ARCHITECT

Preservation Tech
The Gender Gap
On Wim Wenders

architectmagazine.com
The Journal of the American
Institute of Architects

Tod Williams Billie Tsien Architects | Partners

Recent Work

Fresh Ideas for All Your Fenestration Needs.

On-going innovation enables Graham Architectural Products to continually meet the evolving needs of the window industry. From our ADA compliant solutions to our authentic-looking, extruded aluminum steel-replication windows that have met strict historic requirements, our insight and experience deliver unmatched reliability, quality and performance…and have done so for more than 40 years.

Learn more about GAP's extruded aluminum steel-replication windows and other fresh ideas at **grahamwindows.com/ideas.**

GRAHAM
ARCHITECTURAL PRODUCTS

grahamwindows.com
800-755-6274

Architectural Windows | Window Wall | Curtain Wall | Doors

TAKTL®

DISCOVER ULTRA HIGH PERFORMANCE CONCRETE

TAKTL® offers a full line of architectural elements—facade and wall panels, cast corners, screens, louvers, and fins—utilizing a proprietary Ultra High Performance Concrete (UHPC) that is over four times as strong as traditional precast concrete and performs exceptionally well in demanding conditions. Panels are cast in a tightly controlled and automated production process employing molds that yield intrinsic surface patterns and finishes. Uniting superior strength, durability and design possibilities—TAKTL will change the way you think about concrete.

SHOWN: TAKTL Panels | Smooth Texture | Custom White

9 STANDARD TEXTURES + 10 STANDARD COLORS
ASTM C1186: Grade IV Certification

PROJECT: SUNY Farmingdale School of Business
LOCATION: Farmingdale, NY
OWNER: State University of New York System
ARCHITECT: Urbahn Architects
GENERAL CONTRACTOR: Stalco Construction, Inc.
INTALLER: Kenneth J. Herman, Inc.

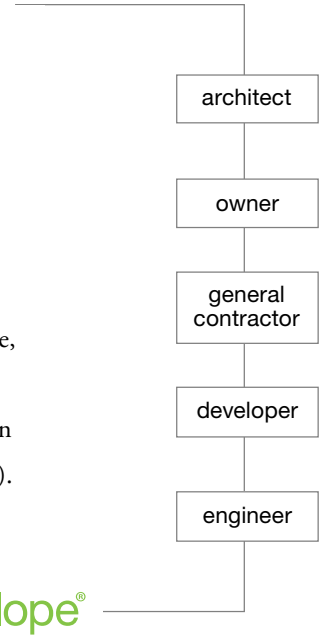
1120 William Flynn Highway, Glenshaw, PA 15116 | 412.486.1600 | info@taktl-llc.com

WWW.TAKTL-LLC.COM


BIM IQ
Status: 268 render iterations Credit: 1d 13h 9m 0s remaining
No Changes Pending
3D View 1

All together now

With our proprietary new BIM IQ® advancements—now every member of the construction chain is working in the same environment. Imagine you are in San Francisco and your client is in New York, simply invite your client to collaborate to not only see the design, but interact with it by sharing markups in real time. And with our latest update, BIM IQ® integrates as a plug-in directly into your BIM application. **That's true collaboration delivered.** To learn more, visit BIMIQ.com or call 1-866-Oldcastle (653-2278).



Oldcastle BuildingEnvelope®

Engineering your creativity™

Contents

014 **14** Goodbye, Mr. Postmodernism. **16** The Posthumous Pritzker. **20** Fashion Funhouse. **24** Mixing High-Tech and Sweat. **26** Urban Reflections.

028 **28** Best Practices: Closing the Gender Gap. **30** Products: Pendants. **32** Next Progressives: Adam Nathaniel Furman. **40** Q+A: UDream's Donald Carter. **44** Detail: The Pinch Roof.

049 **49** AIA Voices: Practice Craft. **51** AIA Now: Upcoming Events. **53** AIA Collaboration: Back to School. **54** AIA Feature: Fighting for the Driver's Seat. **57** AIA Future: Renovation Motivations. **58** AIA Perspective: Resilience by Design.

071 **71** What Wim Wenders Taught Me About Design, by Karrie Jacobs. **81** How Tech is Transforming Preservation, by Gideon Fink Shapiro

088 

Recent Work
Tod Williams Billie Tsien Architects | Partners
Introduction by Thomas de Monchaux

090 
Center for the Advancement of Public Action, Bennington College
Bennington, Vt.

098 
First Congregational United Church of Christ
Washington, D.C.

102 
Tata Consultancy Services, Banyan Park, Phase 1
Mumbai, India

112 
Savidge Library Complex, The MacDowell Colony
Peterborough, N.H.

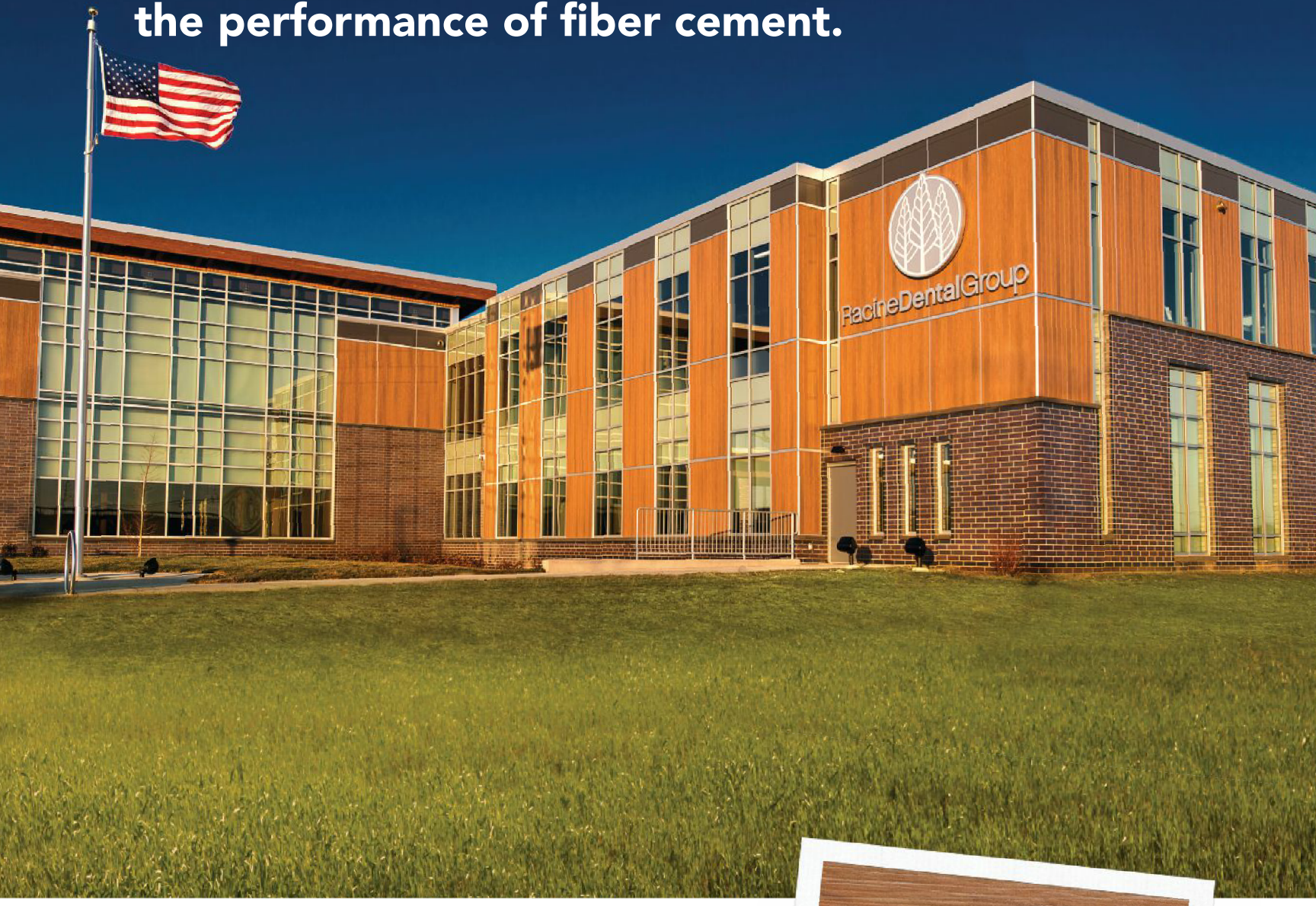
116 
Kim and Tritton Residence Halls, Haverford College
Haverford, Pa.

123 
Residential
Further Lane House
Amagansett, N.Y.

Volume 104, number 4. April 2015. On the cover: Tata Consultancy Services in Mumbai, by Tod Williams Billie Tsien Architects | Partners; photo by Michael Moran/OTTO.

Volume 104, number 4. April 2015. ARCHITECT® (ISSN 0746-0554; USPS 009-880) is published monthly by Hanley Wood, One Thomas Circle, NW, Suite 600, Washington, DC 20005. Printed in the USA. Periodicals postage paid at Washington, DC, and at additional mailing offices. POSTMASTER: Send address changes to architect P.O. Box 3494, Northbrook, IL 60065. Canada Post Registration #40612608/G.S.T. number R-120931738. Canadian return address: IMEX, P.O. Box 25542, London, ON N6C 6B2. DISCLOSURE: ARCHITECT® will occasionally write about companies in which its parent organization, Hanley Wood, has an investment interest. When it does, the magazine will fully disclose that relationship. PRIVACY OF MAILING LIST: Sometimes we share our subscriber mailing list with reputable companies we think you'll find interesting. However, if you do not wish to be included, please call us at 888.269.8410.

The beauty of wood, the performance of fiber cement.



It's hard to compete with the look of wood. The warmth and sophistication of natural wood is hard to beat. It pairs perfectly with the look of glass and metal or it can steal the show all on its own. But, sooner or later natural wood rots, splits and fades. VintageWood fiber cement panels give you all the sophistication and warmth of wood without the maintenance issues. Our engineered clip installation system and panels covering 15 square feet makes it easy to create that look with ease. Better still, Nichiha's integrated rainscreen and 50-year limited warranty ensure that the beauty you create will endure. It would seem wood has met its match, after all.

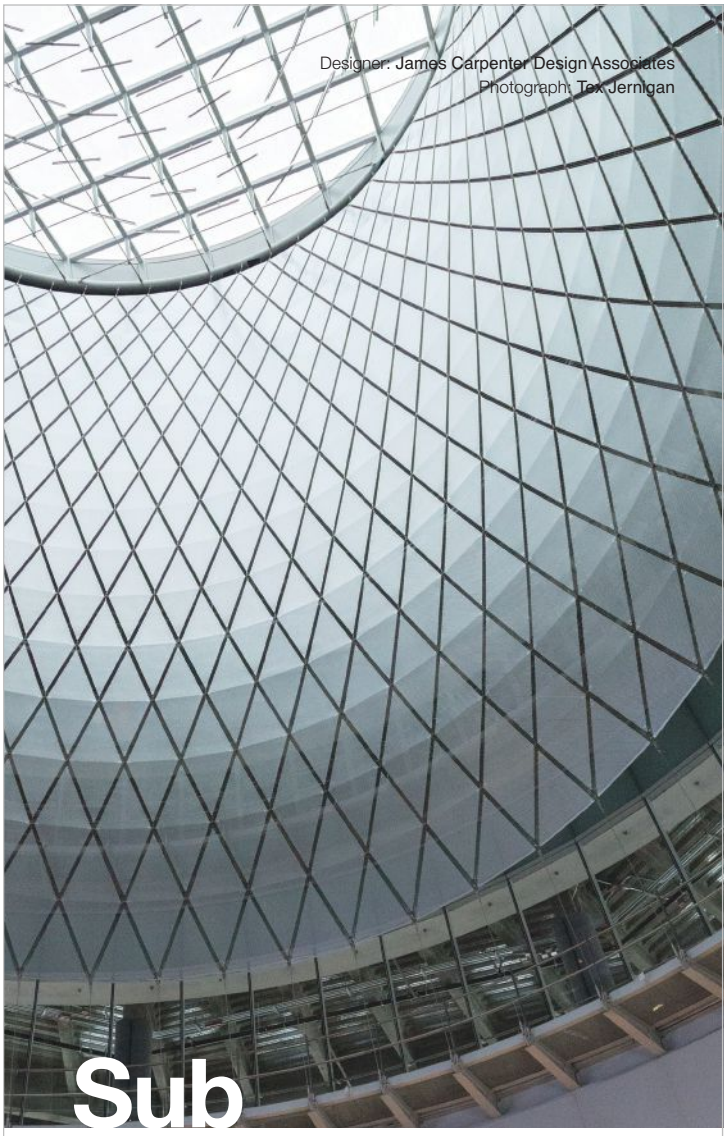
VintageWood Fiber Cement Cladding

NICHIHA fiber cement

the power of possibilities™

nichiha.com 866.424.4421

Discover the alternative to wood at nichiha.com/woodyou



Designer: James Carpenter Design Associates
Photograph: Tex Jernigan

Sub Culture

Every day 300,000 subway riders stream through Manhattan's **Fulton Center**, their underground trek now brightened by entertainment venues and daylight reflected from its skylit cable-net overhead. Created by **James Carpenter Design Associates** and engineered by **Arup** for **Grimshaw Architects**, this marvel of collaboration is a new bright spot beneath city streets. Read more about it in **Metals in Construction** online.

ARCHITECT

The Journal of the American Institute of Architects

Editor-in-Chief
Ned Cramer, ASSOC. AIA
ncramer@hanleywood.com
@NedCramer

Managing Editor
Greig O'Brien
gobrien@hanleywood.com

Art Director
Robb Ogle
rogle@hanleywood.com

Design
Editor
Katie Gerfen
kgerfen@hanleywood.com

Associate Editor
Deane Madsen, ASSOC. AIA
dmadsen@hanleywood.com
@deane_madsen

Assistant Editor
Sara Johnson
sajohnson@hanleywood.com
@SaraA_Johnson

Technology and Practice
Senior Editor
Wanda Lau
wlau@hanleywood.com
@wandawlau

Associate Editor
Hallie Busta
hbusta@hanleywood.com
@halliebusta

Assistant Editor
Caroline Massie
cmassie@hanleywood.com
@caroline_massie

Features
Senior Editor
Eric Wills
ewills@hanleywood.com

News and Social Media
Content Producer
Chelsea Blahut
cblahut@hanleywood.com
@chelseablahut

Editorial Intern
Cyprien Roy
croy@hanleywood.com

Editorial Intern
Leah Demirjian
ldemirjian@hanleywood.com

Art
Senior Graphic Designer
Alice Ashe
aashe@hanleywood.com

Graphic Designer
Jen Aranyi
jaranyi@hanleywood.com

Multimedia
Video Production Manager
Kaitlyn Rossi
krossi@hanleywood.com

Video Producer
Lauren Honesty

Contributing Editors
Aaron Betsky; Blaine Brownell, AIA; Thomas de Monchaux; Elizabeth Evitts Dickinson; John Morris Dixon, FAIA; Thomas Fisher, ASSOC. AIA; Joseph Giovannini; Cathy Lang Ho; Karrie Jacobs; Vernon Mays; Ian Volner; Mimi Zeiger

Design Group
Executive Vice President
Ron Spink
rspink@hanleywood.com
202.736.3431

Advertising
Northeast, Great Lakes, Georgia, Florida
Dan Colunio
dcolunio@hanleywood.com
202.736.3310

Lighting
Cliff Smith
csmith@hanleywood.com
864.642.9598

Digital Sales; Mid Atlantic, Southeast
Christie Bardo
cbardo@hanleywood.com
202.736.3363

Canada
D. John Magner
jmagner@yorkmedia.net
416.598.0101, ext. 220

Canada
Colleen T. Curran
ctcurran@yorkmedia.net
416.598.0101, ext. 230

Midwest
Michael Gilbert
mgilbert@hanleywood.com
773.824.2435

United Kingdom, Europe
Stuart Smith
stuart.smith@globalmedia sales.co.uk
44.020.8464.5577

China, Hong Kong, Taiwan
Judy Wang
judywang2000@vip.126.com
86.13810325171

Marketing
Executive Director, Digital Marketing & Sales Enablement
Matthew Carollo

Audience Marketing Director
Mary Leiphart

Digital
Product Director
Nickie Denick

Production
Production Manager
Paige Hirsch

Ad Traffic Manager
Pam Fischer

Inside Sales
Business Development Manager
Jaeda Mohr

List Rentals
Statlistics
Jennifer Felling
j.felling@statlistics.com
203.456.3339

It'll change the way you look at neutral glass.

Introducing Solarban® 67 glass. A crisp, vibrant neutral glass that stands out from the crowd. For a sample, call 1-888-PPG-IDEA or visit **ppgideascapes.com/sb67.**

SOLARBAN®67
SOLAR CONTROL LOW-E GLASS

CERTIFIED cradle to cradle SILVER

PPG IdeaScapes™
Glass • Coatings • Paint

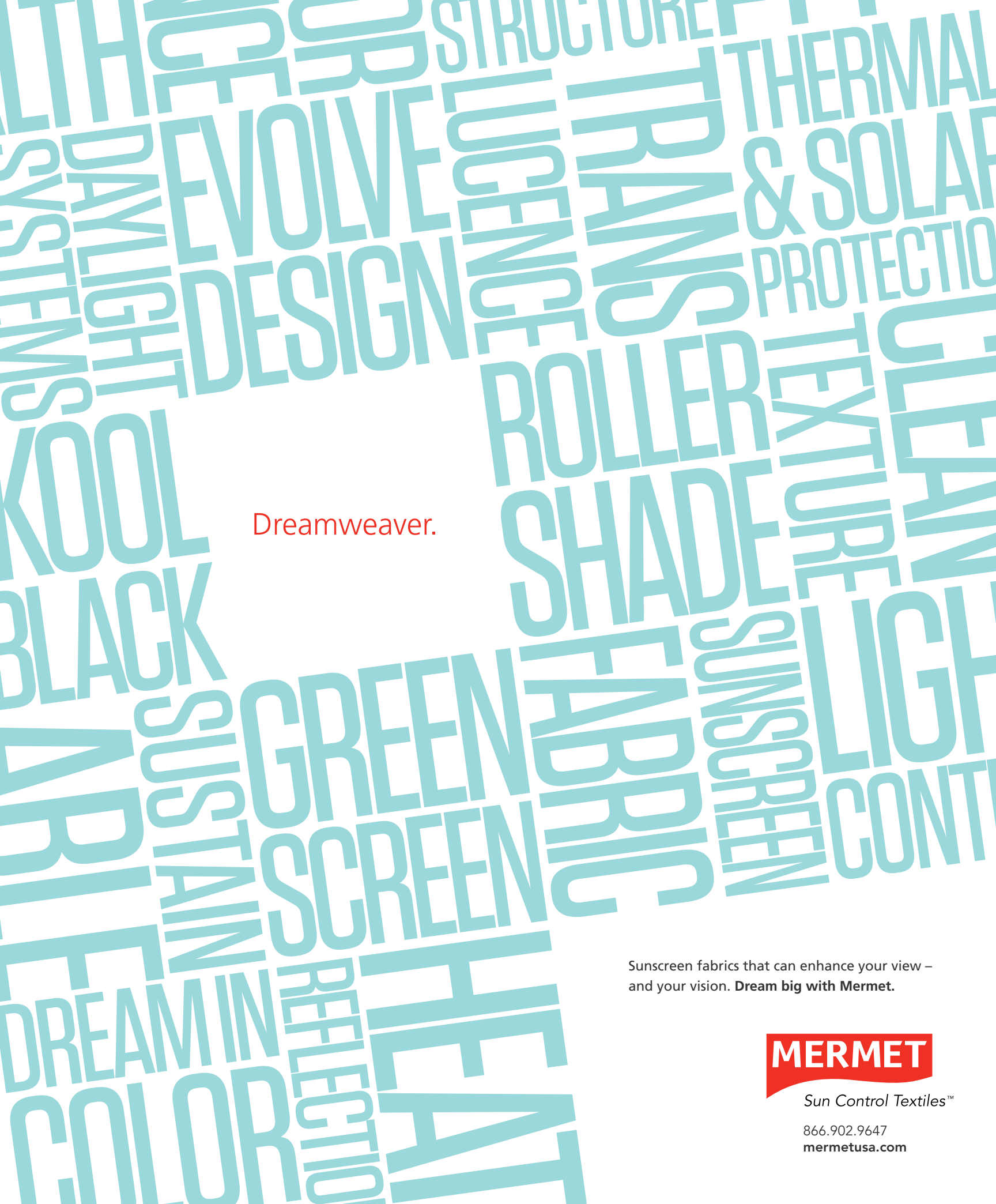
PPG Industries, Inc., Glass Business & Discovery Center, 400 Guys Run Road, Pittsburgh, PA 15024 www.ppgideascapes.com

RINCON PEDESTRIAN LIGHTING

Precise 4.5" square stainless steel column | High-performance LED illumination | Coordinating Rincon Bollards

www.forms-surfaces.com

FORMS+SURFACES®


Dreamweaver.
Sunscreen fabrics that can enhance your view – and your vision. **Dream big with Mermet.**
MERMET
Sun Control Textiles™
866.902.9647
mermetusa.com

ARCHITECT

The Journal of the American Institute of Architects

Hanley Wood Media

President
Dave Colford

Executive Vice President, Strategic Marketing Services
Tom Rousseau

Senior Vice President, Strategic Marketing Services & Consumer Media
Jennifer Pearce

Senior Vice President, Audience Operations
Sarah Welcome

Vice President, Client Operations
Mari Skelnik

Director of Analytics
Jennifer Malkasian

Vice President, Product Development
Rizwan Ali

Senior Director, Print Production
Cathy Underwood

Director, User Experience & Interface Design
Aubrey Altmann

Hanley Wood

Chief Executive Officer
Peter Goldstone

President, Media
Dave Colford

President, Metrostudy
Chris Veator

Senior Vice President, Corporate Development & General Counsel
Michael Bender

Director of Sales, Emerging Accounts Group
Philip Hernandez

Vice Chairman
Frank Anton

President, Digital
Andrew Reid

Senior Vice President, Corporate Sales
Paul Mattioli

Executive Director, Consumer Marketing & AIA Business Liaison
John Crosby

Chief Financial Officer
Matthew Flynn

President, Marketing
Jeanne Milbrath

Senior Vice President, Marketing
Sheila Harris

Vice President, Financial Planning & Analysis
Ron Kraft

Vice President, Corporate Controller
Keith Rosenbloom

THE AMERICAN INSTITUTE OF ARCHITECTS

2015 BOARD OF DIRECTORS

Elizabeth Chu Richter, FAIA, President; Russell A. Davidson, FAIA, First Vice President; William J. Bates, AIA, Vice President; Francis M. Pitts, FAIA, Vice President; James Easton Rains Jr., FAIA, Vice President; Thomas V. Vonier, FAIA, Vice President; John A. Padilla, AIA, Secretary; John P. Grounds, AIA, Treasurer; Tina M. Litteral, HON. AIA, CACE Director; Haley M. Gipe, ASSOC. AIA, Associate Director; Julie Taylor, HON. AIA/LA, Director; Jorge Bermudez, Director; Robert A. Ivy, FAIA, EVP/Chief Executive Officer. AIA STRATEGIC COUNCIL: Lanny McIntosh, AIA, Moderator.

NATIONAL STAFF

EXECUTIVE TEAM: Robert A. Ivy, FAIA, Chief Executive Officer; Abigail W. Gorman, MBA, Chief of Staff; Kathron Compton, Senior Vice President, Strategic Marketing, Communications & Convention; Deborah DeBernard, AIA, NCARB, ARCHITECT AIBC, LEED BD+C, Senior Vice President, Global Innovation; Lisa Green, Vice President, Finance & Accounting; Susan McDaid, HON. AIA, Senior Vice President, Member & Component Resources; Ken L. Ross Jr., FAIA, Senior Vice President, Advocacy and Strategy; Phil Simon, CAE, Vice President, Strategic Communications & Marketing; Jay A. Stephens, ESQ., HON. AIA, Senior Vice President & General Counsel; Terri Stewart, CAE, Senior Vice President, Knowledge and Practice.

MANAGEMENT TEAM: Greg Appler, Managing Director, Brand & Strategic Marketing; Suzanne Bagheri, CPA, Managing Director, Accounting; Marlene Bohn, SPHR, GPHR, Managing Director, Human Resources; Paula Clements, HON. TSA, CAE, Managing Director, Component Collaboration & Resources; Kenneth Cobleigh, ESQ., Managing Director & Counsel, Contract Documents Content; Sandra Coyle, Managing Director, Public Relations & Outreach; Pam Day, HON. AIA, Corporate Secretary & Managing Director, Governance Administration; Andrew Goldberg, ASSOC. AIA, Managing Director, Government Relations & Outreach; Christopher Gribbs, ASSOC. AIA, Managing Director, Convention; Maan Hashem, PMP, CAE, Managing Director, Software & Products Services; Jessyca Henderson, AIA, Managing Director, Institute Strategy/Policy; Suzanna Wight Kelley, FAIA, LEED AP, Managing Director, Institute Relations; Damon Leverett, AIA, Managing Director, Diversity & Emerging Professionals Engagement; Philip O'Neal, Managing Director, Information Technology; Jeffrey Raymond, Managing Director, Digital Transformation; Cedric Rush, Managing Director, Member/Component Support.

hanleywood

ABM

BPA

PEFC Certified
This product is from sustainably managed forests and controlled sources
www.pefc.org
PEFC
PEFC/08-31-75
PEFC certification applies to text only


MITSUBISHI PLASTICS COMPOSITES AMERICA, INC.
©2014. Mitsubishi Plastics Composites America, Inc. All rights reserved.
WE UNDERSTAND
ORIGINAL
A unique vision requires unique materials. To bring your inspiration to life, you need the right colors. The right textures. The right forms. Wherever your imagination takes you, ALPOLIC® Materials is at your side, ready to build.
alpolic-americas.com
ALPOLIC®
MATERIALS
Let's Build
401 Volvo Parkway | Chesapeake, VA 23320 | 800-422-7270


Don’t let moisture dampen your vision.
ZIP it tight.™
Design tight. For the ultimate protection from the elements, choose ZIP System® sheathing & tape. All-in-one structural panels, with a built-in water resistive barrier, combine with specially designed ZIP System™ tape to help guard buildings from moisture damage during and after construction.
Build right. ZIP System® sheathing & tape provides a continuous moisture and air barrier that keeps structures dry and improves energy-efficiency. The panels go up faster and easier forming a strong, tight seal for the ideal building envelop
Download our Cradle-to-Grave EPD at ZIPSystem.com/EPD
ZIPsystem™
SHEATHING & TAPE
Installation Speed and Ease
Superior Moisture Protection
Superior Air Protection
Structural Durability
©Huber Engineered Woods LLC. ZIP System, the accompanying ZIP System logo and design and AdvanTech are trademarks of Huber Engineered Woods LLC. Huber is a registered trademark of J.M. Huber Corporation. Huber Engineered Woods products are covered by various patents. See zipsystem.com/patents for details. This product’s Environmental Product Declaration (EPD) has been certified by UL Environment. HUB 3279 01/15
FROM THE CREATORS OF AdvanTech

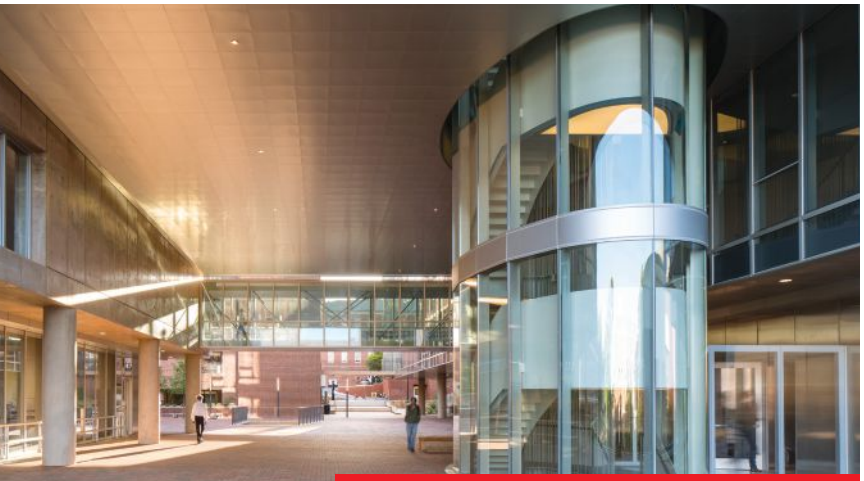
COURTESY MICHAEL GRAVES & ASSOCIATES

Goodbye, Mr. Postmodernism

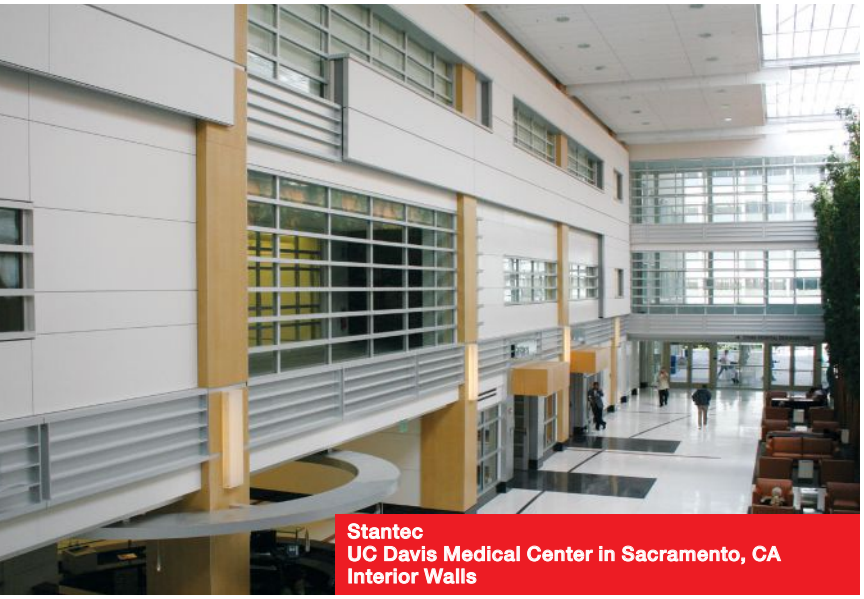
Belatedly, I have come to regard Michael Graves, who died on March 12 at the age of 80, as possessing the best attribute that an American practitioner (in pretty much any field) can: Graves is Jeffersonian. Like that endlessly curious, inventive founding father, Graves went to Europe, immersed himself in classical architecture, and used what he absorbed to transform the American landscape. He did this in ways that are obvious—like designing the building that can be thought of as the Bauhaus of Postmodernism—and in ways that are far more subtle. —KARRIE JACOBS

> *Read the rest of Jacobs' ode to Graves at bit.ly/OdeToMichaelGraves and see more like the Iconic Vase (above) at bit.ly/GravesIndustrialDesign.*

WHEN THE BEST WANT THE BEST!



