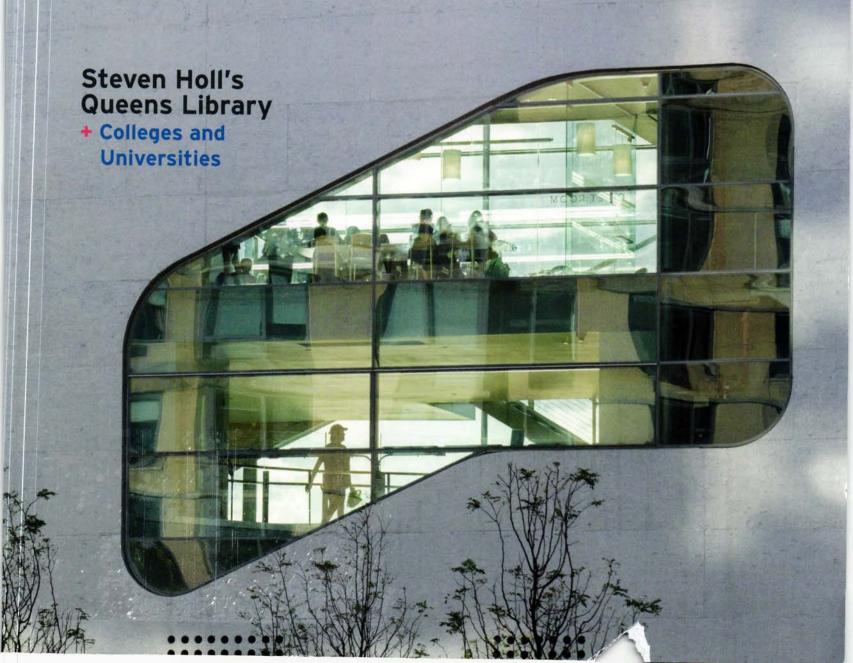
# ARCHITECTURAL R E C O R D





(ii) 2019 Inchmical Glass Products. Technical Glass Products, Fireglass and Fireframes are registered trademarks of Technical Glass Products.
81 Specified Fire-rates glass company in North America among architectural specifiers as reported by a national research firm, 2014-2018.

# SPEC: TACULAR



### fireframes

Designer Series

Trust your next project to the industry's preferred fire-rated glazing.

Build confidently with our innovative glass, framing and door systems...

along with the respected support of Technical Glass Products.





# Capture clarity.



#### Fit the bill—and the build—with new Acuity Low-Iron Glass.

Elevate aesthetics for a modest investment, without sacrificing performance. New Acuity Glass by Vitro Architectural Glass (formerly PPG Glass) is an affordable low-iron solution available with Solarban® solar control low-e coatings, offering vivid views with no green cast. Where conventional clear glass was once a given, pure clarity is now within reach.

Request samples and learn more at vitroglazings.com/acuity



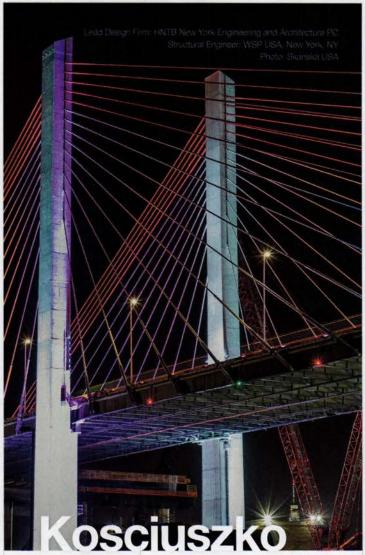








SONNEMAN® A WAY OF LIGHT



# à Gogo

The design of urban infrastructure affects city life as much as the design of its buildings. That's why replacing the Kosciuszko Bridge - a notorious pinch point in traffic between Brooklyn and Queens-was a high priority for Governor Cuomo. With heavy lifting from HNTB, WSP USA, and Skanska, a striking cable-stayed span has risen where the outdated bridge once stood, ensuring New Yorkers may still have trouble saying its name, but they never have trouble getting home.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 Metals in Construction 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 FEATURES EDITOR Josephine Minutillo, minutilloj@bnpmedia.com SENIOR EDITORS Joann Gonchar, faia, leed ap, goncharj@bnpmedia.com Linda C. Lentz, lentzl@bnpmedia.com Kelly Beamon, beamonk@bnpmedia.com PRODUCTS EDITOR SENIOR DIGITAL/NEWS EDITOR Miriam Sitz, sitzm@bnpmedia.com ASSOCIATE EDITOR Alex Klimoski, klimoskia@bnpmedia.com ASSISTANT EDITOR Kara Mavros, mavrosk@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 Naomi R. Pollock, FAIA CORRESPONDENT 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) November 2019, Vol. 207 No. 11. 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 OR DIGITAL: US \$48.00, Canada \$72.00 and Foreign \$132.00. Single Copy sales \$10.00.

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 1440, Lincolnshire, IL 60069.

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 1440. Lincolnshire, IL 60069.

FOR SUBSCRIPTION INFORMATION OR SERVICE, PLEASE CONTACT CUSTOMER SERVICE AT: Local Phone: (847) 504-8163 Toll Free: (866) 501-7541 Fax: (847) 291-4816. Email: AR@omeda.com

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



# 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

#### **AUDIENCE MARKETING**

AUDIENCE MARKETING PROJECT MANAGER

Cassandra Kerby

INTEGRATED MEDIA SPECIALIST

Catherine Neal

#### LIST RENTALS

Please contact your sales representative

#### 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

BNP MEDIA: (248) 244-6400

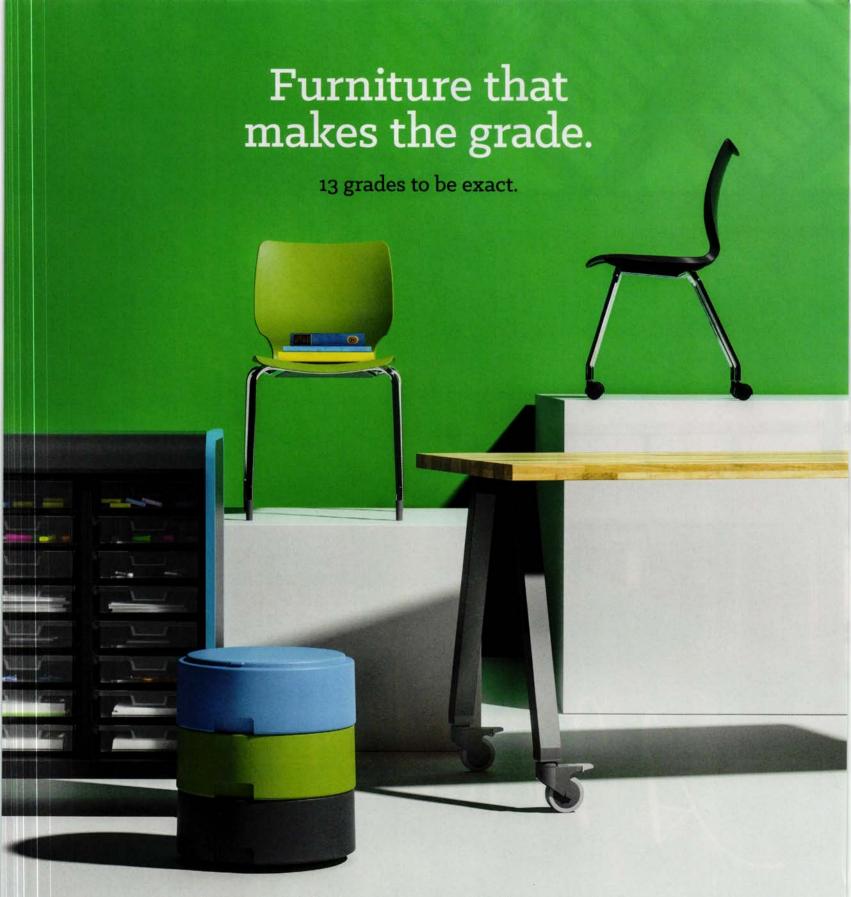
WEBSITE: architecturalrecord.com. SUBSCRIBER SERVICE: For subscription information or service, please contact Customer Service at: Local Phone: 847-504-8163; Toll-Free: 866-501-7541; Fax: 847-291-4816 Email: AR@omeda.com SINGLE COPY SALES: www.architecturalrecord.com/scs. If the Post Office alerts us 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** 



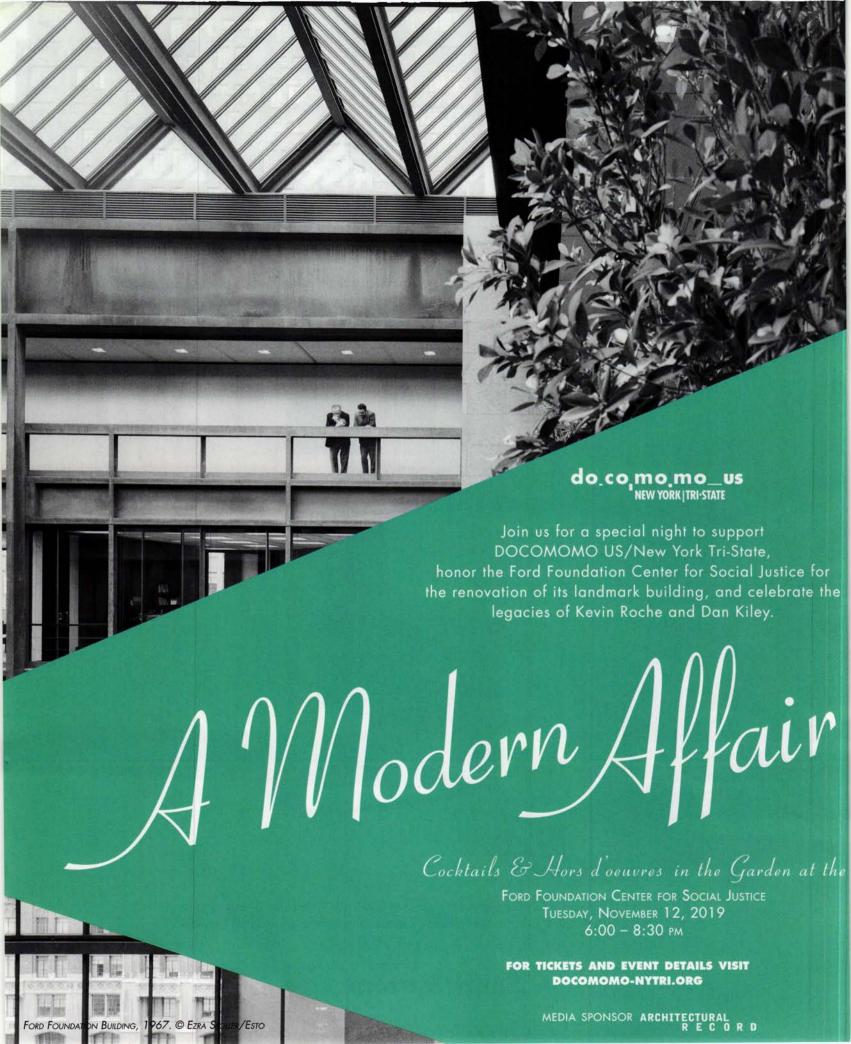




Our singular focus on pK-12 learning means we know kids. We design for how they grow, think and move. It's all we do, so that schools and teachers can focus on what they do.

Get a free catalog at SmithSystem.com

Smith System<sup>®</sup>





Visit us at our booth #1305 at Greenbuild.



# LEED v4.1 is here.

LEED v4.1 offers achievable credits.

Project teams will see more options on the table for achieving their goals.

Architect: CambridgeSeven | Photo Credit: Jeff Goldberg - Esto

DELIVER ON: MATERIALS • PERFORMANCE • ENERGY • HEALTH & HUMAN EXPERIENCE • INTERIORS • SIMPLICITY • CARBON

LEED v4.1 is here to help you meet your goals. Try it on a new project or apply your choice of credits to a project already in progress.

usgbc.org/LEEDv41

## White Made Simple.

Introducing SheerWeave Brite White.

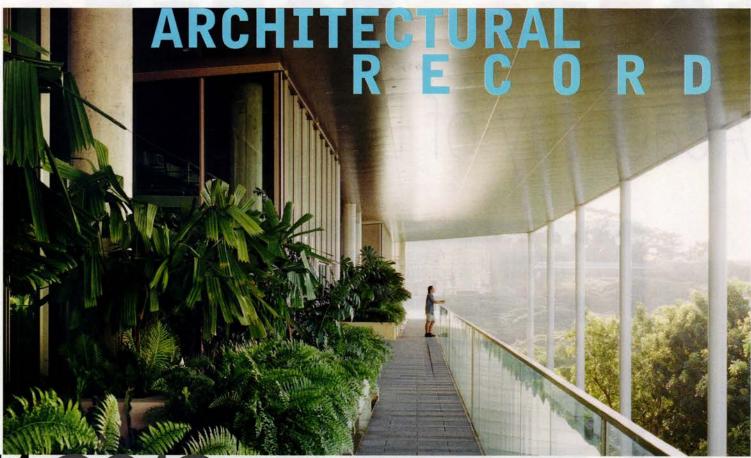
Accentuating contemporary design while improving solar heat reduction, P84 Brite White is simply the perfect white for any occasion.

Now available in Styles 2500/2410/2390/2360 and widths 63" | 98" | 126".



Get your FREE SheerWeave Starter Kit. sheerweave.com/starter-kit





112019

#### **NEWS**

- 23 SOLAR-POWERED FACILITY BRINGS SURGICAL SERVICES TO RURAL UGANDA By Miriam Sitz
- 26 GREEN-BUILDING ADVOCATES RAISE ALARM ON EMBODIED CARBON By Joann Gonchar, FAIA
- 28 GEHRY COMPLETES LATEST PIECE OF PHILADELPHIA MUSEUM OF ART REVAMP By Joann Gonchar, FAIA
- 30 LMN ARCHITECTS EXPANDS AND RESTORES THE SEATTLE ASIAN ART MUSEUM By Alan G. Brake

#### DEPARTMENTS

- 20 EDITOR'S LETTER: THERE IS NOTHING LIKE A DAME
- 35 HOUSE OF THE MONTH: CROTON-ON-HUDSON HOUSE BY RES4 By Jennifer Krichels
- 39 EXHIBITION: THIRD ANNUAL CHICAGO ARCHITECTURE BIENNIAL By James Gauer
- 42 EXHIBITION: CHARLOTTE PERRIAND IN PARIS By Josephine Minutillo
- 46 IN FOCUS: MOMA REDUX, AGAIN By Suzanne Stephens
- 51 GUESS THE ARCHITECT
- 56 FIRST LOOK: VISITOR CENTER AT MANILA AMERICAN CEMETERY AND MEMORIAL By Kara Mavros

- 60 CLOSE-UP: HUNTERS POINT LIBRARY BY STEVEN HOLL ARCHITECTS By James S. Russell, FAIA
- 69 PRODUCTS: CERSAIE 2019 By Kelly Beamon
- 75 PRODUCTS: GLASS & GLAZING By Kelly Beamon

#### BOOKS

- 53 SAVING AMERICA'S CITIES, BY LIZABETH COHEN Reviewed by Anthony Paletta
- 54 THE GOOD METROPOLIS, BY ALEXANDER EISENSCHMIDT Reviewed by Daniel Brook

#### BUILDING TYPE STUDY 1,012 COLLEGES & UNIVERSITIES



- 83 INTRODUCTION
- 84 STAVROS NIARCHOS FOUNDATION-DAVID ROCKEFELLER RIVER CAMPUS AT THE ROCKEFELLER UNIVERSITY, NEW YORK RAFAEL VIÑOLY ARCHITECTS By Joann Gonchar, FAIA
- 92 UCLA MARGO LEAVIN GRADUATE ART STUDIOS, LOS ANGELES JOHNSTON MARKLEE By Sarah Amelar
- 98 CORNELL UNIVERSITY MUI HO FINE ARTS LIBRARY, NEW YORK STV AND WOLFGANG TSCHAPELLER By Alex Klimoski
- 102 IRA H. RUBENZAHL STUDENT LEARNING COMMONS AT SPRINGFIELD TECHNICAL COMMUNITY COLLEGE, MASSACHUSETTS ANN BEHA ARCHITECTS By Alex Klimoski

110 FEATURE: MORE THAN ACADEMIC By Charles Linn, FAIA

#### LIGHTING

- 119 INTRODUCTION
- 120 ILLUMINATED RIVER, LONDON LIFSCHUTZ
  DAVIDSON SANDILANDS AND LEO VILLAREAL STUDIO
  By Chris Foges
- 123 CF TORONTO EATON CENTRE BRIDGE, TORONTO WILKINSONEYRE AND SPEIRS + MAJOR By Linda C. Lentz
- 124 LARKIN STREET SUBSTATION, SAN FRANCISCO TEF DESIGN AND HORTON LEES BROGDEN LIGHTING DESIGN By Lydia Lee
- 126 PRODUCTS: LIGHTING By Kelly Beamon
- 149 DATES & EVENTS
- 156 SNAPSHOT: NRW TEXTILE ACADEMY
  By Kara Mavros

THIS PAGE: SDE4 BY SERIE + MULTIPLY ARCHITECTS WITH SURBANA JURONG AT THE NATIONAL UNIVERSITY OF SINGAPORE. PHOTO BY RORY GARDINER.

COVER: HUNTERS POINT COMMUNITY LIBRARY BY STEVEN HOLL ARCHITECTS IN NEW YORK. PHOTO BY IWAN BAAN. See expanded coverage of Projects and Building Type Studies as well as Web-only features at architecturalrecord.com.



















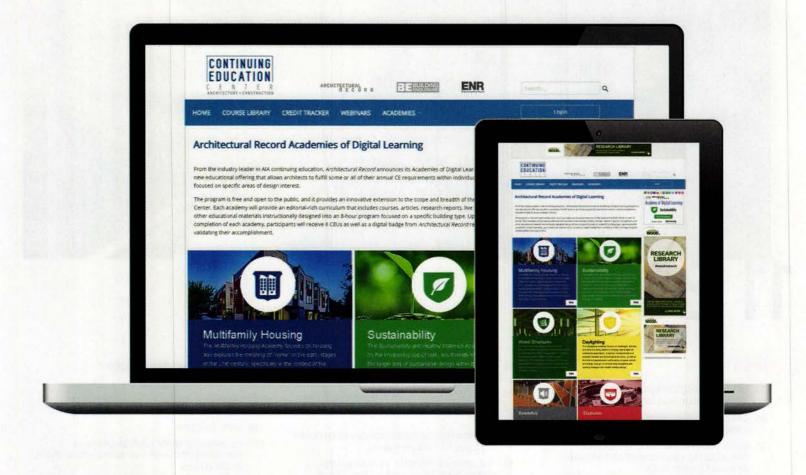








# Academy of Digital Learning



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





XtremeInterior by Tamlyn combines your design and our style to create a visual statement that not only meets your needs but enhances the beauty of your space. XtremeInterior offers an extensive line of extruded aluminum profiles with thousands of design and color options, allowing architects and designers to dramatically improve their building aesthetics and create modern architectural lines.

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

#### IN THIS ISSUE



#### Multifamily Housing Design Amenities

Sponsored by Bison Innovative Products and NanaWall Systems Credit: 1 AIA LU/HSW

Page 129



#### Resilient and Sustainable Terrazzo Flooring

Sponsored by The National Terrazzo & Mosaic Association Credit: 1 AIA LU/HSW

Page 134



#### Overcoming Structural Floor Squeaks in Wood-Framed Construction

Sponsored by AdvanTech® subfloor assembly Credit: 1 AIA LU/HSW

Page 135



#### Designing Restrooms for Sustainable Operation

Sponsored by Bobrick Washroom Equipment, Inc. Credit: 1 AIA LU/HSW

Page 136



#### The Quiet Multifamily Home

Sponsored by Mohawk Industries Credit: 1 AIA LU/HSW

Page 138



#### Managing Risk During Intricate Curtain-Wall Design Projects

Sponsored by Ornamental Metal Institute of New York Credit: 1 AIA LU/HSW

Page 140



#### Best Practices, Installation, and Finishing Options for Western Red Cedar

Sponsored by Western Red Cedar Lumber Association Credit: 1 AIA LU/ELECTIVE

Page 142



#### The Role of Insulation in Mission-Critical Design

Sponsored by Owens Corning Credit: 1 AIA LU/HSW

Page 144

#### NEW ONLINE AT CE.ARCHITECTURALRECORD.COM



Ageless Elegance: Steel Windows and Doors

Sponsored by Euroline Steel Windows and Doors Credit: 1 AIA LU/Elective



Making Glass Come to Life Sponsored by Guardian Glass

Credit: 1 AIA LU/HSW



Transaction Windows: How to Specify the Right Pass Through or Ticket Window for the Application

Sponsored by Ready Access Credit: 1 AIA LU/HSW

#### ALSO ONLINE AT CE.ARCHITECTURALRECORD.COM

A More Transparent Shade of Green: PCRs Drive Restrooms to the Lead in Green Design Sponsored by Excel Dryer, Inc.

The Architect's Guide to Specifying Sustainable Single-Ply Roofing Membranes: NSF/ANSI 347 Sponsored by Duro-Last®, Inc.

Designing Beyond Borders Sponsored by LaCantina Doors

Low-Slope Roofing: Specifying a Quality, Cost-Effective Roof System While Considering the Skilled Labor Shortage Sponsored by CertainTeed

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.

### 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

# for the **RECORD**

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



#### LEARNING ON THE JOB

The Office of McFarlane Biggar Architects + Designers designed a 25,000-square-foot, LEED Gold-certified building for the College of New Caledonia in Prince George, British Columbia. Read more about the CNC Heavy Mechanical Trades Training Facility online.



#### SPEAKING IN SPAIN

Deputy editor Suzanne Stephens (seated at left) interviewed Martha Thorne (at right), dean of IE School of Architecture & Design, during the 2019 Hay Festival in Segovia, Spain, in September. Watch the interview (and others featuring Jeanne Gang, Amanda Levete, and Raj Rewal) on our website.



#### OPEN UP A WINDOW

Record contributing photographer Iwan Baan snapped shots of Hunters Point Library in Queens (page 60) from the magazine's offices on the 60th floor of the Empire State Building.

#### MAKING CONNECTIONS

Samantha Josaphat (left), president of New York's chapter of the **National Organization** of Minority Architects, visited with products editor Kelly Beamon prior to NOMA's annual conference, which took place in Brooklyn in mid-October.





#### JUDGMENT DAY

In early October, Record editors reviewed all the submissions to this year's Cocktail Napkin Sketch Contest. Some 400 architects, related professionals, and students participated. See the winners on page 78 and online.



Follow us on Twitter @ArchRecord





Join our group and follow our company page on Linkedin



### **GLASS FOR**

# SMART SPACES

Raien Kilachand Center

Rajen Kilachand Center for Integrated Life Sciences & Engineering BOSTON, MASSACHUSETTS

with SunGuard AG 50 and SunGuard IS 20 on clear

Brighten interiors and minds.

See what's possible™ on your next project with Guardian SunGuard\* Architectural Glass.

GUARDIAN' SUNGUARD'

#### Nothing Like a Dame

This fall, more women than ever are earning kudos in architecture and the arts.

THIS HAS BEEN a big season for celebrating the achievements of women. RECORD's annual Women in Architecture Design Leadership awards have just honored five exceptional professionals, whose broad range of accomplishments are having a profound impact. The beauty of the work of this year's Design Leader Toshiko Mori can be seen in the exploration of ideas, materials, and details in projects such as the art center THREAD, in Senegal (RECORD, June 2015), while the expressiveness of New Generation Leader Sharon Johnston is exemplified in the Menil Drawing Center in Houston (RECORD, November 2018) and the rough-and-ready Margo Leavin Graduate Art Studios at UCLA (page 92).

Claire Weisz is honored as this year's Innovator for stretching the boundaries of practice in her work in the public realm. Similarly, the Activist award-winner, Dana Cuff, is intensely engaged in civic design as founding director of UCLA's cityLAB. Notably she was coauthor of the California legislation to allow accessory dwelling units on single-family lots across the state, to address affordable-housing shortages. This year's Educator honoree, Mabel O. Wilson, professor of architecture and of African American and African Diasporic Studies at Columbia University, has deeply probed the history of race and racism in the built environment, as both a scholar and a practitioner.

Also receiving a major accolade last month was Lisa Iwamoto, RECORD's 2018 New Generation Leader, who won, along with her partner, Craig Scott, the National Design Award for Interior Design.

Meanwhile, RECORD's 2018 Design Leader, Elizabeth Diller, with her firm, Diller Scofidio + Renfro, along with Gensler, led the \$450 million renovation and expansion of New York's Museum of Modern Art. The new MoMA has 47,000 additional square feet of gallery space-which prompted the curators to reinstall the entire museum with works from the permanent collection, many of them recently acquired. The results are radical. While MoMA once mapped the history of modernism largely through the work of white, male, Eurocentric artists, the galleries now include an array of art by people of color and from other cultures-and many more women (about 28 percent of the works on display, about five times as many as before). For example, an abstract painting by Lee Krasner hangs next to a Jackson Pollock canvas-a testament to her own brilliant career, which was subsumed as she worked to promote her husband Pollock's. Because artwork is now less organized by a narrative chronology, the visitor encounters unexpected moments: in a room devoted almost exclusively to Matisse is an abstract, colorful canvas by the African American expressionist Alma Thomas (1891-1978). The new architecture and design galleries (page 46), however, do less to showcase the contributions of women except for Eileen Gray's and the textiles of Anni Albers, Gunta Stölzl, and Sheila Hicks. One very visible exception is the documentation of Amanda Williams's Color(ed) Theory, the project in which the architectturned-artist painted abandoned houses on the South Side of Chicago in vivid hues.

The new MoMA also includes a retrospective of Betye Saar—one of three remarkable older women artists who are getting their due this



fall. The 93-year-old Los Angeles-based African American artist, known for printmaking and assemblages, explores racist stereotypes and history in much of her work. The Los Angeles County Museum of Art also has a Saar show currently on view.

Another California-bred artist's work is surveyed at New York's Met Breuer, the last stop of a three-city retrospective of Vija Celmins. The Latvian-born artist, now 80, came of age in the 1960s Southern California art scene, but has determinedly bucked every art trend to create work of such exquisite precision and concentration—paintings of the ocean surface or the night sky—that they really are about seeing.

Lastly, an exhibition called *Agnes Denes*: *Absolutes and Intermediates* has opened at the Shed (RECORD, May 2019)—and it is a revelation. The 88-year-old Denes is best known for her 1982 piece *Wheatfield—A Confrontation*, in which she planted a two-acre field of wheat near Wall Street in Lower Manhattan—a provocation that explored the urban and the rural, finance and agriculture, food-management and the environment. But the Hungarian-born artist has mostly worked under the radar, with her wide-ranging interests sparking various kinds of art, now on view in the show, including pieces that veer toward architecture, and delicate and exacting drawings on gridded paper that she made in the 1970s. When the director of the Shed, Alex Poots, asked her why she hadn't had an exhibition like this before, she replied, "I'm a visual artist, a philosopher, a draftsman, an environmentalist, and a woman. I'm hard to fit in one box."

Fortunately for Denes as well as a host of other women in art, design, and architecture, the boxes are getting big enough to hold all kinds of work and ideas.

Cathleen McGuigan, Editor in Chief



NanaWall® HSW systems' single track sliding glass walls integrate within traditional architecture, working around existing structural columns and other remodeling challenges. Navigating segmented curves and angle changes, our walls can also incorporate commercially-rated swing doors that convert to sliding panels and hide away.

Learn more about our limit-surpassing innovations at nanawall.com/hsw.

NanaWall

# EMAIRSPECWRITING THE MALCONSULTATIONSCIENCE CEENGINEERING MOIST REINSTALLATION OF TONS

Achieving a high-performance building envelope carbe a complex, time consuming, often risky proposition Not so with CENTRIA on your team. That's because we take an entirely different approach as expressed in our four guiding principles. INTEGRATION A building envelope is made from various components that must function in unison for high-level and longterm performance. Every element comprising a CENTRIA building envelope is engineered for precision integration in order to maintain critical air, water, thermal, and vapor controls and to enhance aesthetics. SIMPLICITY With CENTRIA, a complex multi-component wall composed of 5 or 6 major elements - from as many manufacturers and requiring intensive training and skill of numerous trades to build - is reduced to a single component, from a single manufacturer, installed by a single well-trained and experienced specialist. BUILDING SCIENCE CENTRIA building envelope systems perform at the industry's highest levels in thermali air, water, and vapor control fire resistance, and resiliency categories and come with an industry-exclusive single-source performance wars

CREATIVE EDEEDOM

widest possible fathcoe in dealon; in materials color, and texture, so that virtually any unlight of can be followed tealized. Farture with CENTRIA or sect project land tendore that a firm part building

(This is where you come in.)



Partner with CENTRIA today and find new freedom to create remarkable buildings of tomorrow.

Visit CENTRIA.com/Freedom

CENTRIA

#### DAILY UPDATES

chitecturalrecord.com/news twitter.com/archrecord

Some of these buildings are little icons, but they're complex and contradictory icons. We don't prescribe a style or an approach.

- Critic Charles Jencks, who died on October 13 at age 80, speaking to RECORD in 2013 about Maggie's Centres, which he cofounded.

### Solar-Powered Facility Brings Surgical Services to Rural Uganda

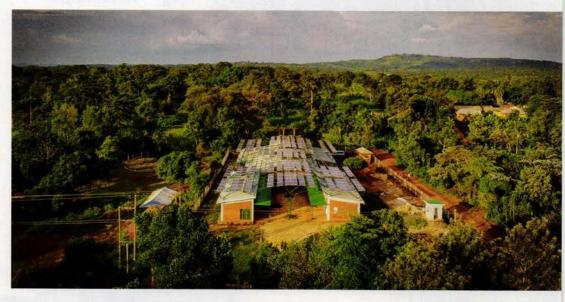
BY MIRIAM SITZ

ON SEPTEMBER 17, 2019, around 3 a.m. Eastern Time, a few dozen physicians, architects, and others connected to New York's Mount Sinai Health System woke up, turned on their computers and phones, and tuned in to a livestream of a hernia-repair surgery in the rural village of Kyabirwa, Uganda. It was the first procedure taking place at a new ambulatory surgery center there. Designed by Kliment Halsband Architects (KHA), the \$1.35 million project makes use of technology and design to provide outpatient care to residents of the small East African town near the Nile River.

For much of his career, Mount Sinai's surgeon-in-chief, Dr. Michael Marin, has been interested in problems with the distribution of surgical care around the world, and particularly in remote communities and developing countries. "Five billion people on our planet can't get an appendix removed if they develop acute appendicitis, or can't get a hernia fixed," he explains. "These are relatively simple operations that we take for granted in our country." In August 2014, the physician found a donor willing to fund the construction of a surgical center in Africa. He began to discuss broad concepts for such a facility with his son, a designer at KHA in New York. Marin met with founding partner Frances Halsband, who established the firm in 1972 with her husband. the late Robert Kliment. Mount Sinai engaged KHA, and the project broke ground in Kyabirwa in early 2017, officially opening in September of this year.

In many developing countries, Marin says, surgery is often perceived as either too costly or too complicated. "Neither of those things should be limitations," he says. "It really isn't too expensive, and it really isn't that complex. Surgery is just not that hard." By focusing on relatively simple outpatient procedures (such as gallbladder problems, skin grafts, fractures, or birth injuries), and by having virtual access to specialists from Mount Sinai, the center can maximize its impact and the number of patients it serves.

Halsband and her team (including George George, Simone Meeks, and Max Marin)





Kvabirwa (above) sits less than a mile from the Nile River, just north of Lake Victoria. The facility's central courtyard (left) allows patients' family members to wait in the

worked with the New York-based doctor to identify the technical requirements for the 8,000-square-foot building. "We narrowed it down to a very simplified equipment schedule," says Halsband, "and then we started looking at what could we do in this place, which had no electricity, no water, no internet, nothing." While she characterizes the town's existing electrical grid as "completely unreliable," the site has abundant rain and sunlight-and plenty of leafy banana plants. "The more I looked at these plants, I realized

they were absorbing the energy of the sun and also providing shade. I thought, 'That's the answer!""

Inspired by the form of the banana plant, the architects designed a canopy of solar panels that provides shade to a large central courtyard. (Entire families often accompany patients to their procedures, since the nursing staff is kept to a minimum at the outpatient-only facility.) Branching, greenpainted poles recalling tree trunks support the 80-kW array.



Arranged around the courtyard, the building has space for offices and storage, a preop/post-op recovery room, and laboratory and diagnostic facilities. The two operating rooms are equipped with cameras and microphones that allow surgeons from Mount Sinai in New York to watch and respond to

Each of the 250 photovoltaic panels produces 320 watts. The array charges batteries so that the facility never loses power.

surgeons in Uganda in real time. (To allow this kind of intercontinental collaboration, the team laid some 20 miles of cable, bringing internet to the site from the nearby city of Jinja.)

The technological integration continues postop: after patients leave, health-care field workers in Kyabirwa visit them at home, taking their vitals, asking follow-up questions, and photographing incisions on their mobile

phones. All the information they gather is then uploaded to a medical-records system for the doctors to review. "We hope to show that you can actually bring advanced surgery into rural communities in very underserved parts of the world," says Marin.

All those involved placed great emphasis on

collaborating with the local community. "We did not want to send the message of 'Americans coming in to build this thing," says Marin, who has visited Uganda more than a dozen times. "It is their surgical center, and the 50 people who built it all come from here." KHA's design called for a steel structure, filled in with clay bricks and clad with kiln-fired tiles manufactured in Jinja using traditional methods. Rainwater is stored in elevated and underground tanks, then filtered and purified for use in sinks. And the facility is home to three of Kyabirwa's few flush toilets. "I think they're some of the biggest hits of the hospital," says Halsband.

The architect sees her firm's work in Uganda-KHA's first health-care project-as a framework for future ambulatory surgery centers in the developing world. "We were not trying to create a building that we would just drop in other locations," Halsband says, "but, rather, a handbook of technical requirements, with the freedom to change how it looks and relates to its context." Designed for and built by the community it serves, the Kyabirwa Surgical Facility seems well positioned to support local doctors in keeping patients healthy.



- Polishable to a finished wear-surface in as little as 24 hours
- Available in 50 lb. bags, or for fast, bulk delivery installation, can be pumped through the LATICRETE\* SUPERCAP\* Mobile Blending Unit



SUPERCAP SC650-MC

Salt and Pepper Aggregate

# hold on to TRADITION.

AT JULIUS BLUM, IT IS OUR PRODUCTS THAT INSPIRE TRUE ARCHITECTURAL CREATIVITY. IT DRIVES US TO DELIVER THE BEST QUALITY IN THE INDUSTRY, YEAR AFTER YEAR, WITH AN UNWAVERING COMMITMENT TO CLASSIC DESIGN. SINCE 1910, WE HAVE PROVIDED BEAUTY AND SAFETY WITHOUT COMPROMISING ANYTHING. EVER. WHEN YOU CHOOSE JULIUS BLUM COMPONENTS YOU'RE CHOOSING ABSOLUTE CONFIDENCE.

#### **CATALOG 20:**

AN ESSENTIAL INDUSTRY TOOL, REQUEST YOUR COPY TODAY.

CARLSTADT NJ | 1.800.526.6293

JULIUSBLUM.COM

B JULIUS BLUM & CO. INC.
Stock Components for Architectural Metal Work

#### perspective **news**

#### Green-Building Advocates Raise Alarm on Embodied Carbon

BY JOANN GONCHAR, FAIA

BY NOW, architects are familiar with the often cited statistic: the building sector is responsible for nearly 40 percent of the world's carbon emissions. They understand the role of energy efficiency in reducing fossil-fuel use and tackling climate change. But many are just waking up to the importance of the emissions associated with manufacturing materials and the construction process, or "embodied carbon." According to the United Nations Environment Programme, it makes up 11 percent of global greenhouse-gas emissions. And, if construction continues at its current pace, in 30 years embodied and operating carbon emissions will be roughly equal.

Experts call the problem urgent. "We are running out of time," says Victoria Burrows, the director of the Advancing Net Zero project of the World Green Building Council. "But we have an opportunity to act now." Burrows is one of the authors of the report Bringing Embodied Carbon Upfront. The document, released in late September, advocates for changes in international policy and local regulations, and dis-



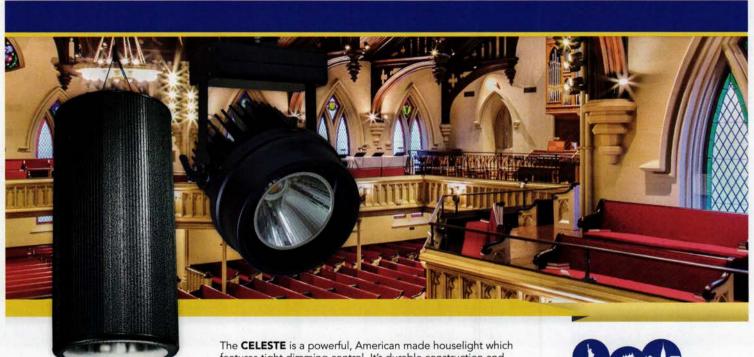
cusses the need to decarbonize the materialsand-construction supply chain. It provides a timeline, with the ultimate goal of reaching net zero embodied carbon for all new buildings and renovations by 2050. By that year, all buildings, including existing buildings, should also be operationally net zero. "We've provided a roadmap," says Burrows.

