The Architect's Newspaper

September 2024 archpaper.com @archpaper $6.95

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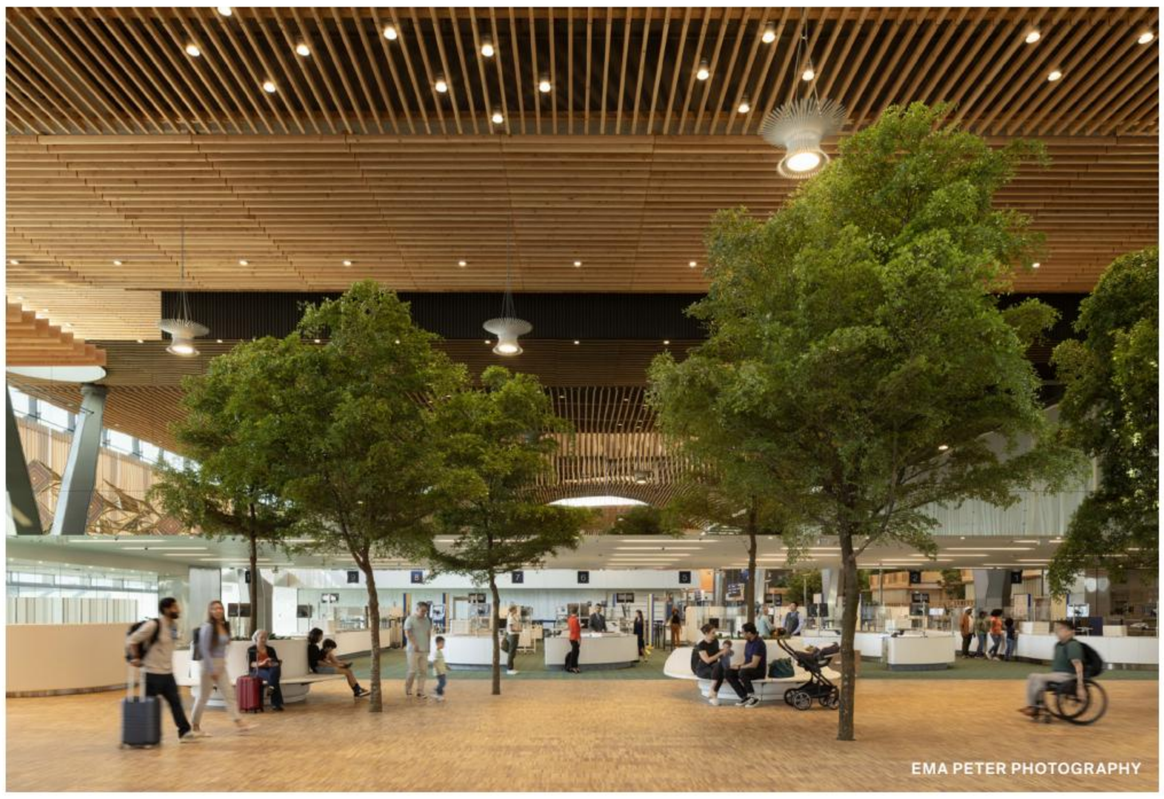
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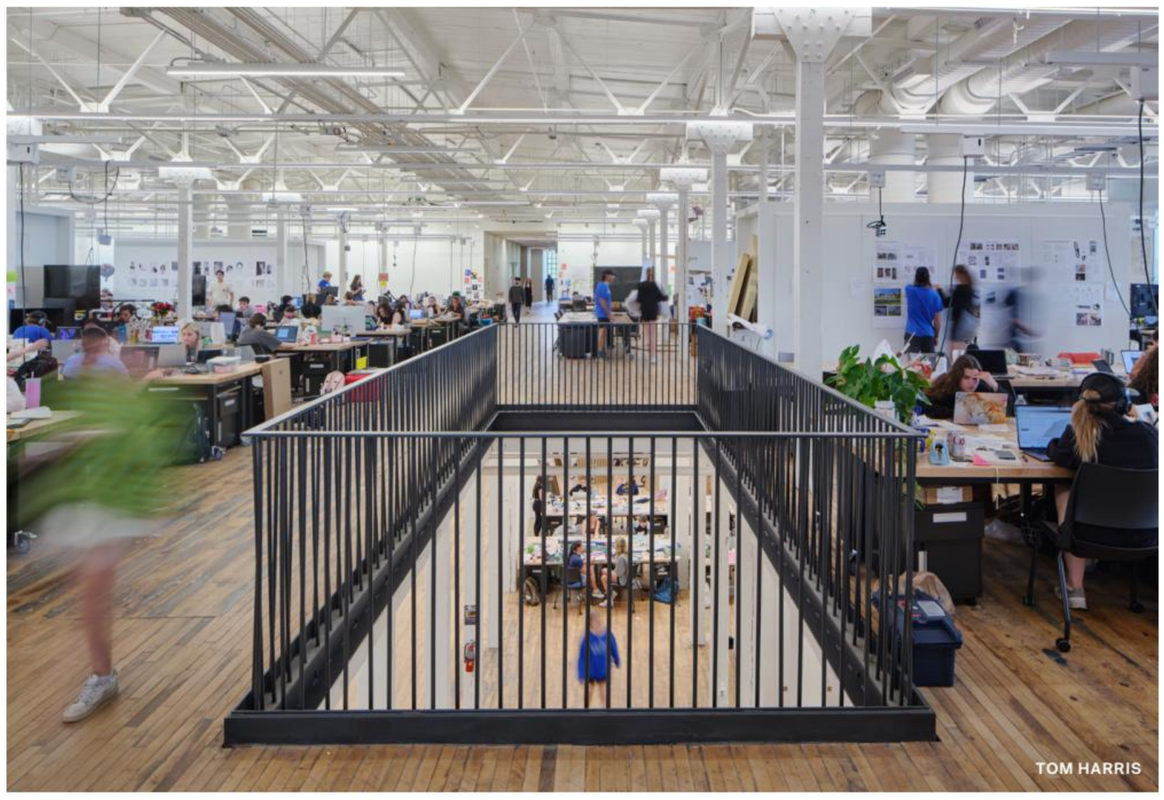
ZGF elevates air travel to new heights with a soaring mass timber addition to Portland International Airport. **Read on page 56.**



EMA PETER PHOTOGRAPHY

Back to School

Studio Gang renovates a former tobacco warehouse into the new home of the University of Kentucky College of Design. **Read on page 32.**



TOM HARRIS

The Rise of Climate Centers

Architects are designing a new type of science education facility to study our warming planet. **Read on page 30.**



MICHAEL MORAN

U.S. Porches Take Venice!



RUSSELL COTHREN/COURTESY FAY JONES SCHOOL OF ARCHITECTURE AND DESIGN, UNIVERSITY OF ARKANSAS

Peter MacKeith, Susan Chin, and Rod Bigelow to lead the U.S. Pavilion in the 2025 Venice Architecture Biennale. **Read on page 12.**

Climatopias

Futuristic imagery often distracts us from deep-seated societal change.

In 1516, British author and statesman Sir Thomas More published the book *Utopia*. The title was a play on the Greek words for the "good place" (*eu-topos*) and the "no place" (*ou-topos*). *Utopia* described an imaginary island where an ideal society developed. In contrast to the British feudal system of More's time, where the land-owning aristocracy ruled over an impoverished common folk of farmers, craftsmen, and traders, *Utopia* depicted an egalitarian society where private property did not exist and where resident utopians lived free of violence, sexual discrimination, and religious intolerance.

In the several hundred years since, activists, designers, industrialists, and religious leaders have produced hundreds of utopic visions, many imagined but some fully realized. Regardless of the final form, each is a creative vision of what a different social, political, and physical reality might look like. **continued on page 72**

A/N FOCUS

Sustain-ability

Planet-friendly materials and methods. Read on page 35.



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Porch Life



HISTORIC AMERICAN BUILDINGS SURVEY/COURTESY LIBRARY OF CONGRESS

In mid-August, *AN* broke the news that the U.S. Pavilion at the 2025 Venice Architecture Biennale will be co-commissioned by the Fay Jones School at the University of Arkansas, DesignConnects, and Crystal Bridges Museum. (Read about it on page 12; *AN* is the exhibition's media partner.) The project stands to evocatively explore the porch as an architecture of generosity.

Knowing the widespread usage of this architectural element, my mind wandered to some of the porches I've known. There was the one at my grandparents' house outside of Baltimore where we'd sometimes sit in the cool evenings during our summer visits. Or the deep, wide one that wrapped around the front of a Victorian house my parents rented in Illinois, which offered a concealed outpost for snowball fights. Or, later, the smaller, brick-floored entrance to my parents' suburban home in Texas: On Halloween my father would lug the electric piano out there and then, wearing a tuxedo and a goblin mask, sit silently, only to lurch into motion to play the opening of J. S. Bach's "Toccata and Fugue in D Minor" on the organ when kids approached. It scared the crap out of the trick-or-treaters.

My memory also holds more useful civic entries: In Houston, hangouts were conducted under the overhangs of the Menil Collection's original building or, later, the outdoor rooms of its nearby Drawing Institute. Porches merge with martial arcades at the U-shaped barracks turned galleries at the Chinati Foundation in Marfa, where I interned. And there were the childhood waits to be seated at Cracker Barrel mid–road trip; we'd pass the time on rocking chairs on the chain restaurant's porches, looking out across the parking lot and the roaring highway beyond.

Americans didn't invent this architectural type, but the porch has a constant presence across our cultural history. It plays a central, metaphorical role in Reinhold Martin's recent critique of the New Right published in *Places Journal*: Political theorist Patrick J. Deneen seizes on the social transition from front porch to backyard patio as "proof of liberal modernity's spiritual impoverishment." There are even medical dimensions to the porch's relevance, as chronicled in an essay about the space's "magical in-betweenness" by David Owen for *The New Yorker.*

The porch also raises questions of labor and race. When thinking about the topic, my mind recalled a powerful image of the so-called African House, built by enslaved people on Melrose Plantation near Natchitoches, Louisiana, in the early 1800s and now part of the Cane River National Heritage Area. The building's most distinctive feature is its massive overhanging roof. Beyond being used for storage, the structure was also used as a jail, according to John Michael Vlach, who included it in his 1993 book *Back of the Big House: The Architecture of Plantation Slavery.* A 1973 report detailed its construction, with its "bottom floor of massive slave-made bricks, its second floor of heavy, hand-hewn timbers, mortised and dovetailed together without the use of nails, and its fascinating hip roof of cypress shingles that supports a 12-foot overhang." It also described the building as an enigma: "No records remain which authoritatively date its construction, no records remain which identify its function."

In the early 20th century, Cammie Garrett Henry turned Melrose into a retreat for artists. Clementine Hunter, a Black woman, worked there as a farmhand, maid, and cook before beginning to paint using leftover material from a visiting painter. In 1955, at the age of 68, she painted murals on the walls of the upper floor of the African House that capture early 20th century life on the plantation.

A 200-year-old building doesn't survive without preservation. The roof was "rehabilitated...using fresh-cut Louisiana cypress logs" in 2015; in the following year, the brickwork was restored and Hunter's murals were returned to their original venue. There is more to learn from this structure, whose distinctive architecture makes it worth appreciating today.

What do porches have to do with sustainability, a constant theme of this September issue? "Porches are inseparable from their environment," architect Charlie Hailey wrote at the start of *The Porch: Meditations on the Edge of Nature.* The porch holds a space for meetings—of ideas, airs, peoples, aesthetics, and stories. As our planet warms, we will need more—and better—porches.

Across these pages, writers grapple with issues of climate, from criticism to coverage of new start-ups, circular building economy efforts, adaptive reuse projects, degrowth, mass timber, and much more. Finally, read an excerpt of Christopher Brown's *A Natural History of Empty Lots*, out this month, which explores the resilient potential of the "ruined" spaces of our cities. **Jack Murphy**

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Vol. 22, Issue 6 | September 2024

The Architect's Newspaper (ISSN 1552-8081) is published 7 times per year by The Architect's Newspaper, LLC, 25 Park Place, 2nd Floor, New York, NY 10007.

Presort-standard postage paid in New York, NY. Postmaster, send address changes to: 25 Park Place, 2nd Floor, New York, NY 10007.

For subscriber service, email subscribe@archpaper.com.

$6.95/copy, $50/year; institutional $189/year.

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The views of our writers do not necessarily reflect those of the staff or advisers of *The Architect's Newspaper*.

Corrections



In the July/August issue, an incorrect image was used to showcase the SkyLite 20 XTRM Pro Window Film by Avery Dennison. The correct image appears above.



In the July/August issue, an incorrect image was used to showcase Contraflam One products by by Vetrotech Saint-Gobain. The correct image appears above.

In the July/August issue, Aluflam's Fire-Rated True Aluminum Framing with Contraflam ONE Glass was erroneously described as having lower embedded carbon content due to its lighter weight. The weight savings is significant but does not impact the reduced embedded carbon.

In July/August issue's puzzle, 4 Down could be both "firestop," as intended, or "asbestos." Additionally, 13 Across was meant to indicate a "broad, flat, vertical surface," not a horizontal one. Both "soffit" and "fascia" work as answers. Want to see the full solution? Email us: editors@archpaper.com.

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A "skiable outdoor art museum" is coming to Utah

Like skiing? Like art? How about skiing and art? Eden, Utah, may be just the place for you. Powder Mountain will soon be home to the world's first "skiable outdoor art museum." The mixed-use venue's master plan is by Reed Hilderbrand, the same landscape architecture office behind sculpture park Storm King Art Center in New York. Johnston Marklee is designing a new welcome center for the sprawling museum. Netflix cofounder and former CEO Reed Hastings is bankrolling the venture. **Daniel Jonas Roche**

Float Lab by Höweler & Yoon to open on the Schuylkill River in October 2026

Nine years after J. Meejin Yoon first ideated Float Lab with Eric Höweler, the much anticipated walkable promenade in the Schuylkill River has an opening date. According to Mural Arts Philadelphia, Float Lab will open to the public on October 1, 2026. Float Lab will debut on the shoreline of Bertram's Garden, a West Philadelphia park founded in 1728. It will run parallel to natural tidal wetlands and historic Lenni Lenape sites, and serve as an immersive public utility for Philadelphia and the region more broadly. **DJR**



HÖWELER & YOON ARCHITECTURE AND BRICK VISUAL

Rothko Chapel closed indefinitely to the public after Hurricane Beryl hit Houston

Houston's Rothko Chapel, the lauded home of 14 paintings by Mark Rothko, will be "closed to the public for an indefinite period of time" after Hurricane Beryl rocked the Gulf of Mexico last month. The temporary closure comes amid a major renovation at the Rothko Chapel's campus by Architecture Research Office and Nelson Byrd Woltz Landscape Architects. The 1971 building, designed by Howard Barnstone and Eugene Aubry, suffered damage from the natural disaster, and several Rothko paintings were damaged by the hurricane as well. **DJR**

LMN Architects unveils a new pavilion at Seattle's Woodland Park Zoo that uses mass plywood

At Forest Trailhead, LMN Architects and Seattle's Woodland Park Zoo have extended forest stewardship from the words of informational posters into the eaves of a new building being constructed. At Woodland Park Zoo, a new pavilion built using mass plywood and a forest landscape exhibit will literally elevate visitors' understanding of forest habitats, ecosystems, and conservation efforts. **Kristine Klein**

Tatiana Bilbao ESTUDIO, SO – IL, Johnston Marklee, Sasaki, and Fernanda Canales short-listed for North Boulder Creative Campus

A major new arts campus is slated for Boulder, Colorado. But who will have the honor of designing it is to be determined. The short-listed firms were Tatiana Bilbao ESTUDIO, SO – IL, Johnston Marklee, Sasaki, and Fernanda Canales Arquitectura. Each of these offices went into the competition, announced in May via an Request for Qualifications (RFQ), with local design partners. **DJR**

Nelson Byrd Woltz announces comprehensive plan for Atlanta's Piedmont Park

A new comprehensive plan unveiled recently by Nelson Byrd Woltz Landscape Architects puts forward a plan for the future of Atlanta's Piedmont Park. The vision is rooted in improving accessibility and ensuring that the park's cultural legacy continues for decades to come. It coincides with a planned expansion that will add 4 acres to the 200-acre green space. **KK**

Milton Barragán Dumet, polymathic Ecuadoran architect, dies at 90

Milton Barragán Dumet, a heralded Brutalist architect, sculptor, city planner, politician, and educator, passed away on August 7 in Quito, Ecuador. Templo de la Patria is one of Barragán's best-known designs, and was completed in 1975 at the base of Pichincha Volcano. Its concrete girders support an epic mural by artists Oswaldo Guayasamín and Pavel Égüez. In 1980, Barragán featured prominently in *MoMA's Architecture since 1945 Latin American Exhibition*. **DJR**

A beloved Keith Haring mural and historic recreation center face an uncertain future in New York's West Village

In July, NYC Parks announced tentative plans to demolish the Tony Dapolito Recreation Center in the West Village. The historic building shares a hardscape plaza with Keith Haring's *Carmine Street Pool Mural* from 1987. Following pressure from preservationists, city officials have said they will do their best to save the Haring mural and the public pool just beneath it. No plans have been released, however, for what would be built in the Dapolito Recreation Center's place or how the mural will be saved. **DJR**

Newark, Ohio's Octagon Earthworks will open to the public in 2025

In Newark, Ohio, the Octagon Earthworks were built by Native Americans more than 1,600 years ago. The UNESCO World Heritage Site charts the 18.6-year-long cycle of the moon. For years, two entities—a golf course and a historical organization—have been in talks over the ownership and use of the land. The sacred site, part of the larger Hopewell Ceremonial Earthworks, will open fully to the public in 2025. **KK**

In Baltimore's Inner Harbor, a new floating wetland by Ayers Saint Gross opens at the National Aquarium

Baltimore's Inner Harbor's newest feature, a 10,000-square-foot floating wetland by Ayers Saint Gross, opened to the public this August. The aquatic landscape allows visitors to walk on water and learn about wildlife. The National Aquarium Harbor Wetland was built between the harbor's piers 3 and 4. Its goal is to help transform Chesapeake Bay into a demonstration landscape and create a new free exhibit for the public. More than 30,000 grasses and shrubs coalesce in the new wetland, combined with water aeration technology. **DJR**

Eames Institute unveils its new midcentury-inspired office space in Richmond, California

The Eames Institute of Infinite Curiosity has set up its operations inside a Richmond, California, warehouse. A gut renovation transformed the space—described by the institute as "dated, awkwardly-scaled private offices"—into an Eames-inspired office, archive, and gallery. The new headquarters was helmed by the institute's internal design team, Everywhere Architecture, Standard Issue, and EHDD. **Alexandra Surprenant**



NICHOLAS CALCOTT/COURTESY THE EAMES INSTITUTE

Smithsonian Design Triennial names participants to create 25 installations related to the concept of home

This fall, Cooper Hewitt, Smithsonian Design Museum will exhibit *Making Home—Smithsonian Design Triennial*. The museum has commissioned 25 site-specific installations examining "design's role in shaping the physical and emotional realities of home across the U.S." Participants include Leong Leong, Aranda\Lasch, and Ronald Rael. **AS**

Autodesk named Official Design and Make Platform of 2028 Los Angeles Olympics

Following the 2024 Olympics in Paris, a mad dash has already begun to accommodate the medal-seeking athletes and 15 million fans slated to visit Southern California for the 2028 Los Angeles Olympics (LA28). To help achieve sustainability goals and streamline construction LA28 has partnered with Autodesk. As partner, Autodesk will help retrofit existing buildings to host games and ceremonies, as opposed to constructing new ones. **DJR**

SHoP Architects and OSD unveil renderings of new restaurant and event space on New York's Governors Island

Building 140 on the northern tip of New York's Governors Island once stored gunpowder, cannonballs, and rifles. Soon, it will dish out tacos, finger food, and beer. The former munitions house at Soissons Landing is being converted into a chic restaurant and events venue. SHoP Architects and OSD are behind the venture. **DJR**

GSA opts to preserve Century and Consumer buildings in Chicago, saving them from demolition

Preservationists have staved off the demolition of three historic buildings in the Chicago Loop. The Consumer Building by Jenney, Mundie & Jensen (1913); Century Building by Holabird & Roche (1915); and 214 State Street by C. M. Palmer (1883) will not be torn down, contrary to a $52 million demolition plan that Congress issued last winter. Moving forward, a series of public meetings will be hosted by GSA to identify potential uses for the towers, which may include housing or institutional usage. **DJR**

Black Forest by Poetic Justice aims to plant 40,000 trees and collect 40,000 stories across the U.S. as a memorial for Black life

When Poetic Justice was founded in 2019 out of MIT Media Lab by Ekene Ijeoma, the Black-led collective's goal was to research how mixed-media art can respond to structural injustice in the U.S. The group recently revealed its newest project: Black Forest. To accompany 40,000 new trees, Poetic Justice will also record over 40,000 stories from across all 50 states. These stories will be collected via a hotline run by Poetic Justice, and then edited into a sound and video collage. **DJR**

Mattaforma helms design for Monospace, a new Tennessee music-and-food fusion

Vinyl records, shipping containers, and home-cooked Italian food collide in a new concept venue coming to Chattanooga, Tennessee, in 2025. Monospace will play host to a restaurant, bar, dance floor, and daytime cafe designed by Mattaforma—the studio behind The Nursery at Public Records. At Monospace, the studio has put forth an experience akin to "friends getting together to share a great meal, discuss ideas, play records for each other, and dance in the living room." **AS**

Beach volleyball beneath the Eiffel Tower? A temporary stadium with a sand court was built for the Paris Olympics

A temporary outdoor venue, simply named Eiffel Tower Stadium, was built atop the Champ de Mars's grass to host beach volleyball and blind football events for the Paris Olympics and Paralympics. The 12,000-seat stadium has a sand court in its center, and court angles afford unobstructed views of the Eiffel Tower. Olympic-goers near the Eiffel Tower reap the benefits of an ongoing renovation effort. In 2019, an international competition launched to reimagine the site. Gustafson Porter + Bowman was selected for the job. **AS**

Massachusetts officials want to transform Boston Government Service Center by Paul Rudolph into housing

Massachusetts governor Maura Healey announced a new direction for the Charles F. Hurley and Erich Lindemann Buildings, known colloquially as Boston Government Service Center (BGSC), completed by Paul Rudolph in 1971. The Healey administration wants BGSC to become affordable housing. Governor Healey and the Division of Capital Asset Management and Maintenance are currently seeking a private developer to partner with for the project. **DJR**

Rogers Krajnak Architects to restore interiors and murals in a "jewel box" bank by Louis Sullivan in Ohio

Later in life, Louis Sullivan designed eight small banks known today as his "jewel boxes." These are by far Sullivan's smallest projects when compared to his earlier skyscrapers, but arguably his finest in their attention to detail. In Newark, Ohio, one of Sullivan's jewel boxes is being restored by Rogers Krajnak Architects, an office based in Columbus, Ohio. The Old Home's exterior was restored in 2020; now, Rogers Krajnak Architects is returning to focus on its interiors. **DJR**



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COURTESY PROLOOG

RIOS and Field Operations to lead $7 billion mixed-use development to transform Chicago's West Side surrounding the United Center

The owners of the United Center have unveiled a $7 billion development project set to revolutionize the 55 acres surrounding the stadium. The 1901 Project, named for the stadium's address along Madison Street, aims to create a flourishing neighborhood on Chicago's West Side with more green space, mixed-use spaces, and new jobs. Design collective RIOS will serve as master planner, while landscape design will be led by New York–based Field Operations. **AS**

Union at Bernheimer Architecture ratifies collective bargaining agreement

History was made in Brooklyn when the union at Bernheimer Architecture ratified the first-ever collective bargaining agreement at a private sector architecture firm. The milestone contract has language about the number of hours employees can work, "Just Cause," VISA employee protections, wages and overtime pay, mentorship, and much more. "This is a historic moment for this industry," Bernheimer told *AN*, "one that will set the benchmark for what's possible." **DJR**

A new cafe by MILLIØNS inside I. M. Pei's Everson Museum of Art draws from the original Brutalist design

A recent renovation to Syracuse, New York's Everson Museum of Art helmed by Los Angeles–based MILLIØNS enlivens the museum experience with a new cafe and revamped East Wing. At the center of the renovation are a series of 2-story glass towers that house newly acquired ceramics from collector Louise Rosenfield. The glass towers are sandwiched between concrete columns. **KK**



IWAN BAAN

COOKFOX is flipping a former prison in Manhattan into affordable housing

The art deco building at 550 West 20th Street in Manhattan has lived many lives. Shreve, Lamb, and Harmon—the same office behind the Empire State Building—designed it in 1931 to host a YMCA. In 2016, Deborah Berke Partners (now TenBerke) won a competition to transform it into a center for girls' and women's rights advocacy, but that effort fizzled out. Now, the 100,000-square-foot building is being transformed by COOKFOX into affordable housing. **DJR**

Read more news at archpaper.com.

Reality Check

Foster + Partners claims the new JPMorgan Chase headquarters at 270 Park Avenue is highly sustainable. If only that were true.



NIGEL YOUNG/FOSTER+PARTNERS

As I approach the corner of Park Avenue and 48th Street in Manhattan I tilt my head back sharply. Above me, a new tower rises to a height of 1,400 feet, dwarfing the Chrysler Building and other nearby landmarks. After squinting to observe the building's peak, my eyes descend nearly a quarter mile to its first 8 floors. There, the tower tapers dramatically, reducing a structure larger than the Empire State Building to a ballerina on pointe.

After spending much of my life looking at, and writing about, innovative architecture, I can't help but admire this tower, designed by Foster + Partners for JPMorgan Chase. Yet building it was a mistake. Turning hundreds of millions of pounds of steel, concrete, and glass into a swanky corporate headquarters is exactly the wrong move—and sends exactly the wrong message—at a time of climate crisis.

The building is meant to impress with its overscaled opulence—12 of its 60 high-ceilinged floors are reserved for employee amenities—and structural derring-do. Which is precisely why 270 Park Avenue may someday be seen as a monument to what the philosopher Amitav Ghosh has labeled, in light of the gap between what's happening to the planet and what little we're doing about it, *The Great Derangement.*

JPMorgan Chase and Foster + Partners claim that the new building is highly sustainable. Specifically, they state, in identical statements on their websites, that as "New York City's largest all-electric tower" it will produce "net-zero operational emissions."

The claim is that once the building opens, its *operations* will result in no carbon emissions. But what about emissions that occur before opening day, when energy is used for things like making steel and concrete? Those processes are highly energy intensive: Every pound of steel was responsible for the release of about 2 pounds, and every cubic yard of concrete some 400 pounds, of CO_2. Chase and Foster don't want us to count that energy, as if the raw materials arranged themselves into a vertical Versailles without the help of furnaces, bulldozers, and cranes.

But Chase and Foster + Partners are hardly the only ones ignoring the energy used to build their buildings, known as embodied energy. In early June the Department of Energy released a "National Definition of a Zero Emissions Building." Disappointingly, the definition covers only operational emissions. (The Department said it may address emissions from construction at a later date.) The Biden administration can't do everything at once, but energy is energy, and emissions are emissions. Ignoring a significant source is a variety of greenwashing, and no less so because it's pervasive. I've read hundreds of press releases over the past five years calling new buildings "net-zero" or "carbon-neutral" or even "carbon-positive," always without counting embodied energy. Hundreds of published articles dutifully echo the press releases. Only a few dispute them.

Ignoring embodied energy is a problem that extends to other industries. If you're deciding whether to replace a gasoline-powered car with an electric one, you can estimate how much energy you'll save over time, but it would help to know how much energy went into making the new car in the first place. Try getting that information from a manufacturer.

But the built environment generates 42 percent of annual global CO_2 emissions, which makes buildings particularly important to consider. To clear space for its new HQ, Chase tore down the Union Carbide Building, a 52-story, midcentury modern tower that had stood for 60 years. Though the bank claims to have recycled nearly every component of that building, repurposing materials like glass and steel requires vast amounts of energy. No one is counting that energy, either.

It would be great if Foster's building itself produced clean energy. Then one could say that it was designed to offset its own emissions and really deserves the label "green."

But there are no signs of solar panels or wind turbines on 270 Park Avenue. That means that any clean energy used by the building is produced offsite. And that makes the phrase "net-zero operational emissions" almost meaningless. After all, if you can count clean energy produced at a remote location, you could build an obscenely wasteful building and still call it net-zero.

I asked JPMorgan Chase for its definition of net-zero. A spokesman for the bank replied: "Net-zero emissions from operating the building, in this case, is simply that the building is powered 100 percent by electricity sourced from hydroelectric plants." Chase's statement says nothing about the efficiency of the building itself. The bank can simply buy as much hydroelectric power as the new tower requires and pocket the accolades, not for creative architecture but for creative accounting.

What about the claim that 270 Park Avenue is emissions-free because it's all-electric? Electricity has to come from somewhere. In 2022, 71 percent of New York's energy was produced by burning fossil fuels. (And the state is behind in its goal of sourcing 70 percent of its energy from renewable sources by 2030.) In New York, making a building all-electric doesn't eliminate emissions; it simply moves them from your property to someone else's.

Chase said it has arranged to purchase its power from the "hydroelectric assets" of Brookfield Renewables, a publicly traded company that buys and sells the rights to clean energy. But Brookfield hasn't created new hydroelectric facilities for Chase. According to the Chase spokesman, it is simply "directing power from existing hydroelectric plants" to the new building. Chase will be getting its electricity from the same grid as every other New Yorker; there is no way to separate "good" and "bad" electrons. So 270 Park Avenue will have no effect on greenhouse gas emissions from the production of electricity in New York State.

Slowing global warming requires significant changes in what we build and how we build it. Natural materials, like stone, hemp, and clay, have low embodied energy. These options can be used to create great buildings, as demonstrated in books like the opaquely named treasure *Manual of Biogenic House Sections*. True, you can't build a skyscraper out of hemp. But maybe we'll just have to accept that.

If a firm as reputable as Foster + Partners can claim this concrete and steel behemoth "exceeds the highest standards in sustainability," then something is wrong with the standards. Chase's new building is not remotely "emissions-free." If we are lured into believing that is, we may pay a very-high price for our complacency.

Fred Bernstein is the winner of a 2023 award from the American Academy of Arts and Letters for exploring ideas in architecture and the 2009 Oculus award from the New York chapter of the AIA for excellence in architecture writing.

Eavesdrop

Up in the Air

Eavesdrop lunches near the designerati and witnesses *Man on Wire*.

Power Lunch

The first day of August found Eavesdrop at a banquette in The Odeon, a time-honored stomping ground for media types and dilettantes. Previously, while out with **Anonymous Publicist #1**, a fellow journalist texted me, "Did you see **Richard Meier** next to you at lunch." I had not! My neglect violated a cardinal rule: Read the room.

Upon arrival this time with **Anonymous Publicist #2** (AP2), I had a clear view of the bustling crowd. Across the way, I spotted **Jonathan Massey**, dean of the Taubman School of Architecture at the University of Michigan. In time, my chat with AP2 turned to *AN's* interview with **Pascale Sablan**, and the range of responses to it *AN* received.

A minute later, amid the flow of diners to and from the downstairs bathrooms, AP2 alerted me to a development: **David Adjaye** himself was seated at a table nearby, drinking carbonated water. It felt as if our mention of his status and work had willed him into an appearance, a turn which further evidenced another maxim: Stay a while in Tribeca, and soon enough the designerati will appear.

High-Wire Act

It was about 8:30 p.m. on August 7 when the lights dimmed at St. John the Divine Cathedral. Gregorian monks holding candles walked down a paradisiacal nave abetted by choir children. We were asked to turn off our cell phones so the show could begin. "We really mean it," the moderator said. "We ask that you not just silence your cellphones, but turn them off and put them away, because sudden flashes could place tonight's performer in danger."

We were there that evening for *TOWERING!!*—the 50th anniversary celebration of *Man on Wire* curated by **Philippe Petit**, the French performer who famously traversed Minoru Yamasaki's Twin Towers in 1974 via tightrope. But Petit hasn't lost his step. He walked on a tightrope hung laterally about 3-stories above ground, and then rode around the cathedral on a unicycle while wearing a top hat. Scenes from James Marsh's documentary about the 1974 performance, *Man on Wire*, were played. **Michael Imperioli**, **Tony Danza**, and last but certainly not least, **Sting**, were a few VIPs in attendance. But Sting wasn't there to watch. He was there to perform a song he wrote a new song about *Man on Wire.*

Toward the show's tail end, Petit gave a heartfelt speech to help clear the air between himself and his old comrade **Jean-Louis Blondeau**, who shot the fishing line from the roof of Tower 1 to Tower 2 using a bow-and-arrow. "We are in a church. What a great place to make a confession," Petit said. "After the success of *Man on Wire*, I turned my back, either consciously or unconsciously, on my friends...I didn't even invite Jean-Louis to the premier of *Man on Wire*. He had to pay for his ticket! I never said in my thousands of interviews what [Jean-Louis's] role was in this adventure....It is thanks to my friend Jean-Louis Blondeau that I had a cable to walk on. And I thought, why not say that tonight."

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10 Open


ERIC LAIGNEL

Mission Ceviche
7 East 17th Street, New York, NY 10003
New World Design Builders/K2 Studios

In New York's Union Square, Mission Ceviche is a Peruvian restaurant specializing in biodiverse seafood dishes. New World Design Builders/K2 Studios translated this culinary concept into a wood-clad, marine-inspired interior. White oak flooring, large beams on the ceiling, and exposed brick archways create a sense of expansiveness in the restaurant. Beams are rhythmically punctuated by chandeliers made of rope that hang like a fishing net over the tables while providing a vessel for column swags. More direct allusions to the restaurant's seafood expertise come via a floor-to-ceiling 3D fish sculpture from artist Joel Amit, who was flown in and commissioned to create the work. It's just one of many eye-catching pieces dotted around the space, including the fireplace at the back. Breeze blocks uniquely stacked create a fireplace facade, letting the traditional Peruvian striped pattern beneath it peek through.


ARSENI KHAMZIN

Chateau Grand Rapids
955 Cherry Street SE, Grand Rapids, MI 49506
Obata Noblin Office

Obata Noblin Office tapped into the character of a turn-of-the-century building in the East Hills neighborhood of Grand Rapids, Michigan, to craft a cafe by day and wine bar by night. For the front half of the 1,100-square-foot space, the architects revealed the building's unevenly tan, exposed brick and its white-painted, gridded tin ceiling. Bentwood chairs, a custom white oak bench, and a wine glass shelf suspended from brass rods emit a soft glow, elevating the building's charm. While neutral tones dominate the main dining room, color makes its way through the archway, through the red-hued bathroom and toward the back lounge, enveloped in green Venetian plaster and painted brick. Once again, the architects made use of what was already there: On the floor, a new terrazzo-like surface was created using the original cement and grinding it down with a new finish. The moody, textured lounge continues the building's characteristics with a new-meet-old sense of charm.



CHASE DANIEL

Bambino
979 Springdale Road, Suite 153, Austin, TX 78702
Chioco Design

Located in a former food storage warehouse in Austin, Bambino is a counter-service pizzeria by local architecture and interior design firm Chioco Design. Colorful stained-glass windows and doors make for a retro introduction to both the restaurant and its design concept: a reference to the chef's nostalgia for pizza parlors of yore, but with a sophisticated twist. Lighting does the bulk of the '80s remembrance with ambient pendants and more stained-glass fixtures. To complement it, the architects kept the existing terra-cotta walls and concrete ceiling but added neutral-toned tiled flooring, beige seating, and a green-coated steel frame, which they inserted to support the large glass walls on the street-facing side. An abundance of texture and tiles liven up the neutral colors, from the curved bar, outfitted with glossy tiles, to the terrazzo-like backsplash and the rattan panels above it. Put together, the interior is both tasteful and unfussy—a quintessential neighborhood spot.


PABLO ENRIQUEZ

Barrel Hall at Antica Terra
5100 SE Rice Lane, Amity, OR 97101
West of West

Oregon winery Antica Terra inherited the acreage next door. The additional land included a sheep barn. With the help of the architects at West of West, the winery has successfully converted the barn into a new private tasting space, gallery, barrel storage, and a commercial kitchen. West of West began the new hall with a simplified exterior to make space for a dramatic new entry tunnel clad in black-stained, rough-sawn cedar plank. The tunnel gives way to a round anteroom, empty save for a hanging light fixture by Bennet Schlesinger. A heightened sense of place continues through to the tasting rooms: Each features custom shelving designed by West of West, and in between each tasting room and guest space are thresholds made of wood utilizing a carved texture from Japanese woodworking called *naguri*. Playing with varying wood textures, the sophisticated, multifunctional space reflects Antica Terra's dedication to craft. **Kelly Pau**



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PORCH: An Architecture of Generosity

Peter MacKeith, Susan Chin, and Rod Bigelow to lead U.S. Pavilion at the 2025 Venice Architecture Biennale.

Consider the porch: a low-tech structure typically made of wood or stone that plays an outsize role in American culture. From August Wilson's Pittsburgh, Harper Lee's Alabama, Spike Lee's New York, to John Steinbeck's California, artists lean on porches as literary devices for telling complex stories about civic life and as liminal spaces that divide our public and private worlds.

In all of its literary, political, and cultural dimensions, the porch will take center stage at the U.S. Pavilion in the 2025 Venice Architecture Biennale. *PORCH: An Architecture of Generosity* will be commissioned and curated by Peter MacKeith, dean of the Fay Jones School at the University of Arkansas; Susan Chin, founder of DesignConnects; and Rod Bigelow of Crystal Bridges Museum. The exhibition, which opens May 24, 2025, will focus on "the porch as a central element in American architecture, highlighting its social, environmental, and democratic significance." It follows the 2023 Venice Architecture Biennale exhibition curated by Cleveland-based SPACES at the U.S. Pavilion, which focused on the role plastics play in perpetuating ecological collapse.

An Architecture of Generosity

PORCH, as the title suggests, will deliver a new temporary porch attached to the front of the U.S. Pavilion, completed in 1930 by William Adams Delano. The temporary porch environment will be designed by Marlon Blackwell of Marlon Blackwell Architects; Stephen Burks of Stephen Burks Man Made; Julie Bargmann of D.I.R.T. studio; and Maura Rockcastle of TEN x TEN Landscape Architecture and Urbanism. *The Architect's Newspaper* will be the exhibition's media partner.

More than 50 practices will participate, and their names will be shared in the coming weeks. Timothy Hursley will photograph the exhibition and its accompanying "musical performances, readings, farm-to-table meals, children's education, social exchanges, craft demonstrations, and educational dialogues." Apple Seeds Teaching Farm—a nonprofit based in Fayetteville, Arkansas—will provide food at the U.S. Pavilion. Poetry readings and musical performances will take place on Juneteenth and July 4, 2025.

"This exhibition has a very personal dimension for me, but the choice to center porches was arrived at by consensus," Peter MacKeith told *AN*. "Myself, Susan Chin, Marlon Blackwell, Rod Bigelow, Julie Bargmann, Maura Rockcastle, Stephen Burks, and Tim Hursley have had lengthy discussions over a long period of time about this theme and its potential for conveying a broad story about American architecture and culture."

Connecting the Dots

The announcement comes three months after chief curator Carlo Ratti shared with *AN* his overall vision for the 19th International Architecture Exhibition. In May, Ratti said this upcoming biennale, *Intelligens*, will focus on the city of Venice as a test bed for combating climate change. The grand affair will be organized around three key themes: natural intelligence, artificial intelligence, and collective intelligence.

Just like Ratti's mentor and philosophical influence, Umberto Eco, MacKeith's thinking is equally influenced by the liberal arts. "Before I studied architecture, I was a student of history and literature," MacKeith shared. "Look no further than the work of James Agee, Walker Evans, Zora Neale Hurston, or Harper Lee's *To Kill a Mockingbird*: The porch has always had such an important role in American literature, music, and storytelling."

MacKeith continued, "Porches for us are ways of connecting all these dots, in musical terms, photographic terms, artistic terms, craft traditions like quilts and basket-making, in cuisine, and more generally in architectural terms. I think the central ambition has ultimately been how to best represent not just American architecture, but this sense that American architecture is a social, environmental, and educational construct that incorporates people from many walks of life, and of course, from all over the world."

Recycle, Repurpose, Reuse

Both the U.S. Pavilion curatorial team and Carlo Ratti share similar sustainability goals. Ratti has said he wants to create an "exhibition that is 100-percent circular, where everything we use is reused and recycled." Thus, after the Venice Architecture Biennale ends, the U.S. Pavilion's temporary porch will be dismantled and reassembled in school courtyards throughout Venice and Rome for children to interact with.

