Collegiate Modern

ARO at the University of Cincinnati
PARTI delivers design innovation by combining parametric modeling with advanced manufacturing solutions

www.ceilingsplus.com
We are ready to take your BIG idea and make it an affordable reality
Only one company can provide fully-integrated building envelopes.

An automobile is a complex machine made up of thousands of parts. You would never order an automobile one part at a time, so why specify a building envelope that way? We are the only manufacturer that designs, engineers, tests and manufactures curtain wall, windows, storefronts, skylights and glass seamlessly from one source. So let’s build better, faster, with less risk, more reward—we’re The Building Envelope Company.” Call 1-866-Oldcastle (653-2278) or visit obe.com.
envelopes this way?

Oldcastle BuildingEnvelope®
Engineering your creativity™
curtain wall | storefronts | windows | skylights | glass
Take a fresh look at the diversity of ceiling design options that combine both sound absorption (NRC) and sound blocking (CAC) in one system. Learn about the benefits of Total Acoustics™ performance featuring total noise control and design flexibility at armstrongceilings.com/totalacoustics.
You’re not dreaming. It’s just your imagination... made into reality.

New Lansing High School - Lansing, Kansas
Architect: Hollis and Miller Architects
Contractors: Hi-Tech Interiors
Products: Aluratone 900, Aluratone 100 - Acoustical Wood Veneered Panels
Flexible Wood Panel Grilles

Manufacturing the finest suspended wood ceilings, acoustical wood wall systems, engineered polymer ceiling and canopy systems

All products made in the U.S.A. • We export!

RULON INTERNATIONAL
1-800-227-8566 • 904-584-1400
www.rulonco.com
WHEN THE BEST WANT THE BEST
TWO HOUR FIRE RESISTIVE CURTAIN WALL

2 HOUR FIRE RESISTIVE GLASS INTERIOR/ELEVATOR ENCLOSURE WITH SUPERLITE II-XL 120 IN GPX CURTAIN WALL FRAMING

SIEGER SUAREZ ARCHITECTS
60-STORY PORSCHE DESIGN TOWER

888.653.3333
WWW.SAFTI.COM

SAFTI FIRST
SAFETY AND FIRE TECHNOLOGY INC.
## Contents

**Volume 105, number 11. November 2016.**

On the cover: West Pavilion at the University of Cincinnati’s Nippert Stadium by Architecture Research Office
photo by Jeremy Bittermann

<table>
<thead>
<tr>
<th>20</th>
<th>Islamic Worlds</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>The Workplace Gets a Digital Makeover</td>
</tr>
<tr>
<td>24</td>
<td>The Dymaxion Forest</td>
</tr>
<tr>
<td>26</td>
<td>An Artificial House for Bees</td>
</tr>
<tr>
<td>28</td>
<td>Saving the Historic Barrio</td>
</tr>
<tr>
<td>30</td>
<td>Church Swap</td>
</tr>
</tbody>
</table>

**Tech + Practice**

<table>
<thead>
<tr>
<th>34</th>
<th>Best Practices: Assessing Market Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>38</td>
<td>Detail: Grandview Heights Aquatic Centre Roof</td>
</tr>
<tr>
<td>42</td>
<td>Next Progressives: Innauer-Matt Architekten</td>
</tr>
<tr>
<td>48</td>
<td>Technology: T3 Starts the U.S. Tall Timber Race</td>
</tr>
<tr>
<td>52</td>
<td>Products: Healthcare</td>
</tr>
</tbody>
</table>

**AIA Architect**

<table>
<thead>
<tr>
<th>57</th>
<th>Designing an Oasis</th>
</tr>
</thead>
<tbody>
<tr>
<td>59</td>
<td>Seven Steps to Improve Communities</td>
</tr>
<tr>
<td>60</td>
<td>Building Amid the World’s Highest Mountains</td>
</tr>
<tr>
<td>66</td>
<td>A New Era of Exams</td>
</tr>
<tr>
<td>66</td>
<td>Supporting Architects to Build Our Communities</td>
</tr>
</tbody>
</table>

**Columns**

<table>
<thead>
<tr>
<th>83</th>
<th>Revisiting Kleinhans Music Hall by Witold Rybczynski</th>
</tr>
</thead>
<tbody>
<tr>
<td>95</td>
<td>The Elusive Promise of Big Data by Karrie Jacobs</td>
</tr>
<tr>
<td>103</td>
<td>Pedro Gadanho on the Unveiling of MAAT by Mimi Zeiger</td>
</tr>
</tbody>
</table>

**Residential**

<table>
<thead>
<tr>
<th>147</th>
<th>Renovation to Honor That Which Came Before</th>
</tr>
</thead>
<tbody>
<tr>
<td>148</td>
<td>A Chair for Brazil’s Complicated Past</td>
</tr>
<tr>
<td>150</td>
<td>Pennoyer’s “Carved, Beautifully Detailed Box”</td>
</tr>
</tbody>
</table>

**Editorial**

| 168 | Ten and 2,000 Years Later by Ned Cramer |

---

Volume 105, number 11. November 2016, *architect* (ISSN 0746-0554; USPS 009-880) is published monthly by Hanley Wood, One Thomas Circle, NW, Suite 600, Washington, DC 20005. Copyright 2016 by Hanley Wood. Opinions expressed are those of the authors or persons quoted and not necessarily those of the American Institute of Architects. Reproduction in whole or in part prohibited without written authorization. All rights reserved. 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 R120931738. Canadian return address: IMEX, P.O. Box 25542, London, ON N6C 6B2. For subscription inquiries, address changes, and single-copy sales ($10 in the U.S., $15 in Canada, $20 for other countries, payable in advance in U.S. dollars) write to architect, P.O. Box 3494, Northbrook, IL 60065 or call 847.291.5221 or toll-free 888.269.8410. REPRINTS: Call or email (Wright’s Media): 877.852.5935 or hanleywood@wrightsm.com. 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.
DISCOVER ULTRA HIGH PERFORMANCE CONCRETE

TAKTL® offers a full line of architectural elements—façade 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 | Arbos | White

9 STANDARD TEXTURES + 12 STANDARD COLORS
ASTM C1186: Grade IV Certification

PROJECT: Southern Utah Museum of Art
LOCATION: Cedar City, UT
OWNER: Southern Utah University
ARCHITECT OF RECORD: Blalock & Partners
DESIGN ARCHITECT: Brooks + Scarpa
INSTALLER: Southam and Associates
CONTRACTOR: Big-D Construction Corp.

230 Braddock Avenue, Turtle Creek, PA 15145 | 412.486.1600 | info@taktl-llc.com

WWW.TAKTL-LLC.COM
If you could build your own window company, it would probably be a lot like ours.
If you built your own window company, it would have unique products. Highly responsive salespeople and dealers. Unparalleled service. Uncompromised quality. It would certainly deliver orders on-time and complete. And you'd insist that your window company be extremely easy to deal with. Because, after all, you're the boss.

Fortunately, you've just described Sierra Pacific, the best new window company in America.

Upgrade your homes with Sierra Pacific Windows. You could specify windows that are more expensive, but none are more impressive. Talk to your local representative. Call 800-824-7744.
With a multi-faceted curtain wall meticulously crafted of ultra-clear Pilkington Planar glass, 10 Hudson Yards has become a beacon of new life on Manhattan’s West Side. Designed by Kohn Pedersen Fox, it is the first of 16 towers to be completed within the Hudson Yards Redevelopment Project—where collaboration between New York’s design and construction leaders is adding a new dimension to the city skyline. Read more about it in Metals in Construction online.
IMAGINE HONORING
RACING TRADITION WHILE REINVENTING THE FAN EXPERIENCE

Redesigning the historic Daytona International Speedway® required a solution that would enable
design lead Matt Taylor from ROSSETTI to execute a completely paperless design-build project.
He also needed to collaborate seamlessly with the management and field teams at Barton Malow
Company. Learn how the PDF creation, markup and real-time collaboration features in Bluebeam®
Revu® helped all partners during this project communicate quickly and effectively while maintaining
complete transparency.

Imagine the possibilities
bluebeam.com/reinventing
Reimagine Structure
Prize: $15,000

The Architecture 2030 Challenge to reduce energy consumption in buildings isn’t just about the energy they consume day to day. It’s also about the energy consumed in producing the materials used to construct them. Submit your vision for minimizing this embodied energy by designing a high-performance New York City office tower—one whose envelope is part of its structure.

LEARN MORE AND REGISTER AT www.metalsinconstruction.org

SPONSORED BY

Steel Institute of New York
Discover Nichiha fiber cement cladding. In addition to several thousand color options, Nichiha’s Architectural Wall Panels are also engineered to deliver significant performance attributes. Our integrated rainscreen technology prevents a long list of moisture-related issues, and our easy installation system keeps the number of parts and subcontracted partners to a minimum. Illumination is the perfect choice when a color needs to be just right... along with everything else. Find your color and spec it at itsyourcolor.com
I GALVANIZE BECAUSE

“Hot-dip galvanizing is a very durable product that requires very little maintenance. Galvanizing is able to perform in an aggressive and high-wear environment with hardly any upkeep. It is a high quality product and has definitely stood up on these light rail stations in Calgary.”

Geoff Kallweit
Project Engineer
Read Jones Christoffersen Ltd.

Watch the video online at: www.galvanizeit.org/decades
ARCHITECTURAL LIGHTING invites you to forward new product releases for editorial consideration in our Annual Product Issue (May/June 2017), which is distributed at Lightfair. Luminaires, light sources, and lighting products that have been released after June 2016, qualify for editorial consideration. This annual special issue showcases more than 150 lighting products in a variety of categories.

For categories, submission instructions, and to submit products go to: alproductcall.com

Please address all inquiries to:
Elizabeth Donoff
Editor-in-Chief, ARCHITECTURAL LIGHTING
Hanley Wood
One Thomas Circle NW, Suite 600
Washington DC 20005-5811
Email: edonoff@hanleywood.com
Tel: 202.729.3647
VEKTR DIGITAL CANVAS

Experience architectural glass like never before—
our newest design tool lets you transform any digital image or photo into
infinitely scalable artwork to create highly customized ViviSpectra VEKTR glass designs

www.vektrdigitalcanvas.com
LASTING LESSON LEARNED.

Ordinary swing entry doors proved no match for a corrosive oceanfront environment and two million visitors annually. For 18 years, the aquarium’s entry door hardware required replacement every three to four months.

Finally, in 2002, the aquarium upgraded to Ellison.

Now, 14 years and 28 million visitors later, 13 Ellison custom balanced doors effortlessly greet patrons eager to learn wonders of the Pacific.

Monterey Bay Aquarium, Monterey, CA
2016 AIA Twenty-Five Year Award Winner

Ellison
CUSTOM CRAFTED BALANCED DOORS

ellisonbronze.com

— Made in the U.S.A. since 1914 —
Islamic Worlds

Every three years, the Aga Khan Award for Architecture recognizes projects in places with substantial Muslim populations. The 2016 winners are: Marina Tabassum Architects’ Bait Ur Rouf Mosque (above) in Dhaka, Bangladesh; Kashef Chowdhury/Urbana’s Friendship Centre in Gaibandha, Bangladesh; ZAO/standardarchitecture’s Hutong Children’s Library & Art Centre in Beijing; Zaha Hadid Architects’ Issam Fares Institute for Public Policy and International Affairs in Beirut; Bjarke Ingels Group’s Superkilen in Copenhagen, Denmark; and Diba Tensile Architecture’s Tabiat Pedestrian Bridge in Tehran, Iran. —SARA JOHNSON

> For more information about the winners of the 2016 Aga Khan Award for Architecture, visit bit.ly/2016AgaKhanAward.
What you hope for if a concept gets stuck between “Great idea!” and “How will we do that?” Our High Profile Series™ Ceiling System helps bring designs from possibilities to completed projects.
The Workplace Gets a Digital Makeover

Best known for his Design Trilogy (Helvetica, Objectified, and Urbanized), Gary Hustwit uses film to recount the history of Modernism and modernity. The director’s latest project, Workplace, debuted at this year’s Venice Architecture Biennale and tracks the extraordinary history and inevitable evolution of a very ordinary setting: the modern workplace. The documentary follows Foster + Partners’ creation of a new headquarters in New York for the fabled ad agency R/GA. The result is a digitally conscious open workspace, wired with 113 miles of data cable. —CHELSEA BLAHUT

> Read more about Gary Hustwit’s latest film at bit.ly/WorkplaceFilm.
The Eye’s the Limit.

Whatever your vision, if you can dream it, we can make it. Use NBK® terracotta facades with custom-blended colors and textures on your next project, and make a design statement that’s distinctly yours.

NBKUSA.com
The Dymaxion Forest

The Rainforest Solutions Project is the winner of the 2016 Buckminster Fuller Institute’s Fuller Challenge, named after the late architect R. Buckminster Fuller. The project, now in its 20th year, has tackled problems related to deforestation, defense of indigenous rights, biodiversity loss, and climate change by setting legal standards for the logging industry and conducting a case study of British Columbia’s Great Bear Rainforest. Headed by the nonprofit Tides Canada with environmental advocacy groups Greenpeace, Sierra Club BC, and Stand, the project will be awarded $100,000 for initial funding and upkeep. —SELIN ASHABOGLU

Read more about the Rainforest Solutions Project at bit.ly/2016FullerChallenge.
What one well-designed solution does for your whole team’s spirits. Diffuse sunlight – and stress – on your next project with custom-engineered Sail Shades by Hunter Douglas Architectural.
An Artificial House for Bees

The 2015–2016 season marked the second time that bee deaths in the summer—when the insects should be at their healthiest—were comparable to those in the winter. While a conventional apiary is outdoors, a synthetic indoor apiary developed by MIT’s Mediated Matter research group showed promising results. Over three months, the 2,200-square-foot apiary was meticulously controlled, from the color of the room (all white) to relative humidity to temperature, and—after an acclimation period—the optimized conditions, bolstered by the lack of natural pathogens, led to a surge in bee population and productivity. —WANDA LAU

» Read more about the Mediated Matter’s apiary research at bit.ly/MITBees.
Moisture Guard™ Edge Banding: Available on all partition doors, panels, pilasters and urinal screens in 45 colors.

**Introducing the new Plastic Laminate Partitions with Moisture Guard™ Edge Banding.** Our Moisture Guard™ Edge Banding fuses with the substrate creating a seamless beveled profile that eliminates any unsightly black lines that appear in standard Plastic Laminate.

**ASTM tests on Moisture Guard™ Edge Banding** confirms 3X greater durability with increased resistance to moisture and humidity than standard Plastic Laminate. **Available in 45 colors/patterns** and our new **Easy Stall Shoe** speeds up the installation process.

Our Plastic Laminate with Moisture Guard™ Edge Banding is now backed with an industry leading exclusive five-year warranty. **To see a sample, contact 706.827.2700 and ask to meet a sales representative.**

*Floor Anchored/Overhead Braced Only.*
Saving the Historic Barrio

Each year, the National Trust for Historic Preservation identifies historically and culturally significant areas around the U.S. that are at risk of disappearing, with an emphasis on urban areas in dire need of protection from the wrecking ball. This year’s list of America’s 11 Most Endangered Historic Places includes the vibrant downtown El Paso, Texas, neighborhoods of Chihuahuita and El Segundo Barrio (shown is a mural and the St. Ignatius Catholic Church in El Segundo Barrio). Known as the “Ellis Island of the Border,” the area was settled at the time of the Civil War and has been molded by immigrants since the Mexican Revolution. —SELİN AŞHABOĞLU

Privacy is overrated.

Every project presents an opportunity for greatness. JELD-WEN® windows and doors enable you to bring your vision to life exactly as you imagined. Choose from an unrivaled array of styles, colors and hardware that add to performance, along with a warranty that we stand behind with conviction.

jeld-wen.com

© 2016 JELD-WEN, inc.
Church Swap

The Crystal Cathedral in Garden Grove, Calif., designed by Philip Johnson in 1980 for televangelist Robert H. Schuller, was both a destination for the faithful and a broadcasting studio for the pastor’s weekly Hour of Power television show. But after Crystal Cathedral Ministries filed for bankruptcy in 2010, the 34-acre campus was sold to the Roman Catholic Diocese of Orange. The diocese tasked Los Angeles–based Johnson Fain to preserve and upgrade the exterior and reconfigure the interior to meet the needs of the new congregation. Construction begins this year, and the rededicated Christ Cathedral opens in 2019. —MIMI ZEIGER

> Read Mimi Zeiger’s full article on the Crystal Cathedral renovation at bit.ly/ChurchSwap.

For decades, architects have trusted DURANAR® fluoropolymer coatings, expertly applied by members of the PPG Certified Applicator Program (CAP), to protect and beautify aluminum building components on landmark building projects. Now they can do the same with hardwood floors finished by the first PPG CAP program member certified to apply DURETHANE® wood coatings.

For the first time, architects can specify custom-colored, prefinished hardwood floors for office buildings, restaurants, hotels and retail stores with the same confidence they reserve for Duranar metal coatings applied by traditional PPG CAP program members.

Whether your goal is to add warmth and color to a building’s interior or exterior, PPG can connect you with a certified applicator trained and audited to deliver the world-class customer service, industry-leading technical expertise and accelerated product delivery your project demands.

To learn more, visit ppgideascapes.com or call 1-800-258-6398.

Somerset Hardwood Flooring
Somerset, KY • (877) 404-9663
somersetfloors.com
“Cascade Architectural’s GuardianCoil® system is a nice, clean decorative solution to secure one space from another while enhancing the aesthetic of the space as a whole. The translucent characteristic of the coiled wire fabric is consistent with the light, bright and airy quality of the rest of the open space.”

Lori Reynolds NCIDQ CID
Carrier Johnson + CULTURE
5th INTERNATIONAL LAFARGEHOLCIM AWARDS FOR SUSTAINABLE CONSTRUCTION

Enter your project in one of these categories:

- Architecture, building and civil engineering
- Landscape, urban design and infrastructure
- Materials, products and construction technologies

Professional and Next Generation awards.

Total Prizes of $2 Million

We are committed to sustainable construction and projects that support PROGRESS - PEOPLE - PLANET - PROSPERITY - PLACE.

Enter your project in one of these categories:

- Architecture, building and civil engineering
- Landscape, urban design and infrastructure
- Materials, products and construction technologies

For more information: application.lafargeholcim-awards.org
Best Practices: Assessing Market Conditions

TEXT BY NATE BERG

Market volatility is inevitable in the building industry. Firms can protect themselves against the inevitable ups and downs through several strategies.

Diversify, Diversify, Diversify
Though common sense suggests looking for counter-cyclical markets—one that’s up when another is down—truly counter-cyclical markets are nearly impossible to find. Instead, architecture firms should be pursuing work in four to five sectors that are affected by different economic forces. Government bonds, for instance, may fuel demand for civic projects one year, while changing demographics may drive up the need for senior housing five years from now.

By working in several markets that are “independently cyclical,” firms can cushion themselves against “the blow of a downturn in the economy, or a downturn in any one or a couple of those markets,” says Ray Kogan, AIA, president of the strategic planning consultancy Kogan & Co., in Arlington, Va.

Analyze the Markets and Your Firm
Market indicators are available from several sources, including industry-specific billings reported in the AIA’s monthly Architecture Billings Index; brokered data from real-estate services; general economic indicators like housing starts or the unemployment rate; and clients knowledgeable about their sectors’ economic health. Combining that with demographic trends and knowledge about new legislation and tax incentives can help firms gauge which markets may perform well two to three years down the line.

McMillan Pazdan Smith Architecture chief operating officer Chad Cousins, who works in the firm’s Greenville, S.C., office, says following construction indexes from Dodge Data & Analytics and conducting quarterly analyses of the firm’s strengths and weaknesses have helped it become more discriminating about which markets to invest in.

“There were some markets ... that we kind of fired and said, ‘We’re not doing it anymore,’” Cousins says. “Either we couldn’t be as effective or it wasn’t as profitable, or we didn’t think the economic conditions were as good to be involved in that market.” For example, some federal government projects weren’t worth the amount of preliminary design work, regulatory compliance, and overhead they required.

“We prioritize markets where we’re positioned well and the market conditions are good, or where market conditions might be sort of mediocre, but we’re well positioned,” Cousins says. “And then below that, [we consider] where market conditions are hot and [if] we’re within reach of being able to have strong capability in that market.”

Understanding “the future of a given market and your current standing [lets you] see what, realistically, you need to do to be a go-to firm and whether the investment is working,” Kogan says.

Double-Down on Your Expertise
Diversification doesn’t necessarily mean operating in disparate markets. Collingswood, N.J.–based Kitchen & Associates (K&A) distributes its efforts within one market: housing. Principal Stephen Schoch, AIA, says the sector is varied enough that its submarkets operate on independent economic cycles. The firm works on projects in affordable housing, market-rate multifamily housing, and developer-driven student housing.

“These are all driven by very different market demographics and sometimes economic factors,” he says. “Rarely does every aspect of housing take a strong hit.” Even during the Great Recession, the firm’s multifamily work remained fairly steady.

K&A’s approach is actually conservative, Schoch argues. By focusing on similar typologies that operate under different market conditions, the firm is able to build a self-reinforcing expertise as well as a talent pool that doesn’t need to be thinned when one market falters. “If you really know your [particular] market, you can diversify by going deeper instead of wider.”

—Stephen Schoch, AIA, principal, Kitchen & Associates

To read more about how architecture and design firms can survive market cycles, visit bit.ly/ARForecasts.
IT ALL MAKES PERFECT SENSE.

