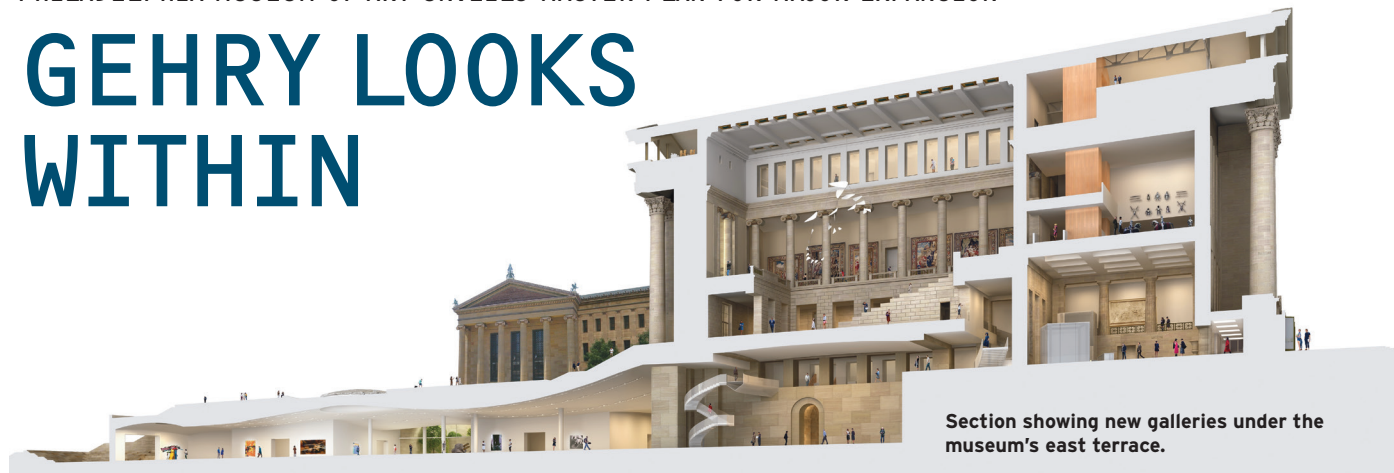


PHILADELPHIA MUSEUM OF ART UNVEILS MASTER PLAN FOR MAJOR EXPANSION

# GEHRY LOOKS WITHIN



Section showing new galleries under the museum's east terrace.

Frank Gehry may have created a new architecture known for its expressionistic and sculptural forms, but he also knows when to design more restrained spaces that foreground the work of other artists. For the Philadelphia Museum of Art, Gehry has

completed a master plan that will vastly expand gallery space and improve circulation, all of which will be largely invisible on the exterior of the imposing Beaux Arts edifice. A temple of high culture immortalized in the popular imagination by the Rocky

movies, the Philadelphia Museum of Art is one of the most recognizable and beloved museums in the country. Completed in 1908, the building was designed by Horace Trumbauer and Zantzinger, Borie, and Medary. Set atop a hill **continued on page 6**



HANDEL ARCHITECTS UNVEILS PLANS FOR 26-STORY TOWER AT CORNELL TECH

The 26-story residential tower will use passive principles to reduce energy use.

# THE WRAP IN THE RIVER

Cornell Tech's new campus on Roosevelt Island is more than New York City's next educational epicenter, it is a canvas for some of architecture's biggest names. The first phase of the project, which is slated to open in 2017, includes a Thom Mayne-designed academic building, a corporate co-location center by Weiss/Manfredi, and a James Corner landscape that fills out

and connects the site. SOM's Colin Koop designed the master plan for the campus. There will also be an executive education center on the site, but an architect for that building has not yet been named. The tallest piece of the first phase is a 26-story residential building designed by Blake Middleton of Handel Architects. Until recently, it had only **continued on page 8**



DIGSAU DESIGNS A STUDENT-ORIENTED HOTEL IN PHILADELPHIA

# ACADEMIC HOSPITALITY

"The Study is a meeting of the minds," said Jeff Goldstein, principal of Philadelphia-based DIGSAU Architects. His firm is designing a new type of hotel geared toward academic guests called The Study at University City. Sited at 33<sup>rd</sup> and Chestnut streets, between the University of Pennsylvania and Drexel University, developer Paul McGowan of Hospitality 3 intends the hotel concept to capitalize on the dynamic academic environment of Philly's University City. "The idea is to bring the culture of the university into the hotel environment," said Goldstein. "McGowan wants to bring that atmosphere into the guest experience." A previous hotel in New Haven, The Study at Yale, "was putting theory to practice, and they've been very successful so far." Goldstein said the 10-story hotel "blurs the boundary of **continued on page 7**



NEW BOSTON MAYOR OPENS FLOODGATES ON DEVELOPMENT

# Big Time in Bean Town

Red brick Boston may be finally shaking off the vestiges of its architectural Puritanism, which was best captured by the outcry against the glass-sheathed John Hancock Tower designed by Harry Cobb of Pei Cobb Freed & Partners in the 1970s. After various holdups under former mayor Tom Menino, a new generation of mega-projects is taking shape under new mayor Martin Walsh, a former construction union leader who campaigned on infrastructure improvements and reforms to the city's zoning code. Ground broke this past December on the Millennium Tower development designed by Handel Architects in Downtown Boston. The new mixed-use project, which includes the preservation and restoration of a nationally land-marked 1912 **continued on page 10**

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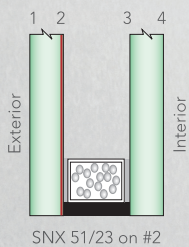
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MOTORIZING TOWARD DESTRUCTION?

When news of Detroit’s new blight removal plan broke, I couldn’t stop thinking about Philadelphia’s Divine Lorraine Hotel. A massive Victorian oddity with a checkered history, this hotel had been abandoned for more than 20 years, heavily tagged with graffiti, and stripped down to its masonry shell. In that time it had become emblematic of Philadelphia’s gritty, down on its heels side. It was recently announced that it is being redeveloped into apartments, a hotel, and retail space (see page 5).

Philadelphia and Detroit are vastly different cities in physical form, demographics, and financial and institutional resources. And yet twenty years ago many would have suggested Philadelphia was headed in the direction of the Motor City—financial collapse and large-scale depopulation.

Philadelphia has slowly fought its way back from the brink.

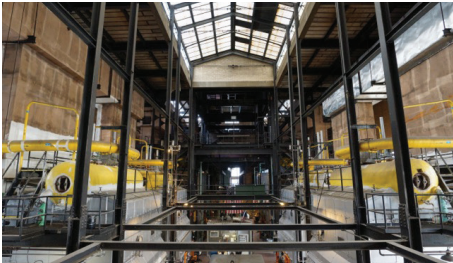
There have been high profile projects and a couple of new corporate headquarters, but Philadelphia’s revival has largely been incremental, building by building, street by street. Local government, universities, developers and businesses, numerous civic and community groups have all fought for the city and their work is paying off. Urban problems persist, including a struggling school system and a tremendous amount of blight in some neighborhoods. Much work remains to be done.

The Detroit Blight Removal Task Force’s plan is breathtaking in its speed, scale, and cost. Using the most detailed inventory of the city’s building stock ever created, they recommend demolishing 40,000 buildings at a cost of more than \$850 million. According to the study more than 30 percent of the city’s buildings, or almost 80,000 structures, are severely dilapidated or decaying. In their view, blight spreads like cancer. In order to save this city, you must level large swaths of it. The goal is to wipe the urban slate clean within five years.

The plan goes further to recommend possible clearance and remediation of 559 industrial sites at a possible cost of \$1 billion. The Task Force acknowledges that this process will take longer, due largely to environmental conditions at these massive former factories.

In its panic to save itself, Detroit runs the risk of demolishing its identity and the foundation of its revival (whatever that may be). It is almost hackneyed to repeat the Jacobsian idea that new ideas need old buildings, but evidence suggests time and again that it’s true. (One of Philadelphia’s growing companies, Urban Outfitters, pedals a teen-friendly mash-up of street style/industrial chic/suburban slouch, all designed in their lavishly redone headquarters in the city’s navy yard). Detroit’s sprawling Packard Plant was recently purchased and plans for development on the site, likely to include both reuse and demolition of its buildings, are being explored. In New York, we’re so short on industrial space that many businesses cannot expand, and former warehouses turned lofts command rents beyond the reach of most start-ups.

The Task Force’s argument for swiftness is easily countered by the question of what to do with even more vacant land, something of which Detroit has no shortage. Significant amounts of demolition, particularly in heavily residential areas filled with unsafe, structurally unsound single-family homes, will likely be necessary. But the Task Force’s inventory could also be used as an open call for ideas and development proposals, not just a map of destruction. Thousands of these properties are city owned. Let’s hope the city has the nerve to seek answers other than the wrecking ball. **ALAN G. BRAKE**



COURTESY FRISP

GROUP PUSHES FOR MUSEUM IN ROOSEVELT ISLAND STEAM PLANT

Hot, Wet Island

With all the hype surrounding the coming of the Cornell NYC Tech campus to Roosevelt Island (Silicone Valley of the East, etc.), what was once a sleepy, out-of-the-way quarter of the city is set to under go a major transformation. As one example, community group Friends of the Roosevelt Island Steam Plant (FRISP) is pushing a proposal before state and city officials to transform the district’s now-decommissioned steam plant into a New York version of the Tate Modern.

Built in 1936 and located beside the Queensboro Bridge and directly behind the Roosevelt Island tram station, the steam plant is an art deco edifice that served the Goldwater Hospital and other customers on the island. The facility’s period mechanical systems have been meticulously maintained over the years, making it an artifact in its own right. FRISP hopes to use this preserved infrastructure as a framework into which to place a venue for the “convergence of art, science, and technology” to be known as The S.T.E.A.M. (an acronym standing for Science, Technology, Engineering, Art, and Math) Plant. The project would host a mix of exhibitions on subjects that link the disciplines of art and science, such as the geometry of color and light, the physics of dance, or the science of haute cuisine.

To drum up support for the project and illustrate the building’s potential as a unique destination space, Manon Sloam, the chief curator of non-profit arts organization No Longer Empty, has proposed using the plant to host a temporary exhibition by conceptual artist Mel Chin. The exhibition could be opened as soon as the fall of 2015 after Chin’s retrospective at the New Orleans Museum of Art becomes available and he has the time to create a site-specific installation. Chin’s work combines art and science, and some have called him an earth artist for his environmental pieces on polluted factory sites. He is currently working on a project in New Orleans called *Operation Pay Dirt*, which seeks to address lead poisoning in the ground.

According to FRISP, there’s no telling what would need to be done to the building to prepare it for the temporary exhibition, though it suspects that none of the existing steam infrastructure would need to be removed. In the group’s opinion, the most that would need to be done is cleaning the space, setting up a temporary entryway from the tram station, and building the displays. **ALEXANDRA PUCIARELLI**

LETTER

ADDRESSING THEMSELVES TO THE SKYLINE

In your editorial “Will de Blasio Make Progress on Design?” (AN 05\_04.09.2014), you seem to suggest that there is an inherent conflict between the development priorities of the new administration and the accepted tenets of good urban design. We disagree.

Taking the agreement to increase the amount of affordable housing at the Domino site as an ominous sign of the mayor’s indifference to the quality of public experience does not support your case. Rather, it represents a serious misreading of the longstanding plans for, and the recent history

of, our project, which began detailed public and design review under the Bloomberg administration during its final eighteen months.

There simply were no hastily negotiated changes at Domino. Neither, contrary to what you wrote, has the height of the planned buildings increased since 2012. In fact, the well-calibrated massings remain exactly the same as those that this administration—like the previous—understands to be necessary in order to create a major new public amenity for the benefit of all: a thrilling extension of the life of Williamsburg, with new streets and new parks, exciting architecture, and new gathering spaces designed to the highest

standards to promote the fullest use.

And, yes—there will be new towers, too: opening so the adjoining neighborhood can reach the waterfront, rising to address themselves to the skyline, exactly as (two mayors, the City Council, and the vast majority of the local community board agree) a vibrant, hopeful, and proud symbol of the new Brooklyn should.

VISHAAN CHAKRABARTI  
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EAVESDROP> THE EDITORS

YOUR WORK IS WORTH THE PRICE OF ADMISSION (AND SO MUCH MORE)

Major museums are really expensive these days, and boy do we like to complain about it (actually we get into most museums for free with a press pass, but we still love to complain about it)! Well gather 'round dear readers, because we've got a bit of nice news for once. The Whitney Museum is offering free admission for a year to all the men and women who are building their new Meatpacking location. It's a nice counter to all the bad news about labor conditions at major cultural and educational institutions in the Middle East (we're looking at you, NYU).

ARE WE DONE WITH ARCHITECTURE PETITIONS YET?

Speaking of controversy, **Zaha** can't catch a break! Since her stadium design for the 2020 Tokyo Olympics was unveiled, complaints have arisen about the scale and height of the project. Then two of Japan's biggest architects—**Toyo Ito** and **Fumihiko Maki**—signed on to a petition calling for a revised design. As of press time more than 15,000 people have signed on to protest the design. Is someone's star beginning to dim?

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HENRY MELCHER

# RUIN PORN REBORN

For the past 15 years, Philadelphia's Divine Lorraine Hotel has been sitting vacant. The 10-story building, which opened in 1894 as luxury apartments, was once a towering symbol of wealth. Today, it is a graffiti-covered shell of its former self—but that could soon change. A local developer is finalizing plans to bring the building back to life. Before that happens, *AN* was allowed inside—and on top—the Divine Lorraine to see the space in all its tagged and gutted glory.

The Lorraine's facade has two significant archways that cut through its brick exterior and into a center atrium that runs the height of the building. These archways are framed on the outside by columns of bay windows and rows of balconies that wrap around the structure.

The Willis G. Hale–designed building opened as the Lorraine Apartments, but was converted into a high-end hotel at the turn of the century. The Lorraine operated as such until Reverend Jealous Divine, the founder of the International Peace Mission Movement, bought the building in 1948. He changed the name of the building to include his own name, and opened what is said to be the first racially integrated hotel in Philadelphia, and maybe the country. The Reverend has been described as both a religious leader and a cult leader. The fact that Jim Jones tried to take over the Movement after the Reverend's death in

1965 points toward the latter.

By 1999, the Divine Lorraine had been completely abandoned. Now, with the help of a \$31.5 million loan from a real estate lender, local developer Eric Blumenfeld plans to transform the Lorraine into 127 apartments, restaurants, retail space, and, possibly, a hotel. Local firm Wallace Roberts & Todd is overseeing the project.

When *AN* visited the Lorraine, crews were busy blasting graffiti off its exterior, and construction lighting was hanging throughout the interior. **HENRY MELCHER**



OPEN> RESTAURANT



PAUL JOHNSON

> THE BLACK ANT

60 2nd Avenue, New York  
Tel: 212-598-0300  
Designer: Welly Lai

Designer Welly Lai lent her creative hand to the to East Village's newest Mexican restaurant: The Black Ant. Both surreal and colorful, the design tunes in to the more offbeat tempo of Mexico's culture. A quirky delight in the macabre proliferates throughout, with black ant stencils checkering the walls, skulls galore, and a saturated, bold color scheme. A rough-hewn bar that serves specialty cocktails anchors the restaurant's emphasis on a sleek-cum-rustic feel.

The layout is simple enough, creating fluidity and intimacy at the same time by breaking the establishment into four separate dining areas: a lounge, two large dining rooms, and a private dining room for intimate parties. An outdoor patio allows for al fresco dining during warm weather.

Textural elements include exposed red brick and geometric wood paneling. Wall planters add a touch of green vegetation, and overall the eclectic design elements create a vibrant union that resonates strongly with the richness of Mexico's culture.

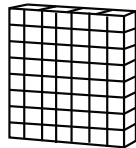
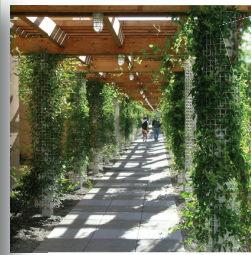
It's worth mentioning that the food is as bold and artfully intriguing as the design. *Chicatanas*, or The Black Ant's namesake, will dust many of the restaurant's cocktails and plates.

**ELISIA GUERENA**

the ELEMENTS are SIMPLE ...

the POSSIBILITIES are ENDLESS!