"My experience with the [Venice] Biennale over a number of years is that while many adults visit in the first few days and weeks over the course of the summer and into the fall, many visitors are also school children, high school students, and young people in general," MacKeith continued. "A question we all take seriously is: How do we make this work accessible and valuable to a young person, whether they're in the 5th grade, or 10th grade?"

Further details about spatial interventions inside and outside the U.S Pavilion will be unveiled in the coming weeks.

The 19th International Architecture Exhibition will be held in Venice from May 24 to November 23, 2025. **DJR**

Stay tuned for additional information about the design and curation of the U.S. Pavilion at the 2025 Venice Architecture Biennale.

***The Architect's Newspaper* is the exhibition's media partner.**

Money Problems

A budgetary and governance restructuring proposal by NAAB elicits pushback from AIA, AIAS, ACSA, and NCARB.

A new budgetary proposal by the National Architectural Accrediting Board (NAAB) has drawn criticism from its collateral organizations: the American Institute of Architects (AIA), the American Institute of Architecture Students (AIAS), Association of Collegiate Schools of Architecture (ACSA), and the National Council of Architectural Registration Boards (NCARB).

The dispute is over a funding increase NAAB first requested in 2022, when it asked its collateral organizations to increase funding by 47 percent. All organizations have rejected the funding, feeling that NAAB's current operating budget (about $1.5 million) was sufficient. NAAB subsequently proposed charging schools directly in order to raise funds; it also proposed ending its longstanding funding relationship with ACSA, but not AIA or NCARB.

Under NAAB's proposal, the 176 NAAB-accredited programs offered by 140 higher learning institutions in the U.S. and abroad would have to cover about one-third of NAAB's annual operating budget for accreditation. This means that $538,048 would come from NCARB; $538,048 from AIA; and $0 from ACSA in the 2025 fiscal year. That third batch of capital (totalling $538,048) would directly come from architecture schools. It also means that ACSA and AIAS would no longer be included in a written funding agreement of all five organizations that specifies the amount of funding NAAB receives, and how and when it can be used. Furthermore, NAAB would no longer have to disclose financial information to the funding organizations. NAAB currently hopes to implement its new funding model in January 2025. The proposal in governance and financing has since fueled embittered negotiations.

On August 21, in a Zoom meeting with its members, ACSA noted that accreditation costs would rise by at least 25 percent in 2025 compared with 2023 if NAAB gets its way. And by 2028, costs could be 45 percent higher than in 2023. "Charging schools directly is a change to 20 years of history, so we have major concerns about that," Cathi Ho Schar, ACSA president, told *AN*. "Up to this point, ACSA represented schools as their voice in agreeing to an annual MOU [memorandum of understanding] with NAAB. If individual schools are charged directly, they won't have any real collective agency in determining whether those fees or the process is right."

"While AIA continues to support accreditation and finds value in the work of the NAAB, we do not support the current proposed pricing model," AIA president Kimberly Dowdell told *AN*. "Additionally, we want to be clear that AIA has no oversight in the operational decision-making at the NAAB—which includes pricing—and were not consulted in the development of this pricing model."

"A Big Gap"

NAAB has more than 20 paid employees and is headquartered in Alexandria, Virginia. In the 2022 fiscal year, according to *ProPublica*, NAAB had just over $1.4 million in expenses. It saw $741,000 in gross income, giving it $2.7 million in revenue. Members of NAAB's board of directors are appointed by its collateral organizations, and unpaid volunteers perform the service of visiting architecture schools in all 55 U.S. jurisdictions. NAAB is funded through a memorandum of understanding signed by AIA, the AIAS, NCARB, and ACSA. These collateral organizations each pay NAAB a proportionate amount split three ways.

NAAB president Steve Schreiber said increased funding is warranted because the cost for implementing assessments has risen, and there are now more architecture programs his organization evaluates compared with a few years ago. (From 2019 to 2023, the number of programs grew by 4.4 percent.) Schreiber also defended the funding increase because NAAB is currently operating on a deficit, he said, and because NAAB will soon reduce its accreditation costs for schools by 15 percent, so it needs to make up for that gap somehow. Schreiber outlined NAAB's agenda in a letter dated July 1 that was sent to educators across the country, sounding alarm bells for many.

ACSA responded to Schreiber's letter with its own letter, dated July 9, saying that ACSA "strongly opposes" the proposal. AIA, the AIAS, NCARB, and ACSA have since requested that NAAB withdraw its proposal, return to the negotiating table, and discuss a different path forward.

The increased funding proposal has since raised questions about what exactly NAAB needs the extra money for and how it was spending its existing allocations. ACSA executive director Michael Monti said, "We don't think the number of programs has grown, or at least not by the 47 percent increase NAAB is asking for, so there's a big gap. Over the years, we've made sure to increase NAAB's funding by the rate of inflation."

MOU Binding

In March 2023, mediators were hired to facilitate negotiations between the five organizations. That January, before the facilitation process was complete, NAAB released its plans to begin charging schools directly, and end its longstanding funding relationship with ACSA. Later that month, ACSA issued a vote of no confidence against NAAB.

By February, NAAB had issued a call for comment proposal, stirring pushback from educators and its collateral organizations. In March 2024, AIA, the AIAS, and ACSA commissioned an external analysis of NAAB's operations and finances.

The report's findings were released in May. It concluded that NAAB "has sufficient assets on hand" to continue its operations through the 2025 calendar year. The report also identified "inconsistent and erroneous financial management and accounting practices that need to be corrected." The report also stated that NAAB has "unspent collateral investments and therefore NAAB should not collect additional funding from schools at this juncture." Those findings however are confidential.

"NAAB has refused to have those kinds of discussions with us," Monti told *AN*. "NAAB has just consistently said, 'This is the amount of money we need, and this is the format in which we need it.'"

On July 1, in Schreiber's letter, NAAB criticized the third-party report: "The funding organizations issued a public statement that speaks to financial, not operational matters, mischaracterizes the findings in the report, and does not acknowledge errors that the NAAB Board of Directors reported directly to the presidents and executives of these organizations."

ACSA president Cathi Ho Schar organized a special business meeting to discuss the issue on August 21. Representatives from more than 100 schools were in attendance. Monti told *AN* the session had the "highest turnout ever for an ACSA online meeting." That day, Ho Schar presented a resolution for how ACSA would like to resolve the conflict.

Under ACSA's current resolution, NAAB would first withdraw its plan to begin implementing its new funding model in January 2025. Second, NAAB would continue its existing multiparty funding relationship via the binding MOU. Third, NAAB would discuss new funding options to rectify the 4.4 percent growth in programs and inflation. And fourth, NAAB would identify ways to contain costs. **DJR**

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Groundwater: The Hidden Front Line of Climate Change

A conversation with Anthony Acciavatti, who sees water rights and resource distribution coming to head beneath our feet.

Around the world, water-related crises abound, whether from lack of rain or an excess of it. Just this summer, Hurricane Beryl wreaked havoc across the Caribbean and Gulf Coast. If the intensity and frequency of these events is aptly attributed to climate change, the conversation seldom extends into the realities of water management. And while all manner of sustainable design practices currently define architectural discourse, methods of designing around water infrastructure remain a challenge.

For Anthony Acciavatti, who has been studying water for nearly two decades, groundwater is the hidden front line of climate change. The difficulty of visualizing groundwater, and our inability to understand it through traditional sociopolitical boundaries, is the subject of a recent exhibition of his work, Groundwater Earth: The World Before and After the Tubewell. *Sebastián López Cardozo and Harish Krishnamoorthy sat down with Acciavatti to talk about his research, the role of water in design practice, and what the future of groundwater looks like.*

Sebastián López Cardozo and Harish Krishnamoorthy: Why water—why now?

Anthony Acciavatti: There is an urgency to studying water today, one that I think is best understood by two measurements: 80 centimeters and 959 cubic kilometers. The earth's tilt shifted 80 centimeters between 1993 and 2010 due to the amount of groundwater we have extracted as a species. And in 2018, we extracted 959 cubic kilometers of groundwater, an amount equal to two Lake Eries. This is the hidden front line of climate change.

How is this water extracted and what is it used for?

The fulcrum, as it were, is the millions of hand pumps and tube wells in use today. Tube wells are bored into aquifers and driven by either an electric or oil-powered engine. These are fantastic technologies because they transform groundwater into infrastructure for agriculture and urban growth. As minor technologies with a global reach, they allow us to transcend surface water bodies like canals, rivers, or lakes. They can be sunk almost anywhere, they are portable, they provide water on demand, and they are managed independently. But they can give an owner the sense of being insulated from the caprices of water bureaucracies and rainfall patterns.

Tube well users have withdrawn copious amounts of water with little regard for their environmental impact. Today, nearly half the global population drinks groundwater on a daily basis, and over half of all agriculture is irrigated with it. With population growth, lack of municipal water supply, and widening socioeconomic differences, more and more people have come to rely on groundwater extraction.

You're trained as an architect. Where does your work fit within architecture practice?

My work has largely focused on the ways surface water bodies like lakes and rivers overlap with subsurface water bodies like aquifers. Studying this can shed light on the ways in which rainfall and groundwater interface with urban growth and agricultural production.

While numerous earth scientists have studied the impacts of groundwater extraction, architects and designers are uniquely poised to visualize and measure the ways in which cities and farms draw from the subsurface to terraform the surface. And we are able to do so from the scale of the house and the neighborhood to the city and region, which is invaluable. Without this, how is anyone well poised to develop proposals that adapt to this changing landscape?

How would you describe your methods of researching groundwater?

Drawing on my training in design and the history of science, I engage in fieldwork and archival research across South Asia and North America. I approach the environment in the way that a sleuth might, looking for clues and assembling them to learn more about a place or set of processes. In my book *Ganges Water Machine: Designing New India's Ancient River*, I spent nearly a decade crisscrossing the basin by foot and boat, as well as visiting archives on three continents. At a time when there were few hi-res satellite images and no contemporary maps of the Ganges, I made my own instruments to map the choreography of soils, cities, and agriculture across the basin.

For my most recent exhibition on groundwater at Yale, I cobbled together diverse datasets on groundwater extraction, urban boundaries, and conjectural models based on sample surveys to learn more about how cities and farms rely on groundwater. When an ecologist wants to study changes in an environment, they will often choose an indicator species to better understand what broader processes are leading to environmental change. By tracing the abundance and scarcity of water, I am similarly able to draw the political and social changes taking shape.

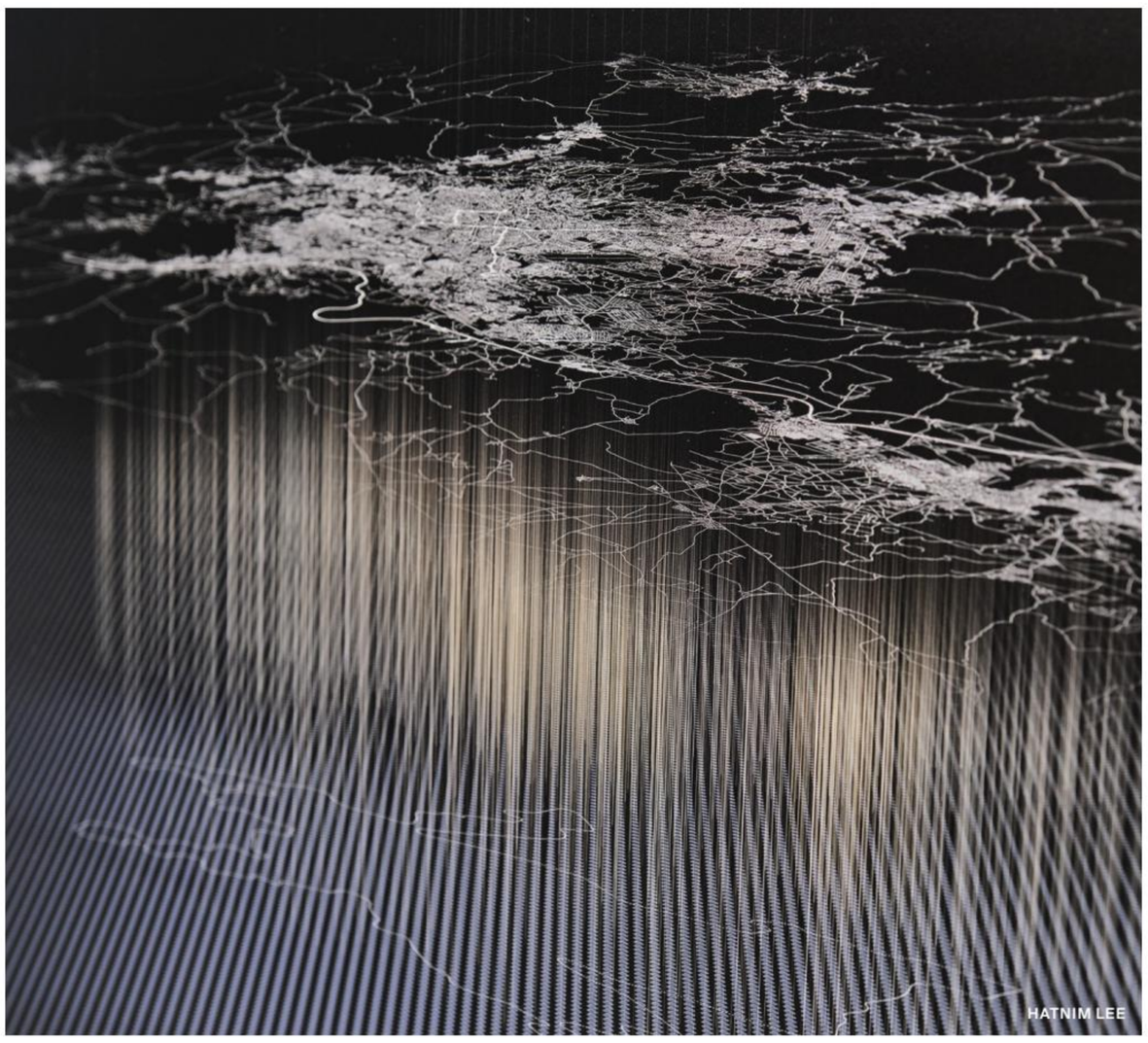
How does groundwater extraction manifest across scales and political boundaries?

Given that hydrologists estimate over half of all the world's crops are irrigated with groundwater and nearly half the world's population consumes it on a daily basis, it is undoubtedly a global issue. The Indo-Gangetic plains and the Sonoran Desert, for instance, both stretch across multiple countries and have long been laboratories for water management. As two of the world's most intensively pumped landscapes, these regions can tell us a great deal about how people tap into the larger global commons of groundwater—a resource that is not only unevenly distributed but also unevenly accessed.

Is it a challenge to compare these two vastly different contexts?

Despite their differences in density, demographics, and sociopolitics, these regions actually share similar spatial patterns. Both

Drawings by Acciavatti describe the sheer amount of rivers and tributaries that feed into the world's groundwater sources.







HATNIM LEE

Exhibition displays are hung upside-down, prioritizing the subsurface and its effect on the surface.



HATNIM LEE

View of the exhibition entrance at *Groundwater Earth: The World Before and After the Tubewell*.

places experience varying levels of subsidence, where the water table level drops and the soil compacts due to the reduction of water in an aquifer. The results may look different—large crevices around Arizona compared to sinkholes in New Delhi—but in both, subsidence cuts across private and public space indiscriminately, raising questions about insurance, responsibility, and who ultimately pays for repairs. The two regions largely rely on a system of decentralized groundwater extraction. When every house can have a hand pump or tube well for extracting water from an aquifer, those who can afford it will do so.

If we zoom out, we can see that this is also the case in Jakarta, Mexico City, and Addis Ababa, all cities that I profile in my exhibition. In each of these cities, people turn to groundwater because municipal water is nonexistent, unreliable, or polluted. These three factors accelerate the privatization and decentralization of groundwater.

Do you foresee designing for water becoming central to the way architects and designers practice?

Designing with water in mind has been a longstanding practice in architecture and urban design. What has changed is the context—the increase in population and the decrease in publicly accessible forms of drinking water. Often, the focus is on technological fixes at the scale of a single house or building, like diverting rainwater to private cisterns or green roofs. However, it's imperative to think about how neighborhoods and cities can develop shared systems of water management. For instance, parks can be designed as spaces for recreation and leisure while simultaneously recharging aquifers and managing stormwater. How one configures these spaces and processes over time rewards design expertise and experimentation.

Where do you see architects best engaging with groundwater in their practice? How do designers at all scales—urban, architectural, landscape—find a position and mode of operating in human/water relationships?

Before architects and landscape architects can better engage with groundwater, we must learn how to draw and model it. When it comes to demarcating property boundaries or defining a river or lake, our conventions of drawing are beholden to lines. However, groundwater oozes and percolates from the ground with no discernible boundary. One of the reasons that groundwater has largely gone unregulated across the world is because it's hard to separate it from property rights. To give an example, in 1935 the Works Progress Administration commissioned a film titled *Ground Water*. The animations made for the film illustrate how rainwater saturates the ground and then connects with rivers and lakes as well as natural springs. Drawing it as a dynamic and common space, much like we draw air, is the first step.

Similarly, we as architects have the capacity to model the subsurface as a protagonist. This is something I explore in the exhibition. In much the same way that a geologist takes core samples to better understand the condition of an aquifer, I modeled large core samples from several cities and hung them inverted from the ceiling. We see the layers of geological strata and tube wells piercing them, with a mirror beneath to see a reflection of the patterns of settlement on the surface. This way, what is usually drawn from top to bottom is drawn from bottom to top. Such a reorientation privileges the subsurface and how it reshapes the surface.

What does the groundwater situation look like 10 to 20 years from now? Is there room for optimism?

I think there is always room for optimism. I see the greatest potential working at a middle scale that can address the highly privatized and atomized galaxy of tube wells and hand pumps. Going forward, the challenge for designers is to learn from other fields, primarily the sciences, without relinquishing the responsibilities of design in shaping the built environment.

I currently lead the Ganges Lab at Collaborative Earth, a transdisciplinary group of scientists, engineers, and designers. Our lab is developing new forms of civic infrastructure that integrate the rhythms of the monsoons with urban growth and agricultural production. Shared terms can then evolve into spaces of collaboration like this, one where designers and scientists can also work together without one becoming the other.

Sebastián López Cardozo is an architectural designer and writer based in Toronto. He is a founding editor of *Architecture Writing Workshop* and a coeditor of *Nueva Vivienda: New Housing Paradigms in Mexico* (Park Books, 2022).

Harish Krishnamoorthy is an architectural and urban designer based between Cambridge, Massachusetts, and Bangalore, India. His writing has appeared in *Log*, *PLAT*, and *Paprika*!, and he is currently an editor at *PAIRS*.

Timber "Transdisciplinarity"

Susan Jones helms atelierjones and directs a regenerative practice.

Since 2003, Susan Jones has steered atelierjones, her eponymous, woman-led architecture practice, on a variety of cutting-edge residential, commercial, and institutional projects. The Seattle-based studio was one of the first to utilize the sustainable and regenerative properties of mass timber, and it hasn't looked back. CLT House, sited in Seattle's Madison Park neighborhood, opened in 2015 and was one of the first homes made of cross-laminated timber (hence the name) in the U.S. Then came other mass timber projects like Bellevue First Congregational Church in Washington and modular homes for people who lost theirs in Greenville, California's Dixie Fire.

Jones studied philosophy at Stanford before earning her master's of architecture at Harvard GSD. She eventually became the first woman to be elevated to partner at NBBJ before departing there in the early 2000s to strike out on her own. Today, she teaches at the University of Washington while running her practice, and atelierjones is also part of New York City Economic Development Corporation's (NYCEDC) Mass Timber Design Studio, which awards grants to pioneers of wood construction.

"When I think about what it means to practice architecture in the 21st century, I think about how we all need to embrace this notion of transdisciplinarity. This is a big word that basically means reaching out to people that know more than we do about the issues we're not experts in," Jones told *AN*. "Sustainability is such a broad, loose, and difficult word with so many definitions. We really try to look at sustainability from a broad condition founded on our approach related to circular economies."



2

LARA SWIMMER/ESTO



1 Heartwood 2023

Together with nonprofit Community Roots Housing, Heartwood, an 8-story residential building in Seattle, supplied much-needed workforce housing when it was finished last year. But it also represented a major milestone for the U.S. more broadly: The 67,000-square-foot building is the first in the country completed as-of-right under the new Type-IV codes, representing a significant precedent for tall timber construction. Heartwood's timber was sourced from the Cascadia Bioregion, a large forest area in the Pacific Northwest. Using locally sourced materials helped reduce embodied carbon, further offsetting the residential project's ecological footprint. And thanks to a Wood Innovation Grant from the U.S. Forest Service, the techniques derived from Heartwood will soon be shared in a publication outlining the project's methods so it can be replicated.



2 Sierra Institute Replacement Homes 2023

Three years ago, the Dixie Fire devastated Greenville, California, a small town north of Sacramento. More than 1,000 structures, including 660 homes, were destroyed by the inferno. To rehouse people, atelierjones partnered with the Sierra Institute for Community and Environment, a local nonprofit. This project presented its own unique challenges: How does one make a fireproof home out of wood using local, prefabricated methods? Ultimately, atelierjones developed three prototypes that could be easily replicated throughout Greenville. The firm also designed Roundhouse, an after-school center and community hub that serves the area's Indigenous Maidu people. The contemporary structure by atelierjones echoed the destroyed historic structure while meeting a vital community need for gathering space.



3 Kenmore House 2022–

If Heartwood is a textbook case for tall timber residential construction, atelierjones's ongoing Kenmore House exemplifies CLT's application for single-family residential work. Kenmore House uses many of the same techniques that made CLT House successful in 2015. It is being designed for a multigenerational family outside Seattle. The future building will have a verdant, south-facing courtyard that will flood the interiors with natural light. Last May, the construction site was visited by AIA Seattle's Mass Timber and Small Practice and Residential Committees. Construction is slated for completion later this year.



4 Harlem Mass Timber Residential Complex 2024–

After atelierjones joined NYCEDC's inaugural class of participants in its Mass Timber Design Studio, the office partnered with Magna & York, Sage and Coombe, Swinerton, Timberlab, and DCI Engineers to deliver a new CLT residential complex in Harlem with ample space for community events on the ground level. The project is ongoing and will break ground in the next few years. Jones noted that the future building's carbon footprint will be further offset thanks to the development team's elimination of on-site parking. "We decarbonized the project in two ways," Jones explained. "We designed a structure made of mass timber instead of concrete, and we eliminated an entire subcellar that would have been for parking." **DJR**

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B&B Italia's Casa Bella

Casa Bella marks the first residential partnership in Miami for B&B Italia. The residences are rooted in contemporary Italian design, with architecture and interiors by B&B Italia's creative director Piero Lissoni.

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Casa Bella Residences are proposed fully furnished by B&B Italia design studio.

casabellaresidences.com/gallery/



A luxurious yet modern style is achieved at Casa Bella through a curated selection of B&B Italia furnishings.

COURTESY B&B ITALIA

Palácio Príncipe Real by **Drummonds**

COURTESY DRUMMONDS



Built in 1877, the Palácio Príncipe Real in Lisbon was a family home for over a century, famous for the society parties held there. Falling in love with the building and its gardens, the current owners bought it in 2015 to transform into a hotel that, in their words "recreated the decadent luxury of days gone by, with all the comforts of modern life."

The owners travelled to London specifically to commission Drummonds products for their magnificent classic bathrooms. This was so central to their vision that the hotel's website features the memorable quote, "Still deciding whether we are a hotel with bathtubs or bathtubs with a hotel."

drummonds-uk.com

Drummonds fixtures ensure the elegant hotel's bathroom is a statement centerpiece of the traveler's experience.

Nolte Küchen outfits The Rowan Astoria



COURTESY 7 HAUS

The Rowan Astoria is an upscale condominium impeccably designed by DXA Studio where 7 Haus kitchen cabinets and vanities, available at Nolte Küchen, shine. The choice of walnut wood perfectly complements the light-colored walls creating a harmonious balance and elevating the aesthetic of the space.

Crafted from high-quality materials, the custom cabinets stand out as the kitchen's focal point. Wood introduces depth and character to the room, seamlessly blending with other materials and elements to establish an inviting atmosphere.

7haus.com

The kitchen is the heart of the home, and 7 Haus cabinetry ensures that the space at the Rowan Astoria feels elevated and welcoming.

WEST | WOOD at Casa Blanco



COURTESY WEST | WOOD

Casa Blanco was designed by KUBE Architecture for a young couple who desired a home reflective of their cultural backgrounds and tastes. He is Spanish and was drawn to black-and-white minimalism. She is Mexican and wanted splashes of color in a modern home.

WEST | WOOD manufactured prefinished hardwood flooring for this project using Rustic Snowdrop from the Winter Beach Color Collection with a wire brushed texture. This flooring is used in approximately 85 percent of the residence, creating a natural flow from one room to the next.

WestFlooring.com

Creating a calm and continuous palette throughout the entire home, WEST | WOOD flooring successfully marries two distinct styles.

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Already in 2024, TECH+ came to Los Angeles with a celebration of AEC innovation in Southern California. This fall, TECH+ will make its debut in Dallas, Texas, on September 25. And finally, the conference returns to New York City on October 22.

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Smarter Start-Ups

New companies Surplus and Surcy are harnessing green technology to address the climate crisis head-on.



COURTESY SURPLUS

Making the construction industry circular is by no means an easy feat. In the United States alone, 600 million tons of construction waste go to landfills every year, at a cost exceeding $36 billion. But of those 600 million tons of waste, about 75 percent has residual value, meaning there is a massive market waiting to be tapped.

Now, some North American start-ups are doing just that. One is Surplus, founded by two Rhode Island School of Design alumni, Michael J. Farris and Aanya Arora. Surplus, launching this fall, is a decentralized digital marketplace for recyclable construction materials. Contractors searching for materials can use Surplus not only to find local construction sites with surplus material but also to have it delivered to their job site the same day. A pile of bricks, for example, which otherwise would have ended up in a landfill or a warehouse, can now become part of another building, reducing waste, the need for new material, and lengthy transports.

Contractors have three options when they end up with surplus material, Arora said: "One is to send it to landfill; the second is to put it in a warehouse; and the third is to sell it back to the supplier, minus a restocking fee. It's perfectly good material going to waste. Surplus closes this gap and creates a circular flow of material waste."

Surcy, short for the French word *surcyclage* (upcycling), is a Montreal-based social enterprise start-up developing its own niche in this new market. Used materials often have to be reconditioned or reprocessed before they can be used in new construction. A significant hurdle for those seeking to make the reuse of material feel like the status quo is the visibility and unorganized state of the reuse ecosystem: The problem isn't a lack of builders willing to reuse materials; it's developing tools for those who don't know where, or how, to start. To this end, Surcy is building a repository of actors involved in the process of reusing materials. When launched, Surcy's digital directory will allow contractors and developers to connect with artisans and companies already reusing construction materials. The hope is that keeping all this information in one place will make it easier and, therefore, more attractive to reuse construction materials, in turn accelerating the industry's transition from linear to circular.

"We need to shift as quickly as we can, because otherwise, it'll be catastrophic," said Melania Grozdanoska, cofounder and director of operations and strategy at Surcy. "So, for us, it is about reducing the amount of time people need to spend looking for information and instead take action."

To make the industry more circular, Farris believes, we must play by the rules of today's linear economy. To get everyone on board—particularly the contractors and developers—purchasing surplus or used materials must be worth it.

"Can we make this circular model efficient and easy to use, where purchasing surplus material is just as easy as buying new?" Farris asked. "The sustainable option has to be the easiest, most accessible, and cheapest option," added Arora.

Technological solutions can play a key role in this effort, and both Surplus and Surcy have opted out of the more traditional method of stockpiling and selling surplus or refurbished construction materials out of a warehouse. Instead, their online platforms serve as facilitators rather than vendors.

"The idea of the logistics and management of storing materials at a warehouse—it didn't seem efficient," shared Farris, who noted that as soon as any kind of real estate space is involved, a venture like this becomes much more difficult to scale. Now, with construction sites serving as de facto storage units, Surplus allows contractors to connect locally and regionally, forgoing big, multinational suppliers and traditional ways of acquiring materials.

"Instead of this top-down, capitalistic way that we currently go about purchasing materials, this is a model for how we can begin to share resources in a more democratic way," Farris said.

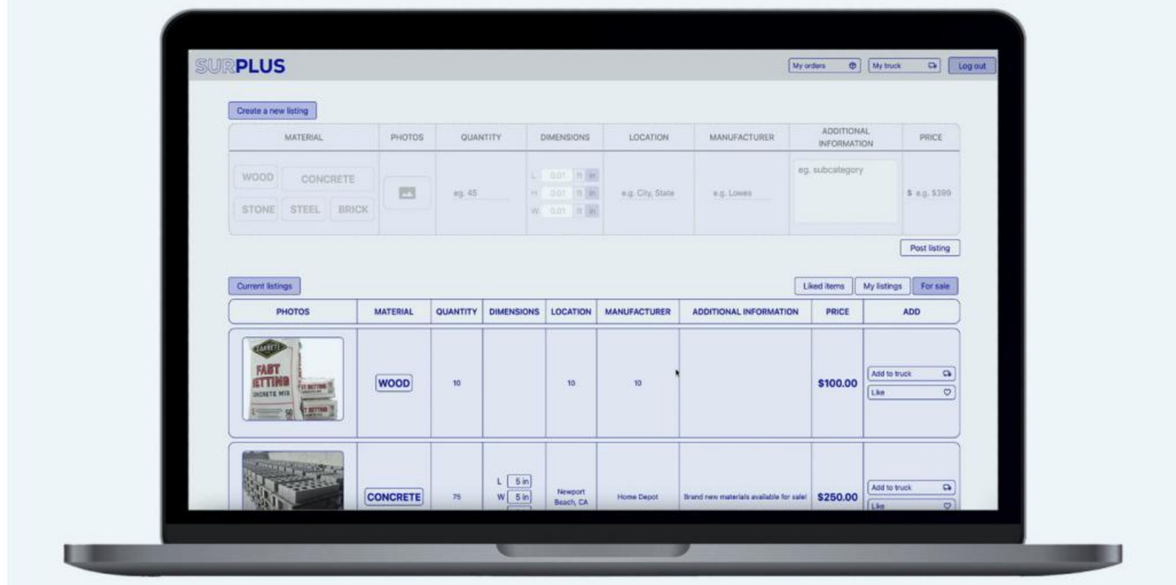
Technology holds great promise for promoting an industry transition to circularity, explained Grozdanoska. It can simplify material logistics and be used to compare the embodied carbon of design options with different amounts of reused materials using building information modeling. But, she insisted, technology cannot be thrust onto contractors by people behind screens, protected from the messiness of the construction site and its complex logistics of people and things.

"There's a lot more improvisation on construction sites than we think of as practicing architects," Grozdanoska said, explaining that to get contractors on board, technology needs to suit how they already work, not how we imagine they should work.

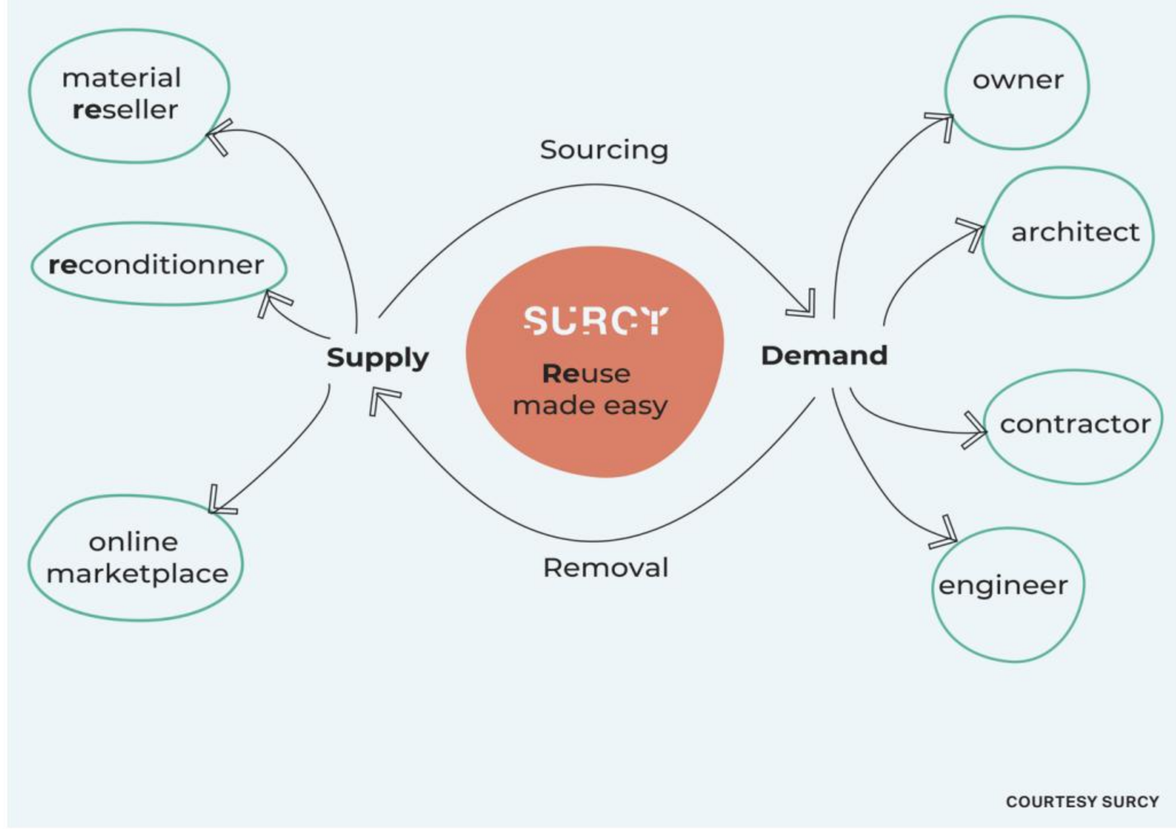
"There is this personal aspect where contractors have specific means and methods of doing things. We have to go to them to see what their needs and wants are," Farris explained.

"Technology is an augmentation of a relationship you build with other people," Grozdanoska reflected. "If that's what we can do with these new programs, then I think it will be successful."

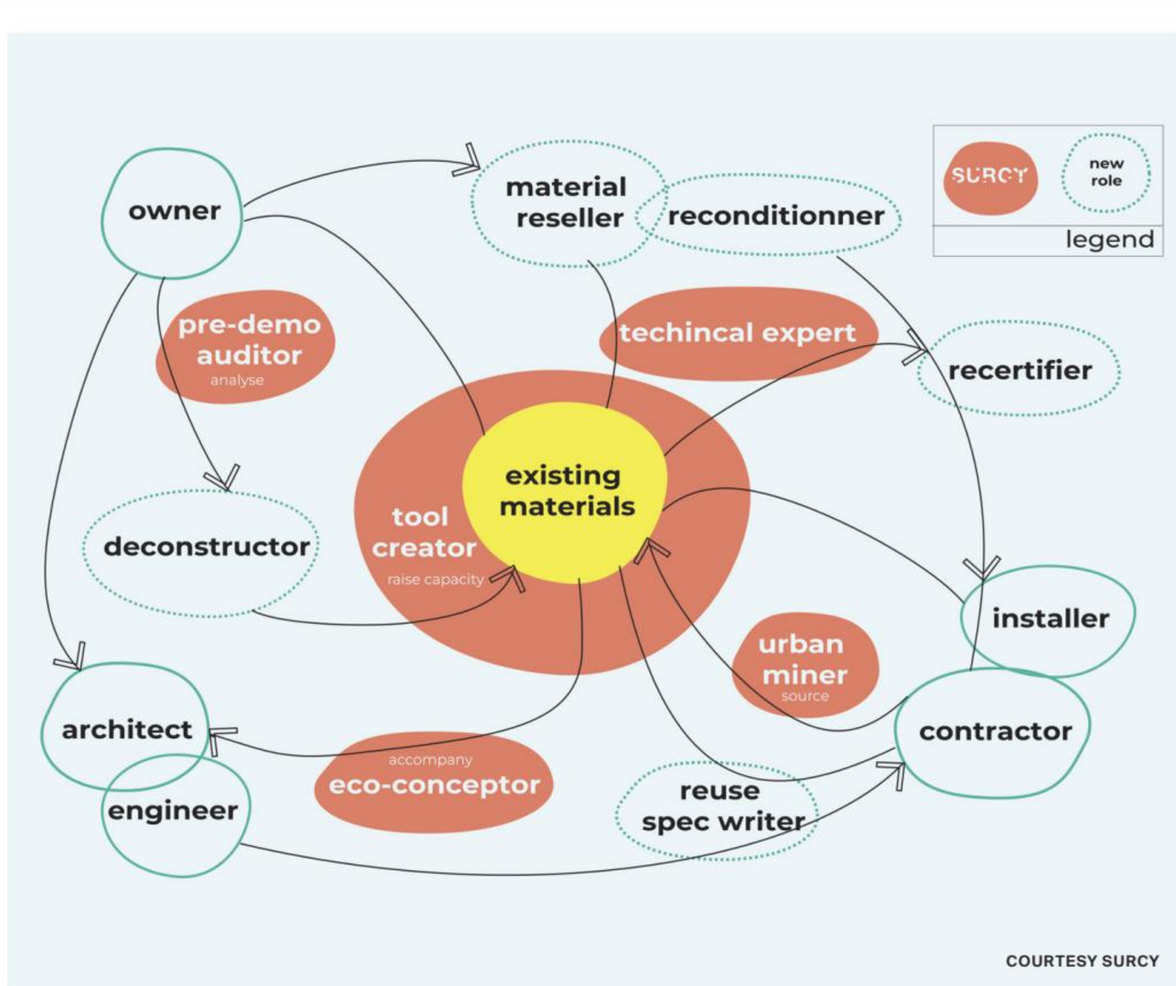
Oscar Fock is a Swedish freelance journalist based in New York City, where he reports on climate change, its effects on humans, and how we are responding.



COURTESY SURPLUS



COURTESY SURCY



COURTESY SURCY

Above, left: The founders of Surplus, Michael J. Farris and Aanya Arora.

Right: Three diagrams describing Surcy's digital interface, network of professionals served, and relationships between Surcy interfaces and external actors.

