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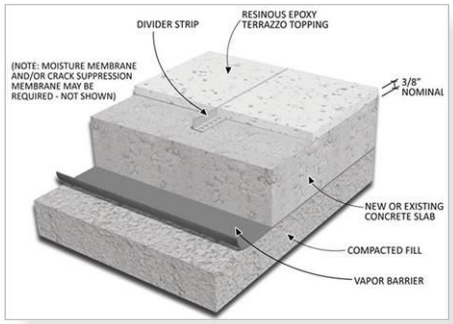


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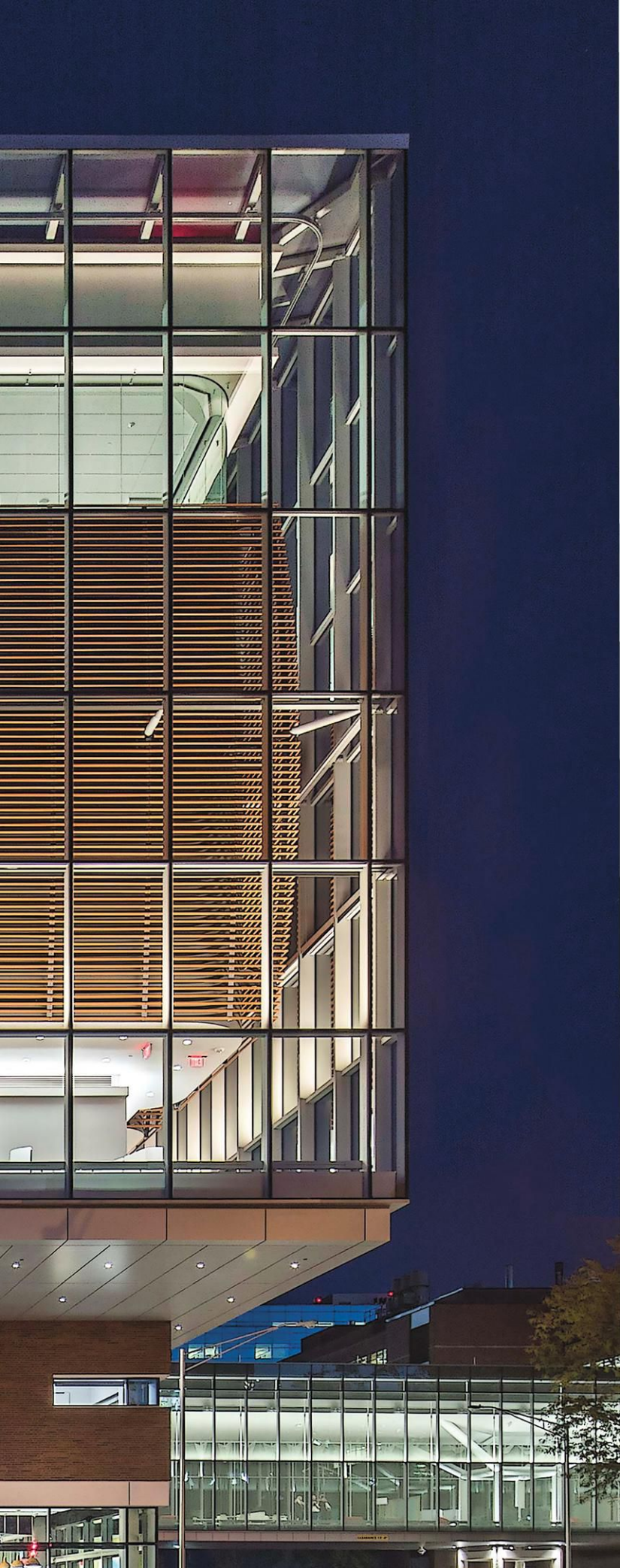
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COVER: MEET DIGITAL CULTURE CENTER, MILAN, BY CRA-CARLO RATTI & ITALO ROTA. PHOTO BY MICHELE NATASI.





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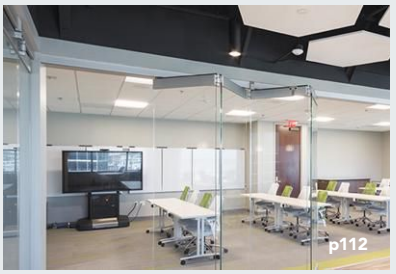

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Designing for the Contemporary Custom Home

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Innovative Interiors

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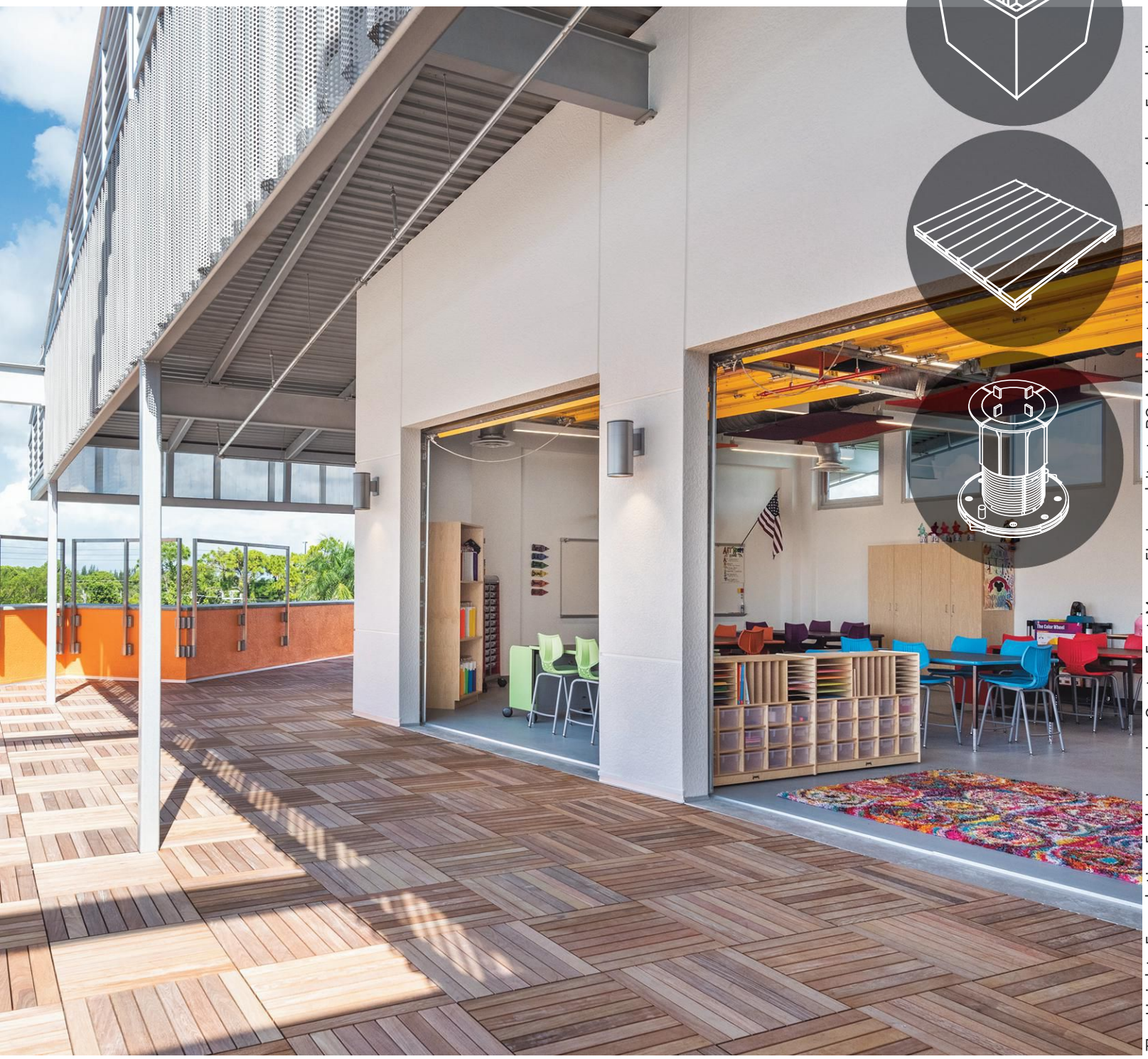
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The People's House

The violent assault on the U.S. Capitol attacked the democratic symbolism that our most significant architecture conveys.

THERE are few great buildings in the world whose significance extends beyond the quality of architecture, history, or function. The U.S. Capitol reflects not only that trifecta of values but is the single most potent symbol of America's republic.

So we all watched in horror on January 6 as this essential emblem of democracy was attacked by a violent mob, incited by President Trump and his cohort, who tried to overturn the lawful election of Joe Biden, as the Electoral College votes were being formally certified by members of the House and Senate, as prescribed in the U.S. Constitution.

Battering doors, smashing windows, vandalizing walls, trashing furniture and artwork, the overwhelmingly male, white horde included those brandishing Confederate flags, crowbars, knives, zip-tie handcuffs, and guns, some threatening to kill Speaker Nancy Pelosi and Vice President Mike Pence. They beat policemen, resulting in the death of one. It is a miracle the toll of casualties was not greater.

Some days earlier, as his term waned, Trump had signed an Executive Order (EO) dictating Classical or traditional architecture as the preferred "style" for federal buildings. That will wind up as a small footnote in the history of his term in office, but at the moment, the destructiveness of those Trump supporters—whom he professed to love in the midst of their mayhem—makes a mockery of it.

As Trump was facing his first impeachment a year ago, RECORD broke the story of the White House's intention to insist on the Classical style for new government architecture. There was a swift, broad wave of protest to the proposed mandate; some objections came from unexpected corners such as the Institute of Classical Architecture and Art, and the National Trust for Historic Preservation.

As it was finally issued in late December, the EO justified its goal by stating that the Founding Fathers wanted the nation's public buildings to "encourage civic virtue"; by employing Classical models from ancient Athens and Rome, they sought to remind "citizens not only of their rights" in the new democracy "but also their responsibilities in maintaining and perpetuating its institutions." The Capitol building is Exhibit A in the EO's broad edict: it notes that George Washington and Thomas Jefferson personally oversaw the initial design by Dr. William Thornton, the first of its many architects. Washington laid the cornerstone in 1793.

Of course, ancient Greece and Rome were hardly exemplars of liberty, nor were the empires and kingdoms that embraced Classical architecture after the Middle Ages. And in our own nascent democracy, the only citizens who enjoyed full rights were white, male property owners, many of them slaveholders, including Washington and Jefferson. The Capitol itself was constructed by enslaved people and indentured servants—a fact omitted in the historical summary on the current U.S. Capitol website.

The EO argued that people reflexively revere Classical architecture and repeated frequently in its text that Federal buildings must "command respect from the general public." And then came January 6.

When the Capitol was stormed, any civic virtue and respect engendered by the architecture vanished; the columns, pediments, and dome proved to be no obstacle for the most extreme elements in our republic.

Citizens should respect government buildings, but their design—whether in historic or contemporary structures—must also respect the wide citizenry to whom they belong. The Capitol—as both Pence and Pelosi termed it after the attack —is "the People's House." We the people and our representatives have the right to determine how our government expresses our values through architecture—and today that often includes the virtue of transparency, both symbolically and physically, and the urgent need for sustainability. And while we respect history throughout our built environment, no type of architecture should be prescribed or excluded, now or in the future.

This EO, along with many mandates from the Trump White House, is likely to be canceled by the new administration. If the Democracy in Design Act, first introduced in the House last year, has a new opportunity to become law, it would prevent such an executive order from determining federal architecture in the future. "Our public buildings should reflect the rich diversity of our nation and its people," said its sponsor, Dina Titus (D-Nev), chair of the subcommittee that oversees the General Services Administration and federal buildings. "They should signify our progress over the years and be as accessible as possible."

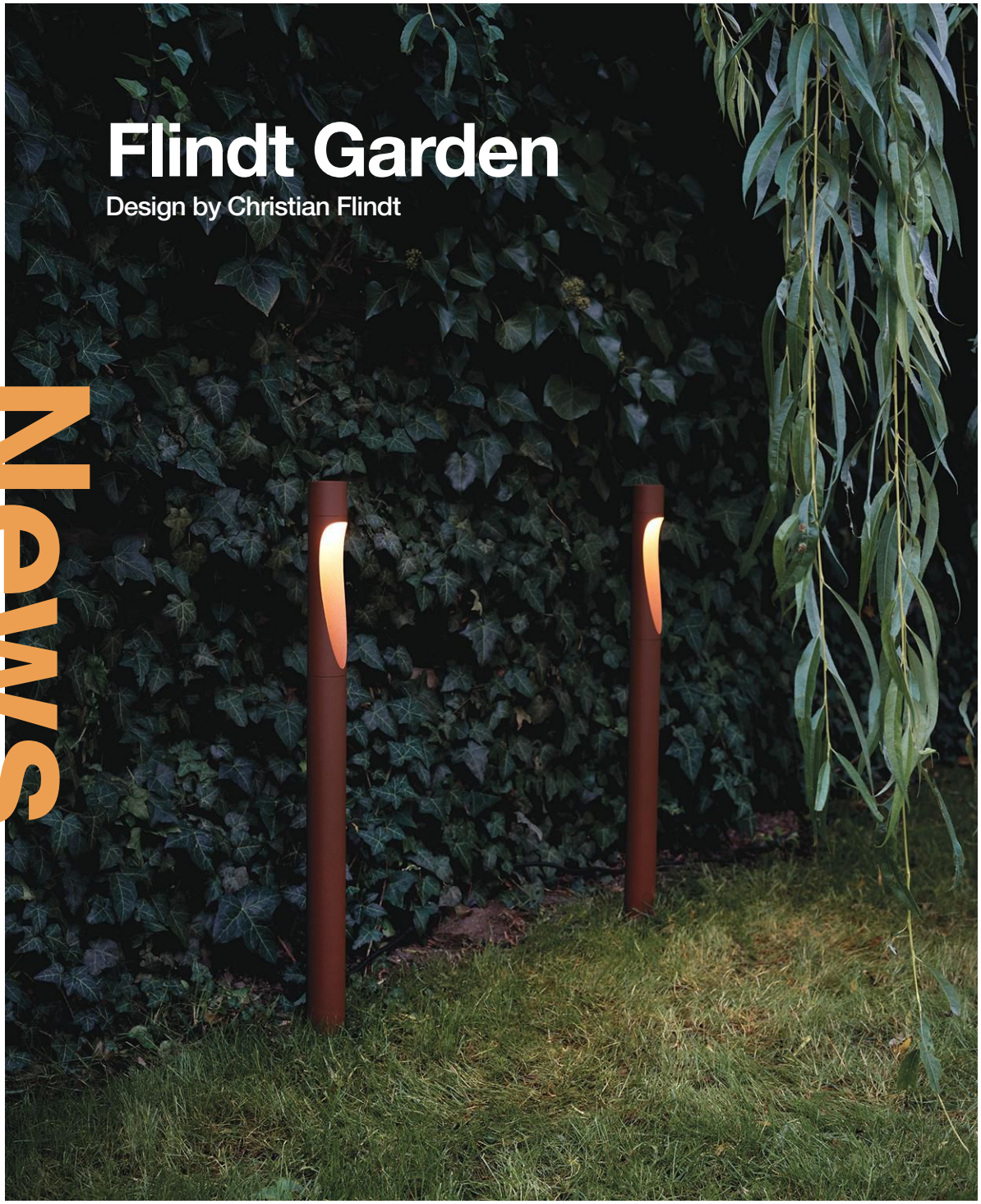
For now, the People's House is heavily fortified, and the damage to the building is being repaired. But the damage to our democracy will take much longer to restore.

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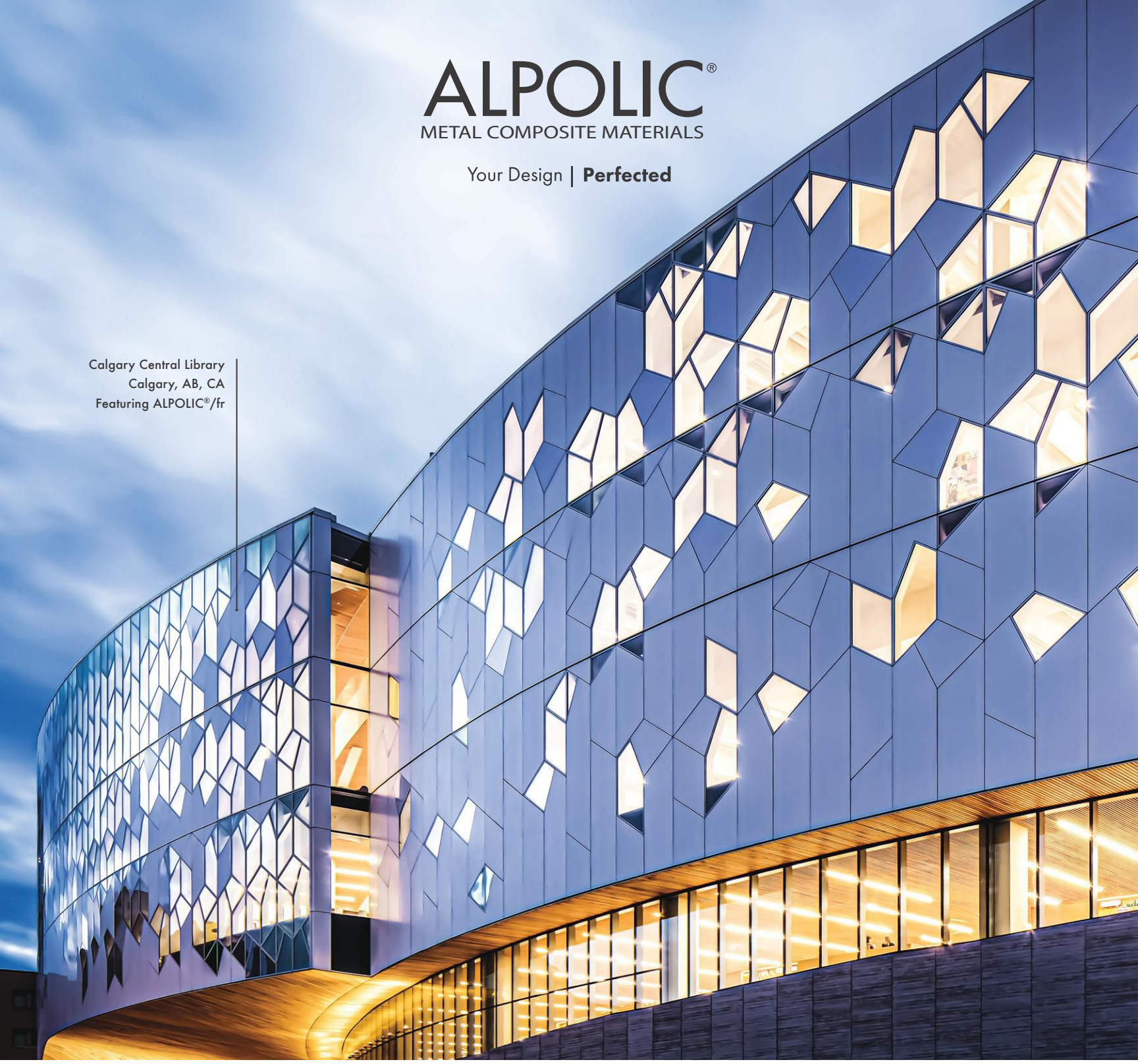
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– *Philip Kennicott, senior art and architecture critic for* The Washington Post, *speaking to National Public Radio after extremist rioters attacked the U.S. Capitol building on January 6.*

Moynihan Train Hall Expands New York's Penn Station

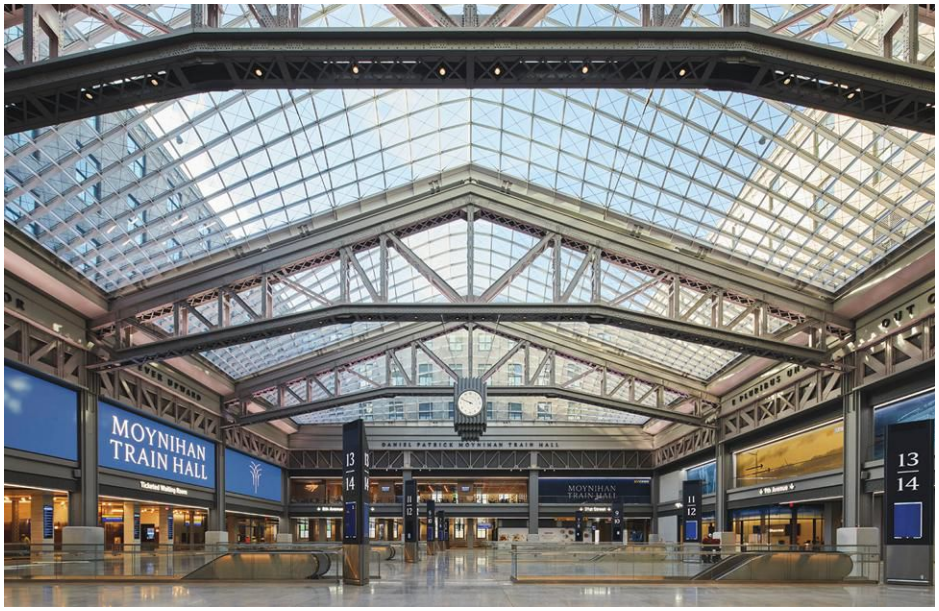
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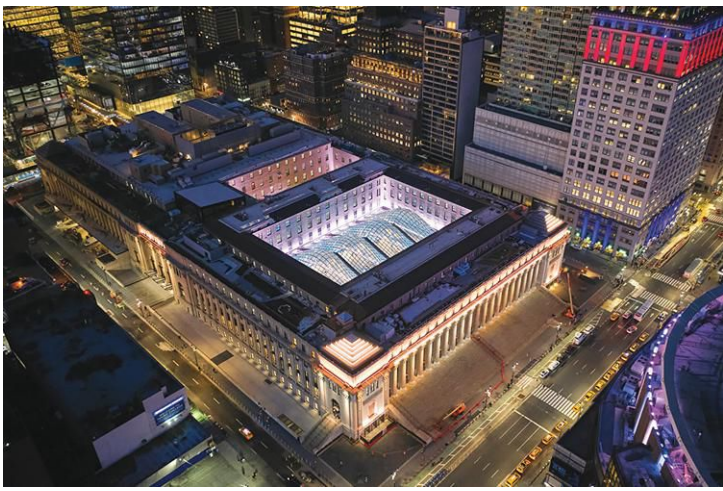
AFTER 28 YEARS of stops and starts, at least 13 different designs, five New York State governors (two named Cuomo), and eight Amtrak presidents, Manhattan's Moynihan Train Hall opened on January 1. What a long, strange trip it's been! A 486,000-square-foot transportation and retail complex inserted in the landmark James A. Farley Post Office Building, across the street from the existing Pennsylvania Station, Moynihan Hall expands waiting areas and access to existing train platforms and tracks serving Amtrak and the Long Island Rail Road (LIRR).

Named after Senator Daniel Patrick Moynihan, who championed it from the early 1990s until his death in 2003, the $1.6 billion project, designed by Skidmore, Owings & Merrill (SOM), features a central skylit hall occupying the space that had originally been the 31,000-square-foot mail-sorting room for New York City's main post office. The enormous Farley Building was designed by McKim, Mead & White in 1913 as an architectural mate to Penn Station, which the firm had designed three years before on the other side of Eighth Avenue, between 31st and 33rd streets. The pair of imposing Beaux-Arts buildings represented the grand ambitions of a rapidly growing city, asserting itself as the nation's commercial and cultural capital.

When Penn Station was razed in 1963 and replaced by a dreary underground station with a new Madison Square Garden above it, the Farley Building was widowed, and in later years became largely irrelevant as the Postal Service moved most mail sorting operations elsewhere. Meanwhile, the new Penn Station, which opened in 1968 to serve 200,000 riders each day, was ultimately swamped by 650,000 people on weekdays (until the Covid-19 pandemic struck in early 2020). So when Senator Moynihan proposed expanding Pennsylvania Station into the Farley Building, the idea was greeted with applause. But getting a contentious group of stakeholders, including Amtrak, LIRR, the Metropolitan Transit Authority, and private developers to come to any particular agreement proved elusive for decades.

Every few years, the key players would announce major plans, starting in 1993 with a grand arched-roof design by Hellmuth, Obata & Kassabaum, followed in 1998 by a scheme from David Childs of SOM that received a lot of attention for its 150-foot-high glass vaulted element nicknamed the "Potato Chip." In 2005, HOK teamed up with Jamie Carpenter for another shot at the project, only for SOM to be chosen again a few years later.





A dramatic skylight spans the new Moynihan Train Hall, arranged in four catenary vaults (above). The train hall, in the landmark James A. Farley Post Office Building, sits across from Penn Station and Madison Square Garden (right, at lower right).

What finally got built is less ambitious than—and lacks the kind of dramatic gesture of—many of the earlier plans. Designed by an SOM team headed by partner Colin Koop and now retired partner Roger Duffy, it weaves together old and new, revealing important aspects of the Farley Building while introducing a modern vocabulary of glass vaults and sleek marble surfaces. For example, the architects restored a trio of old steel trusses that spanned the mail-sorting room, but had been hidden from view. Now the trusses separate four new catenary vaults made of glass-and-steel panels that are deeper at the base, where structural loads are greatest, and get lighter as they reach their apex, 92 feet above the floor. Seeing the bolted connections of the original trusses next to the cable-stayed glass vaults, visitors get a visual lesson in changing construction technologies and a demonstration of history as an ongoing narrative.

PHOTOGRAPHY: © LUCAS BLAIR SIMPSON, SOM (TOP); LUCAS BLAIR SIMPSON | AARON FEDER, SOM (BOTTOM)

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A similar experience unfolds for those who climb the grand stairs of the Farley Building's newly renovated colonnaded facade on Eighth Avenue, buy stamps at one of the bronze-grille-fronted windows in the post office still operating there, and then walk into Moynihan Hall, with its rippling modern skylight.

On the east side of the hall, a quartet of Amtrak waiting areas designed by Rockwell Group are tucked below a second floor with dining and retail options, as well as Amtrak's business-class lounge designed by FX Collaborative. On the north side, SOM created a waiting area for LIRR passengers. In the fall, a food hall designed by Elkus Manfredi will stretch out to the west on both the main and upper levels. Wrapping around Moynihan Hall and looking down into it are four floors of office space that are being renovated for Facebook, which will also take over a 1930s western addition.

To provide better public access to the Train Hall, SOM created five new entries. For the two on Eighth Avenue, the architects designed gentle ramps inspired by those at Grand Central Terminal to take visitors down to the main level. The entries at 31st and 33rd streets and the glass-vaulted hallway connecting them are less dramatic than the tilting glass "Potato Chip," but they serve as an attractive passage through the enormous building. "Transportation facilities are about the interconnections of modes of transit and the spaces between them," said Duffy during a recent tour of the project. "The size of these places is so big that singular architectural gestures get lost."



Each of the four catenary vaults is composed of more than 500 glass-and-steel panels that come together to form a moiré effect.

It may be ironic that Moynihan Hall opened at a moment when few people are taking mass transit due to the Covid-19 pandemic. Koop, though, says that the project is all about "relieving congestion and providing more space for commuters to spread out," which will remain important even after the virus releases its grip on the region.

With Facebook moving into the Farley Building, other tech companies renting space nearby at Hudson Yards and Manhattan West, and major developers busy with new and renovated office projects, the Penn Station area may soon emerge as an upscale commercial location. If it does so, Moynihan Train Hall will play a valuable role in that transformation. ■

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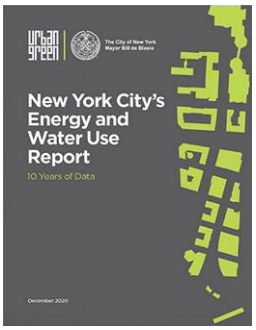
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A Decade of Energy Regulation in NYC Pays Off in Data and Carbon

BY BILL MILLARD



DECEMBER marked the 10th anniversary of New York City's Local Law 84 (LL84), which requires owners of large buildings to measure energy and water consumption to help the city achieve "80×50": an 80 percent reduction in carbon emissions by 2050. To mark the occasion, the Urban Green Council (UGC) released a report quantifying the city's progress. The data will influence responses to the climate emergency locally and, probably, nationwide.

The report is, in part, meant to help keep building owners in compliance. Caps on energy consumption take effect in 2024 and become tougher by stages through 2050, with stiff fines for owners who exceed the limits. Since buildings account for two-thirds of New York's greenhouse-gas emissions, achieving this goal will dramatically shrink the city's carbon footprint, along with improving air quality and residents' health. "This report highlights the importance of data in determining energy policy," says Rick Bell, of the Consortium for Sustainable Urbanization and Columbia University's Center for Buildings, Infrastructure and Public Space. "Ten years of benchmarking allow policy-makers and practitioners to analyze success stories and focus on where more can be done."

