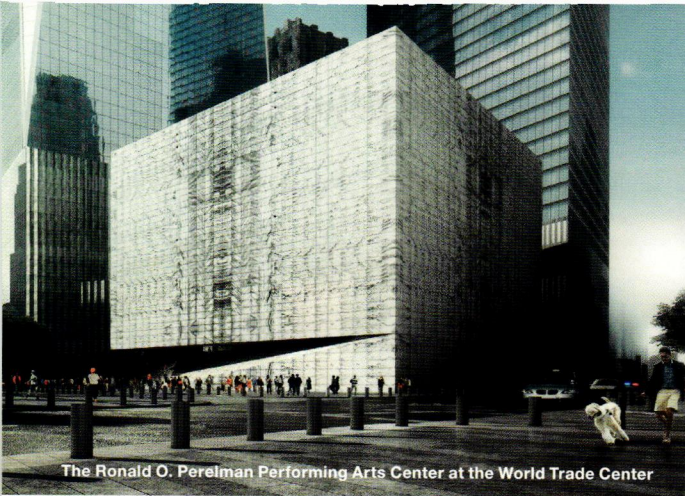


Fall 2020

Ocululus

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Volume 82, Issue 4
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CLIMATE
CHANGE
+ SOCIAL
JUSTICE



The Ronald O. Perelman Performing Arts Center at the World Trade Center



The Studio Museum in Harlem

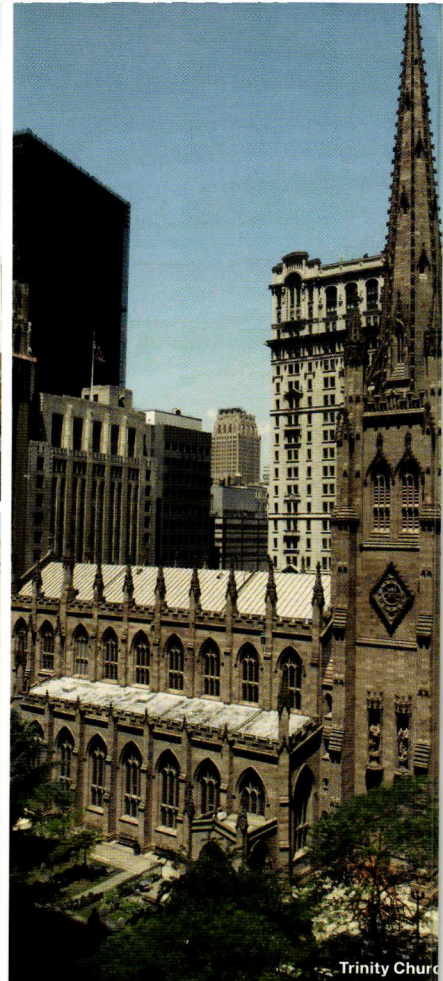


Photo: Timothy Schenck

The Shed NYC



The Frick Collection



Trinity Church

The Ronald O. Perelman Performing Arts Center at the World Trade Center

Design Architect: REX
Executive Architect: Davis Brody Bond

The Studio Museum in Harlem
Architects: Adjaye Associates
in collaboration with Cooper Robertson

Trinity Church
Architect: Murphy Burnham
& Buttrick Architects

The Shed NYC
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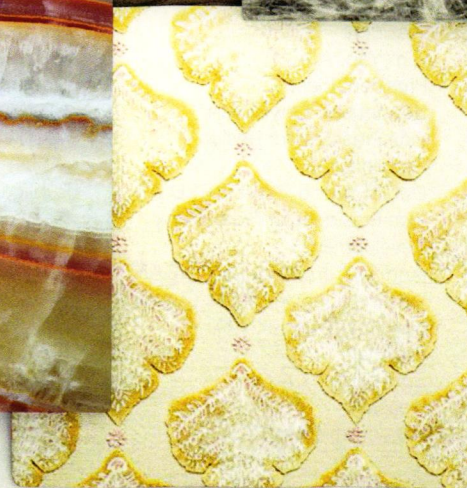
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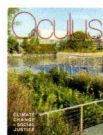
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40 Letter from the Executive Director

At the Center of Activity and Change, Virtually

By Benjamin Prosky, Assoc. AIA



Cover: Sponge Park, designed by DLANDstudio has won Cooper Hewitt's 2020 National Design Award for Climate Action. Located in the Gowanus section of Brooklyn, the park is a new form of green infrastructure that captures and cleans dirty urban stormwater and mitigates waterway pollution. **Project Team:** DLANDstudio pllc; New York City Department of Environmental Protection; Thornton Tomasetti; F2 Environmental Design; Kirk Barrett, PE, PhD, Manhattan College. **Funding Partners:** New

York State Environmental Facilities Corporation (Green Innovation Grant Program); New England Interstate Water Pollution Control Commission; New York State Department of Environmental Conservation (Environmental Justice Grant) **Agencies:** Gowanus Canal Conservancy; Gowanus Canal Community Development Corporation; New York City Council; New York City Department of Transportation; New York City Department of Parks and Recreation; New York State Council on the Arts; US Environmental Protection Agency; US Congress. Cover photo credit: courtesy of DLANDstudio. **Above:** The Sponge Park Pilot opened in 2016 at the end of Second Street in Gowanus. Courtesy of DLANDstudio

ANTICIPATING NYC 2021



Photo credit: Dean Kaufman

Autumn marks a season of transition and anticipation. The change in weather, foliage, and harvests is combined with other cultural shifts, like the beginning of the school year and election season. In 2020, because of COVID-19, the fall brings anxiety, uncertainty, and a degree of concern. New York City is open for business, but business owners and customers are still figuring out what exactly that means. Families are returning from summer sojourns, wondering how long schools will remain open and whether it is worth the risk to send children to school in person. Architects and clients are navigating a complex realm of back-to-facility scenarios. Construction sites are active, but we as a profession are still largely working from home.

I outlined the presidential theme for this year, Charting NYC 2020, in late 2019. At that point we were already in crisis—ecological, social, economic, and political—a situation that has worsened with the pandemic and the inequality and injustice it has exposed. As architects, we must address our contribution to the challenging and overarching issues of climate change and social justice. We have a responsibility to help lead this conversation, beyond base project

requirements, to influence our clients and buildings and to engage the communities they serve.

Charting NYC 2020 launched a research and data visualization initiative in collaboration with Sarah Williams and Massachusetts Institute of Technology's Civic Data Design Lab. This research is culminating in the fall launch of Visualize NYC 2021, a virtual exhibition that analyzes and reveals the realities of daily life in New York City. We gathered information, guidance, and ideas from members regarding the issues they feel are most pressing for the built environment in New York City. These priorities fall into four main categories: evolving public realm, climate change and resilience, right to housing, and public health. And, in turn, these categories are scalable, from the street to the city. COVID-19 was not on our radar when the planning for this work began in late 2019, but it is one lens through which we are now viewing and assessing the city.

Visualize NYC 2021 also offers a platform for ongoing crowdsourcing of ideas and priorities from visitors. We intend to use these ideas to continue to refine AIANY's advocacy platform as we prepare for historic elections in 2021. The exhibition

focuses on the intersection of public policy and physical space, and its influence on our daily lives. It also encourages everyday New Yorkers to share an opinion, join the discussion, and ultimately cast a vote next year.

Architects are experts at turning challenges into opportunities—applying creative problem-solving skills to elevate the spaces we design. Let us also take this opportunity to elevate the way we practice. Beyond new tools and processes, we can enact meaningful change in how we work. We can push ourselves to a higher standard of environmental stewardship. We can commit to mentor young, aspiring architects, and to diversify our practices. We can engage communities and critically assess the context of our projects. We can aspire to bridge the extremes that define this year. We can chart the future of our city. ■

A handwritten signature in black ink that reads "Kim Yao".

Kim Yao, AIA
2020 AIANY President

Color Takes Flight



The architect chose a lively arrangement of metal PAC-CLAD Precision Series Tiles from Petersen in a palette of four Kynar® finishes for the airport loading dock. The tiles' cupped profile enables a unique play of light and shadow that creates a sense of movement across the façade.

Minneapolis-St. Paul Airport Loading Dock Contractor: Progressive Building Systems GC: Sheehy Construction
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THE RIGHT TO CLIMATE JUSTICE

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After living in Denmark for two months this summer, I felt like I was traveling back in time when I returned to New York City. Copenhagen's green streets are dominated by pedestrians, bikes, and virtually silent electric buses. The city of 1.3 million is on track to be carbon neutral by its set goal of 2025, and the whole country may be net zero in energy usage by 2030. As I inched across Downtown Manhattan en route from Newark Airport to Brooklyn, roads clogged with gas-fueled cars and trucks, I got a bit dizzy thinking about how much catching up we have to do here in the U.S. Or maybe it was just the fumes.

The fact is, time is running out to address climate change. New Yorkers passing through Union Square can now be reminded of this thanks to a reprogramming of *Metronome*, the multimedia art installation by Andrew Ginzel and Kristin Jones. To mark the end of Climate Week in late September, *Metronome*'s digital display started counting down seven years and a little over 103 days. This is the amount of time until the effects of global warming become irreversible, according to Andrew Boyd and Gan Golan, the creators of the so-called "Climate Clock" now integrated into *Metronome*.

In 2020, most of humanity experienced how changes in the global climate can ultimately impact every aspect of our lives. Some scientists believe the genesis of the coronavirus pandemic may be traceable to new interactions of animal species caused by climate change. The forest fires

that have devastated Australia and the Western United States certainly were made much worse by climate change. As we confront these catastrophic events here in the U.S., some communities are much more affected than others. How we address climate change and its effects is a social justice issue.

In the pages that follow, we spotlight architects, developers, and innovators who are actively engaging with climate justice. This work may take many forms, but at heart it is about supporting the human right to live in a healthy, clean, and safe environment. It is also about looking ahead: envisioning equal access to green space amid a dense city; financing projects whose positive benefits may be modest and incremental rather than spectacular and immediate; and planning systems that are agile and flexible enough to withstand a more volatile climate in the future.

Like the Summer issue, this Fall issue is once again a product of working 100% remotely, as we take precautions to prevent the spread of COVID-19. A big thank you is in order to all our editorial and publishing staff involved at every stage of the production process for their patience, diligence, and commitment to keeping up high standards in this challenging time.

I'm saddened to close another letter with a brief tribute to someone who has passed away in recent months, design writer and *Oculus* contributor Deborah Wilk. I met Deb when she was a senior editor at *Interior Design* magazine, and I

was always impressed with her tenacious reporting, keen eye, and wicked dry wit, as well as her skill at weaving all that into a smart, snappy narrative. In addition to her role at *Interior Design*, Deb held editorial staff positions at the Chicago-based *New Art Examiner*, the *Chicago Tribune*, *Chicago Magazine*, and *Art + Auction*, among other publications. She was steeped in the world of art and design, and we were lucky to count her as a contributor to *Oculus* over the last few years. Deb wrote in-depth features for us on a range of topics, including how architects were experimenting with virtual and augmented reality, and how firms were addressing issues of equity in their own studios. She suffered from a long-term illness that led to her death earlier this year at the age of 54. Deb, we'll miss you. ■

Molly Heintz
Editor-in-Chief
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Polly Adams (“Shoring Up”) is a design researcher and writer based in Brooklyn. A recent graduate of the rigorous one-year master’s program in the Design Research, Writing, and Criticism program at the School of Visual Arts, she’s interested in designed experiences that shape individual identity and codify social behavior.

Fred Bernstein (“Faces of Change”) studied architecture at Princeton and law at NYU and writes about both subjects. He has published hundreds of articles on architecture and design in dozens of publications, and in 2008 he received the AIA’s Oculus Award for excellence in architecture writing.

Lisa Chamberlain (“Could BQX Become NY’s New Equitable Transit Option?”) reported on commercial real estate for the *New York Times*, was an executive director of the Forum for Urban Design, and currently works as a communications strategist for architects, planners, and economic development professionals.

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Patrick Sisson (“Environmental Justice Begins at Home”) is a journalist and Chicago expat living in Los Angeles. He is interested in cities, transportation, architecture, and consumer trends—and the way these forces shape culture and urban life. His writing, which also explores music, art, and technology, has been published by the Verge, Vox, Pitchfork, Curbed, and Wax Poetics. He is the author of *This is Chicago*, a book about the history of design and designers in Chicago, published in 2015.

Stanley Stark, FAIA, NCARB, LEED AP, (“In Print”) has been associated with *Oculus* since 2003 as a writer and illustrator. He currently has a position with the City of New York. ■

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BEYOND THE CENTER

BLACK LANDSCAPES MATTER

A new collection of essays explores the history and experience of Black spaces in America.

Black Landscapes Matter

Edited by Walter Hood and Grace Mitchell Tata

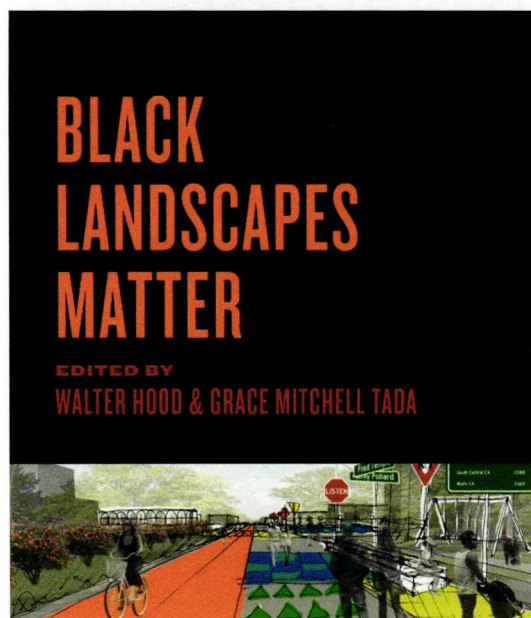
University of Virginia Press

November 2020

The following is an excerpt from "A Tale of the Landscape," an essay by urban planner and preservationist Maurice Cox in Black Landscapes Matter:

The relationships in Virginia between landscape and building, and between academic and vernacular, contrasted sharply with what I had seen in Europe and critically influenced my development as an urban planner. It was through this experience that I came to understand the tendency of the American landscape to erase certain aspects of history. Specifically, those in power iteratively eroded the social and cultural signs, in the form of schools and churches of low-income immigrant and African American communities, until mere fragments remained within the larger urban landscape. Acknowledging such erasure led me to realize that I was a preservationist and that I needed to act on a prevalent attitude. To bolster this ideological position, I engaged in the organization of my community to understand how form, inherent in these buildings and their landscapes, conveyed culture, if only we knew how to read it. My own house in Charlottesville at 702 Ridge Street—a historic American four-square from the late 19th century—existed in a landscape among other, more vernacular, buildings. Yet, despite the presence of buildings such as mine, the neighborhood was neither protected nor revered, and, as president of the Ridge Street Neighborhood Association, I began to question why.

In Charlottesville, if you look only at the high, or academic, architecture, you miss part of the story. The history of people of color in these neighborhoods tends to unfold in modest everyday architecture, so in order to understand the part of the neighborhood, you must engage the other. This engagement involves the stories of people. In other words, buildings are part of a cultural landscape that knits together the land, the people, and their stories. As a developing historic preservationist, I learned that if I wanted to respect my neighbors, my discussion of historic structures had to



consider the street's humble residential spaces. Here, these included the Nimo House, built and owned by an African American, or the cottage in which a slave cabin was embedded. It was through acknowledging these kinds of everyday buildings that I began to understand the reciprocity that exists between them and the land on which they were built.

