





PER SPEC TIVE



fireframes
ClearView® System

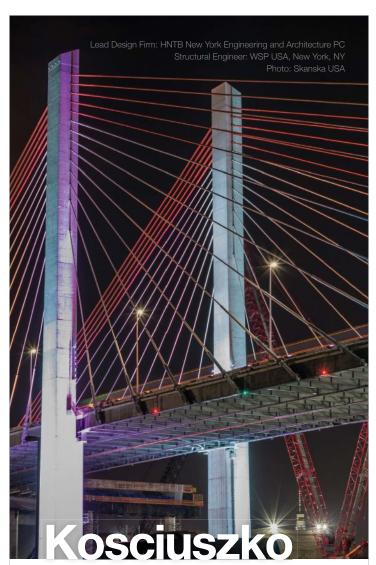
Pilkington Pyrostop[®]

Trust Fireframes ClearView® System from Technical Glass Products for seamless performance. It features butt-glazed Pilkington Pyrostop® low-iron fire-rated and impact safety-rated glass in a Fireframes® perimeter frame – all from North America's most specified fire-rated glass company.



ALLEGION 👯

fireglass.com | 800.426.0279



à Gogo

The design of urban infrastructure affects city life as much as the design of its buildings. That's why replacing the <code>Kosciuszko Bridge</code>—a notorious pinch point in traffic between Brooklyn and Queens—was a high priority for Governor Cuomo. With heavy lifting from <code>HNTB</code>, <code>WSP USA</code>, and <code>Skanska</code>, a striking cable-stayed span has risen where the outdated bridge once stood, ensuring New Yorkers may still have trouble saying its name, but they never have trouble getting home. Read more about it in <code>Metals in Construction</code> online.



WWW.SINY.ORG

ARCHITECTURAL R E C O R D

EDITOR IN CHIEF Cathleen McGuigan, mcguiganc@bnpmedia.com

MANAGING EDITOR Beth Broome, broomeb@bnpmedia.com

DEPUTY EDITOR Suzanne Stephens, stephenss@bnpmedia.com

 $\textbf{FEATURES EDITOR} \qquad \textbf{Josephine Minutillo}, \textit{minutilloj@bnpmedia.com}$

SENIOR EDITORS Joann Gonchar, FAIA, LEED AP, goncharj@bnpmedia.com

Linda C. Lentz, lentzl@bnpmedia.com

PRODUCTS EDITOR Kelly Beamon, beamonk@bnpmedia.com

SENIOR DIGITAL/NEWS EDITOR
ASSOCIATE EDITOR
ASSISTANT EDITOR

EDITORIAL ASSISTANT Elie Levine, Levinee@bnpmedia.com

COPY EDITOR Anna Shapiro

ART DIRECTOR Michael T. Powell, powellm@bnpmedia.com
ASSISTANT ART DIRECTOR Kaylee Webster, websterk@bnpmedia.com

CONTRIBUTING ILLUSTRATOR, Peter Coe

PRESENTATION DRAWINGS

CONTRIBUTING EDITORS Sarah Amelar, Fred A. Bernstein, Robert Campbell, FAIA,

Blair Kamin, Jayne Merkel, Clifford A. Pearson,

David Sokol, Michael Sorkin, Sarah Williams Goldhagen

SPECIAL INTERNATIONAL

CORRESPONDENT

Naomi R. Pollock, FAIA

INTERNATIONAL CORRESPONDENTS David Cohn, Tracy Metz, Aric Chen, Chris Foges

CONTRIBUTING PHOTOGRAPHERS Iwan Baan, Roland Halbe

ARCHITECTURAL RECORD (ISSN: Print 0003-858X Digital 2470-1513) August 2019, Vol. 207 No. 8. Record is published 12 times annually, monthly by BNP Media II, LLC., 2401 W. Big Beaver Rd., Suite 700, Troy, MI 48084-3333. Telephone: (248) 362-3700, Fax: (248) 362-0317.

ANNUAL RATE FOR PRINT, DIGITAL AND COMBO SUBSCRIPTIONS TO INDIVIDUALS IN THE U.S.A.: Print \$72.00, Digital \$18.00 and Print Digital Combo \$81.00. Annual rate for subscriptions to individuals in Canada: Print \$129.00, Digital \$18.00 and Print Digital Combo \$138.00 (includes GST & postage); Annual rate for individuals outside of U.S.A.: Print \$199.00, Digital \$18.00 and Print & Digital Combo \$208.00. Payable in U.S. funds. All rates are in USD. Single Copy sales \$9.95; Foreign \$11.00.

Printed in the U.S.A. Copyright 2019, by BNP Media. All rights reserved. The contents of this publication may not be reproduced in whole or in part without the consent of the publisher. The publisher is not responsible for product claims and representations.

Periodicals Postage Paid at Troy, MI and at additional mailing offices.

POSTMASTER: Send address changes to: ARCHITECTURAL RECORD, P.O. Box 16387 North Hollywood, CA 91615.

CANADA POST: Publications Mail Agreement #40612608. GST account: 131263923. Send returns (Canada) to IMEX Global Solutions, P.O. Box 25542, London, ON N6C 6B2.

CHANGE OF ADDRESS: Send old address label along with new address to ARCHITECTURAL RECORD, P.O. Box 16387 North Hollywood, CA 91615.

FOR SUBSCRIPTION INFORMATION OR SERVICE, PLEASE CONTACT CUSTOMER SERVICE AT:

Phone: 877-876-8093 Fax: 818-487-4550.

EDITORIAL OFFICES: 646/849-7124. 350 Fifth Avenue, Suite 6000, New York, NY 10118. WEBSITE: architectural record.com.



BNP Media Helps People Succeed in Business with Superior Information







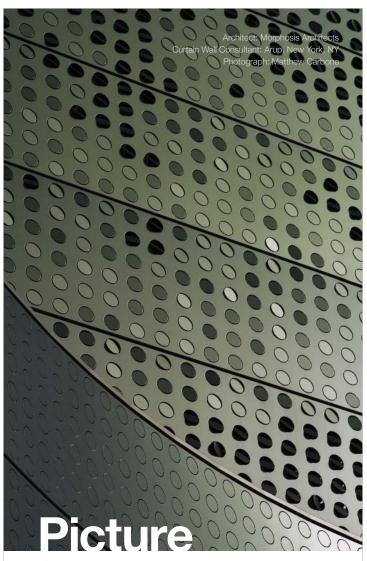


JUDGE EVERY ROOF BY ITS COVER

Wind adores its uplift handiwork. Disappoint it by specifying the right cover board. With DensDeck® Prime Roof Board with EONIC™ Technology, vertical pull strength is enhanced, helping you protect roof assemblies, building occupants and assets from wind's nasty habits. And that puts your customers one step closer to fulfilling their risk mitigation strategy.

Properly designed means properly protected. Build on what you know. Visit DensDeck.com





Perforated

The first academic building to open on Cornell Tech's Roosevelt Island campus, the Emma and Georgina Bloomberg Center aims for net-zero energy performance, a mission that drives its advanced aesthetics. Designed by Morphosis, its facade of pixelated perforated aluminum and curved glass provides both thermal protection and inspiration for a new generation of research. Read more about it in Metals in Construction online.



WWW.OMINY.ORG

ARCHITECTURAL R E C O R D

PUBLISHER

Alex Bachrach bachracha@bnpmedia.com

ADVERTISING SALES

NEW ENGLAND AND PA: Joseph Sosnowski

(610) 278-7829, Fax: (610) 278-0936, sosnowskij@bnpmedia.com SOUTHEAST, MID-ATLANTIC: Wesley Loon

(859) 414-3795, Fax: (248) 502-9104, loonw@bnpmedia.com

MIDWEST (IA, IL, MN, MO, WI): Bruce Smith

(224) 216-7836, Fax: (248) 786-1390, Smithb@bnpmedia.com MIDWEST (IN, MI, OH), TX, OK, EASTERN CANADA: Lisa Zurick

(513) 345-8210, Fax: (513) 345-8250, zurickl@bnpmedia.com WEST, WESTERN CANADA: Bill Madden

(503) 260-9679, Fax: (503) 557-9002, bill@maddenandassociates.net

FL, KS, NE, ND, NY, SD, INTERNATIONAL: Risa Serin

(646) 849-7130, Fax: (248) 786-1393, serinr@bnpmedia.com

WORKFORCE/RECRUITMENT: Diane Soister

(646) 849-7137, Fax: (248) 502-2046, soisterd@bnpmedia.com

PRODUCTION MANAGER: Kristen Carpenter

(248) 786-1222, Fax: (248) 502-2051, carpenterk@bnpmedia.com

CONTINUING EDUCATION

CONTINUING EDUCATION GROUP MANAGER

Brittnie Wilson wilsonb@bnpmedia.com

CONTINUING EDUCATION PROJECT COORDINATOR

Lisa Stradinger stradingerl@bnpmedia.com

CUSTOM CONTENT EDITOR

Samantha Staniszewski staniszewskis@bnpmedia.com

CORPORATE

CHIEF EXPERIENCE OFFICER Darrell Dal Pozzo HUMAN RESOURCES & INFORMATION TECHNOLOGY DIRECTOR

Rita M. Foumia

PRODUCTION DIRECTOR

Vincent M. Miconi

FINANCE DIRECTOR Lisa L. Paulus

CREATIVE DIRECTOR

Michael T Powell

CLEAR SEAS RESEARCH DIRECTOR Beth A. Surowiec

CHIEF EVENT OFFICER Scott Wolters

AUDIENCE MARKETING

AUDIENCE MARKETING PROJECT MANAGER Cassandra Kerby INTEGRATED MEDIA SPECIALIST Catherine Neal

LIST RENTALS

SENIOR ACCOUNT MANAGER

Kevin Collopy (402) 836-6265, Toll Free: 800/223-2194, ext. 684 kevin.collopy@infogroup.com

SENIOR ACCOUNT MANAGER

Michael Costantino (402) 836-6266, michael.costantino@infogroup.com

BNP MEDIA: (248) 244-6400

WEBSITE: architecturalrecord.com. SUBSCRIBER SERVICE: 877/876-8093 (U.S. only); 818/487-2077 $(outside \ the \ U.S.). \ Website \ Registration: 844/652-8994. \ E-mail: \ A \textit{R@pubservice.com.} \ \textbf{SINGLE COPY SALES:}$ www.architecturalrecord.com/scs. If the Post Office alerts us that your magazine is undeliverable, we have no further obligation unless we receive a corrected address within one year. INQUIRIES AND SUBMISSIONS: Letters, Beth Broome; Practice, Suzanne Stephens; Books, Suzanne Stephens; Lighting and Interiors, Linda C. Lentz; Architectural Technology, Joann Gonchar; News, Miriam Sitz. REPRINTS: architecturalrecord@theygsgroup.com.



BNP Media Helps People Succeed in **Business with Superior Information**



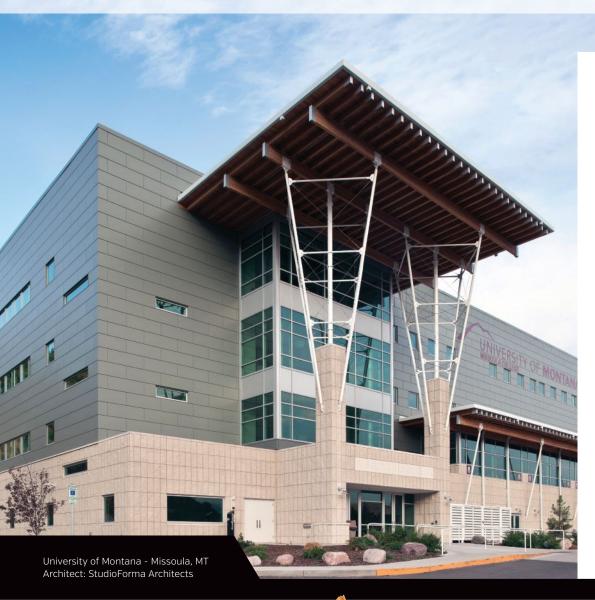




WHAT HAPPENED TO

VALUE ENGINEERING?

When the concept of value engineering was first conceived in the 1940s, the aim was to find real value through careful analysis of products and components. This was accomplished by either improving performance without increasing cost or reducing cost without sacrificing performance. It was understood that value could only be created if functionality and durability remained the priority.



Today, value engineering in construction has fallen far from its origins, with products being chosen and changed out simply because they are cheaper, many times sacrificing performance and longevity. This new process is no longer about creating actual value. Acknowledging that budget is always a concern, there must still be a better way.

With the introduction of EN-V we aim to restore the true meaning of value. We haven't cheapened anything about the EN-V metal panel system, but rather optimized the process to find cost savings without sacrificing performance. EN-V is a fully tested, architectural, dry joint, pressure equalized rainscreen system which starts at an uncommonly low price in this sector. The panels are single-skin, so there are no worries of delamination and they are noncombustible. Available in a nearly endless palette of custom colors, EN-V doesn't compromise on aesthetics either. Now you can use a system you want at the price point you need.

Now you can use a system you want at the price point you need.



ARCHITECTURAL METAL WALL PANELS





08 2019

NEWS

- 15 FIVE NEW SUMMER PAVILIONS
- 18 PHILIP FREELON, REVERED ARCHITECT, DIES AT 66 By Cathleen McGuigan
- 20 DILLER SCOFIDIO + RENFRO BRING NEW PARK, THE TIDE, TO LONDON By Tim Abrahams

DEPARTMENTS

- 12 EDITOR'S LETTER: CROSSING THE LINE
- 24 HOUSE OF THE MONTH: A RYALL SHERIDAN-DESIGNED WEEKEND RETREAT By Wendy Moonan
- 29 LANDSCAPE: LES JARDINS D'ÉTRETAT, A PUBLIC GARDEN IN NORMANDY, FRANCE By Alex Klimoski
- 33 GUESS THE ARCHITECT
- 36 FIRST LOOK: A MANHATTAN WATERFRONT PARK BY SHOP ARCHITECTS AND KEN SMITH WORKSHOP By Kara Mavros
- 38 IN FOCUS: GRIMSHAW'S RACECOURSE IN IRELAND By Josephine Minutillo
- 42 CLOSE-UP: SOU FUJIMOTO'S HIGH-RISE IN MONTPELLIER, FRANCE By Suzanne Stephens
- 47 PRODUCTS: LANDSCAPE By Kelly Beamon

BOOKS

- 34 DIANA AGREST'S ARCHITECTURE OF NATURE/ NATURE OF ARCHITECTURE Reviewed by Edward Eigen
- 35 CRAIG HODGETT'S SWIMMING TO SUBURBIA Reviewed by Deane Madsen

BUILDING TYPE STUDY 1,009 LANDSCAPE & LEISURE

- 51 INTRODUCTION
- 52 BORDEN PARK NATURAL SWIMMING POOL, EDMONTON, ALBERTA GH3 ARCHITECTS By Joann Gonchar, FAIA
- 56 LINDE CENTER FOR MUSIC AND LEARNING, LENOX, MASSACHUSETTS WILLIAM RAWN ASSOCIATES By Beth Broome
- 62 TANK SHANGHAI, CHINA OPEN ARCHITECTURE By Alexandra A. Seno
- 68 AGA KHAN GARDEN, EDMONTON, ALBERTA NELSON BYRD WOLTZ LANDSCAPE ARCHITECTS By Katharine Logan
- 74 XYLEM AT TIPPET RISE ART CENTER, FISHTAIL, MONTANA KÉRÉ ARCHITECTURE By Miriam Sitz

TECHNOLOGY

81 COASTAL RESILIENCE ARCHITECTS PROPOSE WAYS TO PROTECT AGAINST CATASTROPHIC FLOODING By James S. Russell, FAIA

LIGHTING

- 89 INTRODUCTION
- 90 NICOLLET MALL, MINNEAPOLIS JAMES CORNER FIELD OPERATIONS, TILLOTSON DESIGN ASSOCIATES By David Sokol
- 92 OUTDOOR PRODUCTS By Linda C. Lentz
- 95 55 HUDSON YARDS LOBBY, NYC KOHN PEDERSEN FOX AND ONELUX STUDIO By David Sokol
- 96 ARCHITECTURAL PRODUCTS By Linda C. Lentz
- 99 MANDARIN ORIENTAL JUMEIRA LOBBY, DUBAI DESIGNWILKES, DPA LIGHTING By Sheila Kim
- 100 DECORATIVE PRODUCTS By Kelly Beamon
- 119 DATES & EVENTS
- 124 SNAPSHOT: JEAN NOUVEL'S TOWER IN KUALA LUMPUR By Kara Mavros

THIS PAGE: TANK SHANGHAI, CHINA, BY OPEN ARCHITECTURE. PHOTO BY WU QINGSHAN.

COVER: LES JARDINS D'ÉTRETAT IN NORMANDY, FRANCE, BY ALEXANDRE GRIVKO. PHOTO BY MATTEO CARRASALE. See expanded coverage of Projects and Building Type Studies as well as Web-only features at architecturalrecord.com.

LEARN & EARN

Earn your continuing education credits free online at ce.architecturalrecord.com!*

IN THIS ISSUE



Landscape Architecture: Great Outdoor Spaces by Design

Sponsored by Bison Innovative Products, Endicott Clay Products Company, and Thermory USA Credit: 1 AIA LU/Elective

Page 104



Design Driven by Accurate Cost Data

Sponsored by RSMeans data from Gordian Credit: 1 AIA LU/Elective

Page 112



Continuous Perimeter Foundation Vents

Sponsored by Joto-Vent System USA, Inc. Credit: 1 AIA LU/HSW

Page 114



Embracing the Timber Age

Sponsored by VaproShield Credit: 1 AIA LU/Elective

Page 116

NEW ONLINE AT CE.ARCHITECTURALRECORD.COM

Photo: © Patrick Pleul/Picture Alliance/DPA/Newscom



Resilient Design: Creating a Built Environment Prepared for Climate Change

Sponsored by
Construction Specialties
Credit: 1 AIA LU/Elective



Photo: © Adam Mørk

Seismic Design

Sponsored by Construction Specialties Credit: 1 AIA LU/



Photo: © Bjarke Ingels Group



Coastal Resilience Sponsored by

Construction Specialties
Credit: 1 AIA LU/



Photo: © Natalia Knezevic Photography



Resilience Rating Systems

Sponsored by Construction Specialties Credit: 1 AIA LU/ HSW

Acoustics, Flooring, and the Built Environment



Sponsored by Shaw Contract Credit: 1 AIA LU/HSW; 1 IDCEC CEU/HSW

Anatomy of a Tension Structure



Sponsored by FabriTec Structures Credit: 1 AIA LU/ Elective

BIM for Design



Sponsored by Vectorworks Credit: 1 AIA LU/Elective



Safe, Stylish, & Accessible: Solving Design Challenges with Interior Sliding Door Systems

Sponsored by AD Systems Credit: 1 AIA LU/HSW

ALSO ONLINE AT CE.ARCHITECTURALRECORD.COM

Metal Roofing with the Appearance of Traditional Materials Sponsored by CertainTeed

Moisture Control with Spray Foam Insulation Sponsored by Icynene-Lapolla

The Future of Fire-Rated Glass and Framing Sponsored by Technical Glass Products (TGP)

Life-Cycle Assessment and Environmental Product Declarations - The Next Level of Transparency

Sponsored by Armstrong Commercial Ceiling Systems

Designing for High Winds Sponsored by Think Wood

Designing for Earthquakes

Sponsored by Think Wood | Content provided by the American Wood Council

Designing for Durability Sponsored by Think Wood

Designing for Fire Protection Sponsored by Think Wood

Opportunities for Wood in Low-Rise Commercial Buildings Sponsored by Think Wood

Cutting-Edge Elevator Technology Sponsored by Schindler Elevator Corporation

Kinetic Architectural Systems

Sponsored by Libart North America, a division of Stoett Industries, Inc.

To receive credit, you are required to read the entire article and pass the test. Visit ce.architecturalrecord.com for complete text and to take the test for free.



NanaWall® HSW systems' single track sliding glass walls offer an unlimited number of panels up to 12 feet tall, creating wider, more sweeping views. Built to withstand weather and commercial use, our durable systems store remotely in bays or hidden closets, utilizing unused space efficiently.

Take your walls and ideas further at nanawall.com/hsw.

NanaWall

for the **RECORD**

Beyond the printed page: highlights from our website, live events, and other happenings.



DEEP DIVE REPORTING

Senior editor Joann Gonchar visited the Borden Natural Swimming Pool (page 74) by gh3 in Edmonton, Alberta, and swam a few laps to get the full experience.



UNDER THE CYCLORAMA

Assistant editor Kara Mavros, senior news and Web editor Miriam Sitz, and editorial assistant Elie Levine (left to right) attended the opening of Pedro & Juana's 2019 Young Architects Program pavilion Hórama Rama at MoMA PS1 in New York.



NEOCON CONNECTIONS

At Neocon in Chicago, products editor Kelly Beamon (left) caught up with designer Ed Barber, cofounder of London-based studio Barber & Osgerby.



BIG SKY COUNTRY

Francis Kéré inspected Xylem (page 64), his new pavilion at Tippet Rise Art Center in Fishtail, Montana, before the official opening in mid-July.

UP, UP, AND **AWAY WITH TWA**

Take a virtual tour of the new TWA Hotel at John F. Kennedy Airport in New York by watching our new video.





RECORD ON THE ROAD

Managing editor Beth Broome (far left) moderated a panel at the Denver Art Museum in late June about alternative models of multifamily housing. OZ Architecture's Jami Mohlenkamp, Mike M. Moore of tres birds workshop, and Humphries Poli Architects' Joseph Poli and Eric Doner shared their thoughts.



Follow us on Twitter @ArchRecord







Inside-Out simply executed forms of sculptural presence that are equally at home inside or out. Light Frames bollards, direct LED illumination downward from the top of a broad rectilinear column. One of a larger exterior architectural program from our Inside-Out collection. Explore the possibilities at **sonnemanawayoflight.com**.



HOTOGRAPHY: © MICHEL ARNA

Crossing the Line

Many migrant-detention centers were not designed for their current use—and architects should stand up and say stop.

Beginning in late June, a series of news reports detailed once again the horrendous conditions in certain migrant-detention centers along the southern border. Immigration lawyers, doctors, Congressional representatives, journalists, and the Department of Homeland Security's own Office of Inspector General described what they saw or heard inside some of these facilities: deplorable overcrowding; lack of good nutrition and sometimes even clean drinking water; poor access to basic sanitation and medical care. While the government seeks to enforce new rules for asylum seekers, the state of these centers remains a testament to an intense humanitarian crisis.

What does this have to do with architecture? Architects are charged with ensuring the health, welfare, and safety of those who inhabit the structures they design. If local building codes were applied to the worst of these centers, they would be closed down today. But local officials seem to have no jurisdiction over federal facilities. Take the nownotorious Border Patrol center outside El Paso, in Clint, Texas, designed largely to house vehicles and equipment, albeit with space to briefly hold 104 adult detainees. But when a team of lawyers and doctors visited in June, they found instead 350 children, most of whom were likely separated from the adult who brought them over the border. The team also learned of an adjacent windowless warehouse that allegedly held hundreds more, according to an article in The New Yorker. Though the law mandates that children be moved out of detention within 72 hours, some children told lawyers they had been there for three weeks. They were "filthy," said one lawyer; they had not had access to showers, and some slept on concrete floors. Overwhelmed guards charged older kids with looking after babies and toddlers, including changing their

But none of these facts can begin to convey the emotional misery and fear these children suffer.

A joint investigation, by the El Paso Times and The New York Times, of the Clint facility in early July said, "Architects designed the Clint station as a type of forward base . . . from which agents could go on forays along the border . . . [and] migrants would be detained for only a few hours of processing before being transferred to other locations." The architects are uncredited, but shouldn't all architects protest when a structure designed as a giant garage becomes a squalid prison for hundreds of children?

Last year, the Architecture Lobby and Architects/Designers/Planners for Social Responsibility (ADPSR) called for professionals to refuse work on immigrant-detention centers. Several AIA chapters, including Boston and Austin, similarly called for rejecting work that violates basic human rights.

Now Rosa Sheng, FAIA, well-known for her activism on behalf of women and diversity in the field, has reached out to the College of Fellows and the Board of the AIA to ask architects "not to look away or



remain complicit" in the face of the inhumane conditions at detention centers. She believes the AIA should denounce "injustices and misuse of building types not meant for human habitation" and should "call for building inspections to have these facilities shut down." As Sheng points out, "The AIA Code of Ethics clearly states that we shall uphold human rights." So far, she has received a positive reaction from many Fellows endorsing a public statement.

Two years ago, the American Medical Association (AMA) voted to adopt policies to protect the health of immigrants and refugees. The AMA opposed all family immigration detention, the separation of children from parents, and any plans to expand detention centers, "given the negative health consequences that detention has on both children and their parents."

This June, the American Bar Association (ABA) declared that the organization was "appalled by credible reports of hundreds of children being held in unsafe and unhealthy conditions in violation of federal and state law, court settlements, and common decency."

It is time for the AIA to join doctors and lawyers in taking a stand. According to Robert A. Ivy, the organization's EVP/CEO, the board is "actively discussing its position on this issue." Ivy told RECORD just before the magazine went to press that the AIA is distressed "at the living conditions in overcrowded detention facilities, and stands by its ethical standards." We look forward to the AIA taking action.

Cathleen McGuigan, Editor in Chief

A PIECE OF EUROPE—MADE IN AMERICA THE ASI ALPACO™ COLLECTION

0 0 The ASI Alpaco™ Collection—a marriage of European design and engineering with the American manufacturing ingenuity you have

The ASI Alpaco™ Collection—a marriage of European design and engineering with the American manufacturing ingenuity you have come to expect from ASI—with the shortest lead times in the industry. The Collection is made from Phenolic and offers sleek hardware, robust construction and zero sightline doors and pilasters that meet in a flush finish with routed, overlapping closures for guaranteed privacy. And don't let Alpaco's looks fool you, the collection offers an exceptional value. 708.442.6800 • asi-accuratepartitions.com



THE WORLD'S SLIMMEST SIGHTLINES



The Original – occasionally imitated, never equaled. The ¾" profile Vitrocsa sliding glass wall. Proven and tested since 1992, with over 60,000 units installed in over 60 countries. Featuring many beautiful innovations that you would only expect from the Original.



Vitrocsa's Patented Invisible Sill Option

DAILY UPDATES

architecturalrecord.com/news twitter.com/archrecord



What is really missing in the field of architecture is a horizon of understanding comparable to the one the audience has in the fields of theater, cinema, or art... One needs the construction of a systematic discourse of architecture.

—Historian and architect Jean-Louis Cohen, speaking to Dan Handel for Haaretz.

In the Summertime, When the Weather Is Hot

In the U.S. and the UK, this year's roster of seasonal pavilions, representing a medley of unusual geometries, bold colors, and textured materials, keep visitors cool in the shade.

