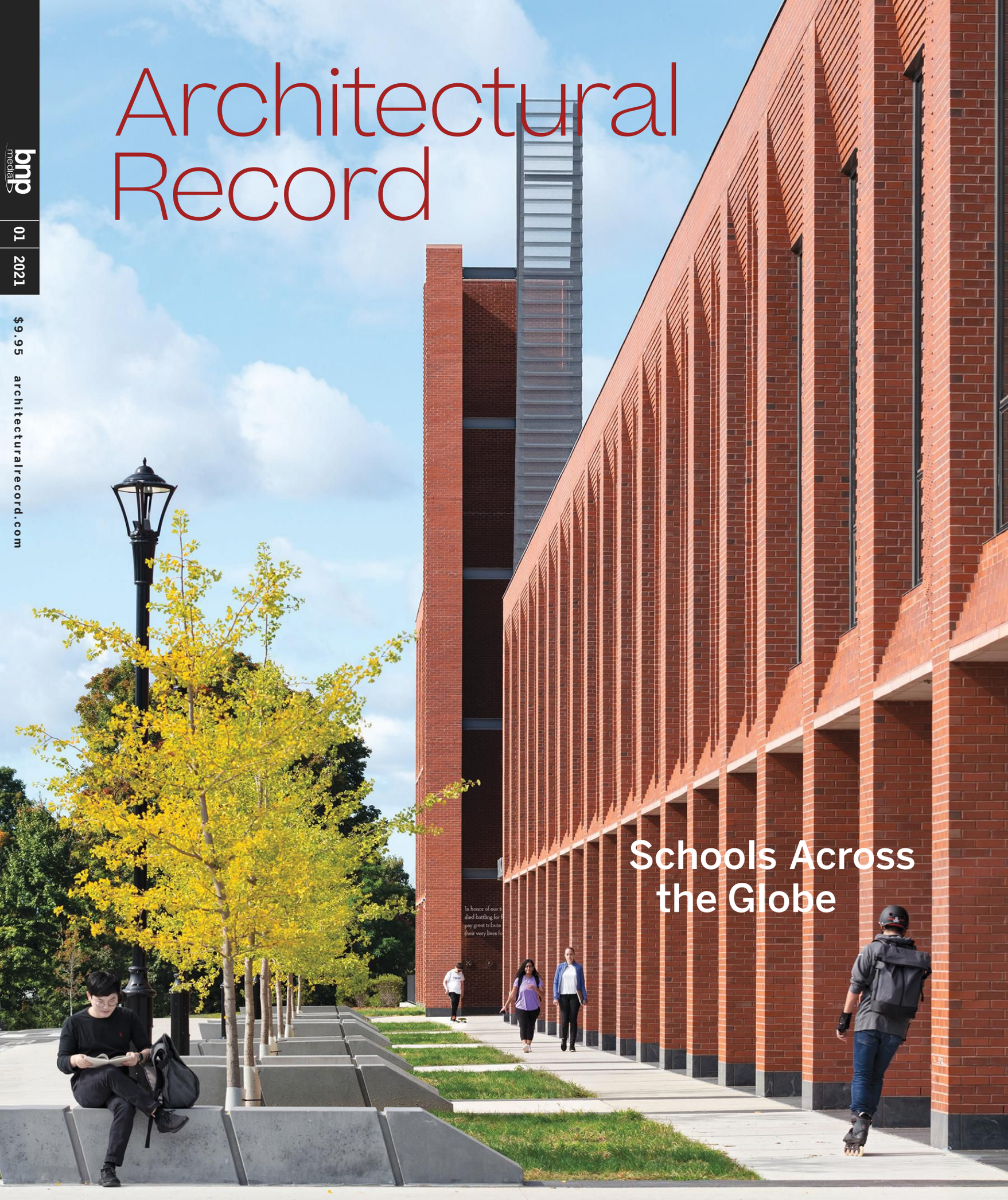
Architectural Record



Schools Across the Globe

bnp media
01 2021
$9.95
architecturalrecord.com

CREATE THE NEW BEST SPOT ON CAMPUS

Every campus has that one warm, cozy nook that's perfect for all-nighters or a quick late night snack. WoodWorks® Grille can help you create #instaworthy spaces that students, alumni, and faculty will savor. Install on ceilings or walls with infill panels that can help bring down the noise. It's all part of the CleanAssure™ portfolio – meeting the latest CDC cleaning and disinfecting recommendations for healthy spaces. Learn more about ceilings destined to go viral at armstrongceilings.com/grille



Inspiring Great Spaces®



WOODWORKS® GRILLE & AXIOM® CLASSIC
CAFE EDENS, DUKE UNIVERSITY, DURHAM, NC
NEW CITY DESIGN GROUP, RALEIGH, NC

Armstrong®
CEILING SOLUTIONS



Empire State Building, Observation Deck

Architect: Corgan Associates Architects

Glazing Contractor: Infinite Glass and Metal, Inc.

Product: Fireframes® Curtainwall Series with Pilkington Pyrostop® fire-resistive-rated glass

© 2020 Technical Glass Products, Inc. PILKINGTON PYROSTOP is a registered trademark of Pilkington plc. TECHNICAL GLASS PRODUCTS, FIREFRAMES and FIREGLASS are registered trademarks of Technical Glass Products, Inc. Image courtesy of Empire State Realty Trust, Inc. #1 specified fire-rated glass company in North America among architectural specifiers as reported by a national research/analytics firm, ConstructConnect, Inc., 2014-2019.



WE'RE NOT STOPPING AT NUMBER ONE.

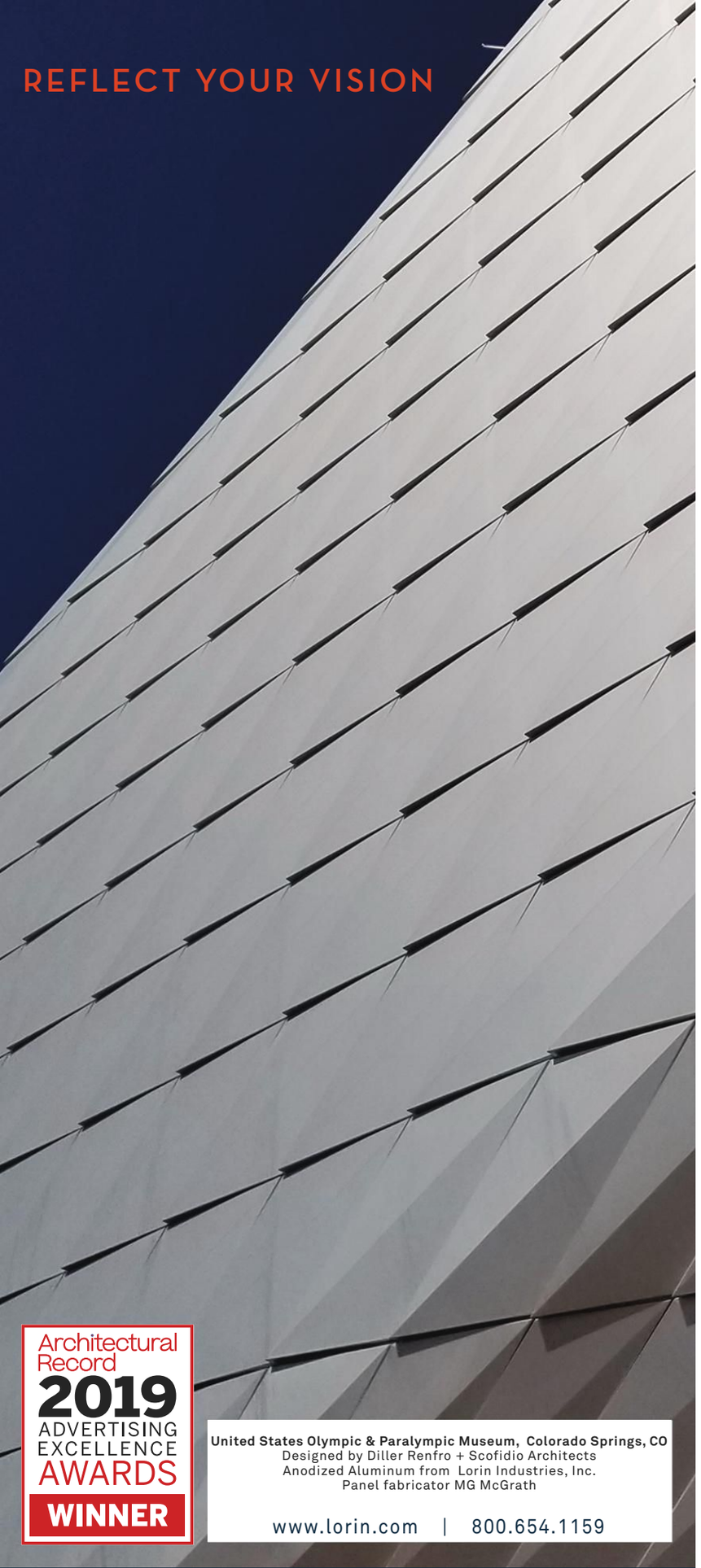
NORTH AMERICA'S
MOST SPECIFIED
FIRE-RATED GLASS COMPANY

The World's Most Famous Building turned to Technical Glass Products, and you should too. Being North America's most specified fire-rated glass company doesn't prevent us from pushing further. Extensive product lines, new innovations, faster lead times, meticulous quality and industry leading expertise are just a few of the reasons why we remain unrivaled.

Learn how TGP will make your experience monumental.

TGP FIRE RATED ALLEGION

fireglass.com | 800.426.0279



Architectural Record

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*

SENIOR DIGITAL/NEWS EDITOR Miriam Sitz, *sitzm@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, PRESENTATION DRAWINGS Peter Coe

CONTRIBUTING EDITORS Sarah Amelar, Robert Campbell, FAIA, Blair Kamin, Sheila Kim (products), Katharine Logan, Jayne Merkel, Clifford A. Pearson, David Sokol, Sarah Williams Goldhagen

SPECIAL INTERNATIONAL CORRESPONDENT Naomi R. Pollock, FAIA

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

CONTRIBUTING PHOTOGRAPHERS Iwan Baan, Roland Halbe

ARCHITECTURAL RECORD (ISSN: Print 0003-858X Digital 2470-1513) January 2021, Vol. 209 No. 1. 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: US $36.00, Canada $72.00 and Foreign $132.00. Annual rate for digital: $18.00. Single Copy sales: $10.00.

Printed in the U.S.A. Copyright 2021, 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.

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

bnp media BNP Media Helps People Succeed in Business with Superior Information

ABC MPA

PRINTED IN USA

Unique curved body is specifically engineered to eliminate large gaps and areas for entrapment

Deep-drawn corners have no visible welds and provide superior finish



Handles guide patrons to operate the unit with less than 5 lbs. force

Enhanced built-in frame provides exceptional bed stability

KOALA KARE'S NEW KB310/KB311 BABY CHANGING STATION

A whole new platform for change.



Koala Kare continues to set the standard for baby changing stations. Introducing the horizontal KB310 and vertical KB311, our new fully-compliant stainless steel units featuring craftsmanship only Koala can provide. From the distinctive curved shape and seamless corners to its compliance with ADA, ASTM and EN standards, and exclusive Microban® protection, Koala's new product line provides hygienic, contemporary accommodation for any restroom.

We've reinvented the baby changing station—again. koalabear.com/change

Koala Kare
A Division of Bobrick

YOUR ONLY LIMITATION
— IS YOUR
IMAGINATION

With a distinctive design like no other, you can use The Belden Brick Company's Molded Brick in a wide range of residential and commercial projects. From impressive contemporary and modern structures to the traditional colonial architectural style, only you can imagine.



Sand Mold - Belcrest 500

RESIDENTIAL | COMMERCIAL | PAVERS

BELDEN
THE BELDEN BRICK COMPANY

beldenbrick.com | 330-456-0031 | *The Standard of Comparison Since 1885*

Architectural Record

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 BNP Media Helps People Succeed in Business with Superior Information

ABC MPA

PRINTED IN USA

Create the Perfect Storm Against Severe Hail

Get the only **FM Global** Very Severe Hail Classified[1] High-Performance Gypsum Cover Board





Let's face it. You're what stands between the attack of menacing ice balls and roof assembly damage. And we've got the cover board to help you do it. DensDeck® StormX™ Prime Roof Board incorporates EONIC™ Technology and Georgia-Pacific's new impact innovation to give you the only high-performance gypsum cover board classified for **FM Global Very Severe Hail[1]**. Specify DensDeck StormX in any situation where you need enhanced impact resistance, but always specify it in very severe hail zones. You'll deliver the roof resilience your designs can rely on.

Visit **DensDeckStormX.com** for more information.

GP Georgia-Pacific
DensDeck® StormX™
Prime Roof Board

[1] Consult RoofNav® for VSH assemblies with DensDeck® StormX™ Prime Roof Boards.

©2021 GP Gypsum LLC. DensDeck, EONIC and the Georgia-Pacific logo are trademarks owned by or licensed to GP Gypsum LLC.

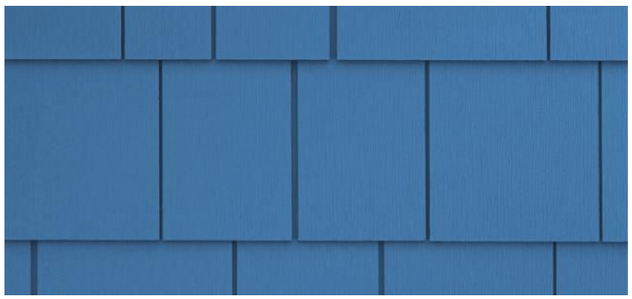
AZEK Exteriors

AZEK SHINGLE SIDING & TRIM WITH PAINTPRO® TECHNOLOGY



CLASSIC BEAUTY THAT ENDURES

Made from a state-of-the-art proprietary engineered polymer, AZEK Shingle Siding delivers classic beauty with the performance and low-maintenance benefits of rot-proof PVC building materials. The combination of AZEK Siding and AZEK Trim both enhanced with PaintPro® Technology, offers architects an exterior building wrap solution without the worry of paint peeling, cracking or chipping as a result of water and weather damage. Preserve the integrity of your design with siding and trim that stays beautiful.



Varying width keyways, alternating tab sizes and a vertical woodgrain pattern deliver a truly authentic wood shingle aesthetic.

AZEK TRIM & MOULDING — AZEK Exteriors — LIFETIME LIMITED — WARRANTY

AZEK SHINGLE SIDING — AZEK Exteriors — LIFETIME LIMITED — WARRANTY

ORDER A FREE SAMPLE AT **AZEKEXTERIORS.COM**

BIMsmith®

DESIGN IN REVIT WITH BIM CONTENT FOR AZEK
azekexteriors.com/resources/bim-library



Architectural Record

JANUARY 2021

NEWS

17 **2021 AIA Gold Medal Recognizes Ed Mazria's Climate Activism** *By Joann Gonchar, FAIA*

20 **Yesomi Umolu Named Serpentine Galleries' Director of Cultural Affairs** *By Zach Mortice*

22 **Pascale Sablan Wins 2021 Whitney M. Young Jr. Award** *By Miriam Sitz*

23 **Newsmaker: Emilio Ambasz** *By Anna Fixsen*

DEPARTMENTS

12 **Editor's Letter: A Better Climate for Action**

25 **House of the Month: Ardmore House in Chicago by Kwong Von Glinow Design Office** *By Jenna McKnight*

27 **Guess the Architect**

29 **Interview with AIA CEO Robert Ivy** *By Cathleen McGuigan*

34 **First Look: Local Studio's Salvazione Christian School in South Africa** *By Alex Klimoski*

39 **Products: Education** *By Sheila Kim*

42 **Products: Building Envelope** *By Sheila Kim*

46 **Close Up: Nakanoshima Children's Book Forest by Tadao Ando Architect & Associates** *By Clifford A. Pearson*

BUILDING TYPE STUDY 1,025 SCHOOLS ACROSS THE GLOBE

55 **Qingpu Pinghe International School, Shanghai** OPEN ARCHITECTURE *By Aric Chen*

64 **Billerica Memorial High School, Billerica, Massachusetts** PERKINS&WILL *By Beth Broome*

70 **Gloggnitz School Complex, Gloggnitz, Austria** DIETMAR FEICHTINGER ARCHITECTES *By Mary Pepchinski*

76 **Jacques Chirac School, Rabat, Morocco** SAAD EL KABBAJ, DRISS KETTANI, AND MOHAMED AMINE SIANA *By Josephine Minutillo*

80 **Blakely Elementary School, Bainbridge Island, Washington** MITHUN *By James S. Russell, FAIA*

86 **Gruss Center for Art and Design at The Lawrenceville School, New Jersey** SASAKI *By Linda C. Lentz*

90 **Olympe de Gouges School Complex, Gidy, France** DOMINIQUE COULON & ASSOCIATES *By Suzanne Stephens*

BOOKS

32 ***Brave New Home* by Diana Lind** *Reviewed by Paul Makovsky*

33 **Books in Brief** *Reviewed by Suzanne Stephens and Preston Scott Cohen*

DESIGN FOR NEURODIVERSITY

98 **Brain Trust** ARCHITECTS CREATE ENVIRONMENTS THAT SUPPORT THOSE WITH A MULTIPLICITY OF NEUROCOGNITIVE ABILITIES AND NEEDS. *By Katharine Logan*

AIA Continuing Education Provider

116 **Dates & Events**

120 **Snapshot: Glass Bridge in Lianzhou, China by UAD** *By Kara Mavros*

THIS PAGE: BLAKELY ELEMENTARY SCHOOL IN BAINBRIDGE ISLAND, WASHINGTON, BY MITHUN. PHOTO © KEVIN SCOTT.
Expanded coverage at architecturalrecord.com.

COVER: BILLERICA HIGH SCOOL, BOSTON, BY PERKINS&WILL. PHOTO BY CHUCK CHOI.
NEW LOGO DESIGNED BY ALLISON BRYAN, CREATIVE DIRECTOR, CLB ARCHITECTS.

LEARN & EARN

AIA Continuing Education Provider

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

IN THIS ISSUE

Photo courtesy of Mitsubishi Electric Trane HVAC US (METUS)



Public Health and Sustainability Concerns in Schools

Sponsored by Inpro, Mitsubishi Electric Trane HVAC US (METUS), NanaWall Systems, and New Millennium Building Systems

CREDIT: 1 AIA LU/HSW

Photo courtesy of Westfalia Technologies, Inc.



Automated Parking Systems Demystified

Sponsored by Westfalia Technologies, Inc.

CREDIT: 1 AIA LU/HSW

ALSO ONLINE AT CE.ARCHITECTURALRECORD.COM

- New Acoustical Options in Specialty and Seamless Ceiling Systems
  Sponsored by Armstrong Ceiling and Wall Solutions
- Performance Space Designs that Deserve a Standing Ovation
  Sponsored by Armstrong Ceiling and Wall Solutions
- Workplace Acoustics
  Sponsored by Armstrong Ceiling and Wall Solutions
- Designing for Life, From the Inside Out
  Sponsored by Benjamin Moore & Co.
- Sustainability and Green Design
  Sponsored by Benjamin Moore & Co.
- Voices for Sustainable Architecture
  Sponsored by Armstrong Ceiling and Wall Solutions
- Sustainable Material Selection Delivers Better Spaces
  Sponsored by Armstrong Ceiling and Wall Solutions
- Health, Wellness, and Designing for Senior Living
  Sponsored by Armstrong Flooring
- The Importance of Engineering Judgments for Perimeter Fire-Containment Systems
  Sponsored by Owens Corning
- Acoustics and Health
  Sponsored by Kirei USA
- Speed Is the New Green
  Sponsored by Hörmann High Performance Doors
- Flexible Interiors and Office Floorplan Design
  Sponsored by NanaWall Systems
- The Benefits of Mineral Wool as a Continuous Insulation Solution
  Sponsored by Owens Corning
- Managing Your Firm through a Crisis and into the Future
  Sponsored by BQE Software, Inc.
- A More Transparent Shadeof Green
  Sponsored by Excel Dryer
- Acoustical Design for Today's Buildings
  Sponsored by Armstrong Ceiling and Wall Solutions
- Glass Entrance System Specification: What You Need to Know
  Sponsored by C.R. Laurence
- Improving Concrete Durability with Crystalline Technology
  Sponsored by XYPEX Chemical Corp.
- Concrete Waterproofing Alternatives
  Sponsored by XYPEX Chemical Corp.
- Connection Options for Wood-Frame & Heavy Timber Buildings
  Sponsored by Think Wood
- Expansion Joints and Their Role in Waterproofing
  Sponsored by Inpro
- Use Cementitious Wood Fiber for Great Acoustical Design
  Sponsored by Armstrong Ceiling and Wall Solutions
- Daylighting Inside and Out
  Sponsored by Milgard Windows & Doors
- How Windows are Designed, Tested, and Rated
  Sponsored by Milgard Windows & Doors
- Using the Seven Principles of Universal Design for Specifying Windows and Glass Doors
  Sponsored by Milgard Windows & Doors
- Designing for Better Acoustics
  Sponsored by AMBICO Limited, NanaWall, PABCO Gypsum, and Turf Design
- Supporting Performance, Saving Energy
  Sponsored by Draper, Inc.

NEW ONLINE AT CE.ARCHITECTURALRECORD.COM

Photo: © Cyrille Lallement



Acoustics: An Important Design Consideration for All Projects

Sponsored by Armstrong Ceiling and Wall Solutions

CREDIT: 1 AIA LU/ELECTIVE

Image courtesy of Metal Building Manufacturers Association

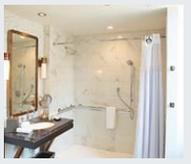


Using Metal Building Systems to Meet and Exceed the Energy Code

Sponsored by Metal Building Manufacturers Association (MBMA)

CREDIT: 1 AIA LU/HSW

Photo courtesy of Inpro



Three Hot Topics in Commercial Bathroom and Shower Design

Sponsored by Inpro

CREDIT: 1 AIA LU/HSW

Photo courtesy of Inpro



Fire-Rated Expansion Joints: Employing Best Practices + Avoiding Field Problems

Sponsored by Inpro

CREDIT: 1 AIA LU/HSW

Photo courtesy of Ecore



Health-Care Flooring for the New Normal

Sponsored by Ecore

CREDIT: 1 AIA LU/HSW

Photo courtesy of Geolam, Inc.



Understanding "Wood Aesthetic" Technologies for Cladding and Soffits

Sponsored by Geolam, Inc.

CREDIT: 1 AIA LU/HSW

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

*All *Architectural Record* articles and presentations count toward the annual AIA continuing education requirement. All sponsored exams are available at no charge and are instantly processed, unless otherwise noted.
This course is part of the Acoustics Academy. This course is part of the Interiors Academy. This course is part of the Sustainability Academy.

GRASSPAVE²

BY INVISIBLE STRUCTURES™

Porous Grass Paver











Green Paving Solution

The industry's trusted leader in porous paving since 1982. Designed by a Landscape Architect, Grasspave2 is flexible, lightweight, easy to install, and will bring sustainability to any project.

FIRE LANES
UTILITY AND EMERGENCY ACCESS
PARKING LOTS/DRIVEWAYS
PEDESTRIAN TRAFFIC
HELICOPTER LANDING PADS
ADA COMPLIANT
100% RECYCLED/LEED CERTIFIED

INVISIBLE STRUCTURES™

(303) 233-8383 | Invisiblestructures.com/grasspave2



A Better Climate for Action

As the time frame to address the environmental crisis begins to close, there are strong signs of positive change.

THE LIST of past winners of the AIA Gold Medal is a who's who of some of the world's greatest modern architects, from Le Corbusier and Alvar Aalto to Frank Gehry and Tadao Ando.

But can you name a single building designed by the 2021 Gold Medalist, Edward Mazria? Probably not. That's because Mazria is being honored for contributions to the built environment that are more urgent and profound today than innovations in form or space-making: he is helping to save the planet (page 17).

In 2002, Mazria launched Architecture 2030, a pro bono arm of his New Mexico–based practice, which came to be a force for raising awareness and setting stringent targets for reducing carbon emissions from construction, the economic sector that accounts for nearly 40 percent of the greenhouse gasses released into the atmosphere. The architect's groundbreaking research and development is the foundation of the AIA's own initiatives to push for carbon neutrality in the built environment. As AIA CEO Robert Ivy tells RECORD in a wide-ranging interview in this month's issue (page 29), climate action is the top priority in the organization's current strategic plan.

Mazria is optimistic that architects' projects can reach the essential goal of zero carbon emissions by 2040. Overall building energy use in the U.S. has been reduced over recent years, despite the addition of billions of square feet of new construction, while the push to innovate, and new digital tools available for those efforts, are central to contemporary architectural culture.

Public support for addressing the climate crisis is unequivocal. Two-thirds of Americans, across political party lines, according to the Pew Research Center, believe the government needs to do more. Even wider majorities in the 2020 survey favored such measures as taxing corporations for carbon emissions and restricting pollution-spewing power plants.

This month, the federal government will begin to tackle those challenges head-on. The first order of the incoming administration will be to rejoin the international Paris accord, which the AIA explicitly supports. What's striking about the new approach, according to *The New York Times*, is that measures to attack global warming will not only be a priority in such departments as the Environmental Protection Agency, but will be baked in to broader economic policies. Encouraging the ongoing development of fossil-fuel alternatives, for example, is likely to create a host of new jobs, while the cost of doing nothing is disastrously high. Economist Janet Yellen, the nominee for Secretary of the Treasury, has long warned about the consequences of inaction. In 2018, the government's own assessment, under the current administration, sounded the alarm that "natural disasters and other extreme weather events driven by a warming planet could cost the United States 10.5 percent of its domestic gross product by 2100," said the *Times*.

Architects have been in the advance guard in the fight against global warming for decades, thanks not only to leaders like Mazria but also the many practitioners who have educated themselves and their clients—and who keep bringing inventive ideas to design and construction, as the time frame to achieve zero carbon emissions narrows.

Now, a brief note from RECORD, as we start the new year: the last step in the refreshed redesign of the magazine and website, under art director Mike Powell, is the updated logo gracing our cover. We invited architects and designers to submit their ideas. Out of 275 entries, we chose the simple elegance of the one from Allison Bryan, an architect and graphic designer who is Creative Director of CLB, based in the firm's Bozeman, Montana, office. Thank you, Allison.

And, lastly, RECORD is pleased to introduce a new podcast, DESIGN:ED, hosted by Aaron Prinz. Prinz, who holds an M.Arch. from the University of Texas and practices in Austin, has interviewed more than 40 architects—check out the library on architecturalrecord.com, to hear from such voices as Thom Mayne, Glenn Murcutt, and Jenny Wu—and will produce new podcasts every month. Join us in welcoming Aaron to RECORD—and get ready to listen up.

PHOTOGRAPHY: © MICHEL ARNAUD

Cathleen McGuigan

Cathleen McGuigan, Editor in Chief


Accordion Doors


Acousti-Seal® Encore®

MODERNFOLD®

Innovative solutions for the flexible needs of any space

- Accordion Doors
  Quick sight and sound division with a simple pull-and-latch operation
- Acousti-Seal® Encore®
  The ultimate in versatility and flexibility with acoustical control of 56 STC
- Acousti-Clear®
  Elegant transparency and industry-leading 51 STC sound separation
- ComfortDrive®
  UL®-Certified and fully automatic operation at the push of a button

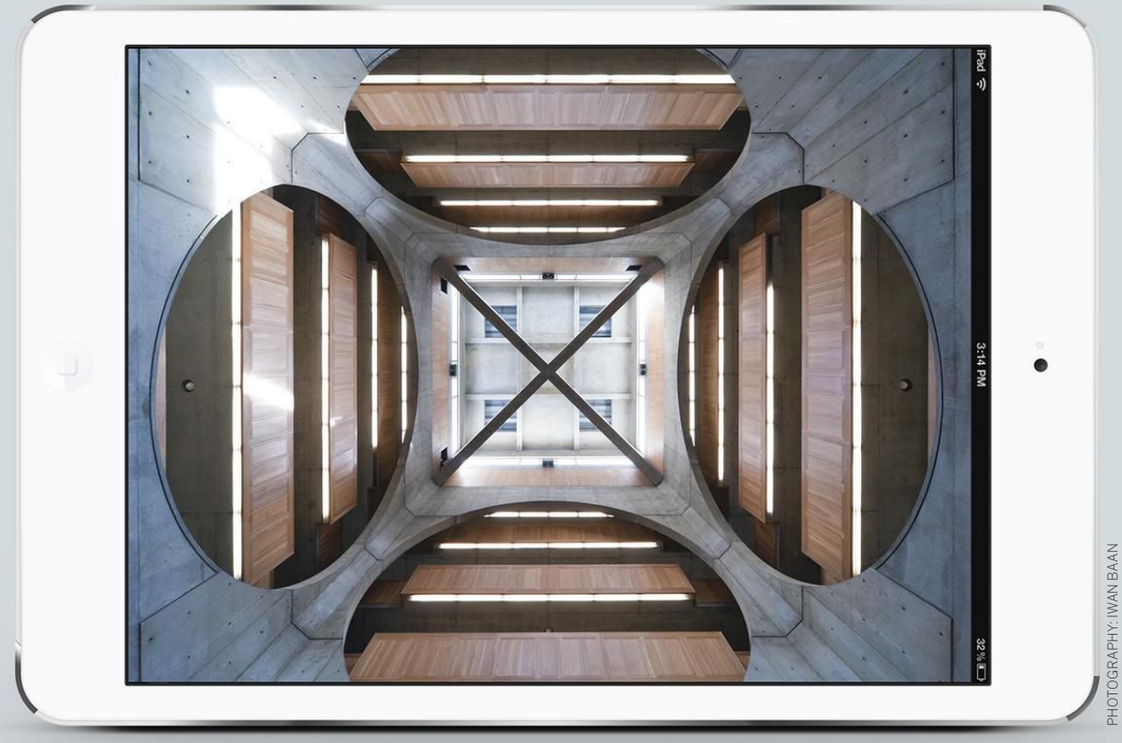
Learn more about our new Online and Lunch & Learn AIA Continuing Education Courses
and the various Modernfold space division products by calling **800-869-9685** or visiting **www.modernfold.com**


Acousti-Clear®



ComfortDrive®

GUESS THE ARCHITECT
WIN AN IPAD MINI



PHOTOGRAPHY: IWAN BAAN

▶ TAKE A LOOK ON PAGE 34

ENTER @ ARCHITECTURALRECORD.COM/GUESSTHEARCHITECT

ARCHITECTURAL RECORD

Guess the Architect Contest

FOR COMPLETE RULES AND REGULATIONS GO TO ARCHITECTURALRECORD.COM/GUESSTHEARCHITECT

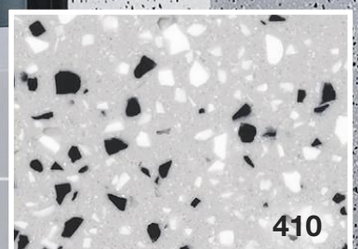
Sponsored by:

PAC-CLAD PETERSEN

A CARLISLE COMPANY

bring your inspiration to the surface.

Clean. Durable. And stunningly unforgettable. Meet the newest addition to our Everform™ Solid Surface Collection. Everyone loves choices. Now you have even more to bring your vision to life. View the entire line now at formica.com/specialty.



410
Argento
Terrazzo Matrix

FORMICA®

FIND YOUR PERFECT™

Everform™

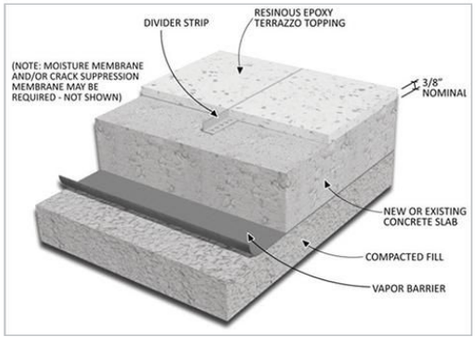
SOLID SURFACE *by* FORMICA GROUP

Formica® and the Formica® Anvil Logo are registered trademarks of The Diller Corporation. Everform™ and Find Your Perfect™ are trademarks of The Diller Corporation. All rights reserved. ©2020 The Diller Corporation.

TERRAZZO · TERRAZZO · TERRAZZO · TERRAZZO · TERRAZZO · TERRAZZO

Terrazzo: The Cure for the Common Floor

Terrazzo is the natural choice for today's buildings. A seamless, non-porous finish makes terrazzo easy to clean and disinfect. Its resistance to moisture accumulation and microbial growth helps maintain a mold-free environment and healthy indoor air quality. Terrazzo is impervious to liquids, odors and dust mites. Equipment rolls silently on terrazzo's smooth surface. With endless design possibilities and a long life-cycle, terrazzo floors bring beauty and sustainability to every setting.



National Terrazzo & Mosaic Association
www.NTMA.com
800.323.9736

Tidewater Community College • Burt Hill Architects • WM Jordan Company – General Contractor • David Laudadio – Photographer

Johnson's influence runs deep and wide, and across generations, and yet he is also just one figure among the entrenched, paradigmatic racism and white supremacy of architecture.

— Harvard Graduate School of Design dean Sarah Whiting, in response to the Johnson Study Group's call for the GSD, MoMA, and other public-facing organizations to remove Philip Johnson's name from honorifics, due to his "widely documented white-supremacist views and activities."

2021 Gold Medal Recognizes Ed Mazria's Climate Activism

BY JOANN GONCHAR, FAIA

IN A MOVE that may be a sign of shifting priorities, the American Institute of Architects (AIA) has named Santa Fe, New Mexico–based architect Edward Mazria as the recipient of its 2021 Gold Medal. Past winners of the annual prize—considered the organization's highest honor—have typically made their mark on the profession through their body of built work. Mazria, however, is instead known for his climate activism and credited with shining a light on the connection between buildings and global warming. "We are major emitters," he says, referring to the architecture and construction industries.



Mazria founded Architecture 2030 in 2002, aiming to raise awareness of buildings' role in both causing and addressing carbon emissions.

Mazria has championed his cause through Architecture 2030, the nonprofit organization that he started as a pro bono arm of his design practice in 2002. Because of the group's work, just about every architect knows that the built environment is responsible for nearly 40 percent of global greenhouse gas emissions—more than any other sector. But Mazria has not only raised awareness about architecture's carbon problem, he's shown that buildings are central to the cure. "Without Ed's tireless efforts, the relevance of your profession to climate solutions would be considerably less appreciated or integrated into global climate action," wrote Michael Northrop, the sustainable-development program director for the Rockefeller Brothers Fund, in a letter of support to the Gold Medal jury.