Studying the landscape further revealed a series of hierarchies and patterns reflecting notions of property ownership, issues of segregation and marginalization, and the role of land characteristics such as topography in deploying or reinforcing these hierarchies. Ridge Street, for example, took its name from the landform on which the homes in my neighborhood were built. This landform then bound the buildings into a narrative about culture and society. At the crest of the ridge stood the substantial stylistic homes typically built for white people, and at the base of the ridge, and at its head and tail, were the more modest and fragile structures African Americans owned. The land tied the buildings into a neighborhood, and its natural features framed a specific social narrative, yet only by more closely examining the modest buildings did an alternative narrative, equally deserving of attention, become clear.

In reexamining the significance of everyday buildings and landscapes, the question arises of who should care for these sites. Who should steward these less visible spaces, and who should preserve these communities? Inevitably, those who do preserve them are the inhabitants who have lived their stories. They are people of color, and, in their attempts to keep these places vital through maintenance and care, they have unconsciously performed the function of the preservationist.

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BEYOND THE CENTER

VIRTUAL END OF YEAR SHOW

The Cooper Union
archeoyo2020.cooper.edu

Though The Cooper Union's academic year ended with students finishing work remotely and celebrating graduates with a Zoom commencement ceremony, the School of Architecture continued its decades-old tradition of an end-of-year show featuring work from all five years of undergraduate design studios. But this year, with the school's buildings physically inaccessible due to the COVID-19 pandemic, faculty, students, and staff collaborated to host the exhibition virtually for the first time in history. Launched in June, the show was realized with Unreal Engine gaming technology, which allowed the production team, working via Zoom from cities across the world, to visualize and simulate the school's Foundation Building at 41 Cooper Square. Now, users navigating the exhibition across several floors of the Foundation Building will be able to view student drawings, 3D renderings, and additional content such as videos, animations, and slide presentations in a virtual environment. **The Editors ■**



Top: A still from *Representation III* by Rowen Liu, as it appears on the second floor of The Cooper Union's virtual End of Year Show. Above: On the third floor, "On the Border Between Mirror and Threshold," a video presentation from Ain Song's thesis, explores President Trump's 2019 meeting with Kim Jong-un at the Demilitarized Zone between North and South Korea.

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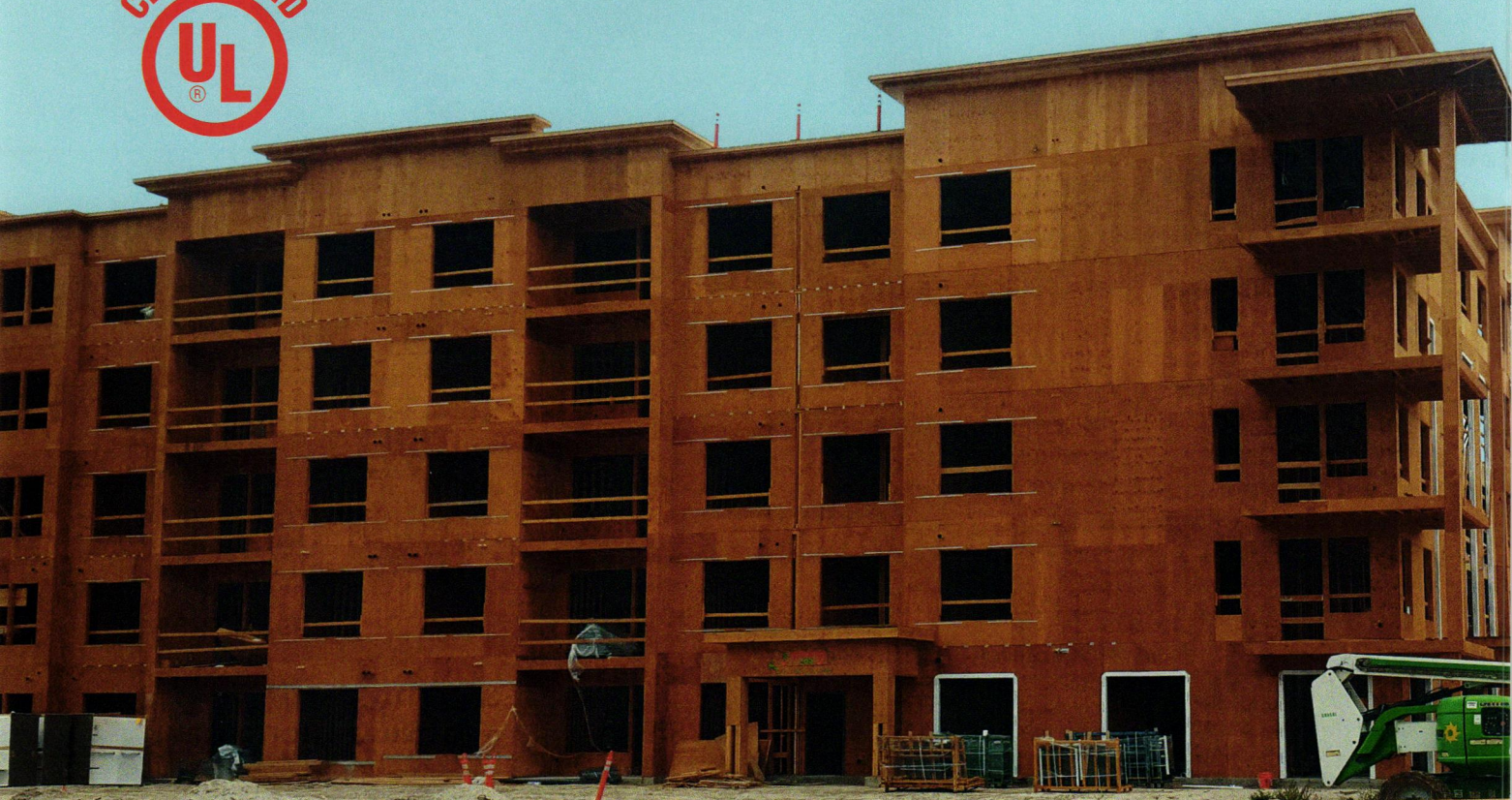
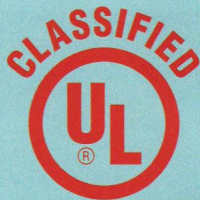
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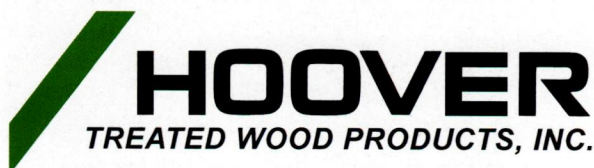
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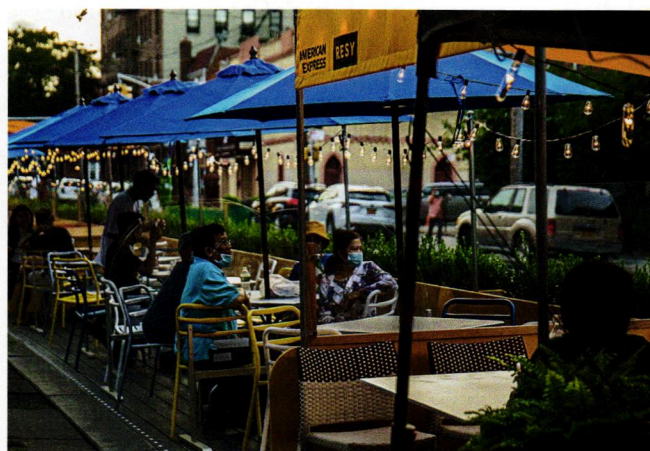
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STREET LEVEL



THOUGHT FOR FOOD

As the effects of the pandemic rage on, two design initiatives are helping provide support to New York City's Chinese communities.

BY PAUL MAKOVSKY

As the devastating effects of the COVID-19 pandemic continue to reshape many aspects of New York, the city's Chinese neighborhoods in Manhattan and Queens have been particularly affected. Some customers had earlier abandoned these important shopping and dining districts, perhaps fearing that the virus would be arriving from China and be prevalent at Chinese-owned businesses. As it turns out, according to a Mt. Sinai study, most of the viral strain initially affecting New Yorkers could be traced to Europe.

And while restaurants in other neighborhoods have quickly responded to take advantage of the city's Open Restaurants program, the independent family-owned restaurants in Chinatown are struggling to adapt. The inequity of resource distribution in relief programs, the current and future instability of food systems, and the high property taxes and commercial rents all contribute to the city's failure to adequately support Chinese neighborhoods. Manhattan's Chinatown has been especially hard hit, and we are now seeing the effects: decades-old restaurants like Hop Shing, Amazing 66, and Golden Mandarin Court shut down this summer. "The streetscape in Manhattan's Chinatown is definitely more challenging: outdoor dining was not a common practice in Chinatown previously, and, since the business downturn here started in January, business owners have additional cash flow challenges," explains Yin Kong, co-founder and director of Think!Chinatown, a non-profit whose mission is to build an intergenerational community through neighborhood engagement, storytelling, and the arts in Manhattan's Chinatown.

Think!Chinatown has also collaborated with design studio A+A+A to form the Assembly for Chinatown initiative to

DineOut NYC, a communal-dining prototype designed pro bono by Rockwell Group, has been installed in Manhattan's Chinatown (above left) and in Elmhurst (above right), as well as in other areas of Queens and the Bronx.

create outdoor dining options for the neighborhood's restaurants. The initiative fosters a grassroots approach of designing for and with communities. The group uses locally sourced materials to support neighboring Chinatown businesses, and restaurant owners are included in every step of the design and construction. In tandem with coordinating build-outs, Assembly for Chinatown has created a free guidebook online in both English and Chinese for business owners. It includes shop drawings, design recommendations, local material sourcing, and NYC government guidelines.

To date, the group has built three outdoor dining sites: one at Sweethouse Drink and Desserts (67 Bayard), with a mural by artist Kat Lam; the second at Lanzhou Ramen (107 East Broadway); and a third at Royal Seafood (103 Mott), in collaboration with local contractors, artists Jennifer Paloma and Rose Wong, and more than 30 volunteers. "When I asked business owners why they weren't building their outdoor dining, some said they weren't sure how to build or what to build, but mostly that they didn't want to sink any more money in the business at this time," explains Kong. Indeed, she points out that one of their selected sites, 21 Shanghai House, unfortunately shuttered before it had the chance to build.

Leveraging New York City's Open Streets initiative, Rockwell Group expanded its pro bono DineOut NYC concept (see "Street Smarter," *Oculus*, Summer 2020), which initially launched with six pilot installations in various boroughs to

include communal dining spaces. The firm built its communal-dining prototype in Manhattan's Chinatown on Mott Street—home to a large concentration of Chinese restaurants—by creating a new public space and outdoor dining areas for multiple restaurants with seating for over 100 guests. The installation expands the sidewalk by using parking spaces in an “Open Street” between Moscow and Worth streets, and includes outdoor furniture and Rockwell Group’s interchangeable components to help maintain social distancing, resulting in 12 colorful, covered dining pavilions, featuring banquettes for groups of five, which line the street. Tall planters filled with lush greenery separate guests from passersby and traffic. Murals depicting staples of dim sum cuisine adorn the planters, created by students from the nearby Transfiguration School, working with artist Sammi Qu-Kwok. The dining pavilion showcases tabletops featuring Qu-Kwok’s illustrations of Chinese zodiac signs and Chinatown scenes by New York-based visual artist James Chan. Festive pennant banners float above the street, and string lights create a warm glow at night, transforming the area into a lively space.

As fall approaches, both the Assembly for Chinatown and Rockwell Group are continuing their revitalization efforts in Chinatown. The former group plans to shift its focus to interiors for retail and, eventually, interiors for dining; Rockwell is researching how to “winterize” the outdoor



Above left: A DineOut mural on Mott Street created by artist Sammi Qu-Kwok and local students. Above right: A detail of Think!Chinatown's collaboration with A+A+A to build outdoor dining at Royal Seafood.

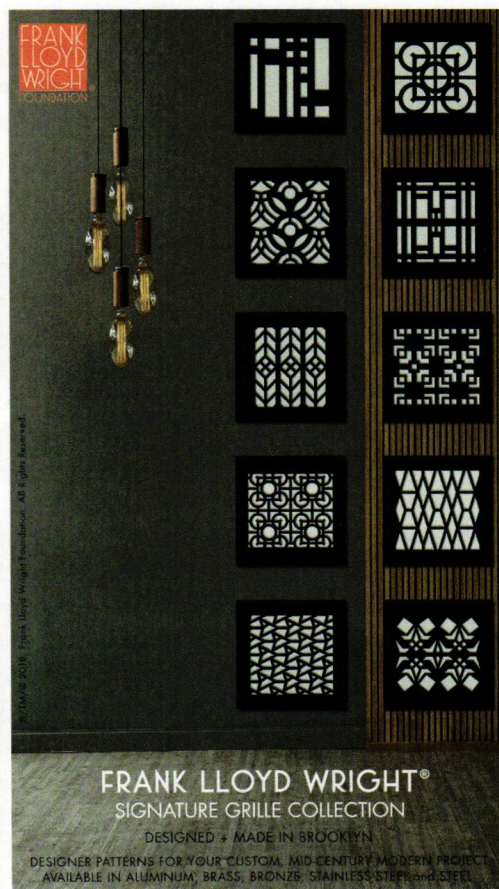
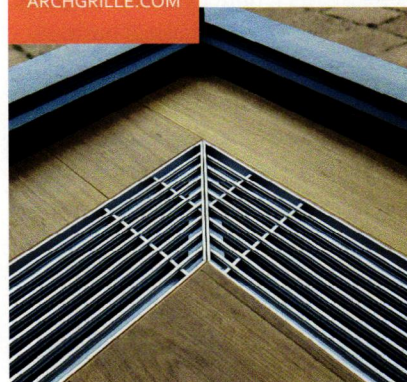
dining season by adding group-specific enclosures and patio heaters, pending the city's approval, which could extend the experience into cooler months. “We’ve also been exploring how to reopen safely indoors,” says the firm’s founder, David Rockwell, who notes that he and his team are learning that what happens on New York City’s sidewalks and streets is critical to how we pull through the pandemic as a city. “It is a moment for us to rethink the value of urban space and ensure that it is used to the benefit of our communities,” he says. “For every site, we have to quickly learn what each restaurant needs, what is most appropriate for the neighborhood, and what the community is looking for in terms of safety and experience. It’s an ever-changing kit-of-parts.” ■



