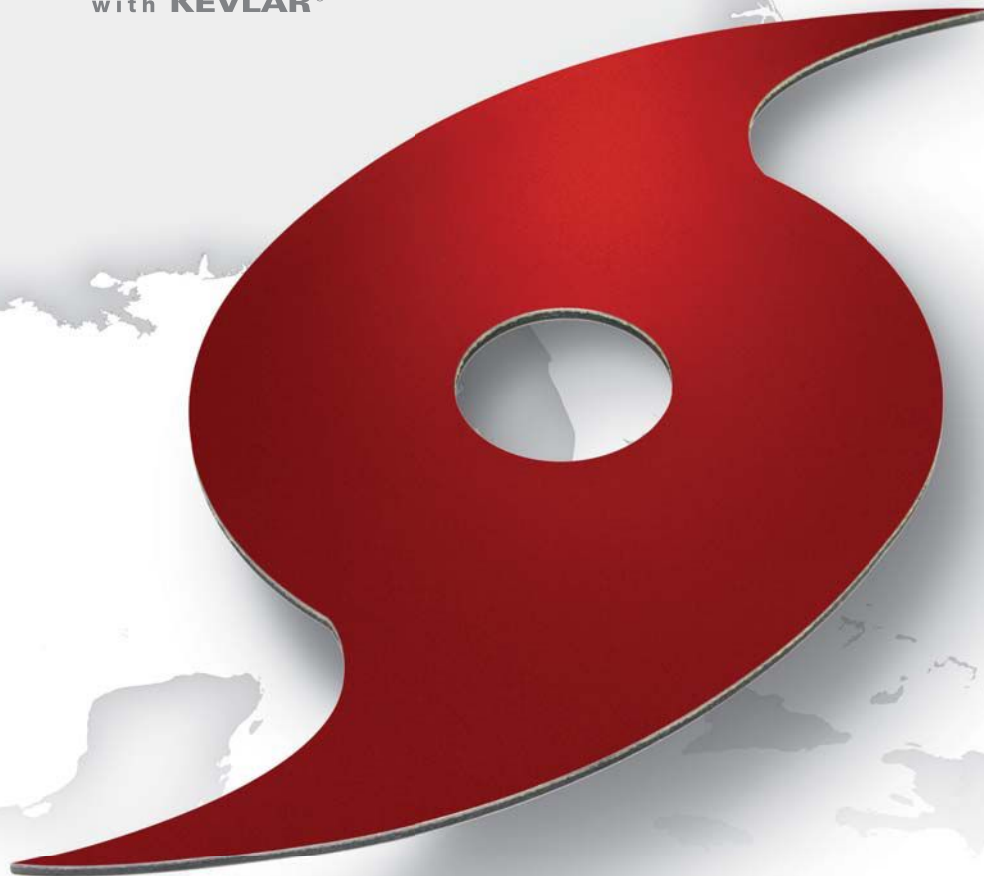
Partners Paolo Brescia and Tommaso Principi of Open Building Research (OBR), in Genoa, Italy, sought to resolve the conflict in their design of Pietro Barilla Children's Hospital in Parma, Italy. Inspired by ideas in the field of

environmental psychology, the designers, who got their start working with Renzo Piano, created a façade that engages its natural setting and brings warmth and ambient light to patients inside while improving building performance.

OBR wanted the outdoors to play an active role in the patients' convalescence. "We tried to create, through the interface of the façade, a system that is able to catch the landscape inside the room of the patient," Principi says.

The double-skin façade pairs a colorful exterior layer with a simple, performance-driven

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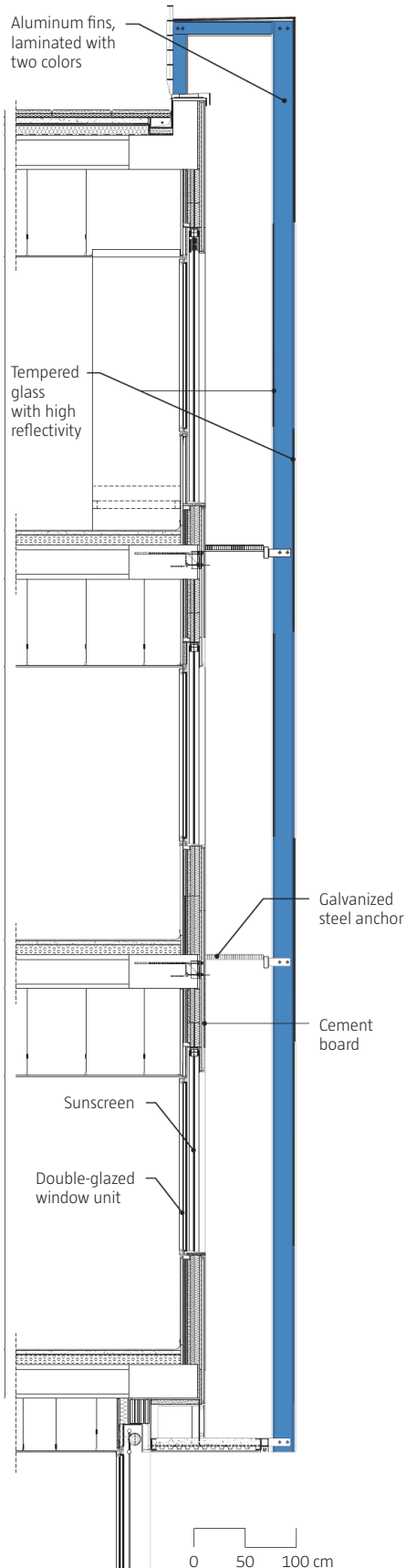
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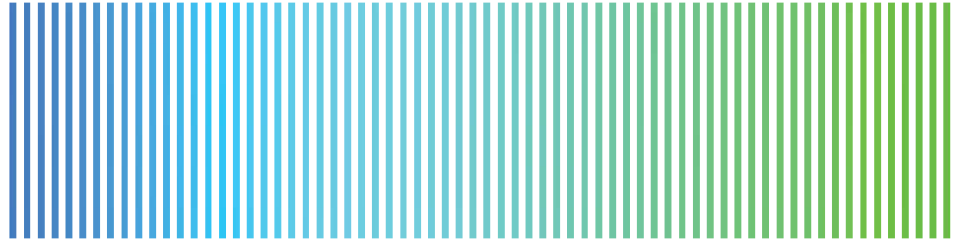
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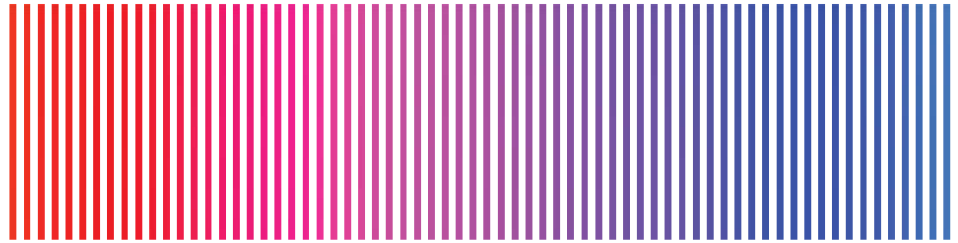
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Façade Section (Left Side, Fin 1)**Fin Color Palettes**

Left Side, Fins 1–68



Right Side, Fins 1–68



interior layer. The outside layer features a series of 14-meter-tall (46-foot-tall) aluminum fins, spaced a meter apart along the hospital's north, east, and west elevations. The 250-millimeter-deep (9.8-inch-deep) faces of each aluminum fin are laminated in complementary hues, covering the full spectrum of a rainbow. When viewed from the exterior, the chromatic palette on the right sides of the fins shifts from warm to cool: red to purple to blue. On the left sides, the palette runs from cool to warm: blue to green to yellow.

About 1,000 single-glazed, security-laminated, tempered lites, mounted both flush to and recessed from the outer edge of the fins, reflect the changing display of trees and foliage to the patient rooms on the building perimeter. "This mirror effect is able to bring a reflection of the landscape," Principi says. "This changing of the reflection is something you can appreciate also from inside. This [enables] patients to feel the changing of the light, the natural light, the changing of the day, and the changing of the seasons."

In contrast to the vivid exterior, the interior façade layer may look plain, but it serves as the system's cost-effective and energy-efficient counterpart. Black-painted plasterboard that covers acoustic and thermal insulation layers also optimizes landscape reflections on the building exterior. Unlike the outer façade's single-glazed panes, the interior system features energy-efficient, double-glazed windows with low-E glass.

Brescia says that the two façades create an installation that "plays with the language of the surrounding landscape...and creates a connec-

tion between the new building and older buildings, and changes from one corner to another."

The double-skin façade also improves energy efficiency by creating an interstitial air space for natural ventilation. "In the winter, the external glass...becomes like a greenhouse," Brescia says. "In the summertime, the fins give a little bit of shadow on the [inner skin], so you can have a benefit in summer as well."

The exterior fins were prefabricated by Teleya, based in Bologna, Italy, and installed by Parma-based general contractor Pizzarotti in six months without any significant challenges. "Any kind of delay would have been traumatic, because this was not just a hospital, but a way to take care of our people," Brescia says.

By creating an aesthetically brilliant, cost-effective, and energy-efficient façade, OBR was able to resolve the inherent conflict in hospital design. Money saved on the exterior was spent on enhancing patient comfort and purchasing more advanced medical equipment inside.

OBR collaborated with Italian architect Sergio Beccarelli of Parma-based firm Policreo on the project. The hospital was completed in January 2013 for roughly \$45 million—about \$11 million of which came from Barilla, the pasta purveyors. Though building performance data is not available yet, the designers have received perhaps the best type of feedback, the approval of the doctors. "The new hospital is appreciated for the efficiency and for promoting...the sense of belonging," Brescia says. "The families...appreciate the domestic and familiar environment that the hospital re-creates around the child."

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THREE-DIMENSIONAL PRINTING has gone from incremental performance advances to carving out new territories of creative potential. From novel material choices to scale-shifts in applications, additive manufacturing is transforming architecture, design, and engineering, and motivating practitioners to rethink conventional methods of production. Two achievements in particular signify milestones for the building construction industry.

From a materials perspective, plastic (ABS) and cornstarch (PLA) are the most common 3D-printed mediums; ceramics, metals, and concrete are others. Ireland-based Mcor Technologies now offers 3D-printing capabilities in a material even more familiar to architects: paper. Mcor promises the full-color, lifelike output at 5 percent of the material cost of current 3D-printing methods. Founded by brothers and engineers Conor and Fintan MacCormack, Mcor uses selective deposition lamination (SDL) technology, which produces models from A4-sized sheets of paper with adhesive between each layer. The output is like a—very—high-resolution contour model.

Mcor also proffers the capability to print full-bleed 3D models in which its machines cut excess paper and material with a tungsten-carbide blade, leaving startlingly real objects behind—and without the burn marks that are prevalent in laser-cut paper models.

Mcor has partnered with Staples to offer paper 3D printing online, beginning in the Netherlands and Belgium. It won't be long

before architecture students rush to their reviews with full-color, printed paper models.

The second milestone concerns the scale of application. This summer, Oakland, Calif.-based design studio Smith|Allen Studio completed Echoviren, which founders Stephanie Smith and Bryan Allen, Assoc. AIA, claim is the world's first full-scale, 3D-printed architectural installation.

The 10-foot-square-by-8-foot-tall open-air pavilion comprises nearly 600 modules, or building blocks, of 3D-printed PLA. The pavilion's geometry resembles a cone with a gently pinched and twisted top for structural rigidity. Smith and Allen intended the perforated building modules to represent the cells of sequoia trees, which surround the installation. The design creates a self-supporting structure out of small PLA blocks while representing the pavilion's material context. As the biodegradable installation decays over time, it may improve with age—a luminous apparition sloughing off its skin, deep within a primeval forest.

Multidimensional printing is witnessing other exciting developments. A couple of these are 4D-printing, a multimaterial shape-change technology developed by MIT's Self-Assembly Lab and Stratasys; and object-duping, which employs 3D scanners and printers to replicate sculptures and artifacts. Together, these advancements indicate how additive manufacturing has crossed the threshold from crude prototyping to the high-resolution, full-scale fabrication of finished designs.

30

The estimated minimum number of years that it will take the Echoviren installation to decompose naturally into the landscape. The maximum estimated is 50 years.

SOURCE: SMITH | ALLEN STUDIO



Text by **Blaine Brownell, AIA**
Illustration by **Peter Arkle**



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Business **GreenbergFarrow, Architect to the Chains 74** Next Progressives **Catie Newell's Dark Inspirations 84**
 Design **Extreme Architecture: OZ's Master Plan for the McMurdo Research Station in Antarctica 92**



Scientists at the National Science Foundation's McMurdo Station not only deal with extreme cold but also a haphazard complex of buildings like this one. Denver-based OZ Architecture hopes its new master plan will streamline operations at the Antarctic research hub.

BUSINESS

WE DELIVER

HOW THE FIRM OF GREENBERGFARROW BECAME THE ONE-STOP SHOP FOR TEXAS ROADHOUSE AND COUNTLESS OTHER RESTAURANT AND RETAIL CHAINS ACROSS AMERICA.



Text by **Wayne Curtis**
 Photos by **Dave Burke/Hedrich Blessing**

THE TEXAS ROADHOUSE in Steubenville, Ohio, hadn't yet been open a week when I drove up early this past summer. The faux-rustic building with flags flying atop a standing-seam metal roof brought to mind a frontier outpost high on the Texas or New Mexico plains circa 1850—albeit an outpost built by frontiersmen with a penchant for tidy riverstone borders and well-groomed shrubs. And instead of plains there was asphalt—this roadhouse is located at the edge of a parking lot at the Fort Steuben Mall, with the only nearby buttes labeled J.C. Penney's and Macy's.

Texas Roadhouse is a fast-casual restaurant chain that prides itself on providing diners a fun, memorable experience. Since opening its first restaurant in Clarksville, Ind.,

two decades ago, it has expanded to more than 400 locations. It's still a fairly minor contributor to Sprawl America—by comparison there are 14,000 McDonald's, 12,700 Burger Kings, and 5,900 Wendy's around the country. But Texas Roadhouse continues to grow, with about 30 new restaurants opening each year.

Just inside the front door in Steubenville, it was as crowded as an airport gate the day before Thanksgiving. People held discus-sized buzzers waiting to be shown to their tables, and wore the looks of people whose flights had been canceled but were warily optimistic that they'd get on the next one.

The host found me a seat at the bar. Even before my beer arrived, a small commotion broke out behind me. Kenny Loggins started belting "Footloose" through the speakers, and a half-dozen servers in black T-shirts suddenly lined up in a long aisle then broke into dance—

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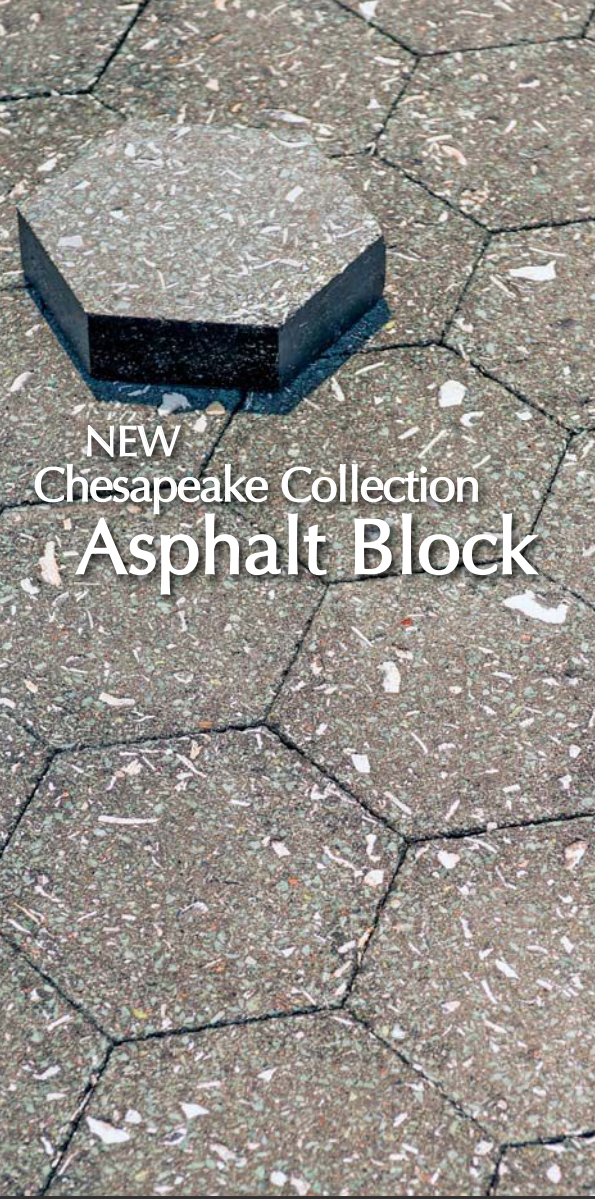
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step, step, clap! step, step, clap!—letting out an occasional hoot. A few diners stopped with their forks halfway to their mouths and gaped. Others put down their forks and clapped and joined the hooting.

It was fun, and my beer and steak were tasty. But I actually hadn't come here for the food or dancing. Rather, I was trying to better understand the process of how Sprawl America gets built. As a consumer who's walked through the door of many of these places, I've often wondered: How do these thousands of chain restaurants and retail clusters and big box stores get designed and constructed so quickly? What role do architects play?

GREENBERGFARROW, based in Atlanta, has provided Texas Roadhouse with architectural, engineering, and site development services since 2004. Over the past decade it's been involved in virtually all of the chain's new restaurants. The firm has also worked with corporate giants such as Target, Bed Bath & Beyond, Murphy Oil, Hertz, AutoZone, Old Navy, Walgreens, Whole Foods, Chipotle, Taco Bell, and Kohl's.

GreenbergFarrow didn't set out to become an architect to the chains, but an early commission directed it down that path. The firm was founded in 1974 by Marty Greenberg and Larry Farrow (both now retired), and for a number of years remained a modestly sized operation majoring in local retail with a minor in residential. Along the way, firm leaders learned what it took to usher retail from concept to grand opening.

In the late 1970s, an upstart Atlanta-based company with a big idea, drawn to the firm's retail expertise, approached GreenbergFarrow. The firm signed on to help the client open its first two stores, which involved the renovation and redesign of a pair of recently vacated Treasure Island grocery stores.

That client? The Home Depot. Their idea? Build big, build fast, and build everywhere. "Our strategy from the very beginning was to just follow them where they would take us, and to provide whatever services they needed," said Hughes Thompson Jr., AIA, GreenbergFarrow's managing principal and senior vice president.