Just a few of Architecture 2030's initiatives include: the 2030 Challenge, which sets efficiency targets that grow increasingly stringent over time in order to reach carbon neutrality for new buildings by 2030, and for the entire built environment by midcentury; the Carbon Smart Materials Palette, a specification tool aimed at achieving reductions in the carbon embodied in construction materials; and the Zero Code, a standard that supports the design of carbon-neutral buildings. With the AIA, Architecture 2030 successfully lobbied for the inclusion of the Zero Code in the newest version of the International Energy Conservation Code.

Mazria's advocacy builds on his work as a researcher, writer, teacher, and practitioner. After earning his Bachelor of Architecture from Pratt Institute in 1963, the Brooklyn native volunteered for the Peace Corps in Peru, an experience, he says, that instilled in him an appreciation for architecture as a catalyst for social and environmental improvement. Back in New York, he worked in the office of Edward Larrabee Barnes (the 2007 Gold Medalist). He completed an M.Arch. degree at the University of New Mexico and then took a teaching position at the University of Oregon. The research and experimentation he conducted at both institutions resulted in *The Passive Solar Energy Book* (1979), which has been translated into five languages. Returning to New Mexico to establish his office, he put the book's climate-responsive design principles into practice in such projects as the Museum of Indian Arts and Culture (1987) and the renovation and expansion of Georgia O'Keefe's estate, Sol y Sombra (1985–91), both in Santa Fe; and the Conservatory at the Rio Grande Botanic Garden, in Albuquerque (1998).

Over the past several decades, Mazria has

Moody Nolan Wins 2021 Firm Award

The AIA has recognized Columbus, Ohio–based Moody Nolan for its legacy of designing distinguished architecture.

Founded in 1983 by architect Curt Moody and engineer Howard E. Nolan, the firm is now the largest Black-owned architecture firm in the U.S., with more than 230 employees in 11 offices around the country. It ranked 57th on Architectural Record's Top 300 Firms list last year. In early 2020, Jonathan Moody, Curt's son, was named CEO; Curt became chairman of the board.

Recent projects of note include the Martin Luther King Branch Library in Columbus (2018), the Texas Southern University Library and Learning Center in Houston (2019), and the Legacy House in Columbus (2019)—a residence that the firm built, furnished, then turned over, mortgage-free, to a family chosen by a local agency.



"Moody Nolan has a long history of serving clients, with a keen knowledge of cultural sensitivities," the AIA said in a statement, commending the firm's "deep understanding of the impact its work has on individuals and communities." *Kara Mavros*

PHOTOGRAPHY: © JAMEY STILLINGS/MAZRIA, INC. (TOP); SAM BROWN (BOTTOM)



Mazria's Rio Grande Conservatory, completed in 1998 in Albuquerque, applied passive solar design principles while pushing glass technology to its limits.

PHOTOGRAPHY: © DESIGN WORKSHOP/MAZRIA, INC.

had a measurable influence on the AIA. He was a founding member of its Committee on the Environment in the 1990s. The 2030 Challenge became the basis for the institute's 2030 Commitment program (RECORD, December 2020), a voluntary initiative started in 2009 that asks design firms to track their progress toward carbon neutrality. His advocacy would also provide the foundation for a 2019 resolution overwhelmingly approved by the AIA's membership for "urgent and sustained climate action" and for making climate-change mitigation a top priority in the organization's current strategic plan (see page 29).

Mazria has also played a role in shaping environmental policy globally. His efforts were key in achieving a 2015 "China Accord," a pledge by 59 Chinese and international architecture firms to design low-carbon buildings and cities and for including the 2030 Challenge targets in the Paris Climate Agreement.

Now Mazria is calling on global leaders to accelerate their climate goals. Consistent with a 2018 United Nations report, in order to limit global temperature rise to 1.5 degrees Celsius and prevent climate catastrophe, Mazria is advocating for zero emissions by 2040. He's optimistic that architects can meet the target, citing data that show energy consumption declined by 21 percent in the U.S. building sector between 2005 and 2019, even though 47 billion square feet were added to the country's building stock. "It is doable," he says, pointing out that Modernism completely transformed architecture in the three decades between the Bauhaus and the construction of Lever House in Midtown Manhattan. All was accomplished "without the materials, equipment, and design and communication tools we have today." ■



Our Timberline lift-assist bike racks are highly customizable, and are built to your individual bike room needs.

LEARN MORE AT HUNTCO.COM

HUNTCO
SITE FURNISHINGS



GOLDBRECHT

INNOVATIVE
FENESTRATION
SOLUTIONS

THE INVISIBLE WALL SYSTEM



Goldbrecht's Invisible Wall - occasionally imitated, never equaled. 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 Goldbrecht.

310.988.4455
info@goldbrecht.com
goldbrecht.com

VITROCSA®

London's Serpentine Galleries Names Yesomi Umolu Director of Cultural Affairs

BY ZACH MORTICE

THE SERPENTINE GALLERIES in London has appointed Yesomi Umolu its director of cultural affairs and public practice. It's a new position at the institution, which is well-known for its yearly commission of the Serpentine Pavilion—a temporary structure designed by an architect who has never before built in the UK. A native Londoner who began her career at the Serpentine, Umolu spent the last five years in Chicago, as director and curator of exhibitions at the Logan arts center at the University of Chicago. In 2019, she left her mark as the artistic director of the third edition of the Chicago Architectural Biennial, cocurated with Sepake Angiama and Paulo Tavares.

Umolu steps into her new role this month at the Serpentine, where she will oversee the gallery's curatorial, interpretive, and editorial portfolios. As an elite cultural institution presenting work at the intersection of contemporary art and architecture, the Serpentine offers Umolu a position that "marries a lot of my interests, namely interdisciplinary practices, emerging practices, [and] curatorial and artistic innovation," she says.

In a statement, Serpentine Galleries CEO Bettina Korek and Artistic Director Hans Ulrich Obrist praised Umolu's record of commissioning high-quality interdisciplinary programming. "Yesomi's appointment reinforces a structural trajectory for the organization that fuses curatorial affairs and public practice. We are excited to work with her to innovate around centering audience experience and community engagement in all that we do."



If you are doing your job right at an institution, especially in a city as multicultural and diverse as London, you want to reflect that community, and you want to do it with a certain level of clarity.

Like all curators today, Umolu is operating in an era that has seen museum audiences atomized, and their exhibitions digitized, by pandemic-induced social-distancing dictates. And set against a backdrop of worldwide uprisings against racism and police violence, she sees her upcoming tenure at the Serpentine as "a moment of redress."

"If you are doing your job right at an institution, especially in a city as multicultural and diverse as London, you want to reflect that community, and you want to do it with a certain level of clarity," says Umolu. "What we've learned over the past few months is that maybe we haven't been as attentive to this question of clarity and equal access, to the extent that maybe there has been an imbalance in the system."

The 2020 Serpentine Pavilion is being designed by the firm Counterspace, an all-woman-led group of emerging practitioners from South Africa. The installation's public programming will extend through 2021—longer than usual, in response to COVID-19—with off-site and online programing. Though the firm's commission predates the pandemic and this summer's social movements, its project is loaded with themes of collective assemblage and the inclusion of minority voices.

In these "times of great hardship," says Umolu, cultural intuitions must "improve our civic offerings to a broader public and a broader community."

Her 2019 Chicago Architecture Biennial was similarly invested in giving a platform to underrepresented voices, offering incisive critiques of how architecture and design work within systems of power, racism, colonialism, and inequality. And, like the programming that will extend beyond the Counterspace pavilion into other parts of London, its exhibits were much more integrated into various neighborhoods across the city than past editions. Since 2019, the axis of architectural discourse has moved further from questions of formal expression and experimentation and toward exposing the underlying networks of power and money that direct architectural production. "Because of this moment that we're in," she says, "we have to think very intently about, 'What does it mean to work in public? Which publics are we working with? Why are we working with them?'" Umolu has the opportunity and experience to reexamine the Serpentine's garden folly, and ask how a celebrated space for form-making can critique its own origins. ■



Counterspace's 2020 Serpentine Pavilion (above) has been extended into a two-year commission.

IMAGES: © NICOLETTE NUÑEZ (TOP); COUNTERSPACE (BOTTOM)

PH SEPTIMA

louis poulsen

Design by Poul Henningsen



Finding a lost icon

Design to Shape Light

louispoulsen.com

Pascale Sablan Wins 2021 Whitney M. Young Jr. Award

BY MIRIAM SITZ

THE AIA has announced New York–based Pascale Sablan winner of the 2021 Whitney M. Young Jr. Award. Named for the civil rights leader who led the National Urban League from 1961 to 1971, this annual prize honors an architect or organization that embodies social responsibility.



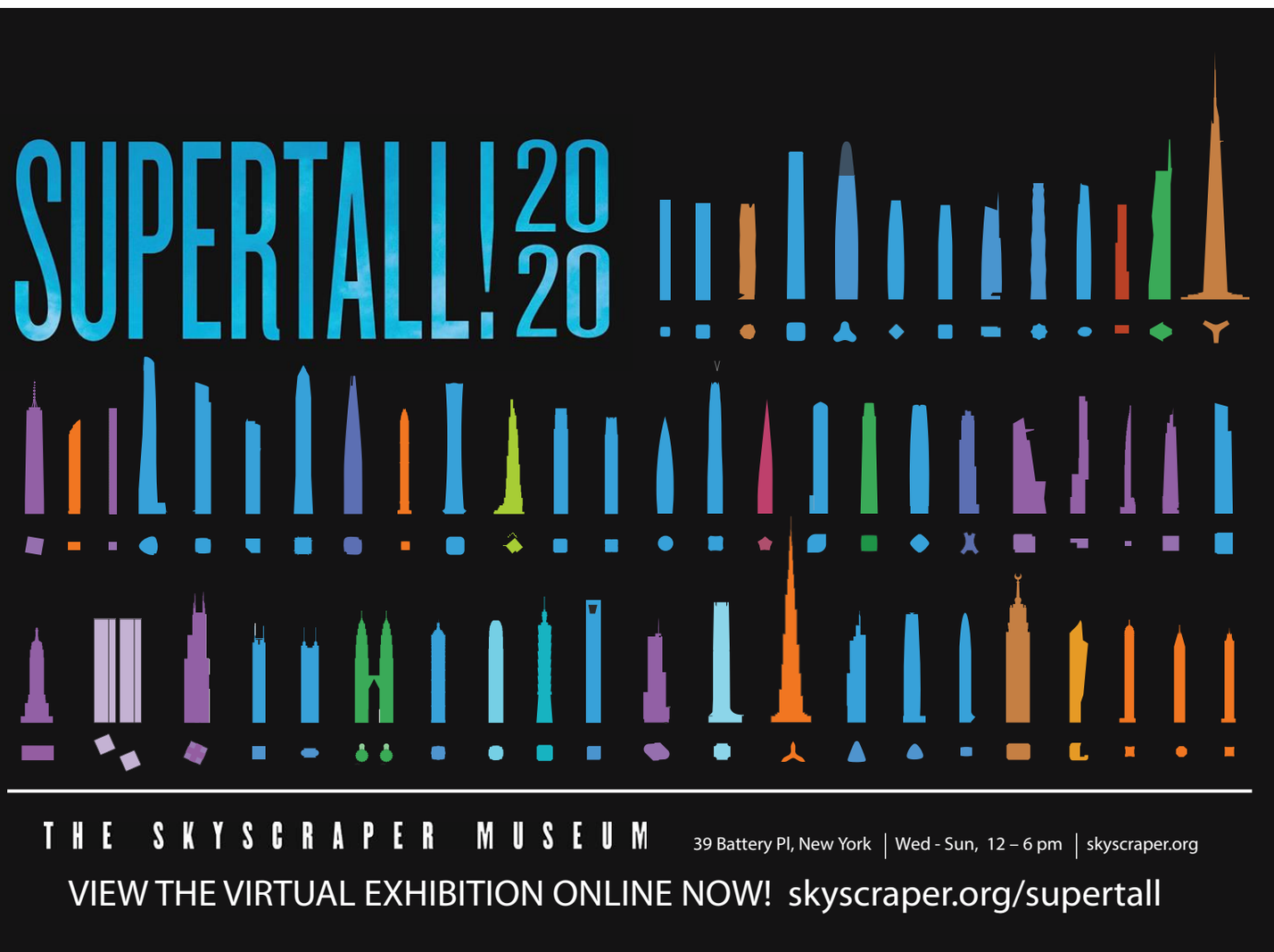
Sablan, who was the 2015 NOMA Member of the Year, also received the 2018 AIA Young Architects award.

Sablan, a senior associate at S9 Architecture and the 315th Black woman to be licensed in the U.S., is a champion and advocate for women and diverse design professionals. As the founder and executive director of Beyond the Built Environment—an organization that aims to address inequality by elevating and engaging Black architects—Sablan has launched a database of diverse designers and spearheaded the "SAY IT LOUD" exhibition series that has spotlighted some 400 architects of color across the country. Speaking with RECORD last year, shortly after the police killing of George Floyd, she explained how architects are uniquely positioned to dismantle injustice and brutality perpetuated by the built environment "from day one," through mentoring young people (she is involved with ACE Mentorship Program, for instance, and worked with students to design a new school campus in Haiti after the 2010 earthquake), volunteering for humanitarian causes, and monitoring and maintaining diversity in the office. "We have so many abilities as architects that we can't say we're only going to start fighting for justice when it's time to build a monument or a memorial or a museum," she said.

"In this season of strife and unrest—2020, the year of perfect vision—Pascale's sojourn is refreshing and reassuring," wrote architect William J. Stanley III, in a letter supporting Sablan's nomination for the award. "Some people take years to achieve the same level of accomplishments that she has attained in so short a time. Her meteoric rise is a testament to the maximization of her gifts.

Sablan serves as the 2021–22 president-elect (for the '23–24 presidency) of the National Organization of Minority Architects, working closely with new president Jason Pugh (RECORD, December 2020). ■

PHOTOGRAPHY: COURTESY PASCALE SABLAN



Newsmaker: Emilio Ambasz

BY ANNA FIXSEN



SINCE EMILIO AMBASZ touched down in the United States nearly 60 years ago, prodigiousness—and perhaps a Midas touch—has defined his far-reaching career. The Argentinian-born designer and curator says he blasted through Princeton's undergraduate and graduate architecture programs in just two years. In 1968, at the tender age of 25, he became a design curator at the Museum of Modern Art (MoMA), mounting landmark exhibitions such as 1972's *Italy: The New Domestic Landscape*.

Ambasz's ambitions didn't end there. Though he went on to design everything from an ergonomic chair to a gum-massaging toothbrush, he is best regarded as a godfather of green architecture, blurring the boundary between garden and building through projects like the ACROS Fukuoka Prefectural International Hall in Japan, and the Lucile Halsell Conservatory in San Antonio.

Last November, Ambasz announced that his foundation granted MoMA a $10 million gift to establish the Emilio Ambasz Institute for the Joint Study of the Built and the Natural Environment, a research organization dedicated to the ways buildings and cities might favor "green over the gray," as Ambasz, now in his late 70s, likes to say. Yet for someone with a larger-than-life reputation and a preference for fedoras and grandiloquence, he remains something of an enigma (he won't reveal the city in which he lives, for instance, demurring, "I am based in my shoes"). RECORD reached him by e-mail to discuss his career and recent gift.

Tell us about your early years at MoMA.

The same week I was named the Philip Freneau Bicentennial Professor of Architecture at Princeton University, Arthur Drexler [MoMA's longtime Department of Architecture & Design director] interviewed me for a position. During the interview he asked me for my thoughts on Mies van der Rohe. I said I found it paradoxical that the architect who conceived a most refined architecture unwittingly provided the model that real-estate speculators applied to build arid, cheap boxes. Drexler invited me to join, and I accepted. I actually ended up with a better job than his: I only had to convince Drexler of a project; he had the harder task of convincing the trustees to approve and finance it.

Why was now the right moment for your generous gift to MoMA?

My main concern in establishing the Institute was to help provide the A&D department with the resources to explore new venues of thought. I am lucky to have been able to demonstrate with my projects that we can have "the house *and* the garden" instead of just "the house in the garden." My fervent hope is that the Institute will sponsor such investigations and celebrate the investigations' achievements.

Why was creating green buildings an important tenet of your own practice?

The so-called green movement, in its many guises—of which sustainability is a very honorable one—is a big umbrella. It lacks a precise system of discourse and a theoretical structure that will allow it to transmit and constantly reevaluate a body of knowledge.

We need to conceive of an architecture that embodies a pact of reconciliation between nature and building. I am lucky to have demonstrated that in Japan; the fact that the ARCOS building is appreciated by the citizens of Fukuoka and is celebrated as a worthy addition to the downtown proves that people appreciate green spaces. After all, if an architectural work does not move the heart, what is the point of it? It is just one more building.

You have been a successful curator, architect, industrial designer, and graphic designer. Have you ever found disadvantages to being so polymathic?

On the contrary. I have made great friends in many diverse fields. I believe very strongly that if a person finds the quintessence of one problem, we will then have better access to other problems and be able to arrive at irreducible solutions.

In the design press, you've been called a "man of mystery." Do you agree with that designation?

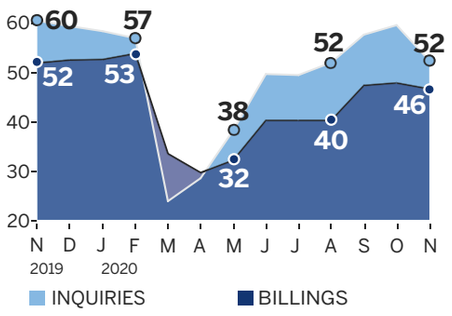
Would a so-called mysterious person ever acknowledge such an epithet? ■

AIA Changes Ethics Rules to Bar Design of Chambers for Execution, Torture, and Solitary Confinement

After years of being called on to take an ethical stand against the design of incarceration spaces for execution, torture, and solitary confinement, and refusing to do so, the American Institute of Architects (AIA) 2020 president Jane Frederick today announced that the organization will now bar its architect members from undertaking such work. "AIA members are required to uphold the health, safety, and welfare of the public," said Frederick in a statement released by the AIA. "Spaces for execution, torture, and prolonged solitary confinement contradict those values." AIA is committed, she added, "to making a difference on this issue and upholding human rights for our society."

The AIA had long rejected pressure from the Architects/Designers/Planners for Social Responsibility (ADPSR) to adopt such a ban in its Code of Ethics and Professional Conduct.

Last June, the ADPSR, citing the "AIA's cruel and retrograde position in support of execution and solitary confinement design," launched a new petition to demand the change in the Code of Ethics to "respect human rights and Black lives." According to the AIA statement, the organization engaged with ADPSR and the National Organization of Minority Architects in developing and adopting the new ethics rules.



PHOTOGRAPHY: COURTESY EMILIO AMBASZ & ASSOCIATES

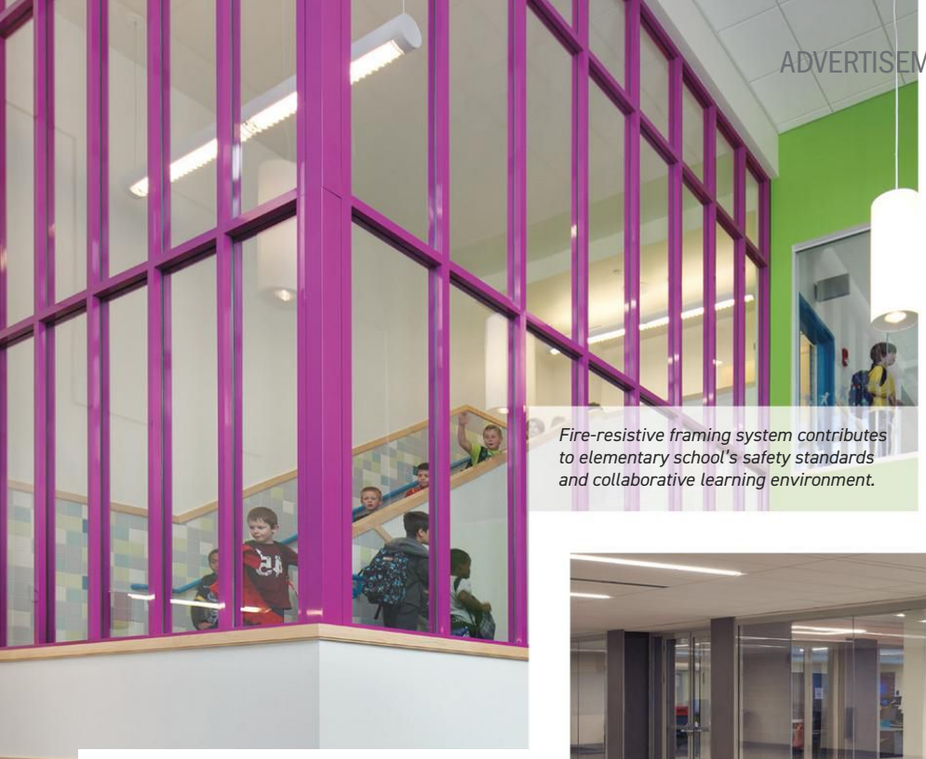
Billings Remain Nearly Flat

The latest data from the American Institute of Architects show that the Architecture Billings Index moved to 46.3 in November, down slightly from 47.5 in October. (A score below 50 indicates decreasing billings.) New design contracts softened to 52 from 59.1 in the prior month, and inquiries dropped to 48.6 from 51.7.

ADVERTISEMENT

DESIGNING SAFE + SECURE SCHOOLS for the 21ST CENTURY

How today's fire-rated glazing products can safeguard educational facilities



Fire-resistive framing system contributes to elementary school's safety standards and collaborative learning environment.



Impact-safety fire-rated glazing produces a light filled, cutting-edge innovation lab at Middletown High School.

Learning centers have the immense responsibility of safeguarding tomorrow's future. Yet all too-frequent news stories highlight the inescapable reality: 21st century schools and campuses face unprecedented threats. The rise in active shooter events has alarmed the nation with a 59% increase in gun violence incidents since 2006. And each year, the National Fire Protection Association (NFPA) reports there are nearly 5,000 annual responses to structural fires on educational properties, costing loss, injury and millions in damage.

To meet the increasing demands for protection, manufacturers have responded with products that are safe and conducive to student learning. At the top of the class is fire-rated glass.

PROTECTING WITH FIRE-RATED GLASS

It's no surprise that glass in school is as timeless as recess. Since students excel in productivity with natural light, many schools boast open floorplans with extensive glazing. Such an environment requires glass that can withstand the frequent impact of rambunctious students. In many areas, codes also require glass that can withstand the threat of fire. But ordinary window glass shatters and falls out of the frame when exposed to high heat. Fortunately, today's fire-rated glazing products address these protection demands without restricting daylight. They undergo rigorous evaluation to attain fire- and impact-safety ratings while creating light, bright and open interiors.

ADDRESSING THE NEED FOR SAFETY AND SECURITY WITH MODERN FIRE-RATED GLAZING

The groundswell of interest in making schools safer has also led to an increase in forced entry and bullet-resistant glazing. However, many security glazing products do not protect against the spread of fire, which building codes require in areas of egress. To meet both demands, manufacturers have responded with multifunctional fire-rated glass and forced-entry solutions. Engineered to help keep fire and intruders at bay, these hardworking products meet security requirements while providing a path for occupants to safely exit during a fire.

SELECTING FIRE-RATED GLAZING THAT MAKES THE GRADE

With manufacturer innovation, no matter what combination of protection measures a school calls for, it is now available in a single glazing solution. Critical features of fire-rated glass can be combined and specified to:

- **Comply with strict fire codes**
- **Contain the spread of smoke and flames**
- **Provide essential visibility and light**
- **Prevent the transfer of heat**
- **Pass current impact safety standards**
- **Protect against forced entry for 12+ minutes**
- **Offer up to UL Level III bullet resistance-ratings**

When it comes to protecting the youngest and most vulnerable members of society, fire-rated glass can help ensure schools and universities are safe, secured and code-compliant—now and in the future.

Interested in learning more about using fire-rated glass to design schools for the 21st century? Go straight to the head of the class and view the *Handbook of Fire-Rated Glass for Schools* at **www.fireglass.com/schools.**

TGP FIRE RATED ALLEGION

© 2020 Technical Glass Products, Inc. TECHNICAL GLASS PRODUCTS, ONE SOURCE. MANY SOLUTIONS, and FIREGLASS are registered trademarks of Technical Glass Products, Inc.
Middletown High School image courtesy: David Lamb Photography.

FIRM KWONG VON GLINOW CREATES SURPRISING SPACES WITHIN A GABLED-ROOF HOUSE IN CHICAGO. **BY JENNA MCKNIGHT**





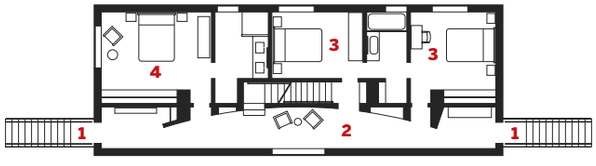
LOCATED IN a north Chicago neighborhood, the Ardmore House sits on a rather difficult site: a long, slender property that is bordered on two sides by alleys. "Our real-estate agent highly advised against us buying this land," says architect Alison Von Glinow, who designed and developed the house with her husband, Lap Chi Kwong.

But the property was affordable, and it provided a rousing challenge for the founders of Kwong Von Glinow, a young firm known for "smuggling" architecture into unexpected settings. For this project, the couple created a 3,100-square-foot wood-framed, gabled-roof dwelling that adjusts to its urban context in imaginative ways.

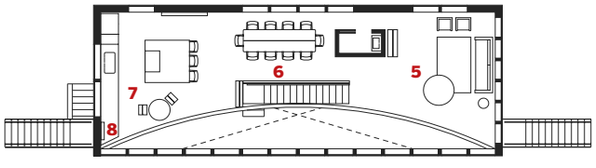
Most notably, the traditional floor plan has been flipped upside down. On the ground level, which typically holds the public zone, you find a trio of bedrooms. The sleeping areas are arrayed along a gently curving double-height corridor that runs alongside one alley. Wide and bright, and punctuated with niches, this circulation area was envisioned as an interior courtyard—a space where kids could play or an adult could snuggle up with a book.

A central stair leads to a flexible basement, which could serve as an in-law suite, and to the home's upper level, which is turned into a delightful common space that feels both airy and cozy. While open in plan, specific areas are delineated by a series of exposed wood trusses. Bands of windows, one stretching 56 feet, usher in daylight while also offering views of the urban terrain—telephone wires and all.

Although the architects plan to sell the house in a more propitious time, they and their family are currently living and working there. "The amount of light is so uplifting," says Von Glinow. "It's a very peaceful place to be." ■



FIRST-FLOOR PLAN



SECOND-FLOOR PLAN

1 ENTRANCE
2 INTERIOR COURTYARD
3 BEDROOM
4 MAIN BEDROOM
5 LIVING AREA
6 DINING
7 KITCHEN
8 SERVICE SPACE



The entrance opens onto a curved "interior courtyard" (above), a corridor in effect that runs past the bedrooms. The main living space (top, left) is elevated, on the second level, where it receives ample daylight. Gray accoya wood clads the exterior.

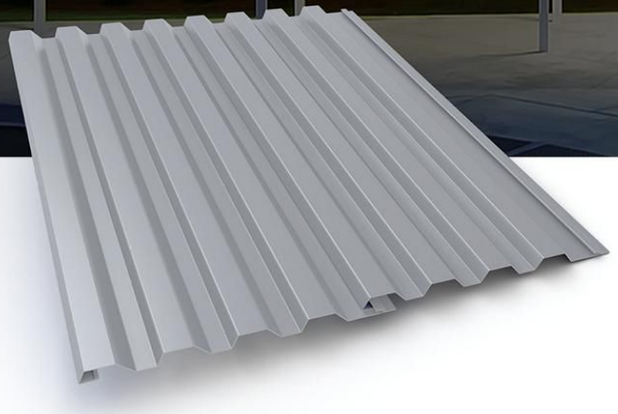
PHOTOGRAPHY: © JAMES FLORIO

Aesthetics + Economy



"The Precision Series aluminum panels created a very affordable skin, a surface that would weather well and gave us that architectural 'tech' look we were trying to achieve."

-Derrick Mozingo, AIA, Senior Partner, Design Principal, Mozingo + Wallace



Myrtle Beach Middle School, SC Installing Contractor: Spann Roofing & Sheet Metal Architects: SfL+a, Mozingo + Wallace Owner: Horry County School District Photo: hortonphotoinc.com

Precision Series HWP

Metal Wall System

Silver, Charcoal

CASE STUDY @ PAC-CLAD.COM/MYRTLE-BEACH

Proud sponsor of ARCHITECTURAL RECORD GUESS THE ARCHITECT

PAC-CLAD
PETERSEN
A CARLISLE COMPANY

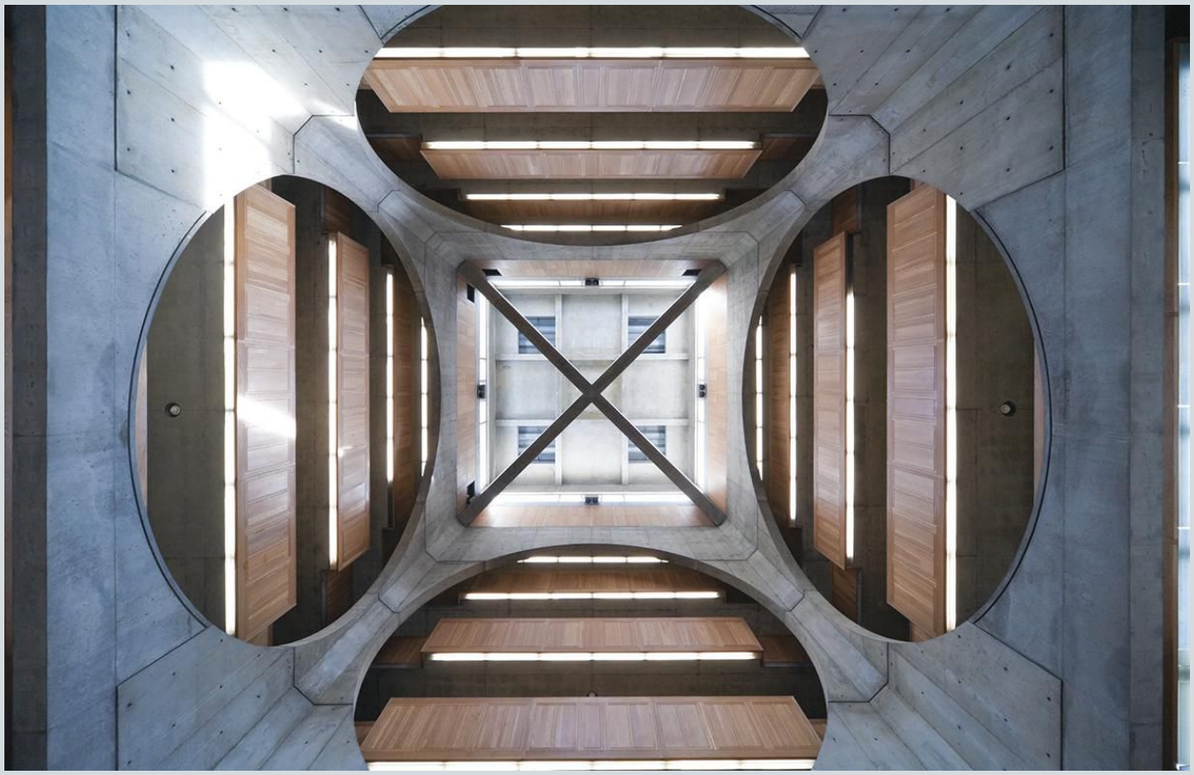
IL: 800 PAC CLAD MD: 800 344 1400 TX: 800 441 8661 GA: 800 272 4482 MN: 877 571 2025 AZ: 833 750 1935 **PAC-CLAD.COM | INFO@PAC-CLAD.COM**

ARCHITECTURAL
RECORD

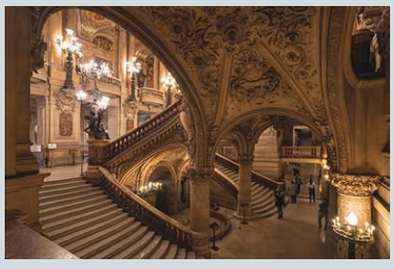
Guess the Architect Contest

ENTER NOW!

A monthly contest from the editors of RECORD asks you to guess the architect for a work of historical importance.



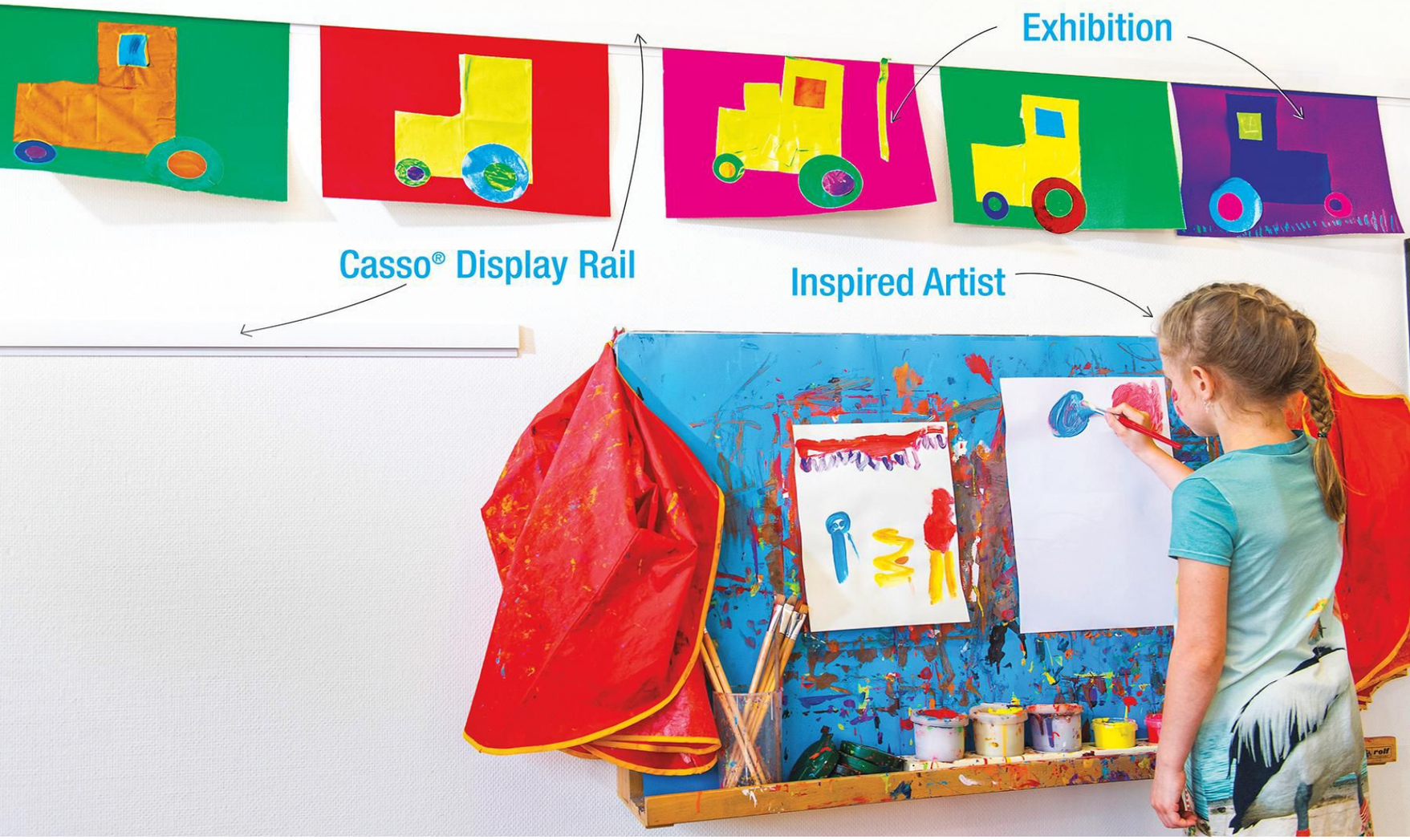
CLUE: THE ARCHITECT FOR THIS SCHOOL LIBRARY WAS KNOWN FOR USING A MODERNIST VOCABULARY TO CREATE A MONUMENTAL EXPRESSION THAT AVOIDED BEING HEAVY-HANDED. HIS THOUGHTFUL EXPLORATION OF SUCH MATERIALS AS BRICK AND CONCRETE GAVE AN UNEXPECTED DIGNITY TO HIS FORMS.