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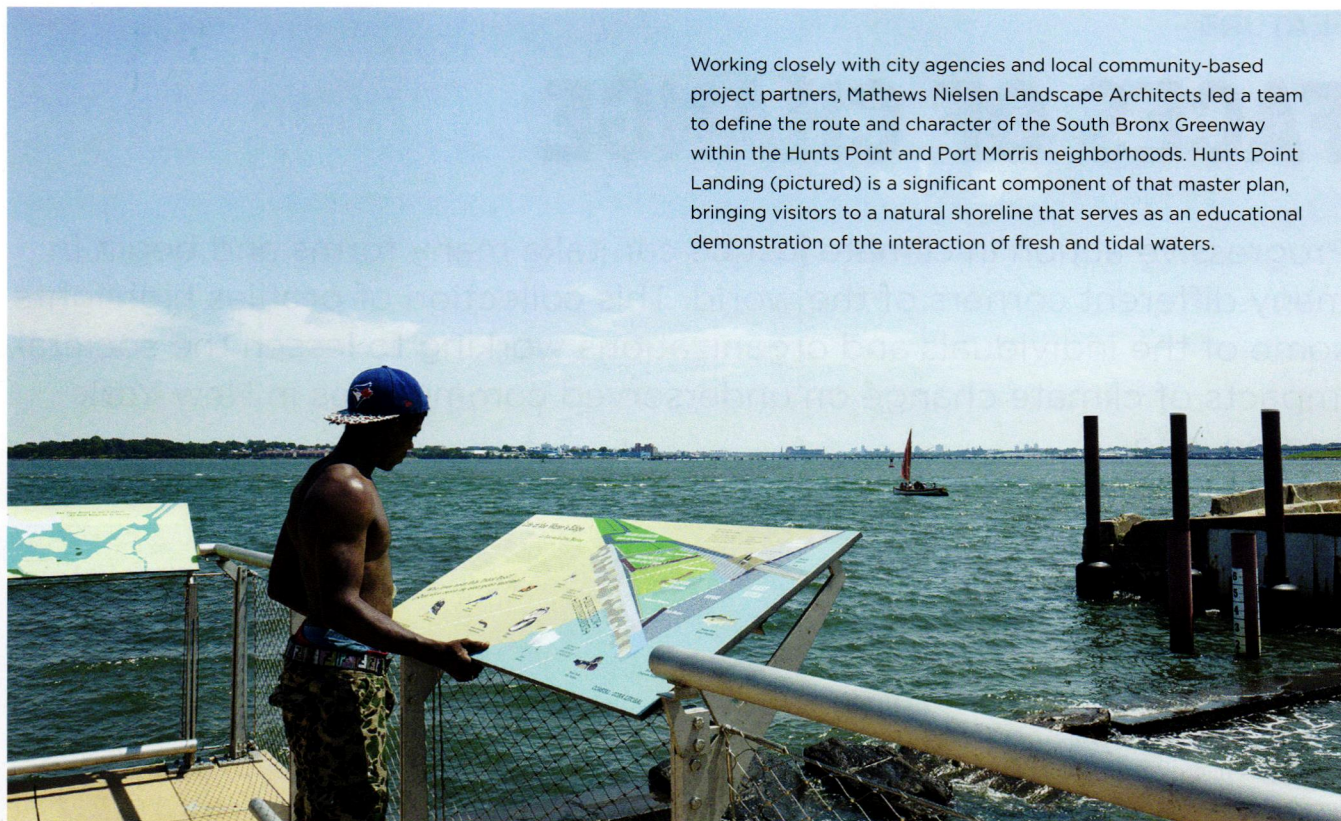
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Working closely with city agencies and local community-based project partners, Mathews Nielsen Landscape Architects led a team to define the route and character of the South Bronx Greenway within the Hunts Point and Port Morris neighborhoods. Hunts Point Landing (pictured) is a significant component of that master plan, bringing visitors to a natural shoreline that serves as an educational demonstration of the interaction of fresh and tidal waters.

THE HUMAN SCALE OF CLIMATE JUSTICE

The NYC Mayor's Office of Resiliency published the latest version of its Climate Resiliency Design Guidelines in September. It states: "New York City (NYC) faces challenges resulting from a rapidly changing climate. Many capital projects, including infrastructure, landscapes, and buildings ('facilities'), will experience flooding, precipitation, and heat events. Over the 21st century, the intensity and severity of these events will increase...Resilient design must become an integral part of the project planning process for city agencies and designers."

While such guidelines speak to the practicalities of design and construction, the human face of the climate resiliency mandate isn't always so visible. In February, Mayor Bill de Blasio appointed Adriana Espinoza as senior advisor for environmental justice. Espinoza is focused on implementing Local Laws 60 and 64, passed in 2017, which codified a demand for environmental justice communities to improve environmental and public health conditions. "The bills really were a recognition, for the first time, of historic injustices that have disproportionately

fallen on low-income residents and communities of color," Espinoza told *Next City* earlier this year.

In the current environment, the urgency of this recognition has been underscored. Economic disparities have been exacerbated in the COVID-19 era, and U.S. cities are waking up to the need for investment in healthy affordable housing and accessible green space, not to mention the increasing need to protect vulnerable populations from the ravaging effects of natural disasters like storms and wildfires.

This issue focuses on how climate change and social justice intersect in the current work of NYC architects, landscape architects, and developers. We highlight how the human right to climate justice demands working directly with communities, often through grassroots initiatives. Much of the work involves seeking new avenues for funding, but also honing a keen understanding of how to gather relevant information about a neighborhood's needs from the people who live there. The architects and planners profiled here are starting to lay the groundwork for a future in which environmental and social needs are inextricably linked. **The Editors ■**

FACES OF CHANGE

Progressive action in climate justice can take many forms and begin in many different corners of the world. This collection of profiles highlights some of the individuals and organizations working to lessen the societal impacts of climate change on underserved communities in New York and beyond.

SOLAR LIBRE

BY FRED A. BERNSTEIN

When Hurricane Maria hit Puerto Rico in September 2017, the U.S. Army Corps of Engineers had difficulty restoring the island's devastated power grid. The task involved transporting, installing, and wiring some 62,000 utility poles, many on mountainous terrain. "If moving faster were possible, we would be doing it," explained Todd T. Semonite, the corps' chief of engineers and commanding general, told a largely electricity-less public in October.

Walter Meyer and Jennifer Bolstad, Brooklyn-based landscape architects and climate change activists, had a better idea—and they had it while the storm was still raging. Unable to reach relatives in Puerto Rico because power lines were down, they decided to use their non-profit Coastal Marine Resource Center to equip community centers and medical facilities with photovoltaic arrays. "Energy is a human right," Bolstad says, "and one that is too often denied to disadvantaged communities, especially in the wake of natural and man-made disturbances."

Meyer and Bolstad, who are also partners in the for-profit Local Office Landscape & Urban Design, first experimented with using solar energy as a solution to storm-related power outages in 2012, when Superstorm Sandy savaged New York City's Rockaway Peninsula. (Bolstad explains that "thanks to a grant from HUD's Community Development Block Grant program, administered by NYC Economic Development Corporation, the Rockaway work is still ongoing. We are providing



free alternative energy systems to a dozen businesses so they can continue to operate with or without grid connections.")

In Puerto Rico, Bolstad and Meyer were determined to install more than 100 grids within a year, using mostly donated materials and volunteer labor. In November 2017, they flew 90 pallets of PV panels to Isabela, Puerto Rico, on a Boeing 767 provided free of charge by FedEx. Meyer's father, Tom, who has lived in Puerto Rico for more than 20 years, and a network of Meyer's Isabela surfing buddies unloaded the plane and distributed the panels. The first installation, at a health center in Lares, about an hour from the airport, was completed by the end of that first day. The systems are small—sometimes

as few as three panels—but they’re enough to run a few lights and appliances. And they can be quickly removed and stowed in the event of another hurricane, making them part of the island’s resilience planning.

Paola Pagán Berrios, the Puerto Rico-based field manager for the project, known as Solar Libre, says the arrays—180 of which have now been installed—are “decentralizing the production of electricity and giving people in the communities power and independence.”

One Solar Libre beneficiary, a reproductive health center in San Juan, was visited by Hillary Clinton, who, Bolstad says, “has championed our cause and connected us with partners and donors.” Other supporters have included the artists Kara Walker and Ai Weiwei and prominent members of what Meyer calls “the Nuyorican network,” including Rosie Perez and Lin Manuel-Miranda.

“The first year was an emergency—it was about getting the lights turned on,” remembers Meyer. Eventually, with power restored to most of the island, the focus shifted. “About a year after Maria,” Bolstad recalls, “Solar Libre still had lots of momentum and equipment and donations, but far less need for immediate relief operations. So we considered what the program could do to improve environmental justice outcomes for Puerto Rico in the medium and long terms.” Meanwhile, the commercial market for solar power on the island was being served by off-island companies. “It seemed a shame that so much of that work was going to businesses owned outside of PR,” says Bolstad. “And, she adds, “it was painfully obvious that there were very few women in any of these businesses, except in office jobs. Training islanders—especially women—to be able to participate in the growing green economy seemed like a natural evolution for our program, which would build off the resources and connections that were already in place.”

So Solar Libre went from building grids to building expertise. “Providing classroom and hands-on training for solar design, build, and maintenance seemed a natural ladder out of poverty for this overlooked part of the workforce,” Meyer says. “We are trying to catch them before they go to the mainland for work—to reverse the brain drain.”

“Training islanders—especially women—to be able to participate in the growing green economy seemed like a natural evolution for our program.”

—Jennifer Bolstad



This page and facing page: Members of the Solar Libre Puerto Rico team installing solar technology at a community center in the mountain town of Lares.

In 2019, the program trained eight apprentices, mostly women, who were then certified by the North American Board of Certified Energy Practitioners (NABCEP) as professional installers. That the women could complete their training in less than a year reflects the fact that Puerto Rico's permitting process for off-grid solar was streamlined in 2019. "Permits are now three times as fast as in New York," Meyer reports.

As a result, trainees can complete about 30 projects in a year—about three times as many as on the mainland. So the trainees are coming out of the program with three years of experience, Meyer says—despite the fact that they have Fridays, Saturdays, and Sundays off, an accommodation to trainees who have young children.

Meyer and Bolstad would like to double the size of the program, admitting 16 women to the Solar Libre class of 2021 (which will begin meeting in February). The cost of the program, about \$40,000 per trainee, is covered by donors. Some sponsoring companies also send volunteers to help with installations.

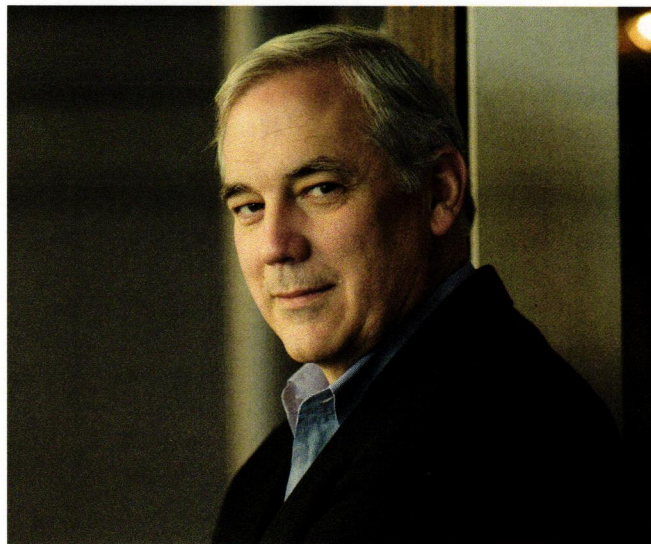
Pagán Berrios, a graduate of the apprenticeship program and now a full-time employee of Solar Libre, says she focuses on projects that will "give back to their communities." Among them is a facility in Orocovis, a small town in the center of the island. Called Healing Emergency Aid Response Team 9/11 (HEART 9/11), it trains residents to work as carpenters and also serves as a community center in emergencies. For that reason, Pagán Berrios says, "It's important that it have reliable, free, and clean power." The next time the people of Orocovis have no lights or refrigeration in their homes, HEART 9/11 will offer them a bit of *solar libre*.

ARCHITECTS DECLARE

BY JULIA VAN DEN HOUT

In May 2019, architects Steve Tompkins and Michael Pawlyn brought together the 17 Stirling Prize-winning architecture firms in the United Kingdom to formally declare a climate and biodiversity emergency. Vowing to take action, they formed Architects Declare, a volunteer-led initiative that rapidly gathered signatures from additional firms and individuals in the architecture and construction industries. Since then, their effort has inspired affiliated international branches, spreading to more than 20 countries around the world.

In the United States, Architects Declare, began in January 2020. Before knowing what the following months would bring, the U.S. group made a notable amendment to the original declaration, citing not only crises of climate



From left: Roy Decker, FAIA, Shannon Gathings, Assoc. AIA, and Caitlin Watson, AIA, are steering committee members of U.S. Architects Declare.

and biodiversity, but also the emergency of societal inequity. As Roy Decker, FAIA, principal of Duvall Decker and a member of the steering committee of U.S. Architects Declare explains, "We know we are doing damage to our climate, and we know we have a long way to go to promote equity at the highest order in our society. What's most important is that these problems are not seen as separate issues—they are interrelated. So often in our society and profession, we silo ourselves. We all want to do some kind of public good, but we could have a much bigger impact if we were joined in a collective group that shares knowledge and learning from one another."

Currently, both individuals and firms are encouraged to become involved in this effort. In September, U.S. Architects Declare hosted a virtual town hall event that served as the public kickoff and invited open participation in establishing the collective's next steps.

Fellow steering committee member Caitlin Watson, AIA, associate at Kliment Halsband Architects, notes, "Architects Declare is an effort to leverage the work that is being done across the sector, pulling it together in ways that are meaningful and provide avenues to engage in advocacy."

Certainly, social inequity is not a uniquely American problem. (In fact, the Canadian Architects Declare, which formed before the U.S. affiliate, has also included this within their declaration.) But in the U.S., this is more urgent than ever. "We tend to look at social inequity as separate from the profession, but looking inward at how we're creating standards and how we're complicit



in systems that do not support diverse voices is the only opportunity to make a real transformation,” explains steering committee member Shannon Gathings, Assoc. AIA, associate at Duvall Decker. “This serves as an important opportunity to be self-reflective, rather than only looking outward.”

Architects Declare is not about simply shining a spotlight on sustainable buildings or highlighting stories of community engagement as exemplars of good practice, but about rethinking the system as a whole—how architects design and build, and how they hear the voices of those who best understand the needs of a community. “We’re trying to find a platform where firms can share best practices,” says Decker. “It will be an open-source library of some kind. Imagine that every firm across the country has access to a resource about climate change, how to increase biodiversity, and how to increase the character of voices in a project.”

While sustainable practices are often at the forefront of discussions in architecture schools, conversations on gender and color have not been much present. As Gathings says, “Even the diversity of thought—who is teaching and who is there to be taught—is incredibly important. If we can have a real collective force going forward, it will be very effective.”

Accordingly, U.S. Architects Declares is itself committed to representing the diversity of voices that make up architecture across the country—including individuals from firms of various sizes, those working in academics, and those who both practice and teach—as well as focusing on racial and regional diversity. (Decker and Gathings are

based in Mississippi, Watson is from New York, and other members of the steering committee practice in Arkansas, California, Connecticut, Illinois, Missouri, North Carolina, and Pennsylvania.)

To further investigate the three declared crises, the steering committee has subdivided into working groups, which bring back their insight to the larger group. “It’s about a cross-pollination of these ideas,” says Decker. “We come together to advance a strategy for how that might grow into a whole country working together.”

Following the September town hall event, attendees were encouraged to join one or all of these working groups.

Ultimately, one of the primary goals of Architects Declare is to create a community around global warming and equity. This is a guiding principle that has led Architects Declare to be set up as a nonhierarchical

initiative. Watson, Decker, and Gathings stress that, while they are members of the steering committee, they are not “in charge”—no one is. The fight against this emergency is a worldwide issue, and progressive action has to remain decentralized.

“There’s no certification, no market, no products,” explains Decker. “This effort can’t be co-opted to benefit any single person. We are a collection of people with shared interests, and we want to support those who want to do good—through resources, information, ideas, and examples. We’re focused on shaping a better practice for human and environmental health.”