Also in late September, the Seattle-based Carbon Leadership Forum announced the pending launch of the Embodied Carbon Construction Calculator, or EC3. Several embodied-carbon evaluation tools are already

Demonstrators gathered in New York (left) and across the globe on September 20, demanding climate action. The building sector is a major producer of carbon emissions.

available, but those mostly target the earliest design phases, and their main purpose is to help project teams chose among types of materials, such as concrete, timber, or steel. In contrast, EC3's developers, who include Skanska, C-Change Labs, Microsoft, and others, say that their calculator, which will be free and opensource, is focused on the specification and procurement phases, helping designers and contractors assess similar materials-comparing, for example, one local supplier's concrete mix with another. "Until now, the industry has not had a way to assess the supply chain through the lens of its carbon impact," says Stacy Smedley, Skanska's director of sustainability.

Smedley, who first conceived of the idea behind EC3, says the software will initially focus primarily on materials for structure and building enclosures. It is on track for release on November 19, at this year's Greenbuild conference in Atlanta.



PRECISION IN LIGHTING features tight dimming control. It's durable construction and craftsmanship ensure that it will be a fixture in your venue for many years to come.

The CR80 was designed as a one-for-one PAR56 replacement. It features seven interchangeable beam angles, a variety of dimming options, and robust construction.



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



# LOCKERS NEVER LOOKED SO GOOD

#### And they'll stay looking this good for years to come-

How? ASI's locker door frame, sides and back are all manufactured from one sheet of solid plastic. The result? A unibody locker system with increased structural integrity that's virtually maintenance free. Add to that, the highest quality hinges and latches in the industry. And only ASI offers the most comprehensive collection of storage solutions available anywhere.

For more information, call 706.827.2720 or visit asi-storage.com



### Gehry Completes Latest Piece of Revamp in Philadelphia

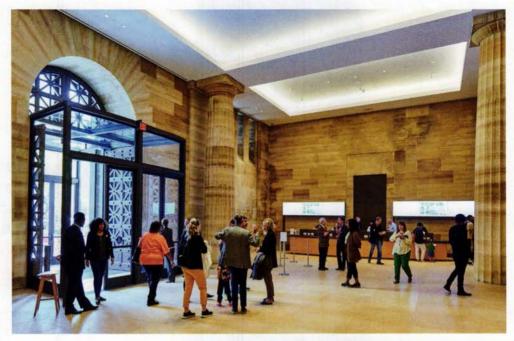
perspective news

BY JOANN GONCHAR, FAIA

FRANK GEHRY talks about the porticoed and pedimented structure that houses the Philadelphia Museum of Art as though it were a living being, referring to its "good bones" and its "heart." The Pritzker Prize-winning architect has been involved in renovating the 1928 Beaux Arts building at the head of Philadelphia's Benjamin Franklin Parkway since 2006, when his Los Angeles-based firm was hired to develop the museum's master plan. The long-range set of projects aims to replace antiquated building systems, create new galleries, and improve wayfinding and circulation, which Gehry says had become confusing and "muddled" after earlier modifications. The museum had "clogged-up arteries," he explains.

Full completion of all the construction outlined by the master plan is many years away, but visitors now have a sense of Gehry's approach to remedying this situation. In mid-September, an historic entrance on the museum's north side reopened, as did about half of a striking vaulted walkway, running from one side of the museum to the other. Though conceived as public spaces by Horace Trumbauer and Julian Abele, the museum's original architects, both the entrance and the passage had long been off-limits to museumgoers, having been used as a loading dock and for storage since at least the mid-1970s.

Gehry is of course best known for his expressively sculptural buildings. But here his hand is barely discernible: sleek bronze fixtures suspended from the vaults illuminate the meticulously cleaned Guastavino tiles; a light well, formerly exposed to the elements, has been captured as skylit indoor space and



The restored north entrance (above) includes a new visitors desk designed by Frank Gehry. The architect posed with museum president and COO Gail Harrity (right) in the reopened vaulted hallway (bottom) on September 18.

is now home to an espresso bar; and new floors, from the same quarry in Minnesota that supplied the limestone used in the original construction, conceal extensive infrastructure for heating, cooling, telecommunications, and electrical systems. Gehry describes his role as akin to that of an archaeologist. He says he is "excavating" Trumbauer and Abele, and that he is quite satisfied doing so. "My other work offers plenty of opportunity for self-expression."

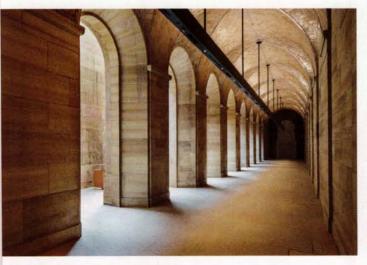
The just-opened half of the walkway and

entrance are only two pieces of the current phase of construction known as the core project, for which demolition began in 2017. By next fall, when this stage of the master plan is scheduled to be complete, more than 90,000 square feet of renovated space-including 23,000 square feet of new galleries and the full, 640-foot length of the vaulted walkwaywill be open to visitors. Also slated to be done next year as part of this \$220 million phase, is what has been dubbed the forum-a new, double-story circulation hub and gathering space that connects the walkway to the rest of the mu-



seum. It was made possible by demolition of an auditorium built in 1959 and required structural gymnastics, such as underpinning its foundations.

Future phases of Gehry's master plan, which are not yet scheduled, will move forward as resources permit, say museum officials. They include a new auditorium as well as more galleries. These exhibition spaces are to be dug underneath the east terrace and its monumental steps (familiar to anyone who has seen the 1976 movie Rocky). The design also calls for a portal-like window that will slice through the stairs and offer views out over the parkway and of the Philadelphia skyline. Gehry insists that even this "window to the city" was part of Trumbauer's vision. "We didn't create a new master plan," he says. "We've recreated an existing one."



#### DREAM IT. SEE IT. BELIEVE IT.

Lorin's Anodized Aluminum is derived from a scientifically proven process, which protects the aluminum from the elements while providing that awe-inspiring metallic look. Lorin's Anodized Aluminum can deliver an absolutely stunning vision for your project, whether it is an architectural masterpiece, cutting edge consumer good, or hi-tech transportation application, come see what Lorin Anodized Aluminum can offer.

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

#### **REFLECT YOUR VISION**

www.lorin.com | 800.654.1159



LORIN

#### LMN Architects Expands and Restores the Seattle Asian Art Museum

BY ALAN G. BRAKE

BEGINNING IN February 2020, visitors to the Seattle Asian Art Museum will have a vastly improved experience, with expanded galleries, educational and community facilities, and sweeping views of the city's beloved Volunteer Park. The institution's 1933 Art Deco building, which originally housed the Seattle Art Museum, has been

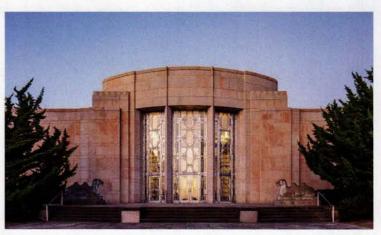
meticulously renovated and expanded into the park by locally based LMN Architects, bringing it up to contemporary standards and expanding curatorial and programming possibilities.

The project began more than a decade ago with a seemingly modest charge to update the building's 1930s-era mechanical systems and add humidity and other climate controls. It quickly became clear that the museum's needs extended much further. LMN partner Wendy Pautz, who led the project with partner Sam Miller, tells RECORD, "It was

about finding the right balance of keeping the historic fabric intact while transforming the museum for its future."

The architects reemphasized the centrality of the museum's luminous, skylit garden court and opened up views through the new addition out to the park. The restored galleries will feature exhibitions organized thematically rather than geographically, and a new 2,600-square-foot gallery will accommodate special exhibitions and traveling shows (now possible with the building's new climate systems).

The steel, glass, and precast concrete addition harmonizes with the Art Deco building yet asserts its contemporary identity and a stronger relationship with the landscape. Thanks to the sloping site, the large expanses of glass on the building's first floor offer panoramic views of monumental trees, including





The museum's sandstone facade and Art Deco metalwork was cleaned, preserved, and reglazed (top). Two new portals lead to the renovated Fuller Garden Court (above).

a stunning beech tree probably planted by the team of Frederick Law Olmsted, the landscape architect of Volunteer Park. "You feel like you're up in a tree canopy," says Pautz.

The placement of the addition preserved the existing trees. "It's a historic building in a historic park—a very important place in Seattle," notes LMN's Miller.

The renovation and addition will allow the museum to enhance its programming and reach new audiences, including the region's growing South Asian population. "We need to reflect the demographics of the city and really connect with the local population," says Amada Cruz, the director of the Seattle Art Museum, the Asian Art Museum, and the Olympic Sculpture Park. "The Asian Art Museum is a jewel box in a park that offers a very different experience from our other downtown sites."

#### noted

#### Walter Hood Wins 2019 Dorothy & Lillian Gish Prize

The Gish Prize Trust will honor the landscape architect in a ceremony on November 20. This year, the founder of Hood Design Studio—which will renovate the Oakland Museum of California—was also named a MacArthur Foundation Fellow and a Knight Public Spaces Fellow.

#### Preservationists Rally to Save Defunct Prison in England

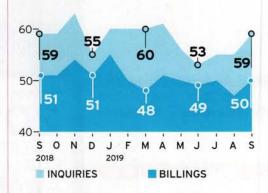
The UK Ministry of Justice put the historic Reading Prison, where playwright Oscar Wilde was once incarcerated, up for sale in early October. Advocates hope to save the Gothic Revival building, which was designed by George Gilbert Scott and completed in 1844, from redevelopment.

### RIBA Announces 2019 Gold Medal and Stirling Prize Winners

In early October, the Royal Institute of British Architects named Grafton Architects winner of the RIBA Gold Medal—the UK's top prize for architecture. Goldsmith Street, a social housing development by Mikhail Riches with Cathy Hawley, won the Stirling Prize. The project meets Passive House standards and also won RIBA's inaugural Neave Brown Award for Housing.

#### New Laws in California Aim to Mitigate Wildfire Danger

Governor Gavin Newsom signed 22 bills into law in early October intended to help prevent and fight wildfires. The measures, several of which Newsom says will help California meet its cleanenergy goals, build on the state's \$1 billion budget dedicated to emergency preparations.



#### Soft Billings in September

The Architectural Billings Index scored 49.7 in September, according to the latest AIA data, rising from 47.2 in August. (Scores over 50 indicate an increase in firm billings.) New work inquiries and new design contracts both grew, to 59 (up from 54.5) and 54.4 (up from 47.9), respectively.

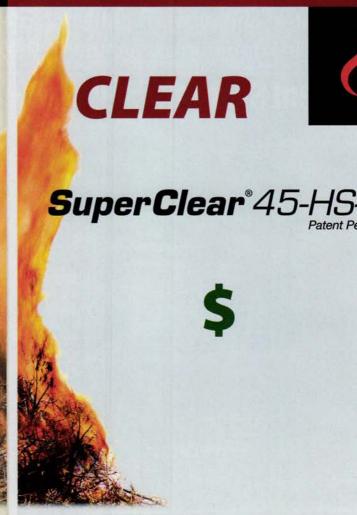




# **TINTED**

**Laminated Ceramic** 

\$\$\$



#### REVOLUTIONARY: "SAFETY AND FIRE TECHNOLOGY INC."

"SAFTI" FIRST SuperClear 45-HS-LI

USA-made SuperClear 45-HS-LI is the **most affordable** 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. Approx. 90% VLT for superior optical clarity and high acoustical ratings of 37 STC/35 OITC in standard hollow metal frames.



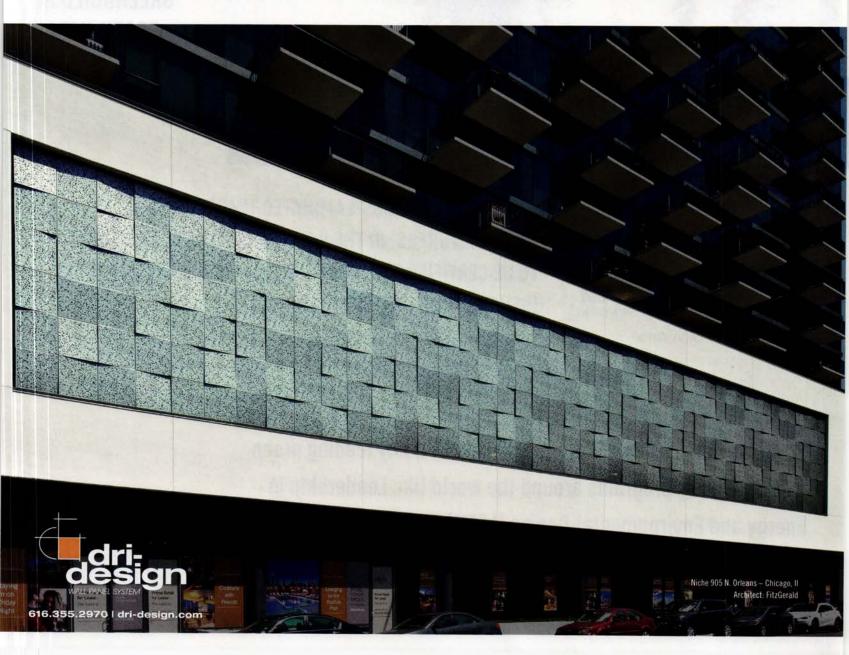


# A SWARTER FACADE THAT

# DELIVERS

Dri-Design Tapered Series wall panels have the ability to create a unique effect of rich texture, giving buildings their own individual identity. The addition of a custom perforated pattern on tapered panels allowed the Niche building in downtown Chicago to conceal their parking structure with a ventilated façade which is also a piece of art. Even with this unique look, Dri-Design's signature ease of installation is maintained and only a single plane of substrate was needed for attachment.

- No sealants, gaskets or butyl tape means no streaking and no maintenance for owners.
- Not laminated or a composite material, so panels will never delaminate.
- Non-combustible and NFPA-285 compliant.
- At Dri-Design, we have a strict policy of recycling and creating products that the world can live with.
- Fully tested to exceed ASTM standards and the latest AAMA 508-07.
- · Available in a variety of materials and colors.





# PROVIDES SOLUTIONS FOR LOW CARBON BUILDING PROJECTS

VISIT US AT GREENBUILD IN BOOTH #1241

#### LOOK TO SFI FOR YOUR MASS TIMBER NEEDS





Intelligence In Wood

ARE THE FIRST CROSS-LAMINATED TIMBER (CLT)
MANUFACTURERS, IN THE U.S. AND CANADA RESPECTIVELY,
TO BE CERTIFIED TO THE SUSTAINABLE FORESTRY INITIATIVE
(SFI) CHAIN OF CUSTODY STANDARD.

This standard is a rigorous environmental accounting system that tracks forest fiber content through production and manufacturing to the end product.

Products certified to SFI are recognized by many leading green building rating programs around the world like Leadership in Energy and Environmental Design (LEED) and Green Globes.

Learn more at sfiprogram.org/greenbuilding.



RESOLUTION: 4 ARCHITECTURE ELEVATED THE LIVING LEVEL OF A HOUSE TO CAPTURE VIEWS OF THE HUDSON RIVER. BY JENNIFER KRICHELS





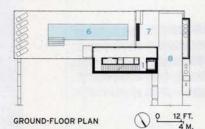


IN THE river town of Croton-on-Hudson, about an hour's drive from Midtown Manhattan, property is prized for its dramatic water views. Resolution: 4 Architecture (RES4), a New York-based firm founded by Joseph Tanney and Robert Luntz, has designed numerous modern houses in the river and oceanfront towns surrounding the city, but perhaps no location influenced the firm's work so clearly from first sight as this one. Though the clients, a retired couple seeking an escape from Manhattan, had approached RES4 to design a prefabricated vacation house for the property, there was not enough room to truck the modules on the narrow, winding road leading up to the site. So the architects proposed a more conventional construction instead. "Yet the strategies we employed are still similar in terms of organization and efficiency," says Tanney.

The overall tactic focused on lifting the house as high as possible, 9 feet above grade,



MAIN-LEVEL PLAN



- ENTRANCE
- 2 LIVING/KITCHEN
- DECK
- 4 GUEST BEDROOM
- MASTER BEDROOM
- POOL
- PATIO
- 8 CARPORT

The main metal- and ipé-wood-clad volume is perched on steel columns (top), affording panoramic views of the Hudson from all rooms (above). The pool is located underneath the main living level (above, left).

to take advantage of the Hudson River views. The house is composed of a main volume, clad in metal siding, supported on steel columns, with a stair and elevator core on its south side faced in ipé wood. This larger form extends eastward to rest on a narrow bar-like structure, sheathed in white cement board, which encloses mechanical systems and storage space.

At the intersection of the two, the architects carved a space for the carport, through which a visitor first glimpses the river. "It's like a portal," says Tanney. "You get this incredible framed view." Since one of the clients likes to swim every day, the architects placed a pool beneath the main volume of the house, where it is sheltered from the sun.

On the level above, a covered deck sepa-

PHOTOGRAPHY: @ EMILY ANDREWS

#### perspective house of the month



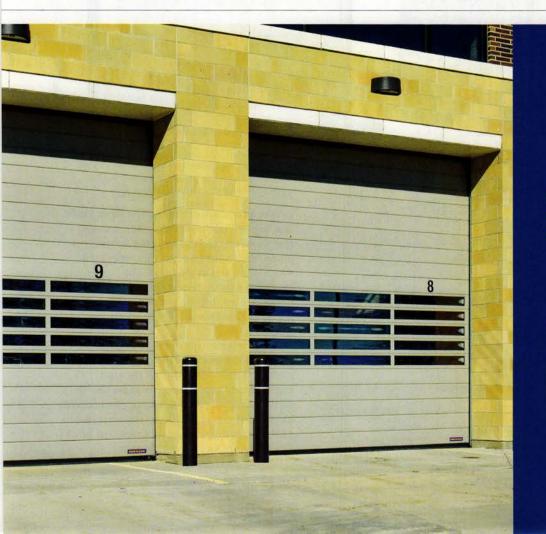
rates the living area from a guest bedroom on the west. This captured exterior space, overlooking the town and river, has a fire pit-along with insect screens that drop from the deck's soffit. Inside, the architects designed built-in furniture, including low white oak cabinetry, a banquette in the dining area, and wardrobes and a bed in the master suite on the east end, all intended to increase the sense of openness and views and minimize visual clutter. "It's intended as a refuge," says Tanney. In fact, the project was so transformative that soon after



A glazed wall runs continuously from the living/dining/kitchen area to the master bedroom, where the rooms face the water. The lower level is open for the carport, patio, and swimming pool.

finishing the house, the couple hired RES4 to renovate their Manhattan apartment, where they can escape the tranquility of the countryside when desired.

Jennifer Krichels is an architecture and design writer.



#### **High Performance Doors: Maximum Energy Efficiency and Security**

- · Aesthetics, convenience, security.
- · Fast, reliable, modern.
- · Achieve a higher certification with LEED v4 on your projects. Contact us to discover which credit categories qualify.

Contact us today: (800) 365-3667 • www.hormann.us









HÖRMANN

**High Performance Doors** 



# **TECTUS®** the adjustable concealed door hinge.





Because if your roof membrane isn't protected, your building isn't either. Learn why Hydrotech Protected Membrane Roofs last up to three times longer than conventional membrane roofs. Visit hydrotechusa.com/PYB



hydrotechusa.com



#### Where Architecture Meets Activism

The third Chicago Biennial grapples with social and geopolitical issues, stretching the definition of design.

BY JAMES GAUER

HOW FAR can you stretch the definition of architecture and its role in making the world a better place? According to the third Chicago Architecture Biennial, which opened September 19 and runs through January 5, very far indeed.

The first two biennials, "The State of the Art of Architecture" in 2015 and "Make New History" in 2017, featured edgy and provocative work. But their relevance to the practice of architecture was fairly clear, and they included many displays of designed objects and spaces, easily recognized as architectural. This year the focus has shifted toward research and advocacy. The new biennial asks difficult questions about the world in which architecture operates and on which it has an impact.

The exposition's title, "... and Other Such Stories" has caused some eye-rolling. As conceived by artistic director Yesomi Umolu with curators Sepake Angiama and Paulo Tavares, the current biennial, according to its mission statement, "invites practitioners and the public to engage with architecture and the built environment as prisms through which to reflect upon social, geopolitical, and ecological processes that affect our collective past, present, and future."

It's a declaration of concern for issues archi-

tectural practitioners often ignore. The rhetoric may sound overly earnest, but what matters are the exhibits inspired by this manifesto—most housed in the 1897 Beaux Arts splendor of the Chicago Cultural Center and a few scattered throughout the city—and how well they explore these topics while linking them to architecture.

If you're looking for eye candy that points to the next big design trends, you'll be disappointed. But if you want to know what an array of architects, planners, activists, and artists are thinking and doing to solve real problems—like how to make clean water and toilets available to people

who've never had them—you'll learn a lot. Here are some highlights.

The shortage of decent affordable housing is a global crisis. Two of the most compelling exhibits to address this come from São Paulo, Brazil. City Center Homeless Movement (MSTC) encourages squatting in tax-delinquent vacant properties in the downtown core, pressuring the city to repurpose them as social housing. Its exhibit documents the occupation and management of one such building, now home to over 300 people. Also noteworthy is USINA-CTA, a collective of architects and researchers who help communities design and build their own residences and communal spaces; a video shows the evolution of modular multifamily housing, from freehand sketch through construction.

Such housing is impossible in the informal settlements of dense cities like Mumbai, where there is little plumbing. Sanitation and Equity is the work of RMA Architects, based in Mumbai and Boston, and principal Rahul Mehrotra's students at Harvard's GSD. Their proposals rethink sanitation infrastructure for marginalized populations in India, where 70 percent of water is contaminated. Solutions combine new systems for water supply and waste disposal with flood management and courtyard housing.

Because many exhibits are about process, they tend to be heavy on text and light on architectural spaces and objects. One elegant exception is also the saddest. *The Gun Violence Memorial Project* by MASS Design Group of Boston and Hank Willis Thomas of Plainfield, New Jersey, features four gabled glass pavilions. These contain, within grids of painted wood cubbyholes, mementos of victims of gun violence. Nearby are screens with heartbreak-



The Gun Violence Memorial Project (top) and Museum of Oil-The American Rooms (above) are among the exhibition's most elegant architectural spaces.

ing videos, mostly of mothers remembering

Other displays have comparable architectonic heft, but without the tragic content. The

Sweet Water Foundation, a community-based

land trust on Chicago's South Side (whose

their murdered children.



Anarchitectural Library, by Adrian Blackwell, pays homage to the Chicago Cultural Center's origin as the city's first public library.

director, urban designer Emmanuel Pratt, was recently named a MacArthur Fellow) contributed Re-Rooting and Redux. It shows the handsomely crafted timber frame of a worker's cottage transformed into gallery space. Another eyecatcher is Great Lakes Water School, a vernacular steel and wood structure by artist Oscar Tuazon of Los Angeles in collabora-

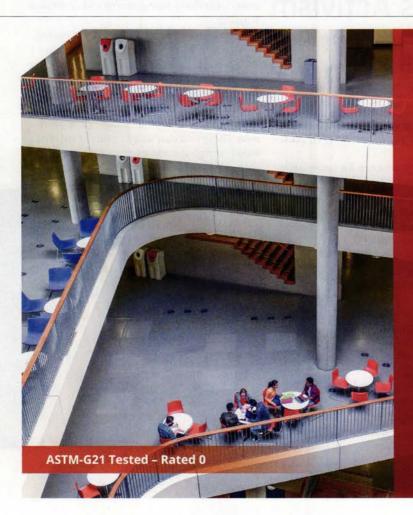
tion with Olson Kundig Architects of Seattle.

A monumental top-floor gallery gives pride of place to large-scale installations. The most impressive is Museum of Oil-The American Rooms, by Territorial Agency of London, which explores a world without oil: four canted

walls, 16 feet high and covered in aerial images of drilling and fracking sites, are artfully positioned to create layers of space.

The new biennial is more challenging than previous editions. (A rare moment of wit is the choice by ConstructLab of Berlin to repurpose the Adolf Loos-inspired classical column from the last Biennial as a bench.) The contributors are mostly emerging voices, with few marquee names. It's short on visual pizzazz, and reading all that text (some of it impenetrable) may give you eyestrain. Climate change-which architects can actually do something about-is given short shrift. And visitors are pounded by signs reminding them that buildings occupy land taken from indigenous peoples. You can ask what any of this has to do with architecture and dismiss the biennial as a misguided attempt to be "woke." Or you can look carefully and acknowledge its core message: that we cannot grapple with the difficult realities of the world we live in unless we begin to bridge the gap between architecture and activism.

James Gauer, an architect and author based in Victoria, B.C.; Chicago; and San Miguel de Allende, Mexico, contributes regularly to RECORD.



**Durable, Protective Hard Surface Coatings** Gloss & Matte

#### A Hard Surface Finish that Aces the Test of Time

Specify MicroGuard® to preserve, prolong and protect hard surfaces for your college and university clients. Our patented products are among the most durable protective coatings available. Proven to extend property life, deliver high-traction, mitigate microbial growth - all with no maintenance - giving you sustainable results with a verifiable ROI.

#### MICROGUARD

386-274-1382 | info@adsil.com | www.adsil.com CE Credit Details Available



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



## SOME SEE GLASS

WE SEE THROUGH IT

#### High-Performance Glass

Perkins Eastman Architects worked closely with the school children and their parents for design input and wanted to bring in an abundance of natural light and a connection to the outdoors. The solution is not just a product—it's a collaboration."

#### Visit obe.com/wesecoutside

to see how we can help you make the right choice for your next project. Let's solve it, together.™



#### The Art of Living

A blockbuster exhibition in Paris explores the pioneering work of Charlotte Perriand.

#### BY JOSEPHINE MINUTILLO

CHARLOTTE PERRIAND died in 1999 at the age of 96. On the 20th anniversary of her death, the Louis Vuitton Foundation in Paris has mounted an incredible exhibition of the work of this often unheralded designer who helped shape 20th-century living.

For the first time since its opening in 2014, the entirety of the sprawling Frank Gehry building has been devoted to one designer, a testament to Perriand's influence and appeal to contemporary audiences after decades in the shadow of Le Corbusier, in whose studio she worked beginning in 1927. On view through February 24, 2020, and spanning four levels, *Charlotte Perriand: Inventing a New World* showcases her revolutionary furniture pieces, like the ubiquitous Swivel Armchair (1927) and the stacking bent plywood Ombre Chair (1954), as well as faithful reconstructions of spaces and

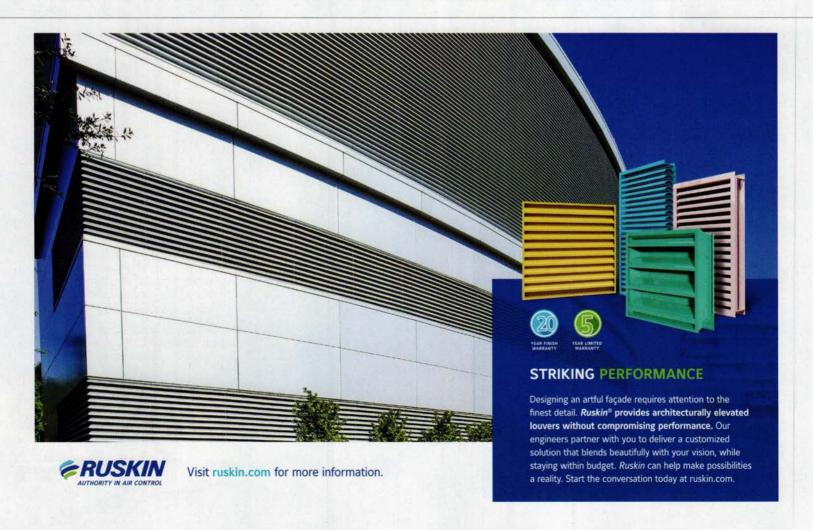
Visitors at an upper gallery amid furniture and art (right); the Swivel Armchair B302 (1927; opposite, left); a reconstruction of the Maison de Jeune Homme from the Brussels International Exposition (1935; opposite, middle); Tonneau mountain refuge (1938; opposite, right).

structures she designed, like a teahouse for the Cultural Festival of Japan in Paris (1993) and *La Maison au bord de l'eau* (1934) nearly 60 years earlier, installed outside over the cascading water feature at the bow of Gehry's shiplike pile.

A true Modernist who often wore a necklace of large chrome-plated metal ball bearings (displayed in the show), Perriand also embraced nature—producing photography and

designing objects based on her love of the beach and mountains—and traditional craft, especially following her pivotal stays in Japan beginning in 1940.

For Perriand, "l'art d'habiter" involved a synthesis with the other arts. The exhibition is chock-full of colorful large-scale paintings by Fernard Léger, with whom she maintained a remarkable poetic dialogue over many years. It







also features works by other friends and influences Alexander Calder, Georges Braque, Joan Miró, and Pablo Picasso, in addition to her many collaborations with Pierre Jeanneret and Le Corbusier.

Her most significant architectural project came when she was in her 60s, and would last over 20 years. Leading a team of designers to develop the 30,000-bed Les Arcs ski resort in the French Alps, she took an organic approach, replacing towers from a previous plan with "reclining buildings" adapted to the sloping site.

Often the sole woman in a world full of men, the talented, globe-trotting, politically active, daring, and unapologetic Perriand was ahead of her time. Two decades after her death, this exhibition is long overdue and not to be missed.









"Make Every Step a Safe one"

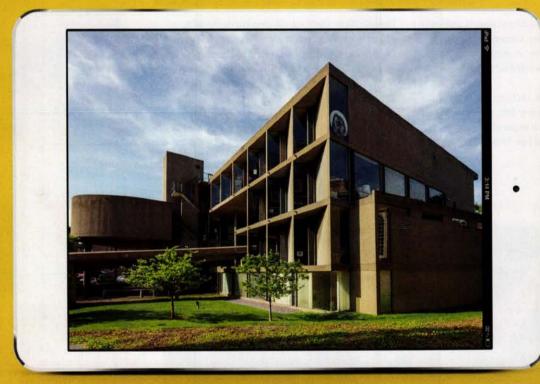
#### **NITEGLOW®**

- \*NITEGLOW® is IBC, IFC, and NYC code compliant.
- Safe egress in emergency situations.
- \*Glow pigment is embedded in a hard epoxy mixture that meets all anti-slip and brightness codes.
- Entire photoluminescent area is slip resistant
- Recharged by any light source, nautral or artificial

1000 Spruce St | PO Box 6005 | Wooster, Ohio 44691

sales@wooster-products.com | www.wooster-products.com

# GUESS THE ARCHITECT WIN AN IPAD MINI



► TAKE A LOOK ON PAGE 51
ENTER @ ARCHITECTURALRECORD.COM/GUESSTHEARCHITECT

Guess the Architect Contest

Sponsored by:

PAC-CLAD

PETERSEN





Our 100-year-old reputation says when you need us, we'll be there. Lighting products manufactured in the USA by a team you can rely on – that's the Made Right Here difference.



## MoMA Redux, Again

As New York's Museum of Modern Art expands, the architecture and design galleries undergo major changes.

BY SUZANNE STEPHENS



with the public opening of its expanded and renovated galleries, by Diller Scofidio + Renfro (DSR) in collaboration with Gensler. The current \$450 million redo, 15 years after one designed by Yoshio Taniguchi (RECORD, January 2005), marks the latest in a series of additions and reconfigurations that MoMA has undertaken since 1939, when it first moved into the new museum it had commissioned at 11 West 53rd Street. Up from the previous 128,000 square feet of gallery space, the museum will now claim 166,000 square feet (and a total of 708,000 square feet overall for the institution). MoMA is one big momma—and

ON OCTOBER 21, New York's Museum of

Modern Art (MoMA) showed off its new girth

the west and a church to the east.

The museum's mission to show its impressive collection of historic modern art, as well as contemporary work, has long propelled its growth. But ongoing acquisitions—and the additional imperative to include more art of

while it covers a large chunk of its Manhattan city block, it is now hemmed in from further expanding its footprint by an office tower to

In Architecture Systems (above), a fragment of the curtain wall of the UN Secretariat is backed by a clip from Jacques Tati's film Playtime (1967). The Building Citizens installation (below) emphasizes socially related design.

other cultures, ethnicities, and genders, dictated expansion. In a shift of strategy, the museum also decided to reorganize galleries across disciplines, so that painting, photography, film, drawing, and design can now rub shoulders in the same spaces and reinforce certain thematic ties.

For the architectural community, the new MoMA will be particularly scrutinized for two reasons: first, the overall design, which RECORD will cover in a subsequent article, and second, the fate of the design collection within the new mix-and-match curatorial tactic. The building has now expanded west from the Taniguchi building, into the lower levels of the soon-to-open 82-story apartment tower, 53 West 53, by Ateliers Jean Nouvel-which, in the process, sparked a major controversy by destroying the AIA national award-winning Folk Art Museum designed by Tod Williams Billie Tsien (RECORD, May 2002), which was unluckily wedged between MoMA and the site of the tower.

During an early preview, RECORD visited the new galleries for architecture and design scattered throughout the existing and expanded floors. For decades, that department —established in 1932 as the first of its kind in the world—had its own dedicated "real estate"



within the museum. Then, in 2016, a minitempest erupted when MoMA announced that, after its expansion, the architecture and design collections would no longer occupy their own discrete enclave but would be integrated with other media. A test case was the show From the Collection: 1960–1969, on view from 2016 to 2017, with curators from all departments collaborating to create an integrated installation. The result did not please the design community, many of whom felt that the odd drawing or model placed among other artworks reduced architecture and design objects to mere stepchildren of the more privileged paintings and sculpture.

After that show, MoMA rethought its initial plan and adopted what chief architecture curator Martino Stierli describes as a Venturiesque "both/and" approach for architecture and design, giving the department autonomous galleries yet encouraging photographs, films, paintings, and sculptures to be tucked in where relevant. For the opening, seven galleries devoted to architecture and design from the museum's permanent collection are on view, but not together—rather, in different spaces, on the first, second, third, fourth, and fifth floors. MoMA says these separate galleries will be reserved for the department, with exhibitions changing at least every 18 months.

Yet a didactic aspect—a chronological history of design since the late 19th century—is gone; instead, the galleries are organized by such themes as *Vertical City* or *Building Citizens*. Large-scale, temporary shows will be displayed in special exhibition spaces on the sixth and third floors.

Different curators worked with Stierli to plan the current shows, each taking on specific areas of expertise. Barry Bergdoll, the Columbia University art historian who formerly held Stierli's post, has curated two—one delving into America's invention of the skyscraper (Vertical City) and the other examining how Modernist architects designed nontraditional art museums (Architecture for Modern Art). Both exhibitions make extensive, though not exclusive, use of the museum's Frank Lloyd Wright and Mies van der Rohe archives.

Stierli installed another show, Architecture Systems, to demonstrate how technical and planning approaches shape the built environment at every scale. The highlight is a 17-by-12-foot fragment from the original facade of the United Nations building, shown against a clip from Jacques Tati's film Playtime (1967), a futuristic spoof that today seems very au courant.

A gallery of contemporary work, Building Citizens, includes models, drawings, photos, and a film that curator Sean Anderson uses to



Diller Scofidio + Renfro and Gensler's renovation and expansion extends west on 53rd Street from the new canopy and double-height entrance (above), and includes several gallery floors in 53 West 53, designed by Ateliers Jean Nouvel.



- 1 WEST 53RD STREET
- 2 DAVID GEFFEN WING
- 3 SPEYER/FARLEY BUILDING
- 4 WEST LOBBY STAIR
- 5 ROCKEFELLER BUILDING
- 6 MAIN ENTRANCE
- 7 COLLECTION GALLERY, MUSEUM TOWER
- 8 MARRON ATRIUM
- 9 CREATIVITY LAB
- 10 BOOKSTORE, LAUDER BUILDING
- 11 GRIFFIN BUILDING
- 12 CULLMAN EDUCATION/ RESEARCH BUILDING

comment on how architects' visions do (or do not) reflect societal concerns. Under the rather amorphously worded rubric is everything from documentation of Alvaro Siza's social housing in Porto, Portugal (1974–77), to Peter Eisenman's drawings for House Six in Cornwall, Connecticut (1972–75), to an acrylic model of a project, From Hardware to Soft Form (2002), by Winka Dubbeldam. Nearby are photos of Amanda Williams's Color(ed) Theory Suite (2014–16), her project of brightly painted

abandoned houses on Chicago's South Side.

Two galleries installed by curator Juliet Kinchin return to presenting historical works: one, Designs for Modern Life, highlights the Frankfurt Kitchen by Margarete Schütte-Lihotzky (1930), while Taking a Thread for a Walk focuses on textile art from the 1890s to the 1970s, by Anni Albers, Sheila Hicks, and others.