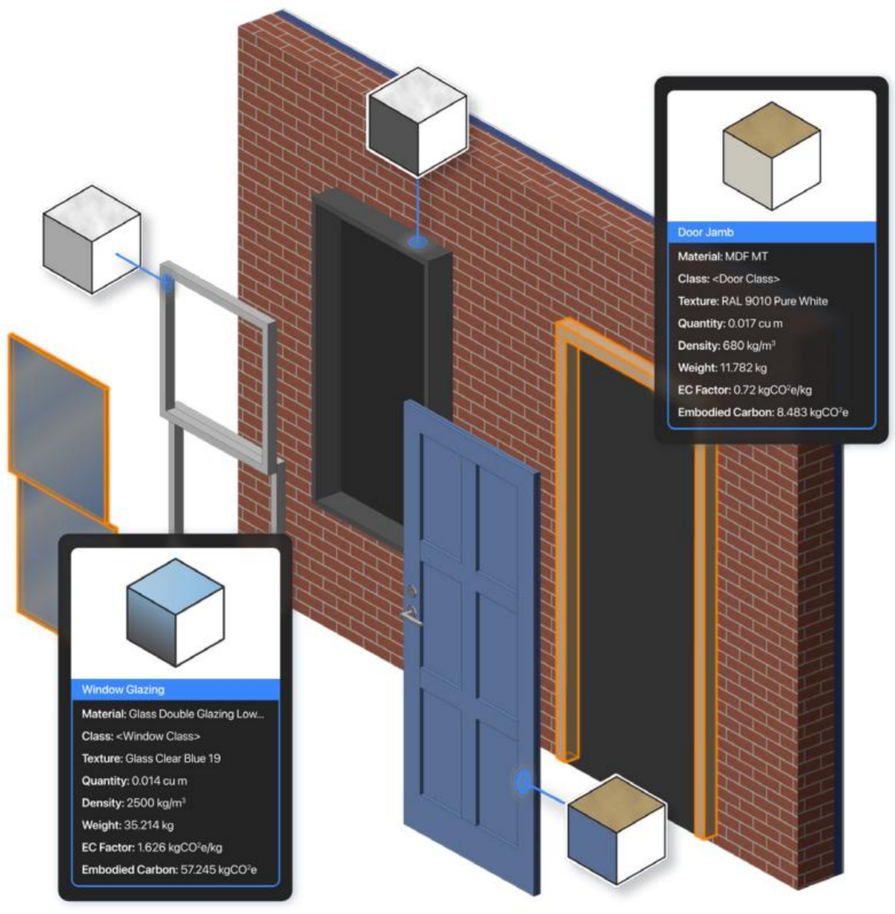
22 Products

Technology



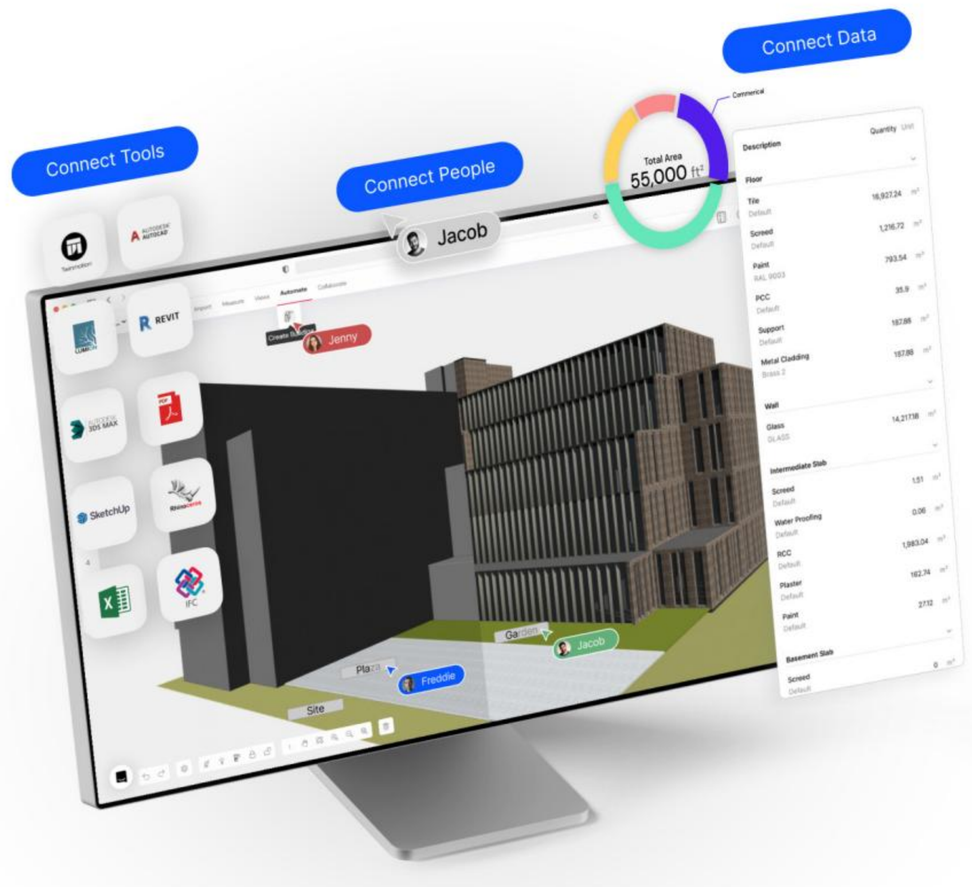
BIMx on Apple Vision Pro | Graphisoft
graphisoft.com

This new software, in conjunction with Apple Vision Pro, offers a fully immersive way to showcase and experience design concepts. Whether walking clients virtually through the project or exploring height and spatial components with the design team, the new program offers an innovative way to engage customers and stakeholders.



Vectorworks Architect 2024 | Vectorworks
vectorworks.net

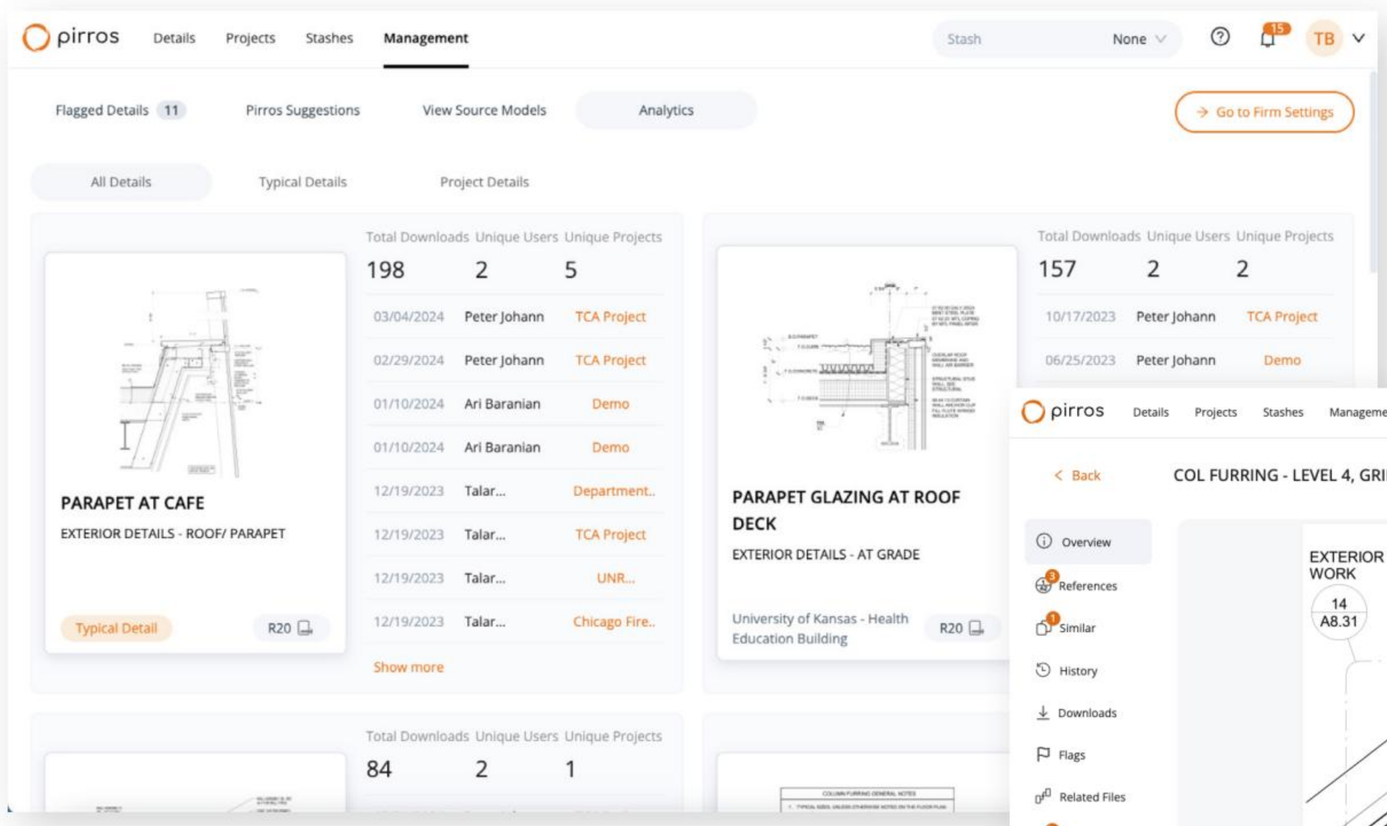
Integrating workflow and sketch/model/design solutions, the 2024 edition features a modernized user interface, the ability to save custom viewport settings as styles, more robust parametric objects, and an AI Visualizer that quickly ideates illustrative concepts or creates refined images using Vectorworks models from text prompts.



Snaptrude | Snaptrude
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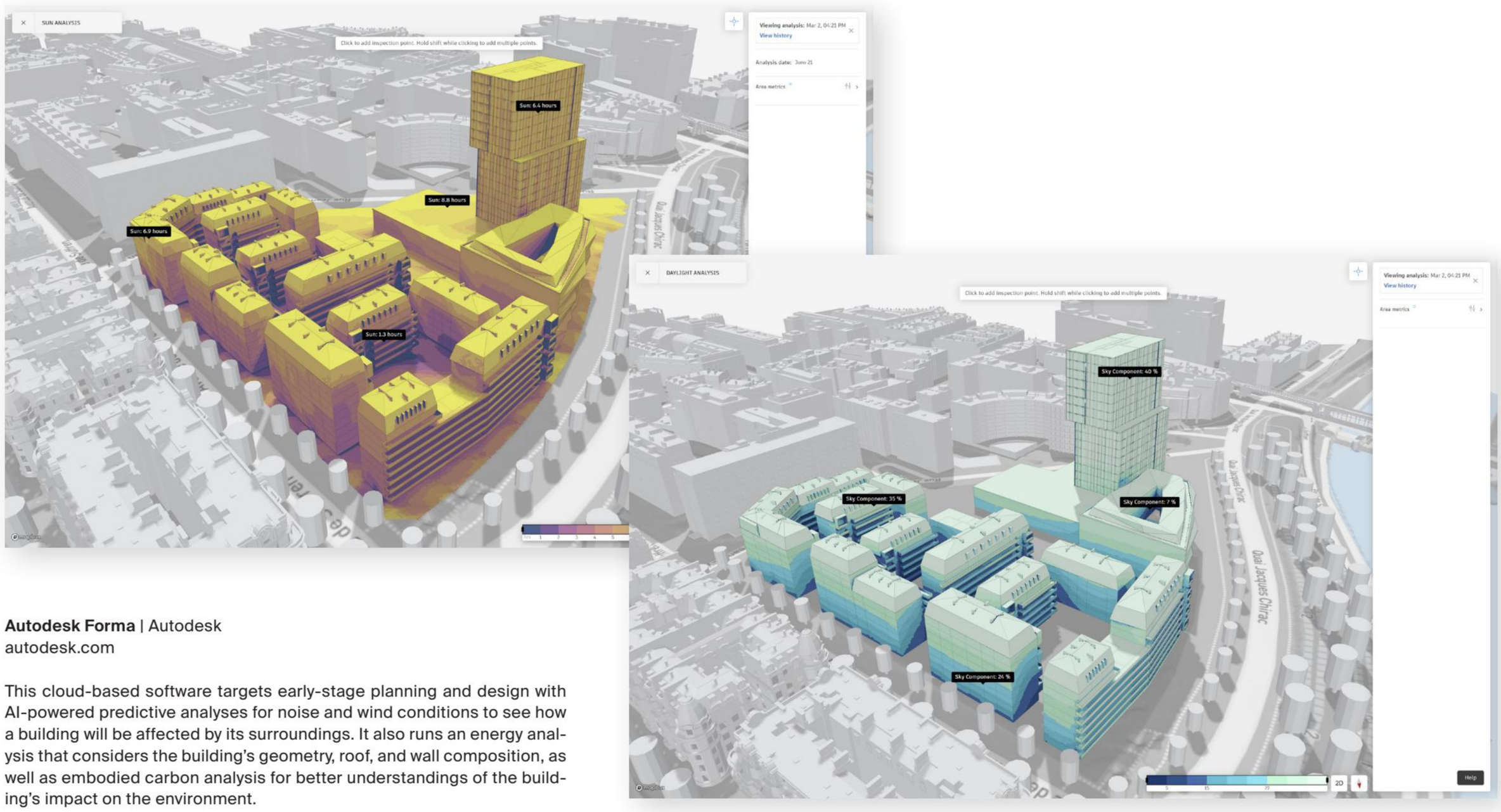
Snaptrude is a web-based design tool that offers real-time collaboration and data insights from budget to climate impact. It enables multiple users to work on builds in 3D with live feedback and to go from sketch to schematic to BIM tools like Revit with no data loss.

Whether showcasing a design concept to a client or working across teams, these softwares help organize and display information for efficient and effective workflow. Kelly Pau



Pirros | Pirros
pirros.com

This web-based platform provides standardized detail and library management. Automated suggestions and filters help vet details to better find relevant information. Restrictions can be added to projects so that interns or younger architects can't copy/paste out of date details into new projects.

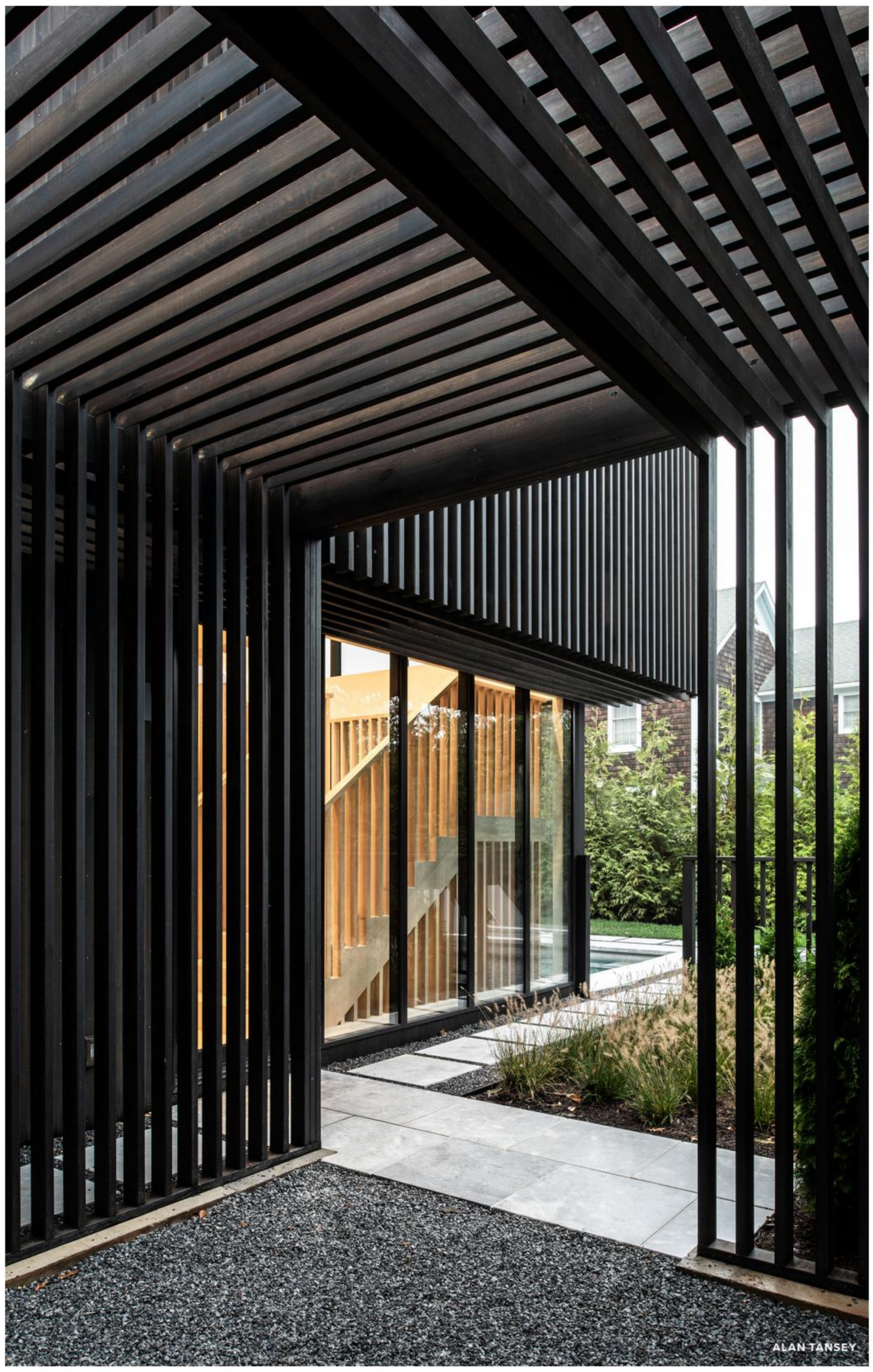


Autodesk Forma | Autodesk
autodesk.com

This cloud-based software targets early-stage planning and design with AI-powered predictive analyses for noise and wind conditions to see how a building will be affected by its surroundings. It also runs an energy analysis that considers the building's geometry, roof, and wall composition, as well as embodied carbon analysis for better understandings of the building's impact on the environment.

The Up Studio





The exceptional architecture, interiors, and brand design firm The Up Studio, based in New York, uses Archicad to support its design process on outstanding residential and commercial projects. According to the firm's visionary founder, John Patrick Winberry, keeping their design-oriented workflow flexible and efficient is of utmost importance.

After moving away from a frustrating design process and an error-prone documentation system, The Up Studio embraced the Archicad workflow, revolutionizing its designs. By transitioning to BIM powered by Archicad, The Up Studio can visualize incredible details and develop designs quickly.

"We are thrilled to take our clients through our design process and concept thinking," explained John Patrick Winberry, the founding partner and architect at The Up Studio. "Before Archicad, we designed projects in 3D, but once the client approved, we had to shift all our work to 2D drawings, creating barriers to further exploring design ideas."

With the Design Options solution, architects can quickly discover the perfect design alternative in no time. An optimized workflow streamlines evolving design variations, evaluating and sharing design alternatives, regardless of the project's size or scale.

The Up Studio actualizes its concepts using a single BIM solution, working in a single model as its design evolves, ultimately becoming the blueprint for construction drawings. Archicad has undeniably become the backbone and engine powering the firm's cutting-edge design process. When challenges arise during design development, The Up Studio relies on its model to convey ideas effectively and simply while ensuring that all the model data works in the background to minimize errors and enhance coordination.

The firm's systematic approach as a full-service entity involves a comprehensive evaluation of all environmental considerations, seamless integration into the architecture, identification of any client constraints (budget, schedules), and delivering concept-driven designs. This approach has facilitated smoother client interactions, enhanced project recognition from industry peers, and streamlined workflows.

"Archicad enables us to communicate ideas more effectively by demonstrating the performance of a design decision instead of just explaining it," said Winberry. "The model serves as validation, presenting the design in a way that clients can comprehend."

Every project at The Up Studio begins with a Clarity of Design presentation, regardless of size, scope, or location. The firm applies this meticulous process whether designing a 600-square-foot home upstate or a 20,000-square-foot project in Florida. This approach establishes guardrails for the team, ensuring a clear and focused vision that stems from a general concept and its performance.

"As we started using Archicad, it became evident that we had found a tool for designers," Winberry reflected. "We could seamlessly move through the model, make changes aligned with our client's needs, and never lose sight of the goal of building the home."

Before employing Archicad, the firm's 3D design process had limitations. Transitioning from design approval to 2D drawings hindered their ability to explore design ideas further. However, beginning a project in Archicad has facilitated immense improvements in productivity and has unquestionably become the driving force behind their design process.

As The Up Studio embarked on its Archicad journey, it quickly realized they had found a tool tailor-made for designers. The team discovered the ability to work seamlessly through the model, implement changes that meet client needs, and never lose focus on building a dream home.

The firm's ability to generate high-impact visualizations swiftly and effortlessly using professional out-of-the-box solutions and streamlined connections to other professional architectural visualization solutions integrated into Archicad is truly remarkable.

"We consider Archicad one of our arsenal's most powerful tools: BIMx allows us to link the 3D and two-dimensional exports seamlessly," Winberry explained. "It may be a complex virtual model, but everything synchronizes flawlessly. This technology excites me because it enables us to virtually construct homes and have clients fall in love with our designs and concepts."

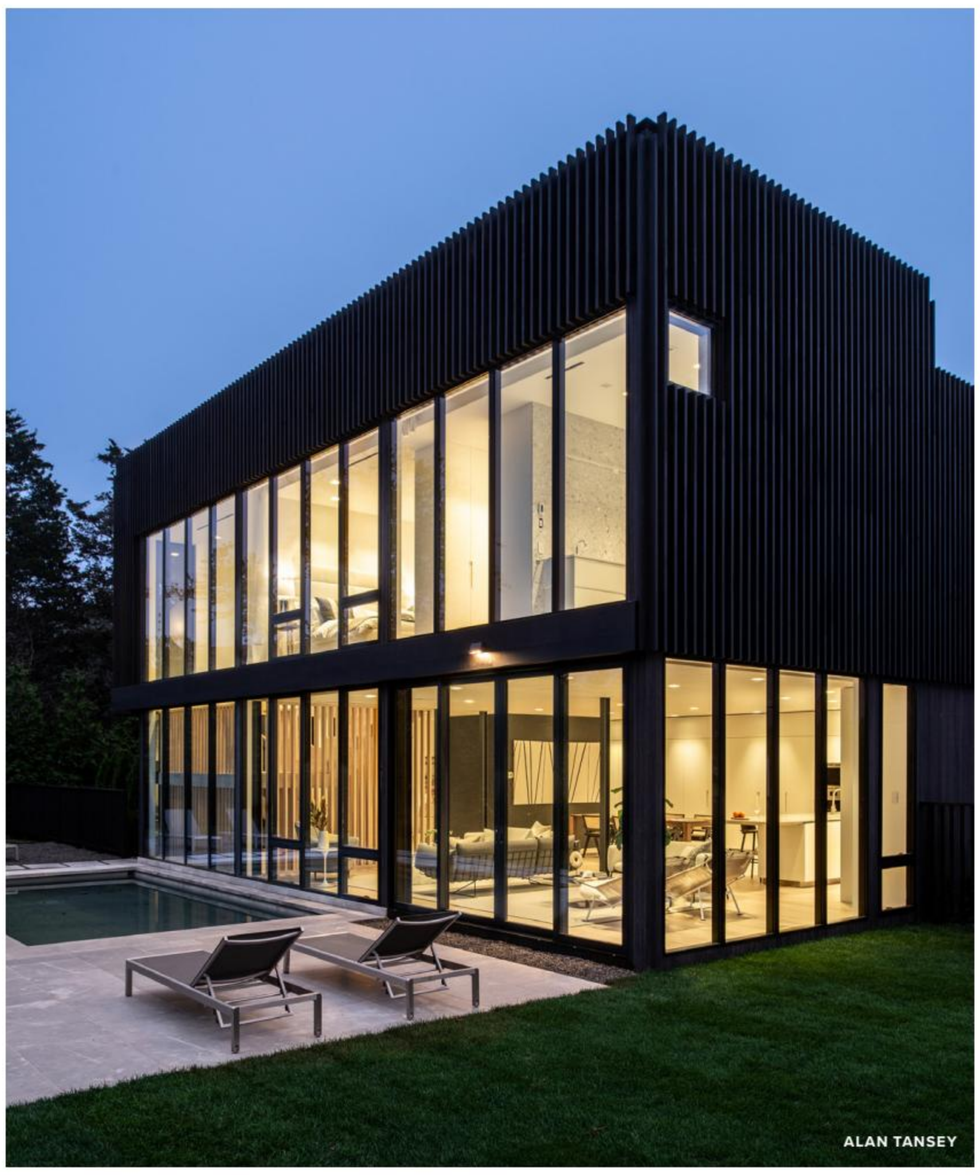
The Up Studio's journey with Archicad is a testament to the transformational power of cutting-edge technology in revolutionizing the design process and setting new standards for excellence.

Sponsored Content

The Up Studio prioritizes helping clients understand the story of their design. Archicad allows the firm to convey that story and impart a sense of ownership in the design process.

Scan to see how Archicad powers The Up Studio's design process!


CHRISTINA GRIECO


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The Up Studio is an award-winning full-service architecture, interior, and brand design studio that aims to enhance people's lives through their concept-driven work. Their team focuses on customizing projects to meet their clients' needs, in a way that is site specific, and rooted in a thoughtful design strategy. Each member of The Up Studio believes that design has a story to tell. To tell that story, the team employs a multidisciplinary approach that combines broad ideas, diligent organization, and innovative tools, presented within a coherent narrative.

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EDITORIAL

Each September, the crisp return to fall reminds us that school is back in session. By now, students and faculty have returned to college campuses that have largely lain quiet since the tumultuous spring term, when protests and encampments took over numerous academic spaces. Two pieces cover urgent issues within architecture academia: the plight of adjunct instructors, addressed in an article by Lindsay Harkema and Valérie Lechêne, and the importance of ethnic and degree diversity, as studied in a text by Robert Alexander González. Then, Diana Budds surveys the rise in climate centers, and Allyn West visits a tobacco warehouse in Lexington, Kentucky, that Studio Gang has converted into the Gray Design Building for the University of Kentucky's College of Design.

STRUCTURAL CHANGE

Architecture adjuncts demand labor equity.

It's one of architecture's painful paradoxes: Within academic institutions, the most engaged workers are often the least supported. How can precariously employed faculty convincingly guide students to stable careers? This contradiction undermines the very foundation of architecture education.

Recent motions to organize professional architecture workers into unions have drawn attention to the comparably tenuous conditions faced by architecture educators, namely adjunct faculty. Often juggling multiple jobs and institutions, adjuncts form the backbone of architectural education. They comprise the majority of architecture faculty—54 percent, according to the latest National Architectural Accrediting Board (NAAB) annual report (2023). Adjuncts are known to bring innovative teaching approaches and on-the-ground experience to the classroom, yet they are systematically excluded from institutional decision-making, notoriously underpaid and overworked, and denied the research support, benefits, and security their full-time colleagues enjoy. What's more, research has shown that the unrecognized burden of academic service, student mentorship, course preparation, and unpaid guest appearances falls disproportionately on untenured adjunct faculty—particularly women.

Recognizing this disparity, a group of adjunct faculty recently convened at The Architectural League's offices to shed light on our own experiences of these conditions. Representatives from private institutions like Columbia/Barnard, the Cooper Union, the New School/Parsons, Pratt, Syracuse, Cornell, and Yale, as well as public universities like CUNY and Kean, were in attendance. We, authors of this op-ed, were present. Our findings? Insufficiently addressed and inadequately documented, architecture adjunct precarity is a stark symptom of wider systemic issues. The precarious conditions of architecture workers straddle both the academic and professional realms, entangled in a web of challenges that interact, converge, and amplify one another. Our tacit goal? To sketch a blueprint for structural change and equity in architecture education. Organizing will constitute its binding force.

The Organizer's Guide to Architecture Education

At its core, organizing is the practice of building collective power to address shared predicaments, catalyze transformations that benefit the majority, and pursue coalescing goals unattainable by individuals alone. The recently published book *The Organizer's Guide to Architecture Education* (*TOGAE*)—coauthored by one of us—posits that organizing is crucial to overcoming the compounding crises exemplified by adjunct worker precarity. It employs a versatile, scalar framework applicable by organizers across various fields and positions, including adjuncts.

Informed by the intersectional challenges faced by marginalized groups such as adjuncts, *TOGAE*'s configuration offers to drive systemic change through a heuristic process—a practical, hands-on approach based on experimentation and discovery. It leverages a scalar lens to address the complex predicaments in architecture education. This instrumentation enables organizers to identify intervention opportunities at different scales, fostering coordinated strategies that build diverse yet cohesive grassroots power. Linking these actions allows efforts to reinforce, mutualize, and expand each other, ultimately driving broad systemic change.

S, M, L, XL

TOGAE breaks down architecture education into intelligible parts: SMALL, the studio; MEDIUM, the curriculum; LARGE, the university; and EXTRA LARGE, the nation-state. *TOGAE* coauthors explain this choice was inspired by Rem Koolhaas and Bruce Mau's tome of the same name: "the language of S, M, L, and XL defines an organizing framework for mapping the specificity and interconnectedness of both existing conditions that define architecture education and strategies that can mobilize it toward systemic change."

The recent adjunct strike at the New School (TNS) is an example of a coordinated, scale-specific action. In November 2022, TNS members organized a record-breaking 25-day strike involving 1,678 adjunct professors, comprising 87 percent of the faculty. The strike's origins lay in the microcosm of TNS classrooms (SMALL), where the university's progressive legacy nurtured innovative pedagogies. This seed sprouted when conversations between adjuncts from different departments gained momentum (MEDIUM)—and students eventually took to the streets in solidarity with their professors. These departmental discussions grew the strike to its full magnitude, encompassing the entire university (LARGE), with the ACT-UAW Local 7902 union negotiating with TNS administration. The broad movement was thus built upon the foundation of smaller, discipline-specific coalitions.

However, while these achievements were substantial for TNS, they did not address the systemic issues facing adjuncts across higher education (EXTRA LARGE). The persistence of these broader challenges underscores the need for a more comprehensive, interinstitutional approach and for reexamining the dynamics of the profession and its jurisdictions at the nation-state scale.

TOGAE's scalar framework illuminates how to build effective coalitions spanning multiple structural dimensions. Our approach links scale-specific actions, from studio to curriculum and university to nation-state, and enables organizers to leverage coalition-building for more significant impact.

Scales of Action

At the SMALL scale (the studio), the architectural worker is shaped and the potential for change begins. By reimagining studio culture, as adjunct instructors are keen to do, the studio becomes a space for cultivating architect-citizens who are responsible for and to each other. This approach emphasizes cooperation, challenges traditional power dynamics, and fosters empathy and mutualism across positions of power. Students are empowered to take control of their pedagogical experience and develop their agency as political subjects when learning to organize and support one another.

At the MEDIUM scale, organizing within architecture schools reimagines curriculum as a laboratory for practice, where improved conditions for adjunct faculty are integral to developing better models of doing and laboring within architecture. This holistic approach integrates curriculum development with reimagined departmental processes, advocating for enhanced teaching and research opportunities, career development, livable wages, benefits, and job security. Architecture education becomes a space to test, challenge, and innovate new modes of working and relating, addressing immediate needs while laying groundwork for broader institutional change that spans both MEDIUM (school) and LARGE (university) scales.

This intraschool momentum directly extends to interschool collaborations. School-specific groups connect with counterparts at other universities, building collective power to influence national organizations. During The Architectural League's roundtable, participants suggested that the Association of Collegiate Schools of Architecture (ACSA) and NAAB collect more detailed data on adjunct labor conditions in annual reporting. AIA could provide support by raising consciousness about labor issues. These initiatives bridge the MEDIUM (departmental) and EXTRA LARGE (national) scales, catalyzing comprehensive paradigm shifts in architectural education.

At the LARGE scale, where university budgets and faculty salaries are determined, architecture-specific groups can expand their reach by collaborating across departments to build solidarity with staff, administrators, and students. This cross-disciplinary approach strengthens the overall adjunct movement and targets the institutional level, where substantive change in adjunct conditions is possible. The overlapping networks—inter-architecture-school and intra-university-inter-department—must coordinate to create a robust organizing culture that can effectively advocate for budget reforms and fair compensation.

At the EXTRA LARGE scale, these networks collaborate to address systemic issues at the nation-state policy level and aim for an epistemological and ontological shift necessary for meaningful long-term change. Drawing from campaigns like the Debt Collective's student debt relief, adjunct organizers could join forces with university administrators to advocate for increased federal funding, recognizing that improving adjunct conditions strengthens universities overall. This multipronged approach—combining policy advocacy, institutional reform, and the reimagining of fundamental concepts—seeks to enact structural changes benefiting educators and institutions alike. Change comes from multiple directions: Individual universities serve as innovative models, while broader societal pressure influences widespread approaches. This combination is crucial for realizing a just and sustainable future for architecture education and practice.

Breaking Ground

To turn our vision into fruition, adjunct organizers invite participation from readers. We urge all architecture adjunct educators to complete a comprehensive, anonymous survey for each teaching position that they have held. Your input is crucial in building a solid foundation for advocacy. The survey (QR code below) aims to capture a range of experiences and paint a detailed picture of the adjunct experience across regional and institutional contexts.

Looking ahead, efforts will focus on building momentum through interinstitutional, adjunct-led campaigns, bolstered by national organizations such as ACSA and AIA. These strategic partnerships and collaborative efforts can amplify the movement's impact and reach. We invite these organizations to join us in addressing these issues through advocacy and action. Educators teach the necessary skills and knowledge that equip future practitioners and offer access to a historically exclusionary profession. Students discover creative approaches and innovative methodologies through their exposure to diverse ways of thinking about architecture. Adjuncts benefit from the experimentation allowed within the university sanctum—where the pursuit of knowledge, critical thinking, inquiry, and debate are traditionally protected—as a complement to the more risk-averse realities of architectural practice. As a discipline, we're responsible for dismantling the vicious cycle of insecurity that constrains our community.

This road map provides a comprehensive approach to addressing challenges faced by architecture adjuncts. Collaborating across multiple scales, the movement can work toward a future where adjunct labor in architecture education is valued and supported. The plight of the adjunct is a symptom of broader structural inequities and part of reshaping architecture education to address deeply systemic challenges such as climate change, social injustice, and unsustainable development. Moving toward a more inclusive architectural pedagogy requires looking beyond traditional academic configurations. This transformation embraces an "expanded, decentered field," recognizing architecture's interconnectedness with broader societal and environmental concerns. Addressing adjunct working conditions is a crucial step toward an educational environment that prepares students to tackle global challenges collaboratively. This shift positions architecture as a vital contributor to planetary stewardship, educating architects capable of shaping a more equitable, sustainable, and resilient future.

Lindsay Harkema is an adjunct educator and founder and cofounding member of WIP Collaborative.

Valérie Lechêne, *TOGAE* coauthor, is an architect and systems thinker advancing urban climate adaptation.



DIVERSIFY OR DIVIDE

Architecture faculties should keep improving racial/ethnic and degree diversity.

This text is edited from a forthcoming book chapter that considers the culture of school rankings through a data-driven study of the U.S. architecture professoriate across the country's 130 accredited architecture programs.

Upon receiving an Architecture League Prize for Young Architects + Designers, Sarah Aziz, an assistant professor at the University of New Mexico School of Architecture and Planning (UNM), where I am the dean, reflected on our U.S. architecture programs:

> As someone who's come from the U.K. and went to two lesser-known institutions, I find it perplexing that the majority of architecture department chairs and deans in the Midwest are from the Ivy Leagues. I've taught at universities where there's been an enormous disconnect between the local context and visions of senior administrators. In one case, there was the ambition to transform the school of architecture into "the next Princeton," which I've never understood—we should valorize the creative capacity of students from across the flyover states.

Aziz's statement aligns with my work to rethink school ranking systems, breaking the discipline and practice of architecture free from the holding pattern in which it's long been locked. My ongoing research into the U.S. architecture professoriate, which will be published in a forthcoming book chapter, presents the unsurprising data that a significant number of architecture faculty do indeed come from Ivy League schools. If our charge as educators is to prepare architects for success in today's diverse world, we need to further diversify the educational composition of our faculty. Choosing professors from a diversity of institutions ultimately diversifies faculty, students, and an overall program.

Aziz's words also resonate with an emerging backlash against the Ivies, noted recently in publications like *The Chronicle of Higher Education*. In the article "New Research Lays Bare Just How Inequitable Elite Colleges Are," Zachary Schermele wrote that "the nation's most selective private colleges have long been criticized for perpetuating inequality" because "they amplify the persistence of privilege across generations." How this perpetuated privilege of privates vs publics translates into the architecture discipline is no different from that in other fields, but additional hierarchies also emerge when looking at how elite institutions have intersected with the evolution of the 130 accredited architecture programs in the United States. My research into architecture program provenance suggests elite status is related to an evolving profession and to pedagogies rather than to the anointed prestige of an Ivy.

I have long worked with a distinctly regional set of schools committed to building programs on local/regional needs, strengths, and distinctions. During my Association of Collegiate Schools of Architecture (ACSA) presidency in 2021-22, I aimed to set ACSA on a committed path to help university programs build lasting connections with community colleges, which are wholly devoted to their local communities. However, Aziz's statement challenges my own biases. My own training at MIT and the University of California Berkeley was not officially Ivy League, but I am still a product of the U.S.'s obsession with university ranking systems and pedagogies that teach students to revere "Architecture with a capital A."

Racial/Ethnic Diversity Efforts During the DEI Backlash

In addition to institutional divides like Ivy/non-Ivy and public/private, other divisions persist across universities. Faculty of color, especially historically underrepresented minorities, remain at the bottom of the professoriate ladder, as seen in annual data collected by the National Center for Educational Statistics, which indicate white instructors significantly outnumber Black, Hispanic, and Asian ones across the professor ranks in post-secondary institutions. In Malika Jeffries-El's article "How Do We Mitigate the Impact of Systemic Bias on Faculty from Underrepresented Groups?" published in AAAS-IUSE, she illustrates with a bar graphic the stark contrast: White female assistant professors outnumber white male assistant professors, and faculty of color remain at the bottom. We need to scrutinize the gateways of exclusion that have historically been institutionalized in academia, such as the composition of search committees, where faculty choose their future colleagues. Universities have attempted to address unconscious bias and what is often called "affinity bias" by requiring more diversity committees that have at least one faculty of color member, for example—granted that your state allows it.

Some states are actively dismantling diversity and equity initiatives, which intensifies racism, gender discrimination, and heteronormativity on our campuses. Under such new strictures, the white gatekeeping would likely persist and even worsen. If this U.S. trend continues, it could draw greater contrasts between architecture programs: Some might work toward heterogeneity while others remain predominantly white; some may encourage progressive efforts while others are limited to safe topics like environmentalism and climate change (though the fundamentals of the latter may be challenged). This split, already emerging, will increasingly mirror the politics of our divided country. But this division is not between elite and nonelite institutions. As my UNM colleague Renia Ehrenfeucht has pointed out, some schools in white-dominant areas are struggling to incorporate anti-racism in education. Elite institutions are diligently working to retain diversity initiatives, despite being impeded by the culture of elitism.

As a minoritized senior administrator, I am a representative of queer men of color from society's bottom echelons, and though I know that my educational path helped propel my career, my position pushes against the elite membership spaces of academia, where dominant structures of power and institutional racism prevail. While we have worked diligently to address gender discrimination in the Academy—and continue to do so—the issue of racial and ethnic diversity should be our most urgent concern today. Historically, the U.S. educational system has been dominated by male/white faculty, and this continues to be reinforced by professional figureheads.

Avoiding Disparities by Finding the Right Path

Beyond racial and ethnic diversity, the related problem of degree diversity is worth studying. Aziz's sentiment inspires us to look closely at how we're building our architecture programs, to ask uncomfortable questions, and to carefully consider which models to emulate. The critical question to ask may not be about the Ivy League representation in our accredited program faculty, which my study reveals is actually in decline. Faculty members disproportionately coming from elite institutions, however, is related to lower percentages of faculty of color being hired. Instead, let's ask how we can better address the continued disparities between public and elite/private universities, as this also addresses the urgently needed diversification of faculty and students.

We should want to diversify because we need faculty who reflect different worldviews and perspectives, and we need professionals who reflect the people who live in the world they shape. Diversification directly translates to an architecture program's prioritization of values, which are transposed onto our local and regional work, as well as to the audiences and allies we foster. However, we cannot address heterogeneity without addressing how racism, sexism, etc., reinforce elitist, exclusionary practices in our programs. For starters, we should commit to creating a 360-degree assessment across all our programs that demonstrate the persistent lack of racial and ethnic diversity on our faculties and then encourage administrators to take a stance. My data-driven research will help us begin to do this. Our increasingly diverse prospective students will want to know where a school stands, and they may choose their educational pathways with faculty heterogeneity in mind.

For students and their parents, cost and access will also always be part of the equation. Some undergraduate programs remain relatively affordable. Ten states, including New Mexico, offer free tuition to all in-state undergraduates in public universities. And it is no secret that community colleges offer the greatest affordability and, importantly, diverse student populations. Currently there are 30 states offering some version of a free tuition program in their two-year community college programs. If we value a program's heterogeneity, let's create meaningful partnerships with community colleges; ACSA's new Toolkit for Community Colleges can help us do this.

The Dean's Equity and Inclusion Initiative

So, what can architecture educators do to support diversity in the Academy? During the early days of the pandemic in 2020, I helped found a group called the Dean's Equity and Inclusion Initiative (DEII) with several other design school deans; our efforts were led by Thäisa Way, director of garden and landscape studies at Dumbarton Oaks. Our first exploration included Deborah Berke (Yale University), Ila Berman (University of Virginia), Sarah Whiting (Harvard University), J. Meejin Yoon (Cornell University), Way, and myself. The pandemic was a time of great upheaval, when universities were reassessing the value of the classroom and students were reconfiguring social and academic engagement. This also took place after the murder of George Floyd and the protests that sparked diversity, equity, and inclusion movements across the country. Our intention was to bring schools together that were usually not in the same room. Similar thinking led to newly spearheaded projects like Dark Matter University, which began to pair up professors from Ivy League schools and HBCUs to offer co-taught graduate and undergraduate courses. *Places Journal* also began to expand its board with the same intention to diversify and broaden its reach across architecture school leadership. There was an overall desire to break down hierarchies rooted in entrenched ranking obsessions and bicoastal elitism for too long.

In our first meetings, we began by discussing the struggles we were experiencing heading design schools during a pandemic and ways to address the passionate demands our visionary students were making. However, we also saw institutions hastily diversifying with new activities; many were increasingly hiring target faculty to address social justice issues through newly formed postdocs, assistant professor lines, and other teaching posts. We observed too what many have underscored, that it is always faculty of color who are tasked with fixing the lack of diversity in our schools.

The DEII program that resulted allows these newly recruited, often solo-flying changemakers to come together as fellows throughout the year to share mutual support and to gain direct mentorship from academic leadership. To date, over 80 DEII fellows have joined. The DEII group continues to grow, with more than 40 deans and directors joining us throughout the year to foster national conversations and knowledge exchange. DEII is one of the few venues that offers a regular stage for exchange, aligning architecture program leadership across the country with the mission to diversify and keep our schools from reflecting or even contributing to our nation's political divide.