The architect for the **Palais Garnier** (formerly the Paris Opera House) is Charles Garnier, who began the design in 1861, although it didn't open until 1874, due to delays caused by the Franco-Prussian war. Its volumetric composition, sumptuous ornament, and rich color, as shown in the lobby alone, reflect the influence of Renaissance Venetian architecture and made it an unforgettable, if expensive, landmark of the Second Empire.

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

PHOTOGRAPHY: IWAN BAAN (TOP); MIKE REID (BOTTOM)



MASTERING SCHOOL WALL DISPLAYS



AS HANGING DISPLAY SYSTEMS

Hang with the Best®

ASHanging.com
866-935-6949

The AIA Moves Forward in Tumultuous Times

Robert Ivy discusses the evolution of the American Institute of Architects over his 10-year—and counting—role as CEO and points to the key issues animating the organization today.

Last month, the American Institute of Architects made a series of significant announcements. Its highest honor, the Gold Medal, for 2021 will not go to an architect who is famous as a form maker but to the environmental innovator Edward Mazria (page 17). The Architecture Firm Award will be bestowed on Moody Nolan, the first African American–founded practice to be so recognized (page 17). And, after years of refusal, the AIA board voted to amend its code of ethics to bar its members from designing chambers of execution, torture, and solitary confinement. In a wide-ranging conversation with RECORD *editor in chief* ***Cathleen McGuigan****, CEO* ***Robert Ivy*** *talked about the current direction of the AIA. While he touched on ongoing activities including lobbying, advocacy, and research—as well as its recent deal with True Wind Capital, a private equity firm that is investing in the Institute's AEC contract documents program—Ivy focused largely on key principles underlying the organization's current mission such as action on climate change and equity, diversity, and inclusion. Here are highlights, condensed and edited for space.*



PHOTOGRAPHY: © NOAH KALIN

RECORD: Let's start by talking about the presidential election.

Robert Ivy: We're in a very different place than we were four years ago. The 2016 election caused us to take extreme actions that actually propelled the organization forward. We quickly issued a statement of values and continue to issue statements of values to underscore what architects within the association thought mattered—everything from immigration to sexual harassment.

But in 2016, your public statement to president-elect Trump, the day after the election, was extremely controversial and upset many AIA members.

It was a controversial statement, but it was highly misunderstood. It was a lobbying letter that offered no congratulations. We wanted to advocate for infrastructure that included architecture because the country needed that. However, the response to that letter, and to the election itself, really required the association to make explicit what it cared about—including climate action, which is now No. 1 in our strategic plan—social equity, correcting systemic racism, and a variety of other statements that came into play because so many people were upset over the election itself. It actually strengthened the values of the association and made us take positions that we held independently or collaboratively but had not made explicit. Today the association is in a very different place from its position in 2016.

Now in the current post-election period, did the AIA reach out to president-elect Biden and the transition team?

Absolutely we have. President-elect Biden has made infrastructure one of the major areas that he is promoting—and we think it may, in fact, come to pass. It's also encouraging that explicit language that we had in place on climate action, which made its way through a Congressional subcommittee, already has made its way into the Biden work. And we're pushing to be party to the Paris accord again because, obviously, that is one of the key areas that will help advance climate action.

You said climate is now No. 1 in the AIA strategic plan. That the next AIA Gold Medal is honoring Ed Mazria for his environmental leadership sends a powerful message.

Yes, as the founder of Architecture 2030 and an impassioned spokesperson for climate action, Ed Mazria will use the Gold Medal to propel sustainability worldwide.

The AIA 2030 Commitment is demanding. [Based on goals set by Mazria's nonprofit, the AIA's voluntary program asks firms to pledge to submit energy-use data for their projects with the aim of making all new buildings carbon neutral by 2030.] So far, we have more than 600 firms signed up: it doesn't sound like a lot, but it is millions and millions of square feet of projects, including from some of the largest firms.

Of course, America's architects have been engaged in solutions to climate change for decades. The Committee on the Environment (COTE) was a group of architects within the Institute who created the COTE awards program and have carried the banner for climate action.

But aren't we moving into a time where designing to address climate change is no longer in its own lane, a check-the-box after the fact? How is the AIA promoting climate action to be part of the entire architectural culture?

We have a strategic plan for the next five years or so that puts climate action at the peak, informing everything we are addressing right now. This is a profound change, and we have applied it to all honors and awards, taking the 10 criteria of the COTE Top Ten Awards and bringing them to all architectural projects. And that includes such questions, for instance, as, Does a project contribute to an equitable community?

So does expanding the environmental standards for all AIA awards in different categories mean an end to the COTE awards?

Not necessarily—the COTE awards currently have their own agency and their own criteria.

Let's talk about some of the other initiatives the AIA is focusing on, particularly equity.

Like many elements in contemporary society, the association was profoundly affected in the aftermath of the death of George Floyd, Breonna Taylor, and others, and quickly issued a statement, and then issued a more profound statement shortly thereafter. But words are words. Action really becomes the question. The AIA had been committed to making a difference in terms of equity, diversity, and inclusion, but it became power-charged after that sequence of events. We released what we call guides for equitable practice, beginning in late 2018, that are being upgraded now, so they can be used by other groups, including schools of architecture.

We have employed two senior staff within the national office who are helping to drive this all through the association. We were already in dialogue with NoMA, the National Organization of Minority Architects, but we are working on a more formalized relationship. They're helping inform us about EDI (equity, diversity, and inclusion) in general and the role of EDI within the architectural practice. We are now aiming scholarships, through the Architects Foundation, primarily at minorities.

We also have been invited by the NAACP to participate in their 2020 diversity report card. They are going to evaluate the association and our staffing, our programs, our services, our procurement, our governance. This is part of their program, looking at the sustainable-building sector, including design firms, professional organizations, and higher education. They're going to issue a report card in 2021, at our request. We may hear things that are uncomfortable for us to hear, but we say bring it on, and let's make the changes that are required.

One way NoMA has already assisted you is in the discussion over the AIA's change in its ethics code, to bar members from designing chambers for execution, torture, or solitary confinement.

Yes, they have been part of the dialogue about architecture for justice.

The controversy over designing those spaces has been brought to the AIA by Architects/Designers/Planners for Social Responsibility (ADPSR) for years. Is it fair to say that the board restructuring has made the AIA more nimble in making key decisions?

Setting values is really the primary goal, and, yes, frankly, some changes have made it easier to accomplish, like reducing our board of directors from 56 people to a board that is now 14 to 16 people—that is a dramatic and singular change to an institution founded in 1857. It had built up over time into a very large and really unwieldy group; although well-intentioned, it was slow to act. This board acts quickly. If they see an opportunity or a need, they're able to have a lively debate and they do debate. But they take action, and they are diverse. They have set out the values of the association. Does everybody agree with them? Absolutely not. But the fact is that the members have stayed with the association. We had a high point of 95,000 going into the pandemic. And at the end of this year, we'll still have 93,000, the largest number in the history of the association.

We have a strategic plan for the next five years that puts climate action at the peak, informing everything we are addressing right now.

Are you attracting younger members? Is that a challenge?

Let's just say it's an ongoing mission. We need a new generation of architects constantly coming forward to produce the work the world needs. We need people to do new housing. You're talking about a homeless problem, and huge social issues. Who better than a fresh crop of young, bright architects to tackle the intransigent problems of our culture, our society, our civilization? Yes, we are dealing with that generation. We have a student member and an associate member on our board of directors. Our associate community is extremely vocal and active—architects who've just graduated and gain automatic entrée into the association for a period of time. Our goal is to convert them to be full-time members.

The elephant in the room in the profession, which requires a rigorous education and licensing process, is that many architects—particularly in the numerous small firms—find it hard to make a good living. Now, in this difficult economic period, how does the AIA help young architects who are being furloughed or laid off?

Regarding just the basic economics of the practice of architecture, I think this is a profound change from 2016, with an advocacy effort—with volunteers and staff members both nationally and throughout the country—that is much more vibrant than it has been in many years.

During the pandemic, we were a party, with other organizations, to advocacy for PPP (the Paycheck Protection Program). We're working constantly now for assistance in architectural education and the debt that so many young architects carry. That's one place we're trying to help.

And not every answer to every question comes at the national level. In the network of 200-plus chapters, most of the services are provided for all member architects. We have executive directors for roughly half of those chapters who are committed to organizing meaningful programmatic work about education and jobs. The local chapter serves as a real support system for the younger architects.

Robert, you are at the 10-year mark of your tenure as CEO of the AIA. Do you plan on being there a good while longer?

I'm certainly here for the foreseeable future, through 2021. I have much to do—we're discussing the revitalization of our headquarters building, and I want to be present for that.

So how would you like to see both the AIA and the profession of architecture evolve in the next 10 years?

I would like to see a greater appreciation for architects and their ability to make the world a better place. Most people do not know what architects do. Fewer than 130,000 people are licensed architects in the U.S., and that small number is responsible for making the primary changes to the built environment. So the promotion of the value of architecture is the primary concern I have now, and always will have. It's something that moves the human spirit, and it will continue to do so if we're successful. So the association that I could see in the future is vibrant, quick, inviting, but holds out this larger vision of a better world that a group of people can join together and help to make. ■

FENIX NTM® J0750 VERDE COMODORO

HERE'S THE SURFACE OF YOUR NEXT KITCHEN.



You will never see it like this,
unless you look at it through a microscope.

This is FENIX™, the new generation of surface materials for kitchen, bathroom and furnishing elements.
FENIX™ is extremely matt and pleasant to touch, combined with a surprising resistance to fingerprints.
Its inherent strength makes a FENIX™ surface long-lasting.
Thanks to the proprietary technology of FENIX™, superficial scratches from daily use can be thermally repaired.
FENIX™, the innovative material designed in Italy.

Find your favorite color on **fenixforinteriors-na.com**

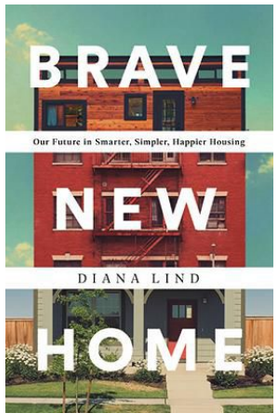
FENIX™ INNOVATIVE MATERIALS FOR INTERIOR DESIGN



Bringing Down the House

Brave New Home: Our Future in Smarter, Simpler, Happier Housing, *by Diana Lind. Bold Type Books, 257 pages, $28.*

REVIEWED BY PAUL MAKOVSKY



IN HER NEW BOOK, *Brave New Home*, Diana Lind, executive director of the Arts + Business Council of Greater Philadelphia, and occasional RECORD contributor, delves into her fundamental belief that many problems besetting America connect to the historic fixation on the single-family house. Even before the pandemic, 38 million households in the United States—nearly one in three—were "cost burdened," meaning they paid more than 30 percent of their income on rents or mortgages, and homelessness has only been growing in cities across the country since then. (In 2017, the typical sales price of a single-family home was 4.2 times the median household income; in 1988, the ratio was 3.2.) The lack of viable and sustainable housing choices, combined with exclusionary housing regulations, has made housing grow more expensive every decade. Add to this the possibility that up to 40 million more people face residential evictions in 2021, and you could safely argue we are in a housing emergency.

The dream of owning a single-family house is as American as apple pie, and Lind systematically lays out a strong and compelling argument to stop idealizing this outdated thinking, on the basis that it is unaffordable, unhealthy, and out of reach for so many, and instead, she envisions a future where single-family housing, as such, is not the norm. She explores how America was transformed from a country of towns and cities where shared living, multipurpose building, and cheap temporary housing were very common to a country where single-family homes dominate. For example, in 1920, fewer than half of all Americans were homeowners. In the postwar period, changes to the federal income tax system, including allowing homeowners to deduct local property taxes and rental income from their adjusted gross income, made homeownership more desirable. Of course, this became a great way to build wealth through appreciation, but it was largely accessible only to white families with stable jobs—resulting in double-digit disparities between white and Black families in homeownership.

Lind's provocative and engaging book—which argues for an array of housing options that better address economic hardship, wellness, and the digital nomad—is more necessary than ever. She advocates for solutions like co-living for its cost savings and sense of community, and highlights the growing appeal of tiny homes and micro-apartments. She demonstrates that, during the pandemic, Americans are finding ways to reject the rigidity of the single-family home with the rise of Accessory Dwelling Units (ADUs) and a return to multigenerational households, and points out how the hectic pace of life is bad for our health.

In order to get the housing we want, governments, the private sector, the media, and individuals can all be agents of change, and push for untried innovations. She hails Minneapolis, for example, as a model for that city's legalization of duplexes and triplexes in formerly single-family residential zones citywide to make housing more affordable, and applauds California as another leader for introducing 2016 reforms of zoning laws to allow ADUs throughout a state that for decades was the model of classic suburbia. In 2016, 257 ADUs were approved in California, while, two years later, the number was up to more than 4,000—though Lind cautions that the explosion of ADUs in Vancouver, British Columbia, has not led to more permanent housing options but to more Airbnbs or room for guests.

This is an exciting moment to rethink homeownership as the primary source of wealth creation for Americans, Lind believes, and it is past time to elevate consideration of housing to a national dialogue. While the changes she anticipates in the next decade are unpredictable, she concludes that it is up to us to harness them for good—making this reimagining of what is possible a great conversation starter on how to deal with the current housing crisis. ■

Paul Makovsky is a New York–based writer and editor.

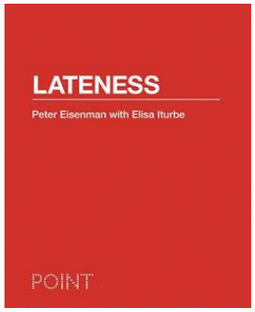
BOOKS IN BRIEF

Space & Anti-Space: The Fabric of Place, City, and Architecture, *by Steven Peterson & Barbara Littenberg; introduction by Michael Dennis; foreword by Jonathan Barnett. ORO Editions, 295 pages, $40.*



THE ARGUMENT posed in the title dates to an essay Steven Peterson wrote in 1980, when he pointed out how the free, open, Miesian modern space was "anti-space"—abstract and ineffable. In this rich exploration, Peterson and Littenberg, architect-planners and educators, further develop their ideas about space and place as volumetric and "differentiated, formed, finite, particular, multiple, and discontinuous." The two, who both studied with Colin Rowe at Cornell University, give a close, insightful, and clear analysis of key concepts that Rowe developed on figure/ground, contextualism, phenomonal transparency, and collage that influence their approach to urban design. Through diagrams, they show how such elements as networks of streets, matrices of blocks, and architectural enclosures can beneficially shape a contemporary city's fabric—and keep precedent and continuity intact. *Suzanne Stephens*

Lateness, *by Peter Eisenman, with Elisa Iturbe. Princeton University Press, 120 pages, $26.95.*



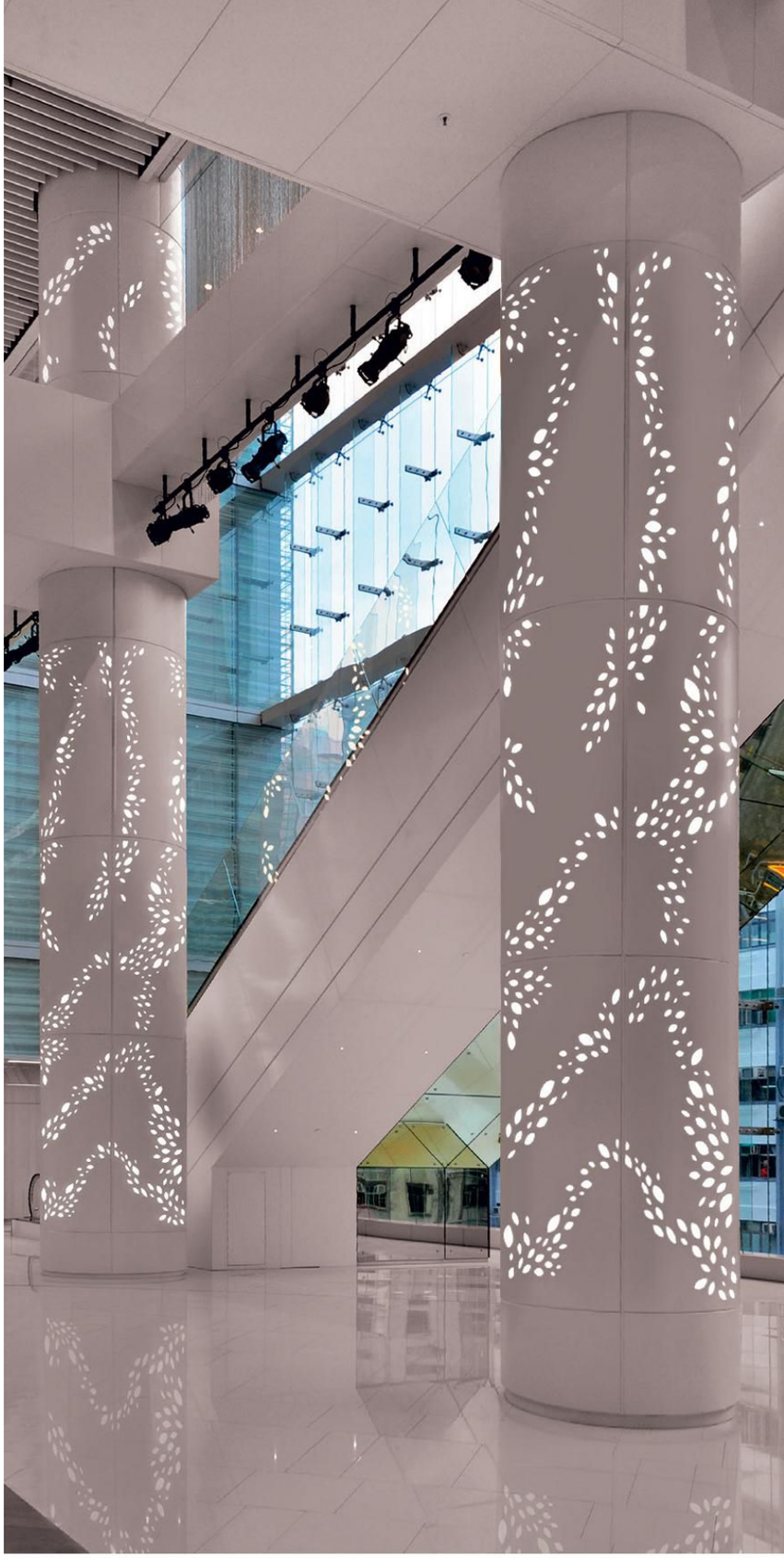
"LATENESS" is the latest in a series of analogies and concepts (cardboard architecture, post-functionalism, indexicality, decomposition, the self-referential sign, the presence of absence . . .) that Peter Eisenman has used to interpret architecture, and that have defined the analytic methods that have made him a great teacher throughout his career. "Lateness" has served as one of the key pedagogical instruments for the studios he has taught during the past few years at Yale with the book's coauthor, Elisa Iturbe.

For those versed in the writings of Eisenman and his mentor Colin Rowe, the arguments will be familiar. But they are written here with Iturbe in such an exceptionally didactic and succinct way, and illustrated so unmistakably, as to be rare amid the current proliferation of obscure and turgid architectural theories.

What really stands out are the penetrating formal analyses of the selected exemplars. The book examines the fundamental elements of architecture—facades, rooms, stairs, walls, and columns—in the works of three architects: Adolf Loos, Aldo Rossi, and John Hejduk, with reference to Le Corbusier and Mies van der Rohe.

"Lateness" occurs not toward the end of a career but when a period of art is no longer new. It's about the specific ways in which the governing principles of an artistic style break down and thereby become atemporal. Rather than the architect's composing fragmented forms willfully, it is the adherence to the logic of the parts, at all costs, that disintegrates the conventional whole. *Preston Scott Cohen*

Preston Scott Cohen is a professor of architecture at the Harvard Graduate School of Design.



MóZ

ARCHITECTURAL METALS REIMAGINED

Transform spaces with Backlit Columns, Walls, and Ceilings

mozdesigns.com | 510.632.0853 | Oakland, CA

Play for Keeps

A whimsical structure offers school and sanctuary for children of an informal settlement in South Africa.

BY ALEX KLIMOSKI

FOR THE PAST eight years, Johannesburg-based Local Studio has been actively engaged in what founding principal Thomas Chapman calls "social-impact projects." The 15-person office—a Record Design Vanguard firm in 2018—is known for hyper-local initiatives, including community centers and affordable housing. Like many of its projects, the studio's most recent, a four-classroom primary school in the suburb of Mayfair West, was made possible by a private donor—something Chapman attributes to a general lack of interest in the public sector for such work. Funded by the Italtile and Ceramic Foundation, whose parent company manufactures building products, the new Salvazione Christian School building—located within walking distance of the studio's office—serves students from a nearby informal settlement called Slovo Park.

The 4,800-square-foot structure sits down the street from Salvazione's main school, a modest church building that had housed pre-kindergarten through grade seven. The new construction accommodates the younger grades, creating more space for the upper grades, which remain in the original building. One of the goals of the design is to create a welcoming presence among the surrounding walled-in houses—a response to the neighborhood's high crime rate. To get to the school, children traverse as much as a half mile on foot through





PHOTOGRAPHY: © WARWICK PREDDY



AN EXTERIOR screen of pine slats serves as a subtle security barrier on the street-facing side of the two-story brick building (opposite), whose front and back facades feature a playful mix of glazed panels (this page and opposite).









The barrel-vaulted structure is a welcoming presence in the neighborhood (above) and offers spacious classrooms (right). From the second level (top, right), students can slide down to the backyard playground (top, left).

"very dodgy" areas, says Chapman, so it was important that they "be able to walk up and see this recognizable form that's different from anything else on the street—something playful and motivational."

The new two-story school gently pierces the grid of low-slung single-family dwellings. Its facade—a lattice of clear, glazed, and insulated solid-yellow panels that tempers transparency with privacy—and its double-vaulted rolled-zinc roof lend the building a soft, friendly appearance. An exterior screen of wax-impregnated pine functions as a subtle security barrier that allows ample natural light to enter the classrooms, all of which face the street. At the building's rear, a slide—also yellow—snakes down from the second level like the trunk of some abstract mammal; upon landing, children can scale up the facade via a slender climbing wall.

In lieu of steel and corrugated polycarbonate—which have become hallmark material solutions for the firm's very low-budget projects—the clients asked for a traditional brick structure, since it proved to be the most economical way to support the vaulted roof. The two classrooms on the top floor benefit from the spaciousness provided by the arched ceiling, making the most out of the school's small footprint.

According to Chapman, the project serves as an urban design prototype for "how to reimagine the standard post-residential site." The architects subverted the traditional suburban lot arrangement, where the main structure sits in the middle, by pushing the volume to interface with the street and announce a different use. Chapman acknowledges that this cannot be achieved without zoning negotiations, as were done in this instance, but, when the circumstances allow it, architecture could play a key role in transforming crime-ridden areas into safer, mixed-use neighborhoods. ■

PHOTOGRAPHY: © WARWICK PREDDY (TOP, LEFT); DAVE SOUTHWOOD

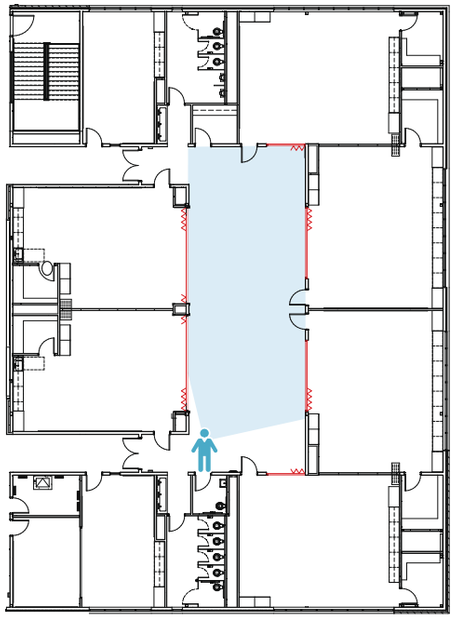
Meeting the Changing Needs in Education



Lubbock Cooper East Elementary School, Lubbock TX • Architect: Parkhill, Smith & Cooper

NanaWall FlexSpace Systems

NanaWall FlexSpace opening glass walls create collaborative spaces, provide fresh air ventilation and sound control up to STC 45.



Point of View

Explore our opening glass wall product families:

Folding Sliding Frameless Minimal Sliding

Showrooms Nationwide
Visit NanaWall.com
800 873 5673
inquiries@nanawall.com

NanaWall®
Boundaries **Unbound**®

Architectural Record

PRESENTS

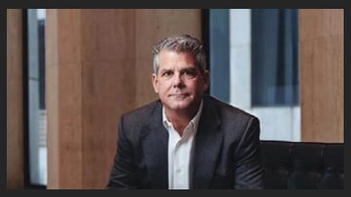
DESIGN:ED

AN ARCHITECTURE PODCAST

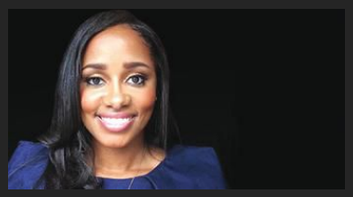
The DESIGN:ED Podcast by *Architectural Record* takes you inside the profession through informal conversations with the field's leading architects and designers.

Hosted by Austin, Texas–based architect Aaron Prinz, *Architectural Record*'s DESIGN:ED podcast features the most renowned architects of our time—such as Art Gensler, Kengo Kuma, Vivian Lee, and Glenn Murcutt, as well as rising professionals in the next generation, such as Michael Murphy and Jenny Wu.

TUNE IN TO HEAR INSPIRING STORIES FROM DESIGN LEADERS, POSTED TWICE A MONTH, AS WELL AS ALL THE INTERVIEWS IN OUR LIBRARY, WITH PROFESSIONALS SUCH AS:



Trey Trahan
Trahan Architects



Pascale Sablan
S9 Architecture



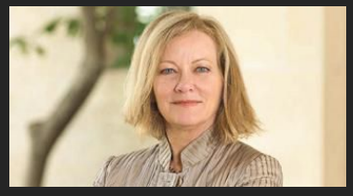
Jesus Robles Jr
Dust



Juliane Wolf
Studio Gang



Thom Mayne
Morphosis



Michelle Addington
The University of Texas



Patrik Schumacher
Zaha Hadid Architects



Ted Flato
Lake Flato



Eugene Kohn
KPH

www.architecturalrecord.com/designed-podcast

SUBSCRIBE: Apple Podcasts | Spotify | iHeartRadio FOLLOW: Instagram

Class Action

Products to outfit pre-K to 12 schools are increasingly focused on wellness and space-saving solutions.

BY SHEILA KIM



CleanAssure

As disinfecting surfaces is ever a priority today, Armstrong has unveiled a portfolio highlighting its ceiling and wall offerings that can be cleaned with EPA-approved disinfectants. These include Calla and Lyra and other mineral-fiber and fiberglass surfaces, as well as wood, metal, and felt products. The best methods and agents for cleaning each product have been tested and outlined for quick reference.
armstrongceilings.com



Nature View Play House Cube

Whitney Brothers has taken cues from biophilic design and applied them to this birch-plywood play cube in simple ways: it's furnished with a green floor mat, while its shatterproof acrylic walls sport graphics of wild flowers. The result instills a peaceful vibe that helps children develop an early appreciation for nature.
whitneybros.com



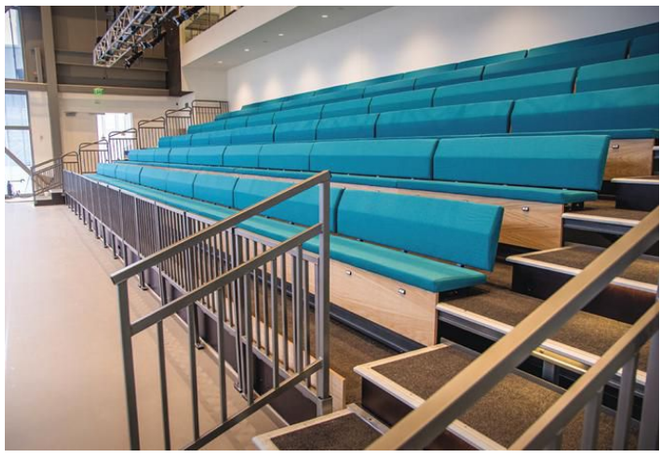
Avos

Auditorium and theater seating has come a long way, as demonstrated by the slim, space-saving Avos. The system and its armrests have an elegant silhouette and fold to a compact 6½" depth. Customizable options include embroidered seat numbers, end-of-row plate lettering, a choice of two spine-supporting backrest heights (35" and 38"), and a fixed, retracting, or slotted removable base.
quinette.fr



EZH20 Bottle Filling Station with Hands Free Activation

Elkay's latest EZH20 drinking-water station model is ADA-compliant and uses sensors for touch-free operation of the bottle-filler and easy-to-push front and side bars for hands-free activation of the fountain. The station is antimicrobial and features a drain design that eliminates standing water.
elkay.com



Chorus Bench

Well suited to multipurpose school spaces, where audience seating is required for many events beyond sports, this retractable system is a solution that's more comfortable than typical gym bleachers. Its platforms feature padded seats and backrests that are motorized, folding down when the system retracts. Options include customized upholstery colors and veneer finishes.
audiencesystems.com



New Graphic Patterns

3form's latest additions to its translucent Varia panels are five graphic patterns that draw on the architecture and culture of downtown Los Angeles. Among them, Height (shown) features stripes that allude to the city's skyscrapers in five soft colorways. The resin panels are easy to clean and ideal for use as partitions.
3-form.com

Alkco Germicidal UV-C

Timely and relevant, Signify's new commercial UV-C luminaires combat viruses, bacteria, and mold in high-traffic and -contact settings ranging from schools to fitness centers. Fixtures include indirect luminaires designed to disinfect the air, direct UV luminaires that disinfect surfaces in spaces when not occupied, and BioShift UV-C chambers that disinfect shared devices and objects such as headsets and retail-shop goods.
signify.com





Rio R50

An iconic EMU chair from the 1970s, Rio has been reissued with slight tweaks by designers Anton Cristell and Emanuel Gargano. The resulting series, Rio R50, is a durable, slim, and easy-to-move indoor/outdoor collection comprising a side chair, armchair, lounge chair, rocker, stool, and coffee table, all featuring a mesh-and-rod design in a choice of 11 powder-coat hues.
coalesse.com



New Excelon VCT Colors

Armstrong Flooring has refreshed the palette of its Excelon vinyl-composition tile flooring with ultra-saturated tone-on-tone colors such as a lime green and ocean blue. Architects can configure the colors using an online visualizer to create unique patterns, wayfinding cues, and delineated zones. The material is through-color.
armstrongflooring.com



- Classic, timeless shapes in seamless 1-piece triplex opal glass
- Large scale 20 & 24 in. diameter globes, 13 in. diameter acorn
- High lumen, high efficiency 90+ CRI white LEDs
- Optional RGBW for dramatic, saturated color effects

delray.
delraylighting.com

That's a Wrap

These recent facades—made from a range of materials—help architects push the envelope.