The good news is that emissions from some 3,200 regularly benchmarked properties fell 22.6 percent over the decade, with particular gains in the commercial sector. Median emission intensities for the full benchmarked set followed a similar trend. The report cites five drivers: weather variation, cleaner electricity generation, improvements to the district steam system (which heats nearly a third of large office buildings), fuel switching, and more efficient energy use. When LL84 appeared in 2010, buildings over 50,000 gross square feet were required to report; with the addition of midsize properties (25,000–50,000 square feet) in 2017, the sample now totals about 25,000 buildings, comprising over 3 billion square feet in total.

The bad news is that progress is unevenly distributed, has slowed, and must accelerate to make 80×50 achievable. Uncertainties include whether residences and hotels can catch up with offices—the hotel sector actually lost ground, with 1 percent higher median energy use intensity (EUI), in part reflecting a steady 8 percent rise in occupancy from 2010 to 2018.

Because an early inventory found that 5 percent of buildings contributed 36 percent of citywide greenhouse-gas emissions, benchmarking initially concentrated on the largest buildings. As a result of a decade of data collection, the knowledge base is more granular now, says Laurie Kerr, president of LK Policy Lab and a veteran of the city's Office of Long-Term Planning and Sustainability. "Ten years ago, when we passed these laws, we knew [buildings] were responsible for 75 percent of the city's carbon emissions," a proportion that electrical efficiency and other measures have reduced. "But we didn't know how individual buildings were performing, and, even worse, the building owners didn't know whether their buildings were efficient or not. So the benchmarking has been an eye-opener."

One of the revelations is that some 3,000 multifamily residential properties are over their caps and will face fines if they are not in compliance by 2024. Midsize residences with high occupant density are particularly big emitters: nearly 30 percent were noncompliant in 2019.

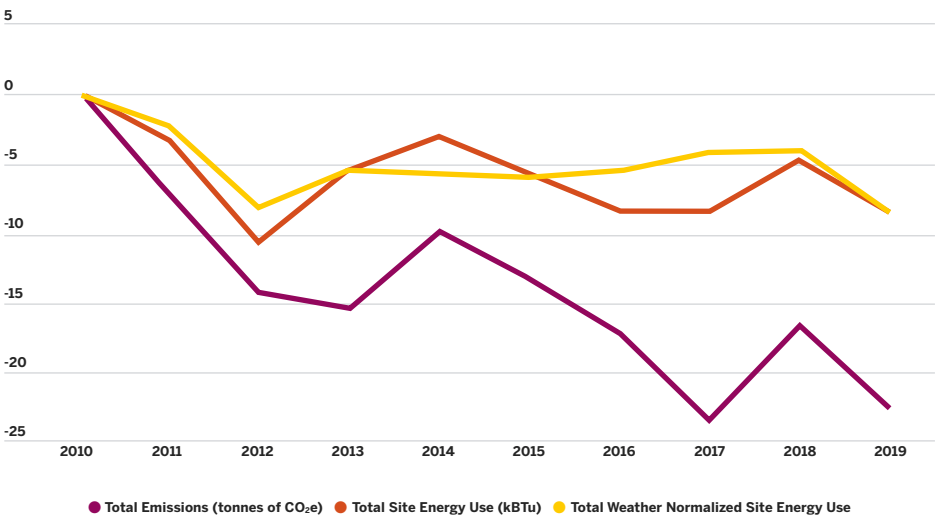
Some initial citywide gains represented low-hanging fruit. Phasing out heavy fuel oil by 2015, for example, accounted for about a quarter of the carbon cut. Energy-efficiency improvements account for about a third, and must continue. Achieving 80×50, Kerr emphasizes, is not blue-sky aspiration but can be achieved with common building-science strategies that include reducing on-site fossil-fuel burning, phasing out antiquated boilers, controlling thermal losses at windows, increasing lighting efficiency, implementing Passive House–type strategies such as heat recovery, and using electricity for heat and hot water. New York State has committed to a carbon-neutral electrical grid by 2040, she notes. With 40 percent of carbon emissions currently attributable to electricity use, and electric cars soon to add to demand, meeting the goal will be essential, as will be efficient electrical transmission and distribution.

"This 10-year data set not only guides NYC's climate approach," says Urban Green Council CEO John Mandyck, "it can also inform decisions in other cities, so we can get to a low-carbon future faster." ■

Change in Emissions and Site Energy Use, 2010–19

Data: *Local Law 84 2010–19 filtered for properties that regularly submitted data across 10 years*

Percent change from 2010 levels



IMAGES: COURTESY URBAN GREEN COUNCIL

Kahn's Ahmedabad Dormitories Saved

BY CATHLEEN MCGUIGAN AND WILLIAM J.R. CURTIS

IN EARLY JANUARY, the Indian Institute of Management in Ahmedabad (IIMA) canceled plans to demolish the 18 dormitories designed by Louis Kahn that are part of the historic campus he created there in the early 1960s. The news came after a December 23, 2020, story about the threatened destruction on ARCHITECTURAL RECORD's website, by historian and critic William J.R. Curtis—who also raised the alarm in other publications—followed by an international outcry.

Kahn's children had protested the demolition in a letter to the IIMA board, as did scholars at the Getty in Los Angeles and New York's Museum of Modern Art. The UK-based *Architectural Review* circulated an online petition to stop the buildings' destruction, and articles condemning the IIMA's plans appeared in the Indian press.

Objections arose after the IIMA announced that the dormitories, integral to Kahn's overall design of the complex, would be replaced with buildings by an unnamed architect on the same footprint. IIMA was the brainchild of the industrialist and philanthropist Vikram Sarabhai, who realized in the late 1950s that India needed to train its own cadre of managers and entrepreneurs as part of its ongoing modernization.



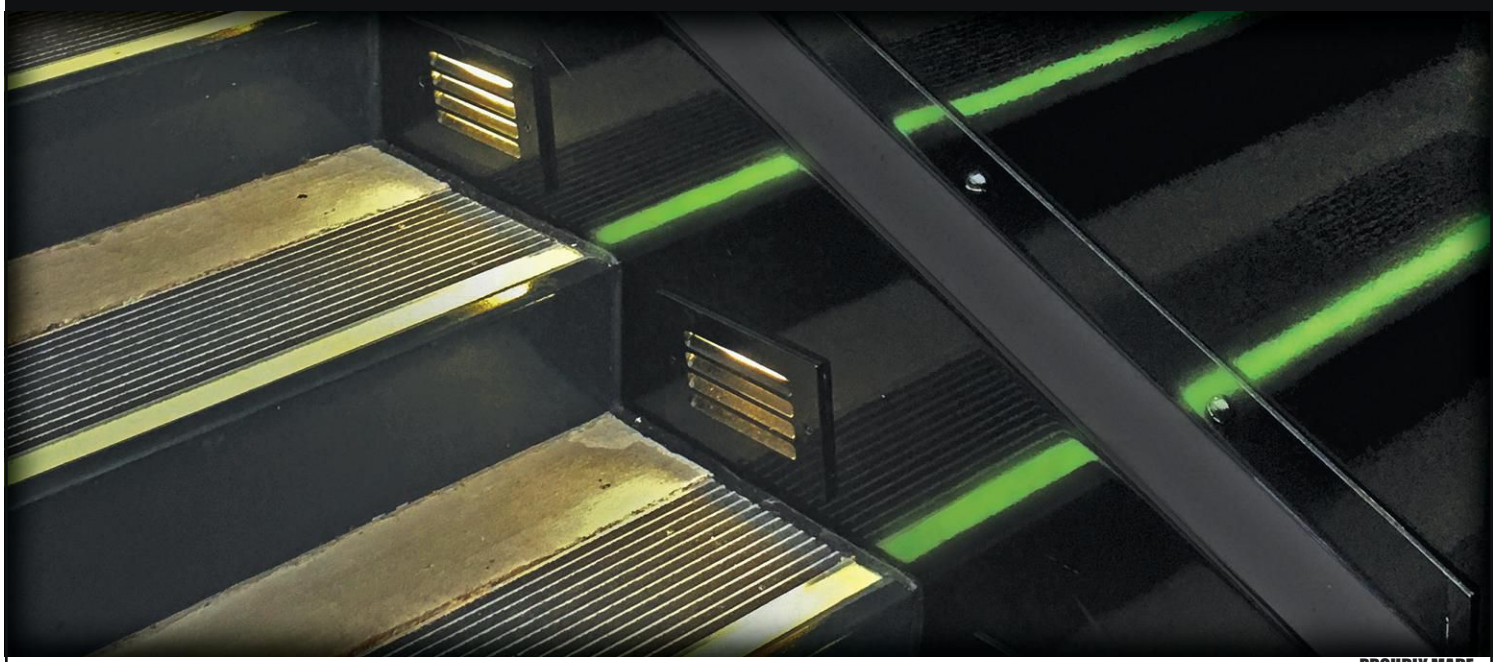
Louis Kahn Plaza at the Indian Institute of Management Ahmedabad.

PHOTOGRAPHY: © WIKIMEDIA COMMONS/PERSPECTIVES—THE PHOTOGRAPHY CLUB, IIMA AHMEDABAD

Kahn's project contains two brick sectors locked together: the block and court containing the Vikram Sarabhai Library, Lecture Halls, and Administration; and the dormitories arranged as a sort of diagonal flotilla in which the buildings and the spaces between are given equal emphasis.

The school's initial decision to raze the dormitories remains murky. The Mumbai firm SNK (Somaya and Kalappa Consultants) completed an award-winning and much-praised renovation of the library block in 2017. It was understood that the dormitories would also be restored by SNK before the administration of IIMA announced the intention to raze them. It remains to be seen if SNK will now be retained to restore the buildings. ■

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UK Architects Face Uncertainty in EU Post-Brexit

BY TIM ABRAHAMS



By partnering with a local architect in Italy on the historic residence above, the UK studio GROUPWORK avoids some of the complications UK architects now face when working in the EU.

WHEN the United Kingdom left the European Union on January 1, the country's architects lost the blanket right to work across continental Europe. An epoque in which British architects worked freely at the heart of the continent—projects such David Chipperfield Architects' renovation of the Neues Museum in Berlin and Zaha Hadid's bravura design for the MAXXI museum in Rome—was suddenly over. Now British architects are dependent on regulations within each nation to allow them to work in Europe.

Despite the trade negotiations that took place between officials in Brussels and London throughout 2020, no specific agreement on the reciprocal recognition of professional services was reached, and individual countries have the right to treat UK credentials as "rest of the world" qualifications.

"Each member state will now decide whether they are happy to recognize our qualifications," says David Green, director of Belsize Architects and the former head of the European Division of the Bank of England. "The UK has decided on an interim basis to recognize EU qualifications, as in the past, but this will be subject to review." This is likely to be a drawn-out process. The Architects Registration Board (ARB) in the UK recently reached an agreement with the Royal Institute of the Architects of Ireland that enables architects in either country to register under the same process that existed prior to January 1, 2021.

In addition, UK-qualified architects will probably be able to work in Spain as they had before, and vice versa. "We are awaiting information from other EU states in terms of the arrangements they have put in place," says a spokesperson for the ARB.

The process will certainly be more complex. Amin Taha, principal of the British practice Groupwork says, "When you are working abroad, you always need to find a local architect to help you with planning laws and building regulations. You can't just go piling in." That's nothing new, but after leaving the EU, Taha believes that British architects will have to make partnerships with local architects much earlier, before entering a competition or as soon as a potential client makes contact. This extra layer of difficulty may discourage some British firms from opting to seek work abroad.

"It was extraordinarily stupid in Brexit negotiations that nothing was done to ensure that the automatic recognition of qualification was guaranteed beyond Brexit," says Richard Haut, the former publisher of *Competitions* magazine and a consultant to architects. However, he believes that economic necessity and exciting briefs will encourage British architects to seek work in the EU.

In light of the economic uncertainty caused by the pandemic and the ensuing lockdown, the European procurement system offers relative stability. "Generally, the procurement system in Europe is light-years ahead of Britain. Among the best in the world is the French one, where those who run projects must, by law, have money in the bank, and you are paid to produce work for competitions. What has surprised me is why British architects didn't use it more when it was easier," says Haut. Regardless, both culturally and economically, the ties that bind the UK and Europe to each other will continue to be strong, and the effects of the pandemic may encourage British architects to overcome the short-term difficulties and strive even harder to work in Europe. ■

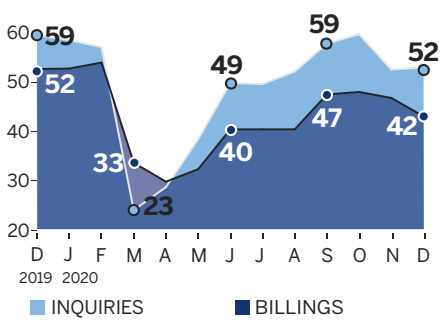


Rock & Roll Hall of Fame Names Design Team for Expansion

In December, the Rock & Roll Hall of Fame announced that Practice for Architecture and Urbanism, along with its partners James Corner Field Operations, Cooper Robertson, and L'Observatoire International, had won its competition to design a 50,000-square-foot expansion of the landmark I.M. Pei museum in downtown Cleveland. The new addition will create both internal and external gathering spaces for the community and will serve as a connector to the Great Lakes Science Center. Construction will launch in early 2022.

Cornell's AAP Receives $10 million from Gensler Family

In January, Cornell University announced a $10 million gift to its College of Architecture, Art and Planning (AAP) from M. Arthur Gensler and his family. Gensler is a graduate and longtime supporter of the college, and the founder of the eponymous multidisciplinary San Francisco–based design practice. The gift will sustain AAP's New York–based program in perpetuity by naming it the Gensler Family AAP NYC Center.



Billings Shrink, Contracts Plateau

The latest data from the American Institute of Architects show that the Architecture Billings Index dropped from 46.3 in November to 42.6 in December. (A score below 50 indicates decreasing billings.) Design inquiries and contracts remained relatively stable at 52.4 and 48.5, respectively.

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STRAND DESIGN WORKS WITH A BUILDER TO UPDATE A MIDCENTURY HOUSE IN MINNEAPOLIS. **BY JENNA M. MCKNIGHT**



MIDCENTURY houses have their charms, but they often lack the airy yet comfortable atmosphere that contemporary dwellers covet. Such was the case with a 60-year-old residence in the Minneapolis area that was recently overhauled by local firm Strand Design in collaboration with the builder and real-estate company Str8 Modern.

Situated in a leafy suburban neighborhood, the 3,225-square-foot house—now called Golden Valley Mid-Century Modern—was built in 1961 (architect unknown). Roughly T-shaped in plan, the wood-framed building contains a main level and basement. Over time, original features remained largely untouched.

The owner of Str8 Modern, Tony Videen, bought the property in 2018 to serve as his own home and promptly set out to remedy its smallish, dark rooms and update its aesthetic. He turned to architect David Strand to help modernize the dwelling while retaining its footprint and long, clean lines.

The team decided to strip the building down to its studs. The exterior was reclad with bonderized steel, cedar, and standing-seam metal panels. The team replaced the roof, enlarged the windows, and added subtle "bump outs" to provide a bit more space inside. On the front elevation, a concrete retaining wall now reinforces the house's crisp silhouette.

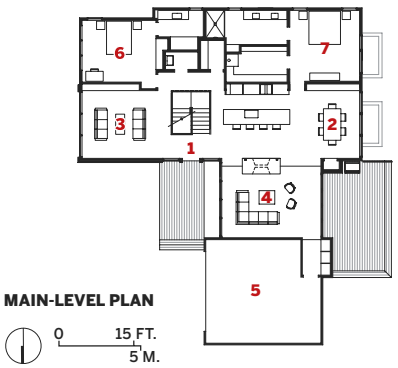
By reconfiguring the interior, Strand created a more fluid layout and rooms that "feel ample and light," he says. The top floor encompasses public areas, the primary bedroom, and an office. A skylit stairwell leads to the lower level, which contains a media room, game room, and bedrooms.

Throughout the residence, a limited material palette offers a sense of purity and cohesiveness. Generous apertures, including a 14-foot-wide folding glass door in the den, provide a strong connection to the outdoors. In sum, the dwelling exhibits all of the benefits of a newly built structure while still honoring its origins. Says Strand: "The new and old marry together seamlessly." ■





The two-level house is nestled into a slope (top). The main living spaces are on the upper level (middle), and include a den (above).



MAIN-LEVEL PLAN



LOWER-LEVEL PLAN

1	ENTRANCE	**6**	BED/OFFICE
2	DINING AREA	**7**	PRIMARY BEDROOM
3	LIVING ROOM	**8**	BEDROOM
4	DEN	**9**	MEDIA
5	GARAGE	**10**	GAME ROOM

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LANDSCAPE

WUTOPIA LAB ENLIVENS A MUNDANE SHOPPING VENUE WITH A FANCIFUL TOPOGRAPHY. **BY ALEX KLIMOSKI**

IN THE CITY of Huzhou, China, Shanghai-based firm Wutopia Lab (a Record Design Vanguard firm in 2018) has created a fantastical dreamscape to be enjoyed by young and old alike. Called White Upland, the otherworldly design, which appears as a forest of abstract white trees, serves as the public entrance plaza for a retail center located along a busy thoroughfare. The 35,000-square-foot outdoor area, loosely inspired by the Surrealist paintings of René Magritte, stands in striking contrast to the surrounding metropolis, about 100 miles west of Shanghai.

Wutopia Lab founder Yu-Ting, who describes his firm's work as "magical realism," says the driving force of the project was to design something completely different—an escape from the humdrum residential towers that characterize most contemporary Chinese cities. Like the studio's other projects—which include fairy tale–themed cafés for children, art galleries, "humble urban space revivals," and the soaring, domed Sinan Books Poetry Store (RECORD, May 2020)—White Upland is distinguished by its layers, organic shapes, and distinct approach to materiality and color (or lack thereof). The architects used 108 steel columns of varying heights to create a panorama of "trees"; throughout, they wove in distinct areas, including a Zen garden, a carousel, and an enclosed pavilion that emulates the starry night sky. Adding to the dreamlike ambience, Yu-Ting incorporated natural elements and sensations—such as mist, mini-waterfalls, pockets of sand, a selection of regional trees and rocks, and a bonfire pit—among the artifices.



The dreamlike environment is distinguished by its layers of whiteness and its forest of "trees," with their steel trunks and petal-shaped canopies.

Commissioned by the owner of the retail center to make the low-slung rectilinear structure more enticing to passersby, White Upland succeeds to the point of hiding its ordinary neighbor behind its complexity. This is especially true at night, when the columns are illuminated, bathing the entire plaza in a bright, white glow. A mixture of architecture, landscape, and art installation, the project offers visitors the chance to take part in an unusual spectacle, transforming a trip to the mall into an exceptional experience. Says Yu-Ting, the project is a "manifesto of the anti-generic city." ■

Freelance writer Alex Klimoski was an associate editor at RECORD.



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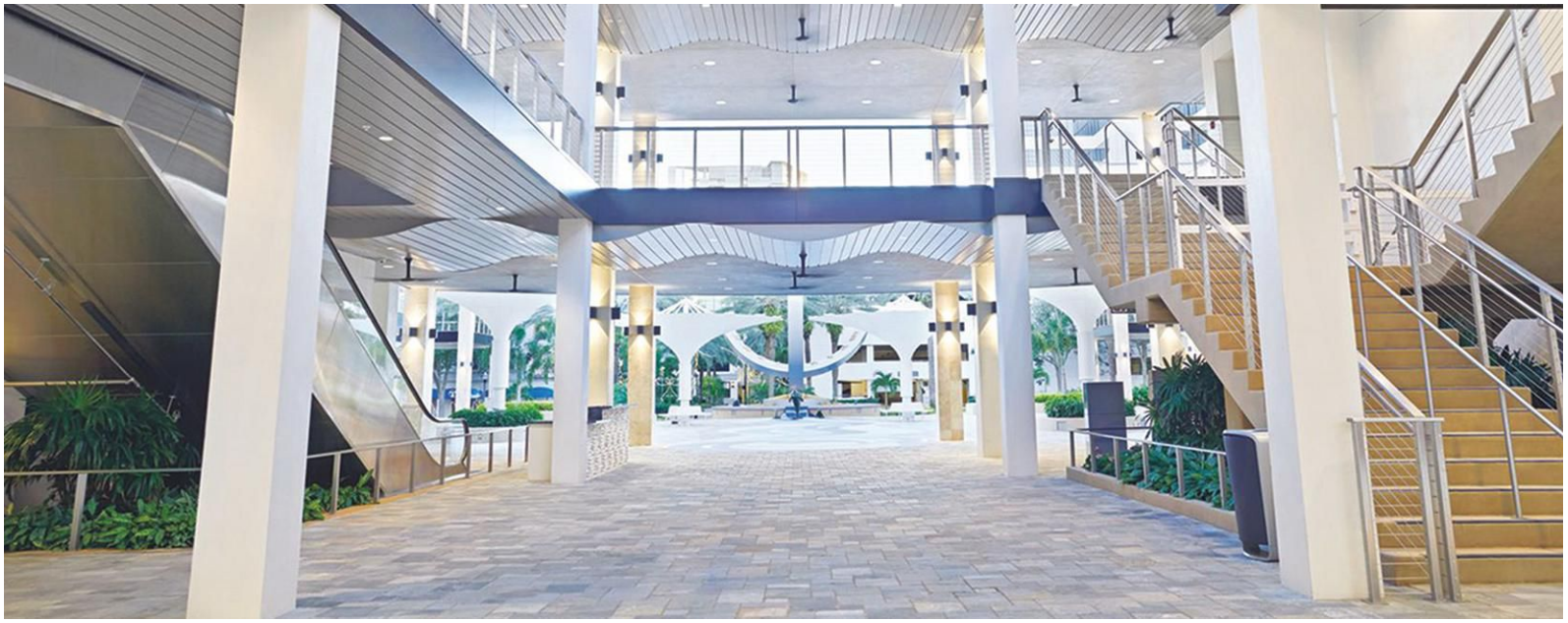


The architect for the Phillips Exeter Academy Library (a.k.a the Class of 1945 Library) in Exeter, New Hampshire, was **Louis Kahn**, who completed the landmark Modernist monument in 1972. The brick-walled exterior conceals the surprise of the striking interior structure of reinforced concrete, with its skylit atrium.

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Architectural Record



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This webinar is part of the Acoustics Academy.

The acoustical quality of commercial spaces is impacted by many factors, and ensuring adequate speech reception and speech intelligibility is a common challenge. In this course, you will learn about basic metrics used in acoustic design and how specific architectural and acoustic parameters can be used during the design process. Through example, you will learn about the factors that lead to increased acoustical performance and comfort in commercial projects.

Learning Objectives:

- Develop a basic understanding of acoustic metrics.
- Describe the general acoustic performance goals of the projects presented in this course.
- State one acoustical challenge and its resolution presented in this course.
- Explain the value of a balanced acoustical design in commercial spaces.



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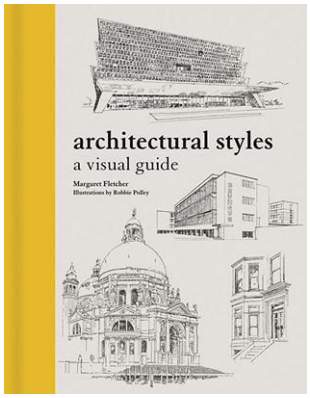
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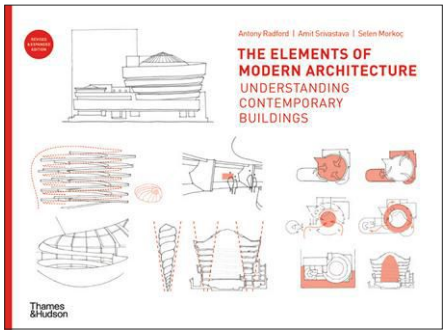
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Refresher Course for Architects



Architectural Styles: A Visual Guide, *by Margaret Fletcher and Robbie Polley. Princeton University Press, 288 pages, $29.95.*



The Elements of Modern Architecture: Understanding Contemporary Buildings, *by Antony Radford, Selen Morkoç, and Amit Srivastava. Thames & Hudson, 360 pages, $50.*

DO YOU sometimes forget where the Romanesque ends and the Renaissance begins? Do you ever confuse Constructivism with Deconstructivism? Never heard of an ogee roof? You're probably not alone.

Architectural Styles: A Visual Guide can help fill in some of those gaps. By no means an encyclopedic reference book, it is instead a handy guide when your memory lapses. Written by Margaret Fletcher, a professor of architecture at Auburn University, it is illustrated with hundreds of hand drawings by Robbie Polley. Distinct periods from ancient times to the present day are represented by a number of buildings. Key features of each "style" are outlined, from the organic ornament of Art Nouveau to the symmetry of Palladianism.

For those of you who have a better grasp of architectural history, it may be a fun exercise to challenge what buildings were included, and excluded, particularly as the book enters the 20th century. Le Corbusier, for instance, is well represented with three buildings—the Unité d'Habitation in Marseille, La Tourette near Lyon, and the Carpenter Center in Cambridge, Massachusetts—filed under Brutalism. His Chapel of Notre-Dame du Haut at Ronchamp (1955), on the other hand, which is fairly contemporary with the other three, is included under Modernism, a chapter that starts with the 1926 Bauhaus Building in Dessau and includes Louis Kahn's Phillips Exeter Academy Library (1972). Quite the range.

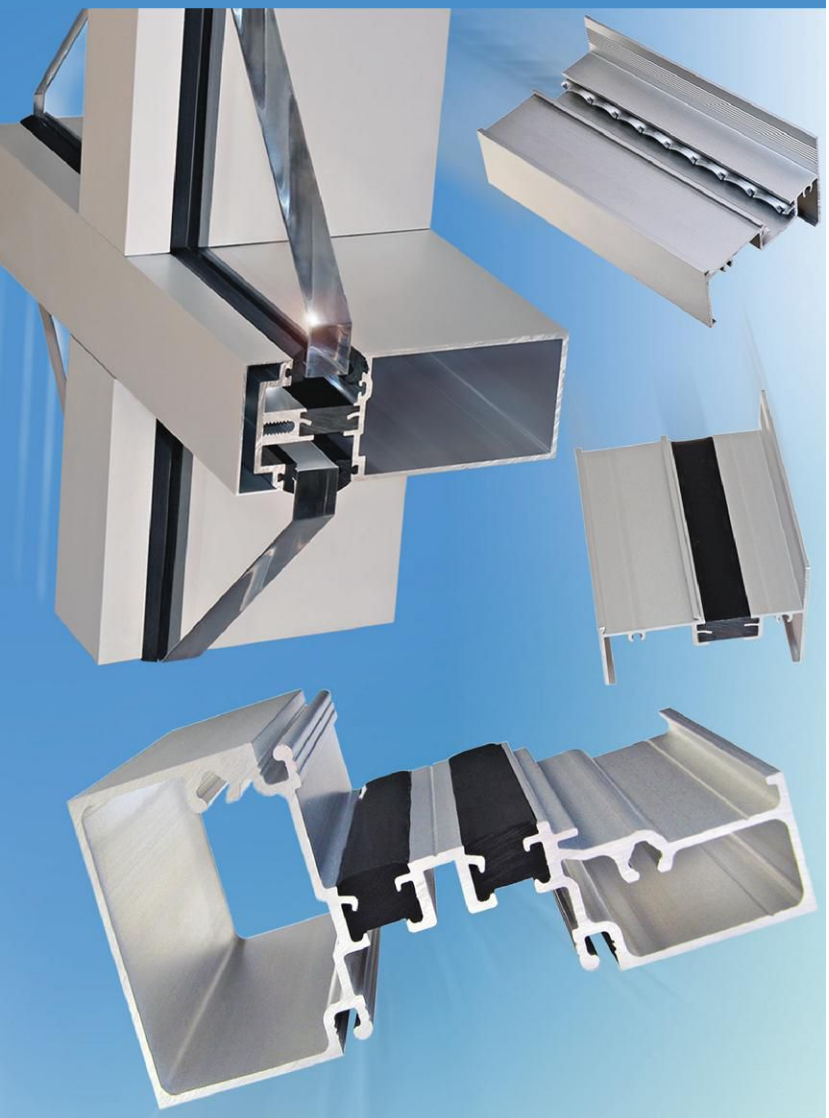
The more recent past gets more muddled, further evidence of the sometimes problematic nature of such categorizations. David Adjaye's Museum of African American History and Culture in Washington, D.C., seems an odd neighbor to Zaha Hadid's sweeping Heydar Aliyev Center in Baku, Azerbaijan, in the pages devoted to parametric design. And, while the book's drawings are a welcome sight in our digital age, the black-and-white images are perhaps not the best way to illustrate the "playful character and use of color" the author lists as key features of Postmodernism.

Buildings from Europe, the Americas, the Middle East, and Asia are in there, but outside of Egypt and one Art Deco building in Capetown, the African continent is largely ignored. One chapter is devoted to early and Classical architecture in India, but there is not a single stepwell—a big miss.