SOM
UNC Genome Sciences Building in Chapel Hill, NC
Exterior Wall



Stantec
UC Davis Medical Center in Sacramento, CA
Interior Walls

Go to safti.com/book
or call 888.653.3333
to request our latest
Project Gallery Book

With 80+ pages of fire rated glazing applications!

Shigeru Ban Architects & CCY Architects
Aspen Art Museum in Aspen, CO
Exterior Curtain Wall / Elevator Enclosure

Fire Rated Glass & Framing — SAFTI FIRST — Clearly the Leader in Innovation — SAFTI FIRST —
over 35 years

SAFTIFIRST FIRE RATED GLASS & FRAMING

The Posthumous Pritzker

Earlier this year, German architect and engineer Frei Otto became part of a very exclusive club. Best known for lightweight structures like those he designed for the 1972 Summer Olympic Games in Munich, the 89-year-old was visited at his home and studio in Warmbronn by Pritzker Architecture Prize executive director Martha Thorne, who informed him that he had been chosen as the 40th Pritzker laureate. The visit was a secret part of an annual process that typically happens in January or February, and this year wasn't to be announced until March 23. Sadly, Otto passed away on March 9. —EDWARD KEEGAN

> *Read more about Frei Otto's stunning lightweight structures at bit.ly/OttoLightweightStructures and see a selection of his projects at bit.ly/OttoProjects.*

RELIABLE PERFORMANCE

HORTON HEALTHCARE

Automatic Door Solutions that meet stringent hospital and medical facility building codes nationwide. Horton leads the healthcare industry with a full line of innovative door solutions including the first no power, self-closing AIIR door, smoke-rated ICU/CCU doors and custom-built lead-lined doors for radiation and x-ray shielding. Rely on Horton as your single-source for interior and exterior healthcare door systems including revolving, swinging, sliding and folding door solutions.

Photo courtesy of Pete Eckenrode, ZGF Architects LLP

Horton AUTOMATICS

hortondoors.com

When was the last time someone admired the design of your HVAC system? Never. Which is why we've been hard at work for over 30 years creating the most elegant, flexible, space saving, and design-inspiring VRF Zoning solutions in the world. With the industry's only two-pipe simultaneous cooling and heating VRF system, Mitsubishi Electric VRF is easier to design and install than traditional HVAC and other VRF systems. Discover why we've led the way to better use of space, better comfort control, and better energy efficiency in the U.S. for more than a decade. Learn how Mitsubishi Electric VRF can be the right choice for any building project at **MitsubishiPro.com**

MITSUBISHI ELECTRIC
COOLING & HEATING

TRANSFORM AN ORDINARY SPACE INTO THE *Extraordinary!*

MONTEREY™

Bi-Folding Glass Wall System

INTERIOR AND EXTERIOR APPLICATIONS

CRL-U.S. Aluminum Monterey Bi-Folding Glass Wall Systems are award-winning innovative solutions that create uninterrupted transformative living spaces by providing striking hybrid environments with spectacular views. Suitable for both residential and commercial applications, our systems feature clean, modern aesthetics with precision-engineered components that allow window, wall, and door panels to slide smoothly with minimal effort. The Monterey allows you to bring the outdoors in while providing resistance to undesirable weather conditions, and provide security with standard two point interior lever latches, and available three point keyed locks on select Monterey configurations.

The CRL Monterey Bi-Folding Glass Wall System is available in OVER FIFTY CONFIGURATIONS with inward or outward openings. Access from the exterior is made easy by attaching a locking swing panel to the jamb or to the end of a chain of bi-folding panels.

Available in several powder coated and anodized finishes, in different configurations, with thermally broken options for improved energy efficiency.

COMMERCIAL APPLICATIONS:

HOTELS | RESORTS | RESTAURANTS
SPORTS VENUES | MALLS | CASINOS
SPAS | BANQUET HALLS | BANKS
OFFICES | WINERIES | AIRPORTS

RESIDENTIAL APPLICATIONS:

PATIOS | BALCONIES | SUNROOMS
EXERCISE ROOMS

To learn more about our **Monterey Bi-Folding Glass Wall Systems** visit **crlaurence.com/monterey** or call us at **(800) 421-6144** ext. **7770**

CRL US ALUMINUM

C.R. LAURENCE COMPANY

crlaurence.com | usalum.com | crl-arch.com

JAB417_3/15

AGOSTINO OSIO © OMA, © PRADA

Fashion Funhouse

In the latest collaboration between Rem Koolhaas, HON. FAIA' s Office for Metropolitan Architecture (OMA) and Prada, OMA's research studio arm AMO designed "The Infinite Palace" inside the fashion house's Milan headquarters. For the Fall/Winter 2015 menswear and womenswear shows, AMO devised eight rooms, arranged in two rows, with two long parallel catwalks connected by shorter perpendicular runways. The temporary space was done in faux black and blue marble to background the dark-hued men's collection, and baby pink and green to serve up the largely pastel womenswear. —SARA JOHNSON

DELTA® System

DELTA® protects property. Saves energy. Creates comfort.

Whole Foods, Cherry Hill, NJ

" Air Barrier That Sticks."

DELTA®-VENT SA...

- ... is aggressively self-adhesive.
- ... has an air-and water-tight self-adhesive edge.
- ... is highly vapor permeable (50 perms).
- ... approved by National Air Barrier Association (NABA).
- ... approved by International Building Code and International Residential Code (ICC ESR-2932).
- ... improves energy efficiency.
- ... helps improve the performance of the building enclosure.
- ... passes ASTM D1970 Nail Sealability.
- ... has an easy-to-use split release liner.
- ... helps to ensure a healthy and comfortable interior climate instud wall construction due to its excellent physical properties.
- ... easy to install.
- ... is unaffected by surfactants.
- ... matte gray color reduces irritating glare during installation.
- ... Passes ASTM E 2357 Test Method for Determining Air Leakage of AirBarrier Assemblies.
- ... NFPA 285 compliant.
- ... produced in an ISO 9001 registered manufacturing plant.

More information available including Technical Guide and Installation Guides for Rebate & Flange Windows at www.delta-ventsa.com

1-888-4DELTA4 (433-5824)
www.cosella-dorken.com

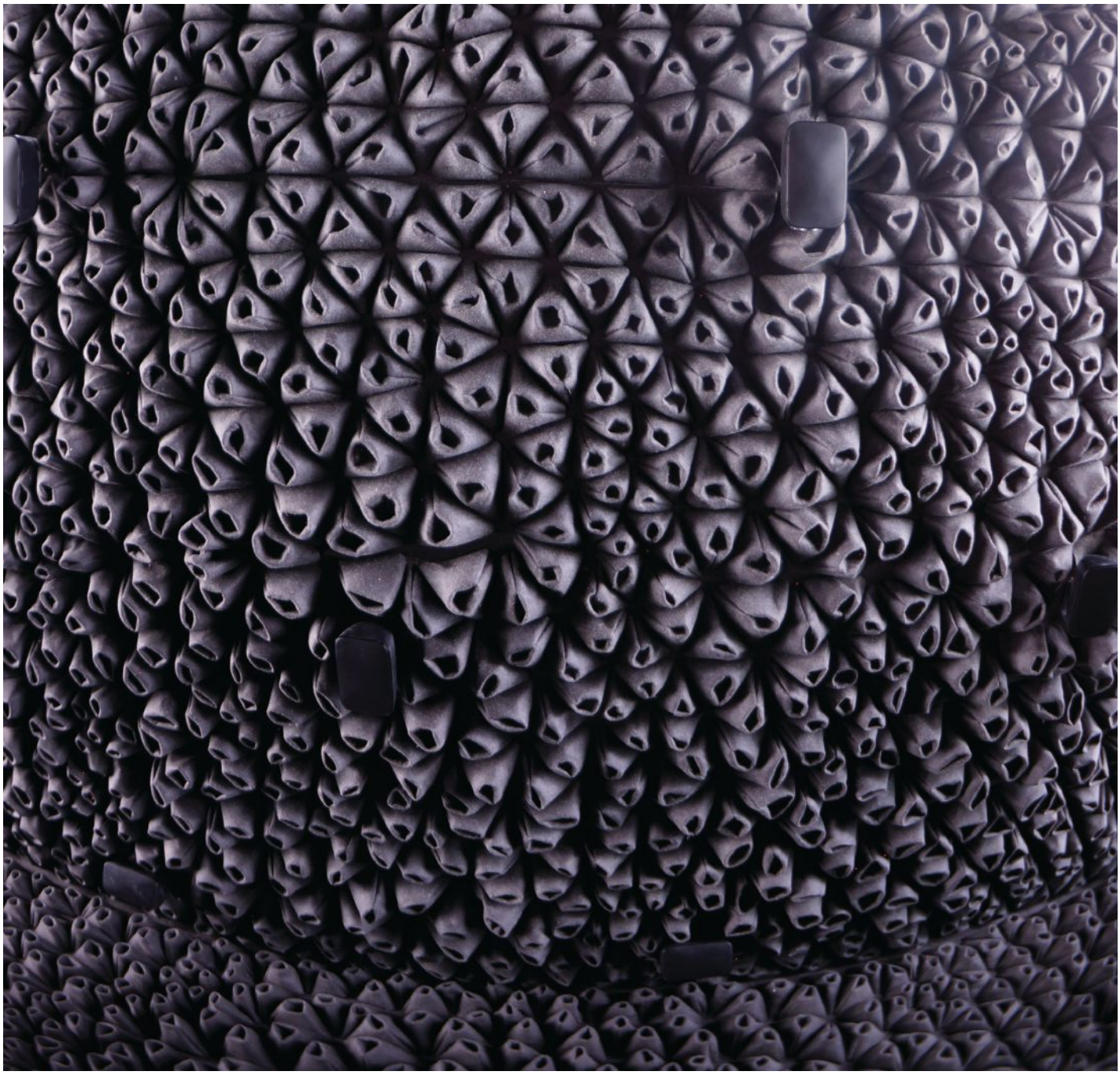
selux

A L W A Y S

L I G H T

Visit us at LIGHTFAIR® International 2015
May 5-7, 2015 – Booth #4123

selux.us



Mixing High-Tech and Sweat

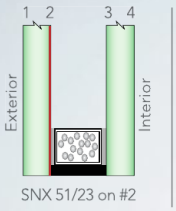
A highlight of the Museum of Modern Art's *Björk* retrospective is "Black Lake," a 10-minute video installation viewed inside what is essentially a human-scale embodiment of the song of the same title. David Benjamin and his firm The Living applied a computer-generated sound map of the song onto the ceiling and walls of the purpose-built, 1,079-square-foot space, creating a topological map with 6,000 unique felt cones. It took 100 hours of laser cutting to trim the unfolded cone patterns from 16,000 square feet of black felt, and then an additional 492 hours of folding, stitching, shaping, and gluing them to backing boards by hand. —WANDA LAU

> *MoMA's Björk retrospective runs through June 7. Learn more about the "Black Lake" experience and see more images at bit.ly/BjorkBlackLake.*

GUARDIAN SUNGUARD SNX 51/23

No other glass delivers this much light with so little heat.

SunGuard SNX 51/23 from Guardian is a glass industry first — the first product on the market with visible light above 50% and a solar heat gain coefficient below 0.25. Along with low reflectivity and a neutral blue color, it represents a breakthrough combination of light, appearance and solar control that meets increasingly strict energy codes. For complete performance data — and other ways to Build With Light — visit SunGuardGlass.com. Or call 1-866-GuardSG (482-7374).



SNX 51/23 on #2

GUARDIAN SUNGUARD®
ADVANCED ARCHITECTURAL GLASS

BUILD WITH LIGHT®

GUARDIAN
Glass · Automotive · Building Products

ALBERTO MONCADA

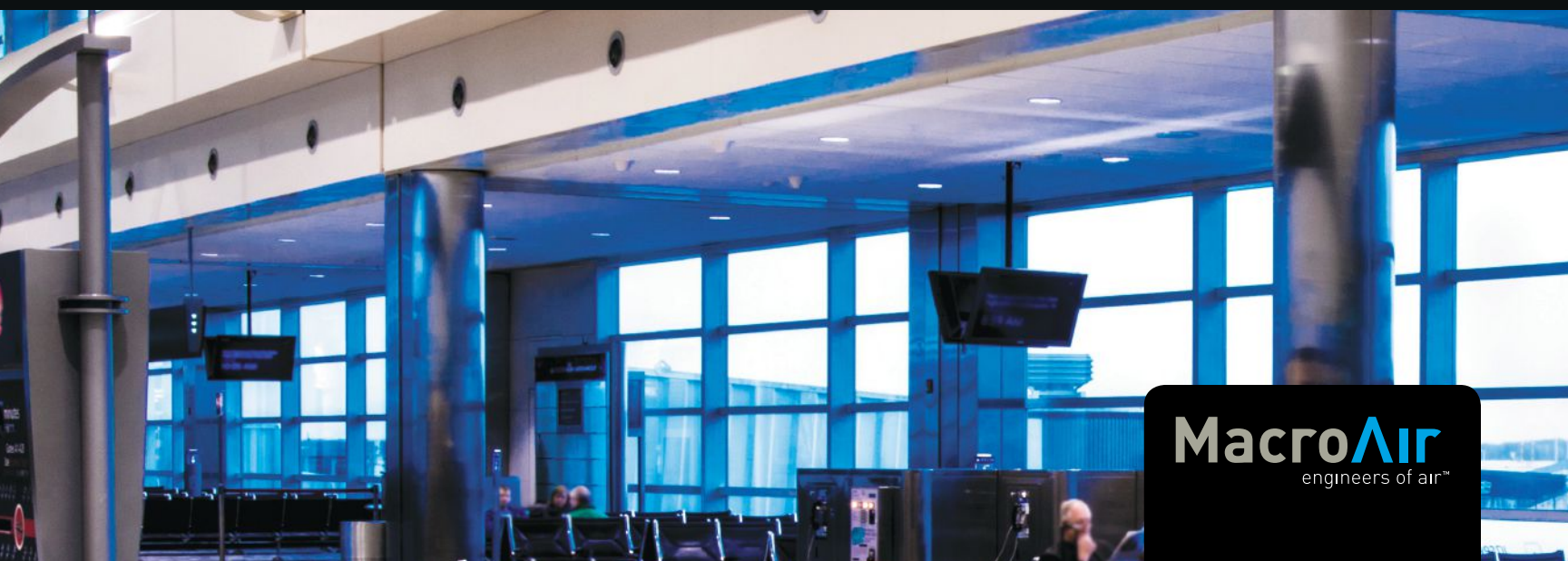
Urban Reflections

Richard Estes' work is often called photorealism, but the term is misleading. While Estes paints from photographs that he takes, he assembles multiple shots into a single painting, often with impossible perspectives. The result illustrates architecture as a part of an urban whole, as evidenced in "Richard Estes: Painting New York City," a retrospective at the Museum of Arts and Design in New York (through Sept. 20). Shown above, curator Patterson Sims cleverly hung *Columbus Circle Looking North* (2009) next to a window overlooking Columbus Circle, in a felicitous juxtaposition of art and reality. —SARA JOHNSON

> *For more on the exhibition and images of Richard Estes' art, go to bit.ly/EstesAtMAD.*

100% GEARLESS. 100% PEERLESS.

SAY GOODBYE TO LOUD, LEAKY AND FRICTION-GENERATING GEARBOXES. SAY GOODBYE TO UP TO 240LBS OF USELESS DEAD WEIGHT. AND SAY GOODBYE TO MAINTENANCE. MACROAIR IS THE INDUSTRY'S FIRST AND ONLY 100% GEARLESS HVLS FAN COMPANY.
MACROAIRFANS.COM/GEARLESS



Best Practices: Closing the Gender Gap

TEXT BY ELIZABETH EVITTS DICKINSON

Last October, two reports quantified the state of women in architecture. The Association of Collegiate Schools of Architecture's "Where are the Women: Measuring Progress on Gender" found that the percentage of women in the profession plummets as careers progress. The Missing 32% Project's "Equity in Architecture" survey identified the choke points forcing women out, including getting licensed and attaining leadership roles. This data points to an anecdotal truth that most already know: There's a leaky pipeline in architecture. A steady loss of women over time means that the number of licensed female practitioners and senior leaders hovers between just 15 and 18 percent. So, how can we close the gender gap?

> "Remain curious and open and find the resources that will help you grow."
>
> —Kelley Howell, AIA, partner, Pivot Architecture

Make the Imbalance Visible

In 2008, when associate Julia Murphy, AIA, joined Skidmore, Owings & Merrill (SOM), the firm had no female partners and only a handful of female directors. "I don't want to say that it was demoralizing, exactly, but women need to see role models in order to see their future," Murphy says. "It's also a business problem if you're losing a high percentage of your most valuable employees."

In 2010, she relaunched the Women's Initiative, an SOM group that had been active from 2002 to 2004, to mentor younger associates, offer internships for female students, conduct research, and raise visibility on issues that female practitioners face. Each year, the committee focuses on one overarching problem. This year it is mid-career choke points. "We wondered: Are women leaving to have children? Is it inevitable?" asks Murphy, the mother of a 2-year-old. "We found that most women who go on maternity leave at SOM do come back. The women we spoke to were leaving for better opportunities. They were not asking for less. Here, women want more opportunity." The needle is starting to move at SOM, she says. (Today, women comprise 13 percent of partners, and 14 percent of directors firm-wide.)

The Women's Initiative is working with SOM's human resources and the Beverly Willis Architecture Foundation, which aims to change the culture of the building industry in support of women, to get questions into existing surveys about the profession. This year, the AIA Compensation Survey is requesting information about gender within firms, in addition to other diversity indicators.

Be Your Best Advocate

In 2014, after eight years at Pivot Architecture in Eugene, Ore., Kelley Howell, AIA, was named partner. Reflecting on her trajectory, Howell says that she moved through the ranks by always advocating for herself. Early in her career, when a firm wasn't offering her projects about which she was passionate, she found a firm that would. When she had questions about project management, she sought mentors.

Howell advises young architects to seek a mentor—"someone you can look up to, who can offer a guide, and who will share things that you don't necessarily want to hear about yourself" and a confidante "with whom you can share both struggles and ideas." In addition, she says, don't hesitate to ask questions. "If you're struggling or you want to know something, don't be afraid to ask," Howell says. "Remain curious and open and find the resources that will help you grow."

Make It Personal

The hardest mid-career choke point for Janet Tam, AIA, principal and founding partner of Berkeley, Calif.–based Noll and Tam, was struggling with a work–life balance when she had children. She decided to branch out on her own and now aims to give her 30 employees a place where professional satisfaction can thrive by "creating a culture that can accept flexibility and the ups and downs of life," she says.

Another important component, Tam says, is ensuring that employees feel like they have a clear path for advancement. As principal, she structures annual reviews to reflect individual needs. "We ask: What is important to you in your next year, and what do you feel like you need to do? Where are you burned out?"

Products: Pendants

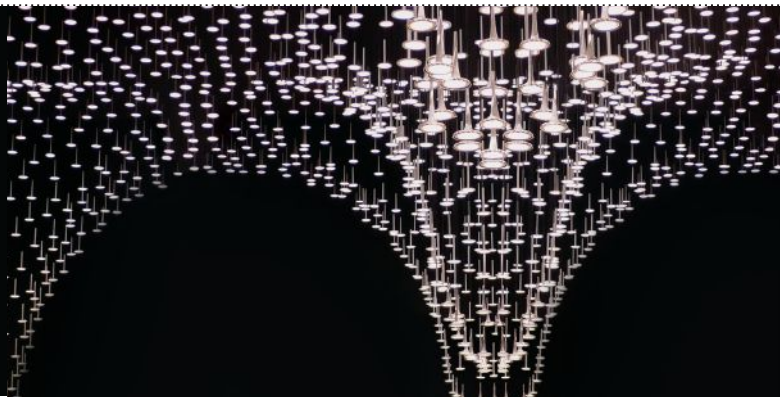
TEXT BY HALLIE BUSTA

Hazy Day, Marset
The opal glass shade fades from matte to transparent, mimicking the light of dawn, while a slight curve at its base harkens to the look of blown glass. *marset.com*

Chamber, Lee Broom
Translucent Carrara marble wrapped in lead crystal offers a gentle glow and directional downlight. Suited for solo or clustered suspension. *leebroom.com*

Laguna, Artemide
A painted metal base and blown-glass diffuser are contrasts in composition. Also offered in ceiling- and wall-mounted, floor, and table versions. *artemide.com*

SkyFall, Studio Italia
LEDs offer direct and indirect light in this retro-inspired, hand-blown glass fixture, which comes in clear and copper-hued blown glass. *studioitaliadesign.com*



Irain, Blackbody
This custom shower of glowing OLED discs was created by designer Thierry Gaugain in 2012 and has been iterated for myriad spaces since. *www.blackbody-oled.com*

> *Read more about these and other lighting products at architectmagazine.com/topic/lighting.*


FINELITE
Better Lighting
Recalibrate Your Expectations.
Let Your Imagination Soar.
PRODUCT INNOVATION
pia 15
AWARD WINNER
The award-winning HP-4 LED collection lets you weave light into the built environment with a flexibility that minimizes customization and maximizes your control.
• Pendant, recessed, wall and surface mount
• Standard lengths ship in 10 working days
• Custom lengths and configurations available
• Up to 92 lumens per watt
Gate B22
Gates B23-B36
United Baggage Claim
Ground Transportation
Food & Beverage
Restrooms
EXIT
With The Finelite LED Difference
• 10-year warranty on all components
• L90 (90% of initial light output) for 100,000 hours
• Dimming standard
• Replaceable LED light arrays and drivers
Visit www.fineliteled.com for more information
Project: Boston Logan Airport - Terminal B • Lighting Designer: Collaborative Lighting, LLC • Electrical Contractor: Wayne J. Griffin Electric, Inc. • Architect: AECOM
Photographer: © Robb Williamson

Next Progressives: Adam Nathaniel Furman

AS TOLD TO ALEX HOYT
PORTRAIT BY MATTIA BALSAMINI

For the past six months, Adam Nathaniel Furman has been the lone architect ensconced with a host of artists and academics at the British School at Rome, as the recipient of the academy's 2014–2015 Rome Prize in Architecture. During his stay, he has drawn on a range of influences—from Giorgio De Chirico's paintings to Italo Calvino's novels to meanderings with an architectural historian through the city's dodgiest districts—to create a mixed-media evocation of the city, which was on display at the British School in March. Here, Furman, who is also the co-director of two London-based firms, Madam Studio and Saturated Space, discusses the drawings, computer animations, films, 3D-printed ceramics, and capriccios that make up his exhibition, the complex legacy of a forgotten fascist-era architect, and how Rome's many architectural layers make it "the urban version of the Internet."

The Rome Prize Experience

It's like one huge Oxford college here, with artists and academics going every which way, like an M.C. Escher drawing. I've become close with an architectural historian, Aristotle Kallis, who's just finished a book on the fascist architecture of Mussolini's "Third Rome." He introduced me to the architect Armando Brasini. I've visited every one of his projects in Rome, like a paparazzo. It's amazingly high-quality architecture, with good urbanism that deals with history in a progressive way. It's creative, flexible, modern, and doesn't reject the past. At the same time, the works were built for a fascist government. But I'm critical of tying architecture to any regime. Architectural forms have lives of their own. And Brasini has been misunderstood, ridiculed, and wiped out of history. I like characters like that.

My approach is this: How can a city be taken apart and put together again in your mind's eye? Walking around, you might see a renaissance lookout on top of a medieval tower, built over an imperial market above a clutch of republican villas. At the end of the day, you ask, what are the most evocative memories? What stories occupy these spaces? How can they be made understandable? The objects, the drawings, the capriccios—they all came out of those questions.

Formative Years

From the age of nine I thought of nothing but architecture. My auntie, a professor at the Technion in Haifa, Israel, gave me a love of Modernism and of cities. She explained to me every street corner, how it related to the topography. I was friends with an American girl whose father was a partner at Skidmore, Owings & Merrill in London and whose mother was a fabulous artist, and passed on her love of drawing. And then there is my father, who started out as an engineer. He always had a passion for buildings, and loves every detail of what I do—down to the fire escapes in an office skyscraper.

Adam Nathaniel Furman

Then I went to London's Architectural Association School of Architecture—a strange, wonderful beast. I set a rule for myself: Every year I would choose a unit as wildly different as possible. I had a wonderfully mad experience at OMA between 2005 and 2006, working until 6 a.m. every day. I got to work with Rem Koolhaas, HON. FAIA, on the Serpentine Pavilion, and saw how he developed a concept on the trot with Cecil Balmond via faxes, and how it became such a layered, ambiguous piece of architecture.

On the City of the Future

In 2005, I was in Rome on a scholarship, and had an epiphany: This city is the spatial equivalent of the Internet—there are so many interconnected layers that they no longer mean anything. Rome wears her history like the lightest scarf. There's an incredible drive toward newness. They're running forward with the past.

ARCHITECT

THE NINTH ANNUAL

R+D AWARDS

CALL FOR ENTRIES

Are you revolutionizing the process and product of architecture? ARCHITECT wants to celebrate the most innovative building research, materials, and technologies at every scale—from design strategies and building systems to must-have products and software.

CATEGORIES

Awards will be given in three categories, reflecting different stages in the research and development process:

- **Prototype:** For entries that are in the experimental and testing phase.
- **Production:** For entries that are currently available for use.
- **Application:** For entries that use technology in a novel manner on an architectural project.

The jury will consider newly introduced technologies as well as unconventional uses of existing technologies. Entries will be judged for their documented or prospective innovation in fabrication, installation, user engagement, and performance as well as for their potential to advance the aesthetic, environmental, and social value of architecture.

ELIGIBILITY

The awards are equally open to architects, designers of all disciplines, engineers, manufacturers, researchers, and students.

PUBLICATION

The winning entries will appear in the July 2015 issue of ARCHITECT, both in print and online.

DEADLINES

Friday, April 17
regular submission deadline

Wednesday, April 22
late submission deadline
(additional fee is required)

FEES

First entry: **$175**

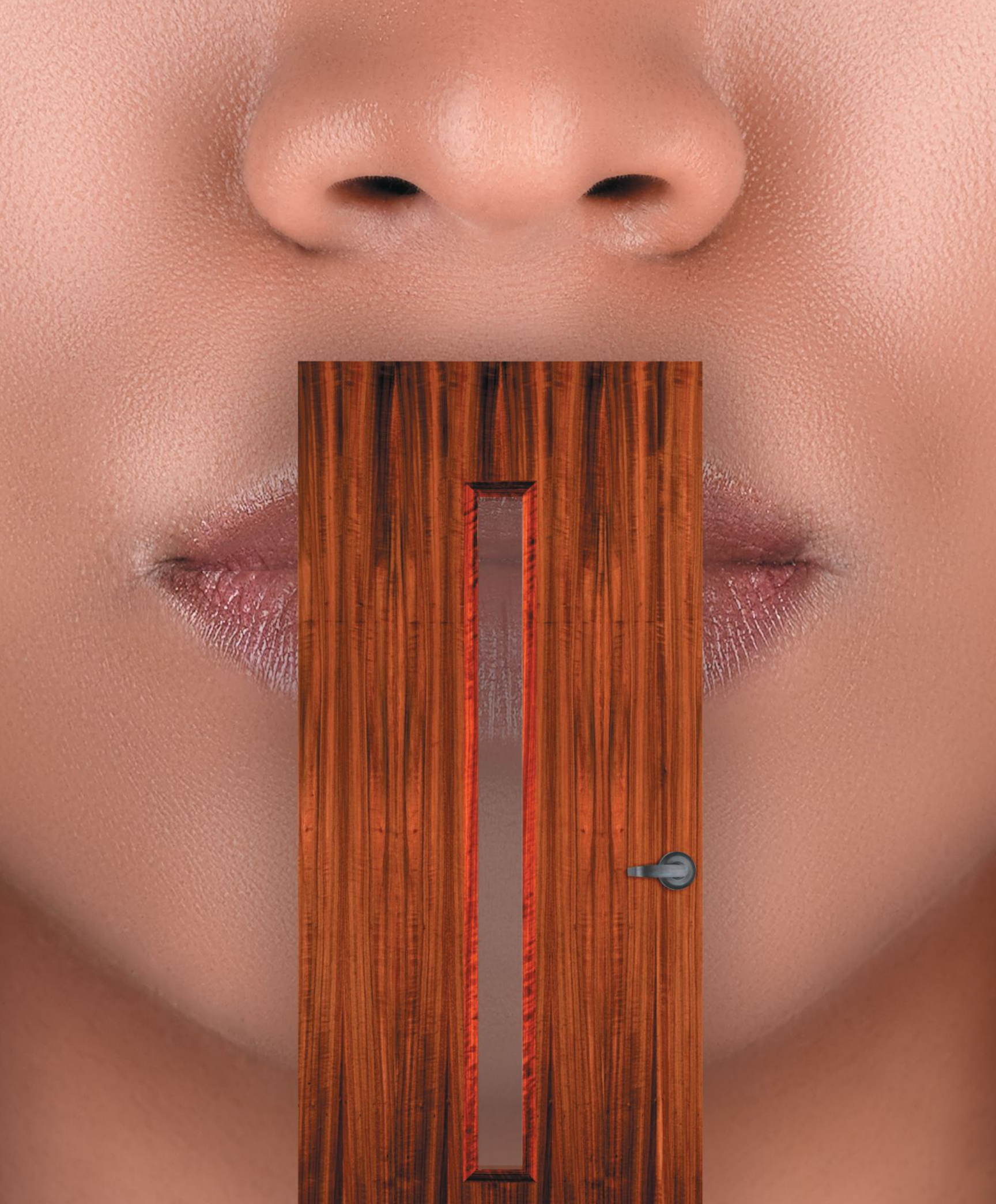
Additional entries: **$95 each**

Late entries: **$50 additional fee per entry** for those postmarked after April 17, 2015. Submission requirements and examples are available at **rdawards.com**.