On the ground-floor footprint of the old Folk Art Museum is a gallery free of charge to the public. Here curator Paola Antonelli's

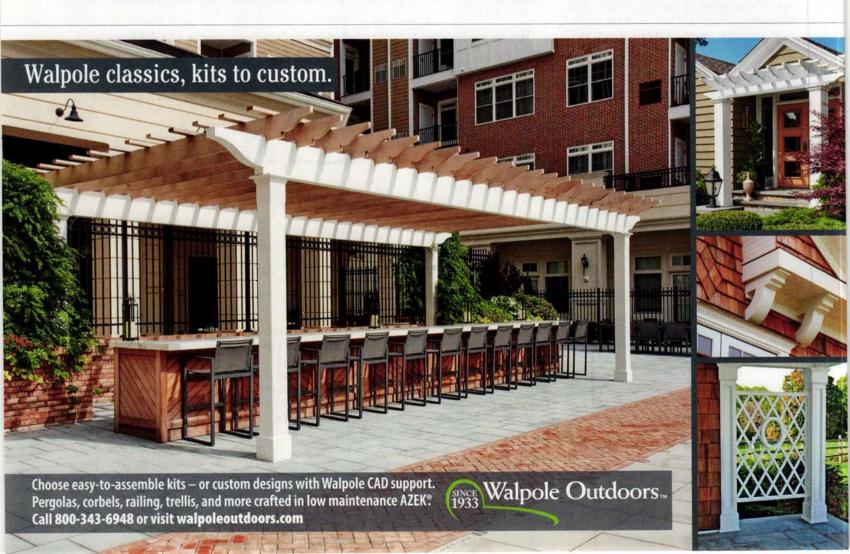


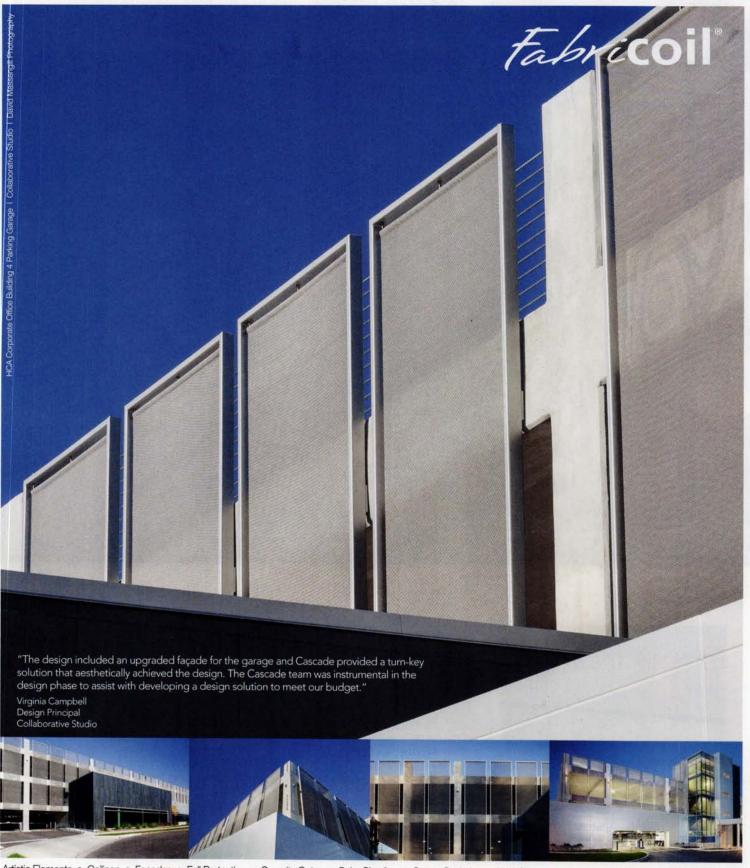
The first-level gallery in the Jerry Speyer and Katherine Farley building is accessible from the street and free to the public. The current exhibition, *Energy* (left), explores this topic's various design-related manifestations.

vibrant installation, Energy, shows that force as interpreted in design works such as Ingo Maurer's Porca Miseria! Chandelier (1994).

In the new blurring of boundaries across disciplines, design pops up occasionally in the fine-art galleries: Sou Fujimoto's mini-models *Architecture is Everywhere* (2015) is in a temporary installation on the sixth floor.

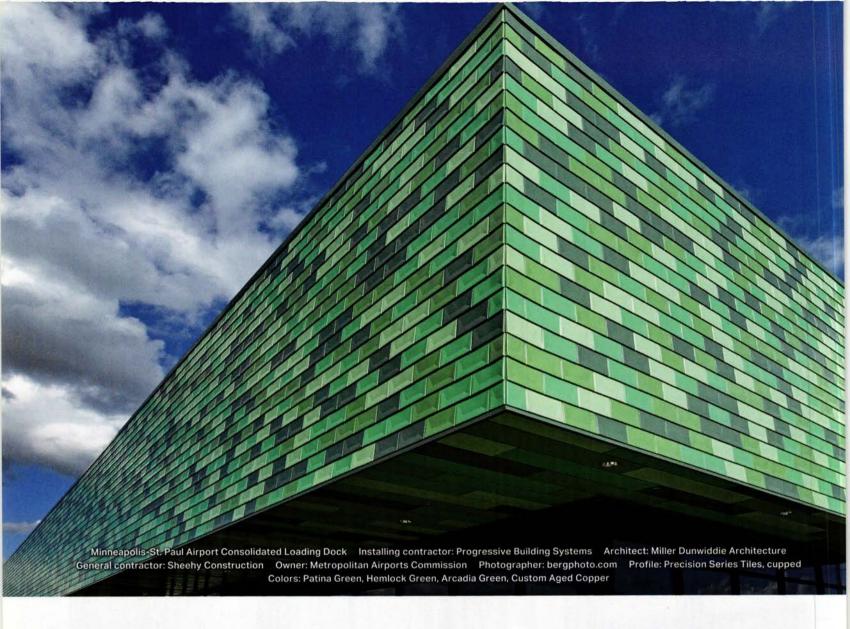
But the question remains: does dispersing the architecture and design galleries throughout the immense museum create an overall understanding of history? Not likely. Maybe an unsuspecting visitor, wandering through room after room of paintings and drawings in search of Monet's Water Lilies will stumble upon a gallery devoted to architecture or design-which will spark a fresh interest in our oft-ignored discipline. In an even bigger reimagined museum, it is challenging to find your way, and, without certain identifiable "neighborhoods," MoMA risks being more disorienting, not less. Let's see how the community of architects and the public respond.





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







PRECISION SERIES TILES

Patina Green, Hemlock Green, Arcadia Green, Custom Aged Copper

## Color Takes Flight

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



Case study at PAC-CLAD.COM/MSP

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



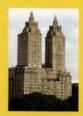
# PHOTOGRAPHY: @ B. O'KANE/ALAMY (TOP); HU TOTYA/WIKIMEDIA COMMONS (BOTTOM)

## 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.

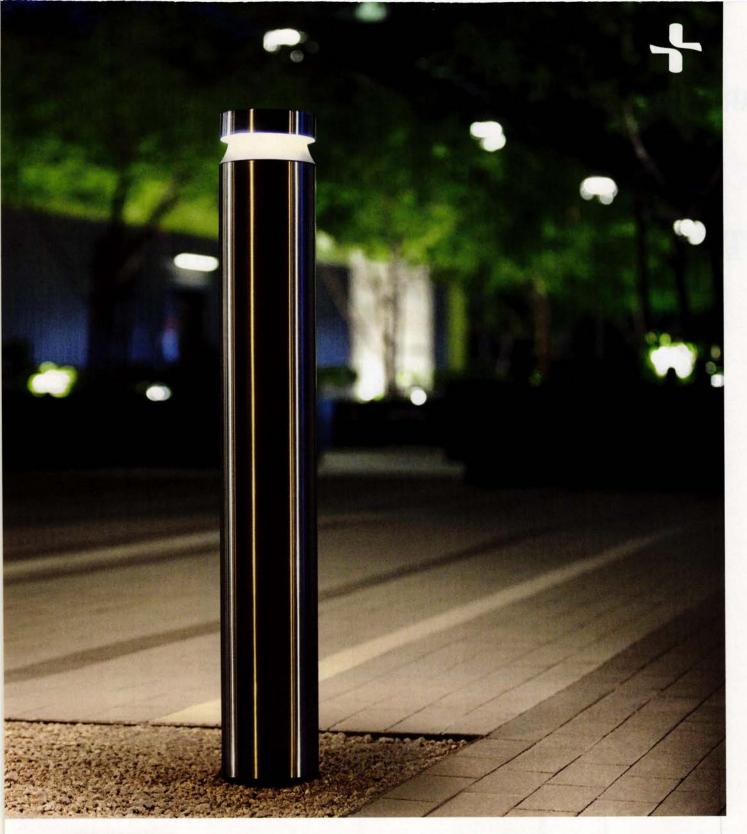


CLUE: A SMALL ARTS CENTER ON A UNIVERSITY CAMPUS IS THE SOLE EXAMPLE IN THE U.S. OF THE WORK OF AN INFLUENTIAL PIONEERING MODERN ARCHITECT. IN SPITE OF THE FACT THAT MOST OF THE ARCHITECT'S WORK HAS TO BE SEEN ABROAD, HE ATTRACTED A STRONG FOLLOWING IN ACADEMIC AND PROFESSIONAL CIRCLES IN THIS COUNTRY.



The architect for the Eldorado apartment building on Central Park West in Manhattan was Emery Roth (in association with Margon & Holder). Roth completed the steel-frame Art Deco-style 30-story building in 1931 just after the San Remo (1929) and the Beresford (1929), both also on Central Park West. All have become residential landmarks, admired for their spires, details, and ornament.

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



#### **HELIO BOLLARDS**

durable stainless steel construction | 6" diameter | performance Cree® LEDs 180° and 360° light distribution | coordinating security core and non-illuminated designs www.forms-surfaces.com

#### perspective books

#### Paved with Good Intentions

Saving America's Cities: Ed Logue and the Struggle to Renew Urban America in the Suburban Age, by Lizabeth Cohen. Farrar, Straus and Giroux, 547 pages, \$35.

Reviewed by Anthony Paletta

AUTHOR Lizabeth Cohen frames Ed Logue as a Greek tragic hero, and it's easy to see why. Logue's leadership in major postwar planning and urban-development schemes in New Haven, Boston, and New York fit this narrative nicely: a precipitous rise in power, prodigious accomplishments, noble intentions along with hubris and missteps, and finally a virtual exile.

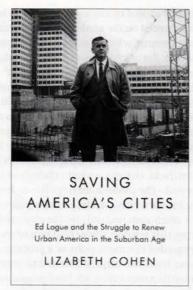
Logue was born in Philadelphia, attended Yale for college and law school and had stints as a union organizer and political attaché before his first post

as head of the New Haven Redevelopment Agency (NHRA) in 1953. Cohen recounts his changes in thinking and practice as he vaulted from head of the NHRA to that of administrator of the Boston Redevelopment Authority in 1960, and finally, in 1967, the president and CEO of New York's Urban Redevelopment Authority (UDC).

Logue's work in New Haven involved classic blunders of wholesale neighborhood clearance and displacing residents because the experts knew better. Yet in Boston he became more sensitive to context and the viability of adaptive reuse, in part due to some vehement community opposition. By the time Logue came to New York's UDC, he was largely out of the demolition business altogether, trading the wrecking ball for the scalpel in his urban excisions and increasingly dexterous in handling urban infill.

In each of his leadership roles, Logue brought in young, talented, and racially diverse planners. These staffs, Cohen makes clear, were skilled at wrangling government and private funds for redevelopment. In 1965, New Haven received the sixth-highest amount of federal redevelopment funding, far out of proportion to its size. In New York, the UDC obtained over 60 percent of all national Section 236 funding, which provided 1 percent interest rates for low- and middle-income multifamily construction.

Most important, Logue would get things



done, melting the glacier of civic inertia wherever he was located. By selling bonds as well as giving low-interest loans, the UDC created projects totaling \$1.5 billion (over \$7 billion in today's dollars) by the beginning of 1975. In New York state, the UDC built 117 housing developments, including more than 33,000 units, for 100,000 residents (one-third low income, the rest subsidized for moderate- and middle-income families). Project fast-tracking, "before all the final funding, permitting, designing, and bidding were securely in place," she

writes, attracted severe scrutiny once Nelson Rockefeller resigned as governor in 1973. Yet Twin Parks in the Bronx and Roosevelt Island housing still stand out as better-than-average mixed-income housing.

Logue enlisted notable architectural talents, including Josep Luis Sert, Paul Rudolph, Henry Cobb, I.M. Pei, Ulrich Franzen, and James Polshek, although he was pilloried for squandering funds on modern caprices. Nevertheless, the cost of these projects was rarely very high, and his choices remain a credit to all of their cities.

By the time of Logue's last, largely overlooked post as president of the South Bronx Redevelopment Corporation (1978–85), where he confronted the most intense poverty with the fewest resources he had ever possessed, he had become an earnest champion of local groups.

Cohen's background as a labor historian shows in her depiction of power structures and community resistance following postwar urban renewal, but she does give close attention to the buildings themselves. Ultimately, hers is not merely a history but a reminder—in the face of current decaying infrastructure and inadequate affordable housing—of the need to closely study government redevelopment efforts of the past.

Anthony Paletta is an architectural writer based in Brooklyn.



modulararts.com 206.788.4210 info@modulararts.com





Fine Architectural Hardware for Your Aine Furniture®

www.mockett.com • 800-523-1269

#### perspective books

#### The Best-Laid Plans

The Good Metropolis: From Urban Formlessness to Metropolitan Architecture, by Alexander Eisenschmidt. Birkhäuser, 239 pages, \$68.99.

Reviewed by Daniel Brook

**IF YOUTH** is wasted on the young, academia is all too often wasted on the academics. Free to tackle the most pressing subjects, scholars often gravitate to minutiae. But not Alexander Eisenschmidt, professor of architecture at the University of Illinois at Chicago and debut author of the impressively ambitious new book *The Good Metropolis*.

Eisenschmidt audaciously argues that a central tension in modern city-building has gone hiding in plain sight. While architects are by nature control freaks, sweating the details of their artifacts, the space where their creations



are housed—the modern metropolis—is, by nature, out of control. As Eisenschmidt writes, "architecture's inherent predisposition towards form is often matched only by the city's ability to avoid it."

Facing this tension since the dawn of modernity, many architects have regarded the metropolis as a problem to be solved. Indeed, city-planning itself was largely founded to "curtail [the city's] disorder."

But while many urbanists have sought to bring the unruly metropolis to heel, others have embraced the chaos, reveling in innumerable neighborhood nooks. From Walter Benjamin saluting the imaginative play of impoverished children in the Berlin slums' courtyards to Robert Venturi and Denise Scott Brown's enthusiasm for the Mafia-financed sprawl of the Las Vegas Strip, Eisenschmidt retraces an unsung tradition of celebrating the unplanned. This outlook has been consummated by architects who purposefully design works of "metropolitan architecture" that welcome the chaos. Ranging from block-size department stores to high-rise urban sports clubs, these buildings don't resist the city but, rather, "inhal[e] urbanity into [their] interiors."

Eisenschmidt convincingly argues that Berlin was the fount of this sanguine response to the metropolis. In the late 19th century, the Prussian capital was one of the fastest-growing cities on earth, yet it wasn't until 1920 that the Greater Berlin Act even attempted to tame the sprawl, through a single urban planning authority. While there were always those who railed against the unruly decadence of Berlin, there were others who hailed the city's *Planlosigkeit* (lack of a plan). Eisenschmidt retraces this intellectual thread, highlighting Jugendstil architect and urbanist August Endell, whose 1908 *The Beauty of the Metropolis* argued that the heart of the city was its margins, and László Moholy-Nagy, whose artistic eye sought out these overlooked spaces.

The current relevance of this Berlin-born tradition of delirious urbanism should be made more explicit. After all, the key to Berlin's historic breakneck growth was its late start; the city could boom because it was playing catch-up to the more developed cities to its West—and then surpassing them. This same phenomenon is driving the growth in developing-world megacities like Dubai and Shenzhen today.

Of course, better a book that challenges received wisdom—is the metropolis really a beast to be tamed?—than a monograph that painstakingly supports it. Eisenschmidt's unfashionable intellectual instinct to bite off more than he or maybe anyone can chew is most welcome. All should eagerly tune in to his future broadcasts. ■

Daniel Brook has written on architecture and urbanism for Harper's, The New York Times Magazine, and Slate. He is the author of A History of Future Cities.

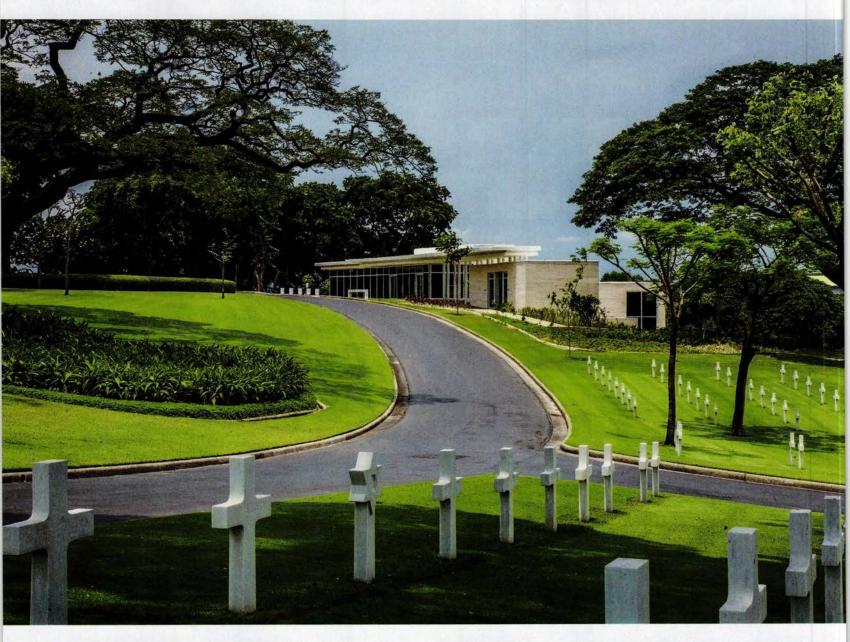
# DRAMATIC STYLE MEETS TOP PERFORMANCE.

# YOUR VISION AWAITS.

With the performance you depend on from Sloan and the sleek lines you demand for your design vision, our new Designer Urinal will give your next commercial restroom a distinctive edge. Never sacrifice style for performance when you can have both.







## **A Quiet Place**

Manila American Cemetery and Memorial gains a dignified new Visitor Center.

#### BY KARA MAVROS

JUST AHEAD of the 75th anniversary of General Douglas MacArthur's return to the Philippines on October 20, a new Visitor Center at the Manila American Cemetery and Memorial has opened in the country's capital. Designed by Corpus Christi, Texas-based Richter Architects, the almost 9,000-square-foot facility sits on the lushly landscaped site of the onetime U.S. military base Fort William McKinley, and is maintained by the American Battle Monuments Commission (ABMC).

After visiting the architects' National Museum of the Pacific War, completed in Fredericksburg, Texas, in 2009, ABMC commissioned the firm to design a visitor center for its cemetery in Manila, which has





The new building follows the curve of the cemetery (opposite, top and bottom). Visitors enter at the building's top level (left) and descend to exhibitions below (bottom).

the largest number of U.S. World War II graves: 17,000 American soldiers and the Filipino Scouts who fought alongside them are buried there. "It's a great honor," says firm principal, Elizabeth Chu Richter. The original cemetery and memorial, designed by Gardner Dailey, began construction shortly after the war, but wasn't dedicated until December 1960. Today, it is a major attraction, a tranquil, parklike space in the midst of the bustling city.

The cemetery occupies 152 acres and is organized, in a concentric design, around a central complex comprising a chapel and two semicircular walls. There, the names of over 36,000 missing American service members are inscribed. This travertine monument sits at the cemetery's highest point, looking out at the thousands of white crosses, which arc and cascade around the site's rolling hills, aligned in circular grids. "It's a moving vista by virtue of precision," says David Richter, principal at Richter Architects.

The newly opened, nearly \$5 million visitor center has two levels, partially built into a hillside. It was planned so that, from the monument atop the hill, its roofline would be at eye level, with most of the building extending down and beyond view. The architects wanted to minimize the mass of the new cast-in-place concrete structure and not detract from the

serene landscape. "It was very important that our building had a low-key design that didn't compete with the memorial or cemetery," says Chu Richter.

Much of the center's exterior is high-performance thermal glass, designed to withstand typhoons. The rest is clad in horizontal panels of Italian travertine, to appear more "of the

earth," according to Richter, and to contrast with the similar sand-colored vertical slabs of the stone used for the chapel and the monument. Other exterior materials include white-painted steel, aluminum, and plaster.

Visitors enter the center, directly across from the chapel, at ground level, before descending from the lobby to the lower level through an open staircase, which preserves the sight line to the chapel outside. Downstairs, the main gallery shares the stories of several fallen soldiers through letters and artifacts. Teak, a traditional material in southeast Asia, was used for the ceilings and stairs, and as wall cladding throughout the interior.

The lower-level windows are screened with louvers, allowing diffused daylight inside while focusing attention toward the crosses in the landscape outside. The gallery is meant to be different from other historical visitor centers, according to Chu Richter. "You may not remember everything you see," she says, "but the overall emotional impact is what's important."



AIA Continuing Education Provider

This event will offer 2.25 AIA LU

# REGISTER TODAY NOVEMBER 21 | LOS ANGELES

Los Angeles Athletic Club | 431 W 7th Street

#### **Designing for Resilience**

More and more, Southern California is the target of some of nature's worst disasters: earthquakes, drought, and wild fires. Three leading architects will present architecture at every scale—from infrastructure to commercial, civic and public projects—and show how they incorporate resilient features to anticipate and weather such catastrophes. They will also discuss design strategies that can help mitigate the climate crisis that is increasing the frequency and severity of drought and fires.

Seating is complimentary for architects, engineers, and designers but is limited. Register today for **FREE**.

BROUGHT TO YOU BY:



A CRH COMPANY

IN PARTNERSHIP WITH:



**AIA** California

#### MEET THE PANELISTS



Julie Eizenberg, FAIA

Founding Principal

Koning Eizenberg



**Bob Hale, FAIA** Principal & Creative Director Rios Clementi Hale Studios

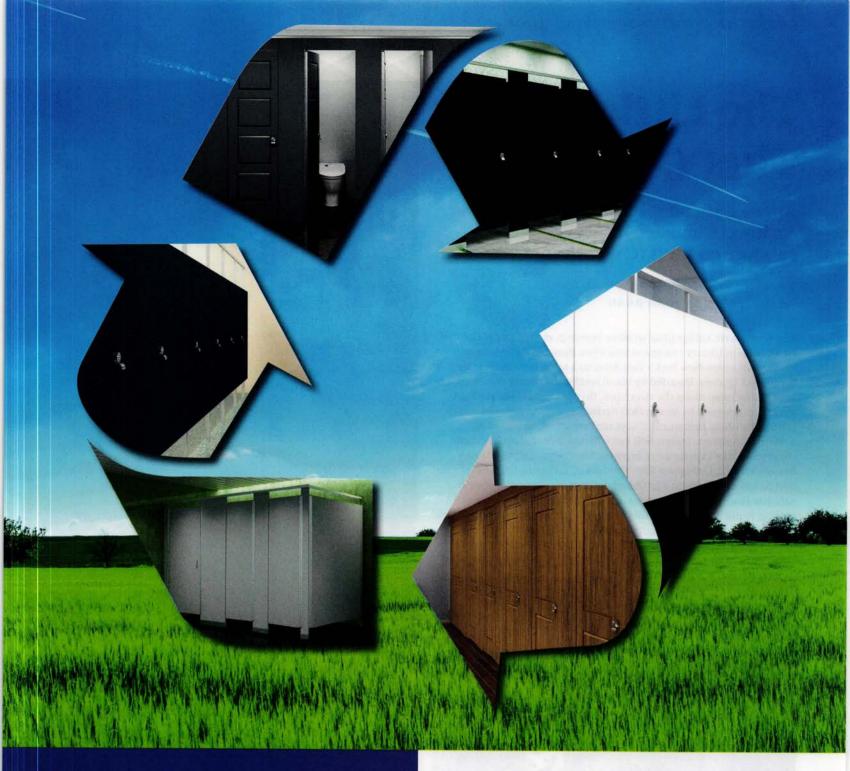


Michael Maltzan, FAIA
Principal
Michael Maltzan Architecture



Moderator: Cathleen McGuigan Editor-in-Chief Architectural Record

RecordontheRoad.com



The Only
Fully Recyclable,
High Privacy
Partitions

- 100% sustainable
- Made from recycled materials, including post-consumer content
- Nearly indefinite recyclability
- Greenguard Gold Certified
- Improved air quality No VOC
- Resists mold, mildew & fungus
- · Won't rust, rot, corrode, delaminate or splinter

Learn more about our sustainability: Request a FREE Lunch & Learn at 1-800-445-5148.



www.ScrantonProducts.com

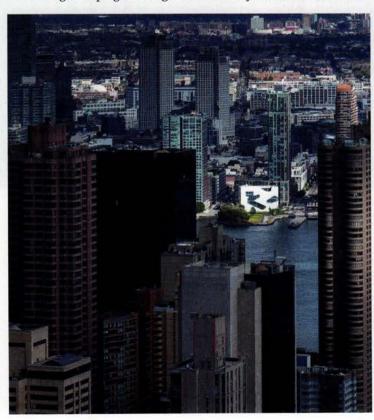
## The Little Library That Could

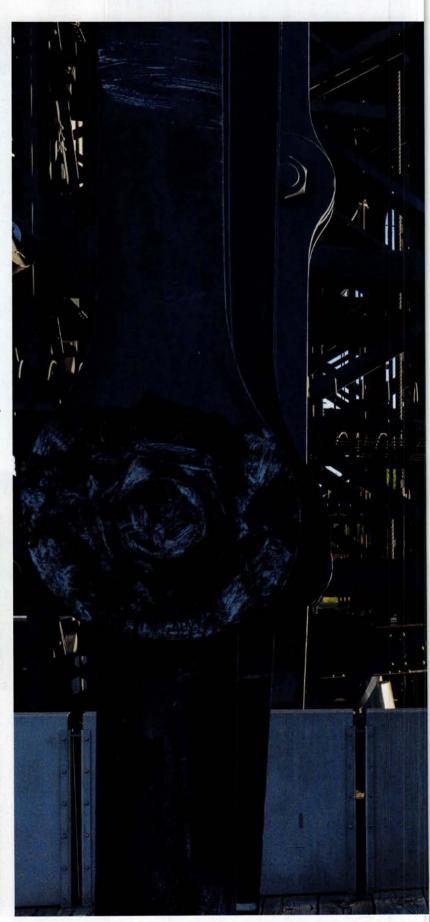
After a difficult gestation, Steven Holl Architects' building makes a grand entrance on the NYC waterfront.

BY JAMES S. RUSSELL, FAIA PHOTOGRAPHY BY IWAN BAAN

THE ENIGMATIC calligraphic window openings etched across the Hunters Point Library command attention, drawing the eye from Manhattan across New York's East River to a waterfront site in the borough of Queens. Dwarfed by bland residential towers that march in heedless lockstep along the riverfront, this diminutive 82-foot-high structure, designed by Steven Holl Architects (SHA), "represents civic life for the whole community," says senior partner Chris McVoy.

With this project, Steven Holl ran with the idea that architecture could sculpt the experience of bringing together a community in a free-of-charge 22,000-square-foot "third place," reflecting the belief popularized by urban sociologist Ray Oldenburg that people need a place to socialize that is neither home nor the ubiquitous privatized realm. In making explicit the library's role as a "social condenser," as Holl puts it, the architect was responding to a mandate from the Queens Public Library (one of three New York City library systems) to showcase the broadening of its programming and community services—a common









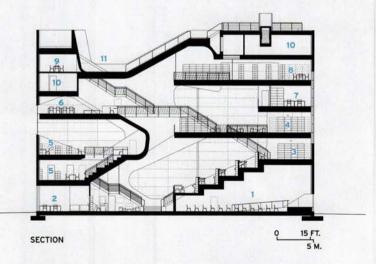
goal in libraries today, but one that often is incidental architecturally.

The whimsy of the large, swooping glass openings—in contrast to the severity of the building's form: a silver-painted concrete box, which poses confidently on a tree-dotted lawn—hints at the wondrous experience Holl, McVoy, and senior associate Olaf Schmidt have created inside. At the entry and service-desk space, visitors will probably need to pause to orient themselves within the Swiss-watch intricacy of the design. A labyrinthine full-height atrium unfurls directly overhead, flanked on either side by areas for adults, teens, and children. The upper four levels (slightly offset in height from one side to the other) cantilever into the atrium, edged with glass balustrades.

The library's signature element is a set of terraced study benches, backed by stacks, that ascend from the main entry to the bi-level adult collection. These seats will no doubt be coveted for their potential to inspire and distract, since they open to the spectacular panoramas across the East River of the Manhattan skyline through the immense free-form window wall (with glass panels as long as 14 feet). On the ground floor, tucked beneath the terraced benches, is a large, stepped-ceiling community room that accommodates lectures, performances, and special events.

The design stops at nothing to lure visitors upward—a challenge faced by multilevel libraries. Open stairs zigzag, sometimes parallel to the sills of the water-facing window wall, sometimes diagonally across the expanses of glass, which silhouette people moving in front of the view.

That vertical circulation is echoed inside the land-facing wall by ramps that horizontally link the spaces on either side of the atrium, slicing through shafts of light entering from the windows on that



- 1 MEETING ROOM
- 2 WORKROOM
- 3 ADULT COLLECTION/PERIODICALS
- 4 ADULT COLLECTION
- 5 CHILDREN'S AREA
- 6 CYBER CENTER

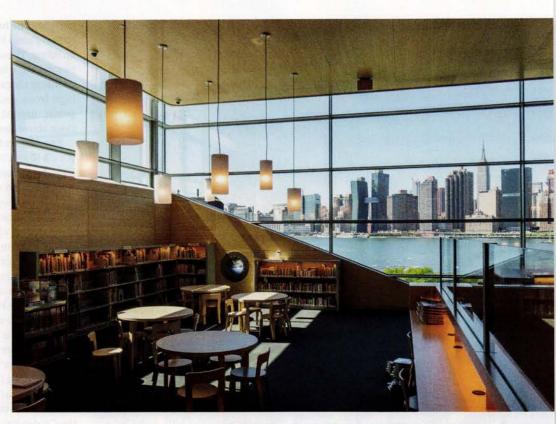
- 7 STAFF LOUNGE/OFFICES
- 8 TEEN AREA
- 9 CAFÉ
- 10 MECHANICAL
- 11 STEPPED TERRACE

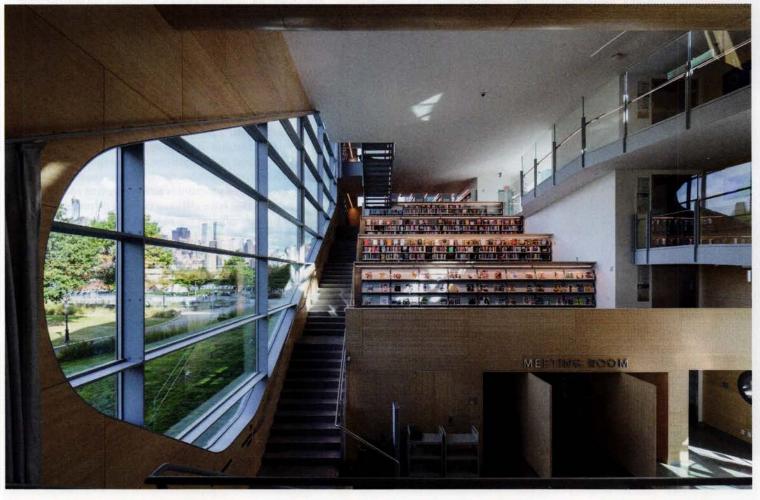
**LEADING THE WAY** Sculpted interiors lure visitors up (opposite). Manhattan views animate the children's area (right). Terraced study benches ascend from the main entry up to the bi-level adult section (bottom).

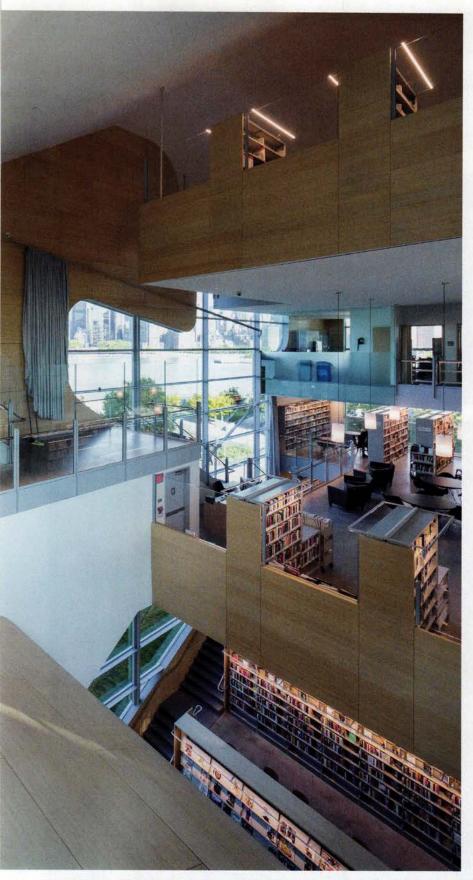
side of the building. (The ramps also enable full accessibility.) Someday, someone may choreograph a dance inspired by this circulation, but, for now, visitors will perform a kind of impromptu ballet as they move through the library.

Collections, reading areas, and gathering spaces open to the atrium as cantilevered trays of space, so that the visitor encounters the array of group-learning experiences, as well as the collection's offerings, as they move along the stairs and ramps through the daylight that floods in. Acoustical dampening is built into the wood paneling that clads much of the interior. Rather than achieving the utter silence of yore, the intention is to allow a background hubbub. The children's area is cocooned—and acoustically separated—by a sensuously rounded bamboo-faced volume that bulges into the atrium.

To minimize columns and allow large, uninterrupted spaces, Silman Structural Engineers framed the interior floors in steel,







HIT A HIGH NOTE Collections, reading areas, and gathering spaces open to the soaring atrium as cantilevered trays of space.

carrying the loads of the many cantilevered floor edges back to hefty steel beams that cross the narrow dimension of the building. These beams slot into recesses formed into the exterior concrete bearing walls, which have special reinforcing, enabling them to carry loads around the looping glass openings. In an area that has been vulnerable to flooding, the site's gentle upward slope from the waterfront places the ground floor above the 100-year floodplain.

The September 24 opening was the culmination of a manyyear, \$40 million journey, initiated by local advocates who had long championed a new library for the rapidly growing neighborhood. SHA was selected in 2010 by the city's capital-project agency, the Department of Design and Construction (DDC); the firm participated in the agency's Design Excellence program, which emulates the Federal GSA program, with the goal of bringing the highest quality to public architecture. (Full disclosure: the author worked for the DDC but did not have any connection to the library project.)

The contractor reportedly struggled with many special conditions in Holl's design, and there were other holdups, including the specialty fabrication of the glass and window-wall system in Spain and Germany, with further delays from a dockworkers' strike. Escalating costs and the slipping schedule at Hunters Point were highly publicized, with some reports citing Design Excellence as an enabler of unnecessarily elaborate architecture.

There was plenty of blame to go around. A 2017 report by the Center for an Urban Future, Slow Build, documents longstanding management problems at DDC, a messy multiagency approvals process, and city contracting procurement that favors low bidders even when they may not be fully qualified. Construction did not begin until 2015-a full five years after SHA was hired-and was accompanied by a flurry of change orders, requests that are common in low-bid public projects. The Queens Library also made changes late in the project, according to DDC-which continue, in one case prompted by a debate over whether railings on a rooftop reading terrace, one of the special features of the design, are high enough, even though they meet code requirements. Pursuant to a DDC Strategic Blueprint for Construction Excellence, the agency has begun overhauling procedures to improve cost controls and reduce delays that have afflicted many of its projects.

If the public embraces the magical journey of spatial suspension, ever-changing light, and irresistible views, does that make the cost (at close to \$2,000 per square foot) and delays worth it? Some have dismissed these things as inevitable with public projects. But given the high needs, the painstaking work of reforming sclerotic procedures must be done, though even streamlined procedures will challenge architects to design sensitively to many public agendas and tight budgets.

Holl's design shows how a public place can be created with transcendent allure, which is as important today as it was in the early 20th century, when Carnegie-funded libraries rose as beacons of opportunity in cities across the country. If it draws more users—especially those who are intimidated because they lack reading or language skills—the value of the library's design will be incalculable.

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





# **Specialty Hanging Solutions for Interior Displays**

Residential | Commercial | Institutional

Hang with the Best®

1 866 935 6949 ASHanging.com



# **WHO CARES?**

# WE DO AND SO DO BUILDING OCCUPANTS.

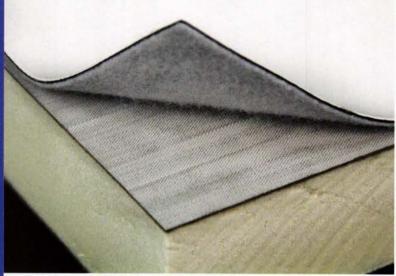
The Owens Corning® Thermafiber® FF Perimeter Fire Containment System allows more time for occupants to escape a building in the event of a fire. The innovative system combines formaldehyde-free Thermafiber® FireSpan® and Safing insulation to offer a secure, sustainable line of defense against spreading flames.