BY SHEILA KIM



Fortress Cladding

Fabricated with 60% bamboo fiber and 40% recycled plastic, Fortress cladding offers a hybrid-wood alternative for rainscreen and facade applications while successfully recreating the warmth of the real thing. The boards are UV-, fade-, and moisture-resistant, and emulate wood-grain textures and colors including charred cedar, Swedish oak, Alaskan driftwood, and Brazilian teak, among others.
fortressbp.com



ThinCast

At ¾" thick, High Concrete Group's ThinCast is, to date, the thinnest precast-concrete rainscreen available, giving architects the ability to design with concrete without the extra weight. The panels are available in six sizes and eight colors, and only weigh 10 pounds per square foot, thanks to stainless-steel prestressing wires.
highconcrete.com

Double 7" 3G Straight Edge Perfection Shingle

CertainTeed has updated its Signature Cedar Impressions Siding series with this new double-course 3G profile, which features slanted, tapered gaps that create deeper shadow—a format that requires fewer fasteners compared to single-course siding installation—and a measurement guide built right into the top of each shingle. It's available in a choice of 22 colors.
certainteed.com





Terraçade

Glen-Gery's new ceramic facade system is not only attractive, it also simplifies the specification and installation processes with its wide selection of suspension rails, corner extrusions, fitment sponges, and installation-guide tool. The fire-resistant, colorfast system comprises panels in two sizes, as well as baguettes.
glengery.com

Specular

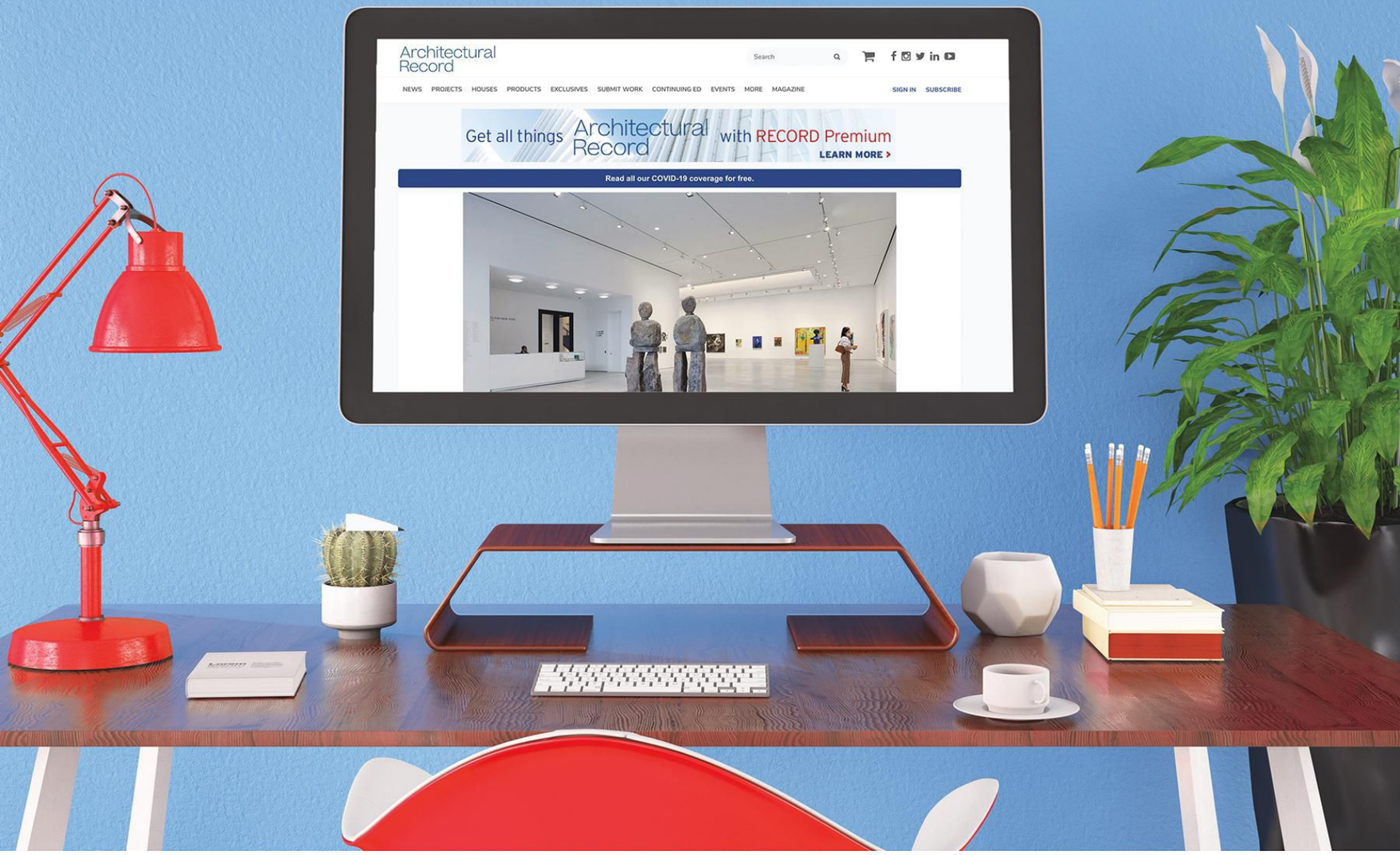
These 12 metal skins from Pure + FreeForm are designed to interact with light through shape, texture, and color. These range from a shark-fin profile in a dark gray hue to a micro-corrugation in an oxidized-steel finish. Available in panel or flat-sheet form, the surface products can be used on exterior or interior walls, ceilings, soffits, and more.
purefreeform.com




BALLROOM?
NO, IT'S YOUR
LOCKER ROOM.
ASI just gave the locker room a makeover—you can too. Visit **asi-storage.com/bod** to explore the new standard for basis of design in locker rooms. **Featured in this ad are ASI phenolic Z-lockers, ASI Alpaco™ phenolic partitions, Piatto™ completely recessed phenolic accessories, and our exclusive Velare™ concealing mirror cabinet.**
ASI Group
Integrated Building Products

EXPLORE MORE AT

ArchitecturalRecord.com



VIDEOS/PODCASTS

WEBINARS

CONTINUING EDUCATION

ARCHIVE OF ISSUES

TOP 300 FIRMS, TOP ARCHITECTURAL SCHOOLS, RECORD HOUSES, AND MORE!

Architectural Record
INNOVATION CONFERENCE
a virtual experience

AIA Continuing Education Provider

EARN UP TO 11.5 AIA LU/HSW

NOW AVAILABLE ON-DEMAND

The 2020 Innovation Conference was a resounding success as presenters and attendees joined us from around the globe. If you were unable to join us live you can now view all of the sessions on-demand for free in our CE Center and still earn your credits.

KEYNOTE SPEAKERS:



FRANK GEHRY
Partner
Gehry Partners



JEANNE GANG
Founding Partner
Studio Gang



DAVID ADJAYE
Principal
Adjaye Associates



NERI OXMAN
CEO
OXMAN

ALSO HEAR FROM:

THOMAS PHIFER • FABRIZIO BAROZZI • MARIO CARPO • MARTHA THORNE • BRANKO KOLAREVIC MITCHELL SILVER • JUSTIN GARRETT MOORE • ADRIAN PARR • SUNIL BALD • KWESI DANIELS

KEY CORPORATE SPONSORS

Armstrong CEILING & WALL SOLUTIONS

HOFMANN FACADES

CONTINUING EDUCATION SPONSOR

Benjamin Moore Paint like no other.

HOOVER TREATED WOOD PRODUCTS, INC.

THE BOLD LOOK OF KOHLER

PCI Precast/Prestressed Concrete Institute

PRODUCT GALLERY SPONSORS

ARKTURA

B&D BUILDERS

CertainTeed SAINT-GOBAIN

CL-TALON

DRAPER

dri-design

Fräsch!

GUARDIAN GLASS See what's possible™

landscapeforms

MOZ Metals + Architectural Products

Oldcastle BuildingEnvelope A CRH COMPANY

RIEDER

SKYCO Skyco Shading Systems, Inc.

DUPONT Tedlar

THINK WOOD

UNILOCK DESIGNED TO CONNECT

SUPPORTING SPONSORS

Archtober

AIA New York

AIA California

THE AMERICAN INSTITUTE OF ARCHITECTURE STUDENTS

Ornamental Metal Institute of New York

Steel Institute of New York

VIEW ALL SESSION FOR FREE ON-DEMAND TODAY
WWW.ARINNOVATIONCONFERENCE.COM

AR12204INNO.indd 1 11/9/20 10:31 AM


MIZUNO
TAKARA



THE NAKANOSHIMA Children's Book Forest faces the Dojima-gawa River, next to a ceramics museum from 1982 and the Osaka City Central Public Hall, which dates from 1918.

Food for Thought

Tadao Ando designs and funds a children's library for his hometown of Osaka.

BY CLIFFORD A. PEARSON
PHOTOGRAPHY BY SHIGEO OGAWA STUDIO

ARCING ALONG the banks of the Dojima-gawa River near the center of Osaka, the Nakanoshima Children's Book Forest engages with the city on multiple levels. It connects to an adjacent park and acknowledges the legacy of the nearby Osaka City Central Public Hall, which was built in 1918 with a large donation from a wealthy native son. Like that philanthropist, Tadao Ando grew up in Osaka and wanted to give back to the city. So he proposed creating a children's library and paying for the construction himself. After talks with municipal authorities, the city agreed to provide the land next to Nakanoshima Park, which occupies the eastern tip of a crescent-shaped island in the river. "This project began with the idea of 'growth,'" says Ando. "I have always believed that books are nutrition for the developing mind," he adds.

Asked about the need for libraries in the Internet age, Ando replied, "There is a limit to learning with a screen. Of course, information technology is incredibly efficient and indispensable, but [physical] books hold history and memory not found in the digital data of handheld devices." He also believes there is still a need for places where people can gather and learn together.

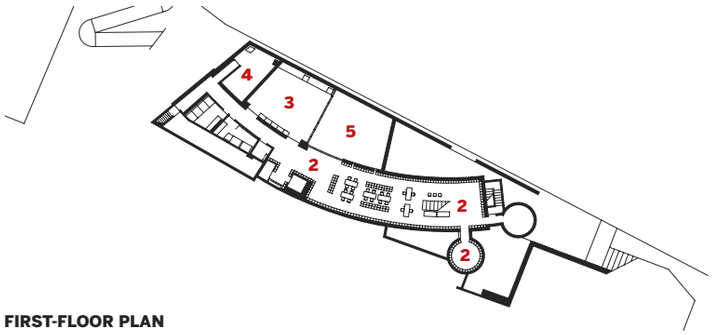
The concept of tension—forces pulling in opposite directions—has long played a critical role in Ando's work. Accordingly, his architecture often strikes a balance between solid and void, building and landscape, passion and reason. For the Children's Book Forest, he drew a taut curve opposing the bend of the river, as a response to the site. "I imagined the form to be the arch of a bow moments before an arrow is launched," says Ando.

A simple reinforced-concrete structure, the 8,775-square-foot Book Forest combines a mostly solid eastern half with a large covered porch on the west. This duality accommodates the twin functions of the library—housing books that need to be protected from too much daylight and connecting visitors to the nearby park and river. Ando says he envisioned the open western portion of the building as a modern *engawa*, a veranda-like element in traditional Japanese architecture that is usually raised above the ground. Due to the soft soil of the waterfront site, Ando's team used a "columnar improvement method" to reinforce the building's concrete foundation.

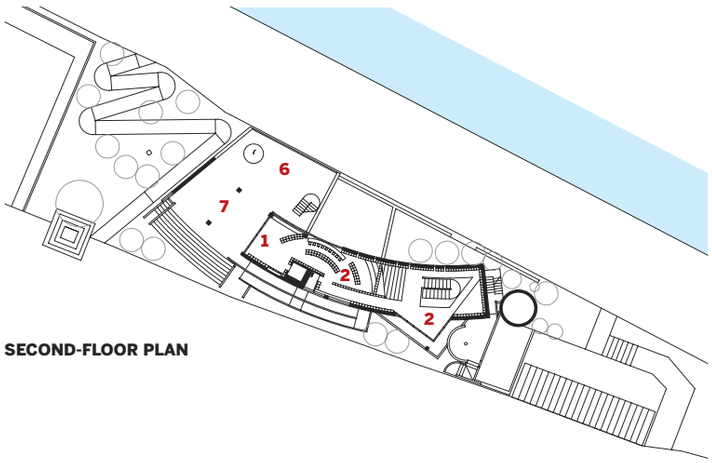
While the library reaches out to its surroundings with a terrace on the north and a grand stair on the south, it turns inward once you enter. A three-story atrium wrapped with floor-to-ceiling linden-wood bookshelves and animated by a central stair and crisscrossing bridges serves as the focus of the interior spaces. Desks and chairs are made from linden too, while a broad set of curving stairs leading from the second floor to



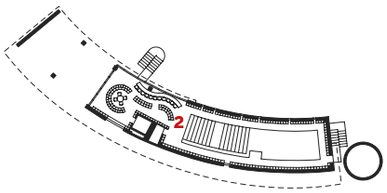
VISITORS ENTER the building from Nakanoshima Park (left), then find themselves in a three-story atrium wrapped in floor-to-ceiling bookshelves (opposite, top). Ando used linden wood for the shelves, as well as for the desks and chairs throughout the library (opposite, bottom).



FIRST-FLOOR PLAN

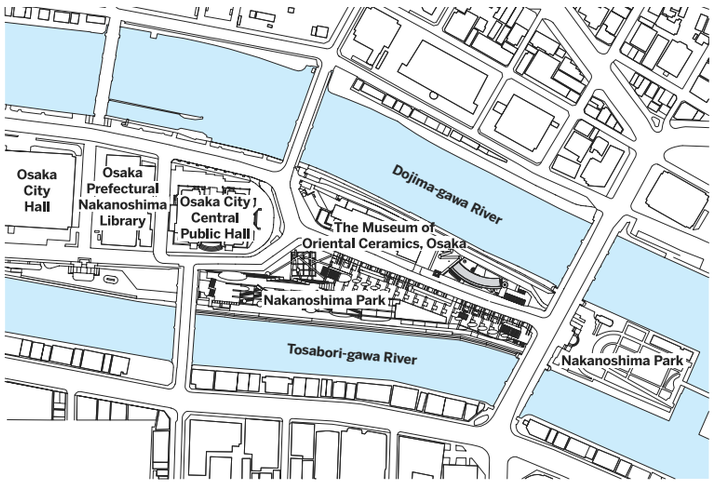


SECOND-FLOOR PLAN

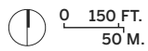


THIRD-FLOOR PLAN





SITE PLAN



1 ENTRANCE
2 READING ROOM
3 WORKSHOP
4 OFFICE
5 COURT
6 TERRACE
7 PORCH

the third features white oak coated with clear urethane. Railings for all stairs and balconies are steel painted dark gray.

Ando has used full-height bookshelves in previous projects, such as the Shiba Ryotaro Library in Osaka (2001) and the Picture Book Museum in Iwaki City (2004), and likes them because they "make ideas and knowledge a tangible material within the building." For his latest project, such shelves give children the sense of moving through a forest of books. Vertical slots of clear glass run up through the atrium, alternating with sections of books and underscoring the allusion to a wooded place where daylight arrives in streaks. Ando says his goal was to create "a space that would remain in children's memories and encourage them to keep learning throughout their lives."

Other than an office and a workshop room on the first floor, the library is essentially one flowing space where children and their par-

ents can browse and read books. Although visitors can't take titles home, they can spend time with them anywhere in the building and even in the park. The only indoor spots with separate identities are a pair of cylindrical volumes accessed on the first floor—a cozy reading room wrapped in books and a 39-foot-high concrete silo on whose bare interior walls can be projected videos conceived by BACH, a consulting firm dealing with the creation and presentation of books, and produced by Rhizomatiks, a group that offers services in architecture, design, and research. Ando pulled these two cylinders away from the main body of the library to give them special status, while at the same time ratcheting up the tension in both plan and section in a composition already bending as if to launch a projectile.

In addition to paying for the construction of the library, Ando asked friends and colleagues to donate books from their own childhoods and help with operating costs. For the





A SMALL READING ROOM on the first floor surrounds children with books, creating an intimate oasis for storytelling and other activities (above).

book displays, BACH organized the titles into 12 themes, such as "Play With Nature," "For Those Who Like Animals," and "Beautiful Things," rather than by genre or age group. Books on the upper shelves, which are too high to reach, face outward, but the same titles are accessible on the shelves below.

The Children's Book Forest was supposed to open in March 2020, but the Covid-19 pandemic delayed it until last July. To reduce the risk of contagion, it is limiting the number of people inside to 75, capping visits at 90 minutes, and requiring everyone to wear a mask. Even with such restrictions, the building offers children the chance to explore a labyrinth of learning and perhaps get lost in a book that takes them somewhere unexpected. ■

Credits

ARCHITECT: Tadao Ando Architect & Associates — Tadao Ando, principal; Hironobu Wakayama, Yosuke Sato, project architects

ENGINEERS: Ascoral Engineering (structural); Stech (m/e/p); Ataka Bosai Sekkei (disaster prevention)

GENERAL CONTRACTOR: Takenaka

CONSULTANTS: BACH (book curation and display); Rhizomatiks (video production)

OWNER: City of Osaka

SIZE: 8,775 square feet

COST: withheld

COMPLETION DATE: July 2020

Sources

ELEVATORS: Fujitec

CURTAIN WALL: YKK AP

CARPET TILES: Forbo Flooring Systems

BOOKSHELVES: Kouji



Since 1991, ARCAT has assisted architecture professionals in their search for the best products for their projects.

Today ARCAT is an invaluable tool for AEC professionals, offering a powerful product search engine that is backed up by quality CAD, BIM, and specifications - at no cost to the user and without requiring registration.

ARCAT®

www.arcat.com

Visit ARCAT.com today and see why architecture professionals have used us for three decades!

Architectural Record

eNewsletters

Stay up-to-date on the latest news and information for architects and designers with one of our eNewsletters!



Subscribe to our eNewsletters:

Daily WebInsider
Delivered Daily

Weekly WebInsider
Delivered Weekly

Most Active Market: Healthcare
Delivered three times per year

Most Active Market: Hospitality
Delivered three times per year

Most Active Market: Multifamily Residential
Delivered three times per year

Most Active Market: Schools
Delivered three times per year

Material World
RECORD PREMIUM MEMBERS ONLY
Delivered monthly

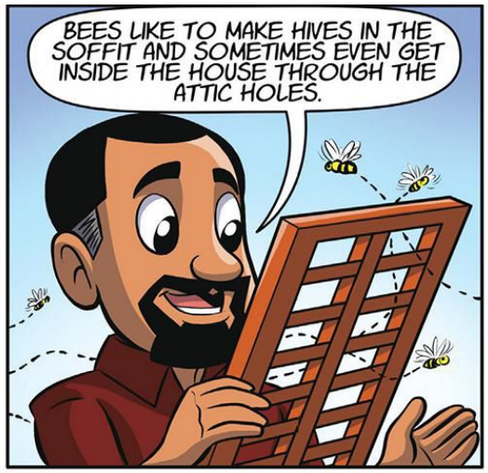
LEARN MORE & SUBSCRIBE TODAY!

architecturalrecord.com/newsletters

Joto-Vent 2" Reveal Soffit Vents Now Available

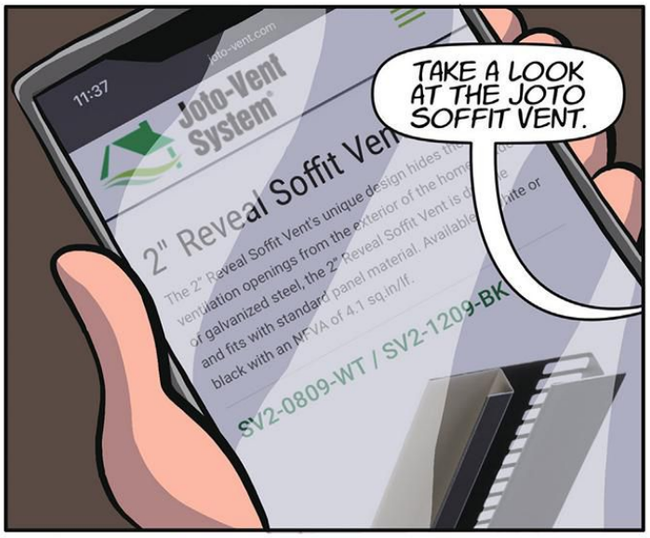












Connect with us on social media for the latest updates!








2" Reveal Soffit Vent

✓ *No visual ventilation openings*
✓ *Complete perimeter air flow*

www.joto-vent.com

The 2" Reveal Soffit Vent's unique design hides the ventilation openings from the exterior of the home. Made of galvanized steel, the 2" Reveal Soffit Vent is durable and fits with standard panel material. Available in white or black with an NFVA of 4.1 sq.in/lf.

Joto-Vent System® USA, Inc. 425-256-2210 | info@jotovent.com

CALL FOR ENTRIES

DESIGN VANGUARD 2021

Architectural Record is looking for the best emerging architecture firms from around the world to feature in our **2021 DESIGN VANGUARD** issue. Although we do not have an age limit, we try to select architects and designers who have had their own practices for 10 years or less.

SUBMISSION DEADLINE:
MARCH 1, 2021



ENTRANCE TO THE NATIONAL PROTEOME SCIENCE CENTER, CHINA BY 2020 VANGUARD O STUDIO ARCHITECTS
PHOTOGRAPHY COURTESY O STUDIO ARCHITECTS

For full details and to submit your entry, visit: architecturalrecord.com/call4entries.
E-mail questions to arcallforentries@bnpmedia.com. Please indicate the contest name as the subject of your e-mail.

It Takes a Village

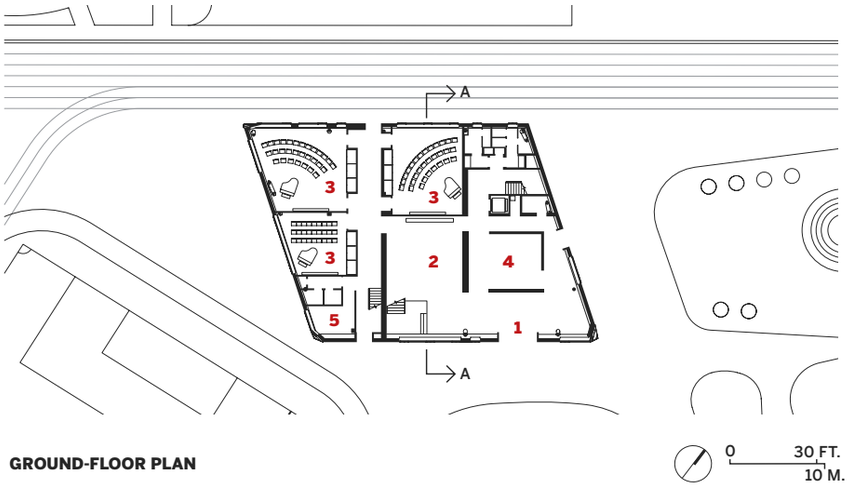
OPEN Architecture breaks with tradition by creating an architecturally diverse campus for the Qingpu Pinghe International School in Shanghai. **BY ARIC CHEN**



PHOTOGRAPHY: © WU QINGSHAN

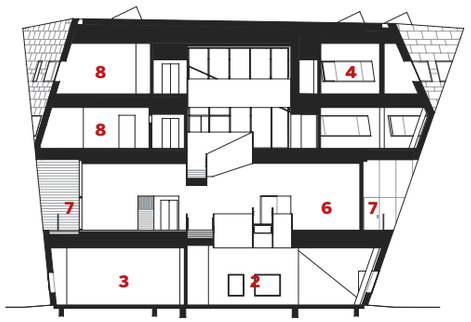
The Arts Center at Shanghai's Qingpu Pinghe International School is one of a group of buildings on the campus, which was designed by OPEN Architecture.





GROUND-FLOOR PLAN

0 30 FT.
10 M.



SECTION A - A

0 15 FT.
5 M.

1 ENTRANCE
2 LOBBY
3 MUSIC STUDIO
4 GALLERY
5 MECHANICAL ROOM
6 ACTIVITY/COMMON SPACE
7 BALCONY
8 FINE ARTS STUDIO

ACROSS CHINA, a school-construction boom is showing all the trappings of how architecture might facilitate openness, interaction, and creative thinking in the learning process. Fueled by a demand for alternatives to what many see as a stultifying state education system, a spate of new schools has sparked a proliferation of rooftop gardens, meandering ramps, and, as pretty much everywhere these days, stepped seating. Lots and lots of stepped seating.

Designed by Li Hu and HUANG Wenjing of Beijing-based OPEN Architecture, the Qingpu Pinghe International School in Shanghai checks all these boxes, but goes one further. If the privately owned and operated pre-K to 12 facility, located about a 45-minute drive from the city center, stands out, it's because it has cleverly broken the rules (and has tuition-paying students whose families can afford it). "Most schools in China are a big building plus a field," says Li, referring to regulatory requirements that almost inevitably produce that typology. "However, we wanted to make a campus."

Indeed, for Li and HUANG, it seemed unimaginable to squeeze the school's eventual 2,280 3- to 18-year-olds into a single structure—some of them, theoretically, for up to 15 years. Instead, they wanted to create what they call a "school as a village" by spreading the facilities across 13 buildings on the site's more than 12 acres, now landscaped with trees, bamboo stands, and a retaining pond. Among these buildings are seven five-story "learning cubes" clad in bamboo paneling, with perimeters that are gently rounded (indicating classrooms for primary-level students) or folded (for junior high). A gymnasium, swimming pool, and cafeteria complex reveals itself with white stretched membrane and perforated metal facades.



A 550-METER track circles the campus (below), passing by the school's 13 eclectic structures: the gray-granite art center (opposite and above) and, beyond, a cluster of bamboo-clad "learning cubes," a luminous gym/cafeteria, and the whale-shaped blue Bibliotheater.

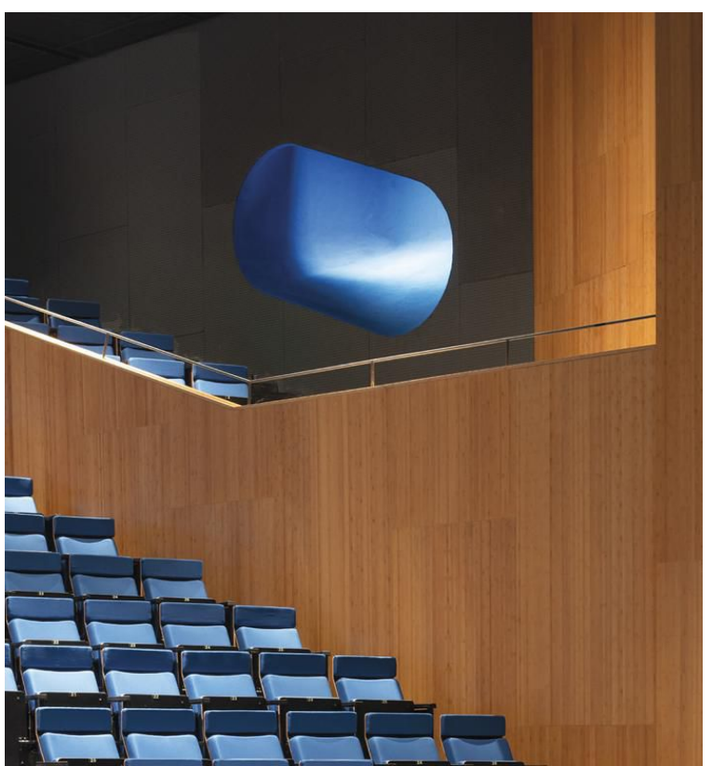


1 ENTRANCE
2 BIBLIOTHEATER
3 GYMNASIUM/ CAFETERIA
4 ARTS CENTER
5 PRIMARY SCHOOL LEARNING CUBES
6 MIDDLE SCHOOL LEARNING CUBES
7 DORMITORY
8 KINDERGARTEN
9 ADMINISTRATION/ LABORATORY

PHOTOGRAPHY: © WU QINGSHAN (2); CHEN HAO (RIGHT)

A faceted gray-granite arts center anchors the site at its core with two "horizontal atria" that intersect with a vertical one to create light-filled spaces for exhibitions and performances. Equally distinctive, a combined theater and library that Li describes as a "blue whale" is situated at the edge of the campus, easily accessible to the surrounding community (or, rather, the future community: the area is still a thicket of construction cranes) when not in use by the school. Dubbed the Bibliotheater, this hybrid building houses a fly tower shared by a 500-seat theater and 150-seat black box. Then there's the library, with a soaring reading room ringing a space-age, Kubrick-worthy oculus.

The crux of the argument for building a campus instead of the typical school was the desire to more efficiently utilize a component that would otherwise often be idle. Normally, a Chinese school might have a 400-meter running track circling a sprawling lawn whose size, according to Li, can only be justified once a week when the entire student body gathers there for a mandatory flag-raising ceremony. However, at the Qingpu school, the architects managed to convince local authorities to allow just a 200-meter track—still large enough to accommodate a soccer pitch—but with a smaller footprint that unlocked plenty of square footage for the rest of the campus.

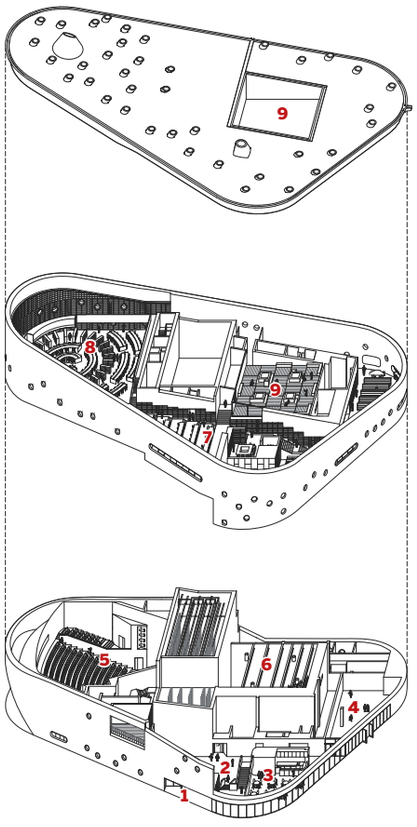




"We wanted to make the impractical practical, while breaking up the scale of both the buildings and open space," Li says. The student body is now split between the track and gymnasium for its weekly dose of patriotism (a small price to pay), while an additional 550-meter running trail winds more bucolically throughout the grounds.

The kindergarten required its own, autonomous building, which Li and HUANG wrapped around three circular courtyards connected by ramps. Fins striating the facades are painted a spectrum of yellows and reds on one side and cooler blues and grays on the other. With its figure-eight plan, an 880-bed dormitory for primary and middle school students rounds out the campus, alongside a combined administration and laboratory building—so management can "experiment with administration," Li winks, in a half-joking jab at bureaucracies—of precast concrete.

The project took only three years from design to completion. Because the kindergarten and Bibliotheater opened this September, and the rest of the school only a year before that, it's probably too early to know what influence the architecture might have on the students' education. However, school officials say that already the configuration of facilities is not just enabling but encouraging new programs and uses. That was the effect the



AXONOMETRIC DIAGRAM

1 ENTRANCE
2 LOBBY
3 CAFÉ
4 SHOP
5 AUDITORIUM
6 BLACK-BOX THEATER
7 TERRACED READING AREA
8 OPEN-STACKS READING ROOM
9 ROOFTOP TERRACE

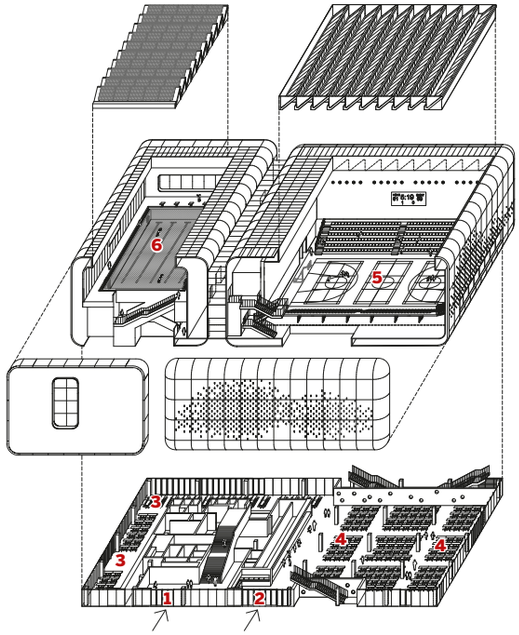


DESCRIBED AS a "blue whale" by the architects, the Bibliotheater (above) is a hybrid library (right) and performing-arts center, with a main stage (opposite) and black-box theater.

PHOTOGRAPHY: © WU QINGSHAN (OPPOSITE, BOTTOM); JONATHAN LEIJONHUFVUD (2)

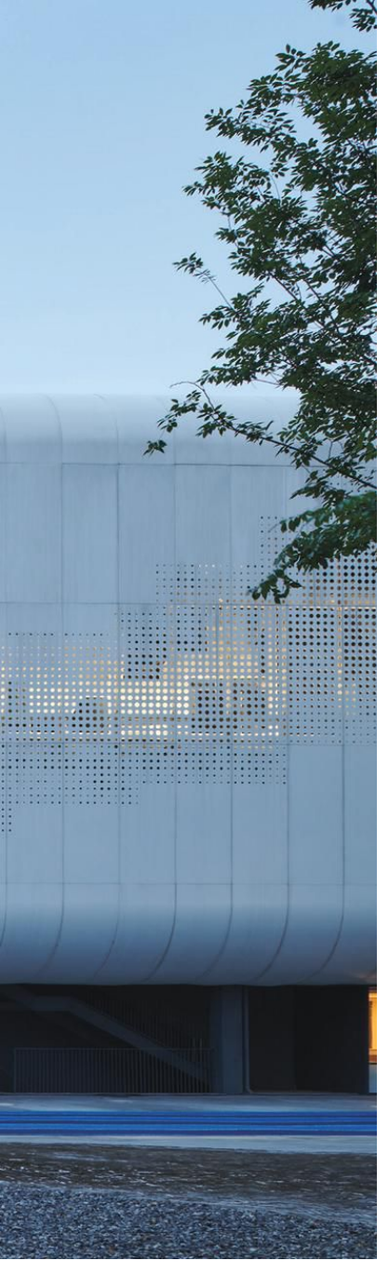


1 GYMNASIUM ENTRANCE
2 CAFETERIA ENTRANCE
3 STAFF DINING
4 STUDENT DINING
5 BASKETBALL COURT
6 SWIMMING POOL



AXONOMETRIC DIAGRAM

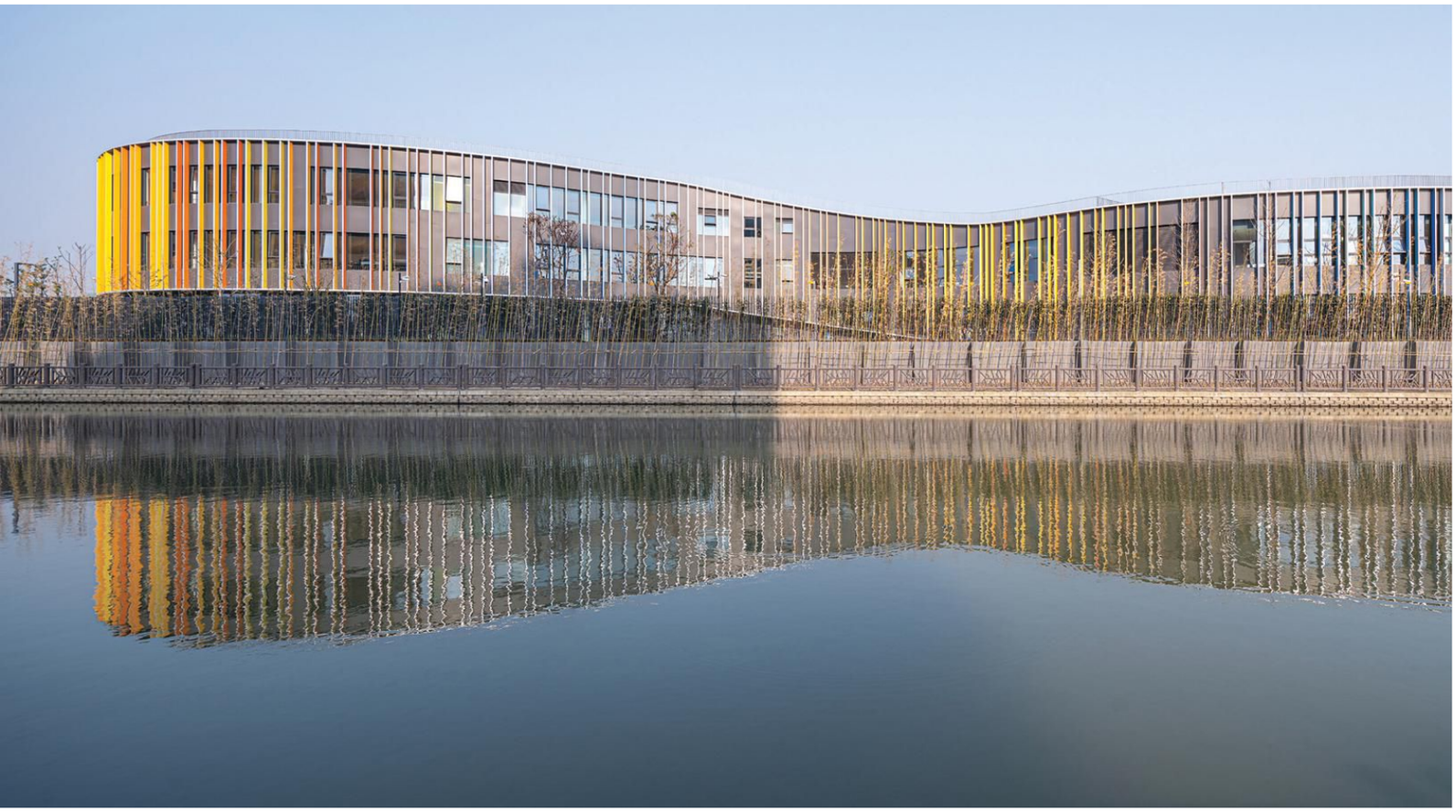
A SECOND complex, with a gymnasium (opposite, top), swimming pool (opposite, bottom), and canteen (not pictured) reveals its interior, with white stretched membrane on one side and perforated metal facades on the other (above).