For more information, email: rdawards@architectmagazine.com

ENTER TODAY: **RDAWARDS.COM**

hanleywood



SHHH.

With 28 to 49 STC acoustical performance,
sound stays in—and noise stays out.

VT INDUSTRIES Architectural Wood Doors

VTDoors.com 1-800-827-1615 (ext. 512)

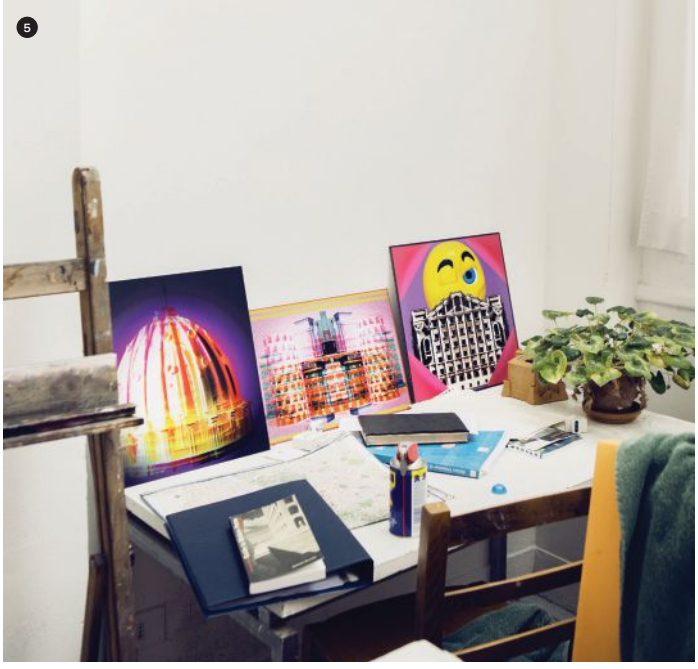
FSC www.fsc.org FSC® C008590 The mark of responsible forestry

Next Progressives:
Adam Nathaniel Furman

1

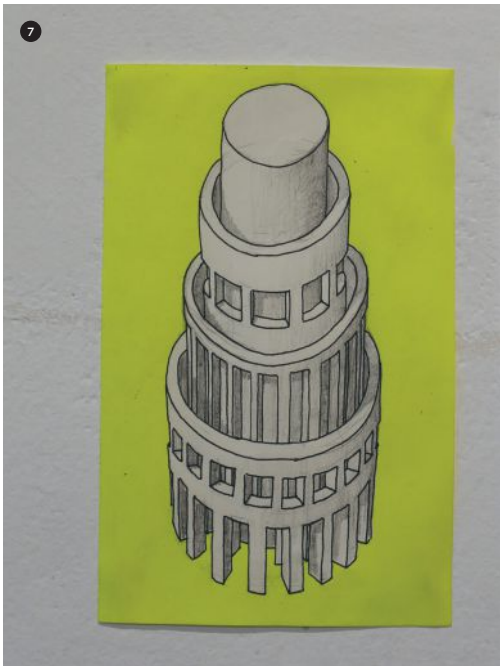
2

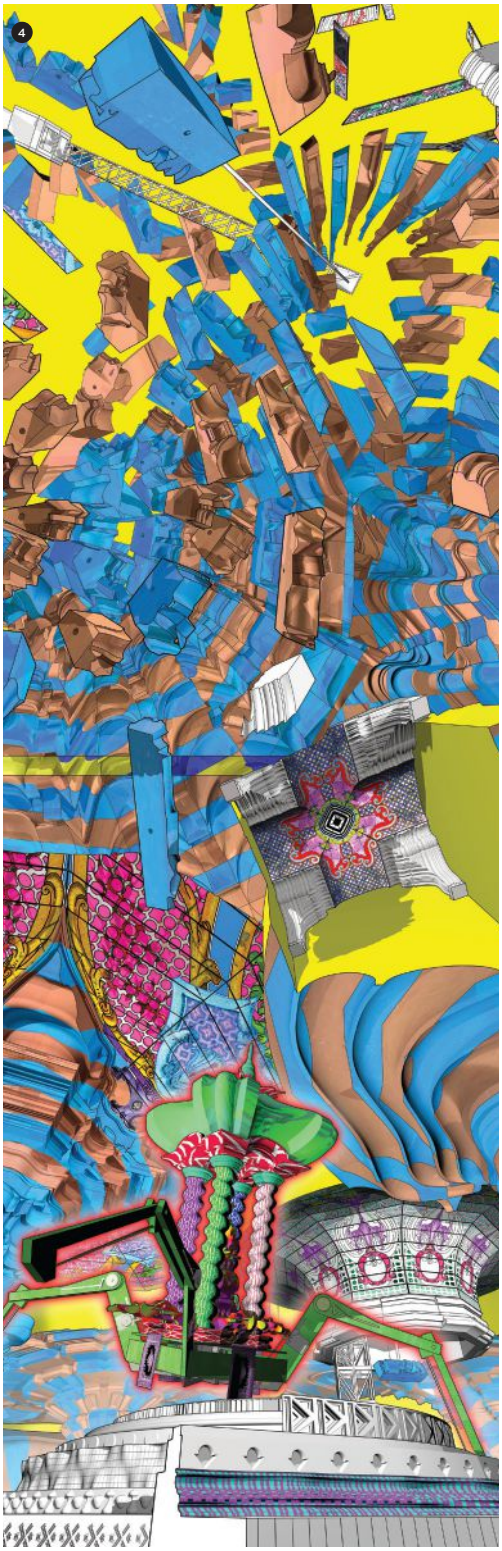
5



6

THIS PAGE: MATTIA BALSAMINI





1. Adam Nathaniel Furman's exhibition at the British School, *The Roman Singularity*, included videos combining computer animations with found footage to generate an imaginary Piranesian Rome for the 21st century. **2, 6.** *The Roman Singularity* also featured a collection, six months in the making, of 3D-printed capriccios, which Furman calls his City in Ceramics. **3, 7.** The series of multimedia capriccios investigates the forms found in Rome, an environment that Furman describes as "a Pantheon of city-sized souvenirs," which he sketches, manipulates, and reproduces as unexpected amalgams like the spolia he often encounters. **4.** During his studies at the Architectural Association, Furman developed (and received scholastic honors for) the concept of a Church of Perpetual Experimentation, set in a fictitious papal regime focused on a doctrine of assemblage and recombination. **5.** Furman's studio in Rome is full of colorfully rendered figures and sketches.

THIS PAGE: COURTESY ADAM NATHANIEL FURMAN

EXPRESS YOURSELF

Go ahead; the new Expressions Collection from Pittsburgh Corning is giving you the freedom to do just that. Simply imagine it and we can make it happen. Now you can customize and enhance your designs with glass block. Using a patented process to add color or images to any size or pattern, glass block is no longer just a classic and versatile building material, but rather it's a unique work of art. Perfect for any setting, the application options are varied and limited only by your imagination.

Express yourself today at PittsburghCorning.com

PITTSBURGH CORNING®

MADE IN AMERICA

We're more than just a paint company

Your design is magnificent. You'll oversee it being built from the ground up to ensure your vision is realized and that it will not only endure, but will continue to impress.

To help you meet that vision, we offer **professional support you can rely on** to help meet the demands of every commercial and residential project:

- Extensive National Architectural Program
- Product and environmental certifications

BEHR®

Introducing our state-of-the-art Architectural Color Box,* featuring more than 1,400 color options.
To receive your complimentary Color Box, visit **BehrColorBox.com** *Supplies are limited

Q+A: UDream's Donald Carter

INTERVIEW BY WANDA LAU

The minority educational and career placement program UDream (Urban Design Regional Employment Action for Minorities), in Pittsburgh, has been honored with a 2015 AIA Diversity Recognition Program. Since UDream's founding in 2009, 58 fellows—mostly recent B.Arch. graduates—have completed the 18-week program, which includes an academic boot camp and a paid internship at a local firm or nonprofit. Moreover, 25 fellows have stayed in the Pittsburgh area, a number that more than tripled the population of minority designers there and led to the re-establishment of a local National Organization of Minority Architects chapter. ARCHITECT spoke with Donald Carter, FAIA, director of the Remaking Cities Institute at Carnegie Mellon University's School of Architecture, which runs UDream.

Why is there a lack of minorities in architecture?

It starts in elementary school. Are the students exposed to architecture as a career? Do they know it is a career? That applies to both white and black students. In terms of minority students, there's not as much outreach in the architecture profession during K–12. But most professional [schools]—whether it's law, accounting, architecture, or medical—have this same issue in recruiting minorities. The historically underrepresented minorities—African-Americans, Hispanics, and Native Americans—are where the recruitment need is.

One of the things we do is called Architecture Building Communities week. After the five-week Urban Design boot camp, the fellows mentor high school students for one week. The UDream students tend to be mission-driven. They certainly want to develop their own career, but many talk about giving back to the community. There's a lot of selflessness about that kind of pursuit in their careers. That makes me very proud that they start off as 22-year-olds thinking broadly about not only their own profession but how they can change the world.

What can be done to encourage more diversity in the profession?

I think UDream would be replicable in almost any city with an architecture school. In our case, it requires $300,000 a year to run the program, which includes faculty salaries and facility expenses. It also pays for the fellows' housing, $1,000 monthly stipends, bus passes, transportation from [home to Pittsburgh and back] at the beginning and end of the program, take them to the NOMA convention, and provide tours and cultural enrichment activities.

The AIA and schools of architecture could also [increase their] level of marketing of architecture [as a career]. So there might be some effort that's targeted to Hispanic, African-American, and Native American communities that says, "This is a good profession for you, but you also can help your community." Another one is mentoring by African-American men and women who are already in the profession.

You mentioned that some of the UDream fellows have an interest in planning and returning to their communities. What makes their perspective unique?

One of the most important things in design is context. Understanding the culture of the neighborhood or community where you're designing is very important. And if you were already part of that culture, you're a step ahead of somebody who has to figure it out.

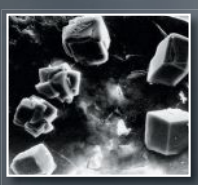
One reason people go back to their city of origin, regardless of whether they're a minority, is because they know that community, the culture, the architectural style, the political situation, and the economics. People, and particularly those who feel driven to do community-based work, typically go to communities where they have an emotional connection. A strong part of community building is having these bonds that are religious or racial or whatever. And it's a good thing.

How AIA Members Identify (as of May 31, 2011)

- 72% Caucasian
- 18% Unknown
- 5% Asian/Pacific Islander
- 3% Hispanic
- 1% African-American
- 1% Other
- 0% American Indian/Alaska Native

> *Read more about Donald Carter and UDream's impact on the architectural profession at bit.ly/AR-UDream.*

XYPEX® The World Standard in Concrete Waterproofing by Crystallization™



Concrete
(Untreated)

Xypex Crystallization
(Initiated)

Xypex Crystallization
(Mature)

When you select Xypex, you've chosen the best: more than 40 years of independent testing of our original crystalline technology... and still ***no equal***; our many years in over 70 countries have made us specialists; our unmatched product and service standards provide confidence and peace-of-mind to architects, engineers, contractors and concrete producers serious about long-term concrete waterproofing, protection and durability.

1.800.961.4477 | xypex.com

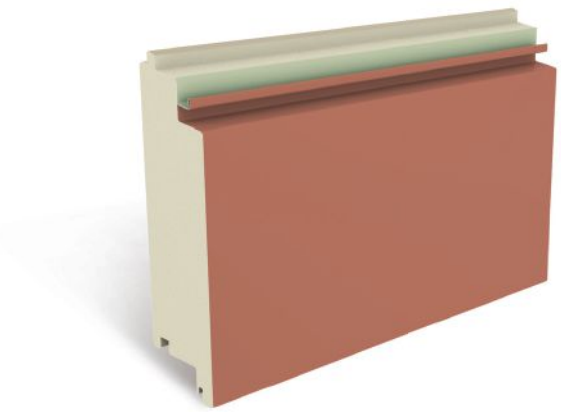
NO EQUAL

The Linea® and Grüv® 1.5 Families

A perfect pairing. For endless possibility.
amerlux.com/commercial

amerlux
Passion. Power. Performance.

DMV Headquarters | Sacramento, CA | Lionakis



Formawall® Dimension Series®

THE **RIGHT FIT**

Building retrofits present a unique set of challenges, and no two projects are the same. Each one takes a customized blend of the **right project plan**, the **right people** and the **right products** to achieve the **right performance** and the building team's vision. At CENTRIA we provide an unparalleled line of architectural metal wall systems for any retrofit project. Just as important is our experienced team of building experts who understand the challenges and opportunities that each retrofit project brings. When it comes to retrofit, see firsthand how CENTRIA is the **right fit.**

To learn more about how CENTRIA reimagines retrofits, call **1-800-752-0549** or visit **CENTRIAperformance.com/retrofit.**

CENTRIA | REIMAGINE **METAL**

Detail: The Pinch Roof

TEXT BY JENNY JONES

In Shuanghe Village, Yunnan Province, China, the curved gable roof topping the Pinch, a public library and community center, is a hybrid of forms and functions. Designed by Olivier Ottevaere and John Lin, both assistant professors of architecture at the University of Hong Kong, the 1,324-square-foot wood surface serves as a pedestrian ramp, playground, and seating for people-watching in the plaza below. It is also a symbol of the village's rebirth following devastating earthquakes in September 2012.

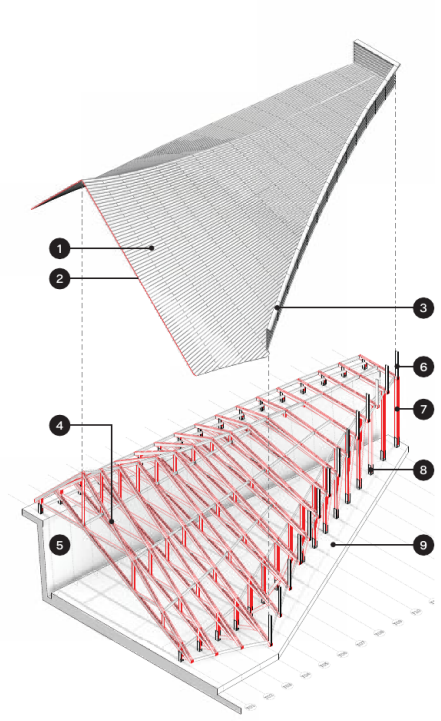
Construction crews hand drew templates for the 17 trusses on the plaza's concrete floor. The trusses, which range from 4.9 feet wide by 9.8 feet tall to 19.6 feet square, bear on the plaza's concrete retaining wall and on one of 17 timber columns. Crews covered the top chords of the trusses with 64 aluminum sheets and then the wood decking.

The designers used Rhinoceros and physical mock-ups to achieve a three-dimensional roof made from straight wood boards, and to determine how much the decking could torque between trusses. The boards "are buckling in two directions: length and the width," Ottevaere says.

Inside the building, wooden bookshelves hang from 13 of the roof trusses. Each of the 12 resulting bays holds approximately 200 books.

Ottevaere says that the Shuanghe community and the children immediately embraced the Pinch. "Once they moved all of their books in, it was theirs," he says. "[It's] a monument to the earthquake and the rebuilding effort."

EMA PETER



1. 4.3" × 1.3" × 16.4' wood boards (0.8" o.c.)
2. 3.3' × 6.6' aluminum sheets (not shown); silicone sealant in lap seams
3. 4.3" × 1.3" × 16.4' wood rails
4. 4.3" × 1.3" × 16.4' wood truss members connected by Ø1cm stainless steel bolts
5. Concrete retaining wall
6. 3.6' tall wood post (3' o.c.)
7. Timber column (3' o.c.)
8. Stainless steel bracket
9. Concrete foundation

Congratulations

TO HANLEY WOOD'S JESSE H. NEAL AWARD WINNERS

Hanley Wood is committed to publishing quality content that serves the information needs of construction industry professionals. Our editors have once again been honored by the most prestigious editorial awards program. Join us in congratulating them.

2014 WINNERS

JOURNAL OF LIGHT CONSTRUCTION | Best Technical Content

REMODELING | Best Profile

REMODELING | Best Subject-Related Package

2014 FINALISTS

ARCHITECT

AQUATICS INTERNATIONAL

BUILDER

MULTIFAMILY EXECUTIVE

POOL & SPA NEWS

The following Hanley Wood brands have been recognized over 95 times for editorial achievement.

AFFORDABLE HOUSING FINANCE

APARTMENT FINANCE TODAY

AQUATICS INTERNATIONAL

ARCHITECT

ARCHITECTURAL LIGHTING

BIG BUILDER

BUILDER

CUSTOM HOME

ECOHOME

ECOSTRUCTURE

MULTIFAMILY EXECUTIVE

POOL & SPA NEWS

PROSALES

PUBLIC WORKS

REMODELING

REPLACEMENT CONTRACTOR

RESIDENTIAL ARCHITECT

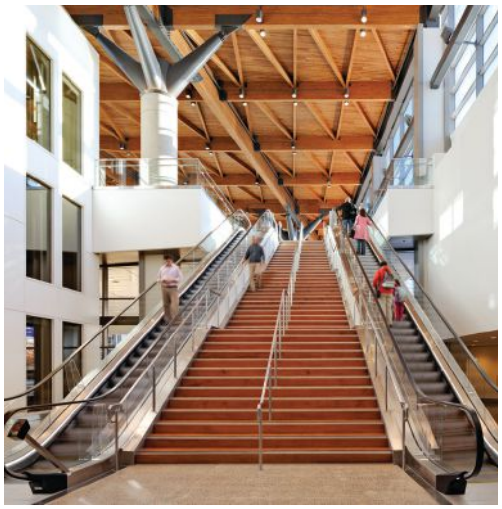
THE JOURNAL OF LIGHT CONSTRUCTION

TOOLS OF THE TRADE

hanleywood

WOOD: CLEARED FOR TAKEOFF

LEED Gold Certification is not the only distinction that marks Maine's 160,000-square foot **Portland International Jetport**. The Jetport's context-sensitive design memorably supports Maine's storied brand by incorporating symbols of the state's magnificent woodland beauty.



The monumental stairs reflects the ceiling's biophilia aesthetic. The prominent use of wood helps evoke a sense of place and emotional connection, helping to indelibly brand Maine's renown woodland heritage and the Portland area's celebrated seafaring culture to all who visit.

The design team explored the use of native wood species, like spruce and fir. But southern pine's denser, stronger physical characteristics better met the structural requirements.

The metal seats are part of a tree column assembly that support the glulam spans. The final assembly by crane was performed without a problem.

The owner's challenge was direct: A blindfolded airline passenger coming off the jet bridge should be able to remove his or her blindfold and instantly know they're in Maine.

"Wood was selected for many reasons in order to accomplish this goal," says Gensler architect Jim Stanislaski, AIA, LEED AP. The Gensler Washington D.C. office embraced a context-sensitive design approach. "We wanted the terminal to represent the surrounding location," Stanislaski explains. "There is a real tactile and visual warmth to wood that we liked. Creating an atmosphere where people can connect with the natural environment, a biophilia dimension, is a major advantage in designing with wood."

The 40,000-square foot ceiling of the jetport—an arrary of southern pine glulam girders, beams, purlins, and a roof deck of tongue-in-groove planks supported by massive metal-seated tree columns—is the airport's signature design element.

Glulam (glued laminated timber) was chosen because it has greater strength and stiffness than comparable dimensional lumber. That's why glulam beams can span long distances with minimal need for intermediate supports.

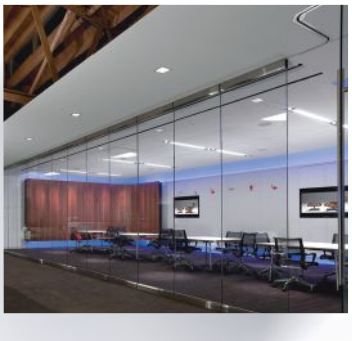
Glulam's inherent strength offers designers nearly unlimited design flexibility when specifying long spans and distances for an airport terminal or other commercial or non-residential applications.

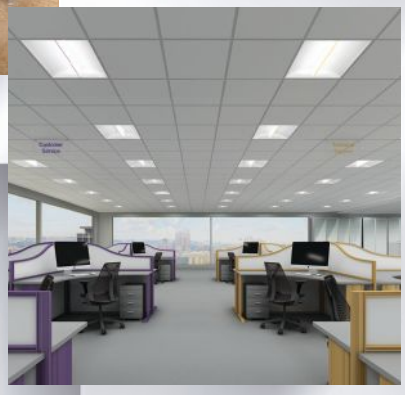
"We could have selected a substitute product that looked like wood, but it was important to the design team that we maintain the authenticity of wood," Stanislaski says. Southern pine was selected for its denser, more robust physical characteristics.

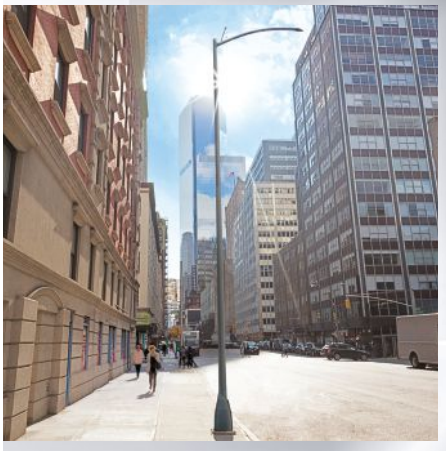
Gensler also applied a similar design approach for the Jackson Hole Airport, another award-winning design that dramatically integrates wood in an airport terminal setting. "You expect to see wood in smaller airports like Aspen or Nantucket. The scale in Portland is unique and unexpected," Stanislaski observes.

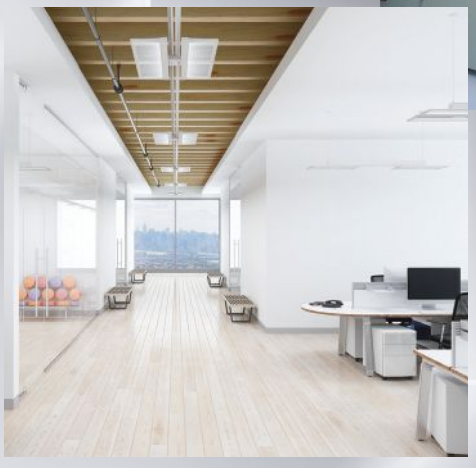
"Wood is a major design consideration for the reasons I've mentioned. But wood also lowers the carbon footprint, it's renewable, recyclable, and can be repurposed from other structures."

Architect: Jim Stanislaski, AIA, LEED, Gensler
Architect Office: Gensler—Washington D.C.
Owner: City of Portland
Structural Engineer: Oest Associates
Timber Engineer: DeStafano & Chamberlain
Contractor: Turner Construction
Photographer: Robert Benson Photography
Awards: 2012 Environmental Achievement Award (Environmental Management)









Innovation you can rely on™

With the industry's broadest portfolio of lighting and controls solutions, coupled with our experience and vision, Eaton's Cooper Lighting business can provide you with the unparalleled guidance you need for your next project.

Visit us at **LIGHTFAIR booth 1157.**

eaton.com/lighting

Cooper Lighting

by EATON

PHOTO: PORTER GIFFORD

AIAVOICES

PRACTICE CRAFT | A CONCEPTUAL ECONOMY OF MEANS

Elizabeth Whittaker, AIA, is a 2015 AIA Young Architect Award recipient who explores uses for unconventional materials in her work and develops new methods of production that combine digital fabrication and the handmade. Whittaker's Boston-based firm, Merge Architects, works closely with clients, fabricators, artists, and engineers to produce residential, commercial, and installation projects, often with modest budgets. "Materiality, craft, and the social space of architecture," she says, "we combine as a conceptual economy of means."

ECONOMIC CONSTRAINTS ARE A REALITY FOR MOST FIRMS. Architects struggle with budgets and the responsibility to spend someone else's money wisely. Around my office, when we talk about an economy of means, it's about the budget—sure—but it's also conceptual. It's about having a clear approach to the problem at hand, even if the act of making architecture—the craft itself—adds complexities related to resources, time, energy, precision, technique, and so on. Resources, time, and energy are just as much a part of the *craft* of architecture as is the design itself.

There are a lot of ideas that we take on that neither we nor the fabricator are initially quite sure how to execute. Throughout the process we establish a mutual reliance on expertise and research to execute a project. It's a real-time process and there's something original and authentic that occurs on-site with real-time collaboration.

Our Marginal Street Lofts project in East Boston is a good example. We ordered a standard-size mesh from a company out of Germany, but it had to be cut into trapezoidal shapes and sewn onto a frame at the jobsite. We found a former boatbuilder—a guy who had experience with boat nets—and he became one of our closest collaborators on the project. We developed the assembly in detail in our studio, but it wasn't until we were there, on site, facing the reality of the façade, that we realized we needed an expert who could help us with nets. For that reason, among others, the realities of construction are as illuminating as the process of discovery you undergo on the computer. To be fair, every construction project with any team is a collaboration—a word that is overused, but fundamental. There are many ways to define it, and this is just how we define it.

We are a firm that's invested in thinking through the process of making, in engaging the city through our buildings, and inventing social space in architecture. We are very interested in thinking about how people interact in our projects and how these spaces may impact their lives and the city around them. This process is not necessarily an effort to achieve a highly developed final rendering, but rather about studying material properties and their impact on form. This is often not a linear process, but instead manifests in a continuous feedback loop. *—As told to William Richards* AIA

I AM AIA

Obiekwe M. Okolo, Assoc. AIA
Member since 2014

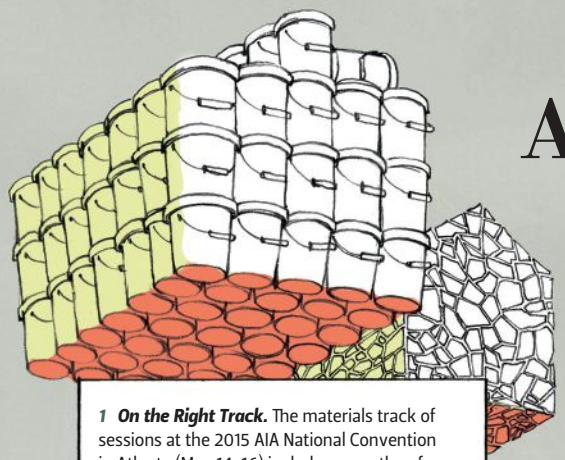
"Music is my first love, and nothing connects me to it like architecture. In my first architecture class, we listened to a Miles Davis album and it clicked for me. Like music, architecture inspires when it unfolds in layers of meaning."

Join me.

THE AMERICAN INSTITUTE OF ARCHITECTS

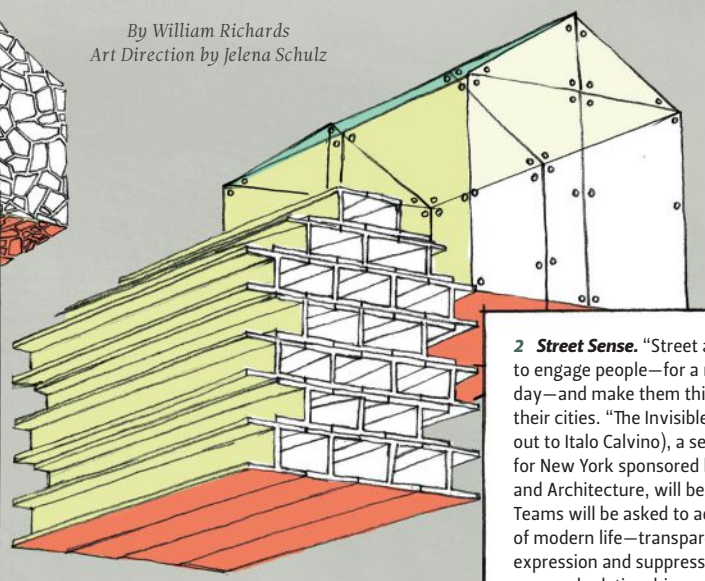
AIANOW

By William Richards
Art Direction by Jelena Schulz



1 *On the Right Track.* The materials track of sessions at the 2015 AIA National Convention in Atlanta (May 14–16) includes more than five dozen for-credit courses. Joined by design and health, energy, resilience, and small-firm practice tracks, the message is clear: It's about healthier, responsive environments and intelligent design choices.

↗ Learn more at *aia.org/designhealth*, and browse the special focus tracks at *convention.aia.org* in advance of May's convention and expo.

