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 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, 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

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

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
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 standalone 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 listing 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, New York University, and University of California, Los Angeles, and 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.

This QS ranking seems tone deaf to the real qualities that make a great architecture school, particularly the specific set of real world skills that have to be mastered by our students. Furthermore, this ranking 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 points to nation. Sorry MIT, but this QS ranking is so myopic that is 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 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 21st-century variety and subtlety.

William Menking
Neolith®
SINTERED STONE

Neolith® + Pureti
Self-Cleaning and Sustainable Facades

JEOLITH*: DESIGN. VERSATILITY. DURABILITY. SUSTAINABILITY.

3017 2016 2015

Interior and exterior applications: Facades, Cladding, Flooring Furniture, and Countertops. Resistant to stains, scratches, chemicals, extreme temperatures and UV exposure. 100% natural and recyclable. Maximum format, minimum thickness, different finishes. More than 50 selections available.
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.

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

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.

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 63rd 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.

Balkrishna Doshi wins the 2018 Pritzker Prize

Balkrishna Doshi is the 45th 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.
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.

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.

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.

Dream the Combine wins 2018 MoMA PS1 Young Architects Program

Minneapolis-based Jennifer Newsom and Tom Carruthers of Dream the Combine won the 19th 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 AIAANY has rescinded his 2018 Design Award.

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.

Architectural Association selects Eva Franch i Gilabert as next director

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.

Yesomi Umolu appointed artistic director of the 2019 Chicago Architecture Biennial

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.

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.

New renderings of Lucas Museum unveiled for groundbreaking

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.

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.

Yesomi Umolu appointed artistic director of the 2019 Chicago Architecture Biennial

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.

Architectural Association selects Eva Franch i Gilabert as next director

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.

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.

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.
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
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 shitiness? 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.

If you would like to talk to us about your experience, we are listening. Please e-mail us at ANtips@protonmail.com.

Page

Turner

Queens’ new Elmhurst Community Library serves one of the most diverse and vibrant communities in New York. Designed by Marpillero Polak 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.0MINY.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.

SCALE: NATION


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 Thrival Geographies (In My Mind I See a Line), which will consider how race shapes notions of identity, shelter, and public space in 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: 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 Universita 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: 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."

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."
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 Suomi 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."
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.

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

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.
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 is 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 utopian 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: FX Collaborative, HOK, Arup, KPF, and other prominent firms have all put forward scalable designs for reclaiming the urban fabric. Specification 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 are 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 pedestrian 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 an AV-assisted vehicle could 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
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 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, STUDIOOS, and 59 Architecture populated the upland side of West and Commercial with renovated warehouses and up-scale 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 Esheroid 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 red-brick 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 59 Architecture employs the same neo-traditional 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 Indiana 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, cased 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—adopted in 1999 and adopted by continued on page 19

Three-Pointer

GENSLER’S NVIDIA HEADQUARTERS SHINES.

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 expensive 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 brassy 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 rehabilitation project was completed in 1996, leaving the building vacant.

While the Old Chicago Main Post Office was added to the National Register of Historic Places in 2001, providing it with the opportunity to capitalize on Federal Historic Tax Credits, 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-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 20th 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 19th-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 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.
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.

For us to 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 "modern."
"The Union Carbide building should be torn down," (facing page) was originally published on 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:

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
Pulp Studio was just an idea hatched in a basement 22 years ago. As pioneers in the category of specialty and decorative glass, we no longer represent the image of a small art glass company, and for many of you that is the perception.

Pulp Studio has transformed itself into one of the largest most technical specialty glass companies in North America producing both interior and facade related glass products.

What is your perception of Pulp Studio? If you think nothing has changed, well then you sure haven't been paying attention.

Find out about all of the changes and our capabilities at www.pulpstudio.com/reality
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 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.
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.