It's been a fruitful symbiosis. Since then, GreenbergFarrow has been involved in the design and development of some 2,000 Home Depot stores. In the process, the firm morphed from being a modest outfit with some retail design expertise into a one-stop shop for regional and national restaurants and retailers. GreenbergFarrow hired staff with expertise in site development as well as entitlements (development rights granted by a municipality or other local authorities). "And we added

engineering services—electrical, plumbing, and mechanical engineering—because we needed that," Thompson says. "It was a great learning experience for us. And then we just followed them across the country. That's how we ended up basically coast to coast."

GreenbergFarrow now has offices in California, New York, New Jersey, Illinois, Texas, Massachusetts, Arizona, Ohio, and Wisconsin, as well as in Mexico and China. The firm employs around 200 people worldwide, with annual gross revenues of about \$27 million.

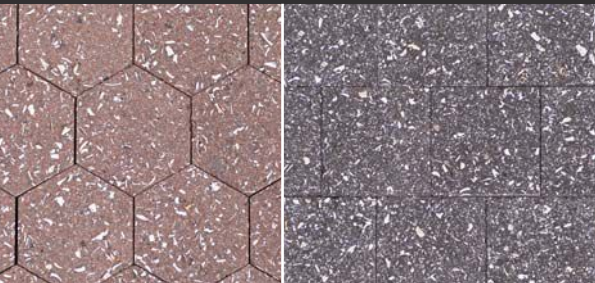
While GreenbergFarrow has worked in densely urban environments—the firm was behind 80 Metropolitan Avenue, a 123-unit condominium in Williamsburg, Brooklyn, N.Y.; as well as a nearly 1-million-square-foot, three-story urban mall in the north Bronx—it's perhaps best known as a Big Box Architecture Shop for Big Box America. GreenbergFarrow works at the speed and scale that's required for fast-growing corporations whose success is built on hitting dates and numbers on dozens of projects under way simultaneously. Indeed, from the outside, what GreenbergFarrow does looks less like traditional architecture and more like air traffic control.

TEXAS ROADHOUSE approached GreenbergFarrow when the restaurant's corporate leaders realized that they were reinventing the wheel every time that they entered a new market. They would hire local architects, civil engineers, and site development consultants, then have to get each up to speed about their corporate preferences. In GreenbergFarrow, they found a firm that already had experience in dozens of markets. It already knew who to call, what permitting hoops might prove vexing, and how to tweak designs to satisfy local concerns. Moreover, after a couple of projects, the firm understood and could anticipate Texas Roadhouse's priorities, streamlining the process.

Texas Roadhouse weighs new markets and locations mostly in-house. When a potential site is identified, and a real estate agreement is imminent, GreenbergFarrow essentially embeds itself and remains there until the building is complete. "We work so closely with them that we almost feel like we're an extension of their company," says Jennifer Mowen, a senior associate in the firm's Chicago office who oversees the Texas Roadhouse account.

Before the final lease is signed, the GreenbergFarrow team spends two or three weeks on due diligence, getting to know every aspect of the new site, from soil stability to local permitting fees. Once that analysis is finished, the information moves up to Texas Roadhouse's

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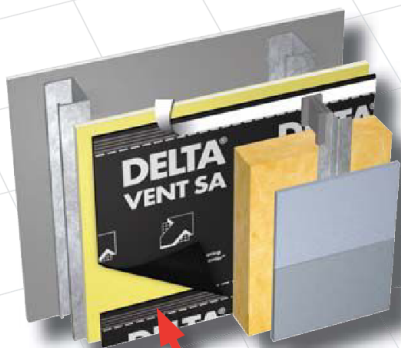


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corporate level for a final greenlighting. Mowen says that the chain's strong experience in vetting sites in advance means that 90 percent of projects move ahead to the next phase. Once GreenbergFarrow gets the OK, design and

building goes into overdrive—it's typically one year from the signing of the lease agreement to the serving of the first meal.

Virtually every new outpost of a chain that opens up along the highways of Sprawl

America begins with a prototype. Or, in the case of Texas Roadhouse, two prototypes. The chain was founded in 1993 by Kent Taylor, its first outpost built in a mall. But Texas Roadhouse eventually gravitated to empty lots, or out-lots

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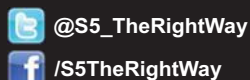
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of large parking lots, preferring newly built, freestanding structures. These were initially designed with Taylor's hands-on involvement. When GreenbergFarrow got involved a decade later, the style and design was essentially set.

TEXAS ROADHOUSES are what Robert Venturi, FAIA; Denise Scott-Brown, FAIA; and Steven Izenour, AIA, famously referred to as a "decorated shed" in *Learning from Las Vegas* (MIT Press 1972). The building is a billboard,

An attached Texas Roadhouse in Bradley, Ill. (left), and a freestanding version (the chain's preferred typology) in Countryside, Ill.

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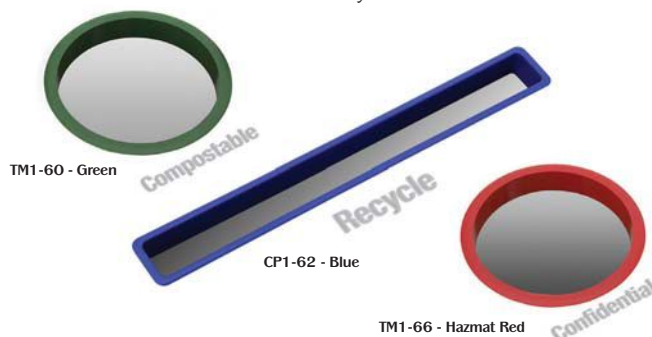
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telegraphing to passersby what's on the inside—steak, fun, a sort of rough-hewn rustic charm that Americans associate with the word “roadhouse.” The two prototypes used by the restaurant look much the same but vary in size—the standard prototype is 7,163 square feet and the “small town” prototype is 6,762 square feet. The less expensive version allows the company to open in markets that might be marginally profitable. They've also found that 7,000 square feet often triggers additional local permitting reviews—in some mall developments, anchor tenants get to approve any new building of 7,000 square feet or larger—so shrinking the footprint slightly can yield a faster turnaround.

Texas Roadhouse has long been content with its prototypes, and rarely makes changes that a consumer would notice. But after each opening, the executives review the prototype and solicit improvements from the new store managers. They might add a foot to a kitchen passage, for instance, where servers sometimes encounter bottlenecks. Changes are “usually in the kitchen,” says Doug Druen, the company's market research manager, “and the front of the house for the most part stays the same.”

Prototypes exist as a sort of Platonic ideal—typically they have to be tweaked and adapted for a particular site. The Steubenville location I visited adhered to the “small-town” designs very closely, and in this way, Mowen says it was an exception to the rule. “It's very close to the prototype,” she says. “It's not one of the more complex jobs.”

If the job calls for the renovation of an existing space, however, the tweaks can be more complicated. Druen gave one example: The company leased a 10,000-square-foot former restaurant, into which they essentially had to install the standard 7,163-square-foot prototype. “On the surface you may think, ‘Well, yeah, we'll fit in there,’” Druen says. “But some of the spaces are long and narrow, and we have to have a certain width to make it fit and feel like a roadhouse. So there may be some challenges there even though the space is so large.”

Changes also arise from requests by local zoning boards. Style-wise, the prototype would be at home in Disney's Frontierland. “But some regions are a little more particular and demanding in their architecture,” Mowen says, noting that the Northeast, California, Wisconsin, and Florida often favor designs that reflect a local sensibility. A zoning board in Florida, for instance, recently requested that Texas Roadhouse use stucco and barrel-tile roofs.

And the economy plays a role as well. “It's cyclical,” Mowen says. “In the early years, 2004 up to 2008, resistance to prototype architecture



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was one of our biggest hurdles. In the recession years, we've found that municipalities have become a little more development friendly. But as development comes back, communities are taking a firmer stance, much like they did prior to the recession."

GREENBERGFARROW makes the requested changes, then draws up final construction documents. Texas Roadhouse has two architects on staff who, in part, serve as liaisons and monitor quality control. Taylor, the chain's founder, is still very hands-on when it comes to seating arrangements and interior layout—"he wants you to see certain things as soon as you walk in, and he wants you to not see other things," Druen says—and the in-house architects make sure everything will pass muster with him.

Of the 30 Texas Roadhouses slated to open in 2013, about 24 were freestanding variations on prototypes. "We'll build freestanding if we can," Druen says. "Ideally, we'd rather build a prototype because we'll build it faster; we'll have fewer maintenance issues in the long run." But the ideal sometimes doesn't translate to reality. "If we're looking in a certain market, there may not be anything [available] other than a closed restaurant," he says.

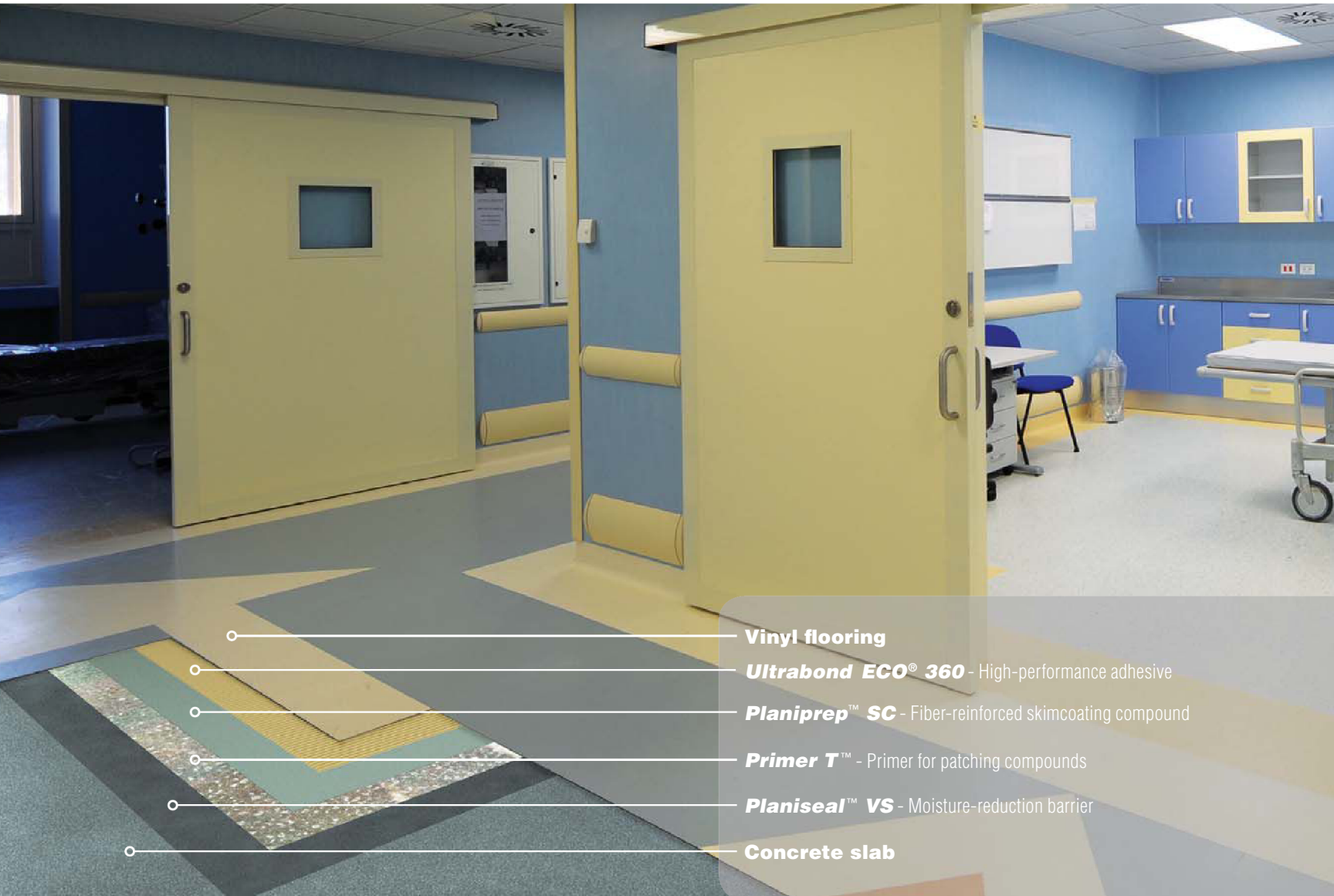
In recent years, GreenbergFarrow has been called upon more frequently to be creative in making nontraditional scenarios work. One restaurant this year was built off the lobby of a Trump Tower in New Rochelle, N.Y. Another, in Deer Park on Long Island, was subject to a local mandate that the restaurant be LEED-certified. "That made it very complicated in terms of approvals," Mowen says, as GreenbergFarrow had to launch the LEED process concurrent with getting town approvals.

THE STEUBENVILLE Texas Roadhouse opened as scheduled, on May 27. When construction wound down and GreenbergFarrow's role receded, activity shifted to restaurant management, who had counted on the builders hitting their date. Chefs and waitstaff were hired and trained, supplies were en route, waste haulers would arrive to fulfill their contracts, and local advertising had been scheduled. During my visit, the crowds were huge, but everything hummed along smoothly, at least as far I could see.

"When I travel, I always know where there's a Texas Roadhouse," says Mowen, "because [our team] built the vast majority of them across the country." And she often likes to stop by and have a look. "I always want to go see them," she says. "It's weird, it's kind of like your children—you want to check up on them and see how they're doing."

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Text by **Elizabeth Evitts Dickinson**
Photo by **Brian Kelly**

It's 10:30 a.m. on a Tuesday, and Catie Newell sits at a long table in her Detroit warehouse-cum-apartment typing notes into her Mac while talking on the phone to a curator in Grand Rapids, Mich. The late-summer sun filters through the enormous windows, illuminating bookshelves that house molds, acrylic sculpture, blown-glass globes—materials that have played a role in her installations. Newell has been awake since 5 a.m., an early hour even for this habitually early riser, who often hits a period of frenetic activity near the end of a project. But it's never been quite like this.

In a few weeks, Newell, 33, will fly to Italy to begin a year-long fellowship at the American Academy in Rome. Her winning proposal, titled "Involving Darkness," continues a succession of urban interventions that Newell has installed in cities such as Detroit

and Flint, Mich. Her "Unlit" installation at last year's architecture Biennale in Venice was an unsettling interior environment meant to evoke the darkness inside Detroit's abandoned and boarded up buildings. While in Rome, she will further explore the ways that limited artificial light and darkness influence our perceptions of the city. "Darkness can be used as a design tool," Newell wrote in her proposal, "revealing new environments and obscuring otherwise familiar ones, affording them unexpected dimensions."

Today, Newell, founder of Detroit-based Alibi Studio and a tenure-track professor at the University of Michigan's Taubman College of Architecture and Urban Planning in Ann Arbor, is juggling multiple projects that she must finish before going abroad. "This is the point when I stop cooking for myself and forget to eat," she says.

The project in Grand Rapids, called "Displace," is a complicated installation of custom-designed glass, the result of a

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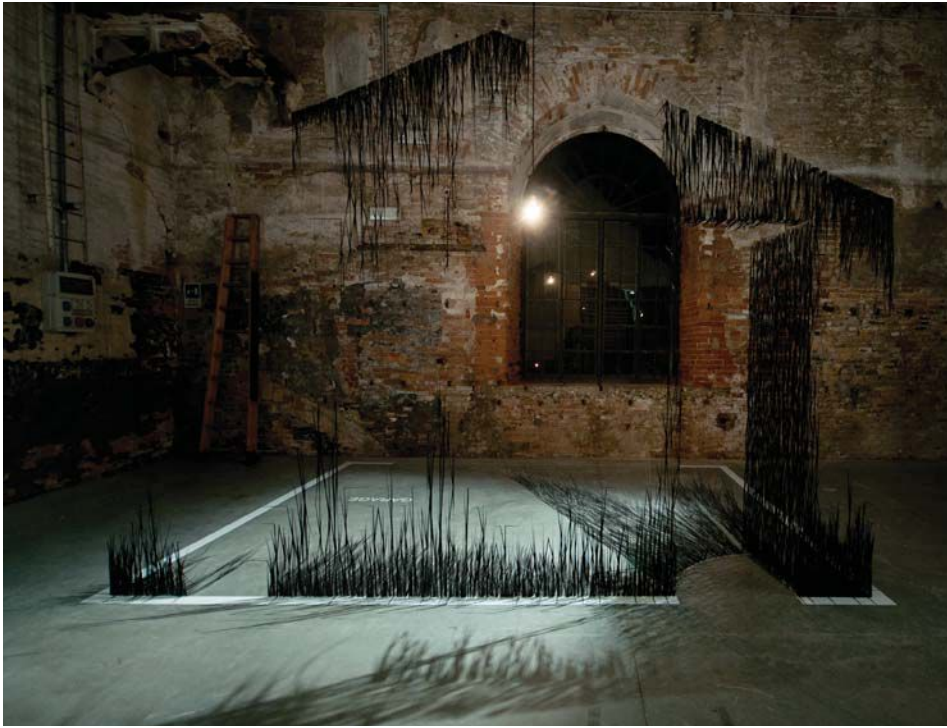
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materials research grant that she earned with Wes Mcgee, who directs Michigan's Fabrication Laboratory, or FABLab. "He's like the robot whisperer," Newell says of Mcgee. "I do things that have some strange elements to them; my work can be mischievous. Together we make these projects that neither of us could do alone."

Newell and Mcgee began experimenting with glass in 2011, working on an installation called "Glass Cast," which used digital technology as well as traditional glass blowing techniques and warm kiln slumping—a process that manipulates the material into highly sculptural shapes. Mcgee designed and built a custom kiln in the lab that Newell uses to slump the glass. "We started with the question: Why does glass have to be a flat pane?" Newell says. "With digital fabrication, we can make all of these other materials in forms with a lot of complexity, but glass has been left behind."

The results that they have achieved are at once fragile and assertive, organic yet alien. Last year they created an installation called "Specimen" for SiteLAB, a Grand Rapids nonprofit. As the name implies, "Specimen" appears to be a sample of a once-living organism suspended from the ceiling, its form casting shadows on the floor while limited interior light plays off the undulating glass. "I really like foils," Newell says. "I like things that are delicate, but look aggressive. I like things that are very dark, but then provide illumination."

With their latest research grant for the Grand Rapids project, Newell hopes to create both material as well as optical distortion. She's

been testing a time-consuming process for mirroring the slumped glass, experimenting with versions ranging from completely opaque to completely transparent.