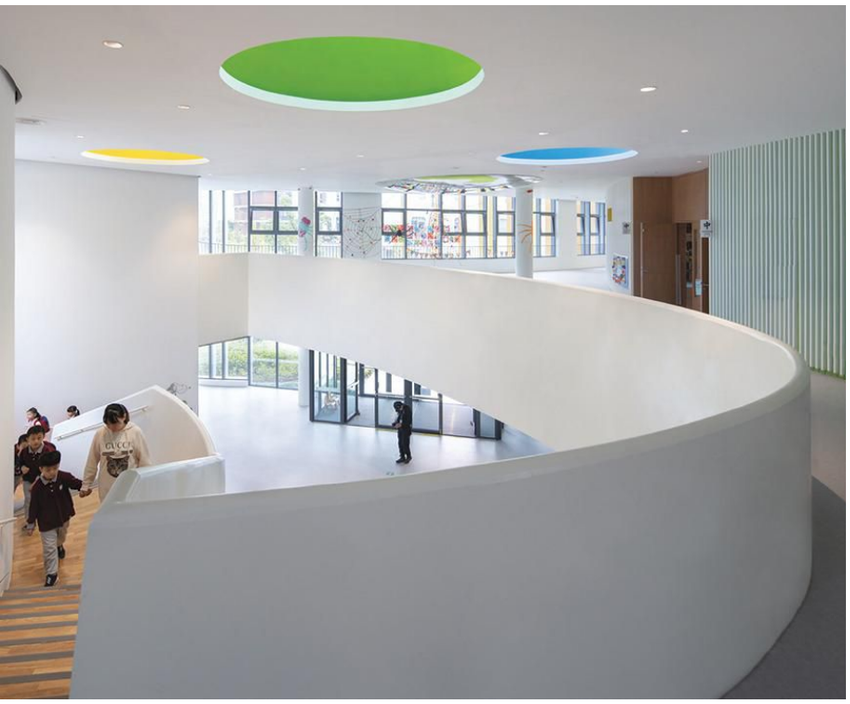




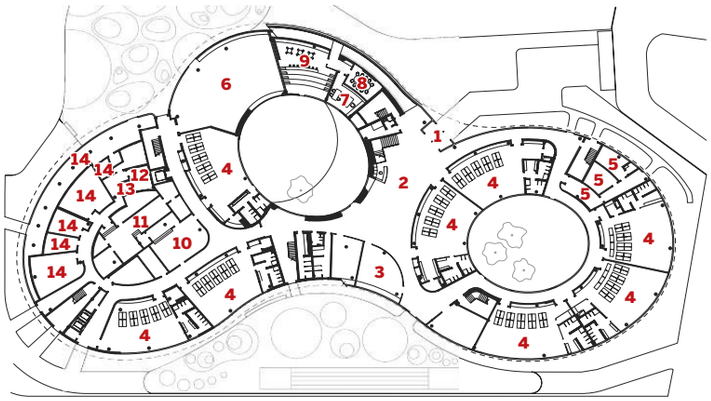


PHOTOGRAPHY: © CHENHAO (OPPOSITE); JONATHANLEIJONHUFVUD (TOP RIGHT); WU QINGSHAN (RIGHT)





OVERLOOKING a retaining pond, the kindergarten (top and above) is clad with vibrant fins and wraps around three courtyards linked by ramps. Students gather opposite the "learning cubes" (opposite).



GROUND FLOOR PLAN

0 30 FT.
10 M.

1 ENTRANCE
2 RECEPTION
3 CLASSROOM
4 DORMITORY/ACTIVITY ROOM
5 MEDICAL AREA
6 MULTIPURPOSE ROOM
7 PRINCIPAL'S OFFICE
8 CONFERENCE ROOM
9 LIBRARY
10 STAFF CAFETERIA
11 KITCHEN
12 SHOWERS
13 LAUNDRY ROOM
14 M/E/P AREA

PHOTOGRAPHY: © WU QINGSHAN (TOP AND OPPOSITE)



architects sought: "We wanted each building to have its own identity because their contents and meanings are different," Li says.

At the same time, the architects wanted the campus to feel as though it had developed organically, counting on the diversity of designs and the fact that their variations in materials might mean the structures will age differently. Perhaps this will turn out to be the case. But for now, the totality feels less like a repartee of sharpened architectural voices—whether in friction or in conversation—than a more ambient juxtaposition of forms, volumes, and finishes. That is to say, while the range of architectural treatments shows an impressive repertoire, it's difficult not to see the campus as being by a single hand or studio. It's almost as if an architect had been asked to design a set of building blocks for children—which is, in fact, what Li and HUANG took it upon themselves to do. And if first impressions of kids gliding along the school's running trails and bouncing among its buildings are any guide, the students will no doubt benefit. ■

Aric Chen is an independent curator and writer based in Shanghai.

Credits

ARCHITECT: OPEN Architecture — Li Hu, HUANG Wenjing (partners in charge)

ARCHITECT OF RECORD: Shanghai Yuangou Design and Consultants

ENGINEERS: CABR Technology (m/e/p and structural)

GENERAL CONTRACTOR: Shanghai Shenying Construction

CONSULTANTS: Z+T Studio (landscape); Shanghai Net Culture Development (theater/acoustic)

CLIENT: Shanghai Tixue Education and Technology

SIZE: 624,000 square feet

COST: withheld

COMPLETION DATE: September 2019

Sources

GLAZING: Velux; BK Glass

BAMBOO: Dasso

CURTAIN WALL: XHC; Jiangyin Yuhua Aluminium; JNA Aluminium

TRACK PAVING: BASF

CASEWORK: Red Star Macalline

SURFACES: Eternit; Corian; HARO; TOLI; Instyle

FURNISHINGS: KI; Trespa; Dafeng; Shenzhen Avant; Gabriel

HARDWARE: Kin Long

HVAC: Daikin; Trane

CONVEYENCE: Hitachi

PHOTOVOLTAICS: Shanghai Yohtec

What Brick Wants

Outside of Boston, Perkins&Will shows how a school can give structure while leaving room for invention.

BY BETH BROOME
PHOTOGRAPHY BY CHUCK CHOI



FOR A NEW high school northwest of Boston, Perkins&Will has mined the past and looked to the future, reflecting the evolution of the suburb where it is located. Incorporated in 1655, Billerica, Massachusetts, shifted over time from an agrarian center to a 19th-century mill town. Today, with a population of 43,000, Billerica increasingly feeds and hosts the high-tech industry, which has spilled out across the Greater Boston area.

When it came time to replace its aging high school for more than 1,600 students in grades 8–12, the town wanted to add a pre-K program and make the new facility a community center, with public access to the gymnasium, auditorium, and dining commons, among other spaces. The 1950s school building, expanded with flimsy additions, was poorly lit, not ADA-compliant, and could not easily accommodate new technology and changing pedagogy.

"The ability to collaborate and evolve through critical thinking is the focus of education today but was not the focus 50 years ago," notes town manager John Curran. Now Billerica wanted to make connections between disciplines within the school, as well as with the community—goals that involved careful siting of the new building, creative programming and spatial organization, and material choices.

At first, town officials considered relocating the new Billerica Memorial High School, but decided to remain on the same 31-acre site

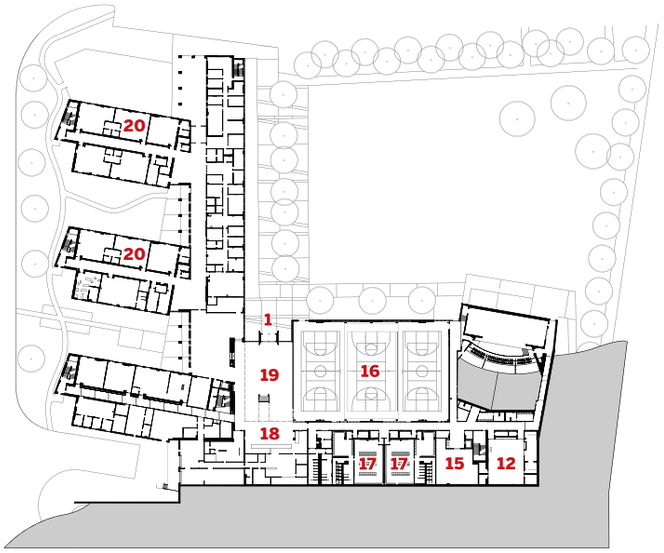




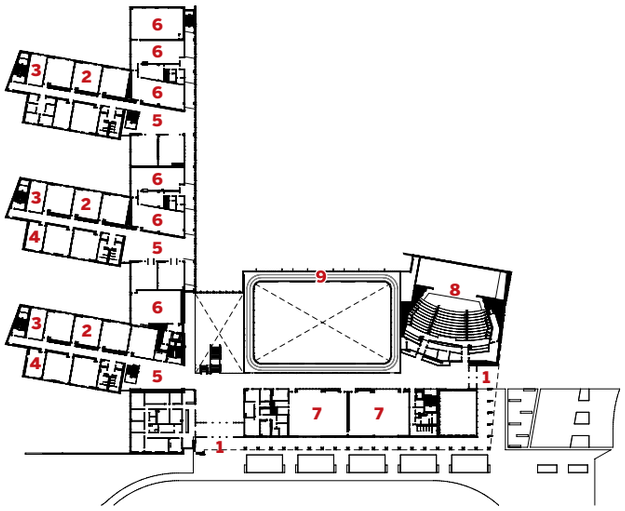
CORBELED RED BRICK refers to Billerica's past as a mill town. The tower (above) nods to nearby civic structures in the historic center and serves as a memorial to those in the armed services—the original building was dedicated as a memorial high school post WWII, in 1955.

as the old school, which also holds the town hall and the fire and police departments. Yet the old school had to operate during construction, before being razed, so the site for the new school was pushed into the southwest corner of the campus, where it connects more closely with the surrounding neighborhood.

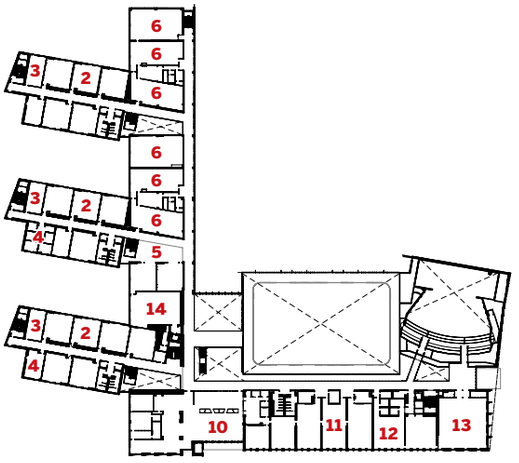
Perkins&Will's Boston office began by figuring out how the school's civic and educational components could work as partners, and how various functions could be integrated as well as segregated depending on the time of day. The architects conceived an L-shaped plan, with academic functions housed in one long leg, and the gym, auditorium, and arts programs in the other, with a triple-height commons as the hinge. For horizontal connectivity—as well as to control costs and keep the scale sensitive to the adjacent streets of single-family houses—they limited the building to four levels, with only three above grade. Daylighting also played an important role. "Schools are fairly predictable as to when and how they will be used through the course of the day," says Perkins&Will associate principal and lead designer Patrick Cunningham. "You can approach daylighting and form in such a way that you push light and shadow around to animate the site and building." For example, the team envisioned students entering from the east in the morning with early light playing off the facade. And they designed the massing of the academic bar, containing the classrooms, to ensure even light in those spaces throughout the day.



LOWER-LEVEL PLAN

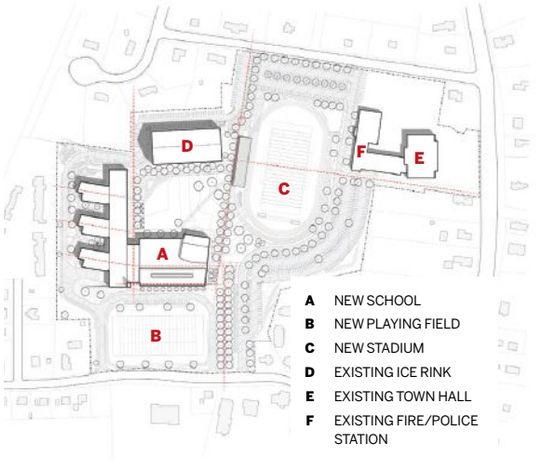


LEVEL-ONE PLAN



LEVEL-TWO PLAN

0 60 FT.
20 M.



SITE PLAN WITH PHASING DIAGRAM

1	ENTRY	**7**	FITNESS	**14**	MAKERSPACE
2	CLASSROOM	**8**	THEATER	**15**	THEATER SHOP
3	TEACHER PLANNING	**9**	TRACK	**16**	GYMNASIUM
4	SPECIAL EDUCATION	**10**	MEDIA CENTER	**17**	LOCKER ROOMS
5	INTERDISCIPLINARY HUB	**11**	ART	**18**	KITCHEN/SERVERY
		12	MUSIC	**19**	DINING COMMONS
6	TEACHING LAB	**13**	BLACK-BOX THEATER	**20**	PRE-K

Significantly, too, the town's heritage and identity of "humble pride" are evoked through a simple, durable material language, ratcheted up a notch, imbuing the prosaic with poetry. Traditional red brick clads the outward-facing elevations, conveying robustness, while elaborate corbeling adds a dynamic, playful edge—expressing what schools do for kids, note the architects: give structure, but leave room for invention. In contrast, the inward-, north-facing elevations are clad with metallic-gray-painted metal panels, which provide reflection and a sense of depth. "The materiality of this inner lining," points out Perkins&Will principal and project leader Brooke Trivas, "allowed us to look to the future." This same forward-looking attitude carries into the interiors with branding (in the form of the school color, logo, and slogans) and no-nonsense durable finishes like painted steel balustrades, terrazzo and rubber flooring, and latticed ash-wood ceilings and walls.

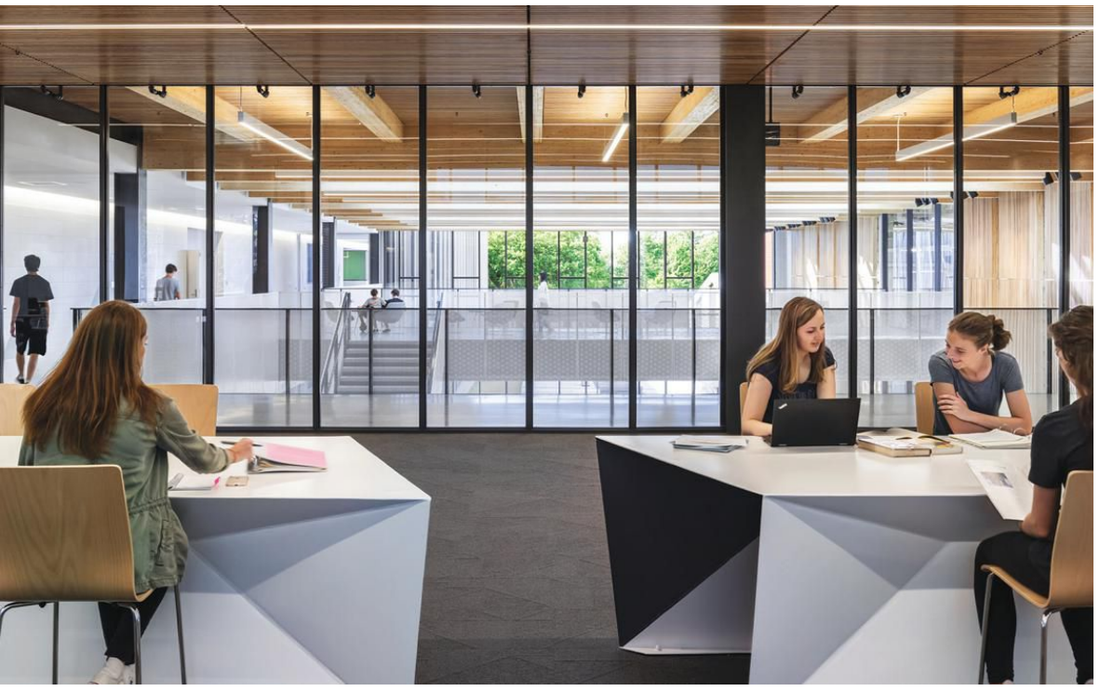
While the structure for the academic side of the building is steel, the public wing and the commons atrium use an exposed spruce-glulam-timber structure for the roof. Sustainable strategies include localized, efficient mechanicals as well as a high-performance insulated envelope (with attention to thermal bridging) and careful allocation of the 28 percent glazing budget to maximize daylighting, such as south-facing skylights that direct light deep into the building. Coupled with active dimming systems for its all-LED lighting, which reduces electric lighting demand by 44 percent, these decisions help achieve a site energy use 59 percent below the regional average for the building type, say the architects.

The old school, in old-school fashion, had a tightly segregated program. In envisioning a new building, "the teachers talked about open spaces, free exchange of ideas, and not wanting to be constrained by classroom walls," says school principal Tom Murphy. So, while there are still highly specialized areas, such as STEAM spaces, the architects

INWARD-FACING elevations of the L-shaped building are clad in metal panel (above). Outward-facing entrances (right) provide access into spaces shared with the public, such as the auditorium.







TRANSPARENCY AND DAYLIGHT enliven all precincts of the school, from a triple-height commons (above) to informal study areas (left), classrooms, the gym, and interdisciplinary hubs (opposite).

mashed up large parts of the program: spaces flow into one another, and transparency rules. Circulation areas foster active learning; corridors connect visually with the gym and other spaces; and, importantly, flexible-classroom wings are linked to the building's central spine via interdisciplinary hubs and labs.

The architects creatively distributed resources: for example, rather than having one large media center, the team broke up the allocated square footage into smaller labs. "We were deliberate in shaking up that bag of program pieces in a way that gave the school not just a flexible building, but one that brings people of different minds together," says Cunningham. "This project underscored how influential the placement of program can be on the culture of the school." And not just the program, adds

Trivas. "Everything in this building was integrated to send a message to students of their value," she says. "It has transformed the perception of the community, and makes people here aspire to do great things." ■





Credits

ARCHITECT: Perkins&Will — Brooke Trivas, Patrick Cunningham, Jeff Brussel, Robert Brown, leadership team; Brian Spangler, Xi Liu, Christina Strid, Laura Pomarico, Jennifer Miller, Michelle Rothman, James Henry, Thomas Melville, Chen Qin, Fei Xie, Tyler Hinckley, design team; Keith Curtis, Katie Janson, branding

ENGINEERS: Engineers Design Group (structural); BALA Consulting Engineers (m/e); Architectural Engineers (fp/plumbing)

GENERAL CONTRACTOR: Shawmut Design and Construction

CLIENT: Massachusetts School Building Authority, Town of Billerica

SIZE: 325,000 square feet

COST: $160.5 million (project); $146.7 million (construction)

COMPLETION DATE: October 2020

Sources

MASONRY: McAvoy Brick

METAL PANELS: Kingspan, Alucobond

CURTAIN WALL, WINDOWS, ENTRANCES: Kawneer

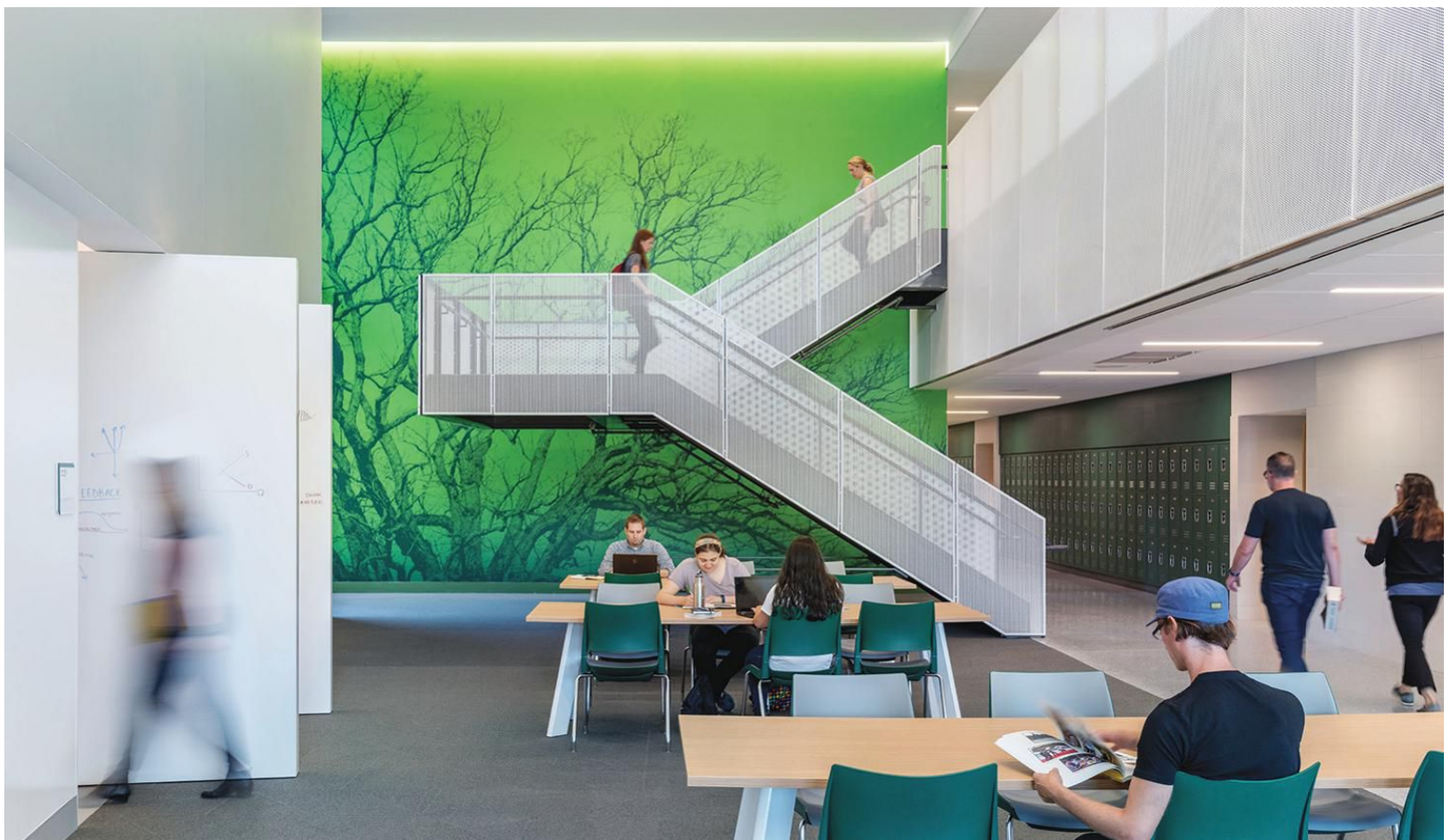
GLAZING: Oldcastle BuildingEnvelope, McGrory Glass, VELUX (skylights)

HARDWARE: ASSA ABLOY

ACOUSTICAL CEILINGS: Armstrong

PAINTS & STAINS: Sherwin-Williams

FURNISHINGS: HON, Spec, Allsteel, Hightower, KI, Steelcase



Common Bond

With a new school and community building, Feichtinger Architectes helps a small alpine city in Austria revive its downtown.

BY MARY PEPCHINSKI
PHOTOGRAPHY BY DAVID BOUREAU

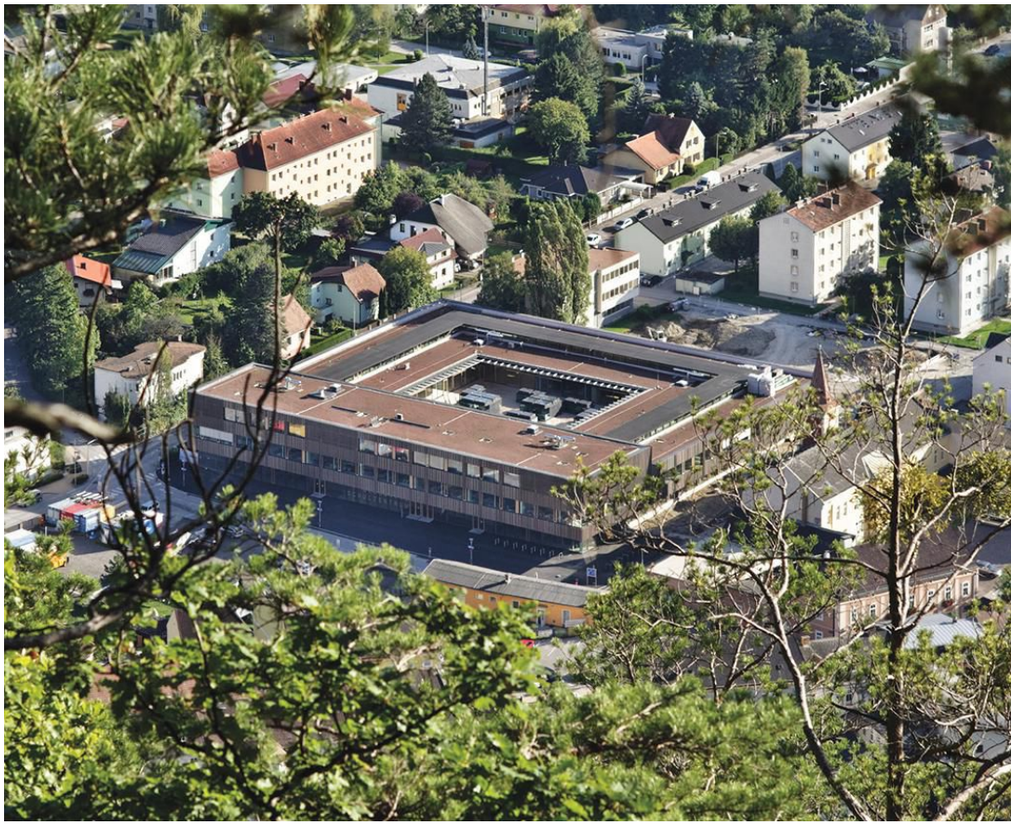




TO OFFSET a declining population and reinvigorate its town center, Gloggnitz, a small city 40 miles south of Vienna in the foothills of the Alps, decided to invest in a new school complex. The facility would replace the aging primary, middle, and special-needs schools. Most importantly, it would be a welcoming venue for activities and instruction for adults and children after school hours, strengthening a sense of community. The design therefore would require a new way of thinking about educational infrastructure: "Let's get rid of the old image of a school and make something new out of this," says Dietmar Feichtinger, founder of the eponymous architecture firm based in Montreuil, France, selected for the project in 2015 as the result of an invited competition.

Although the periphery of the city would have offered more space for amenities like additional playing fields, Gloggnitz officials rejected the idea, opting instead for a central site where the existing primary and middle schools were located, necessitating their demolition. For this tight lot, Feichtinger designed a 93,000-square-foot, largely two-story building for 400 students. Roughly square in plan, the school rises to three stories on the northwest side, where it fronts an entrance forecourt. The ground floor, along with the level below, is primarily devoted to activities that students typically associate with fun—those spaces for movement and sport. Because the wider community would use these facilities too, the architect recessed the first level and surrounded it with glass on all sides. The upper floors, which house most of the classrooms and the administrative offices, appear to hover above the entry level, cantilevering 10 feet outward in all directions, providing shade and shelter. Ribbon windows emphasize the projecting volume's horizontality, while vertical bands of ash-gray Austrian larch lend the prominent structure a delicate and inviting quality. The wood cladding, says Feichtinger "seems soft when you experience it, and people immediately feel comfortable with the building."

Upon entry, students and other users



GLOGGNITZ'S new school, in the city's downtown (above), is organized around a central terrace (opposite). Skylights pop up from this outdoor space, illuminating gymnasia below.



A TRANSPARENT base (above) highlights ammenities shared with the community, such as the sports facilities (opposite). General classrooms (left) take advantage of views of the alpine landscape through generous ribbon windows.

are greeted by a space that is open and expansive due to the dove-gray steel trusswork, spanning 98 feet, and 12 skylights that bathe the interior in daylight. Two sunken areas for a gymnasium, a gymnastics hall, and a climbing wall occupy the center of ground floor. Generous circulation allows users to walk around these areas and observe the activity below, protected by glass balustrades and rope-cable nets that extend from the floor to the trusses. Changing rooms are tucked into the basement, at the level of the gym floor. Special classrooms, workshops, laboratories, after-school programs, and a library enclose the sports areas at ground level on three sides.

At the second level, classrooms line the periphery, with an inner skylit zone for circulation, collective instruction, and services, wrapping a central terrace. This outdoor space serves as an open-air classroom and a recreation area, and it also houses the skylights that illuminate the sports facilities, popping up from the terrace deck as glass-enclosed rectangular prisms. The smaller third floor, for the school's administrative offices, has its own south-facing terrace.

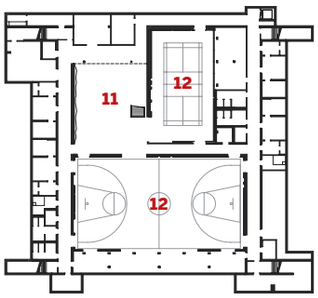
In addition to the steel trusses, a variety of other load-bearing elements and materials are employed and are by and large left exposed. Among the places where reinforced concrete is used are the ground floor and the basement. It also forms the shear walls in the stairs located in each of the building's four corners. At the upper levels, slender steel columns are combined with structural wall panels and ceiling slabs made of cross-laminated spruce.

The school has been designed to make the most of the town's pastoral surroundings, with classroom windows that frame views of the nearby foothills. Meanwhile, the ventilation strategy also takes advantage of the location and the climate: to supplement mechanical ventilation, each classroom has automatically controlled window panels, as well as manually operated ones. The former are opened by the building-management system, which constantly monitors carbon dioxide levels, to bring in the fresh alpine air.

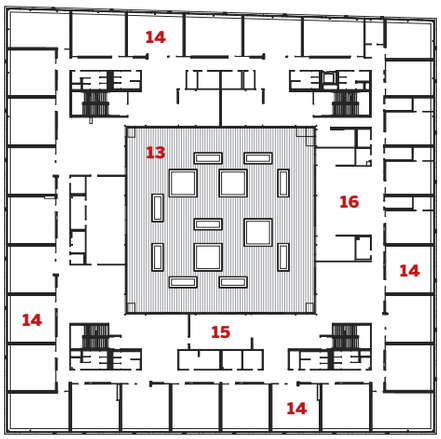
Students and teachers were just getting settled in the Gloggnitz school complex in October 2019, when, soon thereafter, Covid-19 forced its first closure, in March 2020. Although they experienced only a few months of normal operations, the school, designed to have broad appeal, is demonstrating unanticipated benefits, according to primary school principal Herbert Pfeiffer. He observes that the ample circulation and openness encourage interaction and the develop-



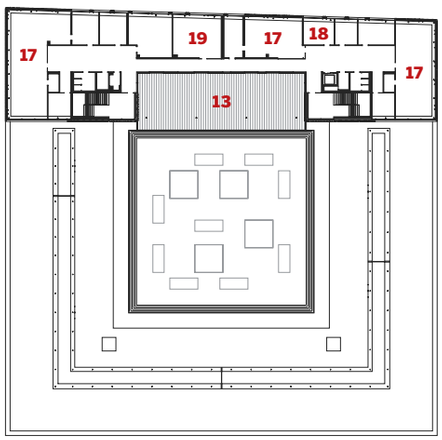
PHOTOGRAPHY: © HERTHA HURNAUS (OPPOSITE, TOP)



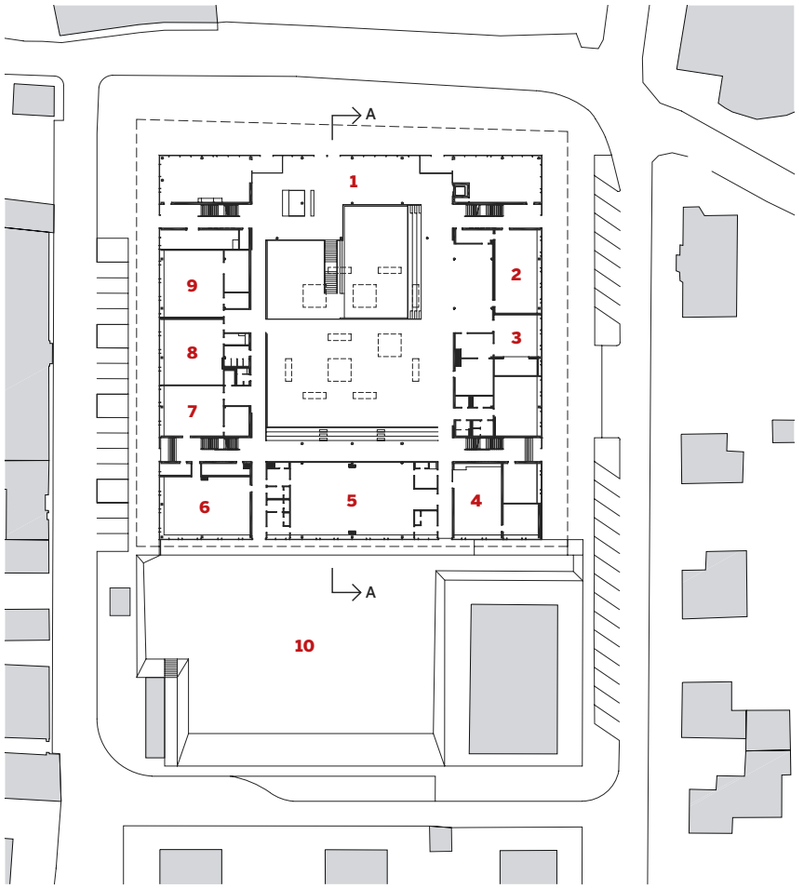
BASEMENT-FLOOR PLAN



SECOND-FLOOR PLAN



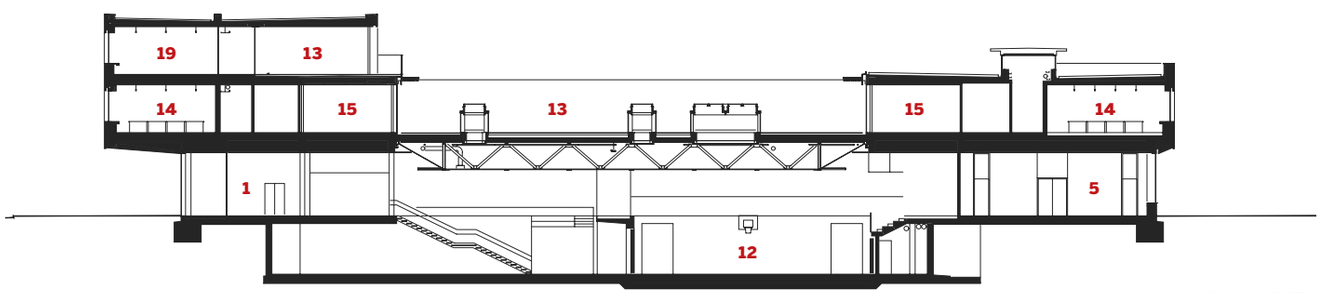
THIRD-FLOOR PLAN



GROUND-FLOOR PLAN

0 50 FT.
15 M.