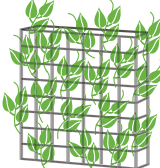
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WALLMOUNTED • FREESTANDING  
COLUMNS • SHAPES • COLORS



+



=



GREEN WALLS

BIM • REVIT • SketchUp  
CEU • GUIDELINES • SPECIFICATIONS





**GEHRY LOOKS WITHIN** continued from front page at the edge of the Schuylkill River overlooking Center City via the grand axis of the Benjamin Franklin Parkway, the museum is an object in the round, making an exterior addition undesirable to the museum.

"Frank Gehry is a wonderful architect, but perhaps what people don't know is that he is a brilliant planner," said Timothy Rub, director of the museum. In 2006, the Philadelphia Museum of Art officials selected Gehry based on his firm's work on an interior renovation for the Norton Simon Museum in Pasadena, California, completed in 1999.

"We began by studying the character of this wonderful building—its DNA, so to speak. It is rare to have the bones of the existing building show you the way to expand it," said Gehry in a statement. "From there, we used the significant assets that the original architects gave us to create a strong entry sequence and circulation pattern that connects the new galleries to the existing building in a way that makes the new galleries seem like they have always been there."

The master plan calls for a major expansion below the museum's grand East Terrace, adding approximately 55,000 square feet of space for special exhibitions. In the design, a series of skylights follow

the paving patterns of the terrace, bringing light into the new galleries. Just below the Great Stair Hall a new grand interior space called the Forum leads to the new galleries and opens up a new east/west axis through the museum.

The design removes the existing auditorium to allow access to the new galleries, and adds a new 299-seat auditorium under the northwest terrace and a new public entrance facing Kelly Drive. It also reopens for the first time since the 1970s a monumental, 640-foot-long vaulted corridor running from the north to the south side of the building. A pair of fire stairs, discreetly concealed within sandstone towers, is one of the only augmentations

**Gehry's plan would create a new axis through the museum and large skylit galleries.**

of the exterior. The project also includes upgrades to the museum's mechanical and environmental control systems.

"We've been impressed with Gehry and his partners' sensitivity to this Beaux Arts Building. They have really come to understand how it works," said Rub. The museum expects the project, which will be broken into at least two phases, to cost approximately \$165 million. The first phase, primarily infrastructural and mechanical upgrades, should be complete within four to five years. The entire project could take 10 to 15 years to complete. **AGB**



COURTESY GEHRY PARTNERS

**Muni Metro "Blue Prints" Public Art Installation**

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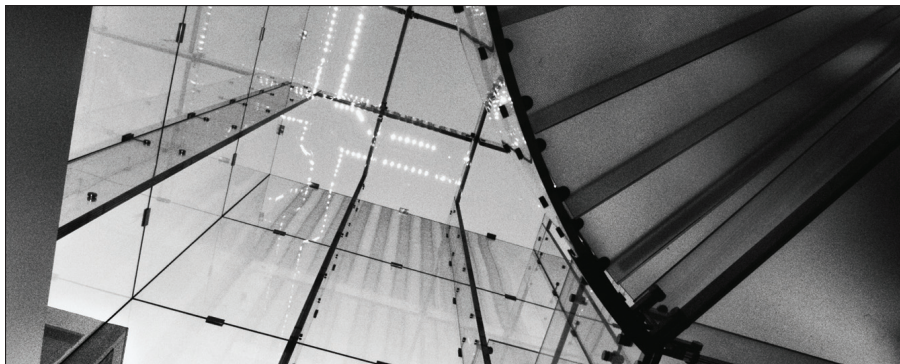
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The new hotel will cater to Philadelphia's academic community.



COURTESY DIGSAU

**ACADEMIC HOSPITALITY** continued from front page when you're on campus and when you're off."

That experience is organized around what DIGSAU is calling "The Living Room," a riff on an academic commons that serves as the hotel's lobby. "The Living Room is the main public space in the hotel," said Goldstein. "It's more than a lobby. It's a place to bump into people—like a library but more conducive to conversing." The Living Room offers more than a nod to the surrounding academic atmosphere. Its bookshelves will be filled with books written by local professors and published by Penn and Drexel.

The Study takes its relationship to the surrounding urban fabric seriously, recognizing its location on a pedestrian crossroads. "The activity of Woodland Walk is something that we tried to tap into," said Goldstein. "We oriented the building to respond to it—a small gesture but an important one." Woodland Walk once connected to the city's train station, and was subsequently converted to a pedestrian corridor cutting diagonally through Philadelphia's rigid grid and serving as a major spine of Penn's campus.

The 145,000-square-foot hotel is divided into three volumes. On the ground level, retail and front of house operations are clad in textured black granite with wood-mullioned window systems. A corner restaurant with a white brick entry spills out onto the sidewalk along Chestnut Street. "Transparency is key," said Goldstein. "Wood

on the interior of the restaurant is meant to be viewed from the outside." This is intended to create a relationship between interior and exterior spaces. Above, a glass-clad floor containing conference space and ballrooms is set back behind two terraces to differentiate the podium from the 212 guest rooms above. A variegated facade wraps the guest rooms with a variety of window shapes each set at varying planes—flush, inset, and protruding. The volume is clad in iron spot dark brick to contrast with the limestone and light brick prevalent at Drexel and the red brick common on Penn's campus. Brick corbels protrude from the building surface to create another layer of depth and shadow.

Goldstein said the facade will be prefabricated offsite while construction of the hotel is underway, speeding the construction process. "The panelized precast concrete wall system includes the window units with the exterior brick bonded to the panel." The overall effect forms a patchwork expressed on the interior and exterior that gives each guest room a character of its own.

The building has been designed to Philadelphia's rigid stormwater management guidelines. It features a blue roof that can handle a 100-year storm event, and smaller green roofs on lower floors. These green technologies catch and store rainwater, then slowly release it into the city's sewer.

Groundbreaking is set for the fall of 2014 with a completion target of spring 2016.

**BRANDEN KLAYKO**

# INSIDE OUT



Want to know what goes on at the **New School**? Passersby need only glance at the institution's new **University Center** in Greenwich Village to understand that progressive design education happens here. The building by **Skidmore, Owings & Merrill** expresses the school's interdisciplinary approach through a brass-shingled facade crisscrossed by a series of glass-enclosed stairways that highlight a vivid tableau of students circulating within. The unique system encourages collaboration—and a new dialogue between campus and community that is sure to be conversation for decades to come.

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COURTESY HANDEL ARCHITECTS

**Handel's 26-story tower will have an ultra insulated skin.**

#### THE WRAP IN THE RIVER

continued from front page appeared as a massing study towering above the glass and metallic campus below.

The tower, which houses 500 students and faculty members, is wrapped in a high-performance metallic skin designed to help Cornell meet its goal of creating a net-zero campus. "We're not using as much glass as you might find in the high-end luxury towers that you see all over the city today," said Middleton. But for the narrow strip of land in the East River, the firm is taking a different approach.

As an academic project, Middleton said there was no market expectation to build floor-to-ceiling windows. Instead, he designed what he called "The Wrap," a 16-inch-thick, pre-fabricated facade that passively regulates interior temperatures. The tower's windows,

though, are not insignificant; some are roughly 5 feet tall and collectively create bands through the facade. To further increase efficiency, the windows are double—maybe triple—glazed. Middleton describes the exterior as a "high-performance engine" and a "giant thermos." It is "where the magic happens," he said.

The building's exterior is largely a reflection of what was done on the inside to maximize efficiency. The layout, placement, and size of the apartments was designed and planned to reduce the heating and cooling necessary for each unit. The individual units are fairly small and each have their own climate control systems. Middleton said they could not just "superimpose" a high-performance skin on a standard building and expect these kinds of results.

The focus on creating such a sustainable structure was about more than

decreasing a carbon footprint; the savings from the heating and cooling systems are used like subsidies to lower rental rates for the students and faculty.

Middleton explained, though, that creating a sustainable design from the inside out limited design options—specifically for more expressive forms. The tower's shape is fairly basic, but The Wrap does add some dimension and design as it encases the structure.

At the top of the tower, The Wrap is angled upward to hide mechanicals and "mirror" the geology of Roosevelt Island, which rises up from the river on either side. At the base of the tower, The Wrap "cracks open" above a two-story glass facade known as the "front porch." This space is intended to connect the tower with the campus' teaching garden and tech walk.

Cornell expects to break ground on this tower, and the rest of Phase 1, in March. **HM**

## NEW YORK CITY EYES EXPANSION OF SELECT BUS SERVICE

# Route Improvements

With the cost of new transit infrastructure skyrocketing, New York City Mayor Bill de Blasio is pushing to expand the city's Select Bus Service (SBS), a version of Bus Rapid Transit (BRT). Twenty SBS lines are planned citywide by 2018, adding 13 new routes to the current seven. A joint effort of the NYC Department of Transportation and the MTA, officials have begun planning the next phase, a route along Woodhaven and Cross Bay boulevards in Queens connecting Queens Boulevard and the Rockaways.

"All around the world there's been a push for BRT due to the high cost of building underground rail," said Gene Russianoff, a spokesperson with the Straphangers Campaign for NYPIRG. "It's particularly well-suited to parts of Queens like the Woodhaven Boulevard corridor that is already very wide and has lots of available customers." According to NYCDOT, the corridor services nearly 34,000 daily bus riders.

Seven SBS lines already run through the city on routes identified by the Bloomberg Administration. The latest opened on May 25 running

along the M60 bus line connecting 125<sup>th</sup> Street with LaGuardia Airport.

New York's SBS is not a full BRT system, like international examples in Guangzhou, China, Bogotá, or Mexico City. SBS is characterized by dedicated bus lanes, traffic signal prioritization, pre-paid transit fares, limited stops, and other pedestrian safety amenities. NYCDOT figures show these changes can account for a 10 to 15 percent decrease in travel times as compared to traditional bus routes that are often slowed to a pace less than walking. Along the Woodhaven route, a study by the Pratt Center for Community Development estimated that travelers between Howard Beach and LaGuardia Airport could cut their transit times from 65 to 45 minutes. NYCDOT's initial proposal for the Woodhaven line is similar to other SBS routes in the city with on-street bus lanes.

"A more fully-fledged, world-class BRT system will include fully separated bus lanes and more permanent station locations," said Ryan Lynch, Associate Director at the Tri-State Transportation

Campaign. "These are small things that really improve travel times and ease access for people with disabilities." His organization this year identified Woodhaven Boulevard as among the region's most dangerous streets for pedestrians and is making a push for the new route to expand on existing SBS models. His group and others are proposing a median-aligned, physically separated bus lane with permanent, elevated stations. "When you do build out a world-class BRT system, you can expect faster transit times. Woodhaven is an ideal opportunity to take SBS to the next level."

"It's important to remember that SBS has been very successful throughout the city at a time when bus service has become slower on other lines," said Lynch. "SBS has really done a good job of increasing ridership and has improved pedestrian and bike safety."

NYCDOT has been studying the Woodhaven line since 2008 and is currently working with the community on defining what the future bus line might look like following a meeting in late April. The agency expects to have a concept plan complete by the end of the year.

**BK**

## IDAHO COUPLE PROPOSES PAVING THE NATION WITH SPECIALTY SOLAR PANELS

# The Illuminated Path



COURTESY SOLAR ROADWAYS

Solar Roadways is the brainchild of Julie and Scott Brusaw, a therapist and an electrical engineer who are proposing to pave our streets and highways with durable solar panels instead of asphalt. Currently seeking funding on Indiegogo, the project seeks to provide the entire nation with a glut of 100-percent sustainable, renewable solar energy. As implausible as it may sound, the project is now in its fifth year of development.

The Brusaw's scheme involves 12-foot-by-12-foot modular hexagonal solar panels that link together to form a continuous roadway surface. The panels are imbedded with LEDs that "paint" the road from beneath with requisite markings and signage. They are capable of withstanding 250,000-pound loads. Integral heating elements melt snow and ice—an especially important feature considering that cleaning implements for an atypical road structure would necessitate a whole new brand of technology.

If implemented, the Brusaws argue, the panels could generate enough clean, carbon-free electricity to power the U.S. three times over.

The project's lofty ideals are slowly but surely trickling down to reality. Solar Roadways has built a trial-run parking lot and has also garnered two rounds of funding from the Federal Highway Administration, as well as a private grant. Despite these contributions, however, the project needs more than \$800,000 more to reach its goal of \$1 million.

Cost considerations are the project's biggest variable. Estimates to cover the country's roadways run at \$56 trillion, or 20 times the annual federal highway budget. Long-term maintenance costs are impossible to nail down at this point, making long-term viability a looming factor. Currently, each panel costs \$10,000, although those costs are expected to drop as development continues. **EG**



U.S. Pavilion for Expo Milano 2015, Biber Architects; Below: Studio Daniel Libeskind's pavilion for Chinese developer Vanke.



COURTESY STUDIO DANIEL LIBESKIND; BIBER ARCHITECTS

## EXPO MILANO 2015 CONSIDERS THE FUTURE OF FOOD PRODUCTION GASTRO PAVILION

In less than a year, the world will descend on Milan for the next installment of the once-every-five-years world expo. Opening on May 1, Expo Milano 2015, “Feeding the Planet: Energy for Life,” will take a turn for the topical, asking the more than 140 participating nations to tackle the subject of food. The U.S. pavilion, *American Food 2.0: United to Feed the Planet*, organized by the James Beard Foundation and the International Culinary Center, in association with the American Chamber of Commerce in Italy, is being designed by New York-based Biber Architects with architect Andrea Grassi and landscape architect Susannah Drake.

The stakes are high. In its latest report, the Intergovernmental Panel on Climate Change, for example, warned of risks to food security and widespread food shortage in the coming years, which are themes the expo will address. “There will be 9 billion people to feed by 2050,” said Mitchell Davis, the Chief Creative Officer of the Friends of the U.S. Pavilion and the Executive Vice President of the James Beard Foundation. “We need to figure out how to do that on the same amount of ground.”

Though the U.S. pavilion will take on this knotty problem, it will also serve up what Davis called “America’s contribution to gastronomy,” which, he emphasized, “won’t be hamburgers and hot dogs.” Instead, there will be a contingent of food trucks to convey the inventiveness and entrepreneurialism of food in the U.S.

Biber Architects principal James Biber studied up on the history of architecture at world expos, setting out to critique what he called “a box with one door in and one door out—a long queue at the front, a linear exhibition, and an exit out the gift shop.” Instead, his firm has designed a pavilion

that will find a balance between a scripted exhibition and a self-guided experience, allowing for a combination of both.

The pavilion design is organized horizontally, providing different types of experiences across three stories. Tying the experience together is a kinetic planted wall growing produce, which moves in response to sunlight. The ground level features an outdoor area to stage the food trucks, but also includes a fully enclosed and climate-controlled space, where organizers will curate the most linear experience of the pavilion’s content. The second level works as what Biber called a “hybrid experience—still an exhibit, but a self-guided one.” Partly enclosed by the porous green wall, the second floor will be a cool, breezy place. Above, on the third floor roof deck, the architects included two zones: the first, an enclosed room for meetings and VIPs, and, the second, an open platform where organizers can hold events and screen film and other media.

The expo site itself, designed by a consortium of designers, including Herzog & de Meuron, Ricky Burdett, Stefano Boeri, Mark Rylander, William McDonough, and Stefano Boeri, arranges pavilions along a grid of narrow lots—each 20 meters wide—that will allow visitors to experience more of them, and do so in systematic fashion. Daniel Libeskind is designing a bold red pavilion for the Chinese developer Vanke as well as several monumental sculptures.

Into this context, Biber is designing the U.S. pavilion to become “a scaffold for ideas, elemental and open enough to allot for a lot of ideas and experiences—not ‘fortress America.’” Visitors will learn about food security, public health, and the science of food in the midst of climate change—with a Korean taco or lobster roll from a food truck. “All of these ideas will co-exist in the pavilion,” said Davis. “It will be an open, airy structure where you can explore these ideas or just hang out.”

**JOHN GENDALL**

# NEW TWIST



The new ideas that poured into Lower Manhattan’s rebuilding resulted in a stronger infrastructure—and some architectural gems. A key piece in the undertaking is **Pelli Clarke Pelli’s** new **Pavilion at Brookfield Place**, a public space serving the 35,000 commuters who use the PATH system daily. Because the system’s track network runs underneath, the pavilion’s soaring roof and hanging glass curtain wall could only be supported at two points. **Thornton Tomasetti** met the challenge with a pair of 54-foot-tall “basket” columns, each gathering its loads in an expressive weave of lightweight, brightly painted twisting steel tubing that spirals down to plaza level in an ever-tightening array. It is innovative design, with a twist.

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Architect: Pelli Clarke Pelli Architects  
Structural Engineer: Thornton Tomasetti  
Photograph: Tex Jernigan





Boston Landing,  
Elkus Manfredi  
Architects.