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 10th 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 46th and 47th 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 lighthouses 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

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.
Let There Be Light

Architectural

**Riff**
Olle Lundberg for atelje 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.

[Image]

**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]

**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]

**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]

**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]

**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]
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

<table>
<thead>
<tr>
<th>Tripp-Mini Pendant</th>
<th>Pelle</th>
</tr>
</thead>
<tbody>
<tr>
<td>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.</td>
<td></td>
</tr>
<tr>
<td><a href="pelledesigns.com">pelledesigns.com</a></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Kuu</th>
<th>Elina Ulvio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kuu, the pendant 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.</td>
<td></td>
</tr>
<tr>
<td><a href="elinaulvio.fi">elinaulvio.fi</a></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Grid</th>
<th>Pablo Designs</th>
</tr>
</thead>
<tbody>
<tr>
<td>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.</td>
<td></td>
</tr>
<tr>
<td><a href="pablodesigns.com">pablodesigns.com</a></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Amisol</th>
<th>Daniel Rybakken for Luceplan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Like the reflectors used in a photography studio, this fixture projects a powerful source of light onto a large disk thatdiffuses 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.</td>
<td></td>
</tr>
<tr>
<td><a href="luceplan.com">luceplan.com</a></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Blush</th>
<th>Morten &amp; Jonas for Northern</th>
</tr>
</thead>
<tbody>
<tr>
<td>Norwegian design duo Morten &amp; 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.</td>
<td></td>
</tr>
<tr>
<td><a href="northern.no">northern.no</a></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mondo Pendant and Floor Lamp</th>
<th>Antonio Facco for Oblure</th>
</tr>
</thead>
<tbody>
<tr>
<td>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.</td>
<td></td>
</tr>
<tr>
<td><a href="oblure.com">oblure.com</a></td>
<td></td>
</tr>
</tbody>
</table>
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 Microsol 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 Leenknecht, 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, Alexandre Pollock, director of design technology at FXCollaborative, and Christopher Mackey, building scientist at Payette, will discuss designing for energy efficiency; and Iffat Mai, practice 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
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 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 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, allowing the architect to maintain control of the aesthetic of the building, and improves the design process by eliminating costly late-stage redesign fees.

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.

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.

**IMMERSIFY**

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**

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.

**JUJU IMSV**

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.

**Morpholio**

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.

MICROSOLORESOURCES

TECH PERSPECTIVES

MAY 22 | METROPOLITAN WEST, NYC

WHERE DESIGN
INNOVATION &
TECHNOLOGIES
COME TOGETHER

BIM • COLLABORATION
VISUALIZATION • SUSTAINABILITY

SOLIBRI
A NEMETSCHEK COMPANY

www.techplusexpo.com

Follow #TechPerspectives @MicrosolTweets
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.
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.

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-sequence 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 facility. 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.
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 computational 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.

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 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 communication 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 do now is 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.
Meet the incubators and accelerators producing the new guard of design and architecture start-ups.

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, Farmshelf 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 Hillburg

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.

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.
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 always know which forms 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

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

### 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
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 65,000-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 Eset 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 member- ship 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 those 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.

Avasire
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.

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 focused 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 new 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 scenario; 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:

Kereshmesh Afsari
Defended thesis in November 2016 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.

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.

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

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."

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.

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 co-founder 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.

Notable alumni include:

CARMERA
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.

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

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

COURTESY AUTODESK

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

Fabcon has delivered and installed precast panels in 37 states, 4 provinces and the District of Columbia.

The reach of our four manufacturing facilities covers most everything east of the Rockies and north of the Gulf Coast. Regardless of where you build, Fabcon Precast delivers the value, performance and consistency that keeps progressive brands like Walmart, UPS and Frito-Lay coming back again and again.

Visit FindFabcon.com to learn more.
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 Rudolph’s stage Libral Arts (LARTS) Commons, while Jose Rivera and Michael Rosenstein will close the program with Sonicizations idealized images of the domestic space. The exhibition features one of the museum’s newest acquisitions, photographer Carrie Mae Weems’s The Kitchen Table: The African American Library at the Gregory School 500 McKinney St. Houston houstonlibrary.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

Southeast

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 artist’s 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 shapely.