► SelgasCano's 2015 Serpentine Pavilion in Los Angeles

SelgasCano's prismatic 2015 Serpentine Pavilion is the first of the 19 structures built for the Serpentine Gallery's annual program to travel to the United States. Originally installed in London's Kensington Gardens, the cocoon-like structure, wrapped in a multicolored translucent ETFE membrane, has been reassembled on the grounds of the La Brea Tar Pits-the only active urban Ice Age excavation site in the world-where it will remain for the next five months. The new location will host a diverse program of talks, film screenings, and other events organized by Second Home, a London-based coworking operator, and the Natural History Museums of Los Angeles County. Second Home's first U.S. location, in L.A., also designed by SelgasCano, is scheduled to open in September. Alex Klimoski





◆ Hórama Rama by Pedro y Juana at MoMA PS1

Hórama Rama, this year's winner of the Museum of Modern Art's 2019 Young Architects Program, by Mexico City-based Pedro & Juana, is a 40-foothigh, 90-foot-diameter cyclorama that brings seating, shade, and even a waterfall to MoMA PS1's courtyard in Queens, NY. The design creates a playground of scaffolding, partially shaded by some 2,000 wood "bristles" protruding from its cylindrical armature. The seasonal structure is the home of PS1's annual Warm Up summer concert series and will be open until September. *Kara Mavros*

perspective **news**



▲ Junya Ishigami at Kensington Gardens

Billowing over the green of London's Kensington Gardens like a jagged stone sail, Junya Ishigami's 2019 Serpentine Gallery Pavilion has a thin canopy, heaped with thick flakes of loose-laid slate, which rises from three corners. As Ishigami suggests, the deliberately random composition of varying sized stones helps to create the impression of a natural feature but also recalls examples of vernacular architecture, lending the structure a kind of universal context, and reflecting the Japanese architect's long-standing preoccupation with the interplay between man-made and natural environments. *Chris Foges*

▼ Colour Palace at Dulwich Picture Gallery

For a few months, *Colour Palace* is brightening the sky at the Dulwich Picture Gallery in South London. This summer's pavilion, designed by British-Nigerian artist Yinka Ilori with architect Pricegore, is the second iteration of the competition organized by the gallery and the London Festival of Architecture. The 32-foot-tall polychromatic structure's facade of wooden slats features a geometric pattern inspired by fabrics in the markets of Lagos, Nigeria. It sits atop four red precast-concrete rings and is held together by a blue fir frame and a series of cables and brackets. The temporary structure will host outdoor events through September 22. *Kara Mavros*







▲ A Pavilion on Roosevelt Island by Somewhere Studio

Salvage Swings, a project by Fayetteville, Arkansas-based architecture practice Somewhere Studio, is the winner of this year's City of Dreams Pavilion competition, which aims to encourage sustainability among architects and designers. (RECORD senior editor Joann Gonchar, FAIA, served on the design jury.) Using scrap timber salvaged from a construction project at the University of Arkansas, the team built 12 boxy modules on New York's Roosevelt Island; each frames a single swing. The side-by-side structures, with roofs alternately sloping different ways, arranged in a triangle, enable games such as hide-and-seek. Elie Levine

▼ Mark Dion: Follies at Storm King

"My concept of a folly is somewhere between the traditional one of the aristocracy, and the vernacular," says artist Mark Dion. His 13 highly diverse structures at Storm King—from a glass menagerie and a grotto embedded in the landscape to a reed-clad hunting blind and a truck that serves as a mobile laboratory—are instructional and enchanting, especially within the context of the Hudson River Valley art center's 500 rolling acres and its monumental sculptures. On view until November 11, this exhibition includes pieces created and modified over the last 25 years, as well as a new site-specific work entitled *Storm King Environmental Field Station*, pictured below. *Josephine Minutillo*



DREAM IT. SEE IT. BELIEVE IT.

When you first visualize Lorin's Stainless Anodized Aluminum you can see the rich hues of bronze and grey and enjoy the deep metallic reflection, depending on the color you choose. Lorin's anodized stainless finish is not a coating. Coatings just wear away. Anodizing is an electro-chemical process that builds an anodic layer from the aluminum, thus protecting the aluminum from the elements as well as everyday use. Lorin's Anodized Stainless Collection delivers the absolutely stunning appearance that you require with demanding applications such as consumer goods, architectural, and transportation. So come and take a look at Lorin's Stainless Anodized Aluminum ...

Polished, powerful, and dynamic. That's the beauty of anodized.

REFLECT YOUR VISION.

www.lorin.com | 800.654.1159



ADVERTISING

EXCELLENCE

AWARDS

WINNER

Obituary: Philip Freelon, FAIA, 1953–2019

BY CATHLEEN MCGUIGAN

PHILIP FREELON, FAIA, the much-admired architect who achieved national prominence in part as one of the leading African American practitioners of his generation, died on July 9 at the age of 66. He had been diagnosed with ALS in 2016.

Freelon founded his practice, the Freelon Group, in Durham, North Carolina, in 1990, and went on to design civic and cultural projects throughout the United States-libraries, schools, museums, parks, and academic buildings, notably for a number of historically African American colleges. His best-known works include the National Museum of African American History and Culture in Washington, D.C., where he worked with David Adjaye (Freelon's firm was architect of record); the National Center for Civil and Human Rights in Atlanta; the Harvey B. Gantt Center in Charlotte, North Carolina; the Museum of the African Diaspora in San Francisco; Emancipation Park in Houston; and the Mississippi Civil Rights Museum in Jackson.

In 2014, the Freelon Group joined with Perkins and Will. Freelon continued to lead his team on such projects as the North Carolina Freedom Park in Raleigh; the Durham Transportation Center; and the Motown Museum expansion in Detroit.

In paying tribute to his colleague, Adjaye told RECORD, "I am deeply saddened by the loss of Phil Freelon. He leaves behind an indelible mark on the practice of architecture, and his legacy transcends the brick and mortar of the buildings he designed. Phil was a pioneer, an advocate of diversity and inclusion, and his impact will only strengthen over time as we continue to see people of color rising in the field of architecture. More than anything, however, Phil was a dear friend and mentor."

Indeed, Freelon was a highly influential leader in the profession, where barely 2 percent of registered architects are African American, and he was immensely encouraging and generous to younger minority practitioners. A statuesque man with a gentle demeanor, he was a powerful proponent for equity and pluralism and brought a deep humanism to the communities with which he worked, and to his architecture. The two curving exterior walls of the National Center for Civil and Human Rights, for example, were inspired by the arms linked together of those who participated in the historic marches for civil rights.

Born in Philadelphia-and the grandson of Allan Randall Freelon, a Harlem-Renaissance-





Phil Freelon at the Center for Civil and Human Rights in Atlanta, one of his best-known works (above). Designed with HOK, the Center is characterized by an angled exterior facade composed of a mosaic of earth-toned phenolic-resin panels (top).

era painter-Freelon studied architecture at North Carolina State University and earned an M.Arch. from MIT. He was the youngest architect to pass the registration exam in North Carolina, at age 25. In midcareer, he was a Loeb Fellow at Harvard's Graduate School of Design; and, three years ago, he established, with Perkins and Will, the Phil Freelon Fellowship Fund to "expand academic opportunities for African American and other underrepresented students" at the GSD. The many awards he received include the AIA North Carolina

Gold Medal and the Thomas Jefferson Award for Public Architecture, as well as honorary degrees from NC State, Duke University, and the Massachusetts College of Art and Design. Throughout his career, he taught and lectured at various institutions, and was a professor of the practice at MIT. President Obama appointed him to the United States Commission of Fine Arts.

Freelon was married to the jazz singer and composer Nnenna Freelon, who survives him, as do their three children. ■



perspective**news**

The Tide by DS+R Opens in London

BY TIM ABRAHAMS

London has been in search of its High Line since the day that the first phase of New York's game-changing stretch of public space opened in 2009. Thomas Heatherwick's Garden Bridge project was spurred by the desire of local leaders to have what New Yorkers had: an elevated piece of infrastructure, both garden and public space, with dramatic views of the city. That idea, which was much derided and unfairly lambasted, died in 2017. But now, another elevated public walkway has come to fruition: the Tide, designed by Diller, Scofidio + Renfro (DS+R) on the eastern reaches of the Thames, opened July 5 – predictably drawing comparisons to the High Line from local media.



Twenty-eight structural columns support the first phase of the Tide, which opened July 5.

The developer-funded Tide is only partly elevated: the section that snakes up from the river, between residential towers on one side and office buildings on the other (by SOM, completed two years ago, and by Terry Farrell in the 2000s, respectively). This first phase stops just short of the Millennium Dome, the expo site from 2000, now converted into a performance venue.

North Greenwich, a peninsula containing the once-contaminated brownfield where the Tide is located, is a harsh and poorly designed place. The Tide is intended to be a catalyst for positive change to the public realm there, evolving from a 2013 master plan by the London practice AHMM, for the developer Knight Dragon. The current scheme includes commercial space, but also a strong residential component and an emphasis on loops of public pathways. DS+R, part of the High Line team, was invited to give ideas - which they now have turned into something exceptional.

Although the first phase of the Tide contains a 650-foot section of elevated walkway, it ultimately shares little with the High Line as it works to define a new part of the city. Indeed, if you are going to compare it with any other DS+R work, it has more in common with a new public space at the heart of Moscow, Zaryadye Park – particularly in the way the elevated walkway resolves in an architectural promontory, providing stunning views of the river and of the Emirates cable car line that traverses it. But trying to work out which of the firm's previous greatest hits the Tide is riffing on is a pointless task. More interesting is the way it invokes the history of elevated walkways in

> London, particularly those surrounding DS+R's other current project in the city, the London Centre for Music.

London's famous Brutalist masterpiece, the Barbican, into which the London Centre for Music is being threaded, is set on an elevated plinth with cars and pedestrians separated vertically rather than horizontally. The partner in charge of the Tide for DS+R, Ben Gilmartin, has clearly studied these closely. This vertical separation "was one of the driving motives for the Tide," says Gilmartin. "In the proposed future phases, it will cross over numerous roadways."

Built from steel rather than concrete, the Tide's first phase includes 28 "islands" supported by elegant, slightly

splayed structural columns, each different. These are connected by prefabricated steel bridges that host gardens, trees, and walkways above while creating canopies beneath. Integrated into the sinuous form of the path are structures such as a café, wrapped in metal mesh, by Neiheiser Argyros. The overall effect is idiosyncratically British, reminiscent of that much maligned municipal architecture of the 1960s - albeit with a softer effect, thanks to the parametric forms of the steel structure and the textured greenery by the Scottish-Dutch landscape architects Gross Max.

When the full project is completed in the coming decade, the Tide will extend three miles in loops around North Greenwich, with a riverwalk at grade along the Thames. Working in the volatile world of private development in London is not for the faint of heart, but DS+R has defined and shaped a valuable piece of public space, which will exemplify an unprepossessing area of London for years to come – as important a task for the city as any High Line.

London Mayor Vetoes Tulip Tower by Foster + Partners

noted

On July 15, Sadiq Khan blocked plans to build a controversial 1,000-foot-tall structure designed by Norman Foster's firm. The City of London Corporation approved the tower in April, despite opposition from heritage groups. The project team will "take time to consider potential next steps."

The Crystal Cathedral Reopens After \$72 million Renovation

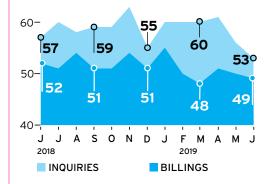
The Roman Catholic Diocese of Orange in California completed a restoration of the soaring nine-story glass church, designed by Philip Johnson and completed in 1980, in mid-July. Now called Christ Cathedral, the 88,000-square-foot building was once home to the late Reverend Robert H. Schuller's Hour of Power television show.

UNESCO Adds Frank Lloyd Wright Buildings to World Heritage List

On July 7, the World Heritage Committee inscribed eight 20th-century structures designed by the American architect onto the UNESCO list: Unity Temple, the Herbert and Katherine Jacobs House, the Frederick C. Robie House, Taliesin, Hollyhock House, Fallingwater, Taliesin West, and the Guggenheim Museum.

UC Berkeley Names Vishaan Chakrabarti Architecture Dean

The founder of New York-based Practice for Architecture and Urbanism will assume the deanship of the College of Environmental Design (CED) on July 1, 2020. Chakrabarti, who earned his M.Arch. from the CED in 1996, will continue to lead his firm during his tenure at Berkeley.



Architectural Billings Dip in June

The Architectural Billings Index slipped from 50.2 in May to 49.1 in June, according to the latest AIA data. (Scores over 50 indicate an increase in firm billings.) New work inquiries fell from 56.2 to 52.8-the lowest score in 10 years-and new design contracts also dipped, from 50.9 to 50.3.



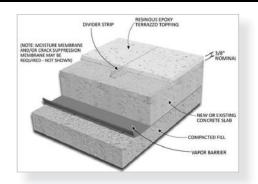
Partner with Benjamin Moore. Spec any Project with Ease.

Visit www.benjaminmoore.com/SpecTools for more information.





TERRAZZO • TERRAZZO • TERRAZZO • TERRAZZO • TERRAZZO • TERRAZZO





An NTMA contractor has the training, skill, and experience to understand that their job is a part of the big picture–bringing your job to a successful completion.

National Terrazzo & Mosaic Association www.NTMA.com 800.323.9736

perspective house of the month

A WEEKEND HOUSE DESIGNED BY RYALL SHERIDAN EXPLOITS THE WATER VIEW AND ADVANCES SUSTAINABLE PRINCIPLES. BY WENDY MOONAN

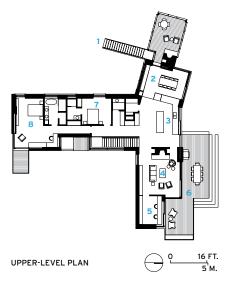


IN DESIGNING a weekend house for a couple from Manhattan, Ryall Sheridan Architects in New York first helped locate its site on the North Fork of Long Island. Bill Ryall, firm principal, who has built up a substantive portfolio of quietly modern residences in the area, found a 5.5-acre plot in Orient, a quaint rural village of 700 people. The flat property ends on a high bluff overlooking the Long Island Sound. Here, at its northern edge, Ryall placed the T-shaped, 5,660-square-foot wood structure and elevated its living spaces, piano nobile fashion, to take advantage of the dramatic view.

You do not see the water as you approach; a winding drive leads from the road to the carport tucked under the cedar-clad, wood frame building. To enter the house, you ascend a stair leading up to the main floor. There – *kaboom* – as you walk into an open dining room, you gasp at the sight of the shining water and unimpeded view of the horizon.



The cedar-clad, T-shaped house (above) sits on a bluff high above Long Island Sound. Ryall Sheridan captured the dramatic views for the living spaces (left) and kitchen (below) by elevating the main level.



- 1 ENTRANCE STAIR
- 2 DINING ROOM
- 3 KITCHEN
- 4 LIVING ROOM
- 5 STUDY
- 5 DECK
- 7 BEDROOM
- MASTER BEDROOM



perspective house of the month



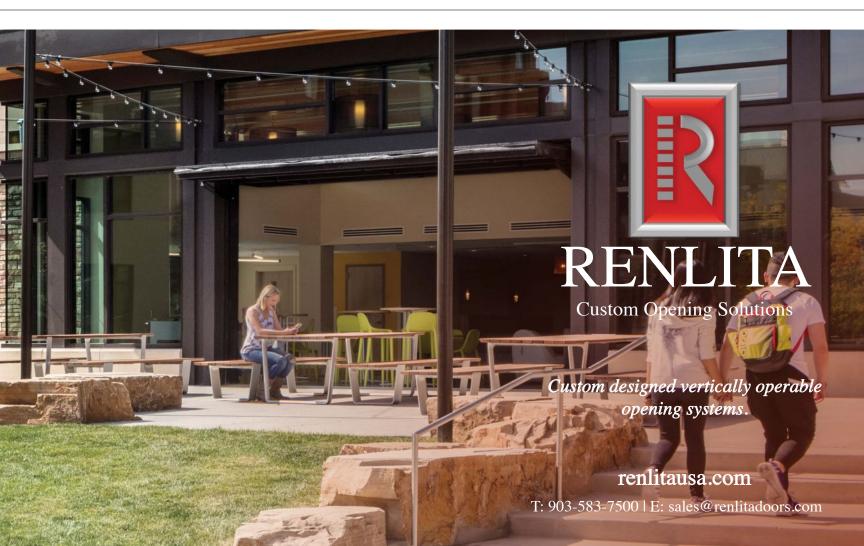
The screened porch and dining area on the west end of the house (left) are lifted 12 feet above the ground—as are the kitchen and living areas to the east—to capture an expansive view of the Long Island Sound.

All the public rooms on this level, 12 feet above grade, face the water: the living room and office open out to a deck, while the dining area and screened porch, contained in a separate structure on the west end, sit on concrete piers. A wing at a 90-degree angle to this bar-shaped volume accommodates a bedroom and south-facing master bedroom suite, while the ground floor has a sauna and two more bedrooms for the couple's family.

The owners wanted a pool, but removed it to the southern part of the site "so the children can throw parties without disturbing the parents," says Ryall. He also designed the low-maintenance landscaping, adding maples, bayberry, hornbeam, wild cherry, and a copper beech to the grassy meadow.

The all-electric, \$700-per-square-foot house has a high-performance wall assembly and an energy-recovery ventilator, says Rodrigo Zamora, the project architect. Triple-pane windows and solar panels help make this elegantly crafted treehouse a net zero dwelling that produces all the energy it consumes. ■

Wendy Moonan is the author of New York Interiors: New York's Most Memorable Rooms.







Artistic Elements • Ceilings • Facades • Fall Protection • Security Gates • Solar Shading • Space Sculpting • Wall Coverings • Water Features • Window Treatments



GUESS THE ARCHITECT WIN AN IPAD MINI

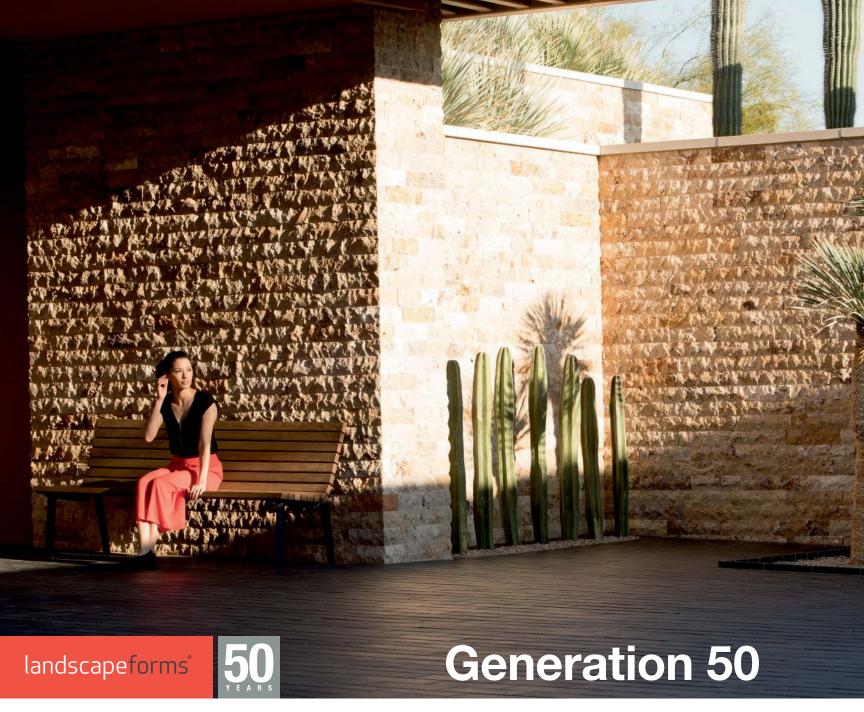


► TAKE A LOOK ON PAGE 33
ENTER @ ARCHITECTURALRECORD.COM/GUESSTHEARCHITECT

Guess the Architect Contest







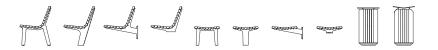
A Modern Expression of the Classics

"In a sense, this line represents the second generation of Landscape Forms' original products. Generation 50 respects the design, culture, and craft that is at the heart of the company, but also takes advantage of new technologies and the manufacturing expertise that characterize Landscape Forms now and into the future."

—Robert Chipman, designer of Generation 50

Cheers to 50 years of designing site elements that inspire landscape architects and elevate the outdoor experience.

Find us at landscapeforms.com or contact us toll free at 800.430.6205.

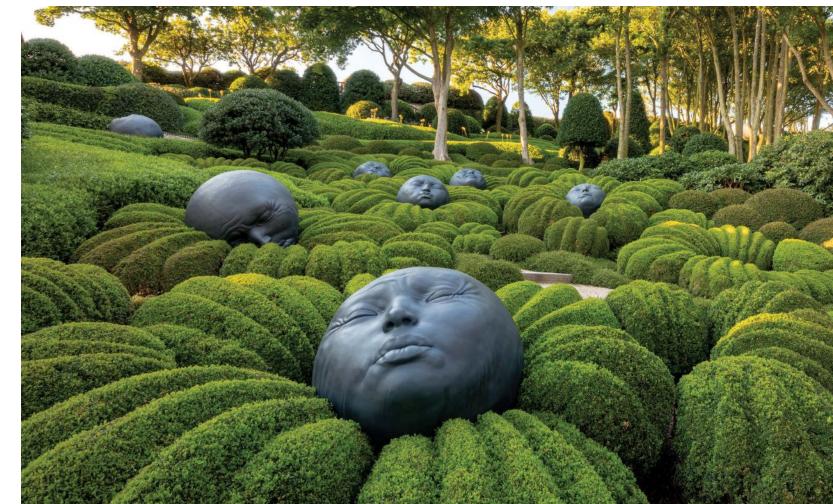


perspective landscape

IN THE EARLY 20th century, the actress known as Madame Thébault built a villa on an idyllic plot of rolling landscape in Étretat, France, atop the rocky cliffs of Normandy's Alabaster Coast. The grounds, which she made into a garden for her orchids, became a favorite painting spot for her friend Claude Monet, who produced many artworks depicting the Porte d'Aval, a natural stone arch in the distance. In 2016, Russian landscape designer Alexandre Grivko transformed Thébault's former estate into Les Jardins d'Étretat—a public garden that hosts both permanent and temporary displays of sculpture by international artists.

With its meandering pathways, pristine array of topiary, and unusual artworks, Grivko's garden recalls a scene from a storybook; the designer cites the grounds at Versailles and the imaginary landscape of Alice's Adventures in Wonderland as inspirations for his fantastical display of over 150,000 plants. Referencing Étretat's natural splendor, the voluminous formations of flora evoke cliffs, waves, and whirlpools. "Just as the wind, rain, and ocean have carved out a landscape of staggering beauty, I thought of how human hands could mimic nature to create something similarly exquisite," Grivko says. Using plants to occasion a kaleidoscopic panorama of hues and textures, he has designed a sensory-rich experience for visitors-and a dynamic backdrop for sculpture-that evolves throughout the seasons. Says Grivko, "The garden is a perpetual artistic experiment." ■















Perfect Performance

"We wanted to make the project dynamic and energized. The copper screen looks more solid during the day and perforated at night when lights are on behind it—enhancing the urban experience within the entertainment district."

-Todd Walker, FAIA, Principal, archimania



Case study at PAC-CLAD.COM/BALLETMEMPHIS

PAC-CLAD.COM | INFO@PAC-CLAD.COM

IL: 800 PAC CLAD MD: 800 344 1400 TX: 800 441 8661 GA: 800 272 4482 MN: 877 571 2025 AZ: 833 750 1935



ARCHITECTURAL R E C O R D **Guess the Architect Contest**

ENTER NOW! A monthly contest from the editors of RECORD asks you to guess the architect for a building of historical importance.



CLUE: AN ARCHITECTURAL FIRM DESIGNED A VISITORS CENTER IN AN URBAN PARK TO BLEND INTRICATELY WITH THE LANDSCAPE. THE ROOF-PARTLY SAWTOOTH AND COPPER CLAD. THE CURVED PART COVERED IN GRASS-MELDS WITH AN EXISTING EARTH BERM AND AN ALLÉE OF GINGKO TREES FOR AN ARRESTING FUSION OF NATURE AND BUILDING.



The Washington Dulles International Airport in Dulles, Virginia, was designed by Eero Saarinen and opened in 1962. Saarinen, whose TWA Terminal at Idlewild (now JFK) opened the same year, captured in both schemes the grandeur of flight through exploiting the sculptural and technical qualities of concrete.

By entering, you have a chance to win an iPad mini. See the complete rules and entry form online at architectural record.com/guessthearchitect.

AuralScapes_® ceiling tiles T-grid ceiling tiles combine to create a stunning and continuous sculptural surface. Highly sound absorbent and light emitting, for any rectangular cloud configuration. 24" by 24" lightweight aluminum housing w/PET baffles and dimmable LED light. Available in a variety of colors. modulararts.com 206.788.4210 nodular**arts**:

perspective books

A Dangerous Beauty

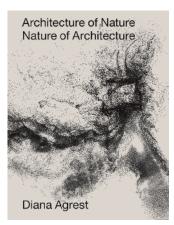
Architecture of Nature/Nature of Architecture, by Diana Agrest, with Yael Agmon. Applied Research and Design Publishing, 280 pages, \$49.95.

Reviewed by Edward Eigen

THE FORTUNES of Peter Cooper, patron and founder of Cooper Union for the Advancement of Science and Art, were based on the production of glue and household cements from byproducts of the slaughterhouse-cows' and calves' feet. It was a messy but profitable business, assuring Cooper a legacy as a "pioneer polluter" of New York's pond water. Interestingly, Architecture of Nature/Nature of Architecture, which showcases work being



Agrest describes in moving terms her early and far-ranging travels, from her native Argentina to the underground homes of Matmata on the edge of the Sahara. She looked at the passing landscape in proto-architectural terms-from the "plan" of the Argentine Pampas, with its "uninterrupted horizontal" expanse, to the "section" of the geological record written in stratigraphic lines of the country's Serranías de Hornocal mountains in the Argentine province of Jujuy. Traveling on foot, train, and in a beat-up old station wagon, the young student found the long-sought conduit between the sciences and humanities. As Agrest notes, the "central role of representation" in architecture is to create "a common ground between architecture and science in the understanding of nature." These representations might take the form of standard architectural drawings and models adapted to nonstandard objects-such as seismic faultsas well as nature prints, scientific atlases, and



even scans of electronmicroscopic imagery. The significance of Agrest's claim is apparent in "Representation as Production," a far-ranging dialogue between the author and scholars Peter Galison and Caroline A. Jones. Like the Burnett dialogue, it is one of the book's clarifying interludes between examples of the studio's work. Another welcome voice is that of John McPhee, whose reprinted essay of 1980, "Basin and Range: Geological Time," does not

show signs of age.

Who, then, is the "us" of this book, and where and when are we "now?" In the acknowledgments (like a signpost at the end of this long journey), Agrest elaborates on how the visually dynamic bulk of student work from the Cooper Union design studios came together. Collectively, and as a group portrait of the generation that produced it, this compilation records changing weather patterns in a prevailing climate of warranted geoecological pessimism.

By comparison, the material illustrated in New York's Museum of Modern Art 1971 exhibition about Cooper Union, the Education of an Architect: A Point of View (and accompanying book), with its iterations of the vaunted Nine-Square problem, seems to have come from another epoch. The past "elements" of architecture-grid, frame, post, beam, etc.-have been replaced with invisible force fields, topographical vessels, cloud formations, and sinkholes. The overall impression is the unraveling of a singular point of view. The question is no longer that of composition but of "dealing with" a turbulent state of nature in a perpetual process of becoming and/or coming undone. One future possibility is that "us" (architects) will be cropped out of the picture and nature, by whatever definition, will return to reassert itself over our now long-estranged better selves. As an atlas of us now, this handsomely produced and lavishly illustrated book covers some intriguingly uncommon ground. ■

Edward Eigen is the author of On Accident: Episodes in Architecture and Landscape.

Blasts from the Past

Swimming to Suburbia and Other Essays, by Craig Hodgetts; edited by Todd Gannon. Oro Editions, 220 pages, \$24.95.

Reviewed by Deane Madsen

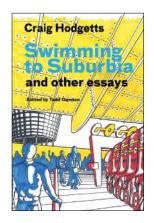
IF YOU meet Craig Hodgetts, it's hard not to be swept up by his general enthusiasm—not just about architecture, but about people, cars, cities, and surfing. That gusto permeates his writings, which span nearly half a century, condensed and collected into this volume. Divided into four categories—polemics, projects, people, and performances—the book unveils the ideas and possibilities that have influenced Hodgetts's architectural work.

As the practice of Hodgetts and Hsinming Fung, partner (and wife), has grown—from its founding as H+F in 1984 to its current merger with Mithun—so have the texts that begin with his early-career efforts with Los Angeles architect Robert Mangurian. One essay is a testament to the negotiating skills of both Hodgetts and Fung: though Hodgetts, as the outgoing associate dean, thoroughly lambasted the architecture at the California Institute of

the Arts campus in Valencia in a 1973 Art Forum article, the couple still ended up with the school as the client for their Wild Beast Pavilion for music some 30 years later.

As an architecture student on the East Coast in the mid-1960s, Hodgetts studied with James Stirling at Yale University, and he includes three essays about his British mentor. A profile published in 1976 in *Design Quarterly* shows that Hodgetts had embedded himself with Stirling at his

home and office in London, observing the idiosyncrasies of the character who loomed large in his life. The other pieces provide a measured retrospective look: one, a critique of the Ayala Science Library at the University of California, Irvine, completed in 1994, two years after Stirling's death, alternates between Hodgetts praising the solidity of the design and reluctantly recognizing that it was not one of Stirling's best works.