COURTESY ELKUS MANFREDI ARCHITECTS

**BIG TIME IN BEAN TOWN** continued from front page Filene's department store designed by Daniel Burnham, will be the tallest residential building in the city. Boston regulators also recently approved tax breaks for the \$550 million Fenway Center, an immense mixed-use development that is slated to straddle a section of the Massachusetts Turnpike near Boston's Fenway Park. In addition, the new mayor reportedly has allocated city money for demolition of a large parking garage in the

heart of Boston's Financial District, which, along with the financial crisis, had been an impediment to former plans for the site involving a 1,000-foot-high office tower designed by Renzo Piano.

Many of the developments now moving forward were approved in the final days of the Menino administration, but the election of the new mayor appears to have spurred optimism about the future. "Menino was interested in making sure that development

didn't happen for development's sake—making sure that developers acknowledged their role in the large context," said Emily Grandstaff-Rice, president of the Boston Society of Architects, "but this frustrated developers because they thought the approval process was rigorous and undefined, so there is hope with the Walsh administration that there will be more transparency."

According to Handel Architects partner Blake Middleton, building in Boston is not necessarily more

onerous in terms of the approval process, just different. "If you are building in any location in Boston that is overseen by the Boston Redevelopment Authority, you have to go through design review and then you have the Boston Civic Design Commission," he said, adding, "an unseasoned developer might find it a challenge."

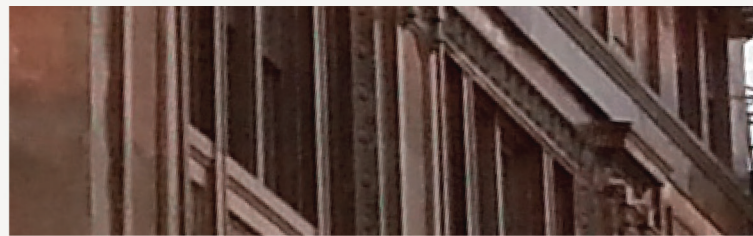
Some of the projects that stalled under the former mayoral administration include an earlier plan for the Filene's site by Vornado Real Estate Trust that fizzled after the company tried to extract tax concessions from the city by reportedly threatening to keep the site undeveloped. Middleton said that new plan with its focus on preserving and restoring the historic Burnham building is a vast improvement over the Vornado plan, which in addition to putting a hole in the landmarked building had the new tower cantilevering over it.

Among the reforms under the Menino administration that have made new development in Boston more challenging are new sustainability standards to reduce the city's carbon footprint and new resiliency measures to protect against storms. In addition, as part of an agenda to cut greenhouse gases by 2020, Boston has implemented a building energy reporting and disclosure ordinance requiring the city's large- and medium-sized buildings to report and make

publicly available their annual energy and water usage.

Another feature that should substantially reduce energy usage is that the new megaprojects are primarily located near public transportation nodes. At the \$500 million Boston Landing Project in Brighton, a 14-acre mixed-use development that broke ground under the Menino administration, the project's developer, New Balance, is paying for the building and the maintenance of a new commuter rail station.

Along with the sustainability initiatives, Bostonians finally appear to be embracing changes to their built environment from which they once recoiled. "It seems as though there is less fear about building tall and that we now recognize that density can be an advantage to many different realms, such as economic development and keeping people in the city by expanding the housing stock," said Grandstaff-Rice. And while the new developments are massive, in several instances on the scale of entire new neighborhoods, they still pay homage to certain of the city's architectural traditions. "There is a longstanding history here of place-making and these are a modern version of it," said Grandstaff-Rice. "It is continuing a long tradition of having local places where people can gather." **ALEX ULAM**



## HISTORY IN THE RE-MAKING

Gotham MetalWorks takes the art of metalwork to new levels with Landmark and Historic Replication. To help NJ Transit restore the Hoboken Terminal, Gotham replicated and replaced over 80% of the pieces of the copper metalwork facing of this Beaux-Arts style edifice. With state-of-the-art 3D modeling technology and mechanical precision, the intricacies of the egg-and-dart patterns and fleur-de-lis copper moldings were preserved and the historic nature of the Hoboken Terminal maintained. Specializing in Landmark and historical replication, Gotham also creates its own stamping dies and does its own stamping work. Learn more by visiting [gothammetals.com](http://gothammetals.com) or calling 718-786-1774.



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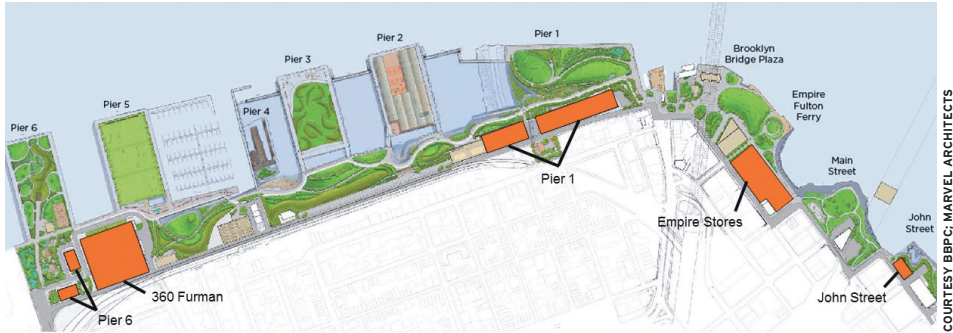
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Pierhouse, Marvel Architects; Right: Brooklyn Bridge Park development sites.



COURTESY BBPC MARVEL ARCHITECTS

## MAYOR ISSUES RFP FOR AFFORDABLE HOUSING AT BROOKLYN BRIDGE PARK

# AFFORDING THE WATERFRONT

As under-construction condominiums on the north side of Brooklyn Bridge Park shatter borough sales records, affordable units are slated to bookend the other end of the 85-acre site. The park has issued an RFP for two new towers at the south end of the park. Nearly a third of this new development is expected to include affordable apartments. The towers—one 16 stories and the other twice that size—would rise on currently vacant sites adjacent the Brooklyn Queens Expressway.

Given the mayor's plan to build or preserve 200,000 units of affordable housing over the next decade, this news is not surprising in its own right. The inclusion of affordable housing at Brooklyn Bridge Park, though, marks a significant turn in the park's history, and, possibly, its future.

The park was created as a public-private partnership with the city and state fronting money for construction, and property taxes from development at the park covering the

upkeep—about \$16 million a year. The 550,000-square-foot, Marvel Architects-designed condo and hotel project currently rising at the park is a key part of that plan.

Some local groups have opposed residential development at the park, claiming that it would block views of Manhattan and turn the public space into a backyard for the wealthy. But since the first phase of the park opened in 2010 it has been wildly popular with the public, and the planned towers at the site will likely do little to change that. In many ways, the fact that there is any green space at the site at all is a victory. When the park was being planned, the Port Authority proposed using the piers for high-rise development and parking lots.

The two new towers proposed under the de Blasio administration are also receiving their fair share of backlash, but not just for their size. Opponents point out that affordable units would provide significantly less revenue for the park, if any revenue at all. This has noticeably put community groups on the awkward side of opposing affordable housing in one of the most expensive neighborhoods

in the city.

Creating new affordable housing and continuing to provide funds for the park is not a zero-sum game for mayor de Blasio. A spokesperson for his administration told the Wall Street Journal, "We can secure the necessary funding to maintain this world-class park while simultaneously providing an affordable housing component to ensure the community actually represents Brooklyn."

While this plan is in its early stages, the reception it has already received foreshadows the many development debates to come. As mayor de Blasio sets out to build 80,000 new affordable units over the next decade, he will certainly get pushback from local groups about the size, location, and design of new projects.

This is nothing new—development will always have its detractors, and that is not always a bad thing. But in de Blasio's New York, opposing new development will increasingly mean opposing new affordable housing. It is a complicated and thorny debate and one that is about to play-out all across the city. **HM**

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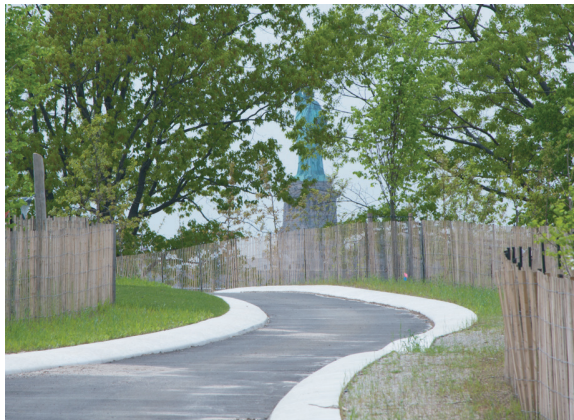
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This summer, 30 acres of new parkland will open on Governor's Island, designed by Dutch landscape architecture firm West 8.



TIMOTHY SCHENCK

"Governors Island is all about serendipity," said Leslie Koch, president of the Trust for Governors Island. In the eight years since the Trust was formed, Koch and her team have been conducting a kind of urban experiment. She set a few basic rules, but largely let the public use and inhabit—during the day at least—what previously was an unknown, abandoned island. Each summer the public encountered new exhibitions, programs, and activities on the island, and the Trust kept careful tabs on what worked and what didn't and how the public used the space. This summer, the results of that

experiment have become somewhat more solidified, with the opening of 30 acres of new parkland on the island's southern half, designed by the Dutch landscape architecture firm West 8.

West 8 and its principal, Adriaan Geuze, have a reputation for being maverick designers who often employ cheeky or populist imagery in their landscapes. It is something of a surprise to pass through the arch of the McKim, Mead & White-designed Liggett Hall into the garden and park they have designed. A pair of low hedge gardens flank the path scattered with Fermob garden chairs in

soft purple and green. Discreet water features—which are actually sophisticated splash pools—are tucked within the hedgerows. These gardens evoke aristocratic European precedents, but they're designed for today's recreational needs. They function as magnets for children, but the hedges are low enough to keep little tykes in full view of their parents at all times.

The design deftly joins European garden traditions with British picturesque elements, all filtered through a contemporary lens. Moving from the swirling paths of hedge gardens—which are framed by the

arms of U-shaped Liggett—paths open up toward gentle mounds planted with grasses and stands of small trees. Geuze inserts a graphic element with black asphalt paths edged in wide, curved, white concrete curbs. The curbs function as low benches or walls and are another kid attractor. They also act as gentle bumpers for the paths, the widest of which are conceived of as "boulevards for bikes." A grove of hammocks is tucked behind a turn. The paths open out to a large picnic lawn and possibly the most dramatically sited baseball diamond in the country, overlooking the

harbor with the Statue of Liberty directly behind it. Though well placed, the object-ness of the diamond is a bit discordant with the rest of the park.

The overall spatial effect is fluid and dynamic, and as you move through the gentle topography it is clear that Geuze has carefully directed plantings and circulation to highlight views of Liberty, as well as the skyline of Lower Manhattan. It's a thrilling addition to New York's growing list of world-class parks.

All of this is a preview of next year's coming attraction, the pair of giant manmade hills at the southern end of

the island. Having been to the top of one of the as-yet un-landscaped mounds, they offer perspective-shifting views of New York Harbor. The island will continue to evolve as the final phase of the park opens, the historic buildings begin to be permanently programmed, and two major development sites are designated for use. Geuze and Koch have set the stage for Governors Island to become a treasured—and they hope self-sustaining—playground for New Yorkers young and old. **AGB**

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COURTESY NYC MAYORS OFFICE

## MEENAKSHI SRINIVASAN TO LEAD NYC'S LANDMARKS PRESERVATION COMMISSION

### MYSTERY PICK

In a pick that surprised many observers, Mayor Bill de Blasio nominated Meenakshi Srinivasan—the chair of the Board of Standards and Appeals (BSA)—to lead the city's Landmarks Preservation Commission. While her name never appeared on the mayor's "short-list" for this position, Srinivasan is no stranger to New York City real estate. She has led the BSA for the past decade, and previously worked at the Department of City Planning. She also holds degrees in both architecture and urban design.

"[Srinivasan] has an incomparable

grasp of the land use process and the city's architectural landscape," said the mayor in a statement. "She has exactly the skills and the values needed to protect our heritage as New York City grows and develops to meet the needs of our people."

If confirmed by the City Council, Srinivasan will become a central figure in the age-old battle between preservationists and developers. Given the mayor's pledge to build or preserve 200,000 units of affordable housing over the next decade, this battle will only grow louder and more intense.

But the role that historic preservation will play in de Blasio's housing agenda is unclear. In his 115-page housing blueprint the word "landmark" comes up once. There is perhaps no better sign of the uncertainty of the future of landmarking in New York than that preservationists and developers are both optimistic about the mayor's surprising pick.

"The Community looks forward to getting to know her," said Peg Breen, the president of the New York Landmarks Conservancy.

"We don't have a clear sense of where the administration is on preservation, but we certainly hope for the best and will do our best to work with her."

Meanwhile, Steven Spinola, the president of the Real Estate Board of New York, told the *Wall Street Journal* that Srinivasan has "demonstrated the ability to professionalize every job that she's had... we believe that is exactly what is needed at the Landmarks Department." **HENRY MELCHER**

## NCARB ANNOUNCES EXAM OVERHAULS

### Testing Testing

The National Council of Architectural Registration Boards (NCARB) has announced a complete overhaul of its Architect Registration Examination (ARE). ARE 5.0 will debut in late 2016, according to Michael Armstrong, NCARB Chief Executive Officer.

The exam, which will remain in electronic format as it has since 1997, will contain six divisions instead of the current seven. They are Practice Management, Project Management, Programming & Analysis, Project Planning & Design, Project Development & Documentation, and Construction & Evaluation.

This new structure, according to Armstrong, will more accurately reflect the phases of architectural practice. ARE 5.0 will incorporate graphics throughout via new case studies, which will mimic typical architectural design scenarios. The

incorporation of case studies will allow more in-depth analysis of architectural scenarios. The exam will utilize completely new graphic tools, which will replace the old CAD-based vignette tool.

The revised structure is being developed with input from architects and educators from across the country as well as NCARB staff and consultants. Also under review is the current six-month waiting period for retaking failed divisions of the exam. The 2016 roll out will occur after beta testing of the software and exam is complete.

Armstrong also announced a major streamlining of NCARB's Intern Development Program (IDP). The current version of IDP contains duplicative and underutilized elements and has been considered by many interns as unnecessarily complex. Revisions to the IDP are under development by NCARB staff as well as representatives from the AIA, ACSA, AIAS, interns, and current practitioners. A 12-architect panel is currently reviewing the IDP and will submit it for public comments in June 2014.

**GEORGE CALYS**

## AT DEADLINE

### NEW YORK ASKS CITI BIKE TO COVER \$1 MILLION IN LOST PARKING REVENUE

Citi Bike has not had a great first year. The bikes are in bad shape, the docking technology is glitchy, and the system has been plagued with financial troubles for months. To make matters worse, New York City is asking Alta Bikeshare—the company which oversees Citi Bike—to cough up \$1 million to cover lost parking revenue. According to *The Wall Street Journal*, a provision in Alta's contract states that the company must reimburse the city for revenue lost from turning parking spaces into bike docking stations.

But because of ongoing negotiations between Alta and REQX Ventures—an investment firm that could provide Citi Bike with much-needed capital—this \$1 million check may never be written or cashed. The two entities are reportedly trying to remove this parking provision from a revised contract.

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In the 12 ½ years since the Twin Towers were destroyed in a ghastly act of international terrorism, the 16 acres known as Ground Zero have stood largely apart from the city. Now, the fences are down on the South and West sides of the site, and the Memorial Plaza is beginning to function as a public space. While Michael Arad's pools are effective in reminding visitors of the scale and magnitude of the destruction, Peter Walker's unfolding sequence of trees, benches, lawn, ivy, and pavers softens the plaza and allows visitors to experience it in a variety of ways. Some may not think of 9/11 at all.

The just opened 9/11 Memorial Museum ensures that the horror of that single day will never be scrubbed from the site, even as much of the acreage returns to commercial purposes. Given the subject matter, the architecture of the museum is almost beside the point, which is to say that it effectively frames and backgrounds the artifacts, images, and sounds that viscerally evoke the experience of that

day and its wrenching aftermath.

Visitors enter Snøhetta's iceberg-like visitor's pavilion, which is light and airy, but marred by a TSA-style security screening station. Large angled windows look out on to the plaza leading to escalators that begin the descent into the below-grade museum designed by Davis Brody Bond.