The Elements of Modern Architecture: Understanding Contemporary Buildings is another recent book to help decode structures built since 1950. There are just a handful of overlaps with the previous publication—Frank Lloyd Wright's and Frank Gehry's Guggenheim museums among them. First published in 2014, this revised and expanded version features five additional buildings—including the Harbin Opera House by MAD Architects (2015): as with the other buildings in this volume, its site, structure, construction, and interiors are dissected, again mainly through hand drawings and diagrams, to give a reasonably deep analysis—one that seeks to improve the reader's visual and architectural literacy without a reliance on designating building style. But, ultimately, as the authors explain, "for architecture, nothing replaces physical reality." Experiencing a building in person—now, that's something you're not likely to forget. *Josephine Minutillo*



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Object Lesson

Japanese Design Since 1945: A Complete Sourcebook,
by Naomi Pollock. Abrams Books, 448 pages, $85.

REVIEWED BY WENDY MOONAN





JAPAN, unbelievably, does not yet have a national design museum, which makes American architect and RECORD special international correspondent Naomi Pollock's comprehensive overview of postwar design, *Japanese Design Since 1945: A Complete Sourcebook*, the next-best thing. After 28 years in Japan covering architecture and design, and producing eight books, Pollock knows the country's design history well and the key role that design has in Japanese society.

"In Japan, good design is everywhere," Pollock says. "We may know the objects but not who or how or why they were created." In nearly 500 fully illustrated pages, she profiles 70 architects and designers, many of whom are no longer alive. She spent two years crisscrossing Japan to interview these talents or their associates, families, and students. She also commissioned five essays by design experts.

Some of the names will be familiar (Kazuyo Sejima and Ryue Nishizawa of SANAA, Issey Miyake, Shigeru Ban) as will be some of the designs (the Sony Walkman, Panasonic's Panapet R-70 radio [pictured], the Aibo robot dog, Yamaha motorcycles, and Shiro Kuramata's rose-filled Miss Blanche acrylic chair). But the real value of the book is discovering the creators of things we see every day—from cars to Olympics posters, packaging to textiles, tableware to paper lanterns and furniture.

Throughout, Pollock explains the longtime emphasis on craft in Japan. "It doesn't really matter what the medium is, whether plastic or metal, manufacturers treat the material with the same kind of reverence," she writes. It's all about "the attention to detail and, above all, respect for the hand of the artisan, whether a traditional craftsperson or a factory worker. Even the mass-produced or computer-generated can be created with the pride and care of the handmade." She continues, "Though the user and maker may never meet, this way of thinking and doing is communicated through the objects that have been created."

By tracing the history of the last 75 years, through Japan's booms, bubbles, and busts, Pollock aims to show the relevance of that tradition to contemporary design and, in her words, "most importantly, the role and continued presence of craft that is unique to Japan." ■

Wendy Moonan is a journalist who writes about architecture and design and is the author of New York Splendor: the City's Most Memorable Rooms.





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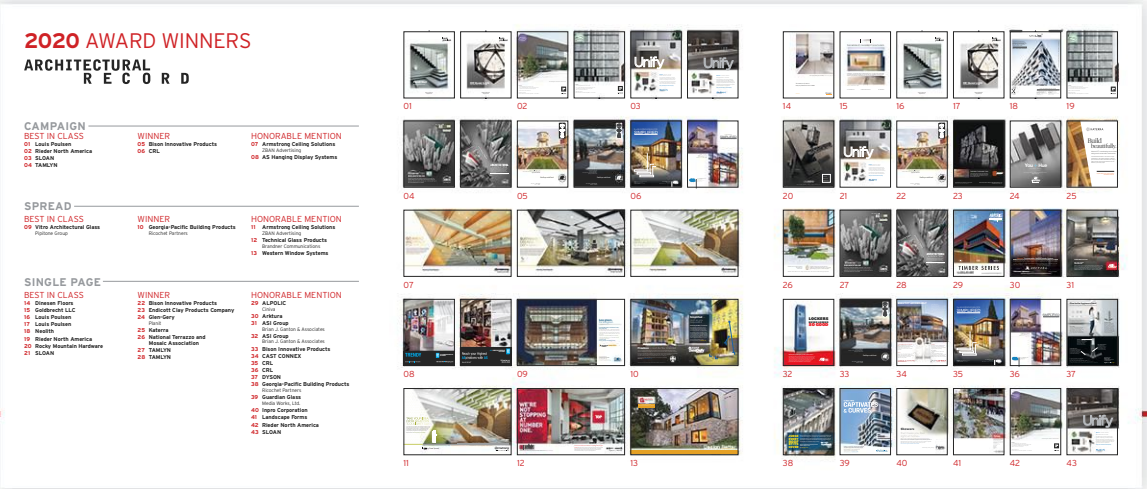
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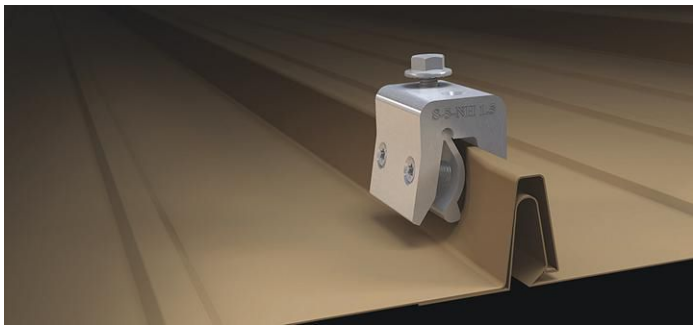
Whether for safety or aesthetics, these products are all about raising the roof.

BY SHEILA KIM



Custom Single-Ply Accessories

When accessories that only come in standard sizes and configurations don't fit with a project's TPO or PVC roof system, contractors may resort to field wrapping—but the results can look less than professional. Mule-Hide Products introduces several customizable options—from closed conical boots to two-way vents—in popular colors to ensure that atypical roofs still look polished.
mulehide.com



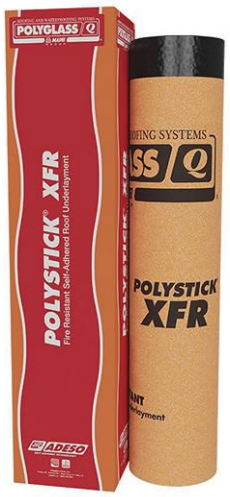
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s-5.com



Fluropon Metal Trends Color Collection

Sherwin-Williams has launched this curated palette of eight color families—drawing on natural and weathered metals—for its Fluropon architectural metal–coating system. These include gold/brass, bronze, silver/nickel, blackened steel, copper, steel, zinc, and anodized. Fluropon coil and extrusion coatings are suitable for common exterior applications such as roofing, sunshades, and facade systems.
coil.sherwin.com



Polystick XFR

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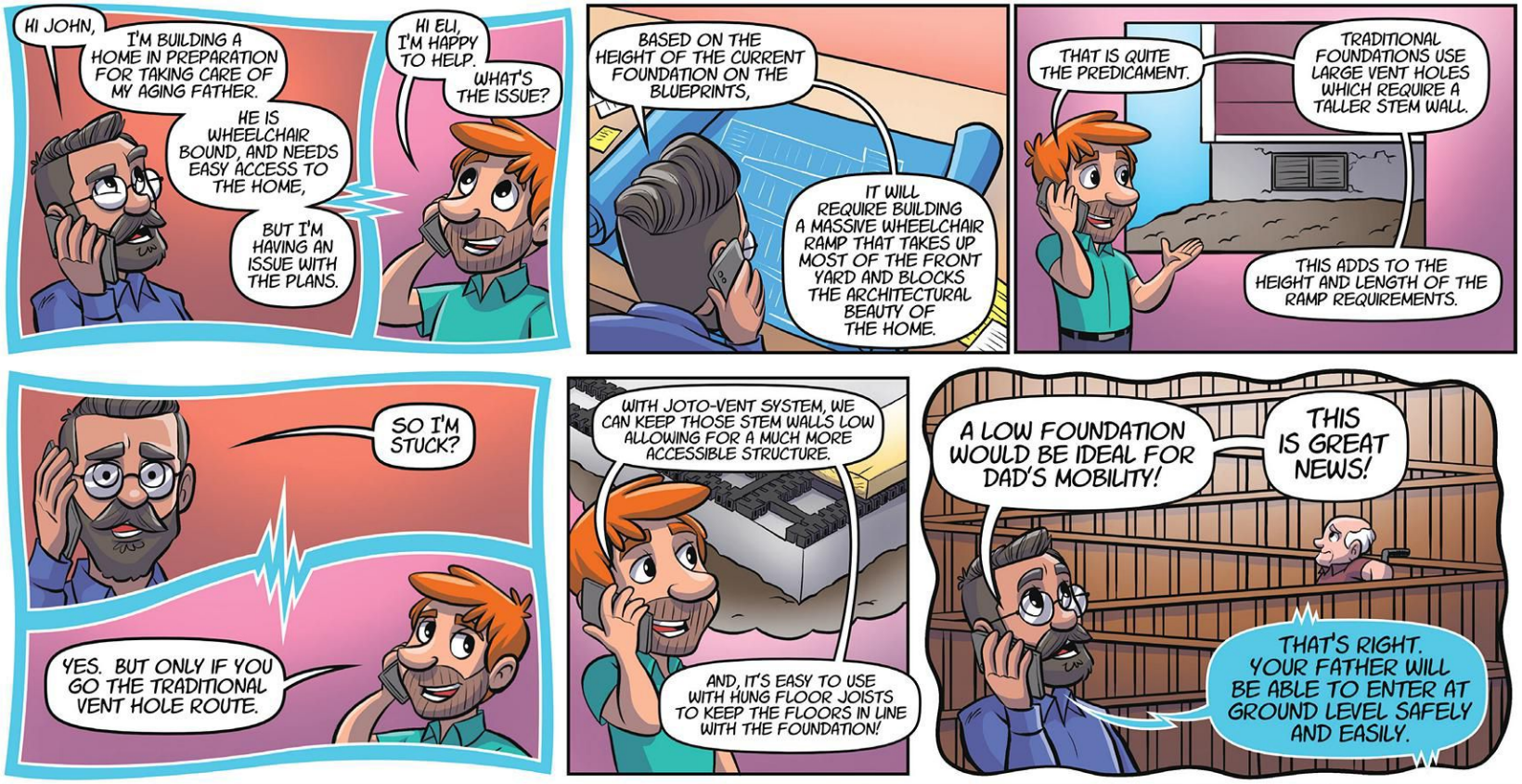
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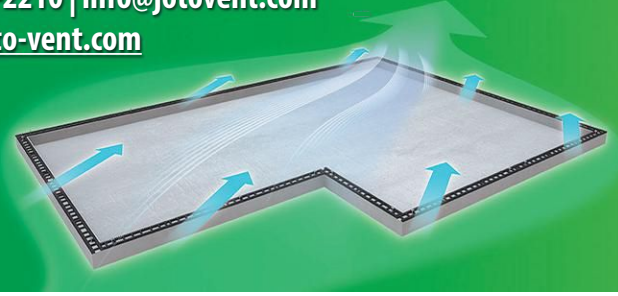
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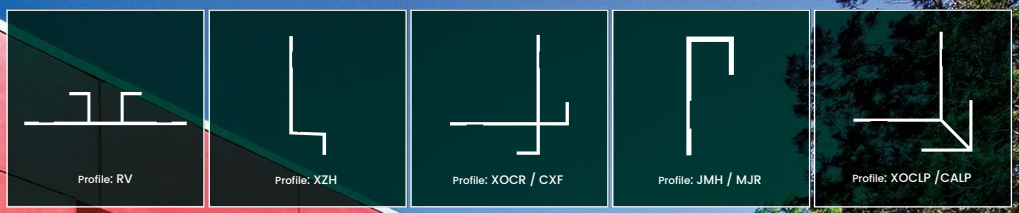
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BUILDING TYPE STUDY 1,026

RENOVATION RESTORATION ADAPTIVE REUSE

48 Ca'n Terra, Menorca, Spain
Ensamble Studio

54 School Annex and Housing
Cologne, Germany
Lederer Ragnarsdóttir Oei Architects

60 MEET Digital Culture Center, Milan
CRA-Carlo Ratti Associati and Italo Rota

66 La Comédie Clermont-Ferrand, France
Souto Moura Arquitectos /
Bruhat et Bouchaudy Architectes

72 The Osler Bluff Ski Club, Ontario
Williamson Williamson

78 Schauspielhaus, Düsseldorf
Ingenhoven Architects

PHOTOGRAPHY: ©ROLAND HALBE

SOUTH FACADE DETAIL, SCHOOL ANNEX AND HOUSING, COLOGNE, LEDERER RAGNARSDÓTTIR OEI ARCHITECTS

On the Rocks

Ensamble Studio carves out a retreat they call Ca'n Terra in a former quarry on the Spanish island of Menorca.

BY TIM ABRAHAMS
PHOTOGRAPHY BY IWAN BAAN

THE INTERIORS look like the cellars of a modernist mansion or freakishly rectangular caves, made almost comfortable by a cushion or mattress. With glimpses of nondescript farmland outside, the appearance is at once modern and primitive. But this unorthodox habitat is the work of the Madrid- and Boston-based practice Ensamble. Known as Ca'n Terra, meaning "House of the Earth" in Catalan, the series of spaces is another fascinating experiment in the fundamental principles of dwelling, as pursued by the firm's two partners: Antón García-Abril, RECORD 2004 Design Vanguard and a professor at MIT's School of Architecture and Planning, and Débora Mesa, who holds the Ventulett Chair in Architectural Design at Georgia Tech.

Established in 2000, Ensamble has pursued two divergent tendencies in construction. On one side, the architects are technologically avant-garde. They built a factory to make prefabricated housing in the Madrid suburbs, but have also explored man's primitive relationship to nature and human habitation.

For a project they call the Truffle, in 2010 (RECORD, April 2011), they poured concrete around an orthogonal mold of hay, which they then covered with earth. Once cured, excavated, and cleaned, they converted this rectilinear cave inside a shed-sized artificial boulder into a guest room. For the 2016 inauguration of the Tippitt Rise Art Center in Montana, they created a series of primeval sculptural works which were made from casts of the land beneath them to explore the intersection of earth technology and human culture (RECORD, August 2016). Their architecture is either technologically sophisticated and quick to erect or primeval and slow. "These are two sides of the same coin," says Garcia-Abril.

It was while on vacation with Mesa, who is also his life partner, on the Mediterranean island





CA'N TERRA is an adapted quarry, open along much of its perimeter and covered with wild olive trees (left). Spaces were shaped into rooms with concrete floors. A fireplace was even added to a crevice in the rock (opposite).

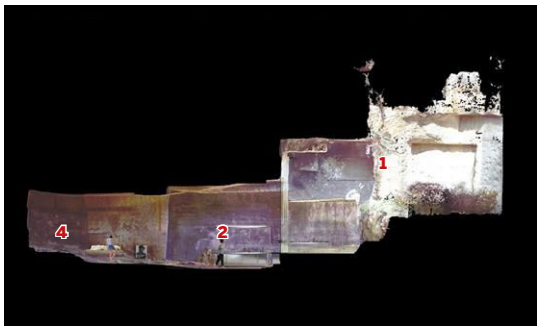




of Menorca that Garcia-Abril, scanning a real-estate website, saw a series of what looked like caves on the periphery of a property. He had to take a look at them. But rather than caves, he had discovered a small quarry for Marés stone, a sandstone from which nearly all the preindustrial—and some more recent—buildings on Menorca have been built. He and Mesa were intrigued.

"What we know about the place is that it was exploited by industry in the 20th century. In the 1930s, after the Spanish Civil War, the military used the quarry as an ammunition warehouse," he says. It had even been partitioned and installed with a kitchen. Garcia-Abril believes that the quarry itself is more ancient. The site is adjacent to a Bronze Age megalith known as a talaiot (a stack of Marés stone), though there is no proof that the stone for that structure originated from the quarry.

The front elevation of the Ca'n Terra is, in appearance, neither anthropological nor industrial. It is a 60-foot-high bluff

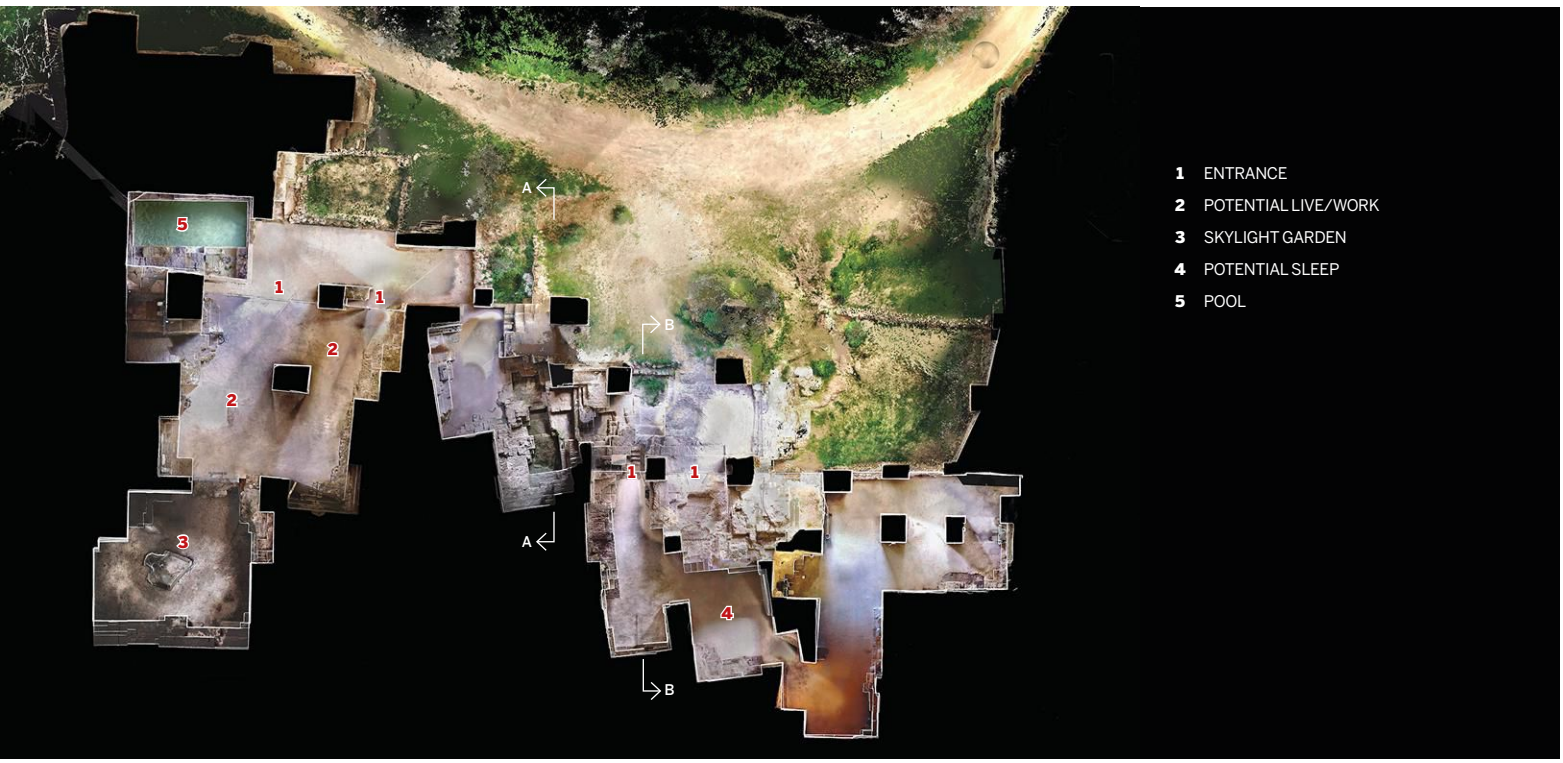


SECTION A-A



SECTION B-B

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THE PLAN AND BOTH SECTIONS WERE CREATED USING 3-D LIDAR LASER-SCANNING TECHNOLOGY

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ENSAMBLE HAS ascribed uses to spaces. This room (above) is a kitchen/dining area. Translucent plastic sheets prevent dust and animals from entering, while allowing daylight in.



of rock sporadically covered in thickets of wild olive and cacti, which shade several entrance points, some as high as 30 feet, leading to a complex of quarried "rooms." Inside, the walls are roughly hewn, giving a stark, primordial effect, although the spaces they contain are legible as generous modern rooms, even if haphazardly connected. The chambers, where stone was carved out long ago, reach as far as 150 feet deep into the rock, with an area of around 300 feet stretching out across the front. "It was already architecture when we found it," says Garcia-Abril. "Hidden architecture, unpolished and raw."

Although Ca'n Terra was not really built, the process of creating what it is now took place over the last three summers. Garcia-Abril, Mesa, and their team bulldozed and shoveled out "tons and tons" of rubble, and removed partitions and walls that had been erected when the site was a munitions dump. Then they pressure-washed the walls to reveal the striking and surprisingly bright Marés stone, marked with the scars and curlicues of a thousand acts of excavation. They also created a 3-D map employing LIDAR (Light Detection and Ranging) technology, a form of laser scanning used in archaeology and mining, to determine the true scale of the space they had literally unearthed.

Since they bought the land in 2017, the process of adapting and inhabiting Ca'n Terra has been incremental and the





THIS OFF-GRID experiment in living simply is blessed with a rainwater-filled pool, which has been furnished with lounge cushions (opposite). In the evening, the screens are raised on an armature for fresh air (above).

interventions as minimal as possible. There was no desire to create a program as one might for a conventional building, although they decided to put a kitchen where one had previously been. After the debris was cleared out, the major additions have been concrete floors in spaces close to the exterior, as well as the creation of an extra skylight through an incision in the rock. While Ca'n Terra is a shelter, it is not a conventional dwelling by any stretch of the imagination but, instead, a place for camping. Water comes from an existing well. An aerobic septic system deals with wastewater, and solar panels provide limited power. Those in the Ensamble team vacation there and bring students for field trips.

Primarily, it is an experiment in how to occupy the earth through minimal gestures. Reinforced plastic sheeting, hanging from metal tracks recessed in the stone, delineate an entrance space at the southern end of the quarry. Balancing humidity is as much a reason for this addition as establishing a barrier to stop animals from wandering in, the way they used to when the space was abandoned. The pool at the southernmost point of the complex is simply a cistern that was already in the quarry to collect rainwater. Cushions on a flat piece of rock create lounges. Steel benches have been attached to the rock in the adjacent space, creating tables and seating. Other parts of the habitat, deeper into the former quarry, are completely untouched and can be read as art—sculptural voids or anti-monuments. The various areas are all lightly inhabited.

"We wanted to silently go through the space and make communion with it," says Garcia-Abril. "That's exactly the project." ■

Tim Abrahams, a former editor at the Canadian Centre for Architecture, is a critic based in the UK.

Credits

ARCHITECT: Ensamble Studio — Antón García-Abril, Débora Mesa, principals in charge; Javier Cuesta, building engineer; Borja Soriano, project manager; Claudia Armas, Alvaro Catalan, Massimo Loia, Marco Antrodicchia, Sebastián Zapata, Arianna Sebastiani, Ekam Sahni, Yu-Ting Li, Joel Kim, Gonzalo Peña, Yvonne Asiimwe, Mónica Acosta, design team

ENGINEER: Urculo engineering (m/e/p)

OWNER: Ensamble Studio

SIZE: 10,750 square feet

COST: withheld

COMPLETION DATE: in progress

Sources

WATERPROOF REINFORCED PLASTIC: Dancover

LIGHTING: efectoLED

PHOTOVOLTAIC SYSTEM: AutoSolar

Singing in Key

Lederer Ragnarsdóttir Oei Architects designed a choir school's multipurpose annex in Cologne.

BY SUZANNE STEPHENS
PHOTOGRAPHY BY ROLAND HALBE

ONE UNNERVING challenge for an architect is adding onto a revered master's work. In 2014, architect Lederer Ragnarsdóttir Oei (LRO) won a competition to design an annex to a choir school abutting Gottfried Böhm's Church of the Resurrection of Christ in Cologne, Germany, completed in 1970. Böhm, a cult figure who won the Pritzker Architecture Prize in 1986, is known for his poured-in-place concrete Brutalist buildings of sculptural virtuosity. Additionally daunting for LRO is that Böhm, who just turned 101, lives in this city, where his grandfather, father, wife, and three sons were and are architects. (Not a bad gene pool.)

LRO, based in Stuttgart, has won a reputation over the years for modern buildings that refer to the architectural vocabulary and materials of the region, as seen dramatically in the firm's crafted, idiosyncratic sandstone Historical Museum in Frankfurt (RECORD, January 2018). "How do you react when designing an addition to a building by someone you hold in such high esteem?" asks Arno Lederer, principal of the 41-year-old practice. "The only way to succeed, or fail," says Marc Oei, another principal, "is to follow one's own personal notion of architecture."

In Cologne, the architects needed to provide rehearsal space and practice rooms for the choir school and other choir members, along



THE L-SHAPED ASSEMBLAGE of volumes reflects three different uses: rehearsal and practice rooms, dining hall, and rental apartments (above). They open onto a lawn to the west and link on the south to a church designed by Gottfried Böhm in 1970 (opposite).

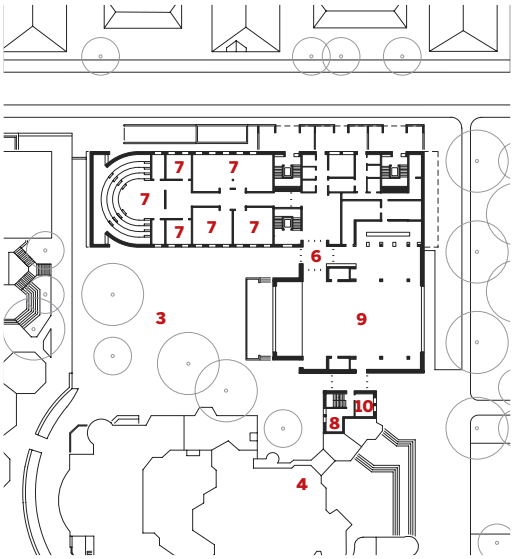




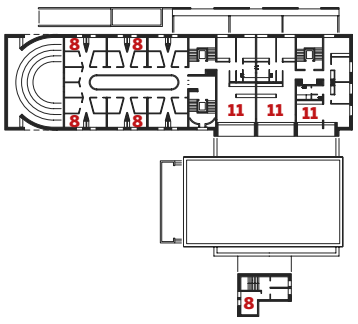


SITE PLAN

1 SCHOOL ANNEX AND HOUSING
2 DOMSINGSCHULE (CATHEDRAL CHOIR SCHOOL) AND KÖLNER DOMMUSIK (CATHEDRAL MUSIC)
3 SING GARDEN
4 CHURCH OF RESURRECTON
5 LIEBFRAUENSCHULE (SCHOOL OF OUR LADY)
6 MAIN ENTRANCE
7 REHEARSAL AND VOICE TRAINING ROOM
8 PRACTICE ROOM
9 DINING HALL
10 CARETAKER
11 APARTMENT



GROUND-FLOOR PLAN



SECOND-FLOOR PLAN

THE REHEARSAL/PRACTICE rooms and the dining hall open onto the Sing Garden (above). Facing the public park on the opposite side is another arched window (opposite, top). Wood girders and trusses (opposite, bottom) span the pavilion.

with a dining hall/event area, and 10 affordable rental apartments. In creating this multiuse structure, the architects felt the new building should not imitate Böhm's church, with its spiraling sculptural tower of concrete and variegated brick. Nor should it "contrast too much with it," says Lederer. So the firm conceived an L-shaped structure that fills in the northeast corner of an eight-acre site, angled to face Böhm's ensemble of craggy, rocklike forms to the south, to which it connects at one end. Around the complex are separate buildings for the primary grades of the Domsingschule (Cathedral Choir School) and the overall entity known as Kölner Dommusik (Cathedral Music) plus the secondary Liebfrauenschule (School of Our Lady), whose students also use the annex. (While the new building is called an "annex," it is its own physical entity and only touches the Böhm church.)

