

Winter 2015

Outlook

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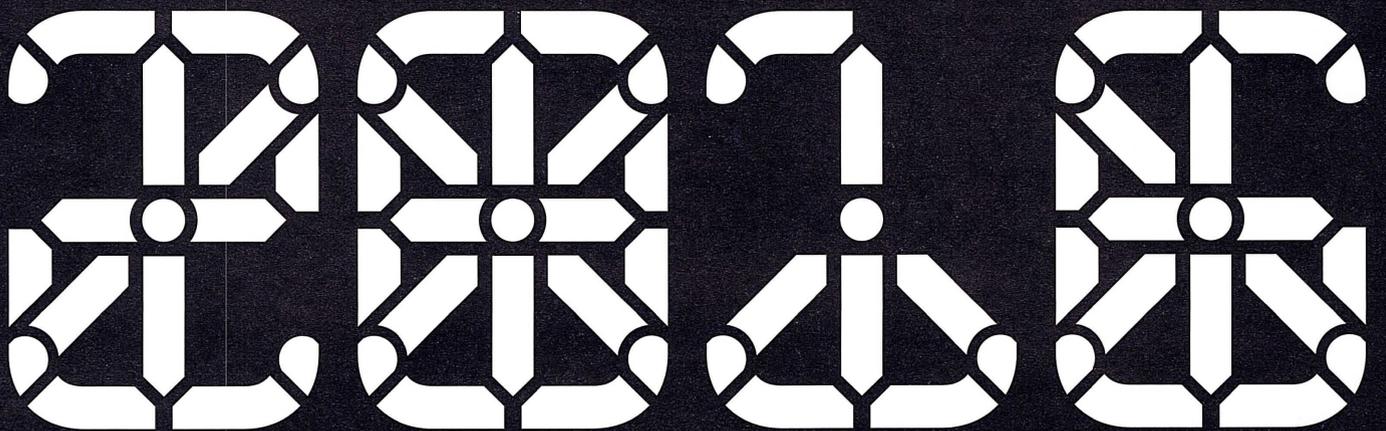
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Farewell – and Onwards

Farewell, AIANY. I spent a year as witness to a dynamic institution that moves of its own accord, fabulously delivering architectural discourse, urban advocacy, and public outreach of the highest order. Though I donated a lot of time, I got the better part of the deal. I have new insights, new visions, new friends, and new optimism for this moment in history. In this design century, our profession will become more expansive and relevant, and help deliver social justice and ecological salvation; technology will be leveraged and alloyed with the principles of humanism. We must rise to the occasion and build diverse coalitions to lead the way.

We must: task our new executive director to elevate the stature of the architect in society, and establish architecture and urbanism as tools for advancing humanity and ecology; rededicate AIANY to providing superior membership services and augmenting our research capabilities; use the Center for Architecture to raise the design intelligence of our citizens; shift power away from AIA National towards the large urban AIA chapters, and let cities set policy and the national agenda; become advocates to shape municipal legislation and regulatory actions that impact our economic viability, and the social and physical character of our metropolis; drive our committees to become think tanks, getting out of the exhibition business and getting into research and white papers; captivate the Millennials and benefit from their ideas, extending membership to all who make productive environments, not just registered architects; and build a new 50,000-square-foot Center for Architecture by 2025.

I want to thank the staff of AIANY and the Center for Architecture for their dedication: Cynthia Kracauer, AIA, LEED AP, and Suzanne Mecs, Hon. AIA NYS, for their heroism during a time of reinvention; David Burney, FAIA, for selflessly responding to the call to lead; our officers (I now call friends) serving on the Executive Committee; an engaged board; and our committees – our lifeblood. I want to thank my partners at Ennead Architects for donating my time – a true act of philanthropy. And, of course, I want to recognize Carol Loewenson, FAIA, my confidant and advisor all year, and the person best suited to lead us. Onwards!

Tomas J. Rossant, AIA
2015 President, AIA New York Chapter



Tomas J. Rossant, AIA, and Carol Loewenson, FAIA, LEED AP

Connecting to the Past, Reaching Out to the Future

Architecture matters. It touches every part of our lives – where and how we live, learn, and work. Indeed, we discuss this fundamental principle in our offices, committees, and professional publications. We are concerned about housing, sustainability, density, and open space, and bring specific topics to our elected officials. But we have not found a way to explain in plain terms the urgency and relevance of these issues.

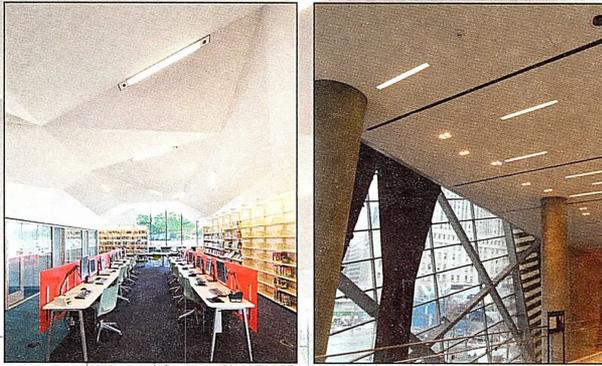
The AIA New York Chapter has more than 5,200 members, and is directly tied to the Center for Architecture, both of which focus on the built environment. We need to strengthen the relationship between these two and communicate beyond the profession to the general public. AIANY should be our think tank, with members acting as thought leaders guiding the Center. Our committees present issues, research, and potential solutions on their particular subjects; the next step is to collaborate even more among ourselves and reach out beyond ourselves to make our case.

My presidential theme for 2016 is “Authenticity and Innovation.” Authenticity – the historical, cultural, and social essence of the built environment – is what gives people a sense of continuity and a connection to the past. Innovation speaks to the future and to creativity, not only in terms of the buildings themselves, but of the activities fostered in and around them. I want to use New York to reflect upon these issues, and to think about how authenticity and innovation together create the foundation for great architecture and great cities. Through a series of dinners, programs, and an exhibition, we will explore specific topics related to this theme.

Thanks to my friend, colleague, and 2015 President Tomas Rossant, AIA, for leading with honor, conviction, and humor. Thanks to my partners at Mitchell/Giurgola Architects for supporting this professional engagement. And, finally, thanks to the AIANY staff and leadership for their extraordinary commitment to our mission. Here’s to 2016. See you at the Center!

Carol Loewenson, FAIA, LEED AP
2016 President, AIA New York Chapter

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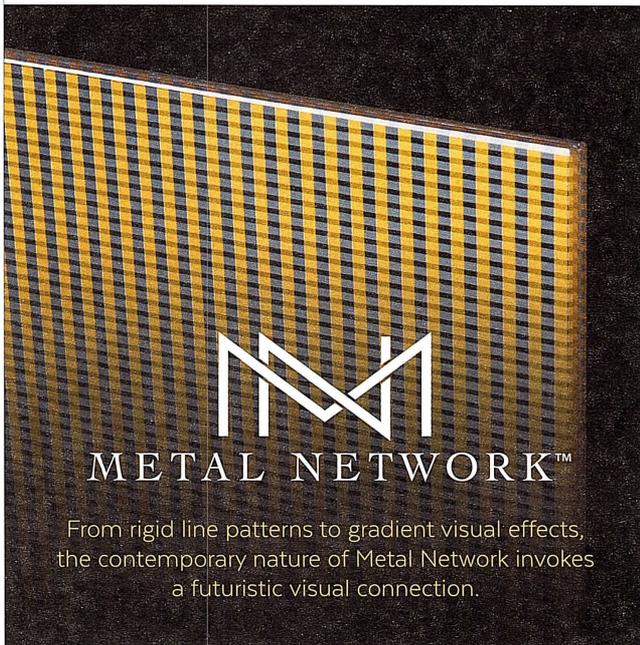


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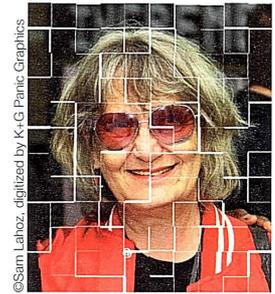
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LETTER FROM THE EDITOR

Letter from a Luddite



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I was tempted to leave the rest of this page blank. Approaching this issue brought out technophobias I didn't know I had. Of course, I know about the digital world and its ever-growing influence on architecture and all things design. I know the names of the programs, apps, and systems, and what they're used for and why. But I didn't understand *how* they work. Not that I really do now, but I know a lot more, and the phobias have retreated. Pulling this issue together put me on a fast-track learning curve, which turned out to be great fun.

We are delighted that Troy Conrad Therrien, curator, Architecture and Digital Initiatives at the Guggenheim Museum, accepted our invitation to pen the Opener. He seemed a natural choice, after overseeing the Guggenheim's "Åzone Futures Market" online exhibition, and the Åzone Terminal currently installed at the Center for Architecture at the Seaport until the end of the year. The academic-corporate incubator The Bridge at Cornell Tech will not only connect students, academics, and infotech businesses, but also help integrate Roosevelt Island into the city. Project Soane has architects worldwide working to restore Soane's legendary Bank of England – virtually. A high-tech approach creates a 21st-century building in SoHo that echoes the neighborhood's 19th-century past with a contemporary twist. A small firm takes matters – and technology – into its own hands for big results. Two takes on how Big Data and technology are reshaping architecture. An architecture firm launches a research arm that uses geospatial and visualization technologies to help human rights groups around the world. And finally, a look at how drawing with digital tools is no less liberating than using pen and ink.

In our regular departments, "One Block Over" gives us a bit of respite from technology overload with a look at how The Battery has rebounded from Superstorm Sandy to become a major waterfront oasis. IBM's 1964 World's Fair pavilion, the focus of "51-Year Watch," showed off the era's cutting-edge computer technology within a gigantic Selectric typewriter ball. And "In Print" cheers a collection of essays by Rybczynski and a "sumptuous" history of the legendary Dakota apartment building, among others.

Once, not long ago, "grasshopper" was an insect that chirps cheerfully on summer nights, "rhino" was an endangered animal, and "rev it" is what the mechanic would tell me to do when he was tuning my car's engine. Now, their namesakes are allowing architects and designers to create marvels only dreamt of, not that long ago.

Kristen Richards, Hon. AIA, Hon. ASLA
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Correction: In the Fall 2015 issue "Home Game," page 28, BanG studio should have been credited for the design of the residential portion of City Point's Tower 1.

Center Highlights



(above) After the Heritage Ball, the celebration continued at the Center for Architecture's Party@theCenter.

(above) AIANY and the Center for Architecture welcomed more than 1,100 AEC professionals to the 2015 Heritage Ball at Chelsea Piers, honoring (l-r) **Adam D. Weinberg**, Director, Whitney Museum of American Art; Deputy Mayor **Alicia Glen**; **David Rockwell**, FAIA, Founder and CEO, Rockwell Group; and **Jed Walentas**, Principal, Two Trees Management Company.



(left) **Billie Tsien**, AIA, Co-founder, **Tod Williams Billie Tsien Architects** (center) was welcomed by AIANY Women in Architecture Committee members and AIANY leadership (l-r) **Yinery Baez-Solis**; **Sandra Benjamin**, AIA, NCARB, LEED AP BD+C; **Jane Smith**, AIA, IIDA, ASID; **Venesa Alicea**, AIA, NOMA, LEED AP; and **Jen Stencel**, AIA, LEED AP, for a breakfast leadership event at the Center.



(left) (l-r): **WEISS/MANFREDI Architecture/Landscape/Urbanism** founders **Michael Manfredi**, FAIA, and **Marion Weiss**, FAIA, were joined by **Julian Zugazogoitia**, Director, Nelson-Atkins Museum of Art, for the October installment of Cocktails & Conversations.



(above) This year's J. Max Bond, Jr. Lecture, "Conversations: Community" by **Phil Freelon**, FAIA, NOMA, Managing and Design Director, Perkins + Will North

Carolina (which acquired the Freelon Group in 2014), focused on design that brings excellence to everyday people.

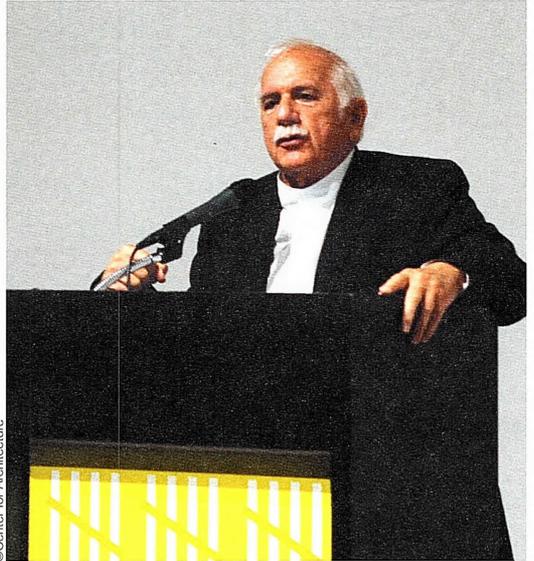
(right) The Best in Competition Award at "Bricks and Beverages: Professionals Build with LEGO Bricks" went to the Ancient Egyptian-style water tower designed by team **Liar Liar Bricks on Fire** **Ethan Wieseltheier** and **Scott Strenger**.





(above) "Designing Affordability: Quicker, Smarter, More Efficient Housing Now," curated by **Marc Norman** and designed by **Bernheimer Architecture**, presents 23 case studies that address ways of reducing costs without compromising design quality, on view at the Center through 01.16.16.

(left) **Larry Sass**, Associate Professor at MIT, puts the final touches on a digitally-fabricated study model built at MIT's Department of Architecture for the exhibition "Designing Affordability."