"**IT'S TIME** to see what the kiln produced overnight," Newell says. At noon, she embarks on the 40-minute drive to Ann Arbor to check on the progress of her "Displace" sculpture, which will ultimately get installed in a historic building in Grand Rapids, where the mirrored glass will transform the user's perception of the interior. "The space is so straightforward, so simple. But then it's reflected in the glass, and you see the door, you see the window. And it's like seeing into this other world," she says.

Seeing the world slightly askew is what Newell does best. She is quickly earning a reputation as a master manipulator of space, with site-specific installations that use experimental materials and fabrication processes to create a discourse on contemporary urban life. In the car on the way to Ann Arbor, she talks about her project "Salvaged Landscape," built over 28 days in October 2010 inside a Detroit home that had been burned by arsonists. Newell, who got permission from the owners to do whatever she wanted at the site, deconstructed portions of the building and used the charred wood to craft a wholly new structure inside the shell.

Newell thrives on the act of building and maneuvering materials in the moment as a way to think through projects. She always has an idea of where she's heading, but in "Salvaged

Landscape," as in all of her projects, she has no drawings. "I think through making," Newell says. "Material and process go together for me."

It was during the construction of "Salvaged Landscape" that Newell noticed how the sunlight would pierce the exterior of the remaining home. "As the sun went down, right before it went pitch black, these rays would come across and turn the charred wood golden," she says. "I had to not let that go away, so I opened up part of the front face differently so that light effect would remain."

When the installation opened on Halloween eve, or Devil's Night, notorious in Detroit for outbreaks of arson, "it turned golden and then went totally dark," Newell says. "You just can't draw those kinds of things." She built "Salvaged Landscape" with the help of her father, a retired antique toy restorer, and she credits him with her interest in material. "My dad wasn't making these toys as brand new, he was responding to them as they existed," she says. "He taught me how to have a keen eye, and that probably turned into this material obsession."

During her graduate studies in architecture at Rice University, the dean at the time noted her instinct to use materials as a response to existing conditions. "I think of my work not as a narrative, but rather a commentary," Newell says. "I try not to make things up. I'm trying to amplify the truth, and I realize that this wouldn't be possible if I was creating new buildings."

After graduating from Rice in 2006, Newell spent several years as a project designer



and coordinator at Office dA in Boston before coming to Michigan in 2009, where she first lived in Ann Arbor. “I don’t think I initially thought I would come and do things in Detroit, but I felt so drawn to it.”

Newell isn’t trying to change the world; rather, she’s using the existing environment to highlight the way things are. “‘Salvaged Landscape’ simply responded to what’s going on here. There are 15 arsons a day in Detroit,” she says. “I’m not trying to be a do-gooder or a problem solver.”

Even still, her work sparks discourse. When “Salvaged Landscape” moved from Detroit to a public art installation in Grand Rapids, vandals climbed inside and removed pieces of wood, so the city cordoned it off with police barricades. The project was then scheduled to move to the Heidelberg Project, a sprawling outdoor arts installation started in Detroit as a response to the city’s disinvestment in traditionally African American neighborhoods. But the day “Salvaged Landscape” was scheduled to move there, Newell got a call saying the project’s organizers no longer wanted it. “They told me that they worried it was offensive, and the neighbors were going to be upset that they had a piece that’s made from an arson house,” she says. “I thought: *Wow. My piece is being declared offensive by the Heidelberg Project. What does that mean?*”

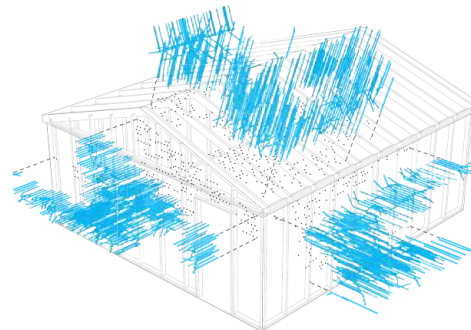
AT FABLAB, NEWELL examines the glass that came out of the kiln that morning for the “Displace” project and selects a few pieces

that she and a research assistant spray with chemicals to create the mirroring effect. She grabs a quick salad from the campus dining hall and when she returns, a maintenance man accidentally bumps a table of glass and cracks several of the best pieces. Newell takes a deep breath and assures him it’s OK. “That’s the thing about working with glass,” she says. “It breaks, and it’s gone. And you have to let it go.”

She prepares more glass for the kiln, then drives back to Detroit to meet Brandon Weiner, the executive director of Creative Rights, a local nonprofit that’s making a documentary for a Kickstarter campaign. Weiner wants to record a testimonial from Newell at “Salvaged Landscape,” which has been reinstalled one house down from the original home, just across the street from Detroit’s famous abandoned train station. Next to Newell’s wooden structure, another artist has installed a miniature golf course. She bristles at the juxtaposition. While Newell isn’t an advocacy architect, her work is sensitive to the truth of a place; to her, the mini golf course seems crass. It risks turning an arson site into a literal playground, making a game out of Detroit’s challenges.

After a late dinner with Weiner and some other local artists, Newell’s day finally draws to a close. Heading home, she recalls an observation made by one of her colleagues at the University of Michigan. “He said that I do architecture like it’s an extreme sport,” she says. “I think that’s pretty true. I have a lot of trust in pulling things off.”

Weatherizing Diagram



Previous page: Catie Newell poses inside “Salvaged Landscape.”
Opposite page, left to right: “Unlit,” displayed at the Venice Architecture Biennale, evokes the darkness of Detroit’s abandoned buildings; “Aggregates,” an installation that Newell collaborated on with Anne Hawkins at Rice University.

This page, left to right: “Glass Cast,” exhibited at the Taubman College of Architecture and Urban Planning, was fabricated using digital technology and glass-blowing methods; “Weatherizing” is an installation of nearly 1,000 glass tubes installed in a Detroit garage.

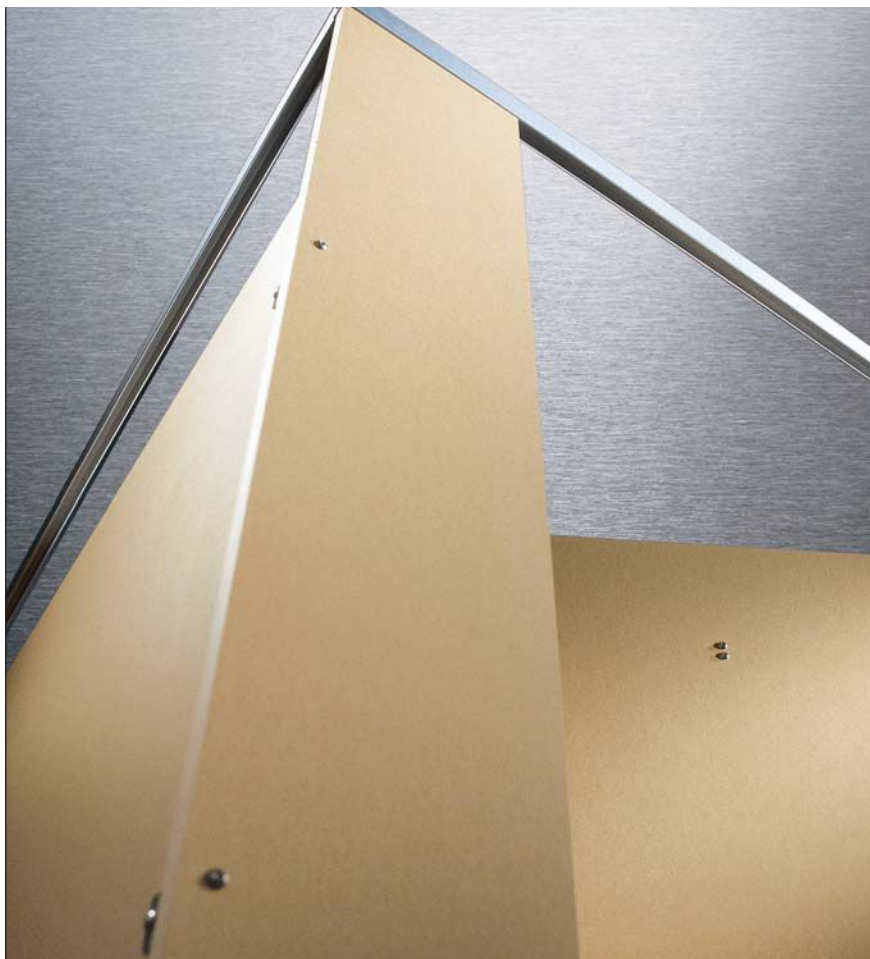


BUILDING VALUE SINCE 1906

Presents:

Specifying Code-Compliant Toilet Partitions

By: Paige Lozier



The ICC and NFPA codes have been revised to clearly state that toilet room privacy partitions are regulated as interior finish.

LEARNING OBJECTIVE 1 – DISCUSS THE UPDATE OF TOILET PARTITION MATERIAL FIRE CODE COMPLIANCE.

Update of Toilet Partition Material Fire Code Compliance

In the United States today, there are two key organizations when it comes to model codes and standards relating to fire safety and building construction. These are the International Code Council (ICC) and the National Fire Protection Association (NFPA). The codes and standards they develop are not mandatory until adopted by a jurisdiction such as a city, county, state or the federal government. Also, many major corporations require compliance regardless of governmental adoption.

Adoption is just one of the issues; the other is the date of the edition. Although this article will discuss the 2012 editions of various ICC and NFPA codes, at this time very few jurisdictions have adopted them. However, it should be noted that these newer editions reflect the current state-of-the-art. In short, the following discussion is probably not regulation or law in several jurisdictions at this time, but is the standard of care that a prudent person would follow.

There are numerous model codes written by both the ICC and NFPA. The codes of most interest in regards to the subject of toilet room privacy partitions are the International Building Code (IBC), International Fire Code (IFC), NFPA Life Safety Code® (NFPA 101®) and the NFPA Fire Code (NFPA 1) which is virtually identical to NFPA 101 with regard to the requirement being discussed.

The model codes written by both ICC and NFPA now clearly regulate toilet room privacy partitions as interior finish. This is an important clarification, as in recent years some jurisdictions have interpreted that fire and building code requirements for interior finish do not apply to various types of partitions including toilet room privacy partitions.

Due to this fact, the ICC and NFPA codes have been revised to clearly state that toilet room privacy partitions are regulated as



Credit: 1 LU

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LEARNING OBJECTIVES

By the end of this educational unit, you will be able to:

1. Discuss the update of toilet partition material fire code compliance.
2. Explain how to select the most appropriate toilet partition material, hardware and mounting configuration based on building type.
3. Describe three ADA accessible toilet compartment layouts.
4. Identify guidelines for writing toilet compartment specifications.



Standard NFPA 286 test method with HDPE untreated panels mounted on fire test room walls.



HDPE untreated panels being tested as they would be installed as toilet partitions in the field.

interior finish. These revisions started with the 2006 editions of these documents. The 2009 editions of the IBC and IFC and the 2012 editions of the NFPA 101 and NFPA 1 reaffirm earlier editions that toilet room privacy partitions shall be regulated as interior finish and as such shall comply with interior finishes compliance standards.

Revised Toilet Partition Requirements

Non-polypropylene (PP) and non-high-density polyethylene (HDPE) toilet partition materials include: stainless steel; painted metal; high pressure laminate (HPL); compact laminate (CL) also known as solid phenolic core (with brown or black edge); color-through-solid phenolic and solid color reinforced composite (SCRC).

These materials used as toilet room privacy partitions are regulated as an interior finish and require testing in accordance and compliance with ASTM E 84 or UL 723 testing. They are allowed testing in accordance and compliance with NFPA 286 Room-Corner Test instead of ASTM E 84 or UL 723.

Starting with the 2009 editions of the IBC and IFC, and with the 2012 editions of the NFPA 101 and NFPA 1, the requirements

for polypropylene (PP) and high-density polyethylene (HDPE), have been revised. It has been recognized for some time that ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials (the tunnel test) is not the best test method to use in most cases when testing certain plastics.

With the recent increase in use of PP and HDPE for building products, both the ICC and NFPA membership concluded that the nature of these products was such that testing per ASTM E 84 was inappropriate and that NFPA 286 Standard Methods of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth (the Room-Corner Test) was the proper way to regulate them.

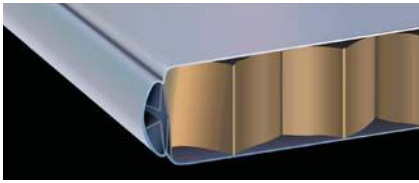
NFPA 286 Room-Corner Test

As a result, all four codes now require that interior finishes using PP or HDPE be tested in accordance with NFPA 286 Room-Corner Test. This full-scale test is far better at determining the hazard of an interior finish, especially with certain plastics, than is the traditional "tunnel test," ASTM E 84. It should be noted that both the IFC and NFPA 101 apply this new requirement to existing interior finishes.

These images show tests conducted by an independent research laboratory using the standard unmodified NFPA 286 Room-Corner Test on one inch thick HDPE solid panel toilet partitions. These tests show that untreated HDPE toilet partitions do not meet the requirements of the NFPA 286 Room-Corner Test. Treated HDPE toilet partitions were not tested.

The first photograph is of the "standard" NFPA 286 arrangement with the panels mounted on the fire test room walls. Note the resulting flammable liquids fire on the floor and the running of flammable liquids down the walls. The second photograph shows the HDPE panels being tested as they would be installed as toilet partitions in the field. Again, note the resulting flammable liquids fire on the floor and flammable liquids "flow" on the panels.

It is recommended that architects, interior designers, specifiers and contractors request complete ASTM E 84, UL 723 or NFPA 286 Room-Corner Test compliance documents from high pressure laminate, compact laminate, color-through-solid phenolic and solid core reinforced composite (SCRC) toilet partition manufacturers and insist on



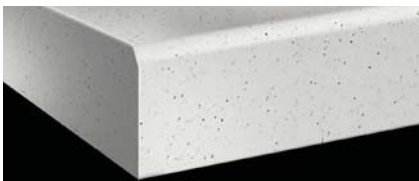
Honeycomb Construction



Bonded Construction



Layered Construction



Homogenous Construction

unmodified NFPA 286 Room-Corner Test compliance documentation from polypropylene (PP) and high density polyethylene (HDPE) toilet partition manufacturers prior to specifying or purchasing either untreated or treated HDPE toilet partitions.

LEARNING OBJECTIVE 2 – EXPLAIN HOW TO SELECT THE MOST APPROPRIATE TOILET PARTITION MATERIAL, HARDWARE AND MOUNTING CONFIGURATIONS BASED ON BUILDING TYPE.

Toilet Partition Materials and Construction Methods

This article will focus on six common materials used for toilet partitions, which are painted metal, stainless steel, high pressure laminate, compact laminate, high density polyethylene (HDPE) and solid color reinforced composite (SCRC). Other materials are available such as solid surface, special laminates and marble. In a bit we will review the pros and cons of each of these six toilet partition materials.

Let's position the six common materials by their construction methods. Honeycomb

construction includes painted metal and stainless steel. Bonded construction includes high pressure laminate and layered construction includes compact laminate. Finally, homogenous construction includes HDPE and SCRC.

First we'll discuss metal partitions with a honeycomb construction. Painted metal, with either a baked enamel or powder coated surface, and stainless steel, both have a honeycomb cardboard core. The pros of painted metal toilet partitions are their wide availability and low cost. Another benefit is that they can qualify as a Class "A" Interior Wall Finish Classification. The cons of painted metal partitions are that they rust, dent, scratch and exposed cardboard core absorbs odors. Also, graffiti is difficult to remove from painted metal partitions and they have a limited warranty.

The pros of stainless steel toilet partitions are that they are corrosion resistant, improve cleanliness, have high design appeal, and can also receive a Class "A" Interior Wall Finish Application. The cons, like painted metal, are that they dent, scratch, exposed cardboard core absorbs

odors and have a limited warranty. In addition, stainless steel is more expensive than painted metal.

The bonded construction method for high pressure laminate uses high-pressure plastic laminate on the outer surfaces bonded with glue to industrial-grade wood particle board. The particle board may vary in density; three-ply, 45-pound density is best for durability and sub-surface support.

The pros of high pressure laminate toilet partitions are that they are available in many colors and patterns and are graffiti-, scratch- and dent-resistant. High pressure laminate toilet partitions are inexpensive and can obtain a Class "B" Interior Wall Finish Classification.

The cons are that they have visible brown or black edges, except with stainless steel edges, deep scratches may expose dark Kraft paper, the core material may swell when exposed to excessive moisture causing delamination, and exposed particle board absorbs odors. Also, special laminates may increase prices and lead time and have a limited warranty.

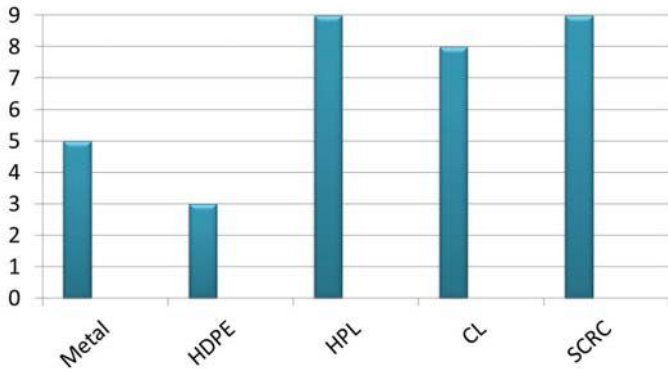
Partition materials with layered construction are known as compact laminate, also known as "solid phenolic" or "thick stock." Compact laminate is constructed of layers of resin-impregnated Kraft paper, a color or decorative sheet on the top and bottom, and over that, a clear melamine protective sheet. All of this is fused together using pressure and heat.

The pros of compact laminate toilet partitions are that they are water resistant so they can be "hosed-down" for cleaning and they are a hard material that is dent-resistant, scratch-resistant and graffiti-resistant. Compact laminate partitions are available in a wide color selection and have Class "A or B" Interior Wall Finish Classification with a 15-year warranty.

The cons are that because it is a layered construction, the black core can be exposed by deep scratches and the black or brown edges are visible.