For product recommendations, design consultation and expert engineering advice, speak with a member of our Thermafiber InSolutions® team or visit www.owenscorning.com/ff for more info.











Imagine an adhered roof system with:

No VOCs | No odors | No temperature restrictions | No flash-off times

Imagine an adhered roof system that doesn't use an adhesive at all!



RapidLock (RL™) Technology – an adhesive-less membrane attachment system powered by VELCRO®

Brand Securable Solutions. RapidLock Technology utilizes a hook and loop attachment mechanism to create a revolutionary, productivity-boosting commercial roofing installation technique. Using an optimized fleece backing on Carlisle's FleeceBACK® membrane as the "loop" and coupling it with a specialized facer on the topside of Carlisle's Polyiso insulation as the "hook," the RapidLock system offers a variety of features and benefits, including:

- » Wind uplift ratings comparable to traditional adhered single-ply systems
- » Excellent resistance to hail and punctures
- » Membrane options: 115-mil FleeceBACK RL EPDM, 115-mil FleeceBACK RL TPO
- » Polyiso options: 2.0" InsulBase® RL, 0.5" SecurShield® HD RL

Scan here to learn more about RapidLock Roofing Systems



#### products trade show

#### CERSAIE 2019

This year, Bologna, Italy's annual trade show, a bellwether of tile trends, showcased the industry's continual achievements—thicker formats, more responsive surfaces, and increasingly realistic patterns and textures.

By Kelly Beamon



Designed for use around gardens and pools, Trust is a frost-resistant outdoor paver collection from Atlas Concorde that comes in a durable 1"-thick, 24"-square rectified format. What appears to be a naturally quarried stone is actually a pattern digitally printed on the tile.

atlasconcorde.com









#### **Ergon Medley Collection**

In line with a trend celebrating terrazzo, Emilgroup's Ergon brand has rolled out colorful, exaggerated porcelain versions in three styles: Pop, Classic, and Rock (all shown). These marble-and-concrete effects are digitally printed on backgrounds in white, gray, dark gray, blue, green, and pink. Tile sizes range from nearly 1' x 235%" to just short of a yard square, and a large-format 235%" x 471%" tile in an optional thickness of circa 34" suitable for outdoor applications.



#### Massive Stone

This collection of outdoor pavers is Coem's interpretation of the ancient building blocks emblematic of archaeological sites, down to the simulated wear marks stamped on their unpolished rectified surface. Massive Stone is available in four sizes, including planks (24" x 36", 12" x 36", and 16" x 24") and four stone patterns—Desert, Ash, Ground, and Moon (shown). coem.it



#### Risseu

Inspired by pebbled walkways, Risseu is the latest addition to Refin Ceramiche's Out 2.0 collection. The new 35"-square paver features a stamped texture to match its digitally printed 3-D graphic of stones in sand for an authentic appearance. Available in a light or dark version, the 1"-thick slab is engineered for outdoor applications.

refin-ceramic-tiles.com



#### Limpha

For cladding exterior walls, manufacturer CasalGrande Padana has designed large-format 4' x 7' slabs of porcelain, which incorporate both photorealistic imagery, such as roses or ivy, and a self-cleaning technology codeveloped with bath-fixture manufacturer Toto. Recommended for commercial and public buildings, Limpha (shown in Arborea) is available in four additional patterns: Coral Rose, Larix, Gelsomino, and Helix.

casalgrandepadana.com

#### products trade show



A new collection being rolled out next year by ABK simulates the art of combining materialsin this case, concrete, marble, and terrazzo fragments-on one tile face. Blend (shown in Concrete Grey Combo) will be available in 3'-square tiles. Check the manufacturer's website for availability.

abk.it



#### Akoya

This line of 3"-thick rectified porcelain tile features the rich veining of the type of pearl it is named for, printed on a grand scale to add interest to walls and floors. Akoya comes in White, Ivory, Silver, and Ocean (shown) as slabs measuring 3' x 6' or in mosaic tiles, for design versatility as well as visual effect.

ceramicasantagostino.it

#### Terrazzo MaxiMini

Fioranese Ceramica reimagined the classic paving in Mini and Maxi pattern (shown) for walls as well as floors in light commercial and residential settings. The tiles are available in 24" x 48" and 48"-square units, in white, black, and gray. fioranese.it



#### Boutique

Fragments from different marbles fused into one is the concept behind the enlarged close-up graphics that distinguish Boutique, a new porcelain collection from Del Conca, shown here in Bloom. Manufactured in a largeformat 4' x 81/2', for maximum visual impact, the slabs are also available in 12" x 24", 24" x 48", and 24"- or 48"-square units. Additional styles include Calacatta Oro and Onice Fantastico. delconcausa.com



#### **B&W Marble**

To update its Floor Gres collection, Florim has rolled out B&W Marble, a line of porcelain floor tiles printed with exaggerated veining patterns and available in slabs as large as 4' x 9', 4' x 7', and 5' x 101/2', and 2" thick. Eight colorways are available in a natural or highgloss finish.

florim.com



# 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



# ARCHITECTURAL R E C O R D WEBINARS

Expand your knowledge on topics from sustainability to code compliance



Find all upcoming and on demand webinars at www.architecturalrecord.com/webinars



Daylighting systems produced with Azon structural thermal barrier technologies—the MLP™ or Dual Cavity—for aluminum windows and high performance glazing components for insulating glass, will yield a fenestration system capable of upholding the highest efficiency and sustainability standards.

- · Polyurethane polymer with superior insulating properties for the best balance of energy efficiency and performance
- NEW: MLP™(mechanical lock profile) and dual cavity designs for fenestration products used in the most demanding climates and conditions
- · High strength for larger spans-industry's strongest thermal barrier for aluminum storefront, curtain wall and windows
- AZO/Tec® technical services with expertise in window design



Extreme cold temperatures of -100°C (-148°F) will not transfer through an aluminum frame with a modern pour and debridge thermal barrier (and neither will high temperatures in very hot environments)



Learn about the role of Azon thermal barriers in energy conservation.



**19 SEPTEMBER 2019 – 5 JANUARY 2020** 

**EXPLORE HOW ARCHITECTURE SHAPES OUR COMMUNITIES, CITIES AND ENVIRONMENT** FREE AND OPEN TO THE PUBLIC

# CHICAGO ARCHITECTURE BIENNIAL ORG

CHICAGO ARCHITECTURE BIENNIAL

















# products glass + glazing

# In Plain Sight

These offerings protect birds, resist hurricanes, simplify installation, and still provide a clean, unobstructed view.

By Kelly Beamon



# Turnkey

This interior-glass wall system by Bendheim allows fast, easy installation of an array of panels, including art glass, in sizes as large as 120" x 48", without drilling or adhesives. It can be mounted using the company's patented 1" clips. Panel options include integrated LED lighting.

bendheim.com



Walker Glass Company added four new designs to its AviProtek line of bird-friendly solutions. Three etched dot patterns were developed for use in guardrails, rainscreens, and insulated glass. A fourth pattern features multidirectional lines with a proprietary coating that has UV-enhanced reflection. Each option comes with a 10-year warranty.

walkerglass.com



# Bird1st

Guardian Glass expands its glazing options with Bird1st, a UV coating, which, like the company's bird-friendly frit patterns, helps to prevent collisions. It is also less visible to humans because it is a film instead of being etched. The subtle striped pattern can also be specified with the company's SunGuard low-E coatings for added energy efficiency.

.....



## Hurricane Sliding Doors and Windows

Sky-Frame has designed a system of large, frameless sliding-glass doors that can withstand the most severe level of hurricane impact testing, including water and high-wind resistance. Individual panels measure 91" wide x 138" high and feature a slim 11/8" frame.

sky-frame.com

# Just a click away.



Check out our new look! ARCAT.com has always been designed to get you the building product information you need fast and easy, the first time. We have redesigned ARCAT.com to improve on this to make it even easier! Whether you are looking for a BIM object for a window, or a catalog from a paint company, we have the information you crave. Even our content like CAD, BIM and specs come in multiple formats to suit your project needs. Also, ARCAT does not lead you down a path and surprise you with registration to download content. You're free to search, find and download as you please, so enjoy the freedom!





There's more to achieving better health than diet and exercise. Access to natural light has been shown to help regulate metabolic processes—which can reduce stress, anxiety and fatigue while elevating mood. That's why we're passionate about partnering with architects to create beautiful, sustainable buildings with daylighting design.

kingspanlightandair.us

800.759.6985





# ARCHITECTURAL RECORD Announces the Winners and the Runners-up of the

# 2019 COCKTAIL NAPKIN SKETCH CONTEST

Some 400 architects, designers, illustrators, and students submitted sketches to this year's Cocktail Napkin Sketch Contest, which, now in its ninth year, showcases the passion and skill of a diverse group. Record editors sifted through upward of 2,000 individual napkins to select the two winners, six runners-up, and the two most amusing submissions.

### WINNER, REGISTERED ARCHITECT



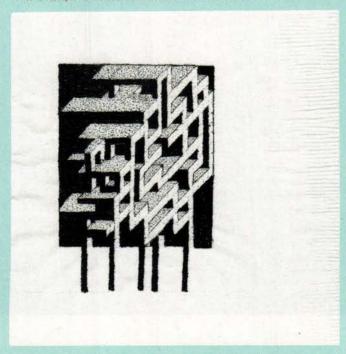
JEONGIN KIM

LAGUARDA.LOW ARCHITECTS; NEW YORK

# VIEW OF THE WORLD FROM AN ARCHITECT IN NEW YORK

Sketching by hand is an essential part of the creative process for Jeongin Kim, a senior associate with Laguarda. Low Architects. "It lets my stream of consciousness flow, and allows me to observe my work and thoughts at the same time," he says. One of the first projects of Kim's professional career was a skyscraper in New York. Now, after 14 years in practice, he still finds inspiration in busy urban centers. "Every city gives its own genuine lecture, and New York might be one of the best lecturers in the world. That's probably why architects enjoy this delirious place."

# WINNER, NON-REGISTERED ARCHITECT



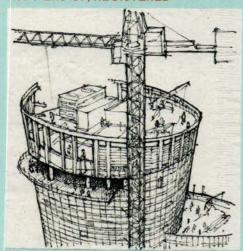
JORDAN LUTREN SHEEHAN NAGLE HARTRAY ARCHITECTS; CHICAGO

### LABYRINT

"I often find inspiration not as a starting point of a design challenge but through the process of designing itself," says Jordan Lutren, an architectural designer with Sheehan Nagle Hartray Architects. "Through research, making, and a lot of iterating, I get excited about how different aspects of a project can come together." Throughout his five years in practice, he has always incorporated physical drawing into his workflow—"not just as a first step to conceptualize a design, but as a discipline integrated through the entire design process."



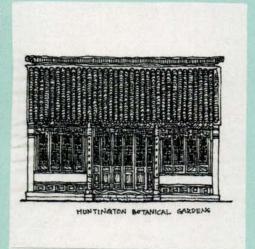
# RUNNERS-UP, REGISTERED



GREGORY L. KLOSOWSKI PAPPAGEORGE HAYMES PARTNERS; CHICAGO

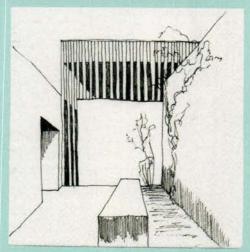


ACYN ZHONG CALLISONRTKL; NEW YORK



KATIE CHIU ALHAMBRA, CALIFORNIA

# RUNNERS-UP, NON-REGISTERED



ANNA GOSSELIN CALLISONRTKL; NEW YORK

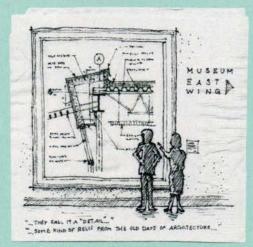


OLGA SMIRNOVA CALLISONRTKL; NEW YORK



AWS JABIR IA/INTERIOR ARCHITECTS; SANTA CLARA, CALIFORNIA

# **AMUSING ENTRIES**



BRIAN GRIGGS
PARKHILL, SMITH & COOPER; AMARILLO, TEXAS
"THEY CALL IT A 'DETAIL'..."
"SOME KIND OF RELIC FROM THE OLD DAYS OF
ARCHITECTURE..."



WILSON B. DEOMAMPO WATG; IRVINE, CALIFORNIA PAULINE AT HUDSON YARDS

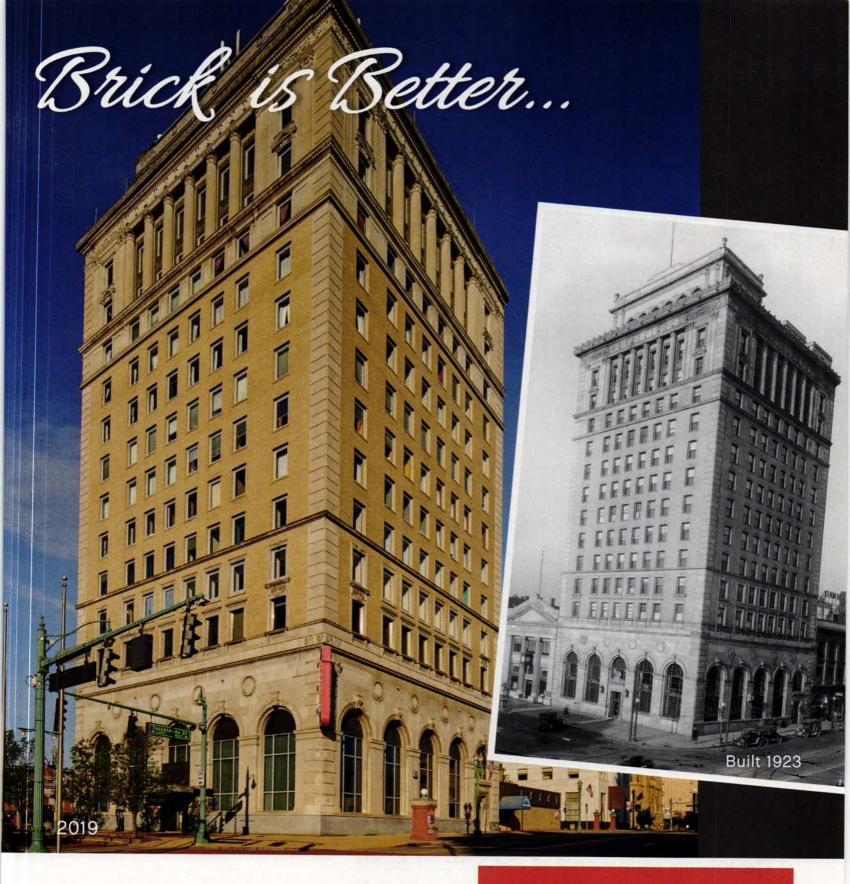




# THROUGH THICK AND THIN.

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.





Brick is Timeless.

# BELDEN

THE BELDEN BRICK COMPANY
The Standard of Comparison Since 1885
beldenbrick.com



# Vacuum Insulated Glazing

The thermal performance of conventional double glazing in the same thickness as a single pane for historical restoration.





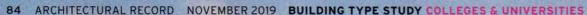
# COLLEGES & UNIVERSITIES

College and university buildings aren't a single typology. The projects on the following pages range from art studios in a revamped industrial structure to transparent labs that showcase the work going on inside. Collectively, they demonstrate ingenious solutions for challenging sites, for adaptive reuse, and for creating buildings that foster collaboration and community. Reading the section and taking the online quiz qualifies for one hour of continuing education credit (see page 116).



- 84 Rockefeller University River Campus, New York
- 92 UCLA Art Studios, Los Angeles
- 98 Cornell University Fine Arts Library, Ithaca, New York
- 102 Springfield Technical Community College Commons, Massachusetts
- 110 Feature: More Than Academic





CE

Stavros Niarchos Foundation-David Rockefeller River Campus at The Rockefeller University | New York | Rafael Viñoly Architects

# The High Road

A research institution ingeniously extends its leafy campus over a busy expressway.

BY JOANN GONCHAR, FAIA

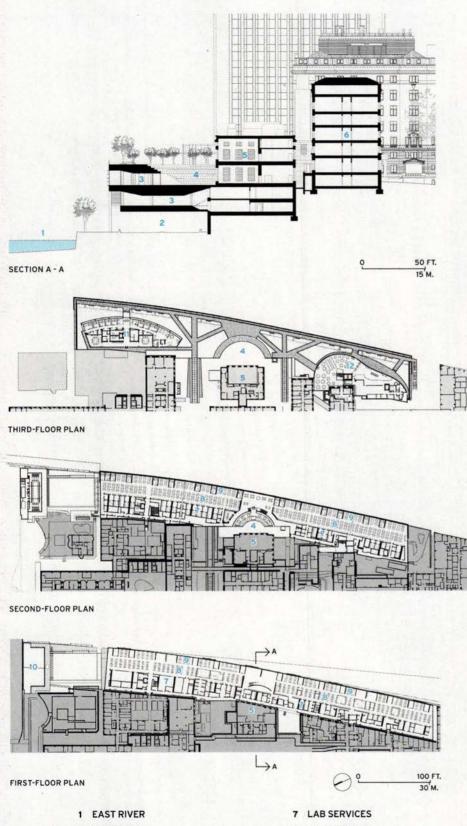
"WE'VE ADDED 160,000 square feet of new space, and you can't see any of it, making it one of our best buildings," jokes Jay Bargmann, senior vice president at Rafael Viñoly Architects (RVA). He is referring to the firm's expansion of Rockefeller University, the highly regarded biological- and medical-research institution that occupies a verdant campus along the East River on Manhattan's Upper East Side.

The approximately \$500 million endeavor, which has a cumbersome formal name — The Stavros Niarchos Foundation-David Rockefeller River Campus at The Rockefeller University—consists primarily of new laboratories. But the project, which totals 220,000 square feet, also includes new administrative offices, a dining commons, a conference center, and renovations to existing laboratories and offices. And as Bargmann's remark indicates, the expansion is mostly hidden, at least as one approaches from the existing campus, concealed under two acres of inviting roof gardens. The camouflaged structure,

**OUT OF THIN AIR** By taking advantage of air rights over the FDR Drive, Rockefeller University was able to create two acres of real estate and expand its hemmed-in campus.







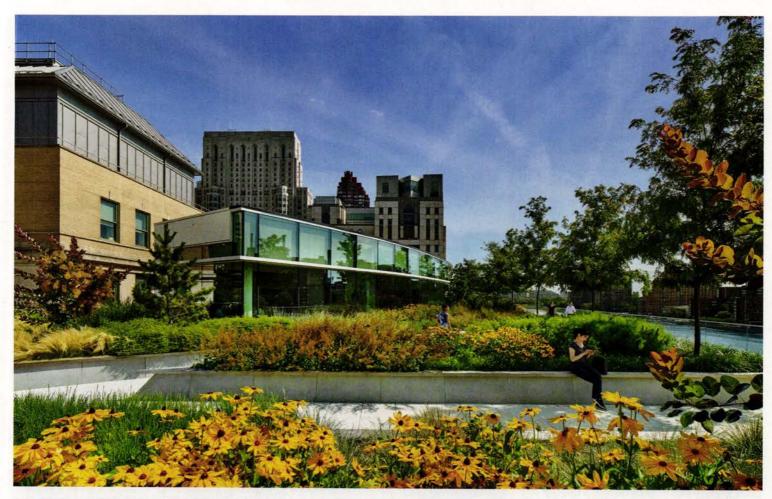
- 2 FDR DRIVE
- 3 LOUNGE
- 4 AMPHITHEATER
- 5 WELCH HALL (EXISTING)
- 6 FOUNDER'S HALL (EXISTING)
- 8 LAB BENCHES
- 9 WRITE-UP AREAS
- 10 CONFERENCE CENTER
- 11 ADMINISTRATION
- 12 DINING COMMONS

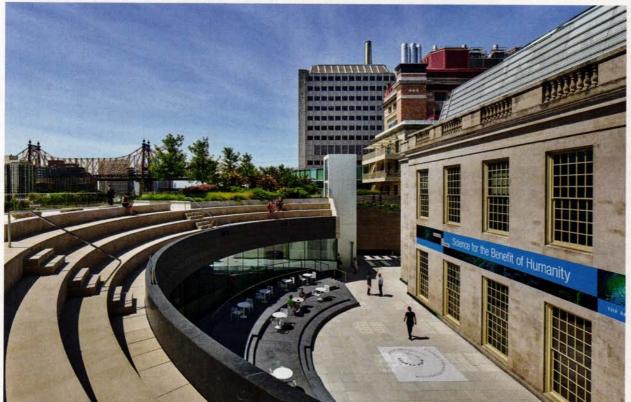
which stretches the equivalent of four city blocks along the river, provides a sharp (and ironic) contrast to another of the firm's recent New York projects—432 Park Avenue—a pencilthin skyscraper located less than a mile away that, for the moment at least, is the world's tallest residential tower, at 1,397 feet high.

The institute was able to pull off its disappearing act because it owned air rights over the FDR Drive-a six-lane highway at the river's edge that once defined the now 16-acre campus's eastern boundary. The rights were granted by the city in the early 1970s to the university and nearby hospitals, all of them hemmed in and cut off from the water by the often-congested roadway. To take advantage of its virtual real estate, RVA, its consultants, and the construction team devised a solution that depended on sophisticated engineering, off-site fabrication, and hair-raising acrobatics: during the summer of 2016, 19 prefabricated steel-framed modules, each unique and weighing up to 800 tons, were lifted from a river barge out over the roadway onto already placed columns and foundations (see sidebar, page 88).

The resulting long and low structure is of course not entirely invisible. Two curvilinear glass pavilions-one for the dining facilities and the other for the offices-pop up from the gardens that cover two levels of labs below. At the northern end of the extension and at a lower level, a glass-box conference center adjoins a broad lawn. (The roofs of the three protruding elements will eventually themselves be covered with sedum, in part because they are visible from nearby towers.) The arrangement is a continuation of earlier campus planning strategy, says Bargmann. The Rockefeller grounds, which include traditionally classical structures dating from the early 20th century, and midcentury additions by such firms as Harrison Abramovitz, appear as isolated objects surrounded by a Modernist landscape by Dan Kiley that includes leafy malls, courtyards, and water features. While the older buildings appear to be separate, explains Bargmann, many are connected below grade.

RVA's contribution to the campus is best understood from the shoreline of Roosevelt Island in the East River, opposite the university. From that vantage point one can clearly see the two stories of labs stretching along the FDR on Y-shaped columns, the building's sleek and subtly arced form accentuated by horizontal brises-soleil that shield the glass curtain wall. The basic outlines of this scheme, including its long and low organization over the highway, were determined in an earlier master-planning phase led by RVA. Although zoning would have permitted a vertical solution, the idea of a tower didn't have much appeal, says Timothy O'Connor, the university's executive vice president. Not only are





# POP-UP PARK

On the roof of the new laboratories are gardens where the plants, including ornamental grasses and flowering herbs, have been selected in part for the rustling sound they make in the wind. Curvilinear glass pavilions for offices (above) and dining pop up from the garden level, while an amphitheater is scooped out of it (left).

# New Laboratory Built with High-flying Construction Acrobatics

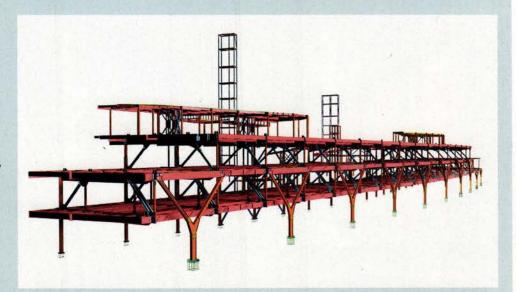
On 19 nights in the summer of 2016, erectors swung steel-framed modules, each weighing more than 500 tons, from a barge moored in the East River and set them into place over New York's FDR Drive. The elements, prefabricated at a New Jersey wharf, would form the bridgelike skeleton of what was to become a 160,000-square-foot laboratory expansion of Rockefeller University.

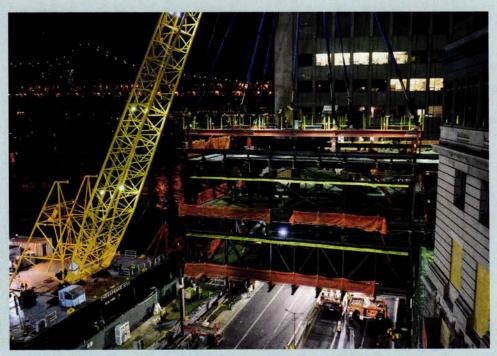
The FDR-the heavily traveled roadway that runs along the east side of Manhattan-was closed for each performance of the high-flying acrobatic act, conducted during the wee hours. But the scheme nevertheless required extensive logistical planning, careful coordination, and sophisticated engineering.

A number of factors made prefabrication with erection from the water a good choice for the project, explains Sherry Yin, an associate principal with Thornton Tomasetti, the project's structural engineer. These included a difficult-to-access site with limited staging area and the possibility of minimizing construction disruptions.

Engineers and contractors had to carefully analyze the modules to maximize efficiencies while balancing the limits of what could be safely transported by water and lifted by crane over the highway. For instance, the preassembled modules-all different but each about 50 feet tall and 90 by 45 feet-arrived at the site almost completely framed, including the V portion of Y-shaped columns now visible on the new building's eastern facade, vertical columns, braces, and beams. Sprinklers were installed at the fabrication yard, but ductwork was omitted, since the addition of sheet metal would have made the modules too heavy, says Jay Bargmann, senior vice president of Rafael Viñoly Architects. Similarly, concrete slabs were partially poured in advance to create the structural diaphragms necessary for erection, says Yin, but were completed after placement.

Stability during the delicate lifting operation was also a concern. The engineers studied the center of gravity of each module to ensure it would match that of the hoist rigging and avoid any





CAREFULLY CHOREOGRAPHED The building's steel frame (top) was prefabricated in 19 modules in New Jersey, transported to the site by barge, and craned into place over the highway at night (above).

significant eccentricity, says Yin. And, since the East River is a tidal estuary, the lifting maneuver could only be performed during slack conditions, when the water was still, narrowing the already limited time frame for the transfer.

Tim O'Connor, the university's executive vice president, calls the approach "audacious," and says that the 19 nights when the modules were installed were especially "nerve-racking." But the payoffs were substantial. According to team members, the strategy shortened the project schedule by a year and shaved \$20 million from the \$500 million budget when compared to a conventional stick-built process.



THE PEOPLE'S PROMENADE The expansion project included reconstruction of a sea wall and a public path for pedestrians and cyclists at the level of the roadway.

labs in high-rises difficult to rearrange as research needs evolve, he says, they also can hinder collaboration among different teams. "Scientists with workspaces in tall buildings tend to take the elevator to their labs and stay there."

With the goal of encouraging interaction among researchers, both organized and spontaneous, the new facility has open-plan floors, each about 740 feet long and divided roughly in half by a lounge space for informal meetings, relaxing, or group study. The areas to the north and the south are organized so that specialized equipment requiring enclosed rooms is located along the wall adjacent to the existing campus, and write-up desks, where scientists work at computers, are positioned along window walls facing the water. The zone in the middle of the roughly 90-foot-deep floor plates is devoted to the lab benches. These sit on top of a raised floor, below which runs the extensive infrastructure essential for scientific research, including that for power, data, and gas.

The casework and the floor system are designed on a 2-foot by 2-foot grid so that the research spaces are "plug and play" and readily reconfigurable, explains Bargmann.

This layout is smart and functional, but what makes the scheme stand out is the way it takes advantage of the proximity to the river. Floor-to-ceiling glass gives the scientists a view of the water's constantly changing surface and reflections, and, because the ceiling heights step up from 8 feet at the west to 18 feet near the river, daylight penetrates deep into interior (automated roller blinds activate to prevent direct morning sun from creating visually uncomfortable conditions). Appropriately utilitarian and durable finishes, including rubber flooring and carpet tile, are all light-colored to enhance the airy and open feeling.

The planning of the new outdoor space—which sits at an elevation about 20 feet above the original campus, to accommodate the laboratory floor-to-floor heights and the required clearance above the FDR—also capitalizes on the river. "Placing trees at the edge of the gardens, along the water, seemed wrong," says Signe Nielsen, principal of MNLA, the project's landscape architect. Instead, the perimeter of the lab building's





STUDY HALL Lounges (above), intended to encourage collaboration, divide the laboratory wings (left) roughly in half. Brises-soleil on the floor-to-ceiling window walls help bounce daylight into the interiors and emphasize the building's horizontality (opposite).



roof is devoted to a balustrade-protected pathway. This approach allows Rockefeller community members and staff of the neighboring hospitals (the campus is not accessible to the public) to enjoy unobstructed views, but it also acknowledges the exposed nature of the new real estate, which has a completely different microclimate from that of the more sheltered, older part of the university grounds, points out Nielsen. The newly planted trees, including Japanese black pines, are pulled away from the roof's edge, and have small leaves, so they aren't prone to toppling over in strong winds. Throughout, there are spots to sit and relax, including an amphitheater sunk below the garden level and benches integrated into the edges of the planting beds.

In creating a low-rise, horizontally oriented laboratory building disguised by landscape, RVA has added new space for cutting-edge research and for scientific collaboration, both indoors and out. And it has ingeniously-and somewhat counterintuitively-managed to integrate its addition into the existing campus while completely, and nearly invisibly, transforming it. .

# credits

ARCHITECT: Rafel Viñoly Architects - Rafael Viñoly, Jay Bargmann, Charles Blomberg, David Hodge, Bassam

CONSULTANTS: Thornton Tomasetti (structure); Ocean and Coastal Consultants (marine); Langan (geotechnical, civil); BR+A Consulting Engineers (m/e/p/fp); AKRF (environment); Convergent Technologies Design Group (audiovisual); Entuitive (curtain wall); One Lux Studio (lighting); MNLA (landscape)

CONSTRUCTION MANAGER: Turner Construction

STEEL FABRICATION: Banker Steel

STEEL ERECTION: New York City Constructors

**CLIENT: The Rockefeller University** 

SIZE: 220,000 square feet

COST: \$500 million

**COMPLETION DATE: April 2019** 

### SOURCES

CURTAIN WALL: Oldcastle BuildingEnvelope,

AGC Interpane, TVITEC

INTERIOR GLAZING: TGP, Cristacurva

THIN BRICK: Endicott

BUILT-UP ROOFING: American Hydrotech, Carlisle WOOD DECK: Bison Innovative Products

DOORS: Kawneer, Oldcastle BuildingEnvelope, Fleming, Scanga, Vitrocsa, McKeon, Dorma

HARDWARE: Allegion, CRL, Assa Abloy, FritsJurgens ACOUSTICAL CEILINGS: Armstrong, Conwed

PAINTS AND STAINS: Benjamin Moore, Sherwin-Williams

**WALLCOVERINGS:** Construction Specialties

PLASTIC LAMINATE: Formica

FLOOR AND WALL TILE: Daltile, American Olean, Atlas Concorde, Nemo, Mosa, Stone Source, Tectura Designs

CARPET: Bentley, Mohawk, J+J Flooring **RESILIENT FLOORING: Johnsonite** 

RAISED FLOORING: Tate Access Floors

WIRE MESH: Cascade Architectural

OUTDOOR FURNISHINGS: Landscape Forms, Streetlife, Janus et Cie, Uhlmann

PLUMBING FIXTURES: Toto, Elkay

INTERIOR LIGHTING: Axis Lighting, Acuity Brands, Sistemalux, Litelab, Hubbel, Vibia, Legrand, Kreon, Bicasa

EXTERIOR LIGHTING: Bega, Lightolier, Erco, Eaton, Acuity Brands, Lumenpulse







UCLA Margo Leavin Graduate Art Studios | Culver City, California Johnston Marklee

# State of the Arts

A university converts a midcentury manufacturing building for the 21st century, unleashing a creative spirit.

BY SARAH AMELAR

# PHOTOGRAPHY BY IWAN BAAN

IN THE mid-1980s, UCLA moved its graduate art studios six miles off campus to a former wallpaper factory in a then-industrial section of Culver City. The university purchased the boxy concrete warehouse as an economical solution to the department's spatial needs; whether the intent was also to encourage an independent spirit in the graduate arts programs, it did just that. The corner building-completed in 1948, with classic, wood bowstring trusses overhead-was raw and durable, and the students energetically, often without restraint, coopted it. Over the years, the structure's generous street setbacks, to its south and on its west side (where trucks originally pulled up to the loading docks), acquired clusters of small sheds, including a lean-to jerry-rigged as a woodshop and shipping containers that served as spray booths. "To say the place was adapted ad hoc," says UCLA principal project manager John D'Amico, "is to put it nicely." It was a messy, creative complex, without such updates as modern climate control or real accessibility. By 2010, when

the university issued an RFP, an inspired overhaul was in order. The resulting project—which more than doubles the original 21,100-square-foot factory—finally reached completion this fall.

The scheme, by Los Angeles architect Johnston Marklee (JML), envisioned wrapping the building with an L-shaped addition, replacing the motley shacks (as well as modest industrial-era add-ons). But after JML's feasibility study, in 2011, the project idled, awaiting funding. That came in 2016 with a \$20 million lead gift from retired gallerist Margo Leavin, a UCLA alumna and legendary figure on Los Angeles's art scene. Known for her eponymous gallery, active from 1970 to 2013, she embraced the opportunity to support education for future artists. "This top-rated art school wasregarding its facility-like an orphan to the university," Leavin recalls. "It needed pride of place and a real boost. Immediately, I knew this was the project for me."

In practical terms, the 47,900-square-foot renovation-expansion had to eliminate the main floor's



STAKE IN THE NEIGHBORHOOD Tilt-up concrete facades—with a twist—pay homage to the surrounding industrial vernacular (above). A large, corner cutout frames a two-story entry garden (left).

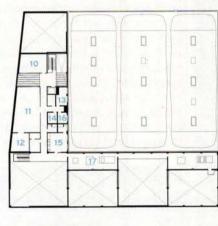


multiple level changes and update the fire protection, as well as the seismic and sustainability infrastructure. But a key conceptual question, says JML principal Sharon Johnston, "was how to create a state-of-the-art MFA facility without erasing the original spirit and culture." The concrete building's almost indestructible nature had clearly inspired improvisational uses—as had a defunct, wildly overgrown rail spur, along the site's northern edge, that students had unofficially appropriated. (By 2016, the city had paved over the spur for parking, but its history still resonated with the school's indoor-outdoor life.)

With interpretive twists, JML's design drew on the existing building's DNA and the original industrial character of the surrounding Hayden Tract (now a rapidly gentrifying neighborhood, with tech start-ups occupying former manufacturing plants, as well as sculptural follies and larger works by architect Eric Owen Moss punctuating the area). Though the 1948 factory was poured concrete, says Johnston, "we wanted to harken back to the tilt-up vernacular, found here and elsewhere in LA." But JML modified the technique by casting in a vertical texture of "pillows," or rounded pilasters, lending the elevations scale and detail.

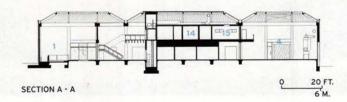
Abstractly, the design nods to classical forms, articulating this "colonnade" with a simplified plinth below and entablature-like cap above. The architects also achieved a virtually seamless exterior rhythm, with no visible distinction between the unsheathed frame and infill, by giving the exposed poured-in-place columns (to which the cast elements

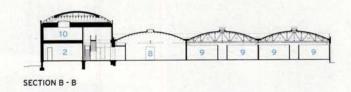




SECOND-FLOOR PLAN

- 1 ENTRY GARDEN
- 2 GALLERY
- 3 VIDEO-SHOOTING ROOM
- 4 SCULPTURE YARD
- 5 WOODSHOP
- 6 CERAMICS YARD
- 7 CERAMICS
- 8 CENTER BAY
- 9 STUDIO
- 10 SEMINAR
- 11 DIGITAL LAB
- 12 PRINT LAB
- 3 EDITING BAY
- 14 SOUND STUDIO
- 15 STUDIO APARTMENT
- 16 OFFICE
- 17 MECHANICAL ROOM







PUBLIC FACE An L-shaped addition surrounds the original building (opposite). The entry garden is veiled with a fine-grained chain link (above). Rounded concrete pilasters lend scale and detail (right) to large, windowless expanses of wall (right).

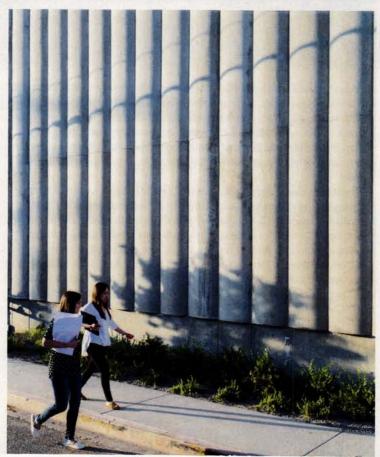
tie) "pillow" contours matching the tilt-up panels. The result is a continuous surface of inverse flutes, animated by light and shadow.