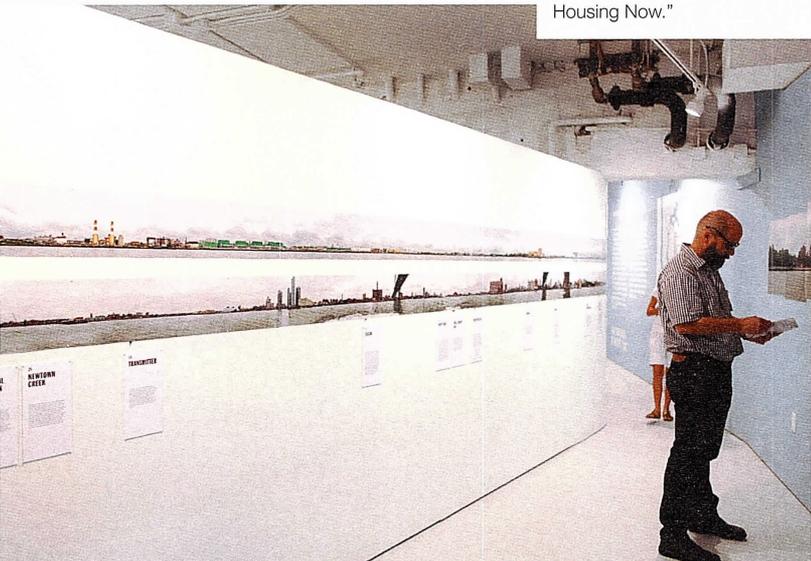


(above) The 2015 Rosenblatt Lecture featured AIA 2015 Gold Medal recipient **Moshe Safdie, FAIA**, who presented his firm's extensive body of museum and cultural work.

(below) Parents and kids "played well" together at the Center's LEGO Family Day, where 100 participants in two sessions built one-of-a-kind structures to create a LEGO city.



(left) NYC Housing Authority Chair and CEO **Shola Olatoye** and **Les Bluestone**, President of Blue Sea Development Company, discussed partnerships for design in a conversation moderated by exhibition curator **Marc Norman** at the symposium for "Designing Affordability: Quicker, Smarter, More Efficient Housing Now."



(above) On view at Center for Architecture at the Seaport, presented as part of the Howard Hughes Corporation's Seaport Culture District, is "Sea Level: Five Boroughs at Water's Edge," an exhibition

with photography by Elizabeth Felicella documenting 25 miles of NYC's waterfront, from Fort Wadsworth to Fort Totten, annotated by celebrated author **Robert Sullivan** (pictured).

(right) The "Sea Level" exhibit at the Center's South Street Seaport space and the nearby Brooklyn Bridge provided inspiration for a Family Day workshop on bridges.



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The Battery and Beyond

Displaced by 9/11 and battered by Superstorm Sandy, it is finally realizing its place as Lower Manhattan's premier waterfront oasis **BY CLAIRE WILSON**

When the 2000 *AIA Guide to New York City* called the former Staten Island Ferry Terminal “the world’s most banal portal to joy,” it might have been referring to all of what was known as Battery Park. Sure, the historic 25-acre swath of Lower Manhattan had great sea breezes and spectacular water views. But it was little more than a confusing network of tree-shaded asphalt paths linking a hodgepodge of unrelated government buildings.

Twenty years after the creation of The Battery Conservancy, the park has a new name – The Battery – to celebrate its renewed status. It is a destination again, as it was when the New York Aquarium, then located in the 1808 Castle Clinton, drew 2.5 million people annually between 1896 and 1941, when Robert Moses shuttered it as part of some grand plan never realized.

It is now a vibrant nature theme park whose gardens and fountains celebrate the built and natural environment. Its latest addition, the SeaGlass Carousel, designed by WXY architecture + urban design, is a nod to the old aquarium, with a pavilion shaped like a chambered nautilus and iridescent fish swirling to music in magical lighting. “It is a relaxing kind of aesthetic that intensifies the reason you go to a park,” says Claire Weisz, FAIA, principal of WXY. “It pulls in views of the park to create a water environment.”

WXY also designed the Bosque Fountains inside the 53,000-square-foot Bosque. It was created by Dutch garden designer Piet Oudolf, whose master plan also includes a bikeway that links bike paths in Hudson River Park and the East River Esplanade, and the Battery Urban Farm, a teaching farm complete with beehives.

Oudolf’s Gardens of Remembrance were the first completed phase of the master plan, which also includes a labyrinth designed by Camino de Paz Labyrinths. Construction begins next year on Playscape, by BSKS Architects and Starr Whitehouse Landscape Architects, which is geared to children.

According to Warrie Price, founder and president of The Battery Conservancy, 9/11 and Superstorm Sandy each set back The Battery’s progress five to 10 years. Repairing storm damage at the Whitehall subway station continues to hinder work; the storm also influenced changes in the approach to park resilience. The Tiffany & Co. Woodland Garden, for instance, designed by Rick Darke, will take 100 years to mature. It is being started from seed and planted for salt-tolerant root structures.

Despite catastrophic setbacks, long-delayed projects at the southern tip of Manhattan seem to be coming together in a way that will enhance how visitors experience The Battery. Pier A, stalled for decades, opened to the public in 2014 as Pier A Harbor House, a waterfront restaurant with marvelous outdoor seating. H3 Hardy Collaboration Architecture was the restoration architect of the 1883 building, which once served as headquarters for the Department of Docks and Ferries and NYFD fireboats.

At the opposite end, the 1909 Battery Maritime Building, now home to the Governors Island Ferry, will soon be The Battery Maritime Hotel. Ismael Leyva Architects designed the addition, with interiors by I@RAVE. In front of the Staten Island Ferry terminal, Peter Minit Plaza was designed by the Department of Parks & Recreation Manhattan Capital Projects, with the whimsical New Amsterdam Plein and Pavilion by Amsterdam-based UNStudio.

Construction fences still dot the landscape, but The Battery’s status as a destination seems to be assured. Some 65,000 people came to ride the SeaGlass Carousel in the first seven weeks of operation, according to Price, making it as popular as the Statue of Liberty and One World Trade Center. She beams, “How thrilling is that?”

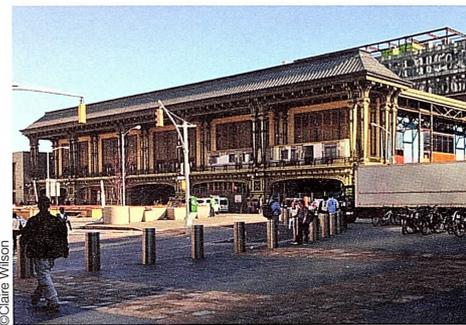
Claire Wilson is a New York-based freelance writer.



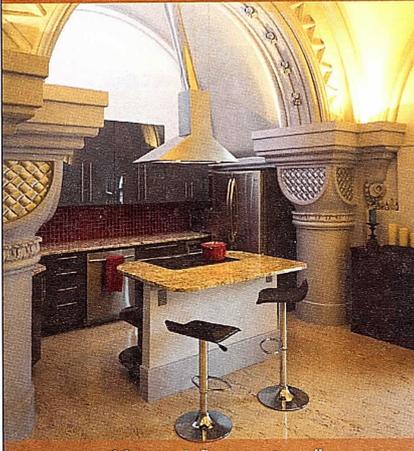
SeaGlass Carousel



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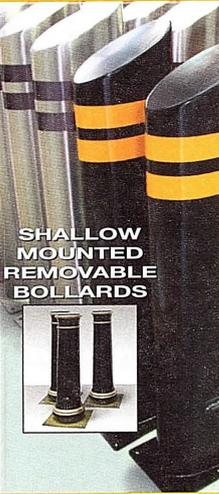
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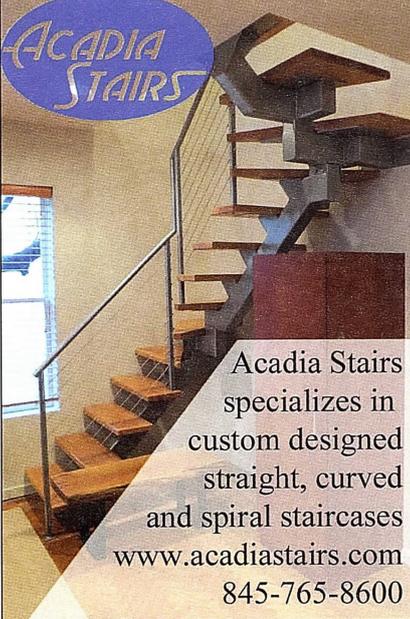
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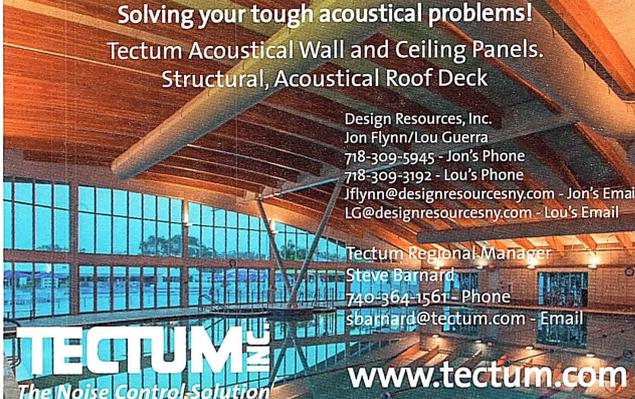
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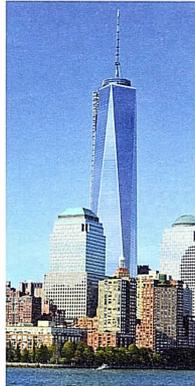
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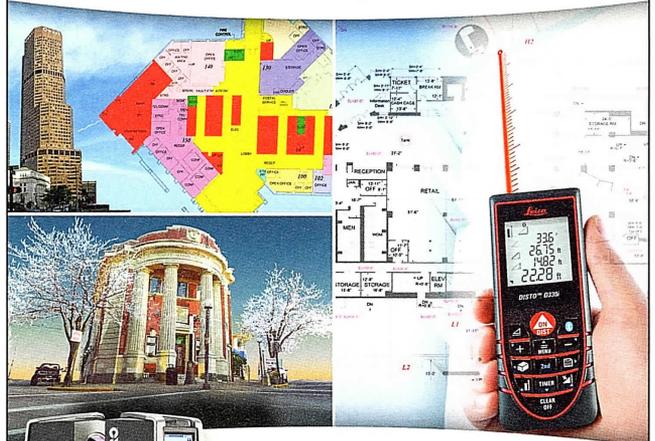
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Practical Attitudes

BY TROY CONRAD THERRIEN

A curious history of architecture theory could be written through the evolution of obsessions with scaling alone. Not simply scale as in drawing to scale or scale models, but in terms of the discursive technologies deployed to argue for architecture to scale beyond merely building. Order, type, method, composition, style, gesamtkunstwerk, function, machine, model, organization, network, environment, index, program, diagram, and icon, to name just the lowest hanging fruits, have all been deployed at different times by different theorists as strategies for submitting the world to architecture. That is to say, for making the whole world the province of the architect while making the worlds inside and around buildings the result of their design. More precisely, then, the obsession is not merely with scale or scales, but with the fundamental scalelessness of architecture. The objective of architectural theory is to assert that architecture cannot be limited. The punch, however, might be that this is precisely what has never been allowed in practice.

By practice I mean the way the discipline is conditioned and codified by ideas, protocols, and documents. Education, internship, licensing, contracting, continuing education, awards, and ethics fix the limits of what an architect should and can do. While they enforce perspectives that have crystallized over time into legislation, the attitudes of educators, patrons, critics, scholars, and other architects likewise police the boundaries of the profession. Despite marginal experiments with prefabrication, megastructures, and flexibility, the types of architecture that are accepted in practice always seem to return to those that are singular and sited. The union of scalelessness in theory and scalability in practice has never been consummated.

This may account for the dismal percentage of the built environment that is designed by architects, an open wound of the profession. Churning out more licensed architects by slightly adjusting the accreditation system could double or triple this number, and that percentage would still be in the single digits. The profession, as such, can only be understood as providing a luxury service – architects are sufficient but not necessary. As a result, it has been spinning its wheels for centuries on producing patrons, spending as much energy on providing existential claims as it does on bringing buildings into existence. As the built environment becomes increasingly computerized, the dynamics of physical space itself will transform, and the present model will require increased efforts to maintain the necessity of architects in its design. If buildings go the way of cars, this already fraught balance will begin to tip into increasingly unstable territory.

If this transformation threatens to snap the profession, one self-preservation strategy would be for it to become more elastic. Attempts in the past have been made to expand the architect imprimatur over all designers and builders of the built environment, but this is, again, just a change in degree rather than kind. Architecture practice since at least Leon Battista Alberti in the 15th century, and increasingly through professionalization, has been epistemologically defined. Those legally allowed to lay claim to the title “architect” are classified by what they know, rather than by what drives them. If the profession were bounded instead by an ethic, its umbrella would stretch much wider, multiplying its advocates, associates, and, thus, influence. Defining the architect ontologically would open up another five centuries of debate, but maybe it’s time for drastic measures.

Troy Conrad Therrien is curator, Architecture and Digital Initiatives, at the Guggenheim Museum. Initially trained as a computer engineer, and later in architectural design, history, and theory, he has held positions as an architect, creative technologist, innovation consultant, and adjunct professor.