“Looking inward at how we’re creating standards and how we’re complicit in systems that do not support diverse voices is the only opportunity to make a real transformation.”
—Shannon Gathings

VENESA ALICEA-CHUQUI

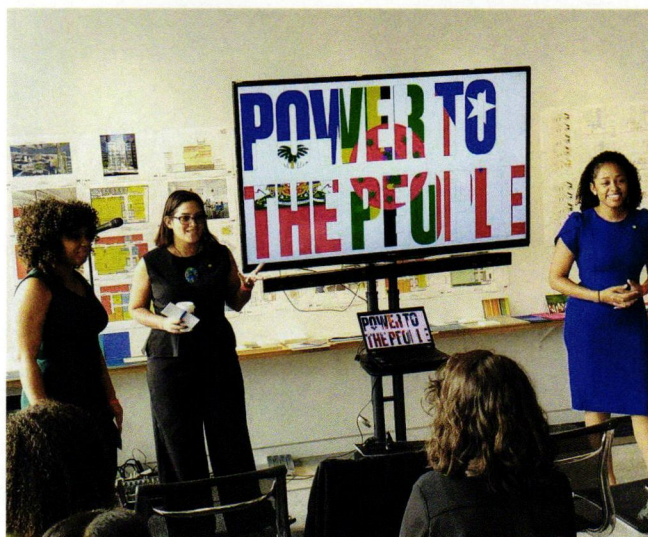
BY JULIA VAN DEN HOUT

"As architects, we should be stewards of a better, just city. We have to empower people to create the spaces they want," explains Venesa Alicea-Chuqui, AIA, NOMA, LEED AP BD+C, WELL AP. For the lifelong New Yorker, observing the rapid transformation of the neighborhoods she grew up in sparked a personal and professional interest in how the built environment—residential space, in particular—affects our well-being. An alumna of the City College of New York, Alicea-Chuqui has developed an impressive portfolio of experience in designing affordable housing, and she has consistently championed the importance of considering community needs. Previously an associate at Dattner Architects, working on such celebrated projects as Via Verde, a sustainable affordable development in the South Bronx, she now practices on her own, guided by the same commitment to community-based design.

Over the past few years, Alicea-Chuqui has noticed a shift in New York City's affordable housing, which has become increasingly developer-driven and less concerned with the people inhabiting the building. "I started to go to community board meetings and became aware of the struggles of those living in these densely populated high-rise buildings," she explains. "Many issues don't necessarily stem from the design, but have to do with the life cycle and maintenance of the building; architects aren't currently involved in those." This applies to both old and new buildings.

Alicea-Chuqui argues that, especially when new technology is incorporated into buildings, tenant and maintenance education need to be provided. Alicea-Chuqui discusses a tenant guide created for Via Verde that outlined the different materials the architects used in the building and described how to maintain them in a sustainable and healthy way. "You can design something with the best intention, but we don't fully know how people will use the space," she says. Providing the right set of resources for building owners is of fundamental importance, especially in affordable housing, where unresolved maintenance issues often don't receive enough thoughtful consideration. "People are coming from countries where most of their housing is low-rise and spread out," she explains. "They are being put into tall buildings, with elevators that often don't work for extended periods of time, which can exacerbate the situation and affect mental and physical health." Language

"The current top-down approach is not working, and you can see the impact of it."—Venesa Alicea-Chuqui



Venesa Alicea-Chuqui (center) with fellow panelists Ellen Abraham (left) and Pascale Sablan (right) for the Power to the People: Translating Resilience through Culture presentation at NOMA 2018 Conference.

can add additional barriers and lead to misunderstanding of use, but very simple design interventions—such as color-coding rather than lettering on a faucet to denote hot and cold—may greatly improve conditions. Alicea-Chuqui sees this as a social justice issue. "In certain neighborhoods, especially communities of color," she says, "the health of people is impacted by this lack of resources." Here Alicea-

Chuqui's interest in sustainability relates not only to the ecological impact of architecture but also to how it affects community and well-being.

Alicea-Chuqui advocates for being a "citizen architect," believing that architects and designers should live in the communities in which they work. She approaches this in her own practice from many sides: she works as a mediator with communities to help them visualize their needs, turning them into programs and partnering with developers to manifest these initiatives. She is also a community-engagement consultant and affordable-housing specialist for larger architecture firms that may not have experience with such projects.

According to Alicea-Chuqui, the separation between the architect and the occupants is too wide. Architects are often brought in once the parameters of a project have already been defined by a client or policy. "I'm interested in the architect's role in influencing policy to advocate for a better built environment," she says. Part of the struggle, she



Top: Alicea-Chuqui was on the planning committee for the 2018 Design Justice Summit, which brought together a group of advocates, experts, and Design Justice members to identify design solutions for injustices in their communities. Left: Alicea-Chuqui speaks at Via Verde, a sustainable affordable development in the South Bronx that she worked on while at Dattner Architects.

explains, is that there are so few people of color who are making the important decisions—who have equity in building and are involved in policy decisions. “The current top-down approach is not working,” she says, “and you can see the impact of it.”

How do we take steps towards increasing diversity in the discipline? Much of the problem is rooted in education and the perception of the profession, she believes. We should not only consider how architecture is taught in schools, but also focus on making architecture a more profitable profession that people would want to pursue. “It’s often not viewed as a viable career for those who have to provide for their family or who have other barriers,” she says. Similarly, architecture should be integrated into K–12 programming so children can become familiar with the discipline as a career path. Alicea-

Chuqui quotes Michelle Obama, who succinctly identified the problem in her keynote speech at the AIA National Convention in 2017: “You can’t be what you can’t see.” Especially for children of color, Alicea-Chuqui explains, “if they don’t see BIPOC (Black, Indigenous, People of Color) designers and architects, or if they’ve never met an architect at all, they often don’t see it as an option for them.”

It’s clear that Alicea-Chuqui lives and breathes these concerns, doing all she can to improve the situation. Outside her professional practice, she has taught the co-op internship and architectural management classes at the City College of New York, helping students map their path to licensure, and she has been closely involved with Dark Matter University, created out of the Design as Protest coalition of designers, which challenges architectural pedagogy to create an anti-racist design justice school of thought.

In addition, Alicea-Chuqui is currently enrolled in the master’s program in urban policy and leadership at Hunter College, where classes focus on issues of gentrification, urban data analysis, and civic participation. For Alicea-Chuqui, the program is an opportunity to talk about the underlying problems at the core of social inequity issues. “We have to be able to have those uncomfortable conversations,” she says. “This is urgent; we haven’t yet hit our low.” ■



ENVIRONMENTAL JUSTICE BEGINS AT HOME

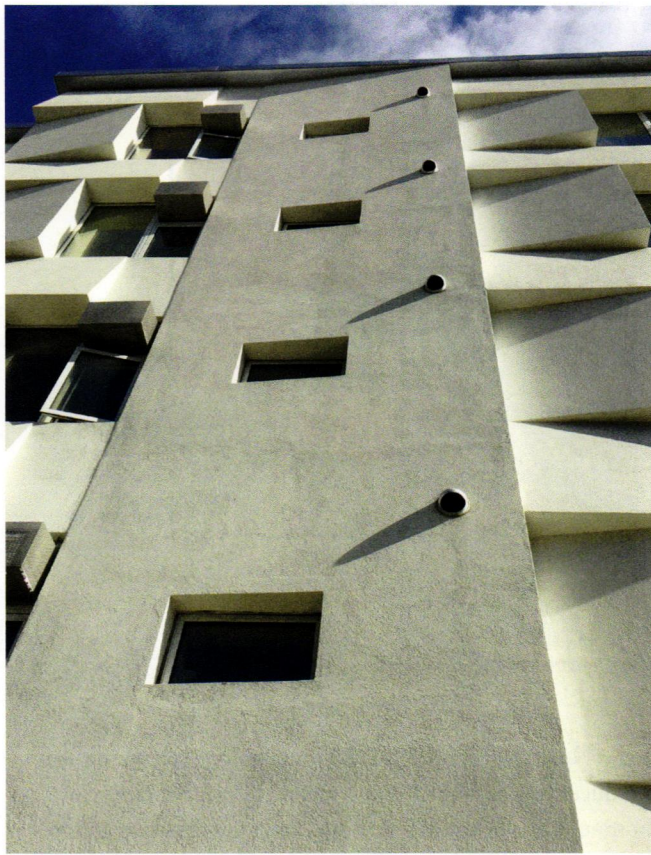
Investing in sustainable, affordable housing would be New York City's own Green New Deal.

BY PATRICK SISSON

When Ryan Cassidy began working on his first Passive House project in 2014, he was fascinated with the engineering and potential to save power. As director of sustainability and construction at RiseBoro, a New York-based community partnership, he was impressed by how the fastidiously insulated and energy-efficient building standard radically decreased heating and cooling costs. But since RiseBoro finished that project, Knickerbocker Commons in Bushwick, Brooklyn, which has 24 units of affordable housing and uses only 10% of the energy of a traditional apartment building, Cassidy has realized that energy savings is just the start. “When you build better, there are cascading benefits beyond using less energy,” he says.

Energy-efficiency improvements at the Marcus Garvey Apartments in Brownsville, Brooklyn, added solar panels and a storage battery to the affordable housing complex. Managed by Enel X, the power system generates 1.1 megawatts, cutting down on renters' energy costs. Facing page, top: The façade of Knickerbocker Commons in Bushwick, Brooklyn. The 24-unit building was developed to the Passive House standard and uses 10% of the energy of a traditional office building. Facing page, bottom: The lithium battery from Enel X at the Marcus Garvey Apartments.

It's said that everything begins at home. For an entire wish list of progressive goals, including environmental progress, better health outcomes, and cheaper living for disadvantaged communities, it's hard to beat the wide-ranging impact of



sustainable, affordable housing. In a nation that has long suffered from an affordable housing shortage and environmental injustice, this change should be welcome, especially in New York. The New York City Housing Authority (NYCHA)—which operates 400,000 public housing units in the city—has recently been dogged by stories of mold, heating malfunctions, and lead paint. Last fall, Data for Progress proposed a \$48 billion plan for a Green New Deal that would retrofit NYCHA's buildings; upgrades would eliminate emissions by 2030, provide 11,000 jobs, cut asthma cases by up to 30%, and decrease utility costs by \$200 million a year.

“The confluence of the pandemic and equity issues this year have showcased the disparate impacts of where we live in a new way.”—Elizabeth Beardsley

Even small investments in improved buildings have concrete impacts on the health and financial outcomes of low-income communities. A 2015 study of energy-efficient housing in Virginia found the investment saved residents an average of \$54 a month per unit. Another study the same year by the Oakridge National Laboratory discovered that simple weatherization provided benefits beyond lower utility bills; adult residents avoided hospitalizations and missed fewer days at work, and kids suffered fewer incidences of asthma.

“We feel like we’ve been shouting this from the rooftops for a few years,” says Elizabeth Beardsley, senior policy counsel for the U.S. Green Building Council. Across the nation, and in New York City in particular, communities are paying more attention to establishing better building and energy codes, adding green space, and improving equity. “The confluence of the pandemic and equity issues this year have showcased the disparate impacts of where we live in a new way,” she says.

In the last decade, New York City has seen growing momentum for more sustainable, affordable housing. Passive House construction has become a recognizable and cost-effective standard for apartments, now just a few percentage points more expensive, at most, than standard construction. New community solar energy projects and battery storage pilots have increased renewable power generation. Building electrification, which swaps out inefficient, fossil fuel-powered heating systems and appliances, improves indoor air quality and minimizes health issues such as childhood asthma. “For too long, the environmental justice movement has been on the sidelines,” says Krista Egger, vice president of national initiatives at Enterprise Community Partners, a non-profit focused on affordable housing development. “Now, with the impending nature of climate change and cities like New York instituting a variety of climate plans and targets, it’s in the spotlight.”

GO PASSIVE TO BE AGGRESSIVE AGAINST CLIMATE CHANGE

Whether it’s their environmental impact or the impression they make on the health of their residents, buildings have enormous footprints. For many reasons, measuring and reducing those footprints both start with addressing heat, especially in New York City.

Since so many buildings still rely on steam heat, a relic of turn-of-the-century design found in 80% of residential buildings, the city collectively wastes extensive energy on heating.

Roughly 70% of climate emissions come from buildings, with most of those emissions, 40%, using fossil fuel heat to warm large, multifamily buildings, according to John Mandyck, CEO of New York's Urban Green Council. Moving buildings off this kind of heating system requires a complicated switch, including the installation of electric heat pumps and a huge expansion of renewable power, two massive infrastructure and capital investment challenges. But making such a change does more than slash emissions and costs; boilers in basements—especially aging ones in older buildings, including the 25% of NYCHA buildings constructed before 1960—typically burn oil or natural gas, releasing carbon dioxide and other air pollutants that exacerbate respiratory health issues.

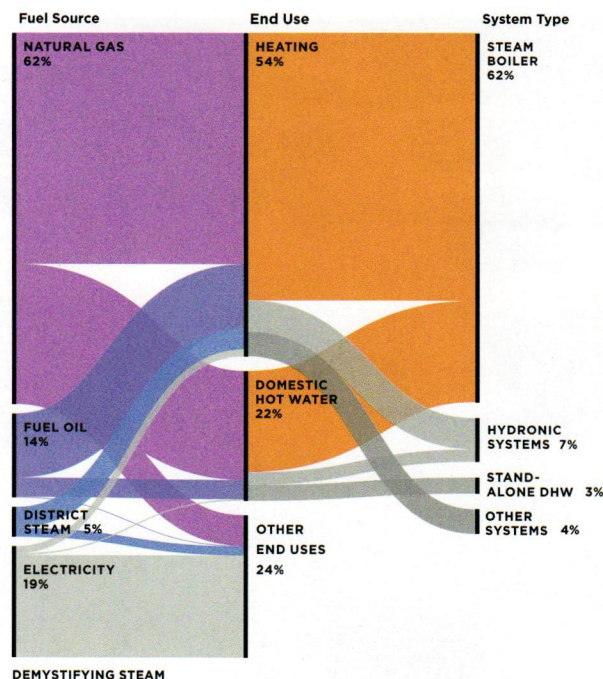
The affordable housing sector has traditionally focused on building as many units as cheaply as possible, says Egger—the right strategy if your focus is housing as many people as possible. At the same time, sustainability campaigns hadn't focused on residential construction. But the lower costs of green building technology give both campaigns a winning issue; the savings from residential energy efficiency means you can build more without sacrificing quality, all while locking in lower operational costs. "This is a smart money move," she says. "We tell developers reluctant to go green that the utility costs in a building you operate is one of your only controllable expenses. You can't control property taxes."

RiseBoro's Cassidy says he's found a Passive House project can cut utility costs by 60% to 80%, which filters down directly to residents. Justin Stein, senior vice president at BronxPro, another green affordable housing developer that builds to Passive House standards, says that by underwriting the utility savings, his new projects leverage a larger loan to pay for the more expensive insulation and ventilation systems. On a large scale, this means buildings would require fewer subsidies from the government, resulting in more units.

The added quality-of-life benefits don't hurt, either. By regulating air temperature, the building controls moisture, meaning no drastic temperature shifts and no mold. Heavier insulation results in quieter units. And since each apartment is sealed to trap in heat, fewer pests travel between floors and there is no stack effect (where smells and smoke travel up air vents). "Whether you're living in a NYCHA unit or a \$5 million apartment, everyone in New York has dealt with loud sirens and cooking smells from your neighbor," Cassidy says. "We think we have to put up with these things to live here, but they can all be mitigated by Passive House strategies."