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: The African American Library at the Gregory School 500 McKinney St. Houston houstonlibrary.org

Andrea Parker, Jarrett Murphy The Brooklyn Historical Society 128 Pierrepont St. Brooklyn brooklynhistor.org

Alexandra Lange: The Design of Childhood 6:30 p.m.

SWA MA Design Research Studio 130 W 21st St. New York
designresearch.sva.edu

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 effusively, 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 fabric that 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 Anysspace, 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. 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 pining 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 1986 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 why immediately exciting 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 architecture 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.

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.2 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 optical than the haptic. Interestingly, architecture has typically considered projection as having more to do with drawing than rendering. The history of drawing is 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 (20M), 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 in the backgrounds, wondering what worlds 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 argue about these issues than if their arguments looked more like drawings or photos.

1. Drawings' Conclusions at Anysspace curated by Jeffrey Kopins 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-Pirou 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)
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 represent a facet of the Object-Oriented Realism (000) 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 seize 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 that occurred in the era of "fake news" as a symptom of the so-called "great flattening" of intellectual hierarchies 000 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 only "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.
NYC
April 19+20
METROPOLITAN WEST

THE PREMIER CONFERENCE ON HIGH-PERFORMANCE BUILDING ENCLOSURES

facadesplus.com
@facadesplus facadesplus
Go Go Gowanus

LEHRER ARCHITECTS DESIGN A BREEZY POOL FOR SOUTH L.A. LIGHT GUARDS

SPECIAL: OUTDOOR PRODUCTS

AN Interior

A GRASSROOTS ORGANI ENVIRONMENTAL MOVEMENT

SPECIAL: OUTDOOR PRODUCTS

The development cleared a major hurdle in August, with support for the project secured over 80 percent of the funds needed to reach the goal of $7 million, the central element to which the delivery of the Steadman Park pool was linked. The project, consisting of an embankment at the eastern edge of the canal that will be recontour and existing structure, will be designed to ensure a smooth transition to the adjacent canal. The pool will be clad with a mix of natural stone, steel and concrete, and will include a children's area. The project is expected to be completed by the end of next year.

A magazine by The Architect's Newspaper

archpaper.com/subscribe
BE PART OF THE AEC EVOLUTION

TECH+ presents a full day of Talks and Demos on 2 stages along with an Expo of cutting-edge products that range from virtual reality-aided design tools, mobile apps, sensors, and software atforms to rapid prototyping and fabrication. Come see the latest in smart building systems, advanced materials, and innovative products that help create the spaces of the future.

TECHPLUSEXPO.COM
architectural models - objects - effects - done well

Contact: Ed Wood or Leszek Stefanski
66 Willow Ave, Hoboken, NJ 07030
201.420.4700 www.radiiinc.com

LEADING THE WAY TO A CONNECTED FUTURE

CHICAGO, IL USA
March 11, 2019
PRE-CONFERENCE
May 6–7, 2018
TRADE SHOW & CONFERENCE
May 8–10, 2018

Special metals: two-tone clad storefront and doors

Manufacturing Quality Fenestration and Architectural Metals for Over 30 Years

Storefront Covers and Claddings Entranceways
Slorefront Architectural Sunshades Curtain Wall
Skylights Shower Enclosures Canopies
Railings Folding Door/Wall Systems

131-10 Maple Avenue
Flushing, NY 11355
718-359-8833
www.gamcocorp.com
MARKETPLACE

The Architect's Newspaper Marketplace showcases products and services. Formatted 1/8 page or 1/4 page ads are available as at right.

Kristin Smith
21 Murray Street, 5th Floor, New York, NY 10007
TEL 212-966-0630 / FAX 212-966-0633 / ksmith@archpaper.com

LEARN BIG
Connecting with leading property professionals fosters new insights, solutions and strategies. Keeping up with important issues and emerging trends puts you on the forefront of commercial real estate. Attend groundbreaking education sessions at BOMA 2018 and come away with tangible strategies and practical solutions—and continuing education credits. When your big moment is about building relationships and boosting your brainpower, it's guaranteed to be a worthwhile investment.