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ICE in the River: Cornell Tech's Center of Connectivity

Cornell's new academic-corporate incubator on Roosevelt Island is designed to embrace the ideas/culture/education economy – and help integrate the island into the city

BY BILL MILLARD

Academia has conventionally been a place apart from commerce, structured to keep learning and research free from market pressures. Yet information science, woven into nearly every aspect of daily life, increasingly requires application rather than abstraction. Accordingly, the new Cornell Tech campus turns to a part of New York that's passed through dystopian and utopian phases, bolstering its potential for connectivity while maintaining its distinctness. The Bridge at Cornell Tech, WEISS/MANFREDI Architecture/Landscape/Urbanism's colocation building for incubating infotech businesses close to academic talent, bonds a historically complex site to the economic sector of the future.

From the 1820s through the 1960s, Roosevelt Island was where the city offshored its poverty, illness, insanity, and crime. It hosted institutions: hospitals, prisons, the infamous lunatic asylum. Philip Johnson and John Burgee gave it a Mid-century-Modernist master plan (published in 1969 as *The Island Nobody Knows*), creating a bedroom community of Josep Lluís Sert and John M. Johansen buildings, linked by an ambling Main Street: a walkable, quirky Brutalist district with qualities commanding strong loyalties, especially affordability, despite physical isolation and limited shopping. In recent years, market-rate development has reached the island and altered its demographics. As Roosevelt Island Historical Society President Judith Berdy wrote last spring, it's "a microcosm of New York and the country packed into two miles."

Now the island's southern end is morphing into a campus-centered neighborhood, as Cornell develops a new program combining graduate education, research, and close interaction with industry. Cornell Tech is the official name for an infotech consortium currently operating out of Google's Chelsea headquarters, moving to the island in 2017. The Technion-Israel Institute of Technology serves as an academic partner (the first students receive dual



Cornell/Technion degrees in Connective Media or Health Technology). Blessed with river views and multimodal transport links to Manhattan and Queens, offering proximity without urban immersion, Roosevelt Island is convenient to Silicon Alley, yet isolated enough for its new anchor to cultivate a unique atmosphere.

Integrated urbanism by an all-star team

To reinvent the former Goldwater Hospital site between the Queensboro Bridge and Southpoint Park, Cornell Tech has gathered impressive design/development talent, starting with a master plan by Skidmore, Owings & Merrill and landscaping by James Corner Field Operations. The Bloomberg Center, the campus's first academic building (a mid-rise structure incorporating a public café and terrace along with classrooms and open work spaces), is by Morphosis. WEISS/MANFREDI has designed the seven-story, 200,000-square-foot The Bridge building, developed by Forest City Ratner. Handel Architects and developer Hudson and Related Companies are contributing a 26-story residential building, the world's first high-rise to meet the Passive House energy-performance standard (see *Oculus*, Fall 2015, pg. 33). A fourth building (designer unannounced at press time) will be a Verizon-sponsored hotel and conference center.

All buildings here observe advanced standards for sustainability and climatic resilience. Rooftop photovoltaics on The Bridge and the Bloomberg buildings help the campus aim for Net Zero Energy use, and strategic placement on the island's central ridge line raises The Bridge's main floor well above FEMA's required flood level. The Bridge also features a green roof, which Marion Weiss, FAIA, describes as integral to the parti and thermal performance: "If the landscape of the campus is the most social dimension, our building tries to pull that landscape identity in, up, and through to the very top with the green roof, so that the building's

public identity is legible and tangible, both outside and inside."

"We set out to not build a campus with matching buildings," explains Andrew Winters, Cornell Tech's senior director of capital projects and planning. "The campus should feel like it's part of the city, and cities develop organically. This campus has the chance to fulfill the last step of reintegrating Roosevelt Island into the city, so it will no longer be simply a bedroom community, but integrated into the city's economy." This has been Roosevelt Island's enduring challenge: Winters points out that the Johnson-Burgee master plan called for 20,000 residents, about twice today's population. Add faculty, students, and staff, however – both island residents and commuters – and the island can attain a critical mass in residency, commerce, and civic/scientific/cultural activity.

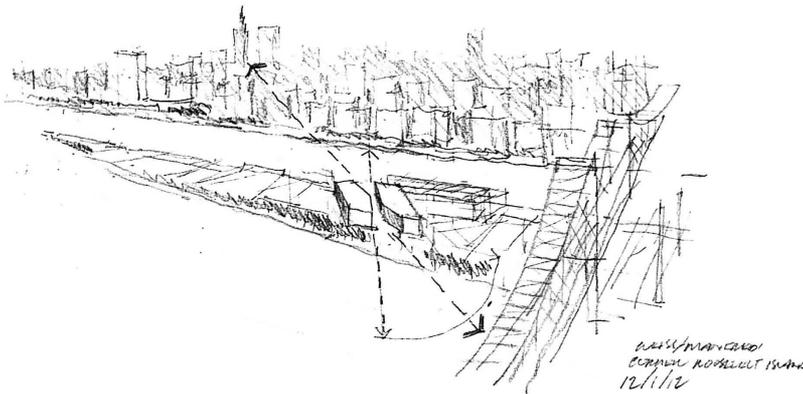
Corner-office turf wars? Not here

Weiss and Michael Manfredi, FAIA, habitually synthesize binary elements: public and private space, buildings and landscape, real and virtual. Their priorities for The Bridge included fostering chance interdisciplinary encounters, maximizing shared space (there are ample meeting rooms, but not a single private office), and optimizing views through crystalline geometries of multiple façades. With east and west volumes sheared apart to create direct Manhattan-to-Queens sightlines, daylight pours in through a wedge of public space, a large atrium, and transparent upper-central connecting floors. Ground-level glazing increases the sense that the campus's Tech Walk park area extends into the center of the building. The architects designed large and column-free floor plates, thanks to a perimeter truss system, and provided generously sized stair and elevator lobbies. "We look for certain inefficiencies," Manfredi says, "precisely because they become programmatic opportunities." It's called The Bridge because "you can look river to river and floor to floor," Weiss says, "amplifying all the opportunities for peripheral engagement of the real world, even though technology tends to engage the virtual. It's the physical brushing of shoulders and conversations that allow innovation to really take hold."

"The core building and the perimeter building are organized in such a way that no one will ever be very far from natural light," Weiss continues. Manfredi adds: "The tendency for environments that are very digitally intensive is actually to welcome natural light. Researchers no longer need dark spaces for screen-viewing. The quality of the technology and the kind of products being

(above) The Bridge at Cornell Tech sports multiple crystalline façades to maximize views.

(below) An early concept sketch illustrates east and west volumes sheared apart to frame views to Manhattan and Queens.



produced and used are such that natural light is not the enemy anymore.” High-performance fritted glass allows ample transparency without excess heat gain, and different glass colors address the needs of central and perimeter areas: water-white low-iron glass for the center, reflective coated glass to mitigate glare at the flanks.

Cornell will lease about a third of The Bridge, with negotiations under way to fill the other two-thirds with smaller firms. “We think we can almost curate the tenants,” says MaryAnne Gilmartin, CEO of Forest City Ratner. “The idea is not to sign one giant tenant to colocate with Cornell, but to bring in smaller users that create diversity.” Metrics for The Bridge’s success, she adds, are unconventional: innovative capacity outweighs the customary search for “strong-credit tenants to finance the building,” which Cornell’s commitment allowed the developer to forgo. “We’re looking for magnets and connectors as opposed to tenants, Gilmartin says. “We don’t even like to use the word *tenants*.”

Construction on the island has special needs. “We’re barging in construction materials,” Gilmartin notes, “based on a commitment we made to reduce truck traffic.” She also looks forward to expanded ferry service, which Mayor Bill de Blasio promised last winter, to ease access. “There would be no greater failing,” Gilmartin continues, “than to build this amazing campus and miss the opportunity to use the ferry.”

Philosophically, Weiss and Manfredi see The Bridge as expressing an institutional paradigm shift.

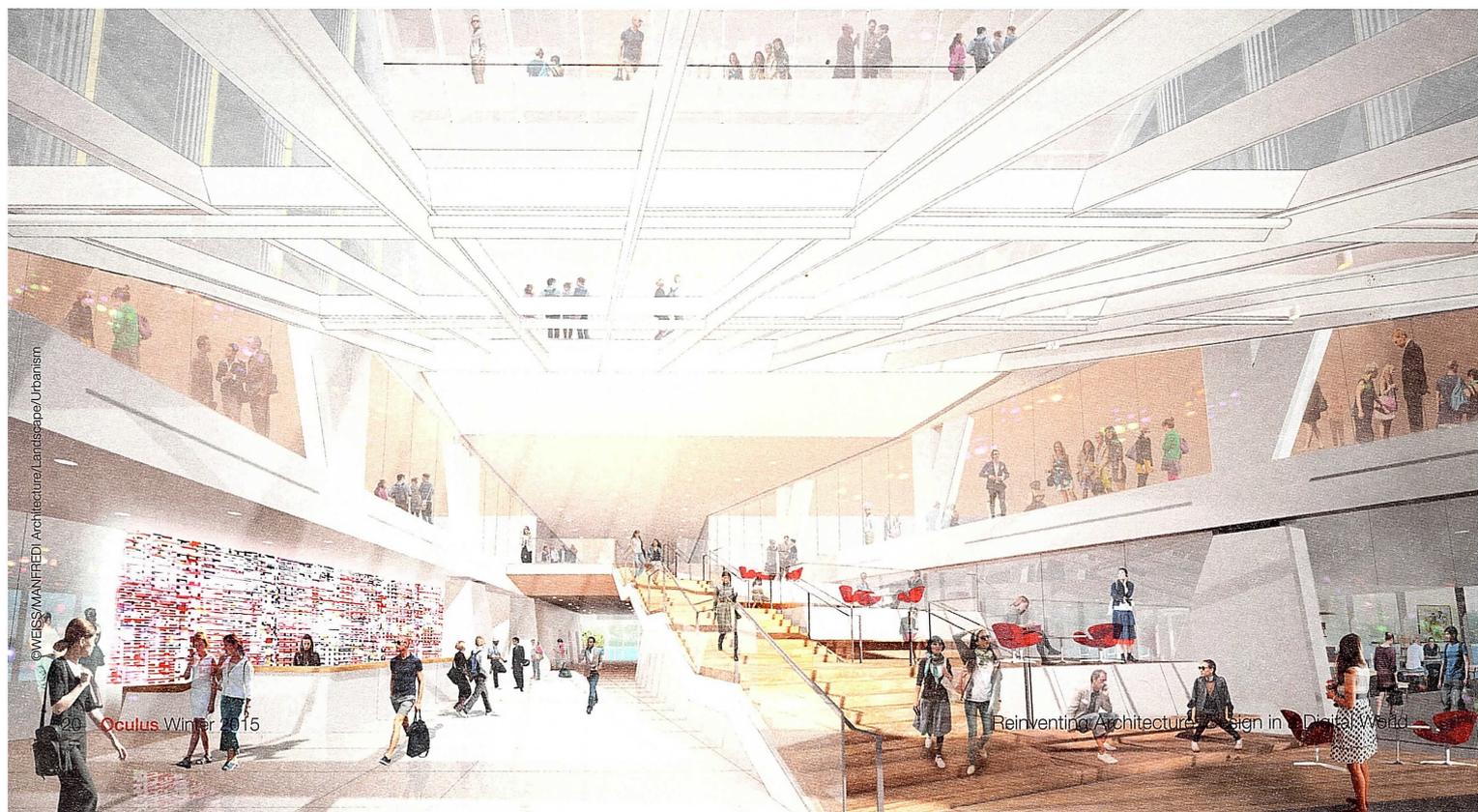
“The academic institution of yesterday,” says Weiss, “studiously turned its back on the business world to protect the creation of foundational academic knowledge. That model is now changing radically” toward collaboration and porosity. Graduate infotech students, adds Manfredi, after mastering their field’s principles, benefit from contact with the entrepreneurial world. “Those relationships are extraordinarily positive, and they shake up the conventions of how one learns and how information gets disseminated,” says Manfredi. “Cornell Tech is saying there’s an opportunity to seal that relationship,” Weiss summarizes. She describes the building as akin to a petri dish accelerating collaboration between academia and industry.

Expanding on Richard Florida’s theory of creative-class urbanism, some see a major investment in ideas, culture, and education (ICE) as a corrective to New York’s overdependence on the risk-prone finance, insurance, and real estate (FIRE) industries. Gilmartin concurs: “I think Roosevelt Island will be catalytic.” As forward-thinking institutions take root, making the island a natural center for the ICE economy, it appears ready to move from peripheral to pivotal. ■

Bill Millard is a freelance writer and editor whose work has appeared in *Oculus*, *Architect*, *Icon*, *Content*, *The Architect’s Newspaper*, *LEAF Review*, *Architectural Record*, and other publications.

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The transparent Tech Gallery is the entrance hub to The Bridge, offering multiple opportunities for interaction between the academic and tech industry occupants.



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Oculus Winter 2015

Reinventing Architecture Design in a Digital World



Restoring – At Least Virtually – One of England’s Greatest Lost Buildings

The worldwide architectural community takes part in 3D modeling of Sir John Soane's legendary Bank of England

BY JANET ADAMS STRONG

(above) The Consol's Transfer Office as built, drawn by Joseph Michael Gandy, with figures added by Antonio van Assen (1799).

It is an experiment that is as exciting as it is unprecedented: Robert A.M. Stern Architects (RAMSA) joined with Hewlett Packard, CASE, NVIDIA, Sir John Soane's Museum in London, Sir John Soane's Museum Foundation in New York, and – significantly – the world at large to recreate, virtually, major portions of the Bank of England, the demolished 18th-century masterwork of one of England's most original architects. Tantamount to bringing an extinct species back to life, the outcome presents the opportunity to experience a lost treasure in all its spatial richness. The project also offers vast potential to advance collaborative architectural practice, scholarship, history, and preservation in ways not yet imagined.

