

# THE ARCHITECTS NEWSPAPER

THE ARCHITECT'S NEWSPAPER APRIL 2018

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## Real Zesty

Culver City, California-based SPF:architects (SPF:a) recently unveiled plans for the Anaheim Performing Arts Center (APAC), an agriculturally inspired 11-acre complex in California's Orange County. SPF:a's vision includes a 2,000-seat concert hall, a 1,700-seat opera house, and a 600-seat black box theater, along

SPF:A DESIGNS CITRUS-INSPIRED PERFORMING ARTS CENTER.

with a museum, restaurants, and offices.

For the project, SPF:a studied Anaheim's most famous agricultural product: the orange. The fruit was the basis of the puckered geometries and the perforated copper-anodized aluminum panel cladding that wraps them. The site's gridded layout follows that of an

orchard as well, with each building representing a tree.

Judit M. Fekete-Pali, SPF:a president and CEO, said in a statement, "The design strategy helps break down the architectural masses—no more soulless, vast, and uninviting interior public spaces. Each program element operates independently and together."

The 500,000-square-foot campus is projected to cost \$500 million and will be completed in 2021. **Antonio Pacheco**

### CONTENTS

04  
IN CASE YOU  
MISSED IT

08  
2018 US  
PAVILION

24  
TECH+

14  
STUDIO VISIT>  
OLAFUR ELIASSON

16  
UNION CARBIDE  
CONTROVERSY

46  
ALASTAIR GORDON  
ON JAY BALDWIN

07 EAVESDROP  
36 CALENDAR  
39 MARKETPLACE

## Sphere into the Future

POPULOUS IS SET TO UNLEASH A GIANT ROUND VENUE ON LAS VEGAS.

A New York entertainment company has tapped architecture and design firm Populous to design a Las Vegas venue with precision audio, full-surface video projections on the interior and exterior—all in the shape of a giant sphere. Will this be the world's most futuristic concert hall?

Though its unusual shape puts it in the same league as the firm's other high-design arenas, the MSG Sphere, like most of Las Vegas, will especially dazzle the eyes—and ears. The 18,000-seat venue will feature what's known as beamforming audio, an acoustics technology developed by the German company Holoplot that uses planar audio waves to send **continued on page 7**



COURTESY POPULOUS

## Driving While Robot

DRIVERLESS CARS ARE COMING, AND ARCHITECTS AND PLANNERS CAN'T BE LEFT BEHIND.

The rise of autonomous vehicles (AVs) is inevitable and—depending on who you ask—they'll either eliminate car crashes and save the environment or muscle out pedestrians from the street, steal our personal data, and create biblical levels of gridlock in our cities. But despite the divide over how the technology should be implemented, the common thread that runs between apostles and bashers alike is the belief that cities, planners, and architects are woefully unprepared for the changes self-driving cars will bring. In November 2017, the AIA held an event centered on the topic, "Anticipating the Driverless City."

"Planners think in 30-year increments, and autonomous **continued on page 11**

## Architecture and Design Technology

SEE PAGE 28



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**PUBLISHER**  
Diana Darling

**EDITOR-IN-CHIEF**  
William Menking

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Matt Shaw

**ASSOCIATE PUBLISHER**  
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Tara Newton

**MEDIA MARKETING ASSISTANT**  
Emma Clarkin

**EDITORIAL INTERN**  
Matthew Marani

**GRAPHIC DESIGN INTERN**  
Dennis Kim

**CONTRIBUTORS**  
JOSEPH ALTSHULER / CARLOS BRILLEMBOURG / EDWARD GUNTS /  
JOHAN KATS / BEN KOUSS / SEAN MCCAUGHAN / BILL MILLARD / JACK  
MURPHY / MICHAEL FRANKLIN ROSS / D. GRAHAM SHANE / AARON  
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**GENERAL INFORMATION:** INFO@ARCHPAPER.COM  
**EDITORIAL:** EDITOR@ARCHPAPER.COM  
**ADVERTISING:** DDARLING@ARCHPAPER.COM  
**SUBSCRIPTIONS:** SUBSCRIBE@ARCHPAPER.COM  
**REPRINTS:** REPRINTS@PARSINTL.COM

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## Out of Order

What are we to make of a recent survey that claims MIT, the Bartlett, and Delft University of Technology are the best architecture schools in the world? This ranking, created by British-based Quacquarelli Symonds (QS) also names Stanford, New York University, and University of California, Santa Barbara, as its top schools for architecture and these institutions don't even have stand-alone schools of architecture. This assessment has received a great deal of attention on social media, particularly from those associated with the top schools. But what are we to make of a list that does not even mention SCI-Arc or the Architectural Association in London? It also lists the University of Melbourne and the University of New South Wales ahead of Cornell University and Kyoto University just ahead of Princeton and the University of Michigan.

I have nothing against the schools that came out on top nor am I trying to be chauvinistic by emphasizing U.S. universities but one has to wonder about a list that puts King Saud University in Saudi Arabia ahead of Rice University in Houston?

But what criteria did the QS use in establishing the ranking? First this firm, which calls itself a "higher education marketing company" and one of the "three most influential university rankings in the world," looked only at universities. This means that while QS surveyed "2,122 institutions across the globe, offering courses in architecture or the built environment," schools like Pratt Institute, Rhode Island School of Design, Cooper Union, or the Royal College of Art in London were not even considered for evaluation. QS asserts that its evaluation is based on four factors: academic reputation, employer reputation, citations per paper, and what it calls "H-Index citations." An H-Index citation is a metric that attempts to "measure both the productivity and citation impact of the publications of a scientist or scholar." It's hard to learn more about the QS architecture ranking and it seems rather sloppy and unscientific but the firm also rates universities worldwide, and these rankings seem to line up fairly closely with its architecture list. Its top universities in the world are, in order, Massachusetts Institute of Technology, Stanford University, Harvard University, California Institute of Technology, University of Cambridge, University of Oxford, University College London, Imperial College London, University of Chicago, and the ETH Zurich. Interestingly Yale University came in sixteenth in the QS world ranking of universities, but its architecture school ranked a lowly 100<sup>th</sup> in the world behind the University of Kebangsaan in Malaysia, Texas A&M University, and Monash University in Australia.

This QS ranking seems tone deaf to the real

qualities that make a great architecture school even while admitting the value and importance of PhD-level scholarship and research. Architecture is a craft as much as a liberal art and therefore requires its teaching institutions to transmit a particular set of real world skills that have to be mastered by students. For this reason, a great lab with CNC milling and robotic machines is important to contemporary design education. The students' ability to work with their hands, render a plan, and be able to create a working section is as important as learning the history and theory of the discipline.

In addition, the realities of the marketplace mean that students need the mentoring of professional working architects who make up the bulk of most design schools.

The students who come out of great design schools need the refined focus of building culture and the knowledge, and this has been true since the École des Beaux-Arts and its workshop intern practice that is unique to the field. Furthermore, today's architecture graduates don't always find employment in traditional architecture offices—let alone go on to pursue PhDs as the QS ranking would suggest. In the words of cultural critic Brian Holmes, "designers, architects, and other actors in the creative fields must be multidisciplinary, open to collaboration, and motivated to find and initiate these often-amorphous work arrangements." You can only get these in a full-blown school of architecture, and this need not be a university.

There are many problems with the QS evaluation that undermines its usefulness, but one in particular is its disregard for educational differences between undergraduate and graduate programs—not to mention overlooking the educational content in two- and four-year degree and non-degree programs. The DesignIntelligence ranking of schools in the United States may also have shortcomings, but at least it gets the finer points of undergrad and graduate education and considers them. It identifies Cornell as the best undergraduate program in the country and the Harvard Graduate School of Design as the best graduate program and that assessment seems more in line with real-world architecture in 2018.

Finally, it may make sense to consider architecture education in a national context, rather than a worldwide one, since the licensing protocols and building requirements are so different from nation to nation. Sorry MIT, but this QS ranking is so myopically concerned with academic citations as to be nearly worthless as a guide for what comprises quality architecture education in all its 21<sup>st</sup>-century variety and subtlety. **William Menking**



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## In Case You Missed It...

We corralled the top architecture and design stories buzzing about the internet this month—check out the highlights below.

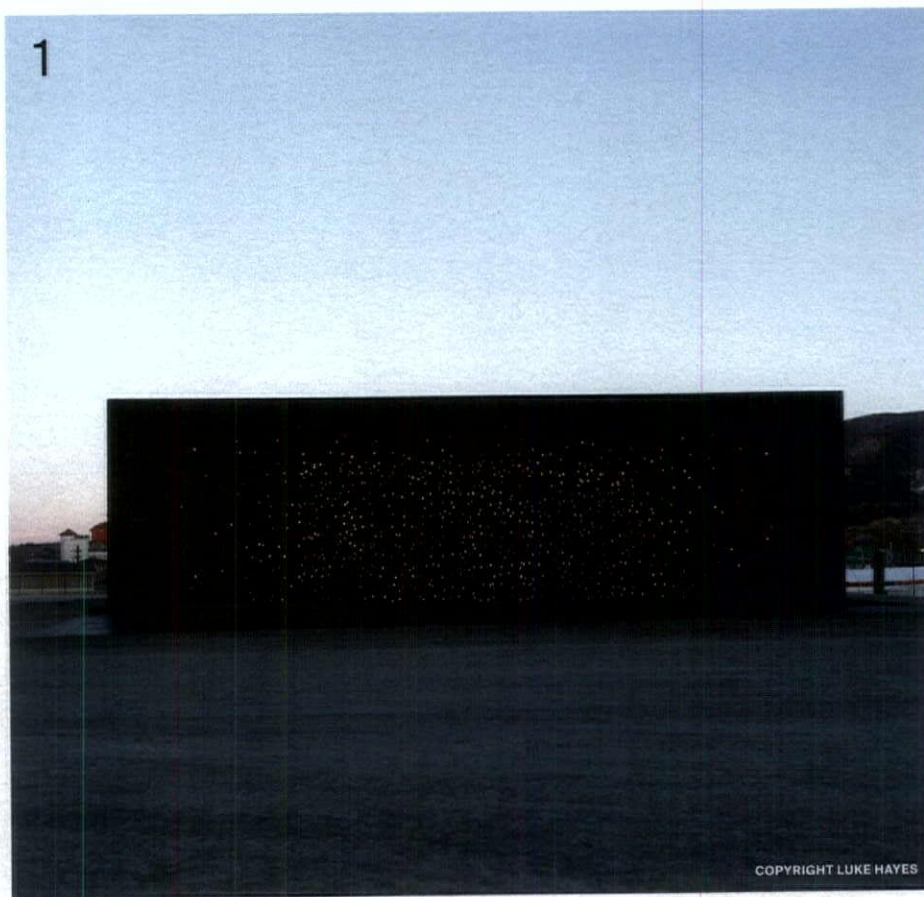
For more information and images for all of these stories, visit [archpaper.com/ICYMI](http://archpaper.com/ICYMI).

### Natalie Griffin de Blois's Union Carbide building slated for demo

270 Park Avenue, a midcentury International Style tower in the heart of Manhattan, will be torn down to make way for a new JPMorgan Chase headquarters. The move drew critical ire across the web, as the building was primarily designed by Natalie Griffin de Blois for SOM. (Learn more on page 16.)

### Asif Khan pavilion brings a slice of outer space to the 2018 Winter Olympics <sup>1</sup>

London architecture firm Asif Khan revealed a pitch-black pavilion, sponsored by Hyundai Motor Company, at the 2018 Winter Olympics in Pyeongchang, South Korea. The exterior is pure black and illuminated with thousands of lights, hiding the bright-white water installation within.



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### House rolls back ADA protections

The House has passed a bill that would give businesses violating the Americans with Disabilities Act six months to make required fixes after being given written notice, extending the current 90-day statute. Meant to cut down on frivolous lawsuits, disability activists feel the measure undercuts the 28-year-old ADA.

### Construction on world's tallest tower moves forward

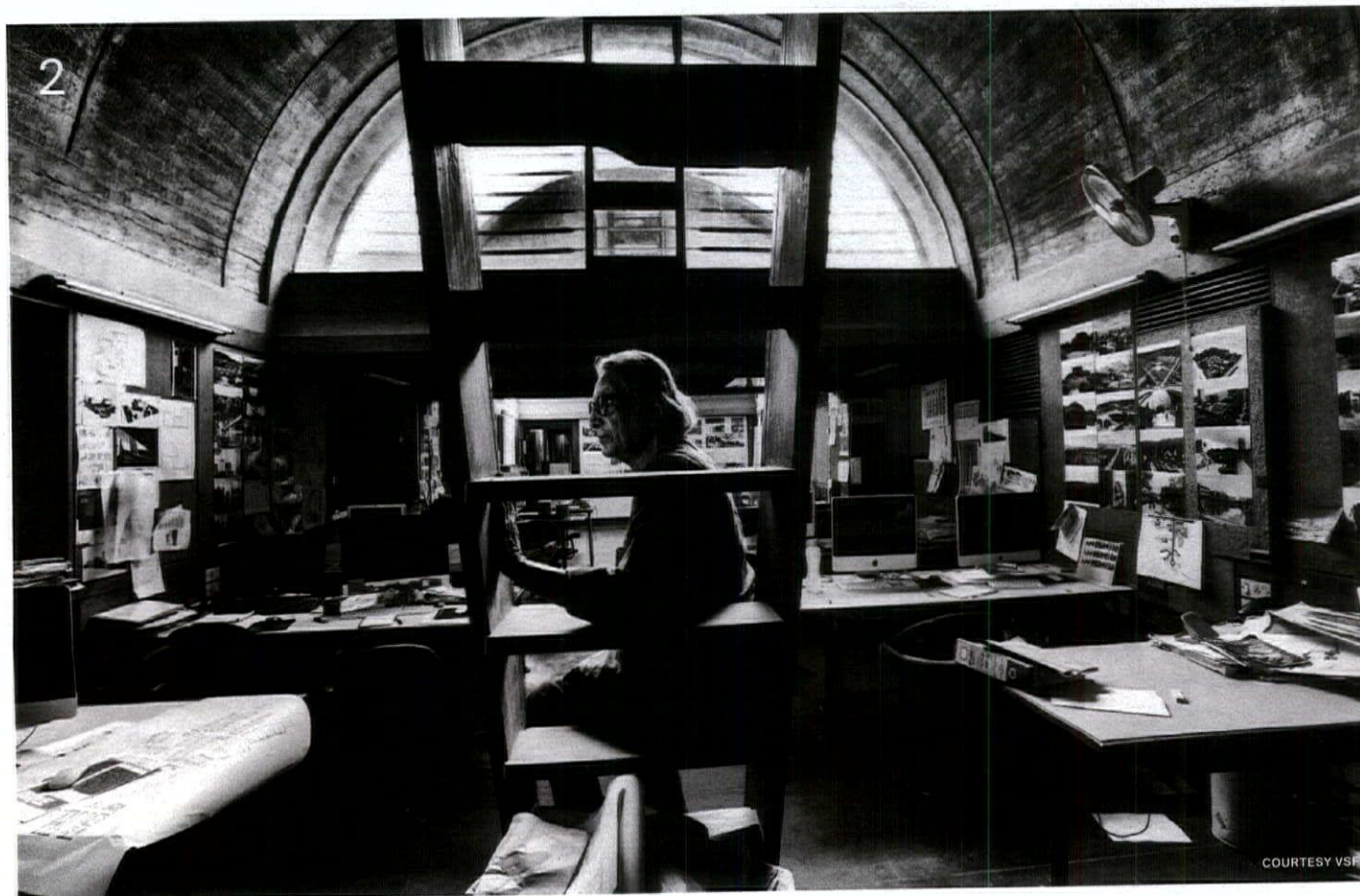
Construction on the 3,300-foot-tall Jeddah Tower in Saudi Arabia has picked up, and crews have already completed work up to the 63<sup>rd</sup> floor. Once finished, the Adrian Smith-designed supertall will hold apartments, a hotel, and retail.

### REX's World Trade Center performing arts venue moves forward

A performing arts venue at the World Trade Center complex has been in the cards since 2002, but is finally moving ahead after an agreement between the Port Authority and Governor Andrew Cuomo. The REX-designed Ronald O. Perelman Performing Arts Center will be 200,000 square feet once completed.

### Kate Orff to head new climate resiliency center at Columbia GSAPP

Columbia University has chosen Kate Orff of SCAPE Landscape Architecture to co-chair its new Center for Resilient Cities and Landscapes at GSAPP, a joint venture between the school and the Rockefeller Foundation.



COURTESY VSF

### Balkrishna Doshi wins the 2018 Pritzker Prize <sup>2</sup>

Balkrishna Doshi is the 45<sup>th</sup> Pritzker Prize Laureate and the first architect from India to win the prize. Doshi has been committed to shaping and nurturing India's modern architectural milieu for over seven decades and is an important voice in the industry's global discourse.

### Trump administration releases full \$1.5 trillion infrastructure plan

The Trump administration has released the full version of its much-vaunted \$1.5 trillion infrastructure plan, but the federal government would only be contributing \$200 billion, with the rest coming from private investment. The plan would heavily discourage mass transit and is unlikely to pass.





### New renderings of Lucas Museum unveiled for groundbreaking<sup>3</sup>

George Lucas and new renderings were on hand for the groundbreaking of MAD Architects' Lucas Museum of Narrative Art in Los Angeles. Once completed in 2021, the spaceship-shaped museum will feature futuristic interiors and hold pieces of narrative art from every period of history.

COURTESY MAD ARCHITECTS

### Snøhetta reveals an energy-positive hotel in an Arctic fjord

After revealing plans for an underwater restaurant in Norway's south, Snøhetta has followed up with renderings for Svart, a "floating" hotel in the country's Arctic north. The ring-shaped hotel will produce more energy than it uses and is inspired by local vernacular architecture.

### Frida Escobedo selected to design 2018 Serpentine Pavilion

Mexico City-based architect Frida Escobedo will design the 2018 Serpentine Pavilion in London, making her both the youngest architect to do so as well as the first solo woman selected for the project since Zaha Hadid in 2000.

### Carol Ross Barney to design Rock 'N' Roll McDonald's replacement

The iconic Rock 'N' Roll McDonald's in Chicago's River North is no more, having been torn down for a sleeker Carol Ross Barney-designed replacement that will focus on sustainability.

### Santiago Calatrava and Frank Gehry may be tapped for Hudson Yards' second phase

While the first phase of Hudson Yards is wrapping up, Related Companies and Oxford Properties are rumored to have picked Santiago Calatrava and Frank Gehry to design residential towers for the Manhattan mega-project's second phase.

### Harvard GSD appoints Mark Lee as new chair of architecture

Mark Lee, cofounder of Johnston Marklee and co-artistic director of the 2017 Chicago Architecture Biennial, has been appointed the next chair of the Department of Architecture at Harvard University Graduate School of Design. Lee has been teaching at GSD since 2013 and will succeed interim chair K. Michael Hays.

### Architecture critic Christopher Hawthorne to become L.A.'s chief design officer

*Los Angeles Times* architecture critic Christopher Hawthorne has been named chief officer of design for the City of Los Angeles. Hawthorne's appointment comes at the end of a 14-year tenure with the *LA Times*, and has left the architectural world atwitter over his potential replacement.

### Dream the Combine wins 2018 MoMA PS1 Young Architects Program

Minneapolis-based Jennifer Newsom and Tom Carruthers of Dream the Combine won the 19<sup>th</sup> annual Young Architects Program (YAP), sponsored by the Museum of Modern Art (MoMA) and MoMA PS1, with their responsive, kinetic installation *Hide & Seek*.

### Richard Meier faces mounting backlash over harassment allegations

Following a bombshell report by the *New York Times* that alleged pervasive sexual harassment by Richard Meier, the architect announced a six-month leave from Richard Meier & Partners Architects. Cornell has declined Meier's latest endowment, Sotheby's has canceled his solo show, and the AIANY has rescinded his 2018 Design Award.



### Yesomi Umolu appointed artistic director of the 2019 Chicago Architecture Biennial<sup>4</sup>

A committee selected curator Yesomi Umolu as the artistic director of the 2019 Chicago Architecture Biennial. Umolu is a Chicago-based writer and curator with a background in architectural design and a focus on global spatial practices.

### Disastrous Miami bridge collapse raises serious questions

The collapse of a pedestrian bridge at Florida International University in Miami that left six dead has raised questions over how the supposedly state-of-the-art project could fail. The bridge was built nearby and hoisted into place, and it's uncertain whether the construction method was responsible.

ANDREW BRUHAH/COURTESY THE CHICAGO ARCHITECTURE BIENNIAL

### Architectural Association selects Eva Franch i Gilabert as next director<sup>5</sup>

London's Architectural Association School of Architecture has chosen Eva Franch i Gilabert, chief curator and executive director of Storefront for Art and Architecture in New York, to be its next director. Gilbert will take over from interim director Samantha Hardingham and will help right the school's flagging finances.

### Gensler and Reebok collaborate to design gas stations of the future

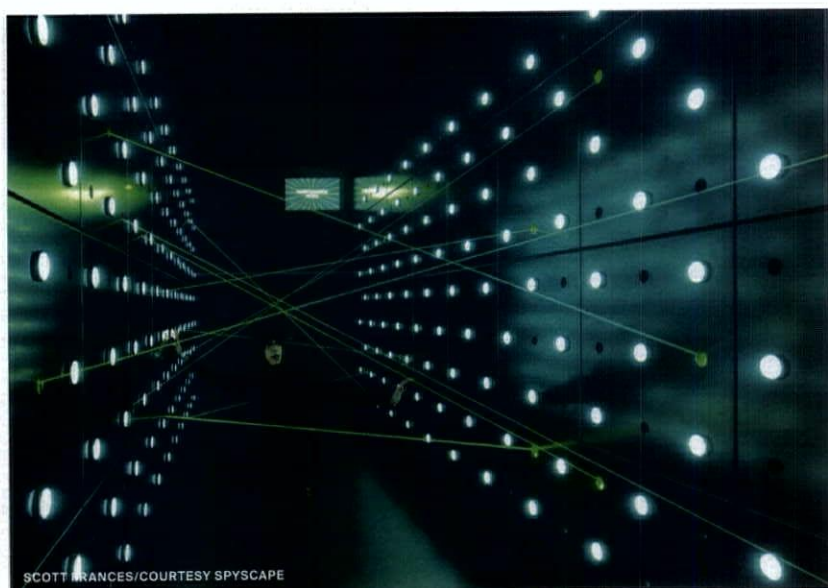
What will happen to gas stations once drivers switch over to electric vehicles? Reebok and Gensler have teamed up for a "Get Pumped" partnership that imagines repurposing the outdated gas stations of 2030 as community fitness hubs.



STEFAN RUIZ



## OPEN&gt; MUSEUM



SPYSCAPE  
928 8<sup>th</sup> Avenue, New York

Tel: 212-549-1941  
Architect: Adjaye Associates

Designed by Adjaye Associates, SPYSCAPE, a new 60,000-square-foot museum in Midtown Manhattan, recently opened its doors to secret-seekers.

Developed in concert with former intelligence officials and hackers, the building is decked out in what Adjaye is calling "the architectural language of the most prestigious spy organizations:" black linoleum, gray acoustic paneling, and dark fiber cement across a series of glass boxes that hold exhibitions while fragmenting the viewer's sense of space. Outside, the facade is covered in dot-and-pixel vinyl, which provides solar shading while keeping the inside shrouded.

With features like a 350-square-foot multimedia elevator and whiz-bang elements, the three-story SPYSCAPE's exhibits are ensconced in a futuristic palette—all cool blues and green.

For \$39, visitors can learn about history's most famous spies, climb through an agility-testing laser maze in one room and crack codes in another, and detect lies in special interrogation booths. At the end, the exhibition analyzes each visitors' skill set and assigns an intelligence job that best corresponds with demonstrated ability. **Jonathan Hilburg**

## OPEN&gt; WINERY



Ashes & Diamonds Winery  
4130 Howard Lane  
Napa, California

Tel: 707-666-4777  
Architect: Bestor Architecture

The recently completed Ashes & Diamonds Winery by Bestor Architecture aims to bring a bit of Southern California's desert-postcard fantasy to the Napa Valley wine country.

The 19,840-square-foot cut-and-paste homage to midcentury modernism is situated on a 30-acre site and features a collection of austere production facilities flanked by a swanky tasting room and public courtyard. The main production facility rises two stories and is marked by Albert Frey-inspired porthole windows on three sides.

The tasting room is located next door in a low wood-frame-and-stucco building wrapped by large expanses of floor-to-ceiling glass. The compressed, insulated box is situated directly underneath a prefabricated 3,585-square-foot steel canopy structure reminiscent of the folded plane architecture of Donald Wesley. The lounge spaces open out onto a shared courtyard within the L-shaped of structures, revealing short, spiky cacti and a grassy knoll framed by a meandering concrete path. **Antonio Pacheco**

## OPEN&gt; PLAZA

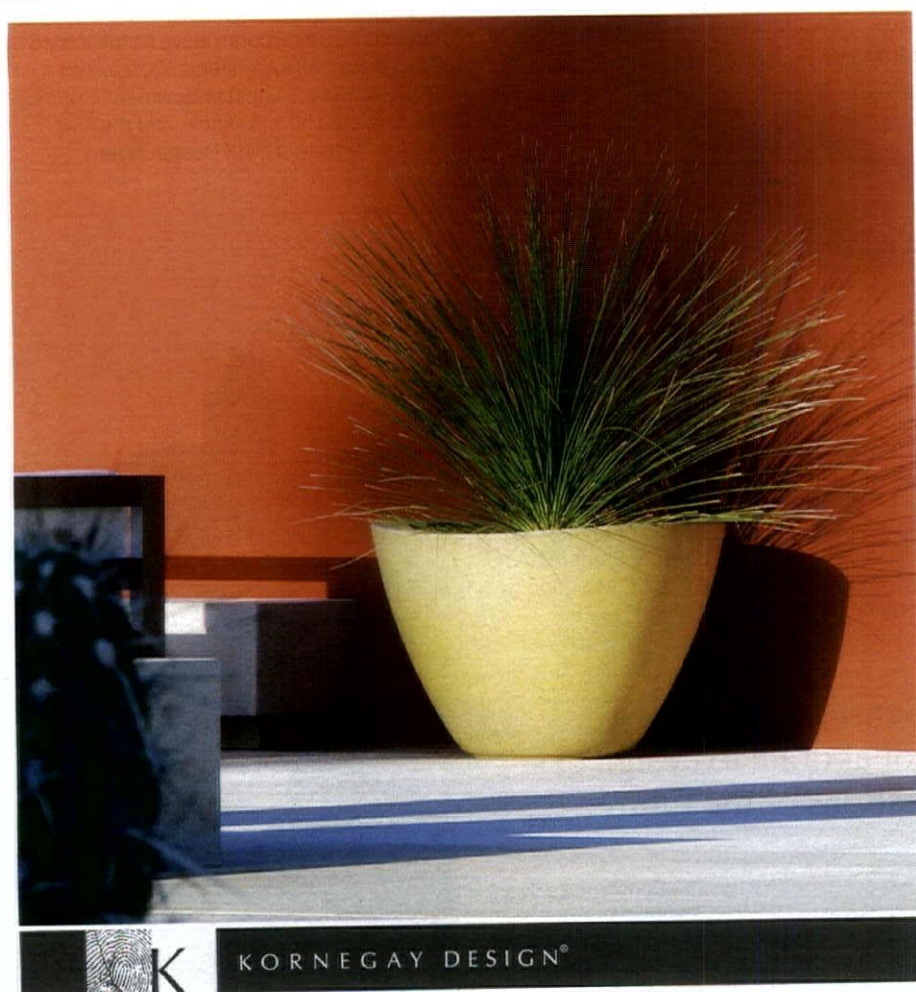


Paradise Plaza  
151 NE 41<sup>st</sup> Street  
Miami

Tel: 305-722-7100  
Architect: FreelandBuck

FreelandBuck has stamped its presence on the burgeoning Miami Design District with the creation of a circulation core and terraces for the District's newest addition, Paradise Plaza. Over the past decade, the 18-block development has established itself as a high-density, pedestrian-oriented cultural neighborhood with an emphasis on designed development. The circulatory role of FreelandBuck's design facilitates movement both vertically and horizontally, from subterranean parking upward and across the second-level retail terrace. The quasi-courtyard is supported by a series of wedge-shaped columns that divide the structure's two dining terraces into a sequence of smaller gathering spaces. The angularity of the columns is accentuated by the use of triangular planes influenced by the work of visual artist Yaacov Agam.