SAVE BIG!
Register at www.BOMAConference.org by May 1 and save $100.

BOMA 2018
INTERNATIONAL CONFERENCE & EXPO
JUNE 23-26, 2018

THE ARCHITECT'S NEWSPAPER APRIL 2018

LEVERAGING THE UN NEW URBAN AGENDA FOR SUSTAINABLE + EQUITABLE BAY AREA GROWTH
May 31: California College of the Arts
June 1: San Francisco Art Institute

www.aiasfnext.org

AIA SF
IMPLEMENTING THE NEW URBAN AGENDA

2018 TALL+URBAN INNOVATION CONFERENCE
FEATUREING THE CTBUH 2018 AWARDS
30-31 MAY 2018 - RADISSON BLU AT AQUA TOWER, CHICAGO

93 PRESENTERS Goettsch Partners BOMA Private Kohn Pederson Fox 48 PROJECTS V&A Rogers Stirk Harbour + Partners Waterfront New World Development

500 DELEGATES Thornton Tomasetti SHoP Architects Arup Fletcher Priest Architects KPMB Architects Mori

Lendlease Building

LEONARD J. CONRAD MEMORIAL FUND

10 YEAR AWARD

U.S. DEPARTMENT OF COMMERCE

THE FEDERAL TRADE COMMISSION

ATING.AWARD 2018

CONSTRUCTION AWARD

GREEN LEED UNIVERSITY

360 LEONARD

GREAT WEST DEVELOPMENT

2018 SUSTAINABLE MILESTONE AWARD

THE Elite Group

Associate Members

Join Now!
tallinnovation2018.com

Register Now!
<table>
<thead>
<tr>
<th>COMPANY</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crystal Window &amp; Door Systems, LTD</td>
<td>43</td>
</tr>
<tr>
<td>Fabcon Precast</td>
<td>35</td>
</tr>
<tr>
<td>GAMCO</td>
<td>43</td>
</tr>
<tr>
<td>Kornegay Design</td>
<td>6</td>
</tr>
<tr>
<td>Microsl Resources</td>
<td>27</td>
</tr>
<tr>
<td>Modular Arts</td>
<td>19</td>
</tr>
<tr>
<td>Neolith</td>
<td>3</td>
</tr>
<tr>
<td>Ornamental Metal Institute of New York</td>
<td>7</td>
</tr>
<tr>
<td>Porcelanosa</td>
<td>Back Cover</td>
</tr>
<tr>
<td>Pulp Studio</td>
<td>18</td>
</tr>
<tr>
<td>Radii</td>
<td>43</td>
</tr>
<tr>
<td>Steel Institute of New York</td>
<td>9</td>
</tr>
<tr>
<td>Triview</td>
<td>45</td>
</tr>
</tbody>
</table>

Use our completely free products library to connect with these advertisers and many more. Visit library.archpaper.com or call 212.966.0630 for more information.
The "Om Dome" at Pacific High School in California's Santa Cruz Mountains, circa 1969.

May 12, 2013
Penngrove, 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 Penngrove 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 backward on the fingers of one hand. "Same year that [his] girl was born, same year that the Democrats won the White 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 least a future that hadn't been fully digested. The tetrahedral poetics of the geosphere, now black and naked, stripped 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 pillowdome, skinned with Tefzel, an ETFE fluoro-polymer resin made by DuPont.
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.
PROJECT: ALTA LIC TOWERS
LOCATION: QUEENS, NY
ARCHITECTS: STEPHEN B. JACOBS GROUP
PHOTOGRAPHER: IMAGEN SUBLIMINAL

PORCELANOSA® FACADES

1.877.PORSA.US | info@porcelanosa-usa.com | www.porcelanosafacades.com