The approach was economical (within the \$23.2 million construction budget) and sustainable (reducing heavy-materials transport in a project poised for LEED Gold certification). It was also time-effective, meeting the inflexible first-day-of-school opening date of September 30. But tight site conditions and such obstacles as power lines made the method challenging.

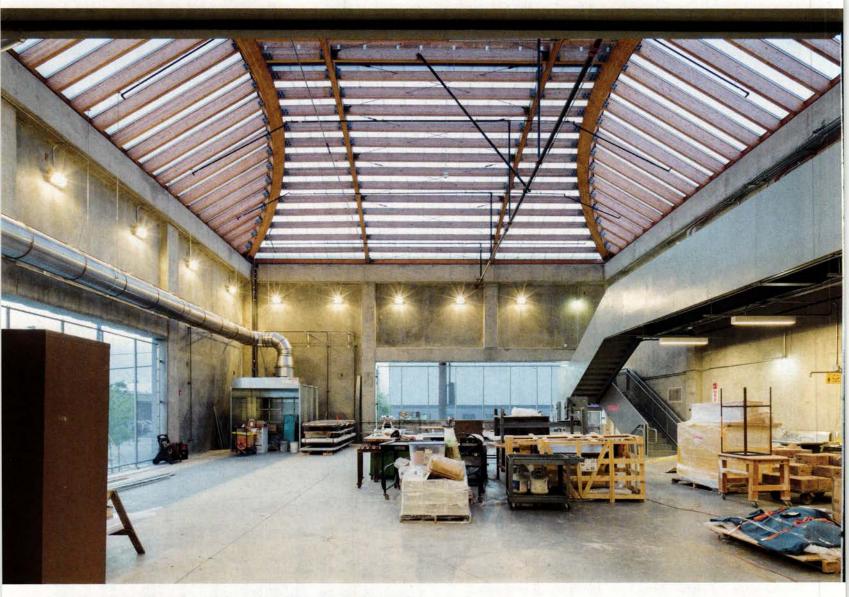
To envelop the arts "campus" within this shell, the architects used large, windowless expanses of wall, typical of warehouses. But they also cut out sections—as for the building's new entry garden, at its northwest corner—veiling them in a fine-grained chain link that balances competing needs for privacy and neighborhood connections. The structure now integrates three semi-outdoor zones: besides the entry/hangout/barbeque area, planted with trees and wall-climbing vines, there's also a sculpturework yard and one, with loading docks, for ceramics.

While the project retained (but, in some cases, reconfigured and/or relocated) such programmatic elements as a woodshop, the "center bay" crit area, and 42 individual studios, it added an exhibition gallery, garden-side kitchen, video-shooting room, and, on the new upper level (made possible by the soaring height of the expansion), an artist-in-residence loft, a classroom, and labs.

Tying it all together-and introducing much-needed daylight-is a







luminous landscape overhead. There the architects restored the existing bowstring trusses, adding seismic bracing and cutting skylights above. In the addition, they reinterpreted traditional trusswork with glulam vaults, engineered for greater, column-free spans (and enclosed in translucent polycarbonate, in the nonconditioned yards, and glass, with light-responsive, self-darkening features, as needed, elsewhere)

Regarding the program's six areas of specialization—ceramics, painting/drawing, photography, sculpture, "New Genres," and interdisciplinary—UCLA requested a flexible, nonhierarchical arrangement, accommodating its longtime practice of randomly assigning studios each school year by lottery, regardless of discipline. Now, in place of anonymous fire corridors and cramped labyrinths, Johnston says, "we imagined a 'mini-city,' with neighborhoods of studios, cul-desacs, and passageways—made wider than they needed to be—to give the feeling of residential streets."

Like an invitingly blank canvas, "the architecture doesn't compete with the art-making," Leavin noted just before the official opening, adding, "The students have already taken over—it's theirs!" As Johnston sees it, "We can't wait to return over time to find out how they've occupied it. For us, buildings are improved by the patina of use." ■

### credits

ARCHITECT: Johnston Marklee – Sharon Johnston, Mark Lee, partners; Nicholas Hofstede, project manager; Lindsay Erickson, project lead; David Gray, Tori McKenna, Justin Kim, designers

CONSULTANTS: Simpson Gumpertz & Heger (structural, building envelope); KPFF Consulting Engineers (civil); ME Engineers (m/e/p/fp); Geocon (geotechnical); Horton Lees Brogden (lighting & daylighting)

# GENERAL CONTRACTOR:

Abbott Construction

CLIENT: UCLA School of the Arts and Architecture

SIZE: 47,900 square feet (gross)

PROJECT COST: \$25.71 million

CONSTRUCTION COST: \$23.19 million
COMPLETION DATE: September 2019

### SOURCES

GLULAM BEAMS: Calvert Company
CAST-IN-PLACE/TILT-UP CONCRETE:

Largo Concrete

FORM-LINER PANELS:

Fitzgerald Formliners

BUILT-UP PVC ROOFING: Sika Sarnafil

BARREL-VAULT POLYCARBONATE

ROOFING: Gallina USA, Duo-Gard

Industries

WINDOWS: US Aluminum, Arcadia

GLAZING: Guardian, SageGlass, YKK,

Duo-Gard, Amerilux

ENTRANCES: Steelcraft, Oregon Door, US Aluminum, Cornell Doors, Wayne Dalton

**CONVEYANCE: Otis Elevator** 

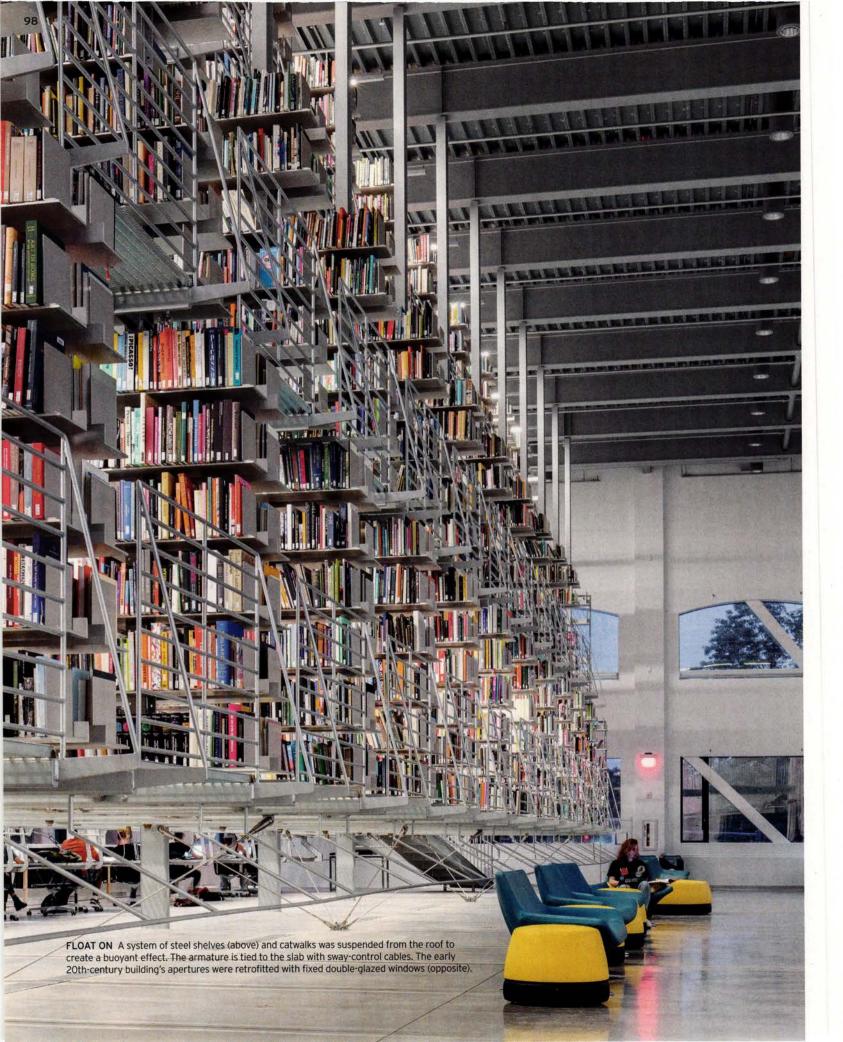
PLUMBING: Zurn, Duravit,

Chicago Faucets





LET THERE BE LIGHT In the sculpture yard (opposite) and ceramics yard (above), the architects reinterpreted traditional trusswork with glulam vaults, engineered for greater, column-free spans; 42 individual studios (left) occupy the original structure.





Mui Ho Fine Arts Library | Ithaca, New York | STV and Wolfgang Tschapeller

# Levitation Room

An early 20th-century building, once home to architecture studios, is transformed into Cornell University's new fine-arts library.

BY ALEX KLIMOSKI



FOR OVER a century, Rand Hall, a three-story 1911 yellow-brick building at the northeast corner of Cornell University's Arts Quad in Ithaca, New York, was defined by its industrial fenestration—a grid of generously sized steel casement windows. Formerly home to undergraduate and graduate architecture studios, Rand's operable single-glazed openings revealed to passersby the messy vitality of students hard at work. The building ceased functioning as such when the adjacent Milstein Hall, the expansive, dramatically cantilevered structure designed by OMA (RECORD, February 2012) became the architecture department's new, state-of-the-art academic hub. Now Rand's large apertures have been retrofitted with monolithic, highly reflective 12-foot-wide double-glazed windows, which lend the facade a more austere, and slightly surreal aesthetic—an outward expression of the new 26,650-square-foot Mui Ho Fine Arts Library it now houses.

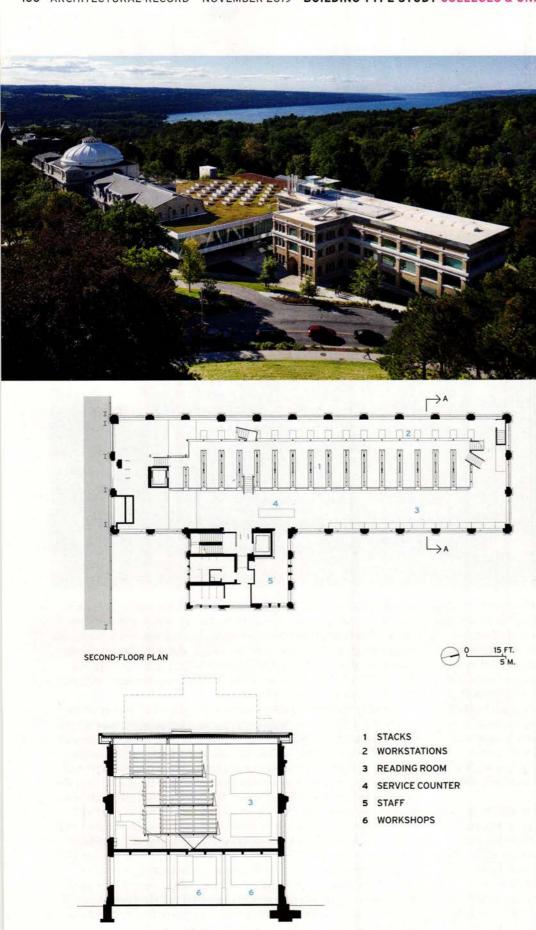
The completion of Rand Hall's renovation in August was the last step in a series of reconfigurations within the college of Architecture, Art, and Planning (AAP) prompted by the construction of Milstein. For many years, the fine-arts library had been in the two-story space below the dome of Sibley Hall—a classical-style building bordering Milstein—which has been converted by New York—based LevenBetts into administrative offices, crit and pinup spaces, and student workstations. In 2014, with a \$6 million gift commitment from Mui Ho—a Berkeley-based architect and former educator who received her B.Arch. from Cornell—then-dean Kent Kleinman invited four architecture firms.

including Herzog & de Meuron, to submit proposals to renovate Rand. The brief included the relocation of the library to its upper two levels—which connect to Milstein's studios—and the conversion of 8,000 square feet on the ground level into new fabrication shops and makerspaces. Vienna-based architect and AAP alumnus Wolfgang Tschapeller was selected for his idea of having the stacks appear as a towering volume levitating within a cavernous space.

Achieving the floating effect required a major structural intervention, which simultaneously made the historic building compliant with current codes, including those for seismic and wind loads. The ground level's column grid and the floor slab above it were left intact, while the second and third levels were gutted, removing the upper slab and the vertical structure to create a singular 40-foot-high light-filled space. The roof line was raised 7 feet above the previous sawtooth configuration's lowest point, and a new system of 20 steel beams that span 50 feet from the north to south exterior walls was installed. Vertical steel hangers, to which three levels of shelves are fastened, are suspended from the nearly 2-foot-deep beams, which also support tie-down hooks that accommodate outdoor installations on the rooftop. A spine of replacement columns, hidden between the stacks, supports the beams. To handle the redistribution of loads, the architects embedded a steel framework within the masonry facade, in between the window bays, and reinforced the foundation in certain areas.

Tschapeller, who worked with New York-based engineering and archi-





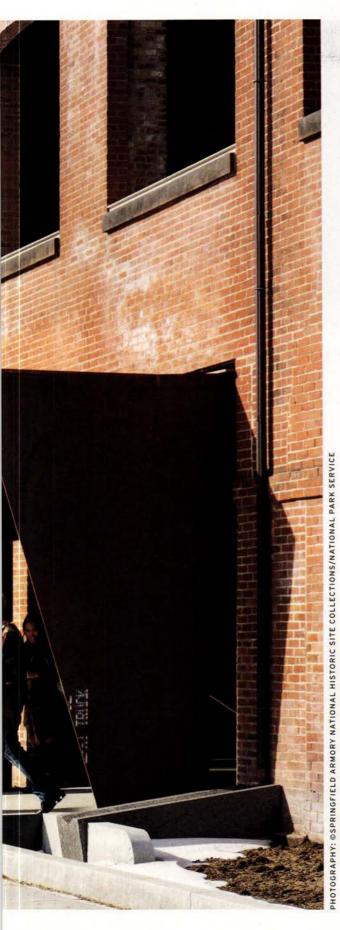
SECTION A - A

**LINKED IN** The OMA-designed Milstein Hall connects Rand and Sibley Halls, the two classical-style buildings that flank its east and west ends (left).

tecture firm STV, used a highly efficient mezzanine shelving system: each level is scaled according to the number of books, allowing for a capacity of more than 120,000 volumes. The steel armature, hovering 4 feet above the floor, is fastened to the slab only by sway-control cables. Grated catwalks permit ventilation within the stacks and allow access to the books, while the frame's thin profile showcases the immensity of the library's collection; two bridges-one on each of the upper shelf levels-connect the framework to Rand's entrance atrium and egress stair. "Books are heavy, yet they contain knowledge, stories, and images, which are essentially weightless," explains Tschapeller about the inspiration for his unusual design. "We wanted to construct a paradoxical situation-something with enormous gravity hanging from the skies." The architect had previously used a floating shelving system for a library in the museum of Sigmund Freud's apartment at Berggasse 19 in Vienna, although he cantilevered the shelves from the bearing walls there instead of hanging them from the roof.

On a bright day, the suspended skeleton's silvery sheen and svelte form foster an ethereal ambience. But the dominant idea driving the design of this new double-height space does not allow for a variety of study areas. A line of desks along the south wall, with movable chairs and tables beside the stacks, and individual workstations at the northern end of each shelf bay, seem like an afterthought. Although the transparency of the design floods the space with natural light, it doesn't provide the private nooks that students are drawn to, or places for collaborative study-it appears more like a glamorous warehouse. The four feet of unusuable space below the stacks takes away from other potential functions.

While the immovable shelving system glorifies the physicality and accessibility of books, the shifting programmatic requirements of libraries in the digital age are less considered. Even though the library will continue to acquire print volumes into the near future, the decision to purchase either print or electronic formats is decided partly on the basis of user need, says architecture librarian Martha Walker. However valuable physical books are in the dissemination of knowledge, continued improvements in processing and display technologies will probably reduce their necessity for future generations of students. But, given the very foundation of the library's architecture holdings-which were built upon the extensive private collection of Andrew Dickson White, the university's first president-the



FROM THE TIME of the Revolutionary War until the Vietnam War, the Springfield Armory in central Massachusetts served as an important small arms manufacturer for the U.S. military; it reached its peak production point during World War II, when nearly 50 percent of its workforce was composed of Women Ordnance Workers (WOWs)—the inspiration for the iconic image of Rosie the Riveter. When the arsenal was decommissioned in 1968, Springfield Technical Community College (STCC) took over various structures across its 55-acre campus. The institution's newest facility, converted from a 156-year-old warehouse, is the Ira H. Rubenzahl Learning Commons, designed by Boston-based Ann Beha Architects.

A national historic landmark, the two-story building, previously known as the Long Storehouse, was constructed between 1846 and 1863 in the style of French cavalry barracks. Originally built as a storage facility to stow black walnut lumber used for musket stocks, the 764-foot-long, 55-foot-wide masonry-and-wood structure was also used over the years as horse stables, an X-ray facility, and a cryptology lab before falling into disuse. Located amidst the college's main cluster of academic buildings, and near the primary student parking lot at the campus's northern edge, the long, slender structure had been vacant for decades. The architects' 2014 feasibility study recommended that it be adapted to accommodate much-needed gathering spaces and student services facilities.

In upgrading the building for 21st-century use while preserving its integrity, one of the biggest "knots to untie," says Philip Chen, Ann Beha project manager, was preparing the building—whose systems were absent or woefully outdated—to be populated by people. The project required major infrastructural prep work, including the creation of new electrical and water-drainage systems. To slip new mechanicals into the building while maintaining its historic character, the architects raised the second-level floor, creating a cavity between it and the first-floor ceiling. On the second level, they inserted a soffit down the middle of the ceiling to conceal additional systems, while leaving the timber beams exposed on either side. Structurally, the warehouse, which had been reinforced in 1940 with additional steel columns, was robust; however, it required the insertion of 24 two-story concrete shear walls throughout to meet seismic code.

The Long Storehouse's narrow form, which the architects describe as a "horizontal shaft," also made programming a challenge. "It wasn't only about physical relocation but the rethinking of how these departments work together," says Chen. The goal was to create a welcome



WAREHOUSE REDUX The original building, located near officers' quarters constructed in the 1830s (above), housed lumber for manufacturing gunstocks. Its renovation included the addition of weathering steel canopies to announce four new entry points (opposite).





SECOND-FLOOR PLAN



SECTION A - A

Q
10 FT.
3 M.

- 1 ENTRANCE
- 2 BOOKSTORE
- 3 DINING COMMONS
- **4** STUDENT ACTIVITIES
- 5 EVENT SPACE

- 6 ADVISING CENTER
- 7 ENROLLMENT CENTER
- 8 HEALTH & WELLNESS CENTER
- 9 LEARNING COMMONS

center that would also be a one-stop shop for student services, which had previously been scattered around campus, making the admissions and enrollment processes cumbersome. As a solution, the design team broke down the interior into four hubs—enrollment, academic advising, student-life spaces, and the learning commons. The administrative functions are clustered at the building's western half, while the student areas, which include social spaces on the ground level and a library and reading areas on the second and attic levels, are spread out across the eastern half. To avoid "tunnel vision," the architects created meandering circulation routes, shifting from central double-loaded corridors to single-loaded ones along the building's perimeter.

Materials were kept simple and durable. Concrete floors and exposed shear walls, as well as custom steel administrative desks, add to the building's industrial character, and built-in beech-wood benches nod to the original Eastern white pine and Douglas fir columns and beams. Some walls are painted in bold colors—yellow, red, and purple—to distinguish the different functions. Generously glazed interior walls allow light to filter into the building's core.

With guidance from the National Park Service, which shares the campus with STCC, the architects worked to restore the building's front facade, whose surface, composed of 58 window bays, is over 50 percent fenestration. To announce entry points in a subtle yet legible way, the design team installed weathering steel canopies at four different bays along the exterior wall. At these locations, they kept the

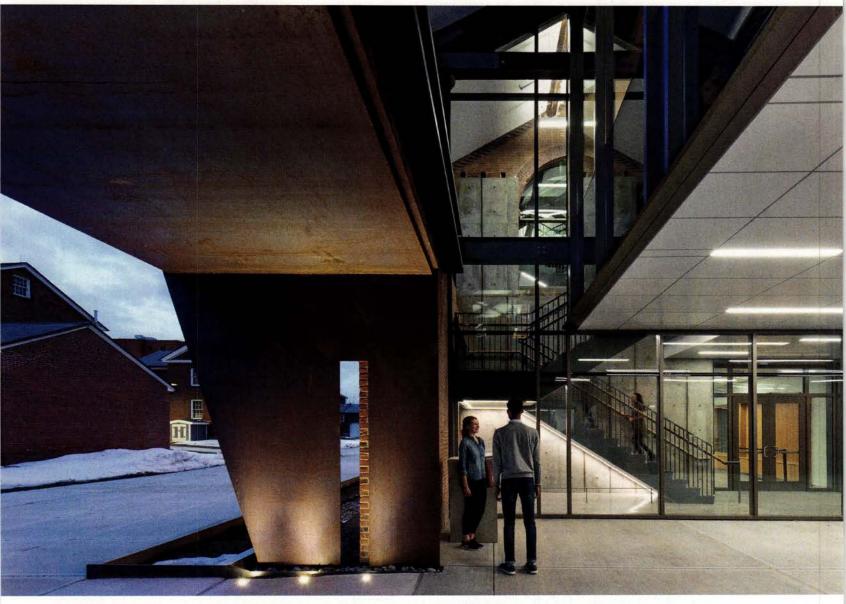


# BIG REVEAL

Inset glazed curtain walls maximize natural light within the interior (opposite). The original masonry walls and timber beams and columns were left exposed (above and right).







INDUSTRIAL SPIRIT Generous glazing reveals the contrast of old and new materials throughout the interior. The durability of the exposed concrete shear walls and weathering steel canopies nod to the building's original role in arms manufacturing.

window apertures free of glazing and inserted glass walls, three of them set back 61/2 feet and one 1 foot, to create sheltered outdoor spaces. New high-performance windows have thin steel exterior louvers, which replace the historic wood ones that once promoted natural ventilation in the warehouse.

At the building's front, the architects transformed an asphalt parking lot into a landscaped area with tables and benches, extending the gathering spaces to the outdoors. Completed in December of last year, the Learning Commons celebrates the campus's storied roots while activating what was once a dead zone. Whereas the structure's commanding horizontal presence had previously created a physical barrier, now, with the varied spaces it provides-from quiet study areas to transparent conference rooms and open community zones—it serves as the primary congregating point both for students and faculty. "The best way to preserve a building is to make it wellused," says Chen. "We just had to reveal what it could do." ■

### credits

ARCHITECT: Ann Beha Architects - Philip Chen, principal; Robert Carroll, Jacqueline Mossman, Ric Panciera, Rita Terjeki, George Faber, Ian Ford, design team

ENGINEERS: RSE (structural); Altieri Sebor Wieber (m/e/p); Nitsch (civil); The Green Engineer (sustainability)

CONSULTANTS: Jensen Hughes (code); Sladen Feinstein (lighting); IBI (landscape); Public Archaeological Laboratory (archaeology); Jaffe Holden (acoustics); Structures North (wood framing); Preservation Technology Associates (masonry); BVH (audiovisual)

**CLIENT: Division of Capital Asset Management** and Maintenance

SIZE: 100,000 square feet

COST: \$50 million

**COMPLETION DATE: December 2018** 

### SOURCES

**ALUMINUM STOREFRONT: Kawneer** GLAZING: Vitro; SaftiFirst; C.R. Laurence

DOORS: VT Industries; Cascade Coil; McKeon

ACOUSTICAL CEILINGS: Armstrong; CertainTeed

SUSPENSION GRID: Armstrong PAINTS AND STAINS: Sherwin-Williams

PLASTIC LAMINATE: Formica SOLID SURFACING: Silestone FLOOR AND WALL TILE: Daltile

RESILIENT FLOORING: Armstrong, Norament

**ELEVATORS: Schindler** 

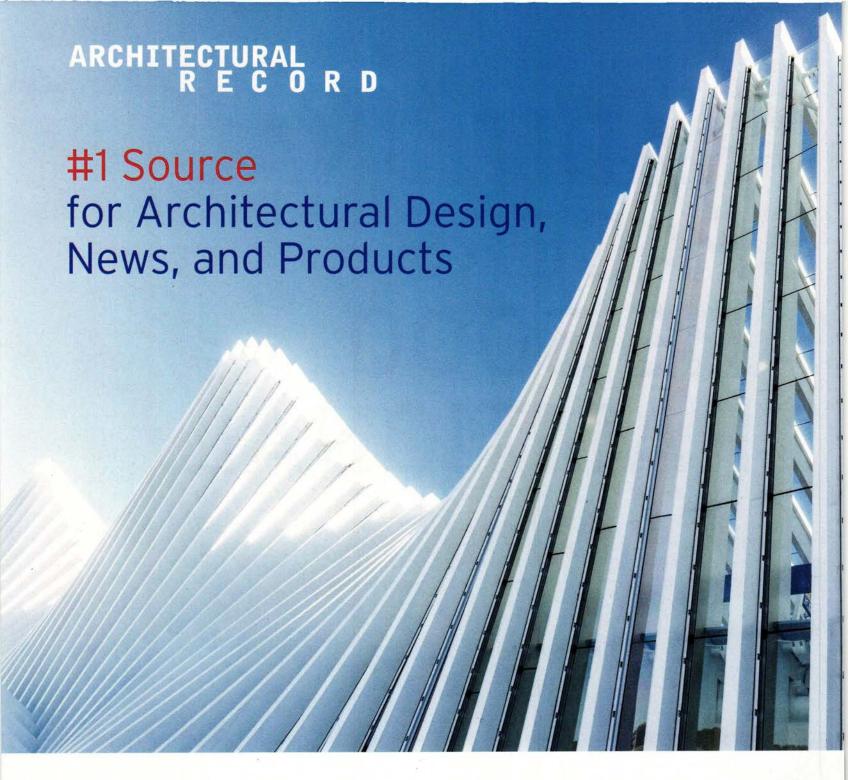
PLUMBING: Kohler

# TRADITIONAL SPACERS ARE SOOO TRADITIONAL.

Out with the old, in with the new, cutting-edge Viracon Thermal Spacer (VTS™). VTS™ replaces a traditional spacer, desiccant and primary sealant with a better-performing single component spacer. Available in glass sizes up to 130" x 236", the VTS™ delivers superior seal integrity, thermal performance and aesthetics. There's nothing traditional about it. Learn more at viracon.com.







# Your subscription is changing to a membership.

RECORD Premium includes all things Architectural Record. See how your subscription is changing today!

Visit www.ArchitecturalRecord.com/new to learn more!



#### HISTORIC REPLICATION WINDOW EXPERTS

Necessity truly is the mother of invention, as Graham discovered in replicating the former Thomas Edison Battery Building's nearly 2,500 windows. The solution required nearly 40 new extrusion dies. But by extensively modifying its rugged S6800 Series window, Graham was able to replicate the original windows' look while also delivering high-end thermal and structural performance Edison would be proud.



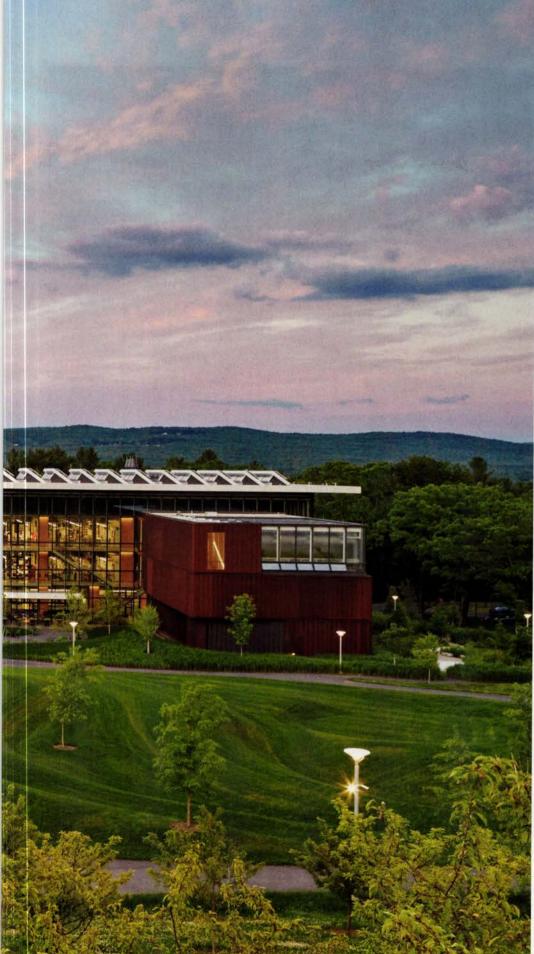


# More Than Academic

A set of recent campus buildings with ambitious performance goals fosters collaboration and reflects changing values.

BY CHARLES LINN, FAIA





THE VOICES of college students have long been among the loudest clamoring for meaningful action to combat climate change. And universities have shown they share these values by commissioning buildings that aggressively pursue energy efficiency. Among the most recent projects are a group of standouts that smartly integrate extensive use of transparency, abundant daylighting, and natural ventilation. Amherst College's Science Center, the Keller Center for Advanced Studies at the University of Chicago, and SDE4, a building for the School of Design & Environment at the National University of Singapore, all fuse resource conservation with strategies that create welcoming spaces and encourage collaboration, showing students what a sustainable future could look like.

It is hard to imagine that a science building could be one of the most popular hangouts on any campus, but making such a building was very much on the minds of Boston-based Payette Associates when they began designing the new **Science Center** to replace a 50-year-old building at Amherst, in western Massachusetts. In addition to desiring a building that would be state-of-the-art and highly energy efficient, the college hoped to reinforce the idea that deep explorations of science are an integral part of a liberal-arts education. "Amherst wants to celebrate science and demystify it," says Payette principal Robert Schaeffner.

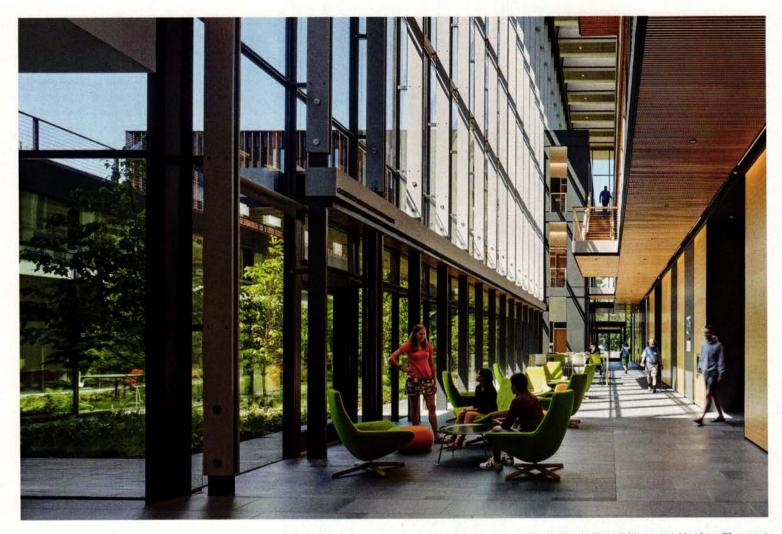
The 230,000-square-foot building is roughly E-shaped in plan, with three pavilions containing offices, study spaces, and classrooms projecting from the main volume, which houses a three-story commons and labs. To make science seem less enigmatic, the building has been designed so that the corridors and laboratories are enclosed in glass, visible from many parts of the campus through the commons's three-story glazed curtain wall. Seventy-two percent of the floorplate has some direct view to the outside, and lab spaces enjoy views of the Pelham Hills to the east.

The 400-foot-long commons is the true star of the Science Center. Its west-facing orientation is not ideal, but solar radiation is controlled by low-E-coated triple-glazing and automated shades at the second and third levels. Motorized awning-style windows located over the four entries on the first floor are opened by the building automation system (BAS) to permit natural ventilation when temperature and humidity levels are right.

At Amherst College's Science Center, classroom and office pavilions protrude from the west facade. These programmatic elements have their own air-handling units, distinct from the more energy-intensive areas.

DTOGRAPHY: © ROBERT BENS







AMHERST SCIENCE CENTER - ENERGY CONSERVATION STRATEGIES

- 1 PV ARRAY
- ROOF OVERHANG/CANOPY
- **AUTOMATED SHADES**
- NATURAL VENTILATION
- RADIANT SLAB
- 6 SMOKE EXHAUST
- DISPLACEMENT **DIFFUSERS**
- 8 CHILLED BEAMS
- LOW-FLOW FUME HOODS
- 10 HEAT RECOVERY
- **DEMAND-CONTROL** VENTILATION

Direct views to the outside are provided from 72 percent of the Amherst building's floor area, including its multistory commons (above) and laboratories (opposite, top).

Otherwise, supply air is provided by displacement diffusers located near the floor, while radiant heating and cooling run through the concrete slab and that of the balconies that overlook the commons.

The entire roof of the commons is covered by rows of roof monitors, which integrate multiple systems. Each monitor is supported by its own cantilevered steel beam, from which the curtain wall is also hung. Glazed, north-facing panels admit generous amounts of daylight, diffused by double-curved suspended ceiling panels, while south-facing photovoltaic (PV) panels are mounted on the outside of the monitors. Radiant cooling, sound attenuation, and lighting are also incorporated into the underside of the panels.

Laboratories are voracious consumers of energy because they contain lots of heat-generating equipment and exhaust large amounts of conditioned air through fume hoods. At Amherst, they are cooled year-round. But to conserve energy, air that has already been



circulated through offices and corridors is drawn into the negatively pressurized labs and supplemented with additional ventilation when sensors detect that fumes are being created by experiments.

Placement of the offices and classrooms—the programmatic elements that the architects refer to as "low-energy"—in the projecting pavilions, with their own dedicated airhandling units, was another conservation strategy. Similarly to the commons, these spaces benefit from natural ventilation, which is admitted through operable facade panels. Although these are automated in classrooms, in the offices they are manually controlled. When sensors in the rooftop weather station

send a signal to the BAS to indicate that the conditions are suitable, a green LED in the offices lights up to indicate that the panels can be opened (occupants also receive an e-mail notification).

Overall, the Amherst Science Center's energy use intensity, or EUI (annual energy use divided by floor area), comes in at 91 kBtu per square foot per year, which is about 76 percent below a typical laboratory building, and 80 percent less than the building it replaces.

Students at the Harris School of Public Policy in Chicago, many of whom are focused on social and environmental issues, learn their craft at the **Keller Center**, a three-story building designed by Edward Durell Stone and opened in 1962. The 256-foot-wide structure resembles his American Embassy in New Delhi, sitting atop a 5-foot-high plinth, surrounded by a colonnade supporting deep roof overhangs. Two Chicago firms, Farr Associates and Woodhouse Tinucci Architects, have completely restored the exterior and opened up the interior in dramatic fashion.

The limestone- and precast-clad concreteframe structure was originally the Kellogg Center for Continuing Education, a conference center and hotel, and was later made into a dorm. By the time the university began considering repurposing the building for the publicpolicy school, its mechanical systems were completely outdated and its previous use as housing so incompatible with its new program that the architects needed to entirely gut the interior. They sawed out concrete floor and roof slabs throughout the building to create open, light-filled spaces that reflect the Harris School's attitude toward public-policy education. "The school uses a data-driven approach across multiple disciplines, treating policymaking like a science, to give it transparency," says Farr associate principal Gabriel Wilcox. He maintains that leaving the cut concrete and rebar exposed is one version of transparency in architecture, while the new glazed walls that allow visibility into classrooms and study pods is another, more literal one. The aim is "to increase collaboration and engagement-to put policy on display so that you could see the activity and rigor as you step inside the door."

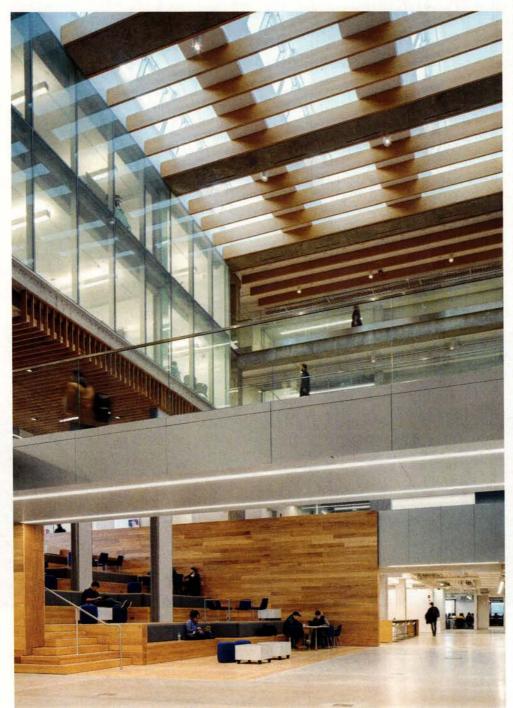
Wilcox points to the Forum, the newly created four-story central atrium. The multilevel gathering space is finished in wood salvaged from Chicago Park District ash trees



The University of Chicago's Keller Center (above) is housed in a 1960s Edward Durell Stone building that resembles his American Embassy in New Delhi, with its plinthlike base and deep overhanging roof. Originally a conference center and hotel, it has recently undergone a LEED Platinum renovation for the Harris School of Public Policy.