A diverse range of materials is found in the circulatory core, which includes stainless steel, Carrara marble tiles, and sprawling aluminum panels. Although the firm didn't collaborate much with the architects of the surrounding buildings, FreelandBuck's addition carries its individual identity while connecting to the greater assemblage of the Miami Design District. **Matthew Marani**



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## CSU BlackRock?

A recently unearthed development plan for Palm Desert, California, indicates that investment management firm BlackRock is laying a claim to the California desert. According to the *Desert Sun*, BlackRock is working on a new 167-acre neighborhood designed to go alongside the expanding California State University San Bernardino outpost in the city.

The firm has been in talks with the city for the development since 2016 and has worked with the municipality to craft a master plan for the area that includes 1,100 units geared toward student life. Plans for the still-secret development call for a mix of housing, cafes, shops, and open spaces, begging the question—what's next, CSU BlackRock?

## It's Time to Talk About It

For the past 15 years *AN's* Eavesdrop has been a place of gossip, snarky asides, and industry rumors, but, in light of the #MeToo movement, allegations against Richard Meier and Peter Marino, and *Fast Company's* revelation of the "Shitty Architecture Men" list, we would like to take a moment and seriously address the current conversations and yes, rumors, about sexual harassment and assault in the architecture industry. As the anonymous creator of the Shitty Architecture Men list told *Fast Company*: "My purpose in creating this document was to get a conversation started. In no way do I think this is a legally binding list, or that it even purports to be factual. General shittiness? I don't know what that means. What my hope now is that someone who worked in someone's office, and thought they led some architect on, or tried to dismiss a bad incident, can say, 'I'm not the only one. I can validate my own experiences.' I want people to be able to recognize potentially unlawful behavior for what it is, and to feel less alone. Being harassed can be isolating. Maybe being able to see that they're not alone will help someone feel empowered to take action."

*AN* wants this too. But ultimately what the existence of this list means, and what the reported allegations reinforce, is that these architecture firms and the architecture industry at large have failed. They have failed to offer legitimate, trusted processes for victims of sexual harassment. They have failed to offer support and to create channels for people to discuss their experiences. They have failed prevent further incidents from occurring. We applaud the bravery of those who have come forward and are doing our best to report this ethically and thoroughly at [archpaper.com](http://archpaper.com).

If you would like to talk to us about your experience, we are listening. Please e-mail us at [ANTips@protonmail.com](mailto:ANTips@protonmail.com).



COURTESY POPULOUS

**Sphere into the Future** continued from front page sound directly to a specific location. Unlike typical speakers, which diffuse sound in spherical waves that bounce off every surface, beamforming audio is so precise that two people sitting close to each other can hear two different sounds without interference.

The venue, which is being developed by Madison Square Garden Company, hopes to leverage interactive technology by providing high-speed internet for each seat. That way, fans can not only document their experiences on social media, but interface with artists on stage during live performances.

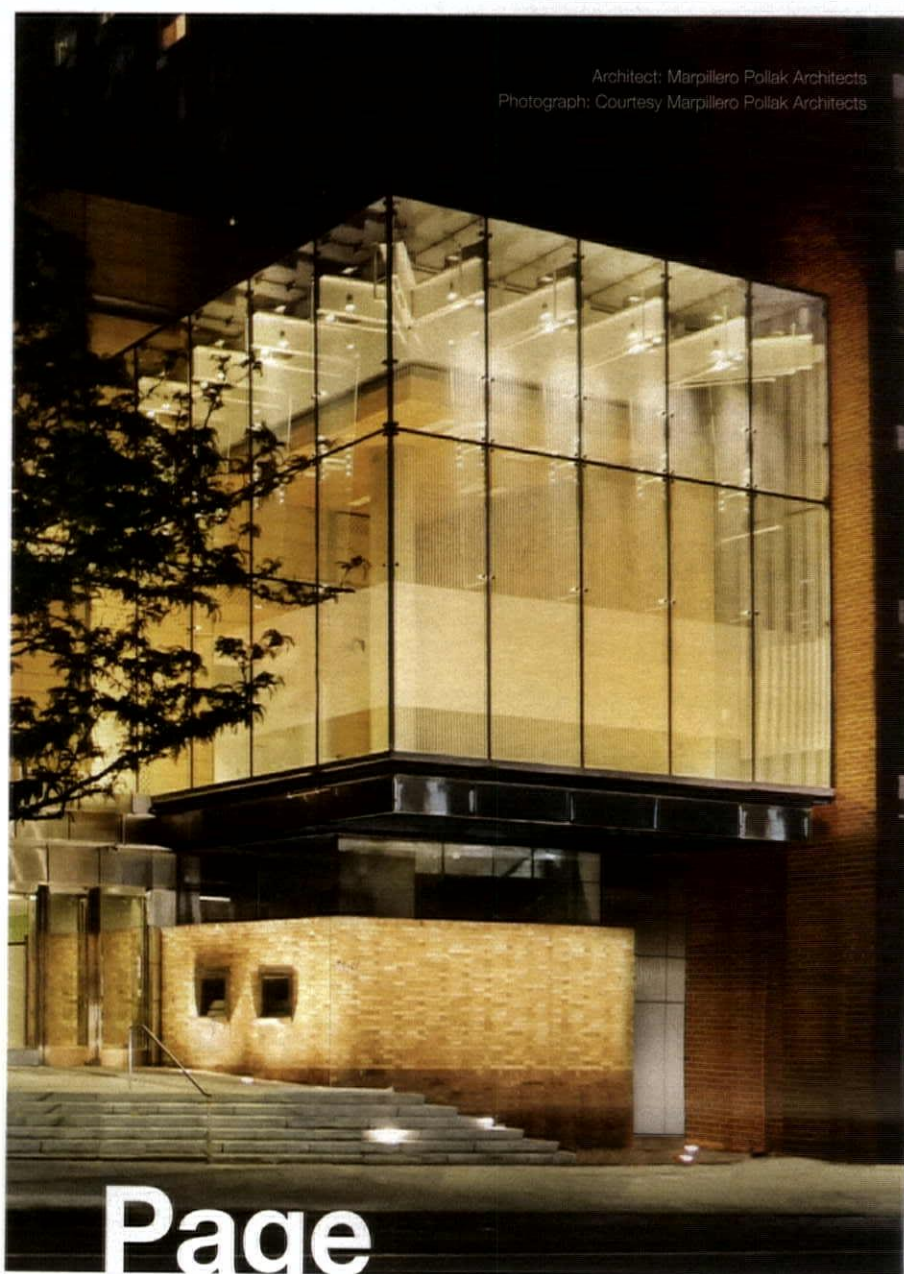
Up above, screens will span the 180,000-square-foot ceiling, while bass can be pumped through the floor. Madison Square Garden Company hopes the latter feature could be especially appealing to fans of mainstream electronic dance music (EDM): It hopes to book big EDM acts like Swedish House Mafia and Deadmau5, according to *USA Today*.

*The Architect's Newspaper* reached out to Populous's Kansas City, Missouri office and the Madison Square Garden Company for comment but did not hear back at press time.

Outside, the Sphere will feature 190,000 linear feet (36 miles) of LED lighting, so spectators could watch a concert going on inside, or have their retinas burned by a solid luminous ball, depending on the day. A camera system deployed throughout Las Vegas will collect and project images of the city onto the facade, as well.

Even though Madison Square Garden Company, the same team behind New York's landmark venue, is behind the project, there will be no basketball or hockey at the Sphere (there may be boxing or MMA, though).

The project will break ground later this year, and the developers estimate the venue will be open by 2020. **Audrey Wachs**



Architect: Marpillero Pollak Architects  
Photograph: Courtesy Marpillero Pollak Architects

## Page Turner

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

**Ornamental Metal Institute of New York**

[WWW.OMINY.ORG](http://WWW.OMINY.ORG)



# The Citizen's Exhibition

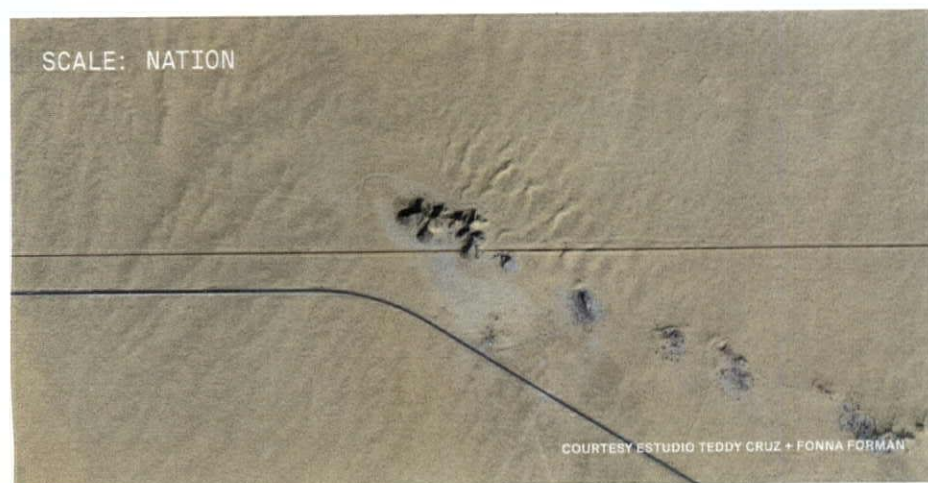
DETAILS ANNOUNCED FOR U.S. PAVILION AT 2018 VENICE ARCHITECTURE BIENNALE.

Details were announced March 12 about the upcoming U.S. Pavilion at the 2018 Venice Architecture Biennale. The exhibition will be titled *Dimensions of Citizenship* and curated by Niall Atkinson, associate professor of architectural history at the University of Chicago; Ann Lui, assistant professor at the School of the Art Institute of Chicago (SAIC); Mimi Zeiger, an independent critic, editor, curator, and educator; and associate curator Iker Gil, lecturer at SAIC.

*Dimensions of Citizenship* will feature the work of seven architecture practices to "explore how citizenship may be defined,

constructed, enacted, contested, or expressed in the built environment at seven different spatial scales. Expanding from the body and city to the network and the heavens, the seven installations raise questions about issues including belonging, sovereignty, and ecology," according to the curatorial statement.

The seven spatial scales are used as an organizing principle to examine the ways citizenship affects and is affected by the built environment. Each studio is assigned a scale as the prompt. **MS**



*The Nation Against Nature*, photo series from *MEXUS* (2017), Estudio Teddy Cruz + Fonna Forman

## SCALE: CITIZEN

Amanda Williams + Andres L. Hernandez,  
in collaboration with Shani Crowe

**Project description:** "Dimensions of Citizenship begins at the scale of the citizen with the project *Thrive! Geographies* (In My Mind I See a Line), which will consider how race shapes notions of identity, shelter, and public space. Historically African-American communities. For their installation in the courtyard of the U.S. Pavilion, Williams (a recently named 2018 USA Ford Fellow) and Hernandez, who is an associate professor of art education at SAIC,

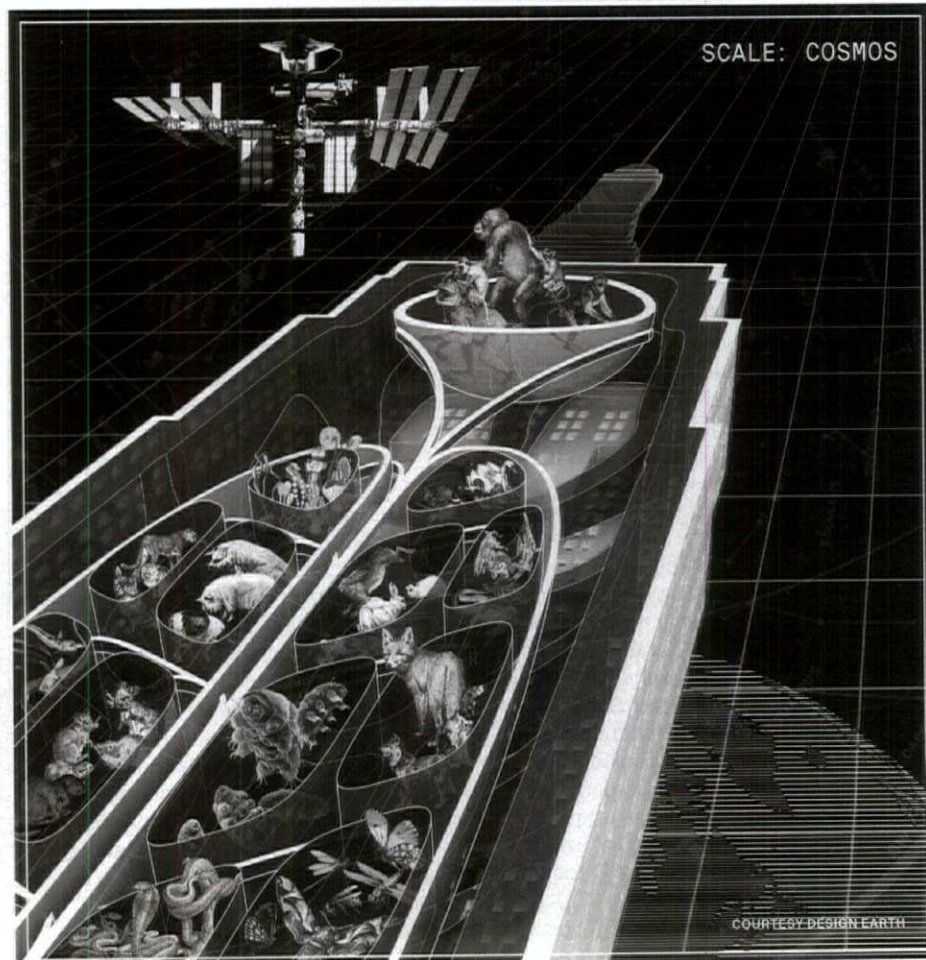
will partner with Chicago-based artist Shani Crowe, whose intricate braided hair sculptures have been worn by celebrities such as Solange. While the specter of slavery and continued racial injustice will be at the core of the installation, the piece will ultimately strive for a possible architecture of freedom that might allow all citizens to thrive and participate in the democratic ideal."

## SCALE: CIVITAS

Studio Gang

**Project description:** "Led by 2011 MacArthur Fellow Jeanne Gang, Studio Gang uses design as a medium to help strengthen communities. *Stone Stories* builds on the Studio's ongoing work in Memphis, Tennessee, to investigate how redesigning cities' public space can be an exercise of citizenship and empowerment. Inspired by Memphis's recent removal of two Confederate statues, *Stone Stories* offers an inclusive urban vision for Cobblestone Landing, an overlooked yet historically important site along the Mississippi River. Hundreds

of Memphis cobblestones will be shipped to Venice and used as a platform to share the stories of Memphians past and present, offering visitors a visceral and material interaction with a distant public space and the citizens who are actively building its shared urban future."



*Planetary Ark (All Aboard) the Architekton* from *Cosmorama* (2018), Design Earth

## SCALE: REGION

SCAPE

**Project description:** "SCAPE, under the leadership of 2017 MacArthur Fellow Kate Orff, will demonstrate that landscape architecture can be a critical tool for re-envisioning the response of citizens to climate change. SCAPE's project, *Ecological Citizens*, understands the region as an area defined by the shifting relationships of ecology, infrastructure, and climate. It takes the Venetian Lagoon as a globally significant case study of a tidal region under ecological threat.

Partnering with Università di Bologna and the Italian Institute of Marine Sciences, SCAPE will present possible solutions or interventions to aid the environmentally sensitive La Certosa island in the lagoon."

## SCALE: NATION

Estudio Teddy Cruz + Fonna Forman

**Project description:** "Estudio Teddy Cruz + Fonna Forman challenges the way we think about national boundaries. Their project, *MEXUS: A Geography of Interdependence*, reveals a transnational zone comprised of eight watershed systems shared by Mexico and the United States. *MEXUS* provokes us to rethink citizenship beyond the limits of the nation, mobilizing a more inclusive, interdependent idea based on co-existence, shared assets, and cooperative opportunities between divided communities. Cruz is the winner of the

2018 Vilcek Prize in Architecture, which is presented to immigrants who are champions of the arts and sciences."



SCALE: NETWORK



MANY (2018), Keller Easterling with MANY

COURTESY KELLER EASTERLING AND MANY

SCALE: GLOBE

## Diller Scofidio + Renfro, Laura Kurgan, Robert Gerard Pietrusko with Columbia Center for Spatial Research

**Project description:** "When we zoom out to the scale of the globe, the primacy of the individual, the city, and even the nation drops away and is replaced by data: electricity, trade routes, migratory shifts, and the flow of capital, goods, and people. *In Plain Sight*—a collaboration among Diller Scofidio + Renfro, Laura Kurgan, and Robert Gerard Pietrusko with Columbia Center for Spatial Research—uses data drawn from images created by the Soumi

National Polar-orbiting Partnership satellite to visualize where people live on earth. Two contrasting NASA images of the Earth taken at 1:30 p.m. and 1:30 a.m. show us the gaps in the network: the places with many people and no lights, and those with bright lights and no people. This information maps out a political geography of belonging and exclusion."

SCALE: NETWORK

## Keller Easterling with MANY

**Project description:** "Keller Easterling's writings and projects regularly investigate the emergent territory where the state meets the digital network. With MANY, an online platform designed to facilitate migration through an exchange of needs, Easterling and team propose that we use the network to rethink possibly outdated notions of citizenship. With a nod to the pervasive and familiar share economies that define online life, MANY envisions a global

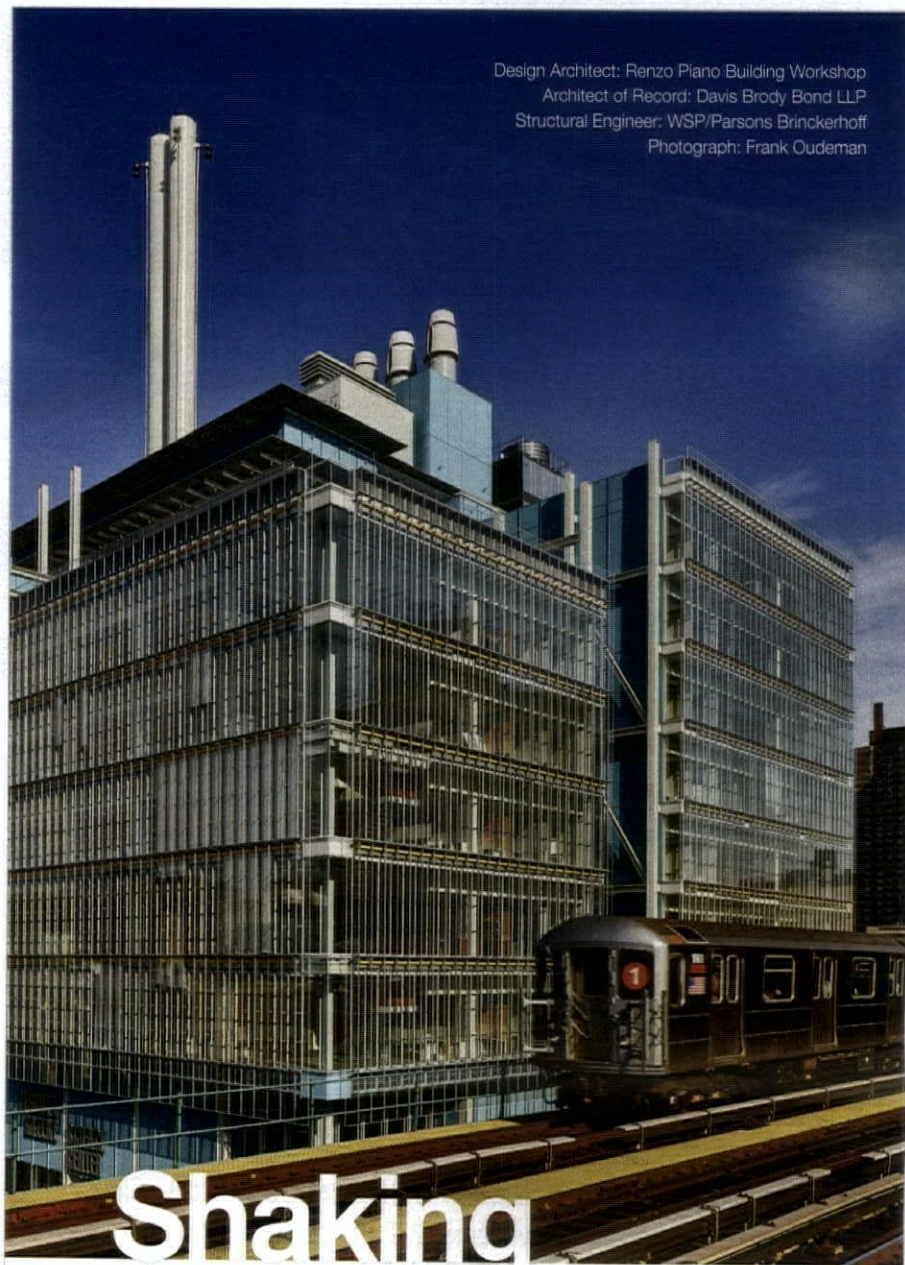
form of matchmaking between the sidelined talents of migrating populations and the multitude of opportunities around the world. Favoring cosmopolitan mobility over national identity, MANY looks to short-term visas as a tool to foster an exchange of needs."

SCALE: COSMOS

## Design Earth

**Project description:** "The space above Earth, as a site of existing human occupation and potential belonging, has become a territory that both captures the imagination and serves as a theater for existing conflicts or conditions. In looking to the cosmos, Design Earth's speculative designs suggest possible off-world architectural responses. Design Earth's El Hadi Jazairy and Rania Ghosn (recipient of the 2017 Boghossian Foundation Prize) present three "geo-stories," which speculate on the legal geography of citizenship when extended to "the

province of all mankind." Together the stories in *Cosmorama—Mining the Sky*, *Planetary Ark*, and *Pacific Cemetery*—ask how we should reckon with the epic and frontier narratives that have fueled space exploration, at a time when prospects of instability and extinction have become normal on Earth.



Design Architect: Renzo Piano Building Workshop  
Architect of Record: Davis Brody Bond LLP  
Structural Engineer: WSP/Parsons Brinckerhoff  
Photograph: Frank Oudeman

# Shaking Bad

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

**Steel Institute of New York**

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ALEXANDER ESSEVELD/VIRGIN HYPERLOOP ONE

# Hyperlooper

How real is the Hyperloop, Elon Musk's proposal to build 700-mile-an-hour transit systems? The technology to accelerate hovering transit pods through vacuum tubes could work; both Musk's The Boring Company and Richard Branson's Virgin Hyperloop One are racing to bring a working loop to the market. Multiple competitors seeking to deliver rapid transit to the masses have also sprung up in recent years. Let's take a look at the most viable projects.



COURTESY HYPERLOOP TRANSPORTATION TECHNOLOGIES

A conceptual rendering of the Hyperloop Transportation Technologies' system. The company is investing heavily in research and was tapped to study the feasibility of a Cleveland-Chicago Hyperloop line.

Richard Branson's Virgin Hyperloop One is coming to fruition on a test track in the Nevada Desert. The company wants to run its first commercial Hyperloop trip in 2021.

## United States

### Chicago to Cleveland

A 28-minute trip from Chicago to Cleveland could soon become a possibility. Hyperloop Transportation Technologies has entered into a partnership with the Illinois Department of Transportation and North Ohio Areawide Coordinating Agency to conduct a six-month feasibility study.

### Washington D.C. to New York City

The Boring Company recently received an exploratory permit to dig up a vacant lot in the capital, which could become the first step in creating a 29-minute East Coast Hyperloop route from D.C. to New York City.

### Underneath Los Angeles

Work is ongoing for Musk's plan to bore a traffic-bypassing tunnel under L.A., with the rest of the two-mile route on track to finish this year. The tunnel's feasibility (and cost) is an important part of realizing the futuristic train system.

### Denver to Boulder, Colorado

Hyperloop One competitor Arrivo might only be promising top speeds of 200 MPH between Boulder and Denver, but the start-up is not falling behind its competition. The company has already announced a partnership with the Colorado Department of Transportation and expects to break ground on a test track this year.

### Nevada

The world's only full-scale Hyperloop test track is taking shape in the Nevada Desert, and Virgin Hyperloop One is hopeful that it can reach full capacity by 2021.

## Asia

### Mumbai to Pune, India

Virgin Hyperloop One has signed on to build a Hyperloop track between Mumbai and Pune—cutting the 93-mile, three-hour trip down to only 25 minutes—that could become the start of a Hyperloop network ultimately spanning all of Southeast Asia.

## Middle East

### Abu Dhabi to Dubai

While BIG is designing the stations and transit hubs for a future system that would ferry visitors the 75 miles from Abu Dhabi to Dubai in only 12 minutes, Virgin Hyperloop One recently revealed the pod design. **Jonathan Hilburg**



**Driving While Robot** continued from front page vehicles are already hitting the streets today," Nico Larco, codirector of the Sustainable Cities Initiative at the University of Oregon, said. "Urban planners should be terrified."

Larco's not wrong. Only a few states even have regulations for driverless cars, let alone ideas for designing a future without parking. With Ford launching self-delivering pizzas in Miami, Google's Waymo rolling out an autonomous ridesharing service in Arizona, and driverless taxis making inroads in cities all over the world, architects and planners will either need to look ahead or be stuck in triage mode.

Sam Schwartz, former New York City Traffic Commissioner from 1982 to 1986 and founder of his eponymous traffic and transportation planning and engineering firm, has categorized the potential futures as "the good, the bad, and the ugly."

## The "good"

A utopic self-driving car scenario would have driverless cars constantly circulating and on the prowl for riders, while providing "first mile, last mile" access to and from souped-up mass-transit corridors.

If AVs truly take off and replace a sizable portion of manned cars on the street, then parking lots, garages, and driveways—not to mention thousands of square feet of on-street parking per block—would sit vacant. Walking, cycling, and autonomous (electric) buses would feature heavily in a multi-modal transit mix, and streets would narrow as bioswales and strips of public parks replaced parking spots. There has been movement on designing for that future; FXCollaborative, HOK, Arup, KPF, and other prominent firms have all put forward scalable designs for reclaiming the urban fabric. Speculation has already forced public officials in Pittsburgh to put together plans for integrating self-driving cars into the city's fabric by 2030, and developers in New York are building flexible parking garages that can easily be converted for other uses.

However, the key to actually enacting any of these schemes lies in large-scale government intervention. Without a concerted top-down reclamation and conversion of unused streets, AV-centric zoning policies, or renewed investment in mass-transportation options, cities will never be able to integrate AVs into their infrastructure. The largest hurdle to achieving the "good" future isn't technological, it's political; even self-driving evangelists have conceded that a laissez-faire approach might result in increased traffic on the road.

## The "bad"

Uber, Lyft, Google, and a raft of competitors are already jostling to bring self-driving taxis to market, so that these companies won't have to pay human drivers. Under the guise of preventing traffic fatalities—there were nearly 40,000 lives lost in the U.S. alone in 2017—the big players are lobbying all levels of government to allow their AVs on the street.

If vehicle miles traveled per person in AVs were allowed to increase without intervention, society could slide into an ugly scenario. This dystopic outcome would see mass transit hollowed out by a lack of funding and pedestrians shunted out of the streets in the name of safety. Studies have already shown that existing ridesharing services increase congestion and cause bus services to deteriorate, and if commuters get fed up with slow commutes and turn to ridesharing services, mass transit options could be sent into death spirals due to decreased revenue.

Driverless cars are often touted as being



spatially efficient, especially as they can join each other to form road trains—tightly packed groups of vehicles moving along optimized routes. But considering how much space on the road 40 bicycles or 40 commuters in a bus would take up, the flaw in that thinking becomes self-evident. Even if artificial intelligence can route traffic more effectively than a human, putting more cars on the road offsets the gains in speed by decreasing the amount of space available.

Although computers might be great at coordinating with each other, the external human element will remain a wild card no matter what. Well-planned cities that prioritize walkability and ground-level experience would place pedestrians over passengers, but a worst-case scenario could see cyclists and walkers forced to wear locator beacons so that AVs could "see" them better, while hemmed in behind fencing.

## The "ugly"

The worst driverless car scenarios take Le Corbusier's famous claim that "the city built for speed is the city built for success" to heart. The high-speed arterial thoroughfares Corbusier envisioned in The Radiant City were realized in the destructive city planning policies of the 1950s and '60s, but municipalities have spent heavily to correct their mistakes 50 years later. Much in the same way that widening roads actually worsens traffic, if planners and architects ignore or give deference to driverless cars and continue to prioritize car culture in their decisions, congestion, gridlock, and withered public transit systems are sure to follow.