Project Soane was conceived in 2014 when Hewlett Packard (HP) invited RAMSA to put forth one of its projects as the subject of an HP-sponsored renderings competition. RAMSA partner Graham S. Wyatt, AIA, proposed instead the 3D modeling of the Bank of England, followed by a competition for interpretive renderings. Wyatt had come to know the Bank of England as a student in London, where he joined the ranks of architectural cognoscenti inspired by the work of John Soane. Regenerating this mythic building was the realization of a dream.

A master's laboratory

Soane worked on the bank for 45 years (1788–1833) and, gaining the trust of his clients, took greater creative license to study the architecture intensely, tinker with the rules, and devise novel solutions. As the bank grew to finance the Revolutionary and Na-



poleonic Wars, he expanded the building to cover an entire city block, housing a dense labyrinth of banking and trading halls, ceremonial spaces, offices, and even residential quarters. As fireproofing and security were paramount concerns, Soane wrapped the whole in an impenetrable, windowless wall. To illuminate the three-and-a-quarter-acre interior, he introduced courtyards and endlessly inventive techniques for indirect daylighting, both laterally and from above, to create layered, quasi-spiritual spaces in an abstracted form of monumental Classicism that he was developing for the British Empire on the threshold of the industrial era. The Bank of England was Soane's laboratory.

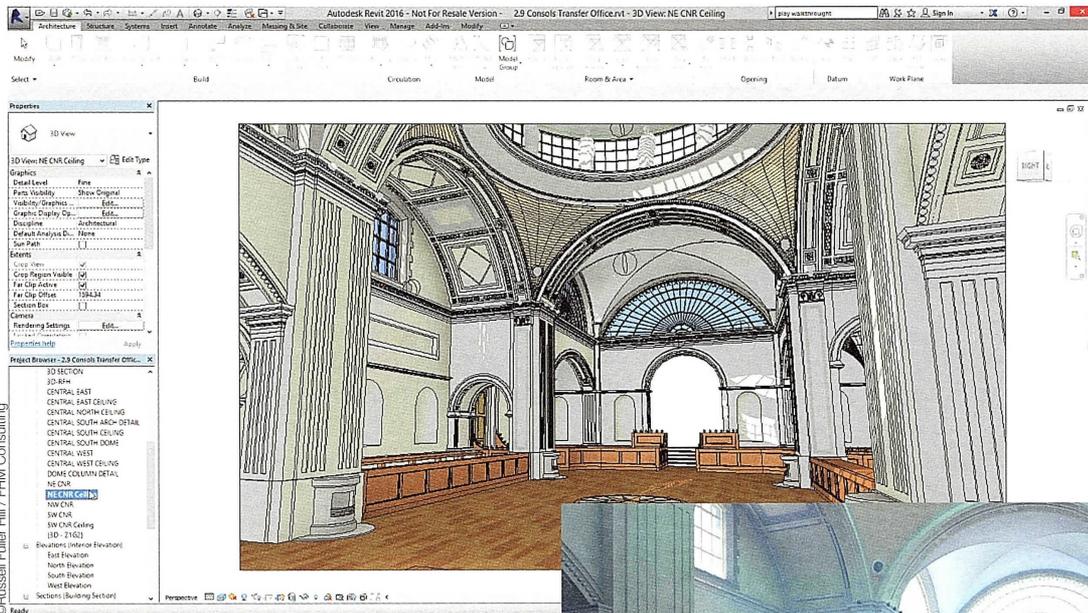
Wyatt had hoped initially to model the entire bank, but uneven documentation at the Soane Museum led to a more realistic focus on two key interiors

and two façades. "I wanted to make sure this didn't end up as an interpretation or 'Soane-lite,' but a faithful representation, truly scholarly in its accuracy," he says. "Doing it properly will set the standard for the future."

To provide renderers the necessary source materials for their visualizations, Wyatt had the innovative, "perhaps crazy" idea of a crowdsourced BIM model based on the historical documentation. Sharing the work with global volunteers made possible what would have been an insurmountable challenge, and opened wide the doors for professional development and collaboration. RAMSA Partner Melissa DelVecchio, AIA, who played a leading role in the project, explained: "We thought Soane's work could inspire a new generation of architects who will now be able to understand it through digital modeling. They could learn about something old in a new way that will help them think about the future."

Wiki-work

CASE, a BIM consultancy that had worked closely with RAMSA on a large residential complex at Yale



(above) Aerial cut-away view of Soane's Bank of England, drawn by Joseph Michael Gandy (1830).

(left and below) Two images of the Consols Transfer Office showing the same view, one a screenshot taken as the modeler works in Revit, and the other a draft rendering, also in Revit.

(opposite page) Draft renderings in Revit as modelers work to fill in the detailing of the room.

"I wanted to make sure this didn't end up as an interpretation or 'Soane-lite,' but a faithful representation, truly scholarly in its accuracy. Doing it properly will set the standard for the future."



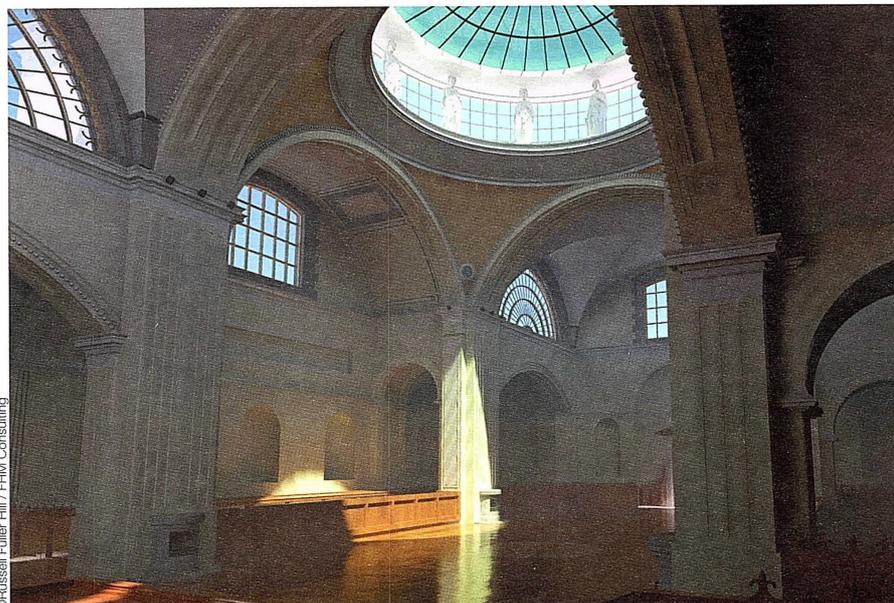
(and is now part of WeWork), helped the architects organize the crowdsourcing effort. Anyone in the world could go to www.ProjectSoane.com, register, and participate in the building of the model. Autodesk 360 was selected as the platform most accessible to most architects. Those less technologically adept took on smaller, simpler portions of the building, while others produced “some of the best modeling I’ve ever seen – incredible stuff,” says Daniel Davis, project manager for CASE, who reviewed the uploaded elements of the model and ensured they came together in a coherent whole. Davis likens the digital structure to Wikipedia since people could download historical documents, model their piece, and then upload it for everyone to see. “No one dictates which part of Wikipedia you should work on. A lot of people work on it collectively, and it becomes a really useful resource. It’s very similar here.”

In total, more than 250 people participated from the U.S., U.K., Australia, Russia, Spain, and other parts of Europe. “We had a lot of faith in Autodesk technology,” explains Sean Young, worldwide manager for product development and AEC at HP, “but we weren’t really sure what to expect from the crowdsourcing. But now it’s proven – the process works. The community is interested in collaborating so, effectively, we have a platform for accomplishing amazing things.”

Upon completion in December, the 3D model will be released to participants in a rendering competition that will launch at Autodesk University. Physically-based real-time rendering technologies from NVIDIA can be used to compute lighting in Soane’s complex environments, accurately calculating the strength and direction of daylight and how it bounces off the bank’s monumental forms and casts shadows. “We use the same technologies now to determine if there’s enough natural light in a proposed interior,” HP’s Young says, “but to use it with architecture from centuries ago is quite amazing.”

The renderings will be judged in May 2016 and displayed in a curated online exhibition. There are also plans to open-source the model for use by academics, researchers, and others. “I think of this project as an interesting prototype,” says Davis of CASE. “Even though architectural practice is global, there are regional differences in how people use software, how they collaborate, and how they’re accustomed to working. We learned a lot about how to set up a project like this and what’s required for success.”

We are on the threshold of a new era of open access information where, working together,



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 Kline (A360)

billions of people and their ideas can be connected and developed. Thomas Kligerman, president of Sir John Soane’s Museum Foundation, reflects on the importance of Project Soane and speculates about its greater potential. “I hope it spreads the word about Soane,” he says. “There’s an enormous amount to learn from him and the way he thought.” Collaborative modeling is “only going to get better as computers become faster and virtual models become more realistic. I hope the crowdsourcing improves Revit, and the programmers make the software more accessible and easier to use. There are so many lost buildings that could be rebuilt virtually and re-experienced.”

Up next, Penn Station? ■

Janet Adams Strong, Ph.D., is an architectural historian and author, and a principal of Strong and Partners communications.

The punched opening masonry proportions on the Spring Street façade dematerialize to reveal a curtain wall that evokes a cast-iron loft building on Broadway.



At the Corner of Past and Present

Rethinking the past with today's tech tools helps architects design a 21st-century structure that alludes to and echoes its 19th-century past **BY SARAH GOODYEAR**

It looked like a scene from a 1940s film noir: Huddling in a third-floor plumbing fixtures showroom in Lower Manhattan, a bunch of people scoped out the buildings across the street, using binoculars to examine every inch of the façades in preparation for a high-stakes job.

But the people casing the SoHo streetscape weren't spies or crooks. They were a design team from the firm BKSK Architects, and they were looking for clues to the aesthetic and structural heritage of a series of historic Spring Street buildings. Their objective: to create a genuinely 21st-century structure worthy of the landmark cast-iron district.

The result is a six-story retail building – currently going up with frontages on Broadway and Spring Street, at the pivotal northwest corner – that synthesizes a deep understanding of 19th-century architectural history with cutting-edge design processes. The 34,000-square-foot structure replaces a two-story building dating to the 1930s, itself a replacement for the Prescott House, a hotel that had been at the site since 1852.

All that historical background played into the BKSK design. The firm's solution, however, was powered by a profoundly modern approach that made creative use of a whole suite of software, including Blender, a video-game and filmmaking tool. The result won approval from the Landmarks Preservation Commission after just one session. Commissioner Fred Bland was unequivocal in his enthusiasm at the time, calling it “a brilliant piece of architecture.”

Most of the Prescott was demolished after the entertainment district moved uptown, leaving once-fashionable Lower Broadway in decline. “Virtually nothing was left,” says Todd Poisson, AIA, BKSK's partner-in-charge of the project. “But the hotel became our inspiration to recreate a six-story building on this corner.”

What remained of the hotel at 99 Spring Street was an 1872 extension that followed the original 1852 design, with punched-masonry windows crowned with elaborate decorative lintels. This remnant is adjacent to 101 Spring Street, home of the Judd Foundation – also built in 1872, but in a radically new style. In

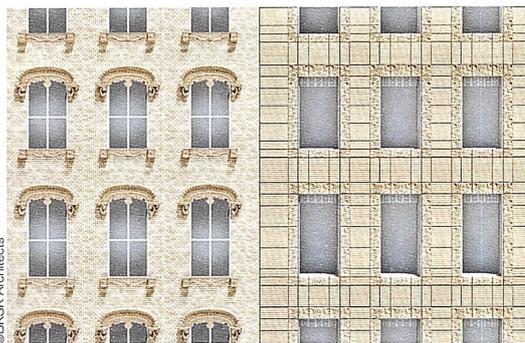


©BKS Architects

101 Spring, the structural advances in cast-iron architecture that occurred during the period were used to full advantage, allowing for large expanses of glazing.

“The quantum leap of technology between 1852 and 1872 was the story to tell,” says Poisson. “That the buildings exist at all was the real treasure.” Today’s cutting-edge technology made it possible for the firm to tell that story in the form of a building that alludes to and echoes the 19th-century past while at the same time embodying an unmistakably modern desire for openness and light. The client, Aurora Capital Associates, wanted a structure that would provide an inviting retail environment at the street level, and 529 Broadway promises to do just that.

In creating the design for the building, the BKS team combed through archival photographs



©BKS Architects

(above) The Prescott House’s cast-iron ornamentation (left), still seen today at the neighboring 99 Spring Street, inspired 529 Broadway’s decorative terra-cotta elements (right).

to document the full range of ornate decorative lintels on the old Prescott Hotel, and then used Blender to digitally translate those motifs into computerized numerical controls, which were used to laser-cut terra-cotta molds for the framing of the new building’s windows. The glazed terra-cotta exterior echoes the historical masonry of the Prescott.

The firm also used software modeling (Rhino and Grasshopper) to incrementally enlarge the openings of the windows across the façade, so that the greatest openness is achieved at the corner. You could think of this new design as a retelling of the story of what happened between 1852 and 1872, encapsulated in one single building.

For BKS, 529 Broadway represents a chance to fully harness the firm’s growing technological capacity to visualize, model, and execute a design with subtleties of dimension and proportion. “For a firm that’s only 50 people, we are able to use tech throughout the design process in as sophisticated a way as many larger firms,” says BKS Partner Julie Nelson, AIA, LEED AP BD+C.