To accommodate the program, LRO placed four rehearsal rooms, two voice-training rooms, and 30 practice rooms on the ground level and second floor of the four-story linear block, the longer arm of the L, edging the north side of the site. The shorter arm of the L runs south toward Böhm's church and contains a single-story (but double-height) dining hall and event space that can seat 300 primary- and secondary-school students. On the south end of the dining hall, LRO created a two-story structure, for the caretaker office

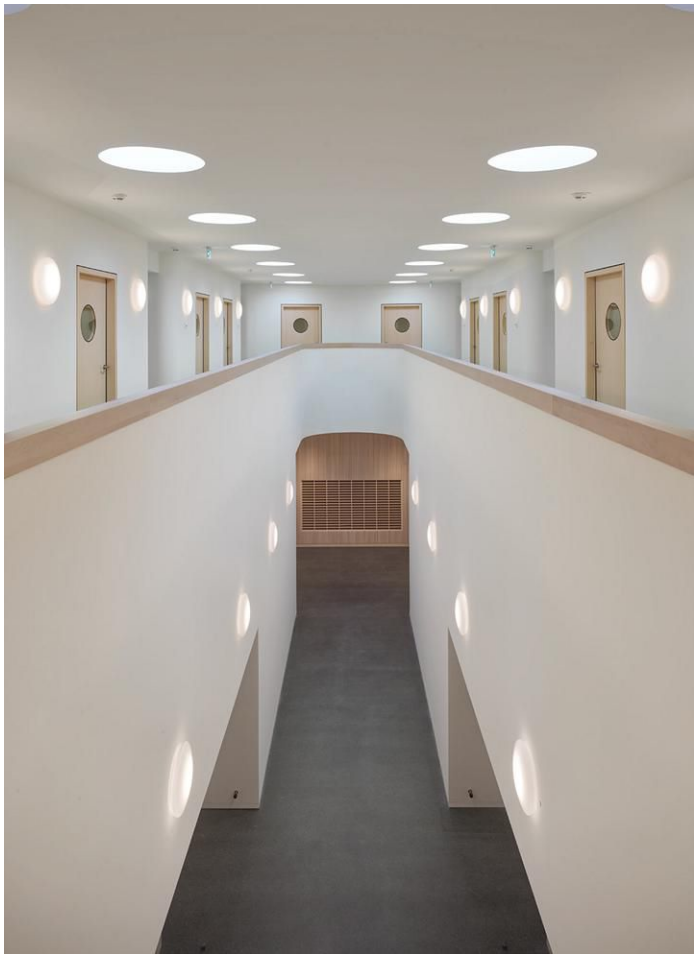
and practice rooms, that is attached to the Böhm church.

In addition, the client, the Cologne archdiocese, wanted to offer 10 rental apartments for those seeking affordable housing in the city's Lindenthal district, so one part of the long arm of the L has these units on the upper three floors. Both the long and short arms of the L embrace a lawn with curving paths, named the Sing Garden in homage to the choir students traversing it from the nearby Domsingschule to the annex and the church.

A notable architectural feature in this 57,000-square-foot ensemble is the pair of arched, glazed expanses enclosing the dining/event space, one side facing west to the Sing Garden, the other east to a public park dotted with landmarked chestnut trees. Timber girders and trusses lift the flat wood-framed roof of this hall above clerestory windows, so that it becomes an airy, light-filled pavilion on the way to Böhm's church. While the arcing windows seem unusual for a school, the curvilinear expanses act as a strong counterpoint to the linearity of the LRO scheme and the articulated spiral of the Böhm church. "We wanted the window to act as the public face of the annex," says Oei.









THE PRACTICE ROOMS on the second level (above, left and right) loop around an ovoid opening. The ground floor's largest rehearsal room (opposite) is enclosed by semicircular seating for 160 children.

Just as important to the gestalt is the brick cladding, a material the architects have frequently used for its economical yet timeless quality, and its sense of the hand and human scale. Yet they know there is brick and there is brick. While Lederer says the team chose an evenly fired running bond brick for budgetary reasons, it is more "boring" than other, distinctive masonry bond patterns. "Yet this does not seem to be a drawback," he says. "We wanted to respond with restraint to the lively masonry of the church." Still, its homogeneity may be in the eye of the architect: the brick appears more mottled than many commonplace commercial examples.

The interiors of the annex's concrete-frame structure have a warm yet spartan Aalto-esque feeling. The large curvilinear seating of the 160-seat rehearsal room (whose shape in plan nicely recalls the elevations of the dining room's window walls) receives natural illumination through deep skylights and curved slots in the brick walls. The wood paneling and millwork in the rehearsal rooms continues to a degree in the white-painted corridors, dramatized by a curved balustrade looping around an ovoid opening on the second floor. The apartments are simple, varying in size from 860 to 1,500 square feet. Yet they all have balconies overlooking the church that, along with windows on the other side, provide cross ventilation.

LRO was able to combine the three separate programmatic elements in the L-shaped block yet distinguish the different uses through volumetric massing. In so doing, they kept the height of the new structure low enough so that the Böhm church would still dominate the ensemble. Although German schools have been closed and church use restricted because of the coronavirus lockdown, the complex, just completed last March, awaits the day when all can again experience this unique coming together of architecture, music, and people. ■

Credits

ARCHITECT: LRO Lederer Ragnarsdóttir Oei Architects — Arno Lederer, Jörunn Ragnarsdóttir, principals; Marc Oei, principal and project manager; Frank Bohnet, deputy project manager; Philipp Gantenbrink, construction manager

ENGINEERS: Leonhardt, Andrä, and Partner (structural); Ingenieurburo Heiming (m/e/p)

CLIENT: Archdiocese of Cologne and Generalvikariat Abteilung Bau

SIZE: 57,000 square feet

COST: withheld

COMPLETION DATE: March 2020

Sources

MASONRY: CoenenJosef Ziegel- & Klinkerwerk

ELEVATOR: Schindler

SKYLIGHTS: Velux

CARPET: Interface

ACOUSTICAL CEILINGS: Knauf

WOOD-FRAME WINDOWS: Siegenia

ELASTOMERIC ROOF COATING: Bauder

PHOTOVOLTAIC SYSTEM: Trox

PLUMBING: Geberit

PAINTS AND STAINS: Sto

LIGHTING: Betalumen; Bega



MEET Up in Milan

Carlo Ratti and Italo Rota merge the physical with the digital for a cultural hub in an urban palazzo.

BY CLIFFORD A. PEARSON
PHOTOGRAPHY BY MICHELE NASTASI

CARLO RATTI is an architect, professor, inventor, entrepreneur, and the director of MIT's Senseable City Lab, so he looks at the world through multiple lenses. For the MEET Digital Culture Center near one of the historic gates of Milan, he applied thinking from a variety of disciplines to the challenge of creating a physical space for people curious about the virtual realm. "I'm interested in the convergence of the digital and the physical, the artificial and the natural," says Ratti.

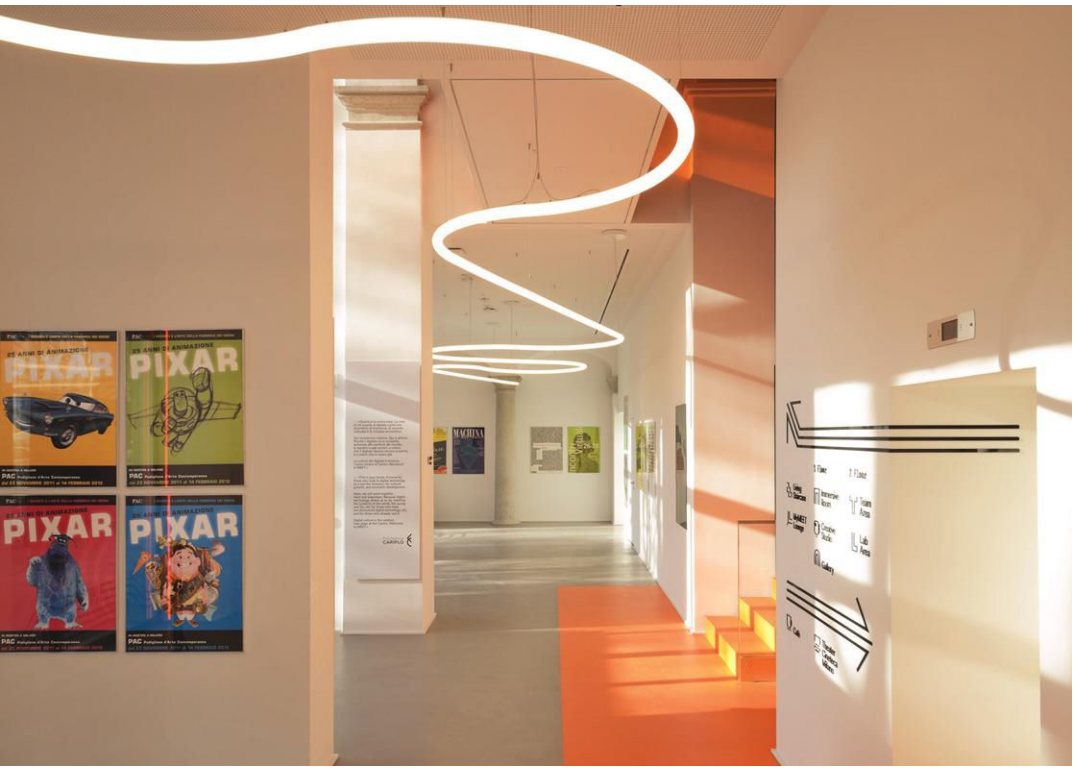
Set within an early 20th-century palazzo in the Porta Venezia neighborhood, the MEET Center straddles eras, as well as technologies. Occupying the same space as the Spazio Oberdan, an avant-garde cultural hub inserted in the first three floors of the building by Gae Aulenti in the 1990s, the new facility must negotiate the jump from a classical building envelope of stone and brick to a fluid interior of "hybridized" spaces and ultra-high-definition screens. Though it replaces the Spazio Oberdan, it tries to retain the mercurial spirit of Aulenti, whose work channeled both Modernism and Postmodernism. That's a lot to do in 16,000 square feet, on the lower floors of a six-story building (with apartments above; neither Aulenti nor Ratti were involved in the residential portion of the building).

One tool Ratti uses is light. He and his collaborator, architect Italo Rota, who had worked with Aulenti on the Musée d'Orsay in Paris, weren't allowed to change much of the century-old exterior, so they



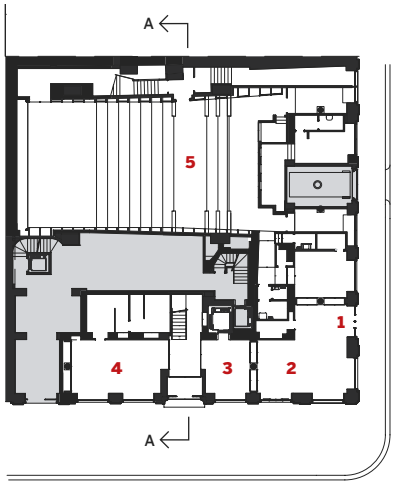


VIEWS UP AND DOWN, multiple landings, and counters for laptops encourage visitors to use the main stairs as a social hub (this page). MEET occupies the lower three floors of an early 20th-century residential building (opposite).

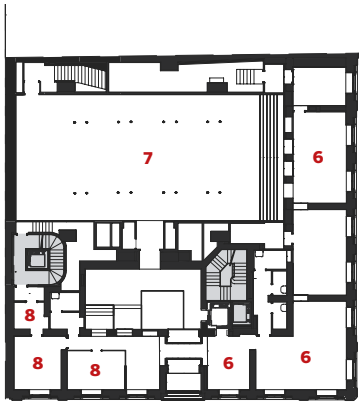


created a warm orange glow emanating from the second floor to alert people on the street that something intriguing was going on inside. "The idea was to create a strange halo," explains Ratti. He and his team also designed a sign made of separate elements set within the building's arched entrance that come into alignment and read as "MEET" only when pedestrians get close. "We wanted to produce a sense of suspense," says Ratti.

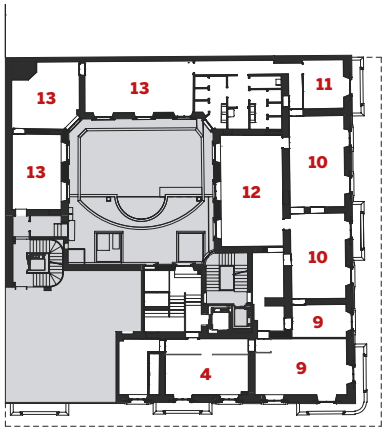
Inside, the architect uses light to draw visitors up zigzagging stairs set within a 50-foot-high atrium that Ratti refers to as a vertical plaza. The social heart of the project, the stairs are wide enough to allow people to interact and congregate. As a multipurpose space the stairwell offers vantage points for digital screens, live performances, talks, and all sorts of activities. Disc-shaped robots called Scribits, developed by Carlo Ratti Associati, move along wires to sketch and then erase colorful drawings on the white walls of the space. The stairs themselves are assembled from digitally fabricated lightweight steel panels that Ratti developed as well. By integrating digital technologies



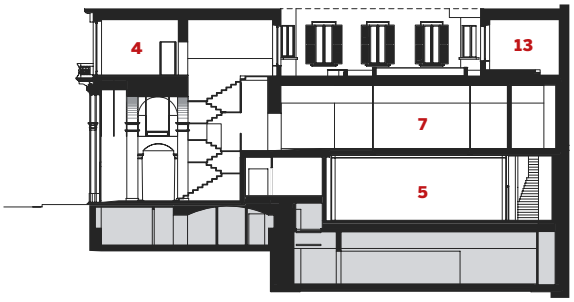
GROUND-FLOOR PLAN



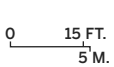
SECOND-FLOOR PLAN



THIRD-FLOOR PLAN



SECTION A - A



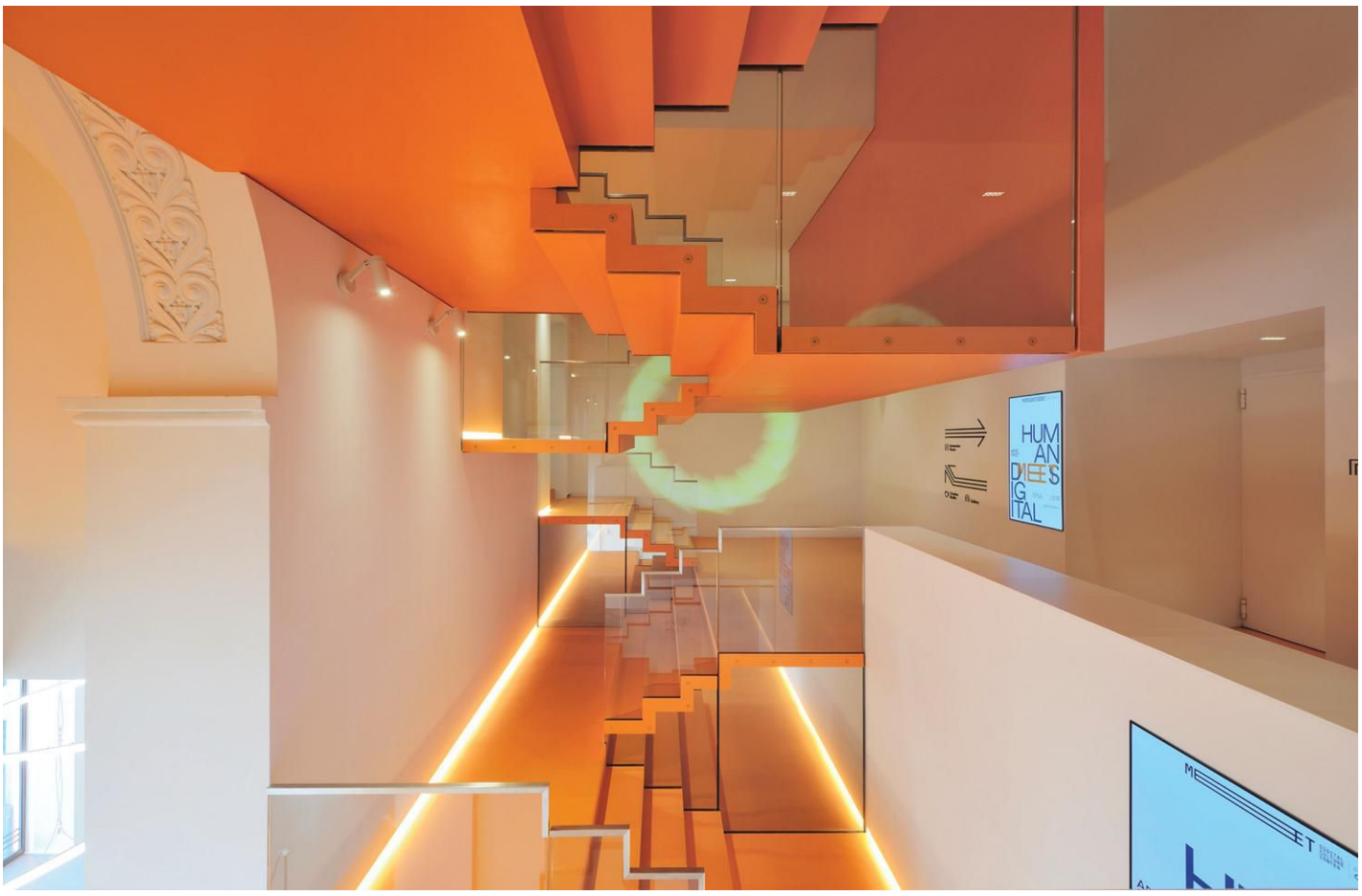
1 ENTRY
2 BAR/CAFÉ
3 RECEPTION
4 LOUNGE
5 CINEMA/AUDITORIUM
6 EXHIBITION
7 IMMERSIVE ROOM
8 PRODUCTION STUDIO
9 OFFICE
10 FLEX SPACE
11 KITCHEN
12 EXECUTIVE
13 WORKSHOP



THE ARCHITECTS used custom lighting and color to guide visitors through exhibition areas (opposite) and the central stair (below). Some original molding and details were retained to create a sense of layered history (right).

everywhere, Ratti hopes to make them "disappear." He also hopes that the wide stairs and multiple landings will encourage the kind of serendipitous live encounters that don't happen in the digital world. "In digital space, we can filter out what we don't want," he says. "But here, I want to bring different communities together." While the stair is the buzzing social hub of the center, the fluid arrangement of spaces encourages visitors to explore the entire facility, from the 200-seat theater and café on the ground floor to exhibition galleries and an Immersive Room, showing ultra-high-definition images on three walls, on the second floor, to classroom/workshops and offices on the third.

Founded in 2018 by art critic and new-media proponent Maria Grazia Mattei, and supported by Fondazione Cariplo, one of Europe's largest charitable organizations, MEET aims to bridge the digital divide in Italy. Understanding that innovation is a cultural issue more than a technological one, Mattei wants to establish a place where people without home access to the latest technology can be introduced to the digital world and mix with computer nerds, cinema fans, artists, and cultural influencers. With that goal in mind, Ratti designed spaces with hybridized functions, so that different types of visitors are drawn to all parts of the center and not just to ones geared to their special interest,



PHOTOGRAPHY: © SERENA GIARDINA (TOP)



ALL OF THE key spaces, including the main stair (left), the Immersion Room (opposite, top), and the cinema (opposite, bottom) were designed to host a variety of activities.

such as the cinema or the exhibition galleries. MEET opened on October 31 with limited visitation due to the coronavirus pandemic, then closed for most of November when Milan went into lockdown during the Covid surge. It reopened at the end of November, only to close again until January 15, at least; at press time, it was not yet known if that date could be kept or exactly when the pandemic would allow MEET to be open.

Although designed before the pandemic blurred distinctions between home and office, school and gallery, sidewalk and restaurant, MEET offers a three-dimensional approach to melding functions and modalities. At the Senseable City Lab, in his start-ups, and in his professional practice, Ratti explores such issues on multiple scales, from the design of a high-tech scooter to a master plan for a new campus for the University of Milan on the site of the 2015 World Expo. He acknowledges the influence of the 20th-century Milanese architect and critic Ernesto Rogers, who said he wanted to design everything, "from a spoon to a city." For Ratti, the ambition is to engage everything "from a microchip to the planet." ■

Credits

ARCHITECT: CRA-Carlo Ratti Associati — Carlo Ratti, principal; Andrea Cassi, project manager; Chiara Morandini, project leader; Valentina Grasso, Luca Giacolini, Serena Giardina, Aurora Maggio, Anna Morani, Matteo Zerbi, Aunie Frisch, Andrea Galli, Oliver Kazimir, Gerolamo Gnecchi Rusconi, Alessandro Tassinari, project team

ASSOCIATE ARCHITECT: Studio Del Giacco

ARTISTIC DIRECTOR: Italo Rota

CONSULTANTS: Francesca Grassi (bistro furniture design); Onleco (acoustics); Audviser (audiovisual technologies); Ai Studio (preliminary m/e/p and environmental); INGEMBP (structural design)

CLIENT: MEET

OWNER: Fondazione Cariplo

SIZE: 16,000 square feet

COST: withheld

COMPLETION DATE: October 2020

Sources

LIGHTING: Artemide

FLOORS: Kerakoll

CHAIRS, FIXED SEATING: TMA-True Design

OFFICE FURNITURE: ESTEL




DIGITAL
CULTURE
CENTER
Fondazione
CARIPLO

Bus Stop

Eduardo Souto de Moura and Bruhat et Bouchaudy expand a transit station to create a theater in France.

BY ANDREW AYERS

SINCE THE REIGN of Louis XIV, culture in France has been an affair of state. In recent decades, the culture ministry has made efforts to "decentralize," among them the creation of 76 *scènes nationales*—regional theaters co-funded by central and local government. Clermont-Ferrand, the historic capital of Auvergne in the Massif Central, was granted a *scène nationale* in 1997; unlike all the other theater companies, the Comédie de Clermont had no permanent home, instead putting on performances as best it could in venues around town. Now, 23 years later, it finally has a building made to its measure, centrally located, expanding and adapting Clermont's old bus station—a lean and elegant theatrical machine, designed by Eduardo Souto de Moura (who is based in Porto, Portugal) in collaboration with local firm Bruhat et Bouchaudy.

François Bouchaudy, who has known Souto de Moura for over 30 years, sought him out for the 2015 Comédie de Clermont competition. At first the Pritzker Prize–winner was reluctant: "I already had a lot of work—why do competitions?" But three factors persuaded him: friendship; the thrill of a new typology; and the fact that the brief called for the integration of the bus station's main hall, built in 1957–61 by the Clermontois architect Valentin Vigneron, a disciple of Auguste Perret. "Perret is an architect I appreciate, so I got enthusiastic about the project." Indeed, Souto de Moura's attitude toward this vestige of postwar optimism, which saw Vigneron faithfully copying his master's proto-modern raw-concrete classicism, was no doubt a factor in his winning the competition—for, where the other finalists submerged the station in giant superstructures, he displayed an almost complete self-effacement that allows the existing building to stand out proud on its boulevard setting. Housing both the ticket office and a restaurant—which in pleasant weather spills out onto the side street, closed to vehicular traffic at the architects' behest—the beautifully restored hall provides a



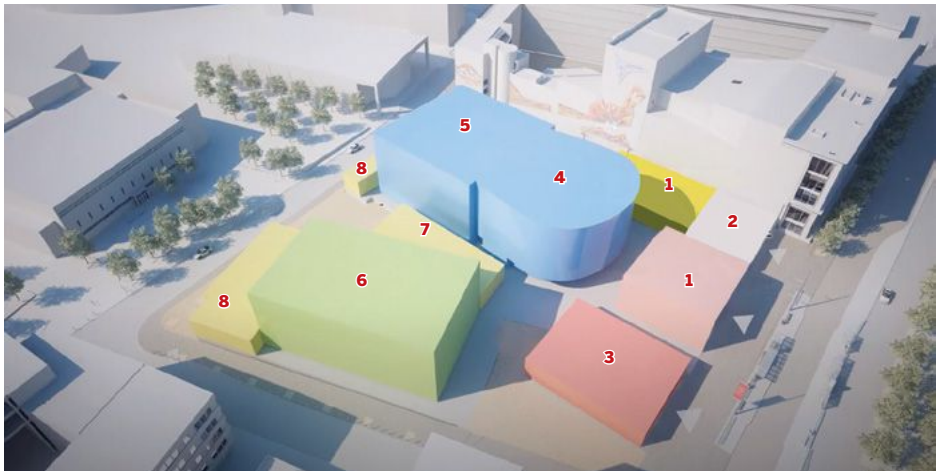


A 60-YEAR-OLD former bus station (top), designed by Valentin Vigneron, a disciple of Auguste Perret, serves as the Comédie de Clermont's front facade, while the complex's new elevations seem to refer to the work of Le Corbusier (right) and Alvaro Siza (opposite, bottom).

PHOTOGRAPHY: © MATHIEU NOEL, EXCEPT AS NOTED; PASCAL AIMAR (BOTTOM, OPPOSITE)



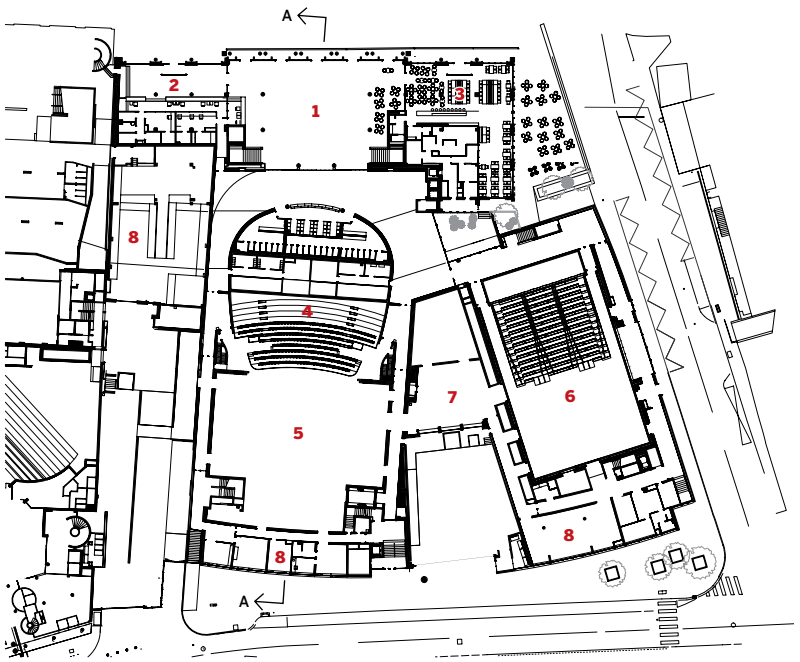




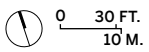
SITE DIAGRAM

monumental light-filled entrance, whose civic dignity welcomes rather than intimidates.