GET THE FACTS ON FULLY-COMPLIANT EQ COATINGS. From the facts on full code compliance, to extensive testing data, to details that can build your knowledge of advanced products, we’re sharing a lot. Today, ClarkDietrich is as committed as ever to innovation in cold-formed steel framing. And to clearing up the intentional confusion that’s been circulated in the market on the performance advantages of EQ coatings. Learn why you can confidently install ProSTUD® with DiamondPlus® Coating at ClarkDietrichEQ-IQ.com
E N E R G Y S e l e c t™


Introducing NEW Energy Select 23. Featuring a neutral blue reflected color, 50% visible light transmittance and 0.23 solar heat gain coefficient, this high-performing low-e glass lets natural light in, while keeping more heat out—for maximum energy savings and indoor comfort. AGC provides just the right solutions. For Every Code. For Every Region.

Visit us.agc.com to learn more, or email us at info@us.agc.com to request a sample.
THE FORECAST CALLS FOR ADVANTECH® FLOORING. BUILD STRONG.

Don’t let moisture during construction turn your subfloor into a costly callback. Build strong with AdvanTech® flooring. It stands up to the elements, resisting the damaging effects of moisture to help deliver a quiet, stiff floor.

Moisture Resistance  Industry-Leading Warranty  Strength & Stiffness  Fastener Holding Power  Structural 1 Rated  Installation Speed & Ease

WATCH THE VIDEO NOW
AadvanTech® flooring outperforms OSB and plywood after 30 days of outdoor exposure
AdvanTechBuildStrong.com/architect38

© 2015 Huber Engineered Woods LLC. AdvanTech and FLAT OUT BEST are registered trademarks of Huber Engineered Woods LLC. Huber is a registered trademark of J.M. Huber Corporation. This product's Environmental Product Declaration (EPD) has been certified by UL Environment. HUB 3303 09/16
Detail: Grandview Heights Aquatic Centre Roof

The cables supporting the Grandview Heights Aquatic Centre’s undulating roof, in Surrey, British Columbia, were designed as steel, to be anchored into concrete capitals atop V-shaped concrete pylons to form a catenary structure, with wood infill. Then Vancouver-based structural engineering firm Fast + Epp noted that wood alone could support the roof’s tensile loads. This “aha” moment, says HCMA managing partner Darryl Condon, also in Vancouver, prompted the designers to ask, “Why don’t we just use wood?”

The result is the world’s longest-span timber-catenary roof, supported by what look like ribbons of Douglas fir up to 188 feet long. The cables enable a remarkably thin roof that defines the 95,000-square-foot structure.

In fact, the thinness of the roof system was more critical than its clear span. A deeper structural system, Condon says, increases the potential for corrosion and condensation buildup due to high humidity of natatoriums.

The center’s roof is just 18 inches deep, which includes the wood roof deck. Besides its maintenance benefits, a thinner roof is easier to sculpt, says Condon, who employed the catenary to express “a fluid form, something that would be reflective of the idea of water in motion.”

The architects modeled the structure in Autodesk Revit, varying the height of the roof according to the building program: higher for the diving platforms, lower for the entrance. Dozens of papier-mâché models followed, with HCMA settling on a sculpted roof form 380 feet long and 150 feet wide, interrupted only by the central concrete tower.

The final roof system is supported by more than 100 glulam cables, coupled and anchored into the post-tensioned concrete supports. By altering the cable lengths and bearing points (which range from more than 70 feet above finished floor to less than 30 feet), HCMA achieved its desired sculptural form using a single radius of 32 feet (down from more than a dozen radii in earlier iterations), lowering the cost of production significantly, Condon says. He hopes the center will further demonstrate the potential of timber structures. Architects “need to be more daring with wood,” he says. “We need to challenge ourselves and the challenge the industry to push its limits.”

Plan Detail

1. Ø29mm × 1500mm steel rod (typ. 2) anchored into concrete slab and 25mm nonshrink grout (not shown)
2. 38mm steel plate
3. Ø67mm pin and 16mm plate (typ. 2)
4. 22mm × 200mm steel plate
5. 5” × 10” deep Douglas fir glulam
6. 220mm × 800mm nailing plate (typ. 2)
7. Ø25mm ASTM A325 bolts, hot-dipped galvanized (220mm o.c.) with wood plugs
BROCK COMMONS PHASE 1

The tallest mass timber hybrid building in the world is under construction at the University of British Columbia in Canada. The 18-storey structure was completed in just over two months. The project is on track to be finished 18% faster than a typical project of this scope.

Brock Commons showcases advancements in wood product research and hybrid building systems. Upon completion it will exceed fire ratings and seismic safety requirements.

Location: Vancouver, Canada
Architect: Acton Ostry Architects
Photographer: © K K Law

LEARN & EARN

Learn how wood meets code, costs less and delivers more, and has a lighter environmental footprint

Mass Timber in North America

Connection Options for Wood Frame and Heavy Timber Buildings

Energy Efficient Wood Buildings

Building Resilience: Expanding the Concept for Sustainability

Get CEUs at reThinkWood.com/architect
ADD IT UP

Nearly infinite architectural wire mesh patterns in the widest range of metals. Plus, expert project consultation. Plus, unparalleled quality and value, woven in the USA.

BANKER + WIRE
YOUR WIRE MESH AUTHORITY

bankerwire.com
EPIC’s Toris is an innovative architectural approach to roof and floor deck ceiling systems. Toris creates modern, visually unobstructed spans up to 30 feet while superior acoustics and hanging features begin a long list of added benefits. Contact EPIC to see how Toris can impact your next project.

Toris®
Inspiring Creativity Through Performance®
Next Progressives:
Innauer-Matt Architekten

Edited by Deane Madsen

Location:
Bezau, Austria

Year founded:
2012

Leadership:
Markus Innauer, Sven Matt (principals)

Education:
Innauer: M.Arch., University for Applied Arts, Vienna; University of California, Los Angeles
Matt: Master of Engineering, Technical University Innsbruck; Technical University Vienna

Experience:
Innauer: Oskar Leo Kaufmann, Dornbirn, Austria
Matt: Dietmar Feichtinger Architectes, Paris; Bernardo Bader Architekten, Dornbirn

Total staff:
4–5 employees

How founders met:
In high school

Mission:
We are heavily influenced by the landscape and buildings of our home region, the Bregenzerwald, in Austria. Our commitment is to create spaces that live through their atmosphere and have a long-lasting formal and social validity. In our work we try to be accurate and restrained without the need to reinvent architecture every Monday.

First commission:
Restaurant Innauer (Dornbirn) was Markus’ first commission, in 2009, while Sven built Haus für Gudrun (Mellau, Austria) in 2010. Our first commission as Innauer-Matt was a 2014 residential development called Seedomaine Lochau (Lochau, Austria), in collaboration with Gohm-Hiessberger Architekten.

Design hero:
Markus likes the sexiness of John Lautner’s projects.

Modern-day design hero:
Our modern day hero might be Peter Zumthor, Hon. FAIA, as he is a master in creating spaces with dense atmospheres, and he is a maniac in regards to detailing and use of materials.

Design tool of choice:
Sketching and physical models.

Special item in your studio space:
We have a ceramic dog that keeps watch over our studio and our work.

Favorite project:
Our favorite project is always changing. Most of the time, it’s the one we are currently working on, as with every new commission there is the chance to further develop our principal idea about architecture.

Second favorite project:
Our second favorite project is the Wirmboden Chapel in Schneifpau in 2016. It is by far our smallest built commission but it took three years until completion—that’s about six months per square meter. We learned a lot with this project. We saw that the effect a building has on the community is much more important than the formal idea that we, as architects, developed for it.

When we’re not working in architecture:
We spend time with our families and friends without thinking about architecture every five minutes or so.

Skills to master:
Staying calm.

Morning people or night owls?
We’re both morning people.

Any superstitions?
We believe in the magic of numbers: They have to be even.
DALLAS THEATRE FEATURES
SHOW-STOPPING
ARCHITECTURAL WOOD DOORS

When the doors swing open at the Winspear Opera House in Dallas, ticketholders expect a dramatic performance — and superb quality. Architects designing the 2,300-seat facility demanded nothing less. That’s why they commissioned VT Industries to create the theatre’s Architectural Wood Doors. Custom-stained VT doors perfectly complement the vivid red tones of the Winspear’s luxurious interior. Acoustical doors from VT keep noise out — and sound in — so every note resonates with clarity. And 90-minute fire-rated VT doors offer superior protection night after night. That’s a well-rounded production only VT can deliver.

See the full VT performance at vtindustries.com/winspear-profile

VT Architectural Wood Doors open a whole new world of design possibilities. From the traditional beauty of our Heritage Collection to the sophisticated elegance of our Artistry Collection, VT doors create the perfect aesthetic to distinguish your building projects. All doors are made to order, from a nearly unlimited choice of wood veneers, to match the rest of your design.
Next Progressives:
Innauer-Matt Architekten
Commissioned by Bezau, Austria–based timber home builder Kaspar Greber, Pavilion KG showcases the potential and craft of the company’s products in a demonstration hut that allows visitors—namely, prospective clients—to experience the touch, smell, and ambiance of wood construction firsthand.

Bergrestaurant, sited atop one of Bezau’s many mountain peaks, offers a 360-degree view from its wood-finished dining room. An external stair leading to the rooftop bifurcates the restaurant volume. The clean minimalism of Mellau, Austria, residence Haus für Gudrun is reinforced by thin-plank paneling on its interior and exterior. Haus Fink is a Schwarzach, Austria, residence passed from grandmother to grandson. Innauer-Matt’s renovation leaves the original roof structure intact. Wood-paneled walls and OSB insertions containing a small kitchen and bathroom create clean aesthetic transitions within the open interior.
THE NEW STANDARD OF CLEAN.

Enjoy the satisfaction of warm water cleansing with the Washlet® Connect+™. Now specially designed to conceal its connections, the Washlet seamlessly blends into your bathroom décor.
THE POWER TO KILL BACTERIA.

NOW IN 550 COLORS.

Introducing Paint Shield®, the first EPA-registered microbicidal paint that kills greater than 99.9% of Staph (Staphylococcus aureus), MRSA, E. coli, VRE*, and Enterobacter aerogenes within 2 hours of exposure on a painted surface. And it continues to kill these disease-causing bacteria for up to 4 years when the integrity of the surface is maintained.

For more information, visit swpaintshield.com

*MRSA (Methicillin-resistant Staphylococcus aureus), E. coli (Escherichia coli), VRE (Vancomycin-resistant Enterococcus faecalis)
Technology: T3 Starts the U.S. Tall Timber Race

TEXT BY BLAINE BROWNELL, AIA

Technologies like cross-laminated timber (CLT) and nail-laminated timber (NLT) have enabled high-rises to be realized with an environmental track record superior to reinforced concrete or steel. Several timber towers have been built in Europe, North America, and Australia, and many more are in progress.

Designed by Michael Green Architecture (MGA) and architect-of-record DLR Group for real estate firm Hines, T3—short for “Timber, Technology, Transit”—is a seven-story, 220,000-square-foot structure in Minneapolis. Opening this month, it will be the largest mass timber building in the United States.

MGA associate Candice Nichol says Hines wanted to use mass timber as a differentiator: “Hines understood that the market is looking for office spaces that people actually enjoy working in.” The simple, boxy design picks up visual cues from neighboring historic structures in Minneapolis’ North Loop district. From a distance, the structure looks like another speculative commercial building with a conventional column grid and repetitive floor plates. Yet how it performs both structurally and aesthetically reveals another story.

T3 uses spruce-pine-fir NLT panels combined with a spruce glulam post-and-beam frame, and a concrete topping slab. NLT was chosen because it was slightly more economical than other engineered wood systems. “The T3 structural framing system—columns on a 20- to 30-foot-grid, beams running one direction between columns, and panels spanning across the beams—is an efficient one,” says Lucas Epp, a structural engineer and 3D manager at Delta, British Columbia–based fabricator StructureCraft. This one-way system enables building services to run parallel to the beams without clashes.

The system’s efficiency extends to the material sourcing and construction processes. Most of the project’s lumber came from trees in the Pacific Northwest region killed by the mountain pine beetle, and certified under the Sustainable Forestry Initiative guidelines. Classified as a “Type IV–Heavy Timber” system by the Minnesota State Building Code, the sprinklered building is not required to have a specific fire rating. However, Epp anticipates the structure to achieve an equivalent rating of more than three hours based in part on the protective charring phenomenon of wood.

StructureCraft set up a prefabrication facility in Winnipeg, Manitoba, to supervise the manufacture of the NLT panels. Located within a six-hour drive from the jobsite, the facility also reduced transportation costs, ensured quality control, and enabled rapid construction: Construction crews erected 180,000 square feet of timber framing in 9.5 weeks, with 30,000 square feet of floor area installed per week.

Another benefit to timber is its lightness. According to Epp, T3’s structure weighs about one-fifth that of a comparable concrete building, subsequently reducing the foundation size, seismic loads, and embodied energy. R. Buckminster Fuller, who famously asked architects how much their buildings weigh, would approve.

The timber structure also lends itself to material and cost savings in interior finishes. Though its exterior is clad in weathering steel, its interior is simply wood. “The entire timber structure of T3 will be left exposed and illuminated with a percentage of the interior lighting directed up to the ceiling,” Nichol says.

Rather than re-creating contemporary office buildings, T3 is paying homage to the timber heritage of its surrounding warehouse district neighbors, such as the nine-story Butler Square Building. With the growing attention to construction’s environmental impact, more architectural projects will follow T3’s return to the original structural framing material: wood.

To read more about the historical significance of timber in structural framing, visit bit.ly/T3timberAR.
The One and Only NanaWall

PrivaSEE frameless opening glass wall provides flexible space management and enhanced acoustical separation.

- Independently tested and rated to STC of 36 and OITC of 30.
- Provides better sound buffering than many fixed all glass partitions.
- All glass system with no floor track.
Introducing the latest evolution in low-e glass. Architects strive for continuous improvement—in fact, you might say it’s in their DNA. Developed with guidance from architects and featuring proprietary technology by Vitro Architectural Glass (formerly PPG Glass), Solarban® 90 glass provides the superior solar control performance and optimal occupant comfort architects have always wanted with the aesthetics of clear glass.

For a sample, call 888-774-4332 or visit vitroglazings.com/sb90

Vitro and Solarban are trademarks owned by Vitro and their subsidiaries. The PPG logo is a trademark of PPG Industries Ohio, Inc.
A Clean and Modern Alternative for Wall Baseboards.

Schluter®-DESIGNBASE-SL

- Solid metal construction provides increased durability
- No maintenance, no cracking, and no shrinking over time
- Ideal for retrofit applications
- Offers cost savings over custom fabricated baseboards
- Can be used with any type of flooring
- Ideal in healthcare facilities, schools, condos, and commercial buildings
Products: Healthcare

**Waterfall, Lea Ceramiche**
Mimicking slate, this ceramic tile collection creates a clean surface—figuratively and literally—through its organic design and Microban antibacterial technology. [ceramichelea.it](http://ceramichelea.it)

**Rockfon Medical Air, Roxul**
These stone wool ceiling tiles offer a noise reduction coefficient of 0.85 and air pressure control that reduces the risk of disease transmission. Available in 2'-by-2' and 2'-by-4'. [rockfon.com](http://rockfon.com)

**Healing Essentials, EnviroLeather**
Decorated with nature-inspired motifs by Pattern Pod, this collection of faux-leather upholstery is PVC-free and withstands more than 200,000 double rubs on the Wyzenbeek scale. [enviroleather.com](http://enviroleather.com)

**Laura, Davis Furniture**
This minimalist, modular lounge system offers numerous configuration options. Its tapered base units can be used as tables, benches, or couches by adding multidensity foam backrests and hard veneer or acrylic tabletops. The units can be upholstered in a variety of the company’s fabric and leather options while the tabletops come in beech, maple, oak, and walnut veneer and white acrylic. [davisfurniture.com](http://davisfurniture.com)

**Folio, Steelcase**
The modular storage system, composed of bookcases and base and storage cabinets, can be reconfigured according to user needs. Offered in eight laminate and four solid finishes. [steelcase.com](http://steelcase.com)

*To find out more about these healthcare products, visit bit.ly/HealthcareProducts.*
Round design, Surround cool

Samsung System Air Conditioner 360 Cassette

With its elegant circular design, it blends easily into any setting. 360° airflow ensures even, draft free cooling, reaching every corner of the room.

For more information, visit samsung.com/business
The R2SQRM 2" Square Downlight Series is the perfect mini-square with big performance for remodel and new construction applications. Featuring two (2) wattage/lumen packages: 11W, 1000lm and 15W, 1300lm available in four (4) beam distributions!

New Square Recessed Downlights from ConTech Lighting!

The R4SQ 4" Square Downlight Series is a unique way to light up any space. Available in four (4) housing models, up to six (6) wattage/lumen packages delivering over 3600lm!

- TIR optics engineered to provide smooth uniform beams, maximizing output and minimizing glare.
- High output multi-chip LED array; systems designed and rated for 50,000 hours at 70% lumen maintenance.
- All downlights are available for non-dimming and dimming applications.
- Specification Grade trims are available in different styles and finishes for your space.
- Covered by ConTech’s full five (5) year replacement guarantee after date of purchase.
Reach new heights in closet and storage design.

From a single-family home to a luxury high rise apartment, let ClosetMaid Professional Services help you design and specify closet and storage systems that perfectly match your project’s aesthetic, functional, and budget requirements.

Contact your Professional Services Representative today at 1-844-795-9537, or visit ClosetMaidPro.com.

Making storage So Simple."
Dawn Zuber, AIA, founded Studio Z Architecture in Plymouth, Mich., in 1997. When she received a call to be the featured architect for this year’s HGTV Urban Oasis Giveaway, she leapt at the opportunity to demystify the architect-client relationship for a television audience that’s likely to hire an architect. It’s also an opportunity she’s cultivated through AIA’s Custom Residential Architects Network (CRAN), for which she serves as 2016 chair.

As told to Steve Cimino

Applying the people at HGTV found me through my Houzz profile and my website. I was told they were looking for someone who specialized in remodeling and creating houses that fit the way people live these days. I enjoy working with homeowners, explaining the design process, and helping them move through it. Working with the HGTV team was amazing. It was quite a condensed project. They wanted a very good design, and they got one, but there was a very tight schedule for construction and production that they had to stick to. A house that would normally take four to six months to design? I designed it in one month. I did not have time for a social life and nobody got Christmas gifts, but luckily everyone in my life was understanding. The other tough thing was that I had to keep my work with HGTV a secret until the middle of this year.

Sometimes architects struggle to provide the patient guidance that’s required during the residential design process. On the technical side, it’s especially hard to help clients envision a space that’s not yet real. The house chosen for HGTV Urban Oasis was basically in its original condition from the 1930s. The kitchen was a small alcove off the dining room and the two bedrooms were tiny. It wasn’t at all designed to meet how people live today. If a client can find the right architect, though, anything is possible. To that end, CRAN was founded to educate the public, and architects, about the value of residential architecture. And the HGTV opportunity was a great way to build on that mission and highlight the value that an architect brings to a project.

Just as selecting the right architect is crucial for a homeowner, picking clients is important, especially when you’re a small business. I’m basically a sole practitioner, so I am involved closely with every one of my clients. It’s necessary that my clients trust my ability to hear, understand, and integrate their requirements into their vision of a home. Designing someone’s home is such a personal process, and working together becomes a personal relationship of sorts. The goal is to make sure that I am going to be valuable to them, that I’ll be happy with the project at the end, and my clients will be happy with me.
I became an architect to make a long-lasting impact on communities; to lift spirits, to add value to people’s lives and to positively shape the way people live and use space.

Joseph Lai, AIA  Member since 2012

Join me.
aia.org/join
Seven Steps to Improve Communities

AIA Austin’s DesignVoice is a community outreach committee that leverages partnerships to make real impacts in the surrounding area. Using the steps that led to the design of a new bus stop shelter in an underserved neighborhood, we illustrate how communities everywhere can be strengthened by collaborative architecture.

Identify a need. We discovered that more than 100 of Austin’s bus stops with high ridership were shelterless.

Work with community partners. A partnership with Capital Metro, Austin’s transit provider, led to a design competition.

Create the opportunity. More than 30 architects, landscape architects, engineers, and bus riders participated in a design charrette; six of the designs were submitted for final review.

Document the project. Before the competition began, the winning team—local landscape professionals Sara Partridge and Melissa Henao-Robledo—entered into a formal agreement to design and build the bus stop shelter.

Facilitate action. The design team is using a crowdfunding partner (and a generous contribution from Capital Metro) to reach its goals.

Share your story. With assistance from the staff at AIA Austin, DesignVoice has used social media, AIA newsletters, and conferences to help architects realize how they can give back locally.

Repeat, learn, evolve, grow. Gather feedback once the design is complete and the project is finished; let your process evolve as new stakeholders and different community needs arise.
Building Amid the World’s Highest Mountains

The Khumbu Climbing Center is a sustainable, earthquake-resistant building—and a symbol of resilience—in the shadow of Mount Everest.

By Kim O’Connell
In the Himalayas there is a constant tension between the towering glory of the world’s highest mountains and the ever-present specter of loss. In 2014 an avalanche of ice tore down Mount Everest, killing 16 Nepalese mountain guides—most of them Sherpas, the native porters who have led and assisted climbing teams in these high mountains for more than a century. A year later one of the worst earthquakes in Nepal’s history leveled thousands of buildings and left thousands more dead. Against this backdrop builders have been working to complete the Khumbu Climbing Center (KCC), a sustainably designed mountaineering school in the mountain village of Phortse, Nepal.