The design process at 529 Broadway isn’t just about new tech tools, though. It was powered by human curiosity and observation – enhanced by a pair of binoculars. ■

Sarah Goodyear writes frequently about cities and the people who live in them. She is a regular contributor to *The Atlantic’s* CityLab.com, and author of a novel, *View from a Burning Bridge*. She lives in Brooklyn.

(above) An open-joint terra-cotta rain screen initially disguises 529 Broadway’s true enclosure: a glass and aluminum curtain wall.

CLIENT: Aurora Capital Associates
 ARCHITECT: BKS Architects
 DESIGN TEAM: Todd Poisson AIA, Harry Kendall AIA, LEED AP BD+C, Eve Szentesi RA, LEED AP BD+C, David Ettinger RA, Harpreet Dhaliwal AIA, LEED AP BD+C, Wil Rodriguez
 PRESERVATION CONSULTANT: Higgins Quasebarth & Partners
 EXTERIOR WALL CONSULTANT: Front Inc.
 STRUCTURAL ENGINEER: Gilsanz Murray Steficek
 GEOTECHNICAL ENGINEER: Bronzino Engineering
 MEP ENGINEERS: SRA Architecture + Engineering (Initial Filing); GEA Consulting Engineers (Tenant PAA)
 CONSTRUCTION MANAGER: Harco Construction

The Design-Fabrication Dynamic

A firm that does both grows from “single space architecture” to Berkshire storytelling

BY JULIA VAN DEN HOUT

It is inevitable that many young architects in New York are fated to spend their first years working on small interiors projects that are too restricted in both space and budget to allow for nuanced narratives or elegant detailing. In many cases, these constraints result in one-liner designs that can be easily communicated in flirtatious renderings and brandable images. But B. Alex Miller and Jeffrey Taylor, RA, both graduates of MIT and partners in Brooklyn-based Taylor & Miller Architecture and Design, look to create a real experience of space rather than a graphic image.

One example of this is the LJ Cross store on Madison Avenue. Behind a narrow storefront, a long white oval recedes, its sleek surface interrupted only by geometrically intricate niches that display wares of the LJ Cross fashion brand. The cocoon-like experience is what Taylor and Miller call “single space architecture.” By sensuously lining the narrow and deep rectangle of space in a continuous ribbon of soft white Corian, they created an instantly immersive and alluring environment, which is enriched as the elaborateness of the receding niches and projecting jewelry cases reveal themselves.

In small projects such as LJ Cross, the firm’s focus lies with tactility of materials through playful patterns and elaborate textures. It is not surprising

that, in addition to their design firm, Taylor and Miller have established a fabrication shop in the Berkshires, and have extensive experience in lighting design. As a result, their single space projects feel intensely human – flaws included – and have none of the glossy sterility that sells well online. The LJ Cross store, at a mere 310 square feet, feels at once protected and a bit claustrophobic.

Their understanding of buildability is particularly visible in projects like the Duke of Montrose Whiskey Bar, with its three-dimensional herringbone pattern created from pine two-by-fours, and the Linger Lounge, where an elaborate chandelier

(clockwise from top right)
The Duke of Montrose Whiskey Bar in Brooklyn sports a three-dimensional herringbone pattern created from pine two-by-fours.

A system of plywood furniture and partitions, which could be endlessly reconfigured, allowed Echoing Green to reuse the system from its 3,200-square-foot space in a new 7,500-square-foot office.

A continuous ribbon of soft white Corian lines the diminutive 300-square-foot LJ Cross store, creating an immersive and alluring environment.



The Lake House is a rectilinear wooden box punctured by horizontal volumes that frame lake views, and by vertical towers that bring in natural light.

LJ Cross

TAYLOR & MILLER DESIGN TEAM:
B. Alex Miller, Jeffrey Taylor, RA
LIGHTING:
Taylor and Miller Light
CORIAN FABRICATOR:
Henry Portillo
GENERAL CONTRACTOR:
CNS Construction

Echoing Green

TAYLOR & MILLER DESIGN TEAM:
B. Alex Miller, Jeffrey Taylor, RA
LIGHTING:
Taylor and Miller Light
MILLWORK & WORKSTATION FABRICATOR:
Taylor and Miller Fabrications
GENERAL CONTRACTOR:
Danny Acevedo with the Kaufman Organization

Lake House

TAYLOR & MILLER DESIGN TEAM:
B. Alex Miller, Jeffrey Taylor, RA
LIGHTING:
Taylor and Miller Light
GENERAL CONTRACTOR:
Taylor and Miller Fabrications



©Studio Dubuisson

of steel pipe and tension cables covers the ceiling. In both of these Brooklyn projects, the duo did much of the fabrication and lighting themselves.

In 2014, the firm completed an office design for Echoing Green, a non-profit that funds projects for social change. The rapidly growing company asked Taylor & Miller to design a system of office furniture and partitions for their current 3,200-square-foot space, but asked for sufficient flexibility to reuse the system for a planned move in two years. The architects designed a system based around plywood boxes, which could be endlessly reconfigured like LEGO blocks. Taylor & Miller successfully fulfilled its client’s brief: now, in the new office on Seventh Avenue, the stacked plywood boxes look like they were designed specifically for the space.

The design for Echoing Green – perhaps more than any of their other projects – reflects an ethos of “makers as much as designers.” Design and fabrication went hand in hand from the earliest design stages. But the new Echoing Green space can’t quite be considered “single space architecture” anymore. At 7,500 square feet, the office is instead caught in an awkward in-between phase; it has enough square footage to want more than a single material texture, but is still haunted by the restrictions of building within a limited budget and a confined space in Manhattan.

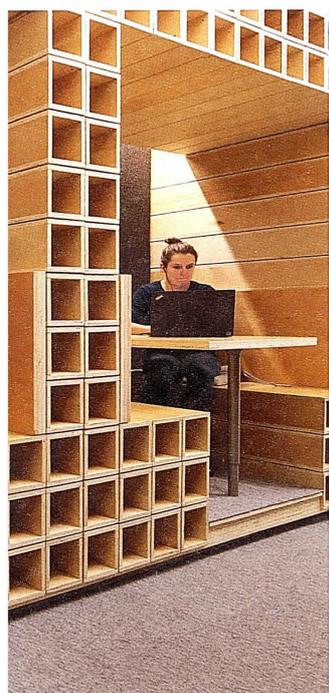
Over the years Taylor and Miller have worked on several larger projects outside New York. In the newly completed Lake House in western Massachusetts, the duo’s interest in materiality and fabrication can be experienced with more variation in a sequential narrative. The 1,670-square-foot house is composed of a rectilinear wooden

box punctured by horizontal volumes that reach towards the adjacent lake to frame views, and by vertical towers that extend up to the sky and bring in natural light. Thinking of a dollhouse in section, where each room has a different character, Taylor & Miller defined each vertical volume through a distinct use of material: stacked plywood lines the entry space, hot-rolled steel is used throughout the kitchen, and rusted steel gives warmth to the stairwell to the second floor. The horizontal spaces that flow between these volumes are neutral white, heightening the experience of these sudden bursts of intense materiality.

“We like an almost quasi-Victorian spatial change from one room to the next. We would be anti-Miesian if we could be,” says Miller. “You walk into an entry space defined by a materially explicit metaphor, then you move to the next space and it’s completely different, like a hard cut in cinema.”

In a project like Lake House, Taylor & Miller’s fabrication capabilities are more subdued than in the firm’s smaller work. Rather than creating a new texture through the multiplication or mutation of a single material, the firm allows the beauty and simplicity of materials to tell an enticing story that draws you through the space. As the firm moves into bigger projects, its challenge will be to find the balance between the desire and impressive ability to fabricate and the creation of a spatial experience. ■

Julia van den Hout is founder of the editorial and curatorial office, Original Copy, and editor of *CLOG*, a quarterly architecture publication that provides a platform for discussion of one topic at a time.



How Big Data is Reshaping Architecture

The “Internet of Things” is well-suited to be the app for architecture

BY JOHN GENDALL

When French director Jacques Tati imagined the future of Modernist architecture for his 1958 film *Mon Oncle*, the house he designed and built for the set came embedded with technologies that seemed to bring the house itself to life. Lights flashed when a steak was ready to be flipped. Buzzers would sound for any number of reasons. And an automatic garage door – then, a novelty – would knowingly welcome the family’s car as it moved up the driveway.

Though the villa was meant to be open and flexible – *tout communiqué!* as Madame Arpel would repeatedly say – it ended up determining much of the family’s behavior, forcing them to respond to the house’s prompts. This sense of entrapment takes a literal turn when the husband and wife get trapped in the garage by that automatic door meant to make modern life more convenient.

Nearly 60 years later, what was once a cinematic parody has become something of a reality. Technologies embedded in architecture – often silently, invisibly, and immersively – have begun to reshape some of the fundamentals of architecture.

By the very fact that it is made with things – walls, doors, windows, stairs, corridors, etc. – architecture has always conditioned human behavior in such a way that the world becomes understandable through a building itself. To turn the key on an apartment door, or to fire up the heater of a weekend house, or to open a window when it gets warm, or to close it when it gets loud outside, is to respond to the environment in a directly haptic way, mediated through architectural elements. Increasingly, though, architecture is being made not only with things, but also with products known as the “Internet of Things” – those physical objects linked to a network and able to transmit data.

Look mom, no hands

Take the August Smart Lock, for example. Designed by Fuseproject CEO Yves Béhar, the device stands to do away with the metal keys that tumble around in pockets and bags, and so often get misplaced. Though there is a tangible object – a discreet aluminum cylinder that works with standard deadbolts – the project transforms the physical experience of handling keys and opening doors into a digital process invisibly carried out through networks. Using a phone-based app, users can control access to locked spaces, whether it’s a matter of opening the door for a house cleaner or dog walker, or letting out-of-town guests come and go as they please. Most transformatively, because the system is linked with a phone’s network, including its place-based data, doors can be made to automatically unlock when an authorized user approaches.

The lock is just the beginning. Fuseproject designed August to work with HomeKit, Apple’s family of “smart” home products. With these, elements of domestic architecture become controlled by preprogrammed settings and external data sets. Individual preferences like wake-up times can induce changes in lighting levels, HVAC settings, and appliances, closely orchestrated throughout a 24-hour cycle. Even variables not directly controlled by a user – a change of weather, for example – can prompt windows to close and external shades to retract based on those external stimuli.

Technologies embedded in architecture – often silently, invisibly, and immersively – have begun to reshape some of the fundamentals of architecture.

(left) The August Smart Lock, designed by Yves Béhar of Fuseproject, uses a phone-based app to control access to locked spaces.





When, in 1938, the German philosopher Walter Benjamin considered the telephone's impact on the architecture of the house, he spoke of the "devastation it once wreaked in family circles," and that it had displaced architectural features like the "chandelier, fire screen, potted palm, console table, and alcove balustrade" from their places of prominence. Now, as architecture becomes increasingly linked to data sets and apps, the phone has become less a physical intrusion into private space and more an intrinsic necessity in making buildings work.

Patterns from footprints

All of this has been made possible by Big Data, the vast troves of information generated as a byproduct of contemporary life awash in digital sensors and transmitters. Meteorological data, personal movement, Internet search histories, and phone calls all produce electronic footprints that can predict how architecture and urban space will be used, and how to modify it to render it more responsive.

"Smart home" technology has been around for decades, but its penetration has been limited by clumsy interfaces, mismatched data protocols, and cost – barriers that may be dissolving just as fears of invasive use of all that data being collected grow. (Can a spurned lover hack my car, a burglar my home?) Big Data's boundlessness allows it to scale to different levels of magnitude, affecting both discrete units of architecture, as it does with products like Apple's HomeKit, and entire urban

and regional systems. At Hudson Yards, for example, NYU's Center for Urban Science + Progress (CUSP) is setting out to create the first quantified urban community. With an eye toward maximizing efficiency, CUSP will monitor metrics like energy consumption, air quality, traffic, etc., allowing the community's developers, Related Companies and Oxford Properties Group, to make Hudson Yards responsive to unanticipated inefficiencies or environmental setbacks. This emerging approach calls into question the entire time horizon of the design process, where post-occupancy analysis is less a discrete assessment of a building's performance over a given period, and more a constant awareness of exactly how a project stacks up against the realities of data over the course of a building's life.

So, across scales, from the individual doorknob to the pedestrian traffic of a multibillion-dollar urban development, Big Data and digital networks have reshaped some of architecture's most basic roles. Like the move toward ecological efficiency before it, where architects have had to grapple with how best to render buildings more efficient without simply slathering on photovoltaic panels and energy-efficient light bulbs, the next challenge will be to integrate these emerging digital technologies without relinquishing the role of the architect to the app developer. ■

John Gendall is a New York-based architecture critic and a visiting professor at Pratt Institute.

CUSP's Urban Observatory uses astronomical tools to study cities. At left is a photo of Midtown Manhattan; at right is the same view with the light sources extracted. This technology helps CUSP learn about a city's energy consumption and efficiency, and the environmental impact of energy use. It is being considered for integration into the Hudson Yards Quantified Community.



Architecture at the Digital Edge

Technology is both transforming and becoming part of architectural design

BY ELI KUSLANSKY

Whether you imagine the digital edge of architecture to be a razor-thin or a wide amorphous boundary between the physical and virtual worlds, there is no doubt that digital technologies have changed architecture forever. In the mid-1970s, architects started using digital tools predominantly for computer-aided drafting. Forty-five years later, digital technologies are the primary means that architects use for creating whole new languages of spatial design.