GRAFFITI-RESISTANCE TEST, PROTOCOL ASTM D 6578

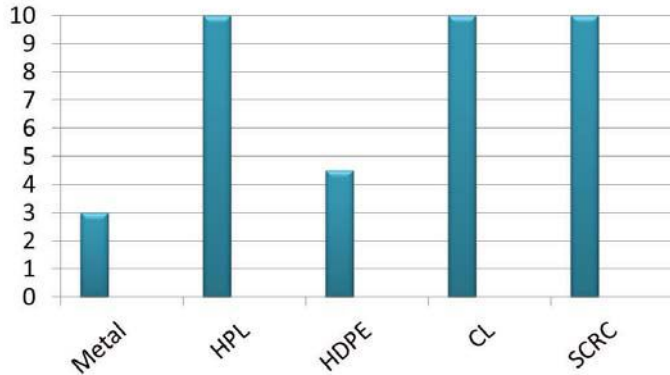
Number of Graffiti Markers Cleaned Out of 9 Marks Applied



Higher readings perform better. High Pressure Laminate (HPL), Compact Laminate (CL) and SCRC are the most graffiti resistant.

SCRATCH-RESISTANCE TEST, PROTOCOL ASTM D 2197

Weight Needed to Scratch Materials (kilograms)



Higher readings perform better. High Pressure Laminate (HPL), Compact Laminate (CL) and SCRC are the most scratch-resistant.

Homogeneous construction has the same material properties throughout the thickness of the material. A popular material with this type of construction is HDPE, which has the same material and color throughout the thickness of the partition and is made by extruding HDPE pellets into sheets.

The pros of HDPE toilet partitions are that they have a homogeneous solid color throughout and are therefore repairable so gouges and scratches can be sanded out. The material is water resistant so it can be "hosed-down" for cleaning and it has high recycled content and an extended warranty.

The cons of HDPE are that graffiti "ghosts" into the material and cannot be fully removed. It is the softest of the materials discussed so it is easily scratched and impact-resistance is low so it dents easily. To comply with 2009 and 2012 IBC, HDPE partitions must comply with the NFPA 286 Room-Corner Test.

Another homogeneous material is SCRC, which consists of a clear melamine sheet on the top and the bottom, fused under pressure to dry-formed wood chips impregnated with phenolic resin.

The pros of SCRC are that the material is a homogeneous solid color throughout and like HDPE is repairable so gouges and scratches can be sanded out. It has a graffiti-resistant surface (no ghosting) and is a hard material with high resistance

to scratches and dents. The material is also water-resistant so it can be "hosed-down" for cleaning, has Class "B" Interior Wall Finish Classification and a 10-year warranty.

Disadvantages of SCRC toilet partitions include they are only available in limited colors and the price of SCRC partitions is higher than HDPE partitions.

Performance Testing on Toilet Partition Materials

Now let's see how performance testing compares these materials. The American Society for Testing and Materials (ASTM) protocol was selected because it provides an objective, repeatable and comparable procedure to analyze the relative differences between toilet partition materials.

The Graffiti Resistance Test – Protocol ASTM D 6578 consists of preparing samples of material with marks from 9 different staining agents. After 24 hours the marks are cleaned using different cleaning methods until they are removed. The removability or non-removability of the 9 different marking agents is recorded.

Let's review this chart. Along the bottom (X-axis), are the five different partition materials tested. Along the side (Y-axis), are the number of graffiti marks cleaned.

- All 9 marks were removed from high pressure laminate and SCRC.

- 8 marks were cleaned from compact laminate, leaving one.
- 5 were cleaned from painted metal, leaving 4, and
- 3 were cleaned from untreated HDPE, leaving 6.

The test concluded that high pressure laminate and SCRC are the easiest to clean. These materials are well suited where graffiti is a problem. Note: stainless steel was not tested.

The Scratch Resistance Test – Protocol ASTM D 2197 tests the scrape resistance of coatings such as paints. In this procedure weight is added to a scraper and a material sample is dragged underneath the loaded scraper. When a scratch occurs the weight is recorded. The amount of weight is varied up to a maximum of 10 kilograms (approximately 22 pounds).

Again, the chart shows the materials that are tested along the horizontal axis and the amount of weight in kilograms it took to scratch the material along the vertical axis. High pressure laminate, compact laminate, and SCRC did not scratch with 10 kilograms of weight.

This article continues on <http://go.hw.net/AR1013Course1>. Go online to read the rest of the article and complete the corresponding quiz for credit.

DESIGN

MAKING SENSE OF MCMURDO

OZ ARCHITECTURE ATTEMPTS TO REINVENT A UTILITARIAN SCIENCE OUTPOST IN THE WILDS OF ANTARCTICA.

Text by **David Hill**

IT ISN'T EASY getting from Denver to McMurdo Station, on the southern tip of Ross Island, Antarctica. Rick Petersen, AIA, and Don Schieferecke, AIA—principals of the Denver firm OZ Architecture—made the journey last October. The first leg, Denver to Los Angeles, was just a prelude to the 15-hour flight to Sydney, followed by a comparatively quick three-hour hop to Christchurch, New Zealand. The next day, they boarded a U.S. Air Force C-17 Globemaster III transport plane that took them 2,415 miles south to McMurdo, the logistics hub of the National Science Foundation's (NSF) U.S. Antarctic Program.

The C-17 landed on a runway made of sea ice. The architects donned gloves and red down-filled parkas, hopped on a waiting bus, and 15 minutes later arrived at what is essentially a small town, with a summer (that is, October to

February) population of more than 1,000. But McMurdo is no resort.

"Your first impression," says Petersen, back in the firm's Denver office, "is that this place does not reflect well on the U.S. government. McMurdo is a \$250-million-a-year operation, and it looks like a Wyoming truck stop."

Sure, there's a 754-foot-tall mountain, known as Observation Hill, overlooking the station. And there's a 12,000-foot-tall active volcano, Mount Erebus, about 20 miles away. But McMurdo itself—which opened in 1955 as a U.S. Naval Air Facility, and since 1959 has been a hub for astronomers, glaciologists, and oceanographers studying the region's polar ecosystem (much of the research in recent years has focused on climate change)—is a jumble of aging buildings, muddy roads, imposing fuel tanks, outdoor storage piles, and unsightly overhead power lines. "Truck stop" is one of the kinder analogies used to describe the

➔ *More project images at architectmagazine.com*





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Scientists gather at McMurdo's wood-paneled coffee house, which also doubles as a wine bar.

place. Filmmaker Werner Herzog, in his 2007 documentary *Encounters at the End of the World*, compared McMurdo to an “ugly mining town.” Others just call it “a shithole.”

LIKE AN OLD shopping mall or a neglected urban neighborhood, McMurdo needs a serious makeover, and not just because of the aesthetics of the place. Last year, a blue-ribbon panel commissioned by the NSF and the White House Office of Science and Technology Policy concluded that most of McMurdo's 105 buildings are “in imminent need of repair and replacement.” Moreover, the station's “somewhat haphazard arrangement,” as the report gingerly puts it, “leads to wasted resources and also raises serious safety questions.” The panel warned that McMurdo's “atrophying logistics infrastructure” needs to be upgraded or replaced. “Failure to do so will simply increase logistics costs until they altogether squeeze out funding for science.” All of which explains the report's rather wonkish title: “More and Better Science in Antarctica Through Increased Logistical Effectiveness.”

Based on the report's findings, defense contractor Lockheed Martin, which manages the day-to-day operations at McMurdo for the NSF, hired OZ in August 2012 to create a master plan for the station. The Denver firm—with 130 employees, it's one of Colorado's largest—has a diverse portfolio, including single-family homes, condos, schools, museums, retail, resorts, and even some master plans, including one for the

city of Kigali in Rwanda. But none of the firm's projects have been located in a place as remote and challenging as McMurdo.

Petersen and Schieferecke spent two weeks at the station, getting the lay of the land and meeting with department heads, scientists, and grunts. They were escorted by a Lockheed Martin senior project manager named Brandon Neahusan, a bearded, 37-year-old McMurdo veteran who lives in Denver and goes by the nickname Shaggy. “We weren't shy about connecting with other people,” Petersen says. “That's our nature. It was fun and fascinating.”

The architects slept in a windowless room in one of McMurdo's dingy-looking dorms, sharing cramped quarters with a meteorologist who was headed to the NSF's South Pole Station, three hours away by plane. They ate spaghetti and meatballs in the “galley,” McMurdo's crowded dining hall, and drank bottles of Sierra Nevada Pale Ale at Gallagher's Pub and Southern Exposure, the station's two bars. They sipped lattes in the wood-paneled coffee house (it doubles as a wine bar), staffed by volunteer baristas. Petersen even got to spend some time in the field with a group of scientists studying the effects of changing ocean acidity on sea urchins.

Much of what the Denver architects saw at McMurdo confirmed the findings in the blue ribbon report. The station has grown in fits and starts over the years, with new construction based largely on whatever funds happened to be available at the time. So, for example,



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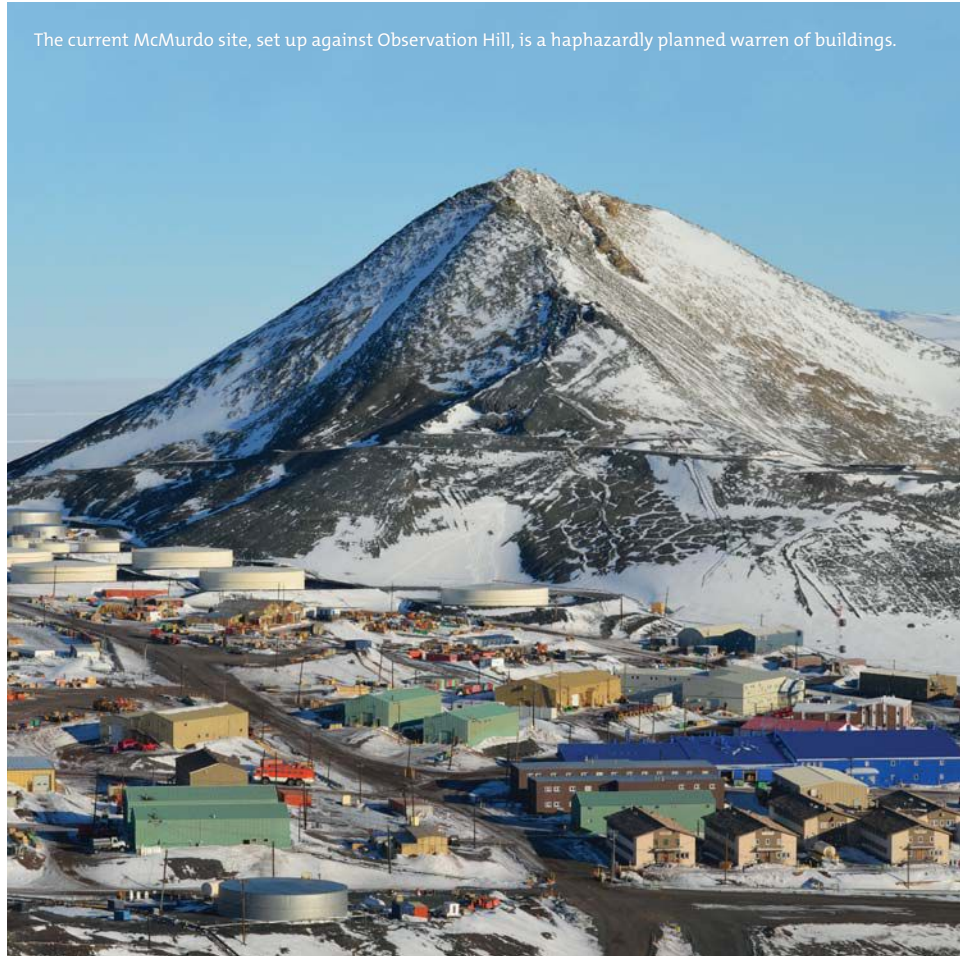


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The current McMurdo site, set up against Observation Hill, is a haphazardly planned warren of buildings.

instead of one large supply warehouse, there are 22 scattered all over the place. Many of the buildings are barely insulated, a surprise given McMurdo's cold temperatures—which get to be as low as minus 50 degrees Fahrenheit in the winter months, when the population drops to about 150 people.

Wayfinding is difficult, with minimal signage and confusing terminology. “And there are 10 names for every building,” Neahusan says. “Say, the Carpenter Shop. It could be Building 191, it could be the Carp Shop, or it could be the Foldaway.” McMurdo's many outdoor storage yards and untidy overhead power lines contribute to what Petersen calls “visual clutter.”

Then there are McMurdo's quality of life issues. On the one hand, Petersen says, “There's a richness and vitality to the place. When people are down there, it gets in their blood. It's a real tight-knit community. Even if it looks like hell, it has soul.” And Neahusan agrees. “The sense of community is astounding,” he says. “It's entirely possible to sit down and have a beer with a physicist, a carpenter, and a cook. You make lifelong friends at McMurdo.” (And life partners, too; Neahusan met his

wife at the station. “It is an incubator of love down there, my friend,” he says with a knowing smile.)

But privacy is hard to come by, and options for recreation are limited. McMurdites, as they're called, live in dorms—three or more people per room—with communal bathrooms on each floor. There's a gymnasium with a basketball court in an old Navy Quonset hut, and a weight room in another. But McMurdo's library is “insufficient,” Petersen says, and the yoga room is “crappy and cold.” For some reason, the station has a lively music scene, culminating in the annual New Year's Eve Icestock outdoor music festival. But practice rooms are booked solid, sometimes throughout the night.

“We're not operating a hotel,” says Brian Stone, director of Antarctica infrastructure and logistics for the NSF's polar programs. “We're operating a research facility.” But morale is definitely an issue at McMurdo, and the need for privacy in such close quarters remains a major concern. “It makes a huge difference to people when they're in a remote situation to have some private space that they can go to,” Stone says.



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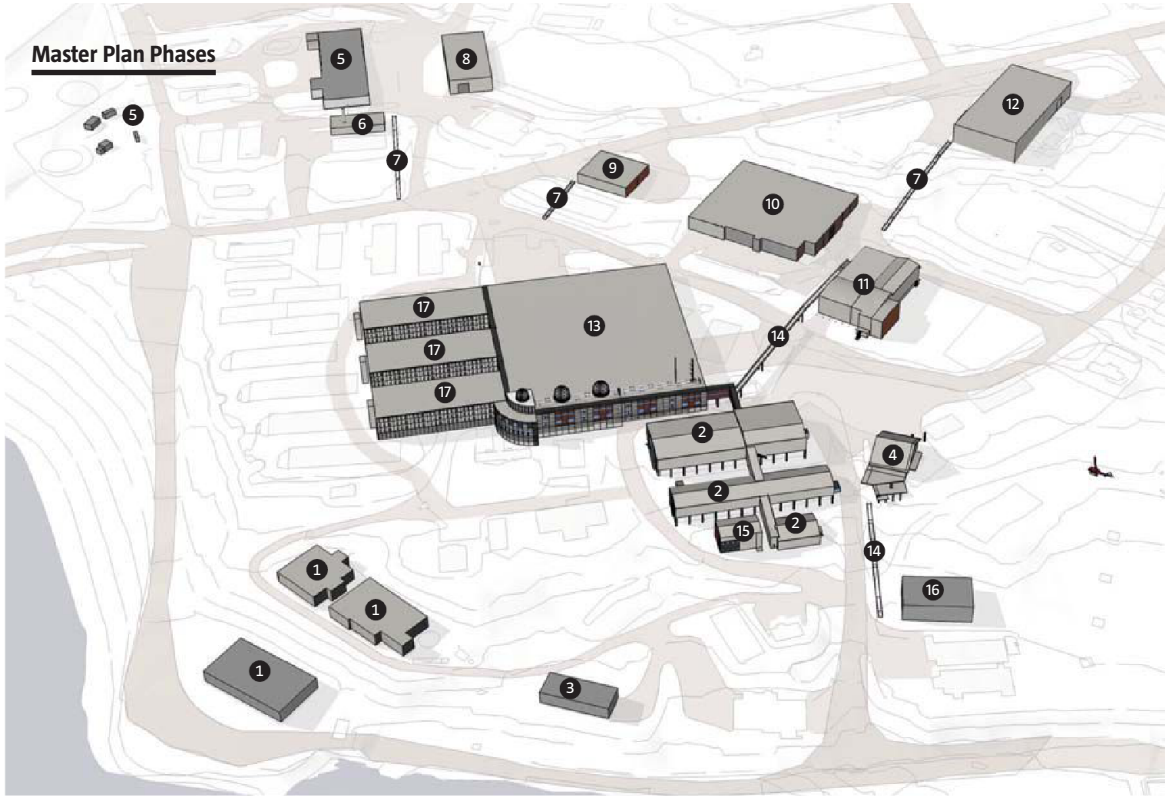
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Master Plan Phases

Existing

- 1. Waste/power/water
- 2. NSF/Crary lab
- 3. Air guard supply
- 4. Coffee house

Phases 1–5

- 5. Vehicle maintenance facility (VMF)/traverse ops/fuels/fleet ops
- 6. Waste/power/recycling
- 7. Structured walkway
- 8. VMF storage in winter; traverse work center in summer
- 9. Fire station
- 10. Utility technician/carpentry shop/trades warehouse
- 11. Administration/medical
- 12. Cargo center/Berg field center/science cargo

Phases 6–8

- 13. Central services/administration/operations center/warehousing/food and central storage
- 14. Elevated walkway and structured walkway
- 15. Science support staging
- 16. Helo hanger/passenger terminal (PAX)/dive locker

Phases 9–11

- 17. Housing

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CENTER

A scientist walks towards McMurdo's runway, for planes, made of sea ice.



OZ'S MASTER PLAN greatly reduces McMurdo's footprint. Instead of 105 buildings, there will be just 17. Many of the older buildings' functions will be consolidated in a new central services and administration center, which, at final buildout, will contain NSF offices, a kitchen, a dining hall, a bar, a gym, a library, a store, dormitories, lounge areas, and a central supply warehouse. The "Chalet," which resembles a 1970s ski lodge and currently houses the NSF's offices, will become McMurdo's new coffee house, replacing the leaky Quonset hut that holds the existing one.

One goal of the plan is to reduce the amount of time that McMurdo's residents spend outside, walking or driving from one building to another. "Now," Schieferecke says, "you have to put your boots and coat on just to go eat breakfast." And Petersen adds: "There are some benefits to getting out, but you pay for it in efficiency and safety. If you're out walking in a blizzard, you're going to get lost or trip on something. Ideally, residents should be able to do most of what they need to do in slippers."

Dorm rooms will be single occupancy—about 6 feet by 10 feet—with some that can be converted to doubles for couples. "That

sounds very small, and you'd think it would be claustrophobic," says Neahusan, who's slept in similar rooms at the NSF's South Pole Station, which several years ago underwent a significant modernization by Honolulu's Ferraro Choi and Associates. "But that is your cocoon, that is your space. And it is absolutely the bee's knees. Sometimes all you need is a slice of silence."