Other writings include assessments of the Los Angeles residential architecture of John Lautner, the Santa Monica house that Frank Gehry designed for himself and family in 1977, and even ruminations on a car Le Corbusier designed in 1936. Yet an urban thrust underlies Hodgetts's contributions. In the essay from which the book draws its title, the author crafts a love letter to Los Angeles, the city he has inhabited for the better part of four decades (he

was born in Cincinnati). Hodgetts finds that the city's streets and freeways have a logic, while knowing that the beach is its soul. All considered, the collection, including fiction, collages, and designs for film sets, proves that whatever the medium, his all-encompassing energy translates into impressive production.

Deane Madsen is a Washington, D.C.-based writer and photographer specializing in architecture.



MANUFACTURED IN THE USA:

MANUFACTURING QUALITY LIGHTING PRODUCTS SINCE 1934.

- Pattern & Framing Projectors
- LED Fixtures
- Truss Systems
- Pendants & Houselights
- Wall Wash's
- Recessed Lighting
- Special Effects
- And Much More...



5 Holt Drive, Stony Point, NY 10980 845-947-3034 | www.tslight.com



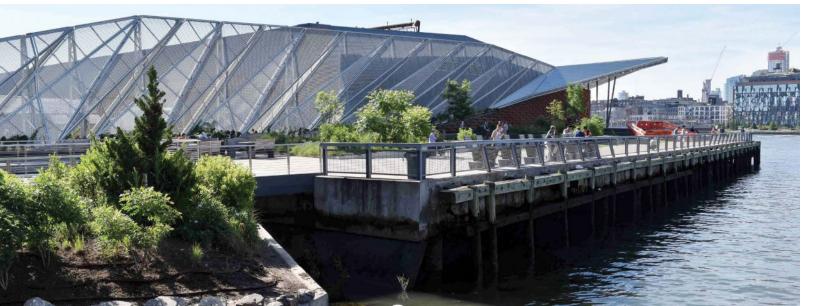
Screen Time

A reimagined pier brings a breath of fresh air to a Manhattan neighborhood.

BY KARA MAVROS

on Manhattan's Lower East Side, a scenic park at Pier 35, designed by SHoP Architects and Ken Smith Workshop, is now open. As one of the final phases of the East River Esplanade, a two-mile waterfront-revitalization plan begun 14 years ago, this recent addition at a single pier may seem relatively small. Nevertheless, the 28,000-square-foot plot accommodates many activities. In the morning, locals practice tai chi; in the afternoon, sunbathers assume their positions on the lawn. By evening, families enjoy the last glimpses of daylight from relaxing swings. Officers on NYPD patrol boats even get their takeout meals delivered to the pier. "The Chinatown and Lower East Side community is underserved in terms of public space," says Ken Smith, firm principal. "Pier 35 isn't for the tourist crowd that goes to the High Line; this is full of New Yorkers."

Reflecting an urban reality, the site abuts an unsightly New York City Department of Sanitation garage on the north. In order to camouflage its neighbor, ShoP designed a barrier structure of steel mesh between the shed and the park's open space. This elongated volume, composed of a series of folded triangular screens that create a canted wall, juts out over the river. At its eastern end, the architects tilted up the south corner to help capture views of the Manhattan Bridge and the Brooklyn waterfront. Here visitors can sit under the lifted canopy-a concept, says Cathy Jones, project director at ShoP, inspired by "your grandmother's front porch" (except this porch is sandwiched between sanitation storage and million-dollar vistas). Four swings suspended from the shelter's roof are placed against the backdrop of the structure's rust-colored weatheringsteel wall, which SHoP added to further conceal the garage. Deep wood steps, wrapping around the southeast corner, provide additional seating. Eventually, the overall enclosure of steel mesh will be dressed in a tangle of vines that Smith





LIFE AQUATIC Locals flock to the park to enjoy its porch (right) and observe sea life at "Mussel Beach" (opposite, top). Ken Smith planted vines on the steel-mesh structure (above, and opposite), which will eventually serve as a green "billboard."

has planted to create a green "billboard" visible from the highway that runs along the riverfront.

Linking the pier to the mainland is an existing footbridge that both firms helped reconstruct. Working with marine biologist Ron Alveras, they created "Mussel Beach," where strategically placed boulders in the inlet provide a habitat for sea life.

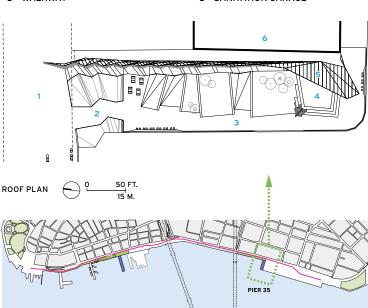
Throughout, Smith designed the pier's two east-west walkways with a deliberate "meandering plan, where you have to look up from your phone while walking," he says.

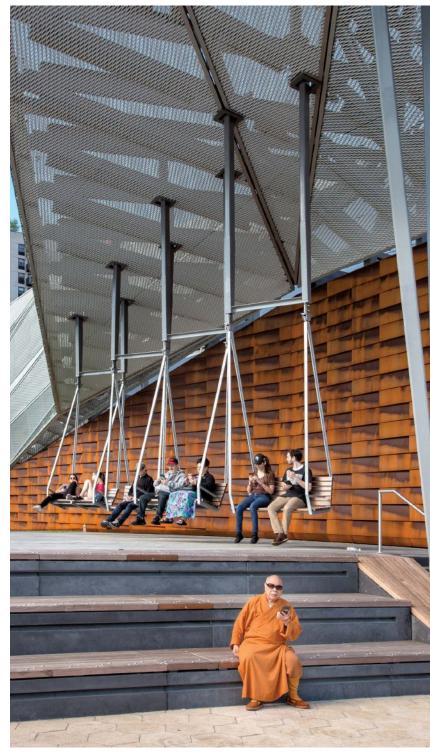
Pier 35 is not the final step in this revitalization scheme, first advanced by the Bloomberg administration in the post-9/11 rebuilding of lower Manhattan. But it is the last large piece. While work began on this portion in 2010, the project stalled under the current De Blasio administration. Now the federally funded stretch of waterfront needs just a few finishing touches and should be completed next year.

"Most New Yorkers are cut off from the water, and this is one of the places where you can really see it," says Smith. Amid the bustle of a dense downtown, this narrow multiuse oasis allows city-dwellers to hear, smell, and feel the water and the breezes—and relax. ■

- 1 ESPLANADE
- FOOTBRIDGE
- 3 WALKWAY

- 4 PORCH
- 5 STEEL-MESH ROOF
- 6 SANITATION GARAGE





EAST RIVER ESPLANADE

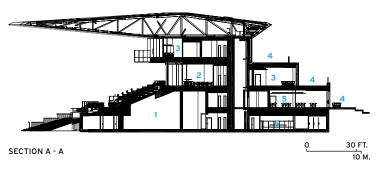
IF YOU CAUGHT some of the Wimbledon tournament last month, you may have noticed a new retractable roof over Court 1. That roof, along with other improvements to the stadium just beside Centre Court, was designed by Grimshaw, which has also developed a master plan for the All England Lawn Tennis Club. The global firm, known mainly for highly complex transportation facilities and innovative science and educational buildings, is beginning to flex its muscle when it comes to athletics. In County Kildare, Ireland, Grimshaw has just completed another sporting venue—with another impressive roof.

Officially opened at the end of May, the reimagined Curragh Racecourse, which includes a dramatic grandstand, was designed to "grow from the landscape," according to Kirsten Lees, managing partner of Grimshaw's London office. (The firm has recently seen a change in leadership, with Andrew Whalley succeeding founder Sir Nicholas Grimshaw as chair earlier this summer.)

Set amid gently rolling natural grasslands with the Wicklow Mountains in the distance, the historic Curragh has long been one of Ireland's most important Thoroughbred racecourses. Working with Dublin-based architects Newenham Mulligan & Associates, Grimshaw reorganized the previously linear grounds by relocating the entrance to bring visitors directly to the heart of the action. A new parade ring, where the horses meet their jockeys before a race, now has views to Curragh's famous track. Dismal low spaces in the former grandstand, which was well beyond its serviceable life—"the facilities didn't match the track," says Lees—have been replaced with a welcoming doubleheight atrium at the angled rear of the new grandstand. "It's about the spectacle," Lees asserts. "Everyone's dressed up in their finery."

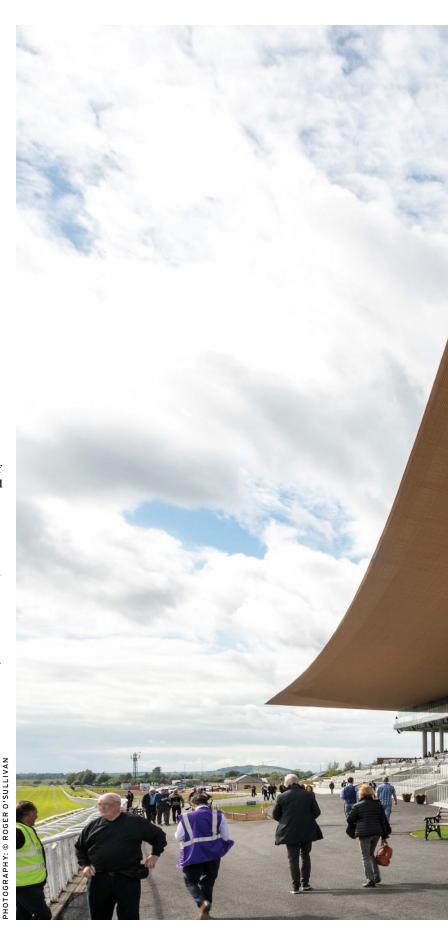
But it is the grandstand's soaring roof that is the star of the show. Topping a precast-concrete superstructure that is exposed throughout much of the public space of the building, and covering an area of 77,500 square feet, the underside of the shapely, surprisingly thick roof surges to a razorlike edge, creating a gravity-defying illusion. "You read it not as a volume but as a planar surface," says Rossella Nicolin, associate director at AECOM Sports, which provided the structural and m/e/p engineering.

A series of steel Pratt trusses composed of standard open sections form the sweeping roof, which is 12½ feet at its deepest, where mechanical equipment is housed. Though relatively simple, the shape and layout of the trusses were developed through parametric scripting tools. This allowed many structural options to be rapidly assessed and optimized. For instance, adopting shallow steel trusses would have yielded a very heavy and uneconomical structure. Thanks to tapered plate girders along the edge, the roof thins to just under 6 inches as it cantilevers over the plein air seating beneath it. At the center, the span is 88½ feet, but at one corner, at the western end, a double cantilever



- 1 CHAMPIONS HALL
- 2 SPONSORS SUITES
- 3 RESTAURANT

- 4 TERRACE
- 5 CHAMPAGNE BAR
- 6 WEIGHING ROOM







AND THEY'RE OFF! The new grandstand is the heroic centerpiece of the reorganized racing grounds. Its dramatic cantilevered roof is clad in perforated copper-colored aluminum panels.

supported by a diagonal spine truss spans nearly 148 feet.

Inspired by the Curragh plains, materials for the new grandstand reflect the rural context. The roof is clad in copper-colored aluminum panels. On the soffit, those panels are perforated to provide a visual connection to the trusses while permitting ventilation through fans within the roof. Rather than flat panels, the designers opted for sinusoidal ones that have greater rigidity and allow supports to be hidden inside of the curve. A movement joint across the roof is barely noticeable.

The edge detail was developed to coordinate structural requirements with cladding elements and the rainwater-collection system, which utilizes runoff from the grandstand roof to provide all peak graywater requirements on a race day.

Despite taking cues from its surroundings, the roof's floating horizontal form highlights the contrast between the natural undulating topography around the Curragh and the precision of the man-made. Says Nicolin, "We took a simple approach, but, because of some key solutions and refined detailing, it turned out to be an extremely elegant and streamlined structure."





In Full Bloom

Sou Fujimoto branches out with a residential high-rise in the South of France.

BY SUZANNNE STEPHENS PHOTOGRAPHY BY IWAN BAAN

THE SIGHT of a bushy, white, curvilinear 17-story tower in the city of Montpellier, France, could stop you in your tracks. And this is before you notice that the balconies of this mostly residential building extend out like branches of a thickly foliated tree, almost defying gravity. Aptly called L'Arbre Blanc (White Tree), the recent addition to the city of 278,000, close to the Mediterranean, makes a dramatic gesture to the region's sunny climate. Here 113 luxury apartments, contained in the "trunk," open onto balconies that cantilever as much as 25 feet.

The organic design was conceived by a team led by

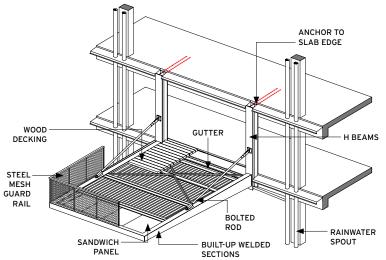
Tokyo architect Sou Fujimoto, working with three Parisbased architects: Manal Rachdi of OXO Architects; Nicolas Laisné, and Laisné's former partner Dimitri Roussel. The project is the second result of a series of competitions started by Montpellier in 2013, called the Folies Richter, to bring more experimental architecture to the city. (The first winner, a nine-story apartment block, La Folie Divine, was designed by London-based architect Farshid Moussavi, and opened in 2017.)

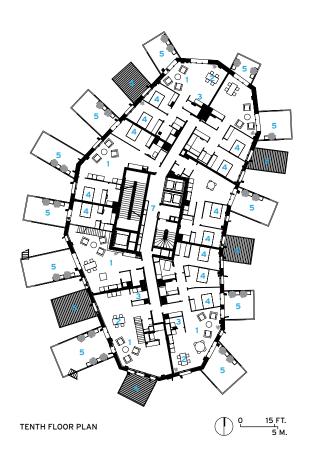
Montpellier officials hope to commission a dozen such more "folies" in the future that will join a variegated











- 1 LIVING AREA
- 2 DINING AREA
- 3 KITCHEN
- 4 BEDROOM

- 5 TERRACE
- 6 PERGOLA
- 7 ELEVATOR/STAIR





HOVER OVER The apartment tower's expansive terrraces overlook the Lez River, which runs through the city (above). For a few duplexes, the architects provided a stair to connect the balconies (opposite, top). The balconies, held to the shaft by tie rods, offer ample opportunity for socializing between the floors (opposite, bottom).

assortment of buildings previously designed by such architects as Ateliers Jean Nouvel, Zaha Hadid Architects, Studio Fuksas, and Ricardo Bofill (Taller de Arquitectura).

In this case, Laisné and Rachdi, who had both worked for Jean Nouvel, wanted to enter the competition but in partnership with a more experienced architect: the RFP encouraged younger generations of architects to collaborate with somewhat older ones. Even though Fujimoto, age 48, hadn't practiced in France, his ethereal and idiosyncratic residential work, such as the N House (RECORD, April 2009), House NA (RECORD April 2012), and House K (RECORD, April 2013) had brought him international stature.

Fujimoto was game. The designers all convened for a five-day charrette in Tokyo to generate the Montpellier scheme. When they won the competition in 2014, Fujimoto set up

shop in Paris, and brought in Marie de France as project architect. (In 2016, the Paris office won another competition—with Laisné and Roussel—for the arresting Vertical Village proposal in Rosny-sous-Bois, part of the Grand Paris urban plan.)

Since the 25,000-square-foot site for L'Arbre Blanc along the Lez River offered panoramic views of the city, the brief called for a rooftop bar and restaurant for the public. In addition, an art gallery occupies the base, with coworking office space on the floor above.

From several angles, the tower appears to be cylindrical, although the plan is actually kidney-shaped, which allowed longer, gentler curvilinear expanses for the generously proportioned apartments, many of which have two balconies. Even so, the reinforcedconcrete column-and-slab structure and the enclosing walls rely on faceted planes, instead of curves, to bend around corners.

The facade is clad in white metal. The balconies are formed of built-up welded sections and bolted to vertical steel H-beams, which in turn are fixed to the concrete floor slabs. While the balconies appear to be cantilevered, they are connected to the tower by tie rods. Basically steel trays, their loads have been calculated according to their orientation and length, and the assemblages are covered with fireproofing and wood decking. Steel pergolas above the terraces act as brises-soleil.

These extrusions seem to float; the exterior stairs that connect the terraces of the few duplex apartments might pose exciting moments for those who are susceptible to vertigo. But on a beautiful evening at sunset, with plenty of Languedoc wine, you can relax and forget any fears of going out on a limb.

KINGSPAN LIGHT + AIR GOES ALL-IN ON NORTH AMERICA

North American President Bill Hogan sheds light on the company's acquisition of CPI Daylighting, Bristolite Daylighting Systems, and Skyco Skylights, and what it means for commercial architects and contractors designing for daylighting and smoke management.



We're focused on innovative daylighting and smoke management solutions for buildings in the commercial marketplace. We engineer and manufacture translucent facades, roof systems, canopies, skylights and smoke vents. We're more than just a manufacturer though – we're also advocates for the benefits that natural light and air have on the health and well-being of building occupants. Our role is to help educate and support the efforts of owners, architects, designers, and contractors to help them build healthier and more sustainable commercial buildings.

What types of projects do you work on?

We work on a wide variety of projects, including new construction and retrofits. You can find our products and systems in schools, community buildings, commercial office buildings, shopping malls, warehouses and manufacturing plants. There are really no limits. We are seeing increasing use of our systems in commercial and public buildings as more people learn about the benefits of natural light on productivity and general well-being.





You recently acquired CPI Daylighting, a daylighting solutions provider, plus two skylight companies, Bristolite Daylighting Systems and Skyco Skylights. Why those companies and what does that mean for your customers and partners?

We chose these companies because they were market leaders and had a strong reputation for excellence. They offered innovative products and high-quality performance that allowed us to expand and enhance our existing offerings.

For architects and contractors, it means we are in a strong position to leverage our global resources, national reach, and local expertise to benefit them from start to finish. We now have a broad range of high-performance premium systems in the market, which gives our customers more options. We have a strong track record for delivering products and systems ontime to the contractors in the field. It's no longer about just meeting expectations. Today our customers and partners should expect more, and we're confident we can deliver.

Can you give us an example of how you work with architects?

In this business you must add value every step of the way, and it starts with the architect. First, we want to empower an architect's vision to build aesthetically pleasing, sustainable and healthier buildings. We help inspire them with bold ideas, educate them on the benefits of daylighting, provide more custom solutions, and give them tools they need to specify a design around our systems to help bring their vision to life. It's a collaborative partnership.

What is the future of the commercial construction market and how do you see your business playing a role?

The future is now. Environmentally friendly regulatory rules and the demand for more energy efficient and



healthier buildings are driving design innovation, advanced technologies and the development of sustainable materials. All of these benefits must be delivered competitively and in ways that add value to each step of the design, construction and management of properties. These innovations are allowing building owners, developers, architects, and contractors to shape a more brilliant future for commercial and public spaces, enhancing the lives of everyone who works, lives, studies or plays in these buildings for decades to come. Kingspan Light + Air is at the forefront of this revolution.









Visit our website for more information kingspanlightandair.us

These site furnishings, pavers, and luminaires add convenience and visual interest to public spaces.

Outside Influences

By Kelly Beamon

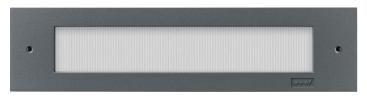


products landscape

RIO Collection

Los Angeles-based Rios Clementi Hale Studios has created six new modules to round out its existing Rio System of outdoor benches designed in 2015 for JANUS et Cie. Made of aluminum and treated with the manufacturer's proprietary sealant, a new planter, table attachment, and connection module can all be linked to the original convex and concave benches with stainless-steel hardware, and screwed in place with optional mounting hardware. Freestanding cocktail and side tables and a trash receptacle are also available. According to Sebastian Salvadó, one of the architecture firm's creative directors, "Landscape architecture, interior design, architecture, and graphic-design thinking all influenced the final form, construction, and placemaking character of the furniture."





Recessed Wall Luminaires

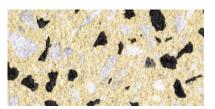
Made to illuminate but also blend into stairs, ramps, and terraces, WE-EF's Recessed LED Wall luminaires feature a slim and highly impact-resistant rectangular frame that's practical for installation near the ground. The horizontal and vertical series (STL134 and SVL134) filter light through louvers; the STO134 (shown) provides a diffusing lens, and the STI134 uses an integrated reflector to channel light forward and down, preventing glare. All versions measure about 11" x 3" with 5"-deep housing and are available in cast aluminum or stainless steel.

we-ef.com

Series Sesto Exterior Pavers

These authentic terrazzo pavers are made in Wisconsin by Tectura Design, a Wausau Tile brand originally founded by a terrazzo installer. Available in 2"-4"-thick rectangular units that range in length from 12"-48" or in tiles measuring anywhere from 12"-42"-square, the units can handle a commercial-friendly 7,000 pounds per square inch. Custom sizes are also available.

wausautile.com







products landscape



Loc Lock

Formed from concrete, with a proprietary etched-concrete finish, the Loc Lock bike rack by MD3 is installed in paving like a bollard, with a simple integrated screw embedded in its base. The roughly 2½"-thick eye hook, which stands 29½" high and 18½" wide, animates streetscapes and provides secure storage for cyclists. Available in six colors.

md3contract.com



Tribeca

Among new outdoor-seating collections that Italian manufacturer Pedrali is releasing in the U.S., Tribeca, a stackable line of chairs and barstools, features powder-coated tubular steel construction, a seat and backrest made of easy-to-clean woven polyvinyl chloride (PVC), and a '60s-era patio-chair design that's suitable for hospitality settings. The collection is available in white, pink, red, terra-cotta, brown, blue, sage, and green. pedrali.it



Torche Solar Path Light

French solar-lighting company Les Jardins Lighting has launched a contract division for its sustainable sun-powered luminaires. Among the offerings recommended for hospitality settings, Torche is a bollard-style path light that provides LED illumination without the labor and cost of wiring. Like all Les Jardins products, Torche uses the company's Autonomous Solar Bulb. lesjardins.solar









Patio

Three years of research led to the fast-drying, fluorocarbon-free design of Patio by Karina Nielsen Rios. The Trevira fabric collection—the first for outdoor use from manufacturer Kvadrat—is recommended for high-humidity areas such as spas and indoor pools, and for umbrellas and screens as well as upholstery. The line features a softer-than-average texture compared with conventional weatherproof fabrics but offers the same durability. Twenty-four colorways are available. kvadrat.dk

The choice is **CLEAR**.





SuperClear 45-HS-LI by SAFTIFIRST

Specify USA-made SuperClear 45-HS-LI, the *clearest* 45-minute glazing product. Clearly the best performance at a lower cost for the *best value*.

Tested by UL and Intertek/WHI. Meets all fire, hose stream and impact safety requirements for 45 minute doors, sidelites, transoms and openings. Available in large sizes up to 3,880 square inches. 90% VLT for superior optical clarity and high acoustical ratings of 37 STC/35 OITC in standard hollow metal frames.









CATENARY

- Fixture Options
- ArtiStar Series™ Denali Series™
- ArtiStar Series[™]
- 7w remote or integral transformer
- 11w with integral driver
- Denali Series[™]
- 12w, 20w or 27w integral driver
- Standard and premium finishes
- Cap options 45°, 90° & Flush
- CCT 2.7K, 3K & 4K

Shown with ArtiStar Series™ fixture in Black Wrinkle (BLW) finish





Borden Park Natural Swimming Pool | Edmonton, Alberta | gh3 architecture

Making a Splash

Quiet but powerful design enhances the environmentally healthy ambitions of Canada's first chemical-free public swimming pool.

BY JOANN GONCHAR, FAIA





he first hint that there is something unusual about the new outdoor swimming pool at Borden Park in Edmonton, Alberta, is what isn't there—that insidious but telltale odor of chlorine. This is because the 64,000-square-foot recreational complex, which includes a sandy beach, changing rooms, and plenty of space to soak up the sun, is Canada's first "natural" public swimming facility. Instead of using chlorine or other chemicals for disinfection, it relies on the cleansing capabilities of sand, gravel, and carefully selected aquatic plants and organisms.

And the architecture provides its own subtle clues that something is different here. Natural materials are combined with a minimalist expression and inventive details to give the Borden Park Natural Swimming Pool a refined toughness not normally associated with a neighborhood swimming hole.

Designed by gh3 architecture, a Toronto firm whose practice encompasses both landscape and buildings at a range of scales and types, the \$11 million project comprises two concrete pools that at first glance seem mostly conventional: a small, shallow one for toddlers, and a much larger, deeper one for older children and adults. Both are rectangular, with white bottoms and sides. But they are part of a planar landscape. Regardless of the depth, the water's surface is flush with the deck all along the pools' concrete perimeter, which in turn is level with the expanses of sand and other areas finished in wood plank.

This plinth-like zone is defined by gabion walls of local limestone that enclose a long, low-slung building along the site's eastern edge housing reception, staff areas, and a snack bar, along with the changing rooms. The porosity of the stone walls—mortarless and held together by metal cages—is a reference to the filtration process that purifies the water, says Pat Hanson, a gh3 partner. Although the con-

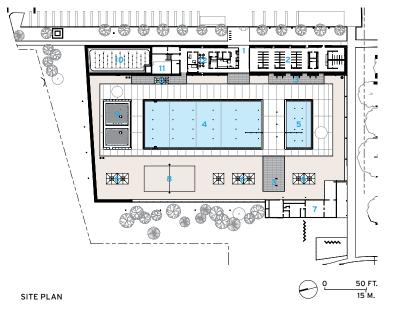
struction method was famously used at Herzog & de Meuron's late-1990s Dominus Winery, in California's Napa Valley, it is most commonly used for retaining walls and other civil engineering applications, rather than buildings. Here in Edmonton, the permeable gabion walls seem especially appropriate for a seasonal pavilion, one without a mechanical heating or cooling system, Hanson points out. Not only do they facilitate natural ventilation, but the thermal mass provided by their 3-foot depth helps moderate temperatures within the building and just outside it, on the pool deck.

To accentuate the walls' heft and materiality, the gh3 team has deployed a number of visual sleights of hand. Within the stacked limestone, the architects have concealed the true vertical support system of hollow-section steel columns, allowing the enclosure to read as weightbearing. They extended the door and windows the full height of the stone-filled 12-foot-tall cages (nearly 3 feet above the interior's ceiling), framed them in steel plate, and pushed the glass far into the openings. The assembly is topped with a caplike parapet, only 4 inches high, belying the roof's actual thickness. This set of decisions produces a quiet, crisp-edged structure punctuated with deep shadows. "The details highlight the elemental, rectangular form," says Hanson.

The idea for a chemical-free pool in Edmonton came from residents of the neighborhoods surrounding the 54-acre Borden Park, located 2.5 miles northeast of downtown and known for its meandering paths and mature shade trees. Aware of the natural-pool movement—which first gained traction in Austria in the 1980s and later spread to Germany and elsewhere in Europe—they wanted to replace the park's rundown, 1950s-era pool with an unchlorinated one.

gh3, which has completed several projects in Edmonton as part of the city's design-excellence program, turned to Polyplan, natural-pool specialists based in Germany, for help devising the treatment and





- 1 ENTRANCE
- 2 UNIVERSAL CHANGING ROOMS
- 3 SHOWERS
- 4 MAIN SWIMMING POOL
- 5 WADING POOL
- 6 SHADE UMBRELLAS
- 7 STORAGE
- 8 VOLLEYBALL AREA
- 9 REGENERATION BASINS
- 10 GRAVEL FILTER BED
- 11 PUMP/TESTING ROOM
- 12 STAFF AREA

filtration process. The system includes a set of regeneration basins at one end of the pool deck, visible to patrons but protected by glass, and an adjacent bed of crushed granite concealed behind the building's gabion walls. Overflow from the pools circulates through these filtering elements, which contain marshloving plants such as cattails, water lilies, and rushes—and, in the case of one of the basins, microscopic marine animals. The plants and organisms use the contaminants that humans introduce, like carbon dioxide, nitrogen, and phosphates, as nutrients and remove them from the water.

The water is heated, but only to about 74 degrees, and then the sun is allowed to take over. But if the temperature of the water should rise above 84 degrees (something that has yet to happen at the pool, now in its second season of operation), the facility would temporarily close, since that is the temperature considered conducive to bacteria growth.