REWRITING THE RULE BOOK FOR RESIDENTIAL LIFE

Everyone should have quieter, healthier, and cleaner apartments. But getting there as a city is a generational challenge. Seeking to jump-start that process, state and local regulators and lawmakers have recently passed a suite of updated building standards and energy goals, including last year's



Green New Deal and Climate Mobilization Act, which seek to reduce the greenhouse gas emissions from the built environment by 40%. The state's building code has also gotten progressively more focused on energy efficiency, with an ambitious stretch code that just went into effect in New York City. Recent policy changes and initiatives by the New York State Energy Research and Development Authority (NYSERDA), including investment in clean energy for low-income residents and financing for green multifamily construction, are all geared towards connecting the dots.

This push is mirrored at the national level, where a growing number of Democratic proposals focus on sustainable housing: Vice President Joe Biden's plan would focus on making low-income housing more energy efficient; vice presidential nominee Senator Kamala Harris and Representative Alexandria Ocasio-Cortez proposed a Climate Equity Act; and the People's Housing Platform, offered by Ocasio-Cortez and the Squad, includes money for extensive clean-energy retrofits.

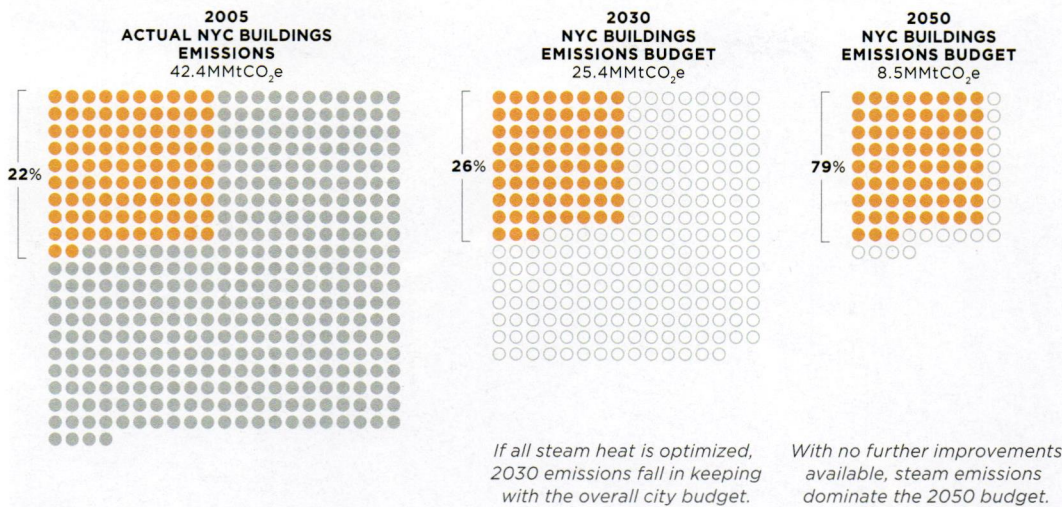
In the coming years, improving standards may be only part of the challenge. Budget shortfalls from the COVID-19 crisis may hamstring the ability of state and local leaders to fund new affordable projects. Mandyck suggests using carbon trading. Local Law 97, part of the Green New Deal, places stringent carbon caps on buildings starting in 2024. Indeed, it is the toughest stand ever applied by any city on the globe; older buildings, especially commercial spaces, will struggle to keep up and likely have to pay huge fines. Mandyck says those fines should fund greener construction and electrification.

To realize the full potential of electrification, the city and state would need to radically revamp the energy grid with utility-scale solar and wind power plants. While a community

Fixing Steam Will Not Be Enough

Even if all steam systems are improved by 2030, their emissions would still make meeting the 80x50 goal for buildings nearly impossible.

■ EMISSIONS FROM STEAM HEAT
■ EMISSIONS FROM ALL OTHER SOURCES
○ = 100,000 tCO₂e



This page and facing page: Images from the 2019 Demystifying Steam report by the Urban Green Council. Both show the prevalence of steam heating in New York City, and why it's important to replace these systems rather than merely upgrading them.

solar project or solar panels on the roof of a public housing project can add renewable capacity—new city law mandates building owners add solar panels when feasible to new construction—local projects can really shine by creating more resilient neighborhoods.

The Marcus Garvey Apartments, more than 625 units spread over nearly two dozen buildings in Brownsville, Brooklyn, received an energy-efficiency revamp between 2015 and 2017, which added solar panels and a large lithium-ion storage battery the size of a standard shipping container. According to Nick Lombardi, senior management of business development at Enel X, which oversees the renewable power system, the renovation isn't enough to power the entire complex—it generates 1.1 megawatts, while the complex hits a peak usage of 1.5 megawatts in the summer and 3 in the winter. But it does cut down on energy costs, which are factored into rent.

Lombardi says the key benefits for residents are resiliency—the apartments and daycare center are safe in case of emergency—and the elimination of costly new electrical generation infrastructure. The Marcus Garvey battery storage facility was funded in part by a program that sought to build up power generation in Brooklyn and Queens without resorting to peaker plants: small, dirty, gas-powered genera-

tors that are terrible for air quality. It's not a coincidence that many lower-income neighborhoods are close to where peaker plants are located or would be built; pairing this kind of green infrastructure with affordable housing means less pollution for the neighborhood.

REDUCE, REUSE, AND RECYCLE OLD BUILDINGS

New buildings and new infrastructure are just part of the solution. According to Mandych, 90% of the buildings that will be standing in New York by 2050 have already been built, and retrofits and renovations can be an extremely expensive proposition. This makes RiseBoro's ongoing Casa Pasiva Project in Bushwick a potential game changer. The first project funded by NYSERDA's Retrofit NY program, the renovation will add cladding, efficient appliances, and new mechanical equipment to achieve Passive House status and, ideally, establish best practices for other such retrofits once it's finished next year. "As architects, we need to take this process into our own hands," says Chris Benedict, RA, architect for Casa Pasiva and longtime collaborator with RiseBoro. "We can't wait for a program to do it. We have to learn and do it now."

From retrofitting millions of apartment units to developing new renewable power capacity, the city faces an unprecedented infrastructure challenge if it truly aims to meet its own ambitious climate goals. But the hope of advocates, architects, and developers is that current programs and incentives not only generate broader support for "better buildings" and healthier communities, but create evangelists with every new tenant. "When I give presentations to tenants in the different buildings I design," says Benedict, "I tell them I hope they're the ones telling the next group of people how great it is to live here." ■

"As architects, we need to take this process into our own hands. We can't wait for a program to do it. We have to learn and do it now." —Chris Benedict



IS TRACKLESS TRAM NYC'S NEW EQUITABLE TRANSIT OPTION?

Emerging streetcar technology is changing critics' minds and offering a new possibility for the city's underserved communities.

BY LISA CHAMBERLAIN

New York Times architecture critic Michael Kimmelman wrote a piece in 2014 about the idea of a waterfront streetcar running between North and South Brooklyn, which he credited to urban planner Alexander Garvin. The article elicited genuine excitement among transit enthusiasts and urbanists, as well as real estate developers.

Jed Walentas of Two Trees, a Brooklyn-based real estate development firm, backed a feasibility study that engaged experts like transit consultant Sam Schwartz. With Two

Trees's public relations firm BerlinRosen on the job of developing messaging and political support, the project that came to be known as "BQX" and Walentas formed Friends of BQX, an advocacy organization. After the early buzz of a High Line-like success story for transit, a leaked memo eviscerated the notion that it would pay for itself: the price tag had ballooned to the point where up to \$1 billion in federal funding would be necessary. Discussions on the BQX went dormant.



The idea was revived in early 2020, however, by the New York City Economic Development Corporation (NYCEDC), which had taken over the transit project's planning and development. NYCEDC announced that BQX would soon begin the city's approval process, launched a new website with a modified route, and hosted a series of public hearings. But COVID-19 was silently spreading through the New York City population and, in May, Mayor Bill de Blasio was forced to admit that BQX was again on hold. At a press briefing in September, de Blasio said that the BQX would have to be taken up by the next mayoral administration.

The most recent delay could be the project's best hope, however. Since BQX was first announced, a new streetcar design has emerged—more flexible, significantly cheaper, high-tech, and carbon neutral—that is ideally suited to the BQX route. It could usher in the future of urban transit in a post-COVID world and, in the words of Sam Schwartz, “be a major game-changer.” Even the most ardent critics of BQX, who have characterized the project as a developer initiative, say this new streetcar approach, called Trackless Tram, is the future of public transit.

Facing page: In late 2017, public officials and advocates joined the Friends of the BQX to unveil a prototype of the streetcar that would run between Astoria and Sunset Park. Left: A map of the proposed BQX corridor.

“We need lighter, faster solutions, and to me this is a great one.”—Gita Nandan

One convert is Gita Nandan, an architect who lives in Red Hook and is the co-founder of Thread Collective, a sustainability-focused architecture, design, and landscape firm. “To me, the beauty is its pure flexibility,” she said. “If there is a disaster event, you can change the route on the spot, or change it more permanently as needed. I know it requires placing these markers in the road, but that is nothing like what it takes to put rail in the roadbed. It works with what our disaster-prone future is going to look like—we need less hard infrastructure and greater flexibility.”

EVALUATING TRACKLESS TRAM'S POTENTIAL

Developed by the high-speed rail authority in China as a next-generation light rail alternative, Trackless Tram is currently operating in several cities there. Rather than running on rails, the streetcars have rubber tires that follow lines painted on the street using laser technology and GPS positioning—with centimeter accuracy.

“In light of the pandemic,” said Nandan, “who are we building this tram for? The wealthy? Or the people who need transportation in a crisis? We need lighter, faster solutions, and to me this is a great one. The tram is how we should be using Autonomous Vehicle (AV) technology in a dense urban environment. That’s why I’m excited about it.”

John Shapiro is a professor of planning at Pratt Institute and a long-time consultant on large-scale urban planning and design projects. He has been an outspoken critic of BQX for a number of reasons, including the cost, the timeline, the disconnect between transit and land-use planning, and the conversion of waterfront industrial land to luxury residential neighborhoods. “It’s not a transit project—it’s a real estate development tool,” Shapiro had said in an initial interview about the traditional light rail approach for the BQX. “It’s a 100-year investment, when much of the route—and virtually all of Red Hook—will experience regular tidal flooding in 30 to 40 years. It’s doubling down on waterfront development. I don’t see it as good public policy.”

Shapiro had a very different take on a BQX that uses Trackless Tram, however. “It seems to be a winner on every count,” he said in a follow-up interview. “I have not studied it in-depth, so for all I know there’s 14 fatal flaws. But, as a

point of departure, it would seem this should be seriously considered as an alternative. It offers transit to support the existing residential development without the significant disadvantages of fixed rail—the cost and long timeline. There are so many clear benefits for the Brooklyn Navy Yard, and for people in public housing who don't have transit options. If it can run through the Battery Tunnel to Lower Manhattan, it would be a game-changer. And, in 25 years, if the route needs to be adjusted for tidal flooding, this can be done with minimal disruption.”

A MULTIPRONGED STRATEGY FOR NY TRANSIT

Sam Schwartz, who worked on early feasibility studies for BQX and remains a strong proponent of the project, offered his own analysis off Trackless Tram. “I’m one of those skeptics about AVs—they are not ready for the big stage of cities,” he said. “This uses AV technology, but there would be an operator who is accelerating and decelerating, and making sure passengers are clear of the door. With AVs, the plan is to get rid of all operators, or they are just sitting there doing nothing. One of the hardest things to do is sit there doing nothing, but always be ready for an emergency. With an operator, they’re always engaged. So this could be absolutely terrific.”

Outside of China, planning is underway to adopt this new transit design in Qatar in preparation for the 2022 FIFA World Cup, and in western Sydney after the Australian city experienced enormous expense and disruption installing traditional light rail in its downtown core. But the place that is furthest along with Trackless Tram is Perth—largely due to the advocacy of Peter Newman, a professor of sustainability at Curtin University, who was awarded the Order of Australia for sustainable transport and urban design in 2014. Upon returning from a visit to



This page: Renderings of the BQX in neighborhoods, including Greenpoint (top) and Industry City (above) along the proposed corridor.

the factory in Zhuzhou, China, where Trackless Tram continues to be developed and improved, Newman co-authored a study and a series of articles and papers. In a paper he co-wrote for the *Journal of Transportation Technologies* in 2019, he quantified the significant cost savings of Trackless Tram compared to light rail. In Sydney, for example, laying 20 kilometers of track through the oldest part of the city took five years and cost about \$130 million per kilometer. By contrast, Trackless Tram can be installed for as little as \$10 million per kilometer. As a traditional light rail project, the BQX plan is currently expected to cost almost \$3 billion; implemented as Trackless Tram, the project has a low-ball estimate of \$170 million.

And then there's the time frame. Trackless Tram is sold as a kit of parts. The three-car set (which can be expanded to five cars) comes with a station that can be assembled in a weekend, according to Newman. This might be an overly rosy scenario, but the speed at which it could be put in place is essentially as fast as the permitting process would allow.

Cheaper isn't just about saving money, however—it's about reducing the pressure on real estate to pay for a very costly transit system. In other words, Trackless Tram has

the potential to reinforce the development of affordable and attainable housing.

David Erdman, chair of Pratt Institute's graduate architecture and urban design programs, and an informal advisor to Friends of BQX, was the only New Yorker interviewed for this article who had previous knowledge of Trackless Tram technology. Having lived and worked in Hong Kong and Taipei, he's attuned to developments in Asia. "We have

this 20th-century idea that one big system fixes everything," said Erdman, "but we can't sink all our resources into a single project anymore. We need projects like this that can work with both legacy transit and new innovations like scooters and e-bikes. What if this became part of the plan for fixing the Brooklyn-

Queens Expressway? That's how we need to be thinking in the 21st century."

With the pandemic continuing to change the way New Yorkers live and commute, and exposing the need to serve the city's neighborhoods more equitably, 21st-century thinking may finally start to catch up with technological possibilities. ■

"There are so many clear benefits for the Brooklyn Navy Yard, and for people in public housing who don't have transit options. If it can run through the Battery Tunnel to Lower Manhattan, it would be a game-changer."—John Shapiro

What Makes Trackless Tram Different?

While Trackless Tram utilizes autonomous vehicle technology, it has a driver who can modify the route or stop in an emergency, mitigating the dangers posed by driverless cars zipping unpredictably around dense urban neighborhoods.

According to proponents of Trackless Tram, stabilizing technology and sensors used in high-speed rail enable a smooth, train-like experience. Controlling sway and swerve allows the skinny streetcar design to make tight turns and travel along narrow corridors on a dedicated route. The use of advanced batteries mounted on the roof eliminates the need for ungainly overhead wires. Streetcars recharge at the station within 30 seconds as passengers load and unload (with longer charges at the end of the line and overnight).

Peter Newman, a sustainability professor at Perth University in Australia, visited the factory in Zhuzhou, China, where Trackless Tram is being

developed. After 40 years of rail advocacy, he said he had to face some hard truths about the limits of light rail. He cited the example of Sydney, where installing traditional light rail in its downtown core was both costly and disruptive. But Newman could not embrace the bus advocates' mantra, either: that a bus can do anything a train can do. "Buses can't compete with rail," he said. "They don't get people out of cars. So I started looking around for alternatives to light rail, and came upon an article about this new streetcar being developed in China."

