

PEER
CERTIFICATION

INFORMED
FENESTRATION
CHOICES

LIVING IN
A PARKING
GARAGE

november-december 2018 // retrofitmagazine.com

retrofit



Best Seller: YETI's foray
into brick and mortar carves a path
to adventure + More Retail and
Mixed-use Projects



TREND ALERT:
smart solar

THIS
ISSUE
FEATURES
AUGMENTED
REALITY!
See Page 10

IMPROVING YESTERDAY FOR TODAY

PREMIER BUTYL SEALANT TAPES

RAIN'S WORST ENEMY

FOR OVER 30 YEARS, MANUFACTURERS AROUND
THE WORLD HAVE ENTRUSTED THEIR BUILDINGS'
MOISTURE DEFENSE TO THE MOST RELIABLE BUTYL
SEALANT ON THE MARKET, MB10A BUTYL TAPE.



800.288.9489

GSSISEALANTS.COM

- + HIGH BUTYL CONTENT FOR GREATER STRENGTH AND WIDE SERVICE TEMPERATURE RANGE.
- ± PROPRIETARY BLEND OF RESINS FOR AGGRESSIVE GRIP TO METAL PANELS.
- 🔒 SUPERIOR LOW TEMPERATURE FLEXIBILITY FOR WINTER APPLICATIONS.
- ≡ EXTENSIVE INVENTORY OF SIZES FOR QUICK ORDER FULFILLMENT.
- UL UL CLASSIFIED
- 😊 FRIENDLY AND RESPONSIVE CUSTOMER SERVICE.
- FOR DATA SHEETS AND MORE INFORMATION VISIT GSSISEALANTS.COM OR CALL US AT 800.288.9489



Circle No. 1



Snap Decision

"Snap-Clad is a popular panel that we like to use because of the wind rating and the aesthetics of it and because it doesn't require mechanical seaming."

-Phillip Jorgenson, Project Manager, Ameritech Roofing



Case study at PAC-CLAD.COM/30AVE

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

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





INSIDE THIS ISSUE

NOVEMBER-DECEMBER 2018 // VOL 9 // ISSUE 6

➔ feature projects

URBAN EXCURSION

YETI's foray into brick and mortar carves a path to adventure.



34

PERUSE RETAIL AND MIXED-USE PROJECTS FROM AROUND THE WORLD:

- 85 Union, Memphis, Tenn.
- Hanover Square, Hanover Park, Ill.
- 309 East Paces, Atlanta
- Andamar Lifestyle Center, Veracruz, Mexico
- Race Pace Bicycles, Ellicott City, Md.
- Arc'teryx, Vancouver, British Columbia, Canada
- Macy's, Walnut Creek, Calif.



← cover

COVER PHOTO: CASEY DUNN PHOTOGRAPHY

retrofit

INSIDE THIS ISSUE

NOVEMBER-DECEMBER 2018 // VOL 9 // ISSUE 6



Retrofit Conference

18

The second-annual event took place Oct. 9 in Charlotte, N.C. View highlights from this educational and inspiring day.

Business

20 PEER

A certification program that evaluates the performance of energy generation, transmission and distribution helps buildings be better grid citizens.

Component

44

BUILDING INSPECTIONS

Invest in evaluations of your existing buildings—including fenestration products—before renovation to save money down the road.

Transformation

50

TOWNHOUSES AND TOWER

A Toronto office building respects the trio of Victorian residences at its base.



Transformation

56

CHANGING WITH THE TIMES

River District Tower hosts medical services and a restaurant while honoring its textile past.

Multifamily

60

PARK YOURSELF

A 500-car parking garage is ambitiously converted into 44 one-bedroom apartments with ground-floor office space.

Trend Alert

66

HERE COMES THE SUN

There's a new day dawning with next-generation solar technology, but the path to building integration isn't well-lit ... yet.

DEPARTMENTS

14

NEWS // Learn what's happening in the retrofit marketplace.

74

PRODUCTS // View a roundup of the latest materials and systems for the industry.

82

INSPIRATION // A reimagined avenue in Coral Gables, Fla., captures the warmth and charm of a European piazza, attracting pedestrians to a shopping district.

COLUMNS

10

POINT OF VIEW // Publisher John Riester likes to honor existing buildings in the same bold way he celebrates birthdays.

➔ stay up to date

retrofit

Subscribe to **retrofit's** weekly e-newsletter at www.retrofitmagazine.com. You'll receive the latest news, blogs and content you won't find in the magazine.