The digital edge of architecture is now a transitive verb in the design language of the built environment, acting as a grand “connector” eliminating boundaries between language, space, orientation, and time. Buildings enhanced with digital technology help people curate their journeys by intelligently tagging space with relevant and timely information. Social media, another factor, is influencing architectural design, where knowledge and data about a building and people’s activities are not only stored, but also shared, distributed, and visualized in novel actionable ways.

Integrating media into the built environment

A case in point is the new Arizona Center for Law and Society (ACLS) at Arizona State University (ASU) in Phoenix. As the public perception of the legal system evolves, law schools are struggling with decreasing enrollments and fewer job prospects for graduates. At the ASU Sandra Day O’Connor College of

Law, scheduled to open in 2016, Dean Douglas Sylvester had a bold vision – reinvent the traditional law school experience with a new modern facility designed with an openness aimed at celebrating the convergence of law and society. Through the seamless integration of innovative technology, the building’s design aspires to facilitate interaction between students, faculty, the downtown community, and Phoenix’s legal and criminal justice system.

This new six-story, 260,000-square-foot complex, designed by Ennead Architects, used a parallel design process to fulfill Dean Sylvester’s vision by bringing in Unified Field to develop the interactive media and content strategy in tandem with the architectural design. Unified Field came up with a flexible and responsive platform called the Pulse.

The Pulse paints a real-time, dynamic, interactive picture of the user community as it moves through the building. It is accessed through a mobile app, interactive media walls, and large-scale outdoor displays, and tied together with an RFID tagging system and strategically-placed proximity sensors. These components constitute a digital wayfinding knowledge mapping system that will offer real value to users.

The Pulse sends content to mobile devices to update schedules, guide navigation, and link people together filtered by their profiles. The Pulse is fed by sources such as expert profiles,

(opposite page) A concept sketch for the Pulse media platform in the lobby of Ennead Architects' Sandra Day O'Connor School of Law at Arizona State University.

speakers' bios, locations, newsfeeds, and analytics that can then be outputted as visualizations, push notifications, and curated content. The Pulse is designed to facilitate collaboration between professors, students, centers, and departments.

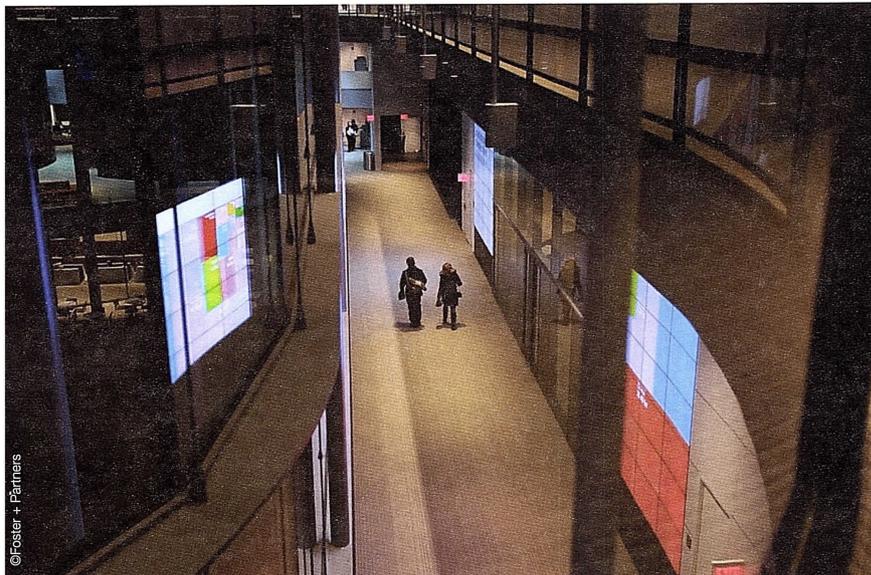
This first-of-its-kind platform will promote the school, increase enrollment, and raise the school's profile in the ratings – and develop a culture, process, and pipeline for innovation for the law school.

Another example of an integrated digital media architecture project is the Foster + Partners-designed Edward P. Evans Hall, the new home of the Yale School of Management. In it a narrow cast network displays real-time information such as school-wide agendas, class and conference schedules, and photography by students, staff, and guests. The data visualization on the three-level, floor-to-ceiling media installation currently addresses topics related to the theme of "Business, Society, and Leadership in an Increasingly Complex World." The media displays dynamic graphic visualizations of social and economic data and offers shifting perspectives on global trends in a wide variety of comparative scales.

Transformative technologies

We are on an edge of even more transformative technologies. Legible Cities, machine learning, big data, smart materials, sensor arrays, the quantifiable self, and the "Internet of Things" are just a few of the technology trends fueling the convergence of the digital and physical worlds. Mapping the terrain of transformative technologies and their impact on architecture is a fun but futile game. Re-

(below) Nighttime view of the second floor corridor in the Yale School of Management showing a pair of large-scale, real-time data displays flanking a conference room entrance.

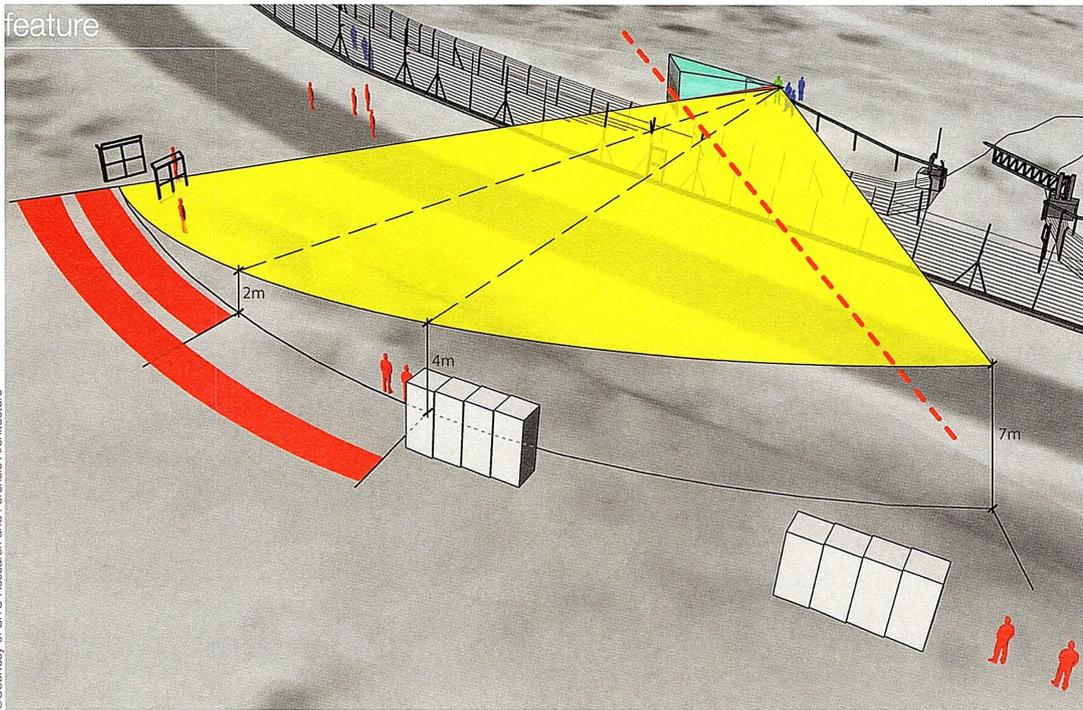


(above) The real-time media installation in the Foster + Partners-designed Yale School of Management.

searchers, software and media designers, engineers, and architects are percolating new advanced technologies, materials, and generative design tools. In 40 years, computers will be a million times more powerful – though we do not have the faculty for understanding what that means.

Countless questions emerge related to the long-term impacts of transformative technologies and new ways of interacting with space. What are the impacts of generative design where software decides how to iterate? Does BIM lead to structurally-responsive and changeable buildings? If a building has a sensor net, who owns the data and how do we handle privacy concerns? As we continue our practices and push the frontier of convergence, we will continue to create responses to the questions of architecture at the digital edge. ■

Eli Kuslansky is a partner and chief strategist of Unified Field, a creative innovation firm that consults, designs, and produces forward-looking media solutions for healthcare, cultural, educational, and corporate organizations. Previously, he was director of technology and interactive experience design at Ralph Appelbaum Associates.



©Courtesy of SITU Research and Forensic Architecture

In April 2010, SITU Research collaborated with Forensic Architecture on a report investigating the death of Bassem Abu-Rahma, a Palestinian man killed during a peaceful protest in the West Bank village of Bil'in. A spatial analysis included this 3D virtual model reconstruction of the scene at the moment of the shooting.

3D for the Defense

An architecture firm's research arm empowers human rights activism through spatial analysis

BY JONATHAN LERNER

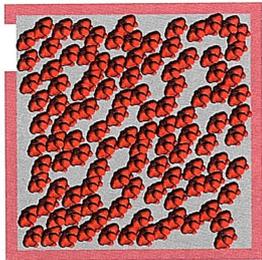
If architecture is about creating beautiful spaces, SPEA can do so only in a metaphysical and paradoxical way, by helping to redress injustice. This kind of work "in its highest ambitions, is a form of accountability."

Architecture would seem to have little to do with global human rights work. Yet SITU Research, a branch of Brooklyn-based SITU Studio, is undertaking a project called Spatial Practice as Evidence and Advocacy (SPEA) with just that in mind. Supported by the John D. and Catherine T. MacArthur Foundation and the Oak Foundation, SITU will apply the technologies of geospatial analysis and visualization to help human rights groups in their fact-finding, legal work, and advocacy campaigns. "It's very much at the perimeter of traditional architectural practice," explains Bradley Samuels, a SITU partner. If architecture is about creating beautiful spaces, SPEA can do so only in a metaphysical and paradoxical way, by helping to redress injustice. Its tools "are the same ones we use in our design projects," he says. "It's just that the human rights organizations haven't necessarily integrated these capabilities in-house."

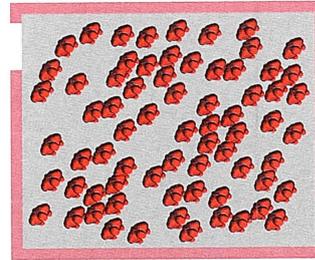
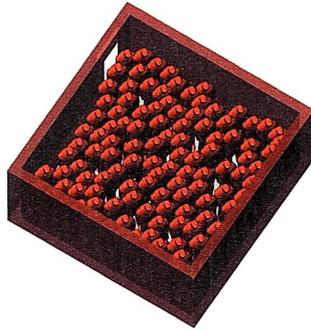
SPEA's first project is in aid of attorneys representing the families of 49 participants in the Maidan protests in Kiev, Ukraine, who were killed on February 20, 2014. "There's a lot of video content taken that day, documenting the same few hours from many different vantages," Samuels says. SPEA's role is "synthesizing all the spatial information that can help us understand what happened," not only the sequence of events, but also precisely where they occurred. It was "a well-organized protest in a dense urban context, so understanding the spatial realities of the site is a big part" of helping construct a legal case to hold the perpetrators responsible. In a courtroom, he points out, objective and quantifiable information can count.

SPEA is not SITU Research's first human rights venture. The firm collaborated between 2010 and 2013 in a European Research Council project called Forensic Architecture – a title that in its startling juxtaposition of normally unrelated terms quickly indicates that disciplinary boundaries are being crossed. One investigation produced visuals to accompany a Human Rights Watch report on a crowded prison in Syria. Using Grasshopper software, SITU, says its website, "developed a dynamic 3D model with adjustable parameters reflecting the dimensions of the detention cell, the number of prisoners to be retained inside the cell, the area occupied by one prisoner inside the cell, the distance

In July 2012, Human Rights Watch released a report documenting more than 200 witness accounts of torture in Syria. SITU Research worked with Forensic Architecture to develop a parametric model of the overcrowded prison cells in Damascus and Idlib for the report, "Syria: Torture Centers Revealed." A standard often used by the Council of Europe's Committee of the Prevention of Torture is a maximum of five detainees in a 4-by-5-meter cell.



Common Syrian Cell:
4m x 4m with 70 people inside



Cell: 3m x 4m with 60 people inside



©Courtesy of SITU Research and Forensic Architecture

between prisoners and the walls of the cell," and other such measurements. Samuels says the model allows one to "look at that detention site very easily and compare it to the UN's standards for detention of people in this amount of space. It's a simple but effective way of translating the information."

Other projects SITU conducted with Forensic Architecture examined drone strikes, about which official government information is typically opaque, to document and clarify their damage patterns, including civilian casualties. Work for the Israeli NGO B'Tselem and attorney Michael Sfar was prompted by the death of Bassem Abu-Rahma, a Palestinian man hit in the chest by a tear gas canister during a protest in the West Bank. The canisters are meant to be fired up into the air, not at demonstrators. In this and similar cases, the Israeli Defense Force claimed the man was struck when the canister accidentally ricocheted off a fence. SITU modeled canister trajectories and velocities as "a way of looking at a range of possibilities and documenting them," Samuels says. Their work disproved the Israeli Defense Force's scenario, prompting a judge to order an investigation. This kind of work "in its highest ambitions, is a form of accountability," Samuels says.

SPEA's work will be "in substance very similar" to what SITU undertook with Forensic Architecture. But it may enter new territory with another inquiry, in collaboration with the Human Rights Clinic at Columbia Law School, into landscape damage and health impacts on the indigenous population in a remote area of Papua New Guinea, where a gold mine has been operating.