The descent is a long one. The architects created a deliberate sequence of ramps, stairs, and escalators that take visitors 70 feet below ground, a process that takes between 10 and 20 minutes, creating significant physical and psychological distance from the city above. The effect is purposefully somber. It is hard not to think about death.

A handful of artifacts—like a massive steel beam from the World Trade Center and the so-called “survivors’ stair”—and a few panels of text and discreet video projections are integrated into the 600-foot-long ramp, which the architects call “the ribbon.” The ramps are wide,

offering plenty of room for visitors to move at their own paces, either alone or with fellow visitors. “We tried to strike a balance between a contemplative and a communal experience,” said Carl Krebs, the project's lead architect with Steven Davis, both of David Brody Bond.

Wenge hardwood lines the ramp that terminates in a switchback that overlooks a vast space with an expanse of the exposed slurry wall and the steel beam known as the “last column.” As the procession continues, the visitor becomes increasingly acclimated to the experience. Where the ribbon reaches bedrock there is a vast wall covered in a large installation by artist Spencer Finch, comprising nearly 3,000 blue panels in different shades, each representing one of the victims. The panels frame the controversial quote from Virgil, “No day shall erase you from the memory of time.” A private space for the families is located behind the wall, containing the unidentified remains of victims. Flanking

the wall are two galleries, one dedicated to an exhibition about 9/11 (which could change over time) and a permanent exhibition dedicated to memorializing the victims themselves. The bedrock level also includes several other artifacts, such as a half destroyed fire truck and a fragment of an elevator mechanism.

The two galleries sit on the exact footprints of the towers and visitors cross over the line of the original foundations to enter them. The exterior of each gallery, which rises to the ceiling, is clad in foamed aluminum panels. The surfaces are carefully lit (lighting design was by Fisher Marantz Stone), giving them a slightly ethereal, shimmering quality. While following the exact outline of the towers, the design does not attempt to replicate their appearance. The nearly 100,000-square-foot museum is largely devoid of scenographic elements. “Memory, authenticity, scale, and emotion were the guiding principles of the design,” said Krebs.

Compared to the expansive spaces outside, the galleries are heavily programmed, filled with thousands of images, videos, and objects. They are overwhelming in both general and highly personal terms. The experience is immersive. The exhibitions largely stick to the facts of that day. Didactic or interpretive narratives are largely absent. There is little to debate or to divide viewers. One possible objection may come in the relatively small amount of space devoted to the Pentagon Attack and the crash of United 93 in Shankesville, Pennsylvania.

As a New Yorker who was in the city on 9/11 and watched the towers fall from the East Village, I can attest that the exhibitions (designed by a team including Thinc, Local Projects, and Layman Design) effectively capture the confusion of that day. The museum is a powerful project of documentation for future generations.

While the museum smartly allows for a variety of responses, many visitors will walk away saddened, disgusted by the senselessness of the attacks, and moved by stories of lives lost. The museum shows humanity at its most depraved and its most noble. Some may be unsure of the purpose of evoking such horror, but few will forget what they have seen.

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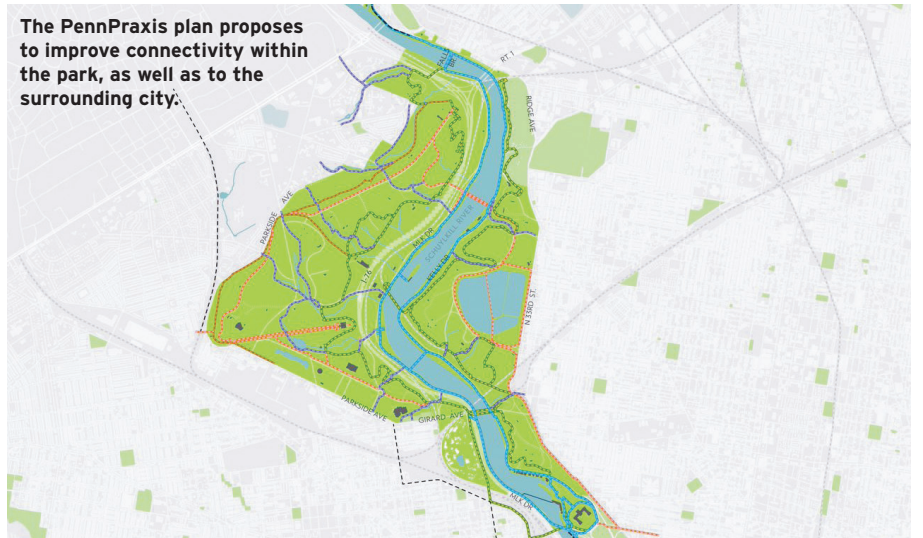
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The PennPraxis plan proposes to improve connectivity within the park, as well as to the surrounding city.



MASTER PLAN HOPES TO SPUR TRANSFORMATION OF PHILADELPHIA'S FAIRMOUNT PARK

## FRAMEWORK FOR DEVELOPMENT

Philadelphia has unveiled plans to overhaul the 2,000-acre Fairmount Park. Though more than twice the size of New York's Central Park, it has never been utilized, or revered, as has Olmsted's masterwork. Philly is trying to change that. In mid-March, the city's Department of Parks and Recreation unveiled a sprawling plan called "The New Fairmount Park," which proposes to transform the open space with bike lanes, trails, redesigned streets, landscaping, a public boathouse, and a host of other interventions.

Fairmount Park comprises two parks, East and West Fairmount, which are separated by the Schuylkill River. It was originally designed as a watershed park that was meant to protect the city's water supply. "It has never been conceived of as a whole park, or as a singular park," said Harris Steinberg of PennPraxis, which created the master plan on behalf of the city. "It stands in contrast to the great Olmsted parks."

Despite the park's original function as a public utility, and not necessarily a public space, it still manages to attract 7 million visitors a year. To increase those numbers even further, the master plan calls for reconnecting Fairmount with the city, and the expansive park with itself.

To begin that process, PennPraxis suggested that the city start from the park's outside edge and work its way in. The master plan proposes new pathways

and "attractive entrances" to better join the park with its bordering communities. Inside Fairmount, restored and reoriented trails create a more comprehensive way to move through the hills. Steinberg called these interventions "quick hits" because they can be implemented quickly and without too much capital. Ideally, they will build momentum for the more transformative proposals, like a public boathouse and pedestrian bridge across the Schuylkill.

It will take a lot more fund-

ing, planning, and political will to get the plans off the page and into the park. "Philadelphia has a long history of supporting visionary projects, but losing steam over time," said Steinberg. For that reason the master plan is, in many ways, a political document meant to encourage those with the power to write bills and sign checks to refocus on Fairmount's potential. Steinberg calls it a "framework for investment" and a "philanthropic to-do list."

Given that the current mayor only has 18 months left in office, though, the future of this plan is uncertain. Some of the proposed "quick hits" could be executed in the near future, but, according to Steinberg, the bigger projects are being "teed up" for whoever leads the city next. **HM**





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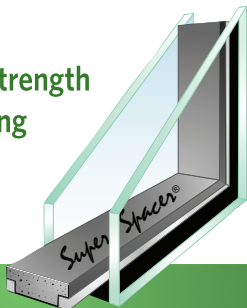
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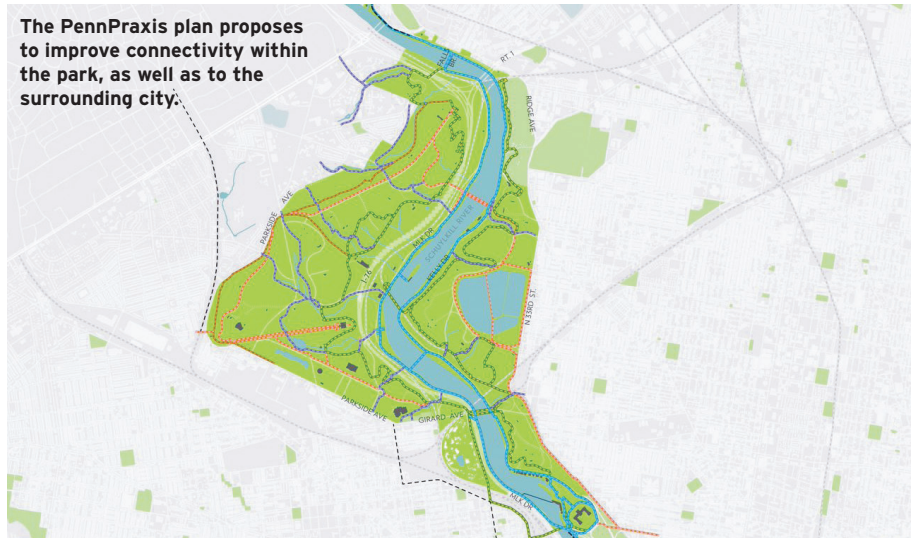
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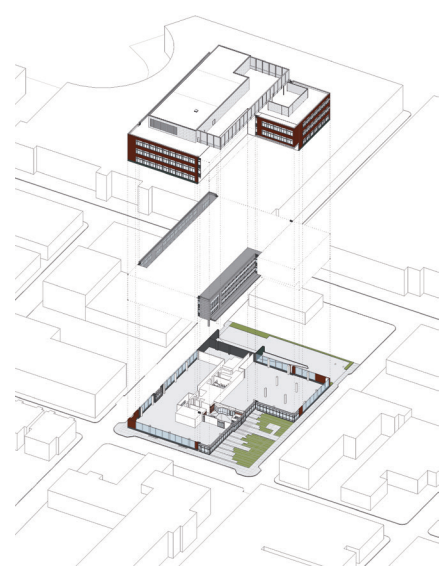
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THE ARCHITECT'S NEWSPAPER JUNE 5, 2014

ELKUS MANFREDI  
ARCHITECTS  
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Skanska USA pursued a LEED Platinum rating for this spec lab building in order to create a competitive edge in the marketplace. The high-performance mechanical systems provide more than 30 percent energy cost savings over baseline references.

Skanska USA recently completed a three-story, 123,000-square-foot spec office and lab facility at 150 2<sup>nd</sup> Street in Cambridge, Massachusetts' Kendall Square neighborhood. To gain a competitive edge in attracting the high-tech companies that proliferate around MIT, the developer/construction manager hired Boston-based Elkus Manfredi Architects and landscape firm Copley Wolff Design Group to deliver a cost-effective design that would set a new standard of sustainability for the project type in the region. In that pursuit, the project became the first commercial lab building in New England to be awarded LEED v3 Platinum certification.

Located at a transitional point between Kendall Square's larger office building core and a triple-decker residential district, the project's massing and fenestration attempts to strike a happy medium between the two scales. While providing a high R value overall, the facade design is nothing fancy. "We architects like to talk about high performance buildings as being smart buildings, and we usually

think of that as being an active solar control system or some high tech thing," said Elkus Manfredi principal John Martin. "In that sense this building is not a smart building. We like to call it a clever building."

To balance insulation values and daylight, the design team limited the amount of glass in the building enclosure to 42 percent, deciding on a stick-built ribbon window system with 1-inch-thick, low-e IGUs and straight-out-of-the-catalogue Kwaneer brise soleils on the southern exposures. The bulk of the envelope is made up of Alucobond metal panels, though in sections a brownish fiber cement board (Öko Skin) rain screen system breaks up the massing.

Inside, the directive was column-free space. To create that, the design team had to span 50 feet from the core to the perimeter. With standard structural steel wide flange sections, reaching such a distance would require quite a deep, heavy beam, adding not only to the weight, cost, and floor-to-floor heights of the building, but also to its carbon foot print. To

mitigate this condition, the design team opted to use composite steel trusses for the floor framing instead of wide flange sections, a decision that not only reduced the weight and carbon profile of the project, but also provided penetrations in the structure through which to run ducting, piping, wire chases, etc., and making for a more efficient floor section. As a result of this choice, the design saved 188 tons of structural steel.

As an urban design gesture, the L-shaped building features a public entry court on the corner of 2<sup>nd</sup> and Bent streets, which faces a future public park to the southeast of the building. The court is outfitted with ipe benches and bike racks and locally sourced, light-colored paving that meets the LEED solar reflectance index value of below 29. It also features rain gardens planted with native and drought resistant vegetation—sweet gum and red maple trees, native holly shrubs, and sedges and ornamental grasses—that were designed to absorb all stormwater that falls on the court.

In December 2013, Skanska USA reportedly sold 150 2<sup>nd</sup> Street to Alexandria Real Estate Equities for \$94.5 million, or \$766 per square foot. While we can assume the company made a handy profit on the project (the project cost was not released as of press time) it has also established an important precedent: a sustainable, cost-effective, and easily repeatable model of lab development.

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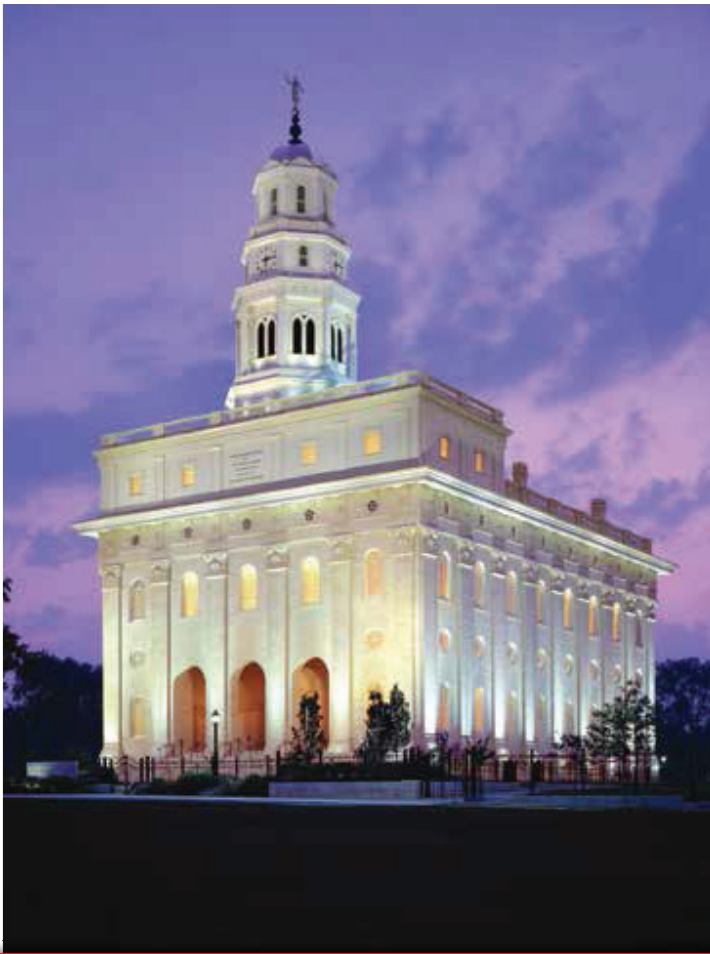
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5 FRANKLIN PLACE



U.S. EMBASSY



COURTESY RADII

The craft of architectural model making has been radically transformed in the past five years with the development of new technological tools like CNC milling machines, large format laser cutters, thermo-vac forming, and stereolithography/3D printing. But model makers still work, as they have for many years, primarily from detailed drawings provided by the architect. With these they attempt to provide as realistic an object or detail as possible for the designer or client.

The two founders of the model-making studio Radii, Leszek Stefanski and Ed Wood, however, claim they often work not simply from drawn plans but from “adjectives.” Architects ask them to mock up a facade model that is more “crystalline,” “undulating,” or “robust,” and as architects themselves they speak the language of architecture. They explore these “ideas and effects” by mocking up materials like glass or tile with other small-scale materials that

replicate the actual materials.

By capturing the spirit of the project they say they can save a great deal of time for the design architects. They have, for example, worked with Jamie Carpenter on some of his glass designs, taking his real scale extruded glass plans and developing them in miniature, scaling down the optics and exactly replicating the effect Carpenter was looking for in his facade design.

Though Stefanski and Wood are proud of their ability to get projects done on time, they are also committed, like architects, to change any design up to the very last minute of presentation. Their 6,000-square-foot workshop is home to twelve architecture trained craftspeople with all the most advanced technology. They have the ability to grasp the subtleties of design intent to create models of the most convincing visual quality and precision.

**WILLIAM MENKING**

U.S. EMBASSY, KIERAN TIMBERLAKE  
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Radii collaborated with the architects on this winning competition entry. To achieve a finely detailed “jewel-like” object at very small scale for the exterior facade, ETFE “pillows” were machined in-house in clear acrylic, polished, and then laser etched with subtle frit patterning. The building was highlighted using muted color tones for landscaping and site. The model was lit using battery powered LED lamps. It was finely detailed but fabricated to endure the rigors of airfreight with no damage.