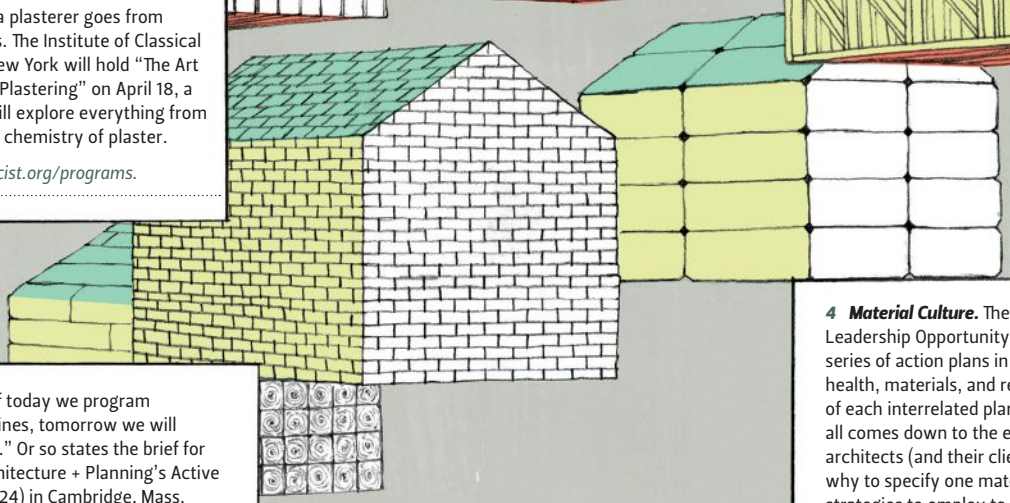


2 *Street Sense.* "Street architecture" is intended to engage people—for a month or a week or even a day—and make them think a little differently about their cities. "The Invisible City" (with a nice shout-out to Italo Calvino), a series of temporary spaces for New York sponsored by the Storefront for Art and Architecture, will be unveiled May 28–30. Teams will be asked to address certain dichotomies of modern life—transparency and surveillance, expression and suppression—and other more nuanced relationships, such as participation and dissent, or citizenship and representation. Heady stuff, but it will certainly draw attention to participating architects and designers.

↗ Learn more at *storefrontnews.org*.

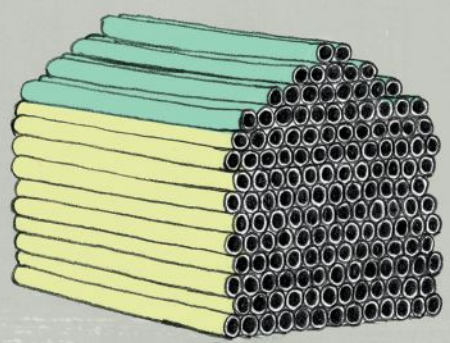
3 *Hawk and Trowel.* Plaster has long been an architectural material, skillfully applied to grand ceilings for decorative relief and, in an everyday way, to the humblest of house walls for protection. It all starts from powder and water to form a paste—maybe with a little horsehair thrown in—but where a plasterer goes from there is anyone's guess. The Institute of Classical Architecture & Art in New York will hold "The Art of Building: Traditional Plastering" on April 18, a one-day course that will explore everything from moulding theory to the chemistry of plaster.

↗ Learn more at *classicist.org/programs*.



4 *Material Culture.* The AIA's 2014 Sustainable Leadership Opportunity Scan represents a series of action plans in the areas of energy, health, materials, and resilience. The first steps of each interrelated plan are underway, but it all comes down to the everyday choices that architects (and their clients) make in terms of why to specify one material over another, what strategies to employ to make a space healthier, and what the impact of those spaces will be in five, 10, or 20 years.

↗ Learn more about why materials matter at *aia.org/practicing/materials* and about which sustainability resources are right for you at *aia.org/sustainability*.



5 *Zeros and Ones.* "If today we program computers and machines, tomorrow we will program matter itself." Or so states the brief for the MIT School of Architecture + Planning's Active Matter Summit (April 24) in Cambridge, Mass. Why should this matter (pun intended) to architects? Nanotechnology, so-called soft robotics, synthetic biology, and 3D printing are changing the ways that design is approached and fabricated for ever-more-adaptive materials that will change the way we live.

↗ Learn more and register at *architecture.mit.edu*.

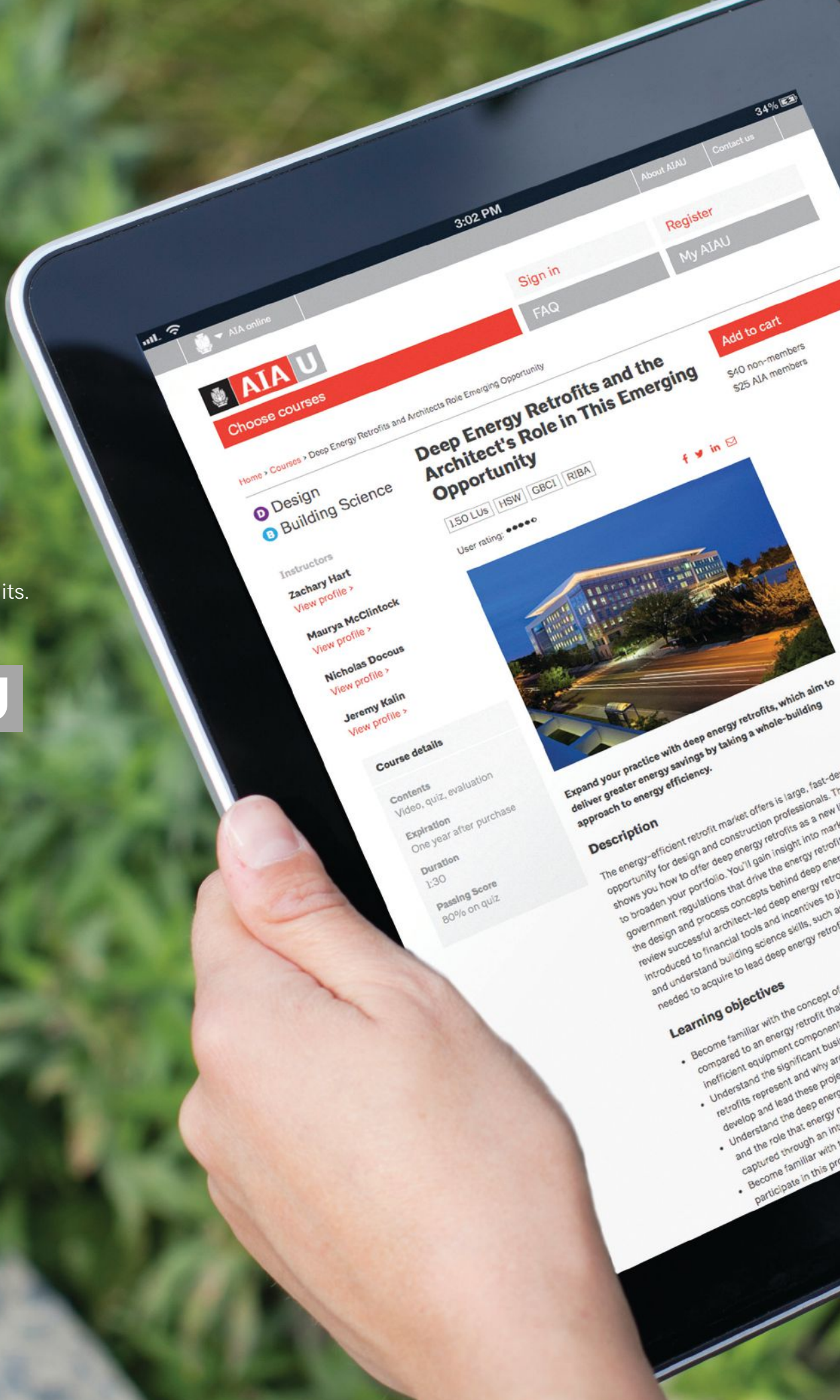
ILLUSTRATION: LAUREN NASSEF

Never stop learning

aiau.aia.org

Introducing AIAU.
A new place for architects
to learn and earn
continuing education credits.

AIA U



AIACOLLABORATION

BACK TO SCHOOL

ILLUSTRATION: JOHN BUSBY JR., FAIA, 1986 AIA PRESIDENT

I Am A Monument: *Discover ARCHITECTURE*, published by Melody Harclerode in 2014 to further the mission of the K–12 program of the same name, includes illustrations of Altanta landmarks drawn by John A. Busby Jr., FAIA.

A grassroots program to teach architecture basics in Atlanta evolves into a district-wide phenomenon

IN 2010, ART EDUCATOR PHILLIP ALEXANDER-COX APPROACHED Melody Harclerode, AIA, with a question: Would you be interested in starting an architecture program at my elementary school? Alexander-Cox always had an appreciation for architecture, and Harclerode—the mother of two students at the school at the time—was already active in the K–12 program run by AIA Atlanta. For her, the answer was an emphatic "Yes."

Thus began Discover ARCHITECTURE, which has expanded throughout Atlanta. "We now work with six elementary schools in the Atlanta system," says Harclerode, now president of AIA Atlanta, all of which "are geographically and economically diverse. We've received local awards, a national grant, and a proclamation from the city council of Atlanta commending our work."

The nine- to 10-week program is an extracurricular activity aimed at fourth and fifth graders with an interest in art and design. The Atlanta offices of firms such as Perkins+Will, Gensler, and HOK—along with the firms Cooper Carry, TVSDesign, Stevens & Wilkinson, and Collins Cooper Carusi Architects—partner with art educators at each school to come in and share their knowledge of architecture with the youngsters. To ensure the successful implementation of the curriculum, a lead architect or volunteer from each firm coordinates the volunteers' schedule and collaborates with the educator to build stronger relationships with the students.

Architects and designers can easily fit the time to volunteer in their work schedule, Harclerode notes. Perkins+Will architect Allen Post, AIA, and Gensler senior associate Gail Malone have held the role of lead architect for the Discover ARCHITECTURE program with their firms since 2012. "Even the principals donate their time, which means a lot both to the students and to any younger employees who might have initially been a little apprehensive about leaving work a little early to participate," Harclerode said.

One of the goals of Discover ARCHITECTURE is to provide a hands-on creative outlet—or, as Harclerode puts it, "a friendly, affordable alternative to [the video game] Minecraft." Students are encouraged to create building models with common household goods, and to understand the design process from the ground up.

"Creativity is accessible and sustainable," Harclerode says. "Instead of throwing something away, let's find a second life, a way to reinvent and adapt the paper-towel roll or the shoebox."

With the AIA National Convention in Atlanta (May 14–16), that sense of unfettered inspiration is being focused locally. The students of Discover ARCHITECTURE have been tasked with redesigning six of the city's most recognizable landmarks, including the Georgia Dome, the National Center for Civil and Human Rights, and John C. Portman Jr.'s revolutionary Hyatt Regency Atlanta. "We want to see how they'd design these buildings," Harclerode says, "with all the color and imagination that comes with it."

To help promote her mission, Harclerode has published *Discover ARCHITECTURE* (Primedia, 2014), which aims to engage students "about architecture, engineering, and green building … [and bring] the joy and the great benefits of the program to students and educators outside of Atlanta," she says. —*Steve Cimino*

For more on Discover ARCHITECTURE, visit *www.aiaatl.org/discover*.

Fighting for the Driver's Seat

ARCHITECTS ARE IN A POSITION TO LEAD THE CONVERSATION ON SUSTAINABILITY, BUILDING MATERIALS, AND PUBLIC HEALTH. BEFORE IT CAN BE A DESIGN CHALLENGE, HOWEVER, IT MUST FIRST BE A CONSUMER ISSUE.

AS *MAD MEN*'S DON DRAPER ONCE NOTED, "IF YOU DON'T LIKE what's being said, change the conversation." Now, perhaps more than at any time in the history of the profession, architects are engaged in high-level research and discussions about sustainability, resilience, and public health—things that have far-reaching and long-lasting ramifications for our species and our world.

If that sounds hyperbolic, think again: For those who have worked to rebuild in the wake of disasters like Hurricane Katrina and Superstorm Sandy, the threats are very real. Architects now have an unprecedented opportunity to change the consumer conversation about design and building in profound ways.

Over the past couple of years, the AIA has been engaged in this work through the development of four action plans on sustainability and resilience, energy, design and health, and materials, all of which came out of a report, "Sustainability Leadership Opportunity Scan," developed by Mary Ann Lazarus, FAIA, a resident fellow at the AIA. "What we're trying to do is create initiatives to promote architects' awareness of these issues," says Melissa Wackerle, the AIA's director of sustainable practice and knowledge. "The public at large is part of that audience. Right now, there's a gap in understanding of how big an influence architects can be."

So how can architects leverage their unique position to bridge this gap? In addition to promoting advocacy and increased information sharing, these action plans include steps to inject more transparency into design, construction, and material specification, including such proposals as a requirement that each AIA honor

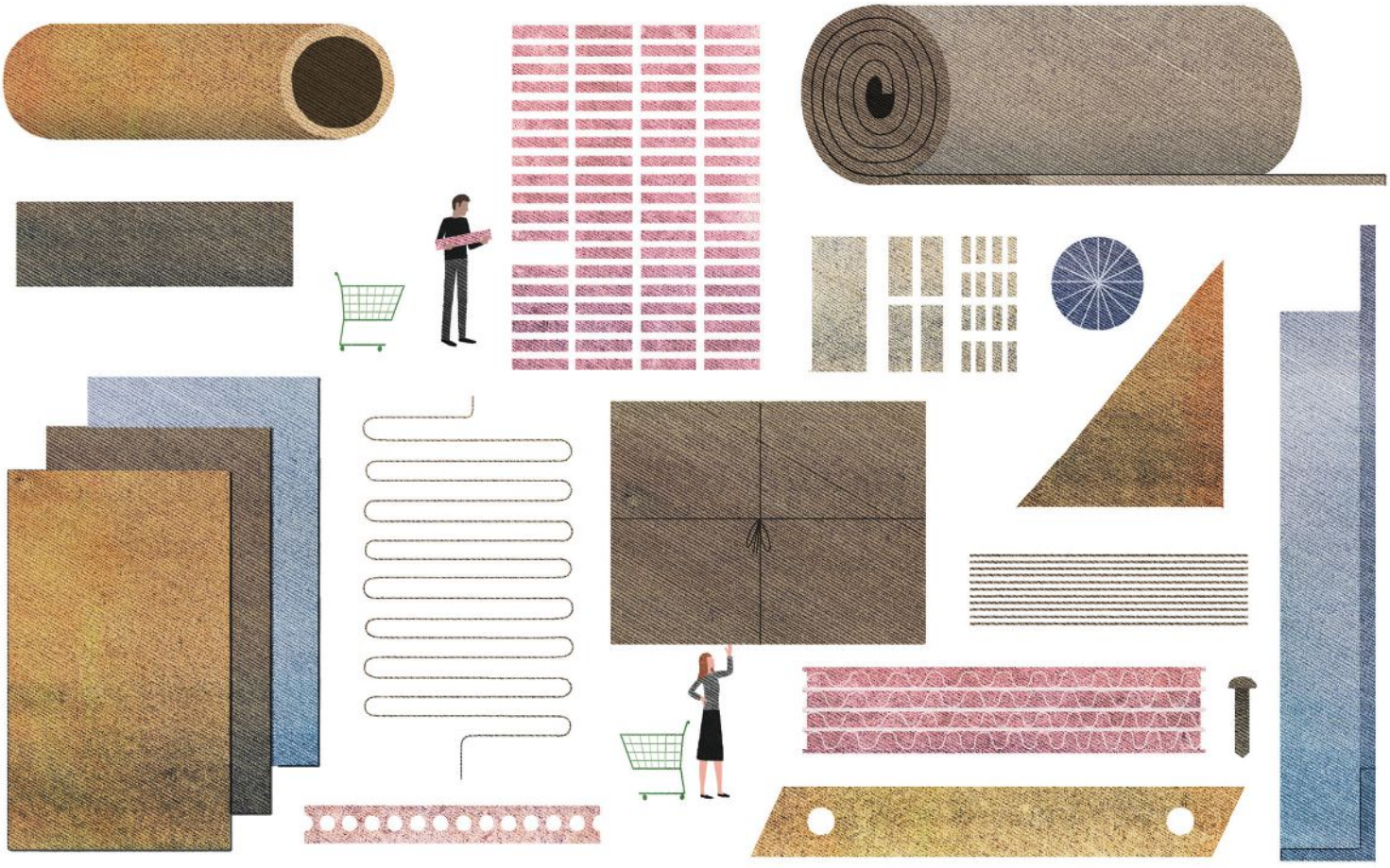


ILLUSTRATION: MICHAEL KIRKHAM

award submission include predicted energy- and water-performance metrics.

The logical next step, when it comes to increased community engagement, is to better communicate this kind of information to users, which can be accomplished in myriad ways.

At Emory University, multiple residence halls designed by Ayers Saint Gross include building dashboards on large computer screens where students can see in real time exactly how much energy they're using. "Our actions speak louder than our words," says Anne Hicks Harney, AIA, the firm's director of sustainability. "These buildings exist in the public realm, and that's how we can truly communicate with the public."

Still, words can speak loudly as well. Examples are rife in the consumer-product world of how media campaigns, marketing, and word of mouth have changed the things we buy, eat, and use every day, from the trademarked "Just Do It" to the more generic "gluten-free." Food author Michael Pollan, for example, has written several books about how what we eat affects both people and the planet. Pollan famously summed up his message this way: "Eat food. Not too much. Mostly plants." While Pollan's statement might not pack the PR punch of, say, "Got Milk?" or "The Breakfast of Champions," it manages to distill some complicated ideas about sustainability and society into language that is (no pun intended) easily consumed. This is a challenge that architects have yet to fully meet.

Harney's firm is part of a working group of large firms pushing for greater transparency from product manufacturers regarding chemicals and other potentially harmful substances in the materials that architects specify. Inspired by Pollan's *Food Rules*, Harney offers up a slogan that she hopes will catch on with consumers, or at least inspire others to keep working in this direction: "If you don't know what's in the product, don't put the product in your home." The AIA has also topped its Web page on materials with a snappy headline—

"Materials Matter"—and a video that asks the important question, "What if we could do more?"

"We need to ask our manufacturers what's in their products—and if they don't tell us, we don't buy it," Harney says. When trans fats became a public health concern, she says, "It took all of three months for trans fats to disappear from grocery shelves, just from the new requirement that this info was included on the nutrition label. We need a simple set of product rules to help us make better day-to-day decisions. We need nutrition labels on all our products—not just our food products, but our clothing and our building materials."

So far, Harney says, manufacturers are starting to respond to the working group and offer more Health Products Declarations (HPDs) and Environmental Product Declarations (EPDs). Both kinds of declarations quantify the environmental impacts of building materials. (EPDs are now being collected in the EPD Registry [theepdregistry.com], a new database published by Eco Health Data and a resource for green-building professionals.)

But the issues around materials and products are complicated, and sometimes the cure is just as bad as the disease. Take the chemical bisphenol-A, better known as BPA, which was removed from items such as baby bottles and other containers after consumer advocacy groups identified the potential health and environmental risks associated with it.

Now many products declare themselves "BPA-free." The problem is that manufacturers replaced BPA in those bottles with the similar chemical bisphenol-S, or BPS, which researchers now claim also has biological risks to the heart and brain. Yet there are, at this time at least, no "BPS-free" labels on products.

If consumers are in the dark about what's in bottles and containers, then they are in pitch darkness when it comes to what's in most building products and materials. This is a major area where architects can continue to drive consumer awareness and decision-making. "We're not trying to make architects into material scientists," says the AIA's Wackerle, "but they can identify a document associated with a product to help determine its environmental safety."

Russell Perry, FAIA, director of SmithGroupJJR's Washington, D.C., office and a co-leader of the firm's sustainability efforts (who sits on the AIA's Materials Knowledge Working Group), also finds correlations between the consumer product industry and what architects are advocating regarding materials. He admits that while he spends a significant amount of time on advocacy, he says it is "100 percent focused on the industry and not on the public." That can and should change, Perry says.

"Now you have websites exposing the underlying chemistry of toothpaste," Perry says. "You have Wal-Mart and Johnson & Johnson taking public positions [on environmentally hazardous chemicals] and getting phthalates out of hairspray. The parallel of that is what we're doing with manufacturers, but the public has no idea about it." Perry insists, however, that the first audience for this must be the architectural profession as a whole, then clients and the general public. "If we had every architect say, 'I'm not specifying your carpet until you tell me what's in it,' then every carpet manufacturer would do it," he says.

But no matter what words are used, the old "save the planet" ethos doesn't necessarily work anymore. Even the words "green" and "sustainable" are overused and may have lost their meaning, according to some architects. Rather, the message is more effective if we couch it as saving ourselves, our cities, and our wallets.

"It's about tuning into people's own value set," says the AIA's Lazarus, whose research drove the development of the Institute's action plans. "With energy, for example, you're talking about savings and investment. With daylighting or putting a natural landscape outside an office building, it's about making it a better place to work so your employees are more productive and want to come to work every day."

Human systems are much more vulnerable than the ecological systems on the planet, she adds. "We as a species are going to be most affected by what we're doing," she says. "In the long term, the Earth will be fine. So we're focusing on the benefits of sustainability to us, our species. It's just common sense. We have a responsibility to do so." —*Kim A. O'Connell* AIA

AIAFUTURE

RENOVATION MOTIVATIONS

ILLUSTRATION: MICHAEL GLENWOOD

Data from Houzz surveys points to generational preferences in sustainable sourcing and design choices

IN HIS WATERSHED ARTICLE FOR THE NATIONAL TRUST FOR Historic Preservation's *Forum Journal*, Carl Elefante, FAIA, wrote: "The greenest building is ... one that is already built." It's succinct, to be sure, but it also drives to the spirit of one major debate under the umbrella of sustainability.

Are the best buildings those that are designed with green materials and minimal energy usage in mind, or are they the existing ones that have stood the test of time and may be adapted to new needs?

Renovation, of course, is aligned with the latter option. But it raises a number of important questions about how to renovate sustainably. As new troves of data from Houzz indicate, it also raises a number of questions along generational lines.

The use of so-called sustainable materials, along with related mindsets, varies generationally in several intriguing ways. Millennials, for example, often do not renovate with sustainability in mind. According to the 2014 Houzz & Home Survey, they are the age group most likely to remodel with the goal of increasing a home's resale value for an upcoming move.

"The study does show that millennials are more likely to move in the next five years than the baby boomers," said Nino Sitchinava, principal economist at Houzz. "As a result, it is likely that millennials have less of an incentive to make durable choices in their current home than the older generation."

That desire to improve and flip a home over a short period of time doesn't lead to scrimping and saving on renovations, however. In the 2014 Houzz Kitchen Trends Study, price was listed as the least important factor when it came to product decisions for a kitchen remodel. Only 7 percent of surveyed remodelers were driven by the

cost of their lighting fixtures; for appliances, cabinets, faucets, and paint, only 6 percent said price mattered most.

"Remodeling is a big-budget decision," said Sheila Schmitz, editor of Houzz, "and value matters to everybody. But how you define value differs from person to person; people are okay with splurging on what matters to them. What I'm seeing is a move towards more personalization and what really works for the homeowner."

A New Millennium of Homeowners

Millennials do appear, however, to be less invested in their homes in general. According to Sitchinava, they "tend to have lower homeowner rates, and, as a result, lower experience with what to do with a home in general." They often lack the wealth of experience that comes with owning a home for several decades and, according to the Houzz & Home Survey, spent the least of all surveyed age groups on all types of remodeling projects over the last five years.

Millennials are also less critical of their homes when it comes to their health. The 2014 Houzz Healthy Homes Trends Study noted that 41 percent of baby boomers feel their home is not healthy, as compared to 29 percent of millennials.

"Younger people are more mobile and perhaps on their starter home," Schmitz said. "They also tend to feel immortal. A baby boomer might be realizing that he or she is now part of the older generation, or be worrying more about risks for kids in the home."

Enduring Materials Stand Out

Data from the Kitchen Trends Study did indicate an overall interest in the endurance of materials used across age groups. Stainless steel was by far the most popular finish for kitchen appliances (83 percent), and granite ruled the roost as the material most likely to be used in countertops (49 percent of suburban kitchens). It's not surprising to see such conservative choices lead the pack, but what contributes to their popularity among both young and old?

"Durability and practicality," Sitchinava said. "Most kitchen remodels outlast marriages. These choices are about what sustains, about the sheer cost of the remodel. With that in mind, these durable materials are just more reasonable, period."

"Neutral but long-lasting materials are the perfect canvas for personalizing," Schmitz added. "You can make traditional choices and then complement those; you don't have to sacrifice your own style."

Energy efficiency, however, does not seem to be a priority in renovation motivation. When the Houzz & Home Survey asked homeowners what motivated their most recent remodeling project, "Improving the look and feel of the space" and "Making the space more functional" far surpassed "Making home more energy efficient." In fact, only 29 percent of millennials surveyed and 30 percent of all U.S. homeowners chose energy efficiency as pertinent in that regard.

At the end of the day, though, what's worked before often proves more desirable than the flashiest, fanciest new options.

"I'm seeing a lot of nostalgia from millennials," Schmitz said, "a lot of interest in classic design, and also a joy in the arts that our grandparents knew. Putting your clothes on a line, growing your own food—it's interesting that new homeowners, in this regard, are looking back to a previous generation." —*Steve Cimino*

AIAPERSPECTIVE

RESILIENCE BY DESIGN

LETTING A SENSE OF PLACE GENERATE THE SOLUTIONS

PHOTO: CARL BOWER

ARCHITECTS THINK ABOUT MATERIALS A LOT—AS MUCH AS THEY think about budgets, plans, programs, and sites. But there's another way to think about materials, as in the raw materials of a neighborhood or a community: the people and their sense of place, their pride in what they do and where they live, and the means of producing—and sustaining—a way of life. In thinking about materials in this way, we get closer to a universal definition of resilience.

In February, at AIA headquarters in Washington, D.C., the exhibition "Rebuild by Design" spoke to the efforts of the Architects Foundation (formerly the American Institute of Architects Foundation) to help communities recover from and prepare for disasters. Initiated by President Obama's Hurricane Sandy Rebuilding Task Force and supported by the Rockefeller Foundation, the exhibition showcased 10 innovative approaches to rebuilding communities devastated by Sandy. Each proposal was developed by design professionals working in partnership with citizens struggling not simply to rebuild, but to restore a way of life.

A few weeks later, I visited New Orleans' Lower Ninth Ward. Yes, I saw signs of rebuilding, but, incredibly, after nearly a decade, a full recovery in one of hardest-hit areas in the city seems a long way off. Where rebuilding has taken place, those houses that are now elevated above the flood plain have lost a natural connection to the streets and neighbors. They're more resilient now, I guess, but at what price?

Which brings me to the idea, advanced in "Rebuild by Design," that people have an instinctive appetite for building the collective attachment to their place. If the pace of rebuilding in New Orleans was less than what I had hoped to see, the spirit of the people was a source of hope. I met folks who are not only rebuilding structures but who, more importantly, are rebuilding human infrastructure.

I had lunch at Café Reconcile, where at-risk men and women are working to hone their skills in the food service industry. Further down the street, once at-risk youth were working in a bike shop and learning how to repair gears, gaskets, and wheels. I found hope in the work of the Tulane City Center, which is a passionate and compassionate group of students, teachers, architects, designers, and community organizers who are all working together to rebuild a community, one project at a time. This, more than brick and steel, is the true mark of resiliency. The "instinctive appetite" citizens have for all the intangibles that make where they live special out-trumps any design zeitgeist. In the end, the invisible but durable web that binds us to one another and the places we call home is the most enduring material we have to achieve resiliency that truly matters. AIA

Elizabeth Chu Richter, FAIA
2015 AIA President

Cardinal Red, Weathered Zinc...LEED Gold

Animal Care & Protective Services - Jacksonville, FL
Architect: Ebert Norman Brady Architects
Panel Contractor: Thorne Metal Systems
Profile: 7.2" Rib & Perforated Panels
Finish: Cardinal Red, Interstate Blue & Weathered Zinc

LEED Gold Certified

See us at the AIA Expo, Booth 1247!

PAC-CLAD® Panels in 31 ENERGY STAR Colors!

Sustainable materials and eye-catching design. The PAC-CLAD 7.2 Panels offer heavy horizontal shadow lines that are appealing for this LEED® Gold Certified project.

"We selected metal panels to give us the contemporary state-of-the-art look we wanted for the high profile site"

—Tom Norman, Project Manager + Designer with Ebert Norman Brady Architects

See all of our Corrugated Panels at www.PAC-CLAD.com.

PAC-CLAD® PETERSEN ALUMINUM 50 YEARS

WWW.PAC-CLAD.COM | IL: 1 800 PAC CLAD
MD: 1 800 344 1400 | TX: 1 800 441 8661
GA: 1 800 272 4482 | MN:1 877 571 2025

PACGREENINFO.COM
YOUR GREEN METAL RESOURCE

BREAKING THE RULES OF BORING ROOFS

NEW IDEAS TAKE ROOT UP TOP

Presented by:

BISON Innovative Products

PAC-CLAD PETERSEN ALUMINUM 50 YEARS

Photo courtesy of Bison Innovative Products

LEARNING OBJECTIVES

At the end of this program, participants will be able to:

1. Understand the basic components of metal roofing systems.
2. List the testing and standards requirements for commercial metal roofs.
3. Identify the energy efficiency and sustainability attributes of a metal roof.
4. Describe the benefits of alternative uses for flat commercial roofs.
5. Explain the challenges and solutions to selecting materials that will compliment roof top spaces on commercial buildings.

CONTINUING EDUCATION

CREDIT: 1 LU

COURSE NUMBER: ARapril2015.1

Use the learning objectives to focus your study as you read this article. To earn credit and obtain a certificate of completion, visit http://go.hw.net/AR415Course1 and complete the quiz for free as you read this article. If you are new to Hanley Wood University, create a free learner account; returning users log in as usual.

By Andrew Hunt

GETTING THE LOWDOWN ON THE ROOFTOP

Designing commercial roofs can be akin to designing stairwells. In a word: boring. Every building needs them, but really, what's the point in dressing them up? But in recent years, attitudes toward roofs have begun to change. Innovative designs in metal roofing have created a whole new way to think about alternative materials in sloped roof applications. And if the roof must be flat, why let that space go to waste? Exterior roof surfaces can now be transformed into all sorts of interesting and attractive venues for meetings, social events, and even workspaces. When it comes to roofing, modern architects are breaking the rules of boring.