The plan also includes a new fire station, medical center, and cogeneration plant, which will enable much of McMurdo's detritus—wooden pallets, cardboard boxes, and the like—to be recycled into fuel. Power lines will be buried, signage will be improved, and walkways will be separated from roads. OZ puts the price tag for the entire project at \$150 million, with demolition and construction done in phases over a 12- to 15-year period. "But it could be a lot more," Stone says.

The plan's phasing is important, Petersen says. For one thing, you can't just bulldoze the place and start from scratch. The NSF has stipulated that McMurdo's operations must remain in effect during any demolition and construction, which can only be done from October to February. Further, nearly everything



Project Profile

An award-winning roof that will stand the test of time

Metal roofing is a superior choice for long-lasting performance that can be relied on for years to come. When a leaking roof needed replaced at East Lake High School in Tarpon Springs, FL, the best choice proved to be one from Drexel Metals with a TRINAR® Slate Blue finish.

The standing seam panels feature a continuous interlocking design with concealed fasteners and clips, allowing for easy installation and natural expansion and contraction. The choice of this roofing system resulted in significant cost savings, through quicker installation and by being able to reuse elements of the previous roof. The architect's choice was recognized with an award from an industry association in Florida for the substantial savings in tear-off and disposal costs.

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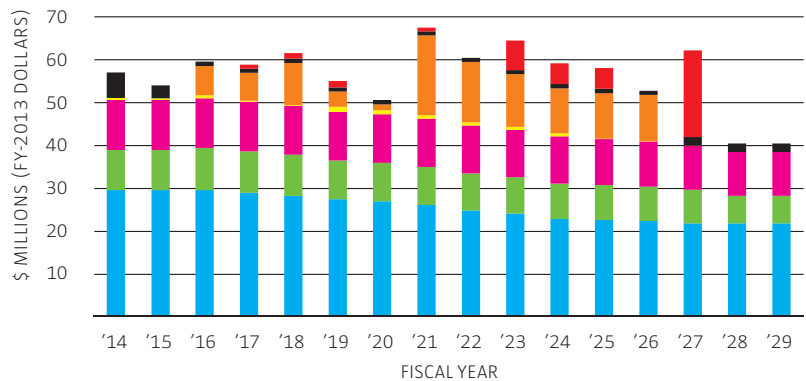
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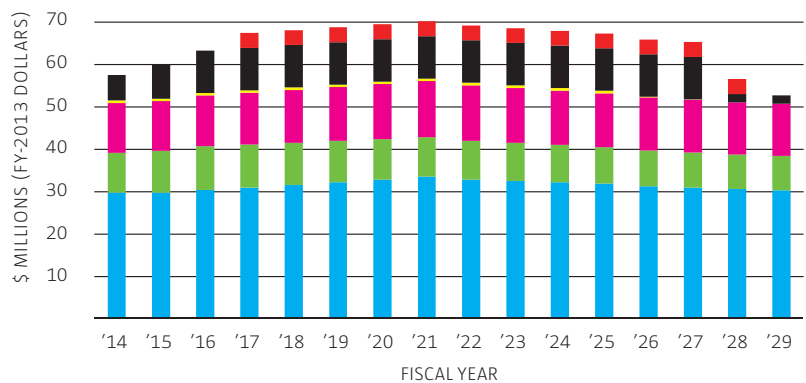
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CENTER

Master Plan Approach



Maintenance and Repair Approach



- Demolition
- Other projects
- Master plan projects
- Design
- Equipment and materials
- Energy
- Personnel

The projected costs of OZ Architecture's master plan for reinventing McMurdo, compared to the projected costs of simply repairing and replacing aging buildings without making significant changes to the site footprint.

at McMurdo is brought in by cargo ship once a year, and that applies to construction materials. (Everything has to fit inside standard shipping containers.) There's also a limit to how many construction workers can be accommodated in McMurdo's already crowded dormitories.

Then there's the tricky matter of paying for a McMurdo makeover. The NSF is funded annually by Congress, so any money for new construction will have to be part of the always-contentious federal budget process. The NSF's \$7.62 billion budget request for the 2014 fiscal year, which began Oct. 1, is part of President Obama's overall spending plan, which he submitted to Congress in April. It includes a modest \$2 million to pay for a new cargo center for processing equipment, food, and shelter for scientists headed to the field. With some predicting a federal budget battle that could last for months, it's unclear when—or if—the

NSF's budget will be approved.

"We're hopeful that our budget request will come through," Stone says, "and we'll start to see some funding so that we can move forward." OZ's phased plan will serve as a roadmap for future annual budget requests. But some of the plan's recommendations could be carried out "creatively," Stone adds—that is, without new money.

Whatever happens next, Petersen, Schieferecke, and their OZ colleagues are itching to be part of McMurdo's overhaul. The firm is hoping to win the contract to design at least some of the station's new buildings, starting with the new cargo center. Construction could begin as early as 2015.

"I see this project as a career highlight," Petersen says. "It's an opportunity to really transform a community, and the setting just blows your mind."



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Presents:

The Great Office Awakening Why Flexible Spaces and Workstation-Centric Lighting Options Are Catching On

By: Kathy Price-Robinson



Studies show that office workers perform better and with greater feelings of well-being when they are given personal control over their workstation lighting. Freestanding luminaires, wirelessly connected devices, and other high-tech strategies make that possible.

“Do you offer a good pension? Do I get paid holidays? Is my job secure?” Decades ago, questions like these loomed large on workers’ minds.

Today, especially for the highly sought-after knowledge worker, those concerns have expanded:

“Am I satisfied? Am I productive? Do I feel good and healthy at this place?”

Companies who want to attract and retain the best minds must consider their employees’ workplace well-being or suffer the loss to a company who does.

Space planning, flexibility, and personal control over the work environment, including lighting, are of particular importance in the new office environment.

“For businesses to succeed in the future they are going to have to adapt to the needs of Generation Y and that will often mean offering them more flexibility,” wrote Rowan Trollope, a Cisco senior vice president and general manager of the company’s Collaboration Technology Group.

According to the Cisco Connected World Technology Report, Trollope wrote in the company’s Collaboration blog, “66% of employees place higher value on workplace flexibility than on salary.”

The impact of workspace on worker satisfaction and productivity is recognized from the private sector to the public realm.

“Research shows that the work environment has a substantial effect on the productivity of workers,” states a report from the U.S. government’s General Services Administration (GSA), which manages government facilities worldwide.

“It is obvious,” the report stresses, “that people who are constantly uncomfortable, or have to continually interrupt their work to make themselves comfortable, will be less productive than those who don’t have to deal with such distractions.”



Credit: AIA/CES 1 HSW LU

Use the learning objectives to the right to focus your study as you read this article.

To earn credit and obtain a certificate of completion, visit <http://go.hw.net/AR1013Course2> 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.

LEARNING OBJECTIVES

By the end of this educational unit, you will be able to:

1. Describe how space and light impact employee workplace behavior, satisfaction and health
2. List the opportunities for increased efficiency through lighting
3. Explain the benefits of flexible lighting for progressive workspaces and employee well-being
4. Discuss the advantages of pendant, task and free-standing luminaires for workstation-centric lighting solutions in new and existing interiors

The goal of this article is to describe the impact that space, sound and light have on employees' work experience and well-being, and to delve specifically into the benefits of flexible, workstation-centric lighting for both employee satisfaction and the company's bottom line.

SPACE

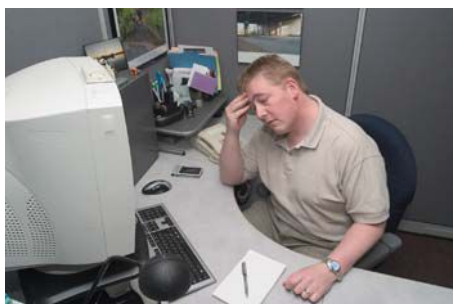
When Yahoo's new CEO Marissa Mayer called for an end to telecommuting early in 2013, the change in policy sent shock waves through the IT world, where telecommuting has become many companies' juiciest perk. Mayer, whose previous tenure at Google helped make it what many consider the best workplace in the world, acknowledged in a statement "people are more productive when they're alone." But she went on to emphasize that "they're more collaborative and innovative when they're together."

Rather than allowing employees to escape the structured office environment for a more comfortable and flexible setting at home, perhaps the office environment itself needs to become more comfortable, flexible and user friendly?

1950s



1980s



With flexible spaces and work schedules, some employees may be working at night or early in the day or even on weekends. Wirelessly connected luminaires with sophisticated technology can light the worker's area and switch on neighboring luminaires in adjacent areas at lower intensity to prevent the disconcerting "island effect" that a single light can bring. More benefits of this technology will be discussed further in the course.

Present



EVOLUTION OF OFFICE SPACE

In the 1950s and before, the focus was on efficiency. Open plan offices mostly consisted of large rows of desks or benches where clerks, typists, or technicians performed repetitive tasks.

Such designs were rooted in the work of industrial engineers or efficiency experts such as Frederick Winslow Taylor and Henry Ford.

From the 1960s through the 1980s, cubicles and "cube farms" took over with the goal to isolate office workers from the sights and noises of an open workspace. Studies suggested that the open environment from the 1950s actually reduced communication between employees, and impeded personal initiative.

By the 1990s, studies found that isolation no longer served its purpose and in fact 60% of designated office space was vacant during the work day, with workers moving around the building for meetings, brainstorming, collaborating, and socializing. This has led to an evolution of worker space from 90 square feet of office space in 1994 to 75 square feet in 2010. The walls have come down to maximize real estate and to encourage collaboration over independent work. As an example, Yahoo's new CEO Mayer points to the newly-launched Yahoo Weather app for IOS, based on an idea originated by two software engineers who work in the same office.

Case Study: Cisco Connected Workplace

For knowledge workers, the opportunity to collaborate and exchange ideas is critical. IT giant Cisco found that cubicles and offices often stood vacant while meeting rooms were in short supply.

The solution? They set out to design the “connected workplace,” where employees can choose where to work throughout the day, enabled by mobility and laptops and other communication tools.

Originally, Cisco workspaces were designed with the assumption that employees needed a dedicated desk, wired PC and phone.

In the analysis, the Workplace Resources design team discovered that employees wanted:

- Completely wireless environment to enable mobility
- University theme with quads, plazas, common areas, as well as enclosed offices
- No cubicle walls, which means more natural light throughout the building

The new plan calls for collaborative open, collaborative semi-enclosed, collaborative enclosed, multi-purpose and quiet areas. This allows workers to move throughout the building as their needs dictate.

In the end, 140 employees can now work comfortably in the space where 88 could work in a traditional workplace design. Employees report greater satisfaction with their workplace, and increased collaboration. The company benefits with reduced real estate costs cut by 37 percent and reduced infrastructure costs, the latter resulting from a wireless infrastructure, less cabling and fewer \$200 wall jacks in each office.

FIVE TYPES OF SPACES

For the flexible office, five types of spaces give workers the right environment for the type of work they need to do at any given time of day:

Focus — Space to concentrate without distractions of noise and community



Collaboration — Spaces to brainstorm and create without impacting neighboring areas



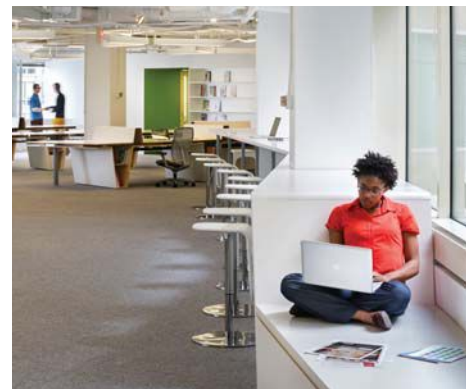
Cluster — Spaces for meeting without need for privacy



Social — Spaces to connect and be social with co-workers



Quiet — Area to reflect without interruption



(Credit: Peter Aaron, Hanley Wood)

Questions to Ask When Designing an Open Office

1. Do I want to encourage transparency and camaraderie?
2. How do I provide privacy when necessary?
3. How much space do I really need?
4. What if some people often work from home?
5. How can I make my space flexible?
6. How do I make my reception area warm and welcoming?
7. What do I want my office space to say about my company?
8. What kind of employee behavior do I want to encourage?
9. Do I have comfortable places for employees to socialize and relax?
10. How do I make the space as green as possible?

Source: Entrepreneur Magazine

But while the repurposing of functional office space is undergoing a massive transformation, the impact of sight and sound are often overlooked in this process. The same way lighting design is used to illuminate areas, consideration of sound management is important as well.

We'll take a new look at sound first, and then delve deeply into lighting.

SOUND

How important is sound to employees? A study by the American Society of Interior Designers found that 70% of office workers claim they would be more productive if their offices were less noisy.

In an open office with spaces dedicated to focus time, unwanted noise can be a problem and work against the purpose of these spaces.

There are three ways to handle excess noise, which can be broken down to A, B and C:

Absorb — Absorptive materials reduce sounds bouncing around an area
Block — Physical barriers lower sound volume as it travels to different areas
Cover — Make overheard noise less distracting

Popular options for unwanted sound include:

- **Panels** – Acoustical wall and ceiling panels absorb sound in space. Wall and ceiling panels are available in many sizes and styles. Panels can add an aesthetic design element as well.



Image courtesy, Audimute Acoustic Panels

- **Acoustical Ceiling Clouds** – These are panels suspended horizontally. These are more acoustically efficient than most

ceilings. The addition of acoustical ceiling clouds can be subtle and unobtrusive and also become an artistic focal point.

- **Insulation** – Insulation materials act like a sponge to help absorb sound energy. Dense mineral wool insulation provides optimum sound performance. Typically insulation is installed within walls. When sound waves encounter the insulation, they are partially deflected by the insulation density and partially absorbed by interconnecting air pockets.
- **Sound Masking** – An electronically produced sound – like soft airflow – is evenly distributed to eliminate awareness of distracting noise. Sound masking is ideal for open office environments where it's easier to overhear conversations, which is distracting. Even too little sound can be an issue for workers.
- **Canvas system** – A high-tech solution to unwanted sound in an open office environment is a canvas "sail" system. Offered in concert with freestanding luminaires, we will discuss these later in this article. The white, dynamically curved canvas system attaches to the luminaire, and absorbs and blocks sound transmission. Plus, they direct light from workstation-centric luminaires back down to the workspace and block unwanted light from ceiling fixtures. They create a more comfortable atmosphere, particularly in spaces with higher ceilings.



LIGHT

As the spatial flexibility of office space has undergone astonishing transformation in the past decades, the lighting of those spaces remains stuck in the dark ages. Even the most progressive office space can still be burdened by banks of ceiling lights that offer the worker – the most important and most expensive element of most businesses – little control over the type and quality of light they must endure every day.

"One of the problems we, as safety professionals, see in an office environment is that employees tend to accept what they are given," says Jeff Tiedeman, an ergonomics consultant with State Fund, the largest provider of workers' compensation insurance in California.

"Their workstation may be initially set up by a systems person who knows relatively little about ergonomics," Tiedeman continues. "The new employee sits down at their workstation, often not really understanding why the equipment is arranged and adjusted the way it is, but taking for granted that it's that way for a reason nonetheless. This often results in the new employee immediately forming some bad habits. In an effort to see around the glare on their screen, they may crane their neck or contort their body into various awkward postures."

Plus, a person's need for light increases with age and the sensitivity to glare grows. The eyes lose their permeability with increasing age; the average pupil width decreases for the same brightness level. A 60-year-old employee requires double the light as his or her 20-year-old colleague. Even employees older than age 35 have a greater need for light than 20-year-olds.

Some typical symptoms directly attributable to poor lighting include:

This article continues on <http://go.hw.net/AR1013Course2>. Go online to read the rest of the article and complete the corresponding quiz for credit.



A STUDENT CENTER TUCKED INTO AN EXISTING COMPLEX GIVES A GERMAN SCHOOL ITS FIRST TASTE OF NEW DESIGN IN A HALF CENTURY.

ECKENBERG GYMNASIUM



Text by **Katie Gerfen**
Photos by **Brigida Gonzalez**

NORMALLY, A PORTFOLIO of repeat work for a client is a big advantage going into a design competition. But in the case of Buchen, Germany-based Ecker Architekten and the new student center at Eckenberg Academy, it almost kept them from getting a seat at the table. “It’s not easy to start an office again after transferring it to another continent,” says partner Dea Ecker of the move her firm made from Chicago to Germany in 2000. “We did relatively bread-and-butter work,” she says, including fire-code renovations for Eckenberg’s 11-building campus in Adelsheim, Germany.

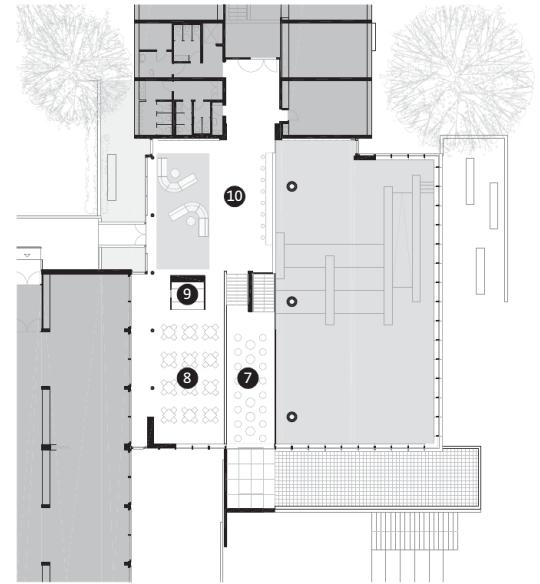
The school’s drab cementitious-panel-clad boxes have not been added to since being built in the mid-1960s. So when the news went out about a commission to design a new auditorium and student center, Ecker wanted in. “It’s actually tricky to convince a client that you are the person to design their once-in-a-generation new building if you’ve been doing their fire doors,” says partner Robert Piotrowski. “You have to reintroduce yourself.”

Luckily, there was a portfolio of camera-ready work at hand: The firm started in Chicago in 1997 after Ecker and Piotrowski had worked at (and lost jobs at) large firms and decided they needed a change. “We laugh about it because you notice that you’re working so independently that no one can take you in a regular office anymore,” Ecker says. Early work included the corporate headquarters for Chicago furniture manufacturer Holly Hunt, which the duo completed before deciding to relocate their practice to Ecker’s native Germany. Ecker, who came to the U.S. on a Fulbright scholarship, actually was required to move back as a cultural ambassador. “She brought an American back with her,” Piotrowski says—the two had been married in Chicago.