The kind of exchange between deans that is part of DEII is an entirely new type of national-level exchange as it keeps us in direct contact with the future professoriate across all 50 states. The results have been quite impactful and unlike anything I have previously experienced in academia. This is just one way to unite a divided academic culture and retain our faculty of color. But more work is needed.

I see the link between racial/ethnic diversity and degree diversity in the data I am preparing for future publication, which considers the many degrees of faculty across ranks. The assistant professors we are hiring today, although they remain predominantly male and white, are more diverse than the full professors at the top rank. Progress takes time. One thing I feel certain about is that a diverse professoriate is a key factor for students of color to make progress, because architecture is a discipline that has historically seen biased mentorship in the architecture studio transition into biased labor in the firm. These are the spaces where institutional racism and gender discrimination fester in our discipline, and the demographics of our architects reflect this. The creation of a diverse professoriate is one way for academia to meaningfully counter the national divisions we see today, and our faculties have the power to make this happen.

Robert Alexander González, PhD, AIA, is dean and a professor at the UNM School of Architecture and Planning. He is a registered architect and has served as an administrator for over 13 years, previously heading a community college–university program for nine years.

THE RISE OF CLIMATE CENTERS

Who is funding the next wave of climate education?

Over the past few years, a new type of building has cropped up around the world: the "climate center." These education spaces range in use from academic centers to nonprofit research institutions and public interpretive exhibition spaces, but they share a common mission: to help save the planet. While sustainable design certainly isn't novel, the building that so actively seeks to educate its users and catalyze a climate-focused culture shift is.

There's a complex interplay happening within the buildings, which not only further climate science but also educate the public about the effects of climate change—and future architectural clients about sustainable design. But in some ways, these climate centers can start to feel like a paradox. While improving energy efficiency has, for a long time, been the primary means of reducing the carbon footprint of buildings and their construction, less attention has been paid to embodied carbon. Also known as embodied greenhouse gas emissions, it's a measure of how much carbon is emitted from *building* a building—from the extraction of raw materials to the manufacturing and transportation of building products.

Last September, the United Nations and Yale copublished a report outlining strategies to reduce embodied carbon in buildings. The report recommended avoiding "unnecessary" production and extraction, and shifting to regenerative materials. These strategies are present in many climate centers, but these impact-oriented buildings are meant to be seductive. As these centers continue to arrive on university campuses and make new "climate tourism" destinations all on their own, we must ask: Are these centers beacons of public education or Trojan horses waiting in the wings?

Climate's Ground Zero: The Arctic Circle

One of the most visually arresting among these new centers is the Klimatorium, located in the coastal Danish city of Lemvig and completed in 2021. Designed by 3XN, it features a dramatic jet-black, slatted-timber exterior with a concave seating area (the shape references fishing boat hulls) integrated into the facade. Inside, there are offices, conference rooms, a cafe, and a public exhibition hall. The building is intended to be a "meeting point that brings together civil society, authorities, businesses, and educational institutions to discuss lifestyle, prevention, and adaptation to the climate challenges we face," according to the center's "about" page. But it's also powerful marketing intended to "help the Danish business community increase their exports by marketing and showcasing Danish solutions and increasing climateism."

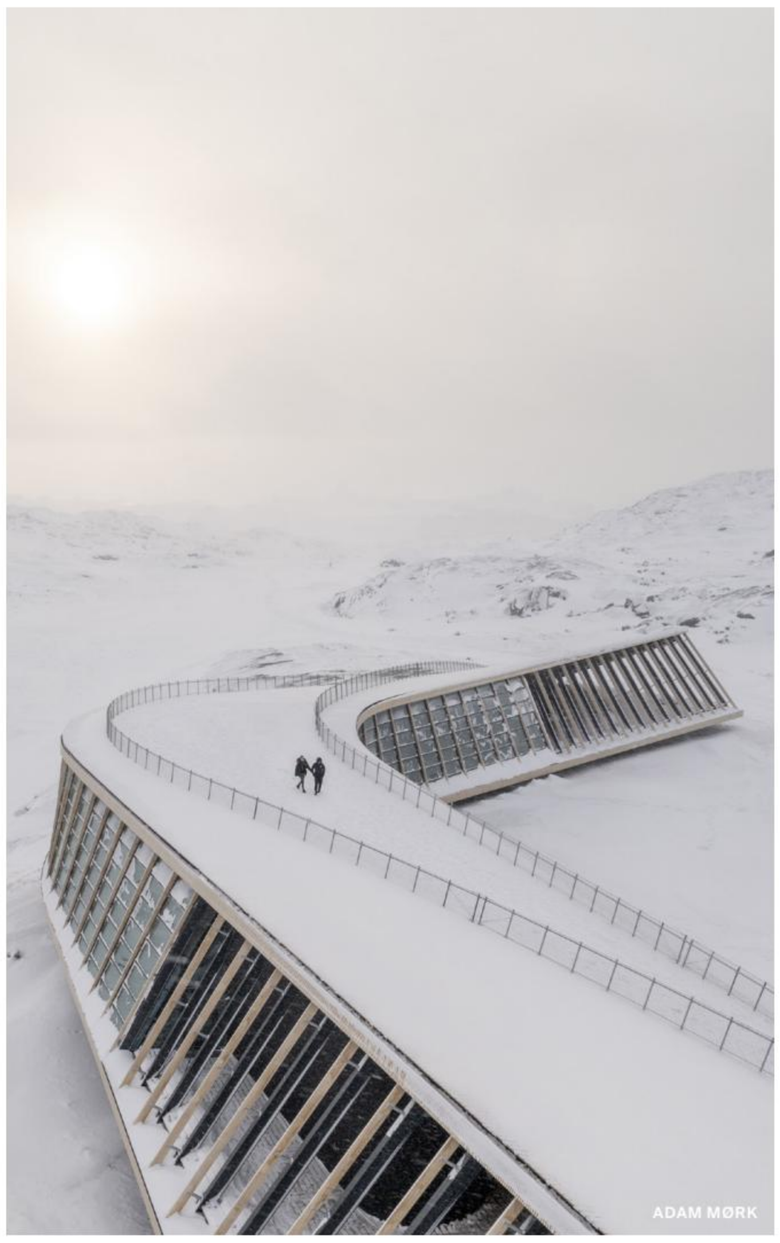
In western Greenland, the Icefjord Centre, which opened in 2021, is both a research and visitors center focused on the ways climate change is affecting the nearby Sermeq Kujalleq glacier. The building snakes across a rocky outcrop, and the architect behind the 16,000-square-foot project, Dorte Mandrup, has described its shape as being inspired by "a snowy owl's flight through the landscape." From the rooftop promenade, you have a front-row seat to Greenland's receding ice sheet. Climate change becomes a site-specific spectacle. The permanent exhibition inside features core samples of ice—some dating from 124,000 BC, according to the website—held in minimalist freezer vitrines. The territory plans to build five more of these centers to boost tourism and address unemployment in the region. Like the Klimatorium, it is billed as a meeting ground to discuss climate change. It expects to receive 25,000 visitors each year.

Closer to home is the Jones Beach Energy and Nature Center on Long Island, New York: a place for environmentally focused exhibitions where "visitors learn from the building itself" on topics like energy efficiency and the coastal ecosystem. Opened in 2021, the project was a collaboration between the New York State parks department, which needed to replace a crumbling 1960s bathroom that was at risk of flooding, and the Long Island Power Authority, which planned to build an energy-focused interpretive center nearby. Instead of two new buildings, the agencies teamed up on a single project.

Designed by nARCHITECTS, the cedar-clad building is long, narrow, and surrounded by deep shade canopies on slender posts. It's almost like a Miesian box meets a midcentury beach house. Thanks to its orientation, clerestory windows reduce the need for artificial light, and rooftop solar panels and a geothermal heat pump mean it's net-zero. While most of the technical systems are hidden, the mechanical room is treated like an exhibit so that visitors can learn how the building saves energy. Some of the more



ADAM MØRK



ADAM MØRK

interesting sustainability work, however, is invisible. The original foundation was reused (the new building is bigger, though) and 12 acres of parking was removed: Designers used the concrete rubble to elevate the building 7 feet and create topography on the site, protecting it from flooding.

Overall, it's a "primitive and fluid space," said Eric Bunge, principal at nARCHITECTS. He explained that a limited budget meant "less products, less specifications, less stuff." Instead, "we tried to make things, which is also a question of labor and maintaining craft," he added. "Social resiliency is always tied to environmental resiliency."

Institutional Knowledge: Higher Ed and the Climate Question

When you think of education and pedagogy, the first place that comes to mind may not be private exhibition spaces or viewing decks, but the hallowed halls of a university. Following this thread, Mehrdad Yazdani, an architect at CannonDesign, has been working on projects that fall into a category of building the firm calls "impact architecture," or buildings constructed for the purpose of social good. One of them is the Resnick Sustainability Center on CalTech's Pasadena campus, which focuses on climate science, among other fields related to sustainability.

The 80,000-square-foot building, which opened earlier this year, is LEED-Platinum and designed "to communicate and put science on display," Yazdani said. Beyond flaunting its green-building tech (like a mass timber structure and aluminum shade fins that are tuned to let light in while protecting against heat), the building is flexible enough to accommodate whatever multidisciplinary research needs emerge. It's the opposite of single-use academic buildings—like dedicated buildings for a chemistry, biology, or physics department—that were the norm decades ago. "Most discoveries are now made by talent coming together and collaborating," Yazdani said. "The building should enable easy collaboration, collision, and interaction."

To that end, the Resnick Center is flexible enough that CalTech can easily modify the interior to suit its needs. Yazdani said that "future-proofing is an integral element of our design," and by designing buildings that foster a sense of togetherness while being able to evolve, "we can help the universities build fewer but better buildings."

Yazdani is designing a building with a similar agenda at UC Davis: the Resnick Center for Agricultural Innovation, which is focused on researching how the farming industry can adapt in a rapidly changing climate. (Both the UC Davis and CalTech buildings are named after the Resnick family, owners of the largest agricultural empire in the U.S.)

Bridging Practice and Pedagogy

Off-campus, the climate question and urgent calls for decarbonization feel more existential and therefore perhaps deserve the most attention. But unlike the climate centers recently erected in Scandinavia, the U.S. model is a private one, reliant on huge amounts of funding—and architectural fees.

Pursuing a green agenda, Gensler completed a new headquarters for Houston Advanced Research Center (HARC) in 2017, a privately owned nonprofit that "applies science to drive energy, air, water, and resilience solutions for a sustainable and equitable future," according to its website. The building is net-positive because of its ultratight envelope, solar and geothermal power systems, and orientation. These features also help the building come back online quickly after storms.

Education was also baked into the design. There are a number of sensors that track energy use and generation, which helps teach HARC how best to operate the building. A real-time dashboard of that data is publicly available online, too, and has become a favorite bookmark of people who work in the building. Some of HARC's teachings, however, are oriented toward future buildings.

HARC was willing to take risks with its design, which has helped Gensler convince other clients to get outside of their comfort zone in the name of sustainability. For example, not supersizing the mechanical systems for the hottest and coldest days of the year and suggesting behavioral changes instead, like simply allowing employees to wear sleeveless shirts and encouraging them to bring sweaters. "A lot of people want to be first to be second," said Katie Mesia, Gensler's sustainability director for projects in the Southeast and a firmwide design resilience leader. This speaks to how projects like these can actually educate current and future clients. "Being able to tour a client through a site that has done the things they're not sure are possible breeds so much creativity and allows us to push things further."

Defining "Climatewashing"

Despite all the benefits these buildings can bring—it's hard to argue with something that can curb unemployment, teach the public about climate change, or mainstream energy efficiency—there's something about them that rouses a nagging feeling of skepticism, especially when the bigger picture comes into focus. As is often the case in architecture, the money and sponsorship for the projects come from murky and powerful sources.

To wit: HARC's founder, George P. Mitchell, who died in 2013, made his fortune from fracking, and the Resnicks have come under fire for consuming much of California's water supply. As a 2016 *Mother Jones* article pointed out, their businesses use more water than every household in Los Angeles combined. Is it all just greenwashing?

New architecture, and the values it signals, is powerful marketing for corporations that want to be seen as virtuous, universities competing for bloated admissions, and cities eager to be on the global stage. When billionaires build flashy climate centers, it feels eerily reminiscent of delegates flying to climate change conferences on private jets.

Some of these issues come to a head at the New York Climate Exchange (NYCE), a 400,000-square-foot campus proposed for Governors Island. It has been at the center of a debate about how much development should be allowed on the 172-acre island just 800 yards south of Manhattan. The $700 million project—led by Stony Brook University and a 48-member consortium that includes other academic institutions, like Pratt Institute and Georgia Tech; private companies, like IBM, Boston Consulting Group, and Moody's; and local organizations—required portions of the island to be rezoned to accommodate 230,000 square feet of new buildings, which the architects, SOM, are designing to meet Living Building Challenge requirements. The adaptive reuse of 170,000 square feet of existing structures on the island, which desperately need rehabilitation, is also part of the project.

The city plays up how the NYCE will create jobs, generate economic impact, and "cement our city as a global leader in developing solutions for climate change"—a common refrain in the language around these centers and a reminder that they are part of a lucrative economy around the export of best practices. Meanwhile, a local group called the Metro Area Governors Island Coalition described the project as a Trojan horse for the real estate industry and "necessary to sell the high-rise, high-density, largely commercial rezoning to the public."

The scale of publicity and desire for public engagement in these buildings is also telling. Part of the NYCE's mission is to make more visible the work its partner organizations are conducting and have the campus integrated with Governors Island as a whole.

"Part of our public-facing and interdisciplinary orientation is in the sense that the community is part of our activity and in really wanting to build climate literacy more broadly," said Andel Koester, director of community initiatives at the NYCE. While the design of the NYCE is still in progress, plans for an exhibition space, publicly visible research labs, and large convening spaces are part of the equation. Koester added that "the research labs are not going to replace a research lab at Stony Brook or Duke or Georgia Tech; they're meant to generate some sort of activity that can only happen here by virtue of being on Governors Island and by virtue of being connected to other spaces. Exactly how that happens is something we're still developing, but those are some of the ways that our values and kind of vision for the organization play into the campus."

With 96 million square feet of vacant commercial space languishing in Manhattan and such an open-ended outcome, the environmental cost of that development becomes all the more visible and perhaps one of the more telling lessons these spaces hold.

Diana Budds is a design journalist based in Brooklyn.


MICHAEL MORAN


MICHAEL MORAN


COURTESY CANNONDESIGN


DROR BALDINGER/COURTESY GENSLER

Facing page, left: The Klimatorium in Lemvig, Denmark, designed by 3XN, hosts climate-focused exhibitions.

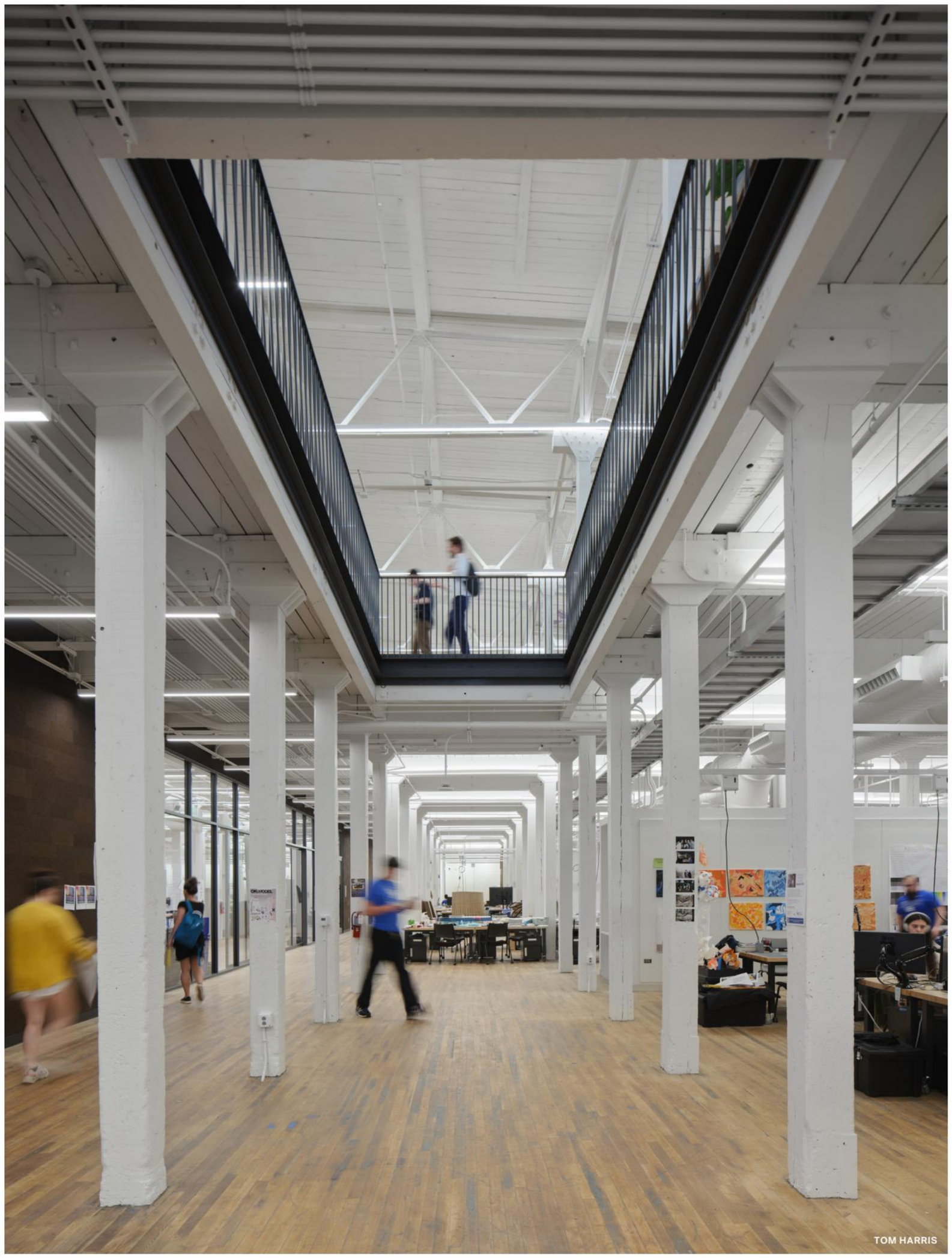
Facing page, right: The Icefjord Center by Dorte Mandrup offers visitors views of retreating glacial ice in western Greenland.

Far left: The Jones Beach Energy and Nature Center on Long Island by nARCHITECTS. Designers reused the building's existing foundations.

Left, above: The Resnick Sustainability Center at CalTech by CannonDesign was designed with interdisciplinarity in mind.

Left, below: When open, the Resnick Center for Agricultural Innovation at UC Davis by CannonDesign will house professionals who conduct agricultural research.

Above: The HARC in Houston was designed by Gensler.


TOM HARRIS

Studio Gang brings five disciplines together at the University of Kentucky's new Gray Design Building.

ALL TOGETHER NOW

Lexington, Kentucky, was considered the center of the tobacco industry around World War I. Maybe that was always an idle boast in a town of bourbon and horseracing bets, because it certainly wasn't by the 1960s. The R. J. Reynolds Tobacco Company ended up selling the big warehouses it had built near dozens of redrying plants, a quarry, and a coal yard to the state.

Soon the University of Kentucky (UK) was using them for storage. Nearly 100 years after it had been built, one of the warehouses was sprinkled and brought up to code to hold classes, but not much else. "I remember coming over here to visit faculty in art or go to some studio things, and it was just completely compartmentalized, subdivided into classroom-size spaces," said Ned Crankshaw, dean of UK's College of Design. "There was a lot of open space, but the three great big floors were completely disconnected from each other."

It was a building only the artists could love. With enrollment surging, some university trustees weren't sure they wanted it anymore. But just as the firm did with a retired coal-burning power plant at Beloit College, Studio Gang has not so much restored as reclaimed this old warehouse. Now, it's the Gray Design Building, bringing all four disciplines in the College of Design—architecture, historic preservation, interior design, product design, and environmental design—and the landscape architecture program together in the same place for the first time.

Studio Gang's big move was to undo the hasty compartmentalization Crankshaw observed, allowing the airy old building to feel open all over again. Under the original high ceilings, a steel staircase in a new atrium functions


TOM HARRIS


TOM HARRIS


TOM HARRIS

like a split-level traffic circle. This organizes the different spaces for different disciplines—from laboratories and world-class studio space to formal presentation halls. The consistency of the warm original flooring and heavy timber framing, now exposed and painted white as a cloud, makes the whole building feel cohesive, unfussy, sturdy as a jig you need to use over and over. But Studio Gang didn't just look inside the building. There is ingenious adaptive reuse just outside, too, like a raw cavern of a space outside beneath the old boiler tower, where students can make things that don't fit inside (and where the college really should consider hosting happy hours for visitors).

Like a concrete poem, the building is trying to be what it's trying to say. The shop, which runs along most of the first floor, might be where it shows this most clearly. Shaded under an elegant new steel canopy with stanchions reminiscent of long-legged birds, the shop also extends outside onto a raised concrete platform, so students can work out in the open and see how others are doing it. "The shop is meant to be that place of overlap," said Juliane Wolf, design principal and partner at Studio Gang who led this project. "It shows that the actual process of making is important."

Inside, you see that overlap, but the Gray Design Building by itself feels disconnected from what surrounds it. In August, I was walking around as it was getting dark. The building glows, but it's very much crammed in between things that do not—it's within earshot of the cooling plant and electrical substation #301—but "it fits the mentality of the college in that it's a little bit edgy," Crankshaw said. "It's not in some pristine place. It's a place that looks unfinished. There's some opportunity here."

Can confirm. The place is Davis Bottom, a patch of land that was always valuable, if never desirable. Developed after the Civil War in a floodplain near the Lexington & Danville and Cincinnati & Southern railroads, this is where the city's working class built a community for themselves. Housing in Davis Bottom was first marketed to Black families searching for opportunities during Reconstruction, and an elementary school named for Abraham Lincoln, a church, and even a tavern, would follow.

But by the end of the 20th century, South Broadway was sunk and widened into a five-lane underpass because drivers were sick of getting stuck behind trains, and a commuter's expressway was cut through to the north, taking out even more homes and businesses. Now, the streets leading to the Gray Design Building are barely visible behind overgrown vegetation and run into each other at the ballast of the railroad tracks. But Gray's reuse may be part of a potential renaissance.

"That's the opportunity," said Joe Brewer, the College of Design's director of technology and facilities and a Lexington native. "Purely academic or inwardly focused work serves a valuable purpose," he said, "but I hope that there is a mechanism through which that work gets contextualized so some action, some benefit, comes to the community."

Brewer imagines South Broadway rebuilt. This dead end could become an entrance. Inside the Gray Design Building, students and faculty work near each other, across disciplines, and they'll have reasons to move outside, to walk from the shop to the hike and bike trail where the other railroad tracks used to be, over the pedestrian bridge that doesn't exist, to a mixed-use innovation district that's only an idea, and to keep making connections.

Allyn West works and lives in rural Kentucky, an easy bike ride away from another reclaimed tobacco warehouse. You can find them on X and Instagram @allynwest.

Facing page: Removing floors as allowed by the column grid was a key strategy for the adaptive reuse of the warehouse.

Above: The exterior preserves and uplifts the historic workaday brick of the warehouse complex.

Center: Studio Gang also enlivened the space just outside the building through a new canopy structure.

Left: One of the boldest interventions is a new stair with detailing that responds to the industrial language of the site.

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Sustainability

The climate crisis is the defining issue of our time. Architects and designers around the world are working urgently to change the ways we live, work, and consume to meet the demands of a warming world. This special section shares inspiring stories of how climate-focused efforts are remaking the industry.

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Green New Attitude



The Transspecies Kitchen by Andrés Jaque/ Office for Political Innovation shows how ecological thinking might inspire architects.



The most urgent issue we face today is the climate crisis. Already we see the impacts of our planet's warming: Fires, drought, floods, and hurricanes grow in frequency and intensity; global superpowers jockey for territories and resources, sparking conflict; insurance companies opt out of doing business in disaster-prone states; plant hardiness zones inch toward the poles; and anxious young people hold back on having kids, unsure of what old age might look like for their children in 2100.

Architecture is involved because it is both a reason for this slow-motion catastrophe and an essential device for surviving its hardships. Efforts to improve people's lives through the built environment are bound up in the climate crisis, as construction is such a resource-intensive activity and core part of the country's economy. How to proceed ethically? "No new buildings!" is an appropriate rallying cry, but this refusal would underserve us, as we're in dire need of more housing and other facilities. For more about degrowth, see Emily Conklin's piece on page 46.

Over the decades, the idea of what constitutes sustainable architecture has shifted as technology and culture have advanced. Durability was one historic goalpost, then flexibility, then reduced energy use ("net zero"). Now minimizing carbon in both embodied and operational carbon seems to dominate the conversation. Thankfully, the urgency is widespread, and many companies are now working to reduce the carbon footprints and ruinous extraction practices that defined the Industrial Revolution. See Kelly Pau's collection of products on the following pages that prize natural, recycled, or low-/no-carbon materials and Jes Deaver's reporting on circular building economies.

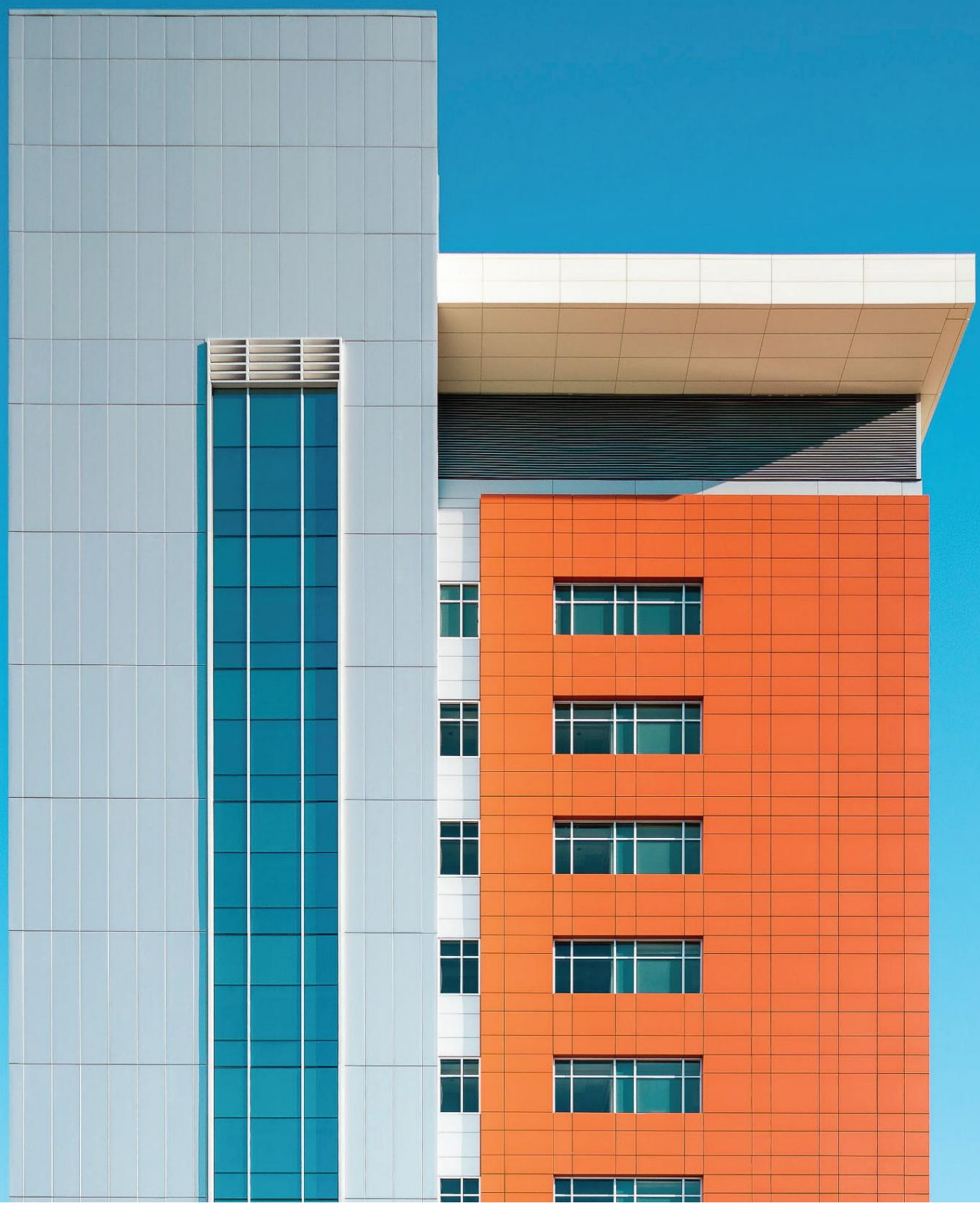
By now it's clear that we ought to be mining less, emitting less, and wasting less. Perhaps one workable definition of sustainability in architecture is this: A sustainable building uses the least number of energetic resources and encourages us to do the same in our lives. (A small irony: I'm writing this on a plane as it bumps along above the clouds.) Of course, even accepting this provocation invites the next question: How, then, to best make architecture that achieves this goal? Cue the meme-like line that echoes Samuel L. Jackson in *Pulp Fiction*: What does green architecture *look like*? (David Heymann explored this question in a great series of essays for *Places Journal* some years ago.) The popularity of mass timber is one trajectory; later in this section, review our directory of resources, manufacturers, case studies, and visit the new airport terminal in Portland, Oregon, with Sam Lubell: Its 9-acre roof surely inspires awe.

Answering the question about the aesthetics of sustainability is hard, and it varies due to geography, available resources, and maintenance. It is possible to make a passive house that looks like any other infill spec project and some formally wild hot mess and have them both compete under the heading of "green" architecture. Mostly, I think a response requires a change in attitude, comportment, and politics more than any stylistic allegiance. New battles require new alliances.

A small example: Witness *The Transspecies Kitchen* by Andrés Jaque/Office for Political Innovation in association with M-Marble Project. The project, on view this summer at the Middelheim Museum in Antwerp, Belgium, is an outdoor kitchen that "decarbonizes cooking and relies on fermentation as the primary form of food preparation." The "kitchen" elements are made from marble waste: Only 30 percent of quarried stone makes it into a final commercial product; the rest is trashed. The kitchen, which has voids and trays to support cooking, digesting, growing, and decomposing, uses no energy beyond that of humans and other living entities—bacteria and fungi, mostly.

Though it is not architecture, *The Transspecies Kitchen* politely demonstrates how meaningful ecological commitments will shift what architects make and with what means they will make it. Across this Focus Section, we present resources for your use as you design the sustainable buildings of tomorrow. **JM**

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Circular Dreams in Roundabout Realities

Three new designer-led initiatives are making circular economies a reality.


COURTESY MATERIAL INNOVATION CENTER/SAN ANTONIO OFFICE OF HISTORIC PRESERVATION


COURTESY MATERIAL INNOVATION CENTER/SAN ANTONIO OFFICE OF HISTORIC PRESERVATION


COURTESY MATERIAL INNOVATION CENTER/SAN ANTONIO OFFICE OF HISTORIC PRESERVATION

Through MIC, students learn the skills required to successfully deconstruct a building in a way that preserves building materials for new use in future projects.

Demolition markets and designing for construction *and* deconstruction aren't utopian fantasies. Across the world, resourceful leaders are disrupting old models to write a new chapter about the way buildings are made and unmade. Regenerative design as a practice goes beyond minimizing negative effects of the design and construction industry to create restorative, renewable systems. These three innovators are harnessing building technology and design to reimagine construction as an ally for regenerative design, giving practitioners tangible options to support circular economies in their work. They're seeing firsthand how they can be part of seismic shifts that decouple cities and communities from unsustainable financial drivers through deconstruction.

Material Innovation Center

At a decommissioned air force base in Port San Antonio, Texas, the new Material Innovation Center (MIC), founded by the Office of Historic Preservation and San Antonio City Council, is fighting a multifront battle where cultural erasure, rapid development, and financial insecurity are in lockstep with ecological pressures. Stephanie Phillips, senior program manager for deconstruction in circular economies in the Office of Historic Preservation, describes her work at the MIC as three-pronged: "We receive and redistribute donated building materials for affordable housing and community impact projects, provide trades education, and we're currently working on setting up a community tool library." The result is a landfill alternative and responsible resource for the next generation of builders, all housed in a series of 25 MIC-owned historic bungalow structures.

Education is a key component in the success of the MIC. Students receive classroom instruction as well as paid apprenticeships for hands-on wood window and architectural carpentry courses to rehabilitate the MIC bungalows. The robust program partners with wraparound services that help with child care, transportation, emergency groceries, or anything students may need to complete their training. "They get paid to learn, and then they move on to an eight- to ten-week paid apprenticeship under one of our local master deconstruction contractors at a different site so they can hone those skills and become certified contractors themselves," Phillips explained. "It's an integral part to any city that's looking to develop an actual policy around deconstruction."

Circular Construction Lab

Moving an industry away from current methods of construction and demolition requires data. Felix Heisel, an assistant professor at Cornell and director of its Circular Construction Lab (CCL), links technology to practical solutions. "Our application RhinoCircular gives students and practicing architects a tool to measure circularity in early design phases," he told *AN*. The extension works with CAD application Rhinoceros 3D and Grasshopper to assess a building's environmental

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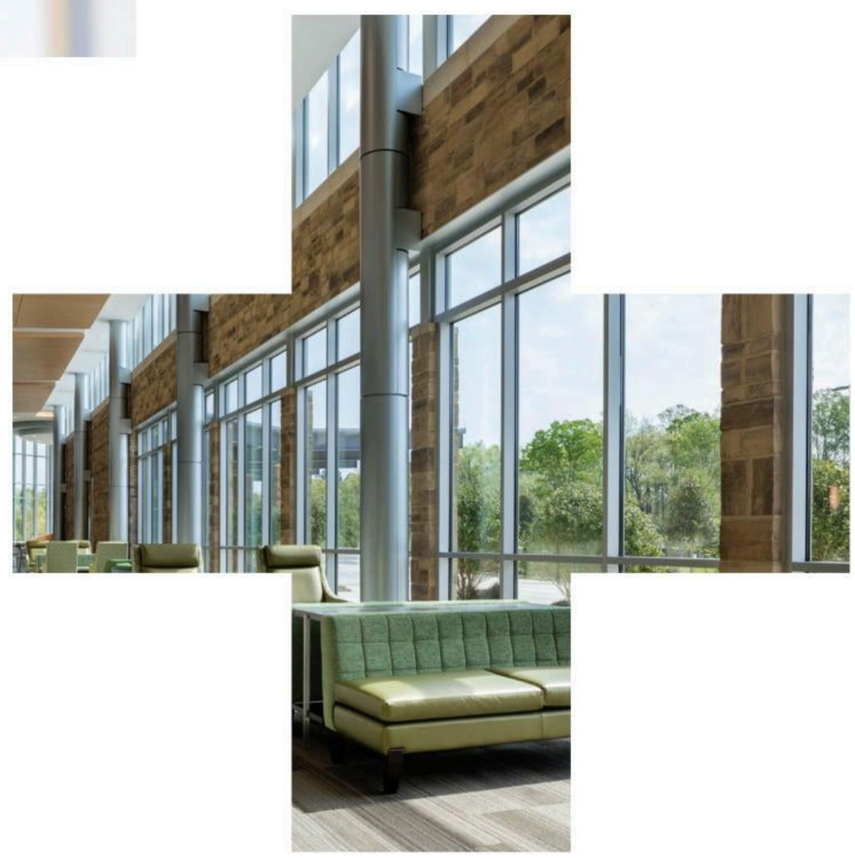
We are committed to supporting the needs of architects for projects in the healthcare sector.

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Photography: Dan Schwalm © 2017





Building Legacies

A'N FOCUS
September 2024

Circular Dreams *continued*

impact in construction and deconstruction. “It calculates two aspects: the material pathways in weight of all the materials in your building, and their circularity in percent. For example, it will tell you *x* kilograms of material come from reused sources, and *y* come from renewable sources. It will also highlight problems, where materials are destined for landfill.”

In 2022, Heisel and the CCL took on real-world demonstrations with the Catherine Commons Deconstruction Project in Ithaca, New York. A grant from the Einhorn Center at Cornell, as well as partnerships with local firm Trade Design Build and nonprofit Finger Lakes ReUse, allowed them to deconstruct a single-family residence side-by-side with a similar home being demolished as a comparison. “In the end, we took only five days to take down a 3-story residential structure, and we didn’t have a large additional cost,” Heisel said.

Recently, the CCL in partnership with Urban Machine, Finger Lakes ReUse, and Build Reuse has had the opportunity to expand: In July, the partners received an EPA grant of $2.5 million to develop a product catalog for salvaged materials. “There shouldn’t be any question about whether this is a good idea or not,” Heisel said, but he knows that the same barriers the industry faces could also be potential levers: policy, codes, and legislation. Currently, the CCL is working on a white paper for the New York State Assembly and Senate that outlines 15 policy recommendations for implementing circular strategies.

Assemblage

Outside of start-ups and universities, practitioners are also beginning to incorporate circular economies into private commissions. Landscape architect Wendy Andringa founded her Brooklyn-based firm Assemblage in 2021 with a circular systems approach to design and activism as core tenets. “These values make the work richer,” she said.

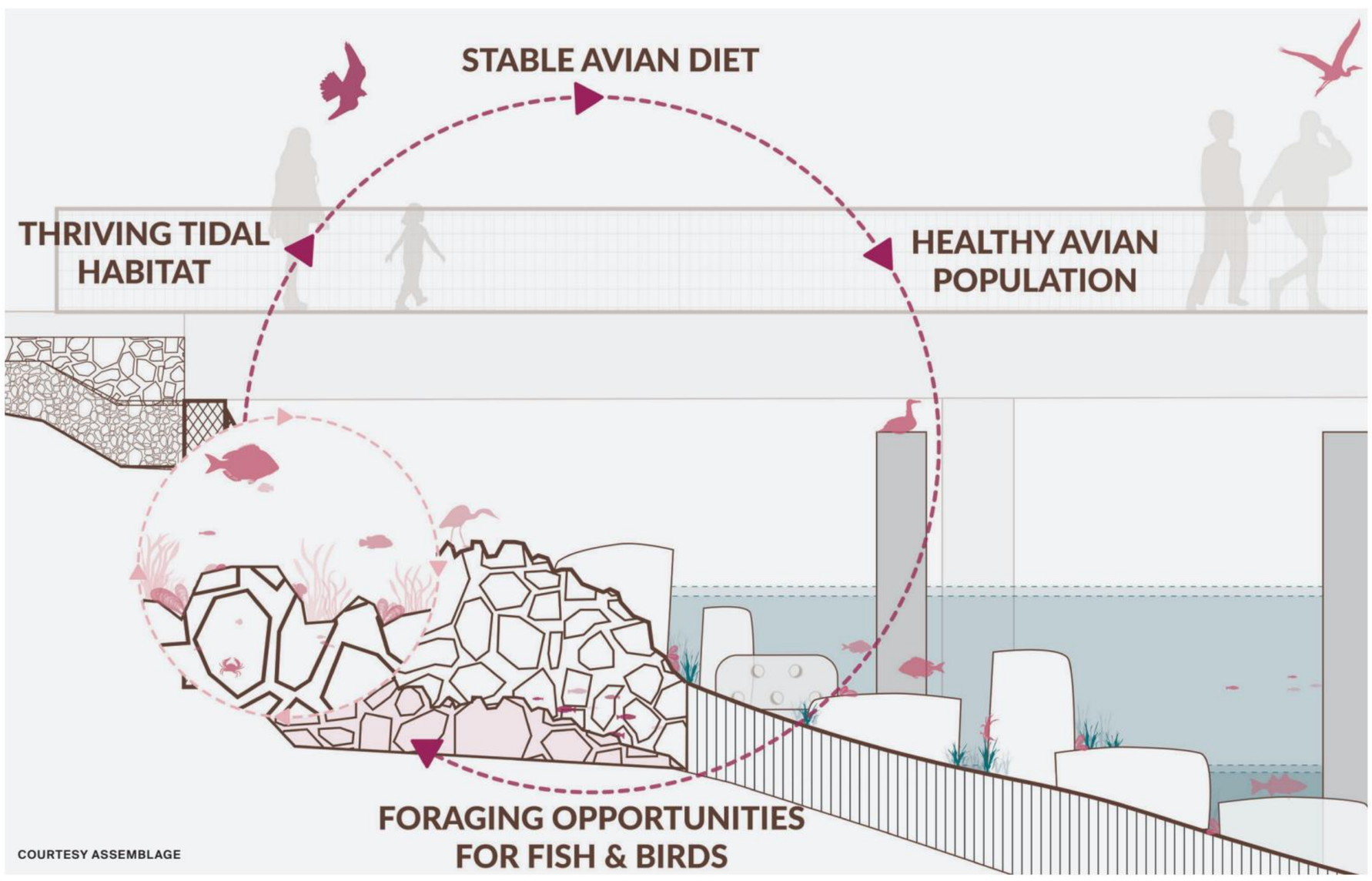
Andringa considers her work like that of a detective: “We look at the history and maps, but also depend a lot on our observations to try to see things in all seasons.” Assemblage’s work offers material narratives that center land stewardship and seek to uncover the mysteries of material flows. A helpful strategy to do this is mapping, which Andringa tested with her Dolly’s Park project. The new park turns an underused gravel-filled lot in Gowanus, Brooklyn, into an accessible greenspace, and it was an experiment for Andringa to “investigate the provenance of all materials that went into the park,” she explained. The team used a platform called Open Source Mapping. “The software gave us the capability to talk about the history and sources of the materials, and that was the first pilot map.”