The adoption of self-driving technology will likely birth new building typologies with unique needs, from centralized hubs where the cars park themselves to AV repair shops. As futurist Jeff Tumlin, principal and director of strategy at Nelson/Nygaard, points out, self-driving cars aren't a new concept. Their lineage can be directly traced to ideas introduced by GE at the 1939 World's Fair, but this is the first time that the technology has caught up with the vision. Planners and politicians have had 80 years to grapple with solutions; they can't afford to take any longer. JH



**Top:** FXCollaborative's Public Square project would link modular plug-and-play park sections to fill in stretches of unused parking spaces and streets. This overhead diagram shows how Public Square's kit-of-parts could be laid down in different configurations.

**Middle and below:** A healthy transit mix that includes cycling and walking alongside driverless cars would allow neighborhoods to reclaim and infill the even the busiest avenues.



# Greenpoint's Warehouse Modernism

THE BROOKLYN EAST RIVER WATERFRONT IS BEGINNING TO DEFINE ITSELF IN UNEXPECTED WAYS.

Taking shape along Greenpoint's once-industrial waterfront district is a series of surprisingly contextual modern condo developments using red brick and exposed black steel to tactfully insert tens of thousands of new residents along this sleepy East River shoreline. The largest of them, a 30-story tower that is part of Handel Architects' Greenpoint Landing, includes 5,500 units sprawled over 22 acres at the mouth of Newtown Creek, with 1,400 apartments renting for as little as \$393 to \$1,065. Initial renderings presented for public review surfaced as bland massing diagrams, but the subdued details of Handel's build-out hold promise for communities becoming accustomed to glossy, glassy, boxy towers in districts where rezoning permits greater height and bulk. To the stakeholders' credit, the developer showed them a selection of schemes to choose from, including designs by Renzo Piano Building Workshop.

In contrast to Long Island City's gleaming, generic masses and Williamsburg's spotty, uneven edges, Greenpoint's waterfront retains enough of its traditional shipping warehouses to sustain the contours of a characteristically industrial neighborhood along West and Commercial Streets, even if most of the industry is gone. Despite a major waterfront rezoning passed by the city council in 2005, until a few years ago, most of West

Street continued to host storage for building material and scaffolding, a lumber manufacturer, and a crane and equipment rental company. After large portions of Greenpoint Terminal Market were lost to a ten-alarm fire in 2006, Pearl Realty Management adapted the remains into a studio-and-workspace rental complex, an extension of its Dumbo-based green desk co-working enterprise. Slowly, smaller firms like Daniel Goldner Architects, Karl Fischer Architect, STUDIOOSC, and S9 Architecture populated the upland side of West and Commercial with renovated warehouses and upscale condos echoing the material palette of the existing low-rises.

Much of the post-rezoning development along West and Commercial stalled due to the 2008 mortgage-backed securities crisis. In 2009, the former Eberhard Faber Pencil Company building became the Pencil Factory lofts, and Daniel Goldner Architects filled in the corner lot with a syncopated colored brick addition and perforated aluminum garage. The project struggled in the post-crash housing market.

But in the past two years, a rush of new buildings began to rise up along West and Commercial with a distinct material selection: red and light-colored brick and exposed black-painted steel, with glazed entryways and antique fixtures. Karl Fischer Architect's



26 West Street opened in 2016, its redbrick and black steel facade filling out the six-story street wall, its large overhang resembling a meat market loading dock. The warehouse modern-aesthetic even extends all the way around the mouth of the Newtown Creek, where a 105-unit building by S9 Architecture employs the same neotraditional style—red brick, exposed black steel, industrial awnings, antique fixtures. An upscale ground-floor grocery store warmed some nearby loft residents up to it after months of sound-based trauma from the drilling of pilings. With leases from \$3,350 to \$4,350, locals will never be at peace with the rent pressures that come with these buildings, but at least they have the

virtue of not extravagantly showing off their residents' income.

Not everything conforms to this trend: The expansive 140-unit development under construction by Ismael Leyva Architects at 23 India Street more crudely fills in its zoning envelope with affordable housing ranging from \$613 for studios to \$1,230 for winners of the NYC Housing Connect lottery, capped by a 39-story, 500-unit condo tower that promises in every way to form a bland massing diagram in the sky.

In any case, contextual exterior cladding is little consolation for a community that fought hard for its 197-a plan—completed in 1999 and adopted by **continued on page 19**

## Three-Pointer

GENSLER'S NVIDIA HEADQUARTERS SHINES.



NVIDIA's new headquarters functions somewhat like a big tent, with a large, black metal panel-covered core anchoring the structure at its center. A segmented, skylight-studded super-roof encases the 500,000-square-foot office space below.

NVIDIA's cavernous, Gensler-designed 500,000-square-foot headquarters opened for business late 2017, capping off a seven-year effort to create a new state-of-the-art office complex for the technology company.

Located in Santa Clara, California, the triangular complex takes a decidedly inward approach to the open, creative office type. Unlike Facebook's park-topped headquarters or Apple's ring-in-the-forest complex, which feature expansive connections to the outdoors and commingle quasi-public access with offices, NVIDIA's new home base is self-contained and mono-functional, more high-tech tent than big-nature oasis.

Instead of bringing the outside in, Gensler's designs utilize a soaring internal volume and 245 perfectly calibrated triangular skylights set into a modular, undulating roof that turns the inside out.

Workers are expected to arrive by car, entering the building's underbelly via two basement parking levels containing 1,500 stalls. A glass-enclosed elevator core welcomes arrivals before whisking them to the cavernous offices above, where they are greeted by a faceted, black metal panel cocoon wrapping the all-white elevator core. This angular, two-story volume creates a sheltered area at the heart of the building underneath an orderly grid of skylights that was laid out using virtual reality software to determine each skylight's final placement.

Hao Ko, principal and managing director at Gensler, said, "We worked hard to get the right specifications of glass makeup to allow us the right quality of diffused and soft sunlight in the space. The final result—where the daylighting is evenly dispersed throughout and evenly experienced by everyone—is a testament to the upfront work we did in design."

Because of Santa Clara's zoning laws, the structure could only rise two stories and ultimately topped-out at 36 feet tall. In response, Ko's team created two soaring levels within the arched envelope of the building, taking the opportunity to transform the office's many staircases into broad, socially vibrant areas while also creating an upper level that functions more like a mezzanine than a fully-enclosed floor.

Along the ground, squat cubicles, an institutional-seeming dining hall, and multifunctional lab spaces orbit the opaque core, which itself contains lounges, meeting rooms, coding nooks, and research areas. The level above, meanwhile, is populated by parallel rows of cubicles interrupted by acoustically sealed meeting pods that extend every which way.

The end result is a workplace envisioned and constructed to look good—and work well—in any light. **AP**



## Marked Up

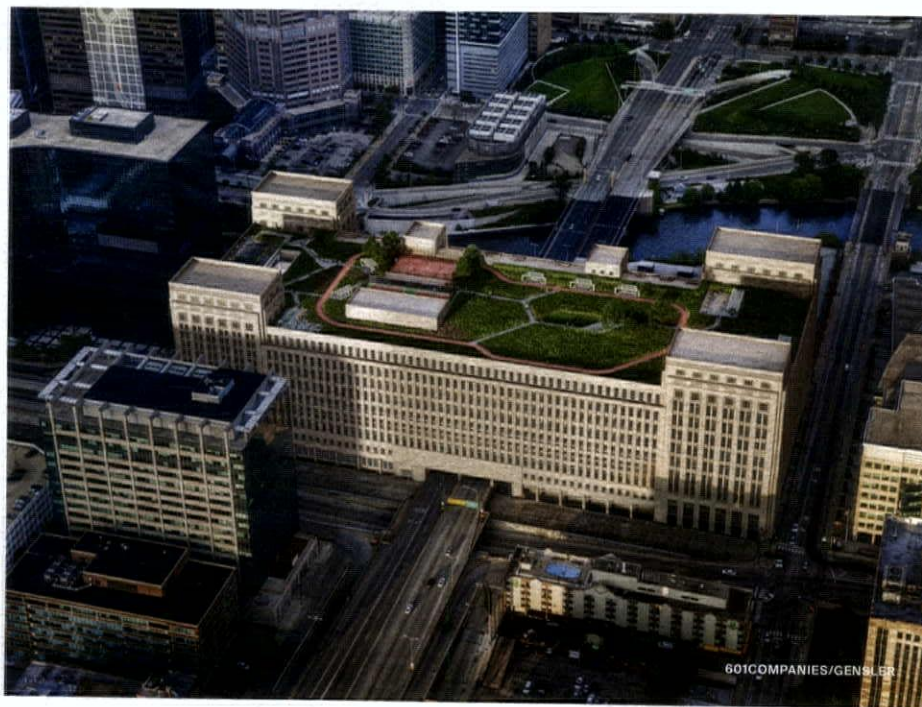
OLD CHICAGO MAIN POST OFFICE BUILDING RECEIVES LANDMARK DESIGNATION.

The Chicago City Council recently approved the landmark designation for the Old Chicago Main Post Office Building. Built in phases from 1921 to 1932, the 2.3-million-square-foot structure is located on the western bank of the south branch of the Chicago River in Chicago's Near West Side. The building's brawny nine-and-twelve-story art deco design is the work of Chicago architectural firm Graham, Anderson, Probst & White, a successor to D.H. Burnham and Company.

The Old Chicago Main Post Office was constructed with a 40-foot-wide rectangular hole running through the center of the building, intended to accommodate a provision of the 1909 Plan of Chicago for a Congress Street extension from the South Loop to Chicago's West Side. While various plans were floated for the extension in the 1930s, the space wouldn't come into full use until 1955, when the Congress (now Eisenhower) Expressway was completed, connecting the Loop to the western suburbs.

The building's main lobby sports lavish details like white marble and gold glass mosaics, but its original function was utilitarian in nature, with the majority of the spaces dedicated to feed conveyors, hoppers, mechanical tables, and chutes that supported a variety of mail sorting operations. The Old Chicago Main Post Office remained in operation until a modernized facility was completed in 1996, leaving the building vacant.

While the Old Chicago Main Post Office was added to the National Register of Historic



Unused since 1997, the Old Chicago Main Post Office received landmark designation as it undergoes a complete renovation by 601W Companies and Gensler.

Places in 2001, providing it with the opportunity to capitalize on Federal Historic Tax Credits, it is the local designation that provides a measure of protection from demolition and insensitive alteration, as a National Register listing is primarily used for planning purposes and is honorary. Local designation of commercial, industrial, and income-producing non-for-profit buildings also provides building

owners with the opportunity to capitalize on Chicago's Class L Property Tax Incentive, which reduces property levels for a 12-year period provided that half of the value of the landmark building is invested in an approved rehabilitation project.

According to the City of Chicago, the property's owner, 601W Companies, is implementing a \$292 million rehabilitation of the

building as retail spaces and offices led by Gensler. The interior and exterior spaces will be comprehensively updated. The work will also repair existing rights-of-way for the Eisenhower Expressway as well as the Amtrak railroad facility located underneath the building. **Elizabeth Blasius**

## Where the Wild Things Are

CHICAGO TO GET A MILE-LONG PARK AND WILDLIFE HABITAT.

A vestige of Chicago's industrial history is slated for redevelopment as an ecologically focused public space. According to the Chicago Department of Planning and Development, a mile-long stretch of the North Branch Canal will be redeveloped to serve both Chicagoans and wildlife, focusing on the east side of the canal between Division Street and North Avenue, with the plan to be completed by the end of 2018.

Financed by Chicago's Open Space Impact Fees, the Wild Mile of the North Branch Canal would set the groundwork for habitat improvements for fish, turtles, and invertebrates, and create vegetative islands, viewing platforms, and canoe launches, as well as other environmental enhancements.

The Wild Mile is a component of the proposed improvement of 760 acres along the Chicago River between Kinzie Street and Fullerton Avenue as a part of the North Branch Framework Plan. The North Branch Framework Plan is integral to Mayor Rahm Emanuel's Industrial Corridor Modernization Initiative, a multi-year effort to review and refine land use policies in the city's Industrial Corridor System. The plan for the North Branch Canal would include best practices for implementation and details on cooperation with private property owners and developers.

Dug to form a shortcut to avoid the bend in the North Branch of the Chicago River, the North Branch Canal was originally completed in 1857 by Chicago's first mayor, William B. Ogden. The completion of the North Branch Canal created the area known as Goose Island, where industrial development flourished at the turn of the 20<sup>th</sup> century and is now gaining popularity as a new tech hub in Chicago.

"This initiative will improve the North Branch Canal as a truly unique waterfront for the entire city, where visitors will be able to engage and appreciate the city's ecosystem through unprecedented public access," said Mayor Emanuel in a statement.

The proposal for the Wild Mile comes as Chicago aldermen push for increased public access to the entirety of the North Branch of the Chicago River. Private plans to redevelop the riverfront have recently emerged, such as Sterling Bay's Lincoln Yards project, which includes the former A. Finkl & Sons steel plant and will deliver residential and office buildings, in addition to a connection to the 606, a 2.7-mile-long linear greenway on the site of a former rail line. **EB**



A mile-long section of Chicago's North Branch Canal will be remediated to provide a habitat for wildlife and park space for Chicagoans.



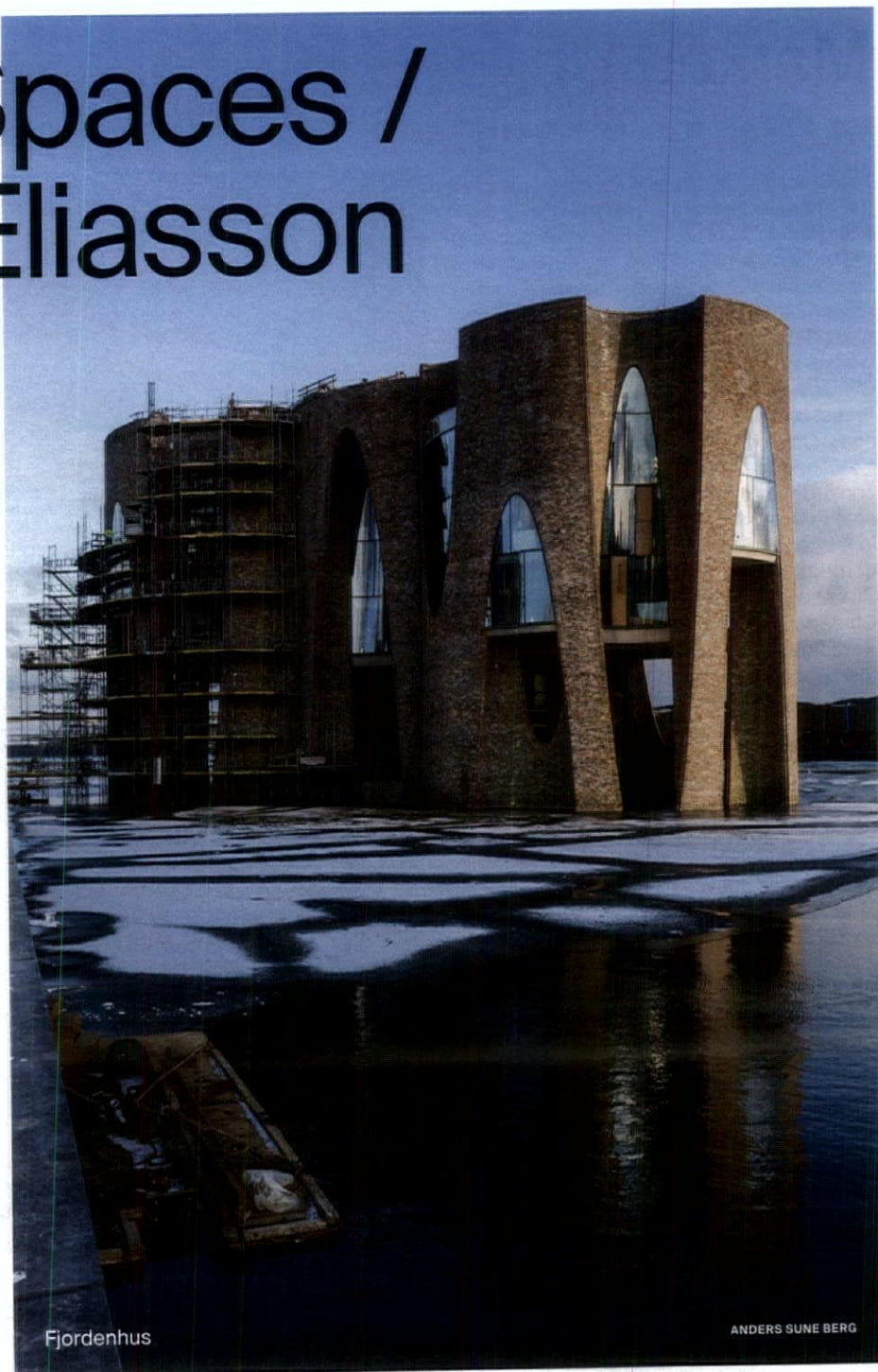
# Studio Other Spaces / Studio Olafur Eliasson

The Danish-Icelandic artist Olafur Eliasson's multi-story studio is located in an old 19<sup>th</sup>-century brewery in Berlin's Prenzlauer Berg district. The combination artist's studio, materials research laboratory, and fabrication workshop is outfitted with elegant Hans Wegner furniture, displays of Eliasson projects, artwork prototypes, and a glass-walled kitchen for employees' daily lunches. Inside this calm, but busy, workshop there is now an architecture office.

Directed by Eliasson and architect Sebastian Behmann, Studio Other Spaces is a natural outgrowth of the large-scale public sculptures and installations that Studio Olafur Eliasson has been creating since the mid-1990s. Eliasson has long had an interest in architecture, running an art school called the Institute for Spatial Experiments and working for many years with Einar Thorsteinn, an architect and geometry expert who was a follower of Buckminster Fuller. Studio Olafur Eliasson was also part of the James Corner-Diller Scofidio + Renfro design team for New York's High Line park. For several years the art studio has had major clients commissioning projects that were really exterior curtain walls, like the Reykjavik Harpa Concert Hall, designed with Copenhagen-based firm Henning Larsen (and winner of the 2013 Mies van der Rohe Award), which has a facade of quartz-like hexagonal sections.

Eliasson writes that he believes the "culture sector in our society is more likely to create change than the public sector, the politicians, or the private sector." This new architecture office is perhaps a vehicle to combine his dramatic public art with a pragmatic social program. This desire by designers and artists to also be architects has a long lineage going back to the Renaissance through the Vienna Secession, and today we see it with artists like James Wines of SITE or industrial designers like Pentagram and Thomas Heatherwick. Given all the requirements of building, it is still not common for an architect to be grounded in art, but with the capabilities of today's digital practice and the range of large scale public art, we may start to see more of these professional distinctions erode. Studio Other Spaces' recent projects and its facility with spatial design shown here is not just branding, but sophisticated architecture.

Head of design in Studio Olafur Eliasson, Behmann is an educated and licensed architect and has been



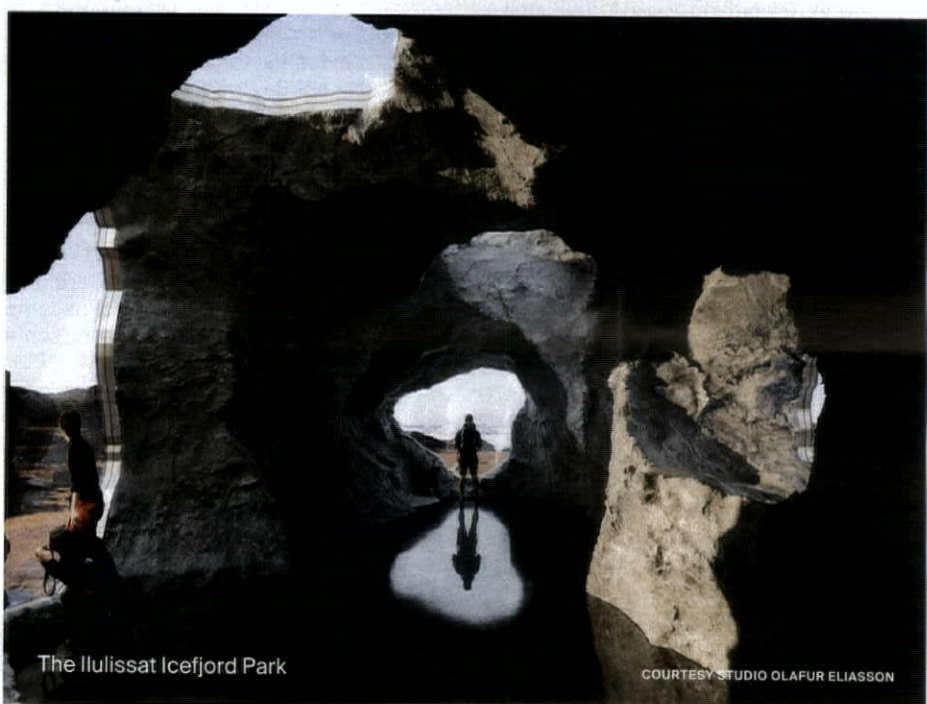
Fjordenhus

ANDERS SUNE BERG

consulting on the studio's architectural projects since 2001, though the studio only recently began to design major monuments all over the world. The architecture office currently has eight architects on staff, all with different backgrounds. Eliasson said he admires architects because "they build buildings for people who are not interested in buildings—they just work in them, or they just sleep in them, or they just eat in them." This a very good start for practicing architecture.

**William Menking**





## The Ilulissat Icefjord Park

Competition

The park design uses melting ice to shape space based on a unique design strategy where ice is at once the formwork of a concrete structure and the focal point of the resulting space. Icebergs were harvested directly from the nearby ice fjord to create an exhibition building, called the Ice Void, which harbors the memory of the ice that was used to shape it in its walls. Linked to the Ice Void outdoors by a 360-degree path, the Sun Cone building defines the park. The light glass structure of the Sun Cone positions the visitor center directly in the landscape and offers guests a spectacular panoramic view of the surroundings and the Arctic sun. The park helps make the overwhelming experience of visiting the ice fjord comprehensible—providing visitors with a scale for contemplating and relating to the awe-inspiring ice fjord.

## Fjordenhus

Vejle, Denmark

The new headquarters of Kirk Kapital rises directly from the harbor of the city of Vejle, Denmark. Accessible by footbridge, the 75-foot-tall building is formed by four intersecting cylinders with brick facades that have rounded negative spaces, creating complex curved forms and arched windows. The brickwork incorporates fifteen different tones of unglazed brick, making a visually rich surface; blue and green glazed bricks are integrated into the carved-out sections to produce color fades that enhance the sense of depth. The ground floor is open to the public and includes two water spaces that are visible from viewing platforms.

## Harpa Concert Hall and Conference Centre

Reykjavik, Iceland

Designed with Henning Larsen Architects, the Harpa Concert Hall has a show-stopping facade. Reminiscent of the crystalline basalt columns commonly found in Iceland, the facade was built from a modular, space-filling structure called the quasi brick. The quasi brick is a twelve-sided polyhedron consisting of rhomboidal and hexagonal faces. When stacked, the bricks leave no gaps between them, so they can be used to build walls and structural elements. The combination of regularity and irregularity in the modules lends the facade a chaotic, unpredictable quality that could not be achieved through stacking cubes. The modules incorporate panes of color-effect filter glass, which appear to be different colors according to how the light hits them; the building shimmers, reacting to the weather, time of day or year, and the position and movements of viewers.

## Your Rainbow Panorama

Aarhus, Denmark

In 2007 Studio Olafur Eliasson won a competition to transform the rooftop of Aarhus Art Museum in Denmark. It offers visitors sweeping views of the city, the sky, and the distant horizon. The elevated 360-degree walkway is 492 feet in diameter and glazed with rainbow-colored glass. Visible from afar, the work divides Aarhus into various color zones and acts as a beacon for people moving about the city—an effect that is heightened at night when lights running the circumference of the walkway illuminate it from within.



# Carbye-bye

IS THE UNION CARBIDE BUILDING REALLY WORTH SAVING?

When news broke last week about JPMorgan Chase's plans to tear down 270 Park Avenue, otherwise known as the Union Carbide building, by Skidmore Owings & Merrill (SOM), the New York architecture community predictably went up in arms. Critics like *New York* magazine's Justin Davidson lambasted the plans as "obscene," while *Curbed*'s Alexandra Lange called the plan "shortsighted."

But after the initial shock at such a huge building being torn down has faded—it would be the tallest building to be voluntarily demolished—there has still been little to no convincing argument offered for JPMorgan Chase to save the building.

The Union Carbide should be torn down. In fact, we should cheer as it falls because it represents the worst of midcentury American corporate architecture, something that at the time was totalizing, banal, repetitive, and dogmatic—when everything began to look similar.

The Union Carbide is derivative of the Seagram Building just down the street, an exemplar of a time when copying Mies van der Rohe had gotten completely out of control. In fact, Stanley Tigerman's *The Titanic* addressed exactly this phenomenon: Mies was great, but his copiers were not. Buildings like Union Carbide are what inspired Tigerman and his peers to develop architectural postmodernism.

By defending this building, critics are creating an echo chamber reinforcing bad corporate architecture that offers very little to architectural culture. By 1961, almost 70 years of seminal modernism had completely altered the way we build and the way we see our cities. Just in the United States alone, there are many important projects of the movement, including Mies's Farnsworth House (1951), Frank Lloyd Wright's Johnson Wax Headquarters (1939), and a number of projects in California by Rudolph Schindler and Richard Neutra that stand as important history. A nondescript corporate box from 1957 that isn't even one of the most important buildings on its own block—Seagram, MetLife, Lever House, and the PepsiCo building are all better—shouldn't be cried over.

The Union Carbide building is an offender of the high modernist co-optation of the guiding principles of modernism—a movement originally fueled by a socially progressive agenda (better, cleaner, more egalitarian cities) and made possible by radical innovations in building technology, most notably machine precision and mass production. Davidson rightly notes that "before the 1950s, builders could hide approximations and errors with ornament or tolerant stone." However, this disregards that fact that buildings like 270 Park paved the way for the co-optation of the original machine aesthetic of mass production in modernism. What started as something beautiful and new became something developers used to cut costs. The result is the banal stream of terrible, stripped-down glass boxes that litter our skyline today: The late capitalist use of the modernist aesthetic and efficient production process to justify cheaper and cheaper buildings.

Davidson claims, "To demolish one of the peaks of modernist architecture in the name of modernity is obscene, a sign that you consider your city disposable." Unfortunately, this is an odd conflation of the idea of modernity and the contemporary. In architectural terms,

modernity and modernism are historical periods, linked by the advent of the industrial revolution and the refinement of the machine aesthetic alongside it. However, Davidson's linguistic trick falters when we realize that tearing down 270 Park would not be a quest for modernity, as we are now postmodern or something even further removed from modernity. Once we get beyond the idea that modernism is still important to the contemporary, we can treat it properly as what it is: a historical style.

Furthermore, 270 Park and many other midcentury buildings were built by the most ruthless cabal of capitalists the world has ever seen. They did it with style, but let's not forget that the *Madmen* of this era reinforced a power structure that we are still struggling to shake off. There was a world fueled by misogyny, exploitation, white supremacy, and capitalist imperialism. Union Carbide is or should be notorious as the perpetrator of the worst industrial tragedy in the history of the world, the 1984 Bhopal disaster, in which almost 4,000 workers and at least 15,000 people total were killed by a toxic gas leak at the Union Carbide India Limited (UCIL) pesticide plant in Bhopal, Madhya Pradesh, India. Midcentury clients were sometimes bad people with good taste. We shouldn't tear the building down because of Union Carbide's transgressions, but we should not assume that JPMorgan is a new evil desecrating some holy landmark.

In fact, demolition is the only logical conclusion for a building like Union Carbide. It is a structure built precisely for the logic of the market to consume it: Capital exploits and extracts maximum value from whatever it uses and leaves behind a smoldering husk once it has been deemed worthless. Why not just let 270 Park die a natural death at the hands of the 21st century equivalent of Union Carbide: a multinational bank? It's really a beautiful story if you think about it correctly.

It is true that this is a wildly wasteful proposal. But this building can be torn down as an exercise in tearing down such tall structures. The demolition could offer a useful case study. As skyscrapers age, this will become an important preservation issue. How will we deal with tall buildings in urban settings that can't be imploded? What are the techniques for taking away glass at 40 stories? How does a curtain wall removal differ from a typical window assembly?