V&A AT DUNDEE, REX  
DUNDEE, SCOTLAND

Radii worked with six of the 120 original entrants in this competition. Using custom reflective/transparent acrylic, the building shifted from solid-reflective to clear-transparent depending on lighting conditions (ambient and interior model lighting). The model was constructed within very tight time constraints.

FULTON STREET TRANSIT CENTER,  
GRIMSHAW ARCHITECTS  
NEW YORK CITY

A sectional view through the proposed transit center for downtown Manhattan, this model helped test and illustrate the effect of natural light on the metal cone structure surfaces. Materials include white acrylic, gradient sand-blasted acrylic, and perforated nickel-silver.

5 FRANKLIN PLACE, UN STUDIO  
NEW YORK CITY

This model was created to use as a sales and marketing model for a residential tower on lower Broadway. The building’s characteristic “twisted ribbons” were achieved with custom 3D CNC components with hand-finished, polished black lacquering. The building project was ultimately cancelled.



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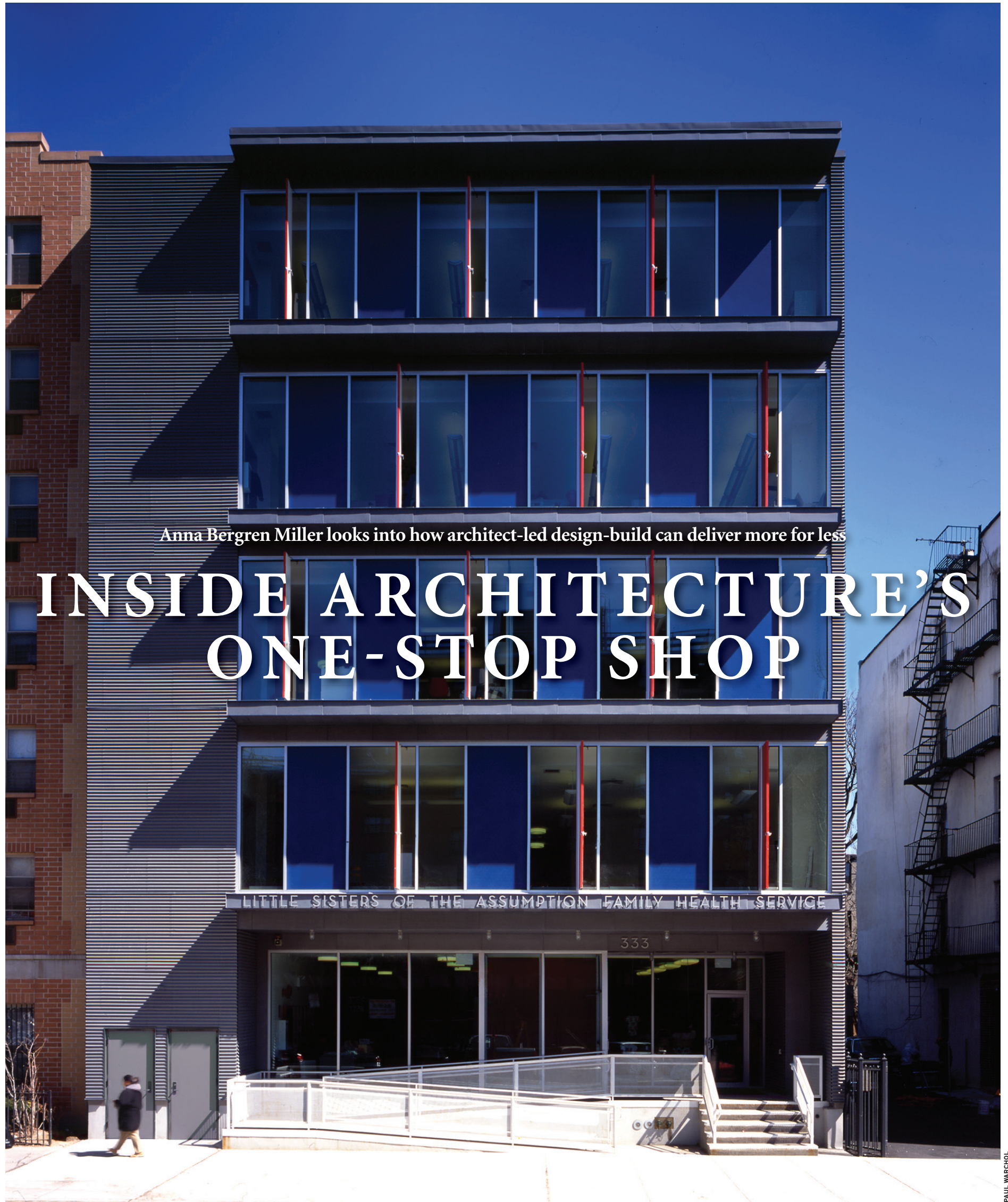
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2 O O  
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NEW YORK  
DESIGN CENTER





Anna Bergren Miller looks into how architect-led design-build can deliver more for less

# INSIDE ARCHITECTURE'S ONE-STOP SHOP

LITTLE SISTERS OF THE ASSUMPTION FAMILY HEALTH SERVICE

333





East Harlem School, New York City, Gluck +; **Below left:** Little Ajax Affordable Housing, Aspen, CO, Gluck+; **Below right:** Lakeside Retreat, Adirondack Mountains, NY, Gluck+; **Opposite page:** Little Sisters of the Assumption Family Health Service, New York City, Gluck+.



CLOCKWISE FROM TOP: ERIK FREELAND; COURTESY GLUCK+; STEVE MUNDINGER

"The typical process of architecture is broken." So begins a slideshow on the website of GLUCK+, the New York firm known for its practice—and advocacy—of architect-led design build. Design-build differs from conventional project delivery in that a single firm is responsible for both design and construction. Proponents of the method argue that by repairing the breach between architecture and building design-build benefits both clients and architects, and produces better designs.

"I did this for years without really talking about it," said GLUCK+ principal Peter Gluck. "For some reason in the academy, as soon as you talk about building something, it's dirty in a way. That's a schism that exists in the profession that's detrimental to the making of architecture. We're fighting against it, we're really trying to change the profession."

While some are more tempered than Gluck in their defense of the

method, design-build practitioners are unanimous on one point: working as both architect and contractor changes the way a firm does design. Design-build negates the idea of design for design's sake, and instead prioritizes the finished product. "Everything we design and draw is thought about in terms of constructability and cost," wrote Kevin Eckert and Andrew van Leeuwen, partners at Seattle's BUILD, on their firm's blog. "We don't do theoretical work, design for competitions, or go after awards."

Design-build offers potential benefits to clients, architects, and the buildings themselves. By establishing a single point of responsibility, the practice eliminates a major source of client frustration: conflicts between the architect and contractor. "It's amazing how much time gets wasted, and money, trying to figure out how to blame someone else," said GLUCK+ principal Stacie Wong. "We can only point the fingers at ourselves,

and that takes about one second."

Clients save money under design-build, though how much is up for debate. BUILD suggests that the process reduces project costs by about 10 percent. The most widely cited figures, touted by the Design-Build Institute of America and other proponents of the method, come from a 16-year-old study by the Construction Industry Institute (CII) and Penn State, which found that design-build lowered unit costs 6.1 percent over design-bid-build. For Katherine Hogan, co-owner of tonic design | tonic construction in Raleigh, North Carolina, the financial advantage of design-build is harder to pin down, yet nonetheless real. "There are efficiencies in the process," she said. "It's not percentage-wise that there's a savings, but there's a cost savings in time, management, and responsibility."

Design-build also saves time. The CII/Penn State report found that design-build projects had a

12 percent faster construction speed and 33.5 percent faster delivery speed compared to design-bid-build. Tonic co-owner Vincent Petrarca argued that the benefit stems from streamlined communication. On a conventional project, a fear of recrimination can slow even email correspondence to a crawl. "If time is money and communication is the problem, then there is this savings for the client," he said. "Now we can do a house in six to eight months to build, [plus] a couple months to design."

The savings inherent to design-build make it possible to offer design services to clients who would not otherwise be able to afford them. Much of GLUCK+'s recent work has been for non-profits, like the East Harlem School. "Not-for-profits, one thing they don't have is money," said Gluck. "They can't afford cost overruns. So we're able to pin the tail on the donkey, we guarantee our prices. The normal process simply cannot

do that."

Design-build can also serve a wider range of private clients. Under design-bid-build, a property owner must pay for architectural drawings up front, before applying for a construction loan. "That's why a lot of people don't have architects," said Petrarca. "It's an economic model that limits creativity." Taking their cue from speculative builders, tonic rolls their design fee into the mortgage. "This model makes modern architecture available to more people," explained Hogan.

Architects as well as clients benefit from the method. On a design-build project, the architect controls the design throughout the process. "Working this way just gives us so much more freedom, freedom from the tyranny of the contractor," said Gluck. "We don't have people telling us we can't do things, or that that detail is too complicated or won't work."

Architects in a design-build practice participate in construction profits and collect any savings generated through efficiencies. "You get to define what reward means to you: put it back into architecture, put it in your pocket, or do less work," observed Petrarca. In addition, having both design and construction projects on the table can keep a design-build firm going during a downturn. A single project provides tonic with steady work for about eighteen months, said Petrarca, while a conventional architecture practice would have to take on three or four jobs to cover the same period.

Design-build can improve the quality of design, as architects and subcontractors work together to solve problems. While designing the Rank Residence, for example, tonic experimented with a mockup of the house's vertical siding built by their roofing subcontractor. "We were enrolling them in the process to make sure we had the correct details," said Hogan. "That way we didn't have to draw it, then have them reinterpret it later on: we were figuring it out as a team."

The nuts and bolts of design-build are more complicated than conventional architecture practice. The designers must maintain two licenses as well as two types of insurance, which sometime forces an artificial separation between the design and construction elements of the firm. Tonic began as two companies, explained Petrarca "because our state AIA laws were against the architect being in two different [roles]. It's a pro and con depending on the situation. I think if we had to do it again, it would've been more like GLUCK+, which operates as a single commercial entity.

But even at GLUCK+ the streamlining only goes so far. Most projects there operate on separate design and build contracts. "It really is superficial simply because there is no existing standard contract that



Art as Shelter, Raleigh, NC, Tonic Design; **Below left:** Chiles Residence, Raleigh, NC, Tonic Design; **Below right:** Crabill Modern, Hillsborough, NC, Tonic Design.



CLOCKWISE FROM TOP: JIM WEST; RAYMOND GOODMAN; JIM WEST

represents what we do," said Gluck. "We often just use the standard contracts because it's less confusing to clients and their lawyers." Separate contracts require extra attention to billing. "We often talk about it as you're wearing two hats, throughout the day you're switching," said Wong. "Everybody is very conscious of how they spend their time."

Interaction with subcontractors encourages innovations in documentation. "We can draw anything we want, but we have to have our [subcontractors] be able to understand an interface with the technology," said Petrarca. "They typically haven't gone to architecture school, so we've always

kind of catered to them in terms of what we need to produce." GLUCK+ has developed a system of sequential drawings targeting each trade. Besides making life easier during construction, said Wong, the drawings save money by removing some of the guesswork from the bidding process.

Design-build's detractors say the method puts architects at greater risk of litigation. Gluck disagrees. "The fear is that there's much more liability," he said. "Our position is there's much less liability because you control the quality of the work. Why would you design as an architect and have all the personal liability and then give it to somebody else to execute?"

Design-build does produce more paperwork—and more stress. "It's another business, it's another operation," said Gluck. "It's a lot easier just to make a sketch on a napkin and call that design." Firms transitioning from conventional to design-build practice can find it hard to navigate the regulatory structures involved. BUILD was audited several times during its first five years. "It was a trying time and we have more gray hair (and unfortunately less hair in general) as a result, but we can now operate with confidence that we are checking all the appropriate legal boxes," wrote Eckert and Van Leeuwen.

Practitioners of design-build say they see two opposite responses to

their work from fellow architects: dismissal and interest. "I talk to a lot of people and they say they really don't like it," said Hogan. "They see design-build takes the architecture out of it. But when you look at it, [design-build] firms are doing really critical work."

Other designers are genuinely interested in understanding the design-build model. Curious architects interrupted Hogan and Petrarca during a recent lecture on their work. "Every one of them wanted to know how we figured out our fee, how does it relate to insurance," said Petrarca. "We never got to the rest of our slides because we were all talking about money."

Design-build is not for everyone,

said Hogan. "There are really great firms that do just architecture. This is the path we've chosen in our context, in our history. It appeals to some firms and not to others." That said, many who have practiced this way are thoroughly convinced. GLUCK+ offers conventional architecture services to some clients, said Wong, but "situations like that reinforce in our mind how much more program, building, architecture a client gets when we do design-build. For us the proof is in the pudding: we really know because we experience it both ways. It's hard to fully convey how much better it is."

**ANNA BERGREN MILLER IS A FREQUENT CONTRIBUTOR TO AN.**







The Abraham Joshua Heschel School | New York, NY  
Architect: Gruzen Samton | CM: Sciam Construction | ©Paul Warchol Photography



Military Park Revitalization | Newark, NJ  
H3 Hardy Collaboration Architecture; Landscape Architect: Birdsall Services Group;  
Hackett Landscape Design | CM: Let It Grow, Inc.



Lincoln Square Synagogue | New York, NY  
Architect: CetraRuddy | CM: McGowan Builders



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Chris Bentley explores the latest horizons in sustainable design metrics

# BEYOND LEED

Since the first LEED plaques were rolled out in 2000, more than 56,000 commercial projects worldwide have received the coveted environmental certification, which stands for Leadership in Energy and Environmental Design. Generally acknowledged as the world's foremost seal of approval for sustainable design, the ranking system has grown to encompass all kinds of projects, from interiors to neighborhood development, retrofits to new construction, skyscrapers to student centers.

In 14 years, LEED has gone from fringe to mainstream. Derek Hoeflerlin, an assistant professor at Washington University's Sam Fox School of Design & Visual Arts, recalled a rude reminder of how proficiency in the system has become so common as to be expected. He remembered celebrating at a cocktail party after getting his architectural license. "I was talking to someone about getting licensed and they asked me, 'Well, how can you be an architect and not be LEED certified?'" said Hoeflerlin. "I've always kind of had an issue with all these extra certifications."

Hundreds of cities and dozens of states

now require LEED certification for most public buildings. The U.S. Green Building Council, which runs LEED, has certified some 3 billion square feet of real estate around the world. But LEED has come under fire in recent years. Critics say it is too expensive, and that it forces designers to check off boxes instead of pursuing overall strategies that may actually result in better building performance. A 2008 study by the New Buildings Institute, commissioned by the U.S. Green Building Council, looked at 121 new construction projects and found that more than half of them did not qualify for the Environmental Protection Agency's Energy Star labels.

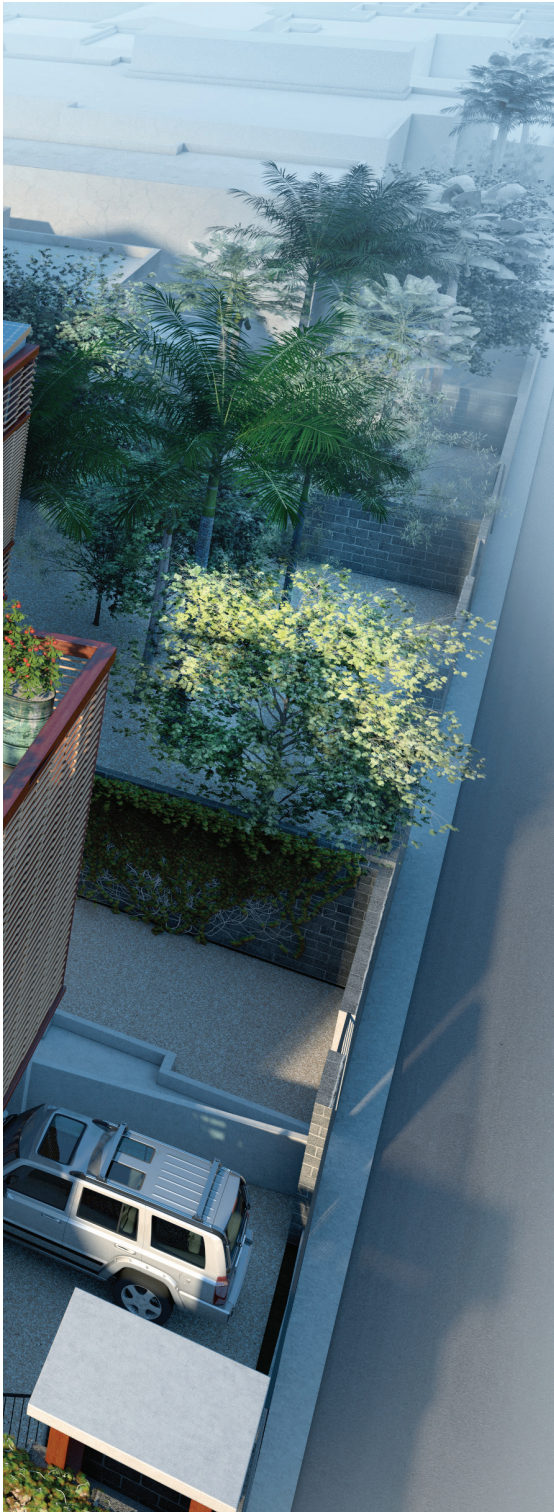
It is a problem acknowledged by the U.S. Green Building Council. "I don't think a tool can be everything to all people," said Scot Horst, USGBC's vice president overseeing LEED. "I see LEED as an extremely functional and well-designed tool for incentivizing the market to do better work. I don't see it as a vision. The reason it's so functional is partially because there's so many people that know about it, taking real action. And it's not easy.