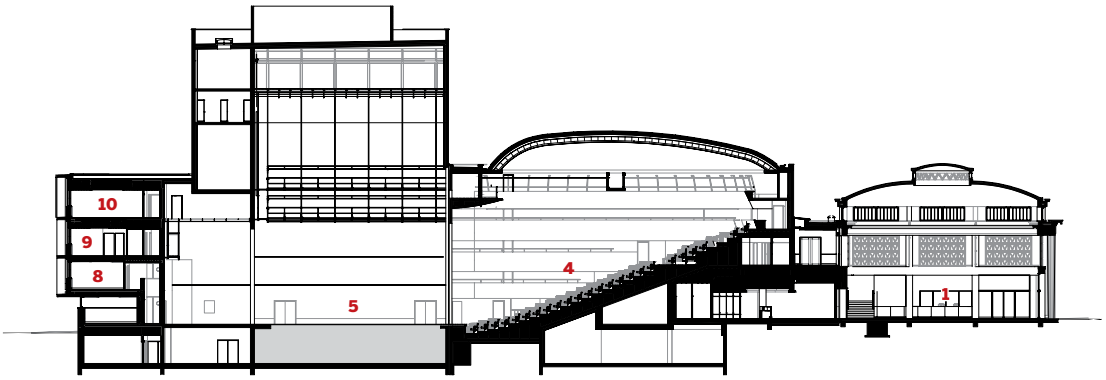
The program called for a main auditorium seating 900 people (886 as built) and a black-box theater for up to 336 sitting and 1,000 standing. Again, Souto de Moura and Bouchaudy took a different path from the other competition finalists, all of whom, in response to the tight site, piled up the two auditoria. Instead, the winning team placed them side by side, daring to impinge on two narrow strips of land the brief had advised be left untouched due to the likely presence of archaeological remains. This rule-breaking, which required the use of micropiles to minimize below-grade disturbance, resulted



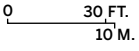
GROUND-FLOOR PLAN



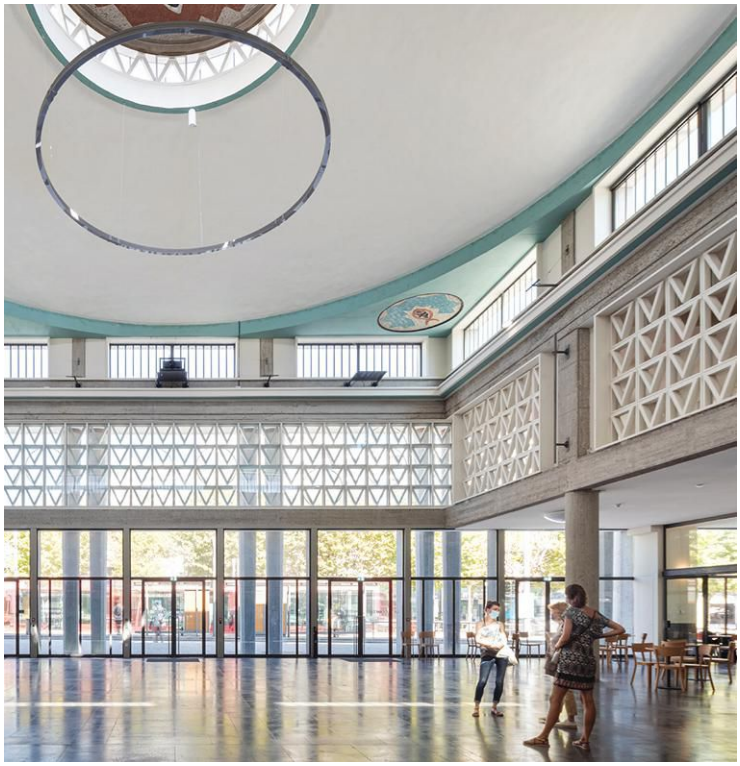
1 LOBBY
2 BOX OFFICE
3 RESTAURANT
4 MAIN THEATER
5 STAGE
6 BLACK-BOX THEATER
7 LOADING DOCK
8 TECHNICAL SUPPORT
9 ADMINISTRATION
10 DRESSING ROOMS



SECTION A - A



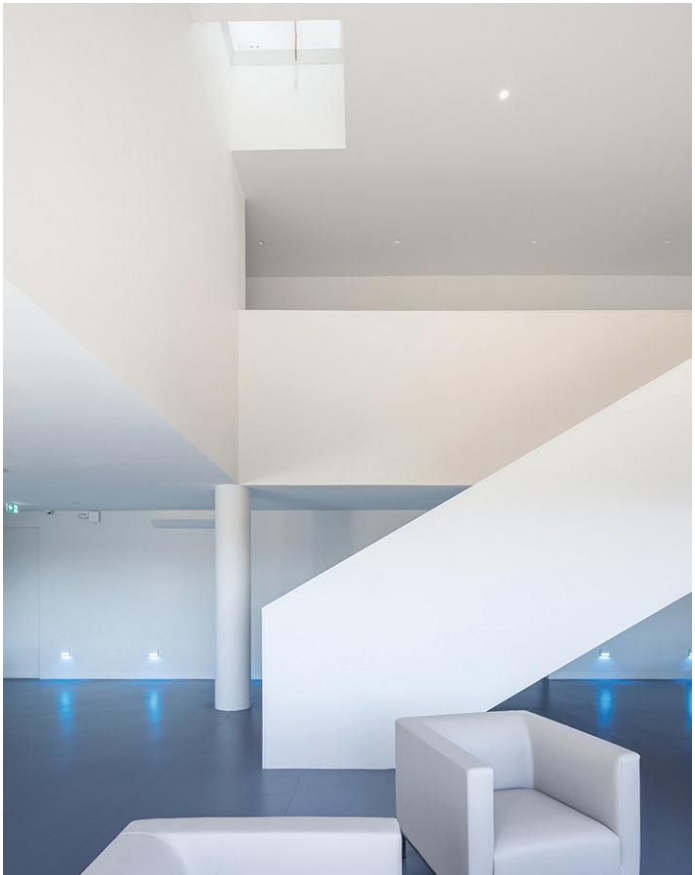
THE MAIN HALL of Vigneron's bus station (above and right), with its exposed-concrete structural elements and proto-modern classicism, provides an appropriately monumental and light-filled entrance to the new performance venue.



in "an economy of both construction and use," says Bouchaudy: the hauling of scenery up and down stairs was avoided, and a shared loading dock could be located between the two theaters. Furthermore, the new building's impact on the cityscape was drastically reduced, the fly tower rising just 82 feet behind the bus station.

Never having designed a theater, Souto de Moura found a suitable model for the main auditorium in Perret's pioneering concrete-framed Théâtre des Champs-Élysées (TCE) of 1913. But the Comédie's brief specifically forbade balconies, since the director, Jean-Marc Grangier, "wanted to avoid the hierarchy of a classic theater and instead have everyone together facing the stage." The hybrid result, decked out in thespian red, comprises a curved auditorium like Perret's—"to concentrate the sound in the center," explains Bouchaudy—with steep stadium seating that ensures perfect sight lines. Souto de Moura originally wanted a modular stage, but Félix Lefebvre, the team's consultant scenographer, persuaded him to use a classic proscenium arch. This raised the question of how to square the circle where the auditorium met the stage. "I had no qualms copying Perret, since he did it very well," says Souto de Moura, referring to the TCE. "The history of architecture is full of solutions—why reinvent the wheel?" The copying





THE AESTHETIC of the café (above), located at one end of the former bus terminal, is clean and spare, as is that of a double-story staff "salon" (right). The main theater is less restrained, all decked out in red, and with sinuous technical balconies that help diffuse sound (opposite).

takes the form of "balconies"—technical galleries with no seats—that whiz around the sides and rear of the auditorium, helping to diffuse sound that would otherwise reverberate. Again following tradition, a dome coifs the auditorium, though it is deliberately shallow, so as not to overwhelm the exterior of the former bus station, and is irregular, for acoustic correction.

The smaller auditorium—the same size as the main hall's capacious stage, so that the latter's sets can be built and stored in it—contains flexible seating that also can be completely removed. Lined with dark acoustic bricks, it features a large grade-level window, a suggestion of Lefebvre's. "Félix told me, 'Eduardo, I'm tired of always working in the dark, seven or eight hours of rehearsals without seeing the light of day.' So I opened everything up"—the dressing rooms and the costume workshop at the rear are all abundantly glazed, while patios bring light into the heart of the rest of the building, including the rehearsal hall. "Open to the city," as the theater is, its discretion in the urban landscape extends to the choice of material—raw concrete, to blend in with the Perret-esque neighbors—and its design sees Souto de Moura playing with history: his rear facade evokes late-career Le Corbusier, champion of horizontal glazing, in contrast to Perret, who insisted on

PHOTOGRAPHY: © PASCAL AIMAR (OPPOSITE)



vertical fenestration; joining the two, on the side elevation, is the School of Porto, represented by a very Siza-esque protruding window.

Construction was not a happy time for Souto de Moura, since he was asked "to build the theater for the same price [$38 million] it would cost in Portugal, where wages are half those in France," and to do it fast—33 months. Famous for his attention to detail, he was dismayed by shoddy French craftsmanship and fought a grueling battle with the contractor that nearly saw him quit. "The concrete was a disaster—we ended up having to sandblast and bush-hammer it. But only up to a certain height, to save costs. On the fly tower, we left it as is." Despite its difficult birth, the Comédie de Clermont was acclaimed during its brief inaugural season this fall (cut short by Covid-19). After a two-decade wait, Jean-Marc Grangier is especially thrilled, not only with the new building and the "ideal location, but also because of the bus station. There was an identity here that was totally compatible, because for me leaving on a journey is what theater is all about." ■

Andrew Ayers is a Paris-based writer, translator, and educator.

Credits

ARCHITECT: Souto Moura Arquitectos — Eduardo Souto de Moura, principal; Ricardo Prata, design lead; Afonso Romana, Luís Costa, José Carlos Mariano, José Maria Vieira, Rute Peixoto, Tiago Simão, team

ASSOCIATE ARCHITECT: Bruhat et Bouchaudy Architectes — François Bouchaudy, principal; Pierre Fonlupt, site lead; Patrice Sudre, site; Audrey Carrara, Andrew Duff, François Fayard, Lidia Golan, team

CONSULTANTS: Egis Bâtiments (structure, m/e/p); Kanju (theater); Kahle Acoustics, Salto Ingenierie (acoustics); TRIBU (environment); Sylvie Sieg (lighting); Béatrice Fichet/Hugo Blanzat (signage)

CLIENT: Ville de Clermont-Ferrand

SIZE: 109,000 square feet

COST: $38 million

COMPLETION DATE: September 2020

SOURCES

MASONRY: Eiffage Construction

CURTAIN WALL: Atelier Christian Perret

METAL PANELS: FCI

ROOFING: Soprema, Vaganay

WINDOWS: Cambon-Gauthier

ELEVATORS: Orona

AMBIENT LIGHTING: RZB Lighting

THEATER SEATING: Ezcaray International

STAGE MACHINERY: bc CAIRE

Lodge Jam

With their refined makeover of a dowdy ski club in Ontario, Williamson Williamson gives generations of members something to celebrate.

BY BETH BROOME
PHOTOGRAPHY BY DOUBLESPACE





AS ANY alpine skier can tell you, terrain and snow conditions are what it's all about. The ski lodge comes in a distant second, little more than a place to seek nourishment and warm up between runs. A utilitarian typology reflects this hierarchy: whether the rustic chic of Aspen or the rinky-dink local hill, exposed timber, gabled roofs, and drab furniture set the tone. But with its recent reinvention of the clubhouse for the Osler Bluff Ski Club in eastern Ontario, Toronto-based architects Williamson Williamson have brought dignity to a usually kitschy building type with a bold and graceful use of traditional wood and glass.

Osler (not a commercial resort but a private club, which is common in this area) has a rich history. It was founded in the post–World War II years by two ski enthusiasts who purchased a prime parcel of land along the Niagara Escarpment, with views out to the Georgian Bay. Joined by a scrappy, like-minded bunch, they cut trails and built the first clubhouse. When it burned to the ground, the membership—which today includes families with four generations of skiers—replaced it in 1979 with a basic ranchburger-like structure, designed by Toronto firm Moffat Moffat & Kinoshita.

Over the years, with the arrival of high-speed chairlifts and advances in equipment, skiers were getting in more runs per hour, resulting in more off-hill time and indoor crowding. "We called it the Osler forced-intimacy program," says facilities manager Jamie Cuthbert. Commissioned to conceive a master plan, Williamson Williamson quickly focused on reenvisioning the clubhouse to increase seating for members and facilities for staff (which had grown substantially from the early days when members took care of the place); improve circulation; incorporate a childcare center (previously located in another structure); make the building fully accessible, and, critically, create a better après-ski experience for a membership that clearly likes to party. The members had strong emotional ties to the existing clubhouse, so retaining its spirit of simplicity was paramount, as was minding the budget. A renovation and expansion was the way to go.

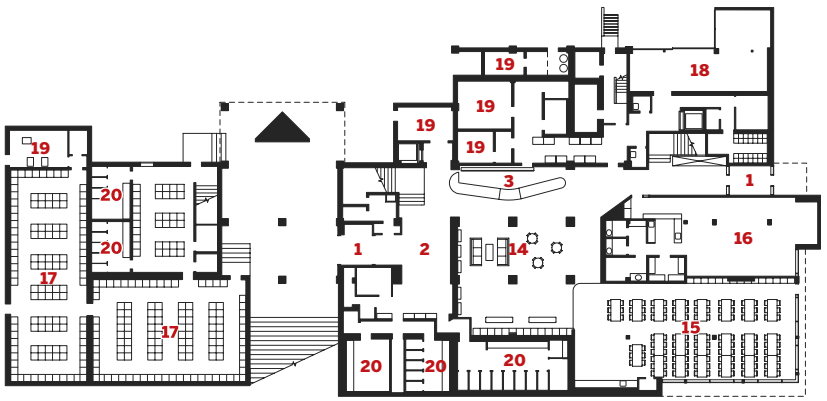
But a building like this one, with a Douglas fir timber frame and a hollow-core slab, "is nearly impossible to renovate," says principal Betsy Williamson, who runs the firm with her partner Shane Williamson. "You cannot take a piece out, since, with heavy timber, every member is loaded to full capacity. And you cannot cut into the core slab, because it would lose its structural integrity." So the team kept the origi-



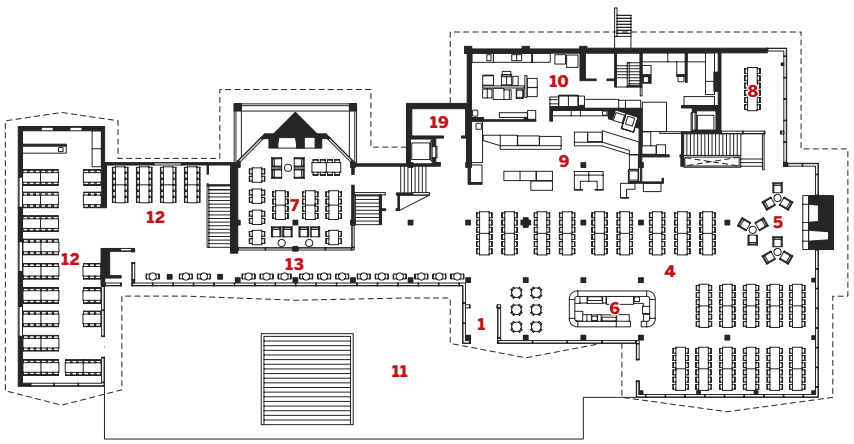
THE EXISTING LODGE'S timber structure was previously exposed to the elements (above) and has now been encased by a wood-backed curtain wall (left). The renovation has opened up the formerly cavelike lower level.



"BEFORE" image of the lodge's interior.



LOWER-LEVEL PLAN



UPPER-LEVEL PLAN

0 20 FT.
6 M.

nal building more or less intact, removing the end gable to push the volume out to the east and add about 10,000 square feet over two levels. The existing frame, which had formed the shell and was exposed to the exterior, was badly cracked and needed to be moved inside. Removing the 40-year-old leaky, single-pane glazing, the team reskinned the east and mountain-facing south facades, largely maintaining the other sides, though replacing the asbestos cementitious cladding with an Exterior Insulation Finishing System (EIFS). In so doing, they essentially encased the building and its original timbers in a wood-backed curtain wall composed of western red cedar paneling and Douglas fir with low-E double-pane, argon-filled IGUs. In addition to tightening the envelope, the team replaced the mechanical systems, bringing the building up to code and into the 21st century. For the extension, the architects reinterpreted the original treelike columns, distilling the form down to elegant steel Y columns clad in oak.

A central idea of the intervention was to create a variety of interior spaces rather than the standard lodge format of one big room. The main floor's great room, with its substantial stone fireplace and adjacent bar, offers a generous venue for rollicking socializing, and connects to the once-isolated lunchroom. For those desiring a low-key vibe, the main level also holds intimate seating areas and a cloistered Founders Lounge with views up the hill. The lower level includes locker rooms and spaces for childcare and back-of-house.

A new Douglas fir acoustic ceiling hovers above the entire interior. Besides formally unifying the various spaces, it mitigates the decibel levels that previously were unbearable. "We've established an acoustic warmth," notes Betsy Williamson, "which has a big effect on how you perceive the space." The team

1 ENTRANCE
2 LOBBY
3 CONCIERGE & TICKETS
4 GREAT ROOM
5 FIREPLACE
6 BAR
7 FOUNDERS LOUNGE
8 CONFERENCE ROOM
9 SERVERY
10 KITCHEN & PREP
11 EXTENDED DECK
12 "BROWN BAG" LUNCHROOM
13 INTERIOR LINK
14 FLEX SPACE
15 SKI BREAK
16 CHILDCARE
17 LOCKERS
18 LOADING DOCK
19 BACK-OF-HOUSE/ MECHANICAL
20 RESTROOM







THE NEW EXTENSION pushes out to the east, bookended by a large stone fireplace (top). New steel Y columns (top and above) are clad in oak veneer with CNC-milled slots that conceal LEDs and that were inspired by the shape of carved antique wood skis. An expanded slope-side deck (right) extends gathering spaces outdoors.





THE FOUNDERS LOUNGE (above) looks out to the slope. A Douglas fir–backed curtain wall protects and harmonizes with the existing timbers (above and left). The acoustic ceiling, also of Douglas fir, ties the interior spaces together, conceals sprinklers and wiring, and creates a welcome hush (this page and opposite).

worked with an acoustical engineer to develop an optimal section for the custom ceiling panels, composed of thick insulation covered with fireproof fabric and untreated Douglas fir fins. These elements nestle between the existing beams, acknowledging the building's past while concealing sprinklers, lighting, and wiring.

The value of the acoustical dampening, along with the larger intervention here, cannot be overstated. "As a club, more generations of people can come together," says Cuthbert. Before, the older folks tended to leave as après-ski festivities kicked up. "Now, everyone remains to enjoy the events."

Osler Bluff opened its season with Covid accommodations in place but, just before Christmas, was forced to shut down amid concerns of burdening the hospital system with ski injuries as ICUs approached capacity. As of this writing, the members hoped to reopen soon to salvage the season—both on the hill and off. ■



Credits

ARCHITECT: Williamson Williamson — Betsy Williamson, Shane Williamson, principals; Eric Tse, project architect; Irina Solop, architectural designer; Sonia Ramundi, Dimitra Papantonis, Peter Lazovskis, Mat Winter, Donald Chong, Paul Harrison, Nassim Sani, team

ENGINEERS: Blackwell Engineering (structural), R.J. Burnside & Associates (mechanical), Lapas Consulting Engineers (electrical), Tatham Engineering (civil)

CONSULTANTS: Aercoustics Engineering (acoustic), LRI Engineering (code), Opresnik Engineering Consultants (energy model), Alula Lighting (lighting), Vermeulens (cost)

GENERAL CONTRACTOR: Upstream Construction

CLIENT: The Osler Bluff Ski Club

SIZE: 20,300 square feet (existing); 29,750 (total)

COST: withheld

COMPLETION DATE: December 2019

Sources

EXTERIOR CLADDING: Sansin Corporation, Zip System, IC2 Technologies

WINDOWS & DOORS: Alumicor, Stanley

HARDWARE: Assa Abloy, Falcon

INTERIOR FINISHES: Benjamin Moore, Wilsonart, Caesarstone, Johnsonite, Forbo

LIGHTING: Sonneman, Absolux, TPL Lighting, Sistemalux, Lithonia, Salex, Focal Point, Lutron (controls)

PLUMBING: Bobrick, Sloan, Toto, Kohler, Dyson (hand dryers)

FURNITURE: Frovi, TON, Davidson Furniture, Davis Furnishings

FIREPLACE: Mason-Lite



Skin in the Game

Ingenhoven Architects revives Düsseldorf's sinuous Schauspielhaus, a beloved postwar landmark.

BY JOANN GONCHAR, FAIA
PHOTOGRAPHY BY HANS-GEORG ESCH

ARCHITECT Christoph Ingenhoven describes Düsseldorf's Schauspielhaus as "light, as though floating in the air." The public theater, inaugurated in 1970, sits between the Gustaf-Gründgens-Platz and an expansive urban park, the Hofgarten. Enclosed in white serpentine walls and raised off the ground on piloti, its organic curves providing a strong contrast to the Miesian regularity of its immediate neighbor, the Dreischeibenhaus—a 25-story office tower completed a decade earlier. "I've admired the Schauspielhaus forever," says Ingenhoven, who grew up in this northwest German city and whose eponymous practice is based there.

Ingenhoven Architects has just finished renovating the theater's exterior and its public spaces. The building is considered one of the most important works of Bernhard Pfau, an architect active in commercial and residential design in Düsseldorf after World War II, but with few public commissions. As Ingenhoven explains, Pfau was not part of a clique of architects sympathetic to the former Third Reich, who remained influential, even after the war. The architect's expressive design for the Schauspielhaus (literally, Show Playhouse) was chosen in 1959 through an international competition that included an entry from Richard Neutra.

Although designated a landmark in 1998, before the recent refurbishment, the building had long suffered from neglect. Its steel cladding had rusted and its roofs deteriorated. The interior—except for the two performance spaces, which had been renovated in 2011—were dreary, due to misguided maintenance practices and unsympathetic modifications. In the lobby, for instance—where an astonishing umbrella-like central-column and radiating-beam structure extends 130 feet to support the raked seating of the main auditorium above— the



board-formed concrete had been covered with layer upon layer of paint. Some of the rose-colored Portuguese marble floor tiles had cracked.

The Schauspielhaus sits in a part of Düsseldorf that has been a focus for Ingenhoven for decades. Since the early 1990s, he had been advocating for the removal of a nearby 1970s-era elevated highway. It sliced through the urban fabric, dividing the Hofgarten in two and cutting off the theater and the adjacent tower from much of the city. In part due to Ingenhoven's efforts, the roadway was demolished in 2013. His firm subsequently won an international competition for Kö-Bogen II. Completed late last summer, the retail-and-office building, which borders the Gustaf-Gründgens-Platz, is enveloped in hornbeam hedges, making it seem like outsized topiary (RECORD, August 2020). And now, just a few months later, Ingenhoven Architects has finished the theater renovation, across the plaza.

The roughly $85 million project was performed under two separate contracts, one for the exterior and one for the interior. The outside was a city project, and public procurement guidelines stipulated that the lowest bidder be hired. Because Ingenhoven was so keen to renovate the building, he submitted a successful low offer. The interior work, however, was done with private funds, mostly from one donor, and not subject to competitive bidding restrictions.

The Schauspielhaus had not been built entirely to Pfau's competition-winning scheme. For instance, Pfau envisioned the main entrance on the north facade, from the Hofgarten. However, the city planning office insisted on placing it on the plaza, combining it with a box office and an entry to underground parking. Ingenhoven describes the resulting one-story appendage as a "plug pressed into a bottle." Since it was original—though not part of Pfau's competition entry—Ingenhoven had to persuade preservation officials that it should be removed. He eventually convinced them, and ticketing, along with parking access, is in a freestanding pavilion at the western edge of the plaza. "There, it is part of the city," says Ingenhoven.

Other aspects of the exterior's renewal included replacement of its

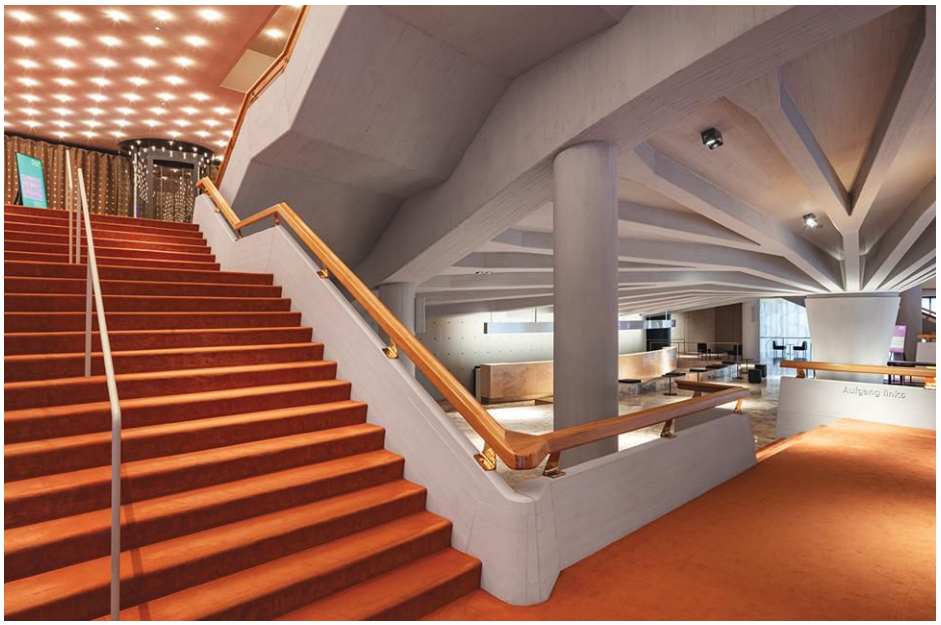
BERNHARD PFAU'S Schauspielhaus (above), which Ingenhoven Architects has just completed renovating, shares the Gustaf-Gründgens-Platz (right) with a Miesian tower and another Ingenhoven project—the shrub-covered Kö-Bogen II, a retail-and-office building.







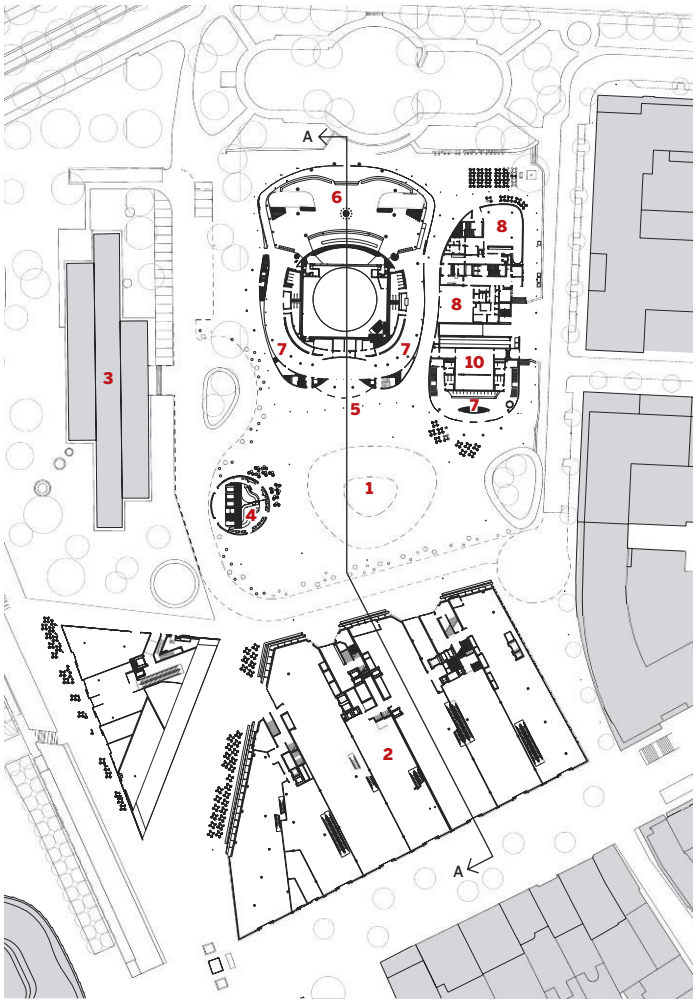
AN UMBRELLA-LIKE central column with radiating beams extends over the lobby, supporting the raked seating area of the main auditorium above.



CONCRETE surfaces, seen from the stair to the second-floor gallery (left), have been covered in a protective wash. Substantially altered elements, such as a coatroom (opposite, top), are differentiated from original construction with black finishes. The ground floor is now enclosed in ultra-clear glass (opposite, bottom).

curved steel panels, along with their substructure. The new cladding, which is Z-shaped in plan, replicates the original but is made of aluminum, and meets current thermal standards. The theater's ground floor has been opened up to its surroundings by swapping out the original bronzed glazing for clear, low-iron glass. "You couldn't see in or out before," says Ingenhoven. Still to come are green roofs for stormwater management and urban heat island mitigation. Though not accessible to building users, the planted areas will be visible from the upper floors of the Dreischeibenhaus tower.

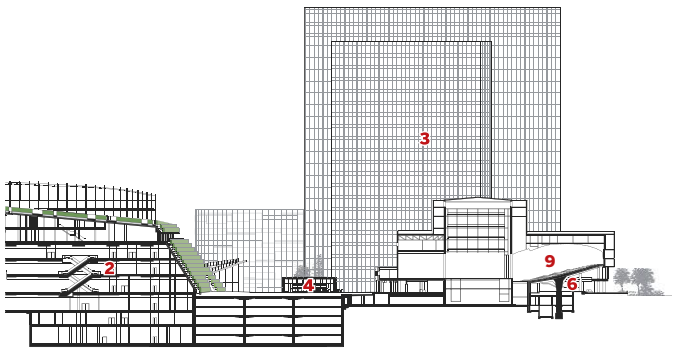
Inside, the renovation team removed the layers of paint from the "umbrella" and other board-formed concrete elements. Though structurally sound, their surfaces were prone to shed dust, necessitating the application of a semitransparent wash that allows the imprint of the timber formwork to come through. Contractors replaced damaged finishes, such as broken floor tiles, obtaining the marble from the original quarry in Portugal. The architects reconfigured the coatrooms, restrooms, and other support spaces, distinguishing them from original construction with black finishes, including paint, fabric, and steel. As a way of providing privacy and improving acoustics without altering the building's tectonics, Ingenhoven commissioned curtains from Amsterdam-based designer Petra Blaisse. One of these—of golden velvet with peekaboo cutouts—can be drawn across the lobby glazing to dampen noise and prevent patrons from being distracted by their own reflections at night. The building systems,



1 GUSTAF-GRÜNDGENS-PLATZ
2 KÖ-BOGEN II
3 DREISCHEIBENHAUS
4 BOX OFFICE/ PARKING ENTRY
5 THEATER ENTRANCE
6 LOBBY
7 COATROOM
8 CAFÉ/RESTAURANT
9 MAIN AUDITORIUM
10 SECONDARY AUDITORIUM

SITE PLAN

0 100 FT. 30 M.



SECTION A - A

0 100 FT. 30 M.

most visibly the lighting, have been updated.