To avoid overloading the system, the number of bathers is limited to 980 per day, with a maximum of 400 at one time. Swimmers are also asked to follow rules that include a soaking shower-courtesy of tubelike chrome fixtures lined up along the exterior of the stone wallsbefore entering the water, and refrain from using certain sunscreens containing ingredients that can provide too many nutrients for the filters' aquatic life. "The pool is a balanced ecosystem, and people are part of it," says facility manager Cyndi Schlosser.

Schlosser and her staff follow a protocol specifically devised for the Borden Park pool to satisfy the provincial government health department's concerns. The regimen includes testing for potentially dangerous pathogens several times per week, both on-site and by an outside lab.

What is the pool like to swim in? On an overcast and chilly day earlier this season, the water was clear, refreshing, and cool. It had no briny taste, like ocean water or the sometimes fishy smell of lake water, making the experience feel a little like a dip in a pond, albeit one that has a rectilinear shape and no mud at the bottom. And, afterward, there are none of the usual side effects of chlorine-no raw eyes, itchy skin, or strawlike hair. Without these annoyances, it is possible to relax on the deck and look at the tops of the park's trees peeking out from behind gh3's robust but elegant gabion walls, creating a true amalgam of architecture and nature.



credits

ARCHITECT: gh3 architecture - Pat Hanson, Raymond Chow, Bernard Jin. Joel DiGiacomo, Nicholas Callies, John McKenna, DaeHee Kim, project team

CONSULTANTS: Morrison Hershfield (structural, mechanical, electrical, civil, LEED); Associated Engineering (gabions); Polyplan (natural swimming pool)

GENERAL CONTRACTOR: Ellis Don

CLIENT: City of Edmonton SIZE: 64,000 square feet

COST: \$11 million

COMPLETION DATE: July 2018

SOURCES

STONE WALLS: Gabion Wall Systems **WINDOW FRAMES: Imar GLASS:** Vitro Architectural Glass **METAL DOORS:** Deronde **MILLWORK: Simonet SKYLIGHTS:** Velux WOOD DECK: Accoya **OUTDOOR SHOWERS:** Bossini **SOLID SURFACING: Dupont**







or musicians and music lovers worldwide, Tanglewood, in the idyllic Berkshires of Western Massachusetts, is widely considered hallowed ground. Founded in 1937, it hosts one of the globe's preeminent music festivals and is the summer retreat for the Boston Symphony Orchestra (BSO). The venue has been graced by legendary figures from Leonard Bernstein and Aaron Copland to Bob Dylan and Lady Gaga. But it is equally celebrated for its breathtaking campus, composed of two former estates whose 524 pastoral acres spill out across woodlands and large swaths of manicured lawns, dotted with canopy trees, that open to views of the gently rolling scenery. Tanglewood, says BSO president and CEO Mark Volpe, "is the gestalt of music, nature, and pedagogy."

While the beautiful pastoral setting has always been the core of the Tanglewood experience, the campus's built environment is also steeped in history, with Eliel and Eero Saarinen the first architects to have left their mark here. The simple structures scattered across the grounds-like diminutive woodframed camplike practice studios or the 5,700-seat fan-shaped Koussevitzky Music Shed (a steel canopy over a dirt floor, inspired by Eliel's original design)-project a no-nonsense attitude and are open to the outdoors, sending music wafting out, from the trilling of a string quintet to the triumphal swelling of a full BSO rehearsal. New additions to this landscape are not undertaken lightly.

That makes the Linde Center for Music and Learning by Boston's William Rawn Associates (WRA) especially significant: completed in June, it is Tanglewood's first major construction in 25 years, since the completion in 1994 of WRA's burly, top-ranked Seiji Ozawa Hall, with its towering brick facades and barrel-vaulted roof. The Linde treads more softly—a family of three boxy western-red-cedar-clad performance studios with zinc-coated copper standing-seam shed roofs and a low-slung cafeteria, linked by a serpentine covered walkway. Sitting atop a ridge that runs across the campus, the hand-some, plainspoken buildings embrace a 100-year-old red oak tree and the vistas beyond.

The 24,000-square-foot complex addresses the needs of both the Tanglewood Music Fellowship Program and the just-launched Tanglewood Learning Institute, an initiative offering activities to the public, such as art classes, film screenings, and lectures. Additionally, the Center brings, with its flexible interiors, much-needed new programming space to the campus. The biggest pavilion, the 3,950-square-foot Studio E, with its retractable tiered seating, hosts everything from BSO rehearsals to movies and banquets. And, as the only fully climate-controlled buildings here, the Center can be used off-season.

Rawn's design sprang from a notion he calls "intensity and informality," which Tanglewood embodies in its rigorous standards yet casual atmosphere, where barriers between audiences and performers are diminished, and where by day the public uses the grounds as a park. "Tanglewood's democratic spirit captivated me 30 years ago, as it still does today," says William Rawn, founding principal, who took lessons learned from his first project here, particularly





strategies for connecting the audience to the outdoors with abundant apertures, like Ozawa Hall's 50-foot-wide barn door. But now, he points out, "it's doubly important to figure out ways to make Tanglewood more accessible to everyone-make it more than just a conservatory," because of increasing professional competition.

Though the center was first envisioned as a single building next to Ozawa Hall, the architects broke down the volume so as not to make it imposing. "This was also an opportunity to engage the landscape in different ways," says WRA design principal Cliff Gayley, "including the spaces between programmatic elements, so you could experience the joy of passing through the landscape as you went room to room." Working with Reed Hilderbrand landscape architects (which is engaged in an ongoing project to unify and enhance the larger campus), the design team relocated the site up the hill to a former overflow parking lot, because, says Rawn, "We wanted these studios to partake of the lawn as the other



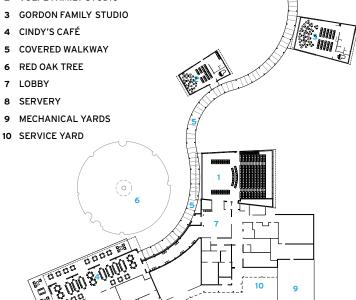


30 FT.

10 M.

STUDIO E
 VOLPE FAMILY STUDIO

GROUND FLOOR PLAN



HIT A HIGH NOTE The fronts of the Gordon Family Studio (above) and Studio E (opposite) fully retract. A serpentine walk links the complex's four buildings.

buildings do." Says Reed Hilderbrand principal Adrian Nial, "We moved a lot of earth, but the goal was to make it feel as if it had not been manipulated – that it had always been that way."

The studios within the complex are trapezoidal, their side walls splaying away from the performing area to push the sound out into the room and allow the abundant use of glass. Acoustics (on which WRA collaborated with Kirkegaard Associates) and a desire for simple forms also drove the team to use shed roofs, which enable the optimal ceiling height, with more compression over the stage area. The volumes are scattered on the site, rather than aligned. "This gives a sense that they aren't quite perfect," says Rawn, pointing to other structures here. "The intensity is in their finely tuned acoustics." While the complex stands out as a more refined version of its predecessors, it complements them in its modesty.

The glazed lower ends of the studios – the larger two of which have fully retractable glass walls – create a dialogue between outside and inside and between the people occupying these spaces and the spontaneous audience that can materialize from passersby. (On hot days, these airconditioned spaces will undoubtedly remain closed, however, challenging the ideal of flooding the campus with sound.) The maple-lined interiors are elegantly spare; the drama comes from the landscape, visible beyond the performance areas. These connections to the larger world will surely energize and inspire musicians and audiences accustomed to more typically cloistered facilities. Outside, the winding walkway links the studios at their front ends, creating a community out of the discrete, intimate spaces. The cafeteria is strictly utilitarian, though its glass front also slides

LENOX, MASSACHUSETTS

open, expanding the dining area outdoors beneath a broad overhang.

On a recent sweltering afternoon, students conversed on the cafeteria's terrace, and one young man, lost in the score in front of him, played an invisible string instrument. All the studios were in full swing. People dropped in on a piano master class in Studio E, the moody chords of Chopin filling the space. Beyond the pupil and mentor, the oak leaves wavered in the breeze as curious visitors paused to take in the scene, just as the architects intended, extending Tanglewood's legacy by engaging with the making of music from yet another vantage point.

credits

ARCHITECT: William Rawn Associates – William Rawn, Clifford Gayley, principals; Kevin Bergeron, project architect; Elizabeth Bondaryk, Ewelina Peszt, team CONSULTANTS: Reed Hilderbrand (landscape); Kirkegaard Associates (acoustics, audiovisual); Nextstage Design (theater); LeMessurier Consultants (structural); Vanderweil Engineers (m/e/p/fp, IT, security); Foresight Land Services (civil)

GENERAL CONTRACTOR:

Consigli Construction Company
CLIENT: Boston Symphony Orchestra
SIZE: 24,000 square feet

PROJECT COST: \$32.5 million

COMPLETION DATE: June 2019

SOURCES

CURTAIN WALL, WINDOWS, ENTRANCES: EFCO OPERABLE GLASS PARTITIONS: NanaWall

GLAZING: Viracon, Oldcastle BuildingEnvelope

METAL LOUVERS: Industrial Louvers
MOISTURE BARRIER: Carlisle
CEILINGS: Armstrong, 9Wood
PAINTS & STAINS: Benjamin Moore







Tank Shanghai | Shanghai | OPEN Architecture

Tanks for the Memories

A once-industrial area is transformed into a public park with cultural facilities.

BY ALEXANDRA A. SENO

PHOTOGRAPHY BY WU QINGSHAN

n the last six years, 12 acres of land on the banks of Shanghai's Huangpu River, where five cylindrical metal tanks once stored aviation fuel, have been transformed into a park and culture complex. Now called Tank Shanghai, the ambitious endeavor, which opened in March, is about a half hour's drive from the downtown.

In 2013, the Shanghai West Bund Development Group, a local government unit, hired Li Hu and Huang Wenjing of Beijing's OPEN Architecture to design and build the project. The result features 645,800 square feet of gardens, pavilions, plazas, and underground halls (for multiuse functions and mechanical rooms) that connect the five structures. Inside the giant industrial vessels, OPEN Architecture

inserted galleries, dining areas, a music club, and event spaces, among other facilities.

"The unique grouping presented so many possibilities" says Qiao Zhibing, one of China's most prominent contemporary-art collectors and the cultural impresario chosen by West Bund authorities to operate the programming at Tank.

Since the site is zoned as an urban park, new building aboveground was limited. What is now Tank's main entrance on Longteng Avenue was the edge of Longhua airfield, one of Shanghai's main airports from 1922 to 1966.

The once-restricted zone controlled by the Chinese military needed



to become attractive and accessible. OPEN's cofounder and principal Li took inspiration from Frederick Law Olmsted, best known for designing Central Park and other urban parks in late 19th-century America. He notes, "The essence of Tank is about inviting people into a space to be enjoyed by everyone."

In order to accomplish this goal, the architects created a system of rolling landscapes (which they call "super surface") around the former fuel tanks, to offer multiple means for walking and viewing the park to those who enter the grounds, free of charge. For example, a phalanx of neatly planted Wingleaf Soapberry trees draws visitors to a paved lane ending at the Huangpu River. Concrete paths cut through undulating lawns and flowering plants to lead up to a rooftop observation point, or to a pavilion.

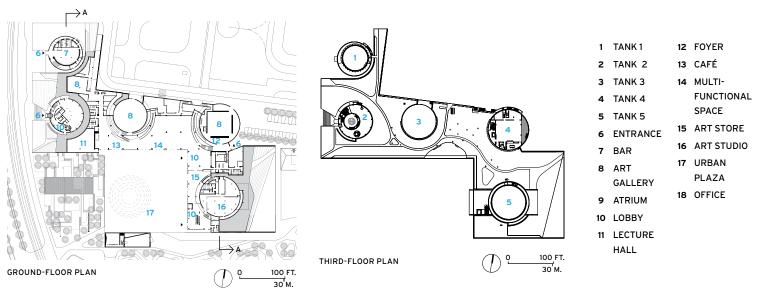
Art is very much a part of the Tank's identity. The gardens are dotted with large sculptures such as those by Danh Vo, which in turn point toward the sunken plaza where a row of full-length glass doors welcomes a paying public to indoor exhibitions (which do

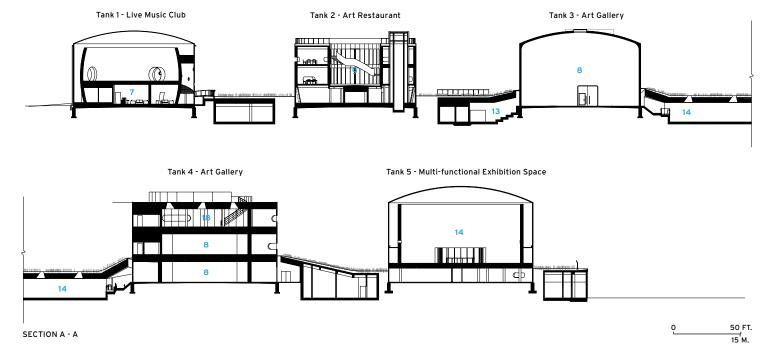


SHAKING UP SHANGHAI A compound of five tanks that once stored aviation fuel has been turned into a park and cultural center on the outskirts of Shanghai (top), where a large open plaza unites the group. Inside, each of the tanks offers different functions, including art display and performing arts. Rolling landscapes (above and opposite), which OPEN Architecture refers to as a "super surface," unite the complex and take visitors on various paths with views.



IT'S A GAS The 12-acre site sits at the edge of an unused airfield, where open space around the fuel tanks now features gardens, a stepped waterfall, and an urban plaza (left). A rectilinear underground space, covered in planting, connects the various tanks and brings visitors to the serrated roof of the project space (opposite, top). The architects designed circular ramps to



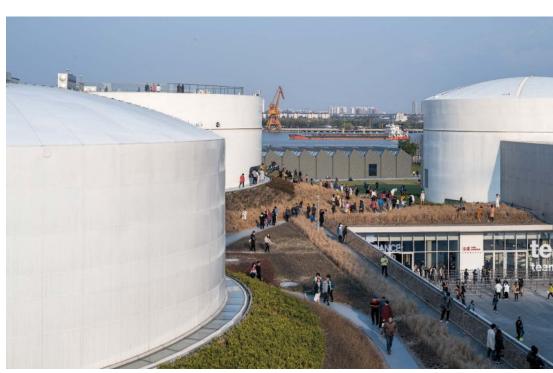


charge admission).

Tanks 1 and 2, which have street entrances, have been refitted to become a restaurant and a performing-arts venue. Tanks 3 and 5 are converted to galleries for painting and sculpture and retain the original round configuration; the architects designed spiraling ramps and staircases encased in painted metal walls to provide dramatic entries to those areas. In Tank 4, OPEN built a multistory steel-frame cube to house Qiao's office plus entertainment spaces, as well as halls that have permanently flat walls suitable for more conventional art display. In the rectilinear underground halls connecting the tanks, reinforced-concrete columns, placed about 30 feet apart, support the concrete roof and the expanse of greenery above.

Li, a former partner in New York at Steven Holl Architects, trained at China's elite Tsinghua University in Beijing, then did graduate studies at Rice University in Houston.

Upon returning to China in 2008, Li led









AT THE CORE The art gallery in Tank 3 occupies a central space that is daylit by an oculus (above). Other residual spaces display art, with vantage points increased by spiraling ramps (left). In some tanks, the architects inserted bands of glazing in the walls to allow views of the park (opposite).

Holl's Beijing office for two years, until 2010. Then he and Huang (the Princeton-educated OPEN cofounder, who is also his wife) focused solely on OPEN, working on a number of government-related buildings for cultural and educational uses. He says that this experience has taught him about the need to be flexible when working in China. "I like projects without a very clear brief," Li says.

For his part, Qiao says he is pleased to see families visiting Tank on weekends. The opening show featuring interactive works by Team Lab, the Japanese multimedia collective, brought some 220,000 visitors to Tank in its first three months, an achievement, considering the distance from downtown. "Tank is like

a city, always transforming itself. The gardens grow and change," says Li.

The master plan for Tank projects the possibility of ferries' bringing guests from downtown along the river to the cultural compound's docks so they wouldn't have to deal with Shanghai's notorious traffic.

At the moment, getting to Tank means a walk of a few blocks from a subway station or driving to the entrance on Longteng Avenue, a wide boulevard lined with cranes and heavy equipment for the rising headquarters of several Chinese technology companies. On Tank's waterside edge, the Pudong financial district's shiny new skyscrapers loom in the distance.

Facing the river, an extensive construction site borders the Tank complex on one side, while on the other is an airfield for helicopters—perhaps one day the vehicle of choice for the country's tech tycoons living and working in West Bund. Like Olmsted's urban parks, Tank Shanghai could well become a space for local residents and serve as a destination for the larger city. More important, the scheme successfully continues a trend seen in other urban areas where gigantic storage containers of this kind have become outmoded.

Alexandra A. Seno is an architecture and design writer living in Hong Kong.

credits

ARCHITECT: OPEN Architecture – Li Hu, Huang Wenjing, principals in charge; Ye Qing, Luo Ren, Victor Quiros, Zhou Tingting, Chen Xiuyuan, Li Zhentao, Zhao Yao, Lui Ki, Jia Han, Zhang Yiwen, Steven Shi, Zhou Xiaochen, Huang Zhonghan, Laurence Chan, Cynthia Yurou Cui, Yang Qi, Ge Can, Gao Qi, Stephanie Lee, Jin Boan, Zhang Hao, Wang Mangyuan, Yan Dihua, Zhang Chang, Tomas Kowalsky, Jiang Simin

LOCAL DESIGN INSTITUTE: Tongji Architectural Design Group

CONSULTANTS: Beijing EDSA Orient Planning & Landscape Architecture (landscape design); Shanghai Ming Chi Architecture and Engineering (lighting)

CLIENT: Shanghai West Bund Development Group SIZE: 12 acres (site); 117,000 square feet (tanks)

COST: withheld

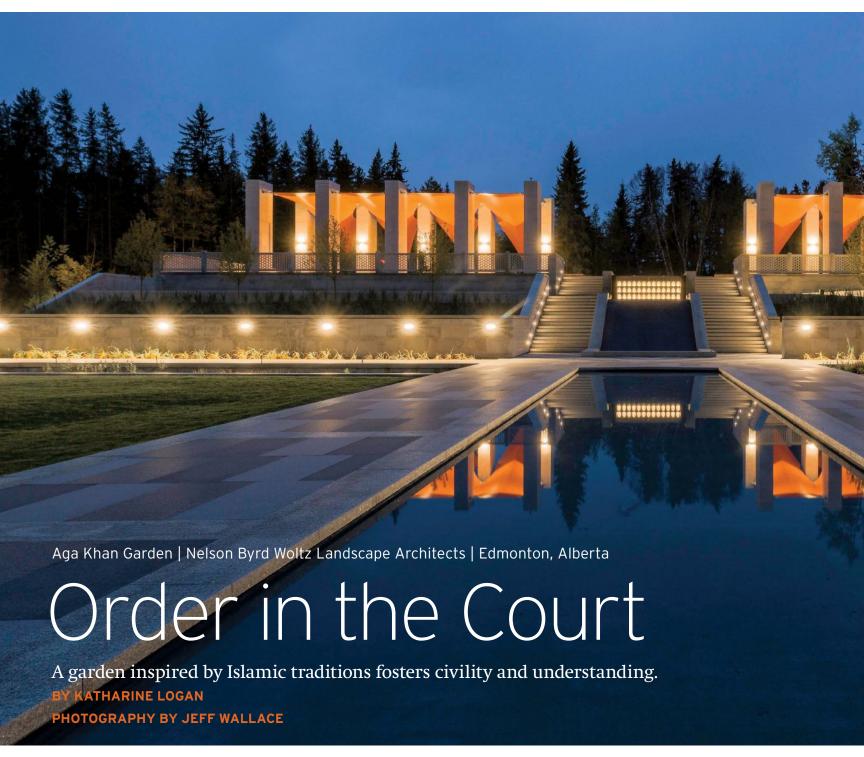
COMPLETION DATE: March 2019

SOURCES

LIGHTING FIXTURES: Hongri Lighting; Flos
ELEVATORS AND ESCALATORS: Mitsubishi Elevators
EXTERIOR ZINC PANELS: VM Building Solutions
BATHROOM FIXTURES: Kohler
HARDWARE: Armor

EXTERIOR COATING: Zhejiang Tiannu Paints
EPOXY TERRAZZO FLOORING: China SRS Flooring



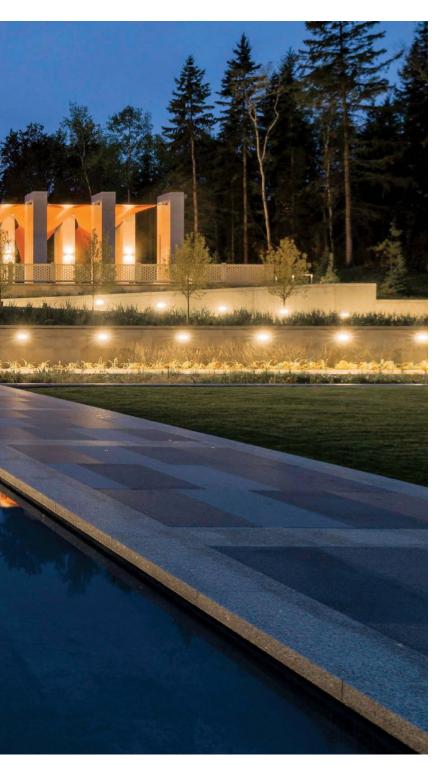


he new Aga Khan Garden, near Edmonton, in the Canadian province of Alberta, is the largest garden in North America to interpret the landscape traditions of Islam. At a latitude above 53 degrees, it is also the world's northernmost, translating the desert-based horticultural traditions of Islam for Alberta's short summers and cold winters.

in Muslim culture. They are places "where the human meets further proof of the divine," the Aga Khan, spiritual leader of the Shia Ismaili Muslims, has said in speeches on the subject, "and where the ingenuity

of humanity and the beauty of nature are productively connected." Sponsored by the Aga Khan Trust for Culture, the 12-acre project within the University of Alberta Botanic Garden (UABG) is intended to foster intercultural dialogue and understanding.

"It was a tall order to imagine what a garden inspired by Islamic landscapes would look like in Alberta in the 21st century," says Breck For centuries, gardens have symbolized a spiritual ideal Gastinger, a senior associate at Nelson Byrd Woltz (NBW), the project's New York- and Charlottesville, Virginia-based landscape architect. In a remarkable fusion, the design uses the formal structure of the Islamic garden as a frame for the Canadian parkland biome's dramatic seasonal



THROUGH LINE A central axis connects a canopied terrace, quadripartite court, and—behind the viewer—a reconstructed wetland (above). Illuminated niches backlight cascading water (right).

shifts. Drawing on the landscape firm's award-winning research into historic precedents, the \$19 million project comprises forest walks, a central court of granite and limestone terraces, a dozen pools and fountains that express the manifold nature of water, and an informal orchard of locally adapted trees, all linked by views across a naturalistic wetland.

From the garden's entry court, a woodland walkway makes a quiet

beginning, passing a lozenge-shaped black granite pool that reflects the sky, and stands of wild roses, Alberta's emblematic flower, that bloom among the trees. Emerging from the forest, the path climbs to a shaded terrace, or *talar*, that overlooks a four-part court, or *chahar bagh*, together forming the most structured and identifiably Islamic part of the garden. A limestone colonnade the length of the *talar* supports a series of orange tensile canopies, whose vibrant glow contrasts with the forest backdrop.

Water, precious in desert cultures (and increasingly so elsewhere), wells up out of a massive block of polished granite on the *talar*, seemingly the source for a waterfall and rippled chute that flow to the channels of the *chahar bagh*. In addition to the plays of texture, illumination, and pattern that celebrate water, the garden's formal geometry seamlessly integrates a series of stepped and calibrated beds for wetland plant nurseries, seed production, and botanic research. Beyond, a restored wetland surrounded by fruit trees expresses the theme of stewardship.

At opposite corners of the *chahar bagh*—where the formal garden opens to paths encircling the pond—a rose garden and an "ice garden" symbolize the Alberta setting. The rose garden centers on a five-petaled fountain, with a paving pattern based on the rose's fivefold symmetry. The ice garden's paving pattern is based on sixfold symmetry, the structure of ice crystals and snowflakes, and includes openings for fog jets to mist the small space on summer days.

Throughout the garden, the use of precise geometry at multiple scales, from layout to detailing, refers to the mathematical order under-







- 1 ENTRY PLAZA
- 2 WOODLAND BAGH (GARDEN)
- 3 TALAR (PAVILION)
- 4 AMPHITHEATER
- 5 NAHR (WATER CHANNEL)
- 6 CHAHAR BAGH (FOUR-PART GARDEN)
- 7 JILAU KHANA (FORECOURT)
- 8 WETLAND SEED BANKS
- 9 ROSE BAGH (GARDEN)
- 10 MAHTABI (TERRACE SURROUNDED BY WATER)
- 11 ICE BAGH (GARDEN)
- 12 BUSTAN (ORCHARD)
- 13 TALAO (WATER TANK)
- 14 DIWAN (PAVILION, FUTURE CONSTRUCTION)
- 15 LEARNING DOCK (FUTURE CONSTRUCTION)
- 16 POND

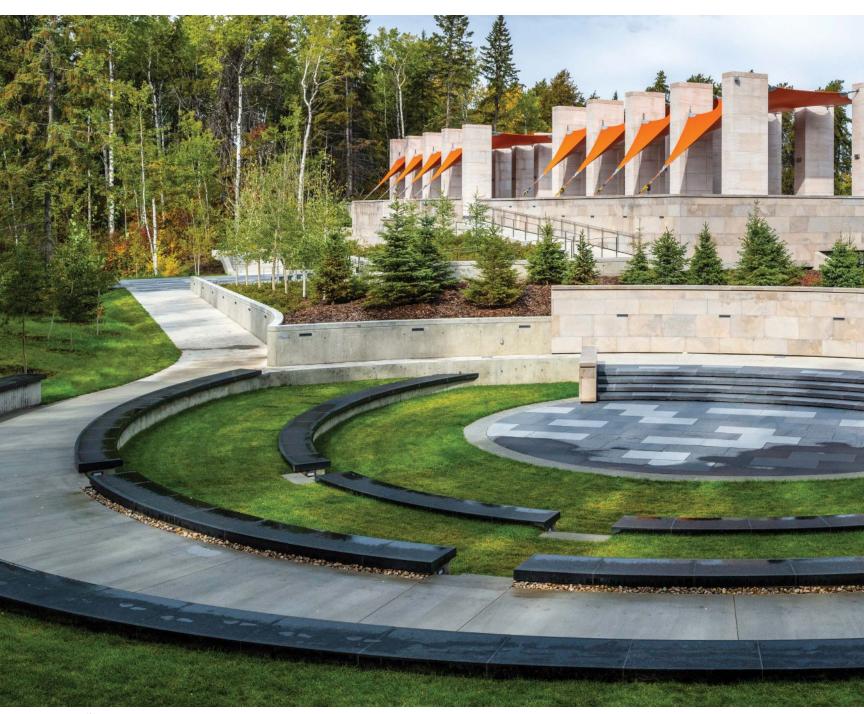


LEVEL BEST Visitors navigate the descent from the talar to the chahar bagh (opposite, top). The formality of sunken flower beds contrasts with the natural forest beyond (above). A trickling fountain animates a woodland walk (right).

lying nature. "Geometry is scaleless, both infinitely small and infinitely large," says Gastinger, "so tapping into it offers a pathway to greater understanding of the natural world." The design team wanted the garden's Islamic sources to be legible, he says, "but we definitely wanted to avoid falling into the trap of pastiche." Photography highlighting the project's geometric motifs may give the impression that it teeters on the edge of that trap, but in person the experience of scale within the garden's expanse creates a much more subtle effect.