Newman went to Zhuzhou in August 2018 to see it for himself. "The factory was still testing it, but I was convinced with one ride," he said. "Doing 70 kilometers an hour, it rode like a train. All the problems with buses are gone: the jerkiness, the slowness, the vibration. The ride quality convinced me this is the future of transit."



SHORING UP

Waterfront revitalization has measurable positive impacts on marginalized communities. But amid the pandemic, funding is at risk to continue vital long-term projects.

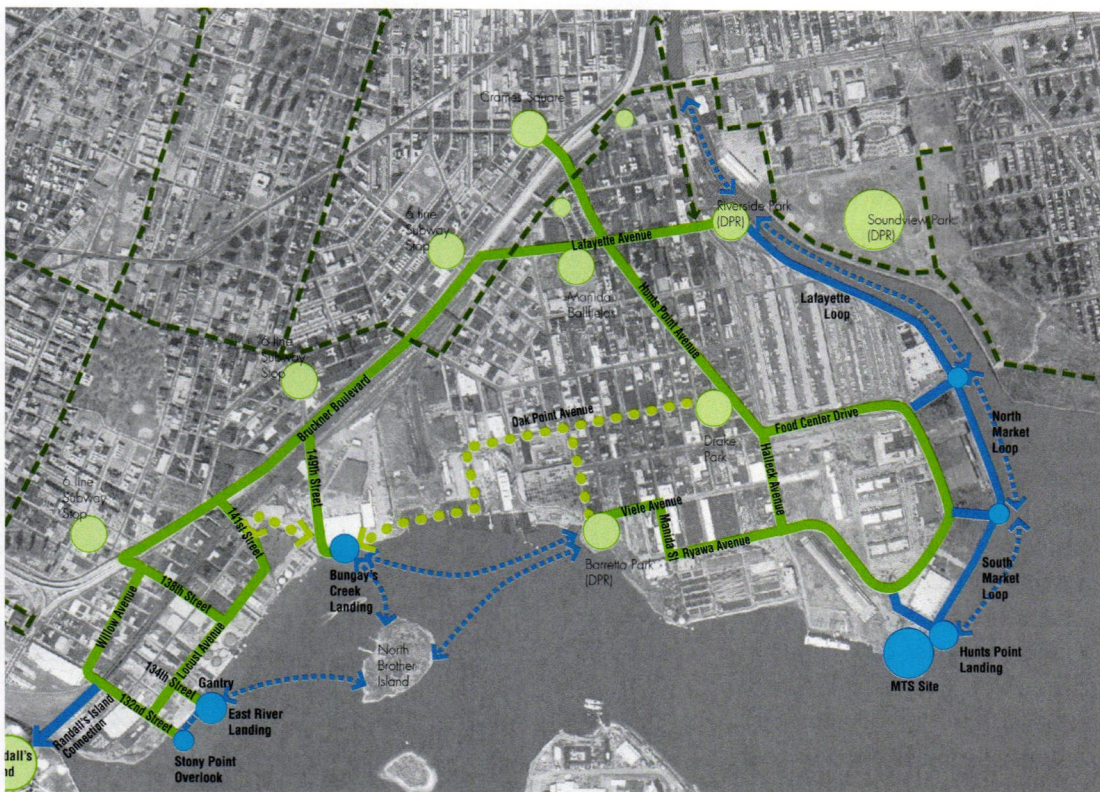
BY POLLY ADAMS

According to the New York City Parks Department, 79% of New Yorkers can walk to a park in less than 10 minutes. The Trust for Public Land has published numerous studies on the many economic and social benefits of public open spaces and parkland, citing the fact that parks draw in people, stimulating local businesses and encouraging healthy habits for residents. But the true impact of green space on the surrounding community is trickier to quantify. While being in proximity to a park is one thing, calculating the true equity of utilizing it is another. The city's waterfront, much of it still underdeveloped, offers the most potential for creating new parks for those communities with a deficit of usable green space.

Neighborhood density and park size impact the likelihood of reaping benefits from green open space. Low-income minority groups often have the least access to public outdoor space, which has become all the more necessary as indoor

activities are limited during the COVID-19 crisis. In fact, these very communities have been hardest hit by the pandemic. But revitalizing public space to make it green and accessible is often a multi-year endeavor that can stall or be derailed.

In the context of post-COVID economic disparity, one chief concern for any public open space project is securing funding that will survive project length. The conservancy model for financing the development of parks in New York City relies very heavily on philanthropy and special events—which normally take the form of indoor luncheons or dinners, April through May. This is why, when the city went on “PAUSE” in March and the Parks Department faced a steep fall in revenue, Heather Lubov, executive director of the City Parks Foundation, started reaching out to her network to establish the NYC Green Relief & Recovery Fund. “Parks are the only public assets that have remained entirely open during the pandemic,” says Lubov, “but without the money, it’s going to be hard to stay open.”



Facing page: A rendering of MNLA's Pier 42 proposal, which would transform an eight-acre parcel of East River waterfront on Manhattan's Lower East Side. This page: A map of the original South Bronx Greenway master plan by MNLA.

While the recovery fund is a grant program primarily focused on emergency relief, at least 10% of its holdings are set to go towards discussing alternatives for securing financial resources free from politics and philanthropy. Post PAUSE, says Lubov, "People know the value and importance of parks now more than ever, but this particular model is not sustainable if we want to change the dynamic of how our parks are cared for long term." When the majority of funding comes straight through the city through tax revenue and private conservancies, every public open space and community organization is competing for the same cash. If public officials and fund administrators are ever going to work together, more resources will need to go towards thinking proactively about ways to gain financial backing that doesn't pit communities against one another. To be truly equitable, the old model may need to be tossed out altogether.

While current circumstances call for a complete rethinking of the way architectural firms work, many design professionals are considering how to proceed, with an underlying fear that procuring funding will only become more difficult. Mathews Nielsen Landscape Architects (MNLA) has been reflecting on the financial challenges ahead for themselves and their clients, especially for not-for-profits. The firm is exploring working with grant writers to help supplement

these clients' funding. Acquiring the money to realize multifaceted, million-dollar projects often relies on demonstrable impact. But, as MNLA Principal Molly Bourne, RLA, ASLA, explains, designers "don't always live in the communities we work in, and rarely have an empirical understanding of our work's true impact." The most important factor is the voice of the community in determining impact—before, during, and after a project. "It's our position that we are there to help them realize their ideas," she adds.

Mathews Nielsen Landscape Architects is exploring collaboration with grant writers to supplement clients' funding.

MNLA is currently engaged in some of the city's seminal resiliency-focused urban design projects, which were launched in the aftermath of Superstorm Sandy. One of these is Pier 42, aimed at transforming an

eight-acre parcel of East River waterfront on Manhattan's Lower East Side into a multiuse expanse featuring grassy lounging areas, recreational facilities, kids' play areas, and a landscape of native and adapted species that can sustain flooding. Looking back at previous work that was heavily dependent on collaboration with local community organizations and non-profits in the South Bronx, Bourne and Principal Signe Nielsen, Hon. AIANY, RLA, FASLA, have learned some lessons in endurance. Decades of experience have taught them that long-term success at the shoreline or any public realm comes down to unwavering commitment,

fortitude, and the belief that incremental change is more enduring than rapid transformation. “We need to be in a proactive cycle if we’re ever going to address the broader issues at play,” says Bourne.

Nielsen and Bourne point to the firm’s Hunts Point Landing project in the South Bronx as a successful example of an early and ongoing partnership with local leaders. Working closely with city agencies and community-based project partners like the POINT Community Development Corporation in Hunts Point and Sustainable South Bronx, MNLA led a team to define the route and character of the South Bronx Greenway within the Bronx neighborhoods of Hunts Point and Port Morris. The project’s goal was to offer quality-of-life improvements, such as more public open space, traffic-mitigating measures that make it impossible for large tractor-trailer trucks to travel down residential streets, and room for alternative commuting. It also seeks to encourage both residents and workers to make the space community-oriented by using it together. As Majora Carter, founder of the Sustainable South Bronx, has said, “Community is not just a place you go to or even a group of people—it is an activity.”

What used to be an illegal dumping ground now sits as the gateway to a revitalized Bronx River, a waterfront oasis created by listening to the needs of residents and local business owners who wanted to focus on community engagement as a means of revitalization. But the word “success” is where Nielsen starts to wonder how the results of their efforts will ultimately be quantified or used as reference. “Each time I visit that area, I see butterflies and I notice that the hawks are coming back,” she says. “And I’ve learned that the annual Fish Parade brings the whole community together. Whenever I’m able to revisit people from those projects, I don’t see any statistics—I see that the vision of the South Bronx Greenway lives on.”

The ongoing progress and benefits of added green space on the South Bronx waterfront have resulted from careful stakeholder alignment rallied around revitalization. But the first lesson in protecting waterfront land in general is having an understanding of “value” up-front, and knowing how it may differ between interested parties. The communities that benefit from revitalization will inherently have a stronger opinion on longevity and due diligence than the elected officials who hold the purse strings and often push projects through for votes, but are out of office before the project comes to fruition. “There is no glory in the maintenance and planning necessary to bring a shoreline project to life,” says Nielsen. “We’re currently working with a federal government that is—to put it politely—disinclined to invest in community-oriented projects that need it the most.”



For landscape architects striving for long-term success on the shoreline, it’s just as imperative to know what type of material they’re working with as who they’re truly working for. Much like the varying communities living on the shoreline, each shoreline type and material—timber, concrete, steel, stone jointing, sand replenishment—requires a unique approach to fostering resiliency, and each has advantages and limits. For example, in the development at beachfronts like the Rockaways and Coney Island, sand can be elevated only so much before it negatively impacts inland grades. But for more urban shorelines, like the ones at Scenic Hudson Park and Hunters Point South, the angle of riprap—loose stone used to form a foundation for breakwater structures—must be changed to produce either inland or in-water impacts strategically, to avoid more permanent damage.

In this way, the lack of support from local, state, and government forces is just as much a threat to the long-term success of shoreline revitalization as the inevitability of hurricane-force winds and flooding. (A significant amount of affordable housing sits on land most at risk from climate change. The New York City Housing Authority owns and manages more housing in the floodplain than any other landlord in the metropolitan area, and 20% of NYCHA housing was directly affected by Sandy.)

Under normal circumstances, securing funding for phased projects that outlive elected officials' terms in office is extremely difficult. In this moment, while we are facing local, state, and national shortfalls, Bourne acknowledges

that clients may be doing extra legwork and seeking out new sources to acquire funding. The firm has also taken this time to reexamine how it can broaden its definition of advocacy going forward, for people and place, no matter the shortfalls. That's part of the challenge that also keeps firms motivated to realize their projects over time—recapturing waterfront land is a multivalent endeavor that requires emotional, physical, and literal buy-in from all the forces entwined in realizing it.

“There is no glory in the maintenance and planning necessary to bring a shoreline project to life.”
—Signe Nielsen

“The deeper you go into understanding the root causes of social and racial inequality,” says Nielsen, “the more you begin to understand the depth and pervasiveness of its roots and the precision necessary in extracting them.” The mistake officials and organizations often make in this realization is acting reactively—frantically pulling out weeds to offer the appearance of equity and revitalization, without using forethought to foster these objectives over time. If quick fixes resulting from reactive

instincts are the biggest hurdles faced by shoreline projects and the fight for environmental justice, the way over is to think proactively to implement long-term solutions.

The work ahead in environmental justice involves rethinking existing systems

with an emphasis on racial, economic, and social equity. The main lessons to learn from longtime practitioners of complex, resilient projects on the shoreline is that change cannot happen overnight, and the only certainty is uncertainty. According to Nielsen and Bourne, some things just can't be planned, but resiliency often manifests in surprising ways when given the chance. “Sometimes,” says Nielsen, “the best thing to do is plant the seed and make sure it has space to grow.” ■

Investing in the City's Most Polluted Sites

This fall, Cooper Hewitt, Smithsonian Design Museum in New York named the inaugural winner in a new Climate Action award category as part of its National Design Awards 2020 class of winners. Established to recognize a design project for its significant contributions to addressing the global climate crisis, the prize was awarded to Brooklyn's Sponge Park, designed by DLANDstudio. The park is sited on Gowanus Canal, a notoriously dirty EPA Superfund site where petroleum by-products and combined sewer overflows of human waste present acute risks to public health. Completed in 2016, the Sponge Park cleans dirty urban stormwater runoff and seeks to address the global issue of polluted streams, rivers, aquifers, and oceans. The park keeps excess water out of combined sewers with an ecosystem that incorporates plants and



Photo credit: Courtesy of DLANDstudio

In 2016 DLANDstudio opened the Sponge Park Pilot modular park at the end of Second Street in Gowanus. It is capable of managing 2 million gallons of runoff per year.

microorganisms in the soil to absorb and break down water and soil contaminants. The modular system is slated for implementation across New York City and has the potential to clean billions of gallons of stormwater locally and nationwide.

2020 CROSSROADS

BY MAX DRISCOLL, AIA, LEED AP,
SUSTAINABLE DESIGN LEADER, HOK

The COVID-19 crisis has exposed what many have known but rarely acknowledge: New York City's communities of color carry a disproportionate environmental burden created by our consumption economy. And they are being crushed under its weight.

All across the U.S., low-income minority neighborhoods are more likely to have heavy polluters as neighbors, simply because they lack the resources and connections to push them away. Whether it's toxic emissions from power plants along "Asthma Alley" in Astoria, or the noxious waste transfer stations in the South Bronx, New York City is complicit in this type of environmental racism.

As a design community, we have an obligation to be leaders in the environmental justice movement.

Step one is to broaden our understanding of how the decisions we make affect New York City's environmental justice (EJ) communities. EJ communities

are defined as census block groups in which 51% or more of the residents report themselves to be members of minority groups, and 23% or more have household incomes below the federal poverty level. At HOK, we are beginning to address equity as a key output in our environmental life-cycle analyses for projects.

One could argue that we have a moral imperative to design net-zero energy buildings, as this would lighten the pollutant load inhaled by residents of EJ communities. According to the Harvard School of Public Health, poor ambient air quality has contributed more to the COVID-19 death rate than preexisting medical conditions, socioeconomic status, and access to healthcare. In New York City's initiative "Take Care New York 2020: Community Health Priorities," five of the 10 communities surveyed listed air quality as their number one health concern. Doubling down on energy performance will carry the added benefit of mitigating the climate change impact our buildings have on EJ communities, which are more likely to suffer during climate-related disasters.

Another "Swiss Army Knife" solution we can effect in EJ communities is well-designed natural space. Parks and places of play are known to improve social cohesion, a key

determinant of resilience, and they are in severe deficit in EJ communities. Well-designed natural spaces provide an array of health benefits by reducing stress, boosting air quality, promoting physical activity, and allowing for hyperlocal food production. They decrease water pollution by eliminating stormwater runoff and can help reduce crime. Natural spaces also lessen urban heat island effects, which can accelerate heat-related illnesses and death among vulnerable populations. As climate change continues and the number of extreme-heat days increases, these problems will be exacerbated.

We, the design community, hold the technical and leadership skills to implement these projects. Designers can't just wait on RFPs for these spaces to land in our laps. We must proactively engage EJ communities, collaborate to develop creative, low-tech, and cost-effective solutions, and then aggressively advocate for construction funding.

The ultimate NIMBY issue is waste. The Center for Architecture has demonstrated leadership in this area with the Zero Waste Design Guidelines, and Local Law 152 of 2018,

known as the "waste equity bill," was also a strong step in the right direction. Yet our actual performance has been terrible.