There has been an explosion of ideas on how to make design and construction more green and environmentally responsive. Yet policy and legislation are lagging behind technology, pedagogy, and practice. Amid an ongoing fervor for climate solutionism in architecture and construction, it’s urgent that we pivot to circular strategies as a new path forward. These innovators are already leading the way to build our sustainable future.

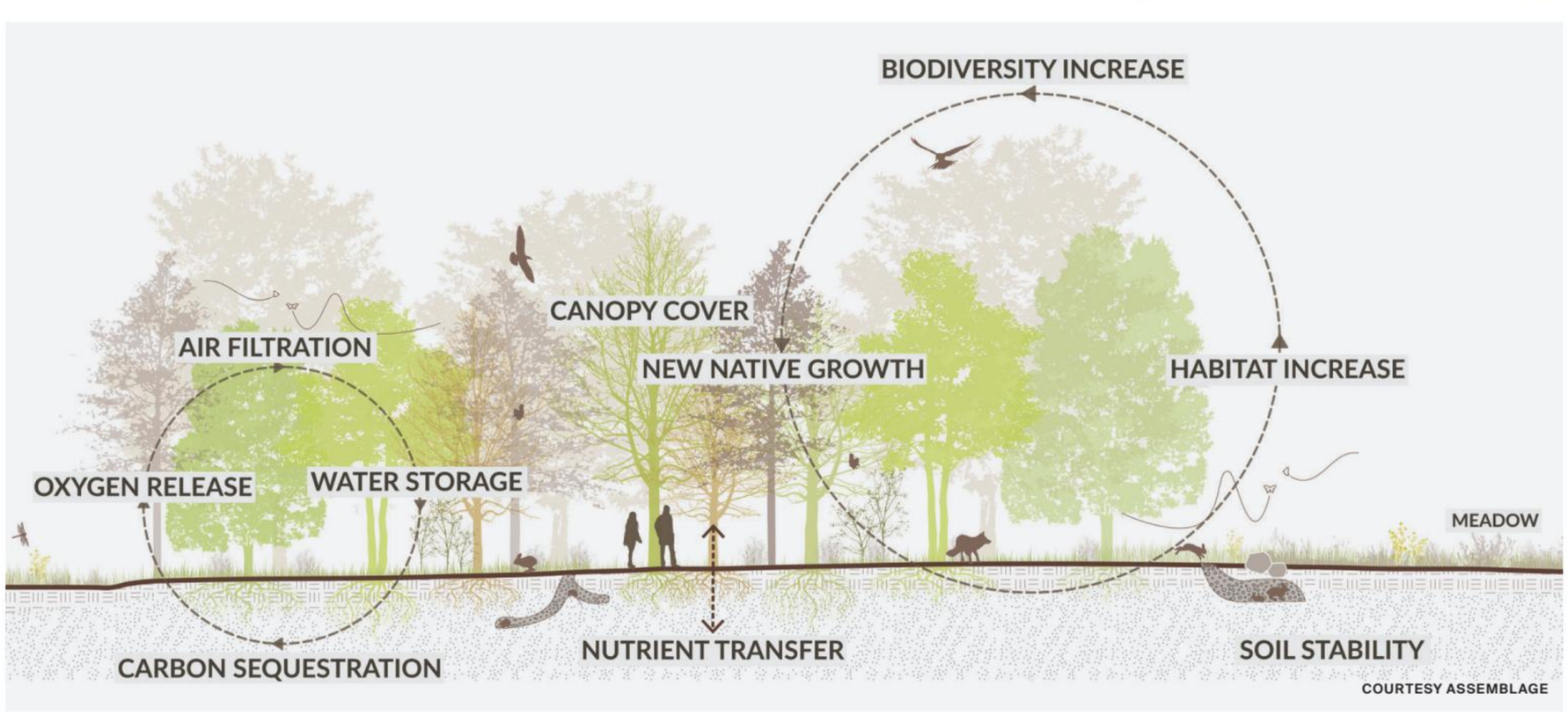
Jes Deaver is a writer and architect at Nick Deaver Jes Deaver Architecture. She is also the H. Deane Pierce Endowed Visiting Assistant Professor at Texas Tech University.



COURTESY ASSEMBLAGE



COURTESY ASSEMBLAGE



COURTESY ASSEMBLAGE

Above: Assemblage describes its circular materials loop as designers work with salvage and waste materials.

Center: Assemblage diagrams a study of a marine ecological loop.

Right: By studying these ecological loops—here a native forest—designers can support long-term stability.

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How Kingspan is Walking the Sustainability Talk



COURTESY KINGSPAN

The building and construction industry accounts for roughly 37 percent of global greenhouse gas (GHG) emissions and is the largest emitting sector. In order to meet the Paris Agreement's goal of limiting global warming to 1.5 degrees Celsius, manufacturers must take steps to help the built environment decarbonize.

As a global manufacturer, Kingspan Insulated Panels North America recognizes its role in limiting GHG emissions. Kingspan first announced ambitious net zero goals in 2010. When it achieved these goals in 2020, it upped the ante with Planet Passionate, a new 10-year sustainability commitment.

Planet Passionate seeks to have a positive impact on three global challenges: climate change, circularity, and the protection of the natural world. In 2023 alone, Kingspan Insulated Panels North America made healthy strides toward its targets.

ENERGY + CARBON EFFICIENCY

The impacts of climate change were felt in 2023, with everything from extreme wildfires to devastating droughts to catastrophic floods.

In light of these disasters, Kingspan continued its focus on minimizing its carbon footprint by generating on-site renewable energy and purchasing direct renewable energy.

For example, Kingspan completed a 1.1 MW photovoltaic (PV) system in DeLand, Florida, meaning 100 percent of the company's owned facilities now use on-site solar PV. In 2023, Kingspan had 3,037 tCO_2e scope 1 and 2 emissions, a 5 percent reduction from its 2020 baseline. This was the first year that Kingspan witnessed a significant reduction from its baseline.

In total, Kingspan utilized 5.95 GWh direct renewable energy and generated 1.68 GWh direct renewable energy onsite.

IMPROVING CIRCULARITY

The construction industry is responsible for approximately 30 percent of all waste-to-landfill globally, which creates a significant amount of GHG emissions. Kingspan is committed to aiding in the transition to a circular economy.

One way Kingspan does this is by partnering with Atlanta-based Belter Tech, a manufacturer of sustainable building materials made from reclaimed waste products. In 2023, Kingspan's DeLand facility sent more than 100,000 pounds of foam waste to Belter Tech, helping to divert it from landfills.

Last year, Kingspan's Caledon, Ontario, facility became Kingspan's first zero-waste-to-landfill site, diverting 395 metric tons of material. Some of these materials were donated to local animal shelters to create homes for cats.

Overall, 4,996 metric tons of waste were diverted from landfills in 2023—a 38 percent reduction compared to 2020.



COURTESY KINGSPAN

Kingspan Insulated Panels North America Releases 2023 Sustainability Report
planetpassionate.kingspan.com

Facing page: Kingspan employees participated in the annual ME STRONG 5K.

Above: Beekeeping at Kingspan supports local biodiversity and education on our ecosystem.

Right: Giving back is important for Kingspan, and employees regularly participate in activities like neighborhood cleanups.



COURTESY KINGSPAN

WATER CONSUMPTION

A few of Kingspan's North American sites, such as the Modesto, California, and Monterrey, Mexico, plants are in water stressed communities. This led the company to re-assess its water risks across locations as drought conditions persisted and flood risks from storms increased.

As a result of the company's water efficiency program, water usage decreased by more than 573,000 gallons from the previous year. In addition, Kingspan harvested about 184,920 gallons of rainwater. Rainwater accounted for approximately 27 percent of water usage at Kingspan's DeLand plant and at least 6.4 percent of divisional consumption.

In Monterrey, in response to persistent drought conditions, the team reduced water consumption by more than 50 percent from 2022.

PLANET PASSIONATE COMMUNITIES

In addition to all these efforts, Kingspan launched Planet Passionate Communities—the philanthropic arm of Planet Passionate—in 2021. Planet Passionate Communities aims to provide support to local communities through environmental and well-being projects that enrich the lives of residents.

Local teams at Kingspan plants and offices continually devote their time and resources to supporting fundraising efforts, clean-up activities and more.

For example, to help increase the local bee population in Langley, British Columbia, the plant started an urban bee project. Working alongside a company that helps organizations launch sustainable bee programs for greener cities, the Langley facility currently maintains multiple beehives, helping to support lessening bee populations and improve biodiversity. At Kingspan's Modesto plant, three rescued beehives were also introduced in early 2024.

Team members at Kingspan's Columbus, Ohio, plant participated in a waste cleanup last September, picking up 345 pounds of trash and 280 pounds of recyclables in under one hour. To celebrate Earth Day in April 2024, these volunteers came together again to pick up and recycle more than 400 pounds of waste.

Also in Columbus, a team of volunteers recently planted and potted more than 3,000 tree seedlings at a nearby tree nursery. Volunteers will return to the nursery this coming October to give these trees away to members of the community.

Volunteers from Kingspan's DeLand plant recently participated in the annual ME STRONG 5K race to support the fight against cancer.

Team members from Kingspan's Caledon plant recently gathered gently used clothing from employees to donate to a local non-profit thrift store, supporting the community and diverting waste from landfills.

All the proceeds support the valuable programs operated by Caledon Community Services.

These are just a few examples of the valuable efforts made by Kingspan volunteers across the country for their local communities.

44 Products

A'N FOCUS
September 2024

Recycled



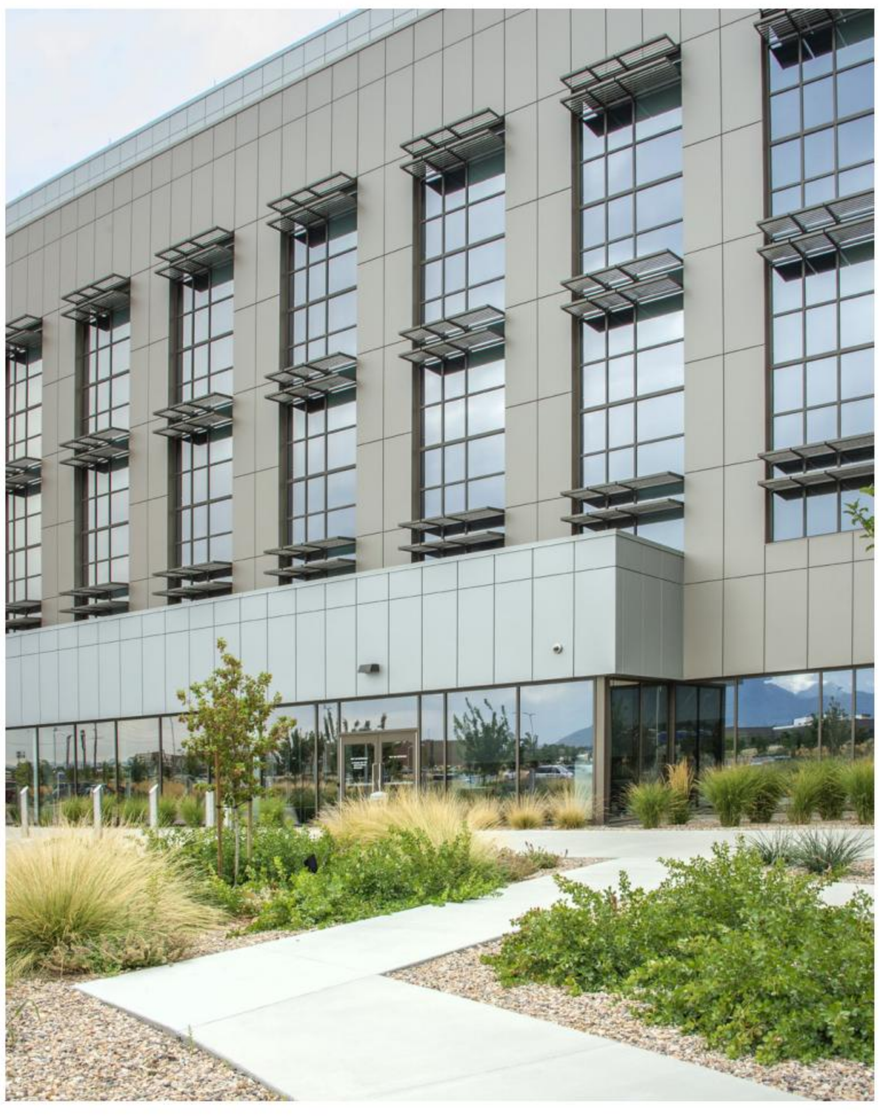
Ignea | Neolith
neolith.com

Inspired by volcanic landscapes, the color of cooled matter, and the textures found in magmatic cycles, the Ignea collection features intense color with a riverwash finish. The sintered stone is made with up to 98-percent-recycled content and has a 98R seal for its recycled composition.



Moisture Shield Meridian Decking | Oldcastle APG
moistureshield.com

These composite deck boards offer a low-profile wood grain with CoolDeck technology that reduces heat by up to 35 percent compared to standard capped composite decking. It's almost entirely made from recycled materials, including post-consumer plastic, industrial plastic, wood fibers, and other recycled content.



INTERCEPT+ Modular Metal Panels | CENTRIA
centria.com

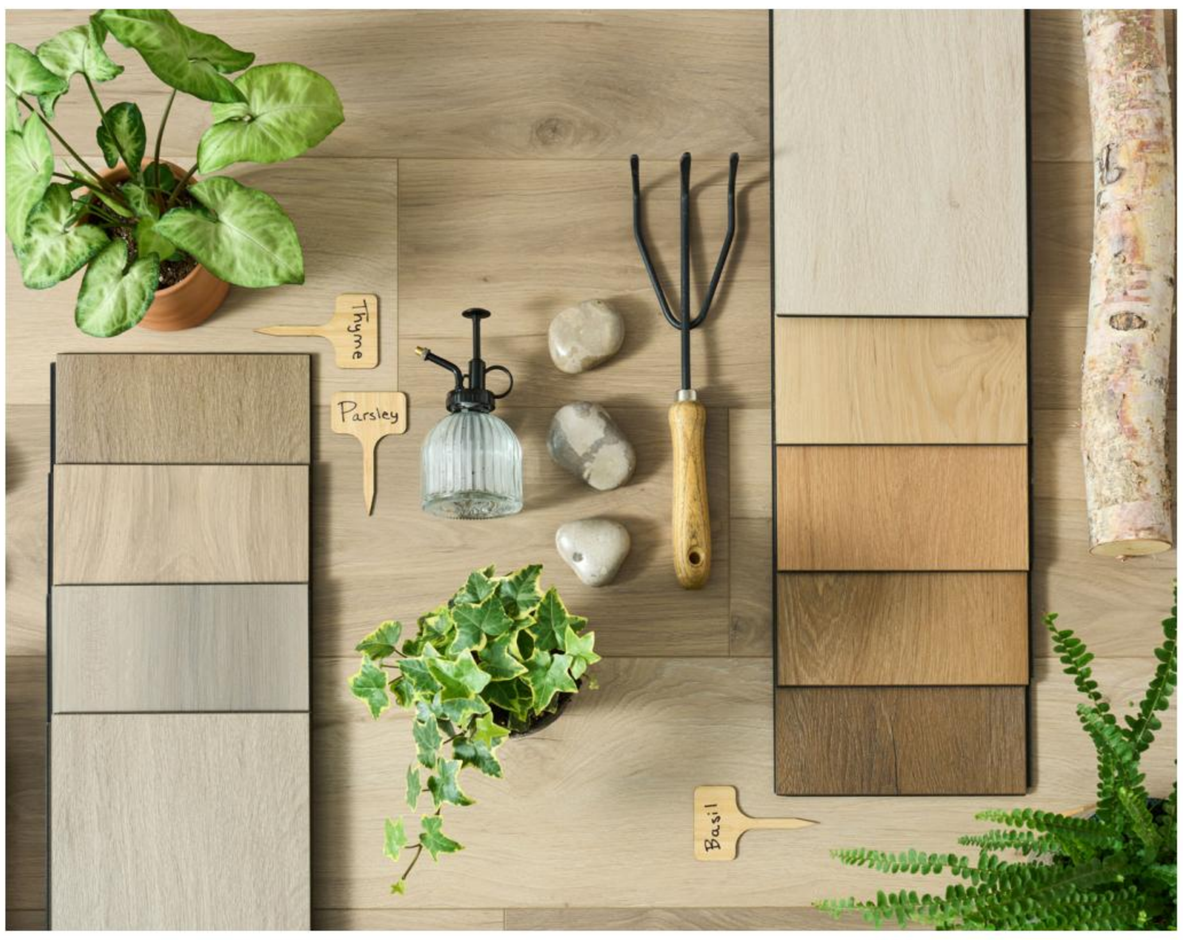
INTERCEPT+ Modular Metal Panels incorporate modules of varying sizes for different depths, tapers, slopes, and perforation for diverse facade designs and easy-to-install rainscreens. The lightweight cladding uses 100-percent-metal substrate that is recyclable at the end of its life.



REGUPOL Upscale | REGUPOL
regupol.us

Upscale is made from recycled rubber tires and planks to create flooring with slip resistance and acoustic benefits, making it suitable for healthcare, education, and other commercial applications. Custom colors are available, as well as a square or micro-bevel edge. Tiles and planks can be mixed and matched to create custom looks.

From flooring to furniture, this roundup prioritizes recycled materials, circular design, and sustainability at-scale. KP



Ingenious Plank | AHF Products
ahfproducts.com

This hybrid resilient flooring is made with a renewable and recycled core composed of natural wood fibers encapsulated in resin and raw materials. It is 100-percent PVC-free, suitable for residential and light commercial applications. Available in 23 wood visuals, Ingenious Plank is dent-proof and durable while offering an attached pad for sound absorption.



Rialto | Rimadesio
rimadesio.it/en/

Rialto is a freestanding furniture collection of bar cabinets, side tables, and consoles. Modern and linear design unite the pieces, as well as a focus on recyclable and recycled materials such as aluminum, glass, and wood.



Hydro CIRCAL | Hydro
hydro.com

Made from post-consumer aluminum sourced from old windows, doors, and facades, CIRCAL is the world's first aluminum facade made entirely from scrap and produced at an industrial scale. The material is remelted, reducing carbon emissions and waste, and remade for facade, extrusions, windows, furniture, and more applications.



Wildwood Composite Cladding | Fiberon
fiberoncladding.com

Made with a minimum of 94-percent recycled content, Wildwood Composite cladding offers a long-lasting, low-maintenance, and more sustainable alternative to traditional wood cladding. It is available in a variety of board lengths and widths for more design solutions.

AN FOCUS
September 2024

A Brief History of Degrowth

How can acts of refusal transform the practice of architecture?

In sustainability discourse, the loudest voices are often those with the flashiest new gadgets and quickest—albeit superficial—fixes. (See projects like Bjarke Ingels's Masterplanet, Stefano Boeri's Bosco Verticale, or Foster + Partners' Masdar City.) But in recent years, we have seen a rise in designers advocating for simply doing less. Degrowth began as an economic term arguing that our markets and economies need to be managed so we don't deplete the finite resources of our planet. The concept has gained ground among those who study one of the most resource-intensive industries in the world: construction. Voices such as Jonathan Levy, John Harwood, and Charlotte Malterre-Barthes oppose the status quo, in which architects function effectively like coal miners—extracting resources from the ground to meet demand set by the rich and powerful, fueling the planet's demise. But the work of these emerging voices today was made possible by early pioneers who found a voice to critique the field's assumed exponential growth—and embraced the detritus left behind.

Refusal and degrowth thinking present an uncomfortable question for architects: What would happen if the world stopped building new buildings? Looking for the root of architectures of refusal, I spoke with Jack Rusk, a director of climate strategy at EHDD, and also with Jill Stoner, coeditor of the November/December 2022 Architectures of Refusal issue of *AD,* and Lloyd Kahn, author of *Shelter* and publisher of *Whole Earth Catalog.* Both Stoner and Kahn have spent their careers advocating for degrowth principles rooted in an intimately individual experience of architecture. While climate anxiety takes hold of us all, Kahn's and Stoner's reflections on individual agency and the ethical clarity expected of architectural professionals are worth revisiting.

Post-Dome

Lloyd Kahn's career began when he allowed himself to change his mind. The builder, publisher, and designer might be best-known for publishing *Whole Earth Catalog,* but he was equally famous for popularizing utopic new architecture like the geodesic domes of Buckminster Fuller. He wrote and published the enormously popular *Domebook* in 1970, which led to a follow-up with expanded techniques and photographs in the 1972 *Domebook 2.* "I actually built several [domes] at Pacific High School with Bucky," Kahn said, "but after all this building, and building one myself, I realized they didn't work." Kahn felt constrained in his ability to organize life and designs inside the domes, and moreover, they used plastic and nonrenewables that were costly to the planet and complex to assemble.

"When I called and put a stop to the printing of *Domebook 2*, people thought I was crazy," Kahn said. Demand for *Domebook 1* and *2* was so high that multiple presses were in motion. But Kahn was firm in his resolve. After halting production, he traveled for two years and listened deeply. He lived with communities around the country and throughout the world that had deeper connections with the land; he discovered the good energy humans feel when interacting with natural materials. After these travels, the next steps were clear: Kahn published *Shelter*, which has sold more than 400,000 copies.

Like *Whole Earth Catalog*, *Shelter* takes the form of a how-to manual—a format that has been undergoing a renaissance recently among young practitioners and academics. Kahn notes that "millennials, in particular, have become suddenly interested in my work and the work of the Pacific builders in the '60s and '70s." We speculated as to why: "Back then, there were no financial barriers to building out here"—Kahn has lived and built homes in Big Sur and currently lives in a house of his own making in Bolinas, California—"but now, it costs millions. People today are interested in the autonomy of building their own spaces because there are seemingly no other options." His work centers on empowering people to chart their own design paths that use local, natural materials and incorporate passive principles. Not only are these light on environmental impact but they are quietly radical in their assertion that architecture can exist outside the specifications, timelines, and pockets of homebuilders and developers.

Design Through Subtraction and Literature

Jill Stoner has also seen her groundbreaking work come back into style. She began by teaching design studios at Berkeley on the concept of degrowth as she witnessed San Francisco exploding around her. "I looked around and thought maybe the buildings that we were building, the buildings we had already built, are enough. This was my first manifesto: a statement calling for a 50-year moratorium on new buildings." This was the era of the corporate lobby and of overwhelming PoMo gestures—in many ways a revolt against the free-flowing ideals of the 1960s and 1970s like environmental sensibilities (*Silent Spring*) and utopian design triumphs (*A Pattern Language*). "It was then that I said, 'No new buildings.' Imagine the response in the late '80s and early '90s, right? I was considered a lunatic," Stoner told me. "But my career has been based on this belief ever since."

Stoner's studio teaching engaged with the concept of converting vacant office space in dense cities like San Francisco decades ago, but others balked. "I taught graduate studios at Berkeley for probably 15 years that focused on the theme of what I called 'architecture by subtraction,'" she explained. She and her students designed by taking material away from, for example, big postwar office buildings, therefore allowing them to serve what Stoner described as "a deeper urban use."

Beyond connecting creative writing and architecture in the book *Toward a Minor Architecture*, Stoner also taught an annual seminar titled "The Literature of Space," in which she introduced architecture students to concepts of world-building outside of the material demands of the studio or the extractive demands of traditional client work. Today it's commonplace for architects to invoke the narrative aspect of proposals and concepts, which can be used to formulate a new flavor of "paper architecture."

"What I look for in literature for architects isn't necessarily a spatial theme, but certain characters that actually observe things that are incredibly revealing," Stoner said, explaining her original impetus for teaching the course. "I refer to the characters as architectural critics themselves. Following them we can see something differently: Through the eyes of a suburban car salesman, we can suddenly look at his neighborhood and think, 'God, you know, there's no children outside.' When *he* was growing up, the street was full of children playing. Why have things changed? Things like that." These ways of storytelling impact work on the built environment and push the culture forward in interdisciplinary ways. And Stoner found narrative to be an effective vehicle for her more radical ideas to take hold.

Degrowth Today

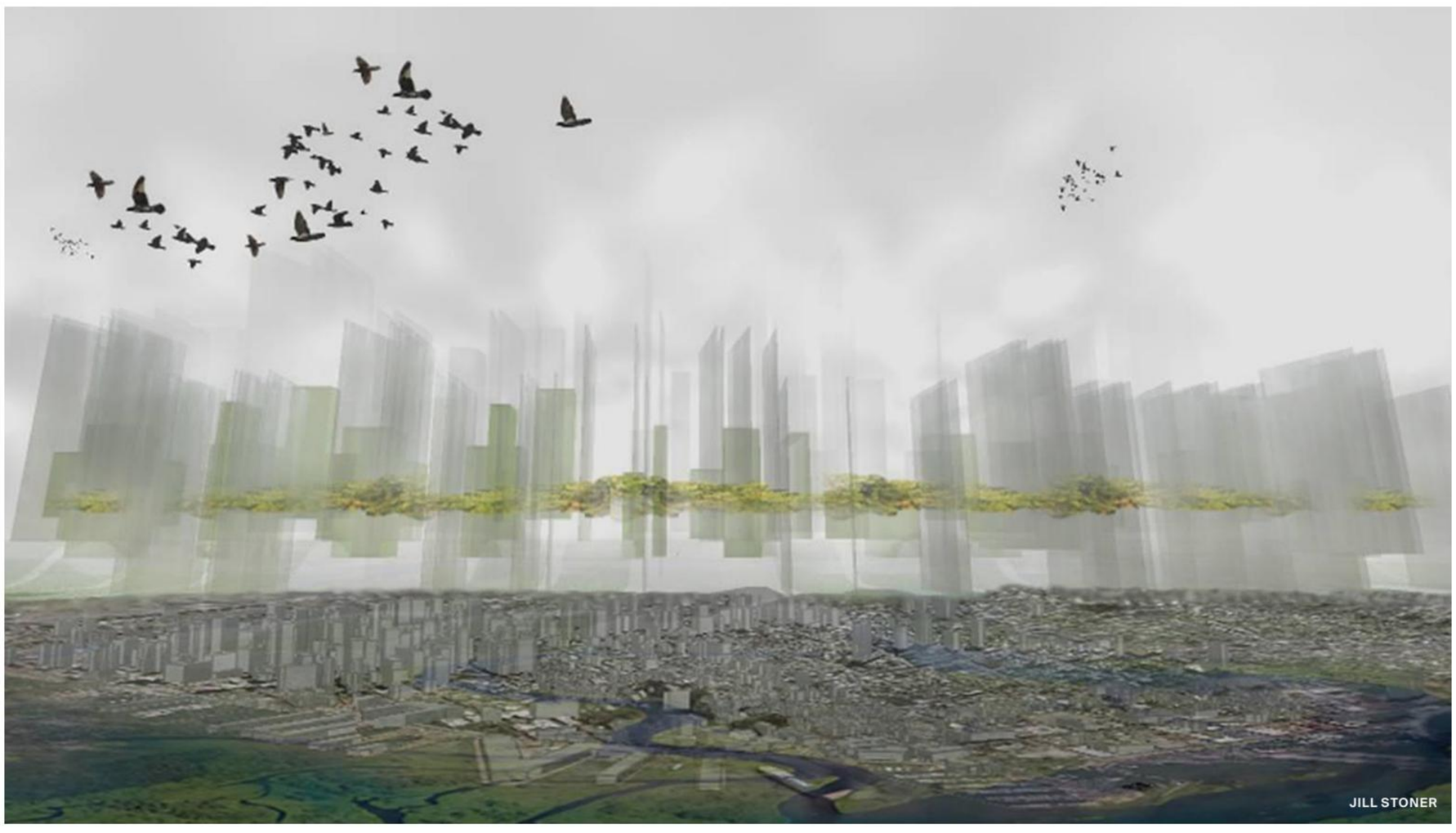
Stoner and Kahn both know that advocacy is needed to give their architectural visions room to grow. Kahn puts out a weekly Substack with tips on how young urban dwellers can build their own homes. "I usually say, 'Find an existing building you can fix up and make your own.' That's the most cost-effective way to build sustainably and responsibly today with building permits and mortgage rates being what they are," Kahn offered.

Stoner also invoked policy hiccups—as well as progress: "While I've long taught design students to embrace opportunities for subversive action, timelines for adaptation in local government have shortened. We've made a huge leap in the past ten years regarding ADUs, for example. What was heresy ten years ago—no parking for a unit!— is now totally supported. The politics went from being 'sneak it in without permits' to something very much part of the mainstream industry. And this is all due to who's framing the narrative."

Other voices are taking up these ideas that Kahn and Stoner have favored for decades. Beyond Stoner's issue of *AD*, Marcelo López-Dinardi edited a 2022 issue of *ARQ* on the subject, with contributions from familiar names like Virginia Hanusik, Civil Architecture, and Lacol, among others; *AN* contributor Amelyn Ng has organized exhibitions like *D.E.P.O.T.* ® to explore salvage and material exchange; and a range of voices have participated in *e-flux*'s After Comfort: A User's Guide series.

Plus organizations like The Architecture Lobby's Green New Deal Working Group advocate for workplace improvements while also leading the charge to demand a more essential version of "sustainability" that starts with the professional's right of refusal. Jack Rusk, director of climate strategy at EHDD, sees refusal as a key tool for architects looking to practice more sustainably: "Passing on work because it doesn't support a firm's mission and vision isn't a radical idea; every architecture firm has their version of a go/no-go analysis for new pursuits. Increasingly, firms are recognizing the reputational value of pursuing projects where climate action is a priority and passing on projects where climate *in*action could pose reputational risk." Across practice and academia alike, it is increasingly difficult to discuss environmental responsibility without talking about refusing the assumption of endless growth. "We are not designing and constructing buildings for their own sake," Rusk explained, "but to meet human and societal needs. A new building might be the answer to this, but it's not necessarily so."

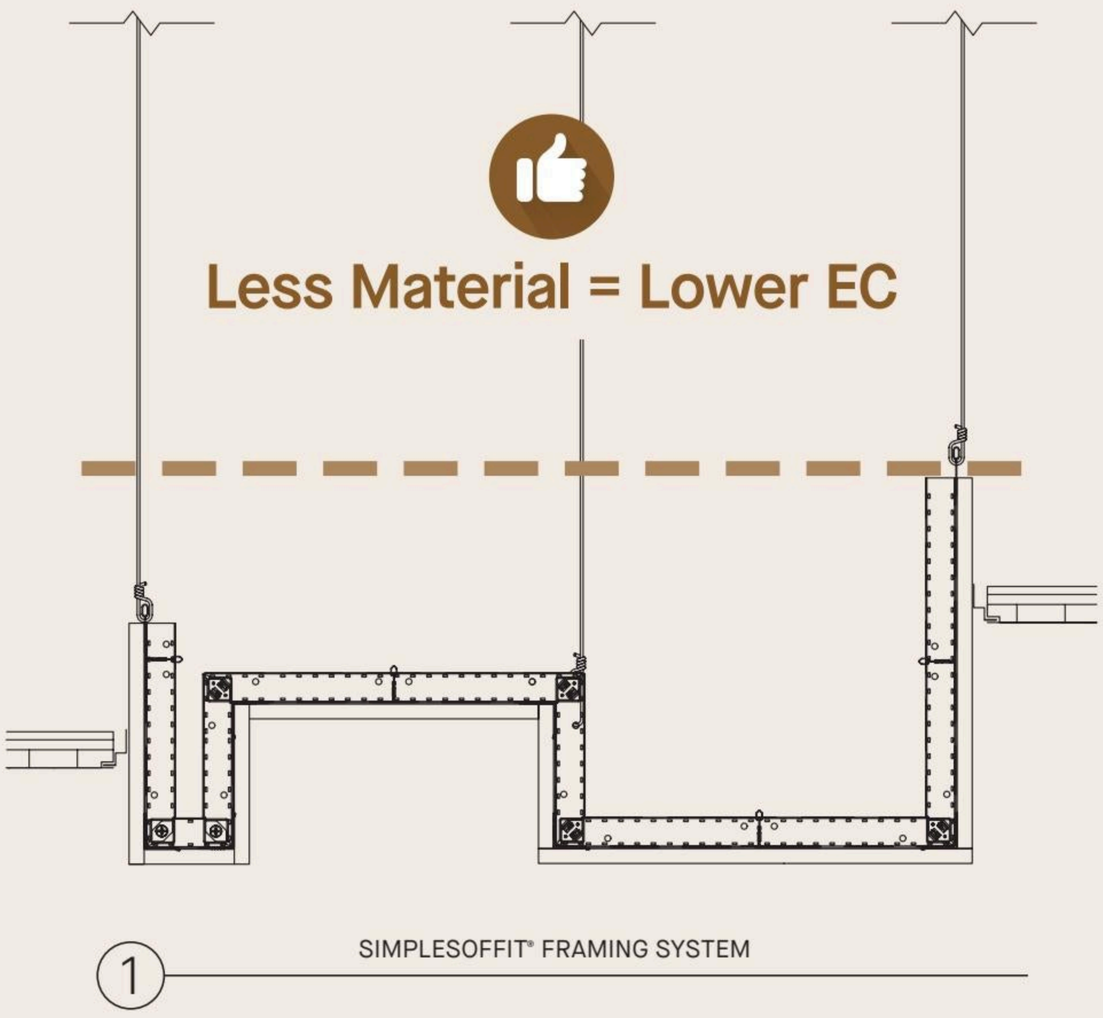
While sustainability rightfully remains a hot topic, Stoner invites contemporary designers, academics, and educators to interrogate the heart of the word. "Sustainability was originally used to mean an ethics of resource use to allow future generations to enjoy the same privileges that we enjoy now. And to me, that was not nearly profound enough. If we're only worried about people still being able to have air-conditioning 80 years from now, I feel like that's the wrong message. For me, it's about refusing the excess that we've come to expect." **Emily Conklin**



Jill Stoner created a series of drawings for the City of the Future Competition. This one is *Wilderness City: San Francisco in the year 2108* (2018).

Less Is More

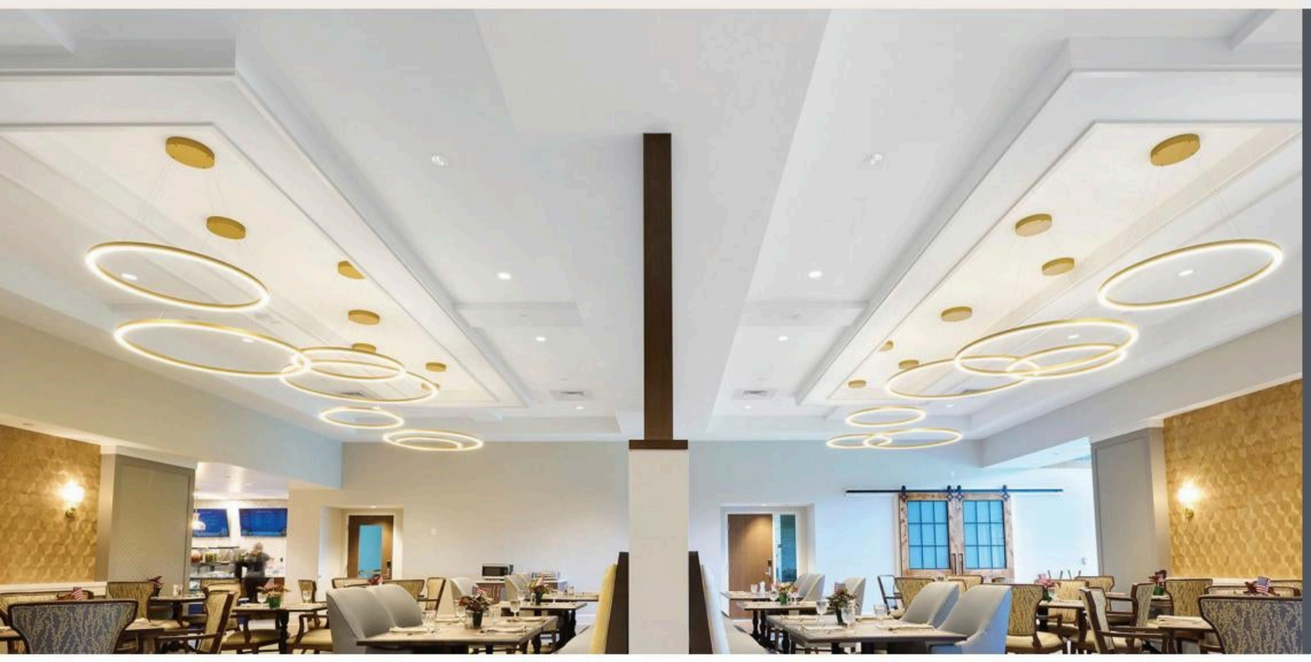
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Biomaterials

These building products and materials are not only made from nature—they also give back to it. KP



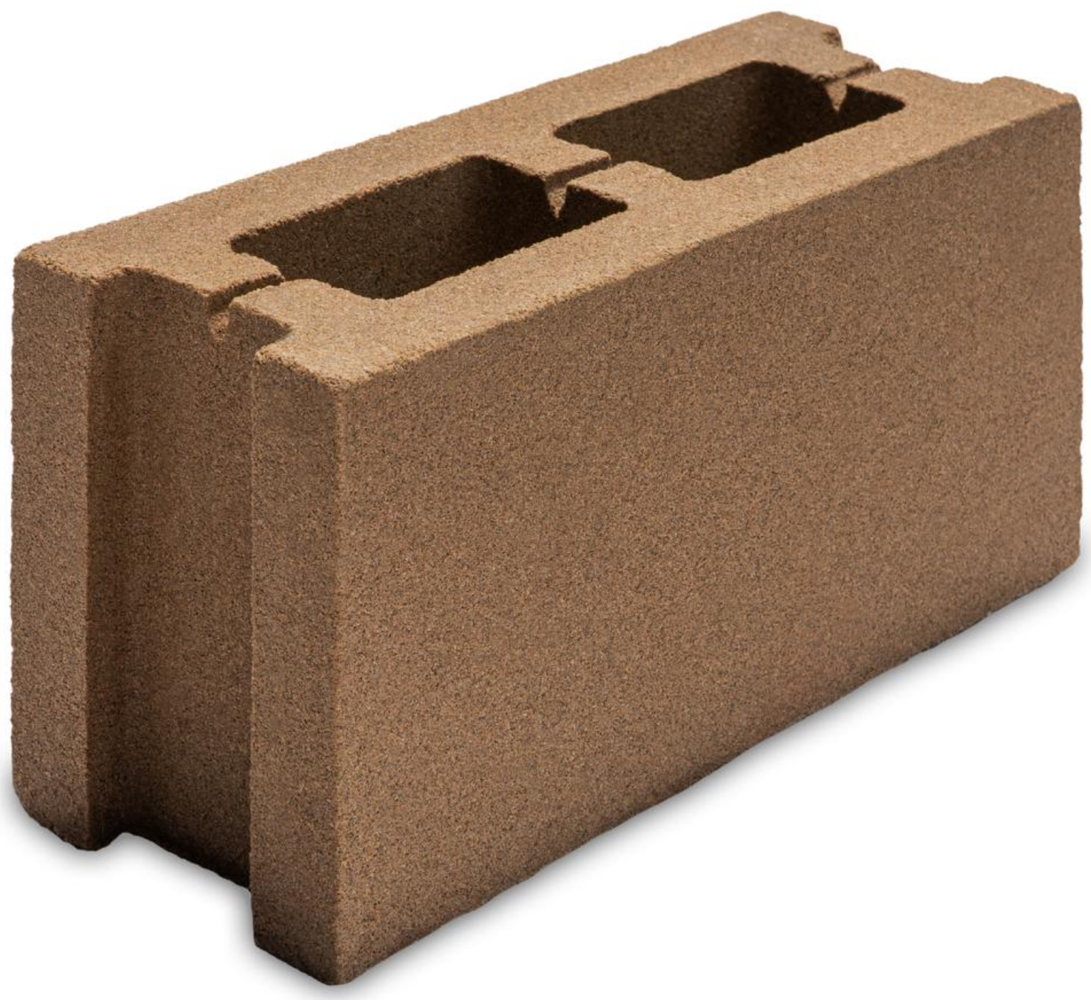
DuoShear | BamCore
bamcore.com

DuoShear is a bamboo-eucalyptus-wood hybrid and carbon-negative framing system suitable for low-rise residential and commercial structures up to 5 stories. Delivered as a kit of parts, the system is palletized and sequentially numbered with a map and nail pattern for easy installation.