This is not always a question of waste, either. How do we take down tall buildings that are severely damaged by fires, earthquakes, or other disasters? If the demolition is done correctly, companies like Rotor Deconstruction could also salvage much of the architectural heritage by saving a good amount of the building material, which could find new life in future buildings. A strong proof-of-concept would help the entire profession.

The Union Carbide is the type of building that really isn't that important, but has somehow become more revered because it is located in New York. However, this tower is not any more remarkable than many like it all over the world. This myopic obsession with New York's past holds it back. Even Ada Louise Huxtable—who Lange quotes in her attempt to rationalize saving Union Carbide—said in 1957, the year 270 Park was completed, "Today the old Park Avenue is being buried with remarkable and ruthless efficiency...



EZRA STOLLER/ESTO

For we must no longer just bury the past, we destroy it to make room for the future." We have to wonder what she would think of the predicament today.

However, just because 270 Park is not worth saving does not mean that what replaces it couldn't be worse. The big question now is: What's next? Architect Andrew Zago likes to say, "It's OK to tear anything down, as long as you replace it with something better." This is likely not JPMorgan Chase's mantra, but the banking giant certainly has the resources to choose any architect it wants. How do we persuade Chase to hire an architect who will guarantee design excellence? One way is if the Department of City Planning (DCP) were to hold the firm's feet to the fire. On such a high-profile project at the beginning of a neighborhood-scale transformation that Mayor Bill de Blasio's administration seems invested in, DCP should have a say in what goes up. And they should care about design excellence. Let's redefine what it means to be contemporary, not dwell on what it means to be "modern." **Matt Shaw**

The 1960 Union Carbide building was designed by Natalie de Blois at Skidmore, Owings & Merrill, who worked under Gordon Bunshaft. Bunshaft is often credited with the design. Now, it is slated for demolition.



"The Union Carbide building should be torn down," (facing page) was originally published on [archpaper.com](http://archpaper.com), March 6, 2018. Many people wrote in with their opinions on Union Carbide as well as the article itself. We share a few of them here:



As Vincent Scully used to say, "Buildings are not guilty, people are." I wish there was a bit more actual looking at the building, its context, and its making here, and a little bit less distancing theory and abstraction of ideas. The participation of an under-recognized woman architect on this building's design is only part of a much richer story than the Foxtrot of economic determinism suggested here.

—John Kaliski, Los Angeles

Before concurring that, yes, you're right—and are bold and courageous in advancing such a passionate and convincing argument—I'd like to ask what JPMorgan Chase plans to replace this building with. If it turns out to be some great, bloated behemoth, I'm afraid I'd opt for leaving the past alone and finding creative and useful ways to redo what's there.

—Mervyn Kaufman, New York

If only JPMorgan could retain a nice Marxist-Leninist Architect...perhaps a "meddling" Russian, who really cares about "design."

The above is nonsense—without capitalism the Union Carbide building would not exist and certainly its replacement could not be contemplated. Why didn't the author lay blame on free enterprise for his tortured employment as a not-so-competent SENIOR critic?

—David Davenport, Sarasota, Florida

The Union Carbide building was completely renovated in 2012 and received a LEED Platinum rating. Now, after less than 10 years they want to demolish it and replace it with a taller building. Will the new replacement building seek a LEED rating? What does this say about the LEED rating system when such a newly certified building can be disposed of so easily?

—Michael David Rouchell, New Orleans

I strenuously object to Matt Shaw's March 6 editorial celebrating the Union Carbide building's imminent demolition ("The Union Carbide building should be torn down").

In fact, JPMorgan's decision to tear down this 52-story glass-and-steel tower at 270 Park Avenue, designed by SOM, is nothing to celebrate: It is yet another example of wasteful practice motivated only by corporate greed.

The Union Carbide building deserves landmark status regardless of who designed it. It's one of our better skyscrapers, even if it's not quite at the level of Mies's Seagram Building. The beautifully proportioned curtain wall, with its dark metal panels and protruding vertical stainless-steel mullions, has its own power and elegance. Surely there are better candidates for demolition in the interests of energy-efficiency and the salvaging and reuse of materials—smaller buildings that are ugly, poorly designed, and energy inefficient.

Whether landmarked or not, the idea of destroying buildings of this scale and quality makes my stomach turn. Union Carbide's curtain wall may need restoration or even rebuilding, but that's undoubtedly less expensive than constructing a new tower from scratch. In any case, financial considerations should be beside the point when it comes to decisions concerning preservation and cultural heritage.

I urge that the NYC Landmarks Preservation Commission reconsider its decision concerning landmark status, and save 270 Park Avenue from the wrecking ball.

—Mary McLeod, New York

My worry is that by the time the bank relocates the employees and demolishes the building it's likely there could be another banking financial disaster, which might kill the new project. We'd be left with a big empty lot and inferior eventual replacement. All these big banks that almost failed 10 years ago might get hit again as Trump eases back regulations designed to prevent another disaster. I'd hate to see this demo be for nothing. Chase has lots of other options for a new headquarters.

—Frank S. Butler, Buffalo, NY

I welcome debate and disagreements, and Matt Shaw makes a good argument in his passionate condemnation of the Union Carbide building. But I do wish that he had aimed his attacks at my writing on the subject a bit more accurately. He links to my defense of the building in *New York* magazine—and thank you for that!—but (twice) quotes from an earlier tweet, rather than the article itself. Unsurprisingly, he finds that the tweet is not exhaustive in its analysis. He writes that I "[disregard] the fact that buildings like 270 Park paved the way for the co-optation of the original machine aesthetic of mass production in modernism." In the article, I do no such thing.

Shaw implies that I fail to see the consequences of the aesthetic embodied in Union Carbide: "the banal stream of terrible, stripped-down glass boxes that litter our skyline today." Yet I expressed pretty much the same idea when I wrote: "Glass buildings soon destroyed entire cities, too, as efficiency muscled out elegance. A style predicated on mass production has kept on grinding out widget-like skyscrapers that are equally at home, or equally alien, in downtowns from Düsseldorf to Jakarta to Santiago de Chile."

Citing a tweet, Shaw finds me guilty of an "odd conflation of the idea of modernity and the contemporary" and accuses me of failing to understand that modernism is actually a historical style. In the article, I wrote that midcentury modernism "can have little claim to reverence, when it cleansed away so much history without sentimentality or nostalgia, and when it fetishized the use of technology that was more easily discarded than repaired." By all means argue with the points I make, but not by claiming I didn't make them!

Despite Shaw's attempt to cast me as a preservationist naïf, insensitive to historical complexities, I think he and I actually agree on many points. For instance, we both refer to the irony of trying to preserve a style that aspired to sweep away the old.

I wish he had been clearer about the points where we do differ. The first is subjectively aesthetic: I like the building; he doesn't. Fine. The second is more substantive. "Demolition," Shaw writes, "is the only logical conclusion for a building like Union Carbide. It is a structure built precisely for the logic of the market to consume it." That's

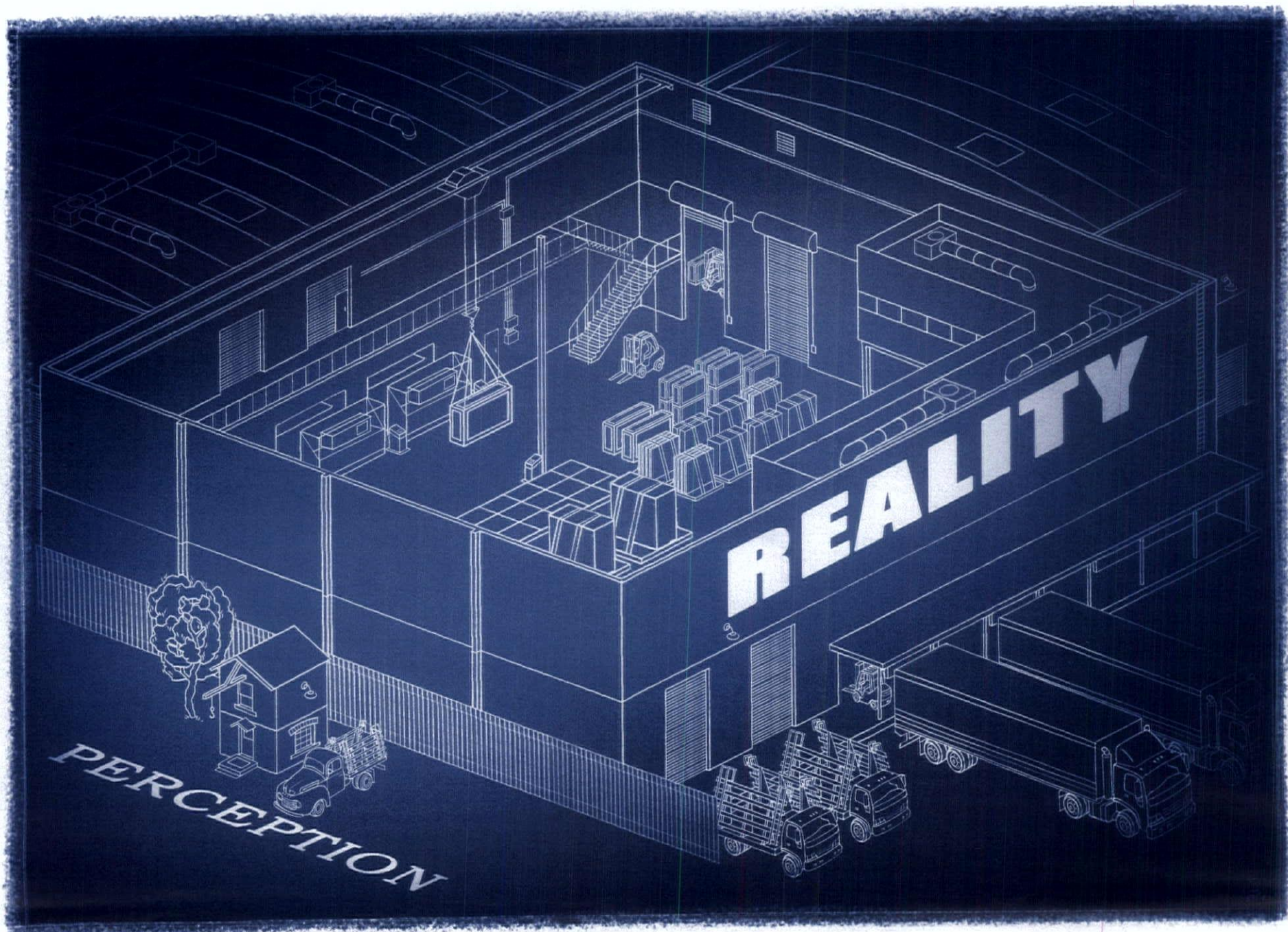
true, but I don't believe that justifies its demolition. Good buildings outlive the philosophies that brought them into being. Otherwise, you might say something similar of any medieval tower—that it is a structure built precisely for the logic of war to consume it—and unsentimentally junk it?

—Justin Davidson, New York

A compelling and well-reasoned argument. The city doesn't necessarily need this building anymore. I would only quibble with your theoretical-linguistic discussion that lumps together "modern" with "modernism-modernist." The movement or style known as "modernism" belongs to a bygone era, as you say. But "modern" is a broad and slippery term with multiple meanings, including something very close to "new" or "contemporary," so that it's a moving target. Maybe "we have never been modern" (Bruno Latour) or more likely we will always be modern...but of course the real question at hand is what kind of architecture is best suited to replace 270 Park?

—Gideon Fink Shapiro, New York





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# Finishing School

LOHA, SOM, AND KEVIN DALY ARCHITECTS COLLABORATE ON NEW STUDENT HOUSING AT UCSB.

University of California, Santa Barbara's (UCSB) new San Joaquin Villages by Lorcan O'Herlihy Architects (LOHA), Skidmore, Owings, & Merrill (SOM), and Kevin Daly Architects (KDA) opened to student residents during the fall 2017 semester. The expansive project brings over 1,000 student beds and a string of campus amenities clustered around open courtyards to the housing-starved university's 15-acre North Campus.

The village master plan was created by SOM, which also completed the adaptive reuse of the Tenaya Towers—a pair of six-story housing blocks—to create 58 new, three-bedroom, two-bath apartments. For the project, the structures were given American with Disabilities Act-compliant upgrades, including new exterior circulation. SOM also added a new freestanding pavilion to a plaza located between the two towers that will contain study spaces and a recreation room. In addition, the towers are outfitted with rooftop terraces overlooking the public spaces below.

The project site was reworked by landscape architect Tom Leader to redirect stormwater runoff into new biofiltration planters and bioswales that will purify the captured water before draining it into adjacent wetlands.

The adjacent North Village site is carved up into four principal parcels, with LOHA and KDA each taking two sites to create a patchwork of low-rise, interconnected housing blocks. The intentionally utilitarian accommodations are linked by acrobatic

exterior circulation and shared student amenity spaces, like a handsome laundromat outfitted with operable awning windows and a spare, wood fin-clad organic market. Together, these areas bring 107 three-bedroom, two-bath apartments to UCSB.

Lorcan O'Herlihy, principal at LOHA, said, "UCSB dormitories have typically pushed circulation to their exterior envelope, with an inert central courtyard accessible only from within the building. [Our] design inverts this circulation scheme, [creating] a subdued exterior edge with an open, lively interior courtyard containing all building circulation, encouraging movement throughout the complex."

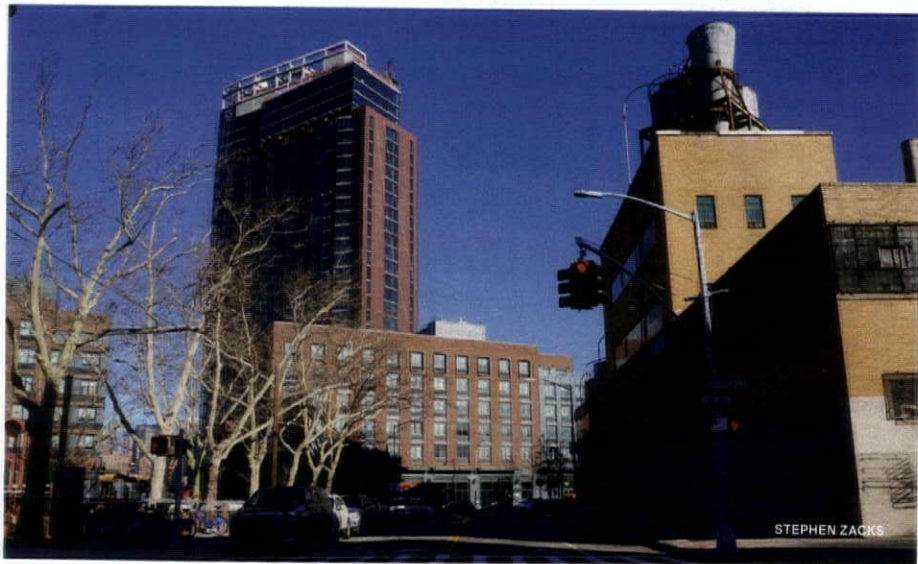
The grouped structures are made up of shifting, canted geometries and are clad alternately in corrugated metal panels, wood fins, and stucco along the exterior, campus-facing areas. The LOHA-designed blocks feature painted plaster walls along the courtyard exposures. Social hubs—including reading rooms, social spaces, and dining facilities—float around the complex, projecting from second floor perches in some instances, tucked snugly below elevated walkways in others.

The units themselves are designed with passive ventilation in mind, and windows are wrapped in both vertical and shaped aluminum sunshades, depending on the orientation and structure.



Overall, the multifaceted project updates campus housing, deeply embedding shared social experiences into campus life through simple ornamentation and permeability. **AP**

LOHA, SOM, and KDA recently completed a 1,000-bed student housing expansion at UC Santa Barbara, adding a collection of new mid-rise dormitories, upgrading existing housing towers, and creating a new network of pedestrian-oriented public spaces connected by circulation, including conference and study rooms elevated off the ground, as pictured.



Greenpoint Landing by Handel Architects will span 22 acres once complete.

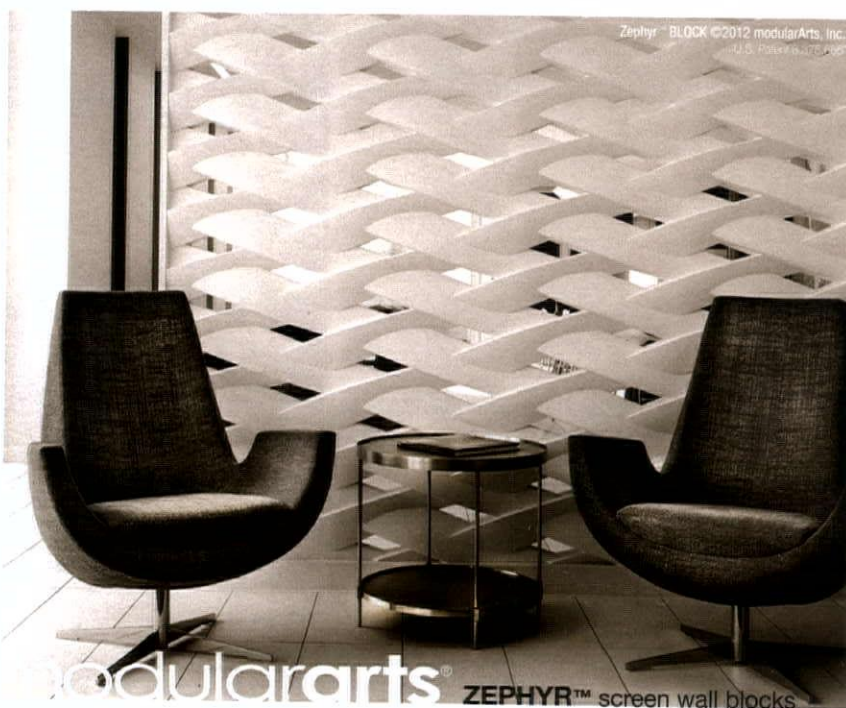
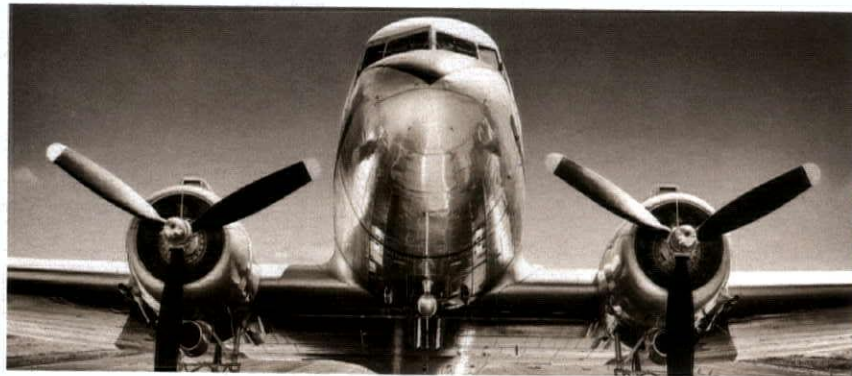
**Greenpoint's Warehouse Modernism** continued from page 12 the city council in 2002—which would have allowed significantly less bulk and height, aimed to retain more light-manufacturing jobs, and mandated more affordable housing along with waterfront access. Jane Jacobs, in one of her final written statements, penned a strong defense of the original community plan against the eventual zoning resolution.

Of course, the trade-off forced by the city—an upzoned waterfront in exchange for publicly funded parks and developer-mandated walkways—has already helped reduce heavy-industrial pollution, killed a proposed Con Edison power plant, and reduced and eliminated waste-transfer facilities and truck fumes. Some residents are just waiting for the

dust and noise of construction to subside, while others hope for another recession to slow down the accelerated activity.

In 2009, Andrew Blum published "In Praise of Slowness," for the launch of *Urban Omnibus* that, in retrospect, should have a more durable life as a critique of fast development. For New York City neighborhoods, slowness provides a much-needed stability in the absence of state-level expansion of rent regulation to protect against predatory development. Yet if there had to be luxury condos facing the former industrial piers, the emerging Greenpoint warehouse modernism was a more subtle and site-specific solution than anyone expected or imagined.

**Stephen Zacks**



modulararts ZEPHYR™ screen wall blocks



## Bridge House

Half a block south of Los Angeles's ritzy Hancock Park neighborhood, a secret underground stream that draws its water from the mountains of Griffith Park runs across the backyards of several unassuming homes. On a quizzical block where each house provides a corresponding bridge to span the stream, Los Angeles-based architect Dan Brunn is busy erecting a 200-foot-long house that doubles as its own bridge.

The 4,500-square-foot home is being built using the BONE Structure prefabricated paneling system, a modular product developed by an eponymous manufacturer based out of Laval, Quebec, Canada. The all-steel system is fabricated entirely off-site and put together on-site, each element assigned an individualized bar code designating its placement. Brunn utilized a five-by-five-foot module "designed around experience, not transport or manufacture" to create the home.

The three-bedroom, shotgun-style house is arranged with a carport facing the street. From there, a living room, kitchen, and courtyard extend into the site, followed by a bathroom sandwiched between two smaller bedrooms. A master suite caps the back end of the home, concealing an office space located below that is accessible to the banks of the stream.

Brunn said, "The precision of the BONE Structure system is so evident and clear, it's like seeing the inside of a Swiss watch."

The home is currently under construction and is expected to be complete late 2018. **AP**



**Top:** The steel-framed Bridge House spans a small creek, framing the natural feature with lengths of steel, concrete footings, and—soon—glass-filled openings.

**Bottom:** The home is designed using a custom five-foot-wide module provided by Canadian manufacturer BONE Structure that, according to architect Dan Brunn, is optimized for design and user experience.





# Window to the Heart

When architects Aranda\Lasch and computational designer Marcelo Coelho were planning their entry to the Times Square Alliance and Design Trust for Public Space's 10<sup>th</sup> Annual Times Square Valentine Heart Design Competition, they took a trip to the area. After observing thousands of visitors taking nonstop snapshots and selfies, it became clear that they would create an homage to screens, lenses, and our image-saturated society. The result was *Window to the Heart*, aka The Lens, a round, heart-centered sculpture that graced the north end of Times Square (between 46<sup>th</sup> and 47<sup>th</sup> Streets) throughout February. With The Lens, Aranda\Lasch and Coelho not only alluded to the area's self-referential environment, but they created the world's largest Fresnel lens—the flattened, ridged lenses you often see in light-houses that recreate the effect of a much larger lens—measuring 12 feet, 2 inches in diameter, 10 feet tall, and weighing over two tons.

"Look around," said Benjamin Aranda at the sculpture's opening. "Everyone's taking pictures right now. It never stops." His colleague Joaquin Bonifaz added: "To be in Times Square means you're seeing or being seen through a lens."

How did they pull this off? In many stages, in many locations, with many partners:

First the team modeled the project in Rhinoceros and Neon with Long Island City-based Laufs Engineering Design. Then, with Formlabs in Boston, they 3-D printed 1,090 sawtooth resin tiles, utilizing Form 2 printers, working in tandem, for two weeks. Then, together with Brooklyn-based Caliper Studio, they fabricated the tiles, which were back coated with silicon and attached in 98 concentric rings on top of a clear, flat acrylic core, which had been trucked in from Reynolds Polymer in Colorado. Caliper fabricated the structure's massive steel base, and the composition was then attached to the base and carefully transported it, with Yonkers-based 24/7 lifting, to Times Square.

The result was a mesmerizing piece, which abstracted, amplified, and bent the crazy, colorful lights and images of Times Square. The piece was best seen from afar, where clearer images related to ideal focal lengths.

The piece's central, cutout heart was a tough sell for the team, who, like most designers, are more interested in abstraction than literal forms. But the results spoke for themselves, as visitors lined up to take pictures of, and with the sculpture, most of them poking their heads through its heart. "People get it immediately," Aranda said. "They're capturing it, they're filtering it, they're sharing it."

Sam Lubell



IAN DOUGLAS



COURTESY FORMLABS

## Resources

### Designers

Aranda\Lasch  
arandalasch.com

Marcelo Coelho  
cmarcelo.com

### Engineer

Laufs Engineering  
Design  
laufsed.com

### 3-D Printer

Formlabs  
formlabs.com

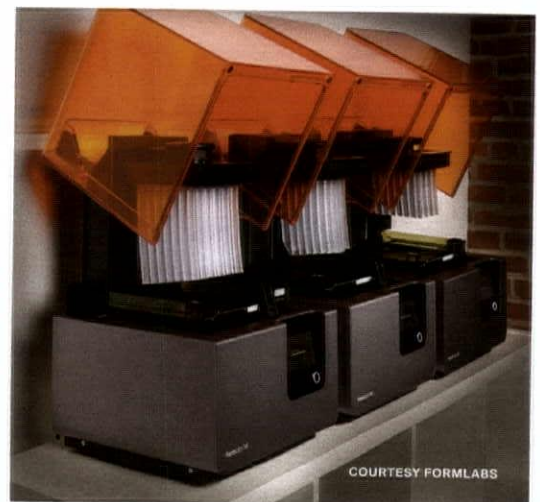
### Acrylic

Reynolds Polymer  
reynoldspolymer.com

**Top:** While design firm Aranda\Lasch and computational designer Marcelo Coelho were initially hesitant to include the heart cutout, visitors to Times Square immediately understood and used the concept.

**Middle:** 3-D printed pieces being assembled.

**Right:** Formlabs in Boston 3-D printed the sawtooth resin tiles for the installation in two weeks.



COURTESY FORMLABS



# Let There Be Light

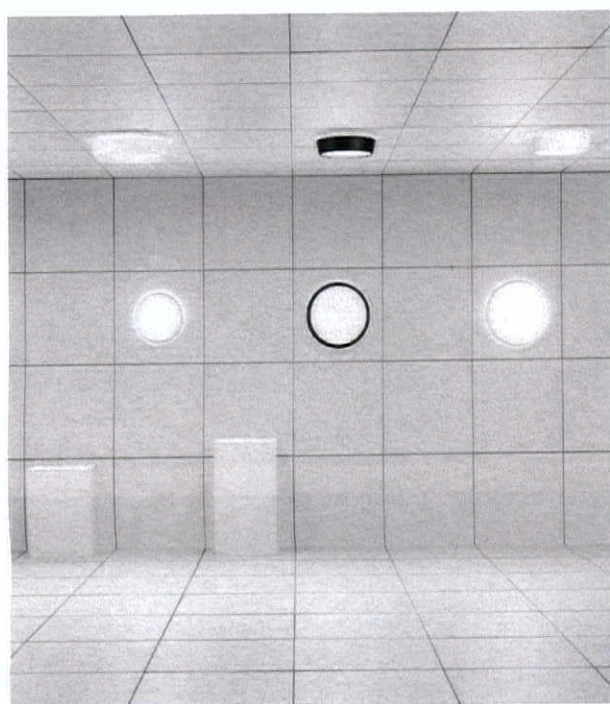
## Architectural

### Riff

Olle Lundberg for  
ateljé Lyktan

Resembling a hockey puck, this fixture is outfitted with an interchangeable cast aluminum screen. Both wall and ceiling fixtures are available in black and white.

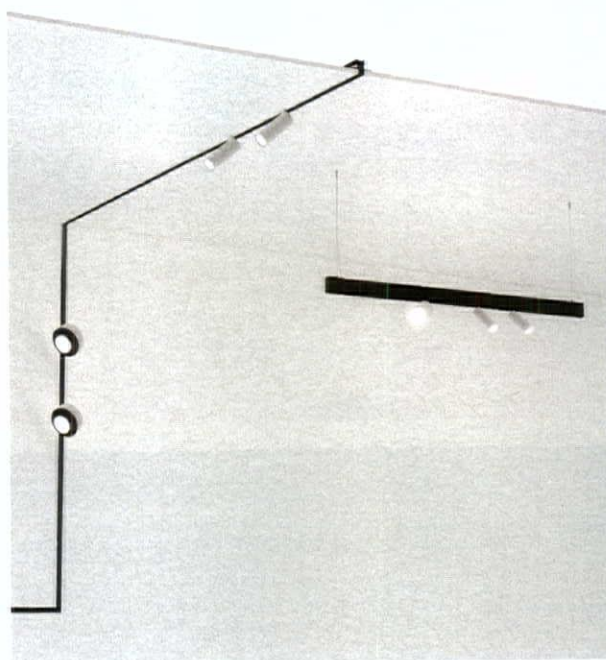
[ateljé-lyktan.se](http://ateljé-lyktan.se)



### Running Magnet 2.0 FLOS Architectural

This kinetic system allows for various lighting configurations via magnetic luminaries that can move along structural tracks thanks to new digital smart controls. Running Magnet 2.0 is offered in recessed and surface profiles (including corners), as well as a trimless suspension variation.