Conceived and supported by the Alex Lowe Charitable Foundation and designed by students from the Montana State University (MSU) School of Architecture under the guidance of Michael Everts, AIA, the KCC is designed to teach Nepalese climbers best practices, so that they can be safer in the mountains. By earning certification through the school, native climbers are better able to seek their livelihoods as hired guides on climbing destinations like Everest and the other Himalayan peaks. This is paramount considering the ongoing debate over whether Everest has grown too popular, with more-crowded climbing seasons reducing the safety margin for those attempting the summit.

As construction nears completion, the school has been instructive in other ways as well: combining sustainable design elements with seismic strengthening while incorporating vernacular building techniques that reflect the local culture. “We wanted to build a building that would support training Sherpas with technical climbing skills,” Everts says, “but we also wanted to make the process as educational an experience as possible for all involved: students, local people, and builders.”

It’s a process that began years ago, as the founders of the Alex Lowe Charitable Foundation sought a way to give back to a community that has inspired them in both good times and bad.

A Vision for Phortse

Although the area around Everest seems impossibly remote and forbidding, the surrounding Khumbu Valley has been settled for hundreds of years by Sherpa people who originally migrated from Tibet. Historically, local villagers have relied primarily on subsistence farming centered on potato, millet, and root vegetables, which are cultivated over the course of a short growing season in an area that is 97 percent unsuitable for farming due to soil conditions and altitude.

In the last 50 years, mountaineering has become the driving aspect of the local economy. Ringed by snow-covered rocky peaks, pastoral villages in the valley are dotted with monasteries, temples, and lodges where local people host the increasing numbers of people drawn to the so-called “Roof of the World.”

One such traveler was mountaineer Alex Lowe, who honed his skills as an alpinist in the Khumbu region, climbing Everest and a half dozen other Himalayan giants. Once named the “world’s best climber” by Outside Magazine, Lowe died tragically in an avalanche on 8,000-meter Shishapangma in 1999, leaving behind his widow, Jenni Lowe-Anker, and three sons. Soon after her husband’s death, Jenni founded the Alex Lowe Charitable Foundation to help the indigenous people Alex had loved. She later married Conrad Anker, Lowe’s best friend and climbing partner, who

had survived the tragic avalanche. Together, they founded the KCC in 2003 after trekking through Phortse and noticing an abundance of water ice—perfect for climbing instruction.

A green terraced expanse nestled high above two cascading rivers and somewhat off the beaten track to Everest Base Camp, Phortse boasts a significant mountaineering tradition, with more Everest summiteers hailing from this village of 350 residents than anywhere else in the world. “Phortse is an island in the sky, surrounded by paper birch forests. ... It’s one of the more pastoral villages,” Lowe-Anker says. “We knew there was a huge need for more climbing instruction and a dearth of knowledge. Most of the families in Phortse have someone who has either worked on Everest or has summited Everest, and yet when we first went over there [to plan the KCC], no one knew how to do a basic figure-8 knot.”

For several years, climbing instruction took place in local lodges and homes, and outdoors on frozen waterfalls in the winter, when villagers were not farming. Initially, the instructors were primarily Western climbers and guides, but the KCC teaching staff are now mostly Nepali, although a team of Western climbing instructors and advisers still goes back every winter.

With the program up and running, the next step was to fund the construction of a permanent building in Phortse that would not only house the climbing center but also serve as...
a community meeting hall and program space. Local enthusiasm was great, evidenced by the fact that two local Phortse families donated the land for the center’s permanent location. From their home base in Bozeman, Mont., the Ankers soon connected with Everts and the architecture school to develop the design.

“We set up a graduate studio right away,” Everts says. “In addition to Jenni and Conrad, Bozeman has this incredible density of world-class climbers and adventurers, so we met with them and sussed out this mission of teaching climbing skills. But that wasn’t the only mission.”

It was quickly apparent to the foundation and the design team that the center would be designed with a multifaceted program, including a library about mountaineering and local history, a place to hold English classes, and even space for climbers to take a hot solar-powered shower and rest. The foundation is raising funds to put a state-of-the-art climbing gym in the building as well.

A Sustainable, Strong Design

Design work on the KCC took place both in Bozeman and in on-site charrettes in Phortse, with about 30 students in total (11 of whom made the trek to Nepal). The major design imperatives were that the building had to be warm and weatherproof, earthquake-resistant, and respectful of its historical context. When complete, the KCC building will be a two-story stone-and-glass structure of about 2,500 square feet based on local house typologies in Phortse and oriented toward Khumbiyula Mountain, a sacred peak at one end of the valley.

Traditionally, local buildings are heated by Ø

“Phortse is an island in the sky, surrounded by paper birch forests. ... It’s one of the more pastoral villages.”
—Jenni Lowe-Anker
burning dried yak dung, which creates noxious fumes; burning wood is largely prohibited because of a Nepalese reforestation program. Based on modeling using Revit and Ecotect software and local weather data, the team found that it was conceivable to heat the building almost 100 percent through passive heating techniques—including a combination of building orientation, direct solar gain, and insulation—as well as Trombe walls that employ a glass skin over a stone wall. The building design has a series of “kinks” that minimize exterior skin exposure and maximize solar gain on the west wing in the morning and the east wing in the afternoon, according to Everts.

Seismic strengthening was also essential, and the team found that it could be accomplished in a way that honored local vernacular building techniques. After starting with dry stacked stone structures, common in Phortse, the designers used gabion caged stone and steel frames that are tensioned together with steel cables for lateral strength.

“The fact that the local people will have an earthquake-safe building is so important,” Lowe-Anker says. “When the earthquake happened last year, for months there were aftershocks and many people—including the elderly—just slept outside because they felt safer.”

In Phortse the students presented their ideas to village leaders and absorbed their feedback, which became an ongoing iterative process that some students later called “life-changing,” according to Everts. They also developed a website where both students and locals could keep tabs on the design as it evolved. The design process won an honorable mention in the 2011 National Council of Architectural Registration Boards annual awards. The jury recognized Montana State for teaching students leadership and communication skills, and for giving them the opportunity to research and work abroad.

“Architecture literally can make a difference,” Everts says, “but in order for it to make a difference there must be a redefinition of what architecture is. More and more it’s a process, and the virtual network that you create is integral to the physical building. As a result of this and other community experiences, our first-year architecture program is changing to be more about system thinking.”

A Building on the Rise

With the design in place, construction of the KCC building has been slow but steady—hindered by the sheer difficulty in transporting building materials to the remote site, not to mention the setbacks caused by the recent catastrophic avalanche and earthquake. (The foundation diverted resources and building materials from the KCC to local villagers with immediate needs.)
To reach Phortse, one must fly materials to Lukla Airport—a dangerous airstrip that necessitates a multiday 16-mile trek by porter or yak—or to Syangboche, one long porter day from Phortse. The building site is perched at about 12,500 feet of elevation.

To oversee the construction team of local builders, the foundation hired Brandon Lampley, a craftsman-builder from Colorado who had experience climbing in the Khumbu. Lampley’s first task upon arrival was to assess damage from the earthquake; he was pleased to discover that the building had withstood the quake quite well. Construction continues apace, and Lampley estimates that the building will be structurally complete by the end of 2018, contingent on additional fundraising.

“This past spring, we often had 25 masons, four porters, and six laborers quarrying stone,” Lampley says. “All of our crew comes to Phortse to live for the work season. We are all builders, and working with tools and demonstrating techniques is a universal language.” The team has retained Tenzing Gyalzen, a Phortse resident who has summited Everest multiple times and serves in several community roles, as a local supervisor.

“Everything takes longer in Nepal, and especially way up high in the remote Himalaya,” Lampley says. “We trust in the skills of our local workers and craftsmen. My role is to enable their work, and utilize their expertise.”

To date, Lowe-Anker estimates that the KCC has educated well over 1,000 indigenous students. She is hoping that Phortse will become more of a destination not just for climbers but also photographers and wildlife enthusiasts, which would be a boon to a local economy that is seeing its young people move away to find work outside Nepal. Creating a safer mountaineering culture in the Himalayas is positive for both the local people and the climbers they seek to work with.

“Everest has been a boon to the country, with all the income and tourism, but also a bit of a cross to bear because of all the loss of life,” Lowe-Anker says. “There was a loss of autonomy of the native culture, with tourism flooding in. Things change beneath those mountains, and they’ve had to share those mountains with the rest of the world. We are hoping that our center is one that honors that culture and history, acknowledges the changes, increases safety, and pays homage to those who have gone before.”

**AIA**
AIA Firm Survey Report: The Business of Architecture

Find out how your business measures up and increase your competitiveness with the only report that lets you compare your performance to more than 2,300 firms.

Insights into:

- Firm billings and profitability
- Firm management and staffing
- International work
- Technology and best practice trends

Purchase today:
aia.org/firmsurvey
A New Era of Exams

The transition to ARE 5.0 has begun.

With the calendar’s turn to November comes a fresh opportunity for future architects, and the chance to take stock of their progress forward. On the first of this month, the National Council of Architectural Registration Boards (NCARB) launched ARE 5.0, a new version of the exam that will offer candidates a refined path to obtain their licenses.

Most prominently, ARE 5.0 will include six divisions, one fewer than ARE 4.0. Since ARE 4.0 launched in 2008, NCARB has been working with volunteer architects at all levels to adjust the exam structure to better reflect the way architects do their jobs.

“With ARE 5.0 we are going from a vertical alignment of content areas to a horizontal alignment of phases of practice,” says Jared Zurn, AIA, director of examination at NCARB. “With divisions like Project Planning & Design and Programming & Analysis, the exams will mirror architecture practice in a much better way.”

Emerging architects who have already started in ARE 4.0 will not lose their progress; those candidates will have until June 30, 2018, to finish in the old version. They can also start testing in ARE 5.0 right now and complete all six divisions there, or choose a combination offering: Pass three divisions in ARE 4.0 followed by two divisions in ARE 5.0. Either way, NCARB has made a point to provide numerous self-transition options for candidates who crave flexibility.

As for experienced practitioners who are well beyond all-nighter study sessions, it’s important for them to realize that—despite the ARE’s need to constantly evolve—these changes aren’t meant to undercut the licensure process or lessen the standards that have elevated the profession for so many years.

“I have conversations with architects who ask, ‘Is the exam getting easier?’” Zurn says. “Not at all; it assesses an individual’s ability to practice architecture. The exam of the past and the exam of the future may have a different structure, but the ultimate goal is always to ensure that people who pass can practice competently.”

Supporting Architects to Build Our Communities

You may say I’m a dreamer, but I’m not the only one. —John Lennon

Most architects have probably been accused of being dreamers. I know I have. The ability to form a complete vision of that which is not yet real is an essential design skill for architects. This is often a lonely adventure. Providing the full range of architectural services today and advocating for your client’s project are both unique challenges that architects face. The AIA realizes this and is working on two initiatives this fall to provide the kind of support our members need to practice, and our communities need to restore its public buildings.

The first is the Center for Practice, which will concentrate the AIA’s resources for practitioners, to help them work smarter. It will build upon the work done by the AIA Board of Directors’ Practice and Prosperity Committee, and the Center for Practice will continue to add features to assist small, medium, and large firms. The goal is to provide assistance so that architects may save time and energy on operations and focus more on creativity and providing more value to clients. The second initiative is the Build America Summit, which will focus on infrastructure, public buildings, and facilities that define our communities. The event will be held in New York on Nov. 29 and 30, and will include presentations that will address issues related to improving the social infrastructure in our small towns and cities. The fact is that public buildings in every county and state are in need of significant improvements, and the Build America Summit, will be a way to start that conversation in earnest.

In advance of the Summit, the AIA will gather data nationwide (by working with a reputable polling firm) to find out how Americans feel about their public buildings and facilities. Many Americans have formative memories of an elementary school or public library that defined their childhoods and, ultimately, influenced their adult lives. We all know how critical the public buildings and social infrastructure are to the value of our homes and the identity of our villages, towns, and cities. This poll will provide actionable intelligence for the AIA and its members. These two initiatives will also provide support for members and communities by establishing a practical set of tools and a conceptual framework to address the challenges ahead, so that we can all better realize our dreams.
Inspired cuisine, by design.

The Miele Range is the culmination of our over 100 years of expertise, offering intuitive controls, extraordinary automation and harmonious design to delight even the most discerning customer.
THE UNIQUE BENEFITS OF PVC WINDOWS IN MULTIFAMILY HOUSING

From rising construction costs to declining homeownership rates, myriad factors have been driving the proliferation of multifamily housing developments over the past decade. Among these are an aging U.S. population, declining homeownership rates, a need for renewable resources and climate friendly solutions, and growing demand for affordable high-performance construction that meets the needs of owners and building occupants.

Need for multifamily housing

In communities across the United States, there’s a multifamily housing boom in progress. What has spurred this shift toward multifamily construction? Consider that in the first quarter of 2016, the U.S. homeownership rate fell to 63.5 percent which, according to the U.S. Census Bureau, is lower than the fourth quarter 2015 rate of 63.8 percent. This marks the lowest homeownership rate since 1995.

In May of 1995, President Clinton unveiled the National Homeownership Strategy. This initiative drove a boom that continued until 2006–7 when the housing market crisis emerged. In 2008, the Case-Shiller home price index reported its largest price drop in history.

Following a plummeting of the national homeownership rate since 2006 was the decline in the number of owner-occupied housing units and an increase in the number of renter-occupied units (approximately 18 percent) during the same period. Single-family construction has therefore weakened while multifamily construction has risen sharply.

Considering the under-building of multifamily housing during the 2000s and the aging of a population that no longer wants the burdens of home maintenance labor and costs, the current momentum of multifamily construction is needed and will likely to continue.

Solutions through high-performance construction

The demand for multifamily housing has also led to greater need for high-performance construction to help meet key project goals:

- Energy efficiency
- Lower operating costs
- Efficient construction and maintenance
- Occupant comfort and safety

By Aphrodite Knoop

LEARNING OBJECTIVES

Upon completion of this course the student will be able to:

1. Discuss the market forces driving multifamily housing construction
2. Describe the evolution and implementation of PVC in residential construction
3. Contrast the benefits of PVC to aluminum windows
4. Explain PVC window selection criteria for multifamily residential projects

CONTINUING EDUCATION

CREDIT: 1 LU/HSW
COURSE NUMBER: ARnov2016.4

Use the learning objectives above to focus your study as you read this article. To earn credit and obtain a certificate of completion, visit http://go.hw.net/AR1116Course4 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.
Windows are a critical element of a building’s performance as a source of daylighting, ventilation, and visual connection to the outside. However, underperforming windows are also a source of heat loss, excess heat gain, leaks, mold problems, noise penetration, and condensation problems.

The building industry has responded to these problems with new technologies and improvements, including the evolution of unplasticized polyvinyl chloride (uPVC) over other window materials.

Why uPVC for windows? PVC, often referred to as “vinyl,” is a thermoplastic material that can be re-melted and recycled. Its composition gives it some unique technical properties that make it suitable for eco-friendly, high-performance construction.

According to PVC.org, a European based non-profit that tracks the PVC industry, PVC’s cost effectiveness makes PVC a highly versatile polymer for the building industries. “PVC plays a major role in delivering and sustaining the quality, comfort, and safety of modern lifestyles.”

Call for climate-friendly solutions

Increased pressure and incentives from certain municipalities for lowering their carbon footprint are also driving developers, contractors, and owners toward sustainable building solutions.

Because PVC has proven to be both durable and protective, it has gained widespread adoption in both the medical and food and beverage industries. Pre-sterilized PVC is used for tubing, disposable medical devices, catheters, pill packs, gloves, masks, and more. PVC is also used in food packaging because it is lightweight, reduces waste, and protects consumables by providing a water and oxygen barrier.

PVC products became essential to the construction industry due to their resistance to light, chemicals and corrosion; their durability and lightness; and their resilience. The first PVC window in the U.S. was introduced in 1964 by Thermal Industries. According to the American Architectural Manufacturer’s Association (AAMA), PVC windows accounted for 36 percent of the entire residential market by 1996 and had soared to 68 percent of the total residential window market by 2012. Although PVC windows were initially introduced as replacement options for the remodeling market, within a decade they had also gained greater traction in new construction.

This rise in adoption in both existing and new construction is due in large part to PVC’s thermal efficiency. As consumers sought to save energy by replacing old windows, they found the best value in PVC. Vinyl window systems have further proven more durable, easy to maintain, and affordable compared to other window options. Now PVC windows have found a place across all housing markets, ranging from custom and high-end to tract housing and multifamily complexes.

The following three case studies demonstrate how PVC window systems have been used successfully to solve a range of multifamily design and construction challenges. Each of the represented projects had different goals that were met with innovative and sustainable approaches, encompassing the entire “ecosystem” of function and aesthetics.
Provided as combination units, these windows also contribute to the overall comfort and satisfaction of Circa Green Lake residents. The compression-seal projected windows provide high levels of energy-efficiency, structural and acoustical performance, and security. Compression-seal windows generally provide better long-term air infiltration and water penetration resistance than sliding windows because they reduce friction and wear on weather stripping. The system has achieved hurricane impact ratings, providing design flexibility along the coastal regions which require adherence to strict building codes.

The Orchards at Orenco project passes the original energy-efficiency, structural and acoustical performance, and security. Compression-seal windows generally provide better long-term air infiltration and water penetration resistance than sliding windows because they reduce friction and wear on weather stripping. The system has achieved hurricane impact ratings, providing design flexibility along the coastal regions which require adherence to strict building codes.

The Esquire Group considered numerous window systems before selecting high-quality uPVC windows for their value and their expected payoff from energy efficiency. “Price, quality and workmanship sold the job,” Coluzzi said. “We were impressed by the ability to build them quickly and the ease of installation. The windows had to be customized to fit the building and not the other way around.”

Prior to the renovation, bathrooms would pond during a hard rain. Now tenants are excited about their dry apartments.

Dothe Architect LLC, an Atlantic City firm, to develop a cost-efficient solution that would not only keep the building dry, but would make the apartments more energy efficient.

The building tenants were skeptical when the latest renovation project was announced in early 2013. Previous owners’ attempts to repair the leaky windows only seemed to exacerbate the problem.

This time, the architect called for complete removal of the façade to properly replace all 2,311 windows with 580 PVC tilt-turn windows and 1,731 fixed windows. The tilt-turn windows incorporate multiple locking points and dual compression seals that provide optimal air and water tightness. The multi-chambered walls of the fixed window system increases strength, improves energy efficiency and allows for efficient water drainage. Both systems exceeded New Jersey performance requirements for hurricane and impact-resistance.

The Esquire Group considered numerous window systems before selecting high-quality uPVC windows for their value and their expected payoff from energy efficiency. “Price, quality and workmanship sold the job,” Coluzzi said. “We were impressed by the ability to build them quickly and the ease of installation. The windows had to be customized to fit the building and not the other way around.”

Prior to the renovation, bathrooms would pond during a hard rain. Now tenants are excited about their dry apartments.

Dothe Architect LLC, an Atlantic City firm, to develop a cost-efficient solution that would not only keep the building dry, but would make the apartments more energy efficient.

The building tenants were skeptical when the latest renovation project was announced in early 2013. Previous owners’ attempts to repair the leaky windows only seemed to exacerbate the problem.

This time, the architect called for complete removal of the façade to properly replace all 2,311 windows with 580 PVC tilt-turn windows and 1,731 fixed windows. The tilt-turn windows incorporate multiple locking points and dual compression seals that provide optimal air and water tightness. The multi-chambered walls of the fixed window system increases strength, improves energy efficiency and allows for efficient water drainage. Both systems exceeded New Jersey performance requirements for hurricane and impact-resistance.

The Esquire Group considered numerous window systems before selecting high-quality uPVC windows for their value and their expected payoff from energy efficiency. “Price, quality and workmanship sold the job,” Coluzzi said. “We were impressed by the ability to build them quickly and the ease of installation. The windows had to be customized to fit the building and not the other way around.”

Prior to the renovation, bathrooms would pond during a hard rain. Now tenants are excited about their dry apartments.
BENEFITS OF PVC VERSUS ALUMINUM WINDOWS

The green building community has embraced vinyl window and door systems for their high performance and energy efficiency despite controversy surrounding the manufacture, use, recycling and sustainability of PVC—primarily because of its association with the chlorine industry. Yet much of this argument has been driven by emotion rather than scientific scrutiny.

In reality, vinyl has surpassed aluminum on several fronts:
- Aluminum production creates five times more CO₂ than does PVC.
- Aluminum windows cause up to 60 percent more drafts and twice the potential for leaks.
- Aluminum’s thermal conductivity is more than 500 times higher than that of PVC.
- Aluminum window life expectancy is 50 percent less than that of PVC windows.

On the other hand, PVC is eco-friendly, energy efficient, fully recyclable and cost effective, and thus ideal for residential projects ranging from single to multifamily construction.

Eco-friendly and sustainable

During manufacturing, PVC is easily chipped into reusable waste material and extruded into new products. Ninety-nine percent of vinyl’s manufacturing waste can be reprocessed while millions of pounds of post-consumer vinyl can be recycled.

Aluminum frames cause the highest burden to the environment because of their high energy consumption during production and the dangerous pollutants they release.