KELLER CENTER-SECTION/PERSPECTIVE



The architects selectively demolished interior walls and slabs to create a four-story skylit atrium (left, top and bottom). The space is finished in wood salvaged from local ash trees killed by invasive insects.

killed by invasive insects. It is topped by three rows of roof monitors and surrounded by glass walls that allow views into seminar and classrooms. The south-facing triple-layered fiberglass skylights admit daylight that bounces off curved white panels to soften and diffuse it. When the sun is high in the sky during the summer, exterior overhangs shade the fiberglass panels.

The new mechanical systems include radiant heating and cooling panels that are about 35 percent more efficient than conventional systems. The building's performance was further enhanced by adding insulation to the exterior walls and the roof. Existing operable casement windows in offices along the perimeter of Keller were retained to save money and reduce embodied energy (the energy used in the production of a building). However, sliding windows were installed over them on the interior. When occupants desire natural ventilation, they open both the sliders and the casements. To prevent condensation, the office air-conditioning is automatically shut off.

With the addition of a rooftop PV system, which provides about 11 percent of the building's energy, the LEED Platinum Keller Center maximizes all possible LEED energy points and achieves an EUI of 48 kBtu per square foot per year-a 46 percent reduction over the rating system's baseline model. Wilcox is particularly proud that the project has also claimed the Living Building Challenge's Materials Petal, which is especially relevant to Harris's policy mission. It includes a prohibition against using materials containing ingredients on the certification system's "Red List"-a group of chemicals commonly found in building products despite being harmful to humans and the environment.

The tropical climate of Singapore, the location of the School of Design & Environment building SDE4, is a striking contrast to the temperate zones of Chicago and Amherst. Maximizing energy conservation here was a project mandate. The administration wanted students to learn to design in a building that set the energy bar as high as possible—net zero—in order to challenge them to live up to that standard for the rest of their careers.

Serie + Multiply Architects of London, with Surbana Jurong of Singapore- and Germanybased climate engineers Transsolar Energietechnik, designed SDE4 to produce as much energy on its site as it consumes annually. The 91,000-square-foot, six-story building needed generous windows that would connect stu-



dents to views of the lush surrounding landscape, and few interior walls. "Learning is far more social today," said Chris Lee, principal of Serie + Multiply. "We needed to make learning visible. So the study, critique, and presentation spaces are designed in such a way that they can be seen from multiple angles within the building."

Lee found inspiration in vernacular precedents such as Malay houses, which have large overhanging roofs. They are built on stilts with wide front elevations to capture breezes, but are otherwise shallow in depth. The 252-foot-wide south elevation of SDE4 looks toward the sea, but the building's footprint is only about 88 feet deep. Its oversailing roof projects about 52 feet beyond the top-floor facade to provide shading while allowing extra area for PV panels.

Large parts of the second and third levels have no walls, left open to the elements for natural ventilation, and the east and west walls of the building are set back from perforated metal screens. These provide shade in the morning and late afternoon without completely blocking the view. The screens are designed so that they can be removed and substituted with experimental materials and assemblies for facade-research projects.

On the top two floors, studio spaces run almost the entire length of the building. Adjacent classroom, model-making, and work-



SDE4 has a broad but shallow footprint for natural ventilation (top). Perforated metal screens can be replaced with experimental materials and assemblies for facade research projects (above).





Few of the SDE4's spaces are fully air-conditioned (bottom). Many, including a fifth-floor gathering space (left) depend on a hybrid system and operate at higher temperatures and humídity levels.

well. Although the rooftop PVs are capable of producing only about 500 megawatt hours of electricity annually (roughly a quarter of the energy a building with this use in this climate would typically consume), SDE4 is operating at net positive. Now, 10 months after opening, it has produced 30 percent more energy than it has used, demonstrating the potential of design to help mitigate the climate crisis.

More buildings like SDE4, Amherst's Science Center, and Keller-projects that provide healthy environments, superior energy performance, and the inspiration that comes from inhabiting beautiful architecture—would give students a measure of confidence that the future will be bright.

Charles Linn, FAIA, is a Lawrence, Kansas-based writer and architect and a former deputy editor of ARCHITECTURAL RECORD.



- 1 NATURALLY VENTILATED ZONE
- CONDITIONED ZONE
- 3 HYBRID ZONE

SDE4-THERMAL-ZONING DIAGRAM

shop spaces are separated from the studios by glass walls. To control glare, exterior light can be blocked by user-operated roller shades, but "lamellas"—panels of horizontal metal fins—start about 6½ feet from the floor and extend to the ceiling. These direct the light onto the ceiling plane rather than screening it out entirely.

Transsolar used a number of modeling programs to refine the SDE4's facade and envelope geometry and to design what Wolfgang Kessling, one of Transsolar's directors, calls a hybrid cooling system. Full conventional air-conditioning is supplied only to

those spaces where it is absolutely essential, such as computer labs. But most of the building is cooled to higher temperatures and humidity levels than is typical. Ceiling fans help compensate. "I'm taking care of the excess humidity, but I'm not overdrying the air. I'm taking care of excessive temperature, but I'm not overcooling the air," says Kessling. "When I combine these two things with air movement, people are comfortable." Occupants also have the option of opening sliding glass panels to let in fresh air, and then the hybrid cooling is automatically shut off.

Kessling says the strategy is performing

#### **Continuing Education**



To earn one AIA learning unit (LU), including one hour of health, safety, and welfare (HSW) credit, read the Colleges & Universities

Building Type Study on pages 83 through 116 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 continuing-education requirements can be found at continuingeducation.bnpmedia.com.

#### Learning Objectives

- 1 Discuss strategies for balancing a desire for transparency—as an expression of an educational institution's pedagogical mission with the need for energy efficiency and occupant comfort.
- **2** Describe low-energy climate-control systems suitable for tropical climates.
- 3 Describe how universities are transforming former industrial buildings and disused academic buildings for new educational uses, and discuss methods for structural retrofit and seamless incorporation of new mechanical systems.
- 4 Discuss off-site fabrication as a strategy for building on constrained urban campuses, and outline the challenges to such an approach.

AIA/CES Course #K1911A

### Submit your projects!

# 2020 Record Houses the pro-

Eligible projects include those that incorporate innovation in program, building technology, materials, and form. Winning projects will be selected by an editorial jury and published in the April 2020 issue of *Architectural Record*.



To enter, visit architecturalrecord.com/call4entries

**DEADLINE: JANUARY 17, 2020** 

### ARCHITECTURAL R E C O R D

THERE'S MORE TO EXPLORE AT...

architecturalrecord.com





**VIDEOS** 













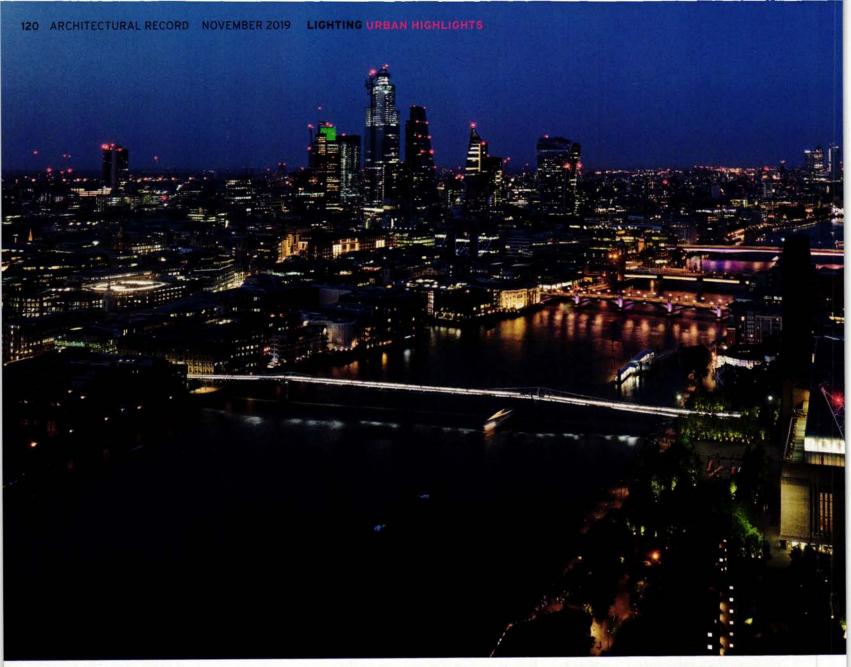
WEB EXCLUSIVE CONTENT

# **Urban Highlights**

Subtle schemes that enhance rather than overwhelm the night skies of three cities.

- 120 Illuminated River, London
- 123 CF Toronto Eaton Centre Pedestrian Bridge, Canada
- 124 Larkin Street Substation Expansion, San Francisco
- 126 Products

LONDON'S ILLUMINATED RIVER, BY LEO VILLAREAL STUDIO WITH LIFSCHUTZ DAVIDSON SANDILANDS (MILLENNIUM BRIDGE, FOREGROUND).



#### Illuminated River

Lifschutz Davidson Sandilands Leo Villareal Studio By Chris Foges

As DUSK FALLS in London and the lights come on, the grammar of the city begins to break down. Humdrum office buildings compete to outshine each other, while monuments such as St Paul's Cathedral recede into darkness. Public parks become inky voids, but bright security lighting lends a lively aura to inconsequential parking lots. A calm corrective to this high-wattage anarchy is being offered by a new light-based artwork by the American artist Leo Villareal with London architect Lifschutz Davidson Sandilands. Phase I of Illuminated River, as it's called, has recently been installed on four

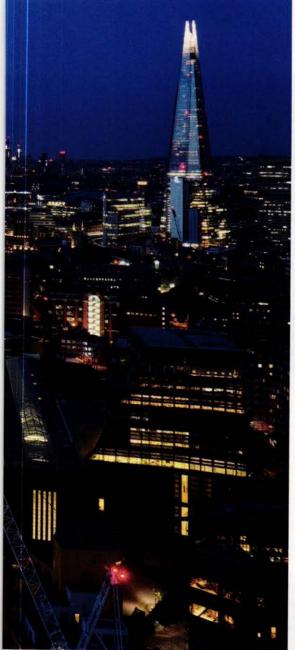
Thames River bridges, and will eventually extend to 15 river crossings.

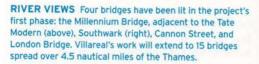
The initiative, largely funded by the Rothschild, Blavatnik, and Arcadia foundations, celebrates significant pieces of civic infrastructure with gentle washes of colored light that slowly change and blend, attracting the eye not with brightness but with the same seductive pull as a flickering flame. Villareal's interest in light and algorithmically generated pattern-making have grown in parallel since the 1990s. Software offered the possibility of change over time, "taking people on a journey," he suggests, while light itself could "involve people's full sensory capability—something that was lacking in screen-based digital art."

Villareal chose his colors by watching the sky and the reflections in the water and glass of surrounding buildings, as well as studying earlier representations of the Thames by artists such as Monet. Both the palette and the movement of light vary in response to the diverse architecture of the bridges and the history of their immediate environments. "We wanted to make a subtle gesture," he says, "not to take the bridges over, or use them as pedestals for something foreign to them."

The current London Bridge, built in 1973, is a simple series of shallow concrete arches that links two of the city's oldest and busiest districts. An ever-changing blend of vivid hues—lilac, cyan, and yellow—now travels across its slabbed sides, evoking the flow of traffic across the river that has occurred at this spot since Roman times.

Cannon Street Railway Bridge is a muscular hulk of riveted metal atop stubby Doric piers, and is being lit for the first time. Sturdy struts are silhouetted against a kinetic backdrop of warm pink and amber light whose movement

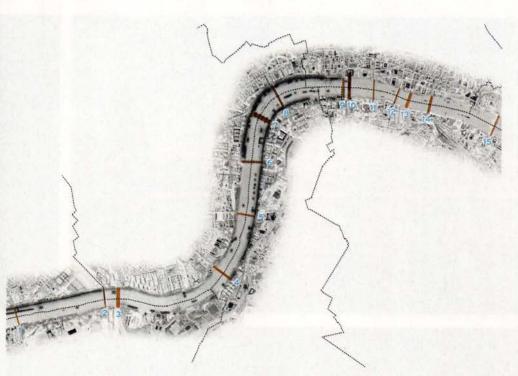




alludes to the passage of trains above. At the more ornamented Southwark Bridge, "Leo was interested in revealing the volume within the structure," says architect Alex Lifschutz, and a magenta haze seems to hover within its delicate tracery of Victorian ironwork.

Where a bridge has an established lighting "identity," the intention is to preserve the familiar character while refining it. At Foster & Partners' slender Millennium Bridge, known as the "blade of light," the original illumination had dulled since its completion in 1999 and has been reinterpreted and amplified using newer, more efficient fixtures.

Developing distinct responses to each structure involved a mix of low and high tech-



SITE PLAN

- 1 ALBERT BRIDGE
- 2 CHELSEA BRIDGE
- 3 GROSVENOR BRIDGE
- 4 VAUXHALL BRIDGE
- 5 LAMBETH BRIDGE
- 6 WESTMINSTER BRIDGE
- 7 GOLDEN JUBILEE FOOTBRIDGE
- 8 WATERLOO BRIDGE
- 9 BLACKFRIARS BRIDGE
- 10 BLACKFRIARS
  RAILWAY BRIDGE
- 11 MILLENNIUM BRIDGE
- 12 SOUTHWARK BRIDGE
- 13 CANNON STREET RAILWAY BRIDGE
- 14 LONDON BRIDGE
- 15 TOWER BRIDGE









UP CLOSE Cannon Street bridge (above, both) was completed in 1866 but has been lit for the first time, with a scheme that celebrates its utilitarian character. At London Bridge (left), lighting highlights its form's monumental simplicity.

nologies. Lighting engineer Jonathan Gittins of Atelier Ten examined the bridges from a boat, and even donned breathing apparatus to crawl through their inner recesses. A luminance survey of the river was produced with specialist software and used to target the lighting and minimize spill. The team built the first threedimensional digital model of the structures, which was drawn into a video game visualization engine that is sufficiently detailed to show every light fixture and the water rippling below. For final tuning, however, Villareal returned to the sites night after night, observing the river

itself and the way that people use the city.

The data collection also played an important role in convincing the more than 50 bodies that control the river, from transit authorities to the London Wildlife Trust, that due care was being taken. The project was delivered by a purpose-made charity, the Illuminated River Foundation, which staged an international competition to appoint a design team. "In our presentation," recalls Lifschutz, "we said that, in addition to illuminating these bridges, we want to start a more general conversation about lighting in the city." Illuminated River demonstrates that visual impact need not entail light pollution or heavy power consumption. Its LED fixtures are focused and shielded to reduce light spill significantly below that from existing installations on the bridges, and reduce energy use by up to 75 per cent. "The aim of the project", says Lifschutz, "is to turn the minimum amount of energy into the maximum amount of poetry." ■

#### credits

**ARCHITECT: Lifschutz Davidson Sandilands** 

LIGHTING DESIGN: Leo Villareal Studio

ENGINEERS: Atelier Ten (m/e/lighting); Beckett Rankine

(marine); Price & Myers (structural)

CONSULTANTS: Jackson Coles (cost); Temple Group Thomson (environmental); London Wildlife Trust (wildlife); Montagu Evans (planning)

GENERAL CONTRACTOR: FM Conway

**CLIENT: Illuminated River Foundation** 

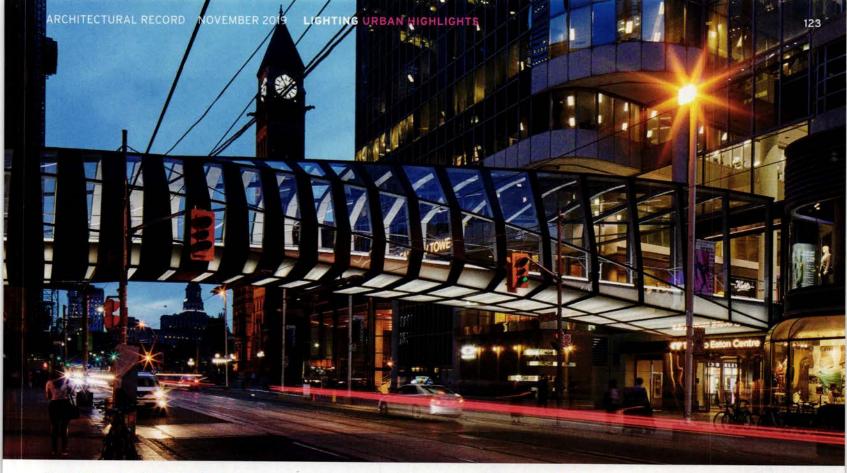
COST: withheld

COMPLETION DATE: July 2019 (Phase I); ongoing

#### SOURCES

LIGHTING: Signify

POWER: The electricity supply for Millennium, Southwark, and London bridges comes from the City of London Corporation's appointed supplier, which provides 40% renewable energy. This is expected to increase to 100% within the lifetime of Illuminated River.



### CF Toronto Eaton Centre Bridge

WilkinsonEyre Speirs + Major By Linda C. Lentz

TWISTING ITS WAY from the Victorian-era Hudson's Bay Company building to the 1970s CF Toronto Eaton Centre, a new pedestrian bridge spans both the years and the city's Queen Street with a graceful thrust. The dynamic crossing not only unites the two shopping destinations, both owned and operated by developer Cadillac Fairview, but also celebrates the recent revitalization of this popular urban mall and office complex.



The 115-foot-long bridge replaces a serviceable 50-year-old connection that did little to improve street life or user experience. Designed by London-based WilkinsonEyre, with lighting by Speirs + Major (S + M), the torqued steel structure-a modular assembly fabricated off-site, then erected in place with minimal disruption to this busy commercial hub-speaks to the existing architecture with its alternating ribs of glass and textured, bronze-clad steel. As the bridge emerges from the arched opening of the stone and terracotta Hudson's Bay Company, its metal ribs are curved and broad, with thin strips of glazing between them, reflecting the older building's solidity. As the bridge approaches the newer Eaton Centre, the geometry shifts: the metal ribs become slender and rectilinear, and the glass broadens, creating a transparent approach to the glazed tower.

While the bridge's interior is largely sunlit during the day, S + M devised a powerful yet unobtrusive after-dark identity with a minimum of light sources. The idea for the exterior, says lighting designer Keith Bradshaw, "was to create a luminous soffit" that would improve the ambience for shoppers and passersby on the sidewalk underneath. Working closely with the architects, manufacturers, and local lighting engineer Mulvey & Banani, the lighting designers wrapped the underside of the structure with increasingly large sections of backlit frosted glass, illuminating the thoroughfare below with a subtle glow, which intensifies as it nears the

TIME TRAVEL LEDs in the twisting 115-foot-long structure gently illuminate the street (above) and guide occupants (bottom) from the century-old Hudson's Bay Company building to the 1970s CF Toronto Eaton Centre.

Eaton Centre. Inside the passage, each side of the stone-clad walkway is edged with a continuous run of LEDs concealed by a bar-shaped acrylic diffuser, a system developed to bounce light off the interior's milky, reflective glass surfaces.

The overall plan is deceptively simple, notes Bradshaw, with a crisp, white 4000-Kelvin color temperature consistent throughout, and no color or programmed sequences. The result of such restraint: a functional link between two buildings. ■

#### credits

ARCHITECT: WilkinsonEyre

ARCHITECT OF RECORD: Zeidler

LIGHTING DESIGN: Speirs + Major

**ENGINEERS:** Read Jones Christoffersen (structural)

CONSULTANTS: Mulvey & Banani International (lighting engineering and delivery)

CLIENT: Cadillac Fairview Corporation

SIZE: 1,900 square feet/115 feet long

COST: withheld

**COMPLETION DATE: July 2018** 

#### SOURCES

LIGHTING: Nelson & Garrett (fixtures for extruded trench detail and removable underside deck); LED Linear (walkway and underside-deck lamping)



# Larkin Street Substation TEF Design Horton Lees Brogden Lighting Design By Lydia Lee

IN THE 1960s, when the Northern California utility company Pacific Gas and Electric (PG&E) built a substation in the Tenderloin neighborhood of San Francisco, the company's in-house design team went all-out on the exterior lighting. In addition to a row of modern sconces that provided dramatic uplighting, the building had a translucent backlit wall that dominated the corner of Larkin and Eddy streets. The sconces have been supplanted by security lighting, and the glowing wall has gone dark. However, the San Francisco–based firm TEF has brought some of the glimmer back with a small 12,000-square-foot addition to the main building.

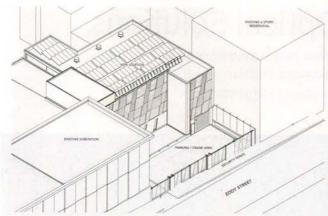
On track to receive net zero certification, the facility's new wing relies on natural ventilation to keep the equipment sufficiently cool, and on solar panels to power fans and high-efficiency LED lighting. The architects, who had previously worked on the PG&E Mission substation (RECORD, February 2016), presented several concepts, including a glazed wall that was inspired by the former light box around the corner. But, due to a 2013 attack on a San Jose substation during which the perpe-

ON THE GRID Dimmable LED lights, programmed to pulsate across the facade, and a living wall that repeats the checkerboard pattern in greenery, enliven the utility building.

trators shot at the electrical transformers and caused \$15 million in damage, PG&E wanted an opaque facade. The design team then developed a solid wall with a dynamic pattern that conveys the idea of electricity moving through the city grid, both day and night.

"This building is part of the electrical grid, and we're expressing that graphically," says Paul Cooper, TEF principal. "It's like a subtle billboard for PG&E." Inspired by the map of the substation's service area, the architects devised a rainscreen for the front of the building using 68 individually modeled glass-fiber-reinforced-polymer (GFRP) panels. The ridged panels, which were more cost-effective than concrete, generate a striped facade pattern that changes as the sun moves across the sky, gently offset by a lush, green wall that spans the elevation of an extended adjacent volume, housing a mechanical lift, on the right. Alternating panels protrude, resulting in drop shadows along the undulating surface and providing vertical and horizontal niches that accommodate lighting. To soften the building's edges, the architects pulled the sculptural skin away from the structure, so that it floats over a layer of steel mesh that in turn overlays a galvanized-steel cladding. A section of panels along the facade's left side and bottom row are punched by vertical slits, which provide an illusion of transparency.

At night, lighting accentuates the rippling architecture while ad-



SITE AXONOMETRIC DIAGRAM

dressing security requirements. "It was a careful balancing act," says lighting designer Angela McDonald, who worked for Horton Lees Brogden Lighting Design at the time. "We wanted the effect to be compelling but not extravagant, and to establish a safe environment without being heavy-handed and using floodlights." To activate the facade, McDonald and her team selected dimmable, color-changing LED strip lighting that is DMX512-compatible for flexible programming of potential color and animation applications. The system can be controlled in 6-inch segments to create an illusion of moving lights, and the dimming function can be used to produce a gentle, pulsating effect. On an evening in late September, the lights were set to a muted amber glow and vibrated softly across the building; the subdued effect was appropriately more "nightlight" than "disco."

To highlight the multiple layers of the elevation's left side, and accentuate its porousness, McDonald installed additional static-white 3,500K LED fixtures—warmer than typical street lights—behind the steel-mesh screen. She also edge-lit the bottom of the GFRP surface across the building to form a luminous horizon line above the building's board-formed concrete base, a strategy that also fully illuminates the entrance and garage doors. The balance is both functional and aesthetic. According to McDonald, "You have a very utilitarian building, but you can still make it an engaging part of the neighborhood."

#### credits

ARCHITECT: TEF Design – Andrew Wolfram, partner; Paul Cooper, project manager; Justin Blinn, project designer LIGHTING DESIGNER: Horton

Lees Brogden Lighting Design

ENGINEERS: Rutherford + Chekene
(structural); BKF (civil); MHC

Engineers (m/e/p)

CONSULTANTS: Creo (landscape architecture); urb-in (owner's rep)

GENERAL CONTRACTOR: Plant Construction

CLIENT: Pacific Gas and Electric Company SIZE: 12,200 square feet COST: withheld COMPLETION DATE: December 2018

#### SOURCES

FACADE LIGHTING: Ecosense; Luminii; iLight; Bega; Hydrel; Cree LIGHTING CONTROLS: ETC GFRP PANELS: Kreysler & Associates MOISTURE BARRIER: Vaproshield METAL SCREEN: Cambridge Architectural ROOF: Johns Manville

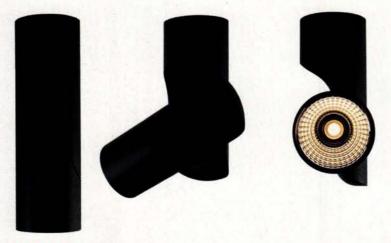




#### Sleeve

Architectural designer John Pawson developed this glass pendant in a collaboration with Italian Wonderglass founders Christian and Maurizio Mussati. Launched during this year's London Design Festival, Sleeve is made of hand-blown glass and comes with a halogen or LED lamp or chip-on-board (COB) LED technology. The manufacturer produced Sleeve and two other pendants (Horizon Light and Sketch) for Pawson's restoration of the 227-year-old Saint John at Hackney Church currently under way in London.

wonderglass.com



Belgian manufacturer Modular Lighting Instruments designed this innovative cylinder to meet a variety of specifications. An S-shaped cutout at the center that enables users to tilt its head 75° left or right, and a choice of three types of reflectors, will transform the LED luminaire from an ambient light source to an accent or task-related fixture. Semih is dimmable, and available with 2700K, 3000K, and 3500K color temperatures in a black or white finish.

supermodular.us

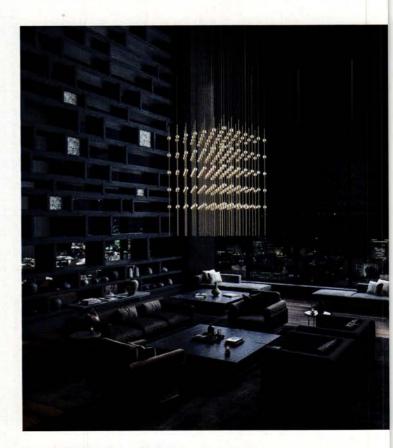
#### Liteistry

Prescolite, a Hubbell company, has just launched a line of 3"-, 4"-, and 6"-round and square architectural luminaires. The downlights, wall washers, and cylinders are powered by a common chip-on-board (COB) LED, which improves color consistency and ensures a CRI of at least 80+ across the line. hubbell.com

# **Optical Solutions**

These new ceiling-mount fixtures display advanced function as well as style.

By Kelly Beamon

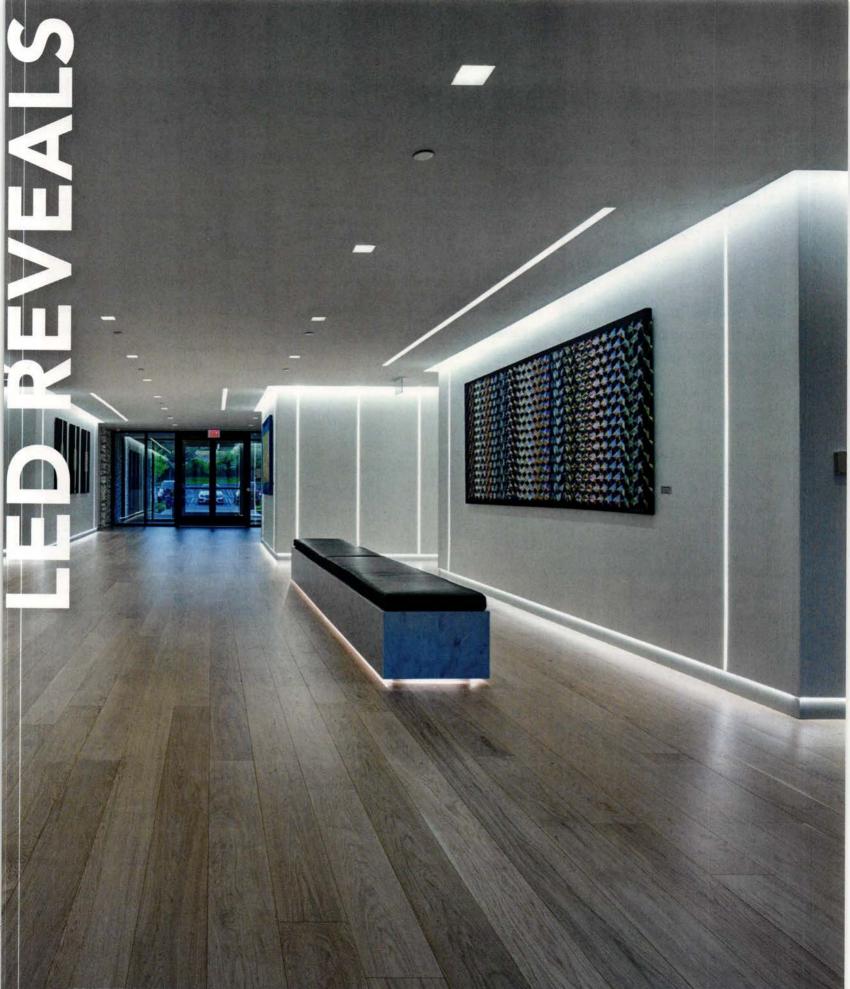


#### Constellation Cosmic Cube

Expanding an overhead system, which was recognized last year among Record's Product Award winners (RECORD, December 2018), SONNEMAN-A Way of Light has developed Constellation Cosmic Cube. Like the original series of horizontal fixtures, the new suspension collection is designed to enable architects to customize its starlike array of LED hubs using slim connecting arms, but this time the arrangements extend vertically in 25- and 49-light options.

sonnemanawayoflight.com





ARCHITECTURAL METALS + ENGINEERED PRODUCT SYSTEMS | 800-237-9773 | www.fryreglet.com

©2019 Don Pearse Photographers, Inc.

FRYREGLET

# CONTINUING EDUCATION Provider CONTINUING EDUCATION

In this section, you will find eight 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.

Photo courtesy of NanaWall Systems



#### Multifamily Housing Design Amenities

Sponsored by Bison Innovative Products and NanaWall Systems

PM RE RR

CREDIT: 1 AIA LU/HSW

Photo courtesy of Bobrick Washroom Equipment, Inc.



#### Designing Restrooms for Sustainable Operation

Sponsored by Bobrick Washroom Equipment, Inc.

IN SU PM

CREDIT: 1 AIA LU/HSW

Photo courtesy of Western Red Lumber Association/© Angus Martin



#### Best Practices, Installation, and Finishing Options for Western Red Cedar

Sponsored by Western Red Cedar Lumber Association

PM RE ST

CREDIT: 1 AIA LU/ELECTIVE

Photo courtesy of The National Terrazzo & Mosaic Association



### Resilient and Sustainable Terrazzo Flooring

Sponsored by The National Terrazzo & Mosaic Association

SU RR PM

CREDIT: 1 AIA LU/HSW

Photo courtesy of Mohawk Floorin



The Quiet Multifamily Home

Sponsored by Mohawk Industries

AC IN PM

CREDIT: 1 AIA LU/HSW

Photo courtesy of Owens Coming



## The Role of Insulation in Mission-Critical Design

Sponsored by Owens Corning

BE LS PM

CREDIT: 1 AIA LU/HSW

Photo courtesy of Huber Engineered Woods LLC



# Overcoming Structural Floor Squeaks in Wood-Framed Construction

Sponsored by AdvanTech® subfloor assembly

PM RE ST

CREDIT: 1 AIA LU/HSW

Photo courtesy of REX/© Laurian Ghinitoiu



#### Managing Risk During Intricate Curtain-Wall Design Projects

Sponsored by Ornamental Metal Institute of New York

BE PM PMD

CREDIT: 1 AIA LU/HSW

CATEGORIES

AC ACOUSTICS

BE BUILDING ENVELOPE DESIGN

IN INTERIORS

LS LIFE SAFETY AND CODES

PM PRODUCTS AND MATERIALS

PMD PRACTICE, MANAGEMENT, DIGITAL TECHNOLOGY

RE RESIDENTIAL

RR RENOVATION AND RESTORATION

ST STRUCTURAL

SU SUSTAINABILITY

Photo courtesy of NanaWall Systems



# Multifamily Housing Design Amenities

Innovation in creating and connecting with outdoor spaces in new and renovated buildings helps drive market appeal

Sponsored by Bison Innovative Products and NanaWall Systems By Peter J. Arsenault, FAIA, NCARB, LEED AP

ultifamily housing is currently reported to be a \$66-billion segment of the annual construction activity in the United States. With this much activity, there are a number of trends that have been observed by numerous sources. First is the preponderance of urban projects. As Millennials and others continue the population shift away from suburbia and into more urban environments, the demand appears to be strong for more urban housing options.

This demand is being met in both new construction projects and renovations of existing buildings that are being reclaimed and adapted for reuse as multifamily housing. The second notable trend is that the people who are renting or buying (i.e., condo/co-op) these units are interested in more sophisticated but affordable luxury, not only in the individual dwelling spaces but also in the building complex as a whole. That translates in design and construction into programming for

#### CONTINUING EDUCATION

AIA Continuing Education

1 AIA LU/HSW

#### Learning Objectives

After reading this article, you should be able to:

- Identify and recognize the design significance of outdoor spaces as an amenity in multifamily housing projects.
- Assess the health and welfare aspects of providing connections between indoor and outdoor spaces.
- Explain the performance characteristics of adjustable pedestal roof deck systems and opening glass walls as part of the overall operation of multifamily housing.
- Determine ways to incorporate the principles presented into buildings as shown in case studies of projects.

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 #K1911E

common spaces, social gathering areas, outdoor places, and rooms for some specific activities like exercise, bike storage, pet care, etc. For real estate professionals and others, they describe these and other features as amenities that distinguish one property over another and provide the owner/ developer with a competitive edge. Hence, it is becoming incumbent upon architects and other design professionals to acknowledge this need for marketable amenities and incorporate them into the design and construction of both new and renovated multifamily projects. Based on these trends, this course will take a closer look at two specific amenities that impact multifamily design, namely creating outdoor spaces and connecting those spaces with the indoors in innovative ways.

#### **OUTDOOR SPACES AS AMENITIES**

Multifamily dwellers value outdoor space, and developers want to provide it to them. However, there is always the need to be conscious of the cost of providing such a feature in a project, particularly if it is an urban site where land is expensive. Furthermore, outdoor spaces at grade may or may not be desirable if they border busy roadways or do not offer an inviting feel. Some exceptions to that seem to be for a "pop-up park" that takes over a sidewalk or street area to accommodate a group gathering or activity. Nonetheless, a more common approach to solving the need for outdoor space is to look to the building's rooftop.

Roof terraces, decks, and gardens have been constructed for centuries on buildings of all types. In modern times, they have become appealing on multifamily homes as an alternative or supplement to balconies extending off of individual dwelling units. The primary design issue, of course, is how to take advantage of the roof space and still protect and preserve the roof membrane system. After all, the primary purpose of a roof is to maintain a waterproof barrier to weather, meaning that anything covering the roof to create an outdoor space needs to maintain that objective. Hence, a roof terrace or deck will need to avoid penetrations that could void a roofing warranty or otherwise create damage to the roof. The second design issue is that even low-slope roofs are still sloped, while people want to gather on a space that is level. Therefore, a means to create a level surface is needed.

#### Adjustable Pedestal Roof Deck Systems

The building industry has responded to these issues and concerns with complete systems for creating rooftop environments that are functional, environmentally appealing, and can be quite affordable for many budgets. The most widely adopted approach is based on the use of adjustable-height pedestals that sit on top of the roof membrane. The bottom of the pedestals can rest directly on the roofing membrane so no

penetration is needed. They are held in place by the weight of pavers or wood tiles that are securely fastened to the top of the pedestals to create a new deck surface. Rainwater passes through the joints in the deck tiles and drains down onto the roof as always intended. In fact, the deck tiles can actually help preserve and protect the roofing since it becomes the primary weathering surface instead of the roof membrane. The top surface of the deck can be made level by independently adjusting each of the pedestals as needed to offset the roof slope or other irregularities at the point of each pedestal. The adjustability of the pedestals allows the system to be leveled to create a continuous, safe walking surface. As such, a coordinated system provides an interconnected assembly and an appealing, level roof deck.

Rooftop decks constructed in this way create a valuable amenity in the form of recreational or leisure space for building owners and their tenants and residents. Accommodating apartments, condominiums, and mixed-use buildings, adjustable pedestal rooftop deck systems offer the design flexibility to create versatile, unique outdoor spaces over any structural surface. Mark Fusco, LEED AP, GRP, national sales manager for Bison Innovative Products, has witnessed this firsthand. He points out that architects have been incorporating more roof decks into their projects because of the availability of these systems. "Architects can now design and specify tested, innovative systems for raised decks, including rooftop decks, plazas, terraces, pop-up parks, and other architectural features. Further, they can do

so using maintenance-free adjustable pedestals and low-maintenance deck surfaces."

### CONNECTING OUTDOOR AND INDOOR SPACES

Outdoor spaces are clearly an amenity, but in order to fully enjoy and appreciate them, there should be a way to connect with them from inside spaces as well. This could be done in multifamily common areas that open onto outdoor spaces so that gatherings can flow over between indoors and outdoors. It could also apply to support functions (kitchens, restrooms, etc.) that can access those outdoor areas. The same is true in individual dwelling units too. Having a balcony or terrace as part of an apartment is great, but how is it accessed, and how does it connect to the inside of the unit?