FREEDOM FROM DISRUPTION

Connectrac Under-Carpet Wireway

The Connectrac® Under-Carpet Wireways deliver power and data with an elegant and flexible, floor-based cable management solution unlike complicated and expensive methods such as core drilling, trenching or power poles. Our ultra-low profile wireway integrates with any furniture and can be moved or reconfigured as environments evolve.

CONNECTRAC®

Freedom From Core Drilling!

Since 2005

Circle No. 3

1.877.357.7533

Free2Retrofit.com

retrofit

November-December 2018 // VOL 9 // ISSUE 6

PUBLISHER

JOHN RIESTER

john@retrofitmagazine.com

DIRECTOR OF OPERATIONS

BECKY RIESTER

becky@retrofitmagazine.com

EDITORIAL DIRECTOR

CHRISTINA KOCH

christina@retrofitmagazine.com

MANAGING EDITOR

BECKY RIESTER

becky@retrofitmagazine.com

CONTRIBUTING EDITOR, INTERIORS

ROBERT NIEMINEN

EDITORIAL ASSISTANT

ANDREA HOFFMEIER

ART DIRECTOR

VILIJA KRAJEWSKI

art@retrofitmagazine.com

CIRCULATION MANAGER

LYN URE

lyn@retrofitmagazine.com

ADVERTISING SALES

JOHN RIESTER

john@retrofitmagazine.com
(919) 641-6321

BARRETT HAHN

barrett.hahn@gmail.com
(919) 593-5318

DAN BURKE

dan@burkemediagroup.com
(732) 241-6720

EDITORIAL ADVISORY BOARD

NATHAN M. GILLETTE

AIA, LEED AP O+M, CEM
Director, Natura Architectural
Consulting LLC
Grand Rapids, Mich.

WILLIAM E. HOLLOWAY

AIA, LEED AP
Principal, BERNARDON,
Wilmington, Del.

JOHN J. NOONAN

Vice President of Facilities Management
Duke University, Durham, N.C.

RETROFIT // Vol. 9 // No. 6 is published bimonthly by Fisher Media LLC, 98 Booth Meadow Lane, Durham, NC 27713, (919) 641-6321. POSTMASTER: Send address changes to **retrofit**, 2409 High Point Drive, Lindenhurst, IL 60046.

TO SUBSCRIBE or make subscription changes, visit www.retrofitmagazine.com, and click on the "Subscribe" button, or email lyn@retrofitmagazine.com.

SCHWEISS

HYDRAULIC & BIFOLD DOORS

Manufacturing custom designed one-piece hydraulic doors and lift-strap bifold doors ... any application ... any size!

Circle No. 4



Schweiss Doors designed and built the glass bifold doors for the Golden 1 Center in Sacramento, CA

SCHWEISSDOORS.COM

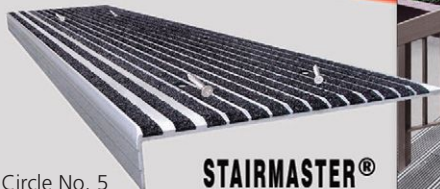


Make Every Step a Safe One..

NEW



Walk-A-Sured®



Circle No. 5

STAIRMASTER®



Wooster Products

For more products and information, visit us online or call:

www.wooster-products.com (800)321-4936



Navien...the condensing leader brings you the future of fire tube boiler technology

New NFB high efficiency condensing fire tube boilers

Out of this world quality — built from top to bottom with in-house designed and manufactured Navien parts. Also, our state-of-the-art robotic laser welding and automated assembly systems assure the highest level of quality.



Patented stainless steel heat exchanger with a one-piece combustion chamber eliminates high stress point welds that are prone to corrosion.

AFUE 95.0%
Energy Star 2019
most efficient rating.



Advanced user interface controls with intuitive text display and innovative click wheel simplifies boiler setup.

Optional add-on NaviLink Wi-Fi remote control system.

Cascading up to 16 units and common venting up to 8 units.

Field gas convertible, NG or LP.

Built-in hardware to connect a boiler pump, 3 zone pumps or 3 zone valves integrated into the unit. No need to add extra zone panels.



10:1 Turn Down Ratio reduces excessive boiler cycling, saves money and energy.