PVC is lightweight, so requires less fuel for transportation than do other materials. And its long life and resistance to weathering translate to far less frequent replacements, which conserves raw materials and prevents pollution typically associated with the manufacturing and disposal of alternative materials with shorter life spans.

Visit http://go.hw.net/AR1116Course4 to read more and complete the quiz for credit.

QUIZ

1. Which of the following is not a contributing factor in the recent surge in multifamily housing?
   a. Declining homeownership rates  b. A need for climate friendly solutions  
   c. Need for more transient lifestyles  d. Demand for affordable construction

2. High performance uPVC window systems offer which of the following benefits?
   a. Lowering operating costs  b. Occupant comfort  
   c. Energy efficiency  d. All of the above

3. True or False? PVC has a high salt content.
   a. True  b. False

4. Why are aluminum windows more commonly used than PVC windows?
   a. Aluminum allows more heat transfer  b. PVC is more commonly used for plumbing pipes  
   c. Aluminum has become the default industry standard  d. PVC is difficult to recycle

5. How do owners benefit from using uPVC windows in multifamily construction?
   a. Easy installation  b. Value/benefit ratio  
   c. Occupant comfort  d. All of the Above

6. True or False? uPVC is resistant to moisture.
   a. True  b. False

7. How can high-performance uPVC windows increase a building owner’s return on investment?
   a. They meet PHIUS standards  b. They have better energy performance and thus lower HVAC operating costs  
   c. They are available in an array of colors and shapes  d. They can be recycled into other products

8. What is the role of compression-seal technology in uPVC windows?
   a. Provides a seamless surface for painting  b. Enables easier cleaning  
   c. Maximizes window surface  d. Keeps treated air sealed in and reduces noise

9. Which of the following is not a benefit of green certification?
   a. Shows curb appeal  b. Demonstrates positive environmental impact  
   c. Helps get rebates  d. Boosts property values

10. Which is true of performance ratings?
    a. They are mandatory  b. Help architects make aesthetic choices  
    c. Show a products ability to perform to a desired standard  d. Demonstrate high performance in all weather

SPONSOR INFORMATION

REHAU is the premium worldwide brand for polymer-based innovations in construction, automotive, and industry. The company generates continuous growth through its expertise and innovative capabilities in systems design and development. Approximately 20,000 employees at more than 180 locations around the world ensure success of the independent, privately held company.

Course valid through November, 2019
MERGING ARCHITECTURE AND LANDSCAPE DESIGNS

Presented by: VECTORWORKS
A HAWENITECH COMPANY

LEARNING OBJECTIVES

Upon completion of this course the student will be able to:
1. Understand how architecture and landscape architecture practices can be merged.
2. List the energy efficiency and sustainability benefits of melding site and architectural design.
3. Explain the importance of early planning and coordination with all members of the design and build teams for successful integration of interior and exterior design and features.
4. Describe the benefits to the designer, builder, and occupant of merging indoor and outdoor architectural design strategies and features.

CONTINUING EDUCATION

CREDIT: 1 LU
COURSE NUMBER: ARmay2016.4

Use the learning objectives above to focus your study as you read this article. To earn credit and obtain a certificate of completion, visit http://go.hw.net/AR516Course4 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.

SITE LOCATION FOR OPTIMAL LIGHT, WIND, AND PROTECTION

Many of the benefits of integrating a building’s design with the local environment stem from careful consideration of the chosen building site. Where a building is positioned on a particular site can impact how an architect includes natural lighting features, how natural ventilation functions in the structure, and, on some sites, whether the structure may be protected from the elements.

Some of the issues designers need to consider include positioning windows or skylights to balance heat gain and loss, to control the glare within their own project and with neighboring properties, and to accommodate the variability of available daylight throughout the changing seasons. Designers will make different decisions regarding window size, shape, glass type, reflectivity, and position within the structure depending on the location and climate.

Buildings should be positioned to maximize or minimize solar access for warmth and daylighting, depending on the climate. For example, residential structures in a temperate climate may benefit from larger windows that allow for ample sunlight year-round, where
Designers and builders need to carefully consider the direction of the prevailing wind, local climate, and whether the site has its own microclimate, as all issues can affect a building’s natural ventilation, roof and exterior building stresses, local wind tunnel effects, and exterior noise generation.

Wind is another important factor in building site selection and use. Designers and builders need to carefully consider the direction of the prevailing wind, local climate, and whether the site has its own microclimate, as all issues can affect a building’s natural ventilation, roof and exterior building stresses, local wind tunnel effects, and exterior noise generation.

Both prevailing wind and location climate may be presented in terms of a site’s microclimate, and the effects of that climate can greatly impact how a designer positions a building on a site. For example, topography such as ridges and valleys—or even other built structures—are likely to funnel wind and create a wind tunnel effect. There will also be stronger wind closer to the ridge. Open spaces tend to have more wind overall, and so building sites that border large open spaces such as parks, fields, or large bodies of water will need to be designed and positioned with those considerations in mind.

Commonly used ways to mitigate excessive wind on a residential building site include accommodating the direction of the prevailing wind by positioning the building in a way that streamlines the wind around it, rather than blocks or buffers it, and positioning frequently used windows and doors away from the prevailing wind. By avoiding the prevailing wind, windows and doors can be kept open even on windy days, and in turn help provide natural ventilation to the building. Another useful strategy on windy sites is to design the building so that rooms that need to be quiet (for example, bedrooms) are situated on a wind-protected side of the residence. Again, on residential properties, designers may also choose to provide physical wind buffers such as fences, hedges, or courtyards. Such designs are best done in conjunction with a landscape architect, who can help fuse the natural surrounding with the building in a manner that helps mitigate wind impact.

**PRESERVING VISTAS THROUGH INTEGRATED DESIGNS**

Working with the site does more than manage light and wind; it allows architects to design structures that move with the land and preserve stunning, natural vistas. Take The Grandes Combes Courchevel, a resort and recreation hotspot between two mountains in the French Alps. The curving roof and sweeping design mimic the appearance of snow drifts and make the expansive resort blend seamlessly into the Alpine landscape.

**BRINGING THE OUTSIDE IN**

Designers are doing more than integrating their buildings with the site; they are merging exterior landscape features with interior spaces, offering a wide range of benefits for the environment, as well as its occupants.

Successfully fusing exterior landscape features with interior design requires an expanded knowledge base, as well as an accommodating workflow, and it starts with a willingness to have all members of the design and build teams working together in early planning. Further, the designer must understand both the benefits of an integrated approach and the common challenges.

**WATER CONSERVATION INCLUDING RAINWATER CAPTURE**

Landscape and building architects can both benefit from water conservation techniques on a building site, especially if they include plans for water conservation in their early designs. Two of the more common practices are rainwater capture and water recycling. Both practices can work to integrate the natural environment and the built environment in a manner that addresses aesthetic and energy-efficient design choices.

Rainwater capture, also known as rainwater harvesting, catches and stores rainwater from elevated surfaces such as rooftops or rock catchments. In some situations, however, designers may be in a position to create underground collection sites.

**Rooftop rainwater collection** is simple, and usually involves a combination of gutters and down-pipes that divert the rooftop water into a basin or rain barrel, which may have a screen on top to help filter out sediment. Designers interested in using this technique should consider the health implications of the roofing materials and choose materials that are known to not impact the quality of the water. For example, bamboo and coated or painted roofs may leach...
chemicals into the water, where galvanized, corrugated iron or aluminum roofs will not. Rain barrels should also be constructed of non-leaching materials, and the roof catchments should be regularly cleaned and maintained to ensure that the collected water is clean.

Another means of collecting rainwater is through ground-level catchments, which can also help improve the water runoff of a property. This technique uses a combination of drains and collection basins to harvest the water from a larger surface area than typical rooftop collection allows. Landscape architects can use this technique to build in water features on the property, such as small streams with storage reservoirs and even dams, if needed, to help provide water during times with less rain. One challenge of this technique is that much water is lost to natural seepage into the ground; another is water quality. The water obtained from ground-level catchments is best used for watering outdoor plants and gardens, rather than home-use.

INNOVATIVE INTERIOR ARCHITECTURAL PRACTICES THAT INCORPORATE LANDSCAPE DESIGN

The process of integrating exterior and interior features often begins with a desire to both physically enhance the occupant experience inside the built environment while also addressing energy efficiency and sustainability goals. Integrating a building into the landscape allows architects to design for the environment and lowers a building's ecological footprint. It also allows the architect to preserve natural vistas by creating buildings that move with the land.

Traditionally, building design and landscape design were done separately with only minimal integration. However, as the lines between architecture and landscape blur, architects and landscape architects may be called upon to collaborate on projects more frequently than they have in the past. Often, the landscape design was completed only after the initial building design was finished. Now, however, when merging the two spaces, collaborative design becomes central to the overall project. For example, a building may be designed to promote a sense of awe of the natural surroundings, or to invite occupants to appreciate the openness of a space. The process of creating this experience can only be done through the close work and shared vision of the building and landscape architects. Often, these designs bring together some of the philosophies of landscape architecture to the building itself.

The Ohio Veteran’s Memorial and Museum in Columbus, Ohio is a good example of this kind of merged design. The partly subterranean building was designed by Allied Works and integrates the surrounding parkland landscape. Portions of the building are carved into the surface with a circular, spiraling terrace and curved slope that rises above the ground as a path to the sanctuary. This room will be used for ceremony, celebration, and reflection.

Designs such as the Ohio Veteran’s Memorial and Museum are becoming increasingly common in civic structures and in commercial properties, but similar innovative designs are also used for residential properties. Less dramatic designs that merge the local and built environment can also be seen in urban centers, where the lower levels of buildings are designed to soften the urban experience. For example, gardens or small parks with benches may be incorporated into the design in place of traditional concrete surroundings. This practice gives back to the city and invites citizens to engage with the structure, rather than presenting an unwelcoming space.

BENEFITS OF BRINGING NATURAL, OUTDOOR ELEMENTS TO THE BUILDING DESIGN

While the art of creating an aesthetically pleasing or awe-inspiring space often drives architectural design, there are many practical benefits of integrating site and landscape features with the overall building design. For example, the design may present high-ceilinged, open indoor spaces with large windows that overlook vast, open outdoor spaces. Alternatively, the space may fuse exterior gardens with indoor green walls. The design options will depend on the client’s needs and on the site itself.

NATURAL LIGHTING BENEFITS

Buildings that are designed to include natural lighting choices, such as floor-to-ceiling windows, glass walls, strategically placed windows, glazed porches, or skylights that maximize the occupants’ access to natural outdoor light, have been found to have a number of benefits. From a health and happiness standpoint, natural light—also referred to as daylighting—has been shown to improve the overall well-being of building occupants through increased productivity in workplaces and improved comfort in residential and commercial spaces. The link between natural light and human circadian rhythms is the underlying basis for why access to natural light (as opposed to artificial) is particularly important in
workplace settings, where occupants benefit from the visual and mental stimulation of natural light.

Of course, a downside of natural lighting is that it also increases thermal load on a building. In colder climates, this can lower heating costs in the winter. However, in warmer months, the extended sunlight may require an increase in cooling costs.

**NATURAL VENTILATION BENEFITS**

Natural ventilation can provide numerous benefits when appropriately included in building design. A primary benefit is energy-savings during warmer months, when a building may be cooled through natural airflow rather than with air conditioners or fans, all while providing fresh, indoor air.

The two most common types of natural ventilation are wind-driven and buoyancy ventilation. Both types use the pressure differences between the air outside of the building and the air inside. The difference between the two is that, as its name suggests, wind-driven ventilation uses the pressure of naturally occurring wind, where buoyancy uses the air pressure that is created by differences in temperature and humidity.

---

**QUIZ**

1. What is the primary benefit of natural ventilation?
   a. Energy savings during warm months
   b. Sensory smells from outdoors
   c. Decrease indoor humidity
   d. Reduce allergens in the work space

2. True or False. Cool tower ventilation only works in low humidity environments.

3. Which of the following roof products may leach chemicals into rain water collection?
   a. Galvanized iron
   b. Aluminum
   c. Corrugated iron
   d. Bamboo or painted tiles

4. True or False. Buildings should be positioned to maximize or minimize solar access for warmth and daylighting, depending on the climate.

5. What typically causes wind tunnel effect?
   a. Manmade cylinders funneling wind
   b. Topography and other buildings
   c. Open areas
   d. Large snow covered mountains

6. Where can green walls be installed?
   a. Indoors
   b. Outdoors
   c. Indoors or outdoors
   d. In greenhouse structures

7. What is a heat island?
   a. Higher temperatures in urban areas
   b. Higher temperatures on structures built by water
   c. Higher temperatures in rural areas
   d. Higher temperatures in higher elevation

8. What is the main benefit of a design-build system?
   a. Allows each builder to work autonomously on their job
   b. Adds multiple people to the chain of command
   c. Puts all the responsibility on the client
   d. Streamlines the project through a single source

9. Who benefits from merging landscape design and building architecture?
   a. Architect
   b. Builder
   c. Owner
   d. All of the above

10. What groups need to work closely in the planning stage to bring together the natural landscape and built environment?
    a. Landscaper and owner
    b. Occupants and contractors
    c. Building architects and landscape architects
    d. Architects and Occupants

---

**SPONSOR INFORMATION**

Vectorworks, Inc. is a global design and BIM software developer serving the architecture, landscape and entertainment industries. Since 1985, Vectorworks has helped designers capture inspiration, nurture innovation, communicate effectively and bring their visions to life. Headquartered in Columbia, Maryland, Vectorworks, Inc. is a part of the Nemetschek Group. Learn how Vectorworks empowers more than half a million designers to create experiences that transform the world at vectorworks.net.
CONTINUING EDUCATION

WHAT IS HIGH PRESSURE DECORATIVE LAMINATE?

Throughout history, the door has been a compelling design element. The arch top doors of the Romans. Medieval doors wrought in bronze. The elaborately carved doors of the Renaissance, the plain doors of the Shakers—all different, all distinctive. No matter what their time period, designers throughout the centuries would no doubt recognize the door as an opportunity to make an aesthetic statement. This is no less true today, as architects choose from an unprecedented array of styles to specify a door consistent with their vision, quality goals, and performance requirements.

In terms of materials, the natural warmth and beauty of wood veneer remains a classic choice for interior doors, complete with the unique physical characteristics that give it depth and interest. However, many architects are now turning to high-pressure decorative laminate (HPDL) doors, which are available in a full range of colors, patterns, wood grains, and custom solutions. The primary difference between HPDL doors and wood veneer-faced doors is simply the face material.

Compared to laminate doors from earlier times, today’s versions feature improvements in virtually every element and process, with the results including more detailed patterns, smoother surfaces, stronger bonds to substrates, advanced resin surface chemistry for easier maintenance, manufacturing processes that prevent delamination of edges, and increased recycled content.

While high-pressure decorative laminate (HPDL) is often called “plastic laminate,” it is basically a surfacing product that consists mainly of decorative paper for style, Kraft paper for flexibility, and resins for durability. The brown paper that you normally associate with laminate is a Kraft paper that has been impregnated with a phenolic resin to increase its flexibility. The Kraft paper is an unbleached, highly absorbent, and thick grade of paper, similar to what we commonly see in paper shopping bags.

By Parker A. Grant, PhD.

SPECIAL ADVERTISING SECTION
Decorative papers which are the top layer of paper, give the HPDL it’s look—such as the color and pattern. They are generally treated with a melamine resin which gives the laminate sheet its durability. The underlying Kraft papers are saturated with phenolic resins and are stacked in layers and pressed under heat. In the press, the resin is cured under high pressure, and the separate layers of paper consolidate and form a single sheet of laminate.

With technological improvements in manufacturing and materials, HPDL materials are becoming an increasingly popular door surface application. These doors offer many design choices, cost benefits, performance achievements, and environmental attributes.

**Laminate Grade**

When specifying laminates for HPDL doors, Horizontal, General Purpose, Standard (HGS) Grade Laminate should be specified. HGS Grade is commonly referred to as “standard grade” laminate. With higher impact resistance, this is an ideal grade for interior door faces and horizontal surfaces including work surfaces, countertops, and vanity tops. However, standard grade laminates are not recommended for postforming, where laminate is wrapped on a curve. The nominal thickness of HGS laminate is 1/16” (0.048”) or 1.2mm.

**Laminate Sheet Sizes**

HPDL sheets and panels can be manufactured in a full range of thicknesses, finishes, and sizes. Standard sizes include the following dimensions:

- 3, 4, and 5 foot widths
- 8, 10, and 12 foot lengths

Some exceptions apply, such as 3’x7’ sheets, because they would be used by the door manufacturers. Also, HPDL sheets are generally oversized by 1/2” in both width and length to assist the fabricator during the lamination process. Not all products from all manufacturers are available in all widths and lengths. Check your manufacturer’s technical data for more information.

**BENEFITS OF HPDL DOORS**

Why choose HPDL? Let’s take a look at some of the benefits of HPDL interior doors that help architects make this a preferred choice for unique and intentional interior building designs.

**Custom Designs**

There is a very large offering of colors and finishes for HPDL doors that can meet your custom design needs. In addition, there are many specialty finishes and products for various applications, such as chemical resistant and color-through laminates. Custom HPDL doors are available through the trusted network of door and hardware distributors.

**Desirable Consistency**

Due to their durability and uniformity of appearance, HPDL doors have considerable appeal where consistency is desirable. HPDL virtually eliminates the inconsistencies that natural wood veneers are predisposed to including: knots and pin holes, excessive grain variation, color variations between heartwood and sapwood, naturally occurring streaks and spots, and the variations that result from the manner in which individual wood veneers accept stain or finishes. HPDL doors are a good choice when uniformity across an organization or a regional or national franchise is a key consideration, such as in offices and hotels, schools and restaurants.

Consistency is also achieved through the adherence to industry standards. HPDL door products meet or exceed Architectural Woodwork Institute (AWI), and Window and Door Manufacturers Association (WDMA) architectural wood door standards.

HPDL doors can be wiped down with general-purpose cleaners to remove smudges or fingerprints and are tolerant of disinfecting detergents used in healthcare facilities. For tough jobs, such as removing paint graffiti from a door’s surface, several cleaning products have been successfully tested under controlled conditions. Those products included:

- **Hair spray (non-aerosol), which completely removed paint after sitting for 15 seconds, leaving no residue on the surface.**
  - For example, at Kent State University, maintenance personnel were able to clean off permanent marker graffiti from HPDL-faced dormitory doors by using ordinary hair spray and a dry cloth.
- **Lacquer thinner, which helped to remove the paint after sitting for 60 seconds.**
- **Citrus-based industrial cleaner, which completely removed paint after sitting for 15 seconds and left no residue on the surface.**

Water-based paints are removed with an ammoniated household detergent. In addition, HPDL doors resist the growth of bacteria, or fungus often attributed to wood veneer doors. This is because laminate has a melamine coating and it does not facilitate the growth of bacteria, or fungi. HPDL doors are available with laminated end rails for use in health care facilities or other applications where a smooth, impermeable finish is desired.

**Affordable Product**

HPDL is very affordable when compared to most other surfacing materials. Regardless of wood grain or pattern, laminates offer more constant pricing and are not subject to the fluctuations that often come with the cost of various species of wood veneer. Decorative laminate doors are cost effective and do not require onsite finishing. Because of today’s laminate press technologies and door construction methods, HPDL doors typically have shorter manufacturing lead times as well.
Raw Materials
Store & prepare raw papers & resins for plant use

Surface Treaters
(Melamine Resin)
Scratch/Mar properties

Kraft Treaters
(Phenolic Resins)
Strength properties

Collation
"Build" raw material sets for specified finished board

Presses
Use temperature, pressure and time to react

Finishing
Trim edges to specified dimensions
Sand backs to glue and consistent thickness

HPDL consists of multiple plies of phenolic resin-coated Kraft papers covered with a high-grade decorative paper layer that is compressed under high pressure and heat for an extended period of time.

Cold vs. Hot Press Process
The key to consistency is the press technology. Doors may be hot pressed or cold pressed. The door manufacturer controls all components. The hot press provides control over all steps of the process, whereas the cold press is an uncontrolled process. Cold press takes much longer and cannot produce the quantity or quality that hot pressing does.

The hot press technology controls the four critical manufacturing factors of pressure, temperature, time, and platen. It allows for a uniform bond with Type I glue. Each HPDL door is individually pressed and is now a common process for architectural wood doors.

HPDL Door Construction
HPDL doors are typically specified with 5-ply or 3-ply construction and are manufactured with...
The same core options found in wood veneer doors. This includes particleboard, stave lumber, structural composite lumber, mineral fiber (non-combustible material), and agrifiber board.

In terms of door edges, they are usually finished with the same laminate as the face. Laminate edges applied before the face laminate “lock in” the edge strip for durability and help to prevent chipping. This is because the edge-before-face design minimizes the seams for a more attractive appearance. Alternately, door edges can be painted or stained to match the face.

HPDL doors constructed for high impact areas such as hospitals and emergency rooms, use PVC and mortised stainless steel edge guards to offer increased impact resistance. Furthermore, manufacturers offer laminated or sealed top and bottom rails on HPDL doors to maximize the ability to clean the door and to protect the door against moisture damage which could eventually lead to warping.

Most manufacturers have the capability to factory-machine doors for commercial hardware preparation. More specifically, they can pre-drill pilot holes for hinges and face plates. In turn, this provides quick and hassle-free door installation at the jobsite and prevents damage to the stiles due to incorrect drilling technique during field installation.
Wood with no maintenance
for contemporary architecture

Parklex®
www.parklex.com
COLLABORATION IS IN OUR DNA.