This whole concept of blending and connecting indoor and outdoor spaces has been part of building design thinking for a long time and applied in many different architectural styles and eras. The premise is simple: People like being connected to the outdoor environment for the visual, daylight, fresh air, and other general wellbeing benefits that such a connection brings. Of course, variable weather conditions mean that sometimes people also need protection from the outdoors. So we routinely design walls with glass windows to allow views to the outside and provide some protection from the weather. If those windows are operable or if operable doors are used, they also allow a free exchange of outdoor air and breezes. When the weather is suitable, those opening glass windows and doors provide



Outdoor spaces in multifamily housing are seen as valuable amenities that can differentiate one property from another for a competitive advantage.

Photo courtesy of Bison Innovative



| architect: R2L:Architects | photographer: John Cole

# REDEFINING ROOFTOPS CREATING ROOFTOP ENVIRONMENTS

REED ROW APARTMENTS (Washington DC)
SILVER LEED CERTIFICATION



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

Photo courtesy of NanaWall Systems



Opening glass walls connect indoor and outdoor spaces by allowing full-size glass panels to move away when desired or close up tight when needed.

a healthier interior space that adds to our sense of well-being. If a door is used, it gives us direct, physical access to the outdoor space. When we want a barrier to prevent the flow of heat or cold air, the glass windows or doors need to be closed tightly enough to prevent air infiltration (drafts) and substantial enough to minimize heat transfer. It is ultimately a matter of design and the types of operable products used that will address these variable conditions in the context of any habitable building space, particularly in multifamily housing.

#### **Opening Glass Walls**

Recognizing a need to go beyond the capabilities of conventional windows and doors, products are available that use large, door-sized glass panels that can be readily opened or closed on demand. Referred to as opening glass walls, they allow an entire wall to open or close at will to provide a direct connection between indoors and outdoors. Like any other type of building fenestration, opening glass walls do not carry any structural load from the building but are reliant on being appropriately attached to the building and operating within a structurally supported opening.

This type of flexible fenestration has been popularly used in a wide range of building types with a particular appeal for multifamily housing and mixed-use buildings. Specifically, opening glass walls can be used in dwelling units to seamlessly connect balconies or patios directly to indoor living, dining, or kitchen spaces. In communal spaces, they can provide comfortable and attractive four-season use of those areas by enclosing a covered patio or simply opening up a wall to enlarge the capacity of those spaces. With the glass walls open, such common gathering and dining areas blend smoothly between indoors and outdoors. When they are closed, the glass wall continues to provide views and daylight with a secure, transparent separation.

When opening glass walls are used as part of the building envelope, the performance of these systems is clearly critical. As such, it is important to compare manufacturers and specify products that can show documented capabilities to appropriately withstand the challenges of wind, water, extreme temperatures, impact, and overall durability. Looking at the testing data from the National Fenestration Rating Council (NFRC) is a good means to assess many of these characteristics. In multifamily housing units in particular, this comparison should also include attention to details such as tamper-resistant locking to ward off forced entry and acoustics to address noise abatement. It is also prudent to look for built-in adjustment and compensation points to ensure continued ease of operation if any building settling occurs over time.

Looking at this combined need for both design flexibility and high performance, Matt Thomas, marketing manager for NanaWall Systems, offers his perspective: "For us as a manufacturer, it is important to supply a product that enables the architects to fulfill their vision but also to provide a product that lasts. These performance points are as important to the architect as the aesthetic since we provide the product they are specifying on behalf of their client." Clearly, there is a vested interest on the part of the manufacturers of these systems to meet both the design and performance needs of a project so that architects, owners, and inhabitants are all comfortable with them.

#### **DESIGNING OUTDOOR ROOF DECKS**

Once the design decision is made to include an outdoor roof or terrace space in a multifamily project, the details of how to construct it then become important. Offering tremendous design flexibility and ease of installation, adjustable pedestal deck systems provide a unique and viable alternative to traditional deck building materials and methods. To help understand why, the following paragraphs provide a description of the main component parts of an adjustable pedestal roof deck system, commentary on how they fit together, and methods of integration into a new or renovated multifamily building.

Continues at ce.architecturalrecord.com

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







ADVERTISEMENT - 133

# PRODUCT REVIEW

Multifamily Housing Design Amenities

#### Bison Innovative Products



#### Rooftop Deck Systems

Manufactured in the United States 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

#### NanaWall



#### Folding Glass Walls

NanaWall Folding Glass Walls offer clean lined aesthetics with narrow profiles and are available in aluminum, solid wood, or solid wood aluminum-clad finishes. The panels are floor supported in inward or outward opening configurations. Numerous sill choices are available, including a surface-mounted and ADA-compliant sill.



# Resilient and Sustainable Terrazzo Flooring

A closer look at how this material survives floods and supports green design

Sponsored by The National Terrazzo & Mosaic Association | By Jeanette Fitzgerald Pitts

esiliency is a hot topic in design and construction today, motivated, in part, by the seemingly constant barrage of extreme weather events occurring across the country and around the world. And, sadly, these events seem as if they are happening more regularly—because they are. The Fourth National Climate Assessment (NCA4), released in November 2018, is a report mandated by Congress that "analyzes the effects of global change on the natural environment, agriculture, energy production and use, land and water resources, transportation, human health and welfare, human social systems, and biological diversity." One of the key findings of NCA4 was that "the number of heat waves, heavy

downpours, and major hurricanes has increased in the United States, and the strength of these events has increased too." In addition, the report found the number of billion-dollar disasters, the term used for weather and climate-related disasters where overall damages or costs have reached or exceeded \$1 billion, is on the rise as well.

Continues at ce.architecturalrecord.com

Jeanette Fitzgerald Pitts has written nearly 100 continuing education courses exploring the benefits of incorporating new building products, systems, and processes into project design and development.

#### CONTINUING EDUCATION

Continuing Education Provider

1 AIA LU/HSW

#### **Learning Objectives**

After reading this article, you should be able to:

- Explain why terrazzo floors throughout New Orleans were able to be restored after Hurricane Katrina, while almost every other kind of flooring was destroyed and needed to be replaced.
- Summarize how terrazzo flooring helps design teams to reduce waste produced during construction and demolition, reducing the amount of waste ultimately sent to landfills.
- Identify buildings throughout the United States where terrazzo floors remain in use and are more than 100 years old.
- Describe the various qualities of terrazzo that enable this material to support the creation and maintenance of healthy interiors.

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 #K1911H



The National Terrazzo & Mosaic Association has been setting the standards for terrazzo since 1923. It offers assistance throughout the design and installation process. Specifications are available online. Its technical advisor can answer specific questions, while NTMA contractor and associate members will ensure a floor of exceptional quality. www.ntma.com

Photo courtesy of Huber Engineered Woods LLC



# Overcoming Structural Floor Squeaks in Wood-Framed Construction

Sponsored by AdvanTech® subfloor assembly

loor squeaks are one of the most common homeowner complaints in single-family homes and can be costly repairs in multifamily or light-commercial buildings. A part of a home or building that actively performs all day, every day, floors are one of the most important structural interior components of design. While wood-framed floor systems have maintained a consistent design standard for years, there remains a persistent issue with

squeaks, pops, and uneven flooring that may be the result of a combination of subpar subflooring products and installation. This course discusses subfloor assembly components and the high-performance standards and product innovations from frame to finish that are helping change the quality feel and sound of flooring systems.

Continues at ce.architecturalrecord.com



1 AIC CPD

#### Learning Objectives

After completing this course, you should be able to:

- Recognize the behavioral characteristics of high-performance wood-framed floor systems with superior strength and stiffness attributes.
- Investigate the multiple components of a wood-framed floor system and the ways that they all contribute to improved performance and the elimination of movement and floor squeaks.
- Assess the functional contributions of engineered wood subflooring as it relates to structural strength, fastener retention, water resistance, and overall stiffness.
- 4. Design and specify wood-framed floor systems that perform as intended and reduce or eliminate squeaks that are indicators of other issues.

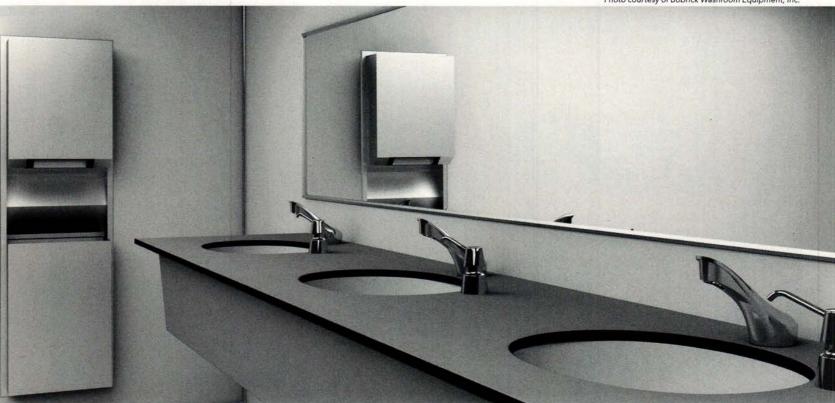
To receive AIA credit, you are required to read the entire article and pass the test. Go to **ce.architecturalrecord.com** for complete text and to take the test for free.

AIA COURSE #K1911G



AdvanTech subflooring exceeds PS-2 code-minimum design standards for strength, stiffness, and fastener-holding power. Documented in the ICC Evaluation Service Report ESR-1785, AdvanTech's advanced resin technology provides consistent moisture protection throughout the panels so that they stay flat without swelling, cupping, or warping to give finished floors an even, solid feel. With a higher wood density, AdvanTech subfloors are the ideal substrate for a variety of flooring applications, including common gypsum-concrete and two-layer floating subfloor systems in multifamily and light-commercial construction. AdvanTechAGame.com

Photo courtesy of Bobrick Washroom Equipment, Inc.



# Designing Restrooms for Sustainable Operation

Sponsored by Bobrick Washroom Equipment, Inc.

By Alan Gettelman, Vice President of External Affairs, Bobrick Washroom Equipment, Inc.

esigning restrooms for sustainable operation requires unique strategies beyond those typically associated with green building. Sustainable operation is closely associated with economical operation, providing architects with opportunities to support their clients' longterm business goals.

Through thoughtful product selection that takes into consideration energy costs, battery usage, waste, and usage of consumables, commercial restrooms will not only operate sustainably and cost-effectively, but they will also retain the integrity of the architect's aesthetic vision, as nonsustainable replacement products may be chosen by the owner at his or her discretion.

This course reviews strategies through which architects can support their overall sustainability goals with an authentically green approach to building operation. It focuses on operational approaches to sustainable restroom design and will not go into detail with LEED

certification or environmentally responsible materials and related documentation, such as environmental or health product declarations.

#### THE BENEFITS OF SUSTAINABLE OPERATION

For the first learning objective, we will identify the health and wellness benefits associated with sustainable operation.

#### Thinking Beyond LEED

In modern commercial architecture, LEED certification and green design are increasingly important and often expected by building owners. When striving for green design, some primary contributors typically come to mind; for example, using environmentally responsible materials on the building envelope, interior products made from recycled content, or leveraging the Regional Materials credit by utilizing materials that require minimal transportation resources.

#### **CONTINUING EDUCATION**



1 AIA LU/HSW

#### Learning Objectives

After reading this article, you should be able to:

- 1. Identify the health and wellness benefits associated with sustainable restroom operation.
- 2. Review common sources of costly, nonsustainable restroom operation and related solutions that can improve operational efficiency and long-term durability.
- 3. Describe the relationship between sustainable operation and the preservation of the designer's aesthetic vision.
- 4. Discuss ways to educate clients about specifications to ensure the creation of restrooms that support the physical well-being of occupants and help protect building maintenance personnel.

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 #K1911B

Although strategies like these may include the richest sources of LEED credits and associated documentation, more operational design strategies for the interior of the building can also contribute toward the overall sustainable intent. In fact, when striving for green design, being "authentically sustainable"—that is, ensuring long-term sustainability in ways that may not be recognized by the most prominent green design standards-will require a forwardlooking approach to reducing impact on the environment and minimizing operational costs for the building owner.

#### Financial Benefits for Facilities

By designing restrooms with future operations in mind, facilities can make the most of their upfront investments in building products and reduce long-term operational costs, such as usage of consumables, including soap and paper towels; energy costs; water usage and management costs; waste and waste management costs; maintenance costs, as many sustainable products generally require less labor hours to maintain and improve worker productivity; and potential tax incentives.

In addition, a sustainable approach to restroom operation can optimize the life cycle of the building, thereby increasing its property value. On top of the many financial benefits, this approach also can result in positive public relations for companies, improved morale for employees or tenants in the building, and LEED certification for the building or other green building accolades or certifications.

#### **Tenant Satisfaction**

Efficient restrooms can also make an environment more pleasant to work in, leading to increased tenant satisfaction. This translates to lower tenant turnover and subsequent more reliable revenue streams for the building owner. In fact, according to a 2015 study conducted by DTZ Research, there is a statistical link between tenant satisfaction and sustainability efforts involving cost savings from energy, water, and other forms of conservation.

The study showed tenant satisfaction scores to be seven points higher in buildings with at least one sustainability certification. In addition, buildings that achieve LEED's Existing Buildings (EB) certification for Operations and Maintenance scored 10 points higher than buildings that did not. ENERGY STAR buildings also scored 30 points higher in satisfaction compared to those without that certification.

#### Younger Demographics

As the proportion of Millennials in the workforce increases and more Baby Boomers retire, it is essential for design professionals to understand the needs and preferences of this critical constituency that places high value on sustainability on the parts of their employers.

A study conducted by research firm Lightspeed in 2017 revealed that nearly one in 10 millennials would guit their jobs if they found out their current employer was not sustainable. Other findings included that nine in 10 millennials say it is important to work for a sustainable company (compared to 84 percent of Gen Xers and 77 percent of Baby Boomers), and more than 80 percent of Millennials believe employers have a responsibility to encourage recycling in the workplace.

In addition, the 2016 Deloitte Millennial Survey concluded that millennials actively seek employers whose environmental values align with theirs. These findings underscore the role that sustainable operation can play in helping buildings satisfy their tenants, improve retention, and support their overall business goals.

#### **Benefits for Design Professionals**

For architects and designers, an authentically green approach also can deliver a range of benefits beyond just LEED certification, including improved client relationships and a positive reputation in the market; endurance of their original design visions, as sustainable products are less likely to be replaced with less-aesthetic products by the building owner; and satisfied tenants, leading to satisfied building owners.

#### SOURCES OF WASTE AND SUSTAINABLE SOLUTIONS

For the second learning objective, we will review common sources of costly, nonsustainable restroom operation and related solutions.

To enable sustainable operation, it is critical to give thoughtful consideration to the products being specified. Consider products that save money and resources, including products that reduce waste, energy consumption, and usage of consumables and water, as well as products that do not use batteries. Products that are time saving and easy to refill and maintain are also important.

#### **Reducing Excess Waste**

Specifying inappropriate solutions can result in excess waste, from consumable packaging to the consumables themselves, which can be a primary contributor to the nonsustainable operation of restrooms.

#### Paper Towel Stub Rolls

Specifying an inappropriate towel system can cause excess waste, as some paper towel systems can be more wasteful than others. For example, many roll paper towel systems leave what is known as a "stub roll" at the end of each roll. The stub roll will comprise a portion of unused paper towels that must be discarded, resulting in excess waste.

Especially as no-touch accessories gain in popularity, battery usage also can be a consideration. Used batteries are waste that must be disposed of and/or recycled. However, alternative power sources are available. Batteries that are discarded as trash and not appropriately recycled typically end up in landfills.

#### Soap Packaging

When designing a green building, give thoughtful consideration to how the building will operate once it is occupied. When designing a prestige, Class A and/or LEED-certified building in particular, being authentically sustainable requires a holistic approach to reducing waste throughout the entire life cycle of the building.

For example, specifying an inappropriate soap-dispensing system can lead to excess plastic waste. In particular, cartridge soap-dispensing systems require the facility to use smaller, individual plastic soap cartridges that often are proprietary to the dispenser unit, restricting the owner's purchasing freedom. With each refill, janitorial staff must replace the previous plastic cartridge with a new one. Further, cartridge soap generally empties faster than bulk systems. Over time, this excess packaging can lead to more waste, in addition to the costs and labor hours associated with replacing the cartridges.

To address the excess plastic waste associated with proprietary soap-dispensing systems, nonproprietary bulk soap systems are available. These systems deliver a range of benefits, including enabling the usage of universal soap, which can be purchased on the open market, thereby reducing costs and offering greater choice, and eliminating labor-intensive replacement and disposal of partially filled cartridges.

#### Soap Usage

Many bulk soap-dispensing systems utilize bulk foam soap, which is a highly sustainable choice, as patrons will tend to use less foam than liquid to achieve an effective hand wash.

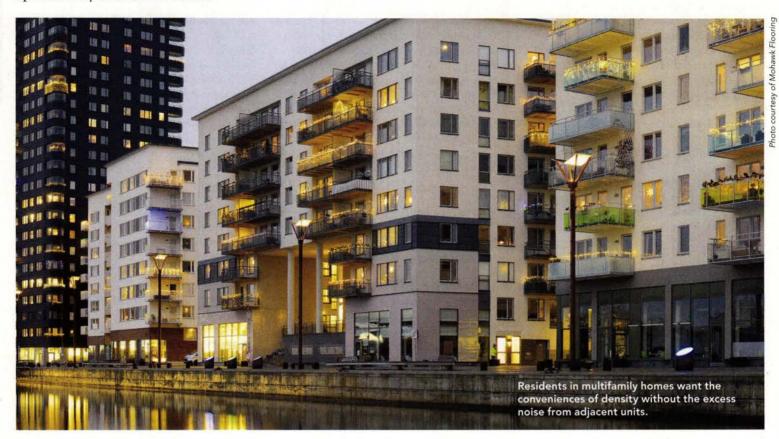
Continues at ce.architecturalrecord.com



# The Quiet Multifamily Home

How flooring choices can lessen excess noise

Sponsored by Mohawk Industries



hat happens when two opposing forces-the need for housing density and the need for quiet homes- converge? How does the architect, interior designer, or specifier create multifamily homes that are close in proximity and yet not noisy? Part of the answer lies in the choice of flooring, which can absorb and block unwanted sound from traveling between floors, thus contributing to the peaceful and quiet homes renters and

"The specification of flooring and underlayment pads play a tremendous role in making multifamily homes as quiet as single-family homes," says David Moore, Senior Product Director for Mohawk Flooring. "For some of us, nothing is more irritating than hearing the neighbors upstairs walking around. Achieving superior acoustics between floors is very difficult to achieve after the fact. Ideally, the architect or designer understands how the flooring chosen for the project can create a quiet and relaxing environment for many years to come."

The need for new apartments and condominiums is growing and will continue to grow. While a single-family home with a white picket fence may evoke the American Dream, the reality is that multifamily housing makes more sense on many levels: economic, demographic, and ecologic. Of the more than 43 million rental households in the United States, only 15 million live in single-family homes, while 26 million live in multifamily units.1 Even more live in owneroccupied apartments and luxury high-rises.

While enjoying the benefits of dense housing-such as shared amenities, city access, and affordability-the drawback can be noise that travels between units. Without attention to noise control, the sounds of common daily acts such as walking, talking, showering, and vacuuming will radiate from one unit to the other, diminishing the sensation of autonomous living. And when the neighbors are noisier than average, the irritation is greater.

Complaints about sound traveling through floors are rampant. And studies show that these unwanted sounds have negative effects on human bodies and moods.

#### CONTINUING EDUCATION

1 AIA LU/HSW

#### Learning Objectives

After reading this article, you should be able to:

- 1. Discuss the growing demand of multifamily housing and the role of flooring to alleviate a chief complaint: unwanted noise from other units
- 2. Understand how sound blocking and absorption is measured in flooring and its overall benefits in building performance.
- 3. Evaluate sound ratings for product selection best suited to budget and installation type.
- 4. Identify the advancement of flooring technologies and their importance in the future of modern multifamily space 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 #K1911J

#### SCIENTIFIC STUDIES ON THE EFFECTS OF NOISE ON THE BODY

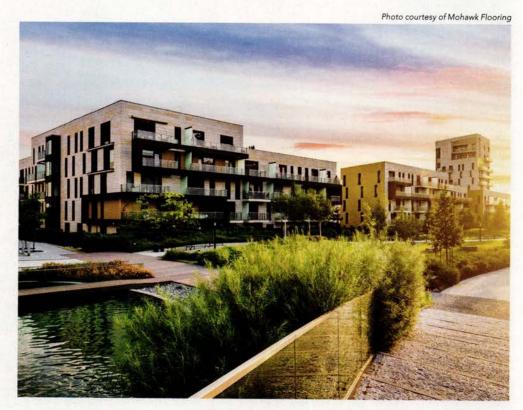
In a 2017 paper titled "Effects of floor impact noise on psychophysiological responses," it was noted that most research on environmental noise has analyzed long-term health consequences of transportation noise such as road traffic or airport noise, which is associated with elevated blood pressure, higher use of cardiovascular drugs, heart trouble, and hypertension.2

However, there have been fewer studies of health problems from noise in dwellings. This is despite the fact that people spend most of their time in or around their homes. One study identified associations between dissatisfaction with the noise from neighbors and mental health risks. Another study found that people who perceived neighbor noise as a severe annoyance experienced higher health risks, including cardiovascular disease. Some research found that various neighbor noises had adverse effects on sleep quality. In particular, they reported that "footstep noise was found to be one of the most disturbing impact noises from neighbors." According to another study, "Annoyance induced by floor-impact noise has a reciprocal relationship with mental or physical health complaints." The conclusion is that hearing the neighbors walking around upstairs can be more than a nuisance to some residents.

And it is not just at home but also at work, school, and in health-care settings that unwanted noise may have an adverse impact on occupants' physical and mental wellbeing, which can in turn negatively affect an organization's bottom line.

In educational learning environments, unacceptable noise levels can be directly correlated to student achievement and teacher stress. Acoustics figure prominently in health-care environments where patients require a quiet environment to heal, privacy is critical for patients and families, and health-care workers need to have clarity in their conversations about patients' needs and instructions. In the hospital setting, noise leads to unsatisfied patients. According to the American College of Health Care Administrators (ACHCA), noise disruption routinely receives one of the lowest scores. Unsatisfied patients directly affect revenue for a hospital.

Study after study shows that flooring choices may have a substantial impact on noise and comfort.



Acoustics are increasingly being addressed as a factor in healthy homes.

#### IMPORTANCE OF SOUND RECOGNIZED BY DESIGN AND BUILD INDUSTRIES

Sound is increasingly recognized as a major factor in well-being. From an evolutionary aspect, hearing is arguably the most important sense developed to detect the approach of danger. While eyelids developed to block light as needed, ears did not develop lids to block sounds, as that would be dangerous, according to some theories. So rather than relying on functions of the body to block unwanted sounds, we must use engineering and design to block and absorb unwanted noise and create quiet. According to author Pico Iver in his book The Joy of Quiet, times of quiet are "essential to our quality of life and to be able to think straight." Sound expert Gordon Hempton, who calls himself an acoustic ecologist and sound tracker, says that "silence is an endangered species."

In the design and build industries, concerns for quiet in the home are rising, with architects expanding their goals for indoor environmental quality (IEQ) to include acoustic performance. According to the Centers for Disease Control, IEQ is the quality of a building's environment in relation to the health and well-being of those who occupy the space.

In the quest to create a quiet multifamily home and less unwanted noise from apartments above, flooring can play an important role. It is helpful to understand how sound blocking and absorption are measured in floors, and this will be explained next.

#### HOW SOUND BLOCKING AND ABSORP-TION ARE MEASURED IN FLOORING

As building codes have evolved, sound-control standards have been developed to determine the amount of noise allowed to penetrate through common walls and floors within dwellings. These standards are especially helpful for designers, builders, and owners when comparing various products to achieve sound-control goals.

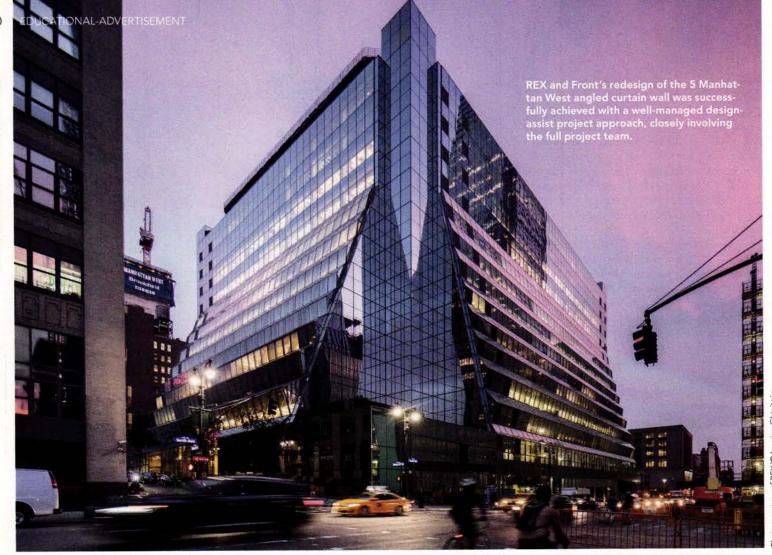
Two standards are used to determine the amount of sound that transmits through flooring to the space below: impact insulation class (IIC) and sound transmission class (STC).

#### **IIC Tests Impact Sounds from Above**

IIC tests the ability of an assembly to block sound impacts and measure resistance to transmission of impact noise, such as footsteps, objects dropped on the floor, etc.

Continues at ce.architecturalrecord.com





# Managing Risk During Intricate Curtain-Wall Projects

Early collaboration and a design-assist approach are key to successfully delivering complex facades

Sponsored by Ornamental Metal Institute of New York

argely driven by a desire to deliver that next iconic building, corporations, higher-education institutions, and even private-sector clients are actively engaging architects to design sleek curtain-wall facades that stand out from the crowd.

"Brand and user experience is huge, and clients want inspirational, high-performance spaces that walk the walk in terms of environment and sustainability," says MIT School of Architecture Associate Professor of Practice Marc Simmons, founding principle of the New York-based facade systems design firm Front.

"As the face of the building, we feel a responsibility to deliver a thoughtful, dynamic skin that will contribute to the residents' and public's experience of the home and the city fabric," adds Marci Clark, Ph.D., development director, architectural historian, JDS Development Group, New York.

From large high-tech companies to public courthouses to universities, cutting-edge curtain-wall designs, particularly in urban areas where mid-sized and tall buildings are on the rise, are filling an important niche.

"Curtain walls offer the best combination of single-source, high-performance, customized

#### CONTINUING EDUCATION

AIA Continuing Education Provider

1 AIA LU/HSW

#### **Learning Objectives**

After reading this article, you should be able to:

- Identify the pros and cons of project-delivery methods and the reasons why design-assist is often suited for complex curtain-wall projects.
- Explain modeling programs and tools utilized by architects and facade designers to optimize daylighting and create these innovative facades.
- Describe best practices for mitigating economic and safety risks throughout the supply chain.
- 4. Discuss relevant case studies demonstrating successful complex curtain-wall project delivery, construction safety, and the resulting designs promoting daylit and occupant well-being.

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 #K1911D

enclosures, and are often the most desirable alternative to meet the complex demands of modern large projects like quality, speed, and lower risk," says Sameer Kumar, AIA, LEED AP, director of enclosure design, SHoP, New York.

Another driving factor enabling the design and execution of complex curtain-wall designs is the latest technological advancements. Perhaps most significant has been the transition from 2-D AutoCAD to 3-D drawing platforms, such as Rhino, Revit, Inventor, Softworks, and Cotia.

In addition, Jeff Heymann, vice president, Benson Industries, Portland, says the application of CNC, BIM, and robotics to the manufacturing process has enhanced the capabilities of glass fabrication. Consequently, the fabrication, coating, insulation, lamination, and production of larger glass lites and bent glass—both hot and cold formed—is more predictable and readily available.

"Glass sizing is being pushed larger and larger, and companies are developing ways to curve, laminate and use glass in ways that were previously unthinkable," adds Anthony Kantzas, facade consultant, Front, New York.

And new techniques with frits and screen printing, digital printing, and new interlayers have made glass a greater part of the facade's shading scheme, decorative features, and overall aesthetic. Heymann adds that improvements in CNC and equipment intelligence have increased the ability to fabricate aluminum extrusions and panels with a high degree of complexity to keep pace with building geometry and form. He is also seeing more interest in adopting different materials into aluminum-framed curtain walls, be it terracotta, other metals, cementitious products, or photovoltaic panels.

While the results of these enhanced technological capabilities are often remarkable, complex facade projects require a close-knit building team, optimized leveraging of expertise, and a well-sequenced operation from design to fabrication to construction, in order to optimally mitigate risk and efficiently deliver projects.

"The best practice by far when dealing with a novel, innovative, or complex facade design is to engage all key players involved in the implementation of the facade program as early in the process as possible," says Mic Patterson Ph.D. LEED AP, ambassador of innovation and collaboration, founder, immediate past president, Facade Tectonics Institute, Los Angeles.

#### SELECTING THE RIGHT PROJECT-DELIVERY APPROACH

In selecting a project-delivery method, the decision should be dictated by the individual needs of each project.

"The geographical location, the overall project schedule, and the specific mix of materials on a project are some of the key variables that contribute to the procurement strategy," Kumar explains.

For example, if building performance is the main goal, a design-build approach might be a good way to go. Similarly, more simplified designs are usually suited for a traditional project-delivery model.

However, with more complex designs, experts advocate for design-assist, despite the fact that building owners may be hesitant to depart from the traditional way of doing things. Design-assist is the procurement method by which, prior to completion of design, a construction contract may be awarded on a best-value basis pursuant to which a contractor provides design assistance to the architect or engineer of record through a design professional separately retained by the contractor. It is a collaborative, team-oriented process that capitalizes on the benefits of early engagement of all parties.

"The facade contractor does not define the project-delivery strategy, but when asked, we always encourage a design-assist approach," confirms Jeffrey Vaglio, Ph.D., PE, AIA, vice president of Advanced Technology Studio, Enclos, St. Louis. "The preference toward design-assist is because it aligns with our inhouse technical strengths, and embracing of prototyping technology allows us to add value and advance critical decisions that are all in the best interest of a project schedule."

As a contractor, Heymann agrees, "In our experience, the best project-delivery strategy for major projects is to engage us in a design-assist usually 20 to 24 months before curtain wall is to be ready to install on-site."

This way, the contractor can most optimally work along with the design team as a true partner to help develop the facade to a point where the scope of work can be locked in by the curtain-wall fabricator with a lump-sum price. "We can then manage a schedule that works within the overall construction schedule," he concludes.

While this looks great on paper, one of the challenges is that fact that the AECO industry is notoriously risk averse and therefore wary of innovation, explains Patterson. So the process of embracing of truly collaborative project-delivery processes has been frustratingly slow.

Continues at ce.architecturalrecord.com





# Best Practices, Installation, and Finishing Options for Western Red Cedar

Sponsored by Western Red Cedar Lumber Association | By Jessica Jarrard

oods, such as western red cedar (WRC), are a natural, renewable, and sustainable building material. In recent years, more architects are incorporating wood into their modern designs to add warmth, texture, and take a more humanistic approach with natural materials.

In addition to an increased use of WRC in residential and multifamily housing projects, there is also more WRC currently being specified for projects in public spaces, such as boardwalks, decks, and outdoor structures, because of its durability, sustainability, and beauty.

Architects in urban, suburban, and even rural areas are seeing an increase in requests for outdoor landscaped spaces and wood buildings that provide a warm atmosphere between highrise buildings made of glass and concrete. This includes public spaces between buildings and areas in parks, as well as courtyards for single-family homes and multifamily residences.

#### WESTERN RED CEDAR (WRC)

WRC products come from trees grown in forests in the Northwest area of North America, and its

usage dates back centuries. Native Americans were the first to name it the "Tree of Life." In the Pacific Northwest, aboriginal people used cedar bark to make rope, clothing, and baskets. Logs from the trees were and still are used for a variety of purposes, including canoes, totem poles, long houses, and planks for roofing and siding.

While its use has been growing, many believe that WRC is only for single-family design. But in reality, architects now specify it for well-designed multifamily buildings, commercial structures, retail settings, hospitality and resort facilities, museums, churches, educational facilities, outdoor structures, and a variety of other projects where beauty and durability are desired.

#### **GENERAL ATTRIBUTES OF WRC**

WRC is an excellent choice because of its many positive attributes, including appearance, durability, sustainability, and availability.

#### **Appearance**

Aesthetically, there really is no substitute for WRC's natural beauty. Its grain, texture and

#### **CONTINUING EDUCATION**

AIA Continuin Education

1 AIA LU/ELECTIVE

#### Learning Objectives

After reading this article, you should be able to:

- Identify the general attributes of real western red cedar (WRC), including beauty, stability, durability, versatility, and sustainability.
- Describe the different grades, sizes, patterns, and applications of WRC.
- Explain finishing options, expected service lives of stains, paints, bleaching, and weathering products.
- Recognize the importance of proper installation practices and fastener selection to ensure long-lasting performance.

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 #K1911K

natural color variation have made it a superior choice for outdoor and indoor applications. Its natural appearance is quite attractive in a variety of commercial and other building types in a range of design styles, including traditional, contemporary, arts and crafts, and modern. Cedar products are available with a smooth, rough-sawn appearance or rougher headed textures.

An unlimited number of standard and specialty profiles of cedar siding, boards, trim, and timbers are made to meet different design needs. Profiles include bevel, shiplap, tongue and groove, and boards for board-and-batten applications. A wide range of thicknesses are available to suit specific design goals.

#### Durability

WRC is well-known for its longevity and durability due to the ingrown preservatives in the wood. These provide natural resistance to rot, decay, and insect attacks, which means projects built with cedar will last longer. In fact, cedar performs better and requires less maintenance than most man-made materials, particularly plastic composites that simulate a wood appearance.

A wide range of the finishes are available for WRC and add an extra layer of durability. This is discussed later in the article.

#### Sustainability

When it comes to environmental performance, natural wood is superior to synthetic products in every way. While other building materials generate greenhouse gases, WRC trees actually remove greenhouse gases from the atmosphere. Further, unlike many manufactured or composite materials, WRC is fully biodegradable at the end of its useful life. In recent years, there

has been a call for steeper landfill fees on composite materials, thus increasing the popularity of wood and cedar materials.

Perhaps one of the best-known sustainability attributes of WRC is that it is a renewable resource. In fact, WRC comes from some of the most sustainably managed forests in the world. More than 85 percent of timberland in British Columbia, which is the primary source for WRC, is certified by internationally recognized, independent, thirdparty forest certification agencies. These thirdparty systems help protect environmental values, such as biodiversity, soil, and water quality.

These forests are managed by private companies that subscribe to the standards of Sustainable Forestry Initiative (SFI), Forest Stewardship Council (FSC), and Canadian Standards Association (CSA). The LEED rating system for green buildings now recognizes all three of these certifications.

#### Versatility

WRC is pitch and resin free, so it accepts and holds a wide range of beautiful finishes, including elegant dark stains, shabby-chic bleaches, traditional solid colors, and naturally beautiful semitransparent stains. WRC offers a wide range of sizes, surface textures, grades, and profiles, both standard and custom, making it easy to incorporate into a wide range of design schemes and patterns. These finishes and possibilities are discussed in more detail throughout the article.

#### Cost-Effectiveness

Many believe that cedar is an expensive option when specifying a home or outdoor public project. However, the opposite is true. A simple comparative cost analysis shows that it is very competitive with other cladding and siding

materials in terms of first costs since the grade, finish, and profile can be selected to suit a full range of budget needs. Furthermore, its longterm durability and low maintenance make it cost-effective over the life of the building. Jeff Jordan, principal with Jeff Jordan Architects, makes this statement about a recent project where cost and other attributes were the deciding factors on the exterior material choice: "Cedar is such a prominent part of the look, and it would have been difficult to find another material that has both a natural appearance and can weather naturally over time."

#### WRC GRADES AND OPTIONS

WRC is available in many grades and has various options based on quality and style. Major third-party certifiers, such as the International Standards Organization (ISO), Canadian Standards Association (CSA), and Sustainable Forestry Initiative (SFI), help architects easily compare WRC products and determine which will be the best for the project and the most sustainable for the environment.

Grade systems are determined and recognized by independent agencies so professionals can identify different appearance lumber grades as distinct from structural lumber grades for cedar. These grades include clear vertical grain heart, A, B, rustic, and various types of knotty.

#### **BEVEL SIDING**

Bevel siding is the most widely used cedar type. It is produced by resawing lumber at an angle to produce two pieces thicker on one edge than the other.

#### Clear Vertical Grain Heart

Clear vertical grain heart is the highest bevel siding grade. The word "heart" in the case of grading cedar refers to the inner wood in a tree as opposed to the narrow outer sapwood between the heartwood and the bark. It is sawn vertical grain (edge grain) and kiln dried. Pieces of the wood have a smooth face of decayresistant heartwood and do not have inherent natural blemishes or characteristics that affect appearance or performance.