TimberBatt | TimberHP
timberhp.com

Softwood chips left over from sustainably harvested and FSC-certified Maine forests are mixed with borate to create sustainable and sound-dampening wood insulation. It's renewable, stores carbon, and protects against fire, mold, and insects.



ProZero Bio-based Cement | Prometheus
prometheusmaterials.com

Developed in collaboration with SOM, this bio-based cement is made from cultivated algae and is three times stronger than typical concrete and 15 to 20 percent lighter. The low-carbon material relies on a bioreactor in place of a kiln.



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Hempcrete | Hempitecture
hempitecture.com

Hemp and a lime-based binder combine to create a biocomposite that acts as insulation between frame members, reducing racking while internal framing supports structural loads. The materials used to create Hempcrete absorb carbon dioxide and are offset within the life cycle of an industrial hemp plant.

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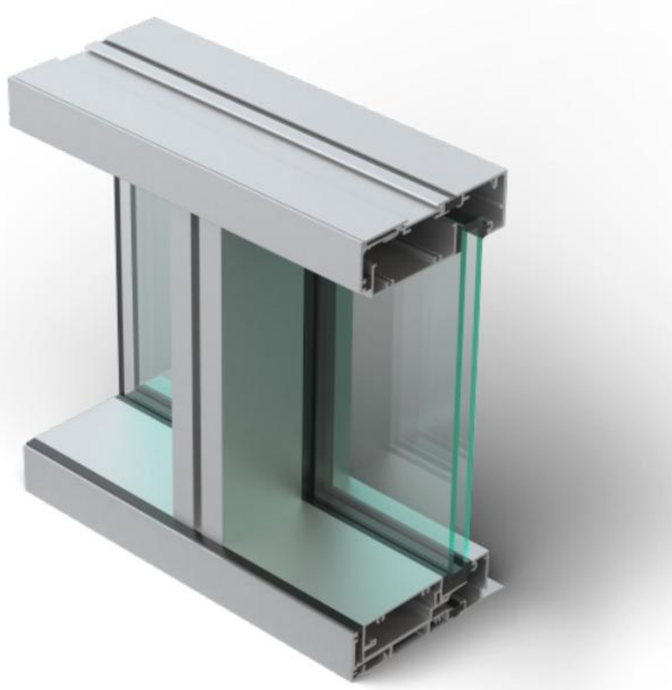
Carbon Conscious

Technologies old and new can help reduce carbon emissions in the quest to decarbonize the built environment, as these products show. KP



ULTIMA Low Embodied Carbon Ceiling Panels |
Armstrong World Industries
armstrongceilings.com

These mineral-fiber acoustical ceiling panels have the lowest amounts of embodied carbon available on the market. Made with wood-generated biochar and 100-percent bio-based content, the sound-absorbing and -blocking panels can be recycled at the end of their life. All sales of the ceiling panels are carbon neutral through 2026.



Low-embodied Carbon Aluminum FG 601T PG Window Wall | Kawneer
kawneer.us

FG 601T delivers the look of a curtain wall but with new and improved design. Kawneer has revamped its aluminum design specification to ensure a minimum of 50-percent recycled aluminum taken from both pre- and post-consumer scrap and the remaining aluminum content sourced from hydroelectric smelters. This means the aluminum product portfolio has lower embodied carbon.



LP SmartSide Nickel Gap Siding | LP Building Solutions
lpcorp.com

Nickel Gap offers a modern profile and is available in 16 colors and a smooth or textured finish. It's part of LP's SmartSide portfolio that's certified carbon negative, so Nickel Gap stores more carbon than the total greenhouse gas emissions released throughout its life cycle. The engineered wood is made with LP's proprietary manufacturing technology to ensure added durability.



ALL IMAGES COURTESY THE RESPECTIVE MANUFACTURERS

Pillar | Stickbulb
stickbulb.com

Stickbulb reclaims wood waste from New York City to create light fixtures. The Pillar collection uses this same method for a circular wood envelope to house an illuminated square pocket, available in sconce, pendant, ceiling-mount, and chandelier configurations. The company is certified climate neutral.



Hollis Callas Collection | LiLi Tile
lilitile.com

Working with Carbon Limit, LiLi Tile incorporates a proprietary chemical blend that actively captures and mineralizes carbon dioxide during the drying process. The tiles are made traditionally without the use of a kiln to reduce carbon and energy consumption. The collection, designed by Hollis Callas, boasts an artisanal aesthetic for indoors, outdoors, and wet rooms.

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Pictured: M9956 Wax Rubbed Brass

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A'N FOCUS
September 2024

Baby Steps

Miller Hull led the renovation of Seattle's Lake Union Piers, making it the firm's first EMission Zero project.


BEN BENSCHNEIDER

Design architect: The Miller Hull Partnership
Landscape architect: Hewitt
Structural engineering: Coughlin Porter Lundeen
MEP engineer: Glumac
Civil engineering: KPFF

Lighting design: Glumac
Site branding: RMB Vivid
General contractor: Abbott Construction
Geotechnical engineer: Geoengineers
Envelope consultant: RDH
Cladding: AEP Span, Kebony
Doors: Solar Innovations
Roofing: AEP Span
Glazing: Kawneer, Vitro

Smack dab in the middle of Seattle is a freshwater lake known as Lake Union. The South Lake Union neighborhood has lived multiple lives: It was originally home to the Duwamish Indigenous people but morphed into an industrial region full of lumber mills and gas plants after white settlement from the 19th century on to the 1980s. Today, it has again shifted as the city transitions toward more sustainable living and working. The community, and Lake Union itself, is now encircled by green infrastructure like parks and pedestrian paths. Among these improvements is the renovated Lake Union Piers project by local firm Miller Hull. Its completion marks the firm's first project completed under its EMission Zero initiative.

Lake Union Piers is a recreation spot located along the southern portion of Lake Union. Miller Hull renovated three 1980s industrial structures spanning 5 acres to allow local restaurants, entertainment, and retail to flourish within this public maritime hub. In between the buildings is an open plaza and along the waterfront is a promenade where people sit and take in the surrounding shoreline scenery.

Since its founding in 1977, Miller Hull has designed with a sustainable edge. The newest green initiative, EMission Zero, launched in 2021 with the goal of eliminating greenhouse gas emissions in all Miller Hull projects. "EMission Zero has four components for Miller Hull: Design, Educate, Advocate, and Offset," principal Jim Hanford told *AN*. "The idea is that the project team—owner, contractor, and designer—works together to reduce or eliminate both future operational emissions (from building energy use) and embodied emissions (from construction)." For the Lake Union Piers project, Miller Hull collaborated with the owner, Vulcan Real Estate; and contractor, Abbott Construction. Fortunately, all parties agreed to participate in EMission Zero, and each offset one-third of the Lake Union Piers' A1-A3 emissions.

Lake Union Piers includes three buildings that were completely renovated to match both EMission Zero standards along with Seattle's current Energy Code. Miller Hull senior associate Cory Mattheis provided insight into how the design team used a "subtractive" process for the design. "The subtractive approach to making space came from very pragmatic reasoning. The existing buildings were constructed in 1986, at a time when shoreline setbacks and environmental concerns were different," Mattheis explained. "Faced with this challenge, we decided that carving away at the existing massing was the best way to redefine the language of the project while providing necessary relief to the previously hardened perimeter."

The three buildings exhibit unique geometric shapes that are wrapped in warm wooden shiplap vertical panels by Kebony and dark metal roofing by AEP Span that extends to the sides of the buildings. Renovating the three existing structures rather than building from the ground up was a crucial step to hit EMission goals. Hanford noted that reusing the existing structures, along with the wooden frame and concrete foundation, helped immensely with meeting the sustainable goal through its low embodied emissions.

"To us, this project represents a way for architects to embrace the value of existing buildings rather than always turning to new construction as the answer," Hanford said. In a way, Lake Union Piers mirrors the surrounding area by also living multiple lives—but this time, with an environmental grasp that is here to stay.
Paige Davidson


BEN BENSCHNEIDER

Above: Miller Hull's "subtractive" approach allowed for more setbacks and outdoor gathering places.

Right: Miller Hull's showcases retained unique geometries wrapped in warm wooden shiplap panels at the entrances.

Sustainability driven by Innovation in the Coatings Industry

In the world of architecture, sustainability is top of mind. When it comes to the exterior facade, coil and extrusion coatings play a critical role to the form, function and sustainability attributes of a building's design.

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A Holistic Approach to Sustainability

Sustainability isn't new to Sherwin-Williams—it's embedded in our values, culture and way of doing business. We've embraced a science-based, holistic approach to sustainability and are continuously seeking ways to integrate it into every part of our business. Our Coil and Extrusion Coatings Division is driven by three key sustainability pillars—Corporate Commitment, Product Innovation and Customer Partnership—we are leading the industry in sustainability.

Examining our corporate commitment further, our commitment is guided by the enterprise-wide pillars of Environmental Footprint, Product Blueprint and Social Imprint and we believe a strong foundation helps us hold ourselves to the highest standards of ethics, business integrity, and corporate governance. Our approach to sustainability and environmental, social and governance (ESG) enables broad engagement across the organization, while providing appropriate oversight and accountability throughout the company.

Through the Environmental Footprint pillar, our continuous improvement approach aims to reduce our carbon emissions, energy use, and waste generation in addition to expanding our renewable energy use and recycling methods. Enterprise-wide, Sherwin-Williams is working toward our goal of reducing absolute scope 1 and 2 greenhouse gas emissions by 30 percent.

Social imprint is key when examining sustainability from a holistic approach. We are committed to providing a safe and inclusive environment both in and out of the workplace where individuals of all backgrounds are welcomed, celebrated, and appreciated.

Our Product Blueprint initiative is how we drive sustainability through innovation. We lead the industry by offering cutting-edge solutions and implementing sustainability into the stages of our product innovation and development processes. Specifying metal coil and extrusion coatings on the building envelope offers many other benefits such as durability, performance and unique color and effect options. Moreover, metal building products have a long lifespan, lower maintenance requirements and can be recycled. Applications includes curtain wall, façade, roof and wall panels and other metal building accessories.




IWAN BAAN

Above: Sherwin-Williams coil and extrusion coatings complete today's most technically advanced architectural projects defining skylines.

Right: Exterior solar reflective coatings by Sherwin-Williams give this MLK Housing project its distinctive look.

Facing page: Architectural visions come to life with Sherwin-Williams exterior coatings.

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Sustainability Product Innovation

Solar Reflective (SR) Coatings and LEED

Solar reflective coatings for metal roofing and wall panel systems have become increasingly popular. Available in Fluropon® and Illumipon™, these coatings contain solar reflective and thermal emittance (TE) pigments that reflect infrared radiation while still absorbing visible light, resulting in a coating that can stay cooler. This is coupled with the coating's exceptional resistance to natural elements such as sun, rain, and UV rays, as well as marring and fading.

A leading benefit of solar reflective coatings is their ability to help mitigate the heat island effect and improve roof emissivity. Urban heat islands are caused by roof and pavement surfaces retaining the suns' heat, causing elevated temperatures, increased energy usage, and local climate disruptions. Solar reflective coatings reflect heat to contribute to lower surface and ambient air temperatures. When used in new construction, solar reflective coatings can earn Leadership in Energy and Environmental Design (LEED) credits for roofing and wall panels. LEED credits, or status, are awarded to buildings that prioritize sustainability and are built with longevity and efficiency at the forefront.


TIM HURSLEY

Radiation Cure Technologies

Radiation cure technologies are rapidly advancing. A developing technology in the coil coatings industry, radiation curing changes the way a coating is cured. Traditionally, the coating is cured with a thermal oven while radiation curing uses energy instead of heat to solidify the liquid coating. Used primarily in printing applications, this technology utilizes either Ultraviolet (UV) energy or Electron Beam (EB) to form a coating. UV radiation curing works by utilizing high-intensity ultraviolet energy to instantaneously cure the coating. A chemical photo-initiator is used to absorb the UV energy and cross-link the polymers. EB curing utilizes accelerated electrons to directly cause the cross-linking of inks and coatings. This allows for a high degree of conversion from oligomer to polymer to take place. When it comes to sustainability attributes, this innovative curing process produces low to no VOCs, is formulated with 100 percent solids, and can have a lower energy expenditure compared to traditional thermal curing. Radiation cure coil coating systems can be tailored to unique applications, including gutters, fascia and more.

Bio-Renewable and Recycled Ingredients

Incorporating bio-renewable ingredients in coatings systems has become more common, especially in Europe. Polyester topcoat systems can use bio-renewable raw materials that are naturally replenishable such as vegetable oils and animal fats. These systems are mostly used for interior coil applications like ceiling profiles and wall panels as well as exterior coil applications like metal roofing systems, facades and other sheet steel elements.

Another industry trend is using pre-consumer recycled plastic (rPET). Resin systems can contain up to 55 percent recycled content such as plastic bottles, containers and packaging. Formulated with a higher percentage of solids, these materials help mitigate the need for fossil fuels—non-replenishable items that take millions of years to form.

When designing with sustainability in mind, it is crucial to use products and suppliers that offer you the resources and solutions to help you meet your goals. At Sherwin-Williams, we work directly with architects to help their projects meet sustainability requirements of national and global initiatives. From LEED accreditation to energy savings initiatives to unique sustainability goals, we're your partner in sustainability.

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EMA PETER PHOTOGRAPHY

Timber Terminal

ZGF elevates air travel to new heights with a soaring mass timber addition to PDX.

Architect: ZGF
Interior designer: ZGF
Landscape architecture: PLACE Landscape Architecture
General contractor: Hoffman Skanska Joint Venture
Structural engineer: KPFF, Arup
MEP Engineer: PAE Engineers, Arup
Mass timber trade partner: Swinerton
Steel: W&W | AFCO Steel
Mass timber fabricators: Zip-O-Laminators, Timberlab, Freres, Calvert
Mass timber manufacturers: Calvert, Freres, Zip-O-Laminators
Wood adviser: Sustainable Northwest Wood
Lumber mills: Elk Creek Forest Products, Frank Lumber, Freres Lumber, Herbert Lumber, Kasters Kustom Cutting, Manke Lumber, Zip-O-Log Mills
Biophilic design consultant: Terrapin Bright Green
Sustainability consultant: ZGF, Arup
Glass: Carey Glass with Glas Trösch, Viracon
Acoustical ceilings: Armstrong World Industries
Wood flooring: Zena Forest Products
Paints and stains: Timber Pro Coatings

There was a time when a new airport terminal evoked a sense of awe. When Minoru Yamasaki's Lambert Terminal in St. Louis, with its vaulted, intersecting thin-shell-concrete domes opened in 1956, it amazed the construction world and set the stage for increasingly breathtaking jet age endeavors like Walther Prokosch's circular cantilevered JFK Pan Am Terminal (1960), Eero Saarinen's soaring, winglike TWA Flight Center (1962), also at JFK, and Saarinen's upthrusting Dulles Airport in Washington, D.C. (1962). All employed concrete, glass, and steel in daring new ways that evoked the still-astonishing drama of airplane flight.

But in the U.S. at least, magic in airport design seems like a thing of the past. Even pricey, well-conceived recent terminals, like the new LaGuardia Airport in New York or the expansion of Tom Bradley International terminal at LAX, have struggled to capture popular imagination. But thanks to ZGF's new terminal expansion of Portland International Airport (PDX), that run, I predict, is about to be over.

The $2.15 billion facility replaces what was previously a quilt of patched-together buildings. It is one of the most stunning American airport spaces in decades. But in this case, the exciting new technology isn't really new at all. It's wood, highlighted by an extraordinarily intricate 380,000-square-foot Douglas fir roof composed of over 800 curved glulam beams (some 80 to





Facing page: A focal point of the new mass timber terminal is an oculus window that lets in plenty of natural light for both people and plants.

Left: The impressive roof is composed of over 800 curved glulam beams.

Above: The new terminal is home to over 70 live trees, arranged in bosques.

90 feet long), 842,000 board feet of mass plywood roofing, and more than 36,900 pieces of 2-by-6 infill panels. This timber extravaganza, organized and fabricated via cutting-edge tools like CNC milling, BIM modeling, and both prefab and modular construction, is married to a supporting structure of steel *y* columns and girders. According to ZGF, it's the largest mass timber roof in the U.S. and the largest mass timber structure of its kind in the world.

The wonder you feel when you first enter the space derives from so many sources. There is the epic scale, presenting a material we think we know in breathtaking new dimension—36 feet above you, everywhere you can see. There's the hypnotic pattern of the timber pieces, whose long lines our eyes can't help but follow and that literally lifts us from the mundane world of air travel. There are also concave sections that recall the hulls of boats. The sensation here is also about how good the material feels around us: It calms and warms us in what is usually the most uncalm and artificial of environments. We've been removed from robust natural materials in these kinds of settings for so long that this feels like a liberation. We're looking into the future while going back to our roots. (Bad pun intended.)

Walking through the terminal is meant to approximate a walk in the forest, leading you through varied, evocative spaces and experiences. There are large, unfolding circle- and oval-shaped openings, topped by skylights, that evoke clearings. There are moments of compression and expansion; bustle and activity; quiet and loud. Bosques of trees (there are over 70 live trees throughout the project) in varied densities and compositions add to the sense of rustic calm, as do exposed timber pavilions for concessions and, in places, oak parquet flooring. Just prior to security, a double-winged wood conversation stair leads to a second-floor beer hall and an art gallery. All the while mammoth glass curtain walls, located at the ends of the terminal's long axes, keep you oriented and connected to the outdoors.

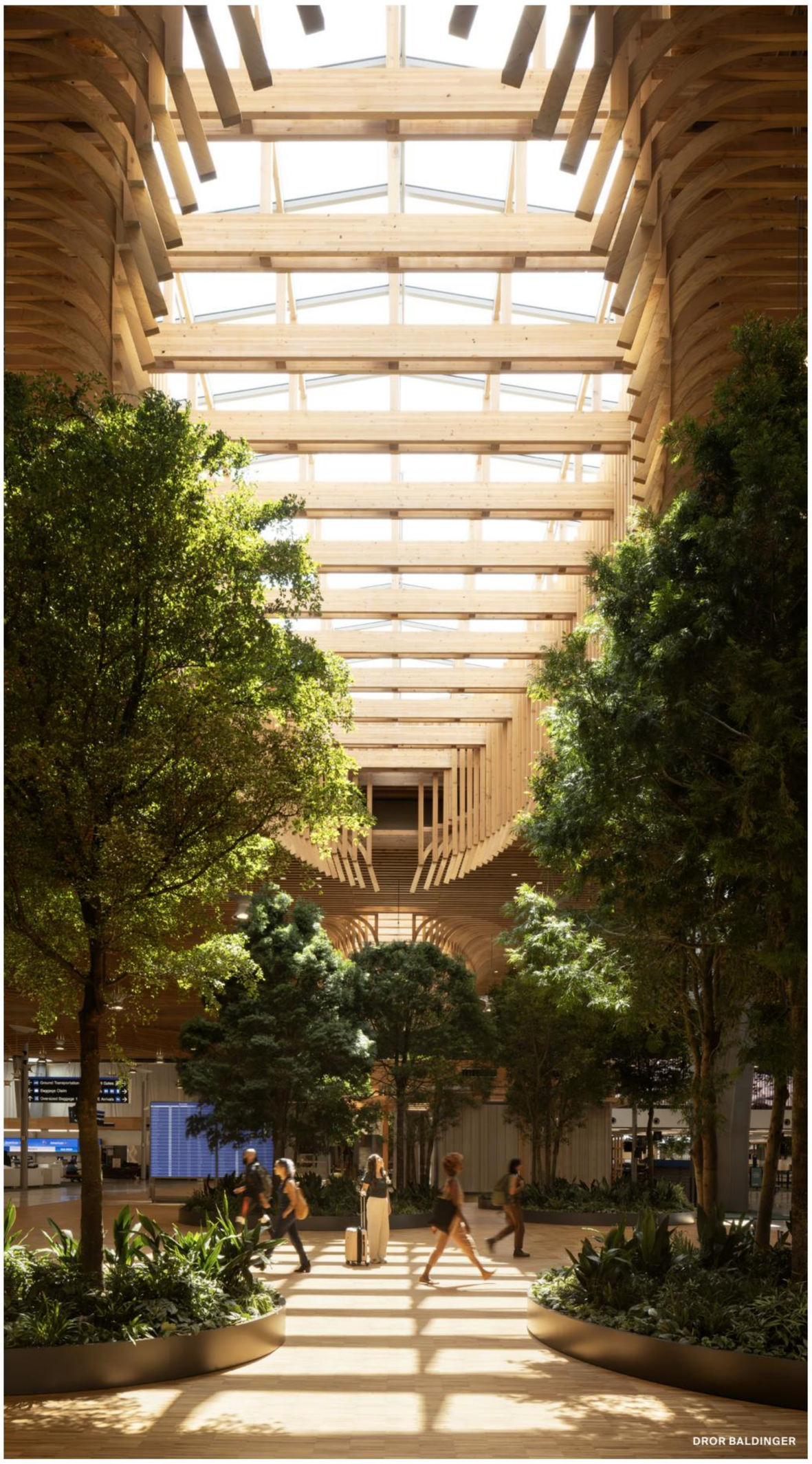
While most airports seem like they could be anywhere, this one reflects Portland's longtime role as the gateway to the country's Northwest timber belt. It's a "timber mecca," as Sam Dicke, business development manager at Timberlab (one of the project's Portland-based timber fabricators) put it. It also reflects local passion for the outdoors and the tradition of basket-weaving, passed from Indigenous communities to contemporary craftspeople. The space incorporated several local retailers into its concession areas, which are laid out, effectively, to approximate the width and dimensions of local streets and sidewalks. A slew of public art pieces reflect the city's artsy side. And callouts to the previous terminal are here, too, like sections of the patterned green carpet (it approximates the plan of the airport itself), which for years has stood as the popular symbol of this place. Check out Instagram for endless foot selfies on top of it.

The choice of mass timber was, not surprisingly, also an environmental one. Wood is far less carbon-intensive than steel and concrete. ZGF designers noted that the timber roof represents a 125-percent reduction in embodied carbon compared with a traditional steel structure. (Another key to the reduction was the reuse of the lower levels of the original terminal for infrastructural support—ZGF says the project gained a 70-percent reduction in overall structural embodied carbon via reuse and material optimization.) All wood was sourced from within 300 miles of the airport, often from local landowners and native tribes, and it's 100-percent traceable.

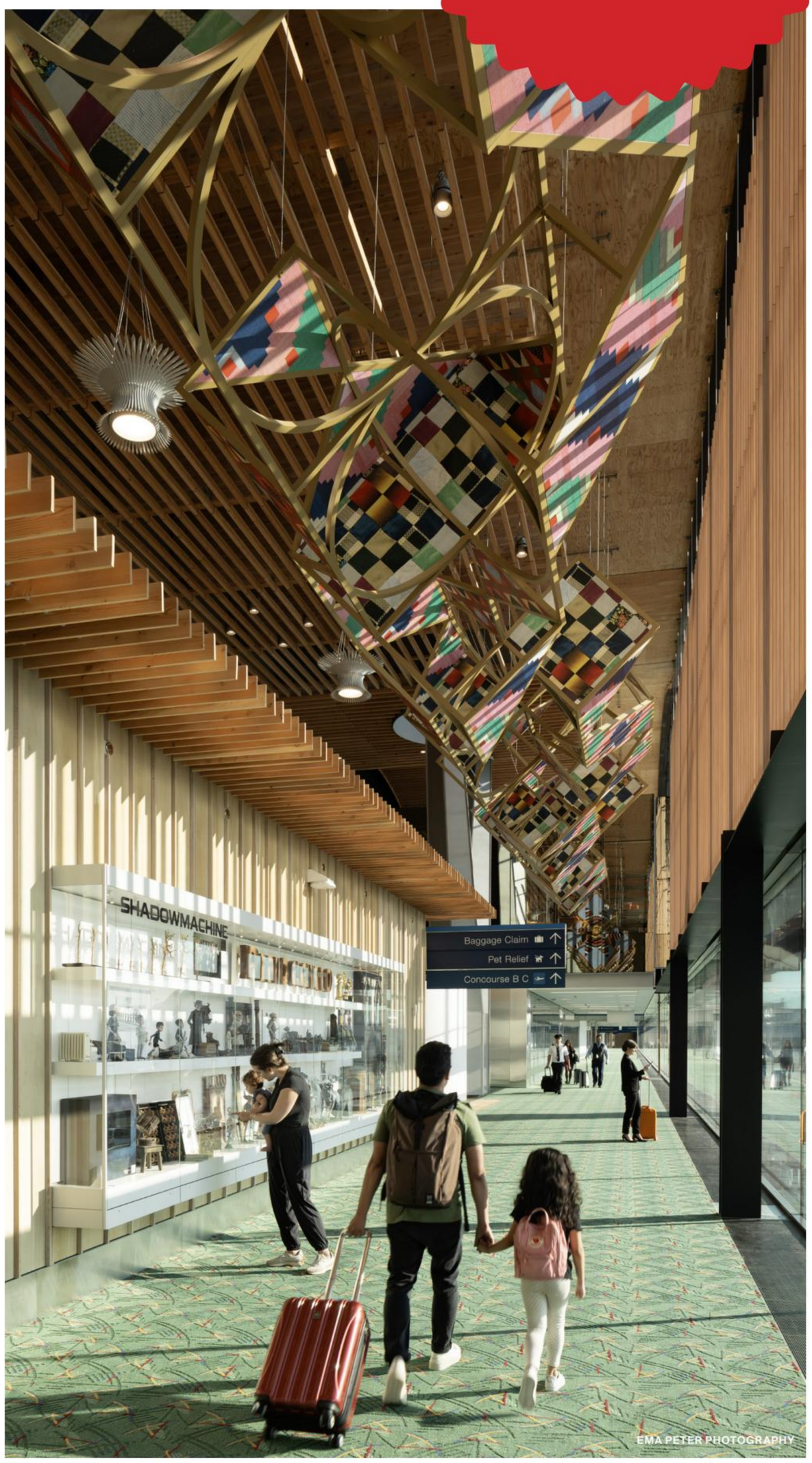
"It's about getting away from the catalog model and creating new pathways and transparency," said Nat Slayton, ZGF principal. The region's evolving use of mass timber has largely replaced the gutting of old-growth trees. If responsibly managed, Dicke added, timber farming can aid in wildfire management, thanks to the relearning of old techniques like thinning, controlled burns, and replanting.

The airport is seeking LEED Gold certification—not an easy task for this type of building.

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September 2024



DROR BALDINGER



EMA PETER PHOTOGRAPHY

This is achieved by leveraging natural light (60 percent of the terminal is daylit); a tight envelope; targeted cooling; and an all-electric, ground-source heat pump system, which provides 95 percent of the terminal's heating and 100 percent of the cooling. To prepare for the region's predicted earthquakes (magnitude 9 is in play), the roof and curtain walls are set on seismic base isolation bearings that can move up to 24 inches in any direction. In the case of a major event, the airport, added Slayton, would become a hub for recovery and rebuilding.

The choice of wood was far more practical than conventional techniques. PDX needed to remain operational during construction, which had to proceed quickly and safely, so the terminal was erected over partially demolished structures and a portion of the tarmac. Timber, more than 10 times lighter than steel, was the best material to form into square modules or cassettes, measuring 100 feet-by-300 feet. These were then wheeled over from the fabrication site half a mile away and assembled on site. (More modules will be transported over for phase 2, which is scheduled for completion in early 2026.) Timberlab, which oversaw the roof's timber sourcing, CNC cutting, and fabrication, tattooed QR codes onto each piece, all relating to a massive BIM model. "It was really a logistical marvel," said Dicke. "It's a 3D puzzle," added ZGF architect Christian Schoewe.

The roof hovers over an open expanse, with no interrupting walls, and only 34 steel *y* columns. According to Schoewe, the old terminal had over 600. It's an airy, luminous, and unified space whose informal changes are marked by shifts in the ceiling itself. The openness makes it flexible—a priority in a space that will inevitably change with shifts in load, security, and public demands.

Phase 2 of the terminal will include new entryways and more concessions, circulation space, and baggage areas. And there will inevitably be more work following, but according to Vince Granato, chief projects officer for the Port of Portland, the airport's owner and operator, that scope has not been determined.

Already ZGF and the port are getting inquiries on the design from airports around the world. "We're giving others the confidence that you can do it," said Slayton. And it's clear that the project is already a triumph for Portland itself. "It's a reflection that this city can do big things," said Granato. "It will be a real shining light for the region. There's a lot of excitement here....I think everybody has this immense feeling of pride in what we've been able to do here. We can't wait to show it off."

Sam Lubell is editor at large at *Metropolis* and has written more than ten books about architecture for Phaidon, Rizzoli, Monacelli Press, and Artbook D.A.P.

Left: Skylights allow light to pour into the terminal, interior supporting over 70 live trees throughout the project.

Above: Public art further enlivens the timber architectural elements for travelers as seen in a suspended, quiltlike piece by Sanford Biggers, and the patterned green carpet abstracts the plan of the airport.

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Hidden Creek Community Center (Hillsboro, Oregon)

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Avalon Bay Clubhouse (Seattle, WA)





60 Case Studies

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September 2024

Forest for the Trees

LMN Architects completes the Field Arts & Events Hall in northern Washington, writing the next chapter in Port Angeles's timber story.

Architect: LMN Architects
Landscape architect: Walker Macy
Interior design: LMN Architects
Structural engineering: Swenson Say Fagét
Electrical engineering: Stantec
Civil engineering: Zenovic & Associates

Lighting design: FMS
Acoustics: Jaffe Holden
Facade system: Kawneer
Cladding: Alpolic
Glass: Guardian
Windows and doors: Kawneer
Roofing: Carlisle
Waterproofing: VaproShield
Interior finishes: 9Wood

Ask anyone to describe Washington State, and the words *trees* and *forest* will likely figure in. For the Pacific Northwest state, about half of which is forested, the many species of trees that grow here and their associated industries are central to the identity of this place, both economically and culturally. In Port Angeles, a city on Washington's northern coast, the forest industry helped propel growth throughout the 20th century, and today timber is once again ushering in a new chapter of development. Here, Seattle-based firm LMN Architects has completed a new waterfront arts and community center where wood is a defining element.

The 40,000-square-foot Field Arts & Events Hall fronts Port Angeles's central harbor, where terminals host ferry boats shuttling to and from nearby Victoria, British Columbia, alongside cargo ships and other marine vessels. While industrial activities like logging defined this picturesque site for the last century—Port Angeles was once home to the world's largest sawmill—the Field Arts & Events Hall marks the start of a new era. "This project represents a shift to a more ecotourism-based economy for Port Angeles," said LMN principal Cameron Irwin. "At the same time, the timber legacy is a huge part of why Port Angeles exists, so we knew it was important to incorporate wood in the project."

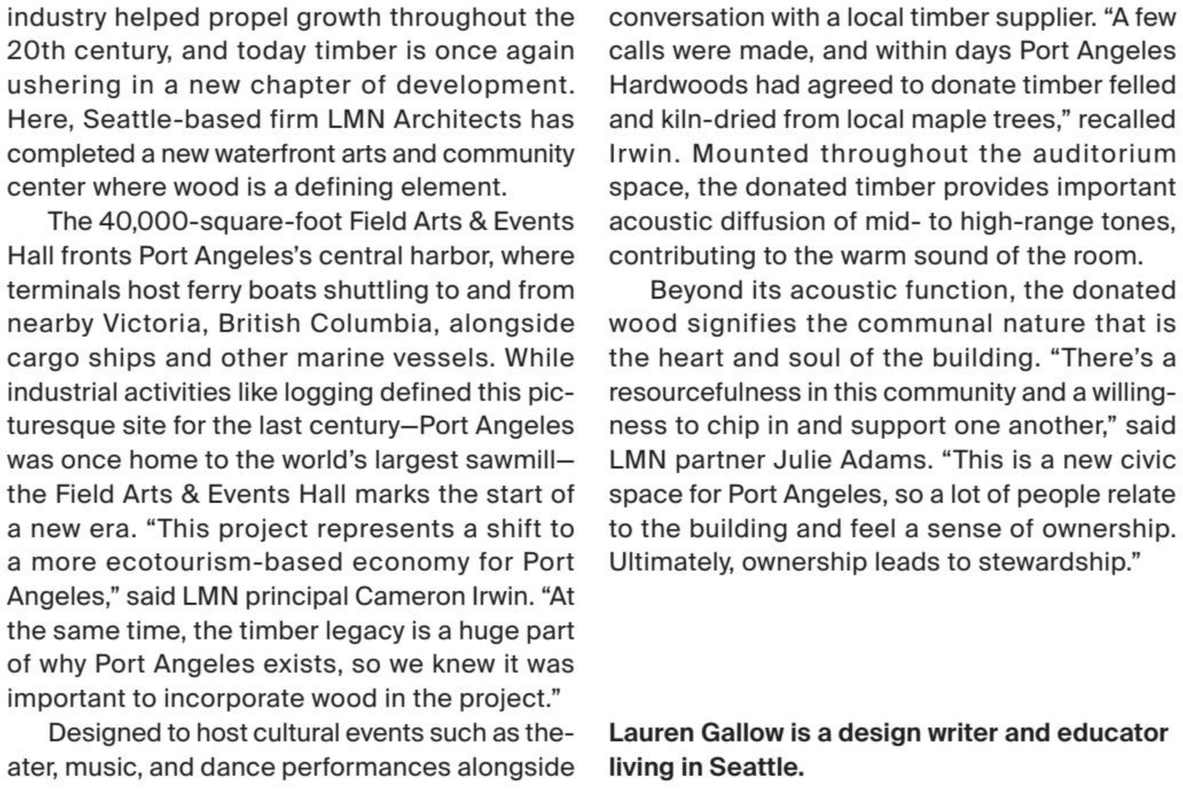
Designed to host cultural events such as theater, music, and dance performances alongside community functions like conferences and committee meetings, the building includes a 500-seat auditorium plus an upper-level 250-seat conference center. Linking the spaces together is a double-height lobby with expansive views of the water and mountains beyond. Here, a floor-to-ceiling timber curtain wall wraps from the ground level to the second-floor conference area, offering 270-degree views that situate visitors in this forested landscape.

Rather than use an expensive proprietary system already on the market, the team designed a custom timber curtain wall to stay within budget and to introduce wood to the project. Structural glulam beams of regionally sourced Douglas fir hang from steel roof beams, with a modified toggle-glazed curtain wall system that fastens directly to the timbers. "This allowed us to provide a higher thermal efficiency than a typical veneer curtain wall system and achieve a flush, glazed appearance," Irwin explained. Framing exterior views, the wood mullions nod to the legacy of timber that has defined Port Angeles for centuries. "Inside, it almost feels as if you're standing in a forest grove looking out through the trees."

Using a hybrid system of structural steel combined with moments of exposed timber structure allowed the building to meet budget constraints while still tapping the environmental and cultural benefits of wood. As was typical of many projects built during the COVID-19 pandemic, the Field Arts & Events Hall experienced spiking material costs during construction, especially for casework and millwork components. In weighing the options of a much higher construction cost or significant design changes, a board member of the Field Hall nonprofit responsible for the building opened up conversation with a local timber supplier. "A few calls were made, and within days Port Angeles Hardwoods had agreed to donate timber felled and kiln-dried from local maple trees," recalled Irwin. Mounted throughout the auditorium space, the donated timber provides important acoustic diffusion of mid- to high-range tones, contributing to the warm sound of the room.

Beyond its acoustic function, the donated wood signifies the communal nature that is the heart and soul of the building. "There's a resourcefulness in this community and a willingness to chip in and support one another," said LMN partner Julie Adams. "This is a new civic space for Port Angeles, so a lot of people relate to the building and feel a sense of ownership. Ultimately, ownership leads to stewardship."

Lauren Gallow is a design writer and educator living in Seattle.



LARA SWIMMER/ESTO


JEREMY BITTERMANN

Material Trio

LEVER Architecture applies a hybrid structural system to a Los Angeles office building.

Architect: LEVER Architecture
Landscape architect: Field Operations
Interior design: LEVER Architecture
Structural engineering: Glotman Simpson Consulting Engineers
MEP engineer: AMA Group
Civil engineer: Sherwood Design Engineers
Public art: The Haas Brothers

Cross-laminated timber floor decks: Structurlam
Rainscreen: TAKTL
Windows: Oldcastle BuildingEnvelope
Glass: Guardian
Curtain wall: Ennova Facades
Interior finishes: Schlage, Toto, Duravit, Daltile

In Los Angeles's Chinatown, LEVER Architecture has refashioned a windowless warehouse and its subterranean parking garage into 4.5 floors of office space, where the connection between indoors and outdoors is nearly seamless. The distinguished expression of 843 North Spring Street hinges on its innovative hybrid structure—a blend of steel beams, concrete, and timber panels.

With 843 North Spring Street, the bones of a former big box retail store and the grid of its underground parking garage were reflected across a new vertical construction. LEVER worked with the building's existing conditions, considering its urban context and the material culture of Los Angeles. The design hearkens to single-story bowstring truss warehouses with timber roofs.

The large spans afforded by the existing parking structure form expansive floor plates. The covert alleyways of Chinatown are replicated across the building's floors. Staircases, courtyards, and balconies promote the building's outward nature and make use of the region's temperate climate. Field Operations worked with LEVER on the landscaping component of the project.

LEVER is among several firms in the Pacific Northwest leading the charge to incorporate more timber into architectural projects. As legislation in California centers on reducing carbon advances, projects such as Spring Street proffer a blueprint for the material's path forward.

"Right now, a lot of these projects are the first of their type," Thomas Robinson, principal at LEVER Architecture, told *AN*. "People are learning how to take advantage and plan these projects in a way that will accelerate the construction schedule. That's why you need these examples—so people can learn and then do better on the next one."

What sets 843 North Spring Street apart is its hybrid structural system. Together, CLT panels, concrete, and exposed steel columns bear the building's gravity and seismic loads. The strength of this system accommodates the vastness of the parking structure and open office layouts on the upper levels with no need for a transfer beam, the more traditional support method. By using CLT, the architects were also able to reuse the building's existing foundation.

The CLT panels, a mix of Douglas fir and spruce pine fir, add a richness to the project. In the open-plan office spaces, the wood was left exposed on the ceiling, giving a domestic appeal to the workspace. Robinson also pointed out the olfactory nature of the material, which adds to the sensorial experience of the space.

In the workspaces, steel columns and beams form a grid across the floor plate. A series of inverted, *v*-shaped trusses carry the structural load, while also making for interesting architectural features.

Both the CLT paneling and the use of steel extend beyond the interiors to form balconies that prominently line the street-facing facade of 843 North Spring Street. The materials also work together when applied to the courtyards and the building's interstitial spaces, where the main circulation is located. Greenery spills down into the exterior stair landings, blurring the line between inside and outside.