Metal roofing has gone through a transformation in the past ten years. Historically, metal roofing was flat, bland, and relegated to barns and utility buildings. Corrugated aluminum or steel panels were handy in areas of extreme fire danger, but for the most part were never hot sellers in the upscale design market.

This changed when metal roofing started being stamped into designs that, from street level, looked a whole lot like shingles or tiles. New colors and smart textures were developed that opened up the design pallet for architects in a whole new way. Once the illusion of traditional sloped-roofing materials became available, the true advantages of metal roofing started to take hold in commercial building settings.

Metal roofing materials are often selected due to their durability and low maintenance. Photo courtesy of Petersen Aluminum

One of the most appealing advantages of metal roofing is their cost. Metal roofs can be an inexpensive option compared to traditional tile

or asphalt shingle roofing systems if you plan on owning the building for any length of time. Sloped roofs with asphalt shingles generally only last 12 to 20 years and can suffer from regular wear and tear. In contrast, metal roofs usually come with a guarantee of 40 years and can last well beyond that. While the upfront cost of materials may be more, investing in metal roofs can mean substantial savings in simple maintenance and early replacement costs over the long term.

In addition to lower material costs over time, labor costs are generally much lower for metal roof installation compared to labor costs for installing traditional roofing materials. This is due in part to the ease of installation, thanks to innovations in quick fastening systems and long panel lengths. Panels up to 65 feet in length can be ordered that provide visually seamless uniformity as well as rapid installation. Modern systems also come with concealed fastening systems and interlocking panel edges. More traditional metal roof systems have exposed fasteners that are equally easy to install, and panels up to 12 feet wide can make placement and securing relatively quick and easy.

Metal roofing materials aren't as straightforward as asphalt shingles, and selecting the right product to match the project takes a fair amount of knowledge. While there are many details to consider, the three biggest decisions to make before selecting a metal roof are style, material, and finish.

METAL ROOF STYLES

Similar to traditional roofing materials, metal roofing is classified as either structural or non-structural. Structural metal roofing attaches directly to purlins or lathe boards and does not require any sort of solid support beneath it. Non-structural metal roofing requires a solid substrate beneath it, typically plywood, oriented strand board, or a metal roof deck. There are four basic styles of metal roofing. While the durability, metal, and finish options are generally available in all four styles, the biggest difference between these styles is cost.

Corrugated panels

The most iconic example of metal roofs is the corrugated steel panel. From chicken coops to shotgun shacks, corrugated panels have been mainstays in easy to install, durable, and low cost roofing options. Over the years though, corrugated steel panels have improved to be more durable and fashionable. Today, corrugated steel panels come in a wide range of gauges (thickness) and finish options. Consistently though, corrugated steel panels are installed vertically with exposed fasteners. Architects today often choose corrugated steel panels as roofing, siding, and accent options to complete the design of a commercial building.

Standing seams are traditional metal roof designs with concealed fasteners. Photo courtesy of Petersen Aluminum

Standing seam

Probably the most common style of metal roofing is standing seam. These are vertically installed panels with concealed fasteners. For flat ranch-style buildings with simple design, standing seam can be a very affordable option because installation is quick and easy and panels can be milled to long lengths and healthy widths. However, costs can rise quickly with more complicated designs. Dormers, skylights, or other penetrations and multiple slope changes require additional hardware for installation and can slow down and complicate the construction process. Extra time on the jobsite increases costs and, unfortunately, also increases the risk of error, which can lead to potential quality issues down the road.

Metal shingles

When looking for a more upscale option than metal roofing, painted metal shingles can offer curbside appeal that rivals traditional asphalt shingles, cedar shakes, slate, and clay tiles. These shingles are horizontally-installed interlocking metal panels attached with a concealed fastener system. Metal shingles are in the architectural classification, meaning they are thicker and can be used to create a three-dimensional look. Unlike corrugated steel, metal shingles are generally made from higher quality materials and can have more durable coatings and color options as well. Because of the concealed fastener system, metal shingle roofs are generally more water resistant and suffer less from rust and damage from extreme weather events. However, their good looks and durability come at a cost. Metal shingles are considered more of a premium roofing product with more expensive materials and higher installation costs than corrugated panels or standing seam metal roofs.

Stone coated steel tiles and shingles

Rounding out the metal roof options are the recently developed stone coated tiles and shingles. These heavy-duty panels are an exclusive line of metal roofing because they are more durable and more aesthetically interesting than traditional metal roof options. Heavy gauge steel panels are coated with crushed stone and colored granules to imitate slate, cedar, or clay tiles. Durable in all weather conditions, stone coated metal tiles are able to withstand the impact of large hail stones and even resist damage from wild fires, and hurricane force winds. Stone coated metal tiles are also lighter weight and less expensive than traditional clay tiles. These attributes make stone coated metal tiles especially attractive in areas such as Dade County, Florida, where building codes require a more aggressive line of defense for the home.

WHAT'S IT MADE OF?

So now that we understand the four basic types of metal roofing available, let's look at material options. A large part of taking advantage of the durable nature of metal roofing is to understand the type of metals used, gauges, and finishing. Although copper has been used for roofing since Roman times, today aluminum and steel are the most common types of metal used and either can be ideal depending on budget, location and expectations.

Steel

Mix iron, a little bit of carbon, add some nickel or manganese for flavor, shake well and bake at around 2500 degrees Fahrenheit, and you get steel. For metal roofing, steel has been the go-to material since the mid-1800s, when corrugated steel panels started gracing mills and industrial shops. But, while ideal for utilitarian purposes, simple corrugated steel panels had several faults.

One of the most troublesome faults was that early steel roofing panels rusted quickly when exposed to rain and snow. Even when galvanized, any scrape or dent would expose the steel (specifically the iron component) and oxidation would set in. Over time though, improvements in the manufacturing of steel made it stronger and more durable.

DURABILITY BY THE NUMBERS

When it comes to understanding the strength of a metal roof system, it is important to know that the type and style of metal roof specified meets or beats local and state building codes. In coastal communities where hurricane force winds can bring both gusts and uplift, metal roofs must be approved to several standards, which include:

- The American Society for Testing and Materials (ASTM) E1592 Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference. This standard is used to evaluate or confirm structural performance under uniform static air pressure differences, or steady wind gusts expected in high wind areas. This procedure is intended to represent the effects of uniform loads on exterior building surface elements.
- Underwriters Laboratories (UL) 580 Tests for Uplift Resistance of Roof Assemblies. This standard is used to determine the uplift resistance of roof assemblies including the roof deck and roof covering materials. It is applicable to any type of roof assembly, so not only metal roofs need to adhere to the standard. Uplift is a very dangerous threat to structures in high wind areas because once the roof begins to fail, internal pressure differences within the building can quickly overcome structural stability.
- UL 1897 Uplift Tests for Roof Covering Systems. Similar to UL 580, UL 1897 specifically looks at pressure differences within the structure during uplift tests. Using differential air pressure sensors, the entire roof assembly is evaluated including all components such as base sheets, ply sheets, slip sheets, membranes, etc., and insulation, if used. Supporting roof decks are evaluated only with respect to span conditions and physical properties such as gauge, yield strength, grade, size, and/or species of lumber and related factors which affect fastener attachment or bond strength.

Probably the biggest advancement in steel roofing materials was the invention of modern galvanization techniques that significantly increased the strength, appearance, and longevity of steel.

Galvanization, in simple terms, is a process in which steel is coated with materials that protect the core metal from exposure to salt and water. There are three varieties of galvanized steel available, but as we will see, one variety has taken over the market.

The first variety is the industry standard for galvanized steel: zinc. Zinc works as a sacrificial coating on the surface of the steel to take the abuse of the elements. As the zinc coating weathers, it creates a barrier to further protect the steel core. Over time, this barrier can actually "heal" minor surface scrapes because the zinc will flow into these areas. In general, the heavier or thicker the zinc coating is, the longer it will last and the better it will protect the steel core. Galvanized steel is rated by the amount, specifically the weight, of zinc applied to a steel surface. Heavy duty galvanized steel for roofing is rated as G-90, which means it has 90 ounces of zinc per square foot. Galvanized steel is also available in G-40 and G-60 weights.

Aluminized steel is the second variety of galvanization. Developed about 60 years ago, steel is coated with aluminum instead of zinc, which offers two advantages. One advantage is that aluminum weathers better than zinc and does not corrode in coastal areas where salt spray is common. The second advantage is that aluminum naturally reflects sunshine better than zinc, which helps keep attics cooler, reducing cooling costs. On the down side, aluminum won't help "heal" nicks and scrapes like zinc because once bonded to the steel, it doesn't flow like zinc.

The third and most durable variety of galvanized steel is galvalume, which combines both coating materials to leverage the benefits of two protective metals on one form. Galvalume is a mixture of zinc and aluminum and has generally replaced aluminized steel as a reliable option for roofing materials. Although more expensive than traditional galvanized steel, galvalume coating offers more protection in most environments cases, is easy to get, and can be ideal for steel roof options where quality and durability matter. Similar to galvanized steel, galvalume comes in different grades, the most common being AZ (aluminum/zinc)-50 or AZ-55, which are the same heavy duty grade as G-90 standard galvanized steel.

Aluminum

The other common metal for roofing is aluminum. Unlike steel, aluminum is naturally non-corrosive and durable, and so it does not need galvanization or a metal coating to improve its performance. Heavier gauge aluminum is especially durable in coastal areas where saltwater and spray can quickly pit, mar, and deteriorate traditional steel.

Lighter weight than steel and traditional shingles, aluminum roofing is often an attractive option when installing on top of an existing roof because the additional weight is minimal. Also, aluminum reflects heat well (just like when it is galvanized to steel) and usually has higher levels of recycled material than traditional steel.

On the down side, aluminum is softer than steel and tends to be more brittle. Also, aluminum is a poor choice if the builder is specifying a metal roof to protect against wild fire, because it doesn't have a Class A fire rating right out of the box; however, with the proper underlayment aluminum can get a Class A fire rating. Also, aluminum expands more than steel, so care must be taken during installation to make sure brackets and fasteners are specified to control and manage expansion and contraction caused by outside temperature fluctuations. One final consideration is that aluminum is more malleable than steel, which can offer interesting and unique design options for architects looking to create one-of-a-kind spaces.

STEEL VS. ALUMINUM ROOFING

So which metal type is better for roofing—steel or aluminum? It depends on the project, location, and budget. This chart gives a quick overview of how the two metals stack up to each other.

	STEEL	ALUMINUM
Cost	Generally less	Up to 20 percent more than steel
Malleability	Less malleable	More malleable for creating interesting design features
Fire protection	Class A fire-rating	No Class A fire-rating; lower melting point than steel
Weight	Heavier than aluminum but still lighter than traditional asphalt shingles	Lighter than steel
Costal durability	More susceptible to damage from saltwater	Highly durable against saltwater
Toe-to-toe toughness	More durable than aluminum	Less durable than steel

AND THE REST...

You can't really talk about metal roofs without mentioning some of the other metals used. Copper, of course, remains a favorite and demands a premium price. Copper has been

used to build roofs on buildings since Roman times. Literary buffs may recall the castle in Denmark that is the setting of Shakespeare's play *Hamlet*. The castle still has the same copper roof it had in 1603, now an aged patina green. Today, special clear acrylic coatings can be painted onto copper to help it keep its brassy shine, but many clients, mostly in luxury residential settings, prefer to let the copper age naturally to match aesthetic design elements.

Historically, lead was used to build roofs, such as the roof on Notre Dame Cathedral in Paris, France. However, lead is no longer an option due to health concerns.

Other popular roofing metals are stainless steel (an alloy of steel mixed with chromium), and titanium, which is more corrosive-resistant than aluminum. From a cost standpoint, however, copper is the only metal specified on a regular basis, and even then it is often out of the price range of commercial projects that aren't specifically trying to capture a historical look and feel.

This article continues on http://go.hw.net/AR415Course1. Go online to read the rest of the article and complete the corresponding quiz for credit.

SPONSOR INFORMATION

QUIZ

1. Which of the following metals is most commonly used to coat steel and What is the most common coating applied to the surface of steel create a protective barrier?
   a. Cobalt
   b. Copper
   c. Zinc
   d. Nickel

2. Why is Aluminum is a preferred choice over Zinc for roofing in coast situations?
   a. It keeps its glossy finish in the bright sun.
   b. It resists corrosion from salt spray.
   c. It weathers to match aged exterior.
   d. It is easier to find in coastal areas.

3. Which of the following is not a benefit of polyvinylidene fluoride resin (PVDF) coatings?
   a. Exceptional protection against UV rays.
   b. Protects against salt spray.
   c. Protects against extreme weather events.
   d. They are made from recycled content.

4. Why is the solar reflectance (SR) rating for important when designing a cool roof?
   a. The higher the SR rating, the better the roof is at reflecting heat.
   b. The lower the SR rating, the better the roof is at reflecting heat.
   c. SR ratings have no impact on cool roofs.
   d. The more heat absorbed into the building, the higher the SR rating.

5. The term albedo in roofing is defined as:
   a. A color on the light spectrum.
   b. A high solar reflectance.
   c. An increase in worker productivity.
   d. An environmentally sustainable adhesive.

6. Which of the following does not break down paint exposed outdoors?
   a. High pressure
   b. Intense UV (sunlight)
   c. High temperatures
   d. High humidity

7. According to the U.S. Environmental Protection Agency, rooftop gardens in commercial applications can greatly reduce this effect:
   a. Urban Heat Island
   b. Power Transference
   c. Hard Water Pooling
   d. Radiant Parallel

8. Which of the following is not an advantage for using an elevated tile grid flooring system?
   a. Easy to repair and replace tiles.
   b. Provides a cavity for running utilities like wiring, plumbing and lighting.
   c. Provides a noise barrier for people working on the top floor of the building.
   d. Helps with water management

9. What is an advantage of using tiles rather than planks for roof decking?
   a. Tiles are less expensive than planks.
   b. Tiles provide more traction for slick surfaces.
   c Tiles have a more consistent color from each batch.
   d. Tiles are easier to replace individually, rather than deconstruction of an entire section.

10. What can be put on a rooftop to utilize flat spaces?
    a. Gardens and Kitchens
    b. Putting Greens and Playgrounds
    c. Bars and Cafés
    d. All of the Above

SPECIFICATION OF FLOORING SURFACES

Photo Credit: Bostik, Inc.

Presented by: Bostik smart adhesives

LEARNING OBJECTIVES

By the end of this educational unit you will be able to:

1. Identify the importance of flooring specifications and the difference between specification types.
2. Explore types of flooring surfaces and auxiliary products that may be specified.
3. Review the importance of surface preparation, installation, maintenance and accessibility considerations for specifications.
4. Examine various third-party flooring certifications that may be referenced in specifications.

CONTINUING EDUCATION

CREDIT: 1 LU

COURSE NUMBER: ARapril2015.2

Use the learning objectives above to focus your study as you read this article.

Visit http://go.hw.net/AR415Course2 to read more and complete the quiz for credit.

By Paige Lozier

WHY SPECIFY?

Construction specifications are used to achieve the desired performance, budget and aesthetic goals of a project. They delineate the requirements regarding materials, products, installation procedures and quality assurance in order to execute work and fulfill the contract.

Specifying the right flooring and installation products for the appropriate application can be challenging. Whether specifying tile, hardwood, carpet, or resilient flooring, there are basic specification considerations that encompass the very broad category of flooring. From flooring type and auxiliary products to surface preparation, installation, maintenance and accessibility, specifiers and architects have many decisions to make that they then must clearly convey in a specification. Function, performance, application, cost, environmental impacts and aesthetics can all guide a flooring specification.

When considering performance criteria, structural serviceability, fire safety, habitability, durability, practicability, compatibility, maintainability and environmental impact may all be taken into account, but the importance of each will be different for each product and project. Cost considerations will include both installed cost and maintenance cost, while aesthetics will determine the desired visual impact, customization, color, pattern and texture.

According to the *American Institute of Architects Document A201-2007 General Conditions of the Contract for Construction*, the contract documents for a construction project are an integral part of the prime owner-contractor agreement. They set forth the responsibilities of the owner, contractor and architect during construction, bringing order to an otherwise disjointed process. Construction specifications become a part of the legal documents of the contractual agreement and form a cornerstone of the project design. In fact, in most cases, the construction specifications override the project drawings in the event of conflicting information.

As The *Project Resource Manual—CSI Manual of Practice* (PRM) states, "Both the drawings and specifications are needed to fully describe

a construction project. The drawings show size, form, quantity, relationship, generic type and graphic representation of construction materials. Specifications define the qualitative requirements for products, materials and workmanship upon which the construction contract is based. The specifications also describe administrative procedures that relate to both drawings and specifications."

Function, performance, application, cost, environmental impacts and aesthetics can all guide a flooring specification. Photo Credit: Bostik, Inc.

TYPES OF CONSTRUCTION SPECIFICATIONS

Specifications can be divided into four primary categories: performance, prescriptive, proprietary and reference. The first three can be used to specify the essential qualities of materials for a project and are usually customized by the specifier to meet the needs of a certain product and/or project. Reference standard specifications, on the other hand, are published by standards organizations such as the American Society for Testing and Materials (ASTM) or industry organizations that represent manufacturers of specific building elements, such as the National Wood Flooring Association, and are typically referenced without customization. *The Project Resource Manual—CSI Manual of Practice* notes that more than one specifying method is used in most projects, although PRM cautions that "the A/E should be careful about combining methods in the specification of a single product."

Performance Specifications

In a performance specification, the architect or engineer specifies the operational requirements of the flooring product and its installation, simply telling the contractor what the final installed floor must be capable of doing. The contractor is not instructed how to meet the performance specification requirements, only how the flooring must function after installation. It is up to the contractor to determine the best way to achieve the desired results and provide material that meets or exceeds the requirements stated in the specification.

The performance specification focuses on the outcome and shifts the selection of materials and methods, as well as a portion of the design work, onto the shoulders of the contractor. The contractor not only warrants that the flooring system will be constructed as planned but also that it will perform as intended. This approach can provide incentives for innovation and flexibility in the construction, but also reduces the amount of control that the architect or engineer has over the project.

Prescriptive specifications shift project design control onto the shoulders of the architect or engineer and away from the contractor by establishing a set of rules that should be followed for each project component. Photo Credit: Bostik, Inc.

Prescriptive Specifications

Prescriptive specifications, on the other hand, precisely state how the work is to be performed, describing in detail the flooring materials that the contractor must use and the means of installing those materials. This type of specification will typically have three sections, General, Products and Execution.

The General section contains references to national and international standards, design requirements, a list of required submittals from the contractor to the architect or engineer, quality control requirements and product handling requirements.

The Products section will describe the various products required for the task covered by the specification along with the individual structural and performance requirements of each product.

The Execution section will explain how to prepare the flooring materials and conduct the installation, including the testing requirements to be followed.

This type of specification provides more certainty regarding the final product composition than the performance specification, and is frequently used for highly complex portions of a project. Prescriptive specifications shift more of the project design control onto the shoulders of the architect or engineer and away from the contractor by establishing a set of rules that should be followed for each project component. There is no flexibility allowed for a contractor's approach and the contractor does not warrant that the system will perform in any certain way.

Proprietary Specifications

Proprietary specifications require the use of a single approved product type for a flooring installation. Proprietary specifications are sometimes used when there is existing equipment or installations already on site, in order to maintain consistency of materials or because the owner prefers a specific type of product. Also, in highly complex installations where there is only one specific piece of equipment that will accomplish a specified task, a proprietary specification is required.

There are two types of proprietary specifications, open and closed. Closed proprietary specifications do not allow substitutions. Open proprietary specifications provide for requested alternates, often proposed by the contractor.

Architects and engineers typically avoid using closed proprietary specifications except when absolutely necessary, and will usually allow the contractor to select from a list of approved suppliers. Requiring the use of one specific product type gives the perception of favoritism

towards a certain manufacturer and may eliminate competition during the bid phase, which could increase the project cost.

SPECIFYING FLOORING SURFACES, SURFACE PREP AND INSTALLATION MATERIALS

There will most likely be a combination of surfaces used throughout a project, so it is important to plan appropriately for surface preparation, installation and maintenance for each individual product. Let's discuss the different types of flooring surfaces you may come across on any given project, and typical materials used for the prep and installation of each surface.

There will most likely be a combination of surfaces used throughout a project, so it is important to plan appropriately for surface preparation, installation and maintenance for each individual product. Photo Credit: Bostik, Inc.

SPECIFYING TILE INSTALLATIONS

Ceramic tile is a fired clay tile that can be glazed or unglazed and is available in a wide variety of shapes and sizes. A thin-set tile installation is one in which the tiles are adhered to a substrate with a 3/16 inch thick layer of mortar. The mortar can be a cement, latex, or epoxy mortar; organic adhesives are also available. Thin-set tile installations are only acceptable for use on stable and uniform substrates since the thinness of the mortar does not allow for imperfections. Proper installation of the framing and substrate are critical to a quality tile installation.

A thick-set or mud-set tile installation consists of finish tiles set over a 1-1/4 inches to 2 inches thick portland cement mortar bed. The mortar bed sits over the sub-floor and provides a smooth and stable base for the tile installation. Suitable sub-floors for thick-set tile installations include concrete slabs and properly installed wood. In a floating mortar bed system, a cleavage membrane is installed over the sub-floor. This membrane allows the tile system to move independently of the sub-floor. Otherwise, the mortar bed is laid directly over the sub-floor to create a bonded mortar bed installation.

There are a few advantages to using a thick-set mortar bed application. First, the mortar bed can be used to adjust uneven sub-floors and it also creates an ideal surface for tile adhesion. The thickness of the mortar bed allows the floors to be sloped, as would be used to slope a shower to a drain. The mortar bed can also conceal other items such as tubes for heated floors. An advantage specific to thick-set installations with a cleavage membrane is that cracks or defects in the sub-floor are not transferred to the mortar bed or finish tile layer.

Suitable sub-floors for thick-set tile installations include concrete slabs and properly installed wood. Photo Credit: Bostik, Inc.

Specifications for tile floors should indicate tile layout, patterns, color arrangement, perimeter conditions, and junctions with dissimilar materials, thresholds, and setting details. In addition, locate and detail expansion and control joints.

For each finish product specified, it is advisable to provide two complete sets of color chips representing the manufacturer's full range of available colors and patterns, including grout. The manufacturer's qualifications are important as well, with a minimum of 10 years of experience in the manufacture of setting and grout materials. Obtaining setting, grouting and elastomeric membrane materials from one manufacturer to ensure compatibility is also important. Installers specializing in tile work should have a minimum of 5 years of successful documented experience with work comparable to that required for the project.

Consider providing a mock-up for evaluation of surface preparation techniques and application workmanship. Finish areas should be designated by the architect and the remaining work should not proceed until the workmanship, color, and sheen are approved by the architect. The mock-up area should be refinished as required to produce acceptable work.

An important aspect of flooring installation and specification are the surface prep and installation materials that should be included in the specification. Surface preparation systems for tile include self-leveling cement underlayment (cork can be used as a sound deadening barrier), liquid or trowable waterproofing and crack isolation membrane, and primer. Installation materials include mortars, admixtures, mastics, sanded or unsanded grout systems, as well as epoxy grout and setting sytems.

When specifying hardwood flooring, shop drawings should indicate the wood floor layout, patterns, color, perimeter conditions, junctions with dissimilar materials, thresholds, and underlayment details. Photo Credit: Bostik, Inc.

SPECIFYING HARDWOOD FLOORING

Solid hardwood floors are available in a myriad of traditional wood species such as maple, pine and oak, as well as specialty species such as bamboo and cork. Engineered flooring, acoustic flooring and floor warming systems are other specialty products that may be specified.

When specifying hardwood flooring, shop drawings should indicate the wood floor layout, patterns, color, perimeter conditions, junctions with dissimilar materials, thresholds and underlayment details. They should also locate and detail expansion and control joints. Manufacturers should have a minimum 20 years of experience in the manufacture of wood floor materials, and installers specializing in wood floor installation should have a minimum of five years successful

documented experience with work comparable to that required for the project.

The surface prep and installation materials for hardwood flooring systems will include flooring adhesives, subfloor moisture vapor barriers, noise reduction membranes, self-leveling cement underlayment or portland cement patch, surface primer, sealant and grab adhesives.

SPECIFYING CARPET INSTALLATION

Carpet is available in carpet tile and broadloom carpet. Carpet tiles come in a standard 18 inch x 18 inch square and the yarn is adhered to a backing, which is generally vinyl. After the installer lays out the grid with chalk lines, the tiles are glued to the sub-floor with an adhesive. Some carpet tiles come in a self-adhesive form, which is essentially a peel-and-stick product. Carpet tiles are not stitched together, so the 18 inch grid is visible. However, this also serves as a design element, as tiles are typically laid out in a pattern.

Carpet is also manufactured in 12-foot wide rolls, which are then seamed together on-site to create a monolithic appearance, which is called broadloom carpet. Broadloom carpet installation is more labor intensive because of the seaming required and the challenge in moving large rolls of carpet. Carpet padding is used most often in residential applications and is available for both broadloom and tiles. In institutional and commercial applications, the padding is typically a rubber backing that is permanently adhered to the tile. Installation materials for carpet will include adhesive that is used to rapidly seal the seams of recently cut carpet, as well as adhesives use to bond carpet padding to sub floors prior to carpet installation.

Categories to include in carpet specifications are the performance of fibers, carpet construction, carpet color, carpet backing, as well as carpet sustainability, recycling, reclamation and indoor air quality. There is more to convey in a carpet specification than how these individual elements work; a specifier must also understand their compatibility. For example, the yarn size needs to correlate with the gauge; the backing systems should be appropriate for the desired performance; and the dye technique has to be consistent with the end use. For example, if the carpet is going to be installed in a health care facility where stains are a major issue and solutions with water and bleach might be used to clean difficult stains, then the product specified should be a solution dyed product, not a beck dyed product.

QUIZ

True or False: In most cases, the construction specifications override the project drawings in the event of conflicting information.

Which of the following types of construction specifications precisely states how the work is to be performed?

- Performance
- Prescriptive
- Proprietary
- Reference

True or False: Architects and engineers typically avoid using closed proprietary specifications except when absolutely necessary.

True or False: A thick-set tile installation is one in which the tiles are adhered to a substrate with a 3/16 inch thick layer of mortar.

Which of the following is not a material that needs to be specified for hardwood flooring installation?

- Mortar
- Moisture barrier
- Surface primer
- Sealant

Which of the following should be included in a carpet specification?

- Fiber type
- Carpet construction
- Carpet backing
- All of the above

True or False: Resilient flooring refers to flooring materials that are relatively firm and stiff, yet will flex to provide a comfortable walking and standing surface.

True or False: Hardened materials such as concrete, asphalt, tile, and wood are sufficiently firm and stable for accessibility.

Which of the following is a third party certification specifically for tile flooring?

- GREENGUARD
- FloorScore®
- Green Squared®

True or False: SCS Global Services scores the environmental, economic and social aspects of commercial building interior products based on the ASTM family of multi-attribute certification standards.

Carpeting is sometimes customized for a project during manufacturing, so the specification should be specific enough to achieve the desired performance, but general enough to allow for the manufacturer to use the most effective technology to meet the project needs. For example, a specifier may require stain resistance and a warranty for certain stains; it is then up to the manufacturer to determine which type of yarn and which types of treatments to use to provide that stain resistance.

Visit http://go.hw.net/AR415Course2 to read more and complete the quiz for credit.

SPONSOR INFORMATION

Bostik
smart adhesives

Bostik is a leading global adhesive specialist in industrial manufacturing, construction and consumer markets. For more than a century, they have been developing innovative adhesive solutions that are smarter and more adaptive to the forces that shape people's daily lives. From cradle to grave, from home to office, Bostik's smart adhesives can be found everywhere. With annual sales in excess of $2 billion, the company employs 4,800 people and has a presence in more than 50 countries.

Bostik
smart adhesives

The Most Specifiable Hardwood Installation System

Projects	Benefits of Using Ultra-Set® SingleStep2™
High-rise and Multi-famly	**Ultra-Set® SingleStep2™**—with an IIC of 70 dB, ΔIIC of 21, and an STC of 67—eliminates material and time installing secondary acoustic membranes
Commercial On- or Below-grade	No time-consuming concrete moisture tests—Bostik's AXIOS™ Tri-Linking™ polymer technology used in **Ultra-Set® SingleStep2™** provides unlimited moisture vapor protection
All Spec Projects	• **Ultra-Set® SingleStep2™** has incredible bond strength and durability • Lifetime bond and moisture vapor protection warranty • Contributes to LEED® EQ 4.1 and MR 4.2 with 0 VOC and 1% post-consumer recycled content • Patent-pending Thickness Control™ Spacer Technology maintains required membrane thickness for moisture vapor protection and sound reduction—no special tools required • Easy to clean before and after cure for faster installation

T2193-02.25.15

Discover more about one of the most unique installation systems to add to your arsenal: **www.bostik-us.com**

connect TO NEWS

Request these newsletters and receive industry news as it's happening

ARCHITECT Newswire is a FREE comprehensive daily newsletter compiling web articles, blog posts, and other information on the business and design of architecture. Also included is content from various social networking tools and opinions from leaders across the web.

ARCHITECT Weekly is a FREE once-a-week newsletter that features industry news, design inspiration, market intelligence, and business and technology solutions for the architectural industry.

SIGN UP TODAY!
www.omeda.com/arch/1M1ENBD

We've Got You Covered.