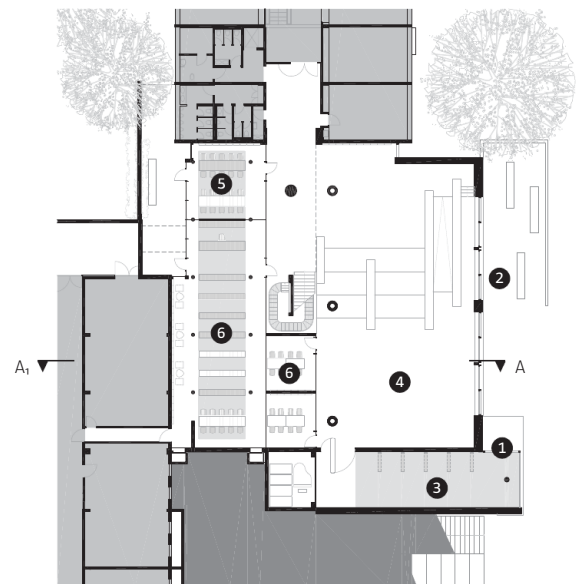
Ecker and Piotrowski maintain a multicultural office that focuses on education work, including several recent projects in Germany which caught the eye of the state government running the Eckenberg project. But ultimately, as with any commission, winning came down to finding a rapport with the client. The architects built a particularly strong relationship with the school’s director, who was the driving force behind the project. “He noticed that there was no place where the students could gather,” Piotrowski says. In this client champion, they found an ally who allowed them the freedom to create a 10,704-square-foot structure that serves as a new hub for the campus.

In fitting with its midcentury-modern context, the new building is quiet on the outside—a deceptively simple glass box—but its interior introduces a new generation of design for the school. The main space is a double-height assembly hall that can accommodate up to 300, and the facility also incorporates a library, multipurpose study rooms, a café, and a student lounge, all housed under a not-so-quiet, 25-meter-square, poured-in-place concrete roof, inset with circular coffers and acrylic domed skylights. “We left all the fireworks for the inside of the building,” Piotrowski says. And, of course, all of the fire codes are up to date.

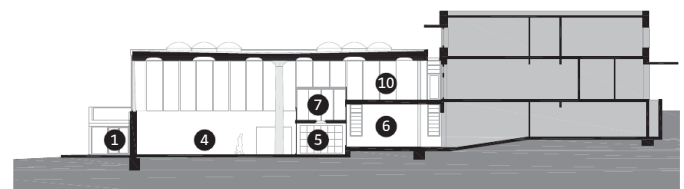
Second-Floor Plan



Ground-Floor Plan



Section A-A₁



- | | |
|----------------------|---------------|
| 1. Main entrance | 6. Library |
| 2. Terrace | 7. Bridge |
| 3. Foyer | 8. Café |
| 4. Assembly hall | 9. Food kiosk |
| 5. Multipurpose room | 10. Lounge |





Opening spread: The interior of the addition connects various levels of the surrounding buildings. A walkway overlooks the assembly hall on one side, and the student café, with its yellow twin chairs from Brunner, and library, on the other. Circular floor lights mimic the coffers and skylights in the concrete ceiling. **This image:** As seen from the floor of the assembly hall, multipurpose study rooms are tucked into the void beneath the walkway.



The entire 25-meter-square concrete ceiling was poured in place in a single session on “a very cold day” in the middle of winter, Ecker says. The architects originally considered other materials—wood and metal among them—but eventually Ecker suggested concrete. “That’s kind of the way our office works,” Piotrowski says. “I’m constantly involved in the really fine details of what we’re doing, and Dea comes and shakes things up and will think about things a little differently.” The walls of the structure are also formed from concrete—its high flyash content gives it the white color—and the floors are terrazzo, so even though the tones are very light, they can take the wear and tear of hundreds of high schoolers. “We find that if you use true materials, and you leave them exposed, there’s not really much that can happen to them that you cannot remove,” Ecker says. The benches in the main assembly hall are also made from concrete, and were cast with formwork from Max Frank.







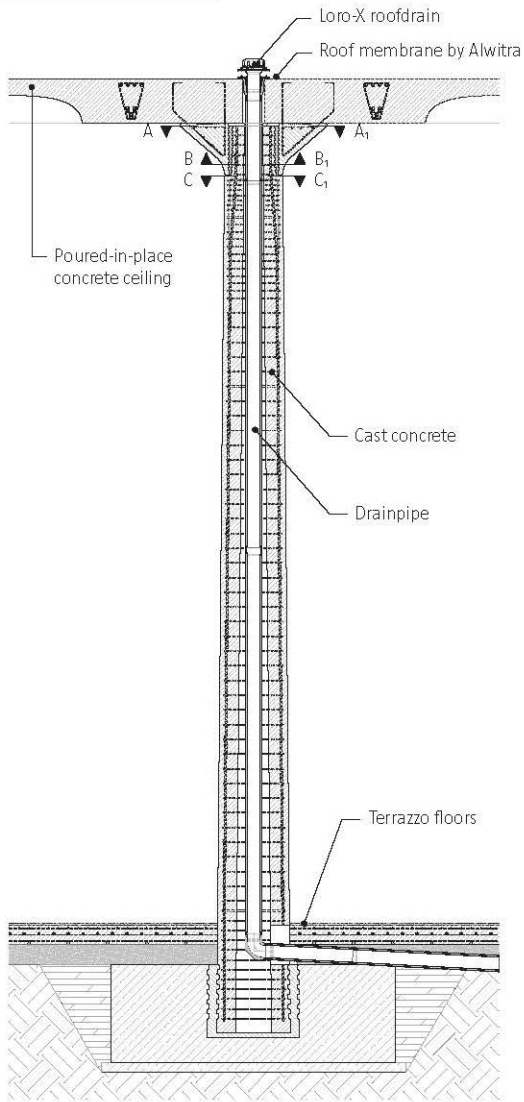
Left: Throughout the concrete-and-glass interior—in the assembly hall, the library (shown), and the multipurpose rooms—the architects used Soundwave Swell modular acoustic panels from Offect to dampen sound. Designed by Teppo Asikainen of Helsinki-based Valvomo Architects, the panels are formed from molded recyclable polyester fiber and covered in Europost fabric from Gabriel. The library stacks, manufactured by Bruynzeel, are starkly white in keeping with the building’s overall aesthetic.



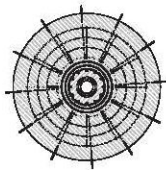
Above left: Library reading tables overlook the multipurpose rooms on the ground floor and the bridge leading to the café on the second floor. The glazing is from Balardo. Here, and in other study spaces, ceiling panels from Heraklith further dampen sound.

Above right: In a second-floor lounge next to the student café, carpet from Forbo helps soak up even more noise. The architects knew that acoustics would be a concern in a largely open interior of glass, terrazzo, and concrete. “But when you have a gathering of 300 people, clothes [absorb a lot of noise],” Piotrowski says. And the clients are comfortable with the fact that the addition still requires some fine-tuning. “They understand that having a brand new building, the first in 40 years, takes a little getting used to,” he says, so it’s not a process that they are accustomed to. But it is one that is welcome: “They have a little influence,” Ecker says.

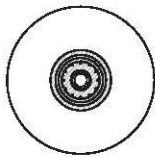
Vertical Column Section



Column A-A, Section



Column B-B, Section



Column C-C, Section



The exterior incorporates an aluminum rainscreen from Kalzip and a curtainwall from Schüco. Ecker describes the existing 11-building, 1960s complex as “well-built, but quiet,” in an aesthetic worth respecting. “We found that we could reinterpret that on the outside,” Ecker says. Visible through the high-efficiency glass from Glas Trösch is the main assembly hall and its three rotationally cast concrete columns that support the mass of the concrete ceiling.





Metalsa

METALSA CENTER FOR MANUFACTURING INNOVATION

BY BLENDING THE NATURAL WITH THE INDUSTRIAL, LOS ANGELES-BASED BROOKS + SCARPA ARCHITECTS HAS CREATED A 102,000-SQUARE-FOOT COMPLEX IN MONTERREY, MEXICO, FOR THE MAKER OF A PRODUCT NOT OFTEN IN THE SPOTLIGHT: THE CAR CHASSIS.

Interview by **Mimi Zeiger**
Photos by **John Edward Linden**

How did this project happen? Why is an L.A. firm building in Monterrey?
Lawrence Scarpa, FAIA: They called us. They solicited us out of the blue and they also contacted other firms. They've never told me exactly who, but they said that they had five architects from around the world that they had short listed for the project, so we happened to be one of those five.

Was there a criteria for what they were looking for?
They were looking for someone who could do a building that would be a model for sustainability—that turned out to be a big part of their agenda.

How is it that a metals company is interested in sustainability?
They manufacture automotive chassis, primarily. They work for almost every major auto manufacturer in the world and they specialize in trucks and heavy trucks, so they do chassis for every company. Ironically, they also do the Corvette chassis and the Dodge Viper chassis. So they're very interested in a lot of businesses, of showing that they are providing some leadership with the environment and other innovative ways to do things.

This new building, this is where they do research?
Yes. Right down the road, they have a plant that is several million square feet, but this area is what they call the Pit, which was started by the government. It's a state-run research park—Mexico's version of Silicon Valley, but for the manufacturing sector. It's by the airport, and the two major technical universities in Mexico opened campuses there. In the Metalsa building, they have a specialized research team, 25 people or so, and they do metallurgy testing and test new parts of their production line. They'll work on something, sometimes for six months, a year, two years, and then break it down and re-setup to do different kinds of research. It's real heavy muscle stuff. They also have a lab where they can do more delicate testing.

So there's intense collaboration in the building and hands-on testing. How does a structure begin to take form out of these programs?
It is really interesting, because the people who work in the manufacturing lab, who get a lot of grease on them, have a different security level than other people who are in the research labs—I guess you could separate

them as white collar and blue collar. So we do have security zones. But it was really important to stitch those together, so we did it visually. Physically they are connected as well, but the connection goes through a second floor, so it's a controlled process—someone can't just wander into their space and start looking back into where they're doing the testing.

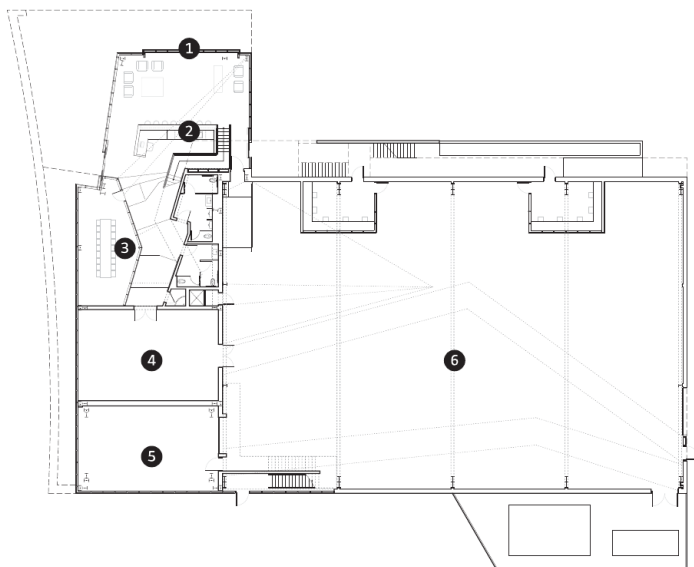
How did the perforated skin and the dynamic form come about?
I always liked the old warehouses and the sawtooth roofs with the north-facing clerestory—they're incredibly beautiful and raw. And the client is that kind of outfit. They produce things in a big warehouse environment, so I wanted to capture that spirit. And when I went to Monterrey, I was really struck by the mountains there; they're pretty incredible—super steep, and sharp, and jagged. So I thought, could it be a blend of those things? So our clerestories change shape and are different heights, they make it more dramatic in terms of the form and how the light comes in.

The sustainable focus, including the daylighting, resulted in LEED Platinum certification. What does it mean to be LEED Platinum in Mexico?
It's very similar to the U.S., but there isn't a demand for it. Mexico reminds me a lot of when we started doing LEED here, prior to 2000. There just are not people there who care or know how to do it. It takes a lot of hand-holding to get there, and there are very few LEED consultants in Mexico. So it takes a lot of work. It's become pretty mainstream in the U.S.—builders tend to follow instructions and get it done. There, it's still in its infancy.

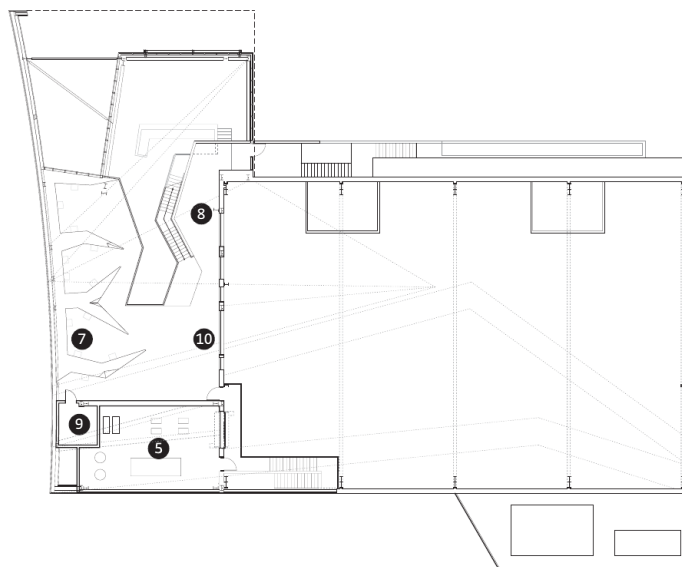
What's it like working in Mexico, especially on a building of this scale?
We had what turned out to be a great project manager that Metalsa works with, and he had spent some time in Texas doing similar stuff, so he was incredibly enlightened. But you don't know what you're going to get, and I think what I've found, working in some other countries, is that they make decisions not like we do here, to make it cheaper, but because they think it's the right decision. For example, the concrete on the building. They did intricate form work, which I really don't like. It was very expensive for them to do that, but they thought it was an enhancement. I would have done something much simpler, much less costly, that would have been a



Ground-Floor Plan



Second-Floor Plan



- | | |
|--------------------|------------------------|
| 1. Entrance | 6. Warehouse |
| 2. Reception/ Café | 7. Office |
| 3. Conference | 8. Client meeting area |
| 4. Laboratory | 9. Audio/Visual |
| 5. Mechanical | 10. Viewing area |

lot better. But because you have to work with local people there—at least with the level that our firm is at—we can't quite demand full control of everything, so we have to rely on our partners to do things properly, without our involvement. So the control is not there.

How do you feel about relinquishing that kind of control?

I don't like it, but I was very surprised in a lot of ways on this project because it was done far better than I anticipated and overall it turned out well. But there are many things I would do differently. It is hard. I'd like to eventually get more control over those things.

Is sustainability something that you want to work with in each building or do some buildings not lend themselves to it?

We do that for every building, but I don't believe it's a design concept. It's really just a question of ethics. I would argue that a building that's an energy hog that everyone loves is more sustainable than a zero-energy building that nobody likes. We've had clients who could care less about it, and they get it anyway—they just don't know it. I kind of see it like ADA access, you just do it. I think sustainability is worth celebrating. I just don't think it should be celebrated as an accomplishment.

Do you approach each building like a tabula rasa, or are there certain techniques that you want to explore progressively with each project?

We try to make the building unique to the client and the site. I've always vowed never to plagiarize myself, but inevitably you can't help it in some ways. But I have a wide range of interests; we are always trying something.

Where do you see this project fitting into the overall firm philosophy?

Well, we'll do a doghouse if you let us do it well, so in that respect, almost anything fits into our philosophy. It's clearly a different building type for us. I guess we try pretty hard not to be stereotyped, and everyone wants to stereotype you. It's a tough model in today's world because everyone wants specialization. So we struggle with that a little bit, but Thom Mayne once told me, "Just keep at it and you get enough different buildings, people will realize that you can do just about anything."

Previous Spread: The jagged roofline of the Metalsa facility was inspired both by the surrounding mountains and the classic sawtooth profile of industrial warehouses. The clerestories incorporate a curtainwall system from U.S. Aluminum. **Opposite top:** Glazing from PPG encloses public areas, and the rest of the structure is clad in a Galvalume skin, which is perforated on the west and south façades. **Opposite bottom:** Light-colored roofing from CertainTeed helps reflect daylight into the north-facing clerestories.

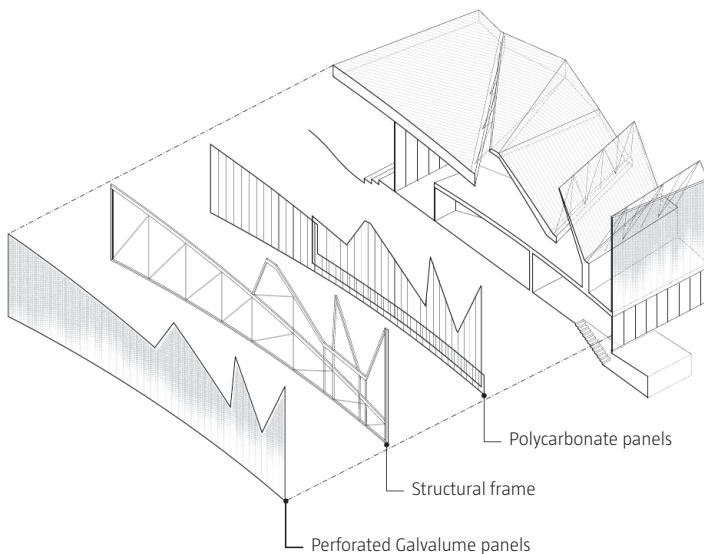
TOOLBOX: PERFORATED SKIN

Brooks + Scarpa is known for working sustainably—an ethic, not a design philosophy, according to principal Lawrence Scarpa. In Monterrey, Mexico, the firm's ethos translates to a perforated metal skin that clads the west and a portion of the south façade of the Metalsa Center for Manufacturing Innovation. By filtering the amount of light hitting the interior, the screen lessens the direct solar gain on the building and keeps workspaces thermally comfortable for Metalsa employees.

Made out of 75mm-thick Galvalume (aluminum-coated galvanized metal), each of the 975mm by 2,875mm panels is perforated with a pattern of graduated circles. By placing larger, 200mm-diameter circles toward the sawtooth roof and the smaller, 50mm-diameter ones closer to work areas on the second floor, the design not only controls light and creates a decorative motif, it also limits views into research areas, thus protecting proprietary trade secrets.

Metalsa manufactures automotive and heavy truck chassis, so the architects originally planned to have the perforated screen fabricated in one of the company's plants. However, Metalsa's production line runs 24–7, so shutting down for even a few hours to produce the skin proved prohibitively expensive. Instead, the panels were water-jet cut in a nearby fabrication facility where the architect and contractor were able to mock-up prototypes and test the design performance.