[usa.flos.com](http://usa.flos.com)



### Sharp Recessed

Carlotta de  
Bevilacqua for  
Artemide

Sharp was designed for precision with an optical system that creates highly uniform light. The fixture pairs polynomial LEDs with a geometric screen, a combination that prevents multiple shadows and diffused spotlights

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

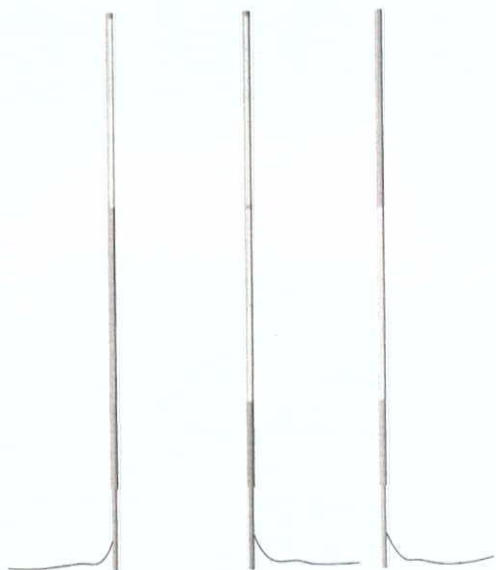


### Cielo-Terra

Studiocharlie for  
De Padova

This thin adjustable pole is outfitted with two light sources that can be operated separately. A single linear fixture can illuminate intimate spaces or be used in multiple for larger areas.

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



### Good Day LED Bulb Lighting Science

Using technology developed in collaboration with NASA, Lighting Science created a light source that supports circadian rhythms. The LED bulbs create the effect of direct natural light in environments where it might otherwise be limited or, worse, completely unavailable.

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



### Vektor

Linea Light Group

Linea Light Group installed Vektor in the exhibition rooms at the Musée des Arts Décoratifs, Paris. Vektor's light beam becomes progressively softer toward the artworks' borders and frames, creating the effect that the objects are emerging from the shadows.

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





The relationship between light and architecture is pure physics, but the primary effect is emotional and defines a space's inherent character. These illuminating releases recently debuted at the Interior Design Show in Toronto, MAISON&OBJET in Paris, the Stockholm Furniture & Light Fair, and Light + Building in Frankfurt.

By Gabrielle Golenda

## Decorative

### Tripp-Mini Pendant **Pelle**

This small-scale iteration of the popular 2014 triangular fixture makes it usable in new compositions and spaces; its welded metal forms illuminate a triangular outline where the joinery is left exposed.

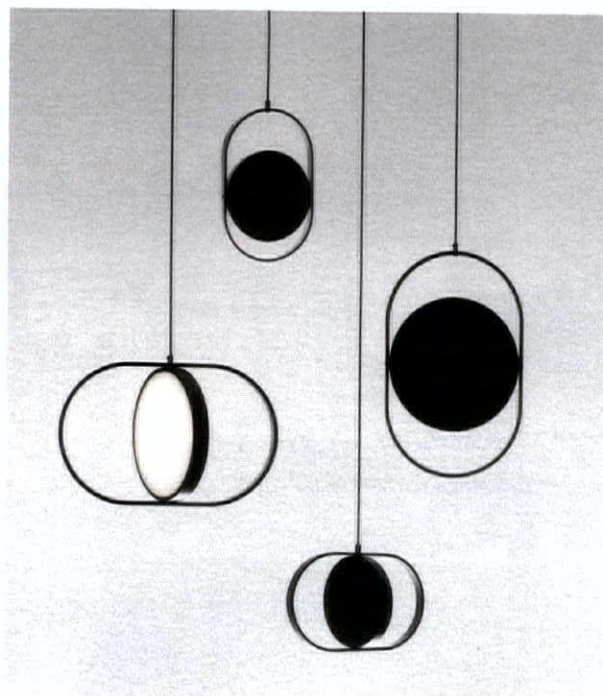
[pelledesigns.com](http://pelledesigns.com)



### Kuu **Elina Ulvio**

Kuu, the pedant named after the Finnish for *moon*, was designed for both direct and indirect light via its rotating inner circle. Made of plywood and acrylic, the obsidian light source is fitted with a wireless connection, allowing it to endlessly revolve within its oval enclosure.

[elinaulvio.fi](http://elinaulvio.fi)



### Grid **Pablo Designs**

Imagined as a 3-D plane on a grid, this louvered framework emits glare-free lighting through translucent slats. The fixtures come as 18.5-by-18.5-inch squares or 18.5-by-46.3-inch rectangles and can be finished in ash wood as well as frosted and bronze acrylic.

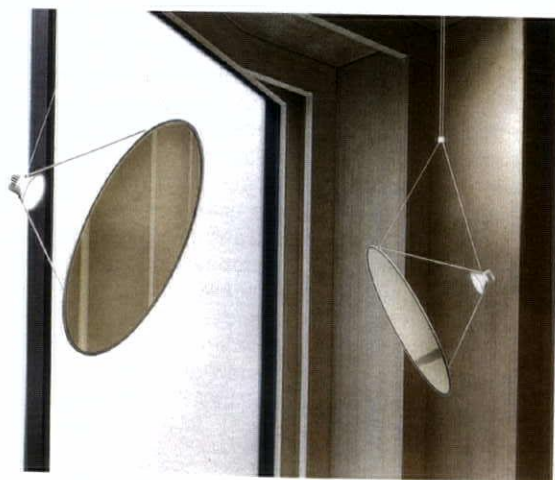
[pablodesigns.com](http://pablodesigns.com)



### Amisol **Daniel Rybakken for Luceplan**

Like the reflectors used in a photography studio, this fixture projects a powerful source of light onto a large disk that diffuses and reflects light beams. With an unfixed base, the light-capturing membrane is easily adjusted; it is available in translucent white film or with an amber metallic finish.

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



### Blush **Morten & Jonas for Northern**

Norwegian design duo Morten & Jonas envisioned a pretty wall lamp shaped with subtle contours that guide ergonomic indicators, including a soft, bendable arm and rimmed rotating switch. The lamp is available in black and pink.

[northern.no](http://northern.no)



### Mondo Pendant and Floor Lamp **Antonio Facco for Oblure**

Made from 3-D laser-cut steel, these opal glass orbs are enveloped in graphic black lines. The kinetic, sculptural metal shades rotate and overlap each other to form various patterns.

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





# TECH+ 2018 CONFERENCE PREVIEW

## TECH+

Presented by The Architect's Newspaper



COURTESY THE ARCHITECT'S NEWSPAPER

## Join the AEC Evolution

The landscape of the architecture, engineering, and construction industries is changing dramatically, and those at the forefront of the transformation know that technological innovation is among the driving forces behind it. That's why for the second year, *The Architect's Newspaper* presents TECH+, an annual trade conference and expo that explores innovative technologies used in design and construction, taking place May 22 on the heels of NYCxDESIGN.

Located at Metropolitan West in Manhattan—the center of one of America's fastest-growing tech markets—TECH+ will showcase the latest in smart building systems, advanced materials, and innovative products that are reshaping the built environment of today and tomorrow. From cutting-edge virtual reality-aided design tools to mobile apps, parametrics to rapid prototyping and fabrication, this inspiring and forward-thinking event will feature a lineup of visionary speakers, compelling panels, and live product demonstrations from industry-leading developers and start-ups alike.

TECH+ will bring together architects, engineers, designers, builders, real estate professionals, investors, entrepreneurs, software developers, students, and makers to inspire new ideas, encourage cross-pollination, stimulate innovation, and establish vital connections. Far from a run-of-the-mill

mega-conference, TECH+ consists of a highly curated group of architecture and technology leaders responsible for the strategic direction of their firms.

"We are excited to bring back TECH+ to New York City for the second time," said Diana Darling, publisher of *The Architect's Newspaper*. "This year features two stages with industry leaders and innovative disrupters primed to change the way we do business."

This year's keynote speaker is Dennis Shelden, director of Digital Building Laboratory at the Georgia Institute of Technology, who led the development of architect Frank Gehry's digital practice as director of R&D and director of computing prior to cofounding Gehry Technologies in 2002. Presented by Microsoft Resources, the keynote will take place at the TechPerspectives main stage, from which four additional panels will explore topics including BIM, collaboration, sustainability, and visualization. Also, new to TECH+ is a series of Lightning Talks throughout the day from leading exhibitors and cutting-edge start-ups located on the expo floor stage.

Panel discussions include Jonatan Schumacher, director of CORE studio at Thornton Tomasetti, and Jan Leenknegt, architect and BIM manager at BIG, who will examine how

to connect design and data through the project life cycle; Paul Kassabian, associate principal at Simpson Gumpertz & Heger, and Steve Jones, senior director at Dodge Data & Analytics, will address unifying project teams and technology; Ian Molloy, senior product manager at Autodesk, Alexandra Pollock, director of design technology at FXCollaborative, and Christopher Mackey, building scientist at Payette, will discuss designing for energy efficiency; and Iffat Mai, practice application development leader at Perkins+Will, Christopher Mayer, executive vice president and chief innovation officer at Suffolk Construction, and Christopher Connock, design computation director at KieranTimberlake, will explore enhanced realities and immersive experiences.

"TECH+ is a new type of conference," said Darling. "We're focusing on completely new ideas and techniques, and gauging where the future of the AEC will be and how we get there." **Robert Nieminen**

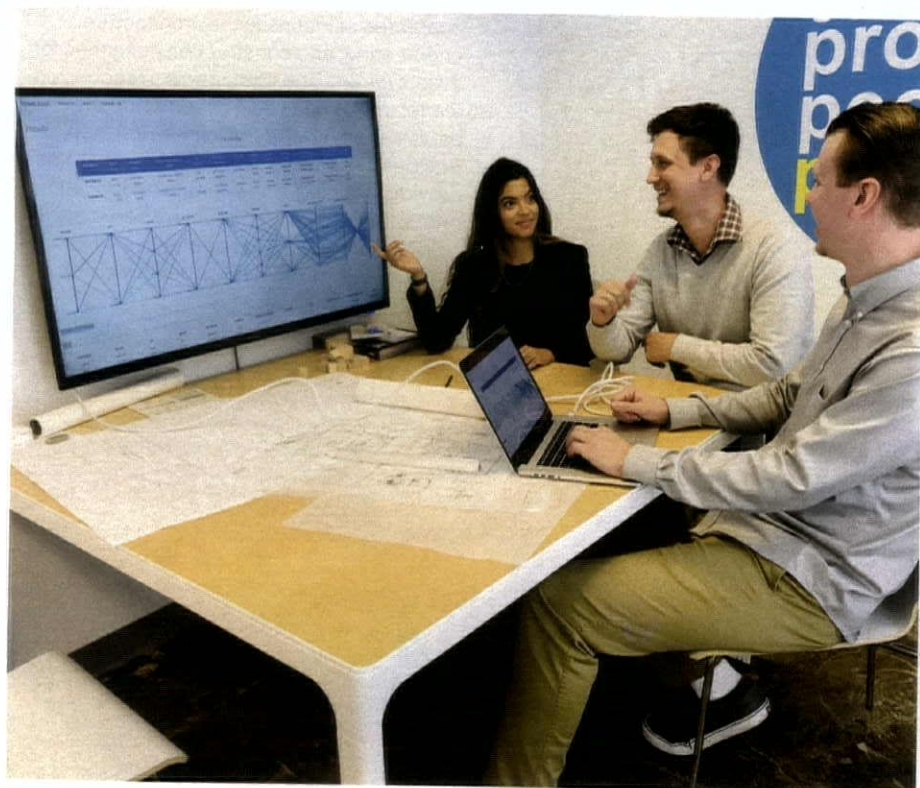




## BLUEDGE™

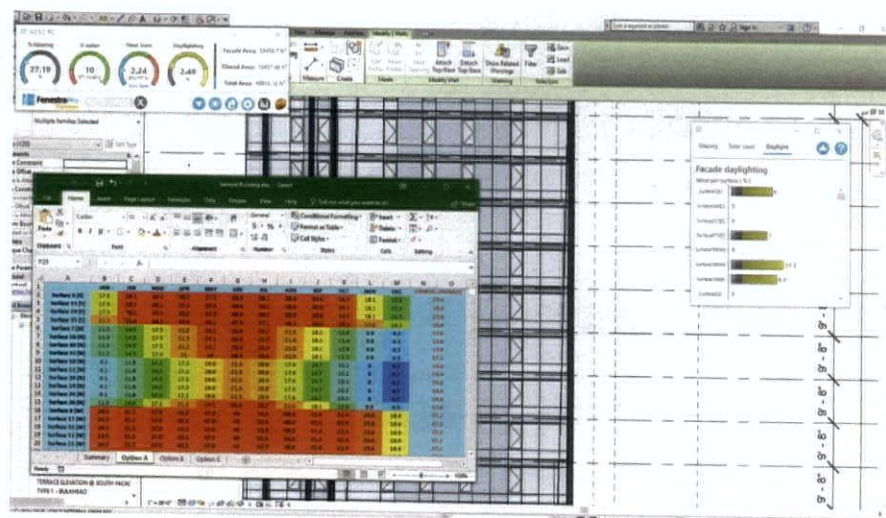
PIXELS \ PARTICLES \ PEOPLE

Founded in New York City in 1898 as National Blueprint Inc., BluEdge has evolved into an industry leader in print and technology services for the AEC industry and beyond. BluEdge is widely recognized for its unmatched customer service, and expertise in 3-D technologies, creative graphics, managed print services, and document management solutions. Today, its service footprint extends across the U.S., Canada, and Europe.



## cove.tool

Cove.tool is the first commercial software for optimizing cost and energy. The tool provides automated guidance to save up to 3 percent off the cost of construction while increasing performance of the building by up to 40 percent. The cloud-based tool helps architects, engineers, contractors, and building owners make better selections of building technologies by running thousands of parallel energy simulations. Developed by architects, building science experts, engineers, and sustainability consultants, the tool is integrated into the design process with plug-ins to Revit and Rhino for interoperability and parametric design. Adoption of cove.tool could dramatically reduce carbon emissions worldwide while helping owners reduce the cost of their buildings.



## FenestraPro

FenestraPro Premium for Revit is an intuitive and easy-to-use add-in that enables architects to design energy-efficient building facades to comply with building regulations and required performance, without compromising the aesthetic of the facade. It integrates building design with performance, allows the architect to maintain control of the aesthetic of the building, and improves the design process by eliminating costly late-stage redesign fees.

## GRAPHISOFT® ARCHICAD

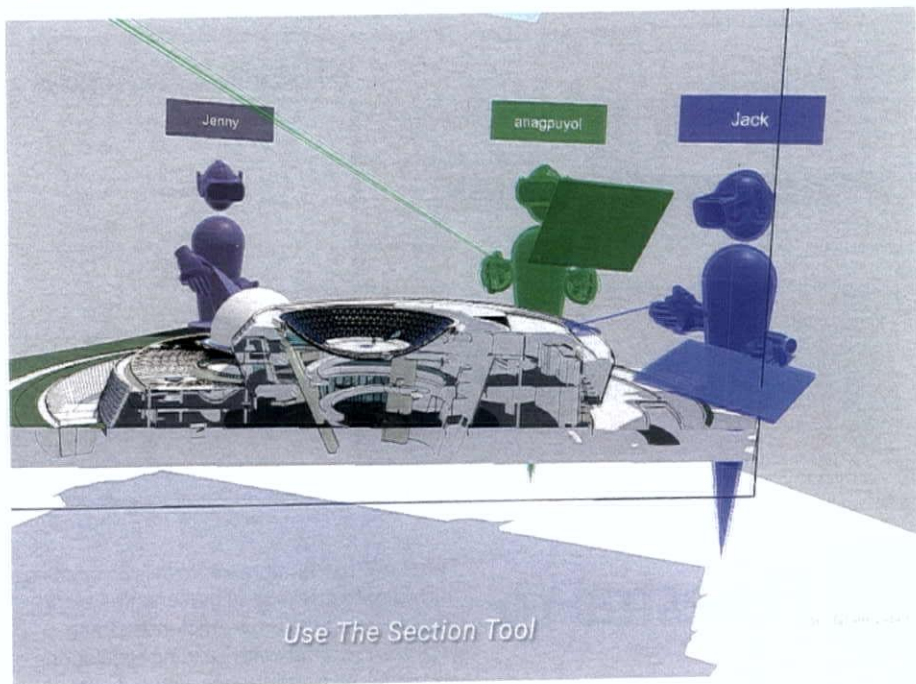
GRAPHISOFT® ignited the BIM revolution in 1984 with ARCHICAD®, the industry's first BIM software for architects. GRAPHISOFT continues to lead the industry with innovative solutions such as its revolutionary BIMcloud®, the world's first real-time BIM collaboration environment; EcoDesigner™, the world's first fully BIM-integrated green design solution; and BIMx®, the world's leading mobile app for BIM visualization. GRAPHISOFT is part of the Nemetschek Group.



## Insite VR

InsiteVR is a platform for AEC companies to create and manage virtual reality presentations across their offices. InsiteVR's tools allow users to remotely control VR presentations, collect feedback from clients, and easily share to mobile headsets like the GearVR.





IrisVR tackles the biggest problem in the architecture, construction, and engineering industries: What will a space actually look and feel like when it's built? Iris created intuitive, user-friendly software that empowers virtual reality to experience depth and scale.



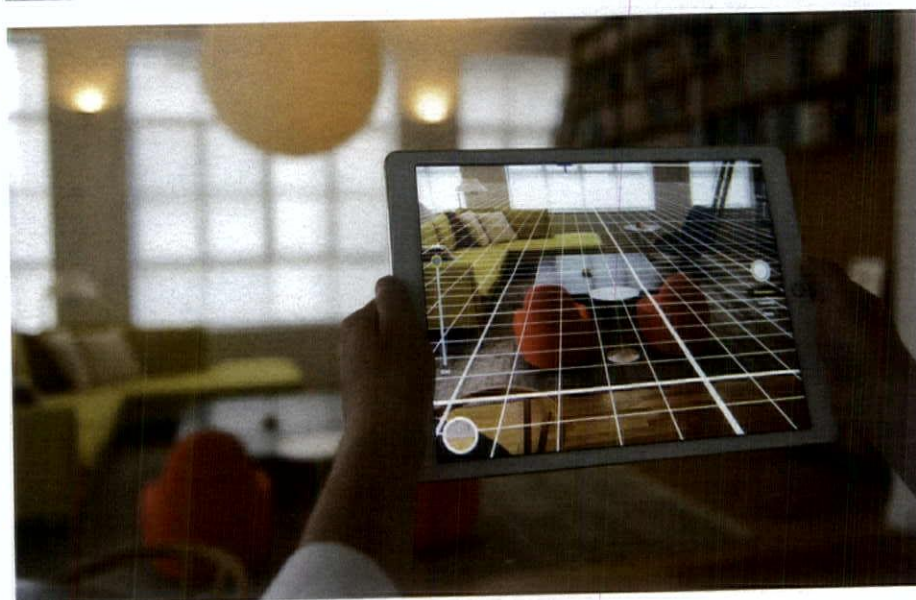
JUJU IMSV employs the most advanced VR technology to create convincing, elegant, and easy-to-use marketing tools for off-plan sales across the globe. Our all-in-one marketing tools tell the story of the future property and not only help to efficiently raise money for the project, but also streamline the sales cycle.



LERA IMMERSE is a virtual reality and augmented reality consulting service offering solutions to architects, owners, developers and construction managers. The custom-designed systems and tools enable users to navigate, interact with, and collaborate in the VR space, all while collecting valuable data that can be retrieved, analyzed, and fed back into the design process.

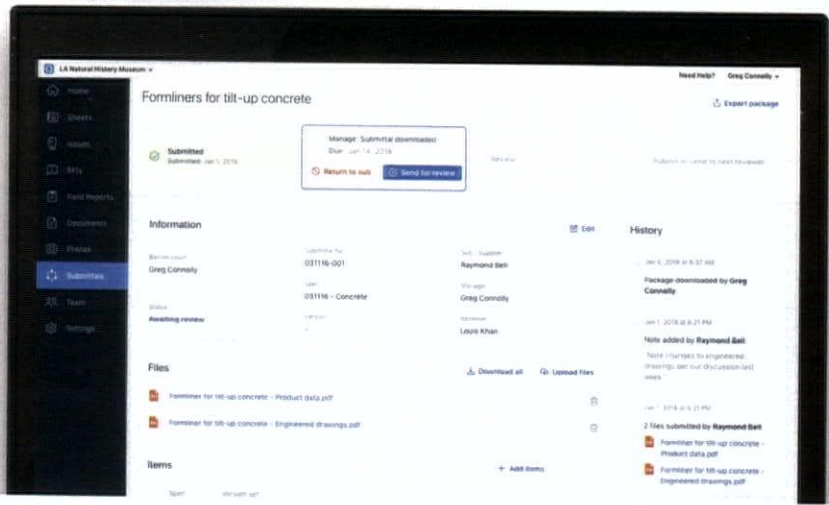


Microsol Resources has been delivering integrated solutions to the architecture, engineering, and construction industries for over 30 years. The company is a recognized leader in BIM and CAD-based solutions, as well as an Autodesk Platinum Partner. Besides CAD & BIM software, Microsol also provides training, consulting, staffing, 3-D printing, and data management services to help customers gain a competitive advantage and improve their overall productivity.

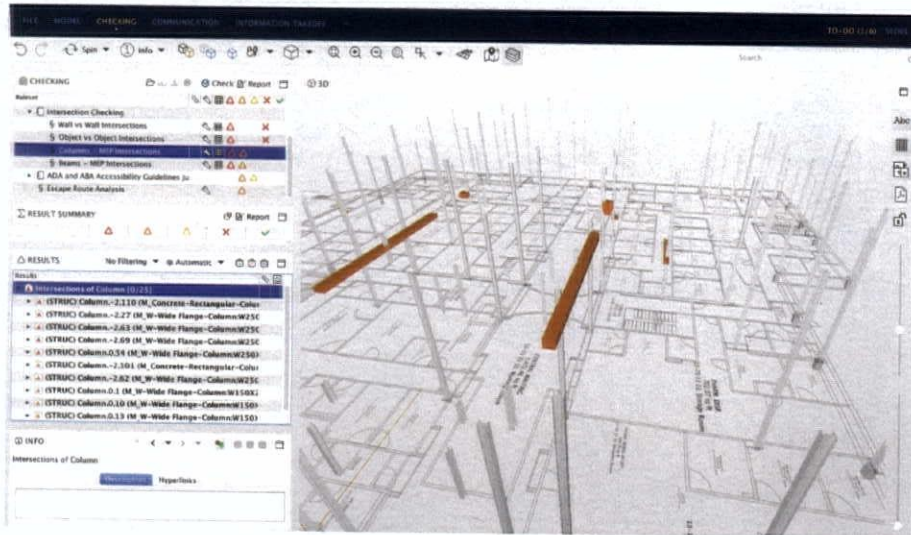


Morpholio makes apps that put designers first, fusing the fluidity and speed of hand drawing with the intelligence and precision of mobile and CAD technology. Its Trace app for architects is the unique software created to take design through every phase of the process, from concept to reality.





PlanGrid is construction software made for the field that allows plans and markups to be instantaneously shared with everyone on a construction project—no matter where they are. It lets contractors, architects, and building owners collaborate from their desktop or mobile devices across all of their project plans, specs, photos, RFIs, and punch lists.



Solibri is the leader in BIM quality assurance and quality control, providing out-of-the-box tools for BIM validation, compliance control, design process coordination, design review, analysis, and code checking. Solibri develops and markets quality assurance solutions that improve BIM-based design and make the entire design and construction process more productive and cost effective.

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# Future Frontiers



Technology is developing at an exponential rate and while architecture still moves significantly slower than the latest transistor, things are picking up. *AN* speaks to tech experts Craig Curtis of Katerra and Dennis Shelden of the Digital Building Lab to learn more. We also profile several incubators and accelerators behind some of the most influential design and AEC technology start-ups that promise to revolutionize the construction and architecture industries.

RICH GILLIC



# End-To-End

Katerra's Craig Curtis pushes for standardization with customization.  
By Antonio Pacheco

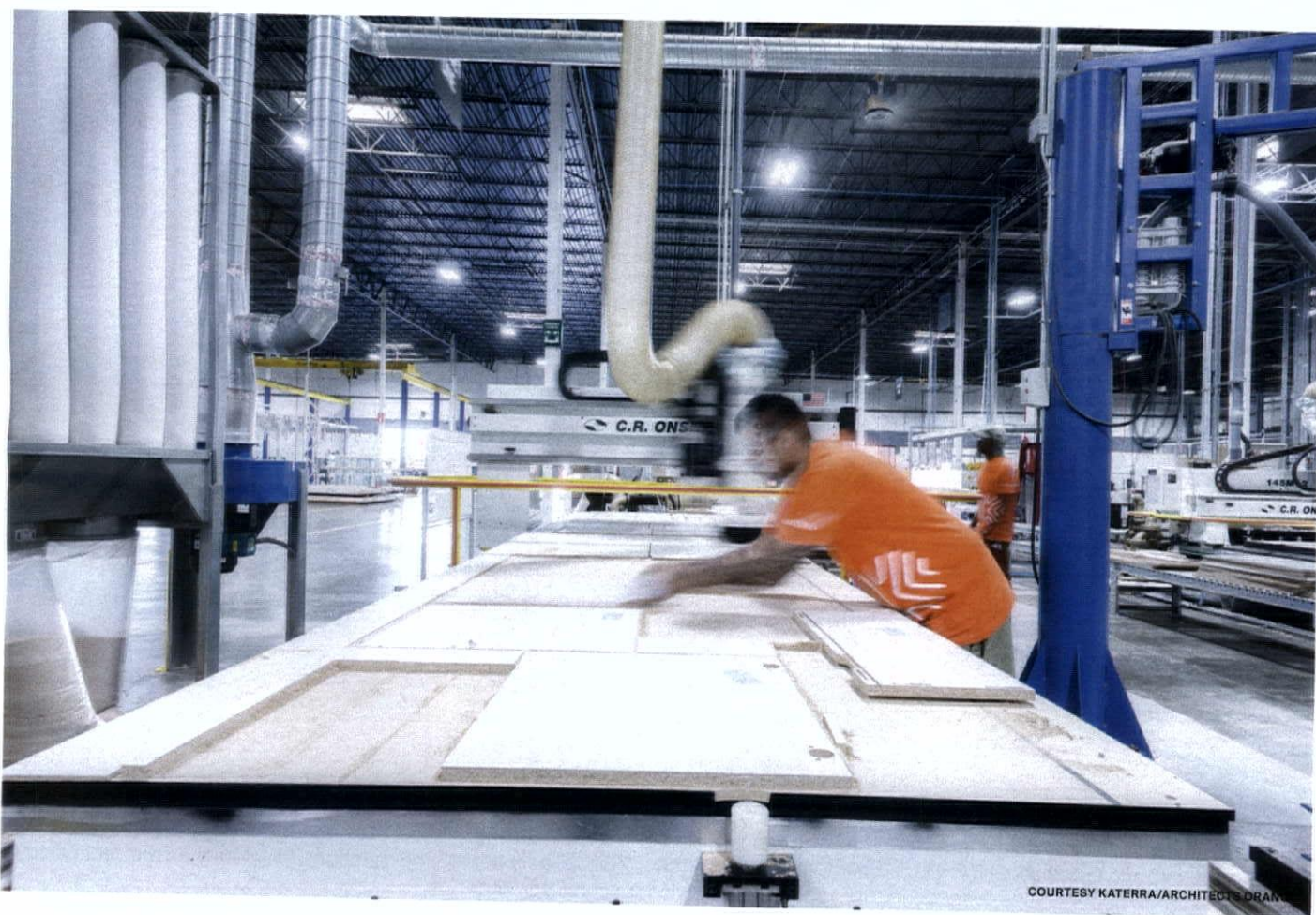
Some of the most fruitful innovation in the AEC industry right now lies in the realm of factory-built buildings. Whether they include experiments with prefabrication, mass-timber construction, or modular components, architects are increasingly working with building assemblies that are fabricated off-site and under controlled conditions. And while some designers work in these modes on a one-off basis, a new crop of technology-focused, end-to-end construction service firms have

sprung up that can take a project from idea to finished building all on their own, including construction and fabrication.

Established in 2015, Katerra is one of the firms that are shifting how buildings get designed and built in the United States by pioneering a hybrid business model that combines prefabrication with mass-customization. The Menlo Park, California-based company is a relative newcomer in the field, but with over \$1.3 billion in projects and an expanding

nationwide presence, Katerra is poised to make factory construction a thing for the future.