To learn more visit **NavienInc.com**

Circle No. 6

KD navien®

Always a step ahead



CELEBRATING BIRTHDAYS

I recently celebrated another birthday. When you reach a certain age in my family, the celebration lasts for an entire weekend—not just the day of your birth. It was a wonderful time! My birthday, which happened to be somewhat of a milestone, made me realize how lucky I am to be here to celebrate and allowed me the time to reminisce with my family about the amazing years that have passed (albeit too quickly).

Every day, amazing buildings and structures around the world also are celebrating birthdays. In fact, according to the U.S. Energy Information Administration, Washington, D.C., 50 percent of commercial buildings were constructed before 1980. I love this fact and reference it quite often with readers and customers. Those of us born before 1980 know: When you reach a certain age, your body doesn't respond or recover quite like it did when it was younger. Similarly, buildings require new components and systems upgrades to be made more technologically advanced, energy efficient and resilient so they can provide another 50 years of useful life.

I love learning about buildings across our country (and the world) that are being repurposed and upgraded for today's needs. For example, this issue's "Cover Story", page 26, takes a look at YETI's flagship store located in the city where the business known for drinkware and coolers got its start, Austin, Texas. Recognizing that in today's world, a retail store needs to create an experience for shoppers, the project's architects—Austin-based lauckgroup (now Perkins+Will) and Lake|Flato Architects' Austin office—provided YETI with exhibit and entertainment options in what once was a warehouse that survived Austin's infamous 1935 flood.

retrofit held its second-annual retrofit conference in Charlotte, N.C., in October. (Learn more about this fascinating conference on page 18.) The conference's morning keynote speaker, Galina Tachieva, managing partner of DPZ CoDESIGN, Miami, spoke about how to eradicate urban sprawl by finding new uses for abandoned malls and parking garages and then infilling the spaces between to create walkable neighborhoods. As we listened to Tachieva speaking, Editorial Director Christina Koch and I couldn't believe the timing of Sheldon Architecture Inc., Wichita, Kan. Firm representatives had reached out to Koch before the conference, offering to share the story of Broadway Autopark, which was built in 1949 as an attendant-operated parking garage in Wichita. Featuring twin spiral towers and porthole windows, the garage could hold 500 cars. Today, the garage's unique features are assets to what now is a 44-unit apartment building that includes first-floor office space. Who would've thought you could turn a parking garage into residential space? And who doesn't want front-door parking? Check out this amazing retrofit project in "Multifamily", page 60.

These are a couple of my favorite stories in this issue. We'd love to learn about the renovation, retrofit, historic and/or adaptive reuse projects you're working on. Submit them to us for consideration for the magazine or online. We're seeking great content for 2019 right now! (Email a brief overview about your project, along with a few low-res images, to christina@retrofitmagazine.com.) If you're interested in learning about each issue's topics, download our media kit at www.retrofitmagazine.com/media-kit.

Finally, I'd like to send a big thank you to you, our readers and advertisers. Because of your support we have been able to grow our magazine in print and online and will continue to celebrate the birthdays of many amazing retrofit projects today and in the future.

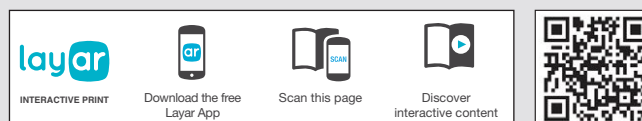
Have a wonderful holiday season with your families and friends. See you in 2019!