Is such work architecture? It uses, Samuels says, the same "tools and ways of understanding space." He also describes a different, and unexpected, similarity to conventional practice, akin to "coordinating trades and dealing with the complexities of built projects." One investigation, for example, needed to reconstruct the trajectory of a boat that had drifted for two weeks. Samuels recalls, "We thought, *Who knows how to do that? Who can we work with? We had to get in touch with an oceanographer.*" These forensic projects are necessarily collaborative and interdisciplinary, involving filmmakers, artists, writers, anthropologists, geospatial experts, mapping experts, and others who focus on

data visualization. "It's a continuum," says Samuels. "The tools we use distinguish what we do a bit, but a lot of people work with applications of technology for human rights. It's gaining traction."

For now SPEA is a small part of SITU's work. The firm does design, materials research, and fabrication, as well as other applications of geospatial technology. Its work tends toward the theoretical and speculative, and is frequently expressed in the form of temporary installations. But these human rights projects are concerned with the tangible, gritty realities of political and military conflict. They are, says Samuels, "very empowering for us as a practice." ■

Jonathan Lerner's articles have appeared in *Landscape Architecture*, *Metropolis*, *Pacific Standard*, *Modern*, and many other design and mainstream magazines. He also heads the consultancy UrbanistCommunications.com.

Thinking Beyond the Flat Page

The digital line-morphs in ways that were not possible with ink, vastly expanding our design capabilities

BY BABAK BRYAN, AIA, LEED AP, AND HENRY GROSMAN

Drawing was once easy to identify. There was a stylus making a mark, and a tool to guide it. Not so long ago, the Mayline was the standard at every draftsman's desk, an essential tool to ensure that lines remained straight and parallel. Of course, lines need not be straight, and these days (thanks to the computer) they often aren't. The weighted drafting ducks used in ship design and the sandbox rail sweeps used in early automotive design are the mechanical progenitors of spline-based software found in offices today. The tools have evolved and the lines they produce have evolved with them, but the practice of drawing a line in space with a mouse or a script is not fundamentally different from drawing one with a pencil.

To understand the way drawing operates in a contemporary practice, one needs to take a more expansive view of the term than is typically used. We believe that in recent years, drawing has not become less relevant, but rather less easy to identify, because it has been defined largely in terms of arbitrary distinctions between tools, rather than by a critical understanding of a fundamental design practice.

Since the proliferation of the graphical user interface in the early 1980s, drawing has often been defined by metaphor. Early digital design software consciously tried to reproduce the user experience of manual drafting. As sophisticated tools from the film and automotive industries made their way into architecture schools and then into offices, a second

dominant metaphor emerged: digital modeling. Many offices today distinguish between "drafting" in software such as AutoCAD, and "modeling" in software such as Rhino, Maya, or FormZ. Unlike drafting software, modeling software rarely seeks to replicate the tools or experience of working with physical materials. The distinction between drawing and modeling is largely rooted in the notion that drawing operates in two dimensions and modeling in three. But would your drawing cease to be a drawing if your pen were freed from the flat page? We don't think so.

What makes drawing drawing is how the architect thinks while doing it. Drawings uncover

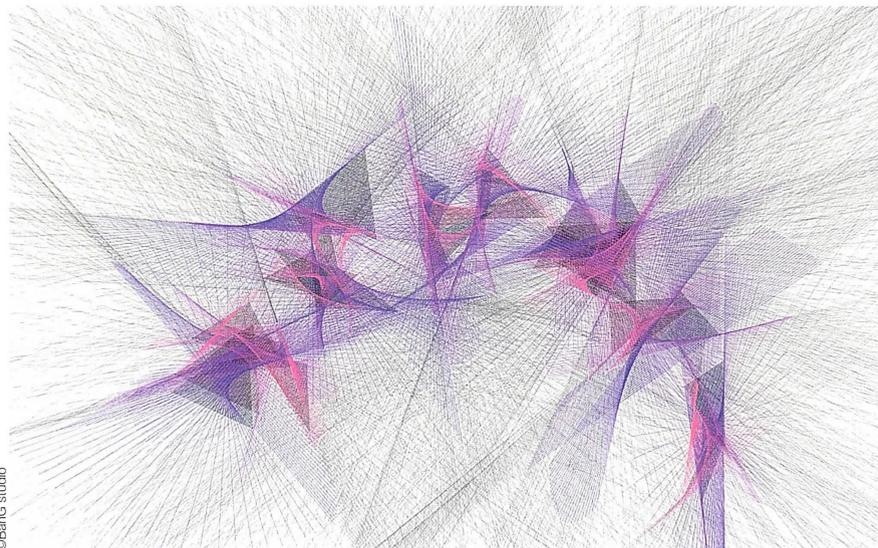
(above) The Billion Oyster Pavilion installed on Governors Island.

(below) Tumbled Weave: study for the material effect of the canopy of the Billion Oyster Pavilion.

Billion Oyster Pavilion
CLIENT: FIGMENT City of Dreams, ENYA, AIANY, SEAoNY

BANG STUDIO TEAM:
Babak Bryan, AIA, LEED AP, Henry Grosman, Suzie Betts; with Machine Shop 8 and The Harbor School

STRUCTURAL ENGINEER:
Robert Silman Associates



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relationships, interrogate assumptions, and test processes. They are more than just representations of what something will look like; they are explorations of how it will come to be and what it will be like. We describe the act of drawing as “finding” a design, and it is central to our process. The lack of Borco on our desks, ink stains on our sleeves, and bowties around our necks often makes this hard to explain, but we do not think our relationship to drawing different than past generations. We draw to help us design things we couldn’t imagine before we sat down to draw: things we find only through the act of drawing. It is why architects have always drawn. We just use different tools, and these tools often yield different results.

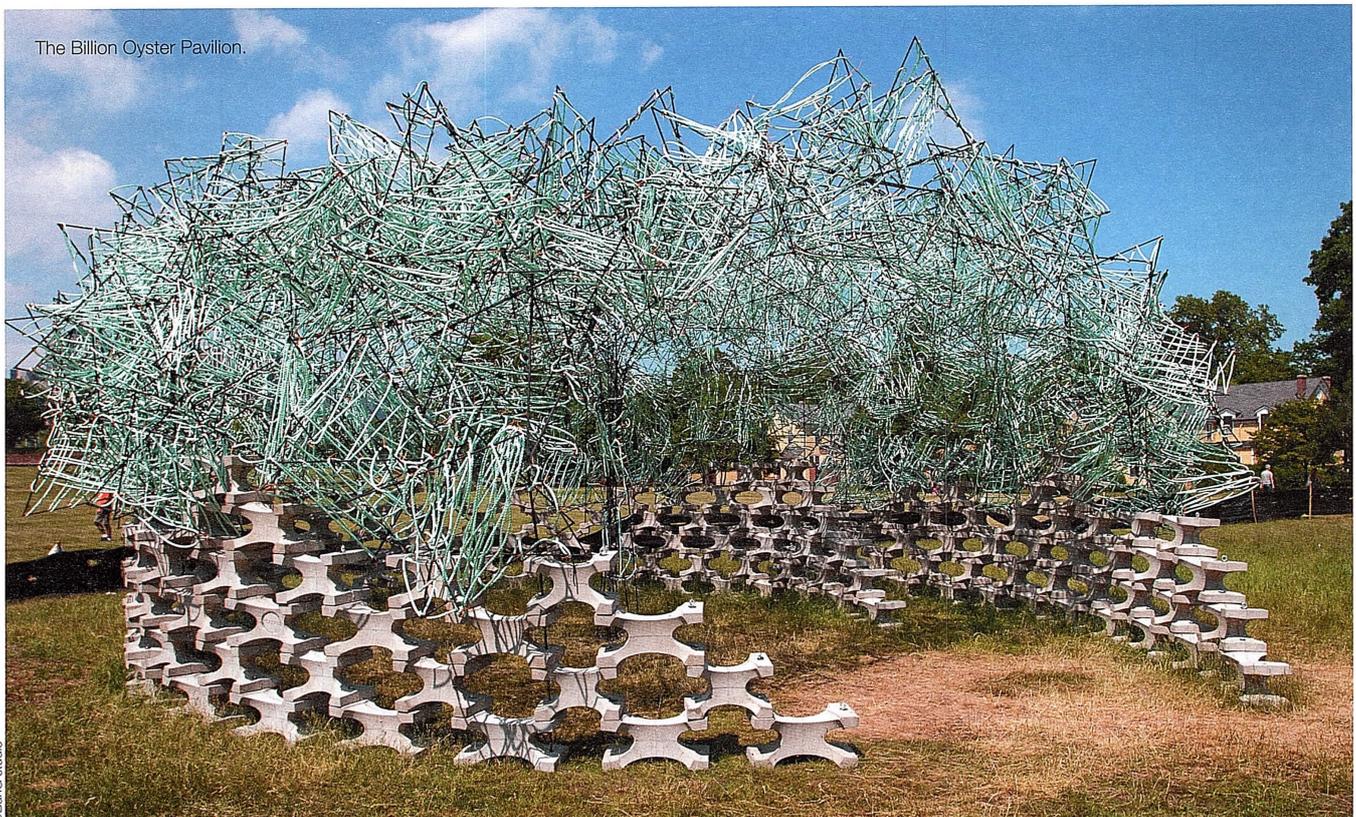
The currency of drawing is the line. Sometimes our lines are drawn with pens, sometimes with “drawing software,” and sometimes with “modeling software.” Increasingly our lines are scripted using tools such as Grasshopper or languages like Processing. They are almost always in three-dimensional space rather than two. Tools such as these allow us to establish the rules that govern how lines are drawn: how they aggregate, how they curve or kink, and where they touch, fold, bend, or disintegrate. We can tweak the rules and run them again. The lines embody and display the rules across a spatial field. We have found that simple processes deployed in carefully choreographed sequences can yield complex results with intricate details at many scales. As we vary the rules and their sequencing, we evaluate the outcomes but also test processes such as logistics and assembly.

For our recent project, “The Billion Oyster Pavilion,” on Governors Island, one of two winners of the FIGMENT/ENYA/

AIANY/SEAoNY 2015 City of Dreams Competition, we used drawing to test the spatial effects of the canopy. Building upon the premise that every part of this temporary arts space would be reused as an oyster habitat, we developed drawings to toss, tumble, and aggregate a network of rebar triangles woven together with lines. By drawing and redrawing in a three-dimensional digital environment, we shaped the pavilion’s form as a network of connected triangles but, more importantly, we also explored the experience of being beneath the woven canopy, and the process of building it. There were no “construction documents” in the traditional sense because the assembly was governed by the rules worked out in the drawing process. Once we finished the final drawing, there was no need to hand it to our assembly team. We simply explained the rules and turned them loose.

By drawing and redrawing the project, we tested how it would be built and experienced. We calibrated the amount of material required to build it, and we learned how much time it would take. The line on a page is not static; it is constantly changing as new lines are added (or subtracted). Drawing has always involved an intimate relationship between author and tool. Our relationship to our digital tools is no less intimate than the relationship of previous generations to theirs. ■

BanG studio is the architecture and fabrication office founded by Babak Bryan, AIA, LEED AP, and Henry Grosman to further their conversation about form, space, process, technology, and design. They describe themselves as “engineers who read, gearheads who draw, and architects who write.”



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Raves + Reviews

REVIEWS BY STANLEY STARK, FAIA

The Mysteries of the Mall and Other Essays

By Witold Rybczynski

This collection of essays written between the early 1990s and the first decade of the 2000s deserves our attention. Short, pithy, and insightful, the essays represent Rybczynski's observations on planning and design by category: how we live now, the state of cities, the state of buildings, the prospects and miseries of planning, and architects he admires and doesn't.

The title essay, a discussion of the work of John Brinckerhoff Jackson, focuses on vernacular spaces that are routinely used but don't receive much design attention or scrutiny (e.g., food courts). The author also ruminates on how small buildings (such as houses for parents) may have disproportionate effects on a young architect's reputation, but be a poor predictor of one's ability to handle more complicated projects.

Rybczynski admires balanced design that blends a strong image with good functional design and quality. In this age of excess, the Vitruvian virtues are still his core beliefs. Although this collection has a few observations I do not share, we could all benefit from spending some time with this book.

The Dakota: A History of the World's Best-Known Apartment Building

By Andrew Halpern, with contributions by Christopher S. Gray and photographs by Kenneth C. Grant

The Dakota was the first true luxury apartment house in New York, and even after 130 years it is among the most desirable places to live. Halpern's narrative explains how the Dakota came to be, who made it happen, how it evolved from earlier multi-dwelling types, its role in the evolution of the Upper West Side, and its influence on the development of middle-class and luxury housing types.

The first true New York apartment house that was not a tenement was the Stuyvesant House of 1869, designed by Richard Morris Hunt. This prototype had clearly defined living spaces separated from servant spaces. During the 1870s, developers and architects experimented with this new type of socially acceptable dwelling unit for the upper middle class.

Edward Clark, an attorney and later a partner with Isaac Merritt Singer in his sewing machine enterprise, developed the Dakota on Central Park West between 72nd and 73rd Streets, creating an essential element that has propelled New York's real estate market ever since – the luxury apartment house. His architect, Henry J. Hardenbergh, had previously worked with Clark on the Van Corlear apartment house on 7th Avenue between 55th and 56th Streets, whose features would be further developed in the Dakota. Constructed between 1880 and 1884, the 10-story Dakota, a hollow square arranged around a courtyard, was designed in the German Renaissance style and infused with a palatial level of luxury.

The book is filled with plans, photos, original documents, early reports and reviews, and photo spreads of some of the most notable residents. Its sumptuousness complements its subject.