Each project presents its own unique set of circumstances. Identifying location, resources, application type, substrates — every detail matters. This is where Valspar's unparalleled collaboration comes in. No matter what you have in mind, we have a solution in hand. Or we can work with your team to create a custom solution. We're committed to bringing you the best in color, confidence and collaboration. We lead the way in our industry so you can lead the way in yours.

To learn more about our wide range of architectural coating solutions, visit valsparinspireme.com

© 2016 The Valspar Corporation

Protect your building and your reputation

With every structure you build, you’re also building a reputation. That’s why Owens Corning® Enclosure Solutions are designed for optimum durability and energy performance that meet today’s standards and anticipate tomorrow’s.

Choose from a range of options for different construction types with customizable components that best fit your project, all supported by the expert advisors and technical resources of Owens Corning.

Learn more at owenscorning.com/enclosure
“During the postwar years, as architecture moved in a determinedly functionalist direction, Eliel Saarinen’s brand of Modernism would come to seem passé. More’s the pity.”

Revisiting Kleinhans Music Hall by Witold Rybczynski, HON. FAIA
I first became aware of the Kleinhans Music Hall in Buffalo because of a chair. I was researching Eero Saarinen’s furniture for my book *Now I Sit Me Down* (Farrar, Straus and Giroux, 2016), and I came across one of his earliest chairs, designed in the late 1930s in collaboration with Charles Eames. The two young men—Saarinen was 28, Eames was 31—were working together in the Bloomfield Hills, Mich., office of Saarinen & Saarinen, a partnership recently formed by Eliel Saarinen and his son. The chair was intended for a new concert hall that the firm was designing in Buffalo.

I was recently in Buffalo and had a chance to visit the hall. Not surprisingly, the chair was no longer in use—few public seats last 75 years. Nevertheless, I found several survivors in the musicians’ lounge. The striking design, which uses one piece of lightly padded molded plywood for the seat and back, was obviously influenced by Alvar Aalto’s molded wood furniture of that period, yet for two novices it remains an impressive accomplishment.

I came to Kleinhans for the chair, but I stayed for the architecture. Not widely known, this building, which opened in 1940, is remarkable in several ways. To begin with, unlike most urban concert halls, it is not downtown but in a leafy residential neighborhood, surrounded by large, freestanding homes on Buffalo’s West Side. The hall faces a 500-foot-diameter landscaped circle that is the prominent termination of one of the parkways that Frederick Law Olmsted and Calvert Vaux laid out when they re-planned the city in the 1860s; the other end of the parkway is anchored by H. H. Richardson’s monumental Buffalo State Hospital.

Olmsted and Vaux’s circle is the key to the Kleinhans partis: a drumlike curved chamber music hall that echoes the circular shape; the main hall, a larger curved volume, extends to the rear; the lobby, serving both halls, is situated between. Nothing could be simpler.

**An Understated Throwback**

We have become used to concert halls that make big bold statements: the looming sculptural forms of the Philharmonie in Paris, the metallic sails of Disney Hall in Los Angeles, the giant glass barrel vault of the Kimmel Center for Performing Arts in Philadelphia. The Kleinhans is curiously elusive. Approaching from the circle, one catches glimpses between the trees of a small drum embraced by a curved walkway and a reflecting pool. No windows and no entrances—there are two in this axially symmetrical building—are visible, just the drum and the pool. The main entrance is on the side, and it is a bit of a surprise since it is dominated by a long concrete canopy that, while structurally elegant, resembles a bus shelter. Mundane but useful; it was raining hard the day I visited, and I thankfully ducked under its protective cover.

The exterior of the Kleinhans is brick. No structural high jinks, no fancy coursework, just multicolored Ohio Wyandotte brick, a rather rustic material that Eliel Saarinen had used extensively at the Cranbrook School in Michigan. A bulky, windowless, brick building sounds like an awkward fit in a residential setting, yet it does. The scale of the large hall is reduced by stepping-down emergency stairs that anticipate the exterior stair in Aalto’s Baker House; the walls of the chamber music hall—the drum—are enlivened by large panels of buff Mankato limestone. The regular spaces between the panels resemble pilasters and, combined with the reflecting pool, suggest a classical rotunda. Think Pope’s Jefferson Memorial.

Inside, the lobby is a 50-foot-wide arced space with curved walls, rounded details, and sinuous stairs leading down to a restaurant and bar in the basement, and up to the second-level lobby. This upper gallery is suspended by steel hangers from the ceiling, leaving the lower lobby column-free. My guide, Ted Lownie, of the local firm HHL Architects, has served as Kleinhans’ house architect for two decades, and he speculates that while the exterior shows Eliel’s hand, the lobby seems to be Eero’s work. Just before joining his father, the younger Saarinen worked for Norman Bel Geddes, the industrial designer responsible for tear-drop-shaped cars, swooshy desk lamps, and curvaceous exhibition pavilions. Bel Geddes is considered to be one of the fathers of streamlining, and his influence on the Kleinhans lobby is unmistakable. It’s even apparent in the rounded upholstery of the lobby seating, designed by Eero and Charles.
Sculpt the modern landscape.

With an eye on strong, contemporary designs that elevate trends and create demand, the Contemporary Collection from Cultured Stone® by Boral® serves as the zenith of the modern landscape. And with new additions, including Pro-Fit® Modera™ Ledgestone and Hewn Stone™, this latest extension allows you to create new, inventive designs that exceed your past limits. Keep pushing the boundaries of contemporary architecture and design with the entire Contemporary Collection, only from Cultured Stone® by Boral®.
On one side of the lobby, five full-height wooden doors swing open to reveal the chamber music hall. The walls of the hall, like the doors, are zebrawood, and curved rosewood screens flanking the raised stage; the floor is oak and the molded ceiling is white plaster. The decor, as in the lobby, is modernist, but unlike so many buildings today, it is neither over-detailed nor merely celebrates precision. Lighting fixtures are mostly hidden, and the space is illuminated by recessed wall spots that reflect light off the rippled ceiling. Technology is kept in the background; you could call this Low Tech.

"A Joy to Play In"
The ultimate test of a concert hall is the main auditorium. The acoustics of Kleinhans are somewhat controversial, because the reverberation time is relatively short, which today is considered suboptimal by many acousticians. On the other hand, musicians have generally praised the hall. Sergei Rachmaninoff, who performed in Kleinhans shortly after it opened, considered it “one of the best acoustical arrangements in this country.” The violin virtuoso Jascha Heifetz called it “a joy to play in.” I attended a Joshua Bell concert during my visit and to me the music sounded clear and precise.

But perhaps I was influenced by the architecture. It’s rare that a room takes one’s breath away—this
Visit ppgpaints.com to start making your vision come to life.
one does. There is none of the distracting technoclutter that you find in so many modern concert halls; no suspended sound reflectors and chandeliers, no banks of spotlights, no sculptural wall treatment. The softly modeled plaster ceiling and the subtly shaped wooden walls lead the eye to the stage. There is no proscenium to separate the audience from the musicians. We are all together in this serene space.

Eliel Saarinen was close to music—and to musicians. In Finland, he had known Jean Sibelius and Gustav Mahler, and he was friends with Serge Koussevitzky, the conductor of the Boston Symphony Orchestra. Koussevitzky, who recommended Saarinen for the Kleinhans job, had commissioned him in 1937 to plan the orchestra’s summer home at Tanglewood in western Massachusetts. As he did in the Tanglewood “Shed,” Saarinen used a fan-shape for Kleinhans, which is a very large hall—the original capacity was 2,800, recently reduced to 2,400 to provide more comfortable seating. But because of its shape all the seats in the steeply raked auditorium, and on the large balcony, are close to the stage. Significantly, new seating and carpeting—both matching the original—are the only notable changes to the hall in 75 years.

An impression of warm intimacy is heightened by the light-colored wood paneling—primavera, the same wood that Mies would use in the Farnsworth House. The paneling is better described as wallpaper, because it is actually a paper-thin wood veneer on a linen backing that is glued to the plaster wall. Randomly spaced sound-absorbing panels are faced with perforated sheets of asbestos-cement, painted to look like primavera. Not form follows function, but form follows the demands of the human eye.

Because Eero Saarinen went on to become famous and is today better remembered than his father, there is a tendency to emphasize his involvement and,
Architects designing Legacy Junior High School faced a challenge: create a space to inspire and excite students. Through lively community collaboration, the project came together, incorporating sinuous and sophisticated green metal contours hip enough to intrigue students.

Visit [www.mbei.com/curve](http://www.mbei.com/curve) for more information.
indeed, the streamlined lobby does anticipate his TWA terminal. But Kleinhs shows all the marks of a mature and seasoned designer, and while Eero was undoubtedly precocious, he was only four years out of school when he started on the building. At Kleinhs, Saarinen père took the lead. "Until his death, I worked in the form of my father," Eero later explained in an interview.

**Saarinen's Humanism**

Kleinhs was Eliel Saarinen’s first major American commission outside Cranbrook. By the time that the concert hall was designed he had moved away from the decorative Modernism of his earlier buildings, but the textured brick, the tapestry-like stone panels, the “quilted” wood paneling, even the use of symmetry, mark Kleinhs as a outlier to the then-recently christened International Style. (Henry-Russell Hitchcock and Philip Johnson had pointedly left Eliel Saarinen out of their International Style exhibition at the Museum of Modern Art in the early 1930s.)

During the following postwar years, as architecture moved in a determinedly functionalist direction, Eliel Saarinen’s brand of Modernism would come to seem passé. More’s the pity.

“It’s rare that a room takes one’s breath away—this one does. There is none of the distracting techno-clutter that you find in so many modern concert halls; no suspended sound reflectors and chandeliers, no banks of spotlights, no sculptural wall treatment.”
Introducing Outdoor Accents™ decorative hardware. Easily add style and strength to your outdoor projects. The new Simpson Strong-Tie® Outdoor Accents line of structural connectors features an innovative screw and washer set that combines the ease of installing a screw with the look of a bolt. And, with a black powder-coat finish, this hardware offers style and durability.

To learn more about Outdoor Accents decorative hardware, call (800) 999-5099 and visit strongtie.com/outdooraccents.
Nine-day immersion into the Renaissance world of Andrea Palladio

May 15–23, 2017  |  Led by Palladio Scholar Damiana Paternò, PhD  |  Limited to 25 guests

Travel to Northern Italy with Architectural Adventures to visit Andrea Palladio’s most renowned villas and churches in the company of an architectural expert who will discuss his influential theories and practices. Prosecco and grappa tastings and fine local Veneto cuisine are daily delights, and the voyage concludes with a scenic boat ride down the Riviera del Brenta to awe-inspiring Venice for an exclusive, after-hours visit to stunning St. Mark’s Basilica.

A program of The American Institute of Architects

Learn more at architecturaladventures.org/architectmag or call 1.800.293.5725 ext3
20 Series: 0.7” (17mm) lens, evenly illuminated to any length, seamlessly integrating into walls, ceilings and furniture. High efficiency, sustainable LEDs in high CRI and range of color temperatures.

20 years of vegetated roof experience... brought to life in one app.

American Hydrotech introduces the Garden Roof® Planning Guide mobile app, a first-of-its-kind digital brochure that helps design professionals take a vegetated roof from initial concept to completion.

Packed with photography, technical information and videos, design professionals can explore assembly options and components, growing media and vegetation, and learn about topics such as design considerations, economic and sustainable benefits, installation and maintenance, and much more.

Download your copy today at hydrotechusa.com/GRPG
GLASS THAT TINTS ON DEMAND REPRESENTS A FUNDAMENTAL SHIFT IN THE WAY WE EXPERIENCE BUILDINGS.

As the innovator in electrochromic glass, SageGlass has taken up the banner of sustainability and is working with architects to lead the way into the future.

GOING ABOVE, SEEING BEYOND

71Above is the new premier restaurant in downtown Los Angeles on the 71st floor of the iconic U.S. Bank Tower. To maintain the signature 360-degree unobstructed views of the ocean, the mountains and the famed Hollywood sign, 3,000 sq. ft. of SageGlass was installed throughout the restaurant.

SageGlass allows 71Above to maintain their breathtaking view and provide guests with an unforgettable experience.

LEARN MORE: www.sageglass.com
“De Monchaux is entranced by the power of GIS mapping to identify unclaimed and underutilized urban places. He sees a city’s leftovers as crucial ingredients in creating resilience.”

The Elusive Promise of Big Data by Karrie Jacobs
The image that comes to mind is a banquet, a long table piled high with food, at which the guests are equipped only with toothpicks. That’s how it feels lately to read about the ongoing megamerger between urban theory and big data. Dramatic changes are happening all around us: the barriers between the tech industry and government bureaucracies, between the world of networked electronics and of brick and mortar, are crumbling. But for all the hype, there are few writers who have managed to tell more than a fraction of the story. At least, that was my conclusion after reading Nicholas de Monchaux’s *Local Code: 3,659 Proposals about Data, Design & The Nature of Cities* (Princeton Architectural Press, 2016), a collection of dense essays and data-driven urban concepts, and Ingrid Burrington’s *Networks of New York* (Melville House, 2016), a slender volume that decodes the infrastructure of the city’s information networks.

**GIS Mapping as a Solution to Resiliency**

I don’t mean to accuse de Monchaux of being a toothpick wielder. An associate professor of architecture and urban design at the University of California, Berkeley, he’s the author of a previous book, *Spacesuit: Fashioning Apollo* (MIT Press, 2011), which treats the title object as a cultural mille-feuille. In *Local Code*, de Monchaux sets out to “address the question of how information, cities, and resilience can be considered together.” It’s an immense topic, but this is a relatively modest book, one that attacks its subject matter obliquely, selectively, and idiosyncratically. In particular, de Monchaux is entranced by the power of geographic information system (GIS) mapping to identify unclaimed and underutilized urban places. He sees a city’s leftovers as crucial ingredients in creating resilience.

The 3,659 proposals of the title, distributed at intervals throughout the book, mostly take the form of tiny GIS maps of these urban fragments, little geotechnical canapés. In San Francisco, for instance, he’s located 1,500 “unaccepted streets,” stretches of pavement or dirt that have been designated as rights-of-way but are not maintained by the city. He doesn’t exactly propose a use for each one, but suggests that, outfitted with bioswales, permeable pavers, and gardens, they could economically solve the city’s stormwater management problems. He implies a similar approach for making New York City’s vacant lots into a “network of physical resilience.” Los Angeles, no surprise, has myriad disused sites underneath billboards that could be parklets. And the 212 square miles of the Venice Lagoon, intriguingly, contain more than 60 out-islands, some abandoned and many less than half an acre in size, that de Monchaux proposes as the sites of “cultural and ecological catalysts.” The idea, apparently, is that this land would allow for more contemporary developments than can be built in the city’s historic core.

De Monchaux’s proposals are tantalizing—I love the idea of harnessing urban leftovers for the greater good—but also frustratingly vague. Each city’s proposal gets a page or two of description followed by many pages of data graphics (designed by Catalogtree) that say more about computer mapping as an aesthetic than they do about cities. They leave me desperate to know more about how these leftovers might become, as the book jacket copy puts it, “a social and ecological resource.”

Nicholas de Monchaux’s stormwater proposals for Staten Island
Research shows that some roof insulations have the potential to lose 15% of their claimed thermal performance when it gets hot and in excess of 25% of their thermal performance when it gets cold. ROXUL® roofing products are made of stone wool, which provides for stable thermal performance across varying temperatures and climate zones. For links to external third party studies and to see how this would apply to a building in your climate zone visit us at roxul.com/buildingdesign
A Digital History Lesson

Local Code also contains three substantial, satisfying, and wonderfully loopy essays that illuminate the prehistory of digital mapping by probing the lives of historical figures: the architect-turned-artist Gordon Matta-Clark, the mother-of-all-urbanists Jane Jacobs, and the lesser-known Howard T. Fisher, an architect who developed an early marriage of computer mapping and data collection called SYMAP. De Monchaux’s essays are as rich as his proposals are thin. They trace obscure pathways through the lives of these figures and lead, slowly and indirectly, to the point where each subject’s work dovetails with digital mapping or computerized quantification of urban conditions.

The essay on Matta-Clark, “Fake Estates and Reality Properties,” is alone worth the price of admission. The artist purchased 15 oddly shaped, unbuildable slivers of land in New York City real estate auctions, but before his plans for the parcels became clear, he died, in 1978, at the age of 35. In the early 1990s, the paperwork for the transactions were rediscovered, and it has since been exhibited widely, regarded as an important work of conceptual art. It’s a “speculation on real estate, property, ownership, and territory,” writes de Monchaux, whose land use proposals were clearly inspired by Matta-Clark’s project.

De Monchaux traces the artist’s career, highlighting his most famous works, derelict buildings cut up in ways that transformed them into sculpture, or houses swn in two, like Splitting (1974), a two-story structure in Englewood, N.J., that is sliced down the middle with the front and back halves canting outward in opposite directions. Then Matta-Clark began to realize that there might be another way to accomplish his “interventions.” In 1976, he wrote a letter to Bill Mitchell, who was then teaching at the University of California, Los Angeles. (Mitchell later became the director of the Massachusetts Institute of Technology’s Media Lab.) Matta-Clark explained his work, and said he wanted to “catalog a set of more idealized spacial [sic] variation by using computer graphic techniques.” He also attempted to get access to computer systems developed for the military at MIT. The implication is that the artist had, by the time he died, begun to understand the power that computer simulations might have in manipulating structure—or, at least, depictions of structure—more than a decade before the architectural profession embraced the same idea.

De Monchaux’s Jane Jacobs essay, “Life Attracts Life,” tells fascinating stories about her education at the nontraditional Columbia University School of General Studies and her early trips to East Harlem to watch as tenement blocks gave way to housing projects. Eventually he alights on the intersection between the final chapter of The Death and Life of Great American Cities, “The Kind of Problem a City Is,” and the work of a scientist named Warren Weaver. Weaver helped develop a robotic system that was very effective in shooting down Germany’s unmanned V-1 rockets in World War II, and he inspired Jacobs to view cities as examples of “organized complexity.” De Monchaux concludes that a city (like the human brain) is too complex to interpret using any single model.

In his third essay, “The Map and the Territory,” de Monchaux introduces us to the first punch card reader, an electro mechanical gizmo called the Hollerith Census Tabulator. The earliest product made by the company that eventually became IBM, it was invented to do the counting for the 1890 U.S. Census. De Monchaux’s take on the invention of data mapping reads like a prehistory of the 21st century—as does most of Local Code, for that matter.

If I were de Monchaux’s editor, however, I would have urged him to consolidate his four urban proposals for L.A., New York, San Francisco, and Venice into an essay and to write about them at greater length, to envision the future with the same fluidity and inventiveness with which he investigates the past. (I might also have kept an eye out for factual errors. Jane Jacobs, for instance, was not born in “Scranton, New Jersey,” and Fortune magazine was never in the “Hearst stable.”)

The Ruskin of Today’s Infrastructure

While Local Code is heady and abstract, Networks of New York, by contrast, is grounded and beautifully concrete. It’s billed as a “Field Guide to Urban Internet Infrastructure,” and that’s precisely what it is. Burrington, a writer, artist, and gifted observer, is the John Ruskin of 21st-century infrastructure. She studies the places where the internet manifests itself on the streets of New York, draws what she sees,
Designed to address deficiencies common with more traditional roofing materials, Metl-Span’s all-in-one CFR insulated metal roof panels provide superior insulation value and weatherproofing while helping to reduce installation time and lower energy costs for your project.

For more information please call 877.585.9969 or visit metlspan.com/retrofitting
Enhanced Platform Safety and Performance
Platform Screen Doors from Horton provide exceptional value, efficiency, style and safety in light and heavy rail installations. Custom Horton transit door systems are installed worldwide from Beijing Capital to London Heathrow and many other major airports in the U.S., Canada, Europe, Asia-Pacific and Latin America. Horton's design team develops unique transit door solutions to meet the most complex application challenges. Rely on Horton as your single source for reliable transit doors.

WIDE RANGE OF COLORS & MATERIALS
Stainless steel, aluminum, full glass and powder coating options.

SEAMLESS INTERFACE WITH TRAIN CONTROL
Optimizes pedestrian flow and keeps trains running on time.

CUSTOMIZABLE OBSTRUCTION RESPONSE
Obstacles detected when door is closing for added safety.
and teaches us to see, too. An “f/o” painted on the asphalt, for instance, indicates underground fiber-optic cable. Each company that provides internet service in the city, meanwhile, has its own distinctive manhole cover. She describes and explains traffic signal controller boxes, the mobile license plate readers you sometimes see mounted on the trunk of police cars, and rooftop cell tower farms. My favorite section of the book contains illustrations of five carrier hotels and data centers, the actual buildings in lower Manhattan that house the vast arrays of switching equipment necessary for the functioning of the internet. These facilities include a 1932 Art Deco building on Sixth Avenue in Tribeca that was built as an AT&T office, as well as the universally loathed and windowless Verizon tower on Pearl Street, which has been billed as “the world’s tallest data center.”