The NYC Department of Sanitation reported a recycling rate of less than 20% in 2019. Think about that: More than 30

years after New York City passed its mandatory recycling law, we're still sending more than 80% of our waste to landfills. Clearly, the status quo isn't working. With waste transfer stations often located in EJ communities, our unwillingness to reduce waste carries serious consequences for our fellow New Yorkers.

Waste is a design problem. Instead of reacting to waste that has already been generated, we should focus our design intellect upstream to create efficient systems that generate less waste to begin with. Though it has been an AIA Committee on the Environment Top Ten Awards metric for years, Design for Disassembly, or reuse at the end of a building's useful life, remains a promise largely unfulfilled. On tight construction sites, contractors regularly feed architects a narrative that the only way to deal with construction and demolition waste is off-site at a comingled facility, which nearly always is in an EJ community. Don't we have an ethical obligation to push back and work harder to alleviate that burden?

In what will likely be a post-COVID-19 period of austerity for New York City, we should focus on multifaceted solutions that solve multiple problems simultaneously. When we demonstrate the value proposition of generating a rising tide

We must proactively engage environmental justice communities, collaborate to develop creative, low-tech and cost-effective solutions, and then aggressively advocate for construction funding.

that lifts all boats, we can leverage our proximity to some of the world's most valuable companies and the city's generous philanthropic community to attract more EJ-focused investment.

If the COVID crisis has taught us anything, it's that there are no such things as externalities. The severe economic and social costs are real and painful, and they have the potential to tear our city apart.

I previously considered "2020 Vision" as a phrase to describe the potential of this decade. It now seems a well-fitting description of how clearly we can see the disparities that exist

in our city. With clear vision, we now face a "2020 Crossroads." The crises we confront have shaken many of us awake, and we have the rare opportunity to make a generational course correction.

Do we continue along a "change as usual" path, nibbling at the edges and hoping everything works out? Or do we turn, face the wind, acknowledge our failings, and proceed to take New York City in a direction where we work to protect the health, safety, and welfare of everyone?

Standing at this crossroads, I vote for the latter. ■

OP-ED

GUIDING THE WAY TO SUSTAINABILITY AND EQUITY

BY MARK GINSBERG, FAIA, LEED AP, PARTNER, CURTIS + GINSBERG ARCHITECTS (C+GA), AND CRYSTAL NG, RA, LEED AP, CPHC, ASSOCIATE/DIRECTOR OF SUSTAINABILITY, C+GA

As the theme for this issue of *Oculus* reveals, our community's conversations are currently focused on social inequities related to climate, health, and opportunity. Indisputably, climate change, its causes, and its effects all disproportionately affect low-income groups and negatively impact their overall well-being. Approximately 20% of all NYC Housing Authority units are in flood zones, and 80% of the rental units in Superstorm Sandy's surge area were publicly subsidized or stabilized. Carbon emissions and air pollution are concentrated in lower-income neighborhoods of color, resulting in high rates of asthma and other chronic health conditions, according to NYC's Department of Health and Mental Hygiene. A 1997–2006 study published on the website ScienceDirect showed that high heat events in the city—exacerbated and made more frequent by climate change—also lead to higher mortality in these neighborhoods. Residential overcrowding, also much more common in low-income areas, has a direct correlation with infection rates of COVID-19, according to a report by the Citizens Housing Planning Council. And to top it all off, disadvantaged New York City residents, already facing housing insecurity, have less ability to move.

We need public policy to drive higher standards of sustainability and equity, but, as architects, we can also steer the way. If we make all buildings healthier, more efficient, and more affordable, we will help mitigate climate change and its disproportionate effects, particularly on disadvantaged populations' health outcomes.

Affordable housing is already showing proven results. NYC's Department of Housing Preservation and De-

velopment (HPD) has required Enterprise Green Community (EGC) as a sustainable criterion for a decade now. HPD-funded buildings are, at a minimum, 15% more energy efficient than code, and require low-VOC products and other materials that reduce indoor air pollution. The 2020 EGC certification incorporates WELL standards specifically focused on health. According to a report by Elyzabeth Gaurmer of HPD, quality housing solutions such as these have a measurable positive impact on occupant health and overall comfort. They're also reducing the city's carbon footprint. Operational data from HPD's first five Passive House buildings indicate that four of the five already meet Local Law 97 requirements for 2050, when the energy grid becomes carbon-free per state law.

To design healthier, high-performing buildings of all types, architects and engineers should look to proven examples like these and make low-carbon best practices common practices. C+GA regularly incorporates Passive House standards and recently completed the largest affordable multifamily Passive House in North America. Here are five basic Passive House strategies we believe can be applied to any project:

To design healthier, high-performing buildings of all types, architects and engineers should look to proven examples and make low-carbon best practices common practices.

Insulate and seal the building while improving indoor air quality

Better building envelopes improve thermal performance and reduce energy use. In addition, tightly sealed, well-insulated structures can remain habitable for days without power, offering safer indoor options. Energy recovery ventilators filter out particulates and allergens, control moisture that can lead to mold and resulting respiratory issues, and provide fresh air.

Reduce on-site carbon consumption

A better envelope allows reduction in the size of mechanical systems and makes it easier to fully electrify them. In addition, we need to minimize electric loads from lights, appliances, and outlets. This can be done with off-the-shelf equipment and fixtures, reducing the cost barriers to low-carbon building.

Provide on-site power generation

Where practical, install solar photovoltaic panels and battery storage. This reduces stress on the power grid and provides partial 24/7 emergency backup power for medicinal refrigeration and charging of mobile phones and other devices—essential when it may take days or weeks for the lights to come back on after a storm.

Retrofit existing buildings

Renovations typically have a lower embodied carbon footprint than new construction. Deep energy retrofits can be difficult to achieve, as owners are often deterred by costs. Electrification of heating, cooling, and hot water currently has a significantly lower carbon footprint per BTU in operation, but fossil fuels are currently cheaper. We need to phase out fossil fuel usage

through a combination of building codes, a carbon tax, and/or a ban. Electrification also goes a long way to improving air quality. And with the cost of renewable energy going down, on-site generation and all-electric provides an opportunity to substantially reduce operating costs for affordable housing, both public and private. This cost savings can then be passed on to residents and help increase affordable housing production, so everyone benefits.

Tout our successes

As New Yorkers, we are the USA's carbon neutrality testing ground. A study published on CoolClimate Network found that NYC's high density minimizes its per-capita carbon footprint. In addition, we've enacted critical policy initiatives. NYC's Local Law 97 and NY State's Climate Leadership and Community Protection Act in combination mandate an 85% carbon footprint reduction by 2050 and require a carbon-free grid by 2040. We can get there, but high-performing, all-electric Passive House projects—or their equivalent—must become the rule, not the exception.

We must make a personal and business commitment for change. While we lobby the federal government and wait for stronger sustainability mandates, we can still move ahead. The architectural community should commit to making our buildings more energy efficient and electrifying them. As design professionals, we must advocate for low-carbon and equitable projects with clients and collaborators. We need to push the low-carbon agenda forward and continue to develop exemplary projects that influence and inspire others. ■

ON THE BOARDS

COOL COMMUNITIES

Addressing climate change while helping New Yorkers who are most at risk during the pandemic

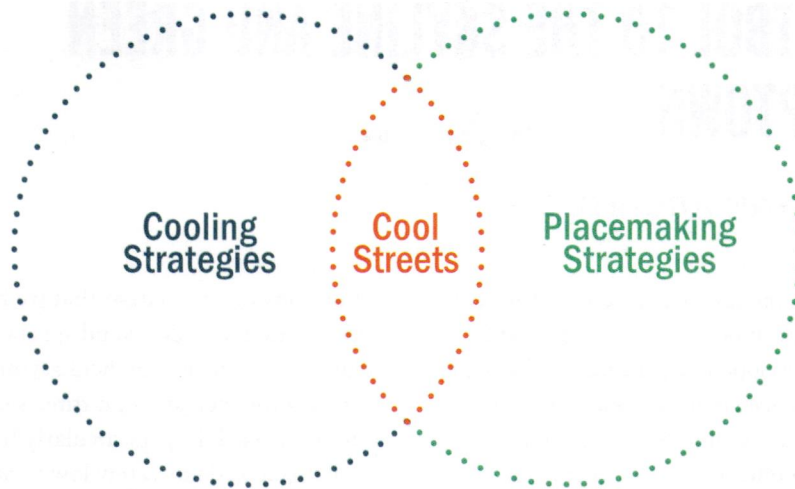
BY PERKINS EASTMAN ARCHITECTS

COVID-19's impact on all industries and aspects of day-to-day life has made clear just how connected our financial, social, and environmental worlds are. Epidemiologists warn that viruses like COVID-19 may appear more often in the coming decades, as deforestation and habitat destruction—our environmental footprint—force humans and animals to be in closer proximity to one another. Furthermore, our need to stay indoors and isolate to diminish the coronavirus' spread

has had monumentally damaging effects on world economies, with American unemployment alone becoming astronomically higher than it was during the Great Depression, seemingly overnight. The most striking effect of the shift in this fragile network, however, has been the continuing, enhanced hardship on at-risk communities and communities of color.

Before the outbreak of COVID-19, Perkins Eastman was studying the relationship between at-risk communities and climate change. Presented to New York City public agencies in 2018, our "Cool Streets" proposal highlighted the dangerous link between rising temperatures due to climate change and the urban heat island effect on vulnerable communities. Our aim was to build resiliency; we knew that tackling climate change and addressing the problem of socioeconomic disenfranchisement are one and the same. We designed a toolkit of options for cooling New York City's public realm—a spectrum of initiatives that would reduce the urban heat island effect in high-risk communities through sustainable and achievable solutions that are accessible and free to all. Indeed, we quickly realized that some of the most effec-

A graphic depicting how placemaking can foster a sense of community and rectify the potential risk of heat death when coupled with cooling strategies.



tive interventions were also the cheapest. For example, by simply adding shade to an area, surface temperatures can be reduced by as much as 45°F on hot, sunny days.

Metropolises are ripe for cool communities, and many are finally responding to this need. As COVID-19 became a mounting concern, New York City initiated a version of Cool Streets as part of its “Cool It! NYC” rollout. The Department of Parks and Recreation identified streets with ample trees and canopy coverage already closed to traffic in accordance with the city’s “Open Streets” plan, with specific attention paid to streets located within highly vulnerable communities—classified as a 4 or 5 by New York City’s Heat Vulnerability Index.

With the addition of spray caps on hydrants in these blocks, the city began to focus on a few of the cooling strategies identified in our 2018 report.

Prior to the outbreak of COVID-19, these steps were critical for creating cool spaces for all New Yorkers—now they are even more essential. With the first wave of the virus extending into the summer months, many communities lacked cooling resources like public pools or air-conditioned community centers. But even with those resources, enclosed spaces and populated areas with minimal physical distancing became a potential site for transmission. Cool Streets, as a sustainable place for communities to congregate and cool down, allowed New Yorkers to physical distance while gathering together.

While the implementation of Cool It! NYC has been a great start to sustainable cooling initiatives, it has been critiqued for

not reaching out to all members of the community. This flaw adds potential harm for people in these areas. Without a sense of place pushing people to congregate, older residents and those who live alone are not as easily looked after, and therefore are at higher risk of heat-related injury and death. The persistent need for isolation due to COVID-19 has only fueled loneliness within these communities. Anxiety and depression are on the rise, and America’s loneliness epidemic, a mounting problem long before the initial virus outbreaks, has worsened during the COVID lockdowns. How then can NYC’s Cool Streets remedy the problem of community engagement and protect the health and safety of those who are most at risk?

Placemaking, a design intent that fosters community, has the potential to rectify both the potential risk of heat-death by lonely residents and the rising rates of mental illness due to COVID-19. Through placemaking, residents who

congregate to cool down have a defined place where they can look after one another. It is another example of how the uplifting of communities involves climate justice, community engagement, and socioeconomic support.

Perkins Eastman continues to investigate how to leverage the unique properties of New York City to keep residents cool and bolster social connection, and to develop safe and sustainable spaces that address all the stressors that affect at-risk communities. When we design the built environment, we mean the environment at large—taking into account the multitude of confounding factors beyond what we can see and touch is vital in creating resilient communities. ■

Without a sense of place pushing people to congregate, older residents and those who live alone are not as easily looked after, and therefore are at higher risk of heat-related injury and death.

BRINGING FÚTBOL TO THE SKYLINE AND GREEN SPACES TO UPTOWN

BY GARO GUMUSYAN ARCHITECTS

What if a new infrastructure project could accommodate several of New York's major public priorities at once—multimodal transportation, waterfront development, park accessibility, and social equity—while filling a need that has gone puzzlingly unaddressed? Garo Gumusyan Architects (GGA) proposes that the city raise the value and profile of Randall's Island, the three-borough convergence point where Robert Moses once based his operations, by constructing a new bridge and soccer stadium.

At a stroke, adding these features to an underused site within view of East Harlem could increase that neighborhood's access to the island's ample recreational resources while laying the groundwork for potential mixed-use expansion of the island complex. We view Randall's Island as a civic asset that has been hiding in plain sight for decades, and we propose bringing it within reach of far more New Yorkers than it currently serves.

This project extends the island's history of stepwise physical integration with the surrounding boroughs. Randall's Island and Wards Island, conjoined in the 1960s when Moses added landfill to the channel then known as Little Hell Gate, gained connections for vehicles in 1936 (the

Triborough Bridge) and for pedestrians and bicycles in 1951 (the smaller Wards Island Bridge over the Harlem River, linking the island's southwest point to East 103rd Street). The Randall's Island Connector to the South Bronx Greenway (2016) strengthened cyclists' and pedestrians' ties to the Bronx.

Our proposed bridge provides the same benefit to Manhattan, ending the paradox that Randall's Island is officially within the borough but difficult to reach from it. With lanes assignable to pedestrians, cyclists, and vehicles according to demand, the new bridge will foster transport-mode diversity. Its single-pylon cable-stayed design allows material efficiency and visual grace, giving this part of the city the same harmonious aesthetics that the new Kosciuszko Bridge has given its area of Brooklyn and Queens.

The mid-island stadium site, currently dominated by vehicle parking, offers a spectacular southwest-facing riv-

erside view of Manhattan that we believe would be more appropriate for athletes and spectators than for cars. The stadium roof shades the field asymmetrically to optimize this view for spectators on three sides, with the skyline as a dramatic backdrop, particularly by night; raked seating on that side is deliberately low to allow this view. With auto parking limited to a remote lot a practice field's width away, visitors arriving by car join those taking the bridge's pedestrian route in a structured, orderly approach to the canopied northeastern entrance, just as fans approach Barcelona's Camp Nou or Liverpool's Anfield. The site's landscaped riverfront side is also a convenient point for aquatic access by ferries and water taxis; as NYC Ferry service continues to expand, a Randall's Island landing would be a logical extension of the Soundview and/or

Astoria routes on the East River, increasing the prominence of water transport as a unifying element among the boroughs.

Some 40% of all athletic field space in Manhattan is on this publicly owned island, administered by the non-profit Randall's Island Park Alliance. Yet its 60

fields, including golf and tennis centers and the Carl Icahn Stadium (2005) for track and field, are used disproportionately by private-school students (bused in from wealthier neighborhoods and schools) relative to the public school students, whose island access depends on public buses or narrow pedestrian routes. We believe that in a city striving for democratic distribution of public amenities, East Harlem residents, relatively starved for green space, deserve the improved access to Randall's Island's fields and parks that our proposed multimodal Harlem River Bridge would provide.