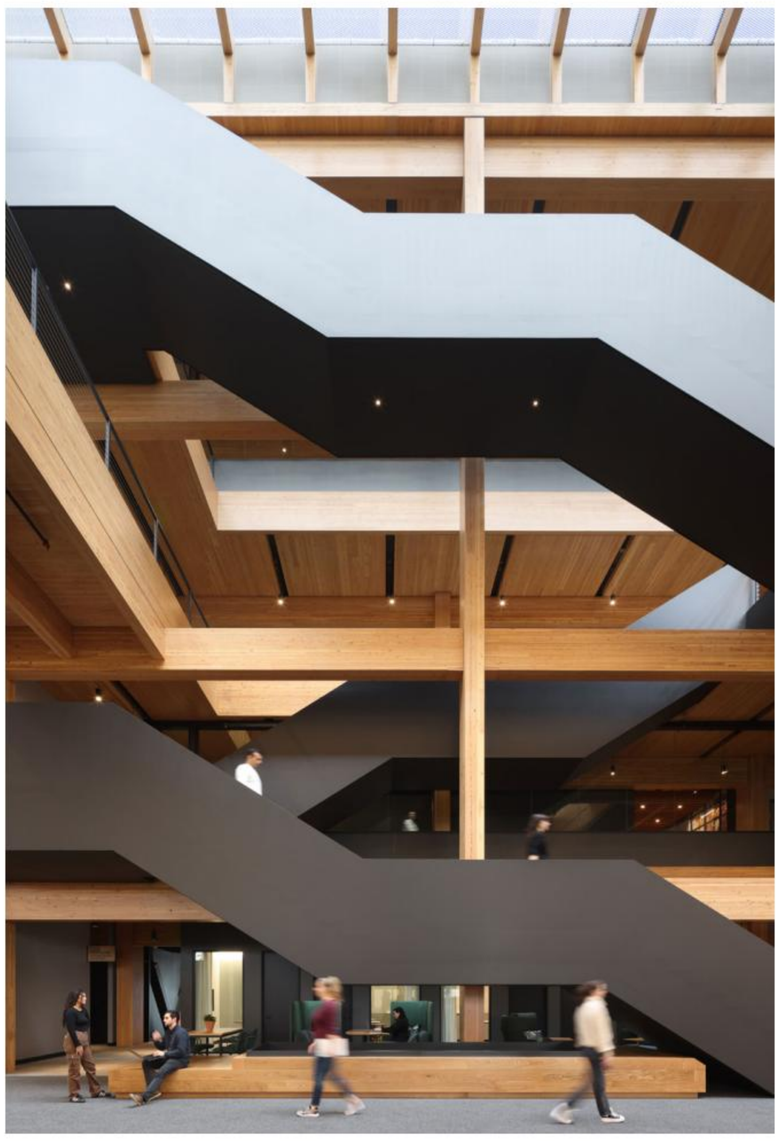
The use of CLT is just one sustainable measure of several taken by the design team. 843 North Spring Street also reclaims and stores rainwater on its roof, where a solar array was installed. A purple pipe system recycles water across the site. All the windows and sliding doors are operable to circulate air. The building is doing its part to have a minimal environmental impact, and new designs like LEVER's should challenge us to think deeper when it comes to sustainable living and working. **KK**

61 Products

Mass Timber

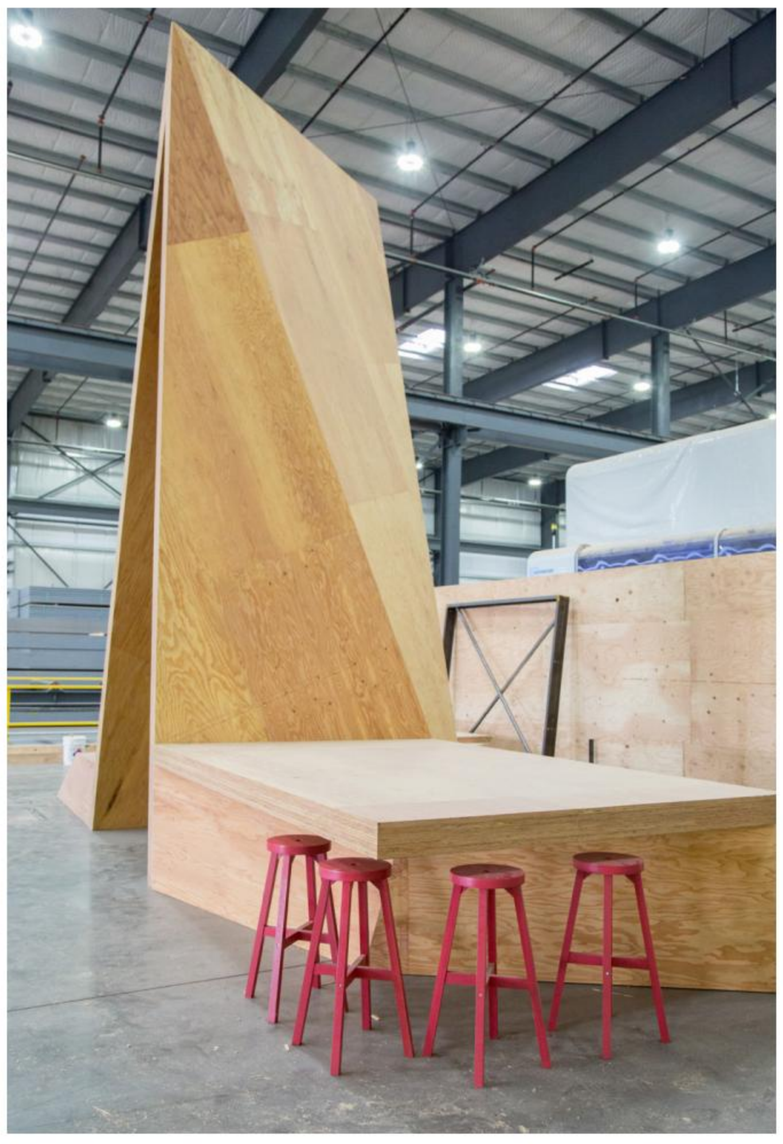
Mass timber continues to be crucial in delivering carbon-neutral and energy-efficient buildings that, as the following products attest, rise to match the demands of each project. KP





48-feet-span Glulam Truss | Mid-Atlantic Timberframes
matfllc.com

For a carbon-neutral dining hall at Swarthmore College, Mid-Atlantic Timberframes arrived at a 48-feet-span glulam truss to support the shed dormer. The project features glulam columns on a 24-foot by 32-foot grid, topped by large glulam purlins; all in support of curved rafters on 16-foot centers. The roof's sweeping curvature is achieved with laminated deck boards that reach as long as 32 feet.



CLT 3100 m3 | Mercer Mass Timber
mercermasstimber.com

In California, Google Borregas is a 5-story, 182,500-square-foot office building that uses CLT 3100 m3. The project, led by Michael Green Architecture, features 14-foot cantilevered floor plates made possible by a wood–concrete composite system that connects the CLT panels with concrete.





CLT panels atop glulam columns | Timberlab
timberlab.com

A structural system of CLT panels atop glulam columns and girders was used to build Northlake Commons, a 275,000-square-foot, mixed-use project with 158,000 square feet of mass timber. This system meets one of the most strict vibration requirements in any building type, which can often be difficult to achieve with mass timber.

Mass Ply Panels | Freres Engineered Wood
frereswood.com

Shown in Portland International Airport's new terminal, Freres Mass Ply Panels make up 400,000 square feet of the mass timber roof. Almost 75 percent of the wood fiber used in the panels is salvaged from the 2020 Labor Day wildfires in Oregon, and 100 percent of the material was sourced from Oregon fiber.

Curved DLT Panels | International Timberframes
itimberf.com

International Timberframes developed curved dowel-laminated timber panels made from hand-cut wood to help better select the best notches and faces. The curved panels offer a greater variety and ease in mass timber designs that are unique to the market.

62 Mapping Mass Timber

_AN_ shares its 2024 map of the schools, organizations, and manufacturers leading the way in mass timber research and development. This emergent technology changes quickly, so _AN_ continues to track developments annually and report regularly on mass timber innovation in North America.

Schools

1 University of Northern British Columbia
Prince George, British Columbia
The University of Northern British Columbia's (UNBC) Master of Engineering in Integrated Wood Design is a unique year-long program that focuses on modern wood structures. The MEng program is housed in the Wood Innovation and Design Center in downtown Prince George, and the program features the Wood Innovation Research Lab, a lab designed to Passive House standards where researchers test next-generation materials.

2 University of British Columbia
Vancouver, British Columbia
The University of British Columbia's campus is home to one of the tallest mass timber buildings in the world, the 18-story Brock Commons Tallwood House. This student housing project was supported by the Canadian government's Tall Wood Building Demonstration Initiative. This building helps ease the student housing shortage on campus and serves as a living lab where researchers study the long-term performance of mass timber structures.

3 University of Alberta
Edmonton, Alberta
The Advanced Research in Timber Systems (ARTS) group is part of the department of civil and environmental engineering at the University of Alberta and is led by Professor Ying Hei Chui, the chairholder of the NSERC Industrial Research Chair in Engineered Wood and Building Systems. The ARTS group focuses its research on the next generation of mass timber construction with new connection techniques. This field includes the structural and serviceability performance of mass timber elements, especially the performance of lateral load-resisting systems. ARTS's goal is to move from light wood-frame to mid- and high-rise mass timber construction market.

4 Washington State University
Pullman, Washington
At Washington State University's Composite Materials & Engineering Center (CMEC), the Wood Materials & Engineering laboratory allows students to get hands-on experience with the design, testing, fabrication, and construction of CLT panels. CMEC has partnered with resin suppliers and construction companies to design, certify, and test mass timber systems for new and existing markets.

5 Oregon State University
Corvallis, Oregon
Oregon State University's (OSU) College of Forestry is home to the TallWood Design Institute (TDI), a collaboration between OSU's College of Engineering and the University of Oregon's College of Design. At TDI researchers and practitioners drive research and education on advanced timber product manufacturing, design, and construction. TDI is working on multiple projects focused on durability, adhesives, seismic and fire performance, to name a few subjects. Key partnering facilities include the George W. Peavy Forest Science Center and the A. A. "Red" Emmerson Advanced Wood Products Laboratory at OSU.

6 University of Oregon
Eugene, Oregon
The University of Oregon was awarded $1.1 million from the National Science Foundation in 2023 to support the university's efforts in innovations in mass timber architecture, engineering, and construction in the Pacific Northwest. The funding has helped university researchers tackle the challenges that Oregon and Washington residents face, from the housing crisis to climate change, by seeing mass timber as a solution.

7 Colorado School of Mines
Golden, Colorado
The Colorado School of Mines used a four-year, $1.7 million National Science Foundation grant to develop mass timber structures designed for seismic performance in earthquake-prone regions. With the goal of proving that sustainable timber buildings are just as safe as those built with more conventional materials and with higher resilience standards, the group has successfully tested a two-story building and a 10-story building on UC San Diego's "shake table" as part of the NHERI TallWood Project.

8 Texas A&M University
College Station, Texas
The School of Architecture has conducted studios and building experiments about mass timber, including the realization of a "construct" object fabricated by students led by Assistant Professor James Michael Tate. The school is also unique in that it's home to the Texas A&M Forestry Service, the current form of Texas's statewide forest authority, originally founded in 1915.

9 Rice University
Houston
Rice University is a leader in mass timber education in Texas. Its research is led by School of Architecture professors Albert Pope and Jesús Vassallo. Notably, the school is also home to Texas's first mass timber structure: The New Hanszen College Wing is a CLT structure designed by Barkow Leibinger with Kirksey Architecture, and 166 beds.

Organizations

1 Forestry Innovation Investment
Vancouver, British Columbia
Publicly owned and funded by the provincial government, Forestry Innovation Investment is British Columbia's wood products marketing agency. The agency works to sustain the Canadian timber industry by developing new market segments and export markets, advancing wood use and construction technologies, and marketing outreach to position forest products.

2 APA—The Engineered Wood Association
Tacoma, Washington
This nonprofit trade association represents and regulates engineered wood manufacturers in North America and promotes innovative solutions and improved practices. Founded in 1933 as the Douglas Fir Plywood Association to advance the interests of the burgeoning Pacific Northwest plywood industry, it now publishes a series of newsletters and hosts a product and resources library.

3 Softwood Lumber Board (SLB)
West Linn, Oregon
SLB is an industry-funded initiative established to promote the benefits and uses of softwood lumber products in outdoor, residential, and nonresidential construction. Programs and initiatives supported by SLB focus on increasing the demand for appearance and structural softwood lumber products in the United States, including mass timber and hybrid building systems.

4 Think Wood
West Linn, Oregon
Think Wood provides commercial, multifamily, and single-family home design and build resources to architects, developers, and contractors. In addition to its online educational resources, including e-books and continuing education units related to tall wood and mass timber, the organization identifies and profiles projects and professionals using North American softwood products in innovative ways.

5 Oregon Mass Timber Coalition
Portland, Oregon
The coalition is a partnership between leading research universities and government agencies. The effort includes the University of Oregon, Oregon State University, TallWood Design Institute, the Oregon Department of Land Conservation and Development, Business Oregon, Oregon Department of Forestry, and the Port of Portland. Together they aim to support and expand the growing mass timber industry in the region and promote sustainable practices.

6 Forest Business Network
Missoula, Montana
The Forest Business Network (FBN) helps businesses that manufacture, design, and sell products made from both hardwood and softwood. FBN offers timber consulting services based on its expertise in "underutilized timber and woody biomass," which include business assistance, grants, and custom reports.

Manufacturers

1 StructureCraft
Abbotsford, British Columbia
(CLT, DLT, NLT, glulam beams, LVL, LSL, PSL)
StructureCraft is an engineer-led construction firm that creates a multitude of mass timber products, including its signature DowelLam, the first all-wood panel manufactured without glue or nails in North America. Its team includes engineers of record, computational designers, fabricators, and builders. Bringing craft traditions to high-tech construction, StructureCraft partners with architects, owners, and general contractors across North America and abroad to engineer-build timber and hybrid structures.

2 Massive Canada Building Systems
Port Moody, British Columbia
Massive Canada is a mass timber and modular building manufacturer in British Columbia. They have upcoming manufacturing facility projects with an aim to help affordable housing in the region, as well as helping British Columbia achieve their sustainability goals by using mass timber. They have interesting planned projects including North America's first underground parking garage using mass timber to reduce the amount of heavy carbon footprint materials like concrete, cement, and steel.

3 Western Archrib
Edmonton, Alberta, and Boissevain, Manitoba (Glulam)
From two facilities in Boissevain, Manitoba, and Edmonton, Alberta, Western Archrib designs and manufactures glue-laminated structural products, including beams, columns, studs, and decking. It also provides custom fabrication with 3D-modeling software for CNC framing, steel connections, and finishes

4 Mercer Mass Timber
Spokane, Washington; Penicton, British Columbia; Conway, Arkansas (CLT and glulam)
Mercer Mass Timber has three factory locations, two of which are on the West Coast: a 37-acre facility in Spokane, Washington, and a three-facility factory complex in Penicton, Canada. Mercer purchased Structurlam in 2023, and its location in Penicton, Canada, is a former Structurlam factory.

5 Vaagen Timbers
Colville, Washington (CLT, glulam beams)
Vaagen Timbers uses high-tech milling machines to produce products at its Colville, Washington, facility, as well as at two other sites in Usk, Washington, and Midway, British Columbia. It uses lumber-scanning technology and a portable HewSaw machine to handle underutilized small logs.

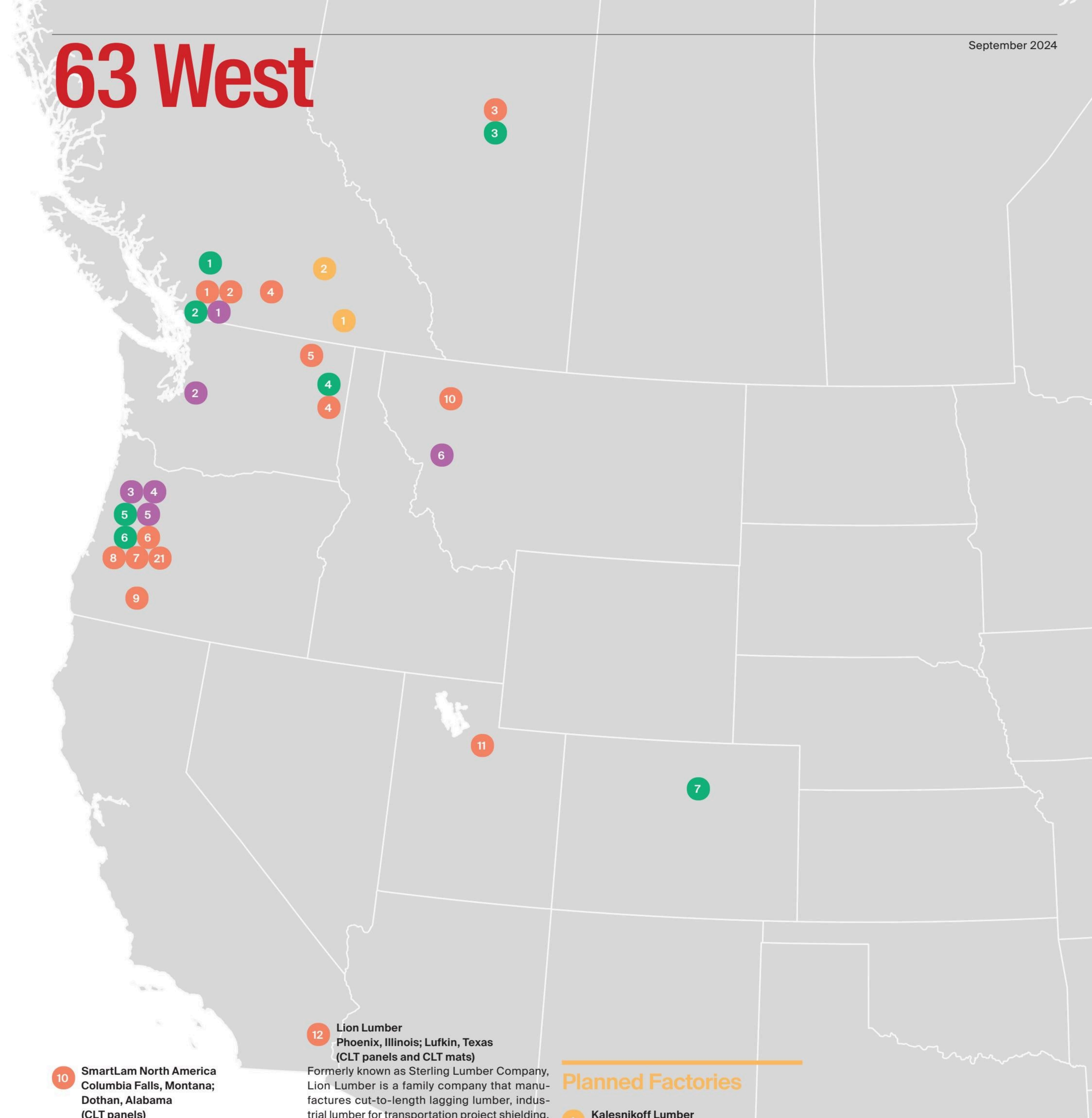
6 CutMyTimber
Portland, Oregon (Timber product processing)
According to the U.S. Forest Service, CutMyTimber is among the top timber product processors in the United States—a growing subsector in the field of manufacturing. With offices in Portland and North Vancouver, Canada, the company uses CNC machines to create customized products or building systems for projects around the world.

7 Freres Engineered Wood
Lyons, Oregon (Mass plywood panels)
Freres Engineered Wood's mass plywood panels (MPPs) are a composite, veneer-based engineered wood product that can be produced using 20 percent less wood than CLT panels. With its MPPs and mass plywood lams, Freres Engineered Wood is certified to produce every structural element for a multistory mass timber structure. Specializing in using small-diameter wood for engineered wood products, Freres now has an Environmental Product Declaration and a life cycle assessment that substantiates its closed-loop, environmentally sustainable manufacturing processes.

8 Rosboro
Springfield, Oregon (Glulam, LVL, parallel strand lumber)
Rosboro is the largest producer of glulam beams in North America. Other than its diverse range of Douglas fir glue-laminated timber products, it also produces sawn lumber and studs made from regional tree species. While it has operated two Oregon factories in Springfield and Veneta, it announced a temporary closure of the Springfield location in February and laid off 25 workers.

9 DR Johnson Wood Innovations
Riddle, Oregon (CLT panels, glulam beams)
DR Johnson was the first company in the United States to obtain American National Standards Institute (ANSI) certification to manufacture CLT panels. The second-generation, family-owned saw and its affiliate company, Riddle Laminators, has been making glulam beams from Douglas fir and Alaskan yellow cedar for over 50 years.

63 West



10 **SmartLam North America**
Columbia Falls, Montana; Dothan, Alabama
(CLT panels)

SmartLam produces CLT panels for floors, walls, roofs, and elevator and stair shafts. It supports its products with design, engineering, and consulting services. The company owns two facilities in Montana and the Southern pine lumber factory in Dothan, Alabama.

11 **Euclid Timber Frames**
Heber City, Utah
(ICLT panels and framing)

Euclid manufactures interlocking cross-laminated timber (ICLT) for walls and roofs as well as full-service wood framing. Unlike CLT, ICLT panels are produced without fasteners or adhesives, relying instead on tongue-and-groove and dovetail joints. Euclid Timber Frames has developed a unique sustainable building system using no chemicals, improving the health of the building's occupants while improving the environment.

12 **Lion Lumber**
Phoenix, Illinois; Lufkin, Texas
(CLT panels and CLT mats)

Formerly known as Sterling Lumber Company, Lion Lumber is a family company that manufactures cut-to-length lagging lumber, industrial lumber for transportation project shielding, and pallets and skids for shipping and unloading. Specializing in CLT, Lion Lumber also offers design and build services for custom work. In 2021, it opened a massive new facility in Lufkin, Texas, where it continues to make its signature TerraLam mat.

21 **Timberlab**
Wilamette Valley, Oregon

This year, Timberlab announced the acquisition of American Laminators, an important manufacturer of glulam. Timberlab will subsequently take over American Laminators's two existing factory sites in Oregon, conduct renovations and upgrades, and ultimately add to its inventory of North American manufacturing. Additionally, Timberlab announced earlier this year plans to erect a new ground-up CLT manufacturing facility in the same region. The new building is to be made entirely of CLT itself.

Planned Factories

1 **Kalesnikoff Lumber**
South Slocan, British Columbia
(CLT panels, glulam beams)

Kalesnikoff Lumber is opening a CAD$35 million plant in South Slocan, British Columbia. The 110,000-square-foot factory is the 81-year-old company's first foray into mass timber.

2 **Massive Canada Building Systems**
Williams Lake, British Columbia

The government of British Columbia invested CAD$10 million for Massive Canada's CAD$75 million mass timber manufacturing facility project. Massive Canada Building Systems is currently renovating an existing 91,000-square-foot manufacturing plant that will produce prefabricated laneway homes, apartment units, commercial projects, and townhouses using mass timber. This is an effort to reduce construction time, generate more affordable housing, and reduce carbon emissions in British Columbia.

64 Mapping Mass Timber

Schools

10 Lakehead University
Thunder Bay, Ontario

Lakehead University's Faculty of Natural Resources Management, the school's forestry program, focuses on the stewardship of both public and private forested landscapes, with the intention of reaching a balance between ecological sustainability, economic viability, and societal acceptance of prescribed land use.

11 Laurentian University,
Sudbury, Ontario

Laurentian University's McEwen School of Architecture emphasizes timber architecture design and hands-on knowledge of wood craftsmanship in its curriculum. In 2017, the school completed a new building with a wing constructed of CLT that houses an atrium with a wood-burning fireplace, a classroom, and a lecture hall on the ground floor, the school's library on the second floor, and a green roof and terrace. The building, designed by Toronto firm LGA, won an Ontario Wood WORKS! Wood Design Award and an OAA Design Excellence Award. The school also became the 12th accredited architecture program in Canada in 2021.

12 George Brown College
Toronto

Limberlost Place is an upcoming 10-story academic building on George Brown College's campus that will be made of mass timber sourced within Canada. Construction for Limberlost Place is set to complete in January 2025. Once complete, the building will house the Tall Wood Building Research Institute, a forum for students and faculty to research and develop ideas related to mass timber construction.

13 University of Toronto
Toronto

The University of Toronto has plans to build a Academic Wood Tower that will reach a height of 14 stories on its St. George campus. Designed by Patkau Architects and MJMA, the timber-and-concrete hybrid tower will serve as a mass timber demonstration project in Canada's largest city. The country's federal and Ontario governments provided initial funding for this initiative.

14 University of Ottawa
Ottawa

The University of Ottawa's Department of Civil Engineering is home to the Sustainable Materials and Construction research program. It focuses on low-carbon, renewable and bio-sourced building materials; energy-efficient and green building systems; and bioclimatic buildings.

15 University of Maine
Orono, Maine

The Maine Mass Timber Commercialization Center based at the University of Maine is working with regional stakeholders to promote construction of mass timber buildings, promote CLT manufacturing through development of a business attraction package, support high performance grades from SPFs lumber, and conduct analysis of carbon impacts of mass timber construction.

16 Michigan State University
East Lansing, Michigan

MSU has realized the state's first mass timber building and operates MassTimber@MSU, a multidisciplinary partnership between the Department of Forestry; the School of Planning, Design and Construction; and the Center for Community and Economic Development. Students are developing mass timber adhesives made from lignin, tools to predict construction costs and timelines for mass timber buildings, and mass timber made from salvaged lumber content.

17 University of Massachusetts Amherst
Amherst, Massachusetts

Within the Building and Construction Technology program at the University of Massachusetts Amherst, researchers received National Science Foundation and state funding to model and test advanced angle-ply CLT panels made with underutilized tree species eastern hemlock and eastern white pine. The research is conducted inside a CLT building designed by Leers Weinzapfel Associates.

18 Yale University
New Haven, Connecticut

The Yale School of Architecture offers a joint degree with the university's School of Forestry & Environmental Studies that focuses on sustainable architecture alongside ecology and policy. The two schools have also partnered with local architecture firm Gray Organschi to support the Timber City research initiative, which is funded by the U.S. Department of Agriculture (USDA). Additionally, a number of interdisciplinary consortia within Yale have established platforms for mass timber research, including the Yale Carbon Containment Lab.

19 Virginia Tech
Blacksburg, Virginia

Researchers at Virginia Tech have been experimenting with mass timber for more than a decade. In 2018, faculty and students at the School of Architecture designed a CLT train-watching tower as part of a tourism development plan in Radford, Virginia. Their project was completed in September 2019 and recognized by the AIA Blue Ridge design awards.

65 East

20 University of Arkansas
Fayetteville, Arkansas
The University of Arkansas is unique in its timber- and wood-specific design programs. Dean of The Fay Jones School of Architecture, Peter MacKeith, is also curating the U.S. Pavilion at the 2025 Venice Biennale which interrogates the American porch typology. The Urban Design Build Studio (UDBS) at the University of Arkansas planned courses that explore the state's rich forest lands. The STREET LEGAL advanced design-build studio course was a recipient of The Softwood Lumber Board and the Association of Collegiate Schools of Architecture (ACSA) 2023 Timber Education Prize.

21 Clemson University
Clemson, South Carolina
Through the Wood Utilization + Design Institute, Clemson University's engineers and architects are innovating with mass timber. In late 2018, the university's school of architecture patented the result of multiyear research into Sim[PLY], a wood construction system that the school has already used to build multiple structures.

22 Georgia Tech
Atlanta
The university is now home to the Kendeda Building for Innovative Sustainable Design, designed by Miller Hull in collaboration with Lord Aeck Sargent.

24 Auburn University
Auburn, Alabama
Auburn University received a 2023 Wood Innovation Grant to establish a Mass Timber Collaborative. The collaborative is an interdisciplinary project comprised of three colleges: the College of Forestry, Wildlife and Environment, and the Samuel Ginn College of Engineering, and the College of Architecture, Design and Construction. It will expand and accelerate the adoption of mass timber-based building construction technologies and be led by Tom Chung and Kiel Moe.

Organizations

7 FPInnovations
Pointe-Claire, Quebec
FPInnovations, active in Quebec City, Montreal, and Vancouver, Canada, is a nonprofit timber construction research institute covering topics like forestry management and construction products. Currently, FPInnovations has a team devoted to advanced timber building systems and finding efficient acoustic and structural solutions for projects of every scale.

8 Mass Timber Institute (MTI)
Toronto
The MTI, located within the Daniels Faculty of Architecture, Landscape, and Design at the University of Toronto, is a partnership of academic institutions, government, and industry. The MTI positions Canada as a global leader in mass timber research and education and in the export of sustainable mass timber products. Its research and teaching interests include sustainability and society; building science and constructability; Indigenous participation and reconciliation; manufacturing, design, and supply chains; trade and export diversification; and analytics and data synthesis.

9 Canadian Forest Service
Ottawa
The Canadian Forest Service is an arm of the Canadian federal-government department Natural Resources Canada. Operating from a central office in Ottawa and six other research facilities throughout the country, the service fosters environmental leadership, sustainable forest management planning and policies, and ongoing scientific research.

10 Canadian Wood Council
Ottawa
Much like its American counterpart, the Canadian Wood Council represents wood product manufacturers, develops design and technical standards, and works to ensure its resources are available to professional and academic communities.

11 Forest Products Association of Canada
Ottawa
The Forest Products Association of Canada represents the country's paper, pulp, and wood industries nationally and internationally. It specializes in environmental leadership, forestry management practices, product innovation, workforce advocacy, and other economic and trade efforts.

12 WoodWorks
Quebec
WoodWorks was created by the Canadian Wood Council and is delivered by Cecobois in Quebec to increase the use of wood construction for mid-rise and tall buildings in Canada. WoodWorks is a resource for education, training, and technical support for building tall with timber.

13 Boston Mass Timber Accelerator
Boston
Led by the Boston Society for Architecture, alongside government agencies, this initiative aims to help Boston achieve its goal of being a carbon neutral city by 2050. By promoting mass timber constructions, the Boston Mass Timber Accelerator (BMTA) will help decrease carbon emissions from construction. BMTA selects construction projects utilizing mass timber and provides funding and technical assistance to the design teams.

14 NYC Mass Timber Studio
New York City
In an effort to help NYC achieve its carbon reduction target, the New York City Economic Development Corporation (NYCEDC) will provide $25,000 grants to selected teams with specific mass timber analysis or design projects. The grants will be awarded for teams in the early phases of project planning and design. The Studio initiative will be overseen by NYCEDC and the Mayor's Office for Climate and Environmental Justice in collaboration with the USDA Forest Service and the Softwood Lumber Board. WoodWorks will provide technical assistance and AIA New York and the NYC Department of Buildings will provide advisory support.

15 Mass Timber Accelerator Atlanta
Atlanta
The Georgia Forestry Foundation and partners founded the Atlanta Mass Timber Accelerator as part of its Seedlings to Solutions campaign. The goal is to educate people about the cycle of sustainable forestry and the potential for mass timber as a circular economy specifically in Georgia. But beyond education, the Accelerator will also award grants up to $25,000 to project teams.

16 American Wood Council (AWC)
Leesburg, Virginia
The AWC is the leading voice for America's structural wood products industry. In addition to advocating for public policies that benefit the wood industry, the AWC promotes opportunities for wood products and mass timber in codes and regulations. It also provides American National Standards Institute–accredited design specifications along with education and training on proper wood design and construction. The AWC is partially funded by the Softwood Lumber Board.

17 American Forest & Paper Association (AF&PA)
Washington, D.C.
AF&PA advances public policies and funds research to support the production of wood products in the U.S., particularly pulp, paper, and packaging. It also supports wood manufacturing across the globe and promotes sustainable growth of the U.S. forestry industry. It has collected data on the resilience of mass timber to promote acceptance of wood building systems.

18 U.S. Forest Service (USFS)
Washington, D.C.
As part of its mission to manage and protect national forests and grasslands, the USFS works with public and private agencies to build markets for sustainable wood products. One such product is CLT produced from dead and dying trees, the harvesting of which could help control the spread of forest fires. The Wood Innovations Program provides funding for projects utilizing CLT and other wood materials.

19 WoodWorks - Wood Products Council
Washington, D.C.
WoodWorks – Wood Products Council provides architecture, engineering, and construction professionals with free technical support related to the design and construction of commercial and multifamily wood buildings, including mass timber structures. The Council also helps educate professionals about wood construction through events, publishes technical resources, and connects developers and project teams through the WoodWorks Innovation Network. The Council is partially funded by the Softwood Lumber Board and the U.S. Forest Service.

Manufacturers

4 Mercer Mass Timber
Spokane, Washington; Penicton, British Columbia; Conway, Arkansas
(CLT and glulam)
Mercer purchased Structurlam in 2023, and its location in Conway, Arkansas, is a former Structurlam factory.

13 Nordic Structures
Montreal
(I-joists, CLT panels, glulam beams)
Nordic Structures sustainably manufactures industrial-grade CLT panels, I-joists, and glulam beams. The company has expertise in engineered wood products and mass timber construction with vertical integration from forest to structure. Its resource comes from responsibly managed lands within the regional boreal forest. Vertical integration, from forest to structure, bolstered by Nordic's experienced design and development team, ensures consistent quality and unparalleled level of service.

14 Structure Fusion
Saint-Augustin-de-Desmaures, Quebec
(Glulam, hybrid timber beams, fabrication)
Structure Fusion is a Canadian company that specializes in wood construction. Formerly known as Massif Technologies, that company was acquired by Canam Group rebranded into Structure Fusion. The Canam Group is a multinational that designs and manufactures products and solutions for the construction industry, and Structure Fusion specializes in timber structures.

15 Element5
St. Thomas, Ontario, and Ripon, Quebec
(CLT, glulam, NLT, CLIPs, Boxx panels)
Element5 manufactures CLT and glulam in Ontario and is Ontario's only CLT and glulam manufacturer. The company produces the widest-format panels of any CLT plant in North America. It also manufactures several value-added, CLT-based components including hollow-core floor and roof panels and Cross-Laminated Insulated Panels (CLIPs), which offer a prefabricated, high-performance building envelope that can be quickly assembled for rapid building enclosure. The company Element5 is a dedicated team of designers, craftspeople and assembly experts and serves a community of forward-thinking architects, owners, developers, and general contractors to help effect change by providing timber construction cost consulting, design consulting, engineering, fabrication and assembly services. The goal is to make a positive contribution to communities, the environment, and future generations.

16 Timber Systems
Lapeer, Michigan
(Glulam, sawn timber)
Timber Systems installs, fabricates, and designs mass timber structural components. With a wide array of timber products, its product catalog includes glulam and solid sawn timber, decking, bridges, and shelters. Their services range from simple suggestions on upcoming projects to three-dimensional CAD design, detailed engineering analysis, and timber procurement.

17 Bensonwood
Walpole, New Hampshire
(CLT, NLT, glulam, fabrication)
Bensonwood collaborates with architects and engineers to build small and large projects in mass timber and CLT from suppliers like Nordic Structures. A special division uses offsite manufacturing to build timber frames with CNC milling machines that are assembled by hand. The company also offers OpenHome, a design system from sustainable architecture pioneers Lake|Flato Architects and KieranTimberlake. Sustainably built and designed to current expectations for home health, comfort, and style, every OpenHome design can be built to Passive House certification standards—meeting the needs of today's generation should never come at the expense of tomorrow's.

18 Texas CLT
Magnolia, Arkansas
(CLT mats)
Texas CLT is an investor group that reopened the defunct Arkansas Laminating mill in Magnolia, Arkansas, where it produces CLT mats made from Southern pine and Douglas fir. Texas CLT also provides custom laminated timbers throughout the United States.

19 Sauter Timber
Rockwood, Tennessee
Established in 2002, Sauter Timber was the first wood component joinery service to set up shop in North America. The organization expanded its offerings in 2010 to include CNC services for mass timber products like CLT and glulam, as well as other timber frame components, SIP panels, and hybrid home and log home components. In 2014, the company expanded its production facility by adding on a 17,000-square-foot building made of a glulam frame and CLT panels. It also uses a new Hundegger Robot Drive for mass timber products including CLT and glulam.

20 MTC Mass Timber Company
Halifax, Nova Scotia
The MTC Mass Timber Company has announced a planned $215 million new mass timber plant in Nova Scotia, a novel new venture that will bolster the region's timber production in close collaboration with First Nations peoples. Patrick Crabbe, director of mass timber with Bird Construction and leader of the MTC Mass Timber Company, spoke at a conference recently themed Indigenous Collaboration. He said he sees the venture as "a circular economic opportunity that is a diamond in the rough."