**Above and below:** William Jefferson Clinton Children's Center, Port-au-Prince, Haiti, HOK.



COURTESY HOK





Personally I think that's good enough."

Recently USGBC introduced an Energy Star-like system for existing buildings, where owners and operators have to be recertified every five years. To date, 1.15 billion square feet of built space is certified under this new rating system (LEED for Existing Buildings: Operations & Maintenance, or EBOM)—more than any of the other LEED rating systems. They are also installing new "dynamic plaques" that measure building performance in real time.

Design professionals say there is still a place for LEED, especially in light of steps USGBC is taking to update the system. But the rise of alternative metrics, such as the industry-run Green Globes and the more stringent Living Building Challenge, underscores a growing sense of LEED fatigue among some practitioners who see more room for growth in aggressive energy code changes, big data, and a return to basic ecological principles too often shirked by projects chasing LEED points.

#### Codebreakers

In Guangzhou, China, designers at Skidmore, Owings & Merrill are turning 35 square kilometers of former industrial land into a "new sustainable city" for 740,000 residents. Their Baietan master plan is one of many large projects testing LEED's limits. "There isn't density everywhere in that project, so how do you prove you need the walk score everywhere? Certain things happen when you scale up. You start getting into the nuances of these systems," said SOM sustainability specialist Arathi Gowda. "It's a strange, new kind of design. I do think it's to LEED's credit, they're seeing that trend and adapting."

Master planning is making a comeback, with projects from coast to coast reconciling ambitious development with ecological economies of scale. In Asia, mega-developments defy categorization. Baietan's ecosystem-scale thinking does not mesh easily with LEED's checklist.

Closer to home, SOM is nearly 10 years into planning the 600-acre Lakeside development on the site of a former U.S. Steel

plant in Chicago. With developer McCaffery Interests, the firm is looking at recycling wastewater through the porous slag infill, and even generating and distributing its own energy through a localized power grid. Lakeside would be a proving ground for sustainable design infrastructure that its architects hope will be standard fare for future generations.

Today, though, it would require its own building code. Net-metering for energy use, recycling wastewater, and even selling energy back to the grid would necessitate a kind of public-private utility that has little precedent in the U.S. "It's not all figured out, but it is very hopeful that we're saying, 'Lakeside is going to have its own building code,' and everyone at the table is saying yes, it has to," said Gowda. "All of the big cities are very interested in having this kind of development. If you talk to them in the right way, intelligently, the doors are opening much more rapidly than they were ten years ago."

That's partially because of LEED, she added. After all, Lakeside was named a pilot project for LEED's Neighborhood Development

The LEED Platinum certified Wayne Aspinall Federal Building and U.S. Courthouse, Grand Junction, CO, Westlake Reed Leskosky.



KEVIN C. REEVES



Certification. But it is largely due to changes in energy codes at the municipal, national, and international levels. Since 1975, the ASHRAE (American Society of Heating, Refrigeration, and Air-Conditioning Engineers) standard has ratcheted up energy use standards nearly 60 percent, with half of that code tightening in just the last six years.

LEED's latest version sets the baseline at 10 percent more efficient than ASHRAE's 2010 standards. "Because this is becoming codified, in many jurisdictions around the world you can't pull a permit without at minimum meeting these standards, and we are seeing more areas around the world ramp up the aggressiveness of their energy codes," said Gowda. That's driving SOM to explore other aspects of sustainable design—their environmental design practice is focused on Smart Cities and Embodied Energy, among other things—rather than LEED's traditional strong suit of energy and water conservation.

#### Building Performance Anxiety

Two months before architects at Westlake Reed Leskosky had their final interview on a major government project, their client, the General Services Administration, publicly announced its intention to become the nation's first net-zero agency. That put pressure on the firm to step beyond basic LEED guidelines. "People say they're never going to get there," said engineer Roger Chang, principal and director of sustainability at Westlake Reed Leskosky. "And in some ways, they're never going to get there, for some buildings. But if you set the bar any lower, it gives you an excuse not to try hard."

At the Wayne Aspinall Federal Building and U.S. Courthouse, which is also LEED-Platinum, Chang and his colleagues cut energy consumption with extra insulation, installed a 132-kilowatt solar panel system, and added 32 geothermal wells 475 feet deep.

The government remains one of USGBC's best clients. The General Service





COURTESY SOM

Administration has required basic LEED certification since 2003 and LEED-Gold since 2010. Last year it put its first net-zero facility on the National Register. Aspinall was also one of AIA's top 10 green buildings last year.

Once they are built, buildings do not use energy—tenants do. Westlake Reed Leskosky needed Aspinall's employees, mostly federal agencies, to cooperate. Chang said their firm helped the GSA set goals for energy use within each of the building's offices. Many of them, including the Army Corps of Engineers and the Internal Revenue Service, were gung-ho about energy conservation. Others were not. In a building as efficient as Aspinall, a handful of people could use as much electricity as the rest of the tenants combined. That experience illustrates an important lesson for energy-efficient building: office culture matters.

Making sure a green building performs like its designers envisioned is often easier said than done. Building managers are not just the guys who get yelled at when the tenants are too hot or too cold—they are often the people with the most intimate knowledge of how a building actually works in the real world. "People spend too much money on the front end for new buildings, and forget you need to maintain the building for 50 years," said Chang. The average commercial building wastes roughly 30 percent of the energy it consumes, according to Energy Star. In a process engineers call "energy creep," high-performance buildings actually slip more easily into inefficiency than simpler, lower-tech structures. "I'd rather design

something that's a little bit less efficient but simpler to operate, than something that's really complicated," said Chang.

#### Data-Driven Design

One thing that might bridge that gap is a kind of holy grail for building managers, engineers and architects alike: robust building performance data. Software could play a bigger role in transmitting information about building use in real-time. Conventional HVAC equipment and other hardware is approaching a plateau when it comes to energy efficiency improvements. But companies like Retroficiency that conduct "virtual energy audits" remotely via software are just beginning to take off.

A similar trend is underway in the design studio. "The ideal for me is to be in some virtual design environment, and every time I make a move or a tweak, to have updated real-time energy and in parallel with that cost information, to really be able to analyze what you're doing," said Brian Dolan, a designer at Clayco's Forum Studio.

Tools like Autodesk's Green Building Studio come close, he said, but lack detail. A few years ago, web-based sustainability analysis tool Sefaira got the attention of Dolan and other designers for its pared down user interface and detailed real-time feedback. The company recently revamped its plugin for Revit.

It's not just detail that matters, Dolan said, but ease of use. In a design process constrained by time, money, and manpower, sustainability can fall by the wayside unless

clients are actively involved. "It makes the whole argument easier if you can say, 'yes you're going to save energy and it's going to save you this much money,'" said Dolan, who also coordinates Chicago's Living Building Challenge efforts. That conversation happens early at Clayco, he added, where designers work side by side with construction management and development teams.

Promising energy savings is one thing, but critics say LEED and other sustainable design regimes focus on energy and water conservation at the expense of metrics that might be fuzzier, but no less important. How do you quantify a tenant's emotional response, or the psychological benefits of access to daylight and green space? "Those things have always been more rules of thumb, and they're typically first on the chopping block because there's not a good way to quantify that return on investment," said Dolan.

The non-profit Earth Economics and environmental consultants Terrapin Bright Green have each tried to do just that. Earth Economics summarized their approach in a 2011 report, assessing the value of "eco-system services," like carbon sequestration and water retention, as well as costs avoided and benefits to productivity that result from design more attuned to natural systems. In Terrapin Bright Green's 2012 study, "The Economics of Biophilia," the authors concluded that the \$2.5 trillion healthcare industry could save \$93 million each year simply by increasing views from hospital beds to nature, since patients would require less time in the hospital to recover from major surgeries.

Such alternative accounting is fundamentally different from the current thinking on sustainable design, according to biomimicry guru Janine Benyus. "What would it take for this city to function as elegantly as this forest?" Benyus asked during a conference hosted earlier this year by Esri, the geographic information systems company. It is not making buildings look like nature, she said, "It's asking how does nature function and then trying to emulate that function and performance."

#### Getting Creative

This summer HOK expects to break ground on the William Jefferson Clinton Children's Center, an orphanage in Port-au-Prince, Haiti.

The original building was destroyed in the 2010 earthquake. HOK designers set ambitious sustainable design goals, aiming to restore some stability to Foundation Enfant Jesus—the charity that operated the original orphanage and children's center.

HOK's Thomas Knittel said their goal to be net-zero was not borne of eco-altruism—it was a necessity. With little infrastructure to work with, the designers looked to self-sustaining systems in nature. "When you get into highly evolved systems, they're distributed, heterogenous, decentralized. Resilient systems are rugged and tough. They have this ability through the degree of redundancy and decentralization," said Knittel. Multiple composting systems reduce the waste that needs to be trucked off-site. Wind and solar power systems feed into battery systems. A bamboo-cladding system works with a sound concrete structural system, suggesting the form and function of a small forest while bracing the building against future storms and earthquakes.

"The process allows us to get to the core principle in nature and identify the design principle to come up with the solution. Sometimes that's just the things you have at hand," said Knittel. "To me it creates almost a new form of creativity, where we get out of our normal every day way that we approach projects, and there's a real value in that." Following biomimicry concepts led HOK to a design that is expected to meet the Delos Living Well Building Standard, as well as LEED Platinum. USGBC has been involved since the start, hoping to show that sustainable design is not just for rich clients and countries.

To Scot Horst, USGBC's vice president overseeing LEED, that has always been the value of a program with such broad market appeal. "We're changing the construction industry in Brazil. Just as it's really getting established, we're having a huge impact on what it means to build a really quality building there, or in Asia," said Horst.

Only a handful of buildings worldwide have met Living Building Challenge standards to date.

Except in rare cases like Project Haiti with HOK, LEED's strength is incremental change, said Horst. "I wish that LEED provided more of an understood vision of where we can go," he said, "but instead I think what it really provides is a roadmap for where we can go right now, what's really doable."

**CHRIS BENTLEY IS AN'S MIDWEST EDITOR.**



Above: Baietan Urban Master Plan, China, SOM; Chicago Lakeside Master Plan, Chicago, IL, SOM.




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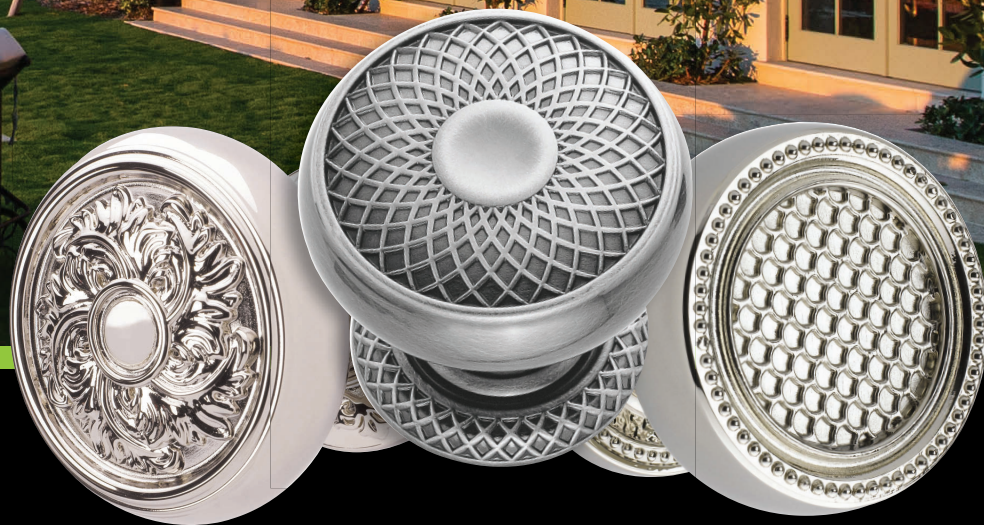
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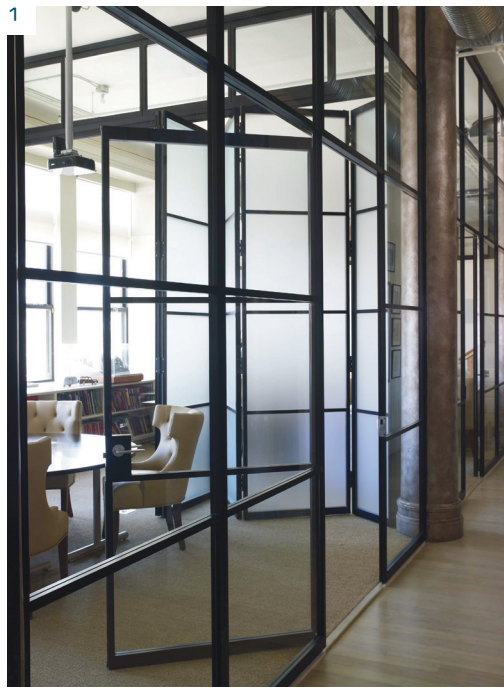
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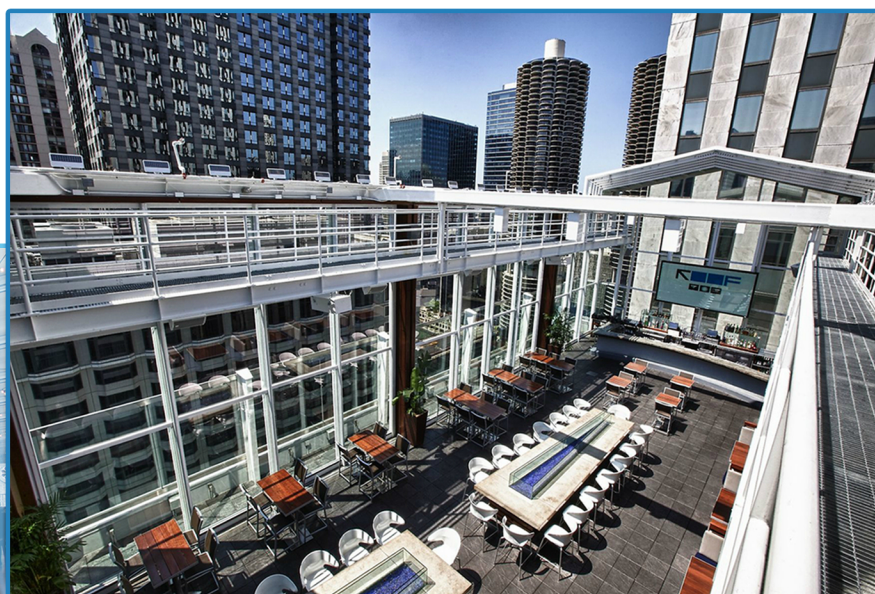
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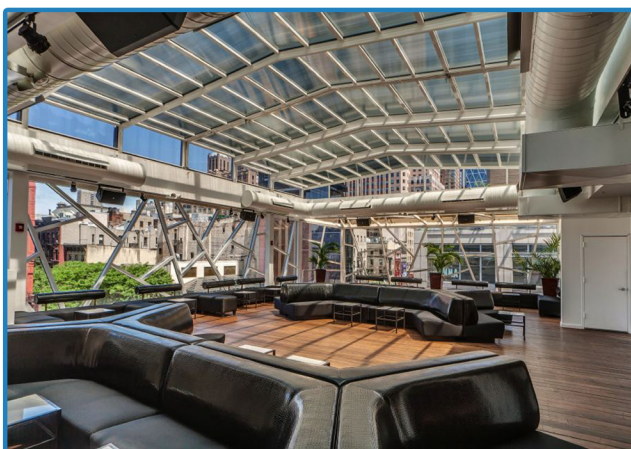
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[durathermwindow.com](http://durathermwindow.com)

### 2 VITROCSA INVISIBLE WALL SYSTEM VITROCSA

With only 3/4-inch vertical sightlines for dual-glazed sliding doors, this system creates a nearly invisible operable wall. Available as horizontal sliding windows and doors, vertically sliding windows, and pivoting doors.