The stadium plan requires the sacrifice of the track-and-field facility. We view this tradeoff as a distinct net benefit, since Icahn Stadium differs little from running tracks found at numerous sites throughout the city, whereas the stadium gives this unique location an equally unique asset.

"In a city striving for democratic distribution of public amenities, East Harlem residents, relatively starved for green space, deserve the improved access to Randall's Island's fields and parks."



New York is a city of immigrants who bring their talents, drive, arts, cuisine, diverse intelligence, and diversions, including the world's most popular game, *el fútbol*. The region has two Major League Soccer (MLS) teams, New York City Football Club (NYCFC) and the Red Bulls; a minor-league team with a lively history, the Cosmos (revived in 2010 and currently playing in the National Independent Soccer Association); and countless school and club teams. So many fans crowd the city's sports bars during normal times—and no longer just during the World Cup—that one can specialize: in some cities, a visitor finds “the soccer bar,” but New York fans choose among a Bayern Munich bar, an Atlético Madrid bar, and so on, including no fewer than seven locals, by one count, for supporters of Arsenal.

Yet, within the boroughs, there is no dedicated soccer stadium large enough to accommodate MLS crowds. NYCFC currently plays in Yankee Stadium, an egregious facility mismatch. Red Bulls fans must trek to Harrison, NJ. Plans to secure a Bronx site for an NYCFC stadium (one of eight schemes considered to date) involve a complex set of approvals, relocations, roadway decommissionings, and associated uses; they have not approached finalization during the pandemic. Our simpler proposal displaces no businesses or roads, gives NYCFC (or other potential tenants) their own high-visibility stadium rather than a tight site overshadowed by Yankee Stadium, and uses land the city already owns. It also incorporates a bridge that overcomes the long-standing disconnection between Manhattan and its largest concentration of spaces for sport. Of course, Randall's Island is more

A proposal by Garo Gumusyan Architects would construct a soccer stadium on Randall's Island and connect a bridge between the island and East Harlem, increasing that neighborhood's access to green space and recreational resources.

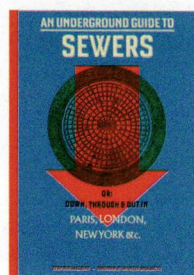
than a playground, having hosted music and arts festivals and other events for years, along with hospitals, training academies for the New York City Fire Department and Parks Enforcement Patrol, and other vital municipal structures. When a coronavirus vaccine or other measures eventually bring an end to the lockdown period, and large gatherings are possible again, a Randall's Island that visitors can walk or ride to from Manhattan will have much less congestion than some past festivals have generated. It can be a pivotal, rather than peripheral, part of New York.

Building any new urban sports facility during the pandemic, which has forced every manifestation of people's gregarious instincts into hibernation, is arguably counterintuitive. Yet the history of New York's built environment implies that the coming years may be exactly the time to think against the grain and build—despite the recommendations of the cautious. The city's distinctive New Deal-era architecture is an enduring reminder that economic hard times can be excellent times to invest in civic assets. The bridge/stadium project will require the kind of large-scale initiative associated with Robert Moses, while advancing the democratic, urbanist, and neighborly values more often linked with urbanist/activist Jane Jacobs. We suggest it in the spirit of the best of both of them. ■

REVIEW

An Underground Guide to Sewers or: Down, Through & Out in Paris, London, New York, etc.,

by Stephen Halliday. MIT Press, Cambridge, MA, 2020. 256 pp.



This lively book is a useful guide to what is an essential but largely unseen set of systems that make urban life possible. Halliday traces the arc of sewer systems from the early Mideast to Rome, with its vast system of aqueducts and “night soil men”—the corps of workers who carted away human waste and sold it as fertilizer.

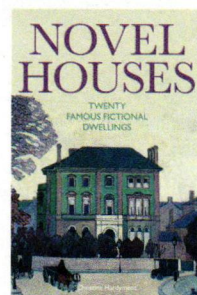
From the decline of Rome in the fifth century A.D., through the Middle Ages, until 19th-century Europe, water supply and sewerage systems were spotty. Plague due to cholera was a recurring problem. But the dramatic growth of major European cities forced leaders to take action. The heart of this book is a discussion of the contrasting cases of Paris and London.

In 1848 Napoleon III confronted notorious and dysfunctional sewers (used as hideouts and escape paths), which led to riots about poor water, ever-present waste, and epidemics. He created a public works program to build the Paris sewers, appointing Georges-Eugène Haussmann, prefect of Seine, to get it done. Haussmann and Chief Engineer Eugène Belgrand planned aqueducts, new sewers and streets (plus urban displacement), and street and collector sewers conveyed to a point eight miles downstream. The weakness of the system was that, though it collected liquid, it filtered out solid waste for disposal by night soil men. The colossal cost led to Haussmann’s dismissal in 1869. Nevertheless, the Paris sewers were deemed an engineering marvel and became a tourist attraction.

London’s Metropolitan Board of Works was established in 1855. It was the first body established for London as a whole with authority to construct roads, bridges, parks, street drains, and intercepting sewers. Joseph Bazalgette was appointed chief engineer in 1856. His plans lay fallow until “The Great Stink” in the summer of 1858, when the waste that had been dumped in the Thames River for centuries overwhelmed the city with its unbearable odor. The situation hobbled Parliament but compelled the government to build the combined sewer systems with outfalls far down the Thames. There were extensive complexities building the sewer systems in the densely populated areas north of the Thames, including the construction of the

Victoria Embankment. Opened in 1867, the system served 2.8 million people when completed. By 1938, when it was extended, it serviced 8.6 million people.

Halliday goes on to describe systems in Washington, DC, Los Angeles, Baltimore, San Francisco, and New York. In many cases, plants were upgraded to protect surrounding waters. He also discusses modern technologies, newer toilet fixtures, and advances in waste treatment, noting that the modern water closet, which emerged in the mid-19th century, was a vital contributor to the entire system.

**Novel Houses: Twenty Famous Fictional Dwellings**, by Christina

Hardyment. Bodleian Library, University of Oxford, 2019. 250 pp.

The premise, well and delightfully demonstrated, is that the houses are the centers and pivot points of these classic novels. They play an active role in the development of the stories and characters—indeed, the homes themselves act as major characters.

The study ranges widely over British and American fiction. Starting with Horace Walpole’s *The Castle of Otranto*, this collection of mini-essays also discusses, among other legendary works, Austen’s *Mansfield Park*, Dickens’s *Bleak House*, Hawthorne’s *House of the Seven Gables*, Doyle’s *Sherlock Holmes Stories*, Brontë’s *Wuthering Heights*, Forster’s *Howards End*, Fitzgerald’s *The Great Gatsby*, and concludes with Rowling’s Harry Potter series.

In *Mansfield Park*, for example, Hardyment explains how Austen’s depiction of the sumptuous house tracks the ups and downs of the relationships between the Bertrams, the Crawfords, and the protagonist Fanny. In Chapter 2, the reader meets *Mansfield Park*’s interiors through Fanny’s eyes: “The grandeur of the house astonished, but could not console her. The rooms were too large for her to move in with ease: whatever she touched she expected to injure, and she crept about in constant terror of something or other.” Austen uses the residence to reinforce her purposes: Good management of the house is symbolic of good character; squalor and chaos in the house denote the opposite.

This depiction of the house as a central, living character is typical of all Hardyment’s selections. Depending on the novel, the house is portrayed as a hero, a confused place, a tomb, a bachelor’s lair, a center of illusions, a center of secrets. This collection is less about design and more about perception and mood, another set of sensations within the architect’s control.

Stanley Stark, FALA, NCARB, LEED AP, is the book critic for Oculus. ■

CALL FOR WINTER

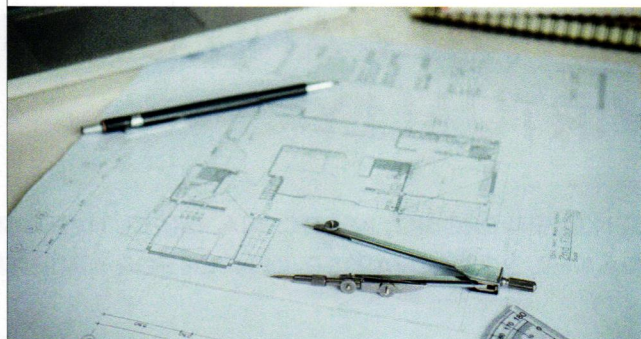
Architecture + Restorative Justice

On September 30, the board of the AIANY issued a statement about the role of architects play in the criminal justice system. Citing racialized abuses embedded in the system, the board called "on architects no longer to design unjust, cruel or harmful spaces of incarceration within the current United States justice system, such as prisons, jails, detention centers, and police stations. We instead urge our members to shift their efforts towards supporting the creation of new systems, processes, and typologies based on prison reform, alternatives to imprisonment, and restorative justice." For the Winter issue of *Oculus*, we invite members to submit 800-word op-eds or captioned visual comments that explore the subject of architecture and restorative justice. Please submit materials to editor@aiany.org by November 20.



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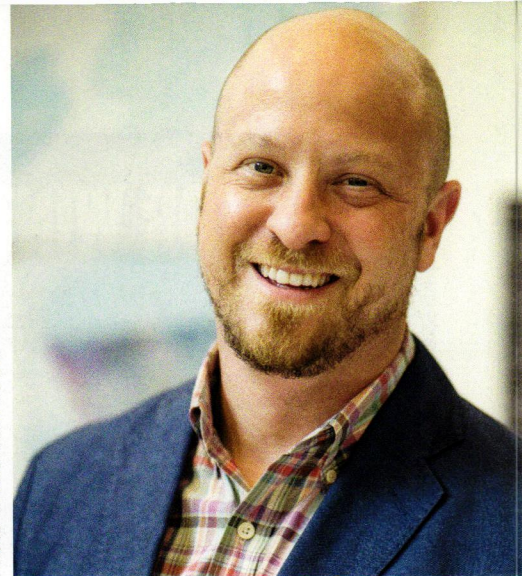
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LAST WORD

AT THE CENTER OF ACTIVITY AND CHANGE, VIRTUALLY

**BENJAMIN PROSKY, ASSOC. AIA, EXECUTIVE DIRECTOR
AIA NEW YORK CHAPTER/CENTER FOR ARCHITECTURE**

Photo credit: Sam Lahoz



At a time when going to school, entering an office, or even eating out feels like a brave physical act, architects continue to have faith in design—employing design tactics in new ways to help enhance our lives, keep us safe, and foster interaction, albeit distanced. Amidst all this, the Center for Architecture has remained dedicated to providing our community members with a range of ways to interact with architecture and the city around them. Whether through our new K–12 Architecture at Home resources or the addition of several virtual exhibitions, there is much to do at centerforarchitecture.org, while the Center remains closed.

And, despite the challenges of 2020, Archtober turns 10 this year! This edition of our month-long celebration of architecture and design is responding to the times, pivoting its focus to provide virtual, safe, self-led activities to mark our landmark anniversary.

The festival's over 60 partners contributed virtual tours, online exhibitions, self-guided walking tours, and other safely distanced opportunities. Taking advantage of our digital reality, Archtober's new "Travel To" series transports participants to sites across the country, providing an opportunity for architectural tourism from the comfort of our homes. Beyond

timed and ticketed activities, this year's Archtober website also includes new resources for architecture lovers of all ages. Please dive in at archtober.org.

Turning to other important work also happening during these unprecedented times, I want to draw your attention to the enhancements made to the five-year strategic plan of the American Institute of Architects (AIA) for 2021–2025. Released in April 2020, the plan reaffirms the need for architects and the organization to be active in the urgent issues of our time, particularly climate action and equity.

As an example of these focused efforts, AIA's "The Climate Imperative" plan, published in July 2020, declared the goal to exponentially accelerate the decarbonization of buildings, the building industry, and the built environment by declaring an urgent climate imperative for carbon reduction; transforming the day-to-day practice of architects to achieve a zero carbon, equitable, resilient, and healthy built environment; and leveraging support of all potential partners, including peers, clients, policymakers, and the public. Resources gathered on the AIA website will provide tactical support to architects seeking to implement the goals and to broadly distribute best practices. In September, AIA also released equity-focused resources,

including tools to help bridge the gaps between complacency and knowledge, knowledge and action, and action and progress.

In this season, it is imperative to engage with policymakers and to understand how legislation is impacting the built environment. The 2020 AIA Policy Platform, developed by members for distribution to lawmakers and activists, identifies meaningful policies and commits to better buildings that will sustain a healthy country. AIA New York Chapter, with its newly launched Political Action Fund, is continuing to stay active in advocacy, ensuring that our community has a voice in the many policies that will emerge as our city rebuilds itself amidst and post pandemic.

So far, 2020 has brought on a crippling pandemic and acts of brutality that have exposed racial injustice throughout our society. But these have served as a call to action, asserting that we must collaborate with all communities, working with many stakeholders to recreate and sustain the city we all want to live and thrive in. AIANY and the Center for Architecture are collectively responding to this call, defining steps to increase equity in our community. We challenge each firm, architect, and constituent to also consider how to apply their skills to these pressing issues. ■



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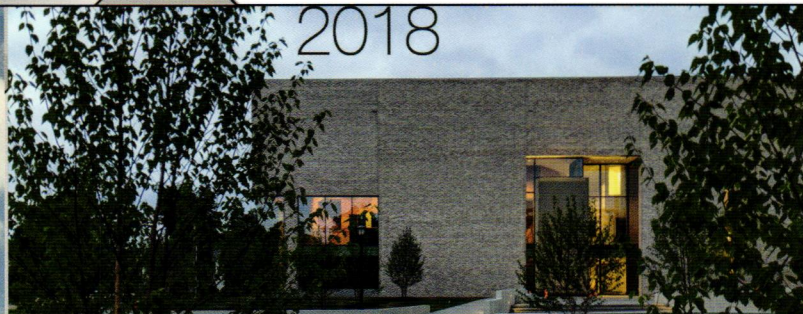
Severud Associates

1992

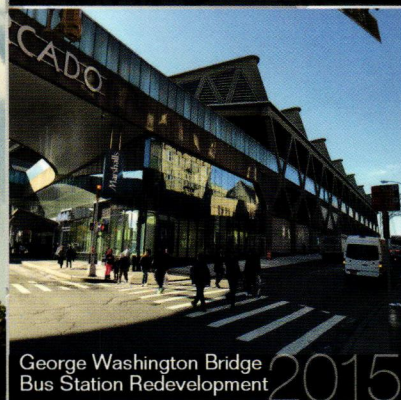


101 Hudson

2018



Phillips Exeter Academy, David E. Goel and Stacy L. Goel Center for Theater and Dance



George Washington Bridge
Bus Station Redevelopment

2015

2004

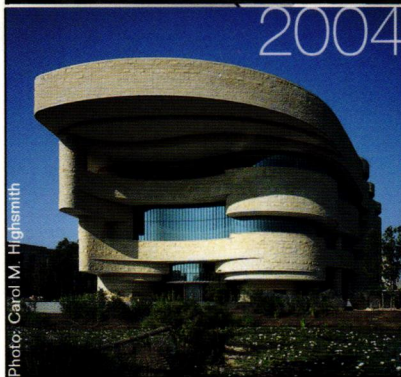


Photo: Carol M. Highsmith

National Museum of the American Indian



Hampton Coliseum

1970

2022



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