Continues at ce.architecturalrecord.com

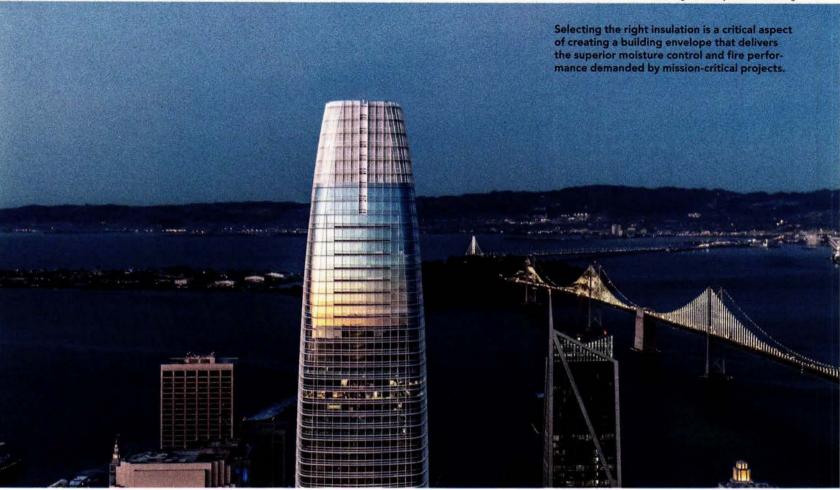
Jessica Jarrard is an independent writer and editor focusing on health, science, and technology. She contributes to various continuing education courses and publications through Confluence Communications. www.confluencec.com

#### LANDSCAPING WITH WESTERN RED CEDAR

Western red cedar (WRC) is not just for residential and commercial buildings; it can also be used in residential landscaping ventures and outdoor public projects. WRC is a useful material for decks and walkways as well as outdoor structures with built-in seating, such as children's playhouses and gazebos. In the hot summer sun, WRC stays cool beneath bare feet and legs, whereas composite material heats up quickly and can cause burns.

When specifying a project, first determine the primary function of the space. If needed, ensure there is plenty of space for outdoor seating, garden boxes, or whatever else is planned for the space. Next, determine the design. One of the best ways to create visual interest is by juxtaposing straight lines with ambiguous shapes. Another way to add visual texture is by mixing materials and colors. With various grades and finishes available, there are plenty of options to help meet various project needs.





# The Role of Insulation in Mission-Critical Design

Improve moisture control and fire performance with the right material

Sponsored by Owens Corning | By Jeanette Fitzgerald Pitts

here is a growing demand for the design of mission-critical facilities in the United States. A mission-critical facility is broadly defined as a building with any activity, device, service, or system that cannot fail or be disrupted. There are a wide variety of facilities that may be designated as mission critical: financial facilities, trading floors, casinos, hospital complexes, laboratories, military facilities, data centers, public safety centers, airport control towers, call centers, utility command centers, governmental structures critical to the national infrastructure, and even municipal buildings that must function as working shelters in a worst-case scenario.

In today's era of connectedness, keeping a building operational means that the systems remain online and people inside can continue to connect to the outside. It also requires that the interior environment remain comfortable, healthy, and safe for occupants 24/7. Achieving these design objectives demands an incredible level of consideration and contingency planning as it relates to security (both physical and cyber), connectivity, cooling systems, power systems, information and communication technology, and extensive analysis to identify and eliminate single points of failure.

Here is an example of one way in which the design of a mission-critical building differs from a typical commercial project. Mission-critical

#### CONTINUING EDUCATION

Continuin Education Provider

1 AIA LU/HSW

#### **Learning Objectives**

After reading this article, you should be able to:

- Describe the health and safety issues that can be caused by moisture ingress in a building, and specify a roof with redundancy measures designed to prevent them.
- Explain how different types of insulation perform when exposed to fire, and specify exterior wall assemblies that are compliant with fire safety code NFPA 285.
- Define the different types of live loads that roof assemblies in mission-critical buildings must be able to safely resist.
- 4. List the benefits of specifying products that have been designated by the Department of Homeland Security (DHS) as "qualified antiterrorism technology."

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 #K1911F

buildings must ensure the reliability of the mechanical and electrical infrastructure. While an average power availability of 99.98 percent may be acceptable for a standard commercial building, the potential 2 hours of downtime per year is unacceptable for some types of facilities. Mission-critical facilities are often designed to achieve a six sigma of power availability (99.9999 percent), reducing their potential annual downtime to less than 30 minutes. A FacilitiesNet article titled "Mission-Critical Facilities: The Next Generation" written by Raj Gupta describes how these systems are structured to avoid interruption: "The typical electrical infrastructure for mission-critical facilities will contain two separate feeds from the electric utility, which are backed up by several diesel generators. The generators are commonly found in a parallel, redundant configuration where one extra module is provided to allow for planned maintenance and prevent a single point of failure in the system."

While much of the discussion of mission-critical facilities seems to revolve around the robust nature of the IT, electrical, and mechanical systems inside the building, the structural envelope that houses all of these critical systems is also a crucial line of defense that keeps occupants safe and enables systems to continue running smoothly. Designing a building envelope to help withstand extreme weather and prevent the spread of fire and combustion across the exterior further protects the mission-critical functionality of the interior from many of the natural and manmade threats knocking at the door.

This course will explore the importance of selecting the most appropriate insulation for the envelope of a mission-critical building. When chosen correctly, insulation can offer an additional protective layer in the exterior wall assembly or the roof. It can provide redundancy to help protect interiors from the ingress of moisture, effectively contain fires, or prevent the propagation of fire up the exterior wall. Choosing the right insulation for a missioncritical project can not only save lives and minimize property damage, but it can also help to protect the designers and owners of the building from costly litigation that may result from claims that may occur if the building was targeted by an act of terrorism.

### THE IMPORTANCE OF INSULATION IN THE BUILDING ENVELOPE

The building envelope is comprised of the foundation, roof, walls, doors, windows, necessary air and water barriers, and insulation.



Cellular glass insulation is vapor impermeable, watertight, and can be used to create an additional layer of moisture protection in mission-critical roofs.

In its simplest definition, the building envelope physically separates the conditioned interior from the environmental elements around it. But a simple definition hardly seems to do justice to the complexity and importance of this architectural element. The building envelope is responsible for moisture control as well as temperature control and regulating airflow. In a mission-critical facility, it must be designed to offer the highest level of protection against the most extreme outdoor elements. The omnipresence of insulation as its wrapped around the building, on the roof, and in soffits make this component a powerful ally in creating an envelope that can perform as needed.

While the traditional role of insulation in an envelope is tied to the temperature control or thermal performance of the building, certain insulating materials can be used to enhance features of the envelope important to projects that have been deemed mission critical. The right insulation can improve the way that the building resists or manages moisture intrusion in the roof and walls. It can create effective perimeter fire containment to minimize the progression of and damage caused by fires, and the right insulation choice in the building envelope can even limit potential liability if a building is the target of an act of terrorism. Let's dive a little deeper into each one of these benefits to more fully explore how an insulating material can impact the design of a mission-critical project.

### Provide Redundant Moisture Control in the Roof

The roof of a mission-critical building cannot leak, regardless of the weather. Rain, snow, hail, hurricanes or tornadoes must not breach the water membrane in the roof designed to keep moisture at bay. The costs associated with a roof leaking into a mission-critical interior and potentially compromising the functionality of the space can be exorbitant, which explains why architects on these projects often look to create a redundancy in the roof, in the same way that redundancies in electrical and mechanical systems are incorporated into the overall design of the building. Watertight insulation can be used to provide that additional layer of moisture protection.

As an additional benefit of this extra protective layer, certain insulation materials can outlast the material used as the regular roofing membrane, allowing facilities teams and building owners to extend the life of the roof without risking water exposure. This can be incredibly valuable in areas where the logistics around renovating and reroofing a structure are prohibitive. In congested urban areas, for example, there can be severe restrictions on accessing the pathways and work-staging areas necessary to complete this type of project, which also can increase the cost of the renovation.

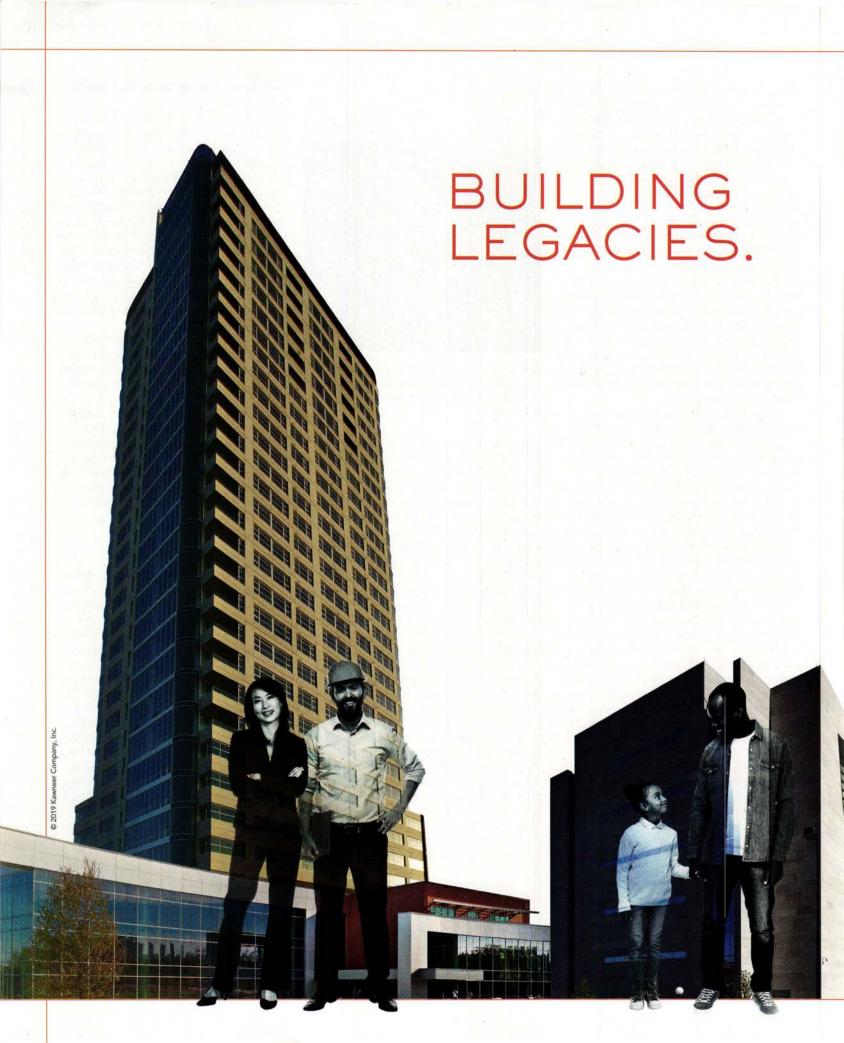
### Improve Fire Performance of the Building Envelope

There is a dramatic difference in the way that different types of insulation respond to an exposure to fire. Some types of insulation melt. Some ignite, and some remain intact after hours of burning at temperatures over 2,000 degrees Fahrenheit. When a fire propagates vertically and laterally across the exterior of a building, the type of insulation in the exterior wall assembly can play an important role in determining how successfully the envelope resists the spread of fire. Selecting an insulating material that can withstand the incredible heat that these fires produce can protect the other combustible materials in the exterior wall assembly and help minimize the damage that results from the fire, allowing more time for people to escape.

Continues at ce.architecturalrecord.com

Jeanette Fitzgerald Pitts has written nearly 100 continuing education courses exploring the benefits of incorporating new building products, systems, and processes into project design and development.





Building on the past to advance the future. Kawneer solutions draw on a long history of innovation to create next-generation technologies that inspire architects, contractors and glaziers to create buildings with better performance, protection and productivity. At Kawneer we are always building. Build your legacy.



ARCHITECTURAL SYSTEMS ENTRANCES + FRAMING CURTAIN WALLS WINDOWS



### LARGE ADAIR CLIP LIMESTONE PANELS

#### Arriscraft

Adair® Limestone is a quarried stone of exceptional versatility. New Adair Clip is an exclusive thin natural limestone cladding. At 1-1/4" thick, Adair Clip comes in 3 heights and 48" and 72" lengths.

### **Product Application**

· Commercial interior and exterior applications.

#### **Performance Data**

. Exceeds requirements of ASTM C658-03 Stand Spec for Limestone Dimensions Stone; Class III High Density.

www.arriscraft.com 800.265.8123



MATERIALS



### FIRE-RESISTIVE STEEL CURTAINWALLS

#### **Technical Glass Products**

Fireframes® Curtainwall Series allows for large. multi-story expanses of glass in interior and exterior applications using narrow steel profiles.

#### **Product Application:**

- Carnegie Science Center, Pittsburg, PA
- · Audi Dealership of Birmingham, MI
- . Fulton Center, New York, NY

#### Performance Data:

- Barrier to radiant heat, with fire ratings up to 120
- · UL classified and labeled

fireglass.com 800.426.0279 | sales@fireglass.com



MATERIALS

### MECHANICAL SYSTEMS, HVAC, PLUMBING

### 30° ADA ENVIRO SERIES SINKS

#### SSIGREENINEW

### Just Manufacturing

The 30° ADA Enviro Series heavy duty commercial grade lavatory systems have been designed for aesthetics and functionality. Available in single, dual, tri and quad station versions.

### **Product Application:**

- Ideal for heavy-use public lavatory applications including academic, office buildings, restaurants or any public bathroom environment.
- Includes 16 gauge stainless steel enclosure

#### **Performance Data:**

- Produced of 16 gauge type 304 stainless steel.
- · Polished to a satin blended No. 4 finish.
- Complete hands free hygienic packages.

www.justmfg.com/ada-enviro-series-sinks 847.678.5150 | specifierservices@justmfg.com









### ROOFING, SIDING, THERMAL & MOISTURE PROTECTION

### INSULATED COMPOSITE BACKUP PANEL SYSTEM

CENTRIA MetalWrap™ insulated composite panels can serve as a backup wall for nearly any type of exterior rainscreen system, from single-skin metal to brick, terra cotta, and others

### **Product Application:**

- · Unique Fitness facility Holbrook, NY
- Architect: JM2 Architecture
- MetalWrap 3" panels

#### Performance Data:

- Designed with CENTRIA's innovative advanced thermal and moisture protection (ATMP) technology
- · Achieves energy efficiency goals
- · Single component eliminates the need for conventional batt or board insulation, exterior gypsum, air barriers, vapor retarders and building wraps
- Single-component construction means a single source of responsibility

www.centria.com



### SPECIALTY PRODUCTS

### EME720: WIND-DRIVEN RAIN STATIONARY LOUVER 55

The Ruskin® model EME720 7-inch horizontal louver offers a continuous-blade architectural appearance while reducing cost with economical, inactive sections.

### **Product Application**

- · Perfect for stadiums, arenas or convention centers
- · Hurricane-prone regions
- · Areas where limited rain penetration is desired

#### Performance Data

AMCA 500-L certified wind-driven rain performance



ruskin.com

816.761.7476 | ruskin@ruskin.com



Making the complex clear

### MAKING THE COMPLEX CLEAR

Clear Seas Research is an industry-focused market research company dedicated to providing clear insights to complex business questions. Capturing feedback via quantitative surveys (online, phone, mail or in-person) OR qualitative experiences (one-on-ones, focus groups or bulletin boards), we present results that are easily understood, insightful and actionable.

www.clearseasresearch.com



### dates&events

### New and Upcoming Exhibitions

### Passages of Light

Mexico City

November 22, 2019-March 29, 2020

A survey of James Turrell's works will be held at Museo Jumex. The exhibition will span two floors and show new pieces by the artist—who uses light as a medium—featuring immersive installations that test the limits of human perception. For more information, go to fundacionjumex.org.

#### **Eco-Visionaries**

London

November 23, 2019–February 22, 2020
The Royal Academy of Arts will present an exhibition examining humankind's ecological impact on the planet, tackling issues from climate change and food shortage to species extinction and resource depletion. Works on these subjects by 21 artists, including Rimini Protokoll, WORKac, and Virgil Abloh, will be on display. For tickets and details, visit royalacademy.org.uk.

### **Ongoing Exhibitions**

Big Ideas, Small Lots

New York

Through November 2, 2019

Showcasing the five winning proposals of the Big Ideas for Small Lots NYC competition—organized by the 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.

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

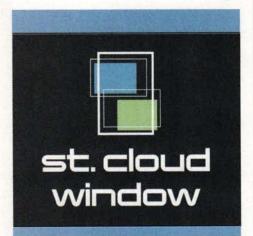
Hudson, New York

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.



# LET THE DAY-LIGHTING IN! **VETROPIENO** GLASS BRICK **AVAILABLE IN** CLEAR & 3 COLORS DISCOVER THE SMART SOLUTION PLUS 877.738.3711 SEVESGLASSBLOCK.COM INQUIRY@SEVESGLASSBLOCK.COM



### Quiet. Safe. Timeless.







# Custom Aluminum Windows & Doors

for commercial buildings of distinction, where aesthetics and advanced performance are critical considerations.

> stcloudwindow.com 800.383.9311

### dates&events

### Marc Yankus: New York Unseen

New York

Through November 16, 2019

This collection of photographs by Marc Yankus includes portraits of some of New York's most recognizable structures, along with other examples of urban architecture from the last century. The exhibition will be shown at the ClampArt gallery. More at clampart.com.

### **Second Home Serpentine Pavilion**

Los Angeles

Through November 24, 2019

Second Home and the Natural History Museums of Los Angeles County bring 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.

Publication	Detail					
2000	Publication Name	ARCHITECTURAL RECORD/BNP N	MEDIA II, LLC			
	Publication Number	132650				
	ISSN	0003858X				
	Filing Date	09/27/2019 MONTHLY				
	Issue Frequency Number of Issues Published Annually	12				
	Annual Subscription Price	72.00				
	Complete Mailing Address of Known Office of Publication	2401 W. BIG BEAVER 700				
		TROY, OAKLAND, MI 48084				
	Contact Person	WAFAA KASHAT				
	Telephone	(248) 786-1631				
	Complete Mailing Address of Headquarter or General Business Office of Publisher	2404 W BIG BEAVER RD #700				
		TROY, MI 48084-3333				
	Publisher (Name and complete mailing address)	ALEX BACHRACH				
		350 5TH AVENUE NEW YORK, NY 10118-0110				
	PERMIT IN THE PROPERTY OF THE PERMIT IN THE	CATHLEEN McGUIGAN				
	Editor (Name and complete mailing address)	350 5TH AVENUE				
		NEW YORK, NY 10118-0110				
	Managing Editor (Name and complete malling address)	BETH BROOME				
	managing contribute and complete naming express)	350 5TH AVENUE				
		NEW YORK, NY 10118-0110				
wner	160	Full Name	Complete Mailing Address			
	Line	1 BNP MEDIA II. LLC	2401 W BIG BEAVER RD #700, TROY, MI 48084-333			
)		2 TAGGART E HENDERSON	2401 W BIG BEAVER RD #700, TROY, MI 48084-333			
l.		3 HARPER THENDERSON	2401 W BIG BEAVER RD #700, TROY, MI 48084-333			
,		4 MITCHELL L HENDERSON	2401 W BIG BEAVER RD #700, TROY, MI 48084-333			
	ndholders, Mortgagees, Other Security Holders	Full Name	Complete Mailing Address			
1	Line	run Name	Comprese maining Address			
i i	Publication Title	ARCHITECTURAL RECORD/BNP	MEDIA II, LLC			
	Issue Date for Circulation Data Below	09/01/2019				
		Average No. Copies Each Issue	N. Control of Clarks Inches			
5	Extend and Nature of Circulation	During Preceding 12 Months	Published Nearest to Filing Date			
5	Total Number of Copies (net press run)	92249				
5a						
	Outside County Paid/Requested Mail Subscriptions stated on PS Form 3541. (Include direct w	ntten				
	request from recipient, telemarketing and Internet requests from recipient, paid subscriptions including nominal rate subscriptions, employer requests, advertiser's proof copies, and exchange					
5b1	including normal rate subscriptions, employer requests, advertisers proof copies, and exchange copies.)	59040	57351			
301						
	In-County Paid/Requested Mail Subscriptions stated on PS Form 3541. (Include direct written request from recipient, telemarketing and Internet requests from recipient, paid subscriptions					
	including nominal rate subscriptions, employer requests, advertiser's proof copies, and exchange	ne ·				
5b2	copies.)		0			
,02	Sales through Dealers and Carriers, Street Vendors, Counter Sales, and Other Paid or Reques	sted				
5b3	Distribution Outside USPS	331	3223			
5b4	Requested Copies Distributed by Other Mail Classes Through the USPS (e.g. First-Class Mail)		5 5			
5c	Total Paid and/or Requested Circulation	6235	60579			
	Outside County Nonrequested Copies stated on PS Form 3541 (include Sample copies, Requi	ests				
	Over 3 years old, Requests induced by a Premium, Bulk Sales and Requests including Association					
5d1	Requests, Names obtained from Business Directories, Lists, and other sources)	2557	13150			
-	In-County Nonrequested Copies stated on PS Form 3541 (include Sample copies, Requests C	Over 3				
	years old, Requests induced by a Premium, Bulk Sales and Requests including Association					
5d2	Requests, Names obtained from Business Directories, Lists, and other sources)		0			
4490	Nonrequested Copies Distributed Through the USPS by Other Classes of Mail (e.g. First-Class	Mail,				
	Nonrequestor Copies mailed in excess of 10% Limit mailed at Standard Mail or Package Service	ces				
5d3	Rates)		0			
2200	Nonrequested Copies Distributed Outside the Mail (include Pickup Stands, Trade Shows,					
5d4	Showrooms and Other Sources)	139				
5e	Total Nonrequested Distribution	2697				
5f	Total Distribution	8933				
5g	Copies not Distributed	291 9224				
5h	Total  Personal Reid and/or Resonated Circulation	9224				
5i	Percent Paid and/or Requested Circulation	69.	02.03			
6	If total circulation includes electronic copies, report that circulation on lines below					
6a	Requested and Paid Electronic Copies		0			
6b	Total Requested and Paid Print Copies (Line 15c) + Requested/Paid Electronic Copies		0			
6c	Total Requested Copy Distribution (Line 15F) + Requested/Paid Electronic Copies		0 0			
6d	Percent Paid and/or Requested Circulation (Both print & Electronic Copies)		U U			
7	Publication of Statement of Ownership	Publication of this statement will b	e printed in the 11/01/2019 issue of this publication			
8	Signature and Title of Editor, Publisher, Business Manager, or Owner	WAFAA S KASHAT	WAFAA S KASHAT AUDIENCE AUDIT/POSTAL SPECIALIST			
8	Title Date	09/27/2019 01:28:25 PM	OINLIO I			
57						
/ersion	PS Form 3526, September 2007					

## KALWALL

high performance translucent building systems





### EXPERIENCE DAYLIGHTING

DONE RIGHT

GLARE FREE, MUSEUM-QUALITY DAYLIGHTING™
OUTSTANDING SOLAR HEAT GAIN CONTROL
EXCEPTIONAL THERMAL PERFORMANCE
ENERGY UPGRADES + RETROFITS
SUSTAINABLE + RESILIENT
MADE IN THE USA

### dates&events

### DENSE-CITY: Housing for Quality of Life and Social Capital

Santa Monica, California Through December 14, 2019 This exhibition of works b

This exhibition of works by Los Angeles architecture studio Brooks + Scarpa explores themes of urban development, cultural equity, and access to public space by featuring models, plans, and drawings from two decades of projects addressing sustainable compact-housing development and creation of affordable communities through advocacy, innovation, and building. More at brooksscarpa.com.

### 1919: Black Water

New York

Through December 14, 2019

This exhibition, presented by the Columbia Graduate School of Architecture, Planning and Preservation (GSAPP), features site-specific paintings and sculpture by contemporary artist Torkwase Dyson in response to the 100th anniversary of the "Red Summer" of 1919, a period of heightened racial violence across the United States. Go to arch.columbia.edu for more information.

### David Hartt: The Histories

Elkins Park, Pennsylvania Through December 19, 2019 This exhibition by David Hartt throughout the Beth Sholom St

This exhibition by David Hartt is installed throughout the Beth Sholom Synagogue—a National Historic Landmark, and the only synagogue designed by Frank Lloyd Wright—outside Philadelphia. The installation focuses on 19th-century composer Louis Moreau Gottschalk and also draws inspiration from landscape painter Martin Johnson Heade. For more information, see bethsholompreservation.org.

### Fringe Cities: Legacies of Renewal in the Small American City

New York

Through January 18, 2020

This exhibition, curated by MASS Design Group, explores the Fringe City, four small cities that have been severely impacted by urban renewal. It examines the role of design in mapping and selling strategies for urban renewal, taking a deep dive into Easton, Pennsylvania; Saginaw, Michigan; Spartanburg, South Carolina; and Poughkeepsie, New York to understand the local impact of those strategies and hear from organizations working to address the legacies. For more information, see centerforarchitecture.org.

### Zurich: Cooperatives Reinvent Social Housing

Paris

Through January 19, 2020 In an exhibition of more than 30 projects,



Zurich's unique approach to social housing is shown. Present since 1907 in Zurich, housing co-ops now own about one-third of rental housing. Certain lifestyle and environmental issues have forced these owners to rethink the art of building and living in the city. See citedelarchitecture.fr for more.

### Nature-Cooper Hewitt Design Triennial New York

Through January 20, 2020

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

### The Whole World a Bauhaus

Karlsruhe, Germany Through February 16, 2020

The effects of the short-lived design school extended beyond Germany. This final installment of the traveling exhibition shows Bauhaus works from the following cities: Buenos Aires; Casablanca, Morocco; Mexico City; Moscow; and Santiago, Chile. See more at zkm.de/en.

### Resident Alien: Architects in America New York

Through February 29, 2020

At the Austrian Cultural Forum New York, this exhibition-curated by Stephen Philips and Axel Schmitzberger-illustrates the cultural contributions of Austrian-American architects from early Modernism through today. Find more information at acfny.org.

### **Designs for Different Futures**

Philadelphia

Through March 8, 2020

This exhibition is about the role of designers in shaping how we think about the future. It brings together over 80 works that address the challenges and opportunities that humans may encounter in the years ahead, including labgrown food, robotic companions, family-leave policy proposals, and textiles made of seaweed. For more, go to philamuseum.org.

### **Agnes Denes: Absolutes and Intermediates** New York

Through March 22, 2020

This exhibition at the Shed is the first comprehensive exhibition of Hungarian-born artist Agnes Denes's work in New York. The retrospective includes sketches, precise drawings influenced by math and science, sculptures, and photographs and archival video footage. Learn more at theshed.org.

### Lectures, Conferences, and Symposia

### A Modern Affair

New York

November 12, 2019

An event at the Ford Foundation Center for Social Justice to support DOCOMOMO US/NY Tri-State and celebrate the renovation of its landmark building and the legacies of Kevin Roche and Daniel Kiley will feature Eamon Roche, Gus Kiley, and Center vice president John Bernstein. More at docomomo-nytri.org.

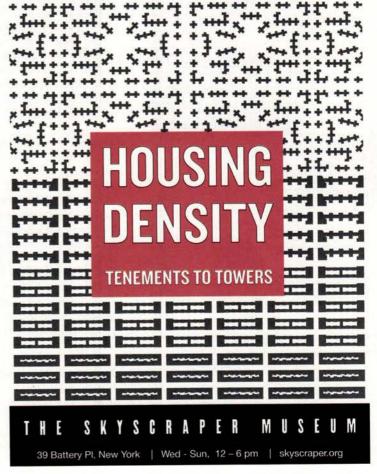
### USC Architecture Lecture: Gregg Pasquarelli

Los Angeles

November 13, 2019

As part of the USC Architecture fall public programming series, Gregg Pasquarelli, cofounder of SHoP Architects, will speak at 6 p.m. in the Gin D. Wong, FAIA Conference Center, Harris Hall. Learn more at arch.usc.edu.





### **Tallinn Architecture Biennale 2019**

Tallinn, Estonia

Through November 17, 2019

Organized by the Estonian Center for Architecture, the international architecture and urban-planning festival—with the theme Beauty Matters: The Resurgence of Beauty—consists of an exhibition, symposium, and competition (all arranged by biennale head curator Dr. Yael Reisner), and an international architecture schools' installation. Satellite exhibitions, installations, architectural film projections, and events will be spread around the city for the duration of the Biennale. Learn more at tab.ee.

### Daniel Urban Kiley Lecture: Michelle Delk

Cambridge, Massachusetts

November 21, 2019

Michelle Delk, partner and landscape architect at Snøhetta in New York, will speak at the Harvard Graduate School of Design in a free lecture, open to the public. More information at the gsd.harvard.edu.

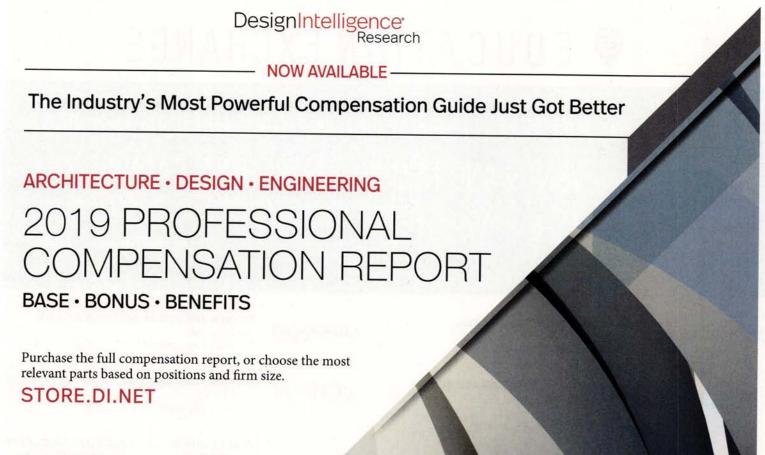
### Alan Organschi: Building a Global Carbon Sink

New York

November 26, 2019

As part of a series of lectures and discussions, architects and educators describe new ways of thinking and acting as architects and landscape architects. Alan Organschi, principal at Gray Organschi Architecture, will discuss an alternative approach to meeting the urgent need for change by using emerging mass timber and





bio-based building assemblies in the construction of new cityscapes. More information at archleague.org.

### Rolex Arts Weekend

Cape Town February 8-9, 2020

The weekend of events, open to the public, will feature talks, readings, exhibitions, and performances. It will include the work of 2018-19 matched pairs from the Rolex Mentor and Protégé Arts Initiative, Sir David Adjaye and Mariam Kamara among them. Learn more at rolex.org/rolex-mentor-protégé.

### Competitions

### 2019 Wood Design & Building Awards

Deadline: November 26, 2019 This international competition honors excellence in wood architecture. A jury of architects from Canada and the U.S. review

each submission and choose winners based on considerations such as creativity, distinctive and appropriate use of materials, ability to satisfy clients' building and site requirements, and overall aesthetic appeal for the use and

application of wood. All projects completed between January 1, 2014 and November 15, 2019 are eligible for entry. Learn more at cwc.ca.

### **Fairy Tales**

Deadline: December 19, 2019

Architects, designers, writers, artists, engineers, illustrators, and students can submit their own "architectural fairy tales" as a narrative text with at least five images. This year, the competition is looking for entries that provide solutions to real-world issues. Winners will receive cash prizes up to \$2,500. See blankspaceproject.com for more information.

### The Avery Review Essay Prize 2020

Deadline: January 15, 2020

The Avery Review, a journal on architecture published by Columbia University's Graduate School of Architecture, Planning and Preservation, invites submissions for its third annual Essay Prize. Submissions are open to current students and recent graduates, and should take the form of critical essays on books, buildings, and other architectural media. The winners will receive cash prizes and be published in the journal's April 2020 issue. More at averyreview.com.

### 2020 Skyscraper Competition

Deadline: February 11, 2020

This annual competition recognizes ideas that implement novel technologies, materials, programs, aesthetics, and spatial organizations for high-rise architecture. There are no restrictions regarding site, program, or size, and all can submit. Winners receive cash prizes and will be published in a forthcoming book titled Evolo Skyscrapers 4. More information at evolo.us.

### LafargeHolcim Awards for Sustainable Construction

Deadline: February 25, 2020

The LafargeHolcim Awards seek leading projects of professionals as well as bold ideas from the next generation that combine sustainable construction solutions with architectural excellence. The competition foregrounds projects and concepts from architecture, engineering, urban planning, materials science, construction technology, and related fields. Submissions are free, and a total of \$2 million in prize money is offered. Reed Kroloff will lead the jury for North America. For more information, visit lafargeholcim-awards.org.

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



# EDUCATION EXCHANGE

# 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



WINDOW INSTALLATION BEST PRACTICES

1 AIA LU/HSW

Presented by: Andersen Windows



THE NEW BENEFITS OF DESIGNING WITH BIM

1 AIA LU/HSW

Presented by: GRAPHISOFT NORTH AMERICA



MAKING TRANSITIONS: KEEPING AIR AND WATER **BARRIERS CONTINUOUS** 

1 AIA LU/HSW

Presented by: Georgia-Pacific Gypsum



ALUMINUM COIL ANODIZING FOR ARCHITECTURAL DESIGN 1 AIA LU/HSW

Presented by: Lorin Industries Inc.



CODE CONSIDERATIONS IN FIRE RATED GLASS

1 AIA LU/HSW

Presented by: SAFTI FIRST Fire Rated Glazing Solutions



SHARP CORNERED STAINLESS STEEL PROFILES FOR ARCHITECTURE, BUILDING, AND CONSTRUCTION 1 AIA LU/Elective; 1 PDH

Presented by: Stainless Structurals

# Advertisers Index

Advertiser  Adsil®	Page	Advertiser	Page	Advertiser	
Adsil®					Page
	40	Endicott Clay Products	80	Owens Corning	67, 144, 145
American Institute of Architects	65	Forms & Surfaces	52	Petersen Aluminum	50
Aluflam NA LLC	151	Fry Reglet	127	Phifer Incorporated	12
American Hydrotech	38	Georgia Pacific Gypsum	71	Pilkington North America	82
ARCAT	76	Goldbrecht	17	Reef Industries	152
Architectural Record - DesignIntelligence	153	Graham Architectural	109	RH Tamlyn & Sons	15
Architectural Record- Education Exchange	e 154	Guardian Glass	19	Ruskin Company	42
Architectural Record - DOCOMOMO US	10	H.E. Williams Inc.	45	SAFTIFIRST	32
Architectural Record - Academy of Digital Learning	14	Heather & Little Ltd.	153	Scranton Products	59
Architectural Record -		Hormann High Performance Doors	36	Seves Glass Block	149
Record On The Road LA	58	Huber Engineered Woods	135	Simonswerk	37
Architectural Record - Webinars	72	Invisible Structures	149	Sloan Global Holdings, LLC	CVR 3, 55
Architectural Record - ArchitecturalRecord.com	118	Joto-Vent System USA, Inc.	31	Smith System	9
Architectural Record - Record Houses	117	Julius Blum & Co., Inc.	25	Sonneman	4, 5
AS Hanging Systems	66	Kalwall	151	St. Cloud Window	150
ASI Storage Solutions	27	Kawneer	146, 147	Steel Institute of New York	6
Azon	73	Kingspan Light+Air   CPI Daylighting	77	Sustainable Forestry Initiative	34
Belden Brick Company, The	81	Laticrete International	24	Technical Glass Products	CV2, 1
Bison	131	Lorin Industries	29	The Skyscraper Museum	152
Bobrick Washroom Equipment 136	, 137	Lumion	CVR 4	Times Square Lighting	26
Carlisle Syntec	68	modular Arts	53	U.S. Green Building Council	11
Cascade Coil	49	Mohawk Industries	138, 139	Viracon	107
CENTRIA	22	NanaWall	21	VITRO Architectural Glass (Formerly	PPG Glass) 2, 3
Chicago Architecture Biennial	74	National Terrazzo & Mosaic Associatio	n <b>134</b>	Walpole Outdoors	48
Doug Mockett & Company, Inc.	54	Oldcastle BuildingEnvelope®	41	Western Red Cedar Lumber Assoc	iation <b>142, 143</b>
Dri-Design	7, 33	Ornamental Metal Institute of New York 8,	140, 141	Wooster Products	43

PROJECT LOCATION NRW TEXTILE ACADEMY
MÖNCHENGLADBACH, GERMANY

ARCHITECT SOP | ARCHITEKTEN

THE NORTH RHINE-WESTPHALIA (NRW) Textile Academy is dressed to impress at Northwestern Germany's Niederrhein University of Applied Sciences campus. The new, 30,000-square-foot textile-engineering training center, designed by Düsseldorf-based sop | architekten, is sheathed in 22,600 square feet of woven fiberglass PTFE fabric "to show the many different ways textiles can be used," says sop cofounder Zbigniew Pczczulny. It also, he adds, serves as an example of the sort of project the students here could one day create. Supported by a prestressed steel framework, the durable material is draped across the face of the boxy concrete academy like an elegant veil. At night, lights embedded along the outline of the building's footprint illuminate the gauzy fabric from below. The facade can even be used as a projection screen for evening events—making it flexible in more ways than one. Kara Mavros