1 MAIN ENTRY LOBBY
2 KITCHEN
3 MUSIC ROOM
4 LIBRARY
5 CHILDCARE
6 COMPUTER LAB
7 PHYSICS LAB
8 ART ROOM
9 WOODSHOP
10 SCHOOLYARD
11 CLIMBING WALL
12 GYMNASIUM
13 TERRACE
14 CLASSROOM
15 BREAKOUT ROOM
16 SHARED EDUCATIONAL SPACE
17 TEACHERS' OFFICES
18 PRINCIPAL'S OFFICE
19 STAFF LOUNGE



SECTION A - A

0 15 FT.
5 M.



STRUCTURAL ELEMENTS, such as the reinforced-concrete shear walls in the corner stairwells (left), are largely left exposed. Cross-laminated timber is also used extensively, as in the roof slab over the top-floor administrative area (above).

ment of social skills, like engaging with one another respectfully or not being excessively loud. And because the three separate schools now share resources, their staffs have had to learn how to communicate and coordinate their activities with one another as well. "The building," says Pfeiffer, "is like a teacher." ■

Mary Pepchinski is a writer and curator who teaches architectural theory at the Technical University Dresden.

Credits

ARCHITECT: Dietmar Feichtinger Architectes — Dietmar Feichtinger, lead designer

CONSULTANTS: Werkraum Wien Ingenieure (structure); Bauklimatik (building services and building physics); Hross & Partner (electrical); ADSUM Brandschutz & Sicherheitsconsult (fire protection)

GENERAL CONTRACTOR: Swietelsky

CLIENT: City of Gloggnitz

SIZE: 93,000 square feet

COST: $24.2 million

COMPLETION DATE: August 2019

Sources

STEEL CONSTRUCTION: Biedenkapp

FACADES: Rubner

CARPENTRY: Lieb Bau Weiz

DRYWALL: Schreiner

BUILT-UP ROOFING: Sajowitz

WINDOWS: Schinnerl

ELEVATORS: Otis

OFFICE FURNITURE: Piller

SPORTS EQUIPMENT: Pauzenberger



WORKING FROM a shared office in Casablanca, Saad El Kabbaj, Driss Kettani, and Mohamed Amine Siana have developed a distinct approach to practice that has served the young architects well. They each take on smaller independent projects, mainly high-end residences, but come together for large commissions, which have included several university buildings in the south of Morocco, a result of competitions they won not long after finishing architecture school, where they were classmates.

A more recent competition win led to their first K–12 project, the Jacques Chirac school in Rabat. While those earlier university buildings were spread out across large campuses and drew from the vernacular tradition of their region, this new private school sits on a prominent boulevard, and refers to the postcolonial architecture of the capital city. "Rabat has a beautiful modern heritage," says Siana, a 2016 Record Design Vanguard, about the work of a generation of French and Moroccan architects who came of age in the 1960s. "They created simple, elegant buildings with sober volumes. That is what we wanted to do here."

But, as Kettani points out, "it was a lot of program with not a lot of space." So the design process became an organizational one, with the architects trying to optimize the tight, 2.75-acre urban site while maintaining the low horizontal lines and open green spaces of the surrounding context of private villas and embassies.

Learning the Classics

A trio of young architects look to the golden age of Moroccan modernism for their design of a large school complex in Rabat.

BY JOSEPHINE MINUTILLO
PHOTOGRAPHY BY FERNANDO GUERRA



The 156,000-square-foot, three-story building stretches just over 400 feet to the limits of the previously empty plot, and contains within that one structure kindergarten, primary-, middle-, and high school classrooms for up to 1,500 students. The younger children occupy the southern end, the older ones are to the north, and support functions and common spaces—including a 250-seat theater and indoor and outdoor sports facilities on the ground floor, a large cafeteria and a library on the third floor, and offices on each level—are housed in the middle.

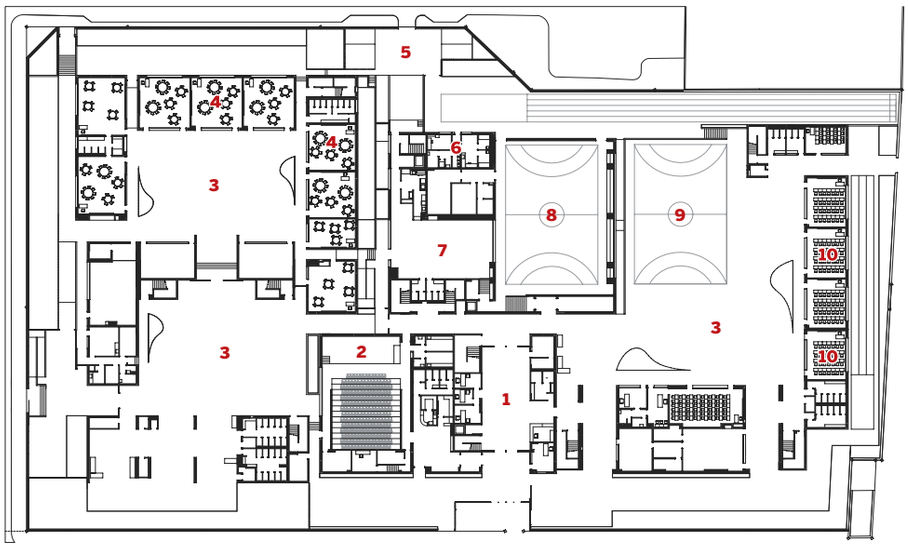
The upper portion of the brick and poured-concrete structure—which includes some precast elements over long spans in the auditorium and gymnasium—are dressed in a smooth white stucco typical of the area. In a similar fashion to the schools built in the city in the 1960s, the architects clad the ground floor in a rough local stone.

The sheer size of the building, and its overall abstract nature, make it monumental, especially within its residential neighborhood, but the architects did not want it to be monolithic. They broke down its massing by introducing a number of setbacks and terraces, many of which are planted, along the exterior walls and inner courtyards, and varied the height of the roof (which is also planted and contains solar panels to generate electricity for heating water). A series of mostly vertical one- and two-story-high brises-soleil, which not only mitigate solar gain but serve as acoustic baffles against the busy road, adds a vibrant,









GROUND-FLOOR PLAN

0 30 FT. 10 M.

1 MAIN ENTRANCE HALL
2 AUDITORIUM
3 COURTYARD
4 KINDERGARTEN
5 SERVICE ENTRANCE
6 INFIRMARY
7 PRIMARY SCHOOL CAFETERIA
8 GYMNASIUM
9 SPORTS FIELD
10 MIDDLE SCHOOL

SPLASHES OF color enliven the primary school (above, left), particularly where Moroccan tiles are used (top, right). Other interiors, like the theater (above) are more sober. The school features multiple courtyards (opposite, both).

graphic quality to the composition. "It's many ideas mixed into one big idea," says Kettani.

Due to the dense program, the interior logic, according to the architects, mimics in some ways the layout of a medieval medina, where narrow paths open up to the large voids of the courtyards. Taking advantage of the mild climate, the architects planned for covered outdoor corridors to access most teaching spaces—they used a similar strategy in their university buildings—and gave classrooms two orientations for cross ventilation. Only some common areas and offices have air-conditioning and mechanical heating. The 14-inch-thick insulated brick walls suffice to temper any extreme weather throughout the year. Stairwells, marked on the exterior by the horizontal brises-soleil that shade them, are left open to the elements.





Within the area of the primary school, the interiors of the pure white volumes are enlivened with color. Most notably, the architects used traditional Moroccan *zellige* tiles on architectural elements there to "add a sense of joy," says Siana.

Over time, El Kabbaj, Kettani, and Siana have developed a design process in which they each contribute to every aspect of the design rather than tackle different parts of the whole. This project presented a particular challenge by compressing that process to less than six months, with construction of the school completing within a year and a half after that. Despite the fast-tracking, by looking to the past, the trio managed to create a design that is timeless. ■

Credits

ARCHITECT: Saad El Kabbaj, Driss Kettani, Mohamed Amine Siana

ENGINEERS: Omnium Technologique (structural; m/e/p; civil); Betab (structural)

GENERAL CONTRACTOR: LC Building

CONSULTANTS: Atelier Bertrand Houin (landscape); CP&O Les m2 heureux (programming)

CLIENT: SCI Hayan

SIZE: 156,000 square feet

COST: $9 million

COMPLETION DATE: June 2019

Sources

ROOFING: Rockwool

SURFACES: Forbo, Tarkett

GLASS: Saint-Gobain

SKYLIGHTS: Adexsi

PARTITIONS: Knauf



Rough and Ready

Mithun combines kid-friendly details and pedagogical innovation in a Seattle-area elementary school.

BY JAMES S. RUSSELL, FAIA

RESEMBLING a human arm, a tree-trunk porch-support column ushers children into the Blakely Elementary School. Its smooth, barkless surface begs to be touched by students, most of whom live among the tall firs of Bainbridge Island, an exurban redoubt of tiny farms and waterfront houses 35 minutes west of Seattle by ferry.

Children discover many such evocative, tactile elements throughout the 63,800-square-foot, $34 million school, which was designed by Seattle-based Mithun for 450 students in pre-K through the fourth grade. There are kid-size niches fitted along the entry portico that invite exploration. In the library, children can stack laminated wood blocks to clamber upon, or gather them around to form a story nook. These are grace notes with a pedagogical intent: "We wanted to have the entire school available for learning," says Tamela Van Winkle, the executive director of Facilities Operations and Capital Projects for the Bainbridge Island School District.

Beginning at the entry porch, with its stately procession of tree columns, a circulation spine organizes the school's steel-framed branching wings: administrative offices to the south and a gymnasium, cafeteria, and music room that extend north, all clad in irregularly corrugated coffee-colored metal panels. Diagonal steel-tube braces throughout are painted bright orange. The spine ascends as a window-walled stair through the heavily planted landscape as it negotiates a steep grade change to the classroom clusters. Students naturally have appropriated the wood steps of the tree-columned space—15 feet across at its widest point—for sunlight-drenched play. On higher ground, the spine passes through a courtyard wrapped by classrooms and then culminates in the library.

An intense programming exercise was undertaken by teachers with the architects to refine a shared-learning concept: they wanted the design to encourage instructors to collaborate and provide them the flexibility to address varied learning opportunities. From these workshops, Mithun developed clusters of four classrooms configured to feed into L-shaped shared spaces on two floors. Teachers coordinate the formation of small groups that split off from the main class to pursue a project or receive extra help in the communal learning areas. Thanks to large windows, everyone is aware of the diverse activities taking place both in and beyond the classroom. "Pedagogically, education is transitioning from teacher-centric to student-centric," explains principal Reese Ande. "We give more individual attention that is customized to students. So the building has to allow spaces to be used in multiple ways."

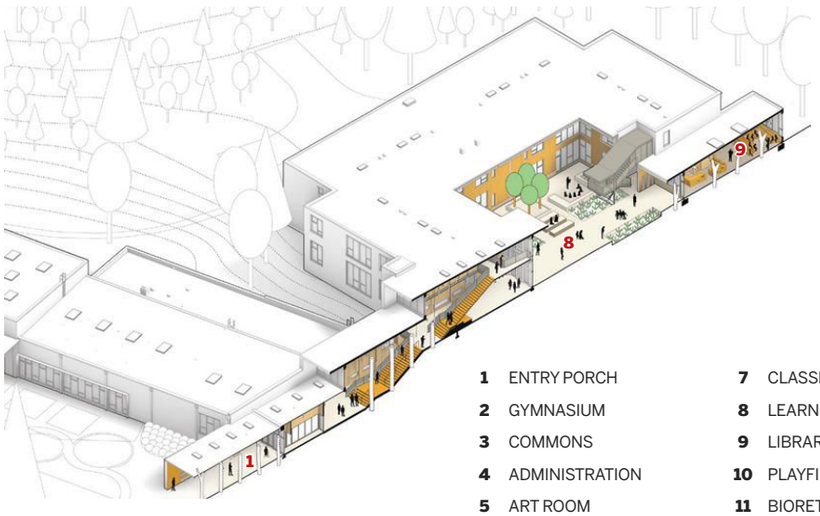
"The L arrangement gives all four classrooms in each cluster equal purchase on the shared learning space," explains Richard Franko, Mithun's design partner on the project. Some of the clusters wrap an outdoor courtyard, which brings in more daylight. With various bench



COLUMNS fashioned from tree trunks announce the entry to Blakely Elementary (opposite) and continue indoors, marching up one side of a grand stair (this page).

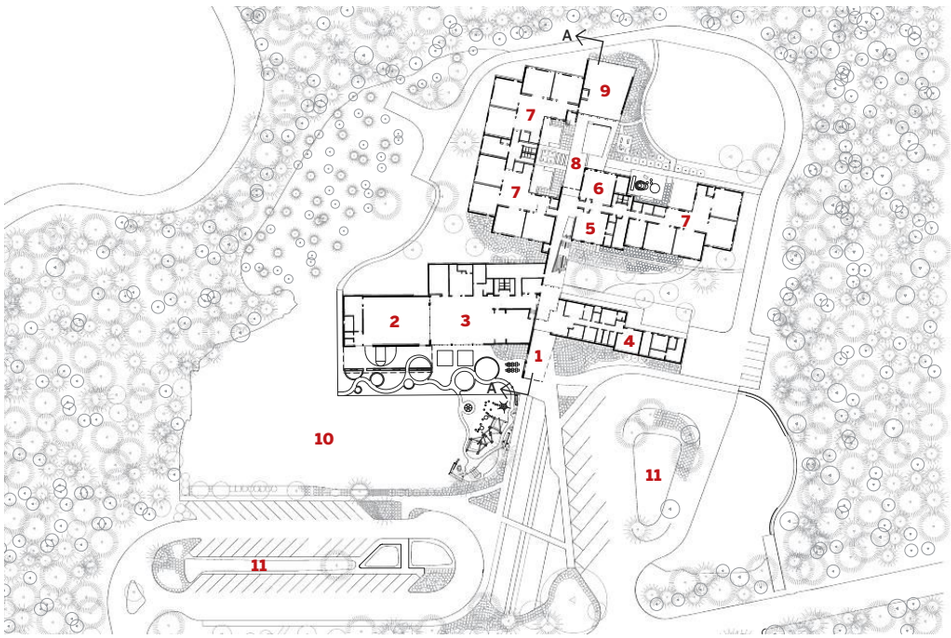
PHOTOGRAPHY: © BENJAMIN BENSCHNEIDER; KEVIN SCOTT (OPPOSITE)





1 ENTRY PORCH
2 GYMNASIUM
3 COMMONS
4 ADMINISTRATION
5 ART ROOM
6 STEM CLASSROOM
7 CLASSROOM POD
8 LEARNING COURTYARD
9 LIBRARY
10 PLAYFIELD
11 BIORETENTION AREA

SECTION – AXONOMETRIC A-A



SITE PLAN

0 50 FT. 15 M.

layouts, the courtyards offer an additional place to address differing student needs, when weather permits.

A second theme, reflecting a strong local environmental ethos, is to keep students in touch with nature and aware of how the building advances sustainability and adapts to climate-change effects. Ample windows look out to the surrounding woodlands, with daylight from these openings balanced by skylights or light tubes in areas farthest from glazing. On most days, few electric lights are needed. The operable windows and ventilating chimneys aid air circulation.

The school layers HVAC strategies to achieve low energy consumption at low capital costs. A 40-well ground-source heat pump system provides heating and cooling to the building and reduces energy use by about 25 percent relative to a conventional system, according to Franko. Space conditioning is conveyed hydronically to fan-powered terminal units.

A dedicated outdoor air system (DOAS) with heat recovery provides filtered fresh air directly to each classroom. This ventilation system was not designed with the highly transmittable Covid virus in mind, but the 100 percent fresh air will add a degree of safety once schools reopen. (Blakely welcomed students in September 2019 and shifted to online teaching in March 2020.)

Strict environmental requirements called for emulating pre-development runoff conditions on the 12-acre site. Stormwater flows through plantings in two bioretention basins—the largest located within the drop-off area—that scrub more than 90 percent of pollutants. The clean water flows into two concrete cisterns holding up to 402,000 gallons; then it is slowly released into the surrounding soil. Many of the 20,000 new native, drought-tolerant trees, shrubs, and

PHOTOGRAPHY: © KEVIN SCOTT





THE SCHOOL, which sits on a sloping site (opposite), is organized around clustered classrooms (top, right) to define shared indoor (top, left) and outdoor (above) learning spaces.



THE LIBRARY (above and opposite) includes wood blocks that students can climb upon or rearrange to use as seating.

grasses were planted along the northeastern edge of the property to protect a pristine wetland on a neighboring parcel.

In keeping with the project's environmental priorities, Mithun had hoped to specify timber from the region for the tree-trunk columns. But local conifers could not be sustainably sourced, finished, and graded for structural capacity when the school was being designed. Instead the architects obtained oaks from a specialist Wisconsin company. Steel plates slotted into the logs are bolted to the building's steel framing and concrete floor slabs.

Administrators often fear that the direct involvement of teachers adds uncertainty to the design process. But Mithun principal Ande says, "One reason the school is so successful is the amount of buy-in and leverage the staff had." Its participatory design process helped Blakely seamlessly unite pedagogical and environmental aspirations as a kid-pleasing and teacher-friendly package. ■

James S. Russel, FAIA, a journalist who often focuses on sustainability and resilience, is the author of The Agile City: Building Well-being and Wealth in an Era of Climate Change.

Credits

ARCHITECT: Mithun — Richard Franko, design partner; Séamus Kelly, project architect; Michael Everett, architect; Michael Fiegenschuh, project manager; Brendan Connolly, programming; Christian Runge, landscape architect; Susan Olmsted, architect/landscape architect; Elizabeth MacPherson, interior designer; Lisa Hartanov, interior designer

CONSULTANTS: LPD Engineering (civil); PCS Structural Solutions (structural); Arup (m/e/p, lighting, security); Mithun (landscape); JRS (envelope)

GENERAL CONTRACTOR: Forma Construction

CLIENT: Bainbridge Island School District

SIZE: 63,800 square feet

COST: $34 million

COMPLETION DATE: September 2019

Sources

TREE COLUMNS: WholeTrees

METAL PANELS: AEP Span

CURTAIN WALL: Kawneer

MOISTURE BARRIER: VaproShield

ROOFING: Soprema

GLASS: Northwestern Industries

SKYLIGHTS: Velux

ACOUSTICAL CEILINGS: Armstrong

PENDANT LIGHTING: BuzziSpace

PLASTIC LAMINATE: Formica

RESILIENT FLOORING: Nora

RAISED GYM FLOOR: Robbins

CARPET: Mohawk

ELEVATORS: Schindler

FIRE-CONTROL DOORS: Overhead Door

PHOTOGRAPHY: © BENJAMIN BENSCHNEIDER; KEVIN SCOTT (OPPOSITE)


PIRATE SCHOOL
Humphrey's
SONG LEE AND THE HAMSTER HUNT
KUNG POW CHICKEN



A TRANSPARENT connection was inserted between brick buildings from different eras (above). Fritted film on the glass mitigates sunlight inside (opposite) where new and existing surfaces and structures are exposed,



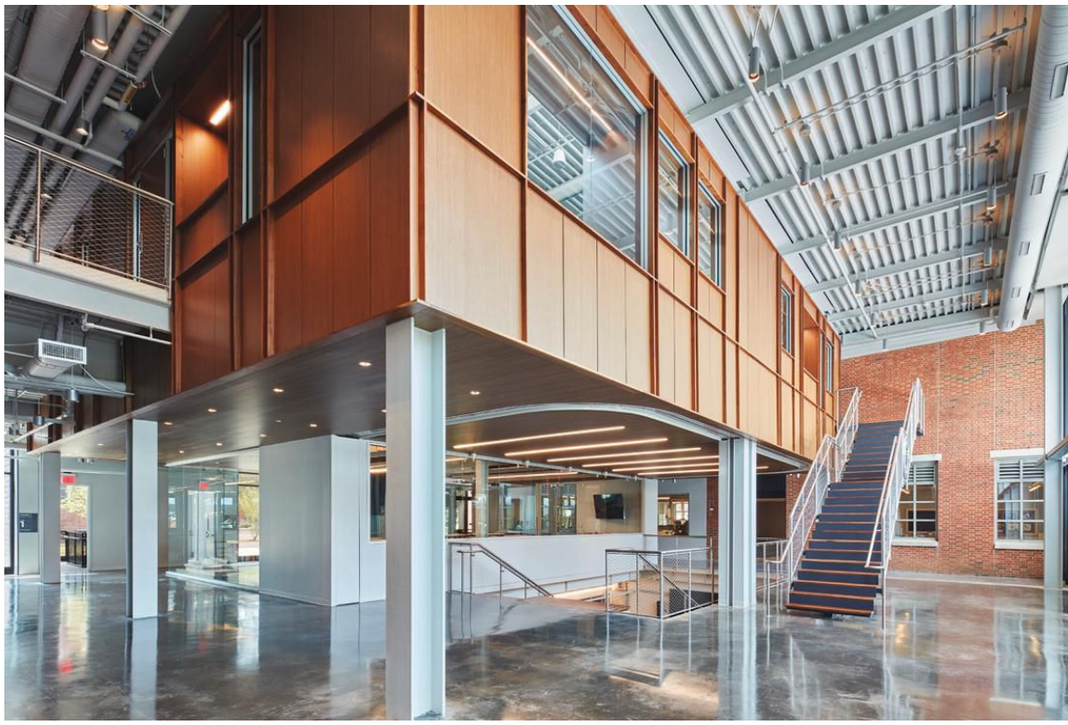
Past Forward

A center for art and design by Sasaki knits into the historic fabric of The Lawrenceville School in New Jersey with 21st-century strategies.

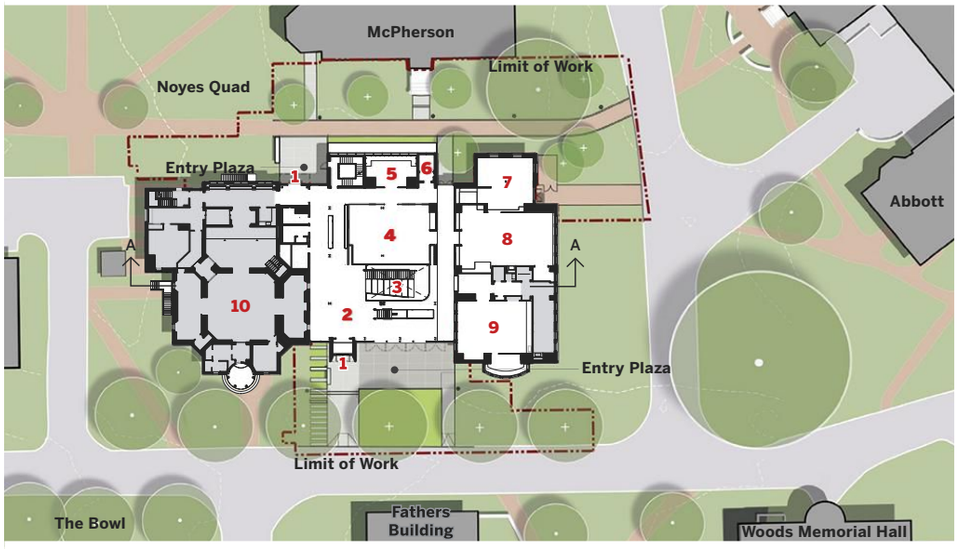
BY LINDA C. LENTZ
PHOTOGRAPHY BY JANE MESSINGER

WHEN THE Lawrenceville School was founded in 1810 as an academy to prepare young men for nearby Princeton University, in New Jersey, its first built facility was a Federal-style stone schoolhouse where all activity took place. The property has since grown beyond the 200-year-old building (a National Historic Landmark and still in use) into a 700-acre coeducational campus for 800-plus high school students that attracts as much attention for its traditional English-style grounds, from a scheme devised by Frederick Law Olmsted in the 1880s, as for its celebrated Socratic approach to learning, its sports facilities, and 30-acre solar field.

Aware of this legacy, headmaster Stephen Murray hired the Boston-area firm Sasaki to create a master plan that would revitalize the campus. His goal: to improve Lawrenceville's pedestrian circulation and natural environments and to create new and renovated facilities for advanced pedagogies, building upon the strengths of the existing architectural identity without imitating it. The original 18 acres Olmsted developed, also landmarked, comprise a green commons ringed by a dozen Neo-Romanesque





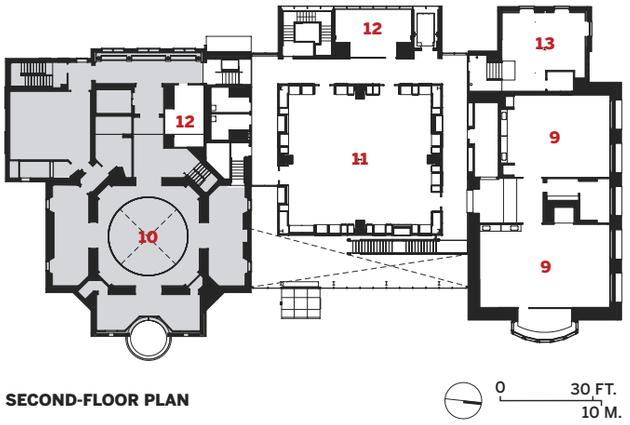


GROUND-FLOOR SITE PLAN

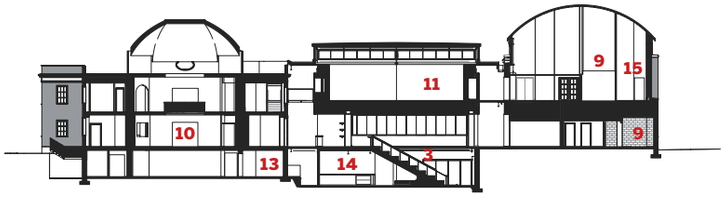
buildings by Peabody & Stearns (RECORD, July 1896). But, while a thoughtful expansion in the 1920s introduced stately brick Georgian-style structures by Delano & Aldrich, subsequent post–World War II additions, notes Murray, merely mimicked the earlier collegiate aesthetic. He chose to work with the multidisciplinary office, founded by landscape designer Hideo Sasaki in the 1950s, because, he says, the architects "quickly understood what we were trying to achieve."

Sasaki's first completed project for Lawrenceville, the new Gruss Center for Art and Design (GCAD), sits squarely in the 21st century—a forward-looking makerspace housed in a crystalline intervention that deftly links to the past. Named for donors Martin and Audrey Gruss, the flexible 17,000-square-foot steel-and-concrete structure replaces a narrow brick 1960s wing and bridges two existing arts facilities: a domed brick William Adams Delano–designed library-turned-gallery from the 1920s on its south side and a corresponding 1990s barrel-vaulted studio-art wing by Graham Gund on the north. Discreet smoky-gray glazing on the east and west facades knits old and new structures together, reflecting the landscape during daylight hours and transforming the two-story central volume into a lantern at night. Indeed, during a visit on a sunny autumn Saturday, the effect was shadowlike and evocative—a scrim that mediates the surrounding scenery.

"Decisions about the transparency, scale, and use of a gunmetal color for the steel structure all had to do with creating a complementary and contemplative addition to a well-established conversation," says Sasaki principal Vinicius Gorgati. For these reasons, too, the architects clad the building's west side with a charcoal-hued slate, similar to that of Delano's dome, and

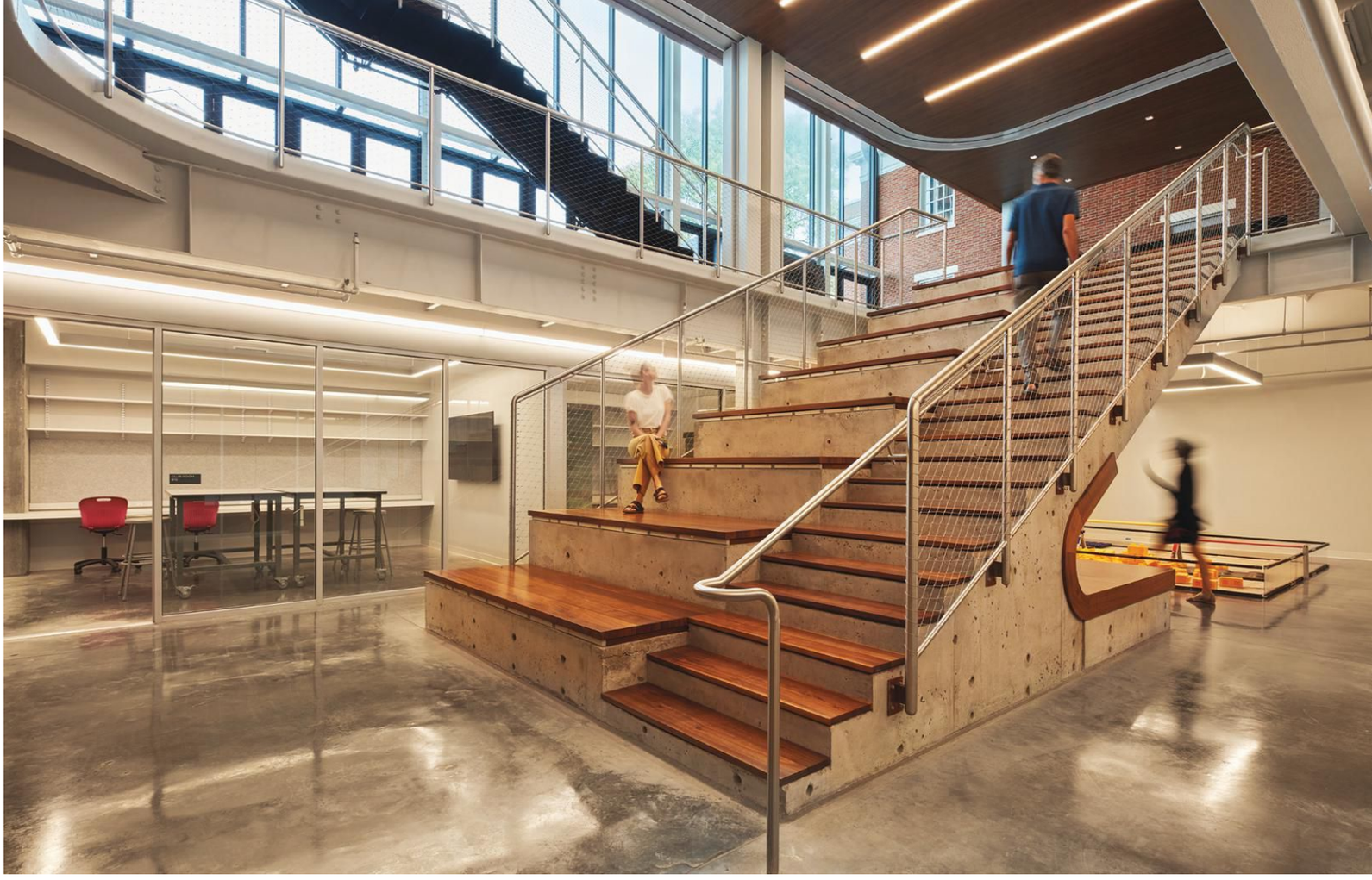


SECOND-FLOOR PLAN



SECTION A - A

1	GCAD ENTRANCE	**6**	ELEVATOR	**11**	FLEX ROOM
2	LOBBY	**7**	METAL SHOP	**12**	SEMINAR ROOM
3	FORUM STAIR	**8**	WOOD SHOP	**13**	MECHANICALS
4	ASSEMBLY ROOM	**9**	STUDIO ART	**14**	VIRTUAL REALITY AREA
5	PRINT ROOM	**10**	GALLERY	**15**	OFFICE



A RECENT socially distanced gathering in the flex room demonstrates its adaptability (opposite). Bleacher-like steps lead to lower meeting and digital areas (above); slate cladding on the west (right) nods to the past.

added a pop-up transom roof for internal light and a loft, setting it back to remain unobtrusive between the dominant rooftops on either side.

Maintaining the heritage of the older structures was critical, so Gorgati and his team left the extant brick elevations exposed within the new GCAD, touching them lightly only where necessary for passageways and to rationalize the floor levels and flow throughout the three buildings, which they integrated as a creative hub. To accommodate an ambitious program that includes state-of-the-art production, printing, and multidisciplinary facilities, the architects did reach into the adjacent studio-art center to build contiguous metal and wood shops. Then they created an open tri-level volume with a glazed assembly room and concrete forum stair at its core. The walnut-topped bleacher-like treads—also used as benches for informal classes and meetings—lead to a basement with a virtual-reality space and transparent computer and clean rooms. On the upper level, a 2,000-square-foot flex room, also wrapped in walnut, overlooks the double-height lobby, getting plenty of sunlight through interior windows and the transom roof above. This modifiable space divides into four acoustically controlled areas with operable whiteboard and pinup walls.