One can easily envision theatergoers milling about the lobby, around the sculptural column with its sweeping beams, seeing and being seen during intermission. For now, though, the theater is dark, closed in the surge of the pandemic, after a brief reopening season this past fall. But, with the building's luster restored and the surrounding precinct practically reinvented, this corner of Düsseldorf is ready and waiting for post-Covid life. ■



Credits

ARCHITECT: Ingenhoven Architects — Christoph Ingenhoven, Oliver Ingenhoven, Max Grams, Veronika Przybyla, Vincent Jeanson, Anette Büsing, Dariusz Szczygielski, Ursula Koeker, Ulrich Hochgürtel, project team

CONSULTANTS: Werner Sobek AG (roof and facade—structure and building physics); VDS Statik und konstruktiver Ingenieurbau (public areas—structure); ISWR Klapdoor (public areas—building physics); ifBW (fire protection); Tropp Lighting Design (lighting)

OWNER: City of Düsseldorf

SIZE: 205,000 square feet

COMPLETION DATE: October 2020

Sources

ALUMINUM PANELS: Alubau Puhlmann, Welser Profile Austria, trio-Eloxal, IGP Pulvertechnik



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Stone Wool Acoustic Ceilings for Health and Well-Being

CREDITS: 1 AIA LU/HSW; 0.1 IACET CEU; 1 AIBD P-CE

Since early 2020, it seems as if the world has changed drastically. The COVID-19 pandemic has certainly changed how we work, play, and live. Design professionals have experienced this shift profoundly. When designing interior spaces, design professionals must consider aesthetics, cost, and energy efficiency, but also how their choices impact the health and well-being of occupants. While this has been the case for some time, the COVID-19 pandemic has underscored the importance of designing healthy spaces.

This course will begin with a discussion of Indoor Environmental Quality (IEQ) and the elements which together can help support the health and well-being of building occupants. Next, the course will explore how interior finish choices can positively impact indoor air quality. Included will be a discussion of what products certifications the specifier should seek when selecting products with health and well-being in mind. The course will then touch on the importance of daylighting and acoustic control in maintaining a healthy interior. Finally, this course will review how interior finish choices can work together to create healthy, sustainable and beautiful spaces. Case studies will be used to illustrate successful designs.



Diana Hart
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The Living Building Challenge Grows Up

A stringent standard for regenerative design expands its reach and influence.

BY JOANN GONCHAR, FAIA

THE TEXT of the Living Building Challenge (LBC) certification system reads more like a manifesto than a green building standard. The document asks project teams to "imagine a building designed and constructed to function as elegantly and efficiently as a flower." It implores users to "think about every single act of design and construction as an opportunity to positively impact the greater community of life and the cultural fabric of our human communities." Extending the flower metaphor, it is organized into seven categories, or "Petals"—Place, Water, Energy, Health + Happiness, Materials, Equity, and Beauty. Jason McLennan, the Challenge's author, and founder and former CEO of the International Living Future Institute (ILFI), which administers the standard, explains the unusual tone. "The Challenge has always been a philosophy first and an advocacy and certification tool second," says McLennan,



THE LARGEST project, and the only production facility, to achieve Living status is a 100,000-square-foot winery and tasting room for Seven Oaks, in California's Napa Valley.

PHOTOGRAPHY: © JOE FLETCHER (OPPOSITE); NIC LEHOUX, JONATHAN HILLYER, FRASERS PROPERTY AUSTRALIA (THIS PAGE, TOP TO BOTTOM)

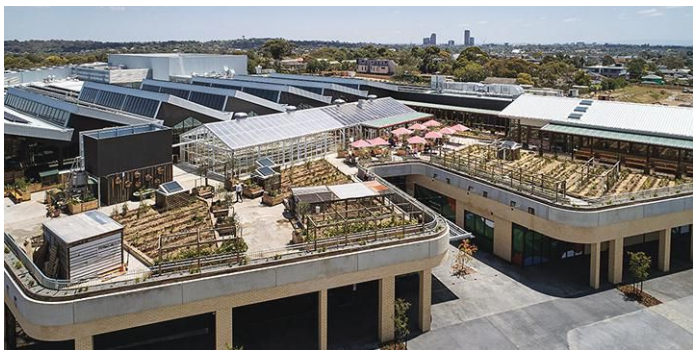
now head of his own Bainbridge Island, Washington, design firm.

The New Age terminology belies LBC's rigor. The Challenge is widely regarded as the world's most stringent building-certification tool. Its seven Petals are divided into 20 mandatory "imperatives." Many are tough to achieve, including avoidance of products that contain substances on a long "Red List" of hazardous chemicals commonplace in building materials. LBC projects are also required to be net positive for both energy and water—and not just on the basis of modeling. Teams must submit at least 12 months' worth of data demonstrating such performance. The LBC is so difficult, in fact, that only 25 projects have achieved full "Living" status since the launch of its first version in 2006. By and large, these have been small structures, with straightforward programs, such as nature centers. There have been notable exceptions, of course, including the Bullitt Center, in the Capitol Hill neighborhood of Seattle (RECORD, June 2013). Completed in 2013, and certified two years later, the 52,000-square-foot, five-story office building, designed by the Miller Hull Partnership with a projecting roof clad in photovoltaic (PV) cells was, until very recently, the world's largest Living structure.

Now the scale of Living projects is increasing. Currently, 338 projects are registered with ILFI as aiming for living status, and a number of buildings that are certified, or on the path to certification, are meeting or exceeding the size and complexity of Bullitt. Some have surprising programs. Last April, the vintner Silver Oak, in Healdsburg, California, certified a 100,000-square-foot winery and tasting room housed in buildings designed by Piechota Architecture—making it the largest Living project thus far, and the only production facility to achieve this status. An even bigger project, Brickworks—a 140,000-square-foot shopping mall near Melbourne, designed by NH Architecture—was completed in late 2019. The complex, which includes a 27,000-square-foot rooftop farm, is targeting Living status. Teams are also tackling potential Living projects in difficult climates, such as Atlanta, with its heat and humidity, where the Kendeda Building for Innovative Sustainable Design—designed by Miller Hull and Lord Aeck Sargent—opened on the campus of the Georgia Institute of Technology in the fall of 2019 (RECORD, December 2019). The 37,000-square-foot academic facility, which has completed its performance period and is on track for certification, has an expansive PV







THE BULLITT CENTER, in Seattle (top), and the Kendeda Building, in Atlanta (middle), both by Miller Hull, meet the LBC net-positive energy requirement with expansive PV arrays. A shopping mall (bottom) in Melbourne, pursuing certification, has a rooftop farm.



THE PAE BUILDING, under construction Portland, Oregon, faced tough constraints on PV panels due to its location in a historic district.

trellis that shades the building, collects rainwater, and generates electricity. "The Challenge is no longer a fringe program," says Chris Hellstern, Miller Hull's Living Building Challenge services director. Among the firm's current projects pursuing Living status are an innovation center for the Port of Seattle, and a residence.

As the number of projects pursuing LBC, along with the diversity of typologies, has been growing, ILFI has also been expanding its offerings. One example is its Zero Carbon program, launched in 2018. Certification, which typically entails procurement of low-carbon materials, implementation of energy-efficiency measures, and the purchase of environmental offsets, is proving attractive to publicly traded companies with ambitious corporate sustainability goals. Last year, Google, whose climate targets include operating all its data centers and campuses with carbon-free energy by 2030, was the first company to achieve the certification—for 6 Pancras Square, the office building it has leased as its London headquarters since 2016. Similarly, Microsoft, which has an aggressive plan to be carbon negative by 2030, and by 2050 offset all the carbon the 45-year-old company has emitted since its founding, has committed to pursuing Zero Carbon certification for modernization projects at its Silicon Valley and Puget Sound campuses. Meanwhile, Salesforce, the cloud-based software company, is targeting Zero Carbon certification on all its new office spaces.

A sampling of the institute's other initiatives include "Declare," an ingredients label for building products; "Just," a program for companies who want to improve their organizations' social equity; and a partial, or Petal, certification option, which allows project teams to focus on either water, energy, or materials. One of the newest offerings, introduced in 2019 with Version 4.0 of the LBC, is a Core Green Building Certification alternative. It entails satisfying the requirements for 10 of the 20 LBC imperatives—those deemed essential for a structure to be considered a sustainable building. For instance, the Core program calls for a healthy interior environment, universal access, and deep cuts in energy and water consumption, but not for net-positive performance. Shawn Hess, the institute's director of business development, describes these programs as "stepping-stones" and "reporting mechanisms for organizations interested in accountability and a framework for meaningful action."

The growing roster of programs helps catalyze change in architectural practice and the construction industry, says Vivian Loftness, a professor at the School of Architecture at Carnegie Mellon University and an ILFI board member. But full Living status remains the ultimate prize. "It is the pot of gold at the end of the rainbow," she says. "Let's keep it there and keep it difficult."

Kathy Berg, a partner at ZGF in Portland, Oregon, confirms that the LBC is indeed difficult. "*Challenge* is part of the name for a reason," she says. Her firm is the architect for a five-story retail and office building under construction in the Skidmore/Old Town historic district of Portland that is aiming for full LBC status. If certified, the 58,000-square-foot building—named after its prime tenant, the engineering firm PAE, the project's m/e/p consultant—will supplant the Bullitt Center (which PAE also worked on) as the largest privately developed Living office building. In an unusual move, both PAE and ZGF have taken equity in the project in lieu of design fees. (The contractor, Walsh Construction, is also an equity partner.)

Wearing the hats of both architect and client gave ZGF's Berg a new perspective, bringing home the need to maximize rent-

IMAGES: COURTESY ZGF; FREDERICK FISHER AND PARTNERS (OPPOSITE, TOP 2); MILLER HULL PARTNERSHIP (OPPOSITE, BOTTOM)

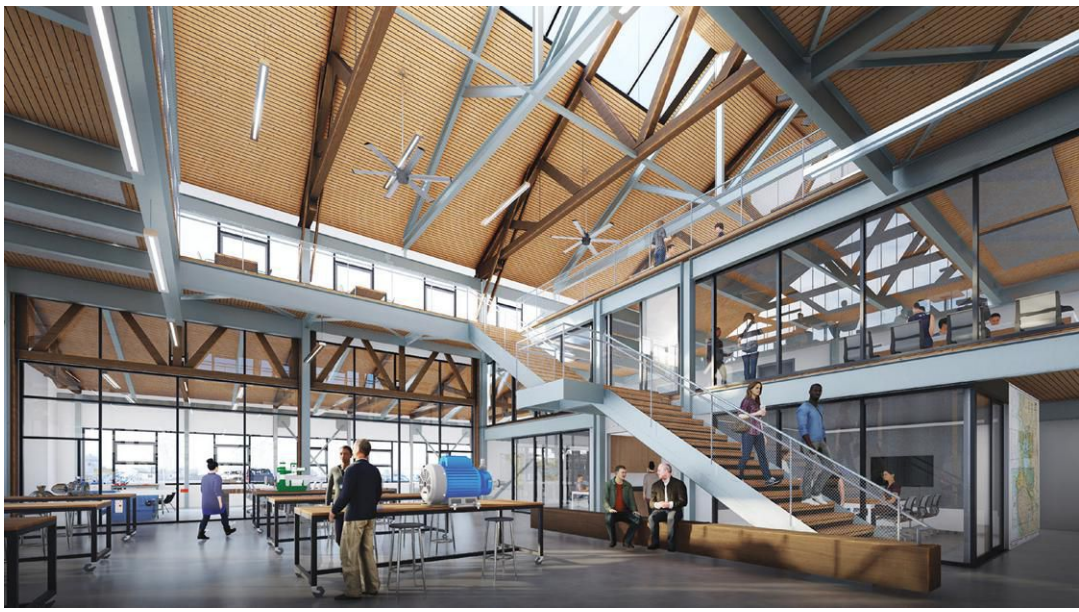




able area on the tight site. The solution was enhanced seismic performance: inside its brick-clad skin, the PAE Building will have a robust mass-timber frame and a concrete shear-wall core. The structure will sway significantly less than a typical code-compliant one in a major quake, which means that designers can allow less space between it and adjacent structures and therefore increase the size of floor plates. But in order to be cost effective, the structure would need to provide multiple benefits. Its exposed timber and concrete components are designed to provide the conduit for mechanical systems, serve as the primary finishes, and help bounce daylight deep into the interior from the facade's tall windows. "In a Living Building, every system needs to perform 10 functions," says Berg.

Ingenuity was also needed to meet LBC's net-positive-energy mandate. Despite energy-saving features such as air-source heat pumps, radiant heating and cooling, heat recovery, and best-in-class lighting, the PAE Building's power demand will exceed the capacity of the PVs that will fit on the roof. In addition, the location in a dense urban environment and in a historic district meant that designers could not extend the area for mounting PVs with roof overhangs. To meet demand, the team took advantage of what LBC refers to as "scale jumping," a concept introduced with Version 1.3 of the certification system, released in 2008. In certain circumstances, it allows projects to go outside their site boundaries in order to satisfy some imperatives. In this case, the developers will install a 130kW PV array on the PAE Building, and have donated a 207kW one for Renaissance Commons, an affordable-housing project in another part of the city. "The arrangement is a win-win," says Marc Brune, PAE principal. "They get the power, and we get the renewable-energy credits."

Despite the hurdles, LBC is not only gaining momentum for privately developed projects, but also with public projects in forward-looking cities. One such building pursuing Living certification is a recently completed 50,000-square-foot addition to the Art Deco city hall of Santa Monica, California. Designed by Frederick Fisher and Partners (FF&P), the three-story glass-clad annex consolidates office space that city agencies had previously been renting elsewhere in Santa Monica. LBC is a particularly good fit for the beachfront city, given its environmental goals, which include carbon neutrality by 2050, zero waste by 2030, and a target for



FORWARD-THINKING cities have begun to embrace Living Building, including Santa Monica, where a glass-clad addition (top, left) to City Hall, enclosing a courtyard (top, right), has recently opened, and Seattle, where an innovation center in a historic building at the port (above) is planned.



SECTION-PERSPECTIVE



OTHELLO, a 68-unit affordable cooperative building slated to break ground this spring in Seattle, is pursuing the Materials Petal of the LBC, and will have fiberglass, rather than vinyl, windows.

water self-sufficiency that is shockingly close—2023, when it plans to stop importing water and rely only on groundwater.

With the aim of staying within a water budget that could be met with the 14½ inches of rain that fall in Santa Monica in a typical year, the $60.8 million project relies on three separate strategies. It has foam-based composting toilets; a system that captures graywater and condensate from the cooling system's air-handling units for irrigation; and a rainwater-to-potable-water system that collects rainfall from the roof, storing it in a 40,000-gallon cistern. The city hall addition will be the first public building in California in which rainwater comes out of the drinking fountains, according to Joseph Coriarty, FF&P managing partner. The permitting process was involved, he says, since there were few precedents for these systems, and agreement on their design was needed from city, county, and state agencies.

Although obtaining permissions for the unconventional systems can be labor-intensive, the consensus among sources is that vetting materials for Red List ingredients is the most time-consuming aspect of an LBC project. And for buildings where budgets are exceptionally tight, the obstacles to finding suitable products are compounded. "The affordable-housing sector is really tied to business as usual," says Gladys Ly-Au Young. Her firm, Sundberg Kennedy Ly-Au Young, is pursuing the Materials Petal for the Othello, a 68-unit affordable cooperative building slated to break ground this spring in Seattle. She notes that, while there are incentives and funding that can help pay for energy-efficiency measures, such as the grant the project received from a local utility for its heat pump hot-water system, there are no equivalent programs for materials.

For Othello, eliminating vinyl (a Red List ingredient omnipresent in products typically used in affordable housing) was particularly vexing—especially when it came to the windows. But, ultimately, the architects were able to find a manufacturer willing to fabricate fiberglass windows during slow periods, thereby allowing them to match the price of vinyl while evening out their production cycles, explains Ly-Au Young.

Shining a light on the roadblocks to creating ultra-green buildings—like those in obtaining healthy materials encountered on Othello, or other impediments, whether they are related to regulations, technology, or economics—is what the LBC is all about, says McLennan. He's encouraged that barriers are falling, one by one. But he warns that, in order stall global warming, the pace will need to further accelerate. "We are losing the climate battle and destroying habitat and biodiversity," he says. "The world needs Living Buildings now more than ever." ■

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Learning Objectives

1. Summarize the goals of the Living Building Challenge (LBC), its structure, and the requirements for certification.
2. Identify typical regulatory and economic hurdles to LBC certification.
3. Explain the strategies employed by the featured projects to meet LBC requirements for energy, water, and materials.
4. Explain concepts relating to LBC, such as "scale jumping."

AIA/CES Course #K2102A

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Presented by: Hörmann

BENEFITS OF A RIGID COVER BOARD IN COMMERCIAL ROOFING SYSTEMS
1 AIA LU/HSW
Presented by: Georgia-Pacific

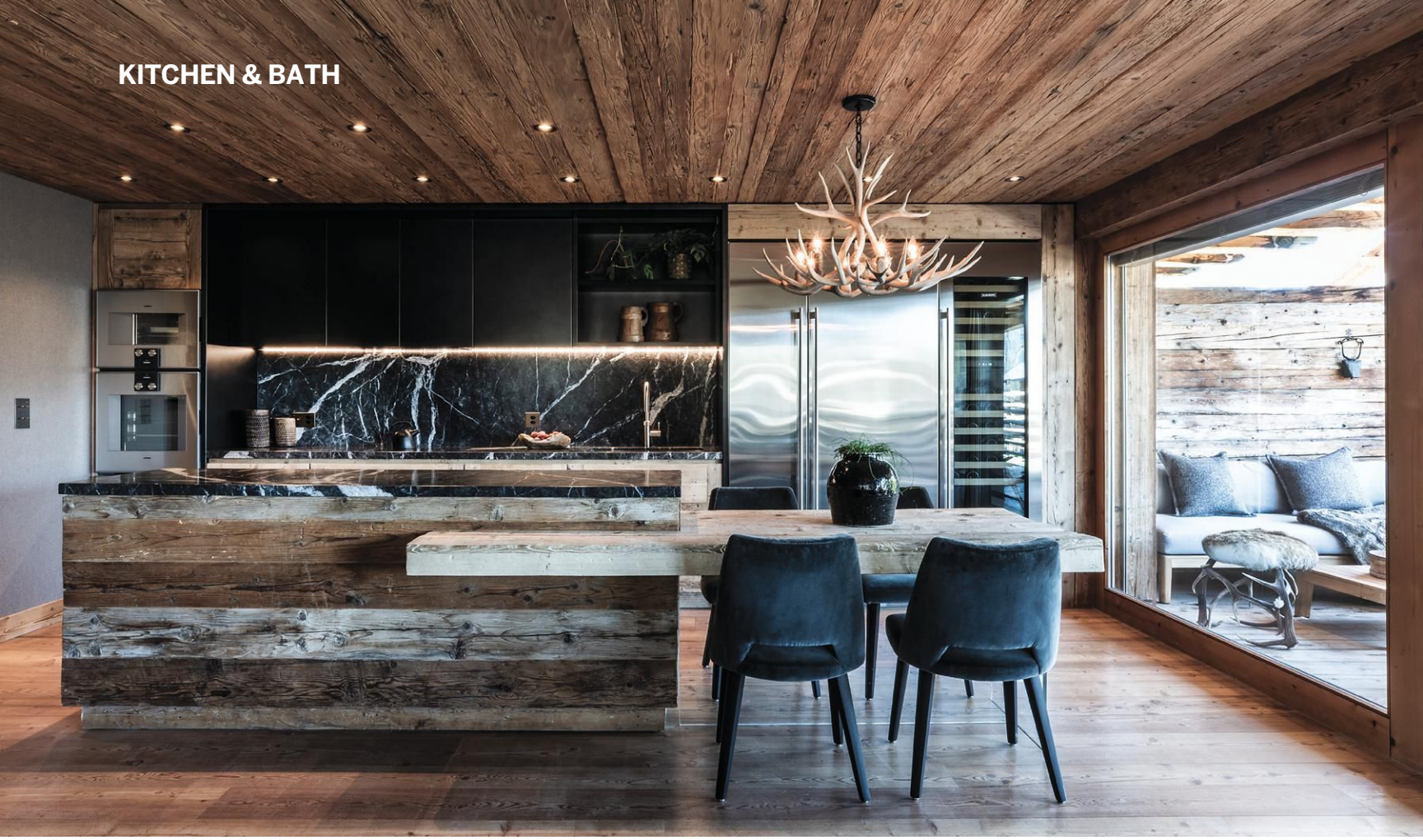
KITCHEN & BATH

From a Swiss chalet to a cabin in the woods, these projects reflect their surroundings through their materials.



PHOTOGRAPHY: © VITO CORVASCE

For an apartment in Verbier, Switzerland, Alessia Mainardi incorporated a rustic wood dining surface that appears to cantilever from the island.



Verbier Chalet

Designer: Alessia Mainardi Interiors

BY DAVID SOKOL

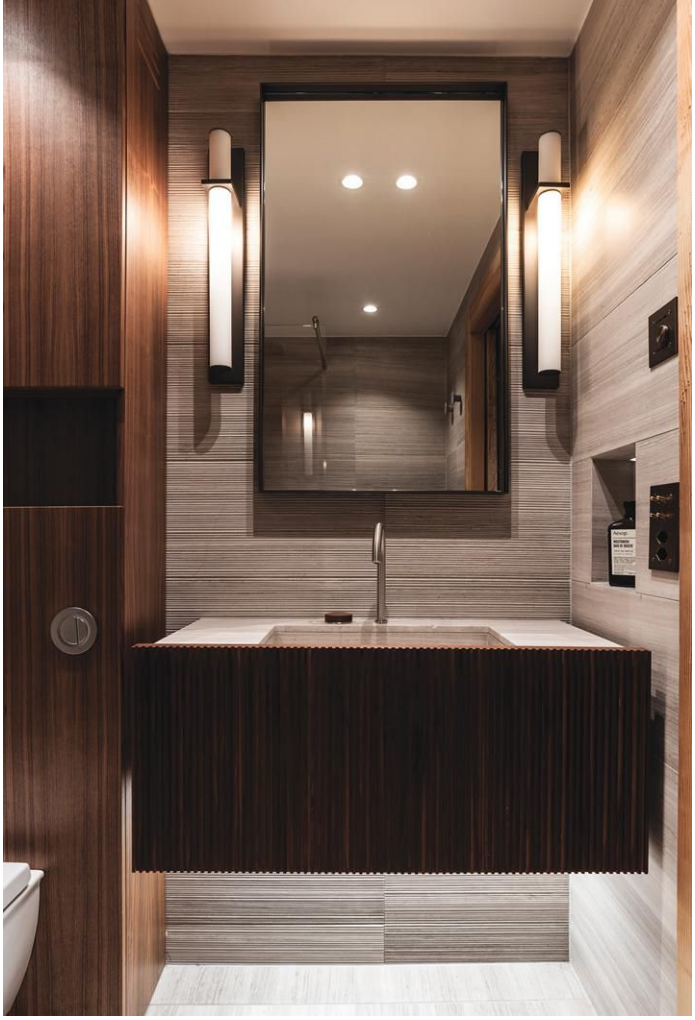
AT THE HEIGHT of ski season in the Swiss resort town Verbier, in years past, crowds have roared for the athletes competing in the Patrouille des Glaciers, while in summer the hills have come alive with an eponymous classical-music festival. Hammering and sawing never interrupt these soundtracks, because local regulations forbid building during peak tourism periods. So, when a long-standing client of Alessia Mainardi purchased a three-bedroom, three-bath apartment in Verbier in early 2019, the London-based interior designer had to strategize a redo that would need to be completed within a three-month construction window that fall.

The 20-year-old residence encompasses just under 1,100 square feet and flows onto almost as much terrace overlooking the Val de Bagnes, and Mainardi imagined refinishing the apartment with expanses of natural materials that echo the dramatic mountain landscape. "You don't necessarily want to see skis hanging on the walls, or feel too much like you're on Christmas holiday," the designer says of refreshing the residence, which the husband-and-wife owners now occupy throughout the year.

Starting with the bathrooms, Mainardi knew that stone slabs would embody the appropriate narrative and mood. Yet because the renovation schedule was so truncated, the designer could not presume there would be time enough to demolish and measure the existing bath interiors, draw templates, and fabricate new surfaces. "You never know how many millimeters you'll have behind the walls," Mainardi says. She instead determined that stone tile would be more forgiving of whatever unforeseen conditions awaited her September 1 start date.



Since the three bathrooms averaged 50 square feet each, Mainardi also decided to make the spaces appear larger by pairing her stone selections to a limited palette of other materials. For the primary bathroom, Mainardi clad surfaces in large-format Silk Georgette-marble tiles; on the walls, the cream-colored stone features fine parallel grooves that lend a tactile quality to the toilette experience without disrupting visual continuity. For even more of a tie-in, Mainardi



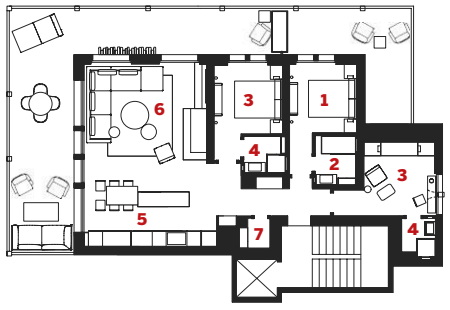


Mainardi faced the kitchen cabinetry in aged wood, to achieve continuity with the plank-clad walls and ceilings that pre-date the renovation (opposite). The designer sourced the bathrooms' marble tiles and sinks from an Italian manufacturer (left and above).

sourced a wall-mounted sink in the marble from the same manufacturer. This vanity includes an apron of walnut-veneer ribs, in response to which Mainardi integrated walnut-veneer casework to conceal the tank of a wall-mounted toilet.

Mainardi revised that approach just slightly for the apartment's two other baths, selecting the dark, richly veined Gris du Marais marble and, for the showers, substituting a fixed glass partition with return-layout glass enclosures with blackened framing. "Gray counteracts the yellow in the wood, and provides contrast to the primary bathroom," Mainardi says of the color swap. Even so, she adds, the three spaces have more commonalities than differences: "Everything is natural, while the detailing is very contemporary and polished." Integrated lighting beneath the vanities underlines their cantilevered forms, illuminated storage niches are tucked into the walls at multiple points, and puck-like wooden trim packages and other bath fittings are modestly sized and minimalist in shape.

The rustic scheme of the newly refurbished kitchen places the bathrooms' refinement in stark relief. To complement the apartment's existing timber surfaces (the 20-unit building has the appearance of a giant chalet), the designer combined aged wood with Grigio Carnico marble and matte bronze, punctuating the composition with stainless-steel appliances. Open to the living room and surrounded by terraces, the kitchen serves as a powerful variation on Mainardi's nature theme. Together, however, the designer says, the kitchen and baths offer a singular lesson to anyone craving high design built in a short period—namely, that it is possible. "There is so little time for implementation here that people try to avoid hassle. Many of the residences have the same tiles, the same kitchen, the same everything," Mainardi says. "I wanted to show that you can design for speed and not sacrifice a more personal expression." ■



FLOOR PLAN

0 10 FT. 3 M.

1 PRIMARY BEDROOM
2 PRIMARY BATHROOM
3 GUEST BEDROOM
4 EN SUITE BATHROOM
5 KITCHEN
6 LIVING AREA
7 LAUNDRY

Credits

INTERIOR DESIGNER: Alessia Mainardi Interiors

SIZE: 1,100 square feet (interior); 700 square feet (terraces)

COST: withheld

COMPLETION DATE: December 2019

Sources

CABINETWORK: Linea Design

HARDWARE: Joseph Giles

MARBLE: Salvatori

CHAIRS: Cassina

TABLES: De Padova

UPHOLSTERY: Antonio Crippa

KITCHEN APPLIANCES: Subzero; Wolf; Gaggenau

OUTDOOR FURNITURE: Tribu

LIGHTING: Restoration Hardware (chandelier)

FAUCETS: Cea Design

PHOTOGRAPHY: © VITO CORVASCE



50 Greenpoint Avenue

Architect: STUDIOSC

BY ALEX KLIMOSKI

WHEN a young Manhattan couple learned they were expecting their first child, they set their sights on Brooklyn's Greenpoint neighborhood to settle in. They commissioned local firm STUDIOSC to combine two adjacent units—one a duplex—in a condominium near the East River. Merging the apartments allowed the architects to create "wings": a private family zone on the top level and a public-facing one, anchored by the kitchen and living area, on the bottom.

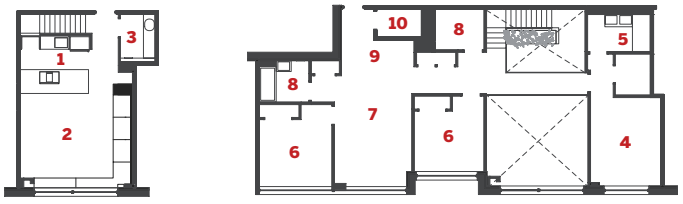
To achieve this programmatically, the architects removed the existing kitchen in the standard unit, transforming it into a den, and then gutted the duplex's lower-level kitchen to "craft something more solid," says firm principal Stephen Conte. "The goal was to create a very minimal but warm environment that would also be a little contextual, given the space's double-height window with views to the river." Conte says that the biggest challenge of executing this vision was smoothing out the numerous bumps and soffits that scarred the walls and ceilings to create a clean canvas: "The push and pull of leveling out the surfaces—sometimes inches, sometimes feet—really drove a lot of our thinking and strategy."