The exception, arguably, is a series of decorative panels that form the court's guardrails. A riff on jali window screens, which traditionally are carved from stone, the panels are executed in ultra-high-performance concrete. Seen in a desert or urban





credits

ARCHITECT: Nelson Byrd Woltz Landscape Architects – Thomas Woltz, Breck Gastinger, Nathan Foley, Sandra Nam Cioffi, Jen Trompetter, Alisha Savage, Siobhan Brooks, Fraser Stuart, Kari Roynesdal, Mandi Fung

LANDSCAPE ARCHITECT OF RECORD: Dialog Design

GENERAL CONTRACTOR:

Clark Builders

CLIENT: Aga Khan Trust for Culture

OWNER: University of Alberta Botanic Garden

SIZE: 435,600 gross square feet
CONSTRUCTION COST: \$25 million
COMPLETION DATE: October 2018

SOURCES

SYSTEMS: Rain Bird, ACO Drain, Zurn HARDSCAPE: Expocrete, Owen Sound Ledgerock, A. Lacroix Granit, Permaloc LIGHTING: BEGA, WAC Lighting garden, their ornate tracery would have supplied a welcome layer of texture, play of light, intimacy of scale, and permeability to spaces beyond. Here, however, the filigreed curtain of woodland that surrounds the garden suggests a missed opportunity: a simpler, more contemporary panel design would have let the natural intricacy of the parkland forest shine.

Swaths of flowering annuals, climate-adapted perennials, and pollinator-friendly plants fill sunken gardens edging the *chahar bagh*'s quadrants. Historically, sunken gardens brought the scent and fruit of citrus trees to the visitor's level, but here they set the flowers at a greater remove. At first this seems a puzzling choice—until you remember the garden's primary goal is to create a public space for dialogue and understanding. The sunken beds support this goal by seeming to el-





evate the shared domain and make it more open.

The result is an elegant public forum where one can imagine—as the garden's sponsor, host institution, and designers hoped-that local and global communities will gather in the presence of nature to advance their mutual understanding. In the Koran, the garden is a metaphor for paradise. \blacksquare

Katharine Logan is an architectural designer and a writer focusing on design, sustainability, and well-being.









Xylem at Tippet Rise Art Center | Kéré Architecture | Fishtail, Montana

Log Rhythm

Using geometry and natural materials, a new pavilion provides an intimate perspective on wide, open spaces.

BY MIRIAM SITZ

PHOTOGRAPHY BY IWAN BAAN

ishtail, Montana, is a very small place—its population is listed as 478—but everything else about it is immense: the snow-capped Beartooth Mountain range in the distance and that legendary big sky, a bright blue bowl stretching across the horizon. The panoramic views in every direction somehow feel greater than 360 degrees. Within this extraordinary setting, a surprisingly intimate new structure by Diébédo Francis Kéré offers a vantage point from which to connect with the great western landscape.

On a 12,000-acre working sheep and cattle ranch just outside of Fishtail, Cathy and Peter Halstead, through their family's Sidney E. Frank Foundation, established the music and visual arts center Tippet Rise against the dramatic natural backdrop. The property is home to large-scale works by Ensamble Studio (RECORD, August 2016), Mark di Suvero, Alexander Calder, Stephen Talasnik, Patrick Dougherty, and others. Now Kéré's pavilion, *Xylem*, represents the first site-specific commission at Tippet Rise since its opening in 2016.

The 2,100-square-foot circular structure of wood and steel is a serene place of respite for visitors. "I started to think about how I could create a space where you can retire, be yourself, and begin to dream," says the Berlin-based architect of his first permanent work in North America. Situated near the main performance space, Olivier Music Barn, and close to the open-air Tiara Acoustic Shell, *Xylem* will host programming such as small concerts or poetry readings from time to time. "We think of poetry as the underpinning of architecture





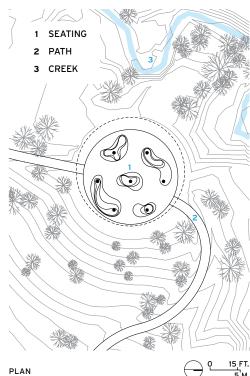


and of music," says Peter Halstead. "So we look forward to doing those things there."

Kéré, who has worked extensively in his native Burkina Faso, first explored a similar idea for a structure in the 2015 exhibition AFRICA: Architecture, Culture and Identity at the Louisiana Museum of Modern Art in Denmark. The Halsteads had seen photographs of Kéré's Louisiana Canopy, and were taken with his installation of upright logs, suspended overhead and gathered up from the floor to form seating. "From there, we started to think about fill in the partial hexagons at the edges of the

how to formally connect that idea with the site," the architect recalls.

Kéré and his collaborators developed the design for a modular honeycomb canopy of 31 steel hexagons supported by seven Y-columns of 1-inch-thick Cor-Ten. Ten vertical bundles of ponderosa and lodgepole pine logs fill each 9-foot hexagonal frame, stepping down into the space at different elevations and allowing dappled light to filter through. Additional bundles, sawed smooth along their outer faces,



canopy to form a perfect circle. More vertical logs cover each column, rising up from the curving built-in benches. Kéré says his inspiration for the seating design came from a painting Cathy Halstead made decades ago that evokes a single-celled organism, the paramecium. (The pavilion's name also has organic roots; "xylem" refers to the vascular tissue of plants.) "Her piece of art just pushed my design forward," he says. Some 40,000 linear feet of logs were used in construction, says Laura Viklund of Gunnstock Timber Frames, the architect of record, who designed several other buildings at Tippet Rise.

The pavilion's floor of exposed concrete poured into a metal deck sits atop a base of steel beams, secured to the site by helical piers. "It has to withstand extreme elements," says Kéré, "so we were happy to have visionary engineers." (His firm's frequent collaborator AECOM, in London, and DCI Engineers in Bozeman, Montana, were the structural engineers on the project.)

A gurgling creek cuts through the tall grasses surrounding the pavilion, the wood of which smells of just-cut pine. The space seems to amplify the sound of the moving water and the constant chittering of birds and insects. Beams of sunlight pierce through gaps in the structure overhead, dancing across the floor as the angle of the sun changes. And although the dining hall and other buildings are just a short walk away, sitting inside Xylem imparts a strong sense of being alone in, and embraced by, the spectacular landscape of Tippet Rise.



With time, the wood will turn gray, and the weathering steel will oxidize, leaving rusty streaks on the materials. "We wanted to make something that will blend in and age with its surroundings," says Nina Tescari, the project leader from Kéré's office. To further the natural experience, there is no lighting or electricity within or around the structure.

The site, nestled in a grove of aspen and cottonwood trees, was chosen by the clients and provided Kéré with "a starting point." "Given the immensity of nature around us—the big, infinite skies—we tried to bring *Xylem* back to the intimate, secret part of nature: the heart of a tree," says Tescari. Adds Kéré, "It lets you feel intimate within the monumentality of this place as it opens you up to the horizon."

That goal of opening up to the world outside is fundamental to the project, and extends beyond the realm of Tippet Rise. In one of their early conversations, the Halsteads not only commissioned *Xylem*, but also proposed funding the construction of Naaba Belem Goumma high school, which Kéré designed for his home village of Gando. "Not only do we get this beautiful pavilion from Francis, but we get to make people in Montana aware of Burkina Faso and his work there, and the connections between small towns around the world," says Peter. Named for Kéré's father −a "visionary who understood the importance of education," the architect says − the school for 1,000 students will open early next year. ■

INTO THE WOOD Each hexagon of the honeycomb canopy (above, and both opposite) contains approximately 280 logs, all sustainably sourced from the Western U.S.

credits

ARCHITECT: Kéré Architecture – Diébédo Francis Kéré, principal; Nina Tescari, Vincenzo Salierno, design team

ARCHITECT OF RECORD: Gunnstock Timber Frames – Laura Vicklund

ENGINEERS: AECOM, DCI Engineers (structural); DOWL Engineering (civil)

GENERAL CONTRACTOR:

On Site Management

CONSULTANTS: Pete Hinmon, Tippet Rise Art Center (project management); Oehme,

Van Sweden (landscape)

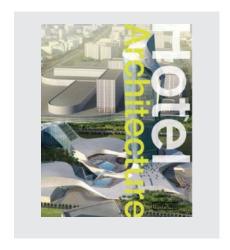
CLIENT: Tippet Rise Art Center SIZE: 2,100 square feet

COMPLETION DATE: July 2019

SOURCES

WOOD FABRICATION: Chris Gunn, Gunnstock Timber Frames CONCRETE: Davis and Sons Construction STEEL: TrueNorth Steel, Western States Steel Erection

SHOP THE Architectural Record BOOKSTORE!

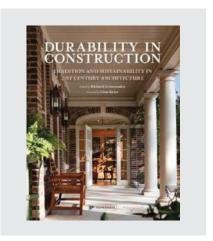




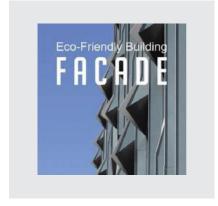














architecturalrecord.com/books

ARCHITECTURAL R E C O R D



WHERE ARCHITECTS GO TO FIND AND REGISTER FOR CE EVENTS AND REQUEST LUNCH & LEARNS

Find these and many more available Lunch & Learn presentations at

ce.architecturalrecord.com/ee



Anatomy of a Tension Structure 1 AIA LU/Elective

PRESENTED BY: FABRITEC **STRUCTURES**



Acoustics & Health

1 AIA LU/HSW; 1 GBCI CE Hour; 1 IDCEC CEU/HSW PRESENTED BY: KIREI



Climate, Carbon, and Human Health

1 AIA LU/HSW; 1 GBCI CE Hour PRESENTED BY: INTERFACE



Benefits of a Rigid Cover Board in **Commercial Roofing Systems**

1 AIA LU/HSW

PRESENTED BY: GEORGIA-PACIFIC



Acoustics, Flooring and the Built **Environment**

1 AIA I U/HSW: 1 IDCFC CFU/HSW PRESENTED BY: SHAW CONTRACT



A Placemaking Approach to Design

1 AIA LU/HSW



Best Practices for Site Preparation and Installation of In-Grade Fixtures

1 AIA LU/Elective

PRESENTED BY: B-K LIGHTING



PRESENTED BY: VECTORWORKS, INC.



An Open Invitation: Multi-slide glass doors revolutionize open design and brings the outdoors in

1 AIA LU/HSW; 1 GBCI CE Hour;

1 IDCEC CEU/HSW

PRESENTED BY: LACANTINA DOORS



Fluid-Applied Silicone Air Barriers

Northern CA L&L Only 1 AIA LU/HSW

PRESENTED BY: ARCHITECTEXEC |





Fire-Rated Glass & Framing 101

1 AIA LU/HSW

PRESENTED BY: TECHNICAL GLASS

PRODUCTS (TGP)



Changing the Way We Think of Prefabrication: New Solutions for Your Building Envelope

1 AIA LU/HSW

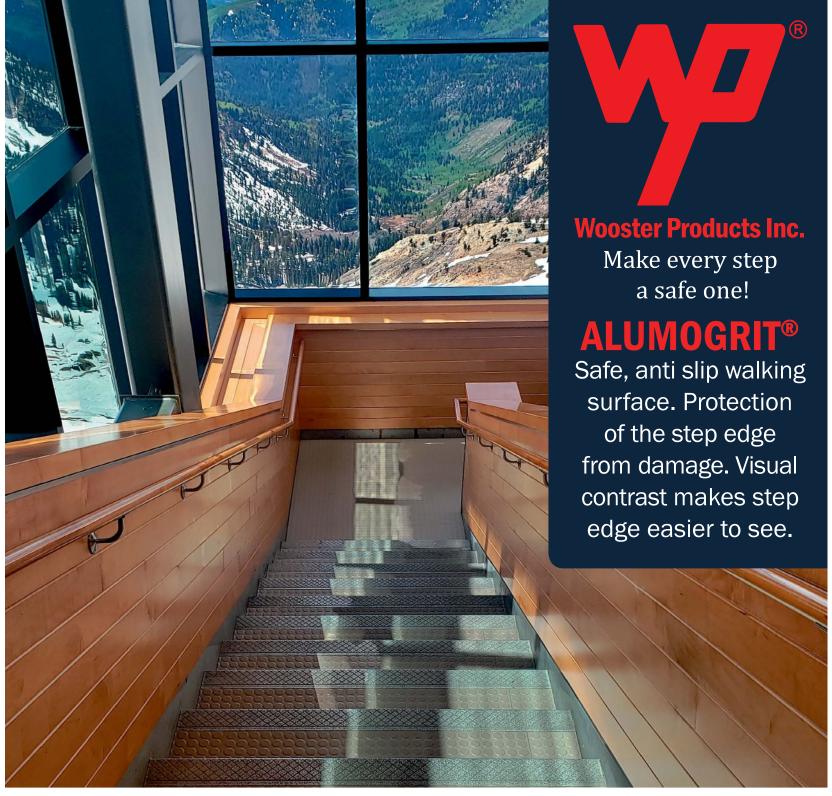
PRESENTED BY: GEORGIA-PACIFIC



Extruded Aluminum Trim -Innovative Solutions for Interior **Applications**

1 AIA LU/HSW

PRESENTED BY: TAMLYN



ALUMOGRIT®

- Cast Aluminum Stair Nosings
- For Both Indoor and Outdoor Use
- New Construction or Renovation
- Ready to Install Convenience
- Resistant to Corrosive Environment



Snowbird Ski Resort, Utah

Wooster Products Inc.

Contact us today for more information 800-321-4936 | woosterproducts.com





Before the Deluge

Communities on the front lines of the climate crisis take a "soft" approach to flood protection.

By James S. Russell, FAIA

LAST NOVEMBER, New Bern, North Carolina, could not have looked more peaceful. Along a waterfront park, calm waters lapped the shoreline barely 3 feet below sidewalk level. The compact redbrick 18th-century town looked to be an island, surrounded by long stretches of unruffled water to the east and south. The city of 30,000 people is actually located at the confluence of two rivers, the Neuse and the much smaller Trent, but the combined streams broaden as they flow into

Pamlico Sound just seven miles away on the Atlantic coast.

On closer look, however, the destruction wrought by Hurricane Florence, two months earlier, was still evident. Porches on riverfront houses had been wrenched askew by floodwaters. Brick foundation walls had been swept away. A massive tree had crushed a small cottage.

Florence inundated New Bern beginning on September 13. First it was the storm surge,

driven by the hurricane from the coast inland, where it collided with the rain-swollen rivers. As time passed, the rivers continued to rise, carrying the runoff from heavy rain that had been falling for days as far away as Raleigh-Durham, 100 miles northeast. New Bern was cut off for weeks and suffered \$100 million worth of damage. The City Manager's Office counted up 235 businesses and 1,761 houses that were affected.

With hurricanes a regular event along the





SPONGE PARK In Mayagüez, Puerto Rico, Local Office Landscape and Urban Design and architect Javier Bonnin Orozco created a beachfront park that includes wetlands capable of storing storm-surge waters.

coast of the Carolinas, catastrophic flooding is a known risk. But the intensity and level of damage from Florence was unprecedented. signaling one more way that the climate crisis is exacerbating and complicating the problem of protecting communities from storm-driven floods, as well as from more frequent tidal flooding caused by rising seas.

While people typically associate the high winds that down trees and power lines as the most destructive part of severe storms, "wind speed doesn't tell you enough about the kind of damage hurricanes will cause," explains Robert S. Young, the director of the Program for the Study of Developed Shorelines at Western Carolina University in Cullowhee. "More common today are big fat storms pushing a lot of water in front of them."

Increased rainfall and more intense and longer-lasting storms are trends that are likely to intensify as the planet continues to heat up, according to the Intergovernmental Panel on Climate Change. Such torrents overwhelm conventional storm-drainage systems, hurling

overflows toward shorelines, bays, or river outfalls just as storm surges crash over bulkheads. The flooding in the lowest-lying areas is much more severe than historical norms-as Hurricane Harvey demonstrated in 2017 when it came to a stop over greater Houston, shattering records with as much as 50 inches of rain. And don't be confused by how severe storms are measured: a 100-year event does not mean such storms will only happen once a century but that they have a 1 percent chance of occurring in any given year. That's why communities can experience two or more "100-year" storms in the space of a few years. Yet stormwater systems are usually designed to manage only a 5- or 10-year storm, and, with more frequent severe storms, local drainage systems are falling behind.

Until recently, standard practice for coastal communities in the U.S. was to build protective shoreline barriers such as bulkheads (usually concrete, timber, or sheet piles) and revetments (sloped walls made of large, stacked rocks) intended to be permanent. This

approach is often referred to as a "hard path" method because the barrier is fixed, but it loses value once overtopped, which, frighteningly, is happening much more often. And while bulkheads can be useful where there is little space along the shoreline, this type of engineered armor is now often considered a last resort, since it can exacerbate erosion and harm the rich ecological continuum between the waterfront and upland environments, leaving shorelines largely devoid of habitat. In recreational areas too, hard-path protections considerably diminish the visitor experience.

Instead, natural-system solutions that can adapt to changing conditions provide multiple benefits. These "soft path" tactics include dune systems, planted waterway edges that may be partially reinforced with structured terraces, constructed marshlands, and ponds. Naturalized stream basins include elements, such as wider stream beds and oxbows, that slow the flow of water and hold it until conventional piped drainage systems catch up. These strategies, at neighborhood or even watershed scale, include "green infrastructure" practices that are already used across the country to augment older storm-drainage systems. Also referred to as low-impact development, these practices encompass green roofs, permeable surfaces, subsurface tank installations, linear bioswales, and bioretention basins to retain water (infiltrating it into the soil to keep it out of the storm-drainage system) or detain water (storing it or slowing its flow until peak flooding passes). Designing soft-path protections demands a team of specialists in hydrology and wetland ecology, but architects and landscape architects play a role in integrating these installations into sites and neighborhoods.

Such soft systems have succeeded in places like Puerto Rico, which was devastated by Hurricane Maria in 2017. The storm tested the 1.2-mile-long Parque del Litoral, a beach park in Mayagüez. It is a pioneering project combining shoreline protection and upland water management by New York-based Local Office Landscape and Urban Design working with local architect Javier Bonnin Orozco. It cut off old stormwater pipes that had previously dumped polluted runoff into the bay. Instead, day-to-day runoff is biologically treated in wetlands constructed inland of a dune and low enough to store a considerable amount of storm-surge water. Trees and shrubs were planted to help diffuse the energy of a storm surge, and the accompanying high winds. Parking and recreation spaces were installed with porous pavement to infiltrate runoff, reducing the drainage burden. The commercial street on the inland edge of the park was raised to direct surface runoff toward the





Now led by engineering firm AKRF, and including BIG, the City's Department of Design and Construction (DDC) has proceeded with a

has developed a flood-protection scheme for 2.4 miles along New York's Lower East Side (left). It calls for raising the elevation of an existing park about 8 feet (above).

first phase, called East Side Coastal Resilience, that would protect the most vulnerable stretch along the East River. Two years in, the project was delayed and expensively revised to add a network of storage pipes that will run inside the barrier, because the amount of inland runoff had been underestimated. (Disclosure: I worked for DDC, but not on either of its projects discussed in this story.)

Last fall, the team unveiled another major revision. Designed in secret, this latest scheme would replace an existing 57.5-acre park along the river, raising it about 8 feet, an elevation higher than anticipated 100-year floods. The original design would have placed the protective elements inland of the park, adjacent to a major highway, leaving the park largely unaffected. The new design, by raising the bulkhead at the water's edge to the necessary height, requires the replacement of the park at the higher level on fill. Even with the muchexpanded scope this change entails, the City "will deliver protection one full hurricane season sooner than the original design," according to Phil Ortiz, spokesman for the Mayor's Office of Resiliency, which is overseeing the project.

Meeting a 2023 expiration date for HUD

wetlands. After Maria, local businesses reported that the park, which opened in 2010, protected their buildings. Streets turned into streams, but they flowed away from buildings and into the wetlands as designed. The park itself sustained little more than cosmetic damage.

Yet navigating the politics of complex jurisdictions can make implementing optimum soft or hybrid systems problematic-as New York is discovering with its ambitious plan to protect 2.4 miles of low-lying waterfront along Manhattan's Lower East Side. The project came out of "the Big U," a scheme devised by a team led by the Bjarke Ingels Group (BIG) and one of the winners of the 2013 HUD Rebuild by Design competition. (The competition was conceived to generate innovative flood-resilience solutions for communities affected by Hurricane Sandy that could be widely applied.) Envisioned as a series of berms, walls, gates, and other devices, the Big U would form a continuous barrier, wrapping Lower Manhattan.

funding and other issues of operational and construction convenience appear to have been the motivation for the change in approach—resulting in a project of diminished quality in the eyes of neighbors shut out of the redesign process. "We are deeply disappointed with the City's last-minute rationale to spend an additional \$700 million [for a total cost of \$1.45 billion] without studying alternatives or fostering a public conversation on tradeoffs," said a statement by the organizations that had led the Rebuild by Design competition.

The City could have learned lessons from a decades-long project in its own backyard that is a national model for reducing the effects of inland storms and flooding. DDC has linked and upgraded stream fragments on Staten Island to create a network of stormwatermanagement waterways called Bluebelts. The program restores degraded stream beds with widened channels and naturalized edges. The streams and piped drainage flow into constructed stormwater ponds and wetlands that filter trash and control outflow volumes. With water managed at stages along the length of each stream, torrents no longer inundate the lowest-lying communities near the shore. Such incremental and low-tech solutions grow in appeal as the Federal government finances fewer projects that rely principally on largescale civil-engineering works, such as East Side Coastal Resilience.

Indeed, when Hurricane Harvey flooded the



INCREMENTAL STRATEGY On New York's Staten Island, once-degraded stream beds have been restored and linked together. The network helps control outflow volume and prevent flooding in low-lying neighborhoods.

vast oil, gas, and petrochemical-processing infrastructure that lines the shipping canal at the head of Galveston Bay east of Houston in 2017, a \$30 billion protection project, long in planning by the U.S. Army Corps of Engineers but short on Congressional commitment, began to look far too expensive, despite the

storm's devastating effects.

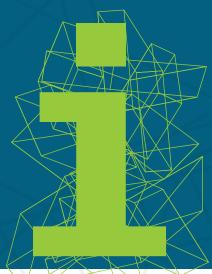
Now New York-based Rogers Partners Architects, collaborating with Rice University's Severe Storm Prediction, Education and Evacuation from Disasters Center and Walter P. Moore, a local infrastructure-engineering firm, have devised Galveston Bay Park, a conceptual plan that claims to be a more economical solution. Some 12 miles of 25-foottall rock revetments are proposed to line an existing channel dredged through the shallow bay. Nine gates would close to seal the shipping-canal entrance and protect industrial areas on the east side of the bay during severe weather.

Soils dredged in doubling of the width of the channel would be placed behind the revetments to build up parkland and naturalhabitat edges, creating some 10,000 acres of new destination parkland for the metro area. The plan is "building allies" among business, civic, and environmental groups, says principal Rob Rogers. Besides all the auxiliary benefits, the project is estimated to cost far less than the earlier plan, at \$2.3 billion. "The era of single-purpose infrastructure is over," says Rogers. "Everything we build now needs to be multifunctional."

Galveston Bay Park would expand on a soft infrastructure that already helps manage flooding in Houston. Upstream of downtown and the shipping canal is the slow-moving Buffalo Bayou, a 2.3-mile stretch of which was upgraded in 2015 with a widely admired park along its banks that includes bike and walking



HYBRID SOLUTION Rogers Partners Architects and collaborators propose combining hard and soft flood protections for Galveston Bay that would include floodgates and new parkland, created from soils dredged from a shipping channel.



ARCHITECTURAL R E C O R D

INNOVATION CONFERENCE

OCTOBER 29, 2019 | THE NEW SCHOOL | NEW YORK CITY

CREATIVI **DESIGN + TECHNOLOGY**

Continuing Education **Provider**

EARN UP TO 7 AIA LU

SPEAKERS INCLUDE:



Marlon Blackwell, FAIA Principal Marlon Blackwell Architects Fayetteville, Arkansas



Yvonne Farrell Co-Founder Grafton Architects Dublin



Francis Kéré Founder Kere Architecture Berlin



Lesley Lokko Founding Director, Graduate School of Architecture, University of Johannesburg



Ma Yansong Founder & Principal Partner MAD Architects Beijing and Los Angeles

KEY CORPORATE SPONSOR





PRODUCT GALLERY SPONSORS













SUPPORTING SPONSORS



Ornamental Metal Institute of New York



WWW.ARINNOVATIONCONFERENCE.COM







AFTER THE STORM SWA Group's Buffalo Bayou Park in Houston, completed in 2015, included reconfiguring the watercourse to control runoff. Though inundated during Hurricane Harvey in 2017 (top), the landscape proved resilient and was quickly restored (above, one year after the hurricane).

trails as well as performance venues, and an obsolete waterworks converted for art display. The design for the Buffalo Bayou Partnership, by the SWA Group, included enhancing the degraded ecology of the waterway and configuring the watercourse to control storm runoff that raises the bayou level by as much as 20 feet, several times a year. Natural meanders were restored to slow eroding flows, and the channel topography was shaped to capture silt. Architectural elements resist flood pressures and collisions from floating debris.

The design was subjected to Hurricane Harvey's record-breaking torrents and survived with little damage. Impressed, voters soon approved funding to move ahead with a Bayou Greenway plan to create trail corridors, new parks, and flood-mitigation facilities along 300 miles of bayou stream beds. Though the Buffalo Bayou project enhanced an existing stream, most cities possess underutilized low-lying land that can host natural-system improvements and increase drainage capacity, slow flows, clean stormwater, and offer amenity.

While soft-path techniques can be more adaptable than fixed barriers, some places find neither approach is likely to defend their communities from the almost inevitable ravages of rapid climate change. In New Bern, this is becoming a hard reality. Since the city occupies a vast coastal plain that is barely higher than sea level now, not enough levees and walls can be built to be effective. Nor will low-impact development provide appropriate protections. "Green infrastructure is probably not relevant" for the coastal plain, says Western Carolina University's Young.

New Bern residents-at least those who can afford to or who qualify for government grants-are adapting to the presence of water by raising their homes. Buyouts are offered property by property in North Carolina, which could mean a slow but steady loss of population for New Bern and other high-risk cities. With more shorelines suffering greater damage, and less money for civil-engineering megaprojects, the next frontier in disaster risk may be the managing of such retreat at a larger scale. After all, within decades, the lowest-lying shoreline and barrier islands could well be permanently inundated by rising seas. ■

James S. Russell, FAIA, a journalist and consultant, served as director, Design Strategic Initiatives at the New York City Department of Design and Construction.

Continuing Education



To earn one AIA learning unit (LU), including one hour of health, safety, and welfare (HSW) credit, read "Preparing for the Deluge,"

review the supplemental material found at architecturalrecord.com, and complete the quiz at continuingeducation.bnpmedia.com or by using the Architectural Record CE Center app available in the iTunes Store. Upon passing the test, you will receive a certificate of completion, and your credit will be automatically reported to the AIA. Additional information regarding credit-reporting and continuingeducation requirements can be found at continuingeducation.bnpmedia.com.

Learning Objectives

- 1 Explain the interaction of storm-related coastline flooding and stormwater overflows originating inland.
- 2 Describe the changing nature of severe weather as climate-change effects intensify.
- 3 Define the terms "hard path" and "soft path" and explain when each type of flood protection is appropriate.
- 4 Describe the application of natural-system techniques to adapt shorelines and inland streams to changing conditions and reduce flood impacts.