The building is ideal for teenagers, says Murray, with its array of gathering and private places where they can choose to be seen—or not. Lined with glass doors along its east elevation, the GCAD opens onto the lawn for events and team projects during warm months. But even on cold days, all students are welcome to stop by or use the building as a shortcut when navigating the campus. And why not? Notes the headmaster, "Kids just walking through might see something interesting that will encourage them to take a course here before they graduate." ■



Credits

ARCHITECT: Sasaki — Vinicius Gorgati, principal in charge; Marta Guerra-Pastrián, project leader; Lucila Rosso, Robert H. Genova, Grace Tsai Lehrbach, project architects; Andrew Gutterman, Radhika Mahan, landscape architects

ENGINEERS: RSE Associates (structural); VanZelm (m/e/p/fp); The Reynolds Group (civil)

GENERAL CONTRACTOR: V.J. Scozzari & Sons

CONSULTANTS: Horton Lees Brogden (lighting); Acentech (a/v)

CLIENT: The Lawrenceville School

SIZE: 17,000 square feet

CONSTRUCTION COST: $11 million

COMPLETION DATE: February 2020

SOURCES

CLADDING: Kawneer; Alcotex; Cupaclad; WR Meadows; Firestone; Tremco; Glen-Gery

STOREFRONT: Teknion

GLAZING: Viracon

HARDWARE: Assa Abloy; Dorma

Outside the Box

An early-learning school in the small town of Gidy, France, reveals how significantly the Modernist legacy survives in the work of Dominique Coulon and Associates.

BY SUZANNE STEPHENS
PHOTOGRAPHY BY CLÉMENTE GUILLAUME

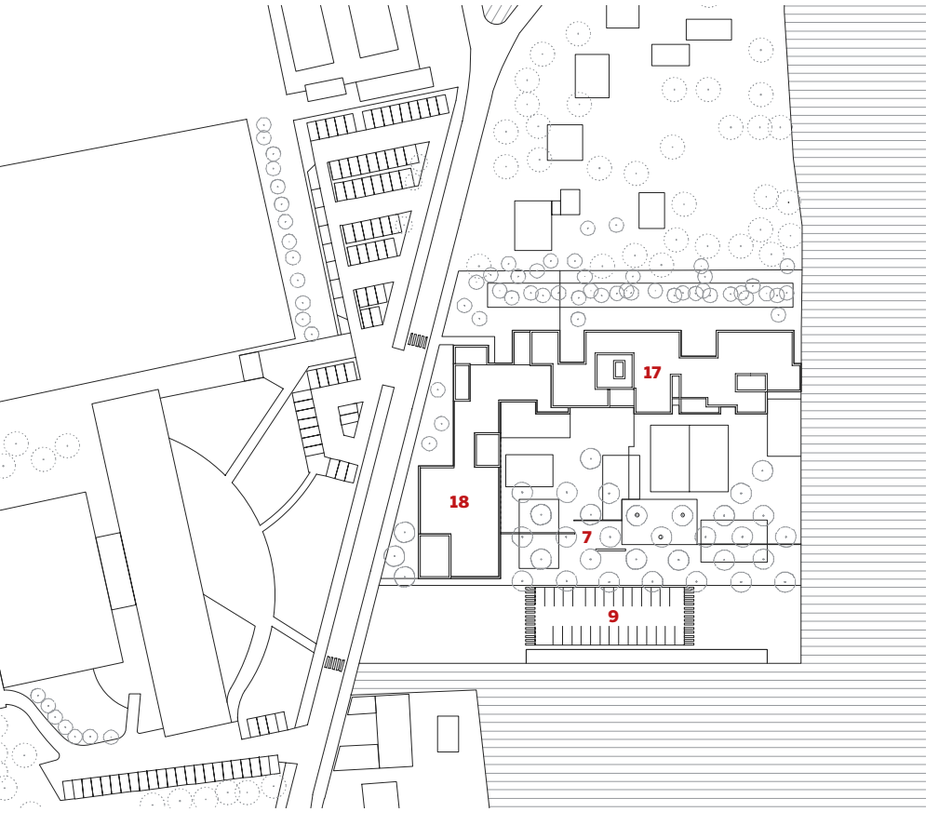


EARLY MODERNIST architects designed school buildings to create healthy environments for young students by offering easy physical and visual access to the outdoors, aided by large glazed expanses that admitted daylight and fresh air to the interiors. Small in scale—only one or two stories high—these early exemplars incorporated patios, roof terraces, and playgrounds within their precincts, as demonstrated famously in the Crow Island School in Winnetka, Illinois, designed by Eliel and Eero Saarinen and Perkins&Will in 1940. Although this new typology soon became extremely influential in the United States, it was heralded even earlier by such International Style architects as Eugène Beaudouin and Marcel Lods, whose École en Plein Air (Open-Air School) opened in 1936 in Suresnes, on the outskirts of



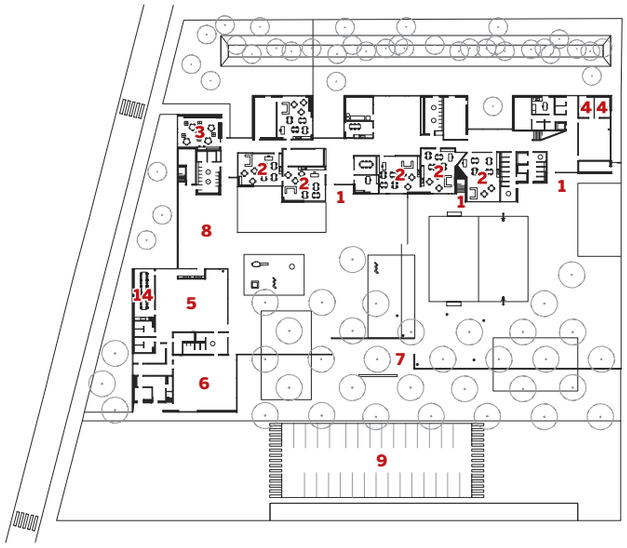
THE CLASSROOM BLOCK of the Olympe de Gouges school opens on to the playgrounds for the students, where several entrances provide easy access.



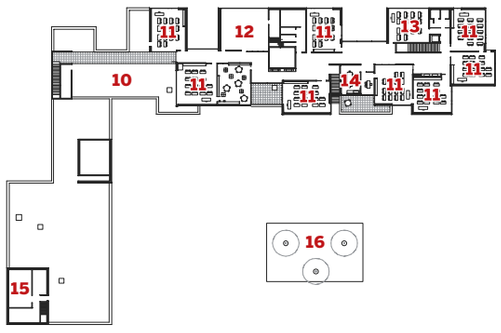


SITE PLAN

0 100 FT. 30 M.



GROUND-FLOOR PLAN



SECOND-FLOOR PLAN

0 50 FT. 15 M.

1 ENTRANCE
2 PRESCHOOL CLASSROOM
3 LIBRARY
4 OFFICES
5 PRESCHOOL CAFETERIA
6 ELEMENTARY CAFETERIA
7 ELEMENTARY PLAYGROUND
8 PRESCHOOL PLAYGROUND
9 PARKING
10 ROOF TERRACE
11 ELEMENTARY CLASSROOM
12 MULTIPURPOSE ROOM
13 IT ROOM
14 STAFF ROOM
15 UTILITY
16 ROOFTOP PLAYGROUND
17 CLASSROOM BLOCK
18 CAFETERIA BLOCK

THE PLASTERED CONCRETE volumes contrast with surrounding wheat fields and trees (opposite). The cafeterias are illuminated by skylights (right). Circular luminaires light the concrete halls on the second level (below, right).

Paris. More recently, the Strasbourg-based architectural firm of Dominique Coulon & Associates has reinforced the value of that legacy, as seen in its Olympe de Gouges School Complex in Gidy, in central France. Completed in 2019, the kindergarten and elementary school facility for 400 students, named for an 18th-century female playwright and feminist, is an L-shaped two-story volumetric block of classrooms embracing playgrounds and an open courtyard.

Like its 1936 Modernist predecessor, the school is gleaming white. Although Dominique Coulon, who founded his office in 1989, is known for his use of intensely saturated hues in various institutions—such as the Simone Veil School Complex in Colombes, France (RECORD, January 2017)—he turned to a white-plastered poured-in-place concrete structure for Olympe de Gouges. The setting is "dominated by monotonous wheat fields on a flat terrain," Coulon says. He felt this stark color would "better stand out against the earthy and green tones of the fields and trees." Furthermore, the projecting and recessed boxy volumes of the structure would be sharpened and brightened by the play of sunlight on its smooth surfaces.

The village-like complex, 36,200 square feet in size, is located on the northern edge of the small rural town (population 2,000) near Orléans. Coulon placed the building close to a road leading south into the town center. The 14 classrooms (preschool on the ground floor, primary school above) extend along the northern edge, while a shorter block on the west contains cafeterias for both teachers and students. The L-shaped ensemble not only embraces the playgrounds but opens out to the pastoral landscape on the east and immediately to the south.

While the building's plan adheres to an orthogonal arrangement, Coulon pulled apart the differently sized square and rectangular classrooms to create indoor alcoves, rooftop terraces, and overhangs for patios. Instead of one main entrance, several access points are located on the playground side. Inside the school, says Coulon, "each space has its own identity, with its own large window and a particular view of the outdoors." As he maintains, "Both the teachers and students can be more attached to a classroom when it is different from the others."











THE LANDSCAPE is integrated well into the school experience, seen from the play area (top, left) and from the east of the L-shaped block (opposite). The architects provided handwashing stations (left) in a hall on the second level of the classrooms—prescient, considering Covid-19.

Coulon wanted to vary the circulation route as well, which he did by both expanding and contracting the corridor widths, so that meeting spaces are created for informal gatherings of the young occupants. Since the interior is mostly exposed concrete, the ambience might have been as monotonous as the surrounding wheat fields without this manipulation of spaces, which are also enlivened by the ample glass expanses offering views to the outdoors and to areas within the school.

Circular, halo-like luminaires on hallway ceilings act as lanterns in a sense, but are intended by Coulon to create a "random effect that would make them seem to float through space." Skylights carved into



the ceilings of the cafeterias introduce sunlight and further animate communal spaces.

This open-air school, which evokes so much of Modernism's ethos, combines light, air, the interplay of volumes, and clean, unadorned surfaces with spatial dexterity and simplicity. It also pays a tribute to the importance of concrete, which France pioneered in the early 20th century, as demonstrated in the work of Auguste Perret and Le Corbusier. "With the *beton brut*, we have sought to give the architecture a sense of permanence and timelessness," Coulon says. Although the ultimate success of this worthwhile intention still depends on maintenance, the Olympe de Gouges School is a testament to the lingering importance of Le Corbusier's directive, "Architecture is the masterly, correct, and magnificent play of volumes brought together in light." ■

Credits

ARCHITECT: Dominique Coulon & Associates — Dominique Coulon, Olivier Nicollas, Margot Machin, Javier Gogosos-Ruipérez, Ali Ozku, Diego Bastos-Romero, team

ENGINEERS: Batiserif Ingénierie (structural); BET G.Jost (electrical) Solares Bauen (m/p)

CONSULTANTS: Bruno Kubler (landscape); Ingemanson (acoustics)

CLIENT: City of Gidy

SIZE: 36,200 square feet

COST: $7.8 million

COMPLETION DATE: September 2020

Sources

RAINSCREEN: Barco

METAL-FRAME WINDOWS: Bernardi

STRUCTURE: SNB

ELEVATORS: Thyssen

TILES: Vinet

Architectural Record

WEBINARS

FOLLOW US ON OUR SOCIAL NETWORKS

@ArchitecturalRecord
@ArchRecord
@architectural-record
@archrecordmag

Expand your knowledge on topics from sustainability to code compliance

Get your questions answered by our expert speakers

Watch anywhere, live or on demand for free

Earn continuing education credits



Find all upcoming and on demand webinars at

www.architecturalrecord.com/webinars

SUBMIT YOUR PROJECTS!

2021 Record Houses

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 2021 issue of *Architectural Record*.



RECORD HOUSES 2020 WINNER: ZENTENO HOUSE, MEXICO CITY, BY SEBASTIAN MARISCAL STUDIO + ALFONSO FRADE.

PHOTOGRAPHY © RAFAEL GAMO

To enter, visit architecturalrecord.com/call4entries

DEADLINE: JANUARY 19, 2021

Brain Trust

Architects engage with users to create environments that support those with a multiplicity of neurocognitive abilities and needs.

BY KATHARINE LOGAN

NO ONE expects that a person who uses a wheelchair could live their best life in a world without ramps. And yet the needs of people whose differences are neurological rather than physical are all too often ignored in design. Conditions such as autism, ADHD, dyslexia, dyspraxia, and others can affect how people process sensory information, hampering their ability to achieve their daily objectives, whether as learners, workers, patients, or in other life roles. Environments designed to support neurodiversity can help.

"Neurodiversity" refers to the vast range of neurocognitive variability within the human population. Everyone has a unique nervous system, with a unique combination of abilities and needs, and, while most of the people most of the time occupy a range that's considered neurotypical, for a significant and increasing minority (estimates range between 10 and 30 percent of the population), functioning beyond this range can open up exceptional strengths and pose daunting challenges. Strengths that are often associated with various forms of neurodivergence include—depending on the type and degree of the condition—high intelligence, creativity, leadership, focus, and/or attention to detail. Common challenges pertain to organization, distractibility, social interaction, and/or self-regulation. Because sensory experience can play a major role in determining whether the strengths or the challenges are out front, environmental design matters.

Recent buildings prioritizing design for neurodiversity include the British Broadcasting Corporation's (BBC) new headquarters for Wales, with master planning and interior architecture by Sheppard Robson, and core and shell architecture by Foster+Partners; the Medical University of South Carolina Shawn Jenkins Children's Hospital and Pearl Tourville Women's Pavilion by Perkins&Will in collaboration with associate architect McMillan Pazdan Smith Architecture; and the Quad Preparatory Upper and Lower School renovations by Verona Carpenter Architects with ENV as executive architect on the upper school.

As a broadcaster that is publicly funded through mandatory fees, the BBC has a responsibility to represent the diversity of society, both in its programs and in how those programs are made. The BBC Cymru Wales Broadcast Centre, a 280,000-square-foot facility that opened in 2019 in the country's capital city of Cardiff, exemplifies the movement to make buildings more accessible and healthful for neurodiverse talent. "A lot of design for wellness focuses on super-fit people and outstanding performance in the workplace," says Helen Berresford, the partner in Sheppard Robson's London office who led the project's interior-architecture team. "For the BBC, it's got to do more."

To help guide new design or evaluate an existing space, the broadcast corporation's CAPE (Creating A Positive Environment) initiative has produced a Neuro-Inclusive Toolkit, which identifies visual, auditory, olfactory, and tactile factors that can affect people with heightened sensitivity. To provide a more visceral understanding, BBC film crews have produced videos portraying typical workplace settings from a neurodivergent perspective. At pre-design workshops for the Wales HQ, design team members who viewed these videos through virtual reality headsets emerged converted. "It generated a physical and emotional response," says Berresford. "After having experienced it, none of us could design the same way again."

A key strategy in making the new BBC building more neuro-inclusive is clarity of wayfinding. A grand atrium is designed to wel-



WAYFINDING at the BBC's new headquarters in Wales is aided by a color-coded organization legible from a grand atrium (opposite). Private booths (left) are among the many types of spaces that employees can choose to work in over the course of a day.



PHOTOGRAPHY: © JACK HOBHOUSE





A CHILDREN'S hospital at the Medical University of South Carolina (above) has such autism-friendly features as cloudlike lobby light fixtures that create interest without adding distracting pattern (left), waiting-area nooks that encourage play (opposite, bottom), and display shelves that allow patients to make their rooms their own (opposite, top).

come the broadcaster's employees and visitors, "but if you're somebody with a more rich and complex neuro scenario—that the BBC is now looking to include as normal—you could be intimidated," says Berresford. So the design uses both spatial organization and signage to make finding a destination straightforward. A person entering the Centre can go directly to a building plan, view their objective on a simple graphic complete with landmarks, map out an "open" or "safe" path, and rediscover their route at signposts along the way. Meeting rooms, each with its own color, are stacked on bridges visible from the entrance, and immediately obvious staircases provide a clear path of travel.

To meet the needs and preferences of a neurodiverse workforce, the building offers more than two dozen different types of spaces from which employees can choose what will best support them and their work over the course of the day. For example, an employee recovering from a traumatic commute might start the day in a small booth with the door closed for a couple of hours of quiet work before migrating to a collaboration space, desk area, studio, or presentation zone. "In a sense, it's given us an opportunity to design in a more human way," says Berresford. "We've got scientific-medical backup to create spaces that are softer and more enclosed, and to provide that variety. It just backs up what we think as designers you should be doing in an office environment anyway."

Helping to validate the team's decision-making was a process of iterative consultation with neurodivergent BBC staff. Berresford describes testing a meeting room mockup in which a colored film on the room's glass wall incorporated a thematic pattern. The pattern, an abstraction of the iconic cliffs of Wales, had been pulled from a competition-winning fabric by a Welsh design student and threaded throughout the building. For the test group, though, the pattern was too strong for them to sit comfortably in the room. Instead of eliminating it (an obvious response, which the test group rejected), the solution was to intensify the color, thereby softening the pattern, and to add layers of enclosure inside the glass, including soft veils that occupants could draw if they were starting to feel uneasy. "Instead of dumbing down the solution, we ended up heightening it," says Berresford. "And we were able to do that because we were speaking with the people who were experiencing it."

User group experience was similarly important in the design of a new children's hospital that opened in 2020 in Charleston, South Carolina. At the facility this project replaced, children with autism were sometimes too overwhelmed to get out of the car, and practitioners ended up treating them in the parking garage. Among the goals for the Medical University of South Carolina's (MUSC) new 625,000-square-foot building was an aspiration to be the most autism-friendly hospital in the country.

"Truly listening to the challenges of families and caregivers enabled us to collaborate to solve for the complex needs of both," says Carolyn BaRoss, health-care-interiors design director for Perkins&Will. "MUSC relinquishes traditional notions of what a children's hospital *should* be and instead is designed with sensitivity to the specific needs of





those who use the space." So, rather than a chaotically colorful, patterned, and even cartoony environment, which is often an adult's idea of what a children's world should be, says Manuel Cadrecha, architecture design principal at Perkins&Will, "it was important that it be a place that not challenge patients but offer a level of balance, familiarity, and control."

Attention to spatial composition and scale helps to make the environment feel manageable. On each floor, a theme wall at the elevator orients building users, and a color accent from the artwork links to the floor's nursing stations and patient rooms. Waiting areas provide places where children can run around and nooks where they can tuck themselves in. Patient rooms support the child's sense of control with a choice of places to sit, lighting they can adjust to their comfort, and opportunities to make the room their own: a write-on wall, shelves and display areas for their things, and even the possibility of decorating their door.

The building, which is set in a park, also maximizes connections to the calming, restorative power of nature. In addition to the views from the family lounge, a seventh-story verandah offers vistas of the Lowcountry salt marsh, and a sensory-rich rooftop garden with pathways inspired by the marsh lets kids get outside. Throughout the hospital, artworks evoking "stories of the Lowcountry" bring the soft colors of the marshlands into the building.

To minimize strong or intrusive sensory experiences that can distress a person with autism, the design team paid careful attention to acoustics, lighting, and even the smells of materials and the products that would be needed to clean them.

Care-team areas are enclosed behind glass walls, with doors positioned so that conversations don't project down corridors. Slight articulations in corridor walls create acoustic breaks while also defining a "porch" area for each room. Automatic toilet flushers and electric hand dryers have been eliminated altogether.

The use of LED fixtures throughout (now more common than when the building was in design) eliminates the buzz of fluorescent ballasts. To prevent glare, fixtures illuminate surfaces rather than space, forming soft washes and pools of light. Corridor lighting is dimmable, and outside each patient room a little porch light reinforces the domestic feel.

"What we brought to this project was a sense of humanity," says Cadrecha, in an echo of Berresford's insight. "It's really about designing buildings that are sensitive to the needs of the people who are going to be using them—in this case, children who have special needs."

Another type of building that serves children, including exceptional ones, is schools. Less well funded than workplaces or healthcare facilities, schools nonetheless have to meet the needs of neurodiverse populations. The Quad Preparatory School in Manhattan serves students who are twice exceptional: they face challenges with emotional and social learning and excel at intellectual learning, so rising to the level of their talents requires extra support with both. Design strategies developed for Quad by New York–based Verona Carpenter Architects (VCA) suggest options for making any school more supportive of students' neurodiversity.

Quad's renovated upper and lower schools each occupy a floor of separate commercial buildings—18,000 square feet (completed in 2019) and 32,000 square feet (completed in 2017), respectively. The designs are based on VCA's extensive process of research and consultation with staff, students, and families.

"To design for neurodiversity is to create environments that offer choice," says VCA principal Jennifer Carpenter. "Providing a range of sensory environments lets kids find the spaces that work for them." Variously sized learning spaces—including classrooms (which are smaller than a typical school's), more intimate areas defined with furniture, meeting rooms for one-on-one support, alcoves with soft furnishings, and even corridor

PHOTOGRAPHY: © HALKIN MASON (3); JAMES STEINKAMP (OPPOSITE, RIGHT)





SPACES for the lower (above) and upper (left) schools for Quad Prep, housed in separate commercial buildings in New York, include a variety of seating options, indirect lighting, and spray-on acoustical treatment to make students comfortable and enable them to focus on learning.

stations—provide choices to match a range of needs. And because heightened sensory awareness can contribute to social isolation, a gathering space where students can sit around low tables also includes carrel desks nearby, allowing students who prefer a more enclosed space and more muted acoustics to still feel connected to the group.

A variety of seating options is another important choice the design offers. "If you're not comfortable, you can't pay attention," says Carpenter. Classrooms offer chairs with a slightly cantilevered seat for a bit of bounce, seating balls, stools designed to rock and tip, legless floor chairs, and squashy beanbags. These options allow students to make themselves comfortable, increase their activity level with micro-movements, and meet their needs for sensory feedback, all without interrupting—and instead supporting—their focus on learning.

As an independent not-for-profit school, Quad needed to put every renovation dollar to the highest use. For neurodivergent users, acoustic treatments—which can be expensive—are well worth the money, says Carpenter. In the lower school, the reception area eases arrival with noise-dampening burlap-wrapped cellulose-based-fiber wallboard that also serves as space dividers and as a display area for student work. At both the upper and lower schools, acoustic ceiling spray eliminates echoes and reverberation, soaks up background noise, and generates a calmer acoustic environment. Soft furnishings and floor coverings also help.

To reduce sensory input and anxiety in transition zones, lighting levels are lower than in the work areas, and illumination is indirect, with an uplight wash. Throughout all areas, the lighting design prioritizes controllability and choice with dual-circuited, separately switched direct and indirect fixtures. "It lets us get a lot of options for not a lot of investment," says Carpenter.

Orientation in space is something neurodivergent people commonly struggle with. To help, a consistent use of color defines the upper school's two wings, with a range of greens to the south and blues to the north, and counseling and therapy areas coded in yellow. The color palette is simple, but graduated to avoid being stagnant. A similar use of material, color, and lighting across the lower and upper schools (with refinements for a more grown-up feel in the upper school) provides familiarity and continuity, supporting students as they graduate from one school to the other.

Architecture that supports students or patients or workers, in all their diversity—as this trio of projects demonstrates—expands opportunities for human well-being. "People who are on the spectrum that we're now starting to consider as a new normal are very sensitive to their environment. I think all human beings are, really," says Berresford. "When it comes down to it," adds Perkins&Will's Cadrecha, "design for neurodiversity is just good design." ■

CONTINUING EDUCATION

AIA Continuing Education Provider

To earn one AIA learning unit (LU), including one hour of health, safety, and welfare (HSW) credit, read "Brain Trust," review the supplemental material found at architecturalrecord.com, and complete the quiz at continuingeducation.bnpmedia.com. 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 the range of neurocognitive conditions increasingly prevalent in the human population.

2 Explain how these conditions can affect sensory and spatial experience.

3 Discuss the role of wayfinding, lighting, and acoustics in designing for neurodiversity.

4 Describe design strategies for accommodating neurodiversity in the workplace, in schools, and in health-care settings.

AIA/CES Course #K2101A

PHOTOGRAPHY: © JEFFREY ROSENBERG

EDUCATION EXCHANGE

WHERE ARCHITECTS GO TO FIND AND REQUEST VIRTUAL LUNCH & LEARNS

Find these and many more available Lunch & Learn presentations at

ce.architecturalrecord.com/ee

RENSON
Creating healthy spaces

LUXURY LANDSCAPE DESIGN: CREATING OUTDOOR SPACES WITH SMART PERGOLAS
1 AIA LU/HSW
Presented by: Renson Outdoor

lineadecor

EUROPEAN-STYLE CABINETRY: LESS IS MORE, STILL TRUE TODAY, AS IT HAS BEEN FOR DECADES
1 AIA LU/Elective
Presented by: Lineadecor

KALWALL
high performance translucent building systems

DAYLIGHTING AND SUSTAINABLE DESIGN
1 AIA LU/HSW
Presented by: Kalwall® Corporation

MITSUBISHI ELECTRIC

COMFORT BY DESIGN: VARIABLE REFRIGERANT FLOW (VRF) TECHNOLOGY
1 AIA LU/HSW
Presented by: Mitsubishi Electric
Trane HVAC

EXACOR™

MAGNESIUM OXIDE (MGO) FLOOR AND WALL PANELS FOR MULTIFAMILY BUILDINGS
1 AIA LU/HSW
Presented by: EXACOR™

monoglass Incorporated

SPRAY-APPLIED GLASS FIBER INSULATION
1 AIA LU/HSW
Presented by: Monoglass® Incorporated

PFEIFER FabriTec

ANATOMY OF A TENSION STRUCTURE
1 AIA LU/Elective
Presented by: FabriTec Structures

AdvanTech SUBFLOOR ASSEMBLY

OVERCOMING STRUCTURAL FLOOR SQUEAKS IN WOOD-FRAMED CONSTRUCTION
1 AIA LU/HSW; 1 AIC CPD
Presented by: AdvanTech

CONTINUING EDUCATION

AIA Continuing Education Provider

In this section, you will find two 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.architecturalrecord.com to take the quiz free of charge to earn credits.

Photo courtesy of Mitsubishi Electric Trane HVAC US (METUS)



Public Health and Sustainability Concerns in Schools

Sponsored by Inpro, Mitsubishi Electric Trane HVAC US (METUS), NanaWall Systems, and New Millennium Building Systems

CREDIT: 1 AIA LU/HSW EM IN PM

Photo courtesy of Westfalia Technologies, Inc.



Automated Parking Systems Demystified

Sponsored by Westfalia Technologies, Inc.

CREDIT: 1 AIA LU/HSW PM SI SU

CATEGORIES

EM	ELECTRICAL AND MECHANICAL	**PM**	PRODUCTS AND MATERIALS	**SU**	SUSTAINABILITY
IN	INTERIORS	**SI**	SITE INFRASTRUCTURE DESIGN		

Courses may qualify for learning hours through most Canadian provincial architectural associations.

Photo courtesy of Mitsubishi Electric Trane HVAC US (METUS)



Schools are facing new challenges related to health and safety, which architects are rising to meet in appropriate and sustainable ways.

Public Health and Sustainability Concerns in Schools

Design in a post-pandemic, climate-changing era

Sponsored by Inpro, Mitsubishi Electric Trane HVAC US (METUS), NanaWall Systems, and New Millennium Building Systems

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

Keeping students, teachers, and staff safe and healthy in schools is always a concern, but even more so in the era of a pandemic's influence. Architects are being tasked to address how to keep schools clean, well ventilated, and healthy. Doing so has ripple effects on other parts of school design too. Some of these effects include impacts on how students, teachers, and visitors are safely separated or allowed to work in enclosed spaces. Other impacts come from allowing more fresh air and better ventilation, all while still meeting the need for controlling the use of energy in school buildings. Then there are concerns about keeping surfaces clean and addressing non-classroom spaces, including rest rooms and locker rooms, corridors, entrances, assembly spaces, gymnasiums, cafeterias, food service areas, staff areas, nurses' offices, and clinical spaces. This course looks at some of the ways that these issues of health and safety are being balanced with school operations and energy performance.

CONTINUING EDUCATION

AIA Continuing Education Provider **1 AIA LU/HSW**

Learning Objectives

After reading this article, you should be able to:

1. Identify recommended approaches using operable glass walls for the design of classrooms that address airborne infectious diseases in schools.
2. Assess some of the common options available to provide enhanced HVAC systems that can protect human health while also addressing energy concerns.
3. Explain the importance of selecting products for interior surfaces that are hygienic, easy to clean, and durable for the safety and health of school occupants.
4. Determine ways to incorporate the design principles presented into school buildings as shown in case studies.

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 #K2101D

Photo courtesy of NanaWall Systems



Flexible classrooms that use opening glass walls can connect directly to the exterior when open, providing ventilation and access to outdoor programming, while also still providing daylight and views when closed.

DESIGNING SAFER SCHOOLS

Schools have received a lot of attention during the COVID-19 pandemic, and appropriately so. Bringing large groups of students, teachers, and staff together on a daily basis and then having them return to their own households has been well understood as a recipe for spreading diseases. The response in many locations has been to use technology as the answer, fostering a surge of online teaching and learning. However, that has not proven to be an effective solution for many, as access to computers and the internet is not equal across different socio-economic levels of society. Teachers and parents have also weighed in with concerns about the differences between the online learning experience and the in-person/in-building experience.

The American Institute of Architects (AIA) quickly recognized that there are changing needs not only in the ways that school buildings are now being operated but also designed and renovated. As a result, during 2020, AIA established a team of architects, public health experts, engineers, and facility managers to assess and prepare the built environment for reopening during outbreak cycles of the pandemic. Ultimately, a report was issued titled "Reopening America: Strategies for Safer Schools," which is available for free online at www.aia.org. This AIA report, as we will refer to it throughout this course, first identifies the basic health issues and some operational actions that could be considered. From there, the focus turns to physical issues in a wide variety of different types of rooms and spaces typically found in school buildings. One of the spaces discussed in detail is the classroom.

Flexible Classroom Spaces

Perhaps the biggest impact of protecting people from spreading disease related to school design is the need to spread students further apart from each other. Fundamentally, this means more square footage is needed per student and perhaps per classroom. Some school administrators have addressed this by staggering students so that only a portion of each class meets in a classroom at one time; the remainder meets at another time after the classroom is cleaned. This has worked in some locations but clearly requires a lot of effort and coordination to be effective.

An alternative approach is recommended by the AIA report based on allowing classrooms to be opened up so they are combined with either another classroom or with a common space. In this way, the number of students in a classroom can be maintained so full classes can be taught together. Depending on the individual circumstances, some scheduling adjustments may still be required, but if the adjacent space is not being used for other activities, then this may work quite well. The means to accomplish this approach is found in recommendation 3.2.2 of the AIA report, which states: "Increase floor area by opening movable partitions." In schools, such a movable partition or operable wall incorporates glass so that views, daylight, and visibility can be maintained or controlled. When the operable walls are open, the classroom space is larger, desks can be spread apart, and everyone in the classroom can have a reduced risk of infection as a result.

Similarly, in locations where the weather and climate are favorable, the AIA report makes two specific recommendations for classrooms: "(3.3.5) Utilize natural daylight where possible, and (3.6.1) Utilize operable windows for outside air intake if possible." Operable glass walls can allow these measures to be incorporated as well. When opened fully or even partly, ventilation is increased into the classrooms, again helping to reduce the risk of infection and disease being spread. When the operable glass walls are closed, they create the appropriate weather barrier as part of the building enclosure but still allow for daylight and views into the classrooms. Specifying operable glass walls that are shown to perform well in terms of energy conservation along with their daylight and views capability means that they can be effective components of a school project that is intended to be green and sustainable. If the flex space also means an overall lower footprint, as it often does, then the design can actually reduce the building square footage and achieve the related energy and cost savings associated with that reduction.

In the exterior approach of opening to the outdoors, operable glass walls can become a tool for enhanced learning. In fact, the AIA report recommends to "(3.1.3) provide outdoor programming spaces" both as a learning enhancement and a means to help reduce infection risk by being outdoors. In the interior approach of flexible spaces, the ability for



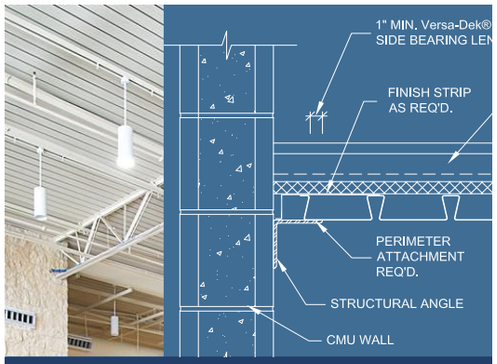


Photos courtesy of NanaWall Systems

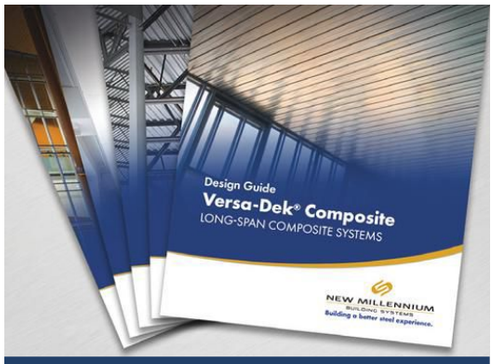
Large communal spaces in schools can benefit from operable glass walls that allow the safety of separation into smaller spaces while still offering the flexibility to open back up when needed or appropriate.