AN's West editor Antonio Pacheco spoke to Craig Curtis, president of Katerra, to discuss its business model, examine how the company integrates technology into its workflow, and delve into the firm's new project types.



With over \$1.3 billion in projects, a forthcoming 250,000-square-foot mass timber production facility in Spokane, Washington, an operational component manufacturing facility in Phoenix, and more facilities on the way, Katerra is primed for aggressive nationwide growth.

**The Architect's Newspaper:** Can you tell us what Katerra does?

**Craig Curtis:** Katerra is an end-to-end construction and technology service company that applies systemic approaches to remove unnecessary time and costs from building design and construction. Our services include architecture and engineering, interior design, materials supply, construction management and general contracting, and renovation.

**What are some of Katerra's short- and long-term goals?**

Since the company's founding three years ago, Katerra has accomplished a significant amount: We have more than \$1.3 billion in bookings for new construction spanning the multifamily, student and senior housing, hospitality, and commercial office sectors. [During this time] our global team has grown to more than 1,400 employees and we also opened a manufacturing facility in Phoenix and started construction on a mass timber factory in Spokane, Washington.

Going forward, we are focused on

delivering the projects in our pipeline, bringing our Spokane factory online in early 2019, and continuing to build out additional domestic factories like the one in Phoenix, where we fabricate building components. We will also continue to expand and improve Katerra's technology platform, which underpins our vertically integrated model.

**What does it mean to use a "systems approach" with regard to building design and project delivery?**

Katerra's model uses technology and end-to-end control throughout all levels of design, development, and construction. By moving from individual project thinking to a systems approach, we deliver greater precision, higher productivity, and improved quality control.

With design, we combine product standardization with customization. This provides the efficiency of manufacturing without sacrificing design freedom. Through our global supply chain of curated, high-quality products, we eliminate middlemen, passing savings directly to our clients. We also integrate Building Information Modeling

(BIM) tools and computational design with our global supply chain infrastructure. So, plans go directly from design to the factory floor and to the construction site. Materials and products arrive at our construction sites on time and ready to install. As a result, the activity at a Katerra construction site more closely resembles a process of precision-sequenced product assembly than traditional construction.

**Speaking generally, how much time does Katerra's business model shave off a project timeline compared to traditional project delivery?**

In 2018, we are beginning construction on the first series of fully optimized buildings designed by Katerra. This particular building type is a three-story suburban product for workforce housing. We anticipate being able to achieve up to a 40 percent reduction in project schedule for these projects, providing significant benefits to our customers. As we develop similar tools for other market sectors, we anticipate significant schedule reductions, with the percentage dependent on the complexity of the building type.

**What are some of the innovative technologies Katerra employs from a design, fabrication, or construction point of view?**

A great example is our use of Radio-Frequency Identification (RFID). We add RFID tags to all the components fabricated in our manufacturing factory. These tags are accessible from mobile devices either on the production floor or in the final assembled product at the job site. Each RFID is linked to an archived file showing the entire assembly of the selected component, including video of each step in the manufacturing process. With this RFID technology, enclosed wall panels can be delivered to the job site, allowing local building inspectors and third-party verifiers to perform virtual framing and air sealing inspections. Application of RFID is just one of many ways Katerra is using technology to drive down costs, improve quality, and deliver a superior customer experience.



# Ramblin' Tech

Dennis Shelden, director of the Digital Building Laboratory, merges academic exploration with industry issues.

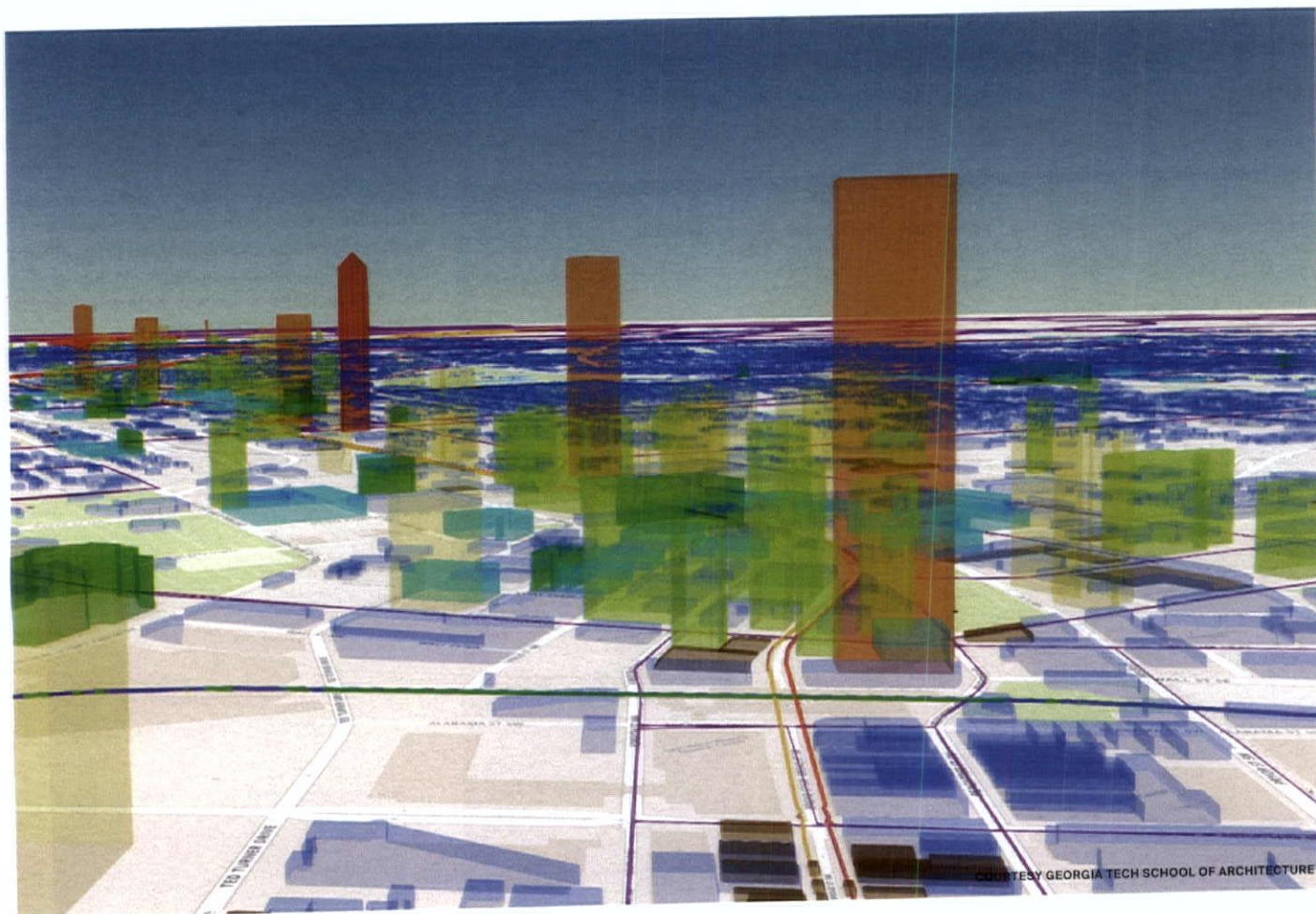
By Marty Wood

When examining technology transforming the AEC industry, Dennis Shelden emerges as a thought leader. He is an expert in applying digital technology to building design, construction, and operations, with experience spanning across research, technology, and development, and professional practice, including

multiple architecture, building engineering and computing disciplines. He was director of R&D and led the development of Frank Gehry's digital practice from 1997-2002, eventually cofounding Gehry Technologies.

Shelden has lectured and written widely on topics concerning computa-

tional applications to architecture. He currently directs the Digital Building Laboratory (DBL) at the Georgia Institute of Technology (to learn more about the DBL, go to page 33). *AN* Special Projects Director Marty Wood sat down with Shelden to learn more.



One of the projects Georgia Tech's Digital Building Laboratory tackles is the Smart City initiative, which examines how technology can improve the urban environment through the Internet of Things, data collection, and new market generation.

**The Architect's Newspaper:** Can you talk about the DBL and the new directions you are pursuing given the trends in emergent technology and software tools?

**Dennis Shelden:** The DBL has always been an academic institution oriented toward industry advancement through applications of technology. We've pursued that ambition through three mechanisms. First, the DBL serves to create a community among professional firms, technology companies, and academic programs across Georgia Tech. We are at our most effective when we can be a bridge among these three constituencies through "active education and research"—connecting research faculty and students to real world projects and enlisting emerging technologies in new ways.

Second, the lab has a research mission of its own. Under my predecessor Professor Chuck Eastman, the DBL has become an important source of innovation and leadership in design computing, specifically in BIM, collaborative processes, open information exchange, and interoperability. Third, we are focused on building the next generation of technical leaders in architecture and construction, through educational curricula at all levels of the architecture and building construction programs at Georgia Tech.

I believe that these three functions and our historical areas of research set us up to tackle

some of the emerging trends in technology for the built environment. BIM data is finally moving to the web and the cloud, which will create a host of new opportunities connecting to and making use of this data. Some of these possibilities include connections to real time data from building systems, Internet of Things, and connected mobile and social networks. We are also seeing a convergence between building level and city level information, where you manage and interact with large-scale built environment data that scales down to the individual room, fixture, or device.

**How is the business of AEC technology changing, and is there a role for academia in building out these new directions?**

The nature of technology development is definitely changing. In the 20th century it required very large companies with many different functions to be able to develop and sell a software product. The technology product business was completely different than professional consulting services. But today the barriers to "industrializing" technology to the point where it can be consumed by others are much lower, since there is so much infrastructure out there that can be leveraged, and the web makes marketing and distribution so much easier to scale. Professional practice is changing, too, and we're seeing firms that are exploring new ways of capitalizing on

the innovations they create. More firms are creating open source software, developing plug-ins, or creating spin offs to either offer new specialized services or pursue product innovations.

At the same time, the AEC world needs open platforms for these innovations to be built on and connect to. Some of these are offered by software companies' plug-in and app development platforms, but the world really needs open standards and communications capabilities based on modern web paradigms that can bridge across AEC disciplines. I believe that academia and government have important roles to play in building these open industry platforms.

**Being connected through the cloud is one thing, but is this just about better design tools?**

There is a lot of emerging discussion of cyber-physical systems and the idea of the digital twin. The idea of the digital twin is essentially that BIM will become part of the post-occupancy delivered building and "run in parallel" to the building systems and experienced environment. We've historically focused a lot on the technologies for designing and delivering buildings, but the possibilities for these technologies to create a continuum of information is potentially a huge opportunity for the industry. We also see a lot of interest from the tech industry starting

to come into the AEC industry precisely because it sees the built environment as the next platform for interaction with technology.

**Are these things you practice internally?**

University campuses are small, contained cities with all the necessary functions from design and construction to the daily delivery services under one umbrella. So if we get this right for Georgia Tech, then we have a model for delivering built environment technology innovation that we can scale to the broader industry. Again I think the open platforms for industry innovation will be built by academia and nonprofit enterprises to start.

**There must be examples of industry, in terms of interoperable standards, that get shared and not privatized. Novel delivery systems can give you a competitive advantage.**

Think about what it took for government, academia, and industry working together to create the internet. I think that's a model for what AEC needs to do now. The next layer of what AEC needs to make that kind of value creation a possibility for all the stakeholders still has to be built. That's kind of the nucleus, that kind of vision of a possible industry state, that we are trying to help build out in the next phase of the DBL.



# Gotta Start-Up Somewhere

Meet the incubators and accelerators producing the new guard of design and architecture start-ups.



RICH GILLIGAN

New Lab, page 34.

## URBAN-X

The age of the car as we know it appears to be winding down—that is, if the diverse initiatives started by car companies is any indication. For example, in Greenpoint, Brooklyn, the BMW-owned MINI recently launched A/D/O, a makerspace and the headquarters of URBAN-X, an accelerator for start-ups seeking to improve urban life.

Although URBAN-X is only two years old, the company has hit the ground running thanks to MINI's partnership with Urban Us, a network of investors focused on funding start-ups that use technology to improve urban living. Through that partnership, URBAN-X is able to use its funding from MINI to take on companies that lack finished products or established customers and then connect them to the Urban Us community.

Through a rigorously programmed five-month semester, up to ten start-ups at a time work with in-house engineering, software, marketing, and urbanism experts and given access to the outside funding and political connections that URBAN-X is able to leverage. Competition to join the cohort is fierce, especially since the chosen companies are given \$100,000 in initial funding. Architects, planners, urban designers, construction workers, and those with a background in thinking about cities have historically applied. At the time of writing, the third group had just finished its tenure and presented an overview of its work, at A/D/O, at a Demo Day on February 9. The companies have since followed up with whirlwind tours to court investors and realize their ideas.

The diversity of projects that have come out of URBAN-X represents the wide-ranging problems that face any modern city. The solutions aren't entirely infrastructure-based, either. For example, Farmshef has gained

critical acclaim by moving urban farming into sleek, indoor "growing cabinets"; Industrial/Organic is turning decomposing food waste into electricity; and Good Goods has created a platform for smaller retailers to occupy space in large vacancies by pooling money. Ultimately, as cities evolve and become more interconnected, addressing the problems found within them will require ever more complicated and multidisciplinary solutions. The fourth URBAN-X cohort will be announced on May 10, 2018. **Jonathan Hilburg**

### Notable alumni include:

#### Numina

A start-up that uses sensor-integrated streetlights to map traffic patterns.

#### Lunewave

A technology company that claims its spherical sensor for self-driving cars is cheaper and more effective than the LiDAR (light detection and ranging) currently in widespread use (likely a win for MINI and BMW).

#### Sencity

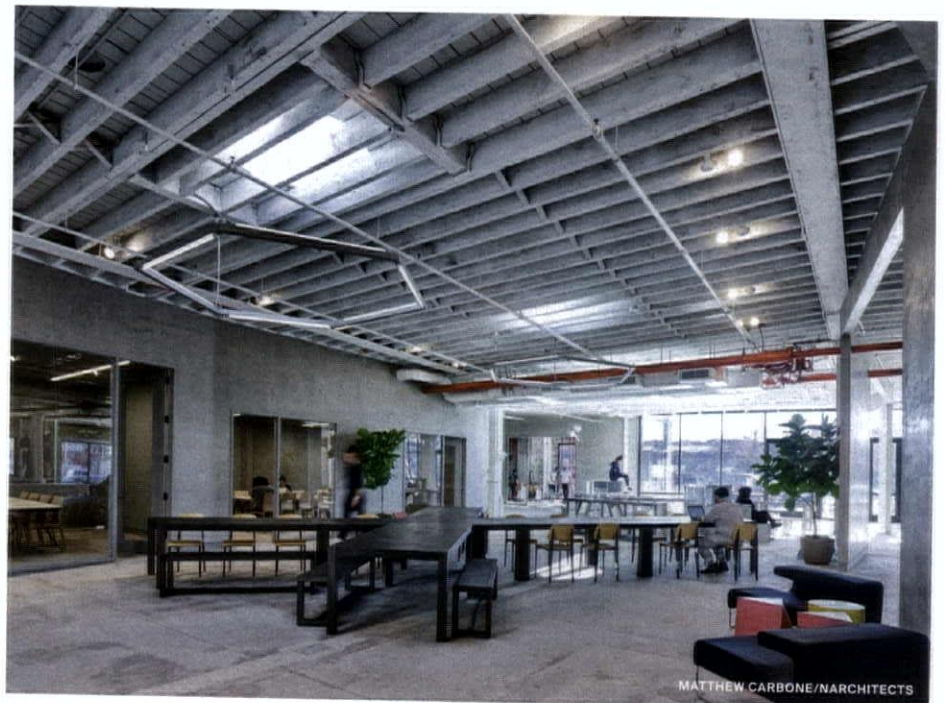
A platform that encourages human engagement in smart cities.

#### RoadBotics

A tool that uses smartphone monitoring to improve road maintenance.

#### Qucit

This software aggregates urban planning data and uses AI to optimize everything from emergency response times to park planning.



MATTHEW CARBONE/NARCHITECTS

The interior of A/D/O was reconfigured by nARCHITECTS to let in light while also providing a wide-open workspace, in a nod to its warehouse past.



# R/GA

With a cutting-edge client list that includes Nike, Google, and YouTube, digital agency R/GA is committed to staying way, way ahead of the competition. So, when it came to the rapid rise of start-ups and disruptive technologies, R/GA was quick to jump in. "We knew we would need a platform for innovation, even if we didn't know which kind of innovation would ultimately take off," explained Stephen Plumlee, global chief operating officer of R/GA and founding partner of R/GA Ventures, a division of the company. "In order to find more and better innovations, solve problems for our clients, and offer new opportunities to our staff, we needed to get deeper into technology and start-ups."

R/GA Ventures partnered with the mentorship-focused start-up accelerator Techstars and launched the R/GA Accelerator program four years ago. The accelerator offers approximately ten-week-long thematic programs with R/GA, sharing its creative capital in terms of marketing, business strategy, branding, design, and technology; partners invest in each start-up and retain approximately 4 to 8 percent of their equities. R/GA also plays matchmaker, strategically partnering clients that have particular problems with start-ups that have potential solutions. Recent programs yielded a media technology initiative with Verizon and a collaboration with the Los Angeles Dodgers; an Internet of Things and connected devices program in R/GA's London office has proved to be immensely popular. "We are constantly experimenting with our own program and have evolved beyond the traditional accelerator format into something unique to us," said Plumlee.

One of the things that set the R/GA Accelerator apart is the age of the start-ups

accepted into the program. Rather than limit applicants to new ventures, R/GA will accept older start-ups that are more established and have completed as late as Series B funding rounds. It is also not tied to any one location—R/GA Accelerator spaces are available in any R/GA office—allowing start-ups to continue business as usual beyond Demo Day and other important mentoring events. To avoid being boxed in and missing potential opportunities, R/GA will also accept applicants year-round for various programs—currently it has four running simultaneously. Within this ethos of avoiding constraints, the accelerator's start-ups and programs have varied widely and have included blockchain, pet care, smart home technologies, wearable devices, and ad tech, to name a few.

Olivia Martin

#### Notable alumni include:

##### Keen Home

A smart vent system that allows homeowners to create climate zones throughout their houses.

##### Autonomous Broadcast Network

In R/GA and the L.A. Dodgers's Global Sports Venture Studio, start-ups Keemot, ShotTracker, and WSC Sports Technologies partnered with Intel and Fox Sports to create an improved sports-watching experience.

##### LISNR

A software that connects devices to speakers and/or microphones by sending data over audio waves.



COURTESY R/GA

R/GA's London office hosts the company's Internet of Things accelerator. Other accelerators are hosted in R/GA offices all over the world.

# ZeroSixty

Trimble—formerly Gehry Technologies (GT)—launched a three-month design-and-technology-focused accelerator program called ZeroSixty that is geared toward helping a new generation of innovators revolutionize project delivery across the AEC industry.

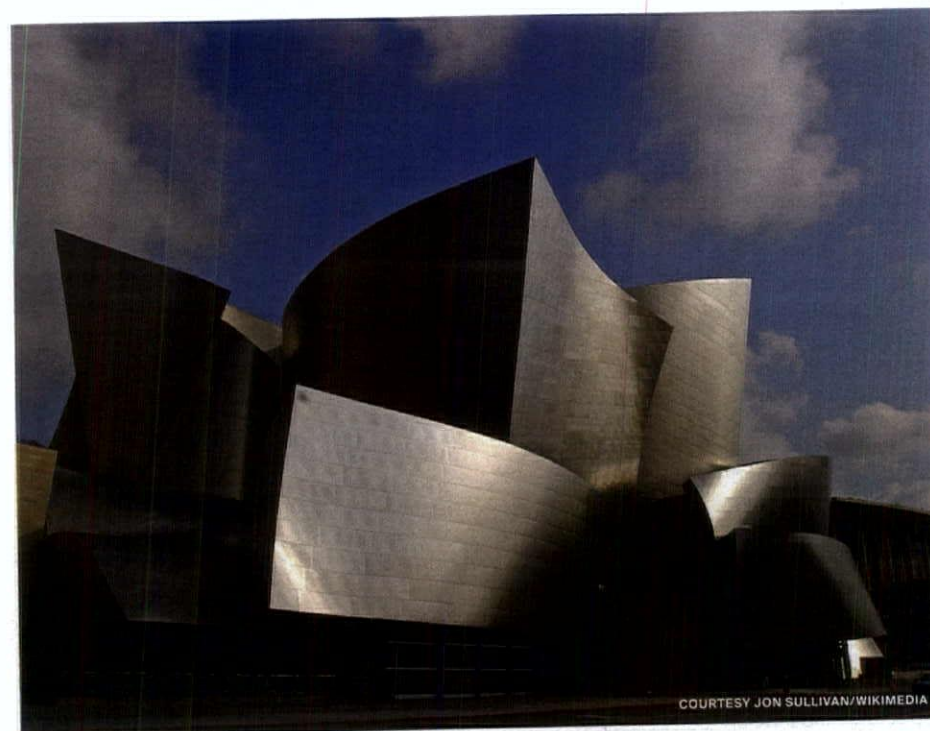
The accelerator program will help start-ups based out of its Marina del Rey, California, offices to "build and scale" their services by connecting new entrepreneurs with "people, networks, and technologies," according to the company. The effort is aimed at turning back the increasingly common trend among mega-projects of being over budget and behind schedule. ZeroSixty comes three years after software developer Trimble purchased GT in an effort to integrate and disseminate innovations in technology-driven project delivery across its various platforms. GT was originally founded in 2002 by Frank Gehry and his team at Gehry Partners to adapt techniques from the aerospace and automotive industries and apply them to the firm's most complex building projects. In the years since, the group has worked on a variety of challenging projects across the world for various high-profile architects, including the Beijing National Stadium with Herzog & de Meuron and the Louvre Abu Dhabi with the Ateliers Jean Nouvel.

ZeroSixty was founded by German Aparicio and Lucas Reames, both GT veterans, earlier this year and is currently accepting applications for its first cohort of companies. "The idea is to help entrepreneurs scale their products and services by leveraging our past experiences, field expertise, and client base while continuously seeking to innovate," Aparicio said.

The GT team has always been at the forefront of this niche within the AEC industry, including back in the early 2000s when,

working on the Walt Disney Concert Hall in Los Angeles, they were among the first to utilize virtual reality visualizations for on-site construction. Now, Trimble and ZeroSixty seek to build upon this legacy by focusing on new AEC-related applications for emerging technologies like machine learning, artificial intelligence, augmented reality, and data analytics. "These technologies offer the opportunity to provide greater insights using a data-driven approach to project delivery and increase the quality and efficiencies of our industry," Aparicio explained.

With ZeroSixty and its no-equity support for emerging practices, Trimble has its eyes firmly set on building the future. Aparicio added, "These technologies promise to create services on the web that can be used on demand to automate everyday tasks so designers, project managers, contractors, and facility operators can focus on the more interesting or important part of their everyday lives." **Antonio Pacheco**



COURTESY JON SULLIVAN/WIKIMEDIA

The team behind ZeroSixty got their start working at Gehry Technologies devising ways to efficiently build Gehry Partners' ambitious projects—like the Walt Disney Concert Hall in Los Angeles—and is now focused on grooming the next generation of AEC innovators to tackle the world's most complex endeavors.



# Los Angeles Cleantech Incubator

At the Los Angeles Cleantech Incubator (LACI), participating members get a lot of bang for their buck. Originally started in 2011, the outfit moved in 2016 into a 60,000-square-foot complex, known as the La Kretz Innovation Campus and owned by the Los Angeles Department of Water and Power. The campus is one of the inaugural public amenities of a new Cleantech Corridor planned by the City of Los Angeles for a vast area stretching from the Lincoln Heights neighborhood, in East L.A., to the Arts District, downtown.

The complex is made up of an adaptively reused and seismically retrofitted historic warehouse, among other components, designed by John Friedman Alice Kimm Architects. The mix of offices, labs, and makerspaces offers entry-level memberships at \$250 per month and contains cutting-edge fabrication and prototyping tools. With six specialty labs in the LACI-managed Advanced Prototyping Center (APC) and more than \$10 million in specialty equipment available to budding entrepreneurs, the innovation hub is being marketed by LACI as a one-stop shop for ambitious, tech-savvy groups looking to develop and test new industrial-scale ideas and products. The one-of-a-kind APC offers some of the most advanced, industrial-grade fabrication and research tools, as well, including professional-grade laser cutters, CNC mills, water jets, and even a full-blown industrial wet lab.

The facilities allowed the designers behind Hive Lighting to model, test, and fabricate prototypes of their high-performance, energy-efficient plasma and LED lights.

Kay Yang, APC director, explained, "This is where you come to get off the ground if you're an L.A.-based start-up," the incubator

also boasts a new artist-in-residence program and a slate of professional advisers, who hold office hours, as well as mentorship and investment opportunities for members. Yang added that, for certain participating companies, "LACI has cut 12 to 18 months off start-up times" while also allowing these groups to maintain full intellectual and copyright protections, part of LACI's "intellectual property-neutral" setup.

According to LACI's calculations, in the past six years, the incubator has helped 72 portfolio companies raise \$165 million in start-up funding, generate \$220 million in revenue, and create 1,700 jobs across the region. **Antonio Pacheco**

## Notable alumni include:

### Advanced Vehicle Manufacturing

An all-electric bus manufacturer with goals to create 100 percent zero-emission transportation.

### Avisare

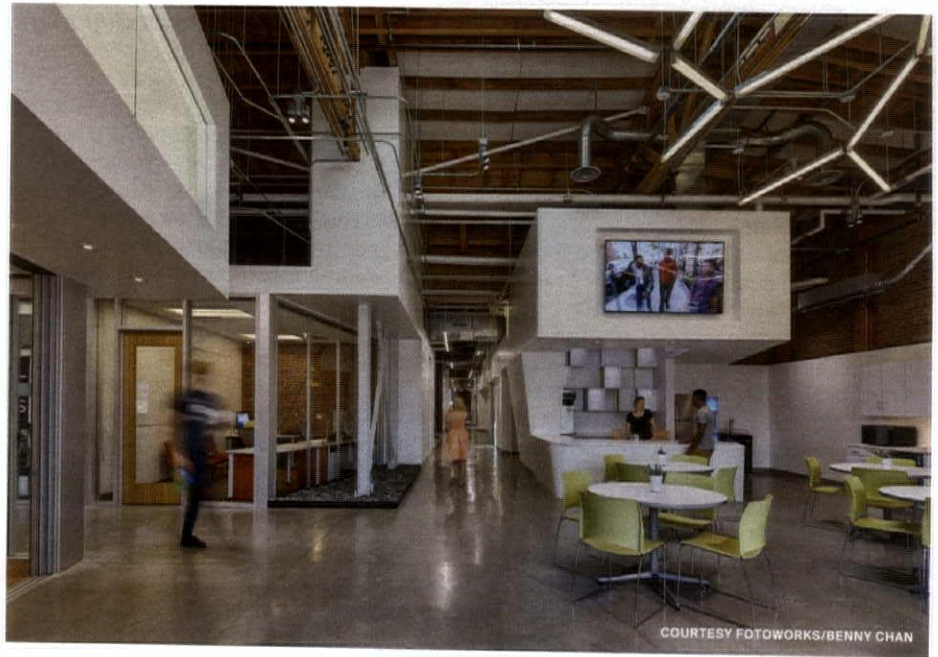
A cloud-based software-procurement platform.

### Connect Homes

A prefab home company based in California.

### Perception Robotics

A touch-and-vision-based industrial robot manufacturer.



COURTESY FOTOWORKS/BENNY CHAN

The Los Angeles Cleantech Incubator is hosted in a repurposed warehouse facility in the Los Angeles Arts District and offers a mix of office spaces, gathering areas, and high-tech, industrial-grade digital fabrication labs and equipment for budding entrepreneurs and members of the public alike.

# Digital Building Laboratory

Founded by Professor Chuck Eastman, a renowned trailblazer in building computer sciences and one of the creators of BIM, Georgia Institute of Technology's Digital Building Laboratory (DBL) in Atlanta quickly earned a sterling reputation after its founding in 2009. Now led by Associate Professor Dennis Shelden, an architect and digital technology expert who previously was the director of research and development and computing for Frank Gehry, the lab aims to harness its educational position as an indispensable source for knowledge capital. "We have a strong connection to the professional practice," said Shelden. "Our ability to connect between technology and projects as an academic institution is one of our most valuable assets. We are very much focused on solving concrete problems through our research and our role as an academic and open research institution." The DBL particularly focuses on "helping students disrupt the industry in order to collectively advance it." This includes pushing open-source initiatives and embarking on ventures that might be too risky for a company to take on, with the awareness that free innovation now could yield big returns later.