[vitrocsaUSA.com](http://vitrocsaUSA.com)

### 3 SOLARLUX CERO

A 1 1/3-inch profile and a concealed track system facilitate a near-seamless appearance. Capable of supporting panels up to 13 feet by 19 feet with a weight of 2,200 pounds.

[cero.de](http://cero.de)

### 4 ARCHITECTURAL OPENINGS ARCHITECTURAL OPENINGS

Doors with lift-slide and swing mechanisms combine with tilt-turn windows in this custom mahogany curtain wall.

[archop.com](http://archop.com)

### 5 LIFT/SLIDE PANDA WINDOWS & DOORS

With a maximum panel size of 20 feet tall by 10 feet wide, these thermally broken lift-and-slide doors feature an extruded aluminum profile and polyamide iso-bars.

[panda-windows.com](http://panda-windows.com)





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6 E1200 ELEPHANT  
DOORS SYSTEM  
CRL

Operable storefront sections slide behind fixed sections of this opening system. Suitable for conditions that require a wide opening that can be easily converted into a fixed panel, a wall, or a wall with a door system inside.

crl-arch.com

7 MULTI-SLIDE DOOR SYSTEM  
LA CANTINA

This aluminum thermally controlled multi-slide door system features AAMA certified wheels, which allow for a symmetrical, low-profile bottom rail.

lacantinadoors.com

8 HYDRAU-LIFT BIFOLD DOORS  
HUF COR

These automated bifold doors fold vertically up and outward when retracted, leaving a clear opening and minimizing the amount of headroom needed inside the building.

hufcor.com

9 STANDARD GRADE  
MULTIWALL SHEETS  
POLYGAL

Featuring a UV coating to protect the polycarbonate panels against yellowing, the rigid sheet structure provides extra strength under wind and snow loads.

polygal-northamerica.com

10 ARC  
SKY-FRAME

This sliding curved window can be double- or triple-glazed. Multiple curves can be combined, or integrated with straight runs.

sky-frame.ch





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## INTERIORS

Moveable partitions give structure to open floor plans and adapt to shifting spatial needs, in both residential and commercial applications. By Leslie Clagett

# GREAT DIVIDERS

### 1 PK-30 SYSTEM PK-30

Folding walls, room fronts, and clerestory windows all utilize the same aluminum profile, thus achieving design continuity through several different architectural applications. Accepts panels in ¼-inch or ½-inch thickness.

[pk30system.com](http://pk30system.com)

### 2 LAMA SYSTEM MODERNUS

This partition system offers swing, sliding, and pocket door options, and can be configured for single- or double-glazed designs.

[modernus.com](http://modernus.com)

### 3 GENIUS MOVEABLE WALL KI

Providing outstanding acoustic protection at 44-48 STC, these walls are available in solid, glass, and stick-built panels. The non-progressive design means changing a single frame doesn't require dismantling an entire wall.

[ki.com](http://ki.com)

### 4 PATTERN+ 3FORM

Using an online design tool, patterns and colors can be etched or printed in varying scales and densities, lending both uniformity and diversity to the glass or resin panels.

[3-form.com](http://3-form.com)

### 5 STRIPE RIMADESIO

Horizontal aluminum crosspieces on both sides of these sliding doors sandwich one of 50 glass types available. Designed by Guiseppe Bavuso.

[dominteriors.com](http://dominteriors.com)

### 6 RAYDOOR RAYDOOR

Soft-close barn doors have a gasket edging where the panels meet in this corner installation, ensuring privacy. No floor track eases maintenance.

[raydoor.com](http://raydoor.com)

### 7 ARIA INSCAPE

Merging transparency and minimalist lines, this movable wall system brings elegance to the interior.

[inscapesolutions.com](http://inscapesolutions.com)





#### HARDWARE

Handles, tracks, hinges, and other door hardware make functionality an open and shut case. By Leslie Clagett

## SMOOTH OPERATORS

### 1 VARIOTECH 150 SERIES HÄFELE

Suitable for straight or curved runs, the Variotech 150 allows doors to remain stationary or to slide open. Two-point guide wheels support panels up to 330 pounds.

hafele.com

### 2 B.100 ASTEC

These load-bearing stainless steel wheels can carry a wood or glass door leaf weighing up to 1,760 pounds. The floor track can be surface- or flush-mounted.

index-d.com

### 3 SANTA MONICA COLLECTION BALDWIN

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baldwinhardware.com

### 4 APERTO 60/H HAWA

When not in use as a flush sliding wall, up to nine 132-pound wooden doors can be stacked in parallel or at a 90-degree angle. The pivot door locks the entire group.

hawa.com

### 5 AXEL KROWN LAB

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krownlab.com



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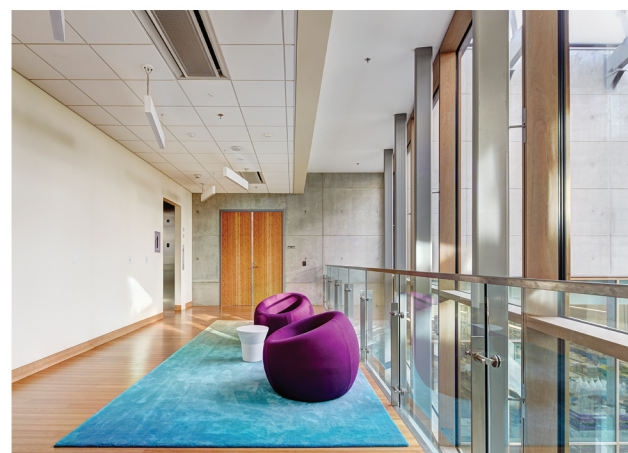
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JUNE

THURSDAY 5  
LECTURE

**Energy Obesity:  
An appetite for oil**  
6:00 p.m.  
Boston Society for Architects  
290 Congress St.  
Suite 200  
Boston  
architects.org

TOUR

**Felber Ornamental Tour and  
Hands on Demonstration**  
5:30 p.m.  
AIA Philadelphia  
Felber Ornamental Plastering  
1000 West Washington St.  
Norristown, PA  
aiaphiladelphia.org

TUESDAY 8  
EXHIBITION CLOSING

**Investigating  
Where We Live:  
Recapturing Shaw's Legacy**  
National Building Museum  
401 F St. NW  
Washington, D.C.  
nbm.org

THURSDAY 12  
EVENT

**BFA Project Pin-Up:  
Architecture and design  
in your neighborhood**  
5:00 p.m.  
Boston Society for Architects  
290 Congress St.  
Suite 200  
Boston  
architects.org

FRIDAY 13  
LECTURE

**In Discussion: Halston and  
Warhol: Silver and Suede,  
with Vincent Fremont and  
Geraldyn Huxley**  
7:00 p.m.  
Andy Warhol Museum  
The Warhol Theater  
117 Sandusky St., Pittsburgh  
warhol.org

SATURDAY 14  
EVENT

**The Glass House  
Summer Party**  
12:00 p.m.  
842 Ponus Ridge  
New Canaan, CT  
theglasshouse.org

THURSDAY 19  
LECTURE

**Restoration and  
Preservation on Capitol Hill**  
AIA Philadelphia  
Sonesta Hotel  
1800 Market St., Philadelphia  
aiaphiladelphia.org

SYMPOSIUM  
Postcard Identity | Esoteric  
Landmarks

6:30 p.m.  
Center for Architecture  
536 LaGuardia Pl.  
cfa.aiany.org

FRIDAY 20  
EXHIBITION CLOSING

**Frank Lyon:  
"It Merely Takes a Route"**  
Union Street Studio  
78 Union St., Brooklyn, NY  
unionstreetstudiollc.com

SYMPOSIUM

**Kentlands 25th  
Anniversary Symposium**  
7:00 p.m.  
AIA DC  
The Kentlands Mansion Lawn  
320 Kent Square Rd.  
Gaithersburg, MD  
aiadc.org

TUESDAY 24  
EVENT

**Panel Talk:  
Rebuild by Design**  
7:00 p.m.  
National Building Museum  
401 F St. NW  
Washington, D.C.  
nbm.org

THURSDAY 26  
EXHIBITION OPENING

**Urban Timber  
from Seed to City**  
Boston Society for Architects  
290 Congress St., Boston  
architects.org

JULY

TUESDAY 1  
LECTURE

**Oculus Book Talk:  
Permanent Change:  
Plastics in Architecture  
and Engineering**  
6:00 p.m.  
The Center for Architecture  
536 LaGuardia Pl.  
cfa.aiany.org

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FRIDAY 4  
EXHIBITION OPENING

**The BIG Maze**  
National Building Museum  
401 F St. Northwest  
Washington, D.C  
nbm.org

MONDAY 7  
LECTURE

**Innovators:  
The Use of Tiles Today**  
6:30 p.m.  
The Center for Architecture  
536 LaGuardia Place  
cfa.aiany.org

THURSDAY 10  
LECTURE

**Andre Walker**  
7:00 p.m.  
The Museum of Art  
and Design  
The Theater at MAD  
2 Columbus Cir.  
madmuseum.org

MONDAY 14  
LECTURE

**Viral Voices**  
6:30 p.m.  
The Center for Architecture  
536 LaGuardia Pl.  
cfa.aiany.org

SUNDAY 20  
EVENT

**Pawn Tomorrow:  
Workshops with the  
Extrapolation Factory**  
12:00 p.m.  
The Museum of  
Art and Design  
2 Columbus Cir.  
madmuseum.org



CHEN SHAOXIONG

TALES OF TWO CITIES: NEW YORK & BEIJING

Bruce Museum  
1 Museum Drive, Greenwich, CT  
Through August 31

The Bruce Museum's newest exhibition examines two of the world's greatest art capitals: New York and Beijing. The show compares works by five New York-based artists and five Beijing-based based artists. The ten creators have been engaged in five different global, cross-cultural, artistic dialogues over the course of two years via email, Skype, and in person, sometimes with translators, about issues ranging from political and social upheaval, the concept of global culture, and questions about materials and techniques. The exhibition consists of new and existing works along with two site-specific pieces. The concept for this show grew out of a 2010 collaboration between New York artist Michelle Fornabai and Beijing artist Qin Feng, which was curated by Pan Qing at Columbia University's Studio X. Both artists are featured in the Bruce Museum show. The curators matched the artists based partly on the kind of work that they do and their artistic processes, but more importantly on the type of dialogue in which they suspected the artists might engage within the context of their respective urban environments. Many of the ten artists are themselves on the move between global art centers, not only New York and Beijing, but also in Latin America and Europe.

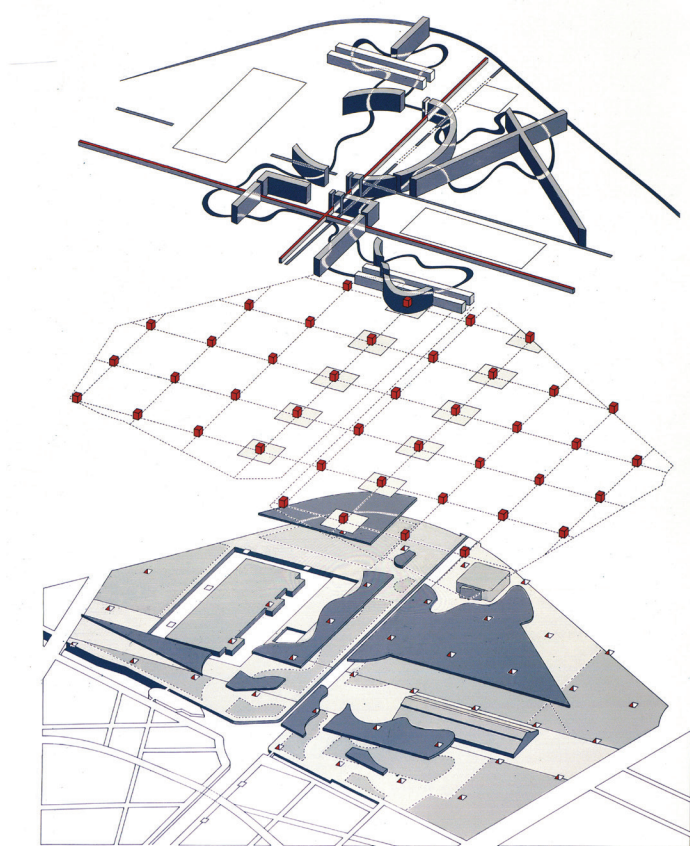
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THE ARCHITECT'S NEWSPAPER JUNE 5, 2014

Parc de la Villette.



Summer has arrived in Paris and, with it, Bernard Tschumi with a triple foray. The Franco-Helvetian New Yorker has reworked the Paris Zoological Park—it opened to the public in mid-April—with characteristic themes of constructed terrain, artifice vs. nature, framing, and a sophisticated sense of viewing (from parkland prospects to the cinematic close-up). An hour or so south of Paris, FRAC Orléans, one of France's sharpest regional art centers, is exhibiting works from its architecture collection selected by Tschumi, an architect whose career is of course interwoven with design avant-gardes from the 1960s to today. Then, on April 28, the Centre Pompidou inaugurated a major Tschumi retrospective, the ultimate mark of approval for any architect working in the French capital. Titled simply *Bernard Tschumi*, the retrospective stretches from the Manhattan Transcripts of the late 1970s up to the zoo, now a mere few weeks in operation. It's an oeuvre still able to beguile and provoke reaction.

Curated by Frédéric Migayrou, Bernard Tschumi occupies the Pompidou's South Gallery, one floor up from the main entrance. Being sited to one side of the museums' primary circulation pattern may lose some visitors in search of the Pompidou's greatest hits or, at the moment, masterworks by Henri Cartier-Bresson. A big plus, however, is that this dedicated

gallery has walls of floor-to-ceiling glass on three of its four sides and is, due to the Pompidou's depressed entry plaza, surprisingly at the same elevation as adjacent streets and the small plaza with its kinetic fountain sculptures by Jean Tinguely and Niki de Saint Phalle. Tschumi has always been interested in urban life and, let's say, the democracy of chance occurrence; if he has long stressed the vital role of the event in architecture, his own formation was inevitably informed by the "événements," the Paris street protests of May 1968. Now in 2014, built and unbuilt proposals from four decades are visible to casual passers-by.

How does the show look? Surprisingly straightforward in a world of exhibition as spectacle. Five booths—informal pavilions made from scaffolding—orbit about the column-free space. Each is allocated to a key aspect of Tschumi's oeuvre: Space and Event, Program and Superposition, Vectors and Envelopes, Context and Content, and Concept-Forms. The gallery's one opaque wall is painted signature red and makes a dramatic backdrop for early exploratory works on paper. The role of "concept" and "notation" is frequently restated. Then, interspersed on a casual grid across the gallery floor, more than a dozen red cubic boxes house ephemera that contextualize Tschumi's interests, tactics (one is dedicated to games and other ludic



The new Paris Zoo

IWAN BAAH

devices), and the cultural milieu in which his work has evolved. This *mise-en-scène* is not unlike a small village with no single, specific route between pavilions: the networked pack donkey's way, perhaps, as opposed to the old absolutism of Le Corbusier's right angle.

It's a pleasure to encounter Tschumi's early drawings and *noir-tinged* montages. As in *Joyce's Garden* (1976), where constructed space and evidence of activity seem to fuse, there are echoes of modernism but also of the classic, of volumes, albeit fractured, as solid and void. Old favorites—sleek Kansai Airport (1988), the superstructure for Beijing's Factory 798 (2004)—still turn heads. Visitors can take a metro to La Villette and compare Tschumi's bravura proposal (1982), inevitably a star turn at the Pompidou, with the park constructed on that former abattoir site. Today the famous red follies (cubes, cylinders, and diagonal elements) may need a little TLC, but the space between these elements is animated with activity. Across town **continued on page 47**

## Tschumi in the Capital of Modernity

**Bernard Tschumi**  
Centre Pompidou  
Place Georges-Pompidou,  
75004 Paris, France  
Through July 28

**Chronomanifestes**  
FRAC Centre Collection  
88 Rue du Colombier,  
Orléans, France  
Through October 8



## PERIOD ROOMS IN THE 21<sup>ST</sup> CENTURY

**The Parlor and Library of the Colonel Robert J. Milligan House of Saratoga Springs, New York**  
Brooklyn Museum  
200 Eastern Parkway, Brooklyn, New York  
Ongoing

The 17<sup>th</sup>-century mathematician and philosopher Blaise Pascal nailed the history of civilization with his aphoristic chestnut, "All human evil comes from a single cause: Man's inability to sit

still in a room."