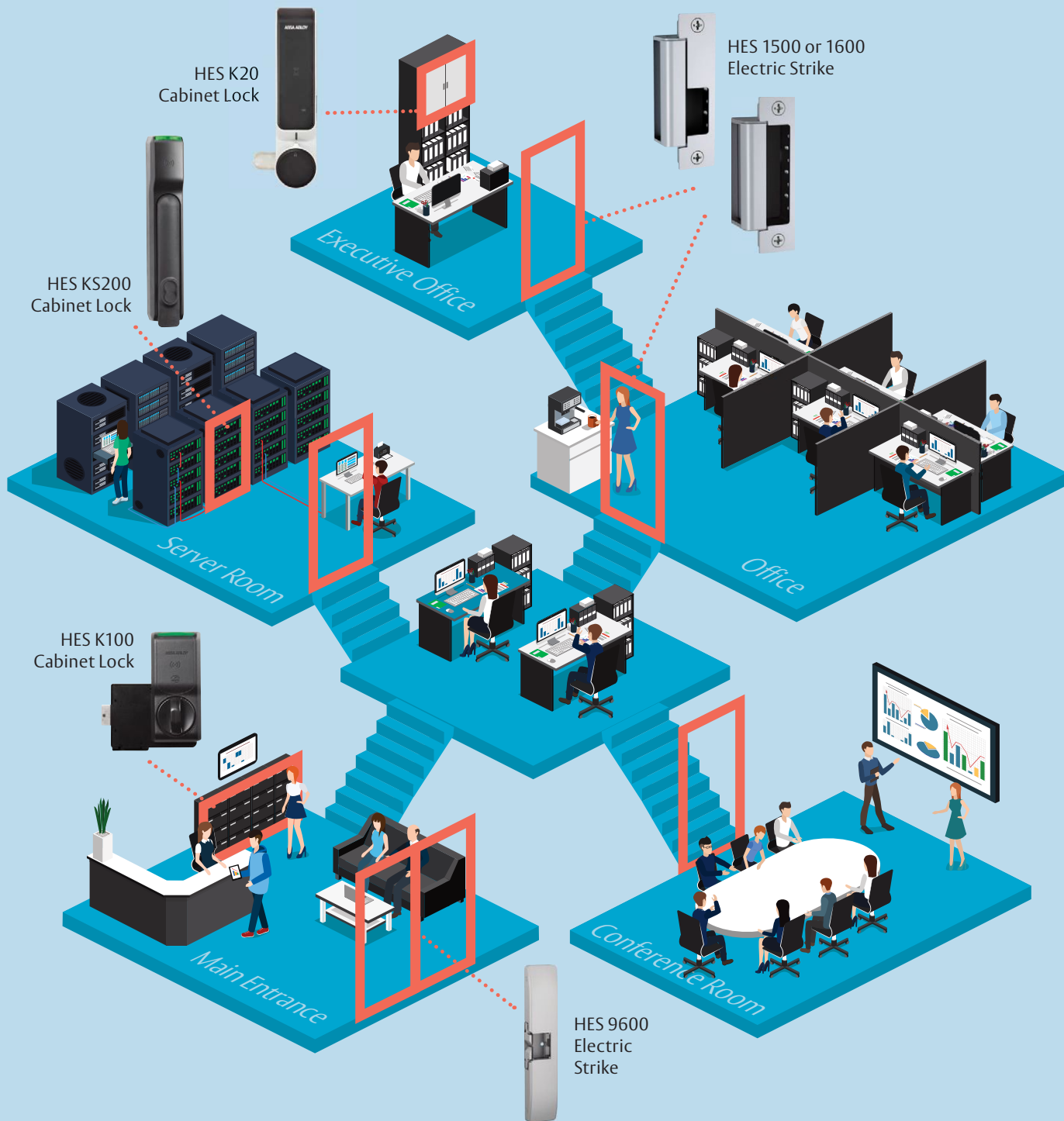
JOHN RIESTER

Publisher



THIS ISSUE FEATURES AUGMENTED REALITY!
Download the free Layar Augmented Reality app. (The QR code will help you find the app.) Then, hover over pages 15, 17, 21, 38, 76 and 84 with a smartphone or tablet and watch videos that bring the content to life.





Take Access Control to the Next Level.

Upgrade access control on doors and drawers with HES electric strikes and cabinet locks.

ELECTRONIC SECURITY HARDWARE HES | Securiton
800.626.7590 | assaabloyesh.com/solutions

Circle No. 7

ASSA ABLOY

The global leader in
door opening solutions

CREATING ENVIRONMENTS WHERE PEOPLE CAN SHINE™



SKYLIGHTS, WALL SYSTEMS & CANOPIES

Replacing an outdated skylight? Adding new daylighting systems to lighten up a space?

From translucent panels to glass and polycarbonate multi-wall, Major has your solution, all backed by industry-best warranties and unmatched customer service.



SKYLIGHTS, CANOPIES & TRANSLUCENT WALL SYSTEMS
MAJORSKYLIGHTS.COM

Circle No. 8

888-759-2678

CONTRIBUTING WRITERS

Photo: U.S. Green Building Council



Brendan Owens

is a senior vice president at the U.S. Green Building

Council, Washington, D.C. He oversees strategic development and integration of rating systems, such as LEED and PEER, which evaluates the performance of energy generation, transmission and distribution through a certification program. Owens explains how PEER helps buildings be better grid citizens in "Business", page 20.