Exploded Diagram of Skin

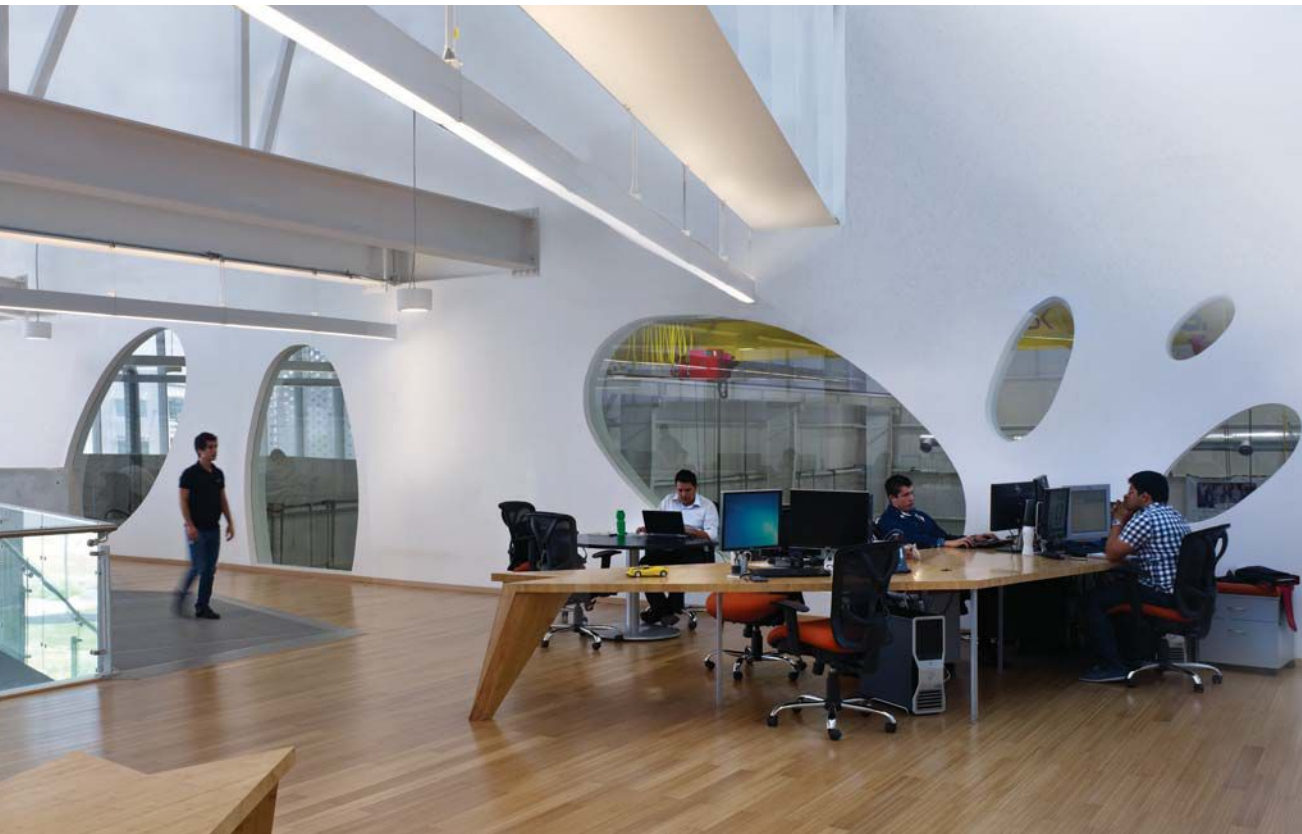


A large overhang shields the glazed double-height entry volume, where a café greets visitors instead of a traditional reception desk. A bioswale, aided by stormwater systems from Stormwater360 and Contech Engineered Solutions, helps mitigate site runoff.









Far left: A metal stair leads from public areas for client meetings on the first floor to the proprietary research zones on the second. **Left:** Oval windows in the research offices, which are outfitted with desks designed by Brooks + Scarpa, overlook the manufacturing lab high-bay space next door, allowing visual connections between the teams. **Below:** Daylight is brought into the manufacturing lab via Solatube skylights.



WEEKSVILLE HERITAGE CENTER

A BROOKLYN CULTURAL CENTER DESIGNED BY CAPLES JEFFERSON ARCHITECTS
CELEBRATES A FORGOTTEN FARMING VILLAGE BUILT BY EMANCIPATED SLAVES.





Text by **John Morris Dixon, FAIA**
 Photos by **Nic Lehoux**

AN ENHANCED UNDERSTANDING of African-American history and culture in New York City is bound to emanate from the Weeksville Heritage Center just completed by Long Island City, N.Y.-based Caples Jefferson Architects. And the source of this enlightenment is found in four 19th-century structures whose very existence was largely unknown until the late 1960s.

These modest wood-clad houses near the center of present-day Brooklyn are all that remain of the African-American community of Weeksville, which once included hundreds of households, with related churches and schools. In 1968, historian James Hurley was leading a Pratt Neighborhood College team studying old city neighborhoods. Alerted by archival material on Weeksville, he flew over its likely location and spotted the houses—three of them hidden mid-block, sited at an angle to the street grid and surrounded by rowhouses that had engulfed the area as it became urbanized. The fourth and latest of these houses, aligned with the street grid, still had descendants of the original residents living in it.

The houses date from 1838—about a decade after New York's last slaves were freed—to 1883. They were designated New York City landmarks in 1970 and subsequently listed on both the state and national historic registers. An organization, now known as the Weeksville Heritage Center, was established to turn the houses and adjacent property it acquired into a functioning historic site. With funds from private and public sources, the houses were restored in the early 2000s by the architectural firm WASA/StudioA. Today three of them are open for tours, with furnishings tracing domestic life here over the decades up to the 1930s. On the surrounding grounds, school children explore such skills as growing vegetables, keeping bees, and raising ducks.

At the time of the restorations, a master plan by WASA/StudioA proposed a new education building for interpretation of the site and related history. Since the city was supporting the project financially, the commission for the new building was awarded through the Design Excellence process of its Department of Design and Construction. In 2003, Caples Jefferson Architects won the commission.

From the outset, it was agreed that the new construction was to be at the southern and eastern edges of the site, farthest from the historic houses, leaving a swath of open landscape to represent their original rural

Previous spread:

Wherever possible, the architects incorporated West African-inspired patterning into the Weeksville Heritage Center, as in the Vermont Structural Slate wall panels. **Opposite:** An aerial view shows how the new center frames the four historic houses (at upper right) on the 1.5-acre site. Where not bounded by buildings, the perimeter is enclosed by a cast-iron fence from Allen Architectural Metals. **Below:** A wooden bridge connects the historic Weeksville homes to the new structure.





JULIAN OLIVAS

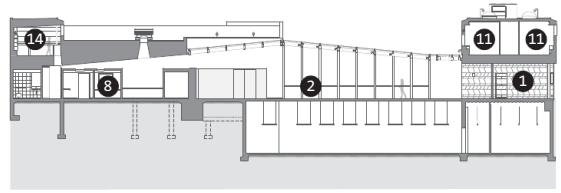


To offset the cool tones of the slate and glass, the bulk of the center's low-slung volume is clad in warm ipe siding from General Woodcraft. The metal cornice was produced by Revere Copper. Glazing in the recessed entry portico allows views clear through the building.

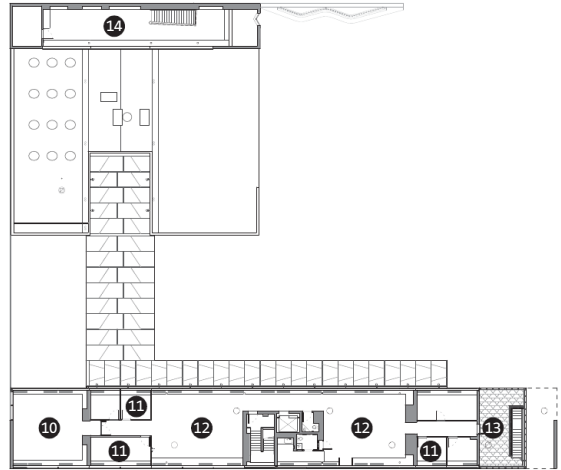




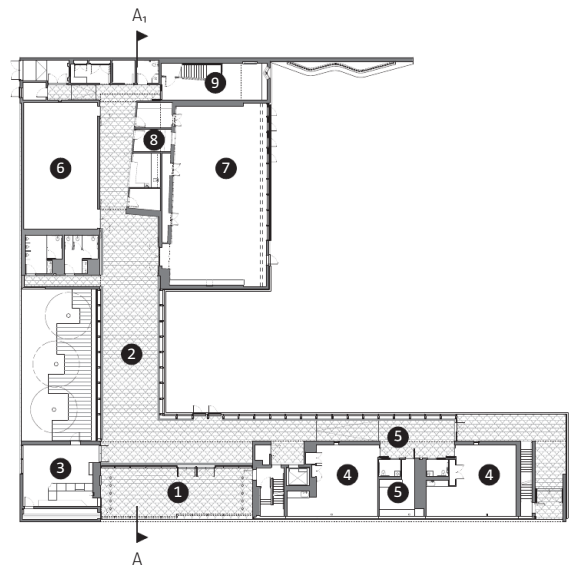
Section A-A₁



Second-Floor Plan



First-Floor Plan



- 1. Main entrance
- 2. Glass Link
- 3. Gift shop
- 4. Workshop
- 5. Media center
- 6. Gallery
- 7. Performance space
- 8. Control room
- 9. Library
- 10. Conference
- 11. Office
- 12. Open office
- 13. Porch
- 14. Library mezzanine



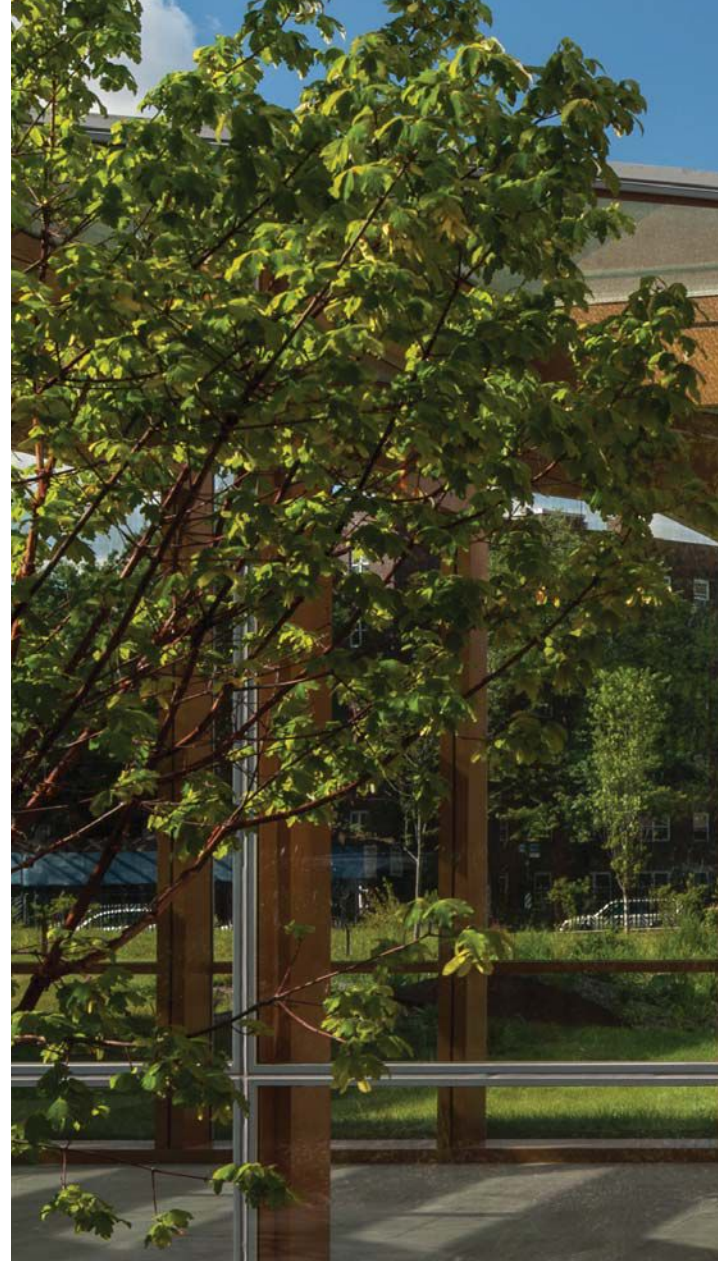
setting. This had the added benefit of allowing the new building to define the site's boundary, and to adopt the streetfront configuration common to its modern day, gridded, urban context. The project's planning also took into account a historic route, Hunterfly Road, that once crossed the site at an angle to the current grid and toward which the community's houses were oriented. The approximate path of this road is only known from historical maps—traces of it through this property had been erased by later dense construction. The architects placed the entrance to the new building approximately on this road's path, so that the initial viewline of the houses through the center's glazed walls roughly follows that of the historic thoroughway. But lacking archaeological evidence, the old route has been treated as a "ghost road," acknowledged by a cut through a low mound in the new landscaping and emerging as a footpath near the houses.

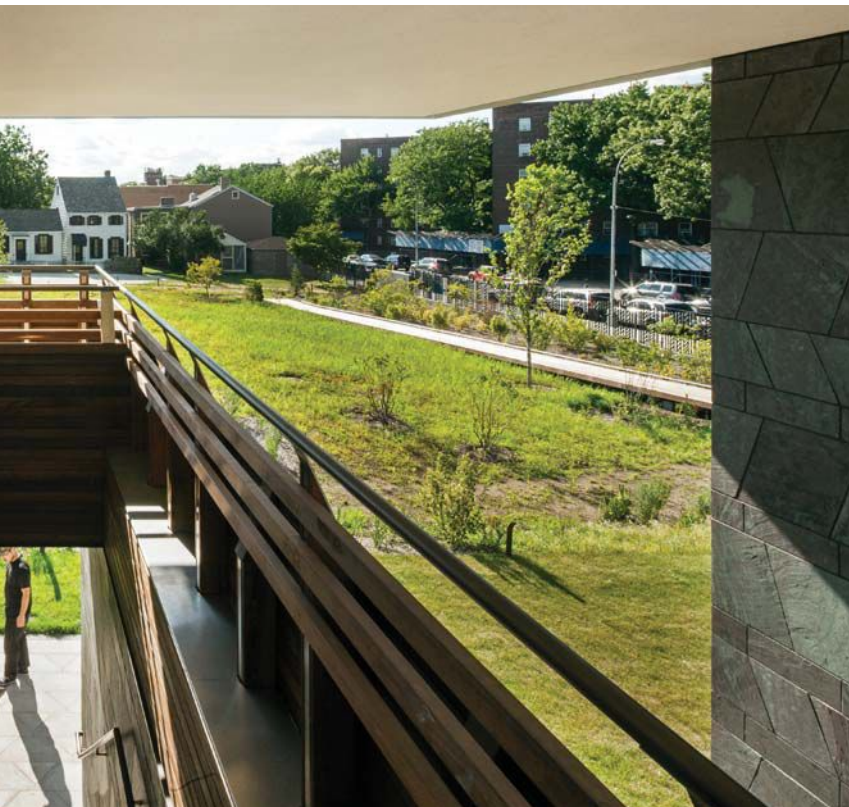
Caples Jefferson's initial building design proposed a series of volumes with subtly convex walls and roofs, intended as "an evocation of traditional building forms from West Africa," says principal Everardo Jefferson, AIA. These volumes were separated by transparent links that allowed views into the site from the street. The scheme received an award from a National Organization of Minority Architects jury, but it did not please the city's Art Commission (since renamed the Public Design Commission), whose approval was required for public funding. One of the commissioners protested that "he thought we had gone beyond such cultural evocations," recalls principal Sara Caples, AIA.

While not fully agreeing, the architects and their clients set to work on a scheme that is more clearly of its own place and time. And the crisply geometrical design they developed not only suited the client, but was warmly endorsed by that same commission. Once it accepted the final scheme, the commission became, say the architects, "the guardians of the design," countering challenges by the other reviewing groups.

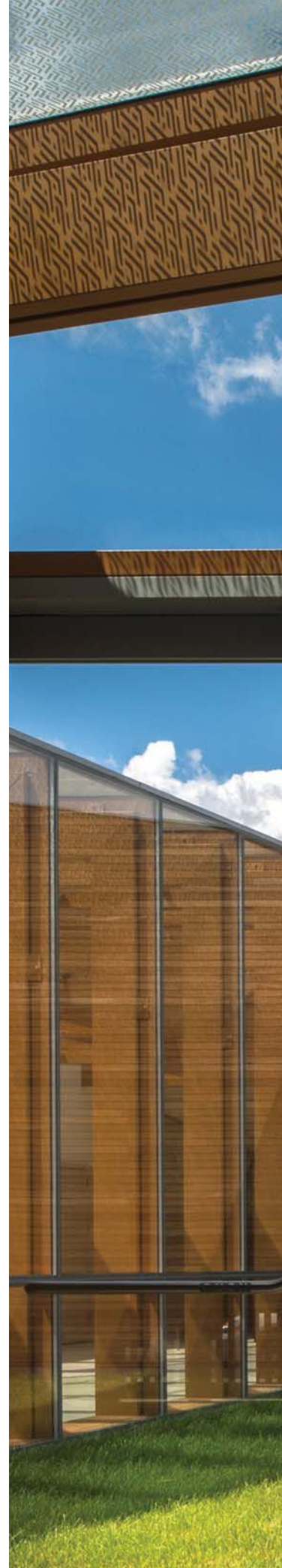
Despite the rejection of large-scale references to West African design, Jefferson "refused to give up on references to African origins," he says. Into the building's otherwise crisply geometrical volumes, the firm introduced patterns adapted from those sources. He was determined that none of these patterns were to be literal copies or superficially applied, but rather "embedded in the construction process." Examples of such treatment are seen in the layout of slate slabs on the exterior walls, the woven bronze security screen at the entrance, and the cast-iron fencing around much of the property. Frit designs on the glazing over circulation spaces project their patterns—which change with light conditions—onto other surfaces. The subtlety of these patterns is proven "when visitors don't notice them till they're pointed out," says Jefferson with pleasure.

Within the 19,000-square-foot structure, all of the public facilities—which include classrooms, workshops, a 700-square-foot skylit gallery, and a 200-seat performance space—are located on the ground floor. These are





Above: The primary form of circulation through the facility is a pergola enclosed by a curtainwall system from Schüco.
Left: An open-air staircase grants access from a covered porch on the second floor down to the core of the historic site. The porch overlooks the historic Weeksville homes on the far side of the site.



reached by generous passages with fully glazed walls and roofs—21st-century interpretations of the traditional pergola—that offer continuous views of skies and landscape. Offices and a conference room are on the second floor of the main block. At the far western end of the building, a secluded library mezzanine offers elevated views back over the complex.