In addition to supporting Georgia Tech's School of Architecture, the DBL creates programs around entrepreneurship along with developing new and advancing technology. "What is happening now is that reduced friction across the building industry creates new opportunities and risks," said Shelden. "Architects have an expanded reach into other domains and can tackle environmental engineering and other tasks that used to require retaining an outside consultant. But on the other side, that means developers and contractors can do in-house architectural and consulting work. So we see a

convergence in the industry, and there are great opportunities but also a lot of new competition that didn't exist before."

The incubator champions AECO technology-related entrepreneurship while focusing on four technical areas representing the most disruptive potential for the AECO industries: data standards and interoperability, integrated project systems, design and construction automation, and smart buildings and cities.

The laboratory currently hosts several departments: the living laboratory campus, a testing ground for "digitally integrated design, construction, and operations projects;" the technology test bed, a place for testing data exchange and interoperability scenarios; and a Digital Fabrication Lab, a 13,000-square-foot space for prototyping and research; as well as research and entrepreneurship programs. Contributing members to the DBL are Autodesk, Oldcastle, and Vectorworks, and associate members include Perkins+Will, the Smithsonian Institute, Thornton Tomasetti, Skanska, and SmartBIM Technologies.

**Olivia Martin**

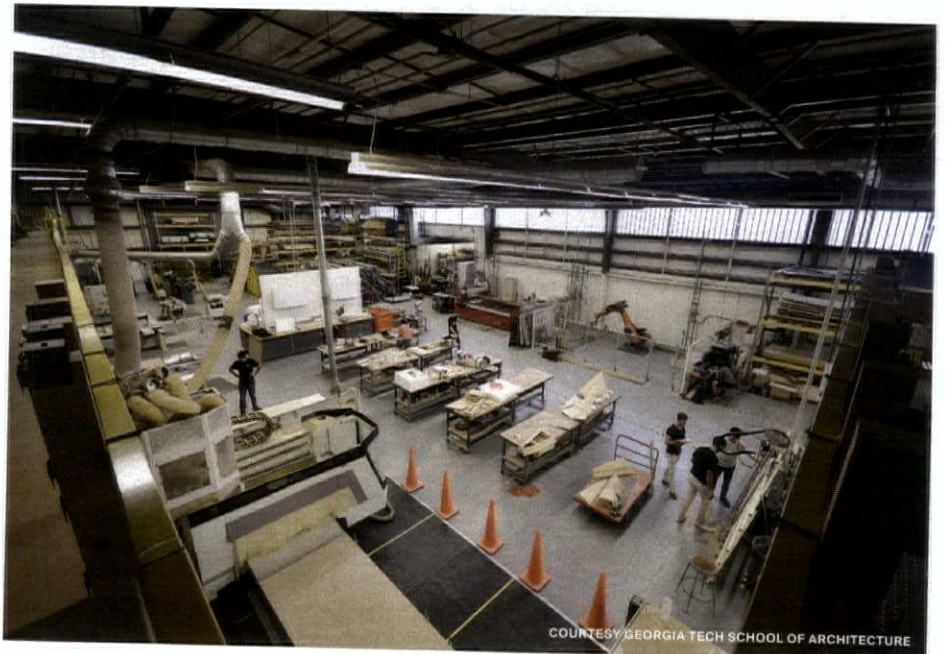
## Notable alumni include:

### Kereshmeh Afsari

Defended thesis in November 2016 and is now an assistant professor in the School of Construction Management Technology and the Department of Computer Graphics Technology at Purdue University.

### Marcelo Bernal

Graduated spring 2016 and is now an assistant professor in the department of architecture, Universidad Técnica Federico Santa María.



COURTESY GEORGIA TECH SCHOOL OF ARCHITECTURE

### Yongcheol Lee

Defended thesis in November 2015 and is now an assistant professor at Louisiana State University, Baton Rouge, in the department of construction management.

### Hugo Sheward

Defended thesis in fall 2015 and is now an assistant professor at the School of Architecture, University of Kansas.

### Shiva Aram

Defended thesis in December 2015 and is now the strategy lead and senior product line manager at Cisco.

Georgia Tech's Digital Fabrication Lab provides students and participants with 13,000 square feet to prototype projects.



# Autodesk BUILD Space

Located on the first two floors of a concrete-framed former army base in South Boston, Autodesk's BUILD Space (BUILD stands for building, innovation, learning, and design), which opened in 2016, has become one of the software company's best tools for keeping up with architecture's hyper-speed technology changes.

The cavernous 34,000-square-foot facility, whose adaptive reuse was carried out by Boston and New York-based SGA, contains two chief components: First, it houses every piece of digital manufacturing equipment under the sun, from CNC-routers and multi-axis robots to microelectronics, metal fabrication tools, and a giant crane; second, it hosts over 70 organizations and 500 people, including architecture and design firms, start-ups, and universities, who use the facilities, supported by Autodesk's software engineers. In return, Autodesk gets to make important new contacts and learn how to position its software for the coming years.

"By investigating these technologies with these teams, it gives us a view of what may be coming, and what we need to start thinking about," said Rick Rundell, Autodesk's senior director, who has carefully curated the community with his colleagues.

"I could hire a team of 30 researchers to use this equipment," said Rundell. "Instead, I have 500 researchers that I've been able to curate. They're doing their own work, but it keeps us in touch in a way that would be much harder otherwise."

The word has gotten out, encouraging the company, with SGA, to grow the space by another floor. "We get five or six calls a week," noted Rundell, who has hosted researchers from the Middle East, all over Europe, and the far corners of the U.S. "We only review the most promising."

To prepare the space for all this activity, SGA implemented some R&D of its own, employing carbon fiber supports to help brace the building after it made large cuts through the thick concrete floors, and using the facility's crane to haul in extra-large items. The firm needed to install new electrical and HVAC on top of what the building already had in order to support the teams' extraordinary infrastructure needs.

Autodesk, whose Boston software team works on the building's sixth floor (also designed by SGA), has opened a handful of similar innovation facilities, each catered to a different aspect of digital design and manufacturing. The San Francisco office, which hosts Autodesk researchers as well as independent ones, focuses on micro-factory models, the Toronto office looks at artificial intelligence and generative design, and the Birmingham, England, office centers on advanced manufacturing.

"We know this is happening, but we're seeking to learn more," said Rundell. **Sam Lubell**

## Some of the residents include

### Perkins+Will

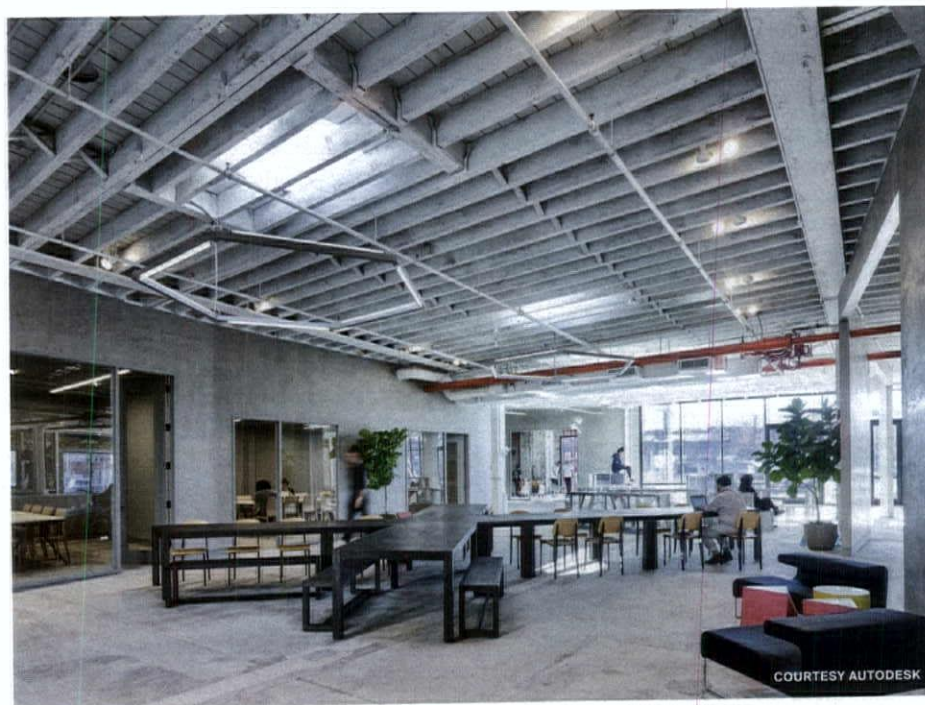
The architecture firm investigated new framing systems for mass timber.

### Bechtel Corporation

The engineering company explored inflatable shading devices.

### Massachusetts Institute of Technology

MIT students have created self-deploying fabric canopies that can be dropped via aircraft.



Designed by SGA, the 34,000-square-foot Autodesk BUILD space in South Boston holds over 70 organizations and 500 people.

## Construction Robotics

This construction manufacturer is developing a system for robotically constructing masonry walls.

# New Lab

Located in a former shipbuilding space at the Brooklyn Navy Yard, New Lab is an 84,000-square-foot collaborative tech hub dedicated to entrepreneurs working on scalable technologies and products. New Lab supports companies in nine disciplines: robotics, AI, urban tech, the built environment, energy, connected devices, additive tech, life sciences, and nanotechnology. Members benefit from access to a dizzying array of fabrication labs, including 3-D printing, woodworking, casting, CNC milling, and electronics, along with access to free software, including Autodesk and SolidWorks. But it's also important to note that New Lab's location in New York City is part of the draw, as the city itself is offered as an ideal laboratory to test the technologies in real-life urban conditions.

The flagship tech hub opened in 2016 and was founded to provide a supportive center for those companies working at the forefront of technology and human experience and to ensure that they have a reason to stay in the city. David Belt, New Lab's cofounder and CEO, is careful to stress that the lab is not an incubator—that is, it is not dedicated to helping companies at the beginning of their research or product-development cycles, but rather those that have concrete products and built technologies and are ready to take the next step.

Through a formalized arm of the company called New Lab Ventures—a \$50 million venture fund—the lab itself invests in some of its member companies and currently has investments in 14 of them; the lab also connects members to the world's leading venture funds. And a joint program called the Urban Tech Hub, in partnership with the New York City Economic Development Corporation

(NYCEDC), allows New Lab to support companies that strive to make a more livable, resilient city through their technologies and products. Additionally, the lab has other private-public partnerships in the works and a global partner network with Barcelona, Spain, and Copenhagen, Denmark, that offers other opportunities to members. New Lab currently has 103 member companies, with 600 individuals working at the space. Competition for entry is steep—just 15 percent of applicants are accepted. **Sukjong Hong**

## Notable alumni include:

### CAMERA

The founders see potential for their technology to be crucial for urban developers, autonomous vehicles, public transportation, and infrastructure. It allows for real-time, constantly updated 3-D mapping of cities.

### Voltaic Systems

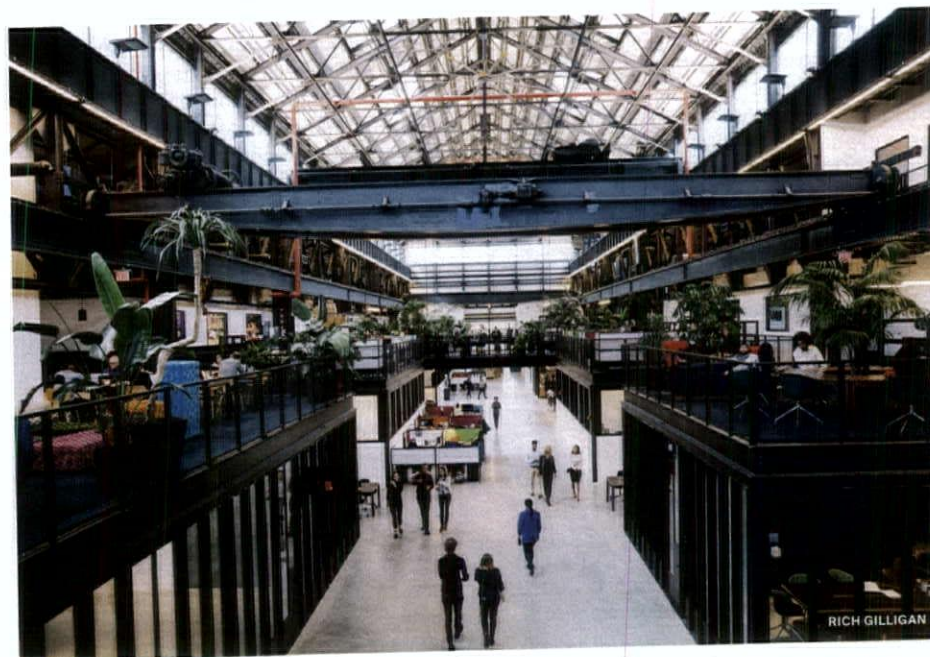
The portable solar power company creates lightweight solar panels and solar-powered solutions for people, products, and structures alike.

### StrongArm Technologies

This company develops ergonomic solutions for injury prevention and peak performance for the industrial workforce, including the construction industry.

### Terreform ONE

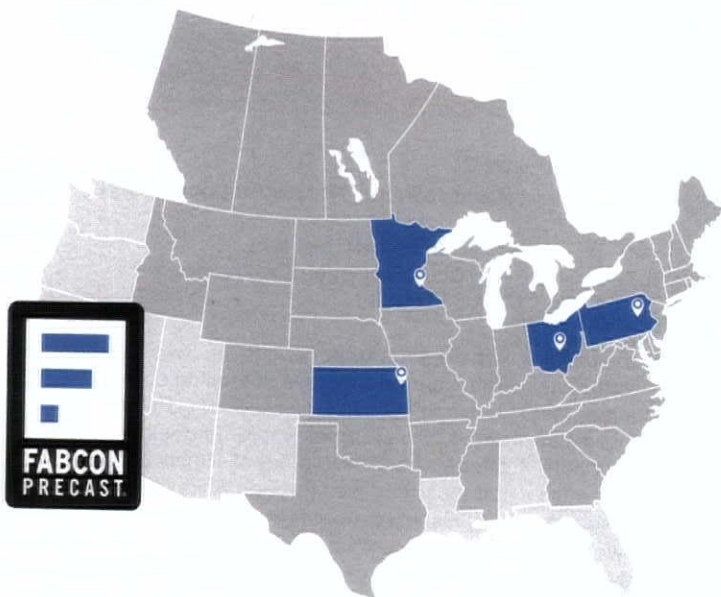
An architecture and urban think tank that advances ecological design in derelict municipal areas. Terreform is New Lab's only nonprofit and its only architect-centric member.



New Lab's main corridor in the Brooklyn Navy Yard. The 84,000-square-foot collaborative currently has 600 people working in the space.



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## WEST

WEDNESDAY 4  
CONVENTION  
**Dwell on Design**  
Los Angeles  
dwellondesign.com

MONDAY 9  
LECTURE  
**Jung In Kim:**  
**Seoul Bang**  
6:30 p.m.  
California College of the Arts  
1111 8th St.  
San Francisco  
cca.edu

WEDNESDAY 11  
LECTURE  
**Minsuk Cho**  
**Mass Studies**  
6:00 p.m.  
University of Southern  
California  
825 Bloom Walk  
Los Angeles  
arch.usc.edu

THURSDAY 12  
CONFERENCE  
**Encompass:**  
**Inclusive Architecture**  
California African  
American Museum  
600 State Dr.  
Los Angeles  
aialosangeles.org

## SOUTHWEST

SUNDAY 8  
CONVENTION  
**Architecture Week**  
AIA New Orleans  
1000 St. Charles Ave.  
New Orleans  
aianeworleans.org

MONDAY 9  
EVENT  
**ACME Brick Golf**  
**Tournament**  
Texas Star Golf Course  
1400 Texas State Star Pkwy.  
Euless, TX  
aiadallas.org

TUESDAY 10  
LECTURE  
**Visionary Voices: Beili Liu**  
6:00 p.m.  
Texas Society of Architects  
500 Chicon St.  
Austin, TX  
texasarchitects.org

ONGOING  
EXHIBITION  
**Chasing Perfection:**  
**The Legacy of Architect**  
**John S. Chase**  
The African American Library  
at the Gregory School  
500 McKinney St.  
Houston  
houstonlibrary.org

## MIDWEST

TUESDAY 10  
LECTURE  
**Architectural Acoustics**  
**and Noise Control in**  
**Building**  
12:00 p.m.  
AIA Cleveland  
2059 East 14th St.  
Cleveland  
aiacleveland.com

TUESDAY 17  
LECTURE  
**Architect Talk: Making**  
**Old Cities New with Chris**  
**Wilkinson of WilkinsonEyre**  
6:00 p.m.  
Chicago Architecture Foun-  
dation  
244 S. Michigan Ave.  
Chicago  
architecture.org

WEDNESDAY 18  
LECTURE  
**Anthony Viola, 2017 Dublin**  
**Family Young Architect**  
**Award Recipient**  
5:45 p.m.  
Chicago Design Museum  
108 N. State St.  
Chicago  
aiachicago.org

WEDNESDAY 18  
TOUR  
**Built/Unbuilt: Original**  
**Works in the Northwest**  
**Architectural Archives**  
1:00 p.m.  
Saint Paul RiverCentre  
175 West Kellogg Blvd.  
Saint Paul, MN  
sah.org  
aiachicago.org

## EAST

TUESDAY 10  
LECTURE  
**Daniel Libeskind:**  
**L.C. Dillenback Lecture**  
5:30 p.m.  
The Falk School  
Grant Auditorium  
Syracuse University  
Syracuse, NY  
soa.syr.edu

WEDNESDAY 18  
DISCUSSION  
**Invisible Water, Invisible**  
**Watersheds: The Gowanus**  
**Canal as a Case Study**  
**Eric Sanderson, Kate Orff,**  
**Andrea Parker, Jarrett**  
**Murphy**  
6:30 p.m.  
The Brooklyn Historical  
Society  
128 Pierrepont St.  
Brooklyn  
brooklynhistory.org

FRIDAY 20  
LECTURE  
**Alexandra Lange:**  
**The Design of Childhood**  
6:30 p.m.  
SVA MA Design Research  
Studio  
136 W 21st St.  
New York  
designresearch.sva.edu



JANE HAMMON/ DETROIT INSTITUTE OF ARTS

## Midwest

**Making Home: Contemporary Works From the DIA**

Detroit Institute of Arts  
5200 Woodward Avenue, Detroit  
Through June 6, 2018

Comprised of approximately fifty works from a variety of artists, including several local to Detroit, *Making Home* portrays idealized images of the domestic space. The exhibition features one of the museum's newest acquisitions, photographer Carrie Mae Weems's *The Kitchen Table Series*, which addresses the connection between gender and the home. There are also works by Detroit artists such as Bill Rauhauser and Charles McGee that explore the concept of home specific to the city and the general urban environment. The Detroit Institute of Arts (DIA) was careful to include artists that represent a wide swath of cultural experiences, including a collage about communal living by Jane Hammond and Hiroshi Sugimoto's *Sea of Japan, Hokkaido II*, which celebrates the immigration journey.

"While most people can relate to the idea of home, this exhibition illustrates how multi-layered its meaning can be," said Salvador Salort-Pons, DIA director, in a statement. "We invite visitors to consider their own concepts of home while looking at it from a variety of artists' perspectives."

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IMAGE VIA UMASS DARTMOUTH

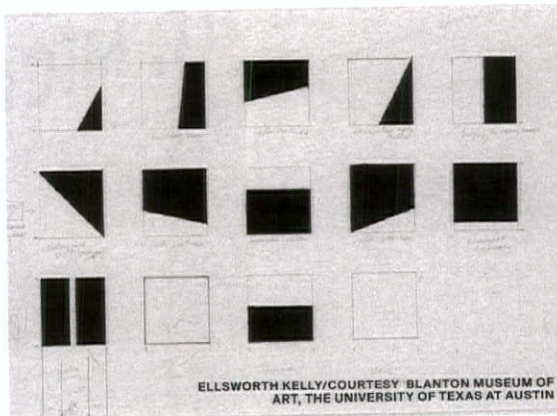
East  
**Playing the Campus**

285 Old Westport Road, North Dartmouth, Massachusetts  
Through April 28

University of Massachusetts Dartmouth was master-planned and mostly designed by midcentury architect Paul Rudolph. Now, the university's College of Visual and Performing Arts (CVPA) is celebrating its founding architect with *Playing the Campus*, a six-week-long arts celebration dedicated to Rudolph's work and legacy.

To kick off the series, sound artist Andy Graydon will stage *To Scale (10,000 things for Mark Tobey)* in Rudolph's Liberal Arts (LARTS) Commons, while José Rivera and Michael Rosenstein will close the program with *Sonic Section Perspectives (For Paul Rudolph)*, a sound installation presented by Non-Event that collages recordings made in and around Rudolph's Boston-area buildings.

On April 16, an exhibition featuring the architect's campus model and original concept drawings for the LARTS building will debut in *A Visionary Campus: Paul Rudolph and UMass Dartmouth*.

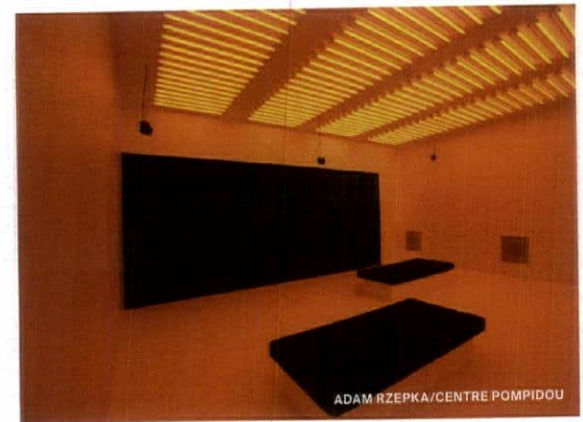


ELLSWORTH KELLY/COURTESY BLANTON MUSEUM OF ART, THE UNIVERSITY OF TEXAS AT AUSTIN

Southwest  
**Form into Spirit: Ellsworth Kelly's 'Austin'**

Blanton Museum of Art  
200 E. Martin Luther King Jr. Boulevard, Austin, Texas  
Through April 29

*Form into Spirit*, the inaugural exhibition of Austin, a secular chapel designed by the late American artist Ellsworth Kelly (1923–2015) that opened earlier this year, contextualizes the artists' only freestanding building for visitors. Suffused with light from luminous colored glass windows, the structure draws its form from Kelly's deep understanding of European art and architecture. Carl Foster, the Blanton Museum's deputy director of curatorial affairs wanted to draw a clear line between the motifs used in Kelly's general body of work and those he used in the chapel. Sections explore the artist's work with the color grid, geometry, totemic sculptures, and black-and-white shapes.



ADAM RZEPKA/CENTRE POMPIDOU

West  
**Philippe Rahm: The Anthropocene Style**

San Francisco Art Institute  
800 Chestnut Street, San Francisco  
Through May 19

With *The Anthropocene Style*, Swiss architect Philippe Rahm brings his brand of bracing ecological techno-futurism to the San Francisco Art Institute. In his American debut, the architect implores designers to think more deeply about the urgency of climate change by questioning the processes through which they go about choosing finishing materials and color schemes for their works. Searching for "a language for architecture rethought with meteorology in mind," Rahm argues that performative qualities like effusivity, emissivity, conductivity, and reflectivity are best suited to guide decision-making today.

For the exhibition, Rahm proposes a new decorative style for our fraught times and will debut a line of experimental building fabricsthat are geared toward eliciting particular spatial and physiological experiences.



# The Projective Drawing

Austrian Cultural Forum New York

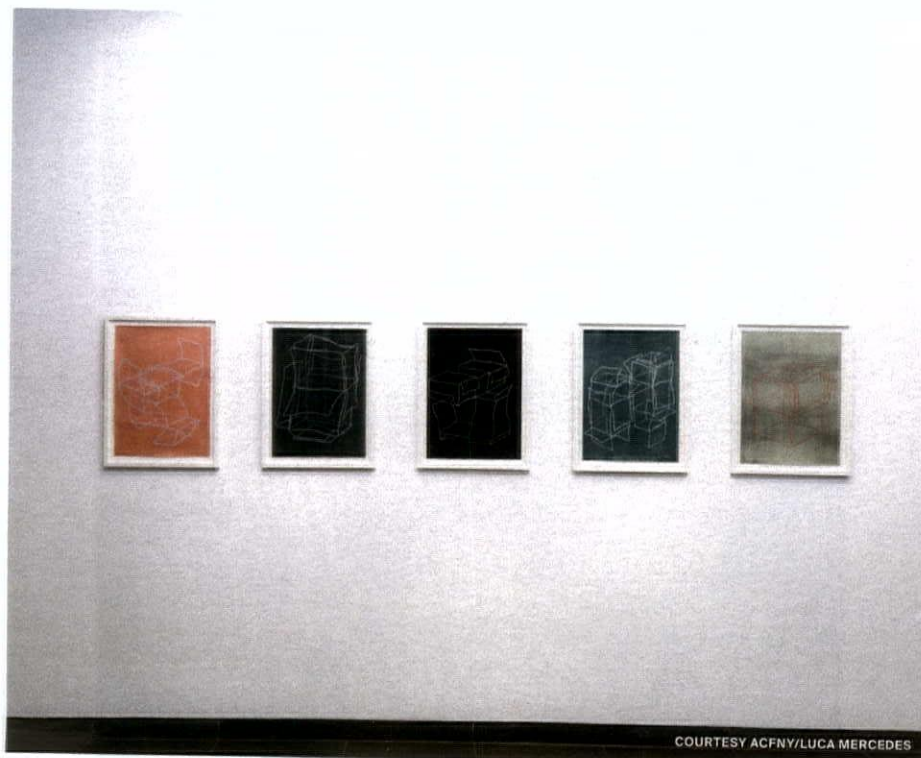
Through May 13

Don't call it a comeback.

It appears that drawing is now everywhere. *Drawings' Conclusions* just closed at Anyspace, New York; *Drawing Codes: Experimental Protocols of Architectural Representation* is in the Taubman Gallery at the University of Michigan; *The Drawing Show* opened recently at the Yale School of Architecture Gallery; *Drawbot* is at the AA[n+1] Gallery in Paris; and there is the current exhibition at the Austrian Cultural Forum titled *The Projective Drawing*.<sup>1</sup> It might seem obvious that to exhibit architecture is to exhibit drawings, but for the past twenty years it has been infrequent to focus an exhibition of contemporary architectural work around the question of drawing. The quick reaction would be to attribute this to the pinging pain of nostalgia in the midst of our image saturated world. But this would be a mistake, for at their best, these shows revolve around not a return, but a provocation concerning how to define drawing and image in contemporary aesthetic discourse.

The curator of *The Projective Drawing* exhibition, Brett Littman, has explicitly tied the show to a collection of essays written by Robin Evans and published posthumously in 1995 as *The Projective Cast*. An exhibition squarely in the realm of art that is developed from a piece of architectural theory is quite rare, which is what immediately excited me about the prospects of this show. The drawings exhibited here often reference architecture, and several pieces use techniques more commonly associated with architectural drawing, (the axonometric being the prime example), but these pieces are clearly art, not architectural drawings. Specifically, the difference is that none of the drawings in this exhibition work through projection as practiced by architects and explicated in the texts of Robin Evans. This may initially sound like a critique of the premise of the exhibition, but I assure you it is not, for the problem of projection in relation to drawing is what is at stake.

In the essays compiled for Evans's *The Projective Cast* and in the influential earlier essay "Translations from Drawing to Building" (1986), Evans observes that a significant amount of architectural representation does not consist of iconic plane geometry or the pictorial under-drawing used to structure composition in painting. Instead, it is focused around translations of formal and spatial notations toward construction. Projective geometry is engaged in order to control these transformations. The shadows cast by projection are controlled distortions, traces registering movements of graphic information, and residues that elude symbolic interpretations associated with the pictorial. For many architects, orthographic projections (which are very different than orthographic drawings), perspectives, or obliques are what differentiate architectural from other types of drawing practices. These are the techniques that discipline an architect toward thinking three-dimensionally through two-dimensions. In other words, projection is the background operating system of architectural drawing.



Brigitte Mahlknecht, *Fast Architektur* 1-5 (2017), wax crayon on primed paper.