What I loved about reading the two books back to back is that they are telling two different chapters of the same story. The wispy traces of the digital city that de Monchaux discerns from our past come of age and manifest themselves as the mundane objects that Burrington compels us to notice and understand. For all the succulent tidbits they offer up, neither book serves up the full banquet, however: a complete picture of how innovation is driving change in our cities and vice versa, and what our world is about to become.
Rooted in infinite possibilities

From the roots of opportunity stem endless possibilities. Possibilities that are rooted in transparency. With newly verified EPDs, we can see and share the impact our products have on the environment over their cradle-to-gate lifecycle. Kawneer products offer innovative solutions that redefine responsibility and performance, providing a foundation for inspiring new creations that shape our cities and towns worldwide. Together we build.

kawneer.com

ARCHITECTURAL ALUMINUM SYSTEMS
ENTRANCES + FRAMING | CURTAIN WALLS | WINDOWS
© 2016 Kawneer Company, Inc.

EPDs NOW AVAILABLE
Among the first to offer products that meet the Cradle to Gate Window PCR specifically designed for North America.
“This is not just a signature building that is indifferent to its city, that could be either in L.A. or Bilbao; it’s a building that really tries to adapt to the condition.”

Pedro Gadanho on the Unveiling of MAAT by Mimi Zeiger
The Museum of Art, Architecture and Technology (MAAT), whose swooping form hugs the bank of the Tagus River in Lisbon, Portugal, welcomed 22,000 visitors on its opening day in early October. Designed by British architect Amanda Levete and commissioned by the EDP Foundation, the cultural wing of gas and electric corporation Energias de Portugal, the museum is the latest addition to the foundation’s historic campus, which includes the renovated Central Tejo power station, whose main building and old boiler and turbine halls have been converted into galleries and art spaces.

MAAT will introduce a global array of art and architecture to Lisbon. But it will also provide an important platform for contemporary Portuguese artists and designers. The museum’s director, Pedro Gadano, was hired a year ago after leaving the Museum of Modern Art in New York, where he was the curator of architecture and design. Gadano’s inaugural exhibition, “Utopia/Dystopia,” features Pynchon Park, a site-specific work by French artist Dominique Gonzalez-Foerster. Drawing inspiration from the novelist Thomas Pynchon, the work blends sculpture, sound, light, and science fiction to evoke a playful yet eerie scenario that questions the future of our own humanity. In March, a second installment of the exhibition will follow, marking the 500-year anniversary of the publication of Sir Thomas More’s political philosophy treatise Utopia. The show will feature some 60 international artists and architects, including OMA, Yona Friedman, Superstudio, and media artists Hito Steyerle and Cao Fei.

Elsewhere on the foundation’s campus, “The World of Charles and Ray Eames,” an exhibition that MAAT organized in partnership with the Barbican Centre in London, is on display (until Jan. 9) at the Central Tejo building. And “The Form of Form,” a pavilion designed for the fourth annual Lisbon Architecture Triennial by Los Angeles–based Johnston Marklee, local firm Brandão Costa Arquitectos, and Office Kersten Geers David Van Severen occupies the power station’s courtyard until Dec. 12.

All in all, it’s quite a moment for MAAT. The afternoon I interviewed Gadano—a day after the opening—he was hastily pulling together a pop-up exhibition drawn from the foundation’s permanent collection of Portuguese artists. The overwhelming success of the museum’s first day meant that more art was needed to fill the new building once a few temporary new media installations concluded later that week. Gadano had just a few days to assemble the show—a sign of how his new role offers a freedom and flexibility that he never enjoyed at MoMA. We met in his office to discuss his vision for the museum.

**The design of the new building by Levete was already in the works when you signed on as director. How does it support your programming?**

As soon as I came in, it was evident that the special qualities of that building will [influence how we] display exhibitions. The galleries are organic with no straight walls, which make things very difficult for hanging. So, I started thinking about how the existing power station, which has more traditional gallery spaces, could complement the new galleries. The architectural language of the new building gives us the freedom to be as flexible as possible, given that the building was without a clear brief at the very start.

**What do you mean by that?**

I mean that [with the initial brief] the architect had almost carte blanche to do what she felt was adequate, considering that the foundation had an art collection and was into new technology. So, the design was more of an open space, like a kunsthalle. When I came in, the building was already pretty advanced, which meant I could not think of changing things too much.

Still, the architects and I both agreed to scrap the “multimedia room”—a volume inside a volume that had its own architectural language and would have been very expensive to produce. It didn’t allow for the kind of flexibility [we needed], and it left spaces around it that were unusable. By scrapping that we managed...
Leaders across the globe have made LEED the most widely used green building program in the world. Leave your legacy today. 
#LEEDlegacy

usgbc.org/LEED
MAAT’s opening day, when the site welcomed 22,000 visitors

“The World of Charles and Ray Eames,” an exhibition on display in the Central Tejo building

“Form of Form,” a pavilion included in the Lisbon Triennial that’s staged in the power station’s courtyard
All the design. 
A portion of the price.

Meet the ELG (Electronic Lavatory Gradient) sink, Sloan’s newest addition to the SloanStone® line. The SloanStone Gradient Sink has a clean-lined basin that fits any contemporary commercial restroom, at a fraction of the price, making it affordable for any cost-conscious project.

Learn more at sloan.com/slostone
to create the Project Room, a more stable gallery that has a very different proportion from the main gallery, which is a long oval and that you circulate around. This one is more cube-ish, although it has rounded corners.

Crowds of people waited hours to get in on opening day. Was this response anticipated?

We expected a crowd, but not at that scale. Even though Lisbon is attractive and its tourism is growing, it still takes an effort to come here. It’s not like passing through London and seeing the Tate Modern on your way to somewhere else. And so we never anticipated such an international buzz, and especially not such a large national audience.

How do you see MAAT in relation to global museum buildings like the Tate Modern or even the original precedent of the icon of a city on a river, the Guggenheim Bilbao?

One difference here for sure is the relationship to the site. Amanda was very aware that this is a place where contextualism is always considered important. This is not just a signature building that is indifferent to its city, that could be either in L.A. or Bilbao; it’s a
WE DO THINGS WITH FIRE THAT NO OTHER FIREPLACE COMPANY EVER DREAMED OF.

- Safe Touch™ glass
- Variable color LED lighting
- Modular construction allows easy installation
- Safety tested and listed prior to delivery
- Zero clearances to all combustibles, including TV's
- Lengths up to 21 feet
- Glass heights up to 58 inches

Watch a video on the DaVinci at the 2016 IBS Show

SEE US AT THE 2017 IBS SHOW Booth #S2680

DAVINCIFIREPLACE.COM • 1-800-654-1177 • davinci@travisindustries.com
Manufactured by Travis Industries
“I don’t believe in architects doing art installations. I think they are very bad at it, and everybody recognizes it except architects themselves.”

building that really tries to adapt to the condition. And it creates a lot of public space rather than just showing off the forms of the building (as in the worst case of Frank Gehry’s Fondation Louis Vuitton in Paris, which is absolutely obscene). Although it’s architecturally bold, MAAT is discreet in terms of the landscape of the city—it doesn’t totally block the view, and, in fact, offers a new view of the city from the roof.

I must be fair and say that Bilbao is a great building by Gehry in the sense that it uses the river, it embraces the bridge, and it creates a contextual connection to the urban tissue. But then with Louis Vuitton, he was only doing flamboyant useless stuff, which is almost a commentary on luxury itself: total obscene, empty, no need for it and in that sense, very shocking. However, Gehry’s importance is that he represents openness to progressive architecture. That’s the most important aspect, to create an experimental situation here in terms of architecture.

And that’s new for Portugal? Yes, if we had invited a Portuguese architect, it would be more of the same—boxy, conservative, contextual.

The museum was still under construction—the details a little unfinished—as we did the press tour the other day.

I must say that it’s not very well received by architects. They look at details and they say, “Oh, bad detail.”

As an architect, I know the feeling of looking at every detail and seeing everything that is wrong. But maybe because I’ve distanced myself from architecture more and more, I’m more interested in ample, generous gestures than if a detail is perfectly finished or not, because that you can correct anytime, the gesture you cannot.

The museum is interdisciplinary in nature. What does it mean to bring art, architecture, and technology together? I had already experimented with this
OUR BRICK makes THE GRADE.

High-profile projects demand nothing less than Endicott brick.

Choose from the widest selection of classic and one-of-kind colors and achieve minimal maintenance for the lifecycle of your project. Endicott brick is naturally energy-efficient and is one of the most sustainable green building materials that you can specify. Manufactured with high standards for tolerances – Endicott’s fit and finish is exceptional.

Choosing the world’s best brick for your project is elementary. It’s Endicott.
ARE YOUR BUILDING DESIGNS SUFFERING FROM OUTDATED TECHNOLOGY?

Mitsubishi Electric Cooling & Heating can help you design a strong future. Variable Refrigerant Flow (VRF) technology allows for more design freedom with unmatched comfort control to deliver buildings that are relevant. Let the industry leader help you deliver a noteworthy building design.

Discover how to STAY RELEVANT at MitsubishiPro.com/architect
intersection of art and architecture with my previous work at MoMA. That for sure was one thing I wanted to continue—the aspect of technology related to the institution’s past as an electricity museum and the fact that we have a large industrial heritage that is also part of the museum’s program. We have a building that expresses a precise historical technological condition. But of course, I’m interested in the impact digital culture is having on us. Artists are the ones that are first to react and show us the problems and the issues of these transformations within culture and the city.

So, you’re using the artist as a way into these different subjects instead of commissioning architects? I don’t believe in architects doing art installations. I think they are very bad at it, and everybody recognizes it except for architects themselves. Of course, the upcoming “Utopia/Dystopia” exhibition will show architects and artists at the same intellectual level, since both contribute historically and contemporarily towards the generation of ideas.

I’m interested in the contribution of these disciplines towards a broader cultural discourse rather than showing them in the typical way—art for art’s sake or architecture only presented for the sake of architects.

I intend to bring architecture into the mix a lot more through MAAT’s education program and by organizing debates, conversations, and discussions. I’m planning on a big debate here about the whole transformation the Lisbon waterfront. These discussions could generate a lot more impact than a monographic show by a single architect.

Harness The Power Of Nature.

Colt Natural Ventilation products offer sustainable solutions for automated climate control and passive smoke ventilation.

Brought from Europe to North America by Bilco, Colt jalousie-style window, skylight, and casement window ventilators let you control indoor conditions through the time-tested principles of stack, cross and single-sided ventilation.

Colt Natural Ventilation Products:
- Offer unique design possibilities
- Connect seamlessly to building management or fire protection systems
- Lower building construction and operating costs
- Satisfy ASHRAE, IBC and NFPA requirements and standards
- Enhance or replace traditional mechanical systems
- Reduce your buildings’ environmental impact
- Provide occupants a healthier, more productive environment
“We love living in a neighborhood where our kids can play outside and we can host backyard bbq’s.”

Know who to target.

Introducing Metrostudy’s OnTarget Consumer Intelligence. Your customer in detail.

She wants a neighborhood where kids can grow and build memories. Where everyone waves when they pass by and best friends live right down the street. She’s just one of a wide array of customers we can help you understand. And reach.

Learn more at WhyOnTarget.com
MODERN ARCHITECTURAL LINES

XtremeTrim® profiles are available to match multiple panel siding systems. XtremeTrim® has thousands of design and color options, allowing architects and users to dramatically improve their building aesthetics and create modern architectural lines.
Kent State Center for Architecture and Environmental Design
Kent, Ohio
Weiss/Manfredi Architecture/Landscape/Urbanism

TEXT BY KATIE GERFEN
PHOTOS BY ALBERT VECERKA/ESTO
Walking on the Kent State University quad on a balmy fall evening, Mark Mistur, AIA, dean of the College of Architecture & Environmental Design, came across the school’s marching band. Rather than walk by, he invited the group into the campus’s newest building—tubas, drums, and all—and encouraged them to “play the space.” “The energy that filled that space was simply incredible,” he says. “When they stopped, it took about four seconds for the building to calm down, it was so full of acoustic energy. It was remarkable.”

The structure that the band was playing in with John Philip Sousa–fueled fervor wasn’t a new concert hall, but rather the open studio space in the new Kent State Center for Architecture and Environmental Design. Designed by New York–based Weiss/Manfredi Architecture/Landscape/Urbanism, the 117,000-square-foot facility unites all of the university’s design students under one roof for the first time in recent memory: For years, the departments have been scattered across three facilities—a classroom space, a repurposed gymnasium, and a disused dorm—Mistur says, and at the new facility’s opening, a faculty member told him: “This is the first time I feel like we are one college.”

Sited on a plot that connects the main quad to a residentially scaled neighborhood to the east, the building is a four-story brick bar, carefully scaled to match the larger campus buildings without overwhelming the adjacent houses. The architects worked with Belden Brick to create a honey-hued iron spot brick, which was fired in a beehive kiln to create natural variation in the color. “We thought it would be interesting to take a typically traditional material and push it to find a combination of old and new,” says design partner Michael Manfredi, AIA.

Courses of regular bricks are interrupted with vertical fins made from bull-nosed units. These fins are arranged in what the architects call “syncopated meters.” Bands of fins, stacked vertically on the façade and offset from one another, create an overall pattern that is almost textile in nature and enlivens the façade as light and shadow play across it over the course of the day.

But the most conspicuous exterior moves are not in the brickwork, but rather in the interruptions of it. On the east and west ends of the building, expansive glazing reveals ground-floor public spaces such as a café, lobby, and reading room. Wedges of glazing project from the upper portions of the north façade, and a ribbon of glass highlights an enclosed fire stair that runs diagonally down the south.

Inside, the architects looked to create spaces that best serve all of the design students, across a variety of disciplines. “We created settings, as opposed to spaces, where teachers could teach in different ways, recognizing that how we teach and the tools we use five to 10 years from now are going to be very different from the tools we use right now,” Manfredi says. A vast, three-tiered open studio steps down from the top floor, with glass-lined critique rooms on each level that provide pin-up and review space. The floors are connected by a wide stair on the building’s northern edge, which is peppered with informal lounges outfitted with the firm’s signature brightly colored furniture. “We like warm colors,” Manfredi says. Faculty offices and labs for CNC milling, 3D printing, and more are clustered in a core on the south side.

The layout builds upon “our preoccupation with section and sectional connections, which we have explored in projects like the Diana Center in New York, the Krishna P. Singh Center in Philadelphia, and even the Olympic Sculpture Park in Seattle,” design partner Marion Weiss, AIA, says. “We felt the idea of a topographic connection that allows all levels to feel like they’re part of a community under one roof would be a compelling way to envision a school of design.”

The difference between this building and those projects Weiss cites as precedents, is that previously the terraced spaces for informal interaction were one piece of a larger overall concept. Here, the terraces are themselves the concept. The aim is to encourage a cross-pollination of ideas between students—desk assignments even commingling studios of different years and disciplines. “As faculty members at various institutions ourselves, we feel you need to have opportunities to see and be seen for the real teaching and learning of architecture to occur,” Weiss says. “Students learn far more from those who are side by side in a studio with them than from the directed instruction of a professor.”

Weiss/Manfredi also took the idea of the glass-enclosed, cantilevered fire stair they employed at the Diana Center and widened it on the southern face of the Kent State project. Not only does the stair provide a relief from the intensity of studio—“it’s like you’ve walked outside,” Mistur says—but it’s also being put to good, if unintended, use. “I routinely walk down and see classes being taught in that stair,” he says.

It is those serendipitous learning opportunities that Mistur hopes the building will continue to encourage. The visit from the marching band spurred a collaboration with the music department, which practices in the building so that the design students can learn about acoustics. The new building is turning out to be more than just a new consolidated facility. It is, as Mistur says, “an instrument for what we are setting out to accomplish.”
Previous Spread: Southeast corner, showing neighborhood context

1. Entrance
2. Café
3. Gallery
4. Classroom
5. Lecture hall
6. Library
7. Studio
8. Administration suite
9. Faculty suite
10. Critique room
11. Lab
12. Seminar room
1. Green roof
2. Skylight with ceramic frit-dot sunscreen
3. Roofing assembly with TPO membrane, 1/2" exterior gypsum sheathing, and shaped rigid insulation forming slope
4. 1/2" formed-aluminum coping
5. 2-hour fire-rated glazing assembly
6. Aluminum-frame curtainwall
7. Aluminum-frame ribbon window with operable insulated glazing units
8. Fixed metal sunshade
9. Custom brick

Opposite, Top: View from southwest
Opposite, Bottom: View from north
Interior view looking north, showing ground-floor entry and café and second-floor studio
View from fourth-floor studio looking east, showing enclosed critique rooms on south side.
Project Credits

Project: Kent State Center for Architecture and Environmental Design, Kent, Ohio
Client: Kent State University
 Architect: Weiss/Manfredi Architecture/Landscape/Urbanism, New York - Marion Weiss, FAIA, Michael A. Manfredi, FAIA (design partners); Mike Harshman, AIA (project manager); Bryan Kelley, David Maple (project architects); Hugo De Pablo, Darius Woo, AIA, Julia Schubach, Olen Milholland, Seungwon Song, Michael Blasberg, Patrick Armacost (project team).
 Architect of Record: Richard L. Bowen + Associates
 M/E/P/FP/Vertical Transport Design Engineers: Jaros, Baum & Bolles
 M/E/P/FP Engineer of Record: Richard L. Bowen + Associates
 Structural Engineer: Thornton Tomasetti
 Civil Engineer: Resource International
 Construction Manager: Gilbane Building Co.
 Landscape Architect of Record: Knight & Stolar
 Lighting Designer: Lighting Workshop
 Fire Protection Engineer: Dynamix Engineering
 IT Consultant: TEK Systems Design
 LEED/Sustainability Consultant: Doby & Miller
 Facility Performance/Commissioning Consultant: Four Seasons Environmental
 Size: 117,000 gross square feet
 Cost: Withheld

Above: Glass-enclosed classroom
Opposite: View of ground-floor library reading room
Taubman Complex at Lawrence Technological University
Southfield, Mich.
Morphosis and Albert Kahn Associates
How did the project come about?

Thom Mayne, FAIA (design director, Morphosis): Lawrence Technological University did an invited short list. Our presentation focused on our interest in academic work, which included the whole direction toward a social pedagogy, transparency, and discourse as well as the work itself. They called former clients, and I think they liked our reputation for carrying a project through, and for being very hands-on at a sophisticated level.

How did the design develop?

Mayne: I think it is one of the most straightforward projects you’re going to find in our oeuvre over the last 20 years. We did an assessment of the existing campus, which has three new buildings and some existing stuff—one by Charles Gwathmey. We were probably selected to design an icon building. Our buildings have been somewhat complex and maximalist. But as we looked at this project, we decided it needed the opposite. We were very conscious that once we decided to do this, it would be interesting for us to do and for other people to watch us what we did.

The building is very simple, and a lot of people wouldn’t expect this from us—including the client, in the beginning. This building was built for about $370 a square foot—$370, right? That’s half to one-third the cost of most of our academic projects. I’m not saying that as a negative. I’m saying that really guides you and is a creative challenge. The way you innovate has to be really, really taut.

We have this single bar with white fabric on it; it’s a line and it’s going to grow maybe twice as large as the school expands. Incredibly minimalist. The object of desire is the smooth black lozenge in the middle, and for that we used carbon fiber. The school has a research group in engineering that specializes in carbon fiber. It’s a state-of-the-art material—it’s what my Tesla is made out of—and it’s a symbol of their technology at this point in history. But it’s still crazy enough in this country; it took quite a bit of work.

Aleksander Tamm-Seitz (project architect, Morphosis): It’s definitely the lightest façade we’ve ever done, because the carbon fiber is the actual building enclosure, not just a cosmetic panel. It is a new material and a new potential technology in the field of architecture, and without previous architects having done a certain level of work, we wouldn’t have been able to push it further. Composites are still in their infancy in architecture.

How does your building fit into the rest of the campus?

Mayne: Our building is the last piece that defines the quad, and then it continues into the forest to form more of an external gesture to the nearby freeway. At night, when it’s lit, it’s this bar of light you see going down the highway in the forest. It becomes quite a long line that represents the school to the outside world.

Tamm-Seitz: We were also given the constraints of connecting the two existing buildings on either end of the quad. We lifted the building up, creating a gateway to the quad along this extruded section which can be phased and extended however many times they want.

We were interested in looking at the idea of flexibility and universal space—ideas that Albert Kahn and Mies were dealing with, but in relation to interdisciplinary studies in universities. There are a lot of different programs in this building—engineering, robotics, biomedical engineering, and life sciences are the primary ones in this first phase, and subsequent phases may introduce architecture as well—and because they don’t know how those programs will grow, they don’t know which classrooms need to be larger next year versus this one. The section that we set up allows for a zone of flexible space that can be reconfigured to accommodate different disciplines, class types, and sizes. You have labs with support spaces stacked on one side, and then you have a light-filled flexible space with a clerestory on the other. And that section is extruded the length of the building.

What is the material of the white fabric scrim, and what role does it play in the design?

Tamm-Seitz: It’s stretched ETFE—a thin plastic, basically. It’s held off the façade approximately 18 inches outside the building enclosure, with clerestories behind it. This takes out the glare that would come into those laboratory and flex spaces. We used it for the reasons that we use perforated screens on many buildings. It’s a new, next-generation scrim.

Mayne: It’s an interesting fabric in that it doesn’t look like fabric. It has a reflection like glass. And if you see it on the building, you would think it’s a hard material because it’s reflective. The windows behind it are high up because the instructors and professors want as much counter- and workspace as possible, so we brought as much daylight into those spaces as possible through clerestories.