66 Resources

AN FOCUS
September 2024

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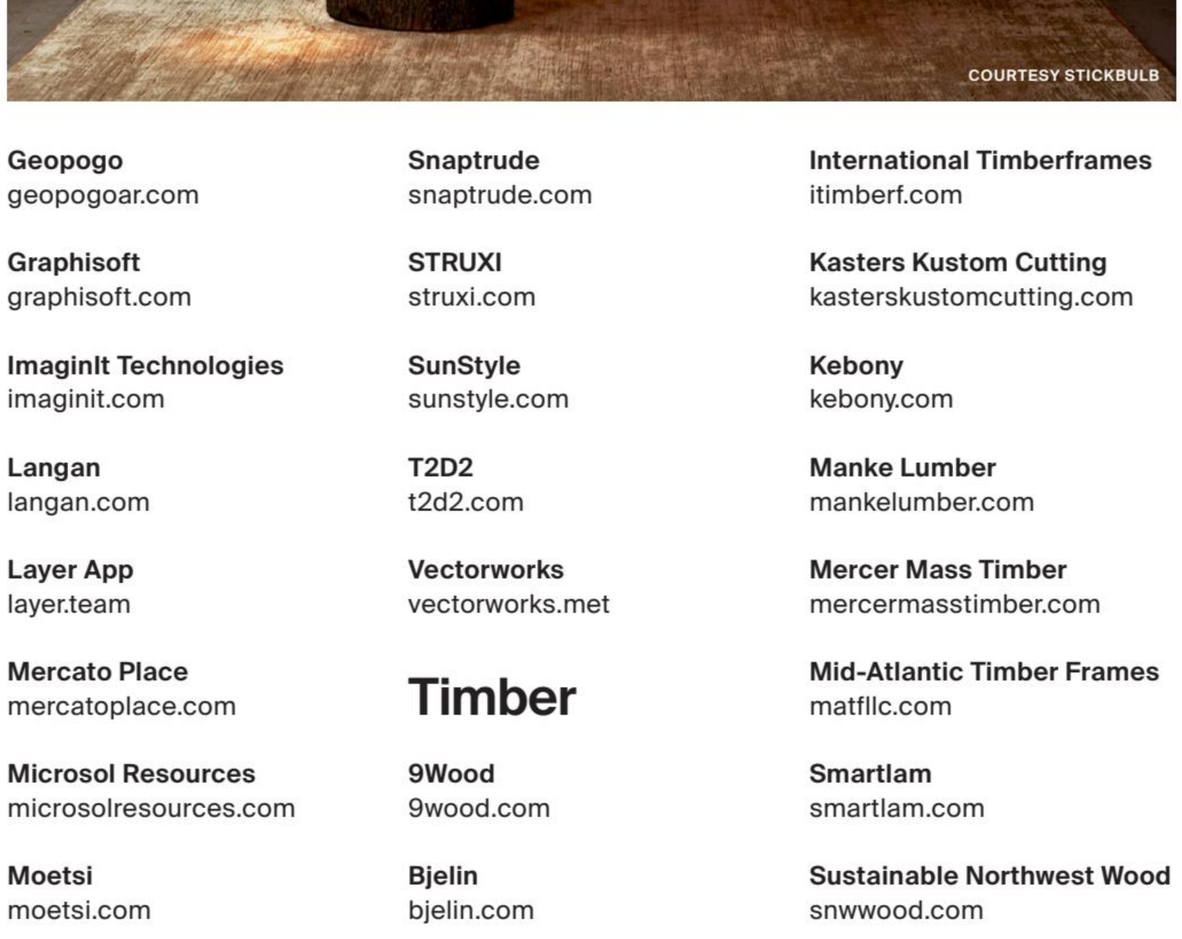
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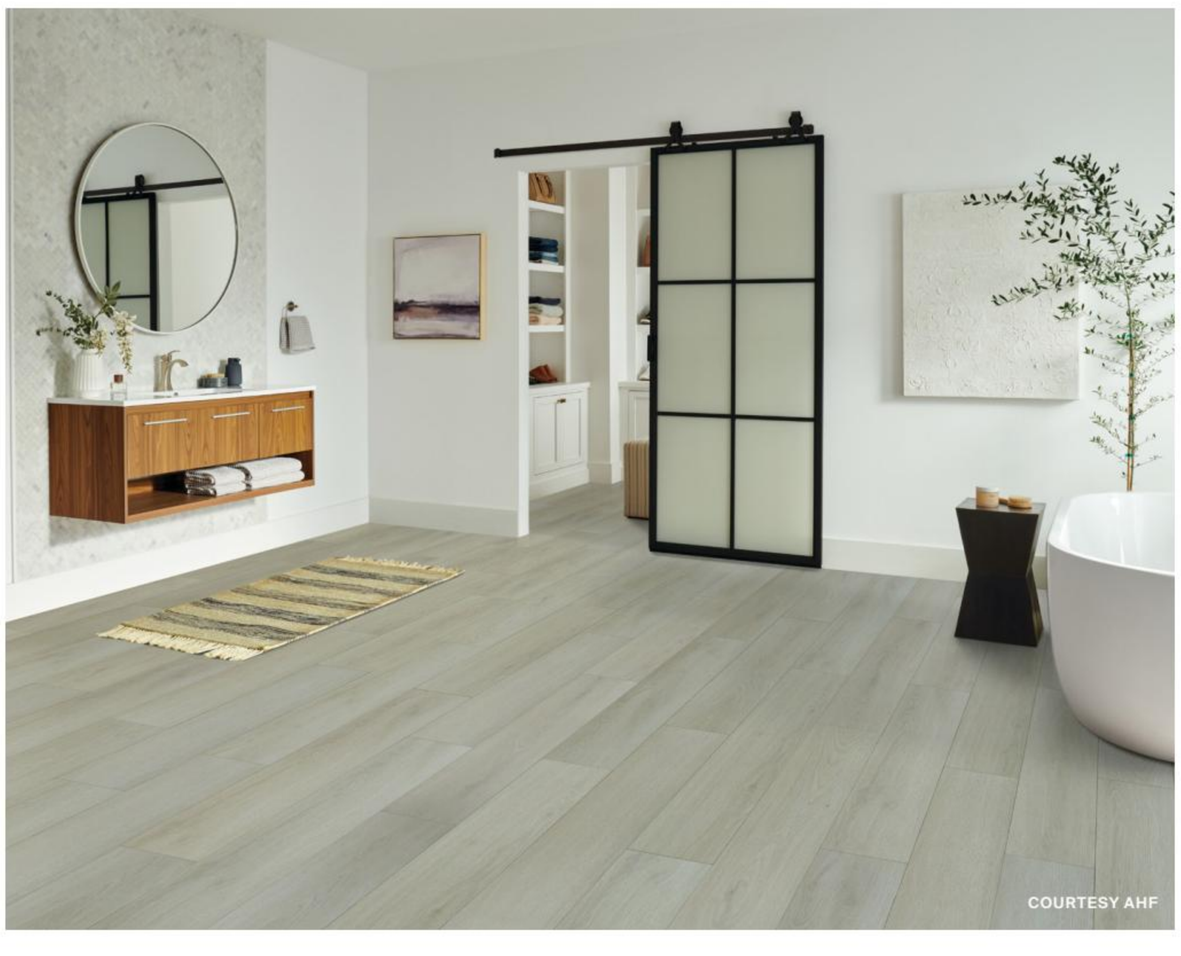
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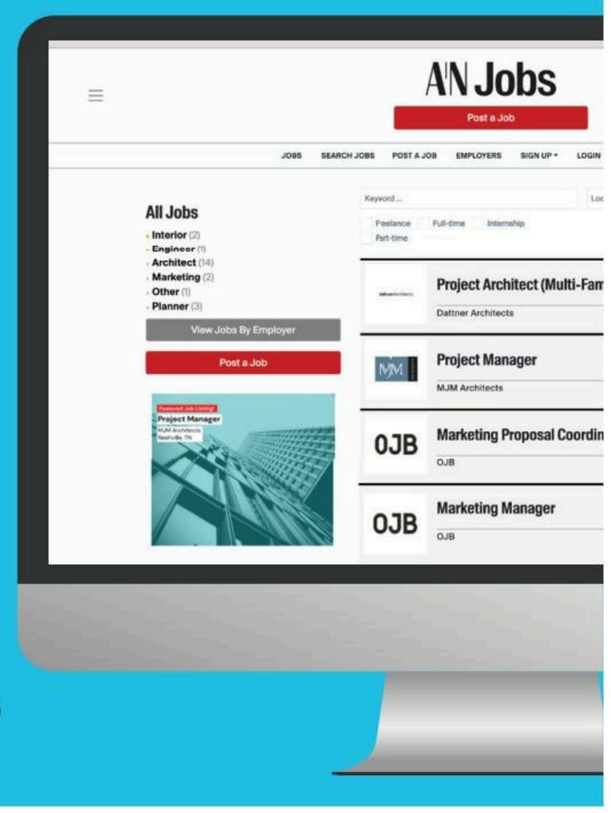
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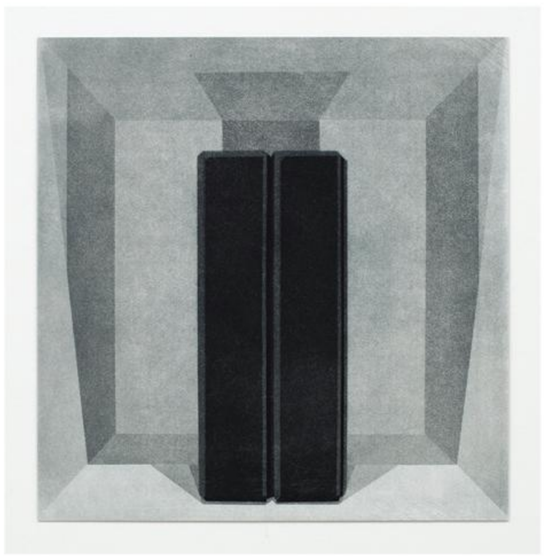
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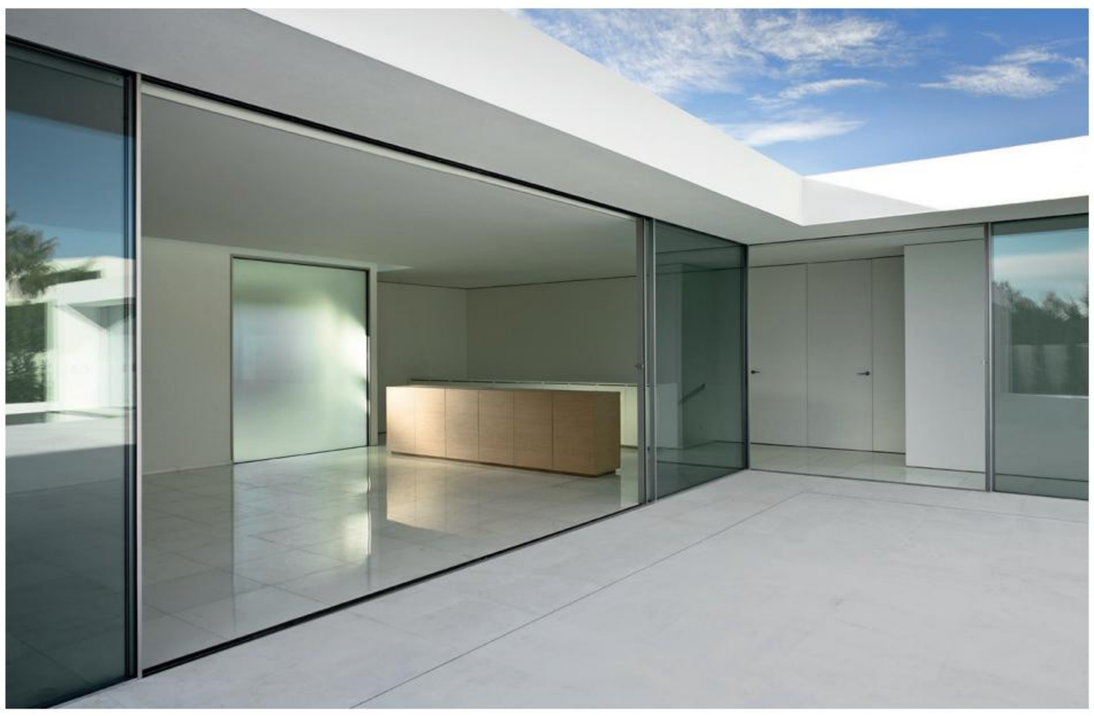
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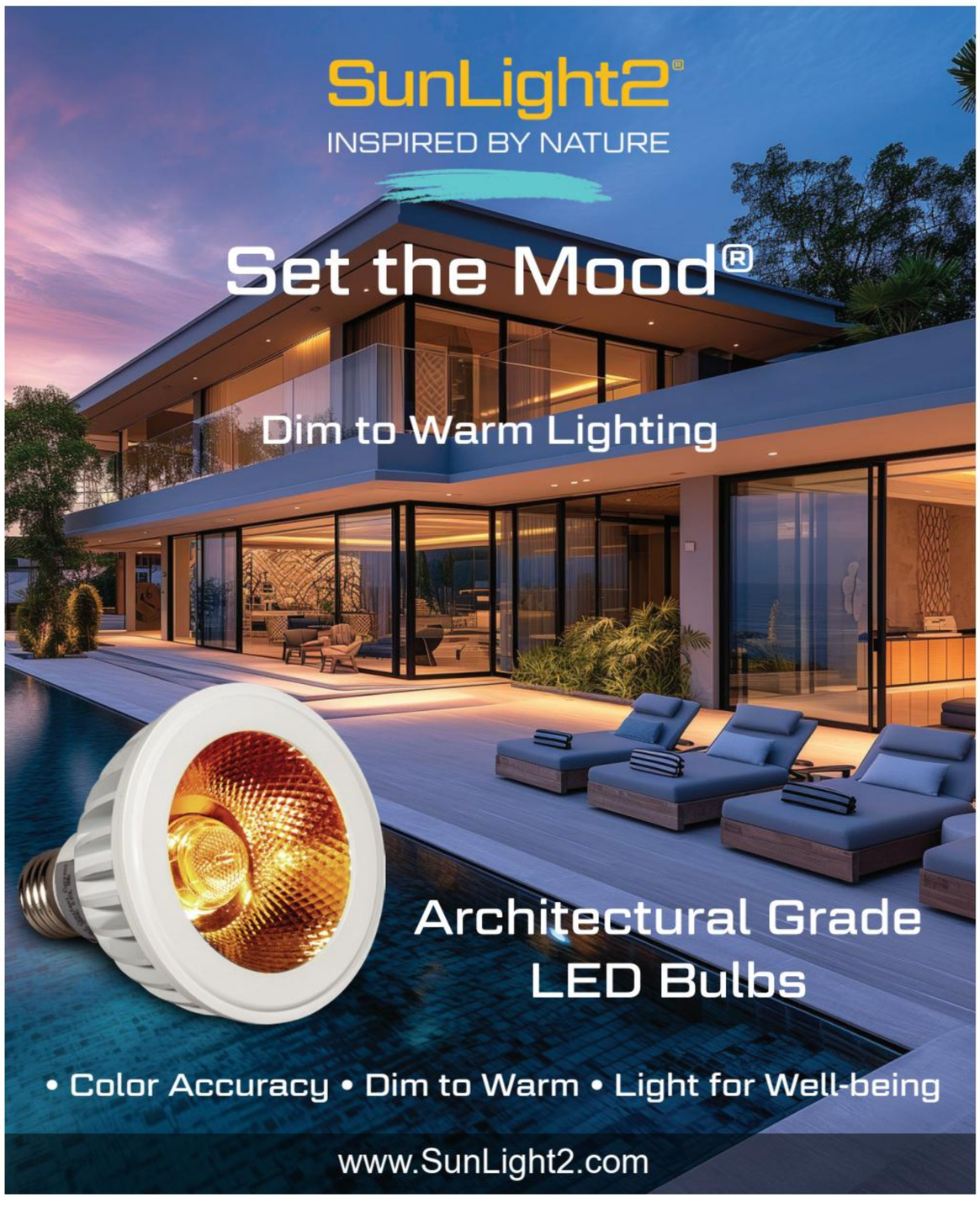


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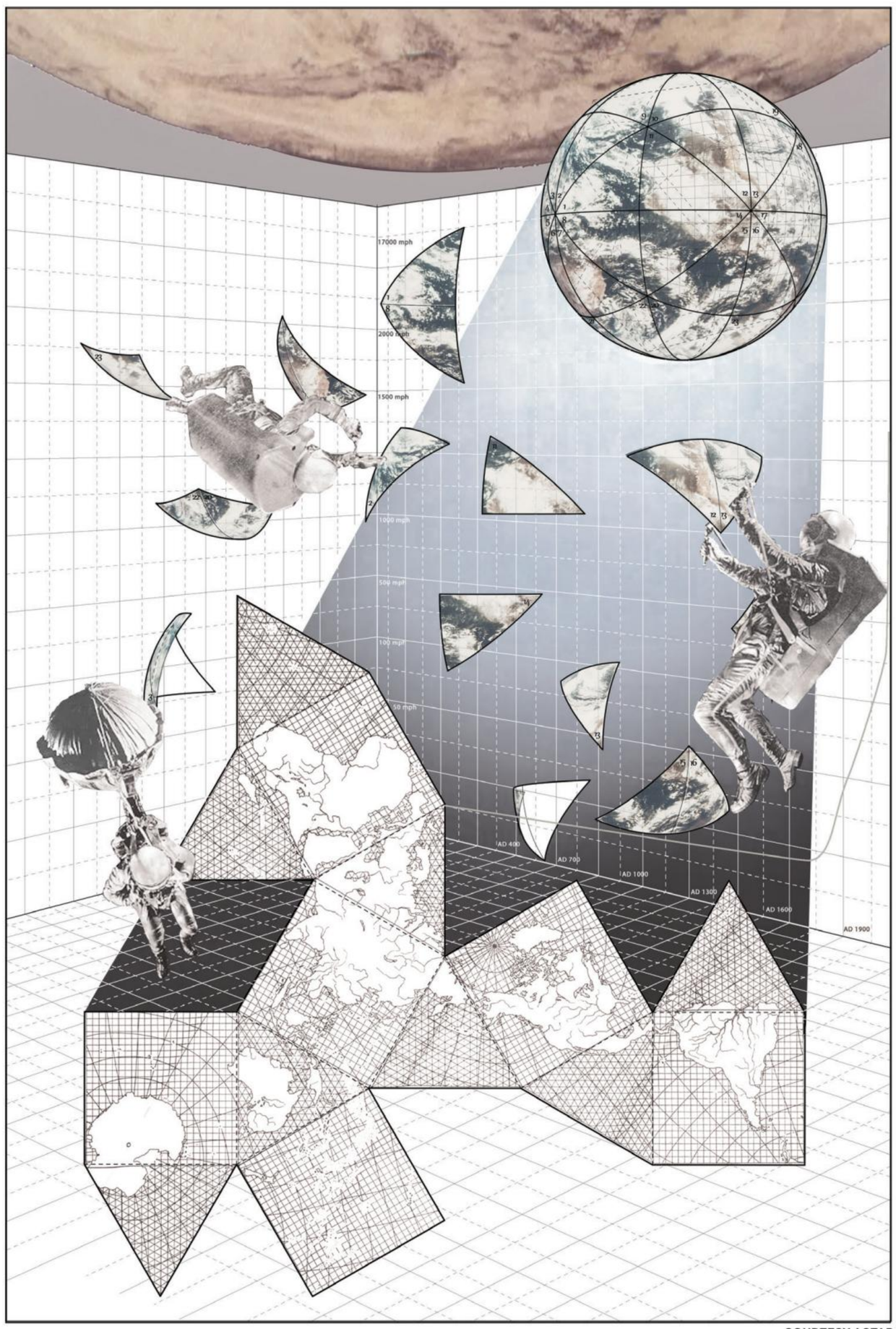
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70 Review

Histories of Ecological Design: An Unfinished Cyclopedia

Lydia Kallipoliti
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A diagram by Lydia Kallipoliti in her *Unfinished Cyclopedia* visualizes the "World Planners" lineage.

It's happening more and more recently: I scroll through social media and stumble upon a post that brings the urgency of climate change into focus. Depending on the day's algorithm, it might be a chart of rising global temperatures, a video of a city inundated with flood or famine, or a post from a politician defiantly unmoved by either form of evidence.

My anguish is caused by not only the apparent damage being waged against Earth, our one and only viable source of life, and the untold ripple effects that damage will cause. It is also the fact that, despite every attempt to exploit "nature," "the environment," and global "ecology," institutions still barely understand the concepts these terms attempt to define. These words are recklessly abused by overscaled industries (think of agriculture, construction, and transportation companies espousing "environmentally friendly" or "sustainable" products) to justify endless growth on a planet with finite resources. They engage with a system they do not fully understand and cause irreparable harm that remains stubbornly beyond their grasp.

Rather than succumb to helpless panic in the face of these great unknowns, Lydia Kallipoliti untangles the contemporary relationship between nature and culture in her latest book, *Histories of Ecological Design: An Unfinished Cyclopedia*. Her ability to place the efforts of "ecological design" within neat little boxes makes a messy history seem orderly. This method is slightly ironic, given her criticism of the rationalistic impulse to categorize, which gave birth to the fateful separation of nature and culture. Her unapologetic creation of hard and fast divisions, however, renders ecological design (a complicated practice, no matter how it is approached) legible to readers who will soon have to determine their position within a rapidly collapsing ecosystem.

Though it claims to be "unfinished" in her subtitle, the book is exhaustive. Everything from romanticism to the Vietnam War, according to Kallipoliti, has informed perceptions of ecology, the never-fully-resolved study of the relations between organisms and their surroundings.

Take her explorations of the home economics movement in the 19th century, for instance. It resulted in a women-led method of seeking connections between the cleanup of the home and the surrounding environment. She then jumps a century to provide a comparable analysis of the widespread disillusionment of the 1960s, which led youths to "drop out" of society and establish novel relationships with each other and their environment. Kallipoliti then arrives at the recent pandemic, in which Zoom meetings "became not only a digital outlet enabled by new media, but also a means of navigating beyond the egosphere of confinement."

The book's timeline reveals three distinct eras, labeled Naturalism (1866–WWII), Synthetic Naturalism (WWII–2000), and Dark Naturalism (2000–now). Each has, precisely enough, exactly six types of ecological designers. Kallipoliti's zoomed-out approach locates the rise of environmentalism more than a century before other contemporary accounts (such as *Emerging Ecologies*, a MoMA exhibition that closed early this year) and connects them to present-day encounters with the Anthropocene.

Toward the beginning, Kallipoliti provides a diagram that draws lines between ecological designer "types" of different eras. These indicate a genealogy of human responses to the global environment, albeit without much explanation. These actors are most often architects, but there is the occasional artist, scientist, or philosopher filling the more loosely defined role of "designer."

Sometimes these lines illustrate how prejudices from the 19th century have bled into the 21st (where, for instance, the racially coded practices of "Taxonomists" in the first era, such as Ernst Haeckel and Carolus Linnaeus, gave way to the all-encompassing visions of Buckminster Fuller and John McHale, the "World Planners" of the second era). In other instances, they show how environmental sensitivities have only grown sharper with time (Henry David Thoreau and Frank Lloyd Wright, the "Immersionists" of the first era, became the "Land Narrators" of the present day, such as Francis Kéré or Lesley Lokko).

Perhaps the *Cyclopedia*'s most valuable contribution as a speculative guidebook is its development of concrete terms for the range of responses to environmental anxiety—everything from corporate geoengineering to Indigenous repatriation—likely felt by anyone who picks up a copy.

"Resilients," for instance, are defined by their attempt to fight climate change head-on by "ensuring the readiness of cities, renewal of resources, and restoration of ecosystems." Kallipoliti places large corporate firms, such as Perkins&Will, in this category. The firm developed a proposal for counteracting flooding and sea level rise in Kingston, New York, that additionally serves as a new public space promoting the growth of local biodiversity. This, like other projects put forth by Resilients, implies a future of increasingly large-scale geoengineering projects designed to counteract our past mistakes as a species. She implies that Resilients are the descendants of "Urban Activists," though they adopt the historically problematic love of top-down planning and design associated with the World Planners.

By contrast, "Subnaturalists" have broader horizons. Rather than focus on a self-appointed responsibility for saving the world, they interpret the environment instead as a complex territory of relationships that cannot be so easily understood through the scientific method alone. This reorientation, Kallipoliti argues, presents designers "with opportunities to create deviant new natures out of contaminated conditions." In contrast to the plants and green carpets that often decorate "sustainable" architecture, she describes the work of Spanish architect Andrés Jaque as "architecture [that] can monitor, make visible, explain, and provide a medium through which climate evolution can be sensed." At MoMA PS1, for instance, Jaque installed a giant water purifier that "made the hitherto hidden urbanism of pipes amongst which we live visible and enjoyable."

Kallipoliti makes clear that ecological awareness, ultimately, can either lead designers down the path of humility or hubris. Because if the latter "is the ecological society to come," in the words of philosopher Timothy Morton, "then I really don't want to live in it."

Shane Reiner-Roth curates images of the built environment on the Instagram page @everyverything.

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Climatopias

We should question the role of utopia in ideating climate solutions.



The Line, a proposed emission-less city in the Saudi Arabian desert, is now under construction.

continued from cover From more inward, faith-based configurations to grand urban schemes, utopia remains synonymous with transformation.

Transformation is precisely what the climate research community is calling for when it comes to the climate crisis: a specific kind of solution tasked with doing it all, from reducing greenhouse gas emissions to adapting to and protecting us against worsening weather patterns. It's perhaps no surprise, then, that attempts at these all-in-one design schemes are proliferating. Design experts are heeding the call from scientists, policymakers, and the people demanding reduced reliance on fossil fuels and resiliency against climate catastrophe.

In recent years, there's been no shortage of glossy proposals for zero-carbon cities, carless cities, linear cities, modular cities, and even floating cities, all of which promise to revolutionize life as we know it. But are these plans truly utopic? This question has guided my research over the last several years while I examined the rise of utopic visioning, specifically as it pertains to the climate crisis. I have termed the products or outcomes of this thinking "climatopias." Climatopias are aspirational schemes for climate change that propose a mitigation and/or adaptation solution for the built environment and, critically, include a vision for sociopolitical transformation. This is what makes them utopic. Like all utopias, climatopias are neither inherently good nor bad; this falls to the beholder's eye. Many such proposals invoke concepts of utopia in their marketing materials, with some outright self-describing as such.

To architects and urban planners even 30 years ago, this would have been unseemly; throughout the postmodernist decades of the 20th century, utopia was roundly criticized for being a dangerous modernist fascination that emphasized the purity of design over human lives. It was largely rejected and eventually supplanted by our growing cultural interest in dystopias throughout the late 1980s and early 1990s (think *Bladerunner*). But as anyone thrifting for midcentury modern furniture knows, what goes around comes around. Utopia has once again returned to favor, running headfirst into a desperate public seeking to save ourselves from ruin.

The problem, however, is that many of these modern climatopia proposals fail to engage with the very qualities that make a utopia *utopic*: deep and sustained consideration of the social, economic, and political dimensions of human life. Our current technological landscape has further compounded the problem given photorealistic rendering capabilities that allow sensational imagery of alluring, climate-resilient futures to proliferate (a term that critic Kate Wagner has aptly coined 'PR-chitecture'). A climatopia thus becomes synonymous with a sleek car-free city in the desert rather than a proposal that actually addresses the underlying drivers of vulnerability and climate risk.

Asking this of architecture and urban planning alone might seem absurd or unfair. But there's a rich history of architectural and planning proposals that prove such designs can exist and indeed once did. Examples include the work of 18th-century French philosopher Charles Fourier, who proposed a communal form of living and working in the countryside called "phalansteries;" urban planner Ebenezer Howard's 19th-century garden city layouts; and architect Paolo Soleri's "arcologies" from the 1970s. All of these reexamined the role of property ownership, labor, social interactions, and access to nature in the quest for healthier, more equitable futures. Though some failed or fell short of their initial ambitions, they considered—and imagined—a more political architecture.

Despite bold assurances of utopian transformation, futuristic imagery distracts us from the deep-seated change required of society. Several recent design projects illuminate this issue. Oceanix City is a modular floating city concept unveiled in 2019 for coastal communities suffering from the impacts of flooding and sea level rise. While the concept of a floating city is indeed radical, and though its striking visuals certainly look utopic, the fundamentals of the design do not indicate that it would support attainable transformation for relevant populations, many of which are involuntarily pushed out of their homes. Similarly, Saudi Arabia's The Line, a proposed linear city in the desert powered by renewable energy, claims to be a "revolution in urban living." As far as city typologies go, it is unprecedented, but the emissions savings from being operationally zero-carbon are no doubt undone by the construction of such a city in the first place. Furthermore, the project shows scant interest in economic and political transformation for inhabitants, current or prospective. (Last time I checked, these are requisite features of a revolution.)

Oceanix's prototypical floating city would be moored at Busan, South Korea's largest port.



One recent proposal that has set out to consider a more comprehensive set of societal dimensions is Telosa. Conceived by tech billionaire Marc Lore and announced in 2021, Telosa is a proposal for a net-zero, carless city in the American Southwest that will operate according to a more equitable economic and political model called "Equitism." As the value of the land grows, the profits generated will go back into the city rather than into developers' pockets. Matters of governance and decision-making are to be participatory and transparent. While ambitious, the project is still without a confirmed location three years later.

As we seek answers to the challenges of building toward transformation, there may be other places to look. They likely won't have sophisticated digital footprints like Oceanix City or The Line, nor will they necessarily be new buildings. But like utopias of yore, they may hold the potential for deeper change to the systems that perpetuate both climate and socioeconomic injustices. A more political architecture for climate change, or a true climatopia, must do more than design. It must engage with systems and processes, for this is where design gets its strength as a socially, economically, and politically transformative act. It will not shy away from the messy collaboration needed to create and sustain community. Affordable and participatory approaches such as cohousing, cooperative housing, community land trusts, and other alternative economic ownership models are powerful examples, many of which also consider their materiality and embodied carbon footprint. Tomorrow's climatopias will emphasize retrofits, adaptive reuse, and infill approaches.

Fortunately, even in the thick of late-stage capitalism we do not have to look far for proof that such radical models can exist. Projects like the Grand Parc social housing retrofit in Bordeaux, France, by Pritzker Prize winner Lacaton & Vassal are powerful examples of how to save a building from the landfill while preserving the dignity and economic security of residents in the process. Where new construction is required, we can look to examples like the network of mass timber housing cooperatives springing up across southern Spain by the group Lacol, which demonstrate how low-carbon, participatory design projects can guarantee affordability and connection. These are not just possible but also highly desirable. Frolic, a novel cooperative housing initiative based out of Seattle, offers a similar model of co-ownership and co-living that allows homeowners to shape the future of their own neighborhood. The Florida Keys Community Land Trust, established in the aftermath of Hurricane Irma on Big Pine Key, recently completed 31 units of affordable workforce housing by way of colorful, elevated, hurricane-resistant homes.

If these still feel tame, one can always turn to fictional and speculative climatopias for a stronger dose of inspiration. Here, there is no shortage of radical visions provoking us to think critically about our past, present, and future. *Leeside* is a fictional story about an American "receiver city" for climate refugees. *Planet City* is a speculative future that explores the idea of a global, intergenerational retreat to a single mega city. And why not? After all, utopia is at once the good place and the no place. May we tap into both as we seek climate transformation.

Dr. Alizé Carrère is an adaptation scientist and filmmaker whose work focuses on the human dimensions of climate change.

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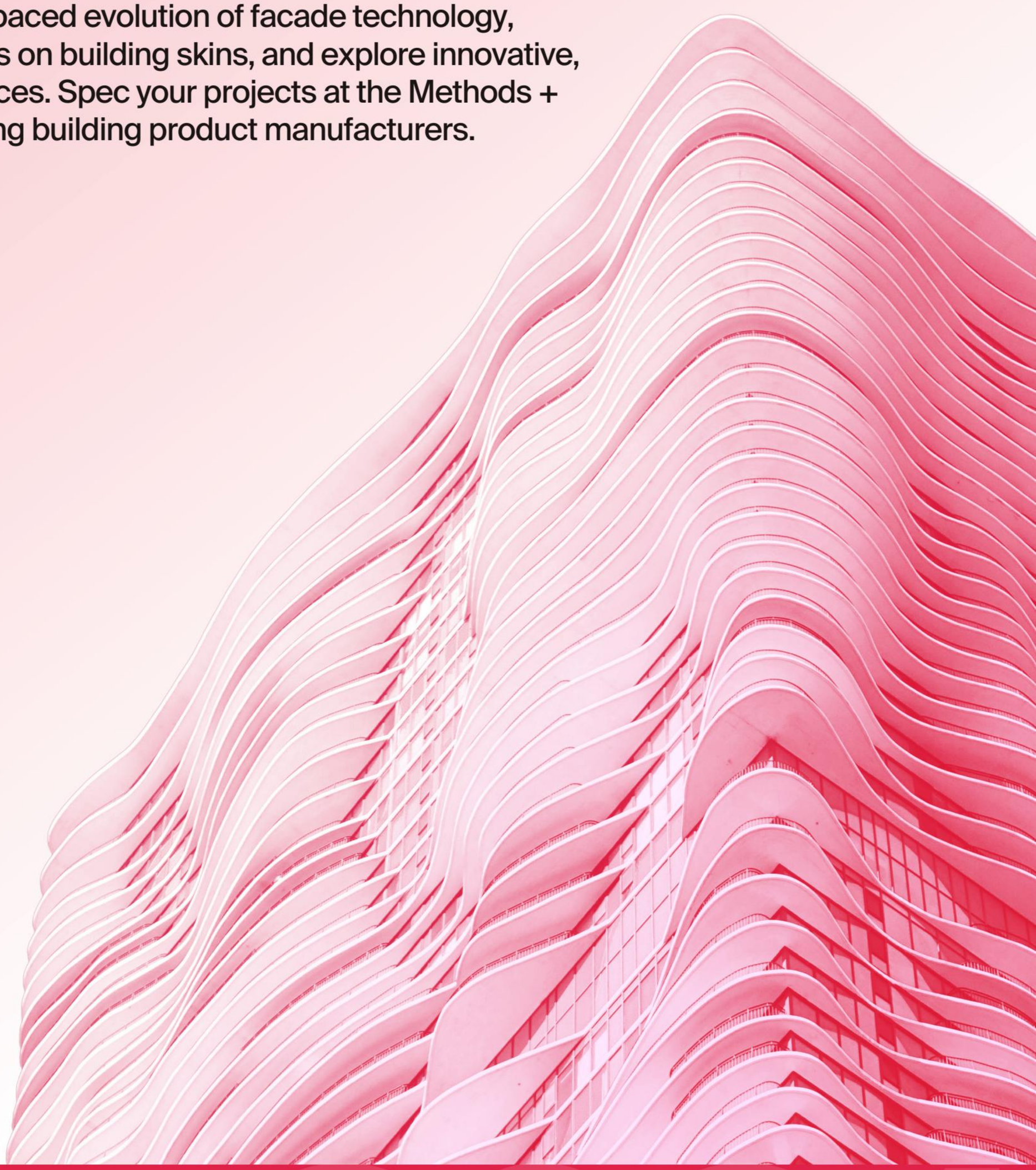
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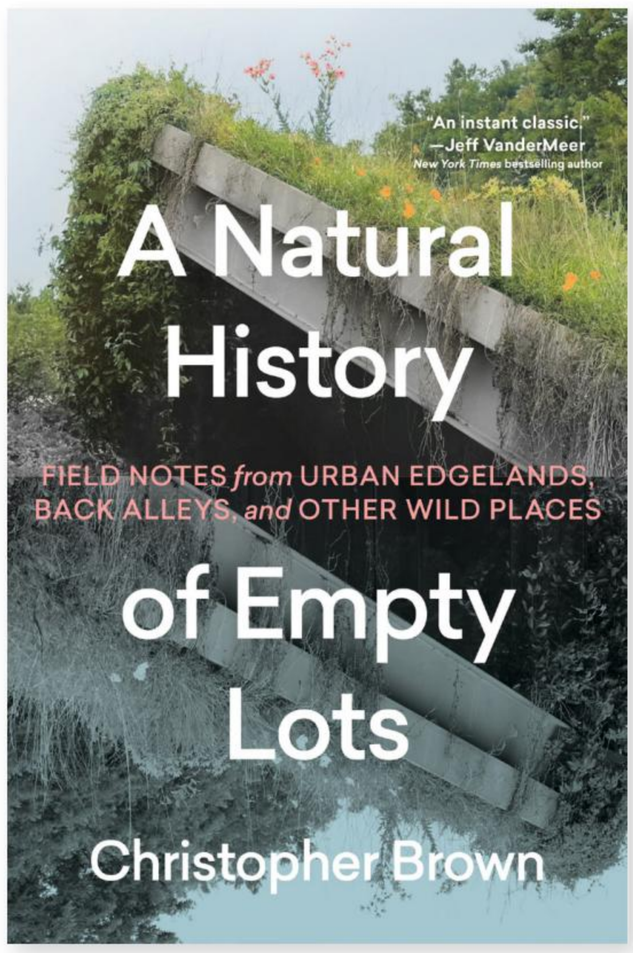


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2024

Edgelands, Involuntary Parks, and Uninsurable Zones

Christopher Brown's *A Natural History of Empty Lots* explores what happens when nature and the city intersect.



Our reflexive conception of the city as human habitat and the country as the place where we go to find nature is no longer true, if it ever was. While there are still large areas of the continental United States that remain sparsely populated with humans, our continued expansion across the land has obliterated the boundary between urban space and wild space, bringing more city into the wild and more wild into the city.

One-third of Americans make their homes in an area that is half covered with wild foliage or within a short walk of an area that is more than 75 percent wild foliage. We live in a weird realm where forest and prairie intermix with the urbanized world. Our continental habitat expresses an ecological paradox—it has been almost completely reshaped by our dominion, but our colonization is so recent that the native wildness was never fully extinguished and pops back up whenever and wherever we let it. This urbanized wilderness is all around us, but we rarely acknowledge it, so steeped are we in the mythology of our more epic wild spaces.

The American edgelands are mostly unobserved by everyone from nature writers to urban planners, who persistently reinforce the illusion that nature exists in officially designated parklands. Pockets of wild urban space don't fit easily into the registries by which our societies are ordered. Most of the lands that make up these zones are of limited economic value, like the "wastelands" of the early republic, if they even exist as separate parcels of private property. The trees may be counted in municipal censuses and assigned official numbers, but they do not have a price. The wild creatures who inhabit such spaces have almost no existence in the eyes of the state, unless they are blocking traffic or construction. These zones have acquired an official name in recent decades—the wildland-urban interface (WUI)—but the term is rarely used outside of the invisible literature of fire prevention. The WUI is where the wildfires working to make the western states uninsurable occur. That association with property damage may be why the acronym carries a clinical taint of Orwellian negativity—so successfully avoiding any evocation of the uncanny wonder wild urban places produce that you might reasonably suspect it was designed to name them as an essential predicate to their eradication.

The pockets of wild space that exist within the city do so because they are largely unseen and unnamed. They are not the official natural areas maintained by the parks and recreation department, though sometimes they contribute—especially the spaces set aside as wildlife preserves. The interstitial wilderness that exists in every city is unmarked. It is not formally designated as wild space or described as such on any sign or map, and it is often actively hidden by enclosure and cartological obfuscation. It is mostly comprised of zones set aside for some other kinds of land use that serves human need but excludes active human presence: places designed, by and large, to keep people out. Or just not designed to invite people in.

The path of the watershed is the most ubiquitous and reliable natural space to find in any city. Creeks and rivers are the one natural element we are generally unable to erase through our sprawl, though we may impoverish their ecological richness, treating them as sewers, as we have for most of modern history. We sometimes pave our creeks in our efforts to control them, like the one that runs through my neighborhood and is equally enjoyed by egrets and graffiti taggers. We sometimes even pave entire rivers, as in Los Angeles, or bury them under the pavement, as in Hartford. But we can't really control water, no matter how hard we try, and we can't prevent other species of planetary life from gravitating toward sources of water. Creeks and river channels are the most reliable places to find wild vegetation in the city—whether weedy brush or more substantial tree cover—and to find wild animals, some of whom may live in the habitat the water provides, and others who may just go there to drink and wash or to hunt. Ponds, lakes, and wetlands have a harder time surviving in the city, as the absence of flow and flood makes them easier to turn into buildable land. The idea that draining the swamp is progress has a long history, from Charles II's 17th-century redevelopment of the Great Fens to the march of production agriculture and urban expansion across the American continent.

Mirroring the watershed are networks of urban space designed to carry different kinds of flow: the rights-of-way we set aside for the varieties of movement and interchange that sustain urban life. These include roadways and railways, which, unless they are very old, usually preserve some wide zone on either side of the path they define. They also include the rights-of-way set aside for the movement of things other than people and cargo, such as electrical power, petrochemicals, and telecommunications. Many of our rights-of-way follow older and often more natural pathways. Broadway in Manhattan was once the Wickquasgeck Trail, which connected the Indigenous settlements of the island. Highways commonly follow the routes of old pioneer trails that were formerly trails of Indigenous peoples and often have deeper origins as animal trails, like the old highway between Detroit and Chicago that was once the migratory trackway of mastodons. The main trunks most internet traffic in the United States travels on are cables buried along old rail lines, which themselves follow some of the most ancient routeways cut into the landscape of the continent by eons of geological development and wild nature's adaptation to it. Rights-of-way are sometimes public, sometimes private, but almost never designed as places for you to walk. They are not designed for animals either, as evidenced by the abundant roadkill our roads produce, providing the main experience most of us have of wild animals in the city. But roadkill also reveals how much wildness is out there, finding its way through the world we've made. And in springtime, the green spaces along the edges of the road reveal how many wild and native plants are still there in the seedbed, ready to retake the landscape when we and our mowers abandon it. The corridors of land we set aside for our own transportation, energy, utility, and communications networks inadvertently provide networks also used by wildlife to circulate through urban space.

The city also harbors huge swaths of land zoned off from pedestrian and other public access. These zones of enclosure are often behind tall fences or even manned checkpoints that limit access for safety and security. These include industrial facilities, government complexes (including the gigantic chunks of the American landscape set aside for exclusively military use), and corporate and commercial zones. Wild plants and animals do not observe most of the boundaries we create and often thrive in these spaces from which the city excludes its human inhabitants. This is especially true at the margins of such places, in liminal zones where access is often less intensely policed. Walk around any such fence, especially in its farthest corner, and you stand a good chance of finding a gap made or at least exploited by animals, some of which may have made homes inside the fence, where their predators are less likely to roam.

Liminal zones are often the richest and the easiest to find wherever you are—the wilderness of edges made from the untended borders between different land uses. Zones where trees and tall plants are allowed to grow in areas otherwise cleared for human use. Walk along such edges and look for animal trails on the ground, and you will be surprised how many mammals can turn just a few feet of cover into a safe and secure burrow. Urban foxes seem particularly adept at exploiting such fringe habitat, perhaps because of their small size and their adaptation to hunting small rodents that thrive in the trash we leave outside.

Sometimes the liminal spaces are defined not only by space, but by time. The places we call "empty lots" are usually temporary, in the middle of the transition from one land use to another. Often land that was once used for agriculture, resource extraction, or industry awaiting its redevelopment. Places momentarily empty of human presence but full of the natural activity that quickly reasserts itself in our absence. The places we have stopped paying attention to are the ones where wild nature most quickly thrives. If the plants are allowed to grow without mowing, as is often the case when the economics don't justify the cost of maintenance, the owner doesn't care, or there isn't even a true owner, the change can be rapid and dramatic, as the negative space of the city turns into a successional ecosystem.

Sometimes human land use is so abusive that it renders the land unusable. Lands we have polluted, made too dangerous to inhabit, or too hazardous to build on. Science fiction writer Bruce Sterling dubbed such places "involuntary parks": previously inhabited areas that have "lost their value for technological instrumentalism." You already know famous examples of such places, like the radiated zone around Chernobyl, the Superfund sites of industrial America, and the currently and formerly militarized borders between and sometimes within nations, like the Iron Curtain, which divided Europe, the fortified portions of Israel, the U.S.–Mexico border. You may be less familiar with a more emergent category of involuntary park—the zones that have become uninsurable, mostly due to climate change. Consider the coast of Florida, inhabited by more than 20 million people—close to 10 percent of the U.S. population—where increasingly frequent and damaging weather events have driven most of the major property and casualty insurers to stop underwriting coverage. The private and public insurance funds that have allowed building to continue are almost all at the brink of insolvency. Where property can no longer be insured, new development and real estate transactions cannot proceed, at least not if they require traditional mortgage financing. In these expanding swaths of our increasingly uninsurable world, nature will find all sorts of ways to reclaim the space it has liberated through its reactions to the damage we have caused.

A Natural History of Empty Lots: Field Notes from Urban Edgelands, Back Alleys, and Other Wild Places*, will be published by Timber Press and released on September 17. Check christopherbrown.com for updates on book launch events in Texas and elsewhere.*

Christopher Brown has been nominated for the Philip K. Dick, World Fantasy, and John W. Campbell Awards for his novels *Tropic of Kansas*, *Rule of Capture*, and *Failed State*. Also an accomplished lawyer, Brown has worked on two Supreme Court confirmation hearings, led the technology corporate practice of a major American law firm, and served as the general counsel of two public companies.

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