AIA/CES Course #K1908A



















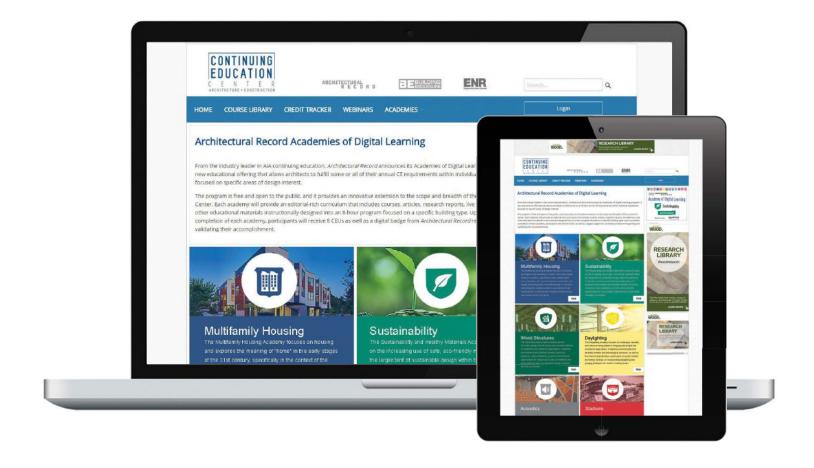








Academy of Digital Learning



The CE Center's Academy of Digital Learning allows architects to fulfill some or all of their annual CE requirements and gain advanced specialized knowledge on specific areas of design interest.

continuingeducation.bnpmedia.com/academies

ARCHITECTURAL R E C O R D











CONTINUING EDUCATION

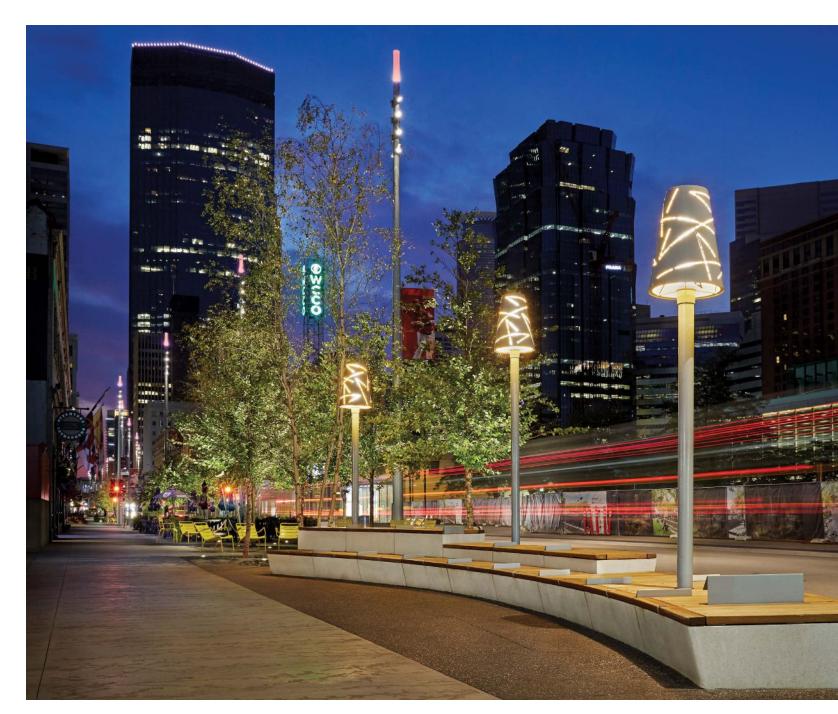


PRODUCTS



WEB EXCLUSIVE CONTENT





Nicollet Mall

James Corner Field Operations Snow Kreilich Architects Tillotson Design Associates

By David Sokol

IN THE MIDDLE of the last century, when suburbia threatened to drain Minneapolis of businesses and retailers, the city reinvented itself in the image of corporate campuses and indoor malls. Local officials converted a dozen blocks of the city's Nicollet Avenue into a transit mall according to a design by landscape architect Lawrence Halprin, while real-estate developers inserted miles of skyways that connect the sur-

rounding buildings. Today, this downtown zone is being revitalized as a mixed-use neighborhood, and Minneapolis is again reshaping its urban fabric by implementing a redesign of the Nicollet Mall, led by the land-scape architecture and urban-design firm James Corner Field Operations, with lighting by New York–based Tillotson Design Associates (TDA) and local expertise contributed by the notable Snow Kreilich Architects and landscape architect Coen+Partners.

According to Field Operations senior associate Megan Born, the new scheme retains Halprin's existing curvilinear street, while organizing it to work better for pedestrians—people who are walking through it or those seeking out the mall as a destination in itself. For the former group, Field Operations created a clearly legible, 10-foot-wide walkway next to buildings, with TDA outfitting 43-foot-tall poles with adjustable LED floodlights to supply most of the ambient illumination. "Making a



The design team created welcoming public spaces: a reading "room" (above) with floor-lamp-style fixtures, and a two-block-long mirror-topped trellis (bottom) outlined with light. Street poles (top) feature color-changing beacons, small floodlights, and sculptural lanterns.

welcoming, safe place to stroll at night was a big priority for all stakeholders, so lifting the light source and letting it create an even wash of light is one of the primary design elements of this project," Born says.

The light poles are spaced approximately 70 feet apart on average, and each has four pairs of small LED floods, each with a warm 3000-Kelvin color temperature and 85 CRI—a welcome change from the single, glaring light source often used for such projects. At the same time, for familiarity, the lighting designers maintained Nicollet Mall's previous level of brightness, which exceeded 2 foot-candles. Cylindrical RGBW beacons located at the top of the light poles may be programmed in conjunction with different events, and unique, globe-shaped lanterns project from select poles as part of a public art program.

Outside of the walk zones, Field Operations conceived a variety of outdoor rooms for destination seekers. These include a lushly planted reading area for fine weather, where luminaires that look like oversize floor lamps add to the ambient glow, and a theater-in-the-round accented by LED points. At the heart of Nicollet Mall, pedestrians might gather, find respite, or take a selfie underneath the Light Walk, a series of contiguous trellis-like armatures, topped by mirrored fins, that the lighting designers outlined with color-changing LEDs in channel extrusions. Stands of uplit birches, northern pin oaks, and other trees unite the rooms into one continuous experience and lend a seasonal diversity to this reinvented street's warm, multifaceted scene.

credits

LANDSCAPE ARCHITECT: James Corner Field Operations – James Corner, Lisa Switkin, Megan Born, Eric Becker

LIGHTING DESIGNER: Tillotson Design Associates – Suzan Tillotson, Erin Dreyfous, Megan Trimarchi ENGINEER: SRF Consulting Group (electrical)

GENERAL CONTRACTOR: Mever Contracting

CONSULTANTS: Snow Kreilich Architects (architecture); Coen+Partners (landscape); Pentagram (wayfinding); Skyrim Studios (custom lighting design); Premier Electric

(electrical contractor)

CLIENT: Minneapolis Downtown Improvement District

OWNER: City of Minneapolis

SIZE: 12 blocks COST: withheld

COMPLETION DATE: November 2017

SOURCES

LIGHTING: Bega; Lumenpulse; Targetti; BK Lighting; MP Lighting; Millerbernd Lighting





Town & Garden

LED technology expands the effective lighting solutions for urban environments and landscapes.

By Linda C. Lentz



EQ Collection

Winner of a Lightfair International Innovation Award for its sleek, contemporary design, ANP Lighting's series of singleand double-strut post-top luminaires (left), wall mounts, and bollards comes in a variety of sizes, with a choice of lumen packages and distribution types. Features include an LED light-guide technology that significantly reduces glare and eliminates pixilation of the LED source, and sensor options for flexible control solutions. anplighting.com



La Linea

Conceived by Bjarke Ingels Group (BIG) for Artemide, this flexible, IP67rated silicone tube of light can be twisted and turned to accommodate numerous installation requirements, outdoors or indoors. Measuring 8' or 16' long x 2" in diameter, the tubing tolerates temperatures from -4° F to 104° F and delivers a comfortable, diffused 3000K light with a 90 CRI through a patented optic mixing chamber, controllable via the manufacturer's app.

artemide.com



Outdoor Dot Washer

Tivoli Lighting's new Outdoor Dot Washer was designed to provide low-resolution dots of color for dynamic visual effects on building facades, bridges, and other structures. Available with RGBW or white LEDs, this dynamic IP67-rated luminaire will operate at temperatures ranging from -4° F to 122° F with a standard DMX 512 control driver, and has a proprietary voltage range said to ensure color uniformity and consistent brightness to optimize the effects of various lighting schemes.

tivolilighting.com

ProPoint Linear

Available in 1' and 4' lengths, at 8W or 12W per foot, Traxon's small-profile ProPoint Linear graze-lighting fixture allows for easy, concealed placement. One of a family of exterior solutions outfitted with the same LED chip for consistent color and illumination, ProPoint Linear comes in grav, black, or

of RGBW, and static or dynamic white lamping. osram.us/traxon.com

white finishes, with four

beam options, and a choice



Inula Column

Selux's zero-uplight International Dark Sky-friendly area luminaire is offered with a choice of one to three stackable modules, each with a recessed light engine, convex cone-shaped light chamber, and a matte-black finish. Made of die-cast, low-copper aluminum, the 8"-diameter column comes in 10'-18' heights, with optional dimming in 3000K, 4000K, or 5000K white light. An Amber light option will further decrease light pollution in sea-turtle environments.

selux.us

Brenta

Fabricated in a proprietary highimpact 100%-recyclable concrete mixture infused with plastic fibers, Neri's substantial collection of landscape lighting from Italy includes bollards and wall sconces as well as gently illuminating planters and benches. All are available in 3000K or 4000K color temperatures.

nerinorthamerica.com



Sana Wall Sconce

Designed to complement contemporary urban spaces with its industrial quality, this exterior sconce by Tech Lighting is made of concrete and satiny black aluminum and measures 5¼" wide x 2¾" deep x 16" or 22" high. With a color temperature of 3000K, this IP65-rated Dark Sky–compliant sconce aims light downward, making it ideal for wayfinding. techlighting.com



Fienile

Inspired by his homeland's rural haylofts, Norwegian industrial designer Daniel Rybakken created Fienile for Luceplan in both interior and landscape (above) versions. Introduced at this year's Euroluce, this compact fixture is made of a satiny anodized aluminum and features a low-pitched "roof" supported by walls that guide the dimmable light to achieve a washing effect. Fienile comes in two sizes and four subtle hues for outdoor use. luceplan.com/it/area-download

Babylon

The creamy, ribbed surface of this rechargeable LED fixture designed by Harry Paul seems handcrafted, but it is actually made of roto-molded polyethylene. Featuring a warm 2700K color temperature, the IP64-rated Babylon offers up to 10 hours of light at full brightness. It measures 173/4" high x 17" in diameter at its widest point and can be operated with an eight-step dimmer and remote control. dedon.de

NEWEYENI



Connecting the future of mobility and the built environment

SEPTEMBER 26, 2019
CONVENE
AT 117 WEST 46TH STREET
NEW YORK, NY

Autonomous Vehicle Technology Connect Grapples With Thoughtful Design of Infrastructure in Smart Cities

Developments in autonomous vehicle technology are beginning to change the way we think about urban design, from physical and spatial opportunities stemming from reduced traffic congestion to re-imagining infrastructure and connectivity in the smart cities of tomorrow.

Autonomous Vehicle Technology Connect is a unique opportunity for stakeholders to network, collaborate, and share insights on what the future holds in store.

Visit our website to view the full agenda and learn more about this exciting new event!



REGISTER BY AUGUST 15 TO SAVE \$100

Visit our website to register today! www.AutonomousVehicleTech.com/connect

PRODUCED BY:

MEDIA PARTNERS:





ARCHITECTURAL R E C O R D

55 Hudson Yards Lobby

Kohn Pedersen Fox OneLux Studio

By David Sokol

ACCORDING TO lighting designer Stephen Margulies, hiding luminaires helps a project to mature gracefully. "If a viewer's first impression includes lighting equipment, then you run the risk of looking out of date," says the partner of One Lux Studio. Heeding this philosophy, the New York-based firm achieved an ageless character in the three-story-high lobby of KPF's recently completed office tower at 55 Hudson Yards.

To provide an effective ambient glow in such a large volume, Margulies and his team took advantage of an approximately 2-foot-deep wood-veneer ceiling structure suspended over the 12,000-square-foot space. They concealed discreet LED wall washers around its upper

edge in a cavity under the slab, angling the fixtures toward the granite cladding to accentuate the texture of the stone. A 3500-Kelvin color temperature lends warmth without muddying the surface.

Tucked into the perimeter of the suspended ceiling, beneath the wall washers, indirect linear LEDs illuminate the negative white space between the granite wall and the dropped wood plane. The brightness of these additional light sources enhances the ceiling's floating quality and makes its hidden wall washers even less conspicuous. Visible mechanical slots on the underside of the ceiling house low-intensity LED downlights.

Backlit elements enliven the stone and enhance wayfinding. These include tall onyxpanel insets behind the main reception desk and on the lobby's west wall, as well as two large grids outfitted with vertically ribbed cast-glass panels—one near the entrance, another opposite the elevator banks. In both cases, integrated lighting amplifies KPF's material choices, by highlighting both the

waves of color in the onyx and the vertical ribs in the glass panels. "On timeless projects like this one, it is our job to let the light speak for itself without creating visual distractions," Margulies explains. "You don't see the equipment-instead, you see the effect." ■

credits

ARCHITECT: Kohn Pedersen Fox - Trent Tesch, Lauren Schmidt, Lane Rapson, Jacyln Jung, design team LIGHTING DESIGNER: OneLux Studio - Stephen Margulies, Yasamin Shahamiri, Rob Merow, design team

CLIENT: Related Companies

OWNER: Related Companies; Mitsui Fudosan

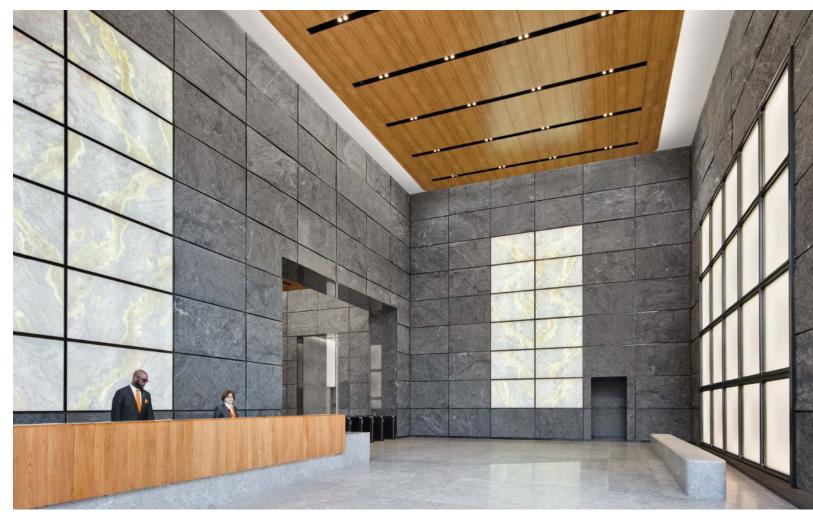
SIZE: 12.000 square feet

COST: withheld

COMPLETION DATE: February 2019

SOURCES

LIGHTING: Axis Lighting; Color Kinetics; Dado Lighting; Kurt Versen; Lucifer Lighting; Nanometer Lighting **CONTROLS:** Lutron (preset dimming system)



PHOTOGRAPHY: © CONNIE ZHOU

Illuminating Assets

These sleek specification-grade fixtures and systems will optimize a range of projects and programs.

by Linda C. Lentz

Whiz 2.0

Meteor Lighting took seven years to improve its popular Whiz high bay. The new IP65-rated LED version, winner of a Lightfair International Innovation Award, is sleeker, more compact and efficient, and has better thermal management. In black or white, and with options in color temperature, lumen output, and dimming, Whiz 2.0 suits ceilings that measure 30' or higher, and can be configured for direct or indirect lighting. meteor-lighting.com



Lutron HXL

A leading innovator in control technology, window shades, and (following its acquisition of Ketra) high-quality luminaires, Lutron has developed a holistic approach to human-centric lighting. Its new HXL offering will provide specifiers with the tools needed to create adaptive and personalized environments for clients. Users will be able to balance and easily control daylight throughout a project and harness the ability of tunable-white LEDs to emulate the sun's cycle, said to help maintain occupant circadian rhythms.

lutron.com



Cylinder One HO

Ideal for large projects such as airports, convention centers, theaters, and civic buildings, this attractive high-output downlight by Acclaim Lighting delivers up to 12,000 lumens and 99,000 candelas in spaces with ceilings 20' and higher. Featuring an internal 100-277 VAC power supply and onboard DMX+RDM driver, the IP40-rated unit can be dimmed down to 0 wirelessly.

acclaimlighting.com

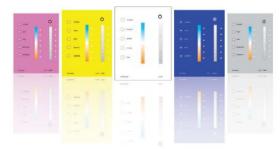
2" Volta LED Recessed Downlight

Engineered with a diminutive 2" aperture but equipped for maximum output, performance, and serviceability, WAC's compact luminaire comes in six architectural-grade finishes with four beam angles, and a choice of trims and lumen output. Features include glare control for visual comfo

control for visual comfort and field-interchangeable optics.

waclighting.com







ColorID Content Library and Wall Controller

USAI Lighting will empower end users this fall when they launch their easy-to-use system of curated lighting scenes and a circadian program. Compatible with the company's Color Select Tunable White and Infinite Color+ fixtures, the library's vibrant glass wall controller provides one-touch access to set the mood and can be colormatched to a room's interior. usailighting.com



WGD9 Wall Grazer

Tucked up into a ceiling's edge, the 3"-deep A-Light wall grazer emits a precise 7° light beam that accentuates a wall's pattern and texture without shadows or hotspots. Sold in 1'-long increments (with 90° nonilluminated transitions available through the company's Design Assist team), the WGD9 comes in 3000K, 3500K, and 4000K color temperatures at 90 CRI, with 0–10V dimming down to 1% and optional occupancy, photocell, and daylight sensors. alights.com



Lumination Architectural Linear Series

Dubbed LAL Series by manufacturer Current, powered by GE, this minimalist linear platform was engineered for efficiency, performance, and design flexibility as well as ease of installation and use. Available in 2" and 4" widths and 2', 4', 5', 6', and 8' lengths for recessed or suspended applications, in black, white, or silver, the luminaires can link together for continuous runs, with an uplight option. Separate drivers in the pendants allow independent control of direct and indirect light. currentbyge.com

Aerial

Known for the high quality of its LED light sources, Soraa extends its product offering to include luminaires. This new group of cylindrical downlights provides compelling housing for the company's advanced optics, with features such as an easily removable light module and integrated toolless onboard dimming. Black, bronze, white, and custom finishes and cord colors are available.

soraa.com















Lore

Awarded Most Innovative Product of the Year at Lightfair, Lore, a full-array downlight family by Ecosense, breaks ground with an autosensing technology that "intuitively" connects with multiple protocols for 0.1% dimming, 120–277 universal input voltage, and Lingo, a proprietary bidirectional language that enables components to talk to one another. Available in 3"- and 4½"-aperture sizes, this plug-and-play system has a range of recessed housings and trims, as well as wall, ceiling, and pendant cylinders.

ecosenselighting.com



Slots and Dots

This 1"-wide track system by Amerlux is outfitted with magnetic attachments so its light sources can be easily snapped in and out as needed. Extremely versatile, Slots and Dots can be configured by simply inserting the light sources into its channel. These include accent track head, pendant, and linear units, with high-performance optics or lenses. Available in 2', 4', and 12' lengths, the track can be linked to flow seamlessly across a ceiling or wall. amerlux.com

COCKTAIL NAPKIN SKETCH CONTEST 2019

2 GRAND PRIZE WINNERS WILL RECEIVE A \$300 GIFT CARD!

CALL FOR ENTRIES

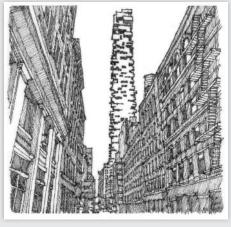
If you are a licensed architect or related professional who practices in the United States, you can enter this remarkable contest.

All you need is a white cocktail napkin and pen to demonstrate that the art of the sketch is still alive. Two grand prize winners will be chosen (1 licensed architect, 1 related professional). Grand prize winners will receive a \$300 gift card and a set of cocktail napkins with their winning sketch printed on it!

The sketches of the winners and runners-up will be published in the November 2019 issue of *Architectural Record* and shown online in the ArchitecturalRecord. com Cocktail Napkin Sketch Gallery.

HOW TO ENTER:

- ▶ Sketches should be architecture-oriented and drawn specifically for this competition.
- Create a sketch on a 5-inch-by-5-inch white paper cocktail napkin. You may cut a larger napkin down to these dimensions.
- ▶ Use ink or ballpoint pen.
- Include the registration form below or from the website.
- ➤ You may submit up to 6 cocktail napkin sketches, but each one should be numbered on the back and include your name.
- ▶ All materials must be postmarked no later than September 6, 2019.



Winning Sketch 2018 by Kevin Utsey, Registered Architect

DEADLINE: September 6, 2019. ENTER NOW!

For more information and official rules visit: architecturalrecord.com/cocktail-napkin-sketch-contest Due to the volume of entries, cocktail napkin sketches will not be returned.

ARCHITECTURAL R E C O R D

Founding sponsor



centria.com

SEND ALL SUBMISSIONS IN ONE ENVELOPE TO:

Cocktail Napkin Sketch Contest Architectural Record 350 5th Avenue, Suite 6000 New York, NY 10118

FIRM ADDRESS					
			YEARS IN PRACTICE	PHONE	EMAIL
			JOB FUNCTION:		
☐ ARCHITECT		☐ DESIGNER			
☐ SPECIFICATION WRITER		☐ FACILITIES MANAGER			
☐ ENGINEER		CONTRACTOR			
□ STUDENT		OTHER			
ARE YOU REGISTERED?		ARE YOU AN AIA MEMBER?			
□ YES		□ YES			
□ NO		□ NO			



Mandarin Oriental Jumeira Lobby DESIGNWILKES dpa lighting consultants By Sheila Kim

IT CAN be daunting to try making a mark in Dubai, a city with a striking natural environment but crammed with an eclectic jumble of contemporary buildings at every scale. Yet the project team behind the Mandarin Oriental Jumeira lobby—interior design firm DESIGN-WILKES, dpa lighting consultants (dpa), and luminaire producer Preciosa—met such a challenge with a visual feast for a dramatic first impression.

Meant to bring the outdoors in, the installation is a colonnade of 14 "trees" that double as sculptural artworks and functional light fixtures. DESIGNWILKES was inspired by the region's orange blossoms but believed that incorporating living trees into the space would eventually be value-engineered into the installation of artificial ones, which would transform

an elegant hotel lobby into a shopping mall-like setting. Instead, the firm devised figurative replicas of the real thing, fabricated by Preciosa in matte-champagne stainless steel and glass. Three sizes—from 16½ feet in diameter (at the widest point) by 13 feet tall to 25½ feet in diameter by 30½ feet tall—replicate layers of a forest canopy while internally lit ribbed glass, held within stainless-steel latticework, emphasizes the artificiality of the tree trunks.

Already enlisted to illuminate the hotel's public spaces, dpa lent its technical expertise. As the client (WASL Group) and DESIGNWILKES desired a dynamic rippling-light display, dpa proposed controlling the nearly 900 light points of the "leaves" individually. "We worked with Preciosa to adjust the intensity, sequence, and speed of the light movement to create an evolving illuminated experience," says Tim Leeding, dpa senior designer. A central control interface directs modules in the base of each tree, which in turn distribute DMX signals to their respective lamps. Handblown-glass leaves diffuse the light of these 2.1-watt warm-white LEDs, mounted at the tip of each metal branch.

Linear luminaires within suspended acoustic panels present a crisp ceiling and enhance the

The lobby of Dubai's Mandarin Oriental Jumeira greets guests and visitors with a naturalistic display of gently illuminated "trees" fabricated in glass and steel.

ambience: as in nature, light from above filters through the man-made tree canopies with a dappled effect on the floor. The team aimed to craft "something unique with a wow factor," says DESIGNWILKES principal Jeffrey Wilkes. With the resulting enchanted forest, it appears they did. ■

credits

ARCHITECT: Design and Architecture Bureau

INTERIOR DESIGNER: DESIGNWILKES

LIGHTING DESIGNER: dpa lighting consultants

ENGINEER: SEED (electrical)

GENERAL CONTRACTOR: BILT (electrical)

OWNER: WASL Group

SIZE: 6,000 square feet (main lobby)

COST: withheld

COMPLETION DATE: March 2019

SOURCES

LIGHTING: Preciosa; LED Linear; Linea Light Group; KKDC; General LED; iGuzzini; Light Graphix; Dynalite

Inside Job

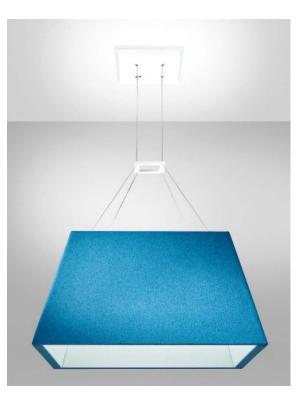
Color, form, and materiality shine to provide ambience and visual punch.

By Kelly Beamon



Ludo

While its style was inspired by a 1950s Italian design, the Ludo wall sconce is made in America-now. New York manufacturer Blueprint Lighting designed the 11" x 6" brass and spunaluminum fixture to swivel, providing up- and downlight. It works with incandescent E12 candelabra-base lamps up to 40W or their LED alternatives. Options include 36 standard enamel colors, custom hues, and hardwired or plug-in versions. blueprintlighting.com



Shaper Sense

Eaton Lighting partnered with felt-products manufacturer FilzFelt on a line of 3000K-4000K luminaires that also control sound. The Shaper Sense series combines FilzFelt's 100% wool felt with Eaton's edge-lit acrylic panels to form box-, trapezoid- and drum-shaped pendants. All are open on top, providing two-way illumination as well as improving daylight penetration when the sun is out. Shaper Sense works with Eaton's wireless control systems.

eaton.com/lighting



Sonneman's blown-glass LED pendant Mela, which means apple in Italian, is made more dynamic by its dichroic surface and fruitlike etched acrylic core. Offered in three sizes, the large (15" x 133/4"), medium (11" x 101/4"), and small (71/2" x 7") versions deliver the same warm, dimmable 3000K glow and a color rendering index of 90. An optional three-light canopy is also available.

sonnemanawayoflight.com





Architect Lauren Rottet created the Fascio Collection for Visual Comfort with luxury in mind. The range includes wall sconces, pendants, a floor lamp, and chandelier (shown), all made of crystal rods bundled (as its Italian name implies) in a band of brass. Finish options include bronze, polished nickel, and hand-rubbed antique brass. The faceted crystal delivers a refracted, glare-free glow. circalighting.com

Overlap

A new line of Flos pendants by Michael Anastassiades reimagines the cocoon-like style of the company's iconic 1960s luminaires by Tobia Scarpa and Achille and Pier Giacomo Castiglioni. Like the original "cocoon-wrap" luminaires, the new Overlap pendant features the same resin membrane invented decades ago to package U.S. Army shipments. This time, the material wraps a steel frame of two interlocking rings, providing soft, diffused illumination and a nostalgic ambience.

usa.flos.com





Lilv

This streamlined pendant by Montreal-based Eureka Lighting features an optical-grade acrylic lens and adjustable cable. It can also pivot 180° on its high-quality hinge to provide precise illumination in any direction. For more design freedom, Lily is available with canopy mounting or a track system, and can be specified in custom lengths and colors. The circular luminaire is stocked in five standard colors (shown). eurekalighting.com



Chime

New York manufacturer Stickbulb is rolling out a collection of chandeliers made of wood suspended from a powder-coated steel ring. The company debuted the concept at this year's NYCxDesign, where a 10'-high version built from reclaimed wood won Best in Show. Now the cascading fixture is available in a choice of three sizes (20", 28", and 36" diameter) and five wood species in a variety of lengths of up to 12', arranged individually, clustered, or nested.

stickbulb.com

W151 Extra Large Pendant

In a reaction to the shrinking size of LEDs, architects Claesson Koivisto Rune designed a supersized fixture. The W151 Extra Large Pendant, from Swedish lighting company Wästberg, is a playfully unfussy cone-shaped luminaire made of spun aluminum in three simple variations—tall and narrow, low and wide, and medium.

wastberg.com





BULLD YOUR SKILLS

Earn your credits and expand your expertise on structural design at:

ce.bnpmedia.com

AIA Continuing Education Provider CONTINUING EDUCATION

In this section, you'll find four compelling courses highlighting creative solutions for tomorrow's buildings brought to you by industry leaders. Read a course, and then visit our online Continuing Education Center at ce.architectural record.com to take the quiz free of charge to earn credits.



Landscape Architecture: Great Outdoor Spaces by Design Sponsored by Bison Innovative Products, Endicott Clay Products Company,

Sponsored by Bison Innovative Products, Endicott Clay Products Company, and Thermory USA



Design Driven by Accurate Cost Data

Sponsored by RSMeans data from Gordian

PM SI SU

CREDIT: 1 AIA LU/ELECTIVE

PE PM PMD

CREDIT: 1 AIA LU/ELECTIVE



Continuous Perimeter Foundation Vents

Sponsored by Joto-Vent Systems USA, Inc.