The building is essentially a large garage. And it’s not that different from our astrophysics building at Caltech. For that, we were going, “Oh man, this
could be a super complex job. Nothing could be more complicated than what these guys do.” And in the end—since it is all serviced by incredibly complex technology which is brought in, changed, and being built—they wanted a garage. Same thing here. Like our studio, it’s essentially one long, linear open space that they can use any way they want. They bring in the technology, and the technology has a short shelf life—it’s changing continuously. The building wanted to have maximum flexibility and neutrality so they can use the space for research they don’t know exists yet.

The simplicity that you decided on here, as you note, is rather surprising given your portfolio. Does it represent a different direction in your work or is it project-specific?

Mayne: We’re going to have to wait to answer that one. We’re having a discussion and we’re aware that it’s kind of boring that we’ve been typecast in a certain way which is not really accurate. But we do admit that if you look at the work, a lot of it is formally complex and comes out of a strategy of using multiple systems to solve things. And there is a discussion that it would be interesting to use our same ambitions and talents and the direction of the office to produce something like this. It is a conversation we’re having, and it will be pursued.

But let me add, for me personally, this would have been a much more difficult project to do 20 years ago when I felt compelled to prove the nature of this firm and myself, in terms of what we can do in architecture. I’m 72 years old, and I can now look at a project and accept that this is a straightforward, simple project and I can respond with what I think is appropriate, without bringing anything to the project about my personal ambition or my personal goals as an architect. Simple problem, simple solution. And I would argue that a lot of architecture needs more of this. Every building can’t be an icon. That’s a strategic choice, if they need some particular statement, and in many cases the answer is “No.” I would say that’s one of the biggest architectural problems today: An overinvestment in icons which keeps devaluing them.
A two-story breezeway through the structure forms a new gateway to the quad (at right). An oculus brings daylight to third-floor corridors and conference spaces.
Opposite: The black lozenge on the south side of the structure encloses a central stair. An oculus in the carbon-fiber envelope brings daylight into the enclosure.

Above: Hallways running the length of the building, like this one on the second level, are programmed with breakout spaces for students to collaborate, and give access to all of the facilities in the new complex, including the Marburger STEM Center, which supports the development of new science and technology programs for the university.
Above: A lab space at the building’s northeast corner (at left) pairs ETFE-clad clerestory windows with full-height glazing. The double-height space is overlooked by a third-floor corridor (at right) and is designed to be flexible, accommodating different departments as they grow as well as new equipment for future research.

Opposite: The ETFE scrim wraps much of the third floor, seen here at the building’s northeast corner. The scrim covers clerestory lab windows and, when backlit, transforms the building at night.

Project Credits
Project: Taubman Complex, Home of the Marburger STEM Center, Southfield, Mich.
Client: Lawrence Technological University
Architect: Morphosis, Culver City, Calif. - Thom Mayne, FAIA (design director); Brandon Welling (project principal); Aleksander Tamm-Seitz (project architect); Chris Eskew, Michael Nesbit, Atsushi Sugiuichi (project team); Cory Brugger, ASSOC. AIA., (advanced technology);
Natalie Abbott, Carmelia Chiang, Sam Clovis, Thomas Day, Ryan Docken, Bart Gillespie, Mauricio Gomes, Parham Hakimi, Jonathan Kaminsky, Hunter Knight, Sarah Kott, Katie MacDonald, Nicole Meyer, Derrick Whitmire, Pablo Zunzunegui (project assistants); Jasmine Park, Nathan Skrepinski, Sam Tannenbaum (visualization)
Executive Architect/Landscape Architect: Albert Kahn Associates - Detroit - Alan H. Cobb, FAIA (principal-in-charge); Michael Giovanni, AIA, Megan Martin-Campbell (project design and laboratory planning); Robert Hubbard, AIA, Ken Herbart, AIA (project architects); Gregory Gertsen, Gary Collins (structural engineers); John Cole, Scott Kemp, Oscar Cobb (project mechanical engineers); Kevin Jones (project electrical engineer); William Howerth (project IT engineer); Chris Trupiano, Tania Swider (project interior design); Stephen White, Riccardo Pappini (landscape architects); Joyce Vander Weide, Jeff Gaines, AIA, Brian Eady, Chapin Cornillaud, Breanne May, Robert Vander Werff (project assistants)
Structural/M/E/P/FP Engineer of Record: Albert Kahn Associates
Civil Engineering: PEA
Cost Estimator: Kirk Value Planners
Geotechnical: The Mannick & Smith Group
Size: 36,700 square feet
Cost: $13.47 million
West Pavilion at Nippert Stadium
Cincinnati
Architecture Research Office
with Heery International

TEXT BY CLAY RISEN
PHOTOS BY JEREMY BITTERMANN
New York–based Architecture Research Office (ARO) is perhaps better known for its careful, cerebral urban planning studies than its completed buildings, making the firm, at first glance, an odd choice to design an addition to a Midwestern college football stadium. This is especially true for the University of Cincinnati campus, which is famed for its collection of modern architecture designed by the likes of Frank Gehry, FAIA, Thom Mayne, FAIA, and David Childs, FAIA.

But ARO—founded in 1993 by Stephen Cassell, AIA, and Adam Yarinsky, FAIA (a third principal, Kim Yao, AIA, joined later)—turned out to be an inspired choice for a seemingly tricky brief: part of an $86 million renovation to the 114-year-old Nippert Stadium, one of the country’s oldest collegiate sports facilities. The 450-foot-long, 115,000-square-foot addition on the western side of the stadium had to cram luxury boxes, press facilities, lounges, and concession space into a narrow triangle between existing seating and the Tangeman University Center, designed by Gwathmey Siegel Kaufman Architects (Mayne’s Campus Recreational Center is just south of the new building).

“I wouldn’t say we woke up one morning and said, ‘Hey, we’d like to do a sports stadium,’” Cassell says. But when Mary Beth McGrew, AIA, the university architect, called to request an interview, ARO accepted right away. “We came to it by way of doing complex projects in which design matters,” Yarinsky says. “Steve was an all-American tackle at Princeton,” he jokes.

Kidding aside, the firm’s lifelong interest in urban planning—among other things, it developed prescient planning strategies for New York City to cope with rising water levels, long before Superstorm Sandy—made it a natural fit for a site that abuts an active loading dock and fire lane, and sits along MainStreet (a major north-south corridor between classrooms and dorms) and on top of a dense network of major campus utilities that runs underground. Not to mention that construction would have to begin and end within a year, since, in the meantime, the Cincinnati Bearcats would have to play downtown at Paul Brown Stadium, at a cost of $1 million a game plus lost ticket and concession revenues. “It had everything we liked in a project: a complicated program, a complicated site, and a clear, focused client,” Cassell says.

The school wasn’t looking for a trophy building, McGrew says, but was as interested in ARO’s understanding of urban space as it was in its design abilities. Twenty years ago, the university was a largely commuter school, covered in parking lots. But since then it has transformed itself, adding density through strategically placed buildings designed by top architects known for their appreciation of context.

“Some people call us a petting zoo of architecture, but we’re not that—the campus is a compositional whole,” McGrew says. “We wanted someone who could play in the orchestra, not compete with the other buildings.” Though less established than Gehry or Mayne, ARO fit the bill perfectly.

Fortunately, ARO didn’t have to start entirely from scratch: In 2013, the university hired Heery International—an Atlanta-based architecture firm with nearly 50 years of experience designing sports facilities—as the architect of record, and it conducted a series of preliminary studies of the site. Heery quickly realized that the tight space was just one of the constraints. The university wanted luxury boxes to align with the field’s 50-yard line, but extending the building northward would block views from Bearcat Plaza, where students gather to watch games. Massing at its southern end would block views from the president’s office behind the stadium and the Tangeman Center, where Charles Gwathmey had installed a picture window that overlooks the field.

By the time ARO arrived on the project several months later, Heery (which also served as sports architect) had developed a basic massing solution for the project, says Mike Holleman, AIA, the senior vice president for sports at Heery. The luxury boxes at the north end of the structure cantilever over one end of Bearcat Plaza, while the south end sits lower to the ground, preserving the president’s view and creating an attractive, multifunction terrace that can be rented out.

ARO lifted the addition off the ground, preserving space for north-south foot traffic and opening up ground-level views into the stadium. Supporting it are three cast-in-place concrete structures, which house concessions, elevator banks, and mechanical rooms. This also facilitates access to the field, realizing another goal for the university: The stadium is now as much a central commons as it is home to its football team. In fact, since it opened last fall, the addition has been used for more than 150 non-football events.

ARO and Heery developed an innovative and visually striking X-braced structural truss that serves as the building’s basic frame. The system’s self-bracing efficiency saved 50 tons of steel, according to ARO, while enabling dramatic double-height spaces across the interior. A footbridge connects the addition to the Tangeman Center.

In a single urbanistic gesture, the new addition to Nippert Stadium enhances the university’s athletic infrastructure while at the same time tying it into the campus’ dense fabric. “Heery told us the primary goal was to reinforce the campus, not to reinforce football,” Cassell says. Clearly, they’ve done both.
Previous Spread: View from west with Bernard Tschumi Architects’ Richard E. Lindner Center beyond.
View north toward Bearcat Plaza from footbridge connecting ARO’s addition (at right) to Gwathmey Siegel Kaufman’s Tangeman University Center
View north to field beneath upper-level seating
View from north along length of addition, with suites and club level above concourse.

**Project Credits**

*Project:* West Pavilion at Nippert Stadium, University of Cincinnati, Cincinnati  
*Client:* University of Cincinnati  
*Design Architect:* Architecture Research Office, New York - Adam Yarinsky, FAIA,  
Stephen Cassell, AIA (principal-in-charge); Jeff Hong, AIA (project architect); Neil Patel, AIA, James Henry, Zac Stevens, AIA, Danielle Brown, Jason Kim (team)  
*Sports Architect, Architect of Record, and Interiors:* Heery International -  
Mike Holleman, AIA, Gordon Smith, AIA (principal-in-charge); Todd Ballev (operations); Kenneth D. Hawthorne, AIA, Phillip Lough, Dan Ludington, Jacob Vagts, AIA, Heath Washburn (team); Lydia O’Neal, Amy Griffin (interiors)  
*Structural Engineer:* THP  
*M/E/P/FP Engineer:* Heapy Engineering  
*Civil Engineer:* WSP | Parsons Brinckerhoff  
*Geotechnical Engineer:* Clifton Engineering  
*Construction Manager:* Turner Construction Co.  
*Landscape Architect:* Vivian Llambi & Associates  
*Lighting Designer:* Lighting Workshop  
*Code Consultant/Expeditor:* Preview Group  
*Graphic Design:* Perkins+Will, University of Cincinnati Planning+Design+Construction  
*Size:* 115,000 square feet  
*Cost:* $65 million
THE MARVIN
CONTemporary
STUDIO

Explore Marvin’s contemporary windows and doors at marvinwindows.com/contemporary

© 2016 Marvin Windows and Doors. All rights reserved. © Registered trademark of Marvin Windows and Doors.
Residential:

The Royal Institute of British Architects awards its annual Stephen Lawrence Prize to a project with a construction budget of less than £1 million ($1.22 million) that was designed by an emerging U.K. architecture firm. This year’s winner, House of Trace by Tsuruta Architects, is a reconfiguration of a previous expansion to a 110-square-meter (1,184-square-foot) London residence. The renovation leaves new structural elements exposed inside, and incorporates the exterior wall of the previous addition into its new façade. The London-based architects specified finishes throughout such as plaster and custom brass and copper fittings that will patinate over time, so that the inhabitants’ daily activities will leave subtle yet perceptible traces of occupancy.

TEXT BY DEANE MADSEN

Learn more about House of Trace in ARCHITECT’s Project Gallery at bit.ly/HouseOfTrace.
A Chair that Neatly Amalgamates Brazil’s Complicated Colonialist and Rationalist Pasts

With its elegantly rounded arcs, the Pudica Chair has a subtext that reads far deeper than its ostensibly minimalist design. For inspiration, Brazilian designer Pedro Paulo Venzon turned to two architectural styles while designing the chair: Portuguese Colonialism and early 20th-century Rationalism. Pudica’s defined arches are inspired by historic religious structures in Brazil—formerly a Portuguese colony—while its restrained and exacting lines derive from a Rationalist background free of ornamentation. The stackable chair is available in carbon steel or solid brass (shown). According to Venzon, he selected the former material to reference the prevalence of steel in the Brazilian furniture of the 1950s, and the latter for its timeless quality. The Pudica Chair measures 33.46”-tall by 13”-wide. pedrovenzon.com

> Read about Venzon’s Pudica Chair online at bit.ly/PudicaChair.
Thoughtfully designed and authentic in look, Marazzi’s Urban District Collection offers a unique combination of textures and colors that add bold character to any design style.
INTERVIEW BY SARA JOHNSON

In the book, you’re quoted as saying: “We didn’t want it to be just another white Greek Revival house.” Could you elaborate?

I thought that there was no point in building a pattern book reproduction. Not that those are terrible. Some architects do that really well, but what I wanted was a house that took cues from Greek Revival architecture and then made them into a form that was more comfortable with the way we live today.

How does this project reflect your past ideas about design?

I’d always thought about my own house as being essentially a carved, beautifully detailed box. And I’ve been fascinated by architecture that is there for its own sake and serves no real practical purpose, like the column screen on the front of the house. All it’s doing is celebrating architecture.

What did you learn from the process?

I’ve learned that you can actually leave out the doors in major rooms and get a kind of open-plan feeling—so you can have rooms that look very traditional but they’re completely open. I don’t think I’ve ever gone quite that far with a client yet.

> Read more of the conversation with Peter Pennoyer at bit.ly/PennoyerHouse.
MAYBE IT’S JUST ME, BUT ISN’T THE VIEW BEAUTIFUL EVEN WHEN YOU CAN’T SEE IT?

We create windows and doors that captivate the eye, elevate the spirit and keep the elements safely at bay.

Loewen
WINDOWS AND DOORS
THE ONLY REFRIGERATOR THAT GIVES YOU THE CHILLS.

Introducing the Obsidian interior. Food has never looked so beautiful—dramatically illuminated by LED lighting and kept fresh with advanced climate control. Now in a built-in refrigerator with details that thrill, every time you open its doors.

jennair.com/obsidian
JOSAI I-House Togane Global Village
Togane, Japan
Studio SUMO

TEXT BY NATE BERG
Japanese universities aren’t typically in the housing business. Students at most schools live at home or rent private apartments nearby—dormitories are all but nonexistent. So there was room to experiment when New York–based Studio SUMO was commissioned by its longtime client, Josai University Educational Corp., to build a dorm for international students at its Josai International University campus in Togane, Japan, outside of Tokyo.

The program for the structure—the first building on a new campus expansion—called for a relatively straightforward combination of residential uses and common spaces, as well as a gallery honoring Prince Takamado, who helped broker the deal between Japan and South Korea to jointly host the 2002 World Cup. (A nearby soccer field is also named after the late prince.) The dorm project also needed to minimize construction costs to keep room rents low. Studio SUMO responded to this brief with a long, skinny rectangular structure—an intentionally small footprint to allow for the campus to expand—wrapped on three sides by a scrim of horizontal aluminum bands.

“The motivation was to have this thing which somehow disguised or blurred what the program of the building was,” says partner Sunil Bahl. “We decided that the front façade should really be this statement. You shouldn’t be able to discern how many floors the building is or what the purpose is.”

Triangular balconies project from the top four of five stories along the southwest façade, and the façade’s aluminum bands block some of the rural area’s winds as well as provide shade for the corridors that run behind them. These open-air walkways and balconies are the main public spaces, accessed through sliding doors from interior corridors. “The idea was to try to make a vertical community for the students and to have pockets of space where they can gather,” says partner Yolandé Daniels.

Other public areas include the gallery, a second-floor terrace, an event space, and a group kitchen, but most of the interior is dedicated to 44 units for 133 residents. The university wanted to accommodate relatively wealthy students as well as those from low-income backgrounds, so Studio SUMO designed a variety of room configurations, ranging from single-occupancy units with private bathrooms to four-bed rooms with shared bathrooms down the hall. Spaces in the four-bed rooms are available for about ¥8,900 (roughly $80) per month.

The building’s structural design was optimized to increase the number of dorm spaces. By using thicker walls in strategic places, Studio SUMO avoided the need for interior support beams. That enabled the firm to squeeze in an extra floor but still comply with the university’s height limit, creating even more space for the burgeoning on-campus population.
Above: Dorm rooms line the building’s northeast side, providing views of rice fields beyond.

Previous Page: A breezeway, marking the entrance, is cut through the first and second floors of the five-story building.
Above: Visitors enter the building from the northwest side of the breezeway, which also offers circulation and a terrace.

Opposite: The dorm rooms are accessed via an open-air corridor behind the aluminum louvers on the southwest façade.
Above, Left: Residents of the multiple-occupancy dorms on the third, fourth, and fifth floors share communal bathrooms at the building’s center.

Above, Right: The four-person dorm rooms on the upper three floors contain loft beds with desks below.

Opposite: A group kitchen on the second floor sits adjacent to a common room and terrace.

Project Credits

Project: JOSAI I-House Togane Global Village, Togane, Japan
Client: Josai University Educational Corp.
Design Architect/Interior Designer: Studio SUMO, New York - Sunil Bald, Yolande Daniels (partners in charge); Edward Yujoung Kim, Teo Quintana, Jae-Hyun Kim, Kevin Sani, Yezzi Dai, Youngtack Oh, Masahi Takazawa (project team)
Architect of Record: Obayashi Corp., Tokyo - Koji Onishi (general manager); Toshimichi Takei (manager); Atsuko Mori (deputy manager); Mao Shigeishi, Hikaru Takei
M/E/Structural/Civil/Geotechnical Engineer: Obayashi Corp.
Construction Manager/General Contractor/ Landscape Architect/Construction Supervision: Obayashi Corp.
Lighting Designer: Studio SuMO, Obayashi Corp.
Size: 30,168 square feet
Cost: ¥1,600 million ($15 million)
2017 CALL FOR ENTRIES
Are you designing the next Wexner Center for the Arts? The Progressive Architecture Awards have a storied legacy of awarding projects for their forward-looking vision. In many cases, the P/A recognition moved these projects from on-the-boards to completion. What will you build, and what will your legacy be? Enter the 64th Progressive Architecture Awards today!

DETAILS
Projects must have a client and a completion date after January 1, 2017. Judging will take place in November 2016. Winners will be notified in December 2016, published in the February 2017 issue of ARCHITECT, and honored at a ceremony in New York. For more information and rules and regulations, visit paawards.com.

HOW TO ENTER
SUBMIT YOUR WORK AT paawards.com

QUESTIONS?
EMAIL paawards@architectmagazine.com

JUDGES
Barbara Bestor, AIA, Bestor Architecture
Jennifer Bonner, MALL
Enrique Norten, HON. FAIA, TEN Arquitectos

FEES
SINGLE ENTRY $195
ADDITIONAL ENTRIES $150
LATE FEE $50

DEADLINES
REGULAR October 28, 2016
LATE November 2, 2016 (Will include a late fee of $50 per / entry)
You Deserve More.

The premiere website for practicing architects—featuring news, project galleries, continuing education, blogs, videos and more is architectmagazine.com.

- More projects
- More news
- More tech
- More critiques
- More products
- More business

Get more today at architectmagazine.com

ARCITECT

The Journal of the American Institute of Architects

Clearly Evolving

Introducing Solarban® 90 glass, the latest evolution in low-e glass.

For more information call 1-888-PPG-IDEA or visit PPGIdeaScapes.com

WhiteWalls.com

Magnetic Steel Whiteboard Walls
800 624 4154

Making storage design So Simple

Dormitories • Hospitality • Multi-Family • Single-Family • and More

ClosetMaidPro.com

FOR INFORMATION on how to be a part of the next ARCHITECT MAGAZINE special advertising section, contact Jaeda Mohr at 202-736-3453.
The VEKTR Digital Canvas experience glass like never before
www.vektrdigitalcanvas.com

Forms+Surfaces

Marvin Contemporary and Ultimate Casements: Now bigger and better.

Today's architectural designs frequently call for larger windows. Marvin has responded to the needs of architects, builders, and homeowners by making the Contemporary and Ultimate Casements available to answer these needs. Expansive and impressive, these options are now the largest casements among major wood-clad manufacturers.

www.marvinwindows.com

Marvin: Windows and Doors
Built around you.

Fresh Design

PAC-CLAD
Corrugated
Silver Metallic - Energy Star - Cool Color

Fabricoil

fabricoil.com
800.999.2645

PAC-CLAD.COM  1 800 PAC CLAD

The PPG CERTIFIED APPLICATOR PROGRAM™

To learn more, visit ppgideascapes.com or call 1-800-258-6398.

Traditional for Metal. Now for Hardwood.

Download product cheat sheets and learn more by visiting c-sgroup.com/sun-controls or calling 800.631.7279

The VEKTR Digital Canvas experience glass like never before

Oliver Table Leg

Loop Table Leg

27 1/8" x 3/4"
34 1/2"

MOCKEET
www.mockett.com + (800) 525-1269

Fabricoil

fabricoil.com
800.999.2645

PAC-CLAD.COM  1 800 PAC CLAD

The PPG CERTIFIED APPLICATOR PROGRAM™

To learn more, visit ppgideascapes.com or call 1-800-258-6398.

Traditional for Metal. Now for Hardwood.