The architects kept the layout of the kitchen—which opens to the voluminous living space—and focused on details and materials that would give it a more substantial yet subdued presence. "It wasn't a bad kitchen," he says, "but the standard fixtures and built-ins didn't reflect the clients' personality." Solid oak for the millwork and curved vertical handles balance any hard edges, and white marble for the backsplash





Solid oak and white marble finishes establish an uplifting ambience in this kitchen of a duplex unit in a Brooklyn condominium (opposite). Planters incorporated into the millwork allow for a pop of color and texture (above).



FIRST-FLOOR PLAN

SECOND-FLOOR PLAN

1 KITCHEN
2 DINING/LIVING ROOM
3 POWDER ROOM
4 PRIMARY BEDROOM
5 PRIMARY BATHROOM
6 BEDROOM
7 FAMILY ROOM
8 BATHROOM
9 STUDY
10 LAUNDRY

and island countertop lend gravity while remaining visually light.

Beyond materiality, the architects finessed some dramatic moments, such as the island's cantilevered countertop. "The clients were drawn to the idea of having a thin, floating marble slab," he says. "It was this type of subtle move they were looking for." Taking advantage of the abundant natural light, STUDIOSC incorporated planters in the millwork atop the cabinetry. The resulting touch of greenery, which can be viewed from both above and below, transforms an otherwise empty surface into a vibrant focal point.

The kitchen sets the tone for the rest of the space. Oak ties everything together: a recessed wall, clad in wood slats, forms an alcove for the couch and marks the transition from kitchen to living room. This arrangement opens up a dialogue between the two spaces, converting a cookie-cutter developer kitchen into a generative design element for a growing young family. ■

Credits

ARCHITECT: STUDIOSC

GENERAL CONTRACTOR: JJS Management

SIZE: 2,100

COST: withheld

COMPLETION DATE: March 2020

Sources

CABINETWORK, HARDWARE: Janik Furniture Specialist

PAINTS AND STAINS: Benjamin Moore

SOLID SURFACING: ABC Stone

BENCH UPHOLSTERY: Kvadrat

SEATING: GTV (chair), Castor (stool), Mathew Hilton (sofa)

TABLE: Samuel Accocceberry

MIRROR: Bower Studios

COOKTOP, OVEN, MICROWAVE: Bertazzoni

FAUCET: Hansgrohe Axor

SINK: Franke

REFRIGERATOR: Liebherr

LIGHTING: Lindsey Adelman (chandelier); Flos (stairway); Studio Italia Design (downlights)

LIGHTING CONTROLS: Lutron

GLASS RAILING: Starphire

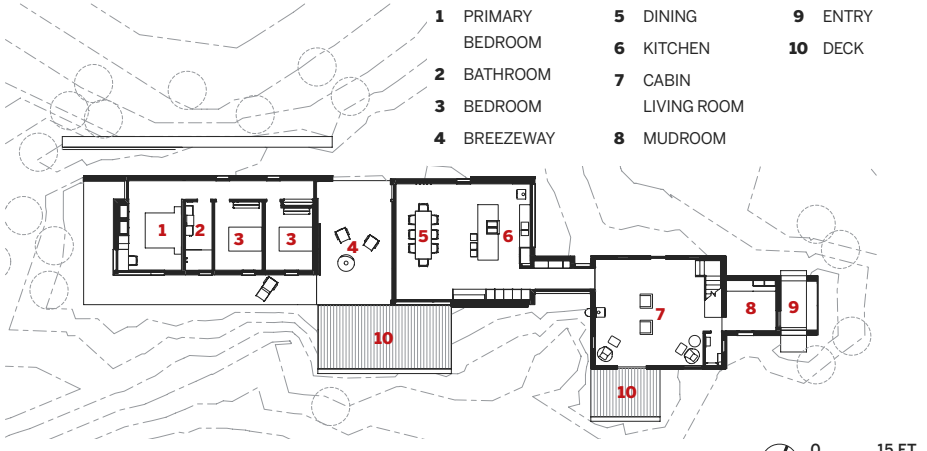
PHOTOGRAPHY: © GARRETT ROWLAND



Woodhouse

Architect: superkül

BY SHEILA KIM



FLOOR PLAN

FOOD PROFESSIONALS demand a certain level of quality and functionality in the kitchens of their dining establishments. Some strive for similar setups in their homes. So, when Toronto-based superkül was asked to expand a local restaurateur's 1870s log cabin in Singhampton, Ontario, the architects took great care in creating a comfortable, efficient 550-square-foot cooking and dining zone for the client and his family within the annex.

The clients requested that the annex relate to the land, says superkül principal Andre D'elia. With this in mind, the architects built an elongated bar annex that stretches out onto the site, positioning its fenestration to frame views of the 90-acre property's open fields. The addition is undeniably modern, but tonally and materially it references the historic structure's existing elements, including a wood stove, weathered exterior, and honey-toned timber interior.

"They were inspired by Scandinavian precedents that demonstrate a carefully orchestrated balance between function and refinement, without being too self-aware or precious," says D'elia. "They asked for clean, simple lines that feel cozy and warm." To turn the new kitchen into the heart of the home, the architects placed the cooking and dining zones in the same lofty space, dominated by birch plywood, sealed concrete, and plenty of daylight. They achieved this infusion of sunshine by installing glazed doors and windows on three elevations, and canting

a bank of skylights within a vaulted section of the ceiling above the dining table.

Perhaps the real focus of the room is its wood-burning cast-iron stove, which echoes an existing unit in the adjacent log cabin. Aligned with a wall of base cabinets, the sink, and refrigerator, this updated hearth is visible from a corridor leading to three new bedrooms, drawing family members and visitors alike.

Continuing with the overall palette of the annex, the architects specified thin black porcelain for the countertops, wrapped the ventilation hood in black-painted steel, and designed custom blackened-steel recessed pulls for the cabinetry and appliance fronts. In addition to a cooktop, the 3-foot 10-inch-deep by 10-foot 6-inch-long island provides ample counter space for informal noshing. A blackened-steel receptacle built into the corner conveniently stashes logs for the stove. Alongside a wall of full-height cabinetry, a 6-foot 6-inch-wide niche is outfitted with an upholstered bench that has drawers underneath containing the family's favorite board games.

Glass doors on the kitchen's southwest corner open onto an outdoor deck and covered breezeway furnished with seating and a floating wood-burning fireplace that doubles as a pizza oven—a perfect hub for a family of active gourmands and their guests. ■

Credits

ARCHITECT: superkül

ENGINEERS: Moses Structural, Bowser Technical

GENERAL CONTRACTOR: Jamie Korthals Construction

CONSULTANTS: Coates Creek Millwork

CLIENT: Robert Wilder and Jacqueline Rothstein

SIZE: 550 square feet (kitchen); 1,660 square feet (entire annex)

COST: withheld

COMPLETION DATE: November 2019

Sources

WINDOWS: Tiltco

DOORS: Tiltco and custom

SKYLIGHTS: Velux

COUNTERTOPS: Laminam

CHAIRS: Design Within Reach

TABLE: mjölk

UPHOLSTERY: Kai Leather

LIGHTING: Gabriel Ross (pendant); RAB Design Lighting (downlights)

SINK: Kohler

FAUCET: Delta

REFRIGERATOR: Fisher & Paykel

DISHWASHER: Miele







Black surfaces and hardware provide a dramatic contrast to whitewashed birch plywood (opposite and top. The kitchen/dining room opens to the outside via glass sliding doors (above, right). A glazed corridor connects the kitchen and new annex to the old log cabin (above, left).

PHOTOGRAPHY: KAYLA ROCCA (3); ALEX FRADKIN (TOP, RIGHT)

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ARCHITECTURAL
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The Lunar Kitchen

Designer: Shape London

BY RITA CATINELLA ORRELL

DESIGNED BY Shape London, the "Lunar Kitchen" is situated in a 2,050-square-foot duplex apartment within a listed Victorian house in London's Little Venice district. As with many London properties, maximizing space was a major consideration. "We wanted to utilize every inch of it," says Rob Streather, managing director of Shape London. Knitting an oak stair into the kitchen transformed the tight double-height space into a centerpiece for the property, creating a light-filled and contemporary cooking and entertaining spot for a family of three.

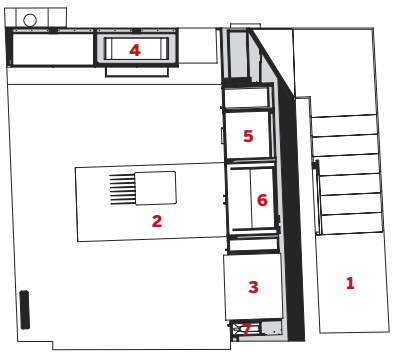
The designers inserted a wall of tempered glass panes along the stairs as a safety barrier and to admit natural light. They integrated appliances, cabinets, and open storage beneath the stairs, illuminating the various components with recessed LEDs. "We were conscious not to make the space feel dominated by wall-to-wall cabinets," says Streather. "The staircase is great in this respect, as it conceals a huge amount of storage and its glass breaks up the elevation, creating a dynamic space." A bead detail in the doors of the stair-elevation refers to the home's period features.

Working within the constraints of a historic property, the team had to maintain all of the coving, which posed a challenge when planning the staircase and ensuring sufficient headroom at the corner before ascending the second flight above the kitchen. "All the while, we needed to precisely align all the cabinets below the staircase," says Streather. "Even the tiniest variation in riser angle would throw everything out." ■

Design journalist and author Rita Catinella Orrell was an editor at RECORD. *She blogs about product design at designythings.com.*

PHOTOGRAPHY: © ADAM SCOTT IMAGES

The star of the Lunar Kitchen is a double-height oak staircase that conceals a huge amount of storage, creates a connection between floors, and maximizes the space.



PLAN

1. STAIRCASE
2. KITCHEN ISLAND AND SINK
3. REFRIGERATOR
4. INDUCTION COOKTOP
5. OVENS
6. PANTRY
7. WINE COOLER

Credits

KITCHEN DESIGNER: Shape London

ARCHITECT OF RECORD: Formwork Architects

ENGINEER: Milk Structural Engineers

GENERAL CONTRACTOR: Spiller Builders

SIZE: 2,500 square feet

COST: withheld

COMPLETION DATE: July 2020

Sources

FAUCET: Fohën

SINK: Blanco

TILE: Heritage Flooring UK

SPECIAL SURFACING: The Marble Group

PAINTS AND STAINS: Farrow & Ball

HARDWARE: Blum; Furnipart Station (handles); Richelieu (recessed channels); Libell Magic Corner Comfort (other)

LIGHTING: Lasvit (pendant)

What's Cooking!

This collection—from fixtures and finishes to the kitchen sink—demonstrates that the trials of 2020 haven't hindered innovation.

BY SHEILA KIM



Modern Emulsion

Known for artisanal and eco-friendly wallcoverings and paints, Farrow & Ball developed this latest water-based paint line in a palette meant to imbue residential spaces, including moisture-prone areas such as kitchens and baths, with calm and comfort. Modern Emulsion incorporates a hydrophobic binder and high quantities of pigments and minerals, making it easy to clean with water and scrubbing without faded streaks and with the ability to withstand scuffs and scrapes.
farrow-ball.com



Freedom Refrigeration Collection

There is no conventional white plastic inside these cooling appliances: Thermador has launched the Freedom Refrigeration collection of built-in units with premium-grade stainless-steel interiors. The collection comprises refrigerator, freezer, fridge-and-freezer combination, and wine columns, all of which feature the company's theater-style lighting, wi-fi connection for app or voice monitoring and control, and Cool Air Flow technology. The latter provides a quieter fan and a more even distribution of cooling.
thermador.com



Muncy Collection

Newport Brass blends clean and minimalist kitchen-faucet design with an industrial touch of knurled detailing on the handle, as well as the spout. Muncy is available in 28 finishes, five gooseneck models — prep and bar sink, pull down, and three water dispensers — and one pot filler.
newportbrass.com



Hunley Suite

Waterstone's contemporary Hunley series includes this pot-filler offered in a selection of 32 finishes and with single- or double-lever handles. Its articulated spout swivels 360° and has an 18" reach. Other Hunley faucets include bar, bridge, filtration, and prep models.
waterstoneco.com

Coal Black Silgranit

This Blanco sink material, made with a patented granite composite, is now available in matte black, bringing an edgy drama to the kitchen. The new hue is available in more than 300 sink styles ranging from the round Rondo prep sink to Ikon, a farmhouse-sink design. Silgranit is resistant to scratching, heat, impact, and staining.
blanco.com





B.2 Faucet

Duravit has been primarily a sanitary-ware manufacturer for half a century, but now it's adding faucets and shower systems to its repertoire. Like Duravit's sinks, toilets, and tubs, the C.1, B.1, and B.2 faucets are clean-lined and contemporary. B.2 (shown) is the most modern of the batch, with a precise linearity.
duravit.us



Purolinear 360

This Sonneman—A Way of Light system consists of surface-mounted linear tubes that can be rotated 360° to provide direct or indirect illumination. Single-bar, double-bar, linear-pattern, square, or rectangular configurations are available and approved for use in damp locations such as the bath.
sonnemanawayoflight.com



Next-Day Custom Linear Drains

Infinity Drain's new program provides custom linear drains without a lengthy wait. Specifiers can select from three grate styles—wedge wire, offset slotted, or tile insert in satin or polished stainless steel—and order a custom length of up to 72" for delivery the next day without an additional rush upcharge. The outlet or multiple-outlet placement is also customizable.
infinitydrain.com



Equus

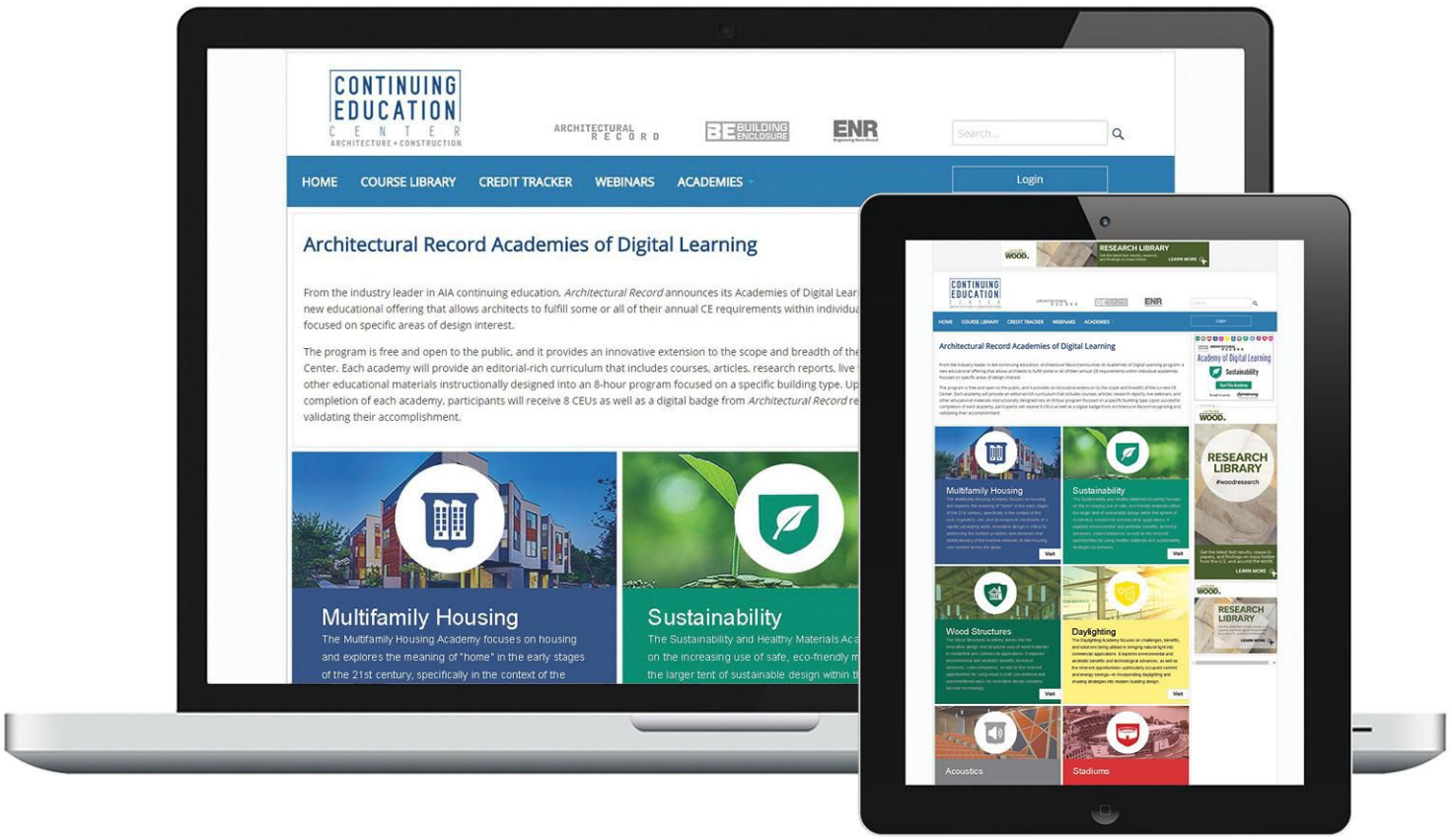
This porcelain-tile collection from Stone Source comes in three patterns that evoke an equestrian aura: Field (shown) suggests changing levels encountered by galloping horses; Hoof features a semicircle that mimics hoofprints; and Pavé alludes to the geometric stonework often surrounding barns.
stonesource.com



Wetwall

Wilsonart Engineered Surfaces developed this waterproof wall-panel system (and new brand) as an alternative to disruptive demolition and grouting in bath and shower remodels. The simple tongue-and-groove system requires no special tools and takes less time than typical installations. The panels have a waterproof core, antimicrobial protection, and the proprietary AEON-enhanced scratch- and scuff-resistant technology.
wetwall.com

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Photo courtesy of Trespa North America Ltd.



High-Pressure Laminate Rainscreen Facades

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CREDIT: 1 AIA LU/HSW

BE PM RR

Photo: Jack Hutcheson Photography



Designing for the Contemporary Custom Home

Sponsored by Cascade Architectural, Humboldt Redwood, and Rocky Mountain Hardware

CREDIT: 1 AIA LU/ELECTIVE; 1 IDCEC CEU

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Photo courtesy of NanaWall Systems



Innovative Interiors

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Photo courtesy of Trespa North America Ltd.

High-pressure laminate (HPL) panels can be used as part of a ventilated rainscreen system on a wide range of building types to provide great design reedom and excellent performance.

High-Pressure Laminate Rainscreen Facades

A highly durable solution with design freedom and flexibility

Sponsored by Trespa North America Ltd. | *By Peter Arsenault, FAIA, NCARB, LEED AP*

High-pressure laminate (HPL) is a proven and popular building product that has been used for both exterior and interior applications for decades. Specific to this course, it has also been used on building facades quite successfully. HPL panels have been tested for durability in the laboratory and on many buildings around the world, and they have been shown to perform exceptionally well. Equally appealing, the wide variety of product offerings gives architects great design flexibility and freedom to create exciting, award-worthy facades. When HPL panels are combined with a rainscreen attachment system, the resulting facade can contribute to high-performing, green, and sustainable buildings. In the field, installation is very straightforward using conventional tools and fastening materials. These traits have been evidenced in all types of buildings, including education, multifamily, mixed-use, transportation terminals, health care, and retail.

Continues at ce.architecturalrecord.com

Peter J. Arsenault, FAIA, NCARB, LEED AP, *is a nationally known architect and prolific author of more than 230 continuing education courses advancing building performance through better design.* ***www.pjaarch.com, www.linkedin.com/in/pjaarch***

CONTINUING EDUCATION

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Learning Objectives

After reading this article, you should be able to:

1. Identify and recognize the code-compliant characteristics and beneficial environmental properties of high-pressure laminate (HPL) rainscreen facades.
2. Investigate the characteristics and properties of HPL, and the suitability of the material for use on rainscreen facades for a range of building types.
3. Assess the long-term functional contributions of HPL facade systems as they contribute to green and sustainable building design.
4. Determine ways to incorporate the principles presented in this course into specific building facades as shown in case studies.

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Redwood timbers add organic beauty and warmth to indoor and outdoor rooms.

Photo: Jack Hutcheson Photography

Designing for the Contemporary Custom Home

Integrating design choices into a cohesive aesthetic while satisfying performance and sustainability goals

Sponsored by Cascade Architectural, Humboldt Redwood, and Rocky Mountain Hardware | *By Juliet Grable*

The contemporary custom home can trace its origins to the Modernist movement of the early and mid-20th century, and to trailblazing architects such as Frank Lloyd Wright, whose designs cultivated a deep connection between indoors and outdoors.

Contemporary homes tend to reflect a blend of styles, and while each design is an original, these homes tend to embrace several general strategies. The connection with the outdoors is paramount, and many contemporary home designs include ample windows and skylights that connect occupants with views, fresh air, and sunlight.

Open plans facilitate daylighting and encourage a more casual living pattern. Gone are the formal dining room and confined kitchen; instead, the kitchen connects to the living area and, just as importantly, to outdoor rooms and patios, where grilling and dining can occur. These open rooms must flow seamlessly into the outdoors, where outdoor rooms and landscaping complement the aesthetic of the main structure.

Contemporary home designs also tend to emphasize simplicity and function: narrow sightlines and an absence of ornament. But far from being austere, the contemporary home aesthetic is characterized by a preference for organic and "unprocessed" materials that work harmoniously with each other to create a sophisticated, modern look that is simple but warm. Often designers and clients show a preference for wood, metal, and stone, as well as an earth-toned or neutral color palette.

CONTINUING EDUCATION

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IDCEC APPROVED — 1 IDCEC CEU

Learning Objectives

After reading this article, you should be able to:

1. Discuss the many design goals that elements in a contemporary custom home must satisfy, and which features can improve energy performance while contributing to the home's overall aesthetic.
2. List criteria that can help designers select products and materials that are sustainable, ecologically responsible choices for a custom home.
3. Explain the role that various third-party certification programs and labels such as the Forest Stewardship Council and Declare can play in making sustainable choices.
4. Describe how various elements of a custom home can contribute to biophilic design.
5. Illustrate how manufacturers can work with design professionals to create individualized solutions for custom home projects.

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Of course, many of these choices play a role beyond simple aesthetics. Clients of custom homes often have many goals for their project, including energy efficiency, safety and security, health, and comfort and convenience. Some are also concerned about the environmental footprint of their home and want to do what they can to minimize negative impacts.

Designers and homeowners have never enjoyed such a variety of choices in nearly every design category, from windows and doors to flooring and finishes. With so many brands, styles, and finish options, the designer has the rewarding but undeniably challenging task of integrating all of these disparate elements into a harmonious whole and ensuring that these elements perform other required functions.

Fortunately, designers can rely on some timeless combinations and materials. Stone, wood, and metal never go out of style; these materials also tend to be durable and strong. Classic combinations include wood doors and cabinetry with metal pulls and hardware; exposed wood beams and metal roofing; and wood- or metal-clad windows and metal fabric shades.

Some specific examples show how durable, timeless materials can help create a harmonious aesthetic while contributing to other design goals.

Natural Warmth and Beauty: Redwood Timbers and Uppers

Wood is a classic design choice and one of the oldest building materials. It is beautiful, strong, and versatile, with an array of possible applications. It can be used indoors and outdoors, and in both structural or non-structural applications.

Of all the domestic wood species, coast redwood is among the most desirable. One of the lightest softwoods found in North America, redwood is also structurally strong, making it ideal for a wide range of structural applications where large timbers are required.

Timbers are the largest pieces of solid sawn lumber produced by sawmills, typically 5 inches thick and larger. Cut from the center of the tree, redwood timbers are a rich, reddish-brown tone. Being a natural product, each piece displays a unique grain pattern.

The use of redwood timbers for timber framing and exposed beam construction can produce dramatic results and lend natural beauty and strength to custom home projects. Redwood timbers can be used as posts and beams, in arbors, barns, shade structures, and trellises as well as the main home structure.

Upper grades are high-value appearance products used in finish applications, such as fascia, millwork, paneling, siding, trim, and wainscoting. Redwood upper grades can add natural warmth, beauty, and long-lasting durability to a custom home project. These uppers also exhibit Class B flame spread and are approved for use in California's Wildland Urban Interface fire-hazard severity zones for exterior siding and decking.

When sourced from sustainably managed forests, redwood is an environmentally responsible design choice that sequesters carbon. Whatever the application, redwood can complement a variety of other materials and help create a distinctive aesthetic.

Versatile Style and Functionality: Coiled Wire Fabric Panels

Coiled wire panels are made by weaving strands of stainless steel wire into strong but flexible panels. These panels are highly decorative and versatile. They can be used both inside and on exteriors as cladding facades, solar shading, window and ceiling treatments, room dividers and partitions, and for architectural lighting effects. These panels are ideal for porches, patios, and other outdoor gathering spaces, as they enable air circulation and preserve views while controlling glare and heat gain.

Coiled wire fabric is highly customizable. Available in a range of weave sizes, gauges, and finishes, the panels can reflect and complement a range of architectural styles. The systems are operable; panels can be retracted to allow in more light or closed when the sun is at a lower position and prone to glare.

Coiled wire fabric can help reduce energy costs by controlling solar gain. The material is also easy to maintain, durable, and 100 percent recyclable, making it a good choice for clients striving to reduce the environmental impact of their projects.

Architects, interior designers, and custom homebuilders can take advantage of the design and engineering support offered by manufacturers of these systems, using the basic building blocks to create original designs tailored to the particular aesthetic of the home.

Timeless Appeal: Hand-Cast Bronze Hardware

The selection of door and cabinet hardware can serve as a consistent design element that ties different parts of the home together. This is an especially important consideration with today's open plans. Often such hardware is made of metal, which is strong and durable and can take on a variety of styles and finishes.

Bronze is an alloy of copper and tin; it is made by melting the two metals together and then pouring the molten material into molds. The resulting alloy is extremely durable and corrosion resistant.

Photo: Jack Hutcheson Photography



Warm and versatile redwood is a material that can be used inside and outside the home in both structural and "appearance" products, such as tongue-and-groove ceilings.

Photo: Matthew Millman Photography; courtesy of Walker Warner Architects



Coiled wire fabric makes a striking design statement while performing the important function of controlling solar gain and glare.

Bronze was first created by human hands as early as 5000 BC. Over the millennia, it has been used for everything from coins, tools, and weapons to bowls, figurines, and fittings.

Today, bronze still has many applications, including the creation of versatile and durable hardware for custom homes. Truly a timeless material, bronze can be molded into a range of shapes, from simple to intricate, and is well-suited to contemporary, modern, and transitional styles. Bronze hardware adds an organic element to modern designs and is a classic complement to wood.

Highly skilled artisans draw on time-honored traditions to handcraft hardware and accessories for contemporary homes. However, these hardware products also benefit from digital technology. Computer numeric control (CNC) machines are used to fabricate lock mechanisms and other components. Locksets may look like art pieces from the outside, but they can house digital "smart locks" that can be opened using a digital code or voice control and/or controlled by a smartphone. At least one high-end manufacturer also offers extensive custom capabilities, with master craftsmen on staff who can create original patterns and 3-D modeling software that enables the user to perfectly match the finish and style with the materials of the door or other substrate.

Such products are inherently durable not only because of the raw materials used but also the care and craftsmanship that go into making them.

CUSTOM HOMES AND BIOPHILIC DESIGN

Increasingly, the contemporary custom home is designed to connect occupants to the natural world. This connection is inherent to our well-being and health. Cycles of daylight and darkness, for example, help "tune" the body's natural rhythms and affect several physiological processes, from sleep to digestion.

Biophilic design is a design approach in which architectural elements reflect people's innate connection to nature. Biophilic design can be demonstrated through the use of natural materials, such as wood and metal; organic shapes, colors, and patterns; and through features that connect building occupants with outside views, sunlight, and fresh air.

The Natural Warmth of Wood

Wood is obviously a natural material. The colors, textures, grain patterns, and even the way it feels to the touch helps connect people to the trees and forests from which the lumber was sourced.

Photo courtesy of Rocky Mountain Hardware



Contemporary bronze pieces brighten up the custom wood entry doors and design elements in this updated Rocky Mountain A-frame home.

Photo: T.S. Whalen



An outdoor room, protected by a structure made with redwood, encourages people to spend more time outside.

Photo courtesy of Rocky Mountain Hardware



A properly scaled hand-cast bronze handle pairs with this weathered-wood entry door to make a strong statement about connecting with the natural world.

Photo courtesy of Cascade Architectural



Coiled wire fabric connects occupants with views and fresh air while controlling glare and solar gain.

Redwood adds a timeless warmth to custom homes, and can help provide balance to the crisp lines and neutral palette exemplified in many contemporary homes. Wood is frequently used as an accent to bring warmth and natural beauty to the interior in the form of nonstructural beams, tongue-and-groove ceilings, wainscoting, flooring, cabinetry, and other nonstructural elements.