Embracing the Timber Age

Sponsored by VaproShield

BE PM RE

CREDIT: 1 AIA LU/HSW

BE PM SU

CREDIT: 1 AIA LU/ELECTIVE

- CATEGORIES -

BE BUILDING ENVELOPE DESIGN

PE PROFESSIONAL ETHICS

PM PRODUCTS AND MATERIALS

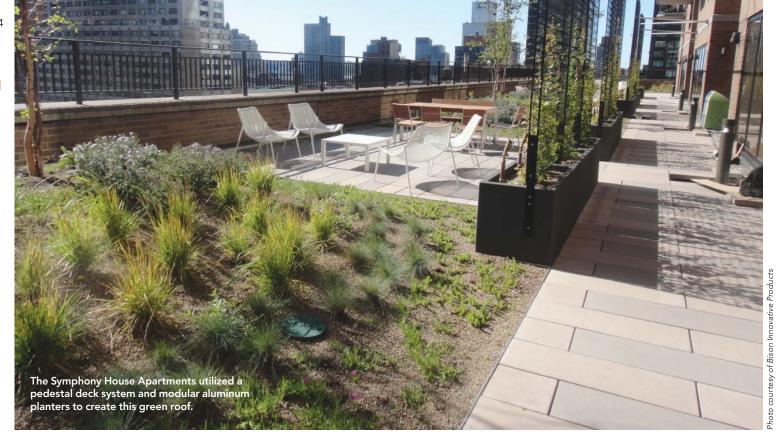
PMD PRACTICE, MANAGEMENT, DIGITAL

TECHNOLOGY

RE RESIDENTIAL

SI SITE INFRASTRUCTURE DESIGN

SU SUSTAINABILITY



Landscape Architecture: Great Outdoor Spaces by Design

Materials and strategies for enriching outdoor experiences

Sponsored by Bison Innovative Products, Endicott Clay Products Company, and Thermory USA | *By Elena M. Pascarella, RLA, ASLA*

andscape architecture shapes the built environment in ways beyond plant materials. The Whole Building Design approach optimally includes landscape architecture as a key component. The overall goal of Whole Building Design is to create a successful building project by utilizing an integrated design approach that incorporates all design disciplines during the planning and programming phases of a project. Some of the key design objectives of Whole Building Design are sustainability, accessibility, aesthetics, and performance durability.

How the building sits within the landscape sets the context for its construction and use. Landscape architectural design helps the building interact with its physical location, as the look and feel of the site is greatly influenced by the hardscape surfaces, site features, plantings, and exterior spaces that comprise the environment around a building. This course will provide insight into design approaches and materials that assist landscape architects with a Whole Building Design team approach.

The course will also reference some of the relevant criteria toward achieving points through LEED, SITES, and WELL certifications. It will illustrate ways that designers can achieve LEED, SITES, or WELL points by minimizing impacts to existing site ecology, using products that help to conserve ecosystems, utilizing products that come from renewable resources, avoiding waste through the use of recycled materials, and managing the effects of climate, whether excessive heat or excessive rain, through design techniques and products that mitigate climate issues.

Creating an outdoor space that is able to effectively weather the elements, meet its design purpose, and appreciate the owner's need for low maintenance costs can be invaluable to a designer. This course will explore the ways that designers can create an attractive and sustainable outdoor environment compliant with several LEED, SITES, and WELL criteria while providing a Whole Building Design approach to a project.

CONTINUING EDUCATION

AIA Continuing Education

1 AIA LU/ELECTIVE

Learning Objectives

After reading this article, you should be able to:

- 1. Identify sustainability criteria (LEED and SITES) that apply to exterior surfaces used in landscape architectural design.
- 2. Describe some of the various product systems that are available for designing exterior plazas and roof terraces, and understand each system's compliance with sustainability criteria.
- **3.** List design options for exterior pavement surfaces with respect to stormwater management.
- 4. Describe the ways in which exterior spaces and outdoor rooms can help to meet LEED and SITES requirements of Human Health and Well-Being and Materials Selection, as well as those that apply to WELL certification.
- **5.** Explain the approach to Whole Building Design.

To receive AIA credit, you are required to read the entire article and pass the test. Go to **ce.architecturalrecord.com** for complete text and to take the test for free.

AIA COURSE #K1908H



architects: Lake|Flato and Shepley Bulfinch | photographer: Leonid Furmansky |

REDEFINING ROOFTOP ENVIRONMENTS

AUSTIN CENTRAL LIBRARY (AUSTIN TX)
LEED PLATINUM CERTIFIED



PEDESTALS MANUFACTURED IN DENVER, CO AND 100% RECYCLABLE WITH 20% POST-INDUSTRIAL RECYCLED MATERIAL.



WOOD TILES CONSTRUCTED FROM RESPONSIBLY HARVESTED HARDWOODS, SUSTAINABLE, AND AVAILABLE IN FSC CERTIFIED SPECIES.



ALUMINUM CUBES MADE IN THE USA, 100% RECYCLABLE WITH 20% RECYCLED CONTENT, AND FINISHED WITH LOW VOC PAINTS AND SEALANTS.



bisonip.com | 800.333.4234

DESIGN FLEXIBILITY FROM GROUND TO ROOF

Modular deck and pavement systems provide landscape architects with the design flexibility to create both rooftop environments and outdoor ground-level amenity spaces. Rooftop and ground-level spaces can be designed using wood, stone, structural porcelain, artificial turf, grating, or concrete to create unique custom looks. All of these materials can be applied either over a prepared subgrade or rooftop when utilizing a deck support system. Deck supports, also known as pedestals, create level surfaces over sloped areas. Pedestal deck systems can help reduce the heating and cooling loads of a building because they are "air permeable." Air permeability is defined as the rate of airflow passing through a given area of a material. Pedestal deck systems allow for greater airflow on a roof. This reduction of heating on building roofs helps to meet LEED and SITES criteria for reduction of the heat island effect. Pedestal deck systems also help to increase walkable pedestrian surfaces on roofs and uneven ground spaces, thus meeting the criteria for SITES 6.5 – Support Physical Activity and LEED Sustainable Sites 5.2 – Site Development - Maximize Open Space.

Versatile Pedestal Deck Systems

Pedestal deck systems can be utilized over any structural surface: on structural concrete rigid insulation or roof membranes for rooftop decks, plazas/terraces, compacted grade, pavements, pool surrounds, or within water features. These pedestal deck systems are comprised of two major components: pedestals and tiles/pavers. Pedestals are designed to elevate and support a variety of surfaces, including structural porcelain, stone, granite, or concrete pavers, wood tiles, composite materials, fiberglass grating, or conventional joist and plank systems.

Pedestal deck systems offer tremendous design flexibility coupled with ease of installation. The adjustable pedestal deck systems provide a unique and viable alternative to traditional deck building materials and methods for the following key reasons:

- 1. They are available in a range of heights and weight bearing capacities to suit a variety of applications.
- 2. They are one of the most labor- and costefficient methods of creating a flat, level deck over a sloped surface.
- 3. They use a gravity system that protects the roofing and waterproofing materials without damaging or harming the surface below.
- They can support decks over occupied space, allowing space for electrical systems, duct work, or irrigation.

Pedestals are made with high-density polypropylene plastic (comprised of 20 percent post-industrial recycled content) that are



Shown here is an installation of a pedestal deck system supporting ipê wood tiles on a rooftop deck.

100 percent recyclable. The recycled material content of the pedestals provides points toward both LEED and SITES certification. Pedestals are screw adjustable and easily leveled with tapered base levelling discs and/or shims, allowing the creation of level rooftop decks over a variety of surfaces, including sloped surfaces. Pedestals can elevate and support wood tiles, concrete pavers, and a variety of other surfaces when sophisticated, commercial-grade decking is required. They are also sturdy enough to support site furnishings such as planters, tables, and benches.

Design Options using Pedestal Deck Systems

Pedestals come in residential, commercial, and industrial grades, with each grade having different characteristics. Deciding which systems to specify is dependent on the support and elevation requirements of the installation. Pedestal deck systems create valuable, usable outdoor space for both owners and their clients, customers, and visitors. Rooftop decks are a way for residential, hospitality, or public spaces to differentiate themselves from the competition. Incorporating a pedestal deck system can provide pedestrian access to green roofs and expand usable space to include gardens and walkways.

A pedestal deck system is an ideal solution for water-feature applications. The system conceals the water supply beneath the pedestals and surface materials and allows water to drain to the surface below for recycling. Additionally, the supports are impervious to water, mold, and most chemicals.

Designs can include recessed lighting in the pedestal deck system. The lighting will enhance the ambiance of the environment and improve visibility and safety during nighttime and/or dark conditions.

Ground- and street-level sidewalks and storefronts can be expanded through the design of small deck areas known as parklets, or pop-up parks, all of which enhance urban areas. These parklets and pop-up parks can be designed using pedestal systems and modular wood tiles placed over existing ground- and

street-level spaces. These exterior spaces provide areas that support social connections, mental restoration, and physical activities, which are criteria under Site Design – Human Health and Well-Being for SITES and Community, Movement, and Mind for WELL.

Fastening kits and splines facilitate quick and secure pedestal deck system installations. The fasteners attach kerf-cut wood tiles, concrete, and stone pavers or paver tray-backed 2-centimeter porcelain pavers to the pedestals without penetrating or damaging the roof surface material. While the fasteners are hidden, they can be accessed to allow for the removal of individual wood tiles or pavers if roof maintenance, drain access, or replacement is required. Some pedestal deck systems are designed to resist wind uplift; consult individual manufactures for more information about their systems.

Modular Wood Tiles for Ground or Rooftop Applications

Typically made from dense hardwoods, wood tiles are commercial grade and available in responsibly harvested standard and FSC-certified species. Wood species include fused bamboo, cumaru, garapa, ipê, mahogany, and massaranduba. Hardwood tiles contain a rich variety of graining and coloration, are exceptionally dense, and resist insects. Wood tiles can be crafted from premium-grade remnants and are harvested in an environmentally responsible way designed to preserve the economic viability of rainforest hardwoods.

Thanks to their density, hardwood species require minimal maintenance. If maintaining the wood color is desired, wood tiles can be periodically cleaned and sealed. Left to weather naturally, the wood tiles will develop a silvery-gray patina. Because they weigh one-third as much as concrete pavers, wood tiles are a good alternative when surface material weight is a factor. The tiles can be laid in a parquet or linear pattern, or mixed with pavers, river rock, stone, plank decking, or other options to create unique aesthetics.

Because they are modular, the wood tiles meet SITES 5.3 – Design for Adaptability and Disassembly. The wood tiles also meet SITES 5.8 as they support safer chemistry.

Site Furnishings for Enhancing Landscape Spaces

Site furnishings such as benches, tables, and planters provide enhancements to any outdoor space, creating more inviting spaces for leisure activities and social interaction. Modular planters offer flexible options for the addition of plantings to roof gardens, small urban spaces, pop-up parks, and/or building plazas. Planters are available in a variety of materials, including metal, cast stone, concrete, resin, fiberglass, and



Beauty And Stability In Every Fiber.

Thermory's Benchmark Series offers a high level of dimensional stability enhanced by our responsible sourcing and clean thermal modification process. We raise the bar for sustainable wood products.

REQUEST SAMPLES AT WWW.THERMORYUSA.COM



wood. Aluminum planters offer the durability of metal with a lighter weight, making them easy to move and place onto rooftop decks.

Planter cubes that are constructed of lightweight, recycled aluminum are durable, low maintenance, and designed to withstand extreme temperatures. This makes them ideal for rooftop locations that are subject to extreme winds, sun, and weather. These aluminum planter cubes can be painted using an industrial-strength powder-coating technology developed with modern aesthetics in mind. Powder coating is a dry finishing process that is applied electrostatically and cured under heat, creating a more resilient finish than conventional paint. The process does not emit any volatile organic compounds (VOCs) into the air and allows the aluminum planter cubes to be coated with any RAL paint code color. (RAL is a color-matching system used in Europe to define paint, coatings, and plastics. RAL is an abbreviation for the Dutch institute that administers the color standard.) The aluminum planter cubes typically contain 20 percent recycled content, are 100 percent recyclable, include drain holes and irrigation sleeves, and are made in the United States. They come in a variety of size and color choices, providing a number of design options for landscape architects.

Wood planters provide another material option for introducing plants onto a rooftop garden or a ground-level exterior space. Ipê wood planter cubes and ipê wood planter cube tops offer a selection of modular design options to incorporate seating, storage, and planters into a ground-level or rooftop space. With the long-lasting durability of dense hardwoods, these wood planters and tops can withstand harsh environments. The warm wood tones and varied grain provide a natural complement to wood decking. The wood planter cubes may have a polyurethane lining and drainage holes, making plant care and maintenance easy. Custom sizes and species are available as well. Modular planter cubes may be used as planters or with an ipê top for seating and/or storage, providing flexibility of design options. Most planters have drain holes and irrigation sleeves that make caring for plants or vegetables convenient. As a storage unit, they can be used for seasonal items like cushions or throw pillows.

Lightweight aluminum trays expand the design options for rooftop environments. Used as a containment system for architectural rocks or other deck elements, the low-clearance aluminum trays integrate seamlessly with the modular planters and wood tiles, providing designers with a palette of materials for designing rooftop environments. Many aluminum trays are corrosion resistant, made in the United States, and available in a variety of standard and custom size options that offer modular integration with a pedestal deck system.



Shown is thermally modified white ash decking board.

DESIGN APPLICATIONS FOR ENHANCING ROOF GARDENS WITH WOOD

Thermally modified white ash, spruce, and Scots pine decking, cladding, and porch flooring offer great versatility and durability as well as an environmentally sourced product for the design of rooftop decking. Each fiber of the wood board is modified, using the thermal modification process of heat and steam to achieve rot resistance to the core of the board. This provides decking with a Class 1 durability rating. Class 1 Durability is a European rating system that classifies exterior wood products based on their resistance to rot and decay. Class 1 is the highest possible rating and it means that, without any additional maintenance and with proper installation, the wood will remain resistant to rot for a minimum of 25 years. White ash and spruce are classified as Class 1 durability. Class 2 durability ratings indicate that the wood is resistant to rot for 20 years or more. The Scots pine is classified as Class 2.

As a comparison with other wood species, ipê from Brazil and old-growth Burmese teak have Class 1 ratings, while most other tropical rainforest species attain Class 2 ratings or less. Domestic old-growth cedar can be classified as Class 2, although currently harvested cedar is mostly tertiary growth so it meets a Class 3 standard, which indicates resistance to rot for 10 years or more.

In addition to durability, thermally modified wood provides a product that has a rich, natural color that is not the result of a stain. Left untreated with UV-protectant oil, the boards will slowly age to a stunning platinum grey. In addition, each board goes through a milling process that produces an extremely smooth finish, thus eliminating roughness and splinters.

Because of its high durability and low maintenance requirements, thermally modified wood offers great versatility for the design of exterior surfaces, whether for porches, outdoor decks, or roof patios, as thermally modified wood can withstand foot traffic and harsh weather conditions and still retain its beautiful character and smooth finish.

SUSTAINABLE WOODS FOR DURABILITY AND AESTHETICS

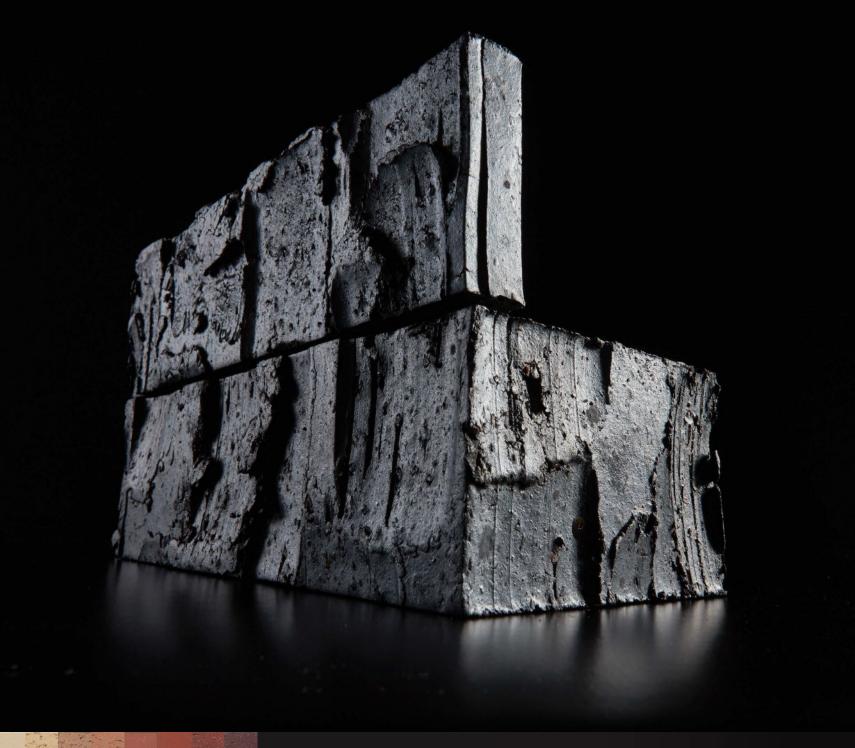
Thermally modified white ash, scots pine, and spruce woods are sustainable alternatives to tropical woods or composites. The wood is harvested responsibly in Northern Europe (ash, pine and spruce) and North America (ash) from naturally renewable forests, making it a long-lasting alternative to tropical woods without sacrificing durability and with superior dimensional stability. The wood is responsibly harvested by sourcing from a number of different locations around the world, thus leaving each forest healthy and thriving. The wood is also shipped via ocean container, which is more fuel-efficient than rail transportation and nearly 10 times as efficient as 18-wheeler trucks.

White ash, scots pine, and spruce are chosen as most suitable species for the thermal modification process for the following reasons:

- These are sustainable wood species that can be harvested responsibly without contributing to deforestation or damaging the environment.
- 2. These wood species yield the best results via the thermal modification process, achieving a Class 1 durability rating.

The thermal modification process uses only heat and steam, creating cellular alterations that occur on both a chemical and cellular level in the wood. The sugar content and water-absorption capacity of the wood are altered in the thermal modification process, thus modifying both cellulose and hemicellulose cells.1 Cellulose is made up of smaller units of glucose, and hemicellulose is made up of shorter carbohydrate structure, monosaccharides.2 Hemicellulose has the higher oxygen content so the cells of this cellular group can be altered by slightly burning these specific cells within the wood before burning the other cellular groups. This sequential burning process causes a reaction that creates additional heat within the wood. The thermal modification process uses the steam to control the burning process. This produces wood boards that are rot resistant for 25-plus years. This process also produces wood with greater structural integrity of the fibers and dimensional stability. Aesthetically, it provides a simple, beautiful, timeless wood product that gets better with age.

Thermally modified wood goes through an extensive testing process for rot resistance, dimensional stability, termite resistance, strength, formaldehyde content, and flame spread. This testing ensures wood boards that are durable and resistant to rot and moisture. The testing process takes anywhere from a week to several months depending on the test. The thermal modification





Trust Endicott to help you create uninterrupted design. The same beautiful colors, bold textures and assorted sizes—available in both face and thin brick—so you can build spaces that move.



process is very detailed and computer controlled to ensure the exact same result is achieved every single time the wood is processed through the testing chamber

Only select northern hardwoods from North American and European forests, renowned for their well-documented sustainable forestry practices, are used to produce thermally modified woods. This fact normally satisfies the customer's desire for an eco-friendly product, and FSC certification becomes unnecessary. However, FSC certification is available on a special-order basis, depending on the product needed, the size of the order and whether the FSC material is available. FSC certification requires a 25 percent price premium and an extra 12–14 week lead time to source the raw material especially for the order.

Some softwoods used in the thermal modification process are certified by the Program for the Endorsement of Forest Certification (PEFC), a European-based certification system that is not widely known in the U.S. market. These softwoods are sourced from Scandinavian forests, which are closely managed and extremely sustainable but not FSC certified.

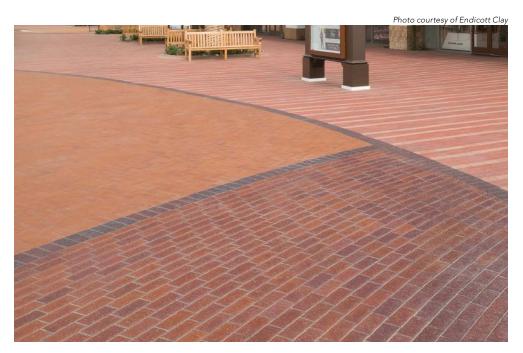
Using Wood for Its Design Flexibility and Aesthetics

Thermally modified wood provides a material with extensive flexibility for designers. White ash thermally modified wood was used by designer Thomas Tampold of Yorkville Design Centre to create outdoor decking and raised planters at this residence in Toronto.

Scots pine decking was used by JJW Landscape Architects and Keinicke & Overgaared Architects in the design of this geometrically configured outdoor deck and planters for a project in Copenhagen, Denmark.

In each of these cases, the wood is installed quickly and easily using a custom-developed clip strip that the installer presses down on and the boards click into place. The wood boards are pre-grooved with tracks for the clips so alignment is automatic. There is no need for drill bits or screws, thus creating a clean look with no hazards to bare feet.

The residential deck in Toronto and the plaza in Copenhagen illustrate applications and uses of thermally modified wood in ground-level settings. The durability characteristics and installation procedures for ground-level settings are the same as for rooftop locations. As thermally modified wood is responsibly harvested, it is a product that meets LEED and SITES criteria for sustainable practices in materials.



Multiple colors and patterns can help to humanize the pavement scale, as shown at this plaza in San Clemente. California.

CLAY PAVERS: AN ENVIRONMENTALLY FRIENDLY MATERIAL TO MEET SUSTAINABILITY CRITERIA

Clay pavers provide the landscape architect with both quality material performance and design flexibility. Clay is an environmentally friendly raw material that has been used to fabricate bricks and clay pavers for hundreds of years. Clay pavers are fired at temperatures exceeding 2,000 degrees Fahrenheit. This process of firing provides designers with pavers that are non-fading and resilient to wear and staining. Because of this high-heat firing process, the pavers never need sealing to retain their color. And because there are no dyes used in the fabrication process, the cost of clay pavers is less than pavers comprised of other materials, such as concrete.

Design Flexibility: Variety in Color, Texture, Style, and Pattern

Clay pavers come in a variety of sizes and types, including permeable pavers, relieved edge lugged pavers, pool coping pavers, Danish hand-molded pavers, bullnose threads for stairs, and ADA handicapped detectible warning pavers. Clay pavers are used in both pedestrian and vehicular applications, including patios, pool decks and pool copings, large outdoor plazas, walkways, and driveways. The relatively small size of clay pavers creates a pavement surface with a human scale.

The small size also allows for the nuances of different colors, textures and patterns to be clearly seen when standing from one vantage point within a pavement field.

Clay pavers are available in a wider range of colors. Due to the natural color of clay, the most common colors are the reds and browns of earth tones, but clay pavers are also available in buff, black, and gray. The color is typically consistent through the body of the paver, as it is fired in through the entire paver. Clay pavers are also highly resistant to weathering and fading due to their vitrified composition. As clay pavers are made from natural materials, there may be inherent color variations in pavers due to different production runs. For designers, the color variations from the different production runs can be mitigated in the field pattern. Using different colors helps to break down the scale of the very large pavement areas. Borders can be laid in a different color from the field, thus adding interest to the design. Patterns that flow, repeat, and intertwine can also be added.

Continues at ce.architecturalrecord.com

Elena M. Pascarella, RLA, ASLA is a practicing landscape architect, continuing education presenter, and consultant engaged in a private practice based in Rhode Island. The firm's portfolio can be viewed at www.landscapeelementsllc.com.







ADVERTISEMENT 111

PRODUCT REVIEW

Landscape Architecture: Great Outdoor Spaces by Design

Bison Innovative Products



Rooftop Deck Systems

Manufactured in the USA with 20 percent post-industrial recycled materials, Bison Pedestals create level decks over sloped surfaces. They elevate and support wood tiles, pavers, site furnishings, and a variety of other surfaces. Bison Wood Tiles are commercial grade, constructed from sustainably harvested hardwoods, and available in standard and FSC-certified options.

www.bisonip.com

Thermory USA

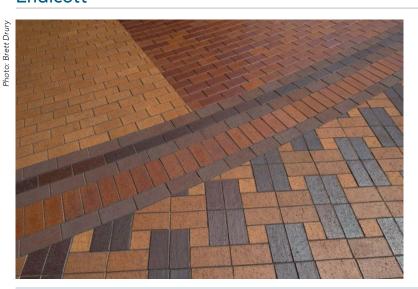


Benchmark White Ash

Benchmark White Ash is the natural result of our modification process. Each board is thermally modified using heat and steam, resulting in enhanced rot resistance, a high degree of dimensional stability, and a deep, rich color. Benchmark White Ash is an ideal alternative to tropical woods in performance and appearance.

www.thermoryusa.com/benchmark-series

Endicott



Pavers

Endicott clay pavers are an ideal choice for designers who appreciate their aesthetic beauty, color retention, and low maintenance requirements. They're fired at temperatures exceeding 2,000 degrees Fahrenheit, rendering them colorfast and resilient to wear and staining. Endicott Pavers make great walkways and streetscapes possible. Explore the movement.

www.endicott.com

All images courtesy of RSMeans data from Gordian



Design Driven by Accurate Cost Data

Using independent, up-to-date sources helps assure project success

Sponsored by RSMeans data from Gordian By Peter J. Arsenault, FAIA, NCARB, LEED AP

ll construction projects cost money to execute. The question the owner wants answered with some degree of predictability is, "How much?" Providing a credible response is dependent on the ability to accurately estimate costs and use that information to influence design decisions, which in turn impact the cost. Given the large number of variables and potential for changes throughout the design and construction process, many see this as a daunting task. However, by acknowledging a few fundamental principles and recognizing the value of comparative pricing analysis, cost estimating can be viewed as a valuable design tool to create quality buildings that work within the owners' cost parameters. As such, this course will look at construction cost estimating from the standpoint of using reliable cost data to inform design decision-making. In the process, it can support meeting all of the stated project design goals.

FACTORS AFFECTING CONSTRUCTION COST ESTIMATING

Different projects can present very different design requirements and construction conditions. When it comes to estimating the costs of those different projects, there are at least three common areas that can affect the process.

Client Factors

Different clients may have very different expectations related to "what" they want for cost-estimating services. A private client with the ability to finance a project within a

CONTINUING EDUCATION

AIA Continuing Education 1 AIA LU/ELECTIVE

Learning Objectives

After reading this article, you should be able to:

- 1. Identify the common factors that influence how construction cost estimates are prepared.
- 2. Investigate the potential for using reliable cost data to drive decision-making focused on building designs that meet established budgets.
- 3. Assess the positive capabilities of value engineering as a collaborative means to evaluate options and alternatives during the design process.
- 4. Recognize the need to incorporate future pricing into cost estimates, particularly for multiyear projects or outside conditions not controlled by designers.

To receive AIA credit, you are required to read the entire article and pass the test. Go to ce.architecturalrecord.com for complete text and to take the test for free.

AIA COURSE #K1908F

comfortable range may require only a rough estimate of costs from the design professional and instead rely on his or her own resources to analyze costs and negotiate prices separately. Or the client may be limited in the amount of financing available and have a high need to understand and control costs, thus relying heavily on the project team to direct and assist that effort. By contrast, a public client often has a stated maximum budget that is the result of legislation or public bonds being issued, hence he or she can be very sensitive to the need to avoid cost overruns since it is a big deal to attempt to go back and obtain additional funding. As such, most public clients ask for cost estimates to be prepared and updated at each projectphase submission (i.e., schematic, design development, construction documents, etc.) if the project is managed that way. In any of these or other situations, being sensitive to the client needs for cost estimating means the project team may need to tailor the way information is analyzed and presented to suit individual buildings.

Human Factors

The question of "who" is going to do the cost estimating for a project needs to be answered fairly early in the process. In some cases, a large professional practice may have in-house personnel and well-established office standards for preparing cost estimates for all of its projects. In other cases, it may be just one or two people in a firm who do the cost estimating as part of a much broader job description. Alternatively, someone other than the design professional may do the cost estimating. That could be a construction management company that is retained early in the design process, or it could be an independent firm who focuses only on cost-estimating services. In some cases, the client may require such an independent cost estimate as a "double check" on the estimate prepared by the project team. Either way, the people responsible for the cost estimating need to be identified early in the design process, with everyone feeling comfortable about their qualifications and experience.