The building is sustainably designed with a goal of LEED Gold, and careful consideration was given to systems and materials. Geothermal wells provide sources for heating and cooling. All of the glazing is insulated, and most is low-E-coated to reduce heat gain and glare—except where it is left clear to maximize views through the building into the site. The architects specified sustainably harvested wood, such as the ipe wood siding and the Douglas fir in the exposed roof decking over upper-floor spaces. Much of the steel in the framing and ceiling systems has recycled content.

Summing up the product of her firm's decade-long effort, Caples is pleased that this is a building that people can love "whether or not they are sophisticated about design," she says. And given the essential support of the project "by people's donations and public funds," she's satisfied that, in the end, the result meets an imperative "to give back value."

Above: The multipurpose performance space in the western portion of the building seats up to 200. Its exposed steel beams are coated in a crimson red Sherwin Williams paint.

Right: Much of the pergola glazing, which was sourced from fabricator JE Berkowitz, is clear vision glass. To minimize glare and heat-gain, a frit was applied to the ceiling panes.



Forum at the Eckenberg Gymnasium, Page 108

Project Forum at the Eckenberg Gymnasium, Adelsheim, Germany
Client Baden-Württemberg Department of Property and Construction, Heilbronn Office
Architect Ecker Architekten, Buchen, Germany—Dea Ecker, Robert Piotrowski (partners); Joachim Schuhmacher, John Ruffolo, Peter Borek, Tom Jin, Sophie Hartmann, Mariana Martins, Shaique Uddin, Joshua Chan, Aref Nezami, Karolina Bieniek, Ankur Manchanda, Michael Fung, Stephanie Polochowitz (project team)
Structural Engineer Rehle Engineers
M/E Engineer Carpus+Partner
Structural Analysis and Inspection Kist Engineering
Lighting Design Belzner Holmes
Acoustic Engineering and Building Physics Krämer-Evers
Size 1,000 square meters (10,764 square feet)
Cost Withheld

Material and Sources

Acoustics Heraklith *heraklith.com*; Offecct *offecct.se*
Acrylic Skylights JET; Börner *teppichschutz.com*
Aluminum Rainscreen Kalzip *kalzip.com*
Carpet Forbo *forbo-flooring.com*; Tretford *tretford.com*
Columns Europoles *europoles.com*
Concrete Formwork Max Frank *maxfrank.com*
Curtainwall Schüco *schueco.com*
Exterior Shading Clauss Markisen *clauss-markisen.de*
Fabric Gabriel *gabriel.dk*
Finishes Formica *formica.com*
Flooring Nora *nora.com*
Free-standing Kiosk Knauf *knauf.com*
Furniture Brunner *brunner-group.com*; Bruynzeel *bruynzeel-storage.nl*
Hardware FSB *fsb.de*
Lighting Ludwig Leuchten *ludwig-leuchten.de*; Planlicht *planlicht.com*; RSL Lichttechnik *rsl.de*; Selux *selux.com*
Lighting Controls GIRA *gira.com*
Roofing Alwitra *alwitra.de*; Loro *loro.de*

Metalsa Center for Manufacturing Innovation, Page 118

Project Center for Manufacturing Innovation Metalsa Cidevec, Apodaca, Mexico
Client The Proeza Group—Abraham Tijerina-Priego (director of innovation management)
Architect Brooks + Scarpa, Los Angeles—Lawrence Scarpa, FAIA (designer, principal-in-charge); Silke Clemens, Daniel Poesi, Abby Katcher, Oliver Liao, Darien Williams, Jordan

Gearhart, Ching Luk, Mark Buckland, Angela Brooks, AIA, Emily Hodgdon, Daniel Safarik (project design team)
Architect of Record Centro de Diseño—Homero Fuentes
andscape PEG Office
Structural Engineering Carl W. Howe Partners
M/E/P Engineering Cobalt Engineering
Engineers of Record SPID Ingenieros (structural and civil); SENA (mechanical); DINELEC (electrical)
LEED Consultant Zinner Consultants
Project Management Araltec—Alex Ruiz Cruz, Evelia Garcia
Size 55,000 square feet
Cost Withheld

Material and Sources

Concrete LM Scofield Co. *scofield.com*
Doors Anemostat *anemostat.com*; McKeon Door Co. *mckeondoors.com*; Nationwide Industries *nationwideindustries.com*; Ingersoll Rand *ingersollrand.com*; Timely Industries *timelyframes.com*; TM Cobb *tmcobb.com*; Total Door Systems *totaldoor.com*
Flashing APOC *apoc.com*; Celotex *celotex.co.uk*; GAF *gaf.com*; Grefco
Glazing PPG *ppg.com*
HVAC Runtal Radiators *runtalnorthamerica.com*
Insulation Johns Manville *jm.com*
Lighting Bega-US *bega-us.com*; Prudential Ltg. *prulite.com*; Belfer *belfer.com*; DelRay Lighting *delraylighting.com*; Eaton's Cooper Lighting/Shaper *cooperindustries.com*; Philips Stonco *stonco.com*
Lighting Controls Lutron Electronics Co. *lutron.com*
Masonry Angelus Block Co. *angelusblock.com*
Paints AFM Safecoat *afmsafecoat.com*
Plumbing Toto *totousa.com*; Hansgrohe *hansgrohe.com*
Roofing CertainTeed Corp. *certainteed.com*
Skylights Bristolite *bristolite.com*; Solatube International *solatube.com*
Stormwater System Stormwater360 *stormwater360.com*; Contech Engineered Solutions *contech-inc.com*
Windows Fleetwood *fleetwoodusa.com*; US Aluminum Corp. *usalum.com*

Weeksville Heritage Center, Page 126

Project Weeksville Heritage Center, Brooklyn, N.Y.
Client NYC Department of Design & Construction—David Burney, FAIA (director of design & capital improvement); NYC Department of Cultural Affairs—Victor Metoyer (deputy director of capital projects unit); Weeksville Heritage Center—Pamela Green (executive director)

Architect Caples Jefferson Architects, Long Island City, N.Y.—Sara Caples, AIA, Everardo Jefferson, AIA (principals); Michael Behrman (associate principal)
M/E Engineer Loring Consulting Engineers
Structural Engineer Severud Associates
Civil and Geotechnical Engineer P.W. Grosser Consulting
Construction Manager Hill International
General Contractor Brickens Construction
Landscape Architect Elizabeth Kennedy Landscape Architects
Lighting Designer Berg-Howland Associates
Theatrical Lighting Cline Bettridge Bernstein Lighting Design
Cost Estimating Faithful & Gould
Building Department Metropolis
Specifications Heller + Metzger
Curtainwall Gordon Smith Construction
Sustainable Design & Commissioning Viridian
Security Ducibella Venter & Santore
Museum Programming Dial Associates
Size 23,000 square feet (building); 41,000 square feet (landscape)
Cost \$26 million

Material and Sources

Building Management Systems Johnson Controls *johnsoncontrols.com*
Carpet Bigelow *themohawkgroup.com*
Ceilings Decoustics *decoustics.com*; Techstyle *hunterdouglascontract.com*
Exterior Wall Systems General Woodcraft *generalwoodcraftinc.com*
Flooring Oregon Lumber Co. *oregonlumber.com*
Furniture Steelcase *steelcase.com*
Glass JE Berkowitz *jeberkowitz.com*
HVAC AWL Industries
Masonry and Stone Vermont Structural Slate *vermontstructuralslate.com*
Metal Allen Architectural Metals *allenmetals.com*
Millwork Mitchell's Restoration & Millwork; ACGI *acgiwood.com*
Paints and Finishes Art-in-Construction *artinconstruction.com*; Sherwin Williams *sherwin-williams.com*
Roofing Revere Copper *reverecopper.com*
Windows and Doors Door Engineering *doorengineering.com*; Schüco/S&C Products *schueco.com*

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Toward Outstanding Outcomes

Successfully Integrating New Lighting Technologies



Tim Hogan
Vice President,
Education Market
Acuity Brands

Tim Hogan is Vice President, Education Market for Acuity Brands, a world leader in lighting fixtures and related products. He works with educators, facilities directors and design professionals to help them improve their learning environments, while also reducing operational costs and environmental impacts. Tim joined Acuity Brands in 1996 and has served in a variety of marketing and business development roles. Prior to Acuity Brands, Tim worked as a writer, photographer and designer. He has degrees in art and journalism.

? What is Acuity Brands? What should an architect know about the company?

Acuity Brands is a lighting company. Pure and simple. We harness the power of light to help people achieve the functional, aesthetic and economic objectives of their building projects.

We're a \$1.9 billion global organization comprised of 22 lighting and lighting control brands, including trusted names such as Lithonia Lighting®, Holo-phane®, Gotham®, Winona®, Peerless® and Sensor Switch®. Our companies represent the full spectrum of lighting, daylighting and control devices from the architecturally sophisticated to the most basic.

We are exclusively devoted to the science, art and business of lighting and we've been doing it for more than 100 years.

? Many say this is an amazing time for lighting technology. What special opportunities and challenges does this present to a designer?

It's an understatement to say that the lighting industry is in the midst of dramatic change. Lighting will change more in the current decade than it changed in the previous 50 years.

Lighting technology is changing to leverage solid-state (LED) sources, digital interconnectivity and advanced control capabilities. Today's smart systems now respond to changing conditions to deliver the right kind of light for the current task right when you need it and right where you need it. And, they do this while consuming less energy and requiring less maintenance.

This technology shift is converging with profound changes in attitudes about sustainability and green building. A smart lighting solution is an essential ingredient to any high performance building.

As an indication of the importance of lighting, the release this fall of LEED v4 raises the bar even higher on lighting quality and energy performance. The new standard includes high demands for both indoor and outdoor lighting performance, and rewards projects with points when they achieve those requirements.

Achieving these demanding standards for building performance will require an even more integrative approach. In today's complex, systems-driven

buildings, no one can be an expert on everything. As a result, the design effort will require specialized teams working collaboratively from concept through commissioning. At Acuity Brands, we have the breadth of capability and the focus of local resources to be your partner throughout the complete process.

? What should an architect do to achieve outstanding outcomes?

Lighting is one of the most profound ways to affect the performance of a building. The good news is that the performance and capability of lighting systems have caught up with the aggressive energy standards. For a few years, we lived through a dark time when energy limits were achieved by compromising on lighting quality. Today, designers are once again free to think creatively and still meet aggressive energy objectives.

That's why a lighting designer should be included early in the concept development process. Many architectural firms have in-house lighting designers. Engage those resources. Or reach out to local lighting designers. Your local chapter of the International Association of Lighting Designers (www.IALD.org) is a great source. I also recommend connecting with your local Acuity Brands resources. Our representatives are dedicated lighting experts, skilled in meeting design, schedule, budget and retrofit considerations. They offer training, design assistance, technical education, simulation centers and other services to help design teams make smart decisions.

The resources of the entire Acuity Brands organization are available to architects and designers as well. Contact me directly. I'll personally connect you with the Acuity Brands expert best qualified to help.

A final word, if I may. Architects deserve kudos for their commitment to and leadership on sustainability principles. When their visions are empowered by teams of experts working together to solve hard problems, we're all better off. At Acuity Brands, we're very pleased to be part of that process by providing lighting leadership and solutions. Nobody cares more about lighting than Acuity Brands. We welcome the opportunity to prove it. ●



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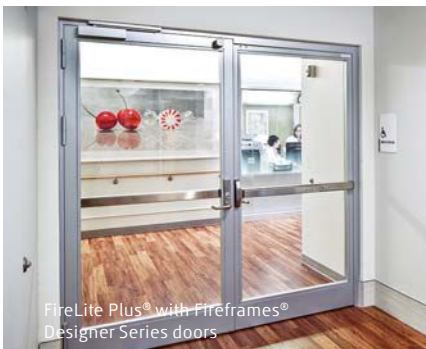


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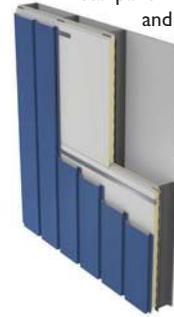
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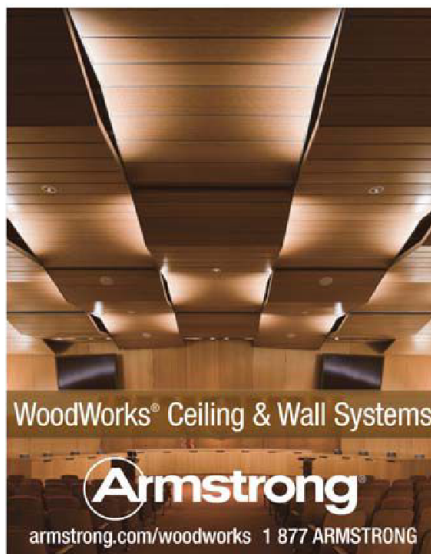


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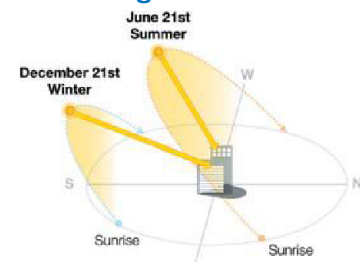
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Text by **Thomas Fisher, Assoc. AIA**

THE HOUSE OF THE CENTURY was built in the wrong century. Designed and built by Doug Michels and Chip Lord of the avant-garde San Francisco design collective Ant Farm, with architect Richard Jost, this lakeside retreat near Houston, commissioned by an art patron, has an evocative, organic shape, with round living and kitchen spaces flanking a ladder-accessible tower that contains a bathroom and stacked bedrooms. Constructed from steel mesh and layers of chicken wire that were plastered, waterproofed, and coated with the cement, sand, and water mixture known as gunite, the structure has large porthole windows and an interior of wood floors and built-in wood counters and tables. A fireplace with an exposed flue was used to heat the house; the TV antenna atop the tower poked fun at a then-popular, Pop Art reference.

The structure lasted about a decade, when a flood in the mid-1980s largely destroyed the interior, leaving the structure in its current, semi-ruined state. Like all great architecture, this one evokes several interpretations: as an homage to Houston's Apollo program, as the front of a 1930s Ford, and even as a phallic symbol of the 1960s sex-drugs-and-rock-and-roll era. It also foretold 21st-century interests, such as the creation of biomorphic forms now done on the computer, the construction of buildings using design/build methods, the experimentation with low-cost materials borrowed from other industries, and the reduction of a dwelling's size for sustainability and affordability reasons. Well-documented in several YouTube videos by Richard Jost, this house is as much, if not more, of this century as the last one.

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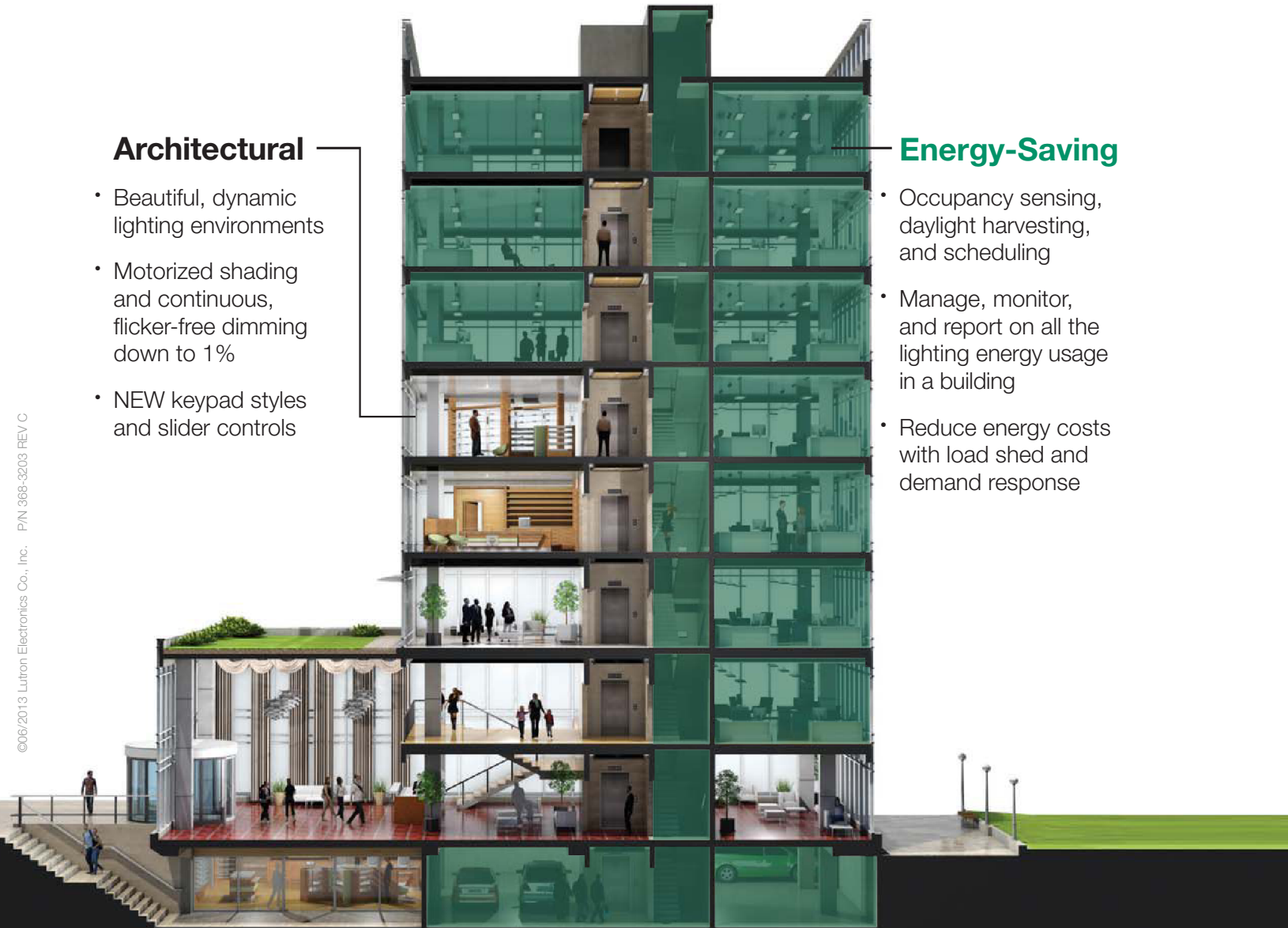
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