Owens Corning is a world leader in building materials and systems, delivering a broad range of high quality solutions and services. No matter what you need, Owens Corning has a broad insulation portfolio encompassing fiberglass, foam and mineral wool insulation products for virtually any building situation. Owens Corning solutions can help you achieve your demanding project specifications including:

- LEED® Certification
- Energy and Building Code Compliance
- Thermal Performance
- Air/Water Resistance
- Moisture Control
- Fire Containment
- Acoustical Performance

From innovative architectural design and engineering precision to thoughtful product specification and world-class workmanship, every step of their reconstruction process reflected a commitment to excellence. That's why specifiers for the One World Trade Center trusted our team of experts to bring their vision to life with the use of several Owens Corning® products including Thermafiber® Mineral Wool Insulation and FOAMULAR® Extruded Polystyrene (XPS) Insulation.

OWENS CORNING®

For more information, see us at
www.OCBuildingSpec.com and www.thermafiber.com

“His camera makes everything in the built environment, from major works of architecture to the detritus of urban life, look so glorious.”

What Wim Wenders Taught Me About Design by Karrie Jacobs

I've always had an eye for buildings. Growing up, I loved gazing out the car window at the refinery sites along the New Jersey Turnpike. As a teenager, I was fascinated by the way the W.R. Grace building on Manhattan's 42nd Street swooped down to meet the pavement. And in Seattle, where I lived after college, I was intrigued by the gravity-defying Rainier Bank Tower, which looked like a stylized pencil, its point buried in the pavement.

But I never thought all that deeply about design. I'd never heard of Minoru Yamasaki, the architect of the bank tower, or Skidmore, Owings & Merrill, the firm behind the W.R. Grace building. Then one day in 1978, I saw a movie that changed my life. At the time, the German director Wim Wenders wasn't famous. Probably the only reason I selected his 1977 adaptation of a Patricia Highsmith novel, *Ripley's Game*, from a long list of Seattle Film Festival screenings was that it starred Dennis Hopper. But once I'd seen *The American Friend*, I couldn't unsee it.

Wim Wenders and Dennis Hopper filming *The American Friend*

Just a few weeks ago, I watched *The American Friend* on a big screen for only the second time. It was a fresh print, digitally remastered for the Museum of Modern Art's March retrospective of Wenders' work. The director himself was there. He told stories after the screening about how Hopper, who'd come to Hamburg directly from the Philippines, where he'd been shooting *Apocalypse Now*, and Bruno Ganz, a German theater actor in his first film role, got along. In short: very badly. Ganz had the script perfectly memorized, but Hopper preferred to improvise. This led to a fistfight between the actors, followed by a night of heavy drinking, followed by them becoming fast friends. A great story.

But none of Wenders' anecdotes touched on what I really wanted to know: How his camera makes everything in the built environment, from major works of architecture to the detritus of urban life, look so glorious. And how he consistently makes the real world, with its abundant flaws, look so much better than the art-directed one.

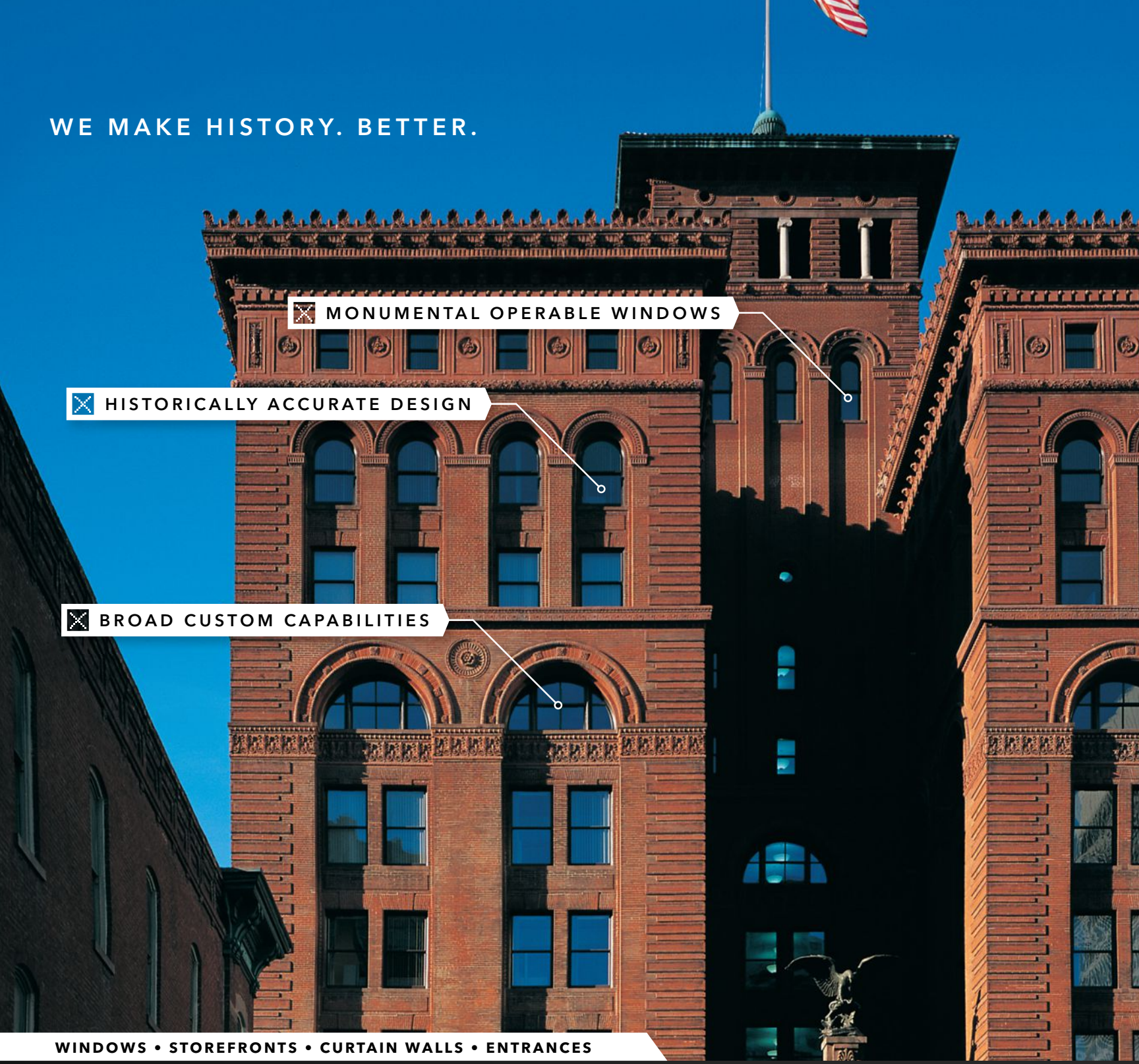
Capturing the Monumental and the Trivial

The plot of *The American Friend* is actually pretty thin. Ganz plays a humble frame shop owner, Jonathan Zimmerman, who lives near the Hamburg waterfront with his wife and young son. Zimmerman has a fatal disease, possibly leukemia. Hopper plays Tom Ripley, a murderous sociopath and anti-hero (Matt Damon memorably portrayed him in *The Talented Mr. Ripley*). Ripley deals in forged artworks, often framed by Zimmerman. When one of Ripley's gangster friends needs to hire a hit man, someone completely unknown to the authorities and the underworld, the gangster somehow decides that the dying frame shop owner, who presumably has nothing to lose, is perfect for the job. Offered money for his family's future well-being and appointments with some of Europe's finest physicians, Zimmerman reluctantly begins a brief, frighteningly incompetent, life of crime.

The plot, to me, is largely irrelevant. Rather, it's the way the movie looks, the way that Wenders lingers on the man-made oddities of New York, Hamburg, and Paris, that stayed with me, that changed me. I can remember some scenes in exact detail. In one, Ripley is in New York, where his art forger lives. There he strides along the abandoned West Side Highway, the World Trade Center looming in the distance. Some gangsters are watching Ripley from a nearby window. One of them is holding a neon pink plastic toy, a whirly tube, designed to make noise when you spin it. The coil of neon plastic, for a split second, frames the view of Hopper on the highway.

That scene and all the things in it—the brand new Twin Towers, the abandoned highway, Hopper with his cowboy hat, and the plastic toy—are permanently layered in my mind. The visual composition captures everything that one could say about how the monumental and the trivial are always intertwined in the urban landscape.

Another scene: Zimmerman is on a gangster-funded junket to Paris for an appointment with a specialist at the American Hospital—his first stint as a hired gun. There's a shot of Ganz moving on escalators through a series of transparent tubes, which seemingly float in the air. It's a vision both wondrous and slightly frightening. When I first saw the film, I'd never been to Europe; the scene was as abstract as a passage from Baudrillard or Foucault. It was a comment on the



Preserve History. Conserve Energy. With Pella.

Pella provided historically accurate wood windows and trim for the headquarters of Utilicorp, a multinational energy company. While maintaining the original windows' aesthetic, we enhanced the windows' thermal efficiencies to address Utilicorp's commitment to energy conservation. Window elevations with curve-top openings re-created the elegance of the building's neo-Romanesque design while also allowing natural ventilation. Let Pella help you make history with your next project.

Pella EFCO COMMERCIAL SOLUTIONS

pecsARCH.com • 800.591.7777

Utilicorp United World Headquarters • Kansas City, MO • Architect: Gastinger Walker Harden Architects

future, how it was rapidly becoming the present, at once tantalizing and inexplicable.

At the MoMA screening in March, I instantly recognized the tubes, located in Charles De Gaulle Airport's Terminal 1. I've now ridden on those escalators myself. Designed by architect Paul Andreu, the airport opened in 1974, two years before *The American Friend* was released. When Wenders shot the movie, Andreu's vision of the future was fresh and disconcerting, not just to the fatally-ill-framer-cum-hit-man, but to almost everyone.

"Wenders, like Ruskin, was fashioning an almost mystical approach toward a deeper understanding of the built environment."

"Filmmaking Should Just Remain a Way of Life"

Over the years, I've seen most of Wenders' output. Many of his films possess the qualities that moved me in *The American Friend*, a way of looking that is really a way of life. In *Alice in the Cities* (1974), a German journalist on assignment to explain the American landscape to his countrymen winds up doing nothing but shooting Polaroids. *Kings of the Road* (1976), which I first saw in the late 1970s and caught for the second time at MoMA, takes an extended ramble through the forgotten territory that was then the border zone between West and East Germany, with an emphasis on small-town movie theaters and the sort of agricultural structures that so captivated the photographers Bernd and Hilla Becher.

And, of course, there's *Wings of Desire* (1987), in which a couple of angels hang around Berlin monuments like the Brandenburg Gate, the Victory

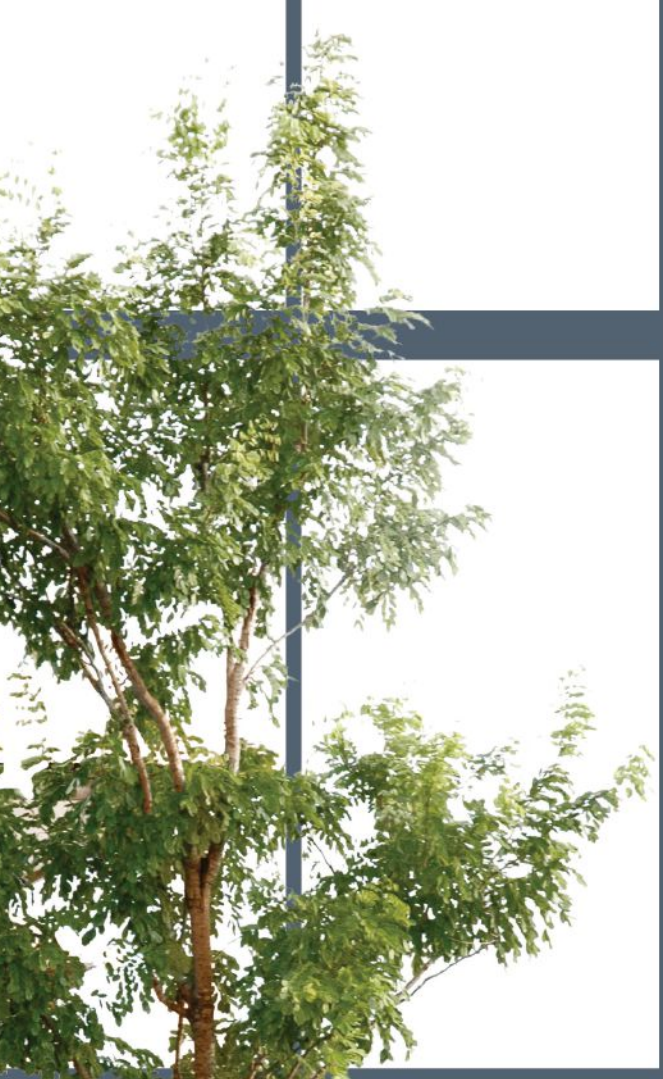
A screenshot from *Wings of Desire*

MetroView™ WINDOW WALL

Form and function, meet life.

Introducing the newest kid on the block: MetroView™ Window Wall

Top to bottom, the new FG 501T Window Wall – the first in the MetroView™ Window Wall series – offers the look of a curtain wall with a slab-to-slab framing system that's perfect for mid-rise multi-family and commercial applications. With air and water performance equal to many curtain walls and a range of aesthetic options including slab edge covers for a seamless transition between floors, **MetroView™ Window Wall offers a beautiful frame for life**.

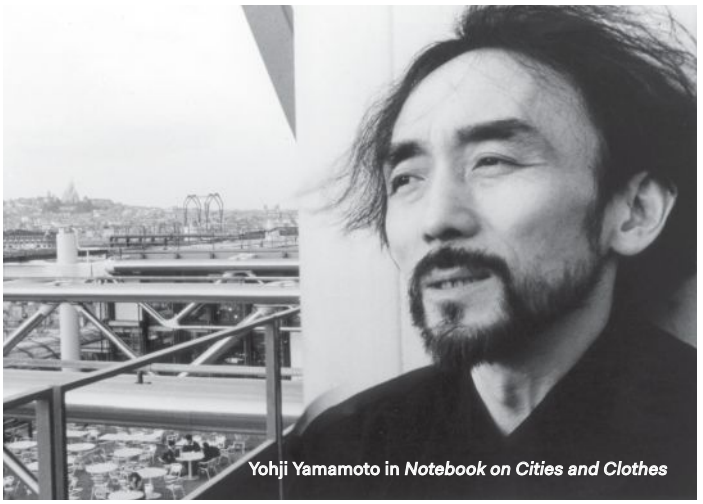


kawneer.com

KAWNEER
AN ALCOA COMPANY

Column, and the daylight-flooded interior of the Hans Scharoun–designed Berlin State Library. (Oddly, *Wings of Desire* does a much better job of exploring the inner life of a Scharoun building than Wenders' 2014 documentary on the architect's Berlin Philharmonic, in which a female narrator purports to be the building's consciousness.)

At the MoMA retrospective, I tried to uncover hints about Wenders' view of architecture and urban design by watching his earliest films, a series of shorts made in the late 1960s, when he barely knew how to operate his Bolex 16mm camera. These films hadn't been shown in public, he said, in 45 years. "Are you



Yohji Yamamoto in *Notebook on Cities and Clothes*

sure you want to do this?" Wenders cautioned the audience prior to the screening.

The five early movies, all digitally restored, are uniformly awful, the sort of long, shapeless, conceptual messes common to film students. To me, *Silver City Revisited* (1968) is the most revealing one; Wenders aims his 16mm camera out the windows of various apartments in Munich and takes extended shots of mundane streetscapes. Taillights pass. Traffic lights blossom into flowers. He just keeps staring hard at the raw postwar landscape around him, probing it, much as John Ruskin probed the components of the Gothic cathedral. Wenders, like Ruskin, was fashioning an almost mystical approach toward a deeper understanding of the built environment.

By the time the MoMA retrospective ended, I decided that, apart from *The American Friend,* which remains the foundation of my personal aesthetic canon, there are a couple of other Wenders movies that perfectly embody his way of looking. There's

THE NEW PPG PAINTS™

COMING SOON, ONE NATIONAL STORES NETWORK

The **PPG PITTSBURGH PAINTS®, PPG PORTER PAINTS®** and **GLIDDEN PROFESSIONAL®** Stores are being combined to form the new **PPG PAINTS™.** As a national network of *PPG Paints* Stores, we will serve you better with a broad assortment of *PPG Paints* products, more locations, industry expertise and consistent service coast-to-coast; all from PPG, the global coatings leader.

In addition to the stores network, *PPG Paints, PPG Pittsburgh Paints, PPG Porter Paints* and *Glidden Professional* and other PPG brands are available in over 5,000 retail partners nationwide. **Please visit PPGAC.com/trade for locations near you.**

Because Every Job Matters®

PPG PAINTS™

the documentary *Notebook on Cities and Clothes* (1989), commissioned by the Centre Georges Pompidou. Wenders, asked to make a film about the connection between fashion and film, chose to focus on the work of designer Yohji Yamamoto. My favorite bits, the ones I recall from my original viewing, come toward the beginning of the movie. Wenders ruminates about the effects that digital imagery will have on the world—no negatives, no positives, and no originals. "Everything is a copy," he says, as we watch a Tokyo highway go by from the window of a moving car. In 1989, this was still something of a revelation.

The most powerful moment in the film has nothing to do with fashion. It's a series of shots of an elevated highway interchange, intertwined ribbons of red steel and concrete, viewed from somewhere below. Wenders treats the structure with reverence, as if it were the most significant work of architecture in the world. Then, as he leaves the highway behind, he says: "Filmmaking should just remain a way of life sometimes, like taking a walk ... or shooting this film here, from day to day, carried along by nothing but curiosity."

I'm jolted when I hear him say that, because here is the answer to the questions that I really wanted to ask him but hadn't. And I suddenly realize just how similar his approach is to the way that I've come to see the built environment. Nothing is more revealing than looking at architecture in context. Understanding buildings, I always tell my students, involves walking the streets of a city and looking at your surroundings with the same curiosity with which you'd study artifacts in a museum. Did I somehow absorb this lesson from Wenders in a dark movie theater a quarter century ago?

The Parking Garage as Object of Beauty

Recently, I've acquired a new favorite Wenders film: *Pina* (2011), a portrait of the dance company founded by the late Pina Bausch in the German city of Wuppertal. In the film, Wenders makes heroic use of the small city, staging dances in, around, and under Wuppertal's strangely futuristic suspension railway, which opened in 1901. In one scene the performers are

Taghkanic House, Taghkanic, New York • Architect: Thomas Phifer and Partners • Photography: Scott Frances

A scene from *Pina*

© DONATA WENDERS

in a busy intersection, doing a romantic pas de deux as the train floats by overhead. So lovely is this scene that even the mundane concrete parking garage in the background becomes an object of beauty.

Watching *Pina* for the second time on Netflix, happily replaying the railway dances over and over, I begin thinking about something that curator Peter Eleey (now at MoMA PS1 in Queens) once told me. He said that public art is doing its job if it confuses the issue of what's art and what's not art. The end result, he argued, is that you wind up looking harder at everything. That's what Wenders does: He mixes non-architecture with architecture in a way that forces you to admire both.

What Wenders taught me in 1978 was that the things that I found compelling—industrial sites, skyscrapers, cities—were worthy of meticulous study. And that the act of patient looking could reveal unexpected truths. It wasn't some formalist ideology that compelled me to write about the urban landscape. It was a simple idea that I picked up at the movies.

The World's Finest Water Features

Harmonic Cascade™ Waterfalls

Custom Designed • Precision Crafted in the USA • Available Worldwide

Harmonic Environments®
the premier maker of custom waterfalls

www.HarmonicEnvironments.com
800.497.3529

“The HBIM will offer a dynamic view of Mount Vernon, one that defies the image of an artifact unchanged since the American Revolution.”

How Tech is Transforming Preservation by Gideon Fink Shapiro

In the central passage of George Washington's mansion at Mount Vernon, a graceful black walnut staircase, built in 1758, has its guts fully exposed. On display are a wrought-iron rod, a steel I-beam, a steel channel and tie-rod, and two additional wood stringers—all added over the years to help stabilize the structure. This time, workers are tightening the existing framing joints. But before the underside can be closed and refinished with lath and lime plaster, the Mount Vernon Ladies' Association (MVLA)—the nonprofit that has owned and maintained the Virginia estate since 1858—has an important project left. During my visit in January, Tom Reinhart, the site's deputy director for architecture, told me that workers will laser-scan the staircase interior and add the data to a historic building information model and management system (HBIM).

Developed by Washington, D.C.–based Quinn Evans Architects (QEA), Mount Vernon's HBIM is among the first of its kind. It provides a framework to integrate historical and cultural information about the site with a 3D representation of the buildings and landscape. Over the centuries at Mount Vernon, a mish-mash of additions, repairs, and surveys has left a mountain of documentation. Are the floorboards in the New Room original? Did the doors always swell in the springtime? Is the deflection of a truss's upper chord increasing? No longer will conservators have to go hunting through scattered archives. Now that information will be linked to the relevant parametric objects in the 3D model—the HBIM's most groundbreaking feature, says Esther White, Mount Vernon's director of historic preservation and research.

What's happening at Mount Vernon reflects the expanding use of digital tools in historic preservation. This technology is helping to streamline historic site management, to enhance the visitor experience, and to aid in landmark restoration. It can also help preservationists expand their roles. "Preservationists do crazy, wonderful, extravagant things to save the termite-eaten piece of wood that George Washington may have looked at," says Andy Ferrell, chief of the architecture and engineering program at the National Center for Preservation Technology and Training (NCPTT), an office of the National Park Service (NPS). "But I also see preservation broadening beyond the artifact itself, as we think about larger issues like sustainability and resilience."

For example, preservationists can use geographic information system (GIS) modeling tools to chart how historic sites relate to their present-day environments and communities. This, Ferrell says, could help preservationists be more involved in managing how sites evolve over time.

The Lincoln Memorial as 3D Point Cloud

Documentation of historic sites is on the rise in part because of advances in three-dimensional laser scanning and digital photogrammetry. Take the digital documentation of the Lincoln Memorial, in Washington, D.C., expected to be completed this spring. The project is being undertaken pro bono by DJS Associates, a Pennsylvania-based forensic firm, on behalf of the NPS and CyArk, an Oakland, Calif.–based nonprofit that is building an online library of heritage sites.

In December 2013, a team of four technicians, each equipped with a laser scanner and camera, spent two days documenting the monument. Jon W. Adams, director of architectural and heritage services at DJS, says that each scan encompassed a 360-degree panorama, measuring millions of surface points per second to an accuracy of a few millimeters. Onboard computers stored the scan data into 3D point clouds, which were then blended into one large cloud, from which plans, sections, and perspectives can be extracted. The data will give the public a more detailed snapshot of the memorial, and will allow the NPS to monitor weathering or settling. "Our mission is to create a highly accurate record that could be used to help restore or reconstruct the monument," says Elizabeth Lee, vice president of CyArk. "We not only get 3D images, we also get engineering-grade data."

One site in particular has become a laboratory for emerging technology: Flushing Meadows–Corona Park in Queens, N.Y., the site of two Worlds Fairs, in 1939–40 and 1964–65. Although few original fair structures remain, the landscape is dotted with several ruins, including the Philip Johnson–designed New York State Pavilion, a monument to Space Age futurism.

Jennifer Minner, an assistant professor of planning at Cornell University, is researching using 4D GIS at the site—a combination of 3D GIS and procedural modeling that adds the dimension of time. A proposed "time slider" will toggle between historical and existing conditions, as well as future scenario models. Funded by an NCPTT grant, Minner's team is exploring the capabilities of CityEngine, a 3D GIS program, and how it can work together with architectural modeling programs (such as Maya and SketchUp) to give the public more input into what happens at the site.

In 2009, Lori Walters, a research associate in the history department at the University of Central Florida, received a grant to re-create the 1964–65 World's Fair virtually as an educational resource—and wound up inventing the children's computer game ChronoLeap. Based on archival photographs, official drawings, video footage, and interviews with fairgoers, Walters and her colleagues modeled the vanished pavilions in Maya.

They also laser-scanned the surviving landmarks to create the game's environment, and players can explore how modern-day gadgets may have evolved from experimental technology exhibited at the fair.

But why stop at making a game? "Once the models are built, the data can be repurposed for any number of uses," Walters says. Indeed, she has shared her 3D pavilion models with researchers at the Rensselaer Polytechnic Institute, who are developing an augmented reality app for smartphones and tablets. The app will give visitors access to reconstructed views and audiovisual recordings from the 1964–65 fair, geolocated to the user's location. "Faced with an expanse of empty space, users will instead find themselves surrounded by the buildings that were there, and they can learn what's inside," says Tamar Gordon, the app's co-creator.

Screenshot from the Mount Vernon HBIM

Peeling Back the Walls of Mount Vernon

At Mount Vernon, conservators are also bringing new depth to the site's interpretation. They're emphasizing the functional relationships among the two dozen or so structures and the landscape, the complex history of slavery and liberty, and the ways economics and the environment helped shape the architecture.

In these realms, the HBIM promises to make a significant contribution. In a pilot phase last year, QEA used Autodesk Revit to create a 3D database of the mansion, with a sample room modeled in rigorous detail. The HBIM shares the 3D building model from Revit via a plug-in with Esri ArcGIS, the program used to build a GIS model

QEA

NeoCon®

June 15 | 16 | 17 | 2015

NeoConversations

With 50,000 architecture and design professionals in attendance, NeoCon offers endless networking opportunities with existing colleagues, new collaborators, the best in the business.

The Merchandise Mart, Chicago
NeoCon.com

of the site. The biggest challenge was to create an intuitive interface to navigate the model. The architects opted for Esri CityEngine, which translates from ArcGIS. The result is a user-friendly, interactive 3D "webscene" accessible on a desktop or mobile browser.

Revit model of Mount Vernon showing eras of construction by color.

Robert Fink, AIA, the QEA associate who led the system's technical development, took me on a test drive. As he virtually peeled back walls and ceilings, he clicked on various building components. Tabs appeared indicating the current condition, systems and utilities, as well as information about the Washington period, preservation, and interpretation. Users can also search by component, date, material, or craftsperson. Each piece of information is rated with estimated levels of reliability and accuracy, so it's easy to locate knowledge gaps.

QEA is expanding the HBIM to include the rest of Washington's mansion by this summer, and will eventually add all 20 or so of the site's outbuildings. To incorporate over 250 years' worth of archives into the geospatial database could take decades, Mount Vernon's Reinhart predicts. Indeed, says Fink, "The project will never be finished." The database will be constantly updated with ongoing research and preservation work.

In 2016, a public version of the HBIM will be published online. It will offer a dynamic view of Mount Vernon, one that defies the image of an artifact unchanged since the American Revolution. And it will help us grapple with the messy contingencies of the site's cultural significance—helping us to envision how this landmark figures into our past, as well as our future.

Ultra Cosmopolitan

Ultra unobtrusive railing systems by Ultra-tec.®

When there's something worth seeing, look into Ultra-tec.®

From *The City by the Bay* to *The City that Never Sleeps,* architects are discovering the subtle sophistication of Ultra-tec® cable railing systems. Our sleek design and precise engineering never interfere with the natural drama of your project's environment. Let's just say we know our place... and we think that includes your next project. **To learn more, visit www.ultra-tec.com, or call at 800-851-2961.**

Ultra-tec®

CABLE RAILING INFILL

WWW.ULTRA-TEC.COM

Recent Work: Tod Williams Billie Tsien Architects | Partners

INTRODUCTION BY THOMAS DE MONCHAUX
PROJECT DESCRIPTIONS BY JOHN MORRIS DIXON, FAIA
PHOTOS BY MICHAEL MORAN/OTTO

Introduction:
The Style of Substance

The history of architecture is often dissembled into the history of styles. Even the modern, whose pioneers explicitly rejected historicist or vernacular forms, was reduced to the International Style—white walls and ocean-liner railings. And we live in an interesting moment in the history of styles. On the screens of my sharpest young students are no longer the parametric pinwheels or blobby billows that were a digitally enhanced memory of the last self-consciously curated consensus style, so-called Deconstructivism. Instead it's all 1986, all the time: James Stirling, Charles Moore, Raimund Abraham, Oswald Ungers, and Aldo Rossi at his most Giorgio de Chirico.

Some of this is the usual fascination with the aesthetics of the era of one's birth. (Up next: early '90s Neil Denari, AIA, Michael Rotondi, FAIA, and Tom Kundig, FAIA?) But the rest is something else. It's a search by a digitally disembodied and displaced generation for what those titans of the '80s cared about: a substantial materiality in stone, steel, and glass; a sense of place and position in landscape and cityscape; a feeling for the tactile, the sensory, the phenomenal; and the intimation (often through a classicizing shorthand of arcades and colonnades) that all buildings have not just historicist parts, but historical pasts.

1986 was a good year for Tod Williams, FAIA, and Billie Tsien, AIA, who run a remarkable New York–based practice that, steady as oxen along a furrow, has cultivated a different field altogether. Or perhaps, immune to style, they have been sustaining these enduring values all along: situated place, embodied sense, and intimated time. 1986 was the year that Williams and Tsien began their practice together.

Partners in both life and design, the two had met at work in 1977, as the former was finding his way after work with Richard Meier, FAIA, and the latter was getting into architecture from the fine arts.

It was also the year they built Feinberg Hall at Princeton University. I walked past that singular building every day when I was an architecture student myself, and I sometimes wonder if that was my real education. It's a foursquare little dormitory pushed into a steep hillside, a stocky tower with a steeply pitched standing-seam roof, and an attached stair tower topped by a glass butterfly-roof canopy out of Stirling's sweetest dreams. It embodies every kind of architectural paradox—somehow both austere and playful, minimal and maximal, and shy and bold all at once. It's assembled out of straightforward materials that are plainly expressed in a modern way—gray concrete masonry units and kit-of-parts, off-the-shelf hardware. And yet, like a gothic finial enlarged to building size, it's possessed of a miniature monumentality and almost geological inevitability that enables it to hold its own among the architectural grandiosities of that campus. Each of its four façades, varied in the manner of a Palladian villa, hints at a complex interior life. Taking a shortcut under its stair tower was like walking under the legs of a moody, yet benign, elephant. Or sphinx.