Download product cheat sheets and learn more by visiting c-sgroup.com/sun-controls or calling 800.631.7279

Project Manager: Miami, FL. Design of large scale hospitality & mixed-use developments. Bachelor's deg in Architecture, REVIT/BIM expertise, design abilities, mixed-use development designer req'd. Email resumes to Modis Architects LLC at ivof@modisarchitects.com

 Project Manager: Miami, FL. Design of large scale hospitality & mixed-use developments. Bachelor's deg in Architecture, REVIT/BIM expertise, design abilities, mixed-use development designer req'd. Email resumes to Modis Architects LLC at ivof@modisarchitects.com

The Journal of the American Institute of Architects

The INSIDE TRACK STARTS HERE.

What’s next? What’s now? Track the trends anytime at architectmagazine.com. It’s the premier website for practicing architects, featuring news, project galleries, continuing education, blogs, and videos. It’s not a shortcut to success, but it certainly gives you the inside track.

See for yourself today at architectmagazine.com
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.

2016 WINNERS
ARCHITECT
Best Media Brand
(Overall Editorial Excellence)

REMODELING
Best Subject-Related
Integrated Package

2016 FINALISTS
ARCHITECT
BUILDER
POOL & SPA NEWS
MULTIFAMILY EXECUTIVE
<table>
<thead>
<tr>
<th>Advertiser</th>
<th>Page</th>
<th>Website</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGC Glass Company North America</td>
<td>36</td>
<td>us.agc.com</td>
<td>202.729.3647</td>
</tr>
<tr>
<td>AL Call for Entries</td>
<td>17</td>
<td>alproductcall.com</td>
<td>202.729.3647</td>
</tr>
<tr>
<td>American Galvanizers Association</td>
<td>16</td>
<td><a href="http://www.galvanizeit.org/decades">www.galvanizeit.org/decades</a></td>
<td>800.877.6125</td>
</tr>
<tr>
<td>American Hydrotech</td>
<td>93</td>
<td><a href="http://www.hydrotechusa.com/GPRC">www.hydrotechusa.com/GPRC</a></td>
<td>800.424.5080</td>
</tr>
<tr>
<td>American Institute of Architects</td>
<td>58</td>
<td>aia.org/join</td>
<td>800.293.5725 ext13</td>
</tr>
<tr>
<td>American Institute of Architects</td>
<td>65</td>
<td>aia.org/firmsurvey</td>
<td></td>
</tr>
<tr>
<td>American Institute of Architects</td>
<td>92</td>
<td>architecturalasventures.org/architectmag</td>
<td></td>
</tr>
<tr>
<td>Andersen</td>
<td>16a-b</td>
<td>andersenwindows.com/coastal</td>
<td></td>
</tr>
<tr>
<td>ARCAT</td>
<td>C3</td>
<td>arcat.com</td>
<td></td>
</tr>
<tr>
<td>Armstrong</td>
<td>4-5</td>
<td>armstrongceilings.com/totalacoustics</td>
<td></td>
</tr>
<tr>
<td>ASI Global Partitions</td>
<td>27</td>
<td><a href="http://www.asi-globalpartitions.com">www.asi-globalpartitions.com</a></td>
<td></td>
</tr>
<tr>
<td>Banker+Wire</td>
<td>40</td>
<td>bankewire.com</td>
<td></td>
</tr>
<tr>
<td>Bilco</td>
<td>113</td>
<td><a href="http://www.bilco-colt.com">www.bilco-colt.com</a></td>
<td>800.366.6530</td>
</tr>
<tr>
<td>Bison Innovative Products</td>
<td>16</td>
<td>BisonIP.com</td>
<td>800.333.4234</td>
</tr>
<tr>
<td>Bluebeam</td>
<td>13</td>
<td>bluebeam.com/reinventing</td>
<td></td>
</tr>
<tr>
<td>Boral Stone to Cultured Stone® by Boral</td>
<td>85</td>
<td><a href="http://www.culturedstone.com">www.culturedstone.com</a></td>
<td>800.255.1727</td>
</tr>
<tr>
<td>Cascade Coil</td>
<td>32</td>
<td>cascadearchitectural.com</td>
<td>800.999.2645</td>
</tr>
<tr>
<td>Ceilings Plus</td>
<td>C2-1</td>
<td><a href="http://www.ceilingsplus.com">www.ceilingsplus.com</a></td>
<td></td>
</tr>
<tr>
<td>ClarkDietrich Building Systems</td>
<td>35</td>
<td>ClarkDietrichEQ-IQ.com</td>
<td></td>
</tr>
<tr>
<td>ClosetMaid</td>
<td>56</td>
<td>ClosetMaidPro.com</td>
<td>844.796.9537</td>
</tr>
<tr>
<td>Con-Tech Lighting</td>
<td>54</td>
<td><a href="http://www.contechlighting.com">www.contechlighting.com</a></td>
<td></td>
</tr>
<tr>
<td>DaVinci</td>
<td>109</td>
<td>DAVINCI/FIREPLACE.COM</td>
<td>800.654.1177</td>
</tr>
<tr>
<td>Doug Mockett &amp; Company, Inc.</td>
<td>165</td>
<td><a href="http://www.mockett.com">www.mockett.com</a></td>
<td>800.523.1269</td>
</tr>
<tr>
<td>Ellison Bronze</td>
<td>19</td>
<td>ellisonbronze.com</td>
<td></td>
</tr>
<tr>
<td>Endicott Clay</td>
<td>111</td>
<td>endicott.com</td>
<td>402-729-3315</td>
</tr>
<tr>
<td>Epic Metals</td>
<td>41</td>
<td>epicmetals.com</td>
<td>877.696.3742</td>
</tr>
<tr>
<td>Forms+Surfaces</td>
<td>18</td>
<td><a href="http://www.forms-surfaces.com">www.forms-surfaces.com</a></td>
<td></td>
</tr>
<tr>
<td>Hanover Architectural Products</td>
<td>90</td>
<td><a href="http://www.hanoverpavers.com">www.hanoverpavers.com</a></td>
<td>800.426.4242</td>
</tr>
<tr>
<td>Horton Automatics</td>
<td>100</td>
<td>hortondoors.com</td>
<td></td>
</tr>
<tr>
<td>Huber Engineered Woods</td>
<td>37</td>
<td>AndvanTechBuildStrong.com/architect38</td>
<td></td>
</tr>
<tr>
<td>Hunter Douglas</td>
<td>21, 25</td>
<td>HDArchitectural.com</td>
<td></td>
</tr>
<tr>
<td>Inter-Lux</td>
<td>93</td>
<td>inter-lux.com/whitegoods</td>
<td></td>
</tr>
<tr>
<td>Invisible Structures</td>
<td>165</td>
<td>invisiblestructures.com</td>
<td>800.233.1510</td>
</tr>
<tr>
<td>JELD-WEN Windows &amp; Doors</td>
<td>29</td>
<td>jeld-wen.com</td>
<td></td>
</tr>
<tr>
<td>JENN-AIR</td>
<td>52</td>
<td>jennair.com/obsidian</td>
<td>800.258.9777</td>
</tr>
<tr>
<td>Kalwall Corp.</td>
<td>167</td>
<td>KALWALL.COM</td>
<td></td>
</tr>
<tr>
<td>Kawneer</td>
<td>102</td>
<td>kawneer.com</td>
<td></td>
</tr>
<tr>
<td>Lafarge Holcim Awards</td>
<td>33</td>
<td>application.lafargeholcim-awards.org</td>
<td></td>
</tr>
<tr>
<td>Loewen Windows and Doors</td>
<td>151</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lutron</td>
<td>C4</td>
<td>lutron.com/GRAFIKT</td>
<td></td>
</tr>
<tr>
<td>Marvin Windows and Doors</td>
<td>146</td>
<td>marvinwindows.com/contemporary</td>
<td></td>
</tr>
</tbody>
</table>

*issue mailed in regional editions. Publisher not liable for errors or omissions.*
The Best Pavements Are Invisible

grass pave²
general porous paving

gravel pave²
gravel porous paving

invisiblestructures.com | 800-233-1510

Round Top Drawer Pull
DP128

www.mockett.com • 800-523-1269

ARCHITECT
Content Licensing for Every Marketing Strategy

Marketing solutions fit for:
Outdoor | Direct Mail | Print Advertising | Tradeshow | POP Displays | Social Media | Radio & TV

Leverage branded content from Architect to create a more powerful and sophisticated statement about your product, service, or company in your next marketing campaign. Contact Wright’s Media to find out more about how we can customize your acknowledgments and recognitions to enhance your marketing strategies.

Call Wright’s Media at 877.652.5295, visit our website at wrightsmedia.com/sites/hanleywood or email us at hanleywood@wrightmedia.com
<table>
<thead>
<tr>
<th>Advertiser</th>
<th>Page</th>
<th>Website</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marazzi</td>
<td>149</td>
<td>marazzitile.com</td>
<td>844.338.6769</td>
</tr>
<tr>
<td>MBCI</td>
<td>89</td>
<td><a href="http://www.mbcicom/curve">www.mbcicom/curve</a></td>
<td>877.585.9969</td>
</tr>
<tr>
<td>Metl-Span</td>
<td>99</td>
<td>metlspan.com/retrofitting</td>
<td>800-843-7231</td>
</tr>
<tr>
<td>Miele</td>
<td>67</td>
<td>rangeseries.mieleusa.com</td>
<td></td>
</tr>
<tr>
<td>Mitsubishi Electric Cooling &amp; Heating modularArts</td>
<td>112</td>
<td>modulararts.com</td>
<td></td>
</tr>
<tr>
<td>NanaWall</td>
<td>49</td>
<td>nanawall.com</td>
<td></td>
</tr>
<tr>
<td>NBK</td>
<td>23</td>
<td>NBKUSA.com</td>
<td>866.424.4421</td>
</tr>
<tr>
<td>Nichiha</td>
<td>15</td>
<td>itsyourcolor.com</td>
<td>868.Oldcastle (653-2278)</td>
</tr>
<tr>
<td>Oldcastle BuildingEnvelope®</td>
<td>2-3</td>
<td><a href="http://www.obe.com">www.obe.com</a></td>
<td></td>
</tr>
<tr>
<td>Ornamental Metal Institute of New York</td>
<td>12</td>
<td><a href="http://WWW.OMINY.ORG">WWW.OMINY.ORG</a></td>
<td>800.GET.PINK</td>
</tr>
<tr>
<td>Owens Corning</td>
<td>82</td>
<td>owenscorning.com/enclosure</td>
<td></td>
</tr>
<tr>
<td>P/A Progressive Architectural Awards Parklex</td>
<td>160</td>
<td>paawards.com</td>
<td></td>
</tr>
<tr>
<td>PPG Paints</td>
<td>80</td>
<td><a href="http://www.parklex.com">www.parklex.com</a></td>
<td></td>
</tr>
<tr>
<td>PPG Metal Coatings</td>
<td>31</td>
<td>ppgideascapes.com</td>
<td>800.258.6398</td>
</tr>
<tr>
<td>REHAU Construction LLC</td>
<td>68-71</td>
<td>reThinkWood.com/architect</td>
<td></td>
</tr>
<tr>
<td>reThink Wood</td>
<td>39</td>
<td>reThinkWood.com/architect</td>
<td></td>
</tr>
<tr>
<td>Rulon International</td>
<td>97</td>
<td>roxul.com/buildingdesign</td>
<td></td>
</tr>
<tr>
<td>Rulon International</td>
<td>6</td>
<td><a href="http://www.rulonco.com">www.rulonco.com</a></td>
<td>800.227.8566</td>
</tr>
<tr>
<td>Saftifirst</td>
<td>7</td>
<td><a href="http://WWW.SAFTI.COM">WWW.SAFTI.COM</a></td>
<td>888.653.3333</td>
</tr>
<tr>
<td>SageGlass</td>
<td>94</td>
<td><a href="http://www.sageglass.com">www.sageglass.com</a></td>
<td></td>
</tr>
<tr>
<td>Samsung</td>
<td>53</td>
<td>samsung.com/business</td>
<td>800.267.0817</td>
</tr>
<tr>
<td>Schluter-Systems</td>
<td>51</td>
<td><a href="http://www.schluter.com">www.schluter.com</a></td>
<td></td>
</tr>
<tr>
<td>Sherwin Williams</td>
<td>47</td>
<td>swpaintshield.com</td>
<td></td>
</tr>
<tr>
<td>Sierra Pacific Windows</td>
<td>10-11</td>
<td><a href="http://WWW.SIERRAPACIFICWINDOWS.COM">WWW.SIERRAPACIFICWINDOWS.COM</a></td>
<td>800.824.7744</td>
</tr>
<tr>
<td>Simpson Strong-Tie</td>
<td>91</td>
<td>strongtie.com/outdooraccents</td>
<td>800.999.5099</td>
</tr>
<tr>
<td>Sloan</td>
<td>107</td>
<td>sloan.com/sloanstone</td>
<td>800.982.5839</td>
</tr>
<tr>
<td>Steel Institute of New York</td>
<td>14</td>
<td><a href="http://www.metalsinconstruction.org">www.metalsinconstruction.org</a></td>
<td></td>
</tr>
<tr>
<td>StonePly</td>
<td>108</td>
<td><a href="http://www.stoneply.com">www.stoneply.com</a></td>
<td>903.454.4630</td>
</tr>
<tr>
<td>TAKTL</td>
<td>9</td>
<td><a href="http://WWW.TAKTL-LLC.COM">WWW.TAKTL-LLC.COM</a></td>
<td>412.486.1600</td>
</tr>
<tr>
<td>The Airolite Company</td>
<td>101</td>
<td>airoilite.com</td>
<td>715.841.8757</td>
</tr>
<tr>
<td>Toto USA</td>
<td>46</td>
<td>totousa.com</td>
<td>800-350-TOTO</td>
</tr>
<tr>
<td>USGBC</td>
<td>105</td>
<td>usgbc.org/LEED</td>
<td></td>
</tr>
<tr>
<td>Valspar</td>
<td>81</td>
<td>valsparinspireme.com</td>
<td></td>
</tr>
<tr>
<td>VectorWorks</td>
<td>72-75</td>
<td>xtremetrim.com</td>
<td>888.774.4332</td>
</tr>
<tr>
<td>Vitro Architectural Glass (formerly PPG)</td>
<td>50</td>
<td>Vitroglazings.com</td>
<td>800.8271615 ext10512</td>
</tr>
<tr>
<td>VT Industries</td>
<td>43, 76-79</td>
<td>VTDoors.com</td>
<td></td>
</tr>
<tr>
<td>Waussau Tile Inc.</td>
<td>110</td>
<td>TecturaDesigns.com</td>
<td></td>
</tr>
<tr>
<td>XtremeTrim by Tamlyn</td>
<td>115</td>
<td><a href="http://www.extremetrim.com">www.extremetrim.com</a></td>
<td>800.334.1676</td>
</tr>
</tbody>
</table>

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

ARCHITECT

13. Publication Title: ARCHITECT
15. Extent and Nature of Circulation

<table>
<thead>
<tr>
<th>Description</th>
<th>Average No. Copies Each Issue During Preceding 12 Months</th>
<th>No. Copies of Single Issue Published Nearest to Filing Date</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>(a)</em> Total Number of Copies (Net press run)</td>
<td>79,762</td>
<td>78,106</td>
</tr>
<tr>
<td><em>(b)</em> Legitimate Paid and/or Requested Distribution</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>(1)</em> Outside County Paid/Requested Mail subscriptions stated on PS Form 3541</td>
<td>75,094</td>
<td>72,763</td>
</tr>
<tr>
<td><em>(2)</em> In-County Paid/Requested Mail Subscriptions stated on PS Form 3541</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><em>(3)</em> Sales Through Dealers and Carriers, Street Vendors, Counter Sales, and Other Paid or Requested Distribution Outside USPS®</td>
<td>2,343</td>
<td>2,307</td>
</tr>
<tr>
<td><em>(4)</em> Requested Copies Distributed by Other Mail Classes through the USPS</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><em>(c)</em> Total Paid and/or Requested Circulation [Sum of 15b 1, 2, 3 &amp; 4]</td>
<td>77,437</td>
<td>75,070</td>
</tr>
<tr>
<td><em>(d)</em> Nonrequested Distribution</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>(1)</em> Outside Country Nonrequested Copies Stated on PS Form 3541</td>
<td>1,011</td>
<td>836</td>
</tr>
<tr>
<td><em>(2)</em> In-County Nonrequested Copies Stated on PS Form 3541</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><em>(3)</em> Nonrequested Copies Distributed Through the USPS by Other Classes of Mail</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><em>(4)</em> Nonrequested Copies Distributed Outside the Mail</td>
<td>363</td>
<td>250</td>
</tr>
<tr>
<td><em>(e)</em> Total Nonrequested Distribution [Sum of 15d (1), (2), (3), and (4)]</td>
<td>1,374</td>
<td>1,086</td>
</tr>
<tr>
<td><em>(f)</em> Total Distribution [Sum of 15c and 15e]</td>
<td>78,811</td>
<td>76,156</td>
</tr>
<tr>
<td><em>(g)</em> Copies not Distributed</td>
<td>951</td>
<td>1,950</td>
</tr>
<tr>
<td><em>(h)</em> Total (Sum of 15f and 15g)</td>
<td>79,762</td>
<td>78,106</td>
</tr>
<tr>
<td><em>(i)</em> Percent Paid and/or Requested Circulation</td>
<td>98.3%</td>
<td>98.6%</td>
</tr>
</tbody>
</table>

16. Electronic Copy Circulation
*(a)* Requested and Paid Electronic Copies                                  | 30,151                                                    | 32,674                                                    |
*(b)* Total Requested and Paid Electronic Copies                             | 107,688                                                   | 107,744                                                    |
*(d)* Percent Paid and/or Requested Circulation [Both Print and Electronic Copies] | 98.7%                                                     | 99.0%                                                     |

17. Publication of Statement of Ownership for a Requester Publication is required and will be printed in the November 2016 issue of this publication.
18. I certify that all information furnished on this form is true and complete. Signature and title of Editor, Publisher, Business Manager, or Owner — Ron Spink, Group President, 9/22/16
Editorial:
Ten and 2,000 Years Later

In my very first editorial, in the very first issue of ARCHITECT, I promised to abide by Marcus Vitruvius Pollio’s ancient architectural principles of *utilitas*, *firmitas*, and *venustas*. In 1624, English polymath Henry Wotton translated those three Latin words as “commodity,” “firmness,” and “delight.” Today, one might say “business,” “technology,” and “design,” as we do at ARCHITECT. Knowing that the design media has historically focused on aesthetics, sometimes to the exclusion of all else, we have from the outset been determined to promote a more well-rounded, Vitruvian practice of architecture, one that encompasses the discipline’s technical, economic, environmental, and social qualities. Because a decade has passed since that first issue hit the desks of architects nationwide, this, our 10th anniversary issue, seemed like a good time to reiterate the philosophy.

We originally ran portraits on our covers, to shift attention away from the conventional depiction of buildings as fetishized art objects. This was not a popular move, but it did make plain the differences in our editorial focus. The subjects usually weren’t famous, and rarely were they design stars. Instead, we spotlighted experts and exemplars of a broad range of issues—building performance, for instance, and professional diversity—that we found important and deserving of greater attention.

Nowadays, the buildings themselves take pride of place, but our inclusive notion of architecture has not wavered. We continue to celebrate the profession’s inner geek, with the annual R+D Awards program as well as regular coverage of material science, digital design, and innovations in fabrication. We still investigate and encourage smart and healthy approaches to business, as in our Best Practices series and our annual ARCHITECT 50 program, which recognizes firms that excel financially, provide a positive environment for employees, meet stringent sustainability standards, and deliver exceptional design to clients and users. And we champion innovation and emerging talent through our Progressive Architecture Awards, Studio Prize, and Next Progressives profiles of groundbreaking practices and practitioners.

So has anything changed since the publication launched in late 2006? Well, the world went through the worst financial crisis since the Great Depression, the Middle East imploded, the iPhone debuted, social media remade the way humanity communicates, partisanship overtook national politics, and globalization became a fact of life. So yeah, a lot’s been happening, and architecture—as well as ARCHITECT—has changed apace. The website and magazine look and feel different than they did a decade ago.

Given the tumult at home and abroad, there has been a real benefit in basing our editorial policy on “a 2,000-year-old premise,” as I wrote 10 years ago. As journalists, we are constitutionally inclined to scramble to cover the latest firm merger, the hottest new project, the most awe-inspiring technological advance. Doing so through the lens of *utilitas*, *firmitas*, and *venustas* keeps us grounded. It gives us the benefit of the long view. Because, while architecture has undergone a world of change in 10 years, the tenets that Vitruvius articulated in *The Ten Books on Architecture*, back in the first century B.C., still apply.
Not everyone is born a genius. The rest of us need to work at it. Do the smart thing by starting with ARCAT.com. Get fast and accurate results from the leader in building product information.

Find out for yourself by using the number one, most used website for finding:

Building Products
CAD Details
Building Information Modeling
Specifications
SpecWizard
Manufacturer Catalogs
Building Product Videos

All this and more, free at ARCAT.com.

No subscriptions.
No fees.
No registration required.

The Chairman needs his nap now.
Touch the Future of Lighting Control

Touch the lightest touch and motion.

Clear Connect® wireless technology enables connection to daylight and occupancy sensors.

100%  50%  Off

Daylight  Occupancy

Responsive to the lightest touch and motion.

Clear Connect® wireless technology enables connection to daylight and occupancy sensors.

Works with all light sources | Residential and Commercial applications

lutron.com/GRAFIKT