Over the last 25 years, the digital model has replaced the architectural drawing. If drawings are produced from a digital model, they are no longer the graphic traces of constructed projections, they are images, rendered to follow the visual conventions of drawing.<sup>2</sup> Although this output may be an image, projective geometry is fundamental for digital modeling software. This is evident not just through the real-time updating of views, or the unfolding/sectioning of surfaces, but also, projection is at the root of calculating texture maps and indices of light reflection; commonly called "rendering." Evans was prescient about this aspect of projection, for it is much more concerned with the optic than the haptic. Interestingly, architecture has typically considered projection as having more to do with drawing than rendering. The history of drawing is so entwined with projection that the graphic lines constructing projections were literally called "pencils" in early descriptive geometry textbooks. Furthermore, many architects view digital software with suspicion, precisely because of its affiliation with images as opposed to drawings. Evans may have not written much about digital representation per se, but in many ways his arguments accurately articulate the background of contemporary digital modeling software. As it stands, architects today are continuously engaged with the transformations of projective geometry through digital modeling, even if these projections no longer leave a visual residue, and most often operate hidden within the commands of the software. And it is here that we have the problem.

If the visible trace of projection was crucial for defining an architectural drawing, and if digital software removes these traces in the production of images, we are left with a curious predicament. When looking at digitally produced drawings, either we are not looking at

architectural drawings or, we are not looking at drawings at all. One of these is a disciplinary problem, the other aesthetic. The digital is not a new paradigm in itself. But, it does require revaluations regarding the conventions of different mediums, and it is in these transformations that we may formulate new sets of concerns.

*The Projective Drawing* exhibition offers some fascinating insights on this issue for architectural representation. The drawings in this show mix mediums continuously. At the same time, this is not a post-medium mush where drawing is fused with painting, graphic design, architecture, etc. The questions this work raises have more to do with the tensions between abstraction and realism, and the manners through which drawing can question the ways in which we image the world. In a series entitled *transmissions: a more radical elsewhere* (2005-2012), William Cordova creates mixed media collages of drawings that build worlds suggesting telecommunication transmissions to places "out-of-field"—potentially even out-of-time. Brigitte Mahlknecht has produced a series of drawings of unfolding axonometric boxes titled *Fast Architektur* (2017), that use wavering stumbling lines ghostly layered to suggest the impossibility of ever folding these objects back up. The large oblique drawing titled *Flatlands (corner)* (2016) and created by Seher Shah is clearly indebted to the precision of architectural line drawings and the techniques of axonometry. But in this case, the line work shifts over edges that should define corners calling attention to the flickering instability of optical depth. In a series of small-framed untitled pieces, Leopold Strobl draws on top of color manipulated newsprint clips. Into these landscapes and cities he intervenes with dark blank masses. These hover between object-like figures and void-like removals,

establishing a tension with the realism of the mechanically reproduced images in the background. In the most provocative instances, the viewer finds their attention drifting into these backgrounds, wondering what world(s) could contain these things.

The works in *The Projective Drawing* are projective as speculations, not as medium dependent techniques. Architects have placed too much emphasis on drawing versus imaging as a disciplinary conflict. What matters are paradigms, the concepts made intelligible beside (para) aesthetic provocations. *The Projective Drawing* exhibition is in many ways an exploration of exactly this; the mediums appropriated within the aesthetics of the works provoke allusions that extend outward. These are relations between aesthetics and politics, between what can be seen and said, and what actions we project into the world.

I would much rather have architects arguing about these issues than if their images looked more like drawings or photos.

1. *Drawings' Conclusions* at Anyspace curated by Jeffrey Kipnis and Andrew Zago brought to New York by Cynthia Davidson; *The Drawing Show* at the Yale School of Architecture Gallery, originally at A+D Museum Los Angeles curated by Dora Epstein Jones, *Drawing Codes* curated by Adam Marcus and Andrew Kudless on view at the Taubman Gallery at the University of Michigan, originally at the CCA in San Francisco, *Drawbot 2* is on display at the AA[n+1] gallery Paris, France curated by Emmanuelle Chiappone-Piriou and Leslie Ware, and *The Projective Drawing* at the Austrian Cultural Forum curated by Brett Littman.

2. A fascinating discussion of this condition was recently put forward by John May in the article "Everything is Already an Image" published in *Log 40* (MIT Press, 2017)

Michael Young is an architect and educator practicing in New York City where he is a founding partner of the architectural design studio Young & Ayata.



# Geothermal Futures Lab

Southern California Institute of Architecture  
January 26 through March 4



At the SCI-Arc Gallery, Mark Foster Gage Architects presents an underwhelmingly conventional take on speculative fiction in architecture.

In a recent installation at the Southern California Institute of Architecture (SCI-Arc), Mark Foster Gage Architects attempts to bring the notion of parafictional art fantasy to the realm of architecture—with mixed results.

Gage's *Geothermal Futures Lab* considers the notion that given the current regime of "fake news" and "post-truth" reality, architects might have renewed license to create new visions for the future rooted primarily in fantasy. In lectures and writings, Gage argues that architects from Vitruvius onward have always engaged in some form or another with parallel or alternate versions of reality through their works and that conditions are ripe today for this tendency to take hold once again. Furthermore, Gage posits that these efforts represent a facet of the Object-Oriented Ontology (OOO) school of thought and could potentially be used to fend off the ever-increasing erosion—or flattening—of a shared reality that occurs when the people who lead and represent the nation are fundamentally preoccupied with telling lies.

In the exhibition text, Gage asks, "Might architecture's power in this new world be conducted through an elasticity of the real that encourages citizens to develop doubt about their presented realities—and therefore

perhaps become more resistant to 'fake news' and 'alternative facts?'"

For the installation, Gage seizes this opportunity as a justification for postulating a new energy-generation technology called "laser ablation geothermal resonance" that draws its power from sources deep below the surface of the earth in order to sustainably supply Los Angeles with over two-thirds of its daily energy needs. To convey the fundamentals of this fictional energy revolution, Gage fills the SCI-Arc gallery with a stage setting meant to approximate a control center for the power generator, installing lab equipment, a metal detector, a faceted gold-leaf-covered reactor, a pile of rocks, and a collection of high-powered lasers and imaginary technical drawings for display.

Technically speaking, the student-produced machine drawings are exquisite in their effusive and cheeky detail. Drawn to convey exploded axonometric views of the reactor and other components, the starkly outlined assemblage drawings also incorporate recognizable pop cultural elements, with hidden My Little Pony and Mr. Potato Head figurines buried within the constructions. The reactor mock-up is impressive in its detailing as well; it features the fractal and

agglomerated geometries Gage's other academic work is known for, while spewing fog from its lower extremity.

But overall, the exhibition—and Gage's interpretation of what parafictional fantasy in the era of "fake news" can provide to the field of architecture—falls flat.

It's not the physical objects that result from Gage's exploration that are in question, but rather the interpretations that underlie them. For one, it belies a fundamental misreading of the current political-cultural moment to describe the Trumpian notion of "fake news" as a symptom of the so-called "great flattening" of intellectual hierarchies OOO represents. Practically speaking, "fake news" is not so much a product of the erosion of objective truth as much as it is an acknowledgment of multiple, covalent, and oftentimes contradictory perspectives that have always existed. Like it or not, "fake news" represents not merely plurality, but a new era of simultaneity writ large. The president and his lackeys have not so much created a fantasy world for their devotees to occupy as elevated a parallel existence that has always been very real to its adherents.

In a lecture supporting the exhibition, Gage cites the Black Lives Matter and

#MeToo movements as emblematic of "flattening" as well, a comparison that also doesn't really apply. If OOO ideology is rooted in the "removal of human as primary subject" from perceived reality, how can two movements entirely rooted in acknowledging and prioritizing the fundamental humanity and agency of two often-maligned social groups serve as a case study? The comparison is flawed and problematic, representing a misunderstanding of not just what drives these movements, but also of what we can learn from them as architects, as well.

And lastly, like so many other recent attempts at projecting future scenarios, the project is not really "speculative" in the literal sense and represents merely an intensification of existing modes and technologies, raising the question: If architecture's power right now lies in its ability to speculate, what does it mean to have so many of its fantasies seem so underwhelmingly conventional?

Antonio Pacheco is the West editor of *The Architect's Newspaper*.



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**Go Go Gowanus**

A TEAM OF LANDSCAPE ARCHITECTS, GENETICISTS, AND BIOINFORMATICIANS ARE TACKLING THE GOWANUS CANAL FOR SCIENCE

Thinking of a quick dip in the Gowanus? Perhaps not. After 150 years of industrial pollution, combined with sewage overflows and stormwater run-off, the canal is generally seen to be an undesirable place. However, one continued on page 10

**Big Nature, Big City**

THE LATEST UPDATE ON SEATTLE'S WATERFRONT TRANSFORMATION

Seattle, Washington's waterfront redevelopment, an endeavor James Corner Field Operations (JCFO) has been working on diligently for nearly a decade, is steadily moving closer to being implemented, as the \$700 million project heads toward beginning construction this year.

The development cleared a major hurdle in August, when supporters of the project garnered over 80 percent of the cast ballots needed to reject the JCFO scheme. JCFO's vision for the two mile-long promenade would stitch together city's burgeoning downtown with its isolated, post-industrial waterfront, converting the space occupied by the Alaskan Way Viaduct into a broad continued on page 10

**CONTENTS**

- 07 OPEN>TALLEST WATER COASTER
- 08 LANDSCAPES OF RESOURCE MANAGEMENT
- 10 IN DETAIL> ICE COOLING SYSTEM
- 46 OWEN HATHERLEY ON VERTICAL URBAN FACTORIES
- 06 EAVESDROP

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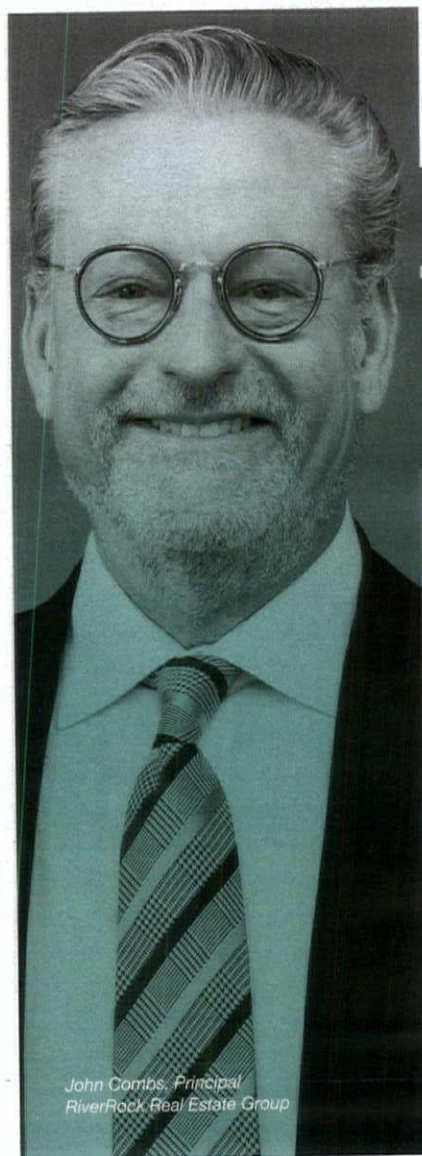


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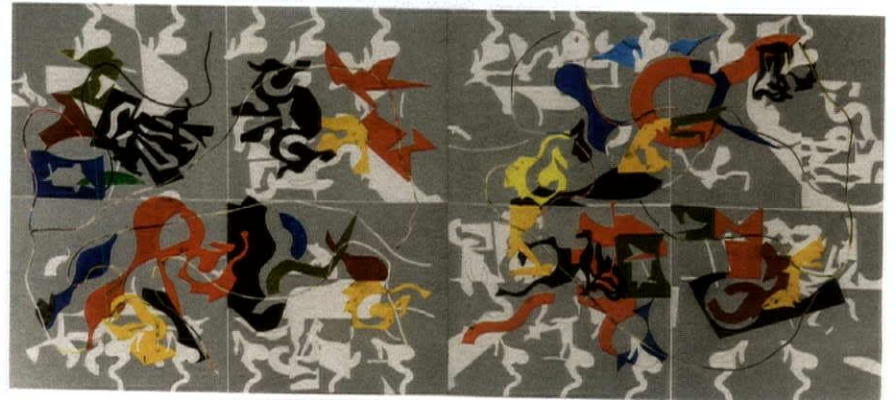
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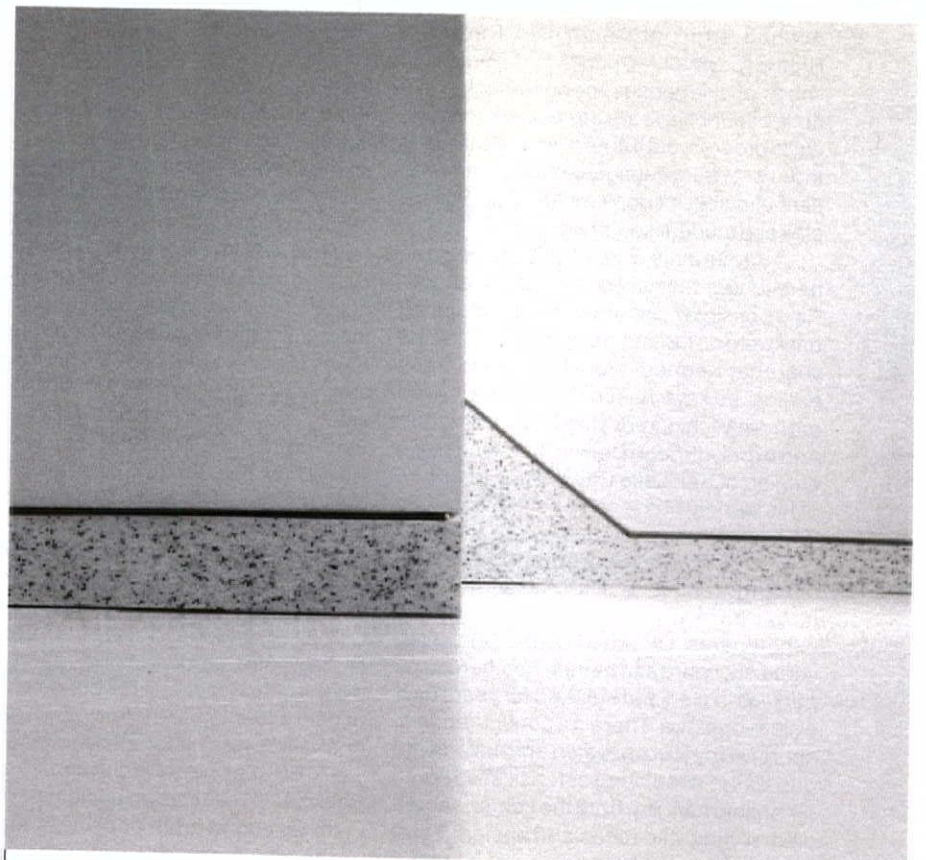
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# Remembering Jay Baldwin



JACK FULTON

The "Om Dome" at Pacific High School in California's Santa Cruz Mountains, circa 1969.

May 12, 2013  
Penn Grove, California

Drive north through Marin County, past Petaluma on Route 101, exit onto Railroad Avenue and right onto Old Redwood Highway. Small farm lots, old barns and sheds, prickly hedges and honeysuckle. "It's not a commune," says Jay Baldwin, coming out to greet us, but it is a shining hill that rises to the west from Penn Grove Valley with seven tiers of chicken coops restored by old hippies and student squatters.

Jay and his wife, Liz Fial, have been here longer than anyone else, since 1963. "Is it possible?" he asks himself, counting backward on the fingers of one hand. "Same year that Kennedy got shot, two months earlier," he says, describing how he moved out from Michigan, driving 2,370 miles from Ann Arbor, through Denver, breaking down outside of Salt Lake City, while carrying all of his worldly possessions in the back of a '56 Chevy.

Their domesticated coop has low sloping ceiling, but it's attached to a larger barn where Jay stores all of his experiments. Old wood planks are nailed vertically, board and batten, weathered and dark, as if oiled and smoked for years over a slow-burn fire. There's a configuration of short two by fours beveled and nailed onto one wall in a radiating asterisk shape with elk antlers hanging from the center, sacred animal vibe, wild roses and ancient Ford, rusted out.

Jay and Liz did all the work themselves and they manage to live on \$8,000 a year, happy and fine and low-impact. We eat a lunch of fresh berries, homegrown lettuce, cucumbers, cheese, and lemonade while Baldwin tells me about his association with Buckminster Fuller, how he first met him in Ann Arbor, after one of Bucky's all-night, epic lectures, that started at 7 p.m. and

went till dawn the next morning. They met up again in the fall of 1969 when Bucky came to visit Pacific High School, a free-form hippie school in the Santa Cruz Mountains where Baldwin and his fellow dome-head, Lloyd Kahn, were teaching students how to build domes. Together, they fabricated as many as 17 different versions of Bucky's geodesic prototype, and one of the most experimental variations was Baldwin's "Pillow Dome" that was made from clear vinyl pillows inflated with hydrogen. (The vinyl pillows were fabricated by a company in San Francisco that made inflatable female dolls for porn shops.) Bucky liked it so much that he lay down and took an hour-long nap inside the 20-foot-diameter structure. When he awoke he asked Baldwin to build one on the Fuller family island in Maine. Baldwin said yes, if Bucky would pay for all the material expenses.

"He said OK and wrote us a check," Baldwin says, who prefabricated all the parts at his barn in Penn Grove and then packed them into the back of his trusty '67 Citroën DS wagon and drove from California all the way to Camden, Maine—about 3,300 miles—only stopping in Carbondale, Illinois, to help a friend make a ferroconcrete sailboat. "We were on Bear Island for about a week, living in one of the old barns," recalled Baldwin. "There was an ancient pool table in there, and we shot pool by candle light on the greatly slanted table, a challenge. It all went well, though Kathleen [Whitacre] and I were held in obvious low esteem by the New Englanders, probably because we weren't married."

August 27, 2013  
Bear Island, Maine

A few months after seeing Baldwin at his house in Penn Grove, I make it out to Bear Island, Bucky's wind-swept, family island in Penobscot Bay, and although I know that one of Baldwin's domes might still be lying in ruin, somewhere on the island, I'm taken aback when I see it there because I didn't think it would be positioned so prominently on that first foggy march up from the harbor, up the hill, just past the Eating House, on the way to the Big House, emerging like a specter from a wafting plume of mist, silvery white against a backdrop of deep pine-tree shadows. I'm stunned by its simple, geometric beauty, an unexpected surprise, a hidden gem, and I hold back from looking too closely on this, my first pass, because I want to save it for later when I will return, alone and with my camera, to inspect the structure from all possible angles, inside and out.

This is what I do an hour after my arrival, because I don't want to lose the milky light and mysterious veils of mist, but by the time I return to the site, the light has dissolved into a dull pewter matte and the wind has kicked up to blow all the fog away.

Once he'd transported all the parts from the mainland to the island on a lobster boat, Baldwin assembled the Pillowdome on an old tennis court using three-fourths-inch EMT electrical tubing "because it's galvanized inside and out," and filled each opening with a 15-milliliter triangular pillow.

It took them about a week to complete the dome, only because of so many distractions, including Bucky himself who would frequently come by to check on their progress and talk for hours or insist that they go sailing for the rest of the day.

Late one evening, everyone sat beneath the struts of the unfinished dome and waited for a lunar eclipse, but when

Fuller's sister rushed down from the Big House to announce its arrival and said: "Brother, the eclipse is coming up from the bottom!" Fuller snapped back: "The moon doesn't have any UP, stupid!"

Everyone laughed except for Baldwin who felt bad about making Bucky's sister the brunt of the joke.

I walk around the ruins of the Pillowdome. The vinyl "pillows" disintegrated a long time ago, but the thing itself, the main structure, the galvanized geodesic skeleton, struts, connectors, and bolts are in surprisingly good shape considering it's a 43-year-old artifact left to endure the salt air and brutal winters of coastal Maine. Even the star-shaped skylight at the top of the dome is still intact and you can see how it was hinged around the edges so that the top panels could be flipped open for ventilation.

There's no sense of a roof pressing down, or of walls closing in. It is more of a floating, bubble-like sensation, and reminds me of Fuller's enormous "Biosphere" that I visited the years before, in Montreal. It felt like a future that hadn't happened yet, or at the least a future that hadn't been fully digested. The tetrahedral poetics of the geosphere, now black and naked, stripped clean of its original acrylic shell, manifested itself as an alternate sky—if that makes any sense—and there was something about looking through its prism-like veil that made the oddly pixelated horizon seem infinitely small.

After his experiment on Bear Island, Baldwin worked with John Todd of the New Alchemy Institute on Cape Cod, and together they fabricated a larger version of the Pillow Dome, skinned with Tefzel, an ETFE fluoropolymer resin made by DuPont.

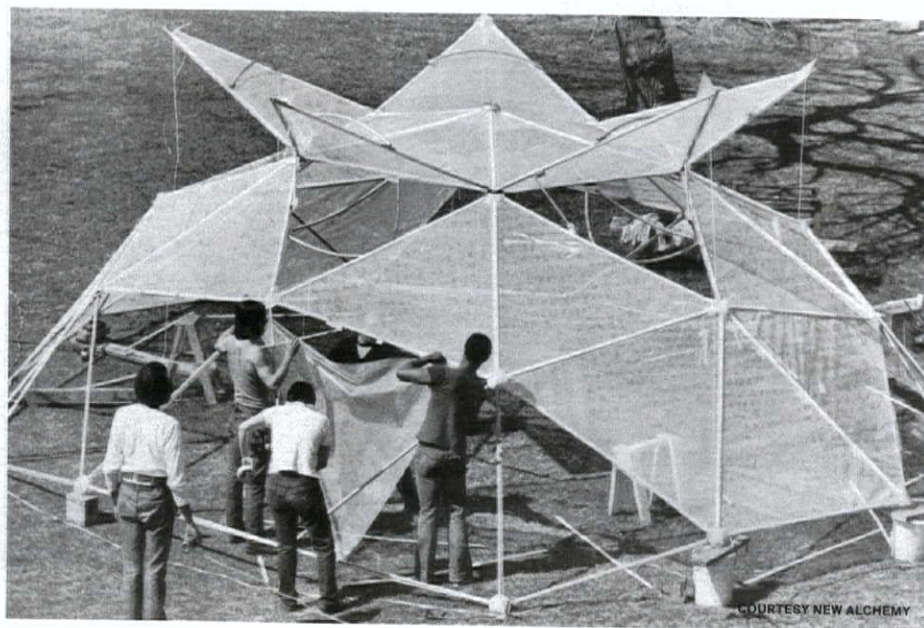




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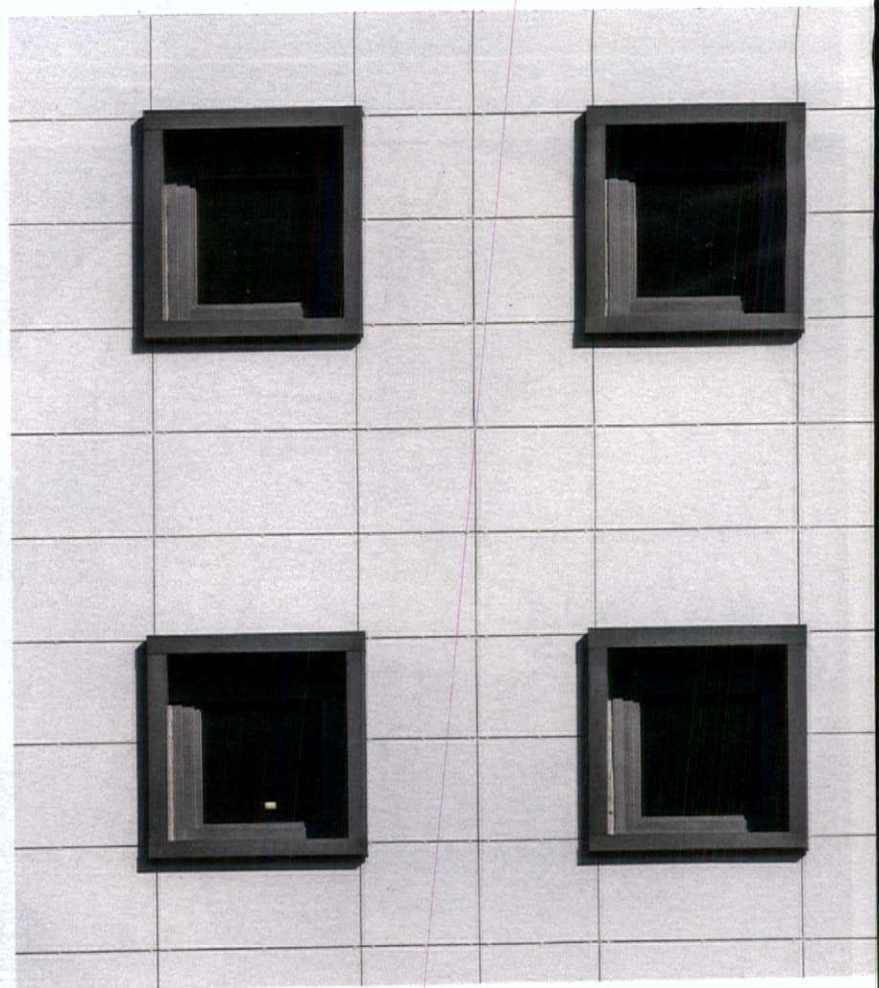
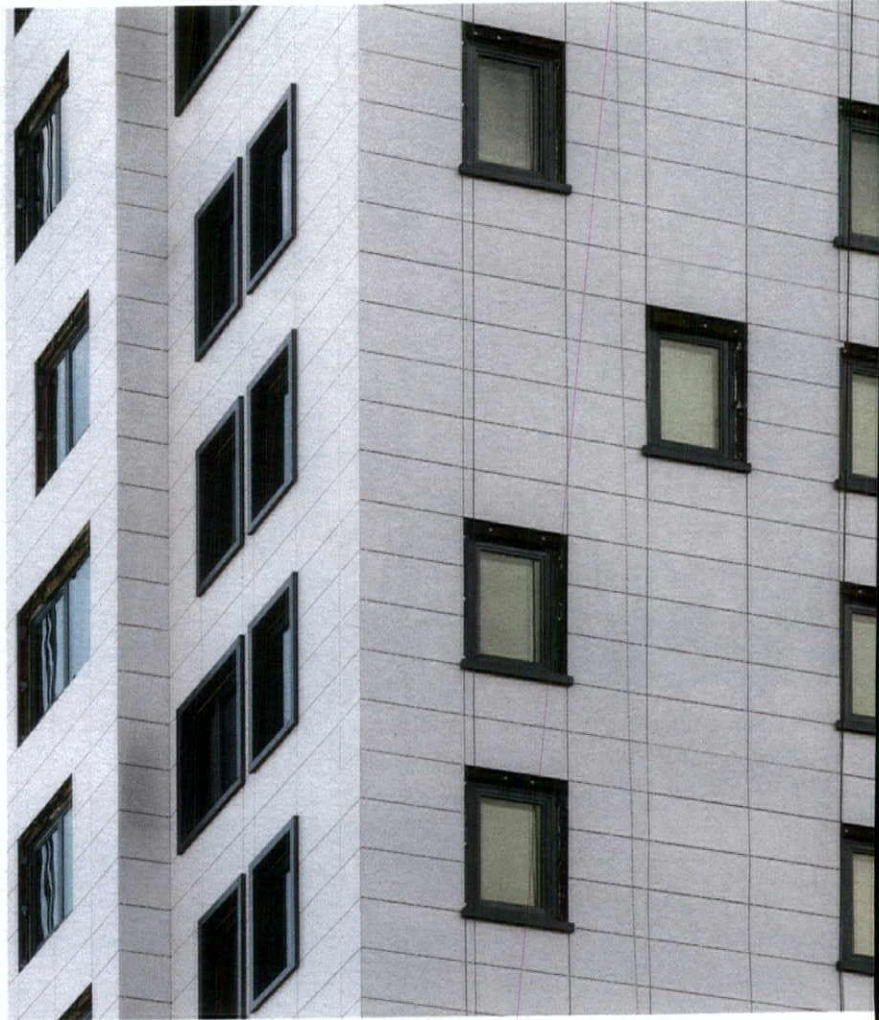
**Top:** The first Pillow Dome at Pacific High School, circa 1968. The inflated skin was fabricated by a company in San Francisco that also manufactured blow-up sex dolls.

**Above:** Bioshelter under construction, New Alchemy Institute, Cape Cod, Massachusetts, circa 1978.

**Left:** Jay Baldwin (sitting in background) and Kathleen Whitacre inside the first Pillow Dome at Pacific High School, circa 1968.



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