Williams and Tsien return to Princeton in 2015 with the Andlinger Center for Energy and the Environment—a lab complex that expands on the values found in that earlier structure: an orthogonal yet geological massing that pushes into the earth, a system of cuts and courts that bring daylight deep into its interiors, and a suite of accommodating details that vary in scale from furniture to architecture and give the body somewhere to go. All of Williams and Tsien's projects are unusually attuned to the materiality and detailing of their natural and built environments—so much so that when they are viewed out of those contexts, they can seem almost eclectic. But they constitute rigorously consistent research into fundamental subjects: program and place; parts and wholes; choreography and circulation; weight and light.

I ask Williams about these qualities of the Andlinger Center, and the not dissimilar Tata Consultancy Services campus in Mumbai, India (see page 102). "It's not about looking at something but about being in it," Williams says, "which is an idea that takes us back to our beginning. I'd only done two houses by the age of 40. Largely we did interiors. We love interiors. We believe in them. The inside is where architecture starts." Tsien adds: "One of the best places to be is a courtyard—protected but outdoors, inside but outside. We have this sense of making places that feel like that." Like, Williams interjects, "a building turned inside out."

"You were skeptical about architecture," Williams says to Tsien in that same conversation, recalling when the two met. "I didn't like the way that even as you tie up every little knot in architecture, things start to come untied," Tsien clarifies. "That's how life is, some things are perfected and some things fall apart."

Perhaps some architects, especially masters of style, detect that skepticism. And their praise for Williams and Tsien can smack of backhandedness: to say that they are masters of material practice—which they are—is to label them mere craftspeople; to say that they know something about the lyrical and ineffable—which they do—is to label them mere dreamers. But Williams and Tsien, and their work, sustain those seeming contradictions, and that healthy skepticism as well.

The thing that fell apart the most in Williams and Tsien's work since 1986 was the 2014 demolition of their American Folk Art Museum—a willful side-effect of the neighboring Museum of Modern Art's expansion. Like a kid sister to the original Penn Station, the Folk Art Museum, whose opening in late 2001 was an inadvertent expression of urban resilience, is now a landmark in New York's invisible city. It's impossible to consider Williams and Tsien's oeuvre without acknowledging the building's absence. But even as it was briefly iconic for its heavyweight cast-metal façade—a preemptive critique of everything glassy and glossy that would surround and supersede it—the museum's essential quality was its outward-looking interiority. Even deep inside that seemingly closed-off structure—the whole of it a continuous staircase of landings and liftoffs—calibrated alignments and openings directed the eye back out onto the city. This quality of procession and perception is sustained in all of Williams and Tsien's work.

They were drawing that very building when Michael Moran captured them in the October 1998 photograph (facing page) that's steadily become—Pinterest page by Pinterest page—an icon of collaborative architects at work, displacing hackneyed heroic shots of Howard Roark in all his incarnations. At left, Williams in a black t-shirt, floating a pencil speculatively over a roll of trace. At right, Tsien with a pinkie ring, left hand at her temple as if drawing the ideas out or holding them in, right hand resting in the bend of her arm as if checking those ideas against the wisdom of the body. "Billie likes to be in the courtyard," Williams says. "I like to be wandering." Together in the photo, they conjure up a restless stillness, a quick quietude, a style of substance, the essence of a body of work in progress.

Center for the Advancement of Public Action, Bennington College Bennington, Vt.

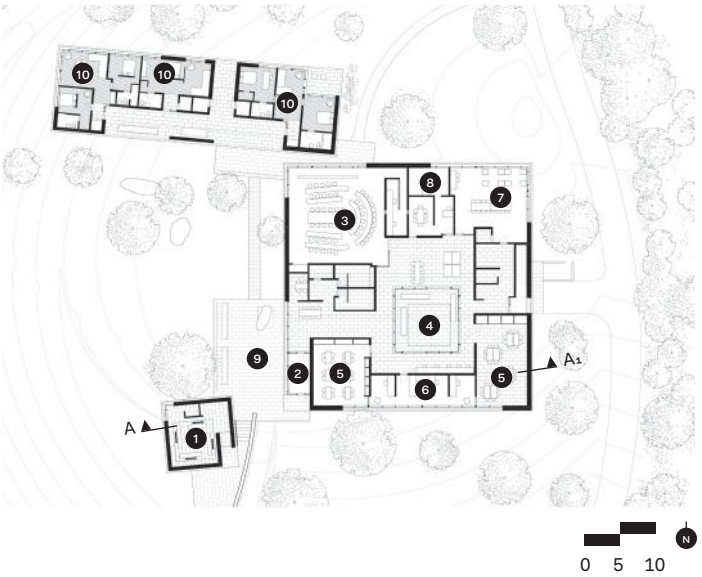
In this cluster of modestly scaled structures, Bennington students, faculty, and "professionals on the front lines of public action" gather to confront the world's pressing problems. The center's program is divided among three buildings: the symposium building, a residence hall for fellows and visitors, and a flexible multi-use space known as the Lens. The three are sited around a central terrace and are linked to the rest of the campus via walkways.

The main building contains the symposium room, with its stepped floor and curved seating to facilitate dialogue. Supporting spaces include classrooms, offices, meetings rooms, a faculty lounge, and student common areas. Glazed walls line a central court, which is open to the sky.

The three live–work apartments are similar in character but differ in size, layout, views, and furnishings. The single room in the smallest building, the Lens, is designed for contemplation, performance, and debate. A hand crank rolls back a portal in the roof to reveal the sky, hence the name of the structure.

All three buildings are constructed of steel with block infill and are clad in 3-inch-thick marble panels, collected by a Vermont stone yard from quarries that had previously shut down. Each marble façade was laid out on a warehouse floor before installation to ensure that the varied colors and sizes generated a desirable pattern.

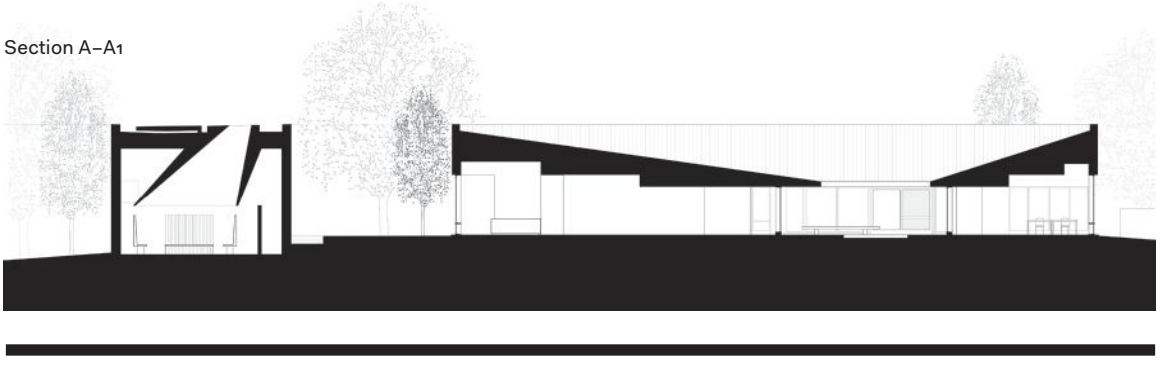
Ground-Floor Plan



Previous Spread: Plaza with view north to residence hall

Opposite: View from northwest

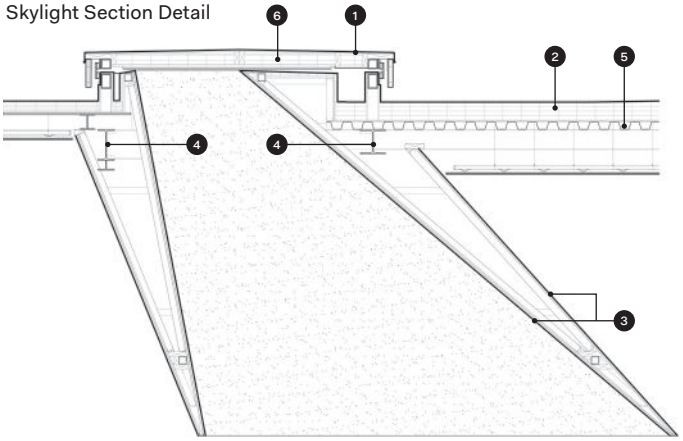
Section A–A1



1. Lens building
2. Symposium building entry
3. Symposium room
4. Courtyard
5. Classroom
6. Offices
7. Faculty lounge
8. Director's office
9. Plaza
10. Residence

0 10 20

Skylight Section Detail



1. Flat-seamed terne-coated copper over plywood sheathing
2. Tapered rigid insulation
3. Plaster stucco with sponged finish
4. Structural steel
5. Metal deck
6. Manually operated sliding roof hatch

0 2 4

Opposite: **Covered portico outside residence hall**

This image: **Lens building interior**

Above: Symposium room, with Maharam fabric screen

Opposite: Residence bathroom interior with custom ceramic tile by Gustin Ceramics

Project Credits

Project: Center for the Advancement of Public Action, Bennington, Vt.
Client: Bennington College
Architect of Record: Tod Williams Billie Tsien Architects | Partners, New York · Tod Williams, FAIA, Billie Tsien, AIA (partners-in-charge/designers); Susan Son (project architect); David Moses, AIA (assistant project architect); Erin Putalik, Evan Ripley, William Vincent, Matthew Montry, Christina Chang (project team)
Contractor: Daniel O'Connell's Sons
Structural Engineer: Severud Associates
M/E/P Engineer: Ambrosino, DePinto & Schmieder
Civil Engineer: Otter Creek Engineering
Landscape Architects: Reed Hilderbrand Associates
Lighting Designer: Tillotson Design Associates
Acoustic, A/V, Telecom Consultant: Acoustic Dimensions
Graphics Consultant: Roll Barresi & Associates
Roof Hatch Consultant: Turner Exhibits
Fountain Consultant: Dan Euser Waterarchitecture
Stone Consultant: Walker Zanger
Marble Supplier: Gawt Marble & Granite
Granite Supplier: Trowel Trades Supply
Millwork: Descience Laboratories
Size: 17,861 gross square feet

First Congregational United Church of Christ Washington, D.C.

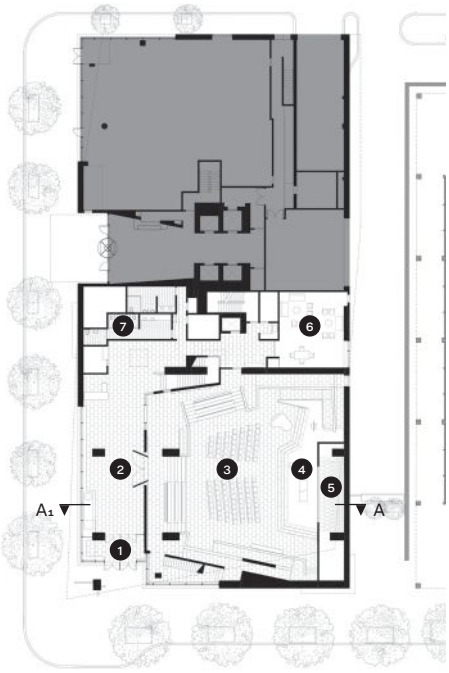
Founded in 1865 by black abolitionists, the First Congregational United Church of Christ now occupies its third structure on this historic site at 10th and G Street, NW, in Washington, D.C. Things have gotten taller in the last 150 years: The church's current home occupies the first two floors of a 10-story mixed-use building by D.C.-based Cunningham | Quill Architects.

Tod Williams Billie Tsien Architects | Partners designed both the envelope and interiors of the bottom two levels. To mediate between the reflective glass envelope of the upper floors and the cladding of neighboring buildings (which includes the Mies van der Rohe–designed Martin Luther King Jr. Memorial Library, the central facility for the D.C. Public Library), the architects chose a dark, shimmering brick for the church exterior. Street-level glazing welcomes passersby, and a three-story column clad in white bronze doubles as a signpost for the church entrance. Two projecting glass vitrines indicate the main sanctuary and the chapel inside, admitting light by day and glowing like lanterns at night.

The ample double-height space of the sanctuary is made possible by a substantial transfer beam. Its floors are made of limestone, its walls are paneled in ash, and its ceiling supports a constellation of light fixtures. Custom-designed furnishings include movable seating to accommodate programs ranging from worship services to film screenings. Surrounding the sanctuary on two levels are an intimate chapel, social rooms, and offices. Functional and flexible, the church also serves as a de facto community center.

Second-Floor Plan

Ground-Floor Plan

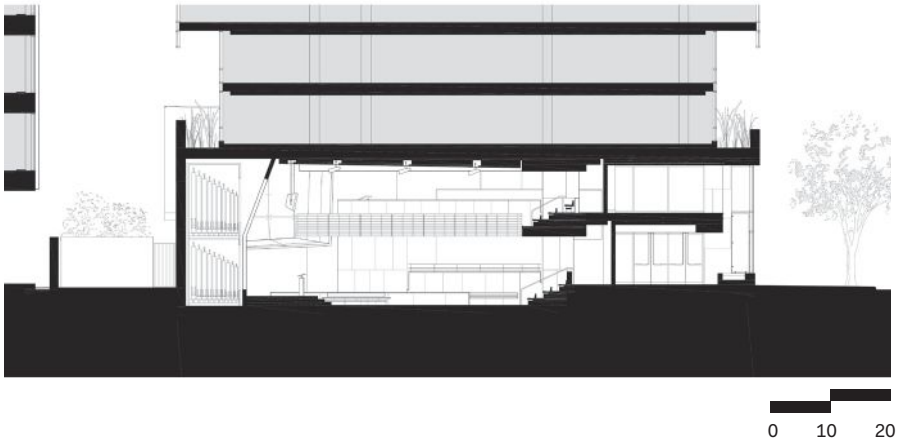


1. Entrance
2. Lobby/narthex
3. Sanctuary
4. Chancel
5. Organ chamber
6. Living room
7. Bathrooms
8. Overlook/crying room
9. Offices
10. Chapel
11. Community room

Previous Spread: Sanctuary interior, with limestone floors and ash-paneled walls

Opposite: Exterior view from the south of the brick-clad church volume under the glazed office tower.

Section A–A1



Project Credits

Project: First Congregational United Church of Christ, Washington, D.C.
Client: First Congregational United Church of Christ
Design Architect for Church: Tod Williams Billie Tsien Architects | Partners, New York · Tod Williams, FAIA, Billie Tsien, AIA (partners-in-charge/designers), Aurelie Paradiso (project architect)
Architect of Record for Building: Cunningham | Quill Architects
Structural: Ehlert/Bryan
M/E/P: Girard Engineering
Acoustical Consultant: Acoustic Dimensions
Lighting Consultant: VOX Manufacturing
LEED Consultant: Sustainable Design Consulting
Code Consultant: Bello, Bello & Associates
Civil Engineer: Delon Hampton & Associates
Surveyor: AMT and Associates
Size: 23,000 square feet

Tata Consultancy Services,
Banyan Park, Phase 1
Mumbai, India

This 23-acre technology campus, known as Banyan Park, is located on a wooded site near Mumbai's international airport. The first 453,000 square feet of its development was completed in 2014, with second and third phases scheduled for 2016 and 2018.

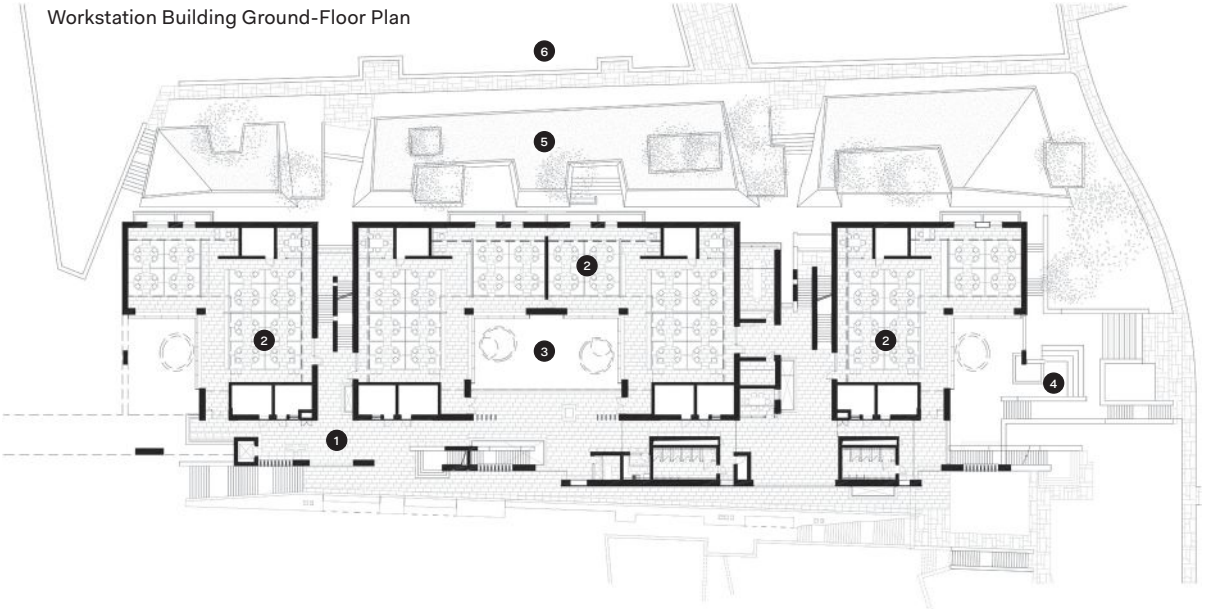
Ratan Tata, the chairman emeritus of Tata Sons—the parent company for the client, IT support company Tata Consultancy Services—and a current member of the Pritzker Prize jury, studied architecture in the United States, and he asked Tod Williams Billie Tsien Architects | Planners for a complex in harmony with its verdant setting. The project was done in collaboration with Somaya & Kalappa Consultants of Mumbai.

Serving as the company's headquarters, the campus provides offices for 2,000 people, training and conference centers, cafeteria, library, auditorium, and recreation facilities. Its buildings are connected by covered walkways that offer refuge from Mumbai's heat and monsoons, and, to ensure employee comfort, the interiors are air conditioned.

The architects kept building volumes low, and laid them out around a series of courtyards. An amphitheater at the end of one workspace structure offers an outdoor spot for meetings, as do covered terraces in each structure.

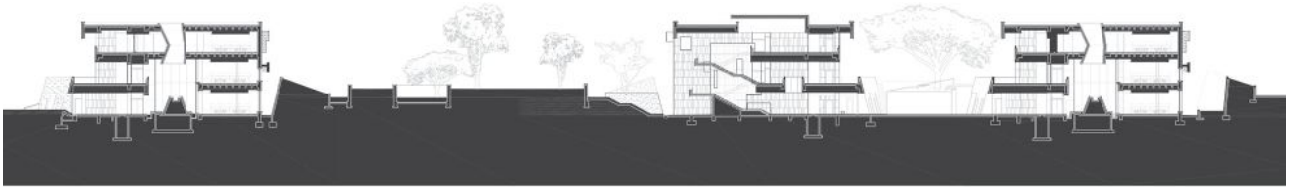
The use of concrete and local stone as primary materials conveys a sense of permanence. India's crafts are displayed in tile mosaics and hand-carved stone panels. Women Weave, a local organization, made ikat tapestries that enliven office interiors. Such modern interpretations of traditional techniques underscore an overall awareness of place.

Workstation Building Ground-Floor Plan



1. Exterior walkway
2. Workstations
3. Oculus courtyard
4. Amphitheater
5. Landscaped berm
6. Garden courtyard
7. Campus entrance
8. Security building
9. Utility building
10. Entrance courtyard
11. Corporate building
12. Executive briefing center
13. Jali bridge
14. Workstation building
15. Recreation center
16. Workstation building (Phase 2)
17. Central courtyard (Phase 2)
18. Cafeteria and conference center (Phase 3)
19. Existing structures

Section A–A₁



0 100 200

Site Plan

0 100 200

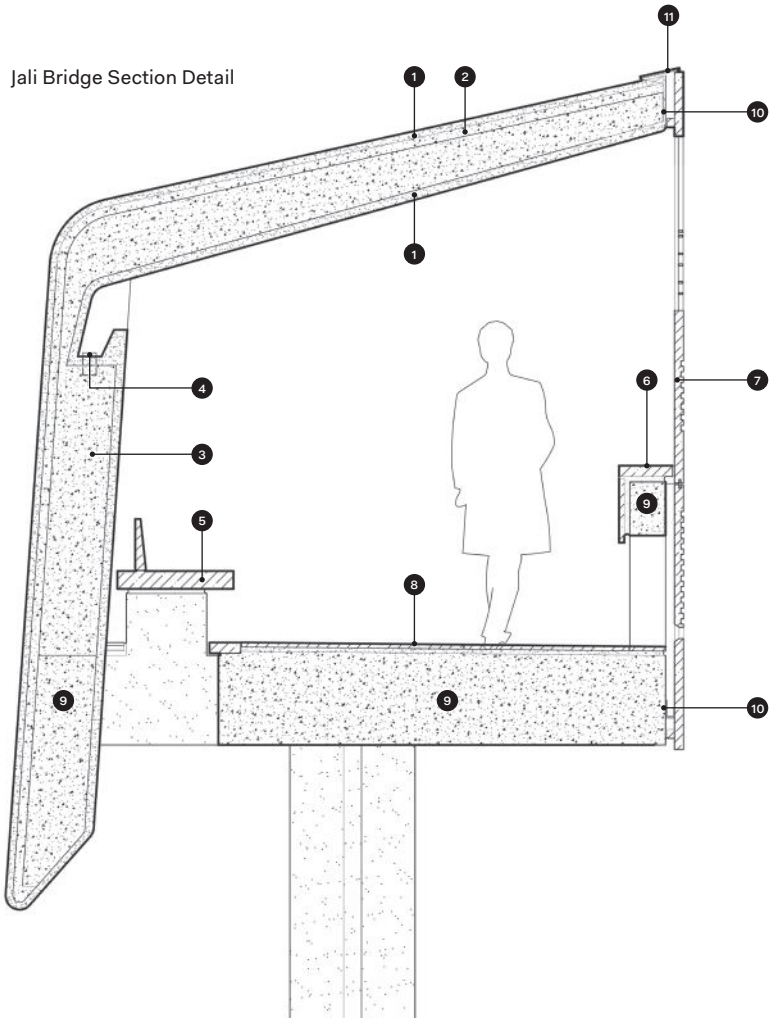
Opening Spread: Workstation building entrance, with view of landscaped berms

This Image: Entrance courtyard

Oculus courtyard, with covered, open-air breakout spaces and views into workstation areas

Project Credits
Project: Tata Consultancy Services, Banyan Park, Phase 1, Mumbai, India
Client: Tata Consultancy Services
Design Architect: Tod Williams Billie Tsien Architects | Partners, New York · Tod Williams, FAIA, Billie Tsien, AIA (partners and lead designers); Paul Schulhof, AIA (partner); Shuchi Chauhan (project manager); Andy Kim, David Later, Elisa Testa, Brent Buck, Denise Lee, Brian Abell, Jenee Anzelone (project architects); Martina Bendel, Anna Andersen, Jean Pelle, Ami Mehta, Aurelie Paradiso, Peter Warren, AIA, Kyu Young Huh, Bryan Kim (project team)
Associate Architect: Somaya & Kalappa Consultants, Mumbai · Brinda Somaya (partner); S. Roy Choudhury, Swati Bambulkar (project managers); Sayed Mohiuddin, Sonali Desai, Ajay Hachrekar, Prasanth Nalawade, Nikhil Vichare, Nirmala Jadhav, Anushka Kalbag, Ashok Kumar Muthu Kāluvan (project team)
Structural Engineer: Sterling Engineering Consultancy Services
M/E/P: Spectral Services Consultants, an AECOM Co.
Landscape Consultants: Ravi & Varsha Gavandi
Lighting Designer: Fisher Marantz Stone
Kitchen Consultant: Mahendra Panchal
Building Signage: 10 March Consultants
Acoustical Engineer: Acoustic Distinctions
M/E/P (NYC): Altieri Sebor Wieber
Structural Engineer (NYC): Severud Associates
A/V: Downstream
Tapestry Fabrication: Women Weave + Chelna Desai
Contractor: Shapoorji Pallonji & Co.
Size: 23 acres (site); 453,000 square feet (Phase 1); 147,000 square feet (Phases 2 and 3)

Jali Bridge Section Detail



1. China tile over mortar
2. Cementitious waterproofing
3. Gunite
4. Light fixture
5. Stone bench
6. Stone rail ledge
7. Stone jali (perforated screen)
8. Stone paving
9. Cast-in-place concrete
10. Stainless steel stone anchor
11. Stainless steel coping plate

0 1 2

Opposite: **The Jali bridge, lined with a tile ceiling and perforated stone screen**

This Image: **Recreation center swimming pool**

Savidge Library Complex, The MacDowell Colony Peterborough, N.H.

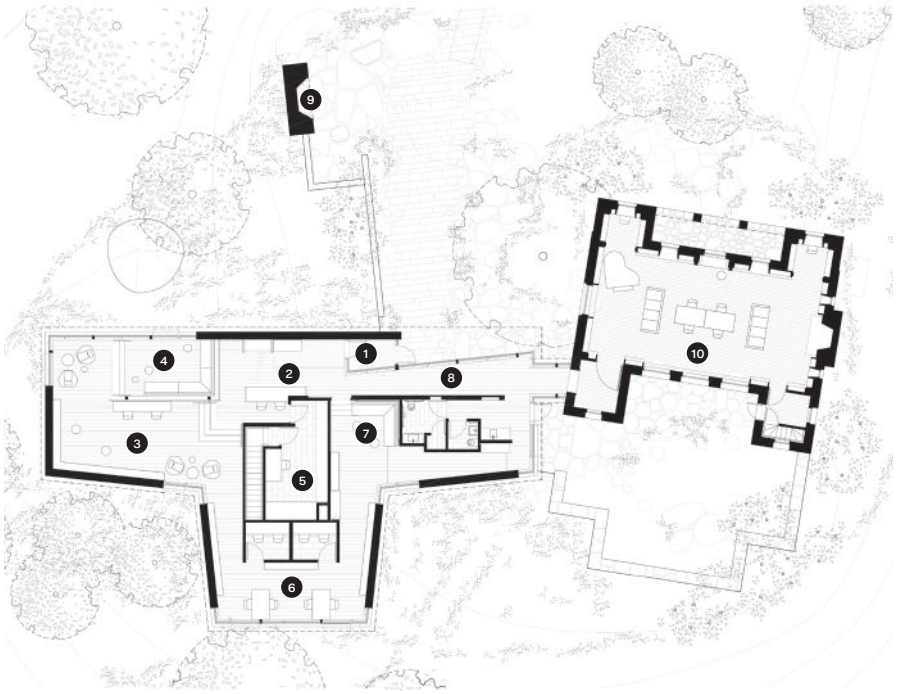
In 1907, composer Edward MacDowell and his pianist wife Marian transformed their rural retreat into a pioneering artists' colony. The luminaries who have worked in this bucolic setting over the years have included Willa Cather, Aaron Copland, Leonard Bernstein, and James Baldwin.

The MacDowells built 32 cottage-studios where the colony's fellows are to spend the day alone (and now without phone or Internet). A lunch basket is left at the door. In the evening, they gather for dinner and for public presentations in the Savidge Library. Dating from 1928, this rustic, one-room structure has remained a symbolic center, yet fell short of the colony's technical and environmental requirements.

While providing sensitive technical improvement to the old library, Tod Williams Billie Tsien Architects | Partners designed an addition, sited deferentially to one side of the original. A vestibule in the new wing keeps out wintry blasts and summer humidity, and in the adjacent plaza a tall monolith containing an outdoor fireplace serves as a landmark for the complex. Like the new wing, it is clad in Boreal Green split-face granite, quarried nearby.

Within its tight footprint, the new addition provides space for an expansion of the traditional library functions, a reading room, a corridor gallery, facilities for online research, and accommodates a growing digital archive.

Ground-Floor Plan



1. Entrance vestibule
2. Circulation desk
3. Reference library
4. Reading area
5. Librarian's office
6. Study area
7. Screening area
8. Gallery
9. Fireplace and monolith
10. Savidge Library

0 10 20 N

Project Credits

Project: Savidge Library Complex, Peterborough, N.H.
Client: The MacDowell Colony
Architect: Tod Williams Billie Tsien Architects | Partners, New York · Tod Williams, FAIA, Billie Tsien, AIA (partners-in-charge/designers); Brent Buck (project architect), Whang Suh (project team)
Contractor: Tim Groesbeck and Associates
Structural Engineer: Ben E. Tirey
Civil Engineer: Monadnock Septic Design
Geotechnical Engineer: HTE Northeast
Landscape Architects: Reed Hilderbrand
Lighting Designer: Fisher Marantz Stone
Code Consultant: Hughes Associates
Waterproofing Consultant: James R. Gainfort Consulting Architects
Mason: Shelley Masonry
Millwork: D.S. Huntington Co.
Upholstery: Interiors by Robert
Metal Work: Weidner Services
Size: 4,090 square feet (new construction); 1,260 square feet (renovation)

Previous Spread: View from the north, with historic library building at left

Above: West view of addition, with fireplace at left and plaza beyond

This Image: Reference library and reading area

Kim and Tritton Residence Halls,
Haverford College
Haverford, Pa.

Hired to add 160 student rooms to the Haverford College campus, Tod Williams Billie Tsien Architects | Partners quickly discovered that the commission came with distinctive conditions. For one thing, the school's Quaker traditions called for consensus-building, and the students' preference for low buildings with single rooms became a determinant.