Data Factors

With an understanding of "what" is needed in a cost estimate and "who" is providing it, the remaining decision is "where" the cost data will come from. The obvious need is for a reliable and up-to-date source of data on which a cost estimate can be based. Such sources can



There are multiple factors and variables that go into accurate construction cost estimating. Recognizing and working with them can help produce the best results.

include a variety of choices such as historical project data, information from suppliers, direct information from subcontractors, or other direct personal contacts. However, data from those sources may be rather subjective and probably need to be scrutinized to ensure they are directly applicable and timely for the project at hand. Further, the information available needs to match the level of cost estimating detail needed for different phases of a project. For example, early on, square-footage costs for general budgeting or schematic purposes may be all that is reasonable or required. As a project progresses and specific roof assemblies, wall assemblies, or similar construction systems are identified, the cost data needs to be updated to match the specified designs. Finally, when all (or nearly all) project information is identified, a fully detailed cost estimate can be created that is based on individual unit costs for material, labor, and equipment for each part of the construction work.

In light of the variety of data needs above, many estimators rely on independent, thirdparty, published cost data that is available in print or online. The advantage of the online sources is that they are regularly updated, while printed books may only come out once a year or so. For estimates that need to be

based on the most current conditions, the online sources will make the most sense. Further, independent data typically addresses regional and local cost differences, allowing it to be customized or tailored to a particular project location, accounting for differences in the labor markets, material availability, and other factors. Perhaps the biggest advantage of these published data sources is that they are prepared by organizations that have full-time staff to focus on researching and identifying objective data for all construction trades and scopes of work. As such, they bring an element of independent credibility and experience to a project for accurate and up-to-date information. The fact that a project cost estimator can then rely on this data to apply it as appropriate to a customized cost estimate at different levels of development means the data can be useful throughout the entire design and construction process.

Continues at ce.architecturalrecord.com

Peter J. Arsenault, FAIA, NCARB, LEED AP, is a nationally known architect and the author of more than 200 continuing education courses for design professionals. www.pjaarch.com, www.linkedin.com/in/pjaarch



All images courtesy of Joto-Vent System USA, Inc.





The latest innovation in crawl-space ventilation provides continuous airflow with no dead air pockets in the crawl space, eliminating the need for unsightly and troublesome openings in the foundation wall or rim joist.

Continuous Perimeter Foundation Vents

The next innovation in crawl-space ventilation

Sponsored by Joto-Vent System USA, Inc. | By Kathy Price-Robinson

very so often, a new way of building homes emerges that is so simple, so elegant, and yet so revolutionary that the mind can hardly grasp it.

Take the case of a continuous perimeter foundation vent system. This low-profile, honeycomb crawl-space venting system is placed between the concrete foundation wall and the wooden sill plate to provide passive airflow around and through the entire perimeter of the home's crawl space. This eliminates the need for conventional vent boxes either in the concrete foundation or cut into the rim joist.

"I'll never go back to cutting vent holes into rim joists and foundations," says Takeshi Kaneo of TK Home Design and Build in Bellevue, Washington, who has used the perimeter venting system in two of his projects. "I wish I had known it was available in the United States sooner."

Not only does this venting system provide continuous and foolproof venting into and out of the crawl space, but the thin ¾-inch (20-millimeter) composite venting strips provide a capillary break between the concrete foundation wall and the wooden sill plate, eliminating the need for a pressure-treated wooden sill plate and preventing sill rot and sill break-

down from wicking moisture from the concrete foundation. Additionally, as a treated sill plate is not needed, neither is galvanized hardware.

The system has been used for more than four decades in Japan and is the most common crawl-space ventilation system used there.

INNOVATIVE DESIGN AND THE KOBE EARTHQUAKE OF 1995

Prior to the Kobe Earthquake in 1995—which measured 6.9 on the Richter scale, killed more than 6,000 people, and destroyed more than 400,000 buildings—many crawl spaces were vented in the conventional method using openings in the foundation wall, while others used the perimeter venting system. After the earthquake, some observers noted a difference in how each type of building fared.

"After inspecting the devastation, we found that homes using perimeter venting systems survived for two main reasons," says Takashige Maebayashi, a Japanese-licensed architect and director of engineering and development for Joto USA. "The first reason is that the use of the continuous venting system doesn't require cutting the foundation for crawl-space ventilation. Houses that used the conventional style methods naturally have weakened foundations

CONTINUING EDUCATION

AIA Continuing Education Provider

1 AIA LU/HSW

Learning Objectives

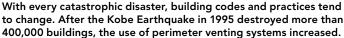
After reading this article, you should be able to:

- Discuss moisture buildup in crawl spaces, the consequences of excess moisture, and how crawl-space ventilation protects the building and occupant health.
- 2. Compare conventional foundation vent systems, their effectiveness, long-term performance, and health impact.
- **3.** Identify a new option/alternative for venting a foundation built over a crawl space.
- **4.** Define continuous foundation ventilation systems and their sustainable benefits.
- Describe several case studies of projects where continuous perimeter foundation vents were specified.

To receive AIA credit, you are required to read the entire article and pass the test. Go to **ce.architecturalrecord.com** for complete text and to take the test for free.

AIA COURSE #K1908J







This house has a continuous perimeter vent system for crawl-space ventilation. The absence of vent holes in the foundation is a preferred aesthetic by some architects.

and are more susceptible to damage. The second reason is that with the perimeter venting system the sill plate is separated from the foundation and so it won't decompose, which aided in supporting a long-term structurally sound foundation."

In the two decades following the Kobe Earthquake, adoption of the perimeter venting system has skyrocketed. One company alone has provided perimeter venting systems to more than 4.5 million new Japanese homes.

A SLEEK AESTHETIC

A final consideration is the sleek elegance of this venting system, allowing complete passive crawl-space ventilation with just a thin and nearly unnoticeable presence, and without the common—and some would say unsightly—large openings currently cut into foundations or rim joists every 8 feet or so to allow for airflow.

For architects, engineers, and builders in North America, however, while those holes cut into the foundation or rim joist ventilation may be ugly and even detrimental to the integrity of the foundation, the practice continues because "it's the way things have always been done."

Erik de Buhr, an owner and builder in Eugene, Oregon, and founder and co-executive director of a nonprofit that helps solve homelessness, sought out the new venting system as a solution to a design problem. "While designing our house, I realized that our stem wall was going to be too short to use the standard plastic crawl-space vents," he says, adding that he "wasn't looking forward to using them anyway because, in my opinion, the vent boxes detract from the clean exterior look of the house and don't do a very good job."

So the questions arise: Is the conventional box venting method the only way to go? Is it the best way? Is there a better way? This course examines this innovative manner of passively venting a crawl space evenly and unobtrusively around the entire perimeter, and compares it with the traditional method of box vent openings to which most have become accustomed. Let the designer or builder be the judge.

We begin with why crawl space ventilation is so critically important.

HOW AND WHY MOISTURE BUILDS UP IN CRAWL SPACES

Providing ventilation under a raised foundation house is as old as the North American building trade itself. While some homes are built over basements, or more recently on grade-level concrete slabs, there are plenty of locations and soils and climates where separating the foundation of the home from the ground is the best design.

Consider raised homes built for centuries in the Northwest or Southeast of North America. Pilings set deep in the ground provide anchors for the raised foundation. While the temperature at the surface of the ground varies widely depending on season and climate, the temperature becomes less changeable and more moderate below the surface. This relatively warm below-surface ground temperature produces moisture, and this is the reason for the building practice of a raised foundation built up on a crawl space. While the soil below alternately gets wet, dries out, freezes, or unfreezes, the foundation raised above it remains unaffected. And with air flowing freely underneath the house, natural breezes carry away ground moisture. The raised design also allows easy access to plumbing, electrical, and mechanicals under the floor.

As building practices changed, the pilings on which the foundation sat became a reinforced and poured concrete foundation wall on which the foundation sat. To create the necessary airflow to keep moisture from accumulating, the code required holes in the foundation wall to allow air to freely move in and out of the crawl space. Screens or louvers were also required to prevent rodent intrusions.

Continues at ce.architecturalrecord.com

Kathy Price-Robinson writes about building and architecture with a focus on adapting to climate change. www.kathyprice.com



Embracing the Timber Age

Suitable vapor-permeable water-resistive-barrier and air-barrier membranes, roof underlayments, and flashing accessories can deliver high-performance enclosures for cross-laminated timber buildings

Sponsored by VaproShield

riven by climate change concerns and sustainable design trends, structural wood is slowly but surely gaining traction. In fact, the worldwide market for crosslaminated timber (CLT) is expected to grow at a

compound annual growth rate of approximately 9.1 percent over the next five years, reaching \$980 million by 2024, states the Selbyville, Delawarebased market research firm Market Study in its "Cross-Laminated Timber Market Share" report.

"This is the beginning of the timber age," declares Andrew Waugh, RIBA, founder and director, Waugh Thistelton Architects, London, in a Dezeen article on this noted trend. "Building in wood is super fast, super accurate, and also makes the most amazingly beautiful spaces."

Waugh claims that a CLT structure can be constructed 50 percent faster than a concrete building, requires fewer deliveries to the site, and provides a more pleasant environment for construction workers.

Architect Alex de Rijke, whose London-based firm dRMM has designed a few dozen CLT buildings, agrees, saying, "CLT is the future of construction. Timber is the new concrete."

In an Economist video report titled "Wooden skyscrapers could be the future for cities," Michael Ramage, Ph.D., director, Cambridge University's Center for Natural Material Innovation, even goes so far as to say, "I think it's very realistic to think that someone will



All images, figures, and details courtesy of VaproShield

CONTINUING EDUCATION

AIA
Continuing
Education 1 AIA LU/ELECTIVE

Learning Objectives

After reading this article, you should be able to:

- 1. Explain the benefits and growing popularity of cross-laminated timber (CLT) buildings.
- 2. Recognize CLT's unique sensitivity to moisture and how specially designed building enclosures are required to support building longevity and high performance.
- 3. Review options for attaching various cladding components to the CLT panels.
- 4. Describe best practices for designing and installing water-resistive barriers (WRBs), vapor retarders, and air barriers (ABs) in CLT wall and roof cladding systems.
- **5.** Review best practices for detailing CLT roof assemblies of varying slopes.

To receive AIA credit, you are required to read the entire article and pass the test. Go to ce.architecturalrecord.com for complete text and to take the test for free.

AIA COURSE #K1908D

build a wooden skyscraper in the coming years. Wooden skyscrapers could be the future for cities. There is a lot of potential that's unrealized for using timber at a very large scale."

Although the CLT building trend is stronger overseas, North America is coming on board with a 250,000-square-foot mass timber manufacturing plant going up in Spokane Valley, Washington, and another 227,000-square-foot CLT plant under construction in Dothan, Alabama.

While the potential is exciting, this fairly new renewable building type brings along with it a unique set of building enclosure challenges.

As a moisture-sensitive material, wood is slow to dry if wetted due to its hygric mass. Furthermore, wetting for prolonged periods can result in dimensional changes, moisture damage, and microbial growth. As a result, keeping CLT products dry during construction and throughout the building's service life is critical. The speed at which CLT panels may be erected also creates unique field challenges where CLT panels are exposed to the elements for periods of time while awaiting cover.

Filling this unique niche of providing waterresistive-barrier (WRB) and air-barrier (AB) membranes and roof underlayment, very few technologies are ideally suited for the challenges specific to mass timber construction.

One such technology is vapor-permeable sheet membranes that simultaneously manage bulk-water infiltration while allowing for accelerated drying of the underlying materials. As a self-adhered WRB that bonds directly to wood substrates, no primers are required, so the membrane installation can proceed simultaneously with the CLT panel erection process. This technology also lends itself to WRB/AB pre-application, taking advantage of the prefabrication process inherent to CLT panel construction, and the quality control and weather protection that shop fabrication can provide.

MASS TIMBER

Before delving into the specifics of how to properly detail a CLT enclosure, some background on this newer building material is helpful.

Modern mass timber buildings are constructed of engineered wood products, often manufactured from multiple layers of sawn lumber, attached to form a solid panel, beam, or column. By forming solid wood sections, mass timber differs from the conventional,



At the Hawker Architects-designed First Tech Credit Union in Palo Alto, California, a crosslaminated timber (CLT) floor is supported by a glue-laminated timber structure.

lightweight wood-framed construction that has long dominated the low-rise residential construction market in North America.

Among the mass timber materials known for their sustainable, renewable properties, CLT is the most popular. These panels offer strength, rigidity, and dimensional stability, making them ideal for floor, wall, and roof applications. CLT's panelization potential also lends itself to streamlining the construction process and dramatically shortening the construction schedule while employing less labor

A number of other mass timber products widely used across North America offer similar benefits to CLT. They include nail-laminated timber (NLT), dowel-laminated timber (DLT), interlocking cross-laminated timber (ICLT), glue-laminated timber (GLT), vertically laminated veneer lumber (LVL), and laminated strand lumber (LSL). Multiple mass timber products can be used in the same building. For instance, Figure 1-2 shows an example of a CLT floor supported by a GLT structure.

While the primary focus of this course is CLT building enclosure design, much of the information applies to other types of mass timber products as well.

This course covers best practices for the design and construction of high-performance CLT wall and roof assemblies using suitable vapor-permeable WRB and AB membranes, roof underlayments, and flashing accessories in moderate to cold North American climates, including International Energy Conservation Code (IECC) Climate Zones 4 through 8. While CLT assemblies in warmer climates are not covered, these building enclosure products may still provide solutions for a successful enclosure design in these regions. Of course, these products can also be used with many other forms of mass timber, wood-framed, and conventional construction methods following similar installation techniques and detailing.

Continues at ce.architecturalrecord.com



Advertisement

LIGHTING

SUSPENDED LIGHT FIXTURE

WR | Green | New

B-K Lighting

The Catenary light fixture provides the brilliant suspended light you want with the sleek and sturdy design you need.

Product Application:

- Dallas Museum of Art, Dallas, TX
- The Frog Pond, Boston, MA
 Woodfield Village, King of Prussia, PA

Performance Data:

- Four fixture options
- 7W (Remote or Integral Power Supply)
 10W or 27W (Integral Power Supply)
- CCT 2.7K, 3K & 4K

Bklighting.com

(559) 438-5800 | info@bklighting.com



INTERIOR FINISHES, FURNISHINGS

LONSEAL FLOORING CONNECTS WITH NATURE

NFW

LONSEAL FLOORING

Lonstrand Topseal was designed to contribute to restorative responses such as reducing stress, improving cognitive function and creativity, improving well-being and healing.

Product Application

- Healthcare & Assisted Living
- · Retail & Hospitality
- Corporate & Education

Performance Data

- PHTHALATE FREE: REACH Compliant, SVHC free
- FloorScore® Certified and Contributes to LEEDv4/4.1

www.LONSEAL.com

800.832.7111 | orders@lonseal.com



Booth: 1801 Healthcare Design

BUTT-GLAZED FIRE-RESISTIVE SYSTEM

SSS

Technical Glass Products

The Fireframes ClearView® System is comprised of $butt\text{-}glazed\ Pilkington\ Pyrostop^{\circledcirc}\ low\text{-}iron\ fire\text{-}rated$ and impact safety-rated glass with a heat-resistive perimeter frame.

Product Application:

- The University of Kansas Earth, Energy & Environment Center, Lawrence, KS
- General Catalyst Office, San Francisco, CA

Performance Data:

- · Barrier to radiant heat, with fire ratings up to 60
- UL classified and labeled, with a continuous glass wall aesthetic

fireglass.com

800.426.0279 | sales@fireglass.com



ELECTRICAL. LIGHTING

FLOOR GROMMET WITH POWER

Doug Mockett & Company Inc

Heavy Duty Floor Grommet with shutter doors that open for access to four power outlets. Close doors to withstand heavy foot traffic. Cables can remain plugged in with doors closed. Hardwired.

Product Application

· For use in office or anywhere convenient power access is needed for floors

Performance Data

- UL Listed
- · Satin Aluminum finish
- Made in USA

www.mockett.com

800.523.1269 | info@mockett.com



DOORS, WINDOWS

WINDOW WALL

Graham Architectural Products

Factory glazed window wall system provides aesthetics, ventilation, flexibility, cost-savings and speed for new construction applications.

Product Application

- · Commercial and residential mid- and high-rise
- New construction

Performance Data

- · Architectural grade aluminum windows and doors
- AAMA and NFRC tested
- · Glazing thicknesses: from 1" to 1-9/16" IG units

www.grahamwindows.com

800.755.6274 | jeisenbeis@grahamwindows.com



DOORS, WINDOWS

LIFT-STRAP BIFOLD DOORS AND ONE-PIECE HYDRAULIC DESIGNER DOORS

Schweiss Doors, Moving Walls

Schweiss Doors manufactures unique custom designer doors, one-piece hydraulic doors and patented lift-strap opening/closing bifold doors.

Product Application:

- Moving doors and walls
- You think it, we build it
- · Custom designed storefronts and more...

Performance Data:

- · Faster, safer operation
- Zero lost headroom
- Superior design that keeps working!

www.schweissdoors.com 507.426.8273 | schweiss@bifold.com



SKYSCRAPER

TENEMENTS TO TOWERS

39 Battery Pl, New York | Wed - Sun, 12 - 6 pm | skyscraper.org

MATERIALS

New and Upcoming Exhibitions

Big Ideas, Small Lots

New York

August 1-November 2, 2019

Showcasing the five winning proposals of the Big Ideas for Small Lots NYC competition—organized by NYC Department of Housing, Preservation, and Development (HPD) and AIA New York—this exhibition at the Center for Architecture includes finalists' innovative ideas on developing affordable housing. More information at aiany.org.

Ongoing Exhibitions

Serious Play: Design in Midcentury America

Denver

Through August 25, 2019

The exhibition at the Denver Art Museum features the ways architects and designers used the concept of playfulness in postwar American design as a catalyst for creativity in the American home, children's toys, and corporate identities. Co-organized by the Milwaukee Art Museum, the collection includes over 200 works in various media. See more at denverartmuseum.org.

Viagem Sem Programa

Siena, Italy

Through September 8, 2019

This traveling exhibition—dedicated to Álvaro Siza—is now on display at Santa Maria della Scala Museum. It features drawings by the architect, along with several video installations, which show sides of his personal and professional life. The collection is curated by Greta Ruffiano and Raul Betti. See viagemsemprograma.com.

Rome and the Teacher, Astra Zarina

Rhinebeck, New York

Through September 8, 2019

A new exhibition honoring Astra Zarina, professor of architecture, is on view at 'T' Space's Architectural Library. The collection examines the Italian balance of private and public spaces that informed Zarina's design theories through models, drawings, and video. For more, see tspacerhinebeck.org.

Design With Nature Now

Philadelphia

Through September 15, 2019

The legacy of environmental planner and landscape architect Ian L. McHarg is explored by showing the efforts of individuals and collectives to mitigate the effects of climate change through ecological design. For more information, visitmcharg.upenn.edu.

Architecture Speaks: The Language of MVRDV

Innsbruck, Austria

Through September 28, 2019

Architecture Speaks will focus on the global architecture and urbanism firm MVRDV's four core tenets and show examples of each through its work in models, drawings, and videos. It will be on display, free to the public, at the architektur und tirol (aut)'s Adambräu Building. Learn more at aut.cc.

Architects' Furniture, 1960-2020

Paris

Through September 30, 2019

This exhibition at the Cité de L'architecture & du Patrimoine explores how architects have contributed to art through furniture and lighting design. The almost 300-piece collection showcases furnishings designed during the last 60 years by David Adjaye, Ron Arad, Shigeru Ban, David Chipperfield, and more. Learn more at citedelarchitecture.fr.

Vienna Biennale for Change: Brave New Virtues

Vienna

Through October 6, 2019

This third Vienna biennale will explore what an economically just, socially fair, and ecologically sustainable future could be. Artists, designers, and architects from all continents will focus on visions for achieving this. Learn more at viennabiennale.org.

Our Happy Life: Architecture and Well-Being in the Age of Emotional Capitalism

Montreal

Through October 8, 2019

Focused on the decade following the 2008 economic crash, *Our Happy Life* investigates today's "cult of happiness" and its many contradictions, questioning how the happiness agenda influences the design of our built environment. See more at cca.qc.ca.



dates&events

In Frederic Church's Ombra: Architecture in Conversation with Nature

Hudson, New York

Through November 3, 2019

Showcasing multimedia design concepts and installations, this exhibition at the Sharp Family Gallery by guest curator Barry Bergdoll combines hand-drawn sketches, painted renderings, three-dimensional models, and animations examining the relationship of architecture and landscape at Olana. See more at olana.org.

Second Home Serpentine Pavilion

Los Angeles

Through November 24, 2019

Second Home and the Natural History Museums of Los Angeles County are bringing SelgasCano's 2015 installation to Los Angeles. The pavilion will be at the La Brea Tar Pits, with public programs and events focusing on the intersection of art, design, science, and nature. See pavilion.secondhome.io.

Written by Water

Luxembourg

Through November 24, 2019

This immersive exhibition at the Luxembourg

Pavilion by Portuguese artist Marco Gondinho examines the relationships that mankind has with the sea. See luxembourgpavilion.lu.

Nature - Cooper Hewitt Design Triennial New York

Through January 20, 2020

Over 60 projects will be featured in this exhibition demonstrating how designers are collaborating on inventive solutions to the environmental and social challenges confronting humanity. For more information see cooperhewitt.org.

Lectures, Conferences, and Symposia

Seattle Design Festival

Seattle

August 16-25, 2019

The Design in Public program gathers over 30,000 designers, community members, and civic leaders to explore how we design for this year's theme, which is Balance. The event celebrates all the ways that design makes life better for Seattle. For more information, see designinpublic.org.

Competitions

Vectorworks Design Scholarship

Deadline: August 29, 2019

Undergraduates and graduate students are eligible to submit their best design work for the chance to win up to \$10,000 from the Vectorworks Design Scholarship or the Richard Diehl Design Award. For more information, visit vectorworks.net.

Architectural Review Emerging Architects Awards

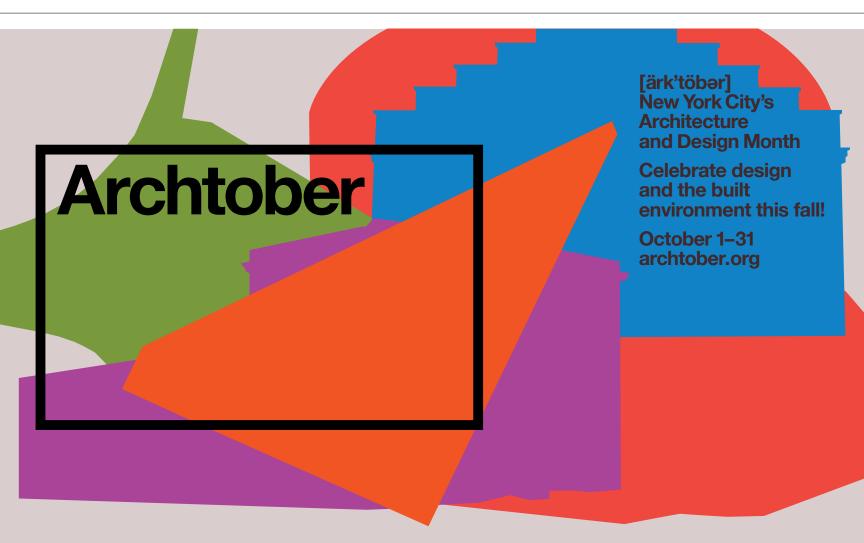
Deadline: August 30, 2019

For the 20th year, the AREA Awards will reward excellence in an emerging architect's overall body of work rather than a single completed building. To be eligible for submission, all practice founders must be under the age of 45 as of December 5, 2019. More at emergingarchitecture.architectural-review.com.

Robert Wood Johnson Foundation Challenge

Deadline: August 31, 2019

The theme is Building Health into Everyday Life. In the near future, technology might be used to enhance health as part of our daily



routines. Entries should include ideas that will be feasible in five to 10 years and will change the built environment to a healthier default. There will be two categories of winning designs: one targeting specific healthy behaviors and one that envisions broad, systemic change. For more, visit centerhxd.com.

2019 Cocktail Napkin Sketch Contest

Deadline: September 6, 2019

Licensed architects or related professionals who practice in the United States are eligible to enter this annual architectural-drawing competition, for which two Grand Prize-winners will be chosen. The winning sketches and runners-up will be published in the November 2019 issue of ARCHITECTURAL RECORD and online. For more, see architectural record.com.

Product of the Year Awards

Deadline: September 6, 2019

RECORD's competition honors the best building materials introduced to the U.S. market after August 15, 2018. Winners will be chosen based on innovation, usefulness, and aesthetics and will be published in the December 2019 issue of the magazine. For more information, see architecturalrecord.com.

The Home Competition

Deadline: October 7, 2019

The brief calls for designers to submit their ideas of domestic architecture for the future. Submissions should define how residents interact with the proposed living space through images or text. For more information see thehomecompetition.com.

LafargeHolcim Awards

Deadline: February 25, 2020

This competition seeks concepts in the early design stage from architects younger than 30 that combine sustainable construction solutions with architectural excellence. A total of \$2 million in prize money will be awarded to the winner. See lafargeholcimawards.org.

E-mail information two months in advance to areditor@bnpmedia.com.

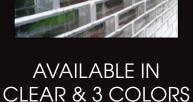


Divide With Style

Sliding Wall & Door Solutions by Raydoor









DISCOVER THE SMART SOLUTION PLUS 877.738.3711

SEVESGLASSBLOCK.COM INQUIRY@SEVESGLASSBLOCK.COM



Advertisers Index

/ tavel tisels		G C A			
Advertiser	Page	Advertiser	Page	Advertiser	Page
AISC	6	CAST CONNEX	41	Petersen Aluminum	32
Architectural Record - Academy Of Digital Learning	87	Dri-Design	5	Raydoor	121
Architectural Record - AIA	120	Endicott Clay Products	109	Renlita	24
Architectural Record - AVT Connect	94	Georgia-Pacific	3	SAFTIFIRST	49
Architectural Record - Bookstore	78	Goldbrecht	CV3, 14	Seves Glass Block	121
Architectural Record - Build Your Skills	102	Huntco Supply	16	Skyscraper Museum, The	118
Architectural Record - Call For Entries	122	Invisible Structures Inc	119	Sonneman	11
Architectural Record - Cocktail Napkin Contest	98	Joto-Vent System USA, Inc.	114, 115	Steel Institute of New York	2
		Kingspan Light+Air CPI Daylighting	46	Technical Glass Products	CV2, 1
Architectural Record - Innovation Conference	85	Landscape Forms	28	The Gordian Group	112, 113
Architectural Record - Website	88	Lorin Industries	17	Thermory USA	107
Architectural Record - Education Exchange	79	modular Arts	34	Times Square Lighting	35
ASI Accurate Partitions	13	Monarch Metal Fabrication		Tournesol Siteworks	27
Benjamin Moore & Co.	21	NanaWall	9	Vaproshield LLC	116, 117
Bison	105	National Terrazzo & Mosaic Associati	on 22	Viewrail	19
B-K Lighting	50	Oldcastle BuildingEnvelope®	CV4	Walpole Outdoors	40
Cascade Coil	25	Ornamental Metal Institute of New Y	ork 4	Wooster Products	80









OPEN SPACES OPEN POSSIBILITIES

Entire glazed walls disappear instantly into the ground at the touch of a button. The silent and swift descending experience that never fails to impress.



www.hirtUSA.com | info@hirtUSA.com | @hirtUSA | 310 988 4455



glass | curtain wall | storefronts | windows | skylights | interiors



SOME SEE A CURTAIN WALL

WE SEE AN OPEN BOOK

High-Performance Curtain Wall at Natomas Public Library

Nacht & Lewis envisioned a reading room reflecting an actual "open-book" with soaring glass walls that welcomed natural daylight while reducing solar heat gain.

The solution is not just a product—it's a collaboration™

Visit obe.com/weseeanopenbook

to see how we can help you make your next dream come true. Let's solve it, together™