Setting aside the prospect that his perceived wisdom might well be subverted in a generation or two, when—lo and behold—evil continues even in a world of fixed virtual existence and social engagement defined exactly by the isolation of sitting still, the adage nonetheless lends insight into the design and use of today's interior spaces and the resurgence of cities (or new simulacra) with their innate spatial density and collective experiences.

Architects, planners, and their builders, whether as partners or mass-producing copycats, have given permeable form to Pascal's acknowledgment of inevitable motion. Except maybe on Thanksgiving and Christmas, the



COURTESY BROOKLYN MUSEUM

contemporary American living room serves no purpose as a *salon* for daily conversation or individual repose. That role has yielded to the open kitchen melded with multi-tasking, use-shifting family space accommodating the endless movement of contemporary life, at least in those places where budgets and available space permit it.

These dynamic design requirements are one reason perhaps that the "Period Room" once so popular in museums across late 1900s Europe and in the early 20<sup>th</sup> century throughout the U.S. prove more often than not to be the deadest zones among competing visitor gallery options. Recent visits to those rooms at both the Metropolitan and Brooklyn Museums told the story best with their almost total lack of onlookers;

those that did venture in hurried past with glazed remove, except for sometimes in 20<sup>th</sup> century rooms with their hints of how we inhabit space today. Pity the assigned guards.

The museums coping with their period room legacy, which were so supremely popular in the 1920s and 30s, face daunting challenges in keeping them relevant. Today's visitors are less able to engage with the diorama-like separation that denies the motion or three-dimensional embrace that best instill narrative significance or personal meaning. It is this seat-less stillness that shuns them. A prideful nationalistic urge to celebrate past culture through design, art, and decoration demanded a shift from individual objects **continued on page 47**





IWAN BAAH

**TSCHUMI IN THE CAPITAL OF MODERNITY** continued from page 46 and separated by three decades of practice, Tschumi’s renovation of the zoo in Vincennes interweaves visitor and animal zones, the ground sculpted into a choreographed viewing sequence. You may well wonder who is viewing and who is being viewed.

Tschumi’s title in Orléans, *Chronomanifestes*, suggests both time as era and time as sequence, and manifest as both something perceptible and a manifesto or, more prosaically, a manual. His selection ranges from Yona Friedman and Rem Koolhaas/OMA (interesting how two hip Europeans, Koolhaas and Tschumi, focused on

Manhattan in the era of Abe Beame) and, fast-forwarding to Columbia in this our digital age, Asymptote and Xefirotarch. Back at the Pompidou, the curators do not overdo the didactics. In fact, the quintet of themes is almost identical to the structure of Tschumi’s 2012 monograph, *Architectural Concepts: Red is Not a Color*. If several evocative schemes work off existing built fabric (the zoo; Factory 798; Le Fresnoy), Tschumi reveals how in certain situations and with certain programs he may now revert to form as a starting point. Thus such newer projects as the Alésia Museum in Burgundy or the curiously named Carnal Dome near Tschumi’s

birthplace in Switzerland. Overlooking Lake Geneva, Le Corbusier’s house for his mother is a near neighbor to the remarkable Nestlé headquarters designed by Jean Tschumi, Bernard’s father, in the late 1950s. Tschumi *filis’* critique of modernism has taken apart the Apollonian or Purist notion of architecture as frozen music (what, he might well ask, does frozen music contribute in the 21<sup>st</sup> century?). Nevertheless it’s impossible to fully evade history. To one side of the Pompidou gallery, Tschumi exhibits a sketch by his father. Dated 1937, it depicts a vast underground void, a Pantheon-like yet mechanistic womb to accommodate fluid traffic flow, envisaged for a notional site at Châtelet, a stone’s throw from the Pompidou’s South Gallery. Taken together, *Bernard Tschumi* at the Pompidou, the resurrected zoo at Vincennes, and *Chronomanifestes* at FRAC Orléans present an architect repeatedly replenished in Paris, for so long the capital of modernity.

**RAYMUND RYAN A CURATOR AT THE HEINZ ARCHITECTURAL CENTER AT THE CARNEGIE MUSEUM OF ART IN PITTSBURGH.**

**PERIOD ROOMS IN THE 21ST CENTURY** continued from page 46 displayed distinctly for direct inspection to a focus on overall style fixed as an amber-like whole from its respective historic period.

This displacement has three causes. First, the rise of the historic house museum (although often now suffering a similar decline of public interest, especially when not wedded to a person or artistic achievement of enduring historic interest; for every Monticello, Olana, O’Keefe’s Abiquiu adobe, Falling Water, or Glass House, there are dozens barely holding on especially from the ample record of the late 19<sup>th</sup> century and early Gilded Age architecture). Secondly, the rise of exact contemporary replication or emulation of such past period rooms by tradition-minded or classical designers working with those well-heeled clients inclined by taste and ambition to commission them. Unlike their informative museum predecessors, these new old rooms are inhabited and often widely disseminated as such through print and electronic outlets. Few could have reasonably anticipated this design trend; what seemed lost can in fact be built anew. And thirdly, the curators and their audiences now overwhelmingly prefer to arrange and view works of art or design distinction in neutral spaces, where the individual works best retain their formal integrity and according narrative access. Malleability guides the programmatic course.

In this way, the curatorial pendulum has decidedly swung back to the museum’s display origins and away from emphasis on contextual style.

Bearing these trends in mind, the Brooklyn Museum has proven itself intrepid and loyal enough to traditional display assets and past

driving pedagogy to have just redone with unprecedented exactitude two of the 19<sup>th</sup> century crown jewels among its 28 period rooms, spanning from the 17<sup>th</sup> century Dutch colonial to the 20<sup>th</sup> century art deco sleekness of a relocated Manhattan library.

In this instance, it is the 1856 Louis XV Revival style parlor and Gothic Revival library removed from the still-standing Colonel Robert J. Milligan House of Saratoga Springs. Untouched until now since their 1953 advent, this new and corrected interior interpretation benefits from advancements in art historical research and a revival of many craft traditions spawned by a dynamic marketplace for traditional design solutions, whether through preservation or new construction. Skills or methods lost thrive anew and allow scholarly discovery to take physical form.

In terms of formal exactitude and historical insight, the achievement is a solid and worthy one. Yet in the context of 21<sup>st</sup>-century museum going, it feels like the most enthusiastic future audience might well consist of design practitioners alongside connoisseur clients of ready means looking for expert hints of how they can properly recreate it. This is a search for authenticity, or at least the perception of it.

Once built, these rooms will at least afford the chance to sit still (Wi-Fi will enhance the likelihood...) or, as Pascal anticipates, pass through with attendant acquisitive pleasure en route to the next activity or fresh source of trouble.

However such future use unfolds, the Brooklyn Museum merits praise for tending to its past display legacy with such exacting if anachronistic alacrity.

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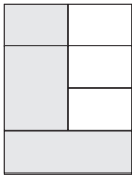
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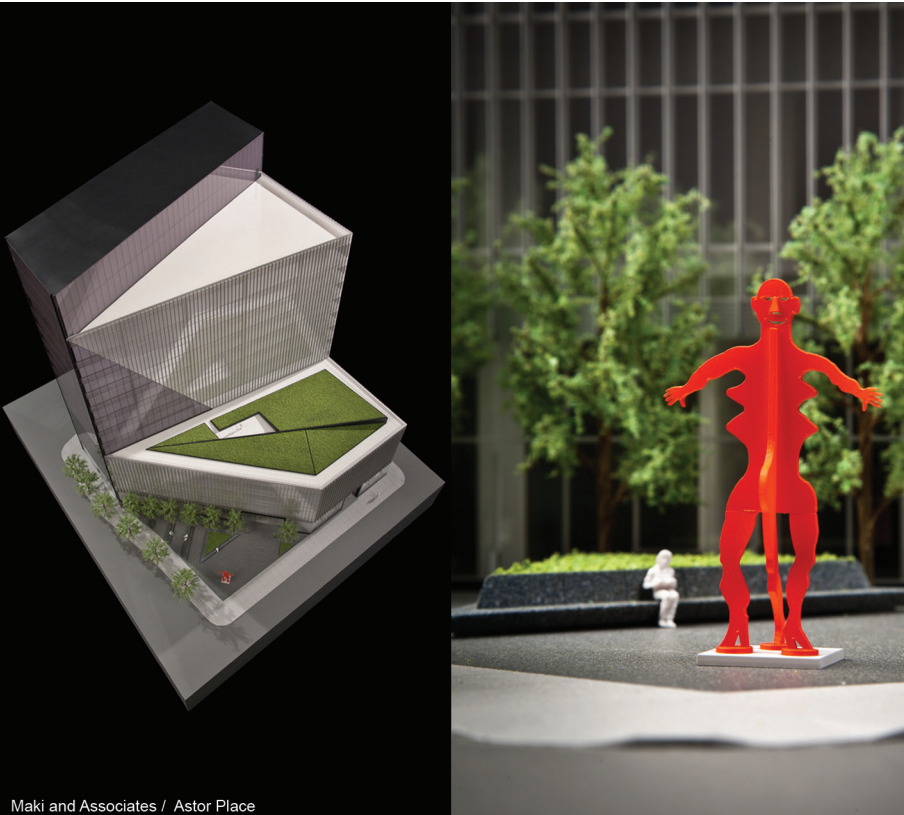
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Lautner's Garcia Residence



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The house is surmounted by the concrete roof, resembling a Louis Kahn in its geometric form, and seems to be a metaphor for the light experienced in a timber house in the forest wilderness (not unlike the summer cabin in Michigan where Lautner was born). Lautner's Sheats/Goldstein House uses 750 drinking glasses set into the roof's concrete to re-create a speckled, flickering light suggesting a primeval forest canopy.

The house makes use of many, contrasted, interwoven textures, overlapping layers of thick quasi-transparent glass, wood paneling, rug and ripped floor surfaces, all of which interact with shifting glimpses of light and fragments of outside foliage lightly reflected on the interior glass partitions and windows.

Lautner employs the use of overlapping layers of glass as interior partitions to capture surface light reflections of people moving around the transition spaces linked by various staircases. This interior glass reflects and connects people's gazes and bodies with the doubling indoor/outdoor sunlight. These glass reflections also intermingle to the reflective surfaces of the water in the pool. The internal glass relates subtle movements of people transiting the space with reflections of the various textures of the wall surfaces and floor coverings as well as the flickering outdoor light.

Lautner's use of glass in this and other houses is vastly different from that of modernist architects where window glass makes a clear divide between outdoor light and interior space. (A notable exception is Mies's Barcelona Pavilion where thick glass, the marble's polished surfaces, and the water of the reflecting pool allow the transiting observers a subtle Lacanian "mirror stage" glimpse of their own gaze, superimposed on the material's surface and the gaze and bodies of other observing spectators.)

Lautner's final works, in their gentle, curving, enfolding, somewhat organic surfaces evoke and interconnect the house's interior and exterior surfaces with the surrounding natural forms—sea, earth, and sky. Lautner described the concrete roof of his late, Baja California seaside Marbrisa House as "a roof to sandwich life between earth and sky to the surrounding sea." His Michigan lake/wilderness natural childhood experience was deeply influenced by ideas of Nordic, Germanic, and Irish nature mythology as well as by his philosophy teacher father and his artist mother and it is now re-oriented/re-created in the new Pacific Ocean setting of Southern California.

## JOHN LAUTNER'S WATER SIGN

The two architects whose work best adapt to the Los Angeles sensibility and natural terrain, and coincidentally are my favorites, are Rudolf Schindler and John Lautner. Both of these architects spent time working in Frank Lloyd Wright's office in LA before doing their own early work, which in both cases was influenced by Wright. Lautner—raised in Michigan's Upper Peninsula, a wilderness, lake area adjacent to Wright's original home base in Wisconsin—studied at Wright's Taliesin East in Wisconsin. Later Lautner worked in collaboration with the Wisconsin master in his LA Brentwood "Sturges House," a house which dramatically cantilevered a large terrace in the air over a sheer drop in the hillside terrain. This work had a clear influence on Lautner's later LA houses, which often were sited atop hills overlooking ravines to give airy vistas of lower, greater LA. Schindler's best LA, work, in my opinion, are low-budget apartment complexes in Studio City and Silver Lake, radically terraced into differing levels of quasi-mountainous terrain. These projects were influenced by Viennese social housing and equally by Adolf Loos's interior "open plan."

Both Lautner and Schindler's early LA work begins with their take on Frank Lloyd Wright's "open plan" adapted to the quasi-mountainous ravines of the LA hillside. Schindler's work

is heavily landscaped, perhaps reflecting the influence of Wright's frequent visits to Japan, whereas Lautner's work is often completely suspended from and set into its natural setting.

Lautner's idea of nature and site specificity differs from Wright's seminal works like Falling Water, which are romantic, scenographic fantasies, often left unfinished (sometimes due to client's lack of funds or a "falling out" with the architect). On the contrary, Lautner's houses are built for permanence. Lautner's first LA houses, such as his own house in Silver Lake from 1940, are close in feeling and in their use of wood timbers to Wright's work of the same and slightly earlier periods.

Although Lautner's classic work is associated with luxury, Lautner in his early LA practice, like Schindler (who he admired) experimented with low-cost houses, highway motels and gas stations, as well as rustic, isolated vacation cottages.

What is characteristic of Lautner's classic houses is the centrality of the swimming pool in his design. Lautner is a Cancer, like his fellow Cancer-sign architect, Robert Venturi, who based his early house for his mother on the central fireplace; Lautner also based his compositions on a central hearth-like focus, substituting the swimming pool for the fireplace. These LA houses incorporate the remnant of mid-western Wrightian nature

worship, based around the Wrightian house's fireplace, re-directed to Southern Californian hedonistic sun/water worship, epitomized by the terrace's swimming pool. The pool was the center of Lautner's luxury houses. (As a Cancer water sign, also connected with childhood memories, Lautner's work seems to relate to the water-environment of the Lake Superior area where he grew up.) Lautner's last works, sited near the Pacific Ocean, substitute the sea, surrounded by sky and earth, for the swimming pool, as central metaphors of man to nature.

The organic metaphor in Frank Lloyd Wright's work was perhaps first encountered by Lautner in Wright's Racine Wisconsin S.C. Johnson Research Tower from 1944–1950, whose interior, supporting columns resemble large "inverted" lily pads, floating in the pond of a 19<sup>th</sup> century Crystal Palace-like Botanical Garden or perhaps gigantic, mushroom-like plants.

The middle-to-late Lautner houses, which substituted concrete for wood as building material, often use undulating concrete, shell forms, which develop organically to link the house to the surrounding land or sea. Lautner by then had turned his attention to structural engineering, partly under the influence of the aero-space industry located in post-war LA, but also manifested in Lautner's awareness of the works of post-

war Italian structural engineers/architects such as Pier Luigi Nervi, who had used reinforced concrete in curvilinear, folded forms, as well as the concrete structures of Baldessari. Another major influence on Lautner's practice was the shell forms of the Mexican, Felix Candela, as well as the forms of the Brazilian Oscar Niemeyer. Lautner's Malibu Cliff House, 1990, and his Acapulco Marbrisa House, 1993, have echoes of Nervi's spiraling forms as well as relating to Saarinen's TWA Airport Terminal at JFK as well as his Yale, New Haven, Ingalls hockey rink.

Lautner's first use of reinforced concrete is in the roof of his 1963–89 Sheats/Goldstein House, whose forms echo Louis Kahn's concrete ceiling in the Yale University Art Gallery.

The Sheats/Goldstein House was the first Lautner house I personally experienced. The house is precariously perched, like a tree house, in a wooded area on a hillside overlooking Beverly Hills. In this house, views of the swimming pool are central. From the houses' upper level we first glimpse the pool seen from above; the pool is situated at the middle, terrace level of the house. On a lower level we can actually look through the pool's water from an underwater vantage point through a sheet of thick, transparent glass, rather like the view of penguins in their underwater habitat we see in zoo architecture.



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