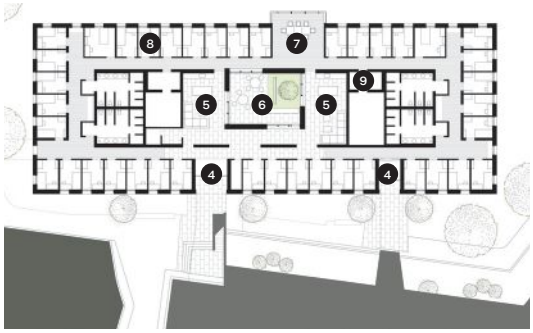
The beauty of the campus landscape was impressive, but this particular site included landfill that required significant soil remediation. The resulting excess soil was shaped into a berm between two rectangular two-story structures, turning a challenge into an opportunity. The visually appealing berm provides direct upper-level access to both buildings by a variety of ramps and bridges, thus eliminating the need for elevators or fire stairs.

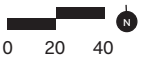
Inside the buildings, student rooms are laid out along the perimeter, around common areas rather than corridors. The roughly textured brown brick of the building exteriors is repeated in a lighter color in the interior common spaces, along with a variety of wood battens, colorful ceramic tiles, and felt panels in custom patterns.

A central courtyard in each building provides protected outdoor space, and sliding glass doors in the adjacent lounges open into the courtyards when weather permits. The result is a residential complex where both buildings and landscape enhance the student experience.

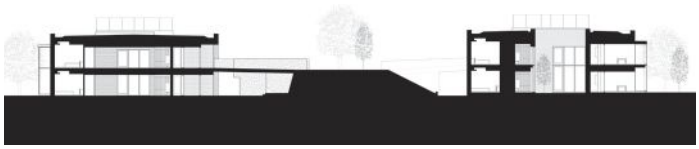
Tritton Residence Hall Second-Floor Plan

Tritton Residence Hall Ground-Floor Plan



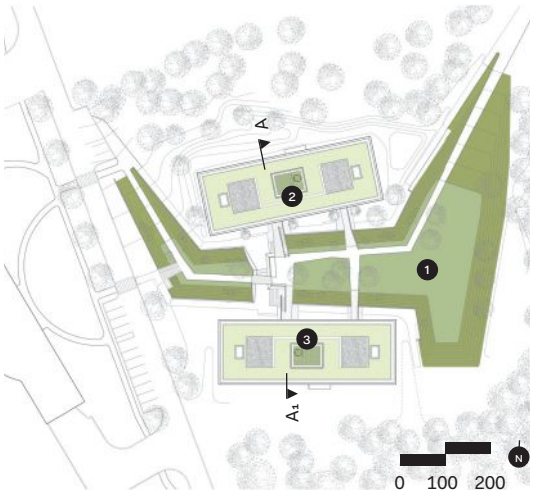


Section A–A1



1. Landscaped berm
2. Tritton Residence Hall
3. Kim Residence Hall
4. Entrance
5. Common space
6. Courtyard
7. Study room
8. Dorm room
9. Laundry room
10. Entry bridge

Site Plan



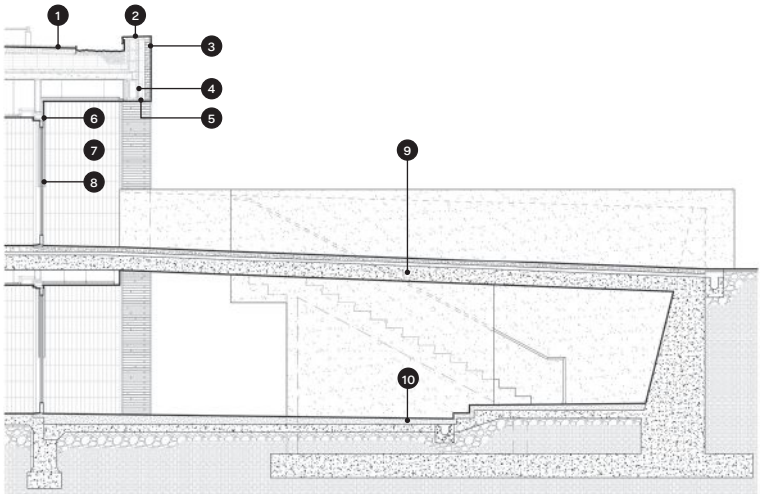
Previous Spread: **View from northwest, showing landscaped berm and path system between residence halls**

This image: **Entrance bridges offer second-floor access to dormitories and allow for ground-level plaza below**

1. Green roof
2. Brick coping
3. Petersen brick
4. Steel tube
5. Relieving angle
6. Wood transom panel
7. Heath tile
8. Glass entry door
9. Cast-in-place concrete
10. Stone paver

0 5 10

Exterior Bridge Section Detail



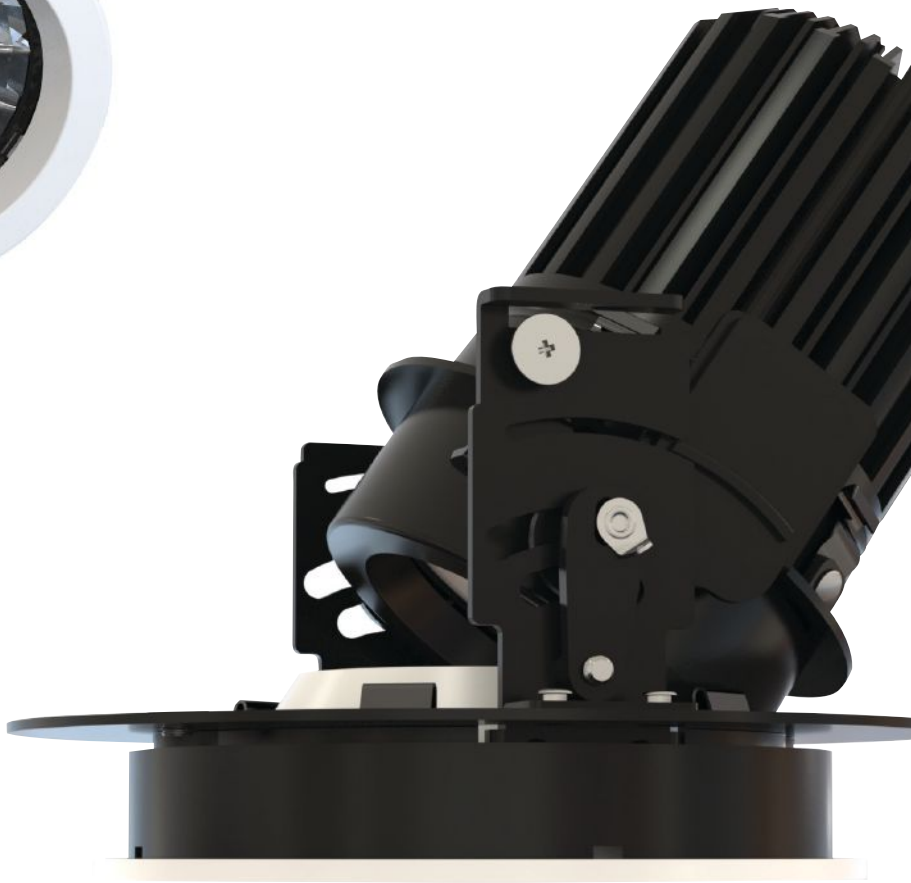
Above: Common space, with study room beyond

Opposite: Central courtyard and dormitory hallway

Project Credits

Project: Kim and Tritton Residence Halls, Haverford, Pa.
Client: Haverford College
Architect of Record: Tod Williams Billie Tsien Architects | Partners, New York · Tod Williams, FAIA, Billie Tsien, AIA (partners-in-charge/designers); Paul Schulhof, AIA (partner); John Skillern (project architect); Denise Lee (assistant project architect); Shengning Zhang, Aaron Korntreger, Thomas Offord (project team)
Contractor: W.S. Cumby
Structural Engineer: Severud Associates
M/E/P Engineer: AltieriSeborWieber Consulting Engineers
Civil Engineer: Hunt Engineering
Geotechnical Engineer: David Blackmore & Associates
Landscape Architects: Mathews Nielsen
Lighting Designer: Tillotson Design Associates
Code Consultant: Hughes Associates
Waterproofing Consultant: James R. Gainfort Consulting Architects
Mason: Thompson Masonry Contracting
Millwork: J.E. Scholtz Custom Millwork
Upholstery/Wallcoverings: Liora Manne
Metalwork: Miller Metalcraft
Size: 43,000 gross square feet on a 2.9-acre site

intense® LIGHTING



#IntenseABILITY - 021

CAPABILITY

Whether it's track, recessed multiples, or downlighting, from custom to catalog work, or satisfying retail, hospitality, and other spaces' lighting needs, one company lives the definition of CAPABILITY.

Come see the full CAPABILITY of the MX and GRAVITY lines on display at LFI 2015, NY, NY. It's a display you won't want to miss.

LIGHTFAIR INTERNATIONAL 2015

BOOTH NO. **356**
May 5th to 7th
Javits Center
New York, NY

Intense Lighting | Anaheim, CA
www.IntenseLighting.com

Residential:
Further Lane House
Amagansett, N.Y.

PHOTOS BY JEREMY BITTERMANN

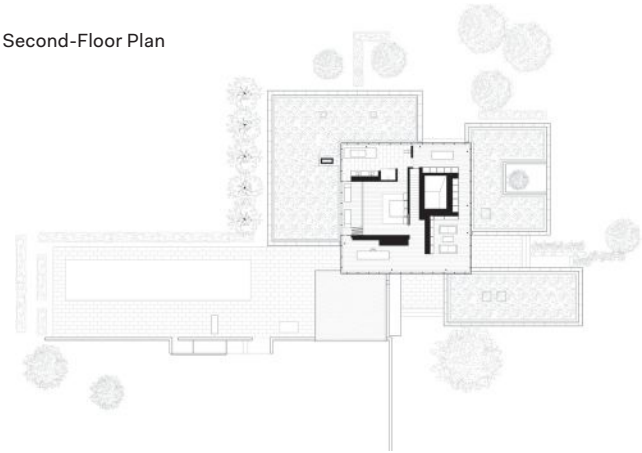
Designed by Tod Williams Billie Tsien Architects | Partners for a family that enjoys entertaining at their second home, this eastern Long Island house is assembled from five quite visible components: three one-story stone-clad structures and a roofed outdoor pavilion, surmounted by a glass-clad volume. Bars of Valmalenco stone clad the first-floor exteriors, appearing inside to identify structural walls as well.

Circulation at ground level is outdoors and under cover, with a tall light monitor providing illumination at a key central point. Portions of the house can be independently occupied, while on busy weekends all of its spaces are active.

Entering the driveway, visitors see an irregular landscape morphing into defined rectangular areas adjoining the house. The first structure one encounters is a single-car garage, with attached storage and studio space. Adjacent to that is the guest house, its two bedrooms separated by a garden court enclosed in translucent etched glass.

The largest ground-floor structure contains three children's bedrooms, along with the family's living, dining, and kitchen spaces. The expansive living–dining area overlooks the pool and the outdoor sitting–dining pavilion. Floating above, and supported by all four ground-floor structures, is the glass-walled master suite, where broad views include the neatly stone-bordered rectangles of planted roofs.

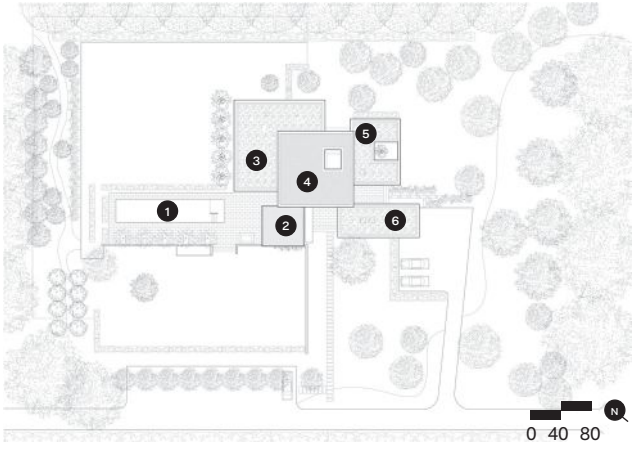
Second-Floor Plan



Ground-Floor Plan

Opening Page: View of house and entry pathway from northeast

Site Plan



1. Pool area
2. Outdoor room
3. Living–dining
4. Master suite
5. Guest house
6. Studio–garage

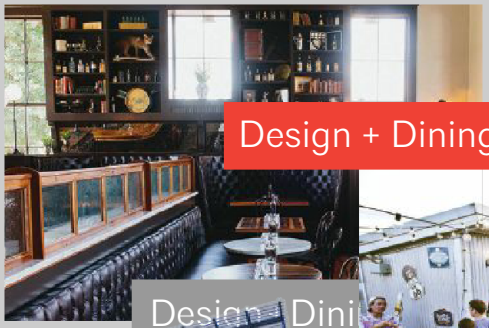
Let's work together.

Nurses, doctors, staff and patients working together to achieve a goal. Shouldn't their space reflect that coordination? Acczent® vinyl sheet now includes visuals taken straight from Johnsonite's I.D. Freedom™ Luxury Planks and Tiles. Design continuity between sheet and tile. Every element working together functionally, aesthetically and logistically. Just like you.

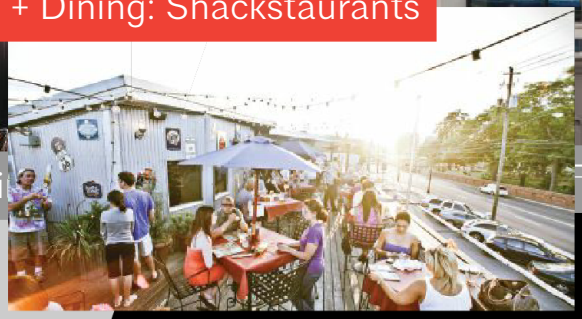
Room to room, floor to floor, bring the whole experience together. Find out more at tarkettna.com.

Tarkett | THE ULTIMATE FLOORING EXPERIENCE

Entrance court, with view of guest house volume at far left and garage at right

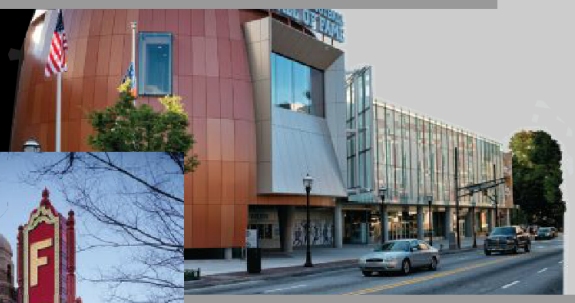


Design + Dining: Shackstaurants



Design + Dini

FutureHAUS™ on the Expo Floor

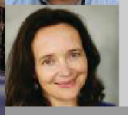


Tours: Fox Theatre

The ege Football Hall of Fame

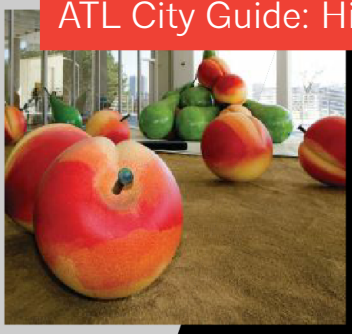
Tours: Perkins+Will's Office

Tours: Porsche HQ



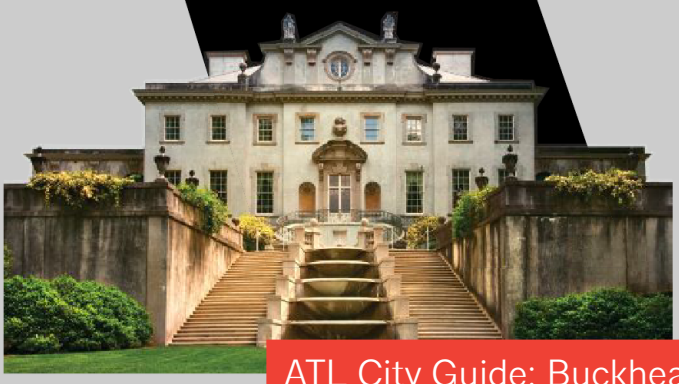
Inspiring Spe

ATL City Guide: High Museum of Art



ATLAIANTA!

Tours: Dirty South



Keynote: Welby Altidor, Cirque du Soleil

ATL City Guide: Buckhead

AIA Convention 2015: May 14–16, Atlanta

Get on the A-list! Visit aia.org/convention

Top: Garden defined by concrete walls, with stairs to pool area

Above: Office nook in guest house, with view of bedroom at right and covered walkway leading to main house at left

Project Credits
Project: Further Lane House, Amagansett, N.Y.
Client: Withheld
Architect: Tod Williams Billie Tsien Architects | Partners, New York · Tod Williams, FAIA, Billie Tsien, AIA (partners-in-charge/designers); Vivian Wang (project architect); Aaron Fox (assistant project architect)
General Contractor: Lettieri Construction
Structural Engineer: Severud Associates
Mechanical Engineer: ICOR Associates Consulting Engineers
Concrete Consultant: Reg Hough, FAIA, Architectural Concrete Consultant
Window Wall: Front Inc.
Window Wall Consultant: Axis Façades
Plumbing: Surf Plumbing
Electrical: MJM Electric
Lighting Consultant: Rick Shaver
Millworker: Descience Laboratories
Wood Refinisher: Quality Wood Care, Jakob Prüfer
Size: 10,000 square feet

Dining room, with view northeast to covered outdoor room and pool area

> *For full project credits, visit architectmagazine.com.*

LIGHTFAIR

INTERNATIONAL

The future. Illuminated.

2015

THE GLOBAL LANGUAGE OF LIGHT

LIGHTFAIR.COM

NEW YORK, NY USA
Javits Center

PRE-CONFERENCE
May 3 – 4, 2015

TRADE SHOW & CONFERENCE
May 5 – 7, 2015

IES | IALD | AMC

PHOTO CREDITS
(1) WALL ILLUMINATION FANTASY OF PIOLE HIMEJI, HIMEJI-SHI, JAPAN | LIGHTING DESIGN: UCHIHARA CREATIVE LIGHTING DESIGN INC + TAKENAKA CORPORATION | PHOTOGRAPHY © MASAKI KAWAGUCHI **(2) BRANZ KOSHIEN,** NISHINOMIYA, JAPAN | LIGHTING DESIGN: AKARI+DESIGN ASSOCIATES | PHOTOGRAPHY © HIROYUKI TSUDA

Advertiser	Page	Website	Phone
ALPOLIC- Mitsubishi Plastics Composites America	12	alpolic-americas.com	
American Institute of Architects	50	www.aia.org/join	
American Institute of Architects	52	aiau.aia.org	
American Institute of Architects	127	aia.org/convention	
Ameristar Fence	11	ameristarfence.com	800-321-8724
Amerlux	42	amerlux.com/commercial	
ARCAT	C3	arcat.com	
Architect Newsletter	69	www.omeda.com/arch/1M1ENBD	
Armstrong	C4	armstrong.com/woodworks	877 ARMSTRONG
BEHR	39	BehrColorBox.com	
Bison Innovative Products	60-63	BisonIP.com	800.333.4234
Bluebeam Software, Inc.	21	bluebeam.com/coordinate	
Bostik	64-67, 68	www.bostik-us.com	
Cascade Coil Drapery	78-79	fabricoil.com	800.999.2645
CENTRIA	43	CENTRIAperformance.com/retrofit	800-752-0549
Cosella-Dorken	22	www.cosella-dorken.com	888-4DELTA4
CR Laurence	19	crlaurence.com	800-421-6144
Doug Mockett & Company, Inc.	129	www.mockett.com	800.523.1269
Eaton's Cooper Lighting Business	48	eaton.com/lighting	
Finelite	31	www.fineliteled.com	
Forms + Surfaces	8	www.forms-surfaces.com	
Graham Architectural Products	C2	grahamwindows.com/ideas	800-755-6274
Guardian SunGuard	25	SunGuardGlass.com	866-GuardSG
Hanley Wood's Neal Award	45	www.hanleywood.com	
Hanover Architectural Products	76	www.hanoverpavers.com	800.426.4242
Harmonic Environments	80	www.HarmonicEnvironments.com	800.497.3529
Horton Automatics	17	hortondoors.com	
Huber	13	ZIPSystem.com/EPD	
IAPMO	11	WWW.UNIFORM-ES.ORG	877-4-IESRPT
Intense Lighting	122	www.IntenseLighting.com	
Intersan Manufacturing	129	www.intersanUS.com	
Invisible Structures, Inc.	83	invisiblestructures.com	800.233.1510
Johnsonite	125	tarkettna.com	
Kawneer	75	kawneer.com	
LIGHTFAIR International	134	LIGHTFAIR.COM	
MacroAir	27	MACROAIRFANS.COM/GEARLESS	
Major Industries	29	MAJORSKYLIGHTS.COM	888-759-2678
Marvin Windows and Doors	29	MARVINWINDOWS.COM/ARCHITECTSCHALLENGE	
MBCI	86	www.mbci.com/swedish	877.713.6224
Merchandise Mart Properties, Inc/NeoCon	85	NeoCon.com	
Mermet Contract	9	mermetusa.com	866.902.9647
Mitsubishi Electric Cooling & Heating	18	MitsubishiPro.com	
modularArts	74	modulararts.com	206.788.4210
Nichiha USA	5	nichiha.com	866.424.4421
Nudura	83	www.nudura.com	866.468.6299
Oldcastle BuildingEnvelope®	2-3	BIMIQ.com	866-Oldcastle
Ornamental Metal Institute of New York	6	WWW.OMINY.ORG	
Owens Corning	70	www.OCBuildingSpec.com	
Pella EFCO Commercial Solutions	73	pecsARCH.com	800.591.7777
Petersen Aluminum	59, 60-63	WWW.PAC-CLAD.COM	800.PAC.CLAD
Pittsburgh Corning	38	PittsburghCorning.com	
PPG Flat Glass	7	ppgideascapes.com/sb67	888-PPG-IDEA
PPG Paints	77	PPGAC.com/trade	
R+D Awards	33	RDAWARDS.COM	
reThink Wood	46-47	rethinkwood.com/architect	
Saftifirst	15	safti.com/book	888.653.3333
SELUX	23	selux.us	
Steel Institute of New York	10	WWW.SINY.ORG	
TAKTL	1	WWW.TAKTL-LLC.com	412.486.1600
The Cable Connection	87	WWW.ULTRA-TEC.COM	800-851-2961
VT Industries	34-35	VTDoors.com	800-827-1615 ext512
Wausau Tile Inc.	84	wausautile.com	800.388.8728
Xypex Chemical Corporation	41	xypex.com	800.961.4477

** issue mailed in regional editions. Publisher not liable for errors or omissions.*

Editorial: The Hand that Wrecks the Cradle

No one can say for certain how many people have suffered and died in the Middle East in recent years because of foreign invasions and internal conflicts. Some observers count the fatalities in the hundreds of thousands; millions of people have been uprooted from their homes. And while the full scope of the humanitarian disaster may never be clear, the cultural toll is sometimes painfully evident.

The United Nations and the American Association for the Advancement of Science (AAAS) have been monitoring the condition of historic sites in Syria and Iraq via high-resolution satellite images. Late last year, the U.N. reported that 290 historic sites in Iraq and Syria have been disturbed, describing 24 as "destroyed" and 104 others as "severely damaged." This is the cradle of civilization we're talking about, settlements dating back thousands of years.

There's plenty of blame to go around, and the Syrian Civil War has been a major perpetrator. For two years, rebels held the 11th century crusader castle Krak des Chevaliers, in a harsh echo of its original purpose. The forces of President Bashar al-Assad bombarded and recaptured the fortress last March. His forces have also shelled the ancient city of Palmyra, destroying portions of the Roman-era Temple of Bel and other monuments; the museum there has been pillaged.

Awful as they are, the architectural casualties of the Syrian Civil War seem incidental when compared to the systematic campaign of cultural vandalism committed by the Islamic State of Iraq and Syria (ISIS). The terror group and its like have used as justification for their actions an extremist interpretation of Sharia law that prohibits the worship of "false idols" and the depiction of people and animals in a religious context.

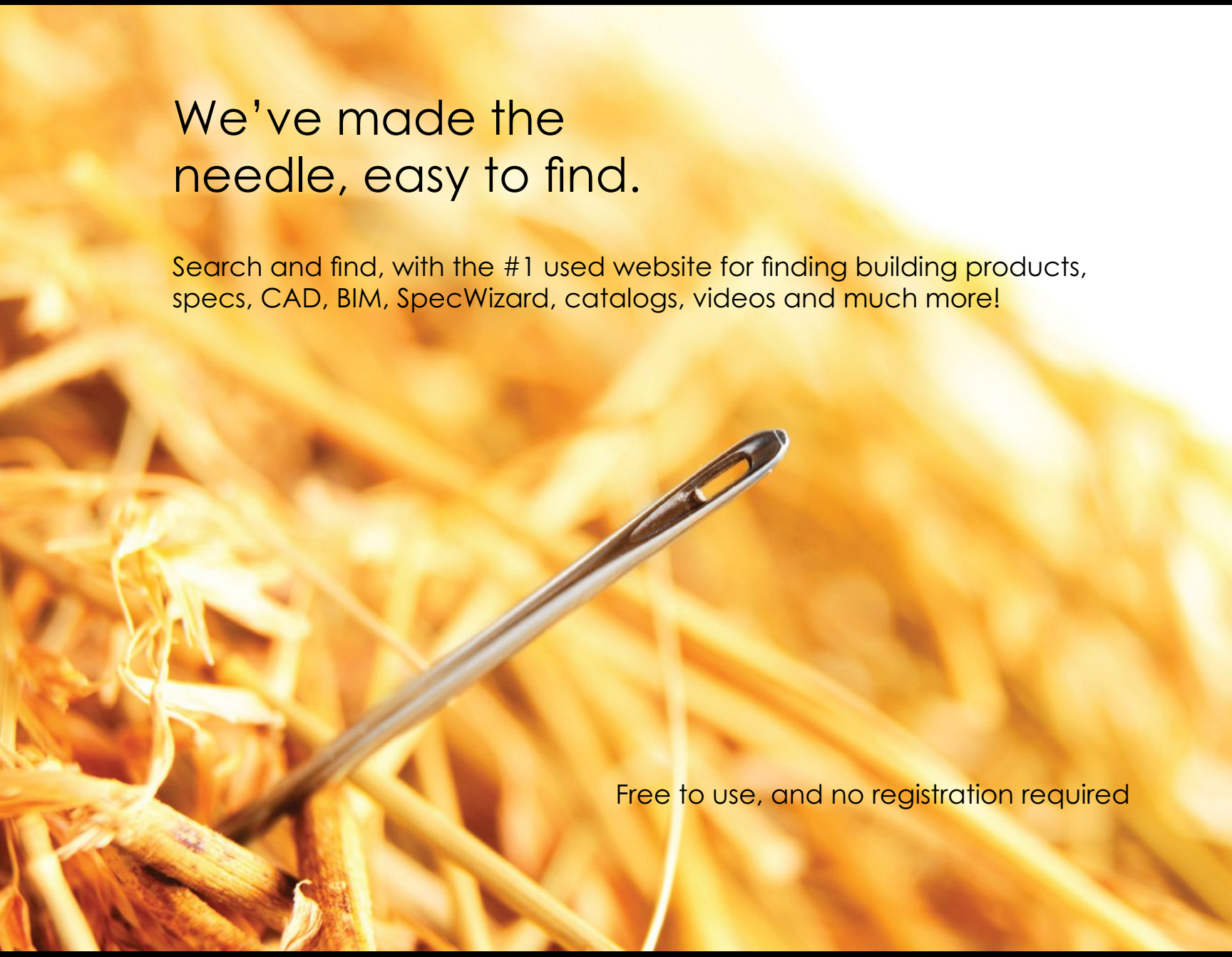
In February, ISIS uploaded a video to the Internet that had been shot in a museum in Mosul, Iraq's second-largest city. The clip shows militants taking sledgehammers to statues from the Parthian Empire, which encompassed much of the Middle East from the third century B.C. to the third century A.D. Landmarks of the Muslim past have fared little better. During its iconoclastic bender in Mosul, ISIS also demolished mosques, shrines, and tombs as old as the seventh century.

ISIS has learned from the worst. Remember how, in 2001, the Taliban blew up the colossal sixth century Buddhas of Bamiyan in Afghanistan? Or how, in 2013, al-Qaeda torched a library of rare manuscripts in Timbuktu? The proclamations of religious orthodoxy are a fig leaf. When Islamist militants aren't smashing antiquities for shock value, they're selling them on the black market for cash. Among the archaeological sites ISIS has sacked and looted are Hellenistic cities Hatra and Dura-Europos as well as two successive capitals of Assyria, Khorsabad and Nimrud.

Reports of valor have emerged sporadically amid the insanity. Residents of Mosul banded together to stop ISIS from blowing up the 800-year-old leaning minaret at the Great Mosque of al-Nuri. And according to NPR, archaeologists and volunteers braved sniper fire to safeguard ancient mosaics in Maarrat al-Nu'man, a town in northwestern Syria. Such acts may be small victories in the face of overwhelming barbarity, but they are also signs that civilization can prevail.

STEPHEN VOSS

search arcat.com



We've made the needle, easy to find.

Search and find, with the #1 used website for finding building products, specs, CAD, BIM, SpecWizard, catalogs, videos and much more!

Free to use, and no registration required

ARCAT®

find it

arcat.com

escape convention

WoodWorks® Ceiling & Wall Systems combine the natural beauty of FSC®-certified wood with design possibilities limited only by your imagination. Standard and custom options in a versatile range of panels, planks, clouds, and canopies. Escape convention at armstrong.com/woodworks 1 877 ARMSTRONG

PRODUCTS: WoodWorks® Custom Ceiling & Wall Systems in Custom Stained Red Oak BUILDING: Virginia Beach Convention Center, Virginia Beach, VA ARCHITECT: Skidmore, Owings & Merrill LLP, Chicago, IL

Inspiring Great Spaces™

Armstrong®

CEILING & WALL SYSTEMS