Redwood can also be used to create outdoor rooms, decks, and railings, and other elements, that invite people to step outside and reclaim their relationship with the natural world.

Finally, wood is extremely versatile and a natural complement to many other materials, from stone and metal to fabric and glass.

Hand-Cast Metal and the Human Connection

We live in a time of increasing automation, where it is hard to see the connection between human hands and most manufactured products. Bringing hand-crafted elements into a custom home reminds us of the timeless relationship between humans and our precious natural resources.

Hand-cast bronze hardware adds a sophisticated but humane element to a contemporary custom home. These pieces are made using ancient techniques and raw materials mined from the earth. Biophilic designs can take the form of shapes, colors, and patterns inspired by nature. Some manufacturers offer collections that have a deliberately organic aesthetic: rounded edges, earth-toned finishes, and naturalistic shapes. These forms not only appeal to us on a deep level but also feel good to the touch. In addition, bronze hardware is a natural complement to other biophilic materials and shapes, whether crisply painted cabinetry or a reclaimed wood entry door.

Facilitating the Indoor-Outdoor Connection

Custom home clients often request generous windows, especially for framing views of natural features such as mountains. Architects and designers are also increasingly recognizing the value of daylighting and carefully balancing the desire for glazing with energy-efficiency goals.

Coiled metal drapery, which is made from a weave of stainless steel, facilitates the indoor-outdoor connection in several ways. The panels can be used to control solar gain and glare and modulate daylighting; in this way, sunlight is filtered and diffused into spaces and views are preserved. Because the panels are retractable, they can be adjusted throughout the day as light conditions change.

People often gravitate to windows or outdoor rooms and patios; however, these spaces can be uncomfortable if they are not protected from extreme temperatures, glare, and wind. Depending on the gauge and thickness of the wire, coiled wire fabric panels can be used on the exterior to mitigate sun, wind, wind-borne debris, and insects, thus creating a more comfortable outdoor environment that encourages people to stay outside longer.

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Juliet Grable *is an independent writer and editor focused on building science, resilient design, and environmental sustainability. She contributes to continuing education courses and publications through Confluence Communications.* ***www.confluence.com***

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Photo courtesy of NanaWall Systems



The ever-changing needs of building owners and occupants continue to drive innovation and new options for the design of interior spaces.

Innovative Interiors

Products to maximize the design of indoor spaces

Sponsored by Bradley Corp., Inpro, NanaWall Systems, and Thermory USA

By Peter J. Arsenault, FAIA, NCARB, LEED AP

Commercial interiors seem to be ever evolving, ever changing, and ever focused on meeting new criteria. Some of these changes are driven by building owners, occupants, or users who simply have changing desires, tastes, or functional needs for operations. Others are driven by updates to codes and standards that require more attention to details of health, safety, or welfare, including the health and well-being of people in a building. And of course, some are simply driven by a need for maintenance of and upgrades to a building because everything has a useful service life. In this course, we look closer at some of these drivers of change and some of the practical ways that they can be addressed and incorporated into well-designed building interiors.

BIOPHILIA IN DESIGN

A growing interior design trend that is directly related to human health and welfare is the use of biophilia in contemporary buildings. Defined literally as a love of living things or a love of nature, biophilic design is a concept focused on increasing occupant connectivity to the natural environment in creative ways. Theorists argue that this design approach taps into the hard wiring of human beings who, over the span of history, have developed an affinity for the life-supporting aspects of the natural world.

One biophilic approach is to allow building occupants to have direct access to nature through areas like a rooftop garden, an adjacent nature walk, or a garden courtyard. If that is not feasible or practical, then providing living "green walls" or plants in the space is a good alternative. Direct views out to natural

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Learning Objectives

After reading this article, you should be able to:

1. Identify and recognize the significance of biophilia as part of an interior design strategy to promote health and wellness throughout buildings.
2. Assess the acoustic and daylighting performance aspects of operable glass wall systems as they relate to the welfare of building occupants and users.
3. Explain the characteristics of selected materials for use on walls and elevator cabs to improve safety and durability as well as aesthetics.
4. Determine ways to incorporate advanced principles of commercial restroom design for better hygiene, decreased germ transfer, and improved cleanliness.

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areas work well too. These approaches have tremendous merit in improving mood, air quality, and the overall look of the space.

There is another approach that is also effective and often more readily incorporated into a building, namely the use of graphics and imagery that portray scenes from nature. As part of an interior design strategy, there are at least three ways in which to do this effectively on a large scale, including the following:

Digitally printed wall cladding and art: Imagine turning nature scenes into whole-wall imagery or using large-scale graphics to create inspiring biophilic designs. This is now possible using printed wall-protection products that combine high-resolution images with durable wall protection. These are fabricated by back-printing a graphic image onto a clear, resilient sheet. Along with truly endless design capabilities, this approach also provides high-impact durability to wall surfaces. Since the graphic is back-printed on the protective sheet, there is no worry about the image being scratched over time. That means high-resolution photographs, artwork, or any other biophilic graphic can be printed and incorporated onto as large a wall space as a design may require.

Printed roller shades: If entire walls are not available for biophilic design graphics, then perhaps windows are. Views out of windows can sometimes be less than pleasing and look onto areas that are not natural or soothing. In cases like this, one option is to incorporate printed images onto roller-shade fabrics. Depending on the density and weave of the shade, daylight can still be allowed in, but the image looking out can be much more natural and uplifting.

Solar shades: When views are to natural areas, positive biophilic effects can be achieved. Incorporating solar shades with fabrics containing more openness in the weave can reduce the sun's glare and heat gain, yet still allow for those outside views.

BALANCING ACOUSTICS AND COLLABORATION

Many indoor environments are designed around fostering collaboration, interaction, and communal activity. This is true in commercial settings, such as offices with open-concept floor plans, schools with collaborative learning spaces, and universities with open, informal meeting areas. However, these indoor environments, regardless of their function, require that attention be paid to how noise and sound travels in order to protect privacy, promote productivity, and even safeguard health.

However, a Harvard Business School study has challenged the practice of all of these open spaces. It analyzed the effects of open floor plans in office spaces and discovered that it actually is not an ideal layout for optimal productivity. The study reported a decrease in coworker interaction, productivity, and direct communication between team members, as well as increased distraction and poor decision-making by employees.

In light of this information, an emerging trend now shifts design strategies away from an open concept and instead focuses on reconfigurable spaces to increase flexibility. This flexibility of spaces is achieved by using movable or operable glass walls that can open to accommodate group gatherings when desired and close to create smaller, more private spaces when needed. The operable glass walls still provide natural light transmission when closed and can also achieve very high degrees of sound control. Contemporary workspaces that incorporate this reconfigurable design approach seem to deliver higher levels of worker productivity and satisfaction. They can also increase the sense of flow and connectivity between different spaces within a building while allowing for more efficient space planning.

With the above in mind, architects and designers who recognize the benefits of such reconfigurable spaces need to consider several factors that go into a successful design.

Flexibility

Studies have also shown that part of creating a productive work environment means providing a variety of different workspaces that employees can choose to utilize at will. This includes large conference rooms that can be divided into smaller, more intimate meeting rooms to offer collaborative or independent workspaces as needed. It also means combining private offices, cubicle banks, and open floor plans as well as communal areas and sound-proof rooms where employees can concentrate. When operable glass wall systems are used, they allow for a smaller footprint with more multifunctional, sound-controlled office enclosures and meeting rooms, while reducing the need for extraneous dedicated rooms that serve only one function.

Natural Light

According to the WELL Building Standard, a building certification program focused on health and well-being, natural daylighting has a substantial impact on building occupants. It includes guidance on how occupied spaces with good natural lighting enhance productivity, provide visual acuity, and minimize circadian rhythm disruption. There are other noted positive effects on people in the form of stress reduction, cognitive performance, concentration, and overall mood enhancement. Operable glass wall systems allow architects and designers to create flexible enclosed spaces that allow such natural light transmission. Whether open or closed, the transparent nature of an opening glass wall system ensures greater diffusion of natural light within the space.

PRIVACY

Privacy, like collaboration, is essential for better workplace engagement, innovation, and advancement. Focused work is often

Photos courtesy of Inpro







Biophilic design can be incorporated into buildings using large-scale graphics back-printed on clear wall-protection sheets (left) or onto roller shades (center). When natural views are available, solar shades allow for direct views with effective glare control (right).

Photos courtesy of NanaWall Systems





The offices of SK&A Structural Engineers located in Washington, D.C., were designed by MV+A Architects and include a prominent operable glass wall at the lobby conference room to allow for a balance between collaboration and acoustical control.

valued as the most important activity in a workplace and takes up the majority of an employee's time. To efficiently complete such work, a sizeable amount of visual, auditory, and spatial privacy must be provided. These essential ingredients allow individuals to work without distraction, accurately communicate sensitive information, clarify ideas, focus, and recharge. Operable glass walls can provide this privacy through the use of tinted or shaded glass, art glass, or operable shades.

Sound

Sound control and transparency typically are the "oil and water" (i.e., they do not mix) of office environments. The benefits of the open, transparent, collaborative spaces can be quickly overshadowed by the downside of unwanted noise causing distractions and interruptions. Uncontrolled noise can happen in just about any indoor environment, and it can be enough to distract employees or students and lower their productivity. In extreme cases, when the noise is continual, it can make it hard to concentrate and add stress to the workplace, which in turn can reduce morale, make some people irritable, and even introduce adverse health effects.

Of course, some spaces do not require acoustic control all of the time and instead can benefit from acoustic barriers that can be folded away when they are not needed. Offices with flexible or reconfigurable meeting spaces are a great example of this. Operable glass wall systems offer sound control when needed at differing levels. Among the best, sound transmission class (STC) ratings of up to STC 45 are available. At this rating, loud conversations in adjacent spaces are reduced down to low levels of speech, while common speech is reduced to an unintelligible, quiet murmur.

Overall, operable glass wall products can be specified to achieve the desired characteristics of flexible, reconfigurable spaces while still meeting the critical needs of privacy, light, and sound control. Options are available that include standard bifold doors, a single-track sliding system, frameless interior opening glass walls, and a minimally framed large panel sliding system. All of these can be fine-tuned to meet performance needs with specific enhancements, such as higher-STC glass or specialized seal and track systems.

IMPROVED WOOD INTERIORS

Many commercial and residential interiors desire the use of wood for a more natural and comfortable indoor environment. In the interest of sustainability, it has become very popular to use reclaimed wood for such interior designs. With a distressed look and color variations, designers are creating unique, rustic, and occasionally eclectic spaces that appeal to many building owners and occupants. However, there are plenty of uncertainties about the quality of reclaimed wood since only so much information may be available about its sourcing or previous use.

Similarly, there are design trends that incorporate charred cedar known as *shou sugi ban*, named after a Japanese tradition of charring the face of the wood for longevity. The dark or black appearance also appeals to many design schemes; however, it also creates a cleanliness issue indoors since the surface (essentially charcoal) can rub off onto people or other things in the space.

Instead of using reclaimed or charred wood, a new option has emerged known as thermally modified wood. This is a process where a common species of wood, such as ash, pine, or spruce, is treated with heat and steam in a very precise, scientifically controlled manner. When done properly, thermal modification of wood results in boards that are more durable, dimensionally stable, and rot resistant than virtually any other wood product currently available. Further, because the basic wood species used are readily available, they can be specified based on requiring responsible sourcing, sustainable harvesting, and minimizing carbon footprint throughout the milling and delivery processes. This can all be documented and verified by recognized sustainability organizations, such as the Forest Stewardship Council (FSC) or others. As such, thermally modified wood is coming to be seen as a sustainable alternative to tropical woods, reclaimed wood, and charred wood.

The process of thermally modifying wood focuses on enhancing virtually every fiber of the wood, from the surface all the way through to the core. Nonetheless, the wood still retains its natural beauty since the grain is preserved and the coloration is enhanced. While the surface can be coated with a clear finish if desired, the thermal modification process is intended to allow the wood to be exposed and weather naturally over time without degrading. As such, it is delivered in natural colors that are the result of the heat process rather than a stain. Over time, this color can lighten to a natural light grey in much the same way exposed cedar and teak naturally age in color. All the while, the integrity and natural beauty of the wood remains visible and intact.

From a performance standpoint, thermally modified wood has been tested to show some very attractive traits. First, in terms of durability, thermally modified white ash has achieved a Class 1 durability rating of more than 25 years, while thermally modified Scots pine is rated for 20-plus years of rot resistance. More specifically, testing has been conducted with fungus spores introduced to thermally modified ash samples with the intention of promoting fungal growth over a period of time. These samples were contrasted with control samples to interpolate the class of rot resistance based on European standards. The result was Class 1 rot resistance achieved in thermally modified ash, meaning that, on average, it can be expected to last outdoors for at least 25 years or more with minimal maintenance or added oils.

Overall, thermally modified wood is both beautifully appealing and very practical. The clean modification process uses only heat and steam for a completely nontoxic product, leaving each board highly stable and rot resistant. With these attractive qualities, there are currently three types of thermally modified wood to consider for interior as well as exterior applications as follows.

Traditional Wood Look

Common species of wood like ash and pine are thermally processed to offer the simple, timeless beauty of clean, natural wood.

The modification process leaves each board a rich color that will vary from species to species. Building owners have the choice to oil the boards yearly to maintain this color, or leave them unoiled to allow the wood to naturally undergo a truly unique and beautiful color evolution. Over time, the wood will transform with an elegant color change to platinum grey, offering a new take on an elegant aesthetic. These wood cladding products routinely undergo a meticulous milling process, leaving them exceptionally straight, flat, and smooth to the touch.

Photos courtesy of Thermory USA





Thermally modified spruce is available in a range of colors that are more predictable and perform better overall than reclaimed wood or barn boards.

Reclaimed Wood Look

Thermally modified spruce is another option that can create a weathered look nearly indistinguishable from reclaimed wood. Available in a range of realistically weathered colors, they offer the reliability that comes from thermal modification plus the aesthetic desired to bring many designs to life. This type of thermally modified cladding offers the look of reclaimed wood, or barn wood, without the risks. Reclaimed wood is beautiful but difficult to source, difficult to vet, and often contains debris like stray nails, insects, or hidden rot spots. Thermally modified spruce mimics the look of reclaimed wood, but the modification process ensures consistent quality. In addition, if manufacturer-applied brushing and staining is selected, then each board will have the texture and color of naturally aged wood, ultimately providing the same effect with more control over the result.

Charred Wood Look

For designers seeking the ancient look of traditional *shou sugi ban*, or charred cedar, thermally modified, black-colored spruce can be a superior option. The ancient Japanese method of preserving wood by charring the surface is beautiful but difficult to achieve. On old-growth cedar, this process was effective, but today, it leaves the center of the boards vulnerable. Plus, charred wood is messy unless properly sealed. Thermally modified products provide the look without the hassle. They offer a bold, charred wood aesthetic that truly merges ancient traditions with modern design via the consistency of thermally modified wood in a deceptively flame-free process. There is no mess or residue; rather, the wood is stained and embossed to look realistically charred. It is available in brushed or dragon-scale textures for both interior and exterior cladding.

BETTER RESTROOM DESIGN

Every commercial building has restrooms, and all of them are used by almost everyone who enters the building. Public infectious health concerns (most recently, COVID-19 and flu outbreaks in particular) necessitate that restroom cleaning and maintenance support reliable handwashing for building visitors and occupants as well as a clean restroom environment. A leading manufacturer conducts a Healthy Handwashing Survey annually. The latest one has determined that 93 percent of Americans say that they employ at least one evasive measure in commercial restrooms to eliminate the risk of touching surfaces that might house germs. Similarly, 65 percent use a paper towel to avoid contact with a door handle, faucet, or toilet flusher. In addition, the survey shows that the top improvement Americans would like to see in commercial restrooms is making everything "touchless" (i.e., relying on sensors to activate fixtures rather than touching them with hands).

Based on all of the above, it is not surprising that designers and manufacturers spend considerable time and effort in making restrooms both look and function to high standards. Consider several examples of better restroom design discussed as follows.

All-in-One Handwashing

Typical restrooms often incorporate separate fixtures for dispensing soap, water, and hand drying. However, there is a new concept that is gaining popularity: innovative "all-in-one" handwashing fixtures are now available that incorporate a soap dispenser, a water faucet, and an electric hand dryer all in one streamlined wash bar unit. When paired with an appropriately designed sink, these touch-free fixtures support hygienic handwashing, reduce germ touchpoints in restrooms and improve overall facility cleanliness. All-in-one handwashing models are designed with accessible, easy, and intuitive handwashing interaction for users. LED lighting and easy-to-identify icons guide handwashing while keeping touch-free soap, water, and dryer in close reach. The dryer and bowl work in tandem to keep water from splashing outside the basin onto the floor, walls, or user, improving restroom cleanliness and safety. Integrating soap, water, and dryer into one fixture also eliminates deck and restroom clutter.

Certain all-in-one handwashing models have several features that curb germ transmission and improve restroom cleanliness. Similarly, a larger, 1-gallon soap container can be incorporated that requires fewer refills. When the low-level LED indicator illuminates, the soap container is replaced with a new full container, minimizing germ contamination associated with refills. Finally, to stop germs and bacterial growth in the fixture between uses, it is programmed to purge water every 24 hours for 5 seconds if the unit has not been activated. In effect, stagnant water is drained from the piping system and flushed with water to reduce and prevent the growth of bacteria.

In all, this cohesive handwashing design enhances user-friendly touch-free handwashing functionality while elevating cleanliness, safety, and aesthetics in restrooms.

Coordinated Soap and Faucet Sets

If all-in-one fixtures are not appropriate for a given project, then well-coordinated separate fixtures should be considered. Specifying matching soap dispensers and faucets harmonizes the overall appearance and adds a unified design element to washbasins. New touch-free models are universally designed and can be used on all types of basins. Such attractive handwashing fixtures create a cohesive and unified aesthetic in restrooms.

With advanced sensing technology, new soap and faucet pairs come in an array of styles, popular finishes, and advanced

features. Some of the newest features include hidden sensors to deter tampering, optimized sensing to eliminate false activations, longer spouts for increased handwashing space, and cast brass spout construction with popular and environmentally friendly PVD finishes. Faucets should have multiple low-flow options to match water-savings preferences and multiple run-time options to fit the application. To minimize germ buildup, an auto-flush feature is available to flush the water line every 24 hours. A manual valve override feature is also available for longer water flushing.

Some soap dispensers are designed with a wide range of top-fill options and a smart sense system with LED light indicators that display low soap and battery. Audible and visual alert systems guide refilling to avoid soap overfilling or spilling. The dispensers use universal bulk soap in foam and liquid options. For high-traffic applications using multiple handwashing stations, a top fill multi-feed soap system can supply soap up to six dispensers at once. The system includes a translucent ring that illuminates when the tank begins to run low on soap or power.

Matching soap dispensers and faucets come in popular finishes such as polished chrome, brushed black stainless, brushed nickel, brushed stainless, brushed brass, and brushed bronze. They are also available in modern and classic styles that range from elegant to sleek to organic to complement and integrate with any restroom design.

Privacy Partitions

With privacy emerging as a key user preference in commercial restrooms, privacy partitions add extra height, width, and discretion to create the feeling of an individual room. Using privacy partitions helps architects create comfortable, durable restroom retreats for users.

Privacy partition models feature 72-inch-tall doors and panels mounted 6 inches above the finished floor for standard stalls, and 69-inch-tall doors and panels mounted 9 inches above the finished floor for ADA stalls. To provide additional space, panels are available up to 84 inches deep and feature a stacked panel design that is seamed together with an aluminum H-bracket, providing a cleaner design aesthetic and faster installation. Other options are also available to eliminate gaps between doors, pilasters, and panels to deliver even more privacy. These partitions are available in a variety of high-quality and durable materials like stainless steel and solid plastic that stand up to everyday wear, high traffic, and vandalism attempts.

This need for privacy is not a new concept. According to a noteworthy study on restroom design, "The Bathroom" by Alexander Kira, Americans have been uncomfortable with the lack of privacy in restrooms for decades.

Accessible Showers

Restroom privacy is a particular concern when showers are included in the design. It is further the focus of design attention when accessibility is required. While most design professionals are familiar with the requirements of the International Building Code (IBC) and Americans with Disabilities Act (ADA) related to restrooms, the details of showers should not be overlooked since they are included in a wide range of accessible buildings.

The intent of accessible or "universal" design is to move toward inclusion and accommodation of people with physical disabilities to mainstream them wherever possible versus separating them from everyone else. Showers need to embrace this universal design too. No-threshold or curbless shower stalls are often used to achieve this, which allow ease of pedestrian access as well as wheelchair movement in the bathing space. A trench drain allows for better control of drain water flow and linear access, easing wheelchair maneuverability. Where a no-threshold or curbless shower may not be feasible, the installation of ADA-compliant ramps can be used.

With all of the above as a basis, many designers find that solid-surface panels are an excellent choice as a shower-enclosure material. Since solid surface is nonnutritive, it does not promote the growth of mold and mildew, and it resists bacterial growth. The inclusion of "active" antimicrobials like copper within the solid surface itself can reduce odor-causing bacteria. By contrast, with tile and grout, the porous grout is usually where the first black splotches of mold start growing. Where grout cracks or falls out, there is risk of water getting behind the tile, leading to tiles failing or moisture seeping into the gypsum board or other substrate. Cleaning and resealing tile means more work for maintenance staff and leaves room for error.

Solid-surface showers also mean quicker turnaround on installation over traditional tile. From start to cured finish, solid-surface showers can be ready to use in as little as four to five days compared to 12 days for traditional tile work. Slid surface receptors (floor pans) can be installed in as little as 1 hour versus three days for tile.

Solid-surface shower receptors can be poured and fabricated into many standard or custom shapes (L shapes, T shapes, neo angles, etc.) in a wide variety of sizes. The integral nonskid surface helps prevent slips and falls, and ADA edges and ramps can ease the transition from floor to receptor.

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Photos courtesy of Bradley Corp.



Innovative "all-in-one" handwashing fixtures include touchless functions of soap dispensing (left), water washing/rinsing (center), and hand drying (right).

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Upcoming Exhibitions

When Practice Becomes Form: Carpentry Tools from Japan
New York
March 5–June 13, 2021
The exhibition at the Japan Society celebrates architecture and craftsmanship through Japanese woodworking tools, as well as architectural patterns and models. It features a site-specific installation, conceived by architect Sou Fujimoto in collaboration with Brooklyn-based Popular Architecture, that interprets themes of the exhibition, highlighting the connection between traditional Japanese wooden construction and modern architecture. More at japansociety.org.

Sigurd Lewerentz: Architect of Death and Life
Stockholm
From April 2021
Sigurd Lewerentz, the 20th-century Swedish architect, is the subject of a new exhibition at ArkDes, the Swedish national center for architecture and design. It will show a range of Lewerentz's works, including the Woodland Cemetery, St. Mark's Church, and St. Peter's Church in Scandinavia. The opening will coincide with the publishing of a monograph about the architect, due out in the spring. More at arkdes.se/en/.

Ongoing Exhibitions

China Goes Urban. The City to Come
Turin, Italy
Through February 14, 2021
Curated by the Polytechnic University of Turin, Prospekt Photographers, and Tsinghua University in Beijing, this exhibition at Museo d'Arte Orientale connects the cultures of China with the transformations of contemporary Chinese urban centers. Starting with the exploration of new Chinese cities and the contradictions triggered by urbanization, the exhibition aims to invite reflection on the phenomenon. More at chinagoesurban.com.

Marking Time: Art in the Age of Mass Incarceration
New York
Through April 4, 2021
As its first exhibition upon reopening to the public since the Covid lockdown, MoMA PS1 highlights the centrality of incarceration to contemporary art and culture. Featuring art made by people in prisons and work by non-incarcerated artists concerned with state repression, erasure, and imprisonment, this exhibition includes more than 35 artists, including Tameca Cole, Russell Craig, James "Yaya" Hough, Jesse Krimes, Mark Loughney, Gilberto Rivera, and Sable Elyse Smith. The exhibition has been updated to reflect the growing Covid-19 crisis in U.S. prisons, featuring new works by artists made in response to this ongoing emergency. More information at moma.org.

Engineer, Agitator, Constructor: The Artist Reinvented
New York
Through April 10, 2021
This exhibition at MoMA looks at the reinvention of the role of the artist and the functions of art that took place in tandem with historical shifts in industry, technology, and labor amid the impact of World War I, the Russian Revolution, the collapse of the Austro-Hungarian Empire, and the rise of fascism. Highlighting figures such as Aleksandr Rodchenko, Lyubov Popova, John Heartfield, and Fré Cohen, this exhibition demonstrates the ways in which artists reimagined their roles to create a dynamic art for a new world. More at moma.org.

Howardena Pindell: Rope/Fire/Water
New York
Through April 11, 2021
For her solo exhibition at the Shed, Howardena Pindell will present her first video in 25 years—a project unrealized for more than four decades, which the Shed commissioned her to complete. In *Rope/Fire/Water*, Pindell recounts personal anecdotes and anthropological and historical data related to lynchings and racist attacks in the United States, using voiceover with archival photos of lynchings and the May 1963 Birmingham, Alabama, Children's Crusade, a series of nonviolent protests carried out by young people. Learn more at theshed.org.

The Long Dream
Chicago
Through May 2, 2021
This new exhibition at the Museum of Contemporary Art is inspired by the current moment, giving shape to issues heightened by the pandemic and social unrest. It features over 70 Chicago artists, with work ranging from the visual arts to performance and public practice, selected by museum curators and programmers with different backgrounds and specialties. Named after a novel by author Richard Wright, *The Long Dream* is part reflection on the state of the world after the arrival of Covid-19 and part celebration of Chicago artists and creative denizens. The goal of the exhibition is to amplify artists' voices and show artwork of a city grappling with anxiety and social unrest, letting artists have an impact during a time of social change. See more at mcachicago.org.

Competitions

Architectural League Prize for Young Architects + Designers
Deadline: February 8, 2021
Young architects and designers are invited to submit work to the annual competition with the theme this year of housekeeping. Projects of all types that relate to housekeeping within the profession (as related to current social, ecological, and economic crises), either theoretical or real, and executed in any medium, are welcome. A jury will select projects for presentation in a lecture series, digital media, and an exhibition in June 2021. Winners will receive a cash prize of $2,000. Learn more at archleague.org.

The Metals in Construction Magazine Design Challenge
Deadline: February 23, 2021
This year's competition will award a $15,000 grand prize to the entry deemed best at fulfilling Phase 1, for affordable housing, as outlined in the *Sunnyside Yard Master Plan Handbook*. It would entail building atop a NYC complex of critical railroad infrastructure. The Design Challenge is to submit an idea for a viable, efficient solution envisioning the decking, rental housing, and community services required. The cash prize will be awarded to one of six finalists selected by a multidisciplinary jury of architects and engineers. More at metalsinconstruction.org.

Re-Use Italy
Deadline: March 12, 2021
The third edition of this international architecture competition promotes the reuse of a church's shell in southern Italy while considering the abandonment of small towns occurring in the nation. The competition, open to architects, engineers, and students, asks the participants to transform the ruin into a concert hall. Submissions will be displayed in April 2021 in Grottole, Italy, and the winners will receive a cash prize of €4000 and be invited to explain their project to the townspeople. More at reuseitaly.com.



DATES & Events

Better Bus Stops
Deadline: March 23, 2021
The challenge is to design a modular bus-shelter system that can change from locality to locality, solving for any neighborhood in the world that you choose as a pilot for the program. The deliverable for this competition demands a single bus stand only, recommended via three presentation images. More information at uni.xyz/competitions/better-bus-stop.

Events

Black Lives Matter Week of Action
Online
February 1–February 5, 2021
This national, student-run event, dedicated to conversations and presentations on Black culture, expression, and justice, will be held online starting at 6 p.m. at SCI-Arc this year. The Week of Action augments Black History Month, challenging the legacy of institutionalized racism, and embodies the students' mission to create a collective platform of speakers with interests ranging from art to activism. See more at sciarc.edu.

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Ⓡ Regional AD

SNAPSHOT



In Basel's Old Town quarter, on a stretch formerly known as the Cultural Mile, the Musiksaal concert hall radiates the luxury of a bygone era. Basel-based Herzog & de Meuron recently completed an extension and restoration of the 1876 Johann Jakob Stehlin–designed building. The music venue and home to the Basel Symphony Orchestra is a protected site; working with the Cultural Heritage Department, the architects decided to restore the interior to the state of an earlier intervention dating to 1905. The extension—which doubles the size of the Musiksaal by adding dressing rooms, foyers, and more vertical circulation—echoes neo-Baroque tradition. Grand, loggia-like recesses are illuminated by LEDs designed to look like historical crystal chandeliers (hammered sheet metal on the ceilings reflects and enhances this light), while the architects even had the original brocade wallpaper reproduced to give the new addition a familiar finish. Sadly, for now, Covid restrictions have halted concerts. *Kara Mavros*

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