Noted but Not Reviewed

Architecture from The Outside In: Selected Essays by Robert Gutman

Edited by Dana Cuff and John Wreidt

Sociologist Robert Gutman was one of the first social scientists to examine architecture as a discipline, a practice, and an enterprise as a social system. He holds up a mirror we should all deeply look into.

Designed for the Future: 80 Practical Ideas for a Sustainable World

By Jared Green

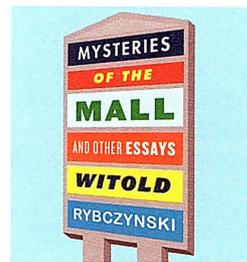
This is a brainstorming session in book form, full of useful and stimulating ideas.

Hypernatural: Architecture's New Relationship with Nature

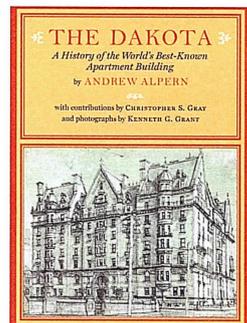
By Blaine Brownell and Mark Swackhamer

Forty-two case studies of the biomimicry design movement, design methods, materials, and built results.

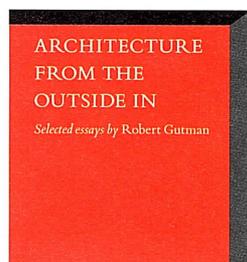
Stanley Stark, FAIA, served as chair of the Oculus Committee from 2005 to 2007.



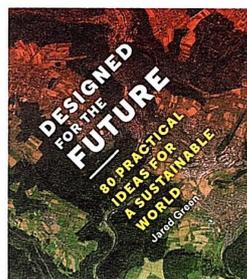
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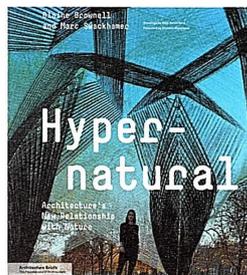
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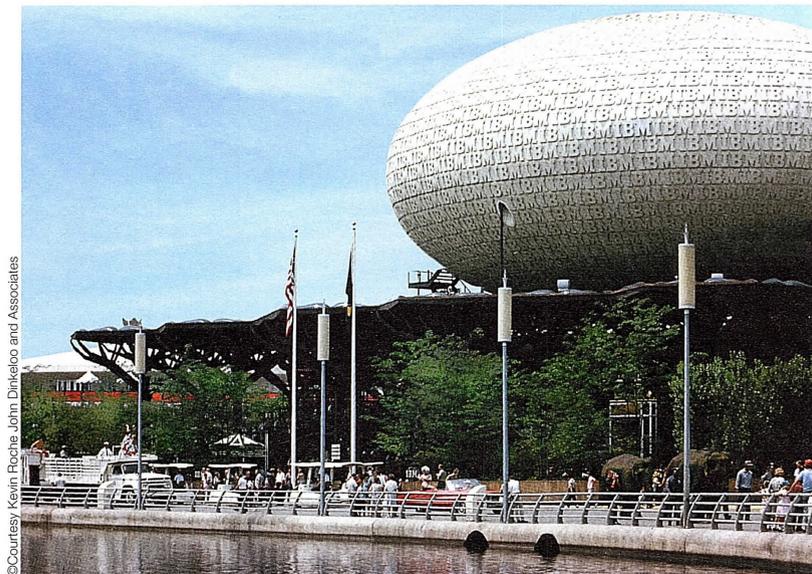
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IBM Pavilion

One of America's foremost innovators, IBM chose to represent itself at the 1964 World's Fair with typewriter technology **BY JOHN MORRIS DIXON, FAIA**

A half century ago, IBM was at the forefront of computer technology. But what was the design inspiration for its pavilion at the New York World's Fair of 1964? It was the "type ball" of the Selectric typewriter – a technologically advanced typewriter for its time, but still just a typewriter.

IBM was then known as an outstanding patron of Modern architecture and design. With a building and product design program directed by architect and industrial designer Eliot Noyes, it was building factories, laboratories, and offices designed by the likes of Marcel Breuer, Gordon Bunshaft, and Eero Saarinen. For the fair pavilion, it commissioned the firm of Eero Saarinen & Associates with designers Charles and Ray Eames.

At ground level, the pavilion provided ample space for open-air exhibits. Sheltering these was a canopy of tinted Plexiglass supported on 45 tree-like weathering-steel supports. Rising above this artificial grove and dominating the scene was the elliptical sphere of the theater – 115 feet long, 89 feet wide, 58 feet in height.

It might have been possible to interpret the theater as an exercise in spherical geometry, but for those of us who spent hours clicking our handsome, Eliot Noyes-designed Selectrics – or even saw an ad for it – the reference was obvious. And like the rotating typewriter ball, its spherical surface was covered with letters in bold relief – in this case endlessly repeating "IBM" in the style of its trademark.

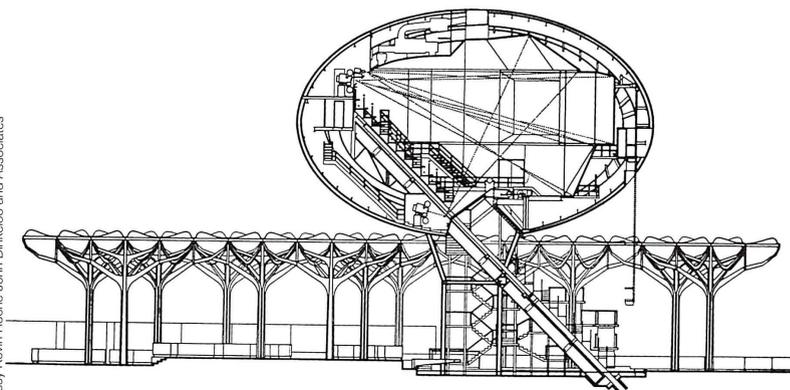
Editor's note: Saarinen passed away in 1961, before the design of the pavilion began. While the firm Eero Saarinen & Associates was the architect, the design was by Kevin Roche, FAIA, partner in that firm, who went on to co-found Kevin Roche John Dinkeloo and Associates.

Fairgoers were invited to take their places at ground level on a 500-seat grandstand, which then rose 53 feet into the theater volume. An emcee in white tie and tails appeared on a suspended platform, greeting audience members as they rose and bidding them farewell as they returned to Earth. Inside the theater, IBM offered an Eames creation, an entertaining 14-screen slide and film presentation on computer technology.

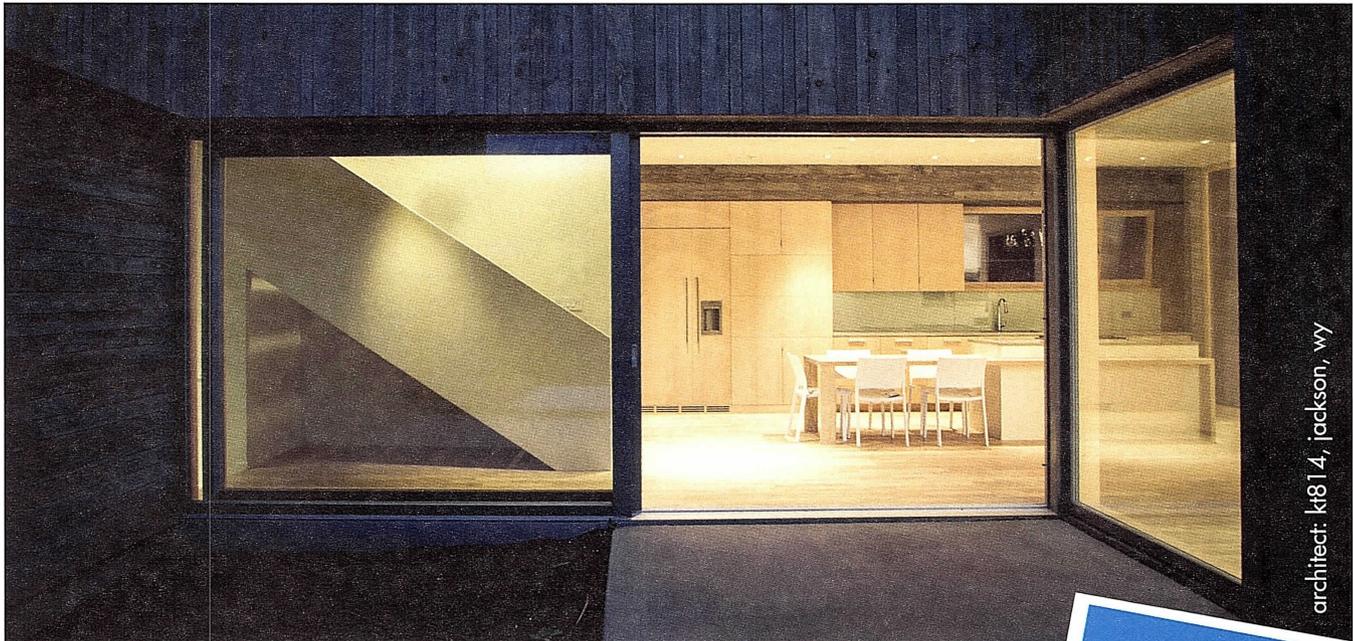
Most design cognoscenti of the time considered this pavilion one of the fair's few successes. *New York Times* critic Ada Louise Huxtable said it "proves that the corporate message can be put across as an integrated architectural-design concept." In *Progressive Architecture* magazine, Ellen Perry and James Burns wrote that it was "one of the few pavilions that didn't lay an egg. See it, THINK, and marvel at the mind of man and his machines." The praise was not unanimous, however. *Washington Post* architecture writer Wolf von Eckardt decided the work "doesn't come off as anything but another bit of architectural acrobatics," which, he concluded, "doesn't help but hinders IBM's efforts to communicate its story."

We may never know whether the enticement of advanced design and exhibition technique at such fairs helps to convey knowledge – in this case knowledge that is even now unfathomable to most of the public. Maybe that's why IBM chose to announce its presence with an architectural form derived from an already familiar consumer product.

John Morris Dixon, FAIA, left the drafting board for journalism in 1960 and was editor of *Progressive Architecture* from 1972 to 1996. He continues to write for a number of publications, and he received AIANY's 2011 Stephen A. Kliment Oculus Award for Excellence in Journalism.



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LETTER FROM THE INTERIM EXECUTIVE DIRECTOR

Going Digital



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David Burney, FAIA

For those of us who still remember ink on Mylar, the digital revolution in architecture has been breathtakingly fast and comprehensive. Revit, CNC, parametric modeling, Grasshopper – some of these terms were not invented until a few years ago, but they now dominate the design of complex buildings.

The impact of the digital revolution on architectural practice is most felt in three areas: the generation of architects now coming out of architecture schools, the technical expertise of architects in the design process, and the relationship between design and construction.

Today's architecture school graduate is very different from graduates before the digital revolution – say, before 1990. New graduates are fully conversant with digital technology and design entirely using computer software. Even handmade models are being replaced by 3D printers. We hear complaints that these graduates are just “CAD monkeys” who “can't draw and don't understand construction.” But this is shortsighted and misunderstands the depth of the revolution in design practice. First, it has always been thus – young graduates not knowing a jamb from a sill – but this generation is equipped to face a very different design process.

Look at the projects reviewed in this issue of *Oculus*. In almost every case, the design team included specialist fabricators with whom the architects collaborated to achieve a specific design. Gone is the process by which the architect produces a concept that the fabricator then figures out how to build as closely to the architect's images as possible. Now, using common software platforms, the designers and fabricators collaborate on a design, working out how it will be built as an integral part of the design process.

Similarly, with the introduction of BIM models, architects are collaborating with construction managers and contractors early in the design phase. No longer do we “work it out in the shop drawings” during the construction process; these drawings are produced during design. So we are seeing a more fully-integrated design and construction team, with specialized construction firms sitting right alongside the architect and sharing the same software.

Is this another phase of construction managers muscling in on the architect's territory? I don't think so. On the contrary, we may be moving into a whole new phase in which architects are no longer blamed for producing unrealistic or “unbuildable” designs, because they will be leading a team that produces only buildable designs.

If there is danger in the digital revolution, it lies more in the relationship between our profession and society. As architects become absorbed in digital technology, we risk ignoring the deeper questions of what is built and for whom. I have heard architecture students assume that “parametric design” is an uncontested scientific approach, when in fact that design might reinforce the public/private forces of elitism and exclusivity that often drive what we build. When we focus solely on the technology of form, we take ourselves out of the discourse on the social impact of what we build and provide the status quo with an illusion of objectivity.

A good example of using technology for social purposes is illustrated by Ennead Architects' 2015 AIANY Design Award-winning research project on the design of refugee settlements. On a site in Africa where UNHCR was struggling to build a new settlement on a very uneven site, Ennead produced a topographical map deduced from Google satellite data, and printed out a model of the map with a 3D printer. The topo map was not perfect, but it took a fraction of the time it would take for a site survey to be produced, and it enables design to respond to difficult terrain, avoiding problems of flooding and erosion. Similarly, SITU Research has launched the Spatial Practice as Evidence and Advocacy Project, featured on page 32.

As more and more U.S. architecture firms work around the world, we have an opportunity to use our technical prowess to great advantage in improving the built environment and serving our wider responsibility as creators of a just society.

David Burney, FAIA

Interim Executive Director

AIA New York Chapter and Center for Architecture

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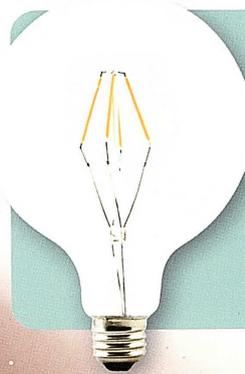
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