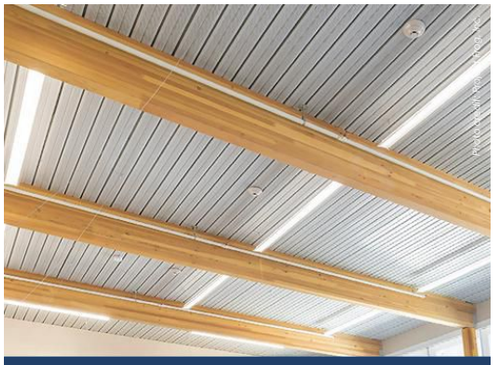
PROJECT GALLERY
250 inspiring photos from a range of applications
newmill.com/gallery



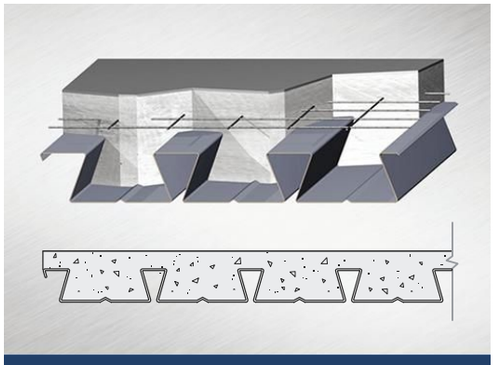
DECK DETAILS
Access to over 3,400 DWG and PDF drawings
newmill.com/dwg



LOAD TABLES
Customizable steel deck and joist load tables
newmill.com/loadtables



CONTROL ACOUSTICS
Manage acoustics with composite floor deck
newmill.com/nrc



MINIMIZE FLOOR DEPTH
Dovetail deck provides thin-floor advantages
newmill.com/multistory



LIVE REMOTE LEARNING
Earn credit as you gain knowledge
newmill.com/courses



Smarter school design

STEEL BUILDING SYSTEMS SOLVE YOUR TOP 5 CHALLENGES

Achieve superior designs while addressing the unique demands of the education market. Steel joists and a combination of roof and floor deck systems create versatile open spaces, promote health and safety, control acoustics and elevate aesthetics while providing sustainable solutions. Bring greater knowledge to the design, construction and performance of your next education project.

GET THE TOP 5 GUIDE
newmill.com/education

NEW MILLENNIUM
BUILDING SYSTEMS
Building a better steel experience.

teachers to collaborate or combine their classrooms directly with activities in an adjacent space allows for more variety and creativity in the teaching and learning process. It also allows resources to be shared and used more efficiently through the course of the school day. All of these approaches are allowing architects to look at more options in classroom design.

Controlled Isolation

A second realization regarding schools and health is the need, in some cases, to make spaces smaller to isolate students, teachers, or visitors. Some of this is driven by the general health guidelines to avoid large group gatherings. Hence, larger communal spaces in schools are either being underutilized or avoided, or they can be broken temporarily into smaller spaces. This view is being reinforced by administrators and teachers who are indicating that they are trying to change large rooms into smaller classrooms but would like the flexibility to open the spaces back to their original size in the future. In these cases, operable glass walls can provide a solution as well. They can be installed to break up large areas when needed and then fold or slide back out of the way when not required. Designing this flexibility into new school buildings allows for optimizing the ways that this is done. Nonetheless, it is possible to retrofit school buildings very successfully with operable glass walls for this purpose as well.

In other cases, there may be a need to directly isolate or quarantine students at risk or to separate any visitors to the school from students and staff. The AIA report addresses nurses' offices or clinic areas directly in this regard. It suggests that not only should social distancing be practiced, but temporary spaces may also need to be created. Specifically, the recommendations include: "1) Identifying a space to temporarily and comfortably isolate a symptomatic student or staff member that is separated from non-symptomatic occupants, including students who need to obtain other medical care; 2) Creating a self-contained medical room just outside the main school facility; and 3) Establishing a "nurse's zone" treatment area and integrating minimum social distancing between resting cots and using privacy curtains between beds."

In these situations, operable glass walls can be used to address all of these needs. They can be installed in an existing space to separate and isolate people when needed and then opened back up when a larger space is more appropriate. This approach is clearly useful all of the time, regardless of the disease or condition that is being protected against. Therefore, retrofitting or including such a flexible nurse/clinic area into a school will provide a well-designed solution for limiting the spread of disease for the full life of the school building. This approach can also be less costly than constructing permanent partitions with doors, etc., so it is worthy of consideration on several fronts.

Photos courtesy of Mitsubishi Electric Trane HVAC US (METUS)





Variable refrigerant flow (VRF) heating and cooling systems are available in different sizes and configurations for schools, providing greater design flexibility, more precise comfort control, and quiet operation.

IMPROVED HVAC SYSTEMS

All discussions of wellness in today's buildings usually include a focus on HVAC systems. In fact, the AIA report identifies one of the commonly recognized risks as "aerosolized transmission of virus droplets." Hence, the report goes on to recommend "recommissioning and enhancing ventilation systems." Attention to these systems should include the ways in which the building is heated and cooled as well as how it is ventilated. Furthermore, the energy use impacts of these systems is always critical in school buildings, so this factor plays a critical part as well.

With the above in mind, we look at two types of HVAC systems that are relevant.

Variable Refrigerant Flow (VRF) Systems

While schools have incorporated many different types of heating and cooling systems, considerable success has been found in recent years by using variable refrigerant flow (VRF) systems. VRF systems move conditioned refrigerant directly to the zone requiring heating or cooling, allowing the temperature of that area to be more precisely controlled. They can simultaneously cool some zones while heating others or just provide conditioning to zones that are in use. VRF systems provide educational buildings with efficient, personalized comfort and can meet the needs of a wide variety of spaces within schools: classrooms, lecture halls, administrative offices, athletic facilities, and others. The quiet operation of VRF systems also makes them ideal for environments like libraries and classrooms where students need to focus on their studies.



Ventilation equipment used in schools can include dedicated outdoor air systems (DOAS) or energy-recovery ventilators (ERVs) with the capability to provide energy efficiency and highly filtered air.

There are a range of product types and sizes available that can be used to suit the needs of different school buildings or even different parts of a larger facility. Manufacturers offer a variety of indoor units that can be discreetly located without the need for ducting. On the exterior, compressor units can be air-source or water-source heat pumps that optimize energy usage through very high efficiency. They can be designed to operate in a zoned manner as an energy-efficient method of providing improved comfort control to indoor environments. Zones can be defined as single- or multiple-room spaces that are conditioned to a set temperature and operated independently from other rooms within the same structure. This allows facility managers to control multiple zones or defined areas within a building independently (instead of the full building all at once).

SMALL FOOTPRINT. BIG IMPACT.



Comfortable classrooms even on the coldest days

Classrooms should be comfortable year-round. No compromises. CITY MULTI® Variable Refrigerant Flow with Hyper-Heating INVERTER® (H2i®) technology provides 100% heating capacity at -4° F and continuous operation down to -31° F. With comprehensive controls solutions and the ability to integrate auxiliary heat, CITY MULTI keeps school facilities resilient as temperatures drop.

Learn more at MitsubishiPro.com

TRANE

MITSUBISHI ELECTRIC

Ventilation Systems

Coupled with heating and cooling systems, ventilation of school buildings is required by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) minimum standard for ventilation rates per Standard 62.1-2010. Proper ventilation in schools is a priority but is escalated further during times of viral outbreaks. Other ASHRAE guidelines specific to schools address daily air flushing, temperature ranges (68–78 degrees Fahrenheit), and relative humidity in rooms (between 40–60 percent).

Ventilation systems are commonly installed separately from heating and cooling systems. However, manufacturers may provide both types of equipment, which is preferable for initial design, pricing, and installation. Using a single manufacturer for all equipment streamlines ongoing service and maintenance as well. Ventilation systems need to be ducted to move air and are designed to exhaust air from inside the building and replace it with fresh air from the outside. Removing the conditioned air and replacing it with unconditioned outside air requires energy to ensure that the proper temperature and/or humidity level is met. As such, with high volumes of air brought in for conditioning, it is critical that ventilation equipment operates in an energy-efficient manner.

With the above understanding, there are two major types of commercial ventilation systems that need to be kept in mind:

- **Dedicated outdoor air systems (DOAS):** As a premier solution for conditioning outside air for commercial buildings, DOAS is designed to handle up to 100 percent outdoor air. This type of product offers premium features that can be ideal for handling ventilation air, particularly when coupled with VRF systems.
- **Energy-recovery ventilators (ERVs):** The ability to exhaust indoor air and precondition incoming outside air is the primary role of an ERV. The technology to do this varies a bit between manufacturers, but some are based on using a low-maintenance, cross-flow core that prevents the inbound air and exhaust air from intermingling. Essentially, this means that the exhausting air passes through multiple chambers with a high surface area, while the incoming air passes by the other sides of those chambers to pick up or release heat. The result is that the incoming air is partly conditioned by the outgoing air, thus decreasing the heating and cooling load of the spaces.

Air Filtration

All ventilation systems are compatible with air filters to capture and remove particles in the air. Such filters are categorized based on their minimum efficiency reporting values (MERV). While the minimum MERV rating is 8, a filter with a MERV rating of 9–12 is expected to capture particles of one micrometer or larger, which includes most dust and common pollutants. A MERV rating of 13–16 is considered hospital-level air quality and capable of capturing very small particles, including those that are hazardous to human health. ASHRAE guidelines note that schools should install MERV 13 filters or higher for optimal student wellness. Where airborne viruses are a concern, it is advisable to specify up to MERV 16 filters.

Both VRF and its ventilation offerings (DOAS, ERVs) are available in compact units that allow flexibility in design. Certain models also do not require the addition of dampers and adapters. These high-performing systems can offer educational facilities both high indoor air quality and optimal energy use. This all makes it easier to coordinate the rest of the building with these systems and still achieve the desired aesthetic. For architects, VRF systems with ERVs mean flexibility in design, quiet operation, and the ability to modify the systems as needs change during the design or life cycle of the building.

DURABLE, CLEAN SURFACES

It is clear that the threat of virus transmission via airborne aerosols or particles has been a primary focus of the means to protect people from infection. In addition to direct airborne transfer, however, the AIA report has also identified the risk of "virus transmission through contact of shared surfaces." Since airborne particles could land on any surface or since infected people could touch or sneeze and cough anywhere, it makes sense that the AIA report recommends that "all contact surfaces should be considered."

What does this mean as a practical matter? The report recommends "implementing increased cleaning and maintenance protocols to reduce virus transmission. Building facility staff should frequently disinfect all high-touch spaces, surfaces, hardware, furnishings, and classroom tools, at a minimum, per CDC guidelines." While this may sound like it is purely an operational concern, the reality is that it is also a design concern.

If the surface materials used in schools are not easily cleaned, this is a problem since they could become sites of virus transfer. On the other hand, if the surfaces can be cleaned but are not durable enough to handle the repeated cleaning without fading, wearing, or otherwise degrading prematurely, this needs to be addressed as well. Of course, schools are busy places with a lot of people and equipment moving daily. This means the interior finishes can readily get rubbed, bumped, banged, or even abused and start to show signs of wear quickly. If these interior surfaces become physically damaged, they can become problem spots that are not only difficult to clean but could also be prime locations for germs and bacteria to collect and



Photos courtesy of Inpro

Protective wall coverings can be designed into schools using a variety of materials, finishes, and details that provide durable solutions that are easy to clean and inhibit the spread of disease.

BioPrism® Solid Surface Washroom Systems

Raise your hand if you want cleaner bathrooms.

Why is it that some of the dirtiest places are the ones we use to get clean?

Not anymore. We're putting the show in showers and the art in partitions with solid surface that stands up against dirt, mold, mildew and odor-causing bacteria. Because these aren't your ordinary, run-of-the-mill restroom fixtures. They're the sultans of suds. Warriors of the washroom. Defiers of dirt!

Visit inpro.com to learn more.



inpro®

Architectural Products

inpro.com | 800.222.5556

Photo courtesy of Inpro



Printed wall-protection systems can be used in schools for education programs, social distancing, wayfinding, or to promote school spirit, all while helping to keep walls clean and durable.

build up, ready to be transferred to the next person who touches or brushes by them.

In light of the above considerations, the addition of durable, cleanable, protective interior surface treatments has become a significant consideration. Some of the options and choices are discussed as follows.

Interior Wall Protection

Interior walls are at the forefront of the need for durability in a school. Corners, edges, and other aspects of an interior design are subject to wear and tear from moving people or equipment. Therefore, adding products specifically designed to protect these areas is common and makes sense for many school situations. The best approach is referred to as targeted wall protection, where a specific set of products is used that is designed to absorb impact and protect the underlying portion of the wall. By targeting the most vulnerable areas, protection can be added by using corner-guard or wall-guard products specifically where they are needed. These can include horizontal rails across targeted sections of the walls as well as vertically installed corner guards. Since many of these products can be specified with materials that are not only durable but also easy to clean, they help protect the building as well as the people in them.

Taking the concept of wall protection further, sheets of rigid wall covering have been used where large surfaces need to be made more durable and easier to clean. Usually produced in sheets or rolls, rigid vinyl extruded wall cladding comes in several standard thicknesses. For medium-duty installations, 0.028 is used when flexibility is needed, such as wrapping a column. A slightly heavier 0.040 can be used to eliminate re-painting where repeated scuffing wears through the top layer of drywall. For heavier-duty locations, 0.060 is used to protect against gouging of the wall, while 0.080 is used for maximum protection, often installed on top of cement board or fire-rated plywood. Most of these products offered in the United States are Class A fire rated with many choices of product types, finishes, and colors to enhance, rather than detract from, an interior design scheme.

For wall areas that need specialized protection, there are also some specialized choices. These include hygienic wall cladding that is ideally suited for kitchen or laboratory spaces. Coupled with stainless-steel corner guards and wall base, this provides a very durable and cleanable surface that is designed to inhibit growth of organic substances. There are also solid-surface wall claddings that are nonporous, long lasting, easily repairable, and available in many different colors. By working with manufacturers of wall cladding and targeted protection systems, the best solutions can be determined for different locations within schools. Adding this material to new or existing facilities can not only enhance interior designs, but it can also help them stay cleaner and more resistant to wear over time.

Printed Interior Wall Surfaces

One of the more creative choices for schools to consider is the use of printed wall protection. In this case, the protective covering is clear and backed with a choice of standard or custom graphics, such as logos, artwork, mottos, or mascots. This approach can also be used to help with wayfinding and demarcation of social-distancing points along a corridor or other locations. It has also been used for educational messaging purposes.

Printed wall-protection systems are commonly made using clear, rigid sheet plastic with crisp digital imagery printed on the reverse side. This creates greater durability since the rigid sheet protects the image from scratches, dirt, and other hazards, including impacts from backpacks, utility carts, etc. The clear sheet also allows the surface to be cleaned regularly without affecting the graphic image. This durability can be evidenced according to the ASTM D4060 Abrasion Resistance test, while stain resistance and clean-ability can be verified based on the ASTM D6578 test.

From a design standpoint, the possibilities are virtually unlimited in terms of the colors and images that can be printed. Logos, mascots, school mottos, beautiful artwork, or any other type of vibrant imagery is possible. Ultimately, the beauty of these systems is that they help create a design feature that doubles as wall protection that is easy to clean and durable.

Continues at ce.architecturalrecord.com

Peter J. Arsenault, FAIA, NCARB, LEED AP, *is a nationally known architect, consultant, continuing education presenter, and prolific author advancing better building performance by design.* ***www.pjaarch.com, www.linkedin.com/in/pjaarch***

inpro
MITSUBISHI ELECTRIC
NanaWall Boundaries Unbound
NEW MILLENNIUM BUILDING SYSTEMS

PRODUCT REVIEW

Public Health and Sustainability Concerns in Schools

Inpro

Photo courtesy of Inpro



Sani-System™ Heavy-Duty Wall Protection

Inpro's Sani-System™ wall protection offers a hygienic, water-tight transition integrating flooring to wall. Architects and building owners can pair the power of Sani-Base™ with the wall panel option that meets their needs, including Sani-Surface™ Wall Cladding, BioPrism® Solid Surface Wall Cladding, or Stainless Steel Wall Panels.

www.inpro.com

Mitsubishi Electric

Photo courtesy of Mitsubishi Electric Trane HVAC US (METUS)



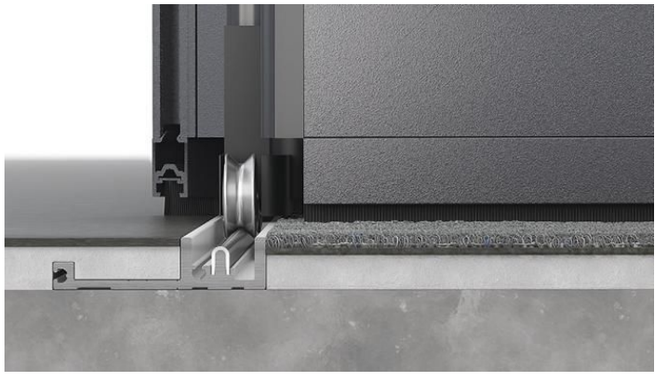
High-Performance and Energy-Efficient Ventilation for Schools

Lossnay® RVX is a total heat-exchange ventilation system that uses a low-maintenance, cross-flow core constructed of a specially treated membrane to perform temperature and humidity exchange. This next-generation ERV helps meet ventilation requirements and promotes wellness, efficiently. Optional MERV 16 filters are available with this unit.

www.mitsubishipro.com

NanaWall Systems

Photo courtesy of NanaWall Systems



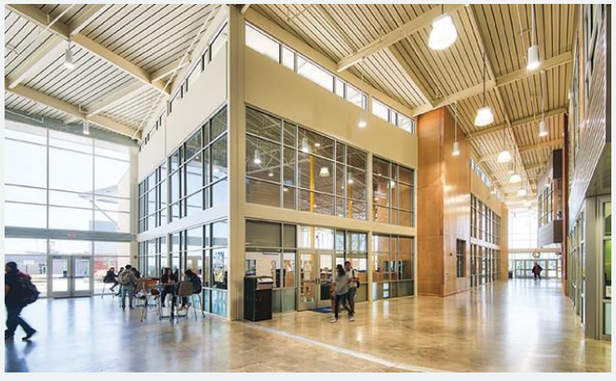
NanaWall SL64 Acoustical

NanaWall SL64 Acoustical is the only floor-supported, folding opening glass wall to achieve STC 45. The system combines acoustically separated aluminum framing and specialized gasketing with sound-enhanced glass to achieve optimal performance. The ADA-compliant, surface-mounted flush sill has only 15⁄16 inch of track exposed, creating true seamless transitions between spaces.

www.nanawall.com

New Millennium Building Systems

Photo courtesy of New Millennium Building Systems



Smarter School Design

Achieve superior designs while addressing the unique demands of the education market. Steel joists and a combination of roof and floor deck systems create versatile open spaces, promote health and safety, control acoustics, and elevate aesthetics while providing sustainable solutions.

www.newmill.com/gallery



Automated parking systems (APSs) require less space per parking spot than conventional parking garages and can be the "make or break" factor in a proposed development.

All images courtesy of Westfalia Technologies, Inc.

Automated Parking Systems Demystified

Answering the who, what, when, where, why, and how questions about this innovative technology

Sponsored by Westfalia Technologies, Inc.

When architect Mike Rosen received a mandate to explore every cutting-edge, futuristic, energy-saving technology possible for a multifamily development in Lansdale, Pennsylvania, few would have predicted that one of the chosen technologies—an automated parking system (APS)—would end up making the project not only possible but also profitable.

"The APS made it pencil out," explains Rosen of Progressive AE, an architecture and planning firm headquartered in Grand Rapids, Michigan. "Without it, it would not have worked."

Automated parking garages are a futuristic-sounding parking solution designed for mixed-use, residential, and commercial applications. They utilize a combination of precisely designed machinery and sophisticated software to park cars in tight spaces without human intervention. Users find APSs to be very simple to adapt to, and they appreciate the elimination of the headaches associated with navigating a conventional parking garage.

For developers and architects, automated parking garages can change the entire balance sheet of a project.

In the Lansdale project, named Walnut Station, Rosen says that the reduced space needed with an APS ultimately eliminated the need for a second subterranean level of parking, which would have been costly because of a high water table.

CONTINUING EDUCATION

AIA Continuing Education Provider **1 AIA LU/HSW**

Learning Objectives

After reading this article, you should be able to:

1. Discuss who operates an automated parking system (APS) for safety and welfare of users, and what features are built in for reliability and redundancy.
2. Describe where users go to park and pick up their cars for a contactless system in the time of COVID-19.
3. Recall when users can charge their electric vehicles.
4. Explain why a developer should consider an APS for energy and operational savings and wise land use.
5. Review how an architect or developer can find a reputable APS vendor.

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 #K2101F

Renderings: Progressive AE



Shown is a rendering of the Walnut Station development in Lansdale, Pennsylvania, where the cost benefits of the APS made the project "pencil out," according to architect Mike Rosen.



Plans for the Walnut Station project in Lansdale, Pennsylvania, show that the ground floor parking (top) and one lower level of parking (bottom) created enough parking spots so that a second subterranean level of parking could be eliminated.

"We estimated the cost at around $1.2 million per subterranean level," Rosen says. "Right off the top, we were able to shave $1.2 million off the construction costs by not building that second subterranean level. So the elimination of that level was a major factor in us choosing the APS."

The compact nature of the APS to satisfy parking requirements also allowed for more units.

"Because the automated parking takes less volume, on the ground level, we were able to pick up 17 live/work units, on grade and accessible to the street," Rosen continues. "So all of a sudden, real estate that was previously occupied by parking now looked like townhomes, which improved the streetscape. The City was very supportive of this concept. Who would not rather look at townhomes than parking?"

While automated parking technology seems futuristic, these systems are readily available right now, and they are being used both in the United States and all over the world. The need for superior parking solutions is critical to deliver ROI for parking lots where conventional parking space requirements cut into developable space, and where finding a way to provide parking in a smaller footprint can render an impossible project possible.

Although there are many APSs being built in the United States, they are more common in Dubai, China, and other countries. Automated parking sounds exotic to some in North America, but Americans have gotten accustomed to other robotic-like changes in daily life, including using automobiles rather than horse-drawn carriages, having clothes cleaned in automatic washing machines rather than being scrubbed on a waffle board, letting dishwashers sanitize dishes rather than washing them in the sink, and using a handheld device to change the TV channel rather than asking the youngest child to get up and change it. Each of these technologies was surely balked at, and each became the norm. It is reasonable to expect automated parking will follow this same trajectory.

Continues at ce.architecturalrecord.com

Westfalia

Westfalia Technologies, Inc.'s parking solution is paving the way for innovation in the automated parking industry. By capitalizing on existing core competencies in warehouse automation and materials handling, its parking solutions specialize in cutting-edge, time-tested, fully automated parking systems for businesses, cities and municipalities, hotels, and residential properties. **www.westfaliaparking.com**

PRODUCT SPOTLIGHTS

Advertisement

MATERIALS

FIRE-RATED GLASS CERAMIC

$$$

Technical Glass Products

Clear and wireless FireLite® family of fire-rated glass ceramic, from North America's most specified fire-rated glass company.

Product Application:

- Central Elementary School, Dodge City, KS
- William Jones College Preparatory High School, Chicago, IL
- University Hospitals, Seidman Cancer Center, Cleveland, OH

Performance Data:

- Fire ratings up to three hours with required hose stream test
- UL classified and labeled with impact safety ratings available



fireglass.com
800.426.0279 I sales@fireglass.com

Clear Seas RESEARCH
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

SHEET RUBBER FOR MULTI-PURPOSE AREAS



Gymnasium in the morning and afternoon; cafeteria at lunchtime; assembly hall after school.

Elementary and middle school gyms are for more than just fun and games and Musson Sheet Rubber is the ideal, no-finish product for such activities.

MUSSON RUBBER CO.
P.O. Box 7038 • Akron, Ohio 44306
800-321-2381 • Fax 330-773-3254
info@mussonrubber.com • www.mussonrubber.com

DATES & Events

Upcoming Exhibitions

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

Ongoing Exhibitions

Jaume Plensa: Nocturne
Chicago
Through January 9, 2021
This solo exhibition of new sculpture by Jaume Plensa debuts nine of the artist's latest works in stone, glass, steel, and bronze, at Gray Warehouse in Chicago. Limited numbers will be allowed in the gallery at any one time; reservations are necessary. For more information, go to richardgraygallery.com.

Spaces of No Control
New York
Through January 10, 2021
Austrian artist and curator Walter Seidl had charge of this exploration of the modern city as concept and of urban dystopias of the 20th and 21st centuries, with works by American and Austrian artists examining the histories of specific places and creating narratives about them. The core of the show lies in photographs transformed into other media. The exhibition analyzes city planning—initially intended to optimize rather than reorganize society—and the results of its complex history. Learn more at acfny.org.

The Long Dream
Chicago
Through January 17, 2021
This new exhibition at the Museum of Contemporary Art is inspired by the current moment, giving shape to issues heightened by the pandemic and social unrest. It features over 70 Chicago artists, ranging from the visual arts to performance and public practice, selected by museum curators and programmers with different backgrounds and specialties. Named after a novel by Richard Wright, *The Long Dream* is part reflection on the state of the world after the arrival of Covid-19 and part celebration of Chicago artists and creative denizens. The goal of the exhibition is to advocate for artists' voices and artwork in a city grappling with anxiety, and to empower artists to make an impact during a time of social change. See more at mcachicago.org.

Yves Klein: Elements and Colors
Massignac, France
Through January 29, 2021
Taking place at Domaine des Etangs' art space La Laiterie, the exhibit showcases 60 works by Yves Klein, the French artist best known for his signature color, Klein Blue. The documents and films on display—which include *Air Architecture*, his utopian vision of building cities with the elements of fire, air, and water—explore his spiritual connections

to both nature and the cosmos. Learn more at yvesklein.com.

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

Competitions

AIA COTE Top 10 for Students Competition
Deadline: January 13, 2021
The 2021 edition of this competition is open to students of an Association of Collegiate Schools of Architecture school with a faculty sponsor. Submissions should demonstrate design that is moving toward carbon-neutral operation by considering daylighting, passive heating and cooling, materials, water, energy-generation, or other sustainable systems. More at acsa-arch.org.

Architects Foundation Diversity Advancement Scholarship
Deadline: January 15, 2021
This multiyear scholarship supports high school and undergraduate minority students who are entering, enrolled in, or transferring into an NAAB-accredited undergraduate architecture program. Scholarships may be renewed every year until the degree is completed, for up to five years ($20,000 total award). Applications must include an essay, professional résumé, two letters of recommendation, and a portfolio of three to five creative works. More at architectsfoundation.org.

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

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

CLASSIFIEDS

EMPLOYMENT

PROJECT LEADER
Chicago, IL

Project Leader. Chicago, Illinois. Plan and coordinate technical activities and project designs for architectural projects under supervision of licensed architect. Work with: Rhino Certified Level 2; Revit Architecture - Autodesk Certified Professionals; AVIPlan; APM, tug, MEP, sterile tunnels; FAA and TSA regulations; AutoCAD, Revit; SketchUp, Formit, Dynamo, 3D MAX, Autodesk Revit Photoshop; Mental Ray, V-Ray., Maxwell; Adobe Creative Suit and Microsoft Office. Required education: master's degree in architecture/related AND Required certifications: Rhino Certified Level 2; and, Revit Architecture - Autodesk Certified Professionals. NO PHONE CALLS.

Forward resumes to: Studio Gang Architects
Attn: Sonia Miranda Monroy, Ref. HW
1520 W. Division Street, Chicago, IL 60642

Architectural Record

Reserve Space Now in the Next Architectural Record Issue Classified Section

Promote:

- Job Opportunities
- Books
- Consulting Services
- Recruiting Services
- Official Proposals
- Business Opportunities
- Legal Notices
- Professional Studies

and more...

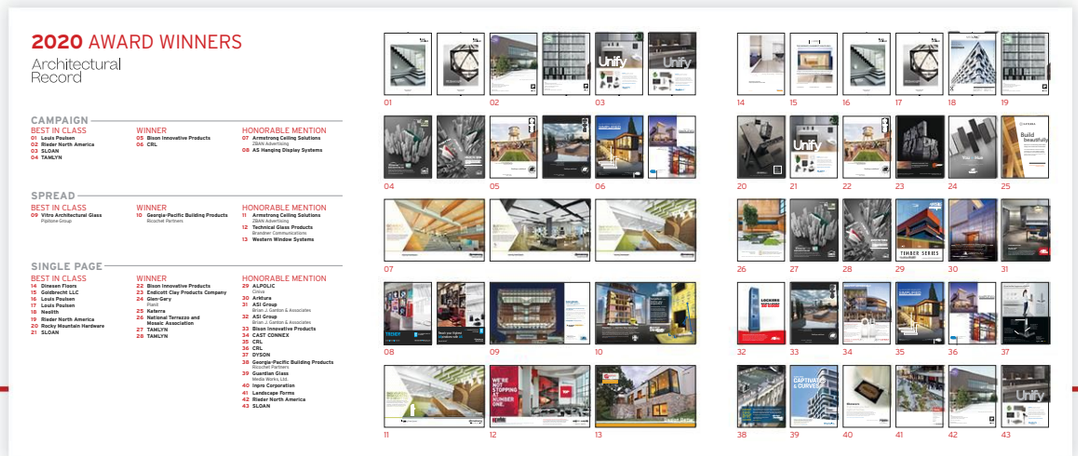
To obtain Classified Advertising information please contact:
Diane Soister at Tel: 646-849-7137
Email: soisterd@bnpmedia.com

Architectural Record

2021 ADVERTISING EXCELLENCE AWARDS

SAVE THE DATE | JUNE 24, 2021

For an Online Awards Presentation & Panel Discussion



2020 AWARD WINNERS

Architectural Record

CAMPAIGN

BEST IN CLASS	WINNER	HONORABLE MENTION
01 Louis Poulsen	05 Bison Innovative Products	07 Armstrong Ceiling Solutions (SWA Advertising)
02 Rieder North America	06 CRL	08 AS Hanging Display Systems
03 SLOAN		
04 TAKLYN		

SPREAD

BEST IN CLASS	WINNER	HONORABLE MENTION
09 Vitra Architectural Glass (Pipitone Group)	10 Georgia-Pacific Building Products (Ricochet Partners)	11 Armstrong Ceiling Solutions (SWA Advertising)
		12 Technical Glass Products (Wardlaw Communications)
		13 Western Window Systems

SINGLE PAGE

BEST IN CLASS	WINNER	HONORABLE MENTION
14 Dinesen Floors	22 Bison Innovative Products	29 ALPOLIC (Grilink)
15 Goldbrecht LLC	23 Endicott Clay Products Company	30 Arktura
16 Louis Poulsen	24 Glen-Gery (Fiskit)	31 ASI Group (Brian J. Ganton & Associates)
17 Louis Poulsen	25 Kalwall	32 ASI Group (Brian J. Ganton & Associates)
18 Nanlik	26 National Terrazzo and Mosaic Association	33 Bison Innovative Products
19 Rieder North America	27 TAKLYN	34 CAST CONNEX
20 Rocky Mountain Hardware	28 TAKLYN	35 CRL
21 SLOAN		36 CRL
		37 DYSON
		38 Georgia-Pacific Building Products (Ricochet Partners)
		39 Guardian Glass
		40 Hanley Wood
		41 Ingnis Corporation
		42 Landscape Forms
		43 Rieder North America
		43 SLOAN

BECOME AN AWARD-WINNING ADVERTISER

Reserve your ad space today and beat out the competition

Want to be part of the 2021 Advertising Excellence Awards competition?

Here is how to qualify:
Advertise in the 2021 March or April print editions of ***Architectural Record*** (full page or larger) or run digital ads between now and the end of March.

March Ad Close: February 1, 2021
April Ad Close: March 1, 2021

All ads will be automatically entered, carefully reviewed and judged by a blue ribbon panel of knowledgeable architects.

Join us virtually in 2021 for a panel discussion on what our jury of architects and their peers look for in advertising. This is the best opportunity to receive feedback on your marketing efforts from your exact target audience.

Contact your sales representative to reserve your space today!

architecturalrecord.com/adawards

AR01214AEA.indd 1 12/11/20 10:21 AM

Advertisers Index

Advertiser	Page
ARCAT	**51**
Architectural Record - Advertising Excellence Awards	**118**
Architectural Record - Arch Record Podcast	**38**
Architectural Record - Design Vanguard	**54**
Architectural Record - Education Exchange	**103**
Architectural Record - eNewsletters	**52**
Architectural Record - Innovation Conference	**45**
Architectural Record - Webinars	**96**
Architectural Record - Website	**44**
Armstrong World Industries	**CVR2, 1**
AS Hanging Systems	**28**
ASI Group	**43**
AZEK Building Products	**8**
Belden Brick Company, The	**6**
Delray Lighting	**41**
Fenix	**31**
Formica	**15**
Georgia-Pacific Gypsum	**7**
Goldbrecht	**19**
Huntco Supply	**18**
Inpro Corporation	**111**
Invisible Structures, INC	**11**
Joto-Vent System USA, Inc.	**53**
Koala Kare Products	**5**
Lorin Industries	**4**
Louis Poulsen USA INC.	**21**
Major Industries	**32**
Mitsubishi Electric	**109**
Modernfold	**13**
MOZ Designs	**33**
Musson Rubber Company	**116**
NanaWall	**37**
National Terrazzo & Mosaic Association	**16**
New Millennium	**107**
Petersen Aluminum	**26**
Skyscraper Museum, The	**22**
Studio Gang Architects	**117**
Technical Glass Products	**2, 3, 24**
VS America	**CVR3, CVR4**
Westfalia Technologies, Inc.	**114, 115**

Publisher is not responsible for errors and omissions in advertiser index.

Ⓡ Regional AD



ON EITHER SIDE of the Glass Bridge in southeastern China's Guangdong province, one can simply cross the threshold of its red-painted concrete towers to walk on air. The new suspension bridge, which spans 1,725 feet, is composed of several layers of ultra-clear tempered laminated glass, allowing brave pedestrians to gaze 650 feet down at the Huangchuan river gorge below. (Those with a fear of heights might need to hold onto its curved stainless-steel guard-rails). The flexible structure's wind-resistant cable system, fixed to the concrete anchors, was built to withstand the region's frequent typhoons. Designed by the Architectural Design & Research Institute of Zhejiang University Company for a local tourism bureau, the transparent footpath will mainly attract "adventurous spirits," acknowledges Xie Xu, the chief engineer—and probably some white knuckles too. *Kara Mavros*

PHOTOGRAPHY: © LIANZHOU QINGTIAN TOURISM DEVELOPMENT CO., LTD.



Everywhere.

Say hello to the new JUMPER® Air.

A happy answer to the varied needs of students, teachers and space planners. Elegantly ergonomic, thanks to the design sensibilities of architect Jean Nouvel.

We believe when you take care of students the rest follows. See the new JUMPER Air in motion at **vsamerica.com/jumper**.

VS

VSAMERICA.COM 704.378.6500 INFO@VSAMERICA.COM

The power of three.
Versatility. Economy.
And modern simplicity.



You'll find the power of three in Stakki. Joyfully sculpted for curious minds and busy bodies.
Fits everywhere. Inside and outside. Super easy to clean.
See how Stakki plays with your innovative ideas at vsamerica.com/stakki

VS

VSAMERICA.COM 704.378.6500 INFO@VSAMERICA.COM