KJ Fields, a Portland, Ore.-based **retrofit** contributor, writes our "Cover

Story", page 26, about YETI's new flagship store in Austin, Texas. The 8,000-square-foot retail showroom reclaims the ground floor of a historic warehouse, which is a survivor of Austin's infamous 1935 flood. The design team emphasized the concrete frame's durability while integrating entertaining and interactive exhibits that launch visitors on a journey into YETI product territory.



Steven Saffell

serves as technical director for the Schaumburg, Ill.-

based American Architectural Manufacturers Association. Saffell shares his 32 years of experience in "Component", page 44, in which he explains why evaluations on existing buildings before completing a renovation project save money. He notes when specifying windows, doors, curtainwalls, storefronts or skylights, a simple yet detailed process ensures the best products for the application are installed.



Portland, Ore.-based freelance design journalist, critic and archi-

tectural photographer **Brian Libby** writes about a glass tower that rises 9 stories above Victorian-era rowhouses in Toronto. Despite adapting the rowhouses to the 21st century and making them office condos available for purchase, these smaller, older structures remain the star of the project. Read the story in "Transformation", page 50.



The 140,000-square-foot River District Tower in Danville, Va., contains state-of-the-art medical offices, clinics, a restaurant and banquet hall, drawing people to the River District who typically hadn't come to the area. **Dodie Hudson**, a Certified Interior Designer and project manager in the Danville office of Dewberry, and **Larry Hasson**, AIA, DBIA, a senior associate and architectural department manager in Dewberry's Danville office, explain how this expansive former textile mill was revitalized in "Transformation", page 56.



Daniel Gensch is a project architect at Shelden Architecture Inc.,

Wichita, Kan. For Gensch, there's a purpose for everything and everyone. We all have potential; it's a matter of unlocking that embedded potential. As such, Gensch writes about Broadway Autopark, an old, obsolete, concrete parking facility in downtown Wichita that today is a modern, mixed-use apartment building. Read about the unique project in "Multifamily", page 60.



Quality. Service. American Made.

Specify SheerWeave, the world's most trusted brand of solar screen fabrics.

phifer.com

Circle No. 9

PHIFER



AIA Applauds Passage of Disaster Recovery Reform Act



The Washington, D.C.-based American Institute of Architects (AIA) is praising Congressional passage in October of the Disaster Recovery Reform Act (DRRA), which paves the way for communities to better utilize architects during disaster recovery efforts. (Read the act at bit.ly/2lzFFOf.) ¶ “Architects understand all aspects of the buildings that make up our communities,” says 2018 AIA President Carl Elefante, FAIA. “After a disaster strikes, architects play a critical role conducting building-safety assessments, which help people to return to their homes and businesses to reopen their doors more quickly. This legislation is critical as it allows architects to improve the quality of building-safety assessments and enhance the resiliency of our communities.” ¶ Provisions of DRRA will require the Washington-based Federal Emergency Management Agency, architects and engineers to develop standardized best practices for building-safety assessments that focus on a building’s structural integrity and livability post disaster. Additionally, the legislation ensures local and state officials understand the role of architect volunteers, who are vital resources to the recovery of communities. ¶ Since 1972, AIA and its thousands of architect volunteers nationwide have been helping communities recover from disasters through the AIA Disaster Assistance Program, bit.ly/2Jj1dBV. As part of the program, trained architects assist local and state officials in conducting building-safety assessments. ¶ DRRA is a component of the Federal Aviation Administration reauthorization, which was passed by the U.S. Senate Oct. 3 and House of Representatives the prior week. The legislation is now subject to the approval of the President of the United States. ¶ For the latest updates on issues impacting architects, join AIA’s Architect Action Alerts by texting “AIA” to 40649.


AAMA UPDATES SPECIFICATION FOR FORCED ENTRY RESISTANCE

The Schaumburg, Ill.-based American Architectural Manufacturers Association (AAMA) recently released an updated document to describe a standard test method and performance criteria for side-hinged door systems in the locked position to resist entry under a specified load and conditions. AAMA 1304-18, “Voluntary Specification for Determining Forced Entry Resistance of Side-Hinged Door Systems,” seeks to measure the ability of the operable slabs to deter opportunistic entry by unskilled intruders. This specification was first created in 2002 and this is its first update.

“AAMA 1304 has long been used in the fenestration industry to evaluate the resistance of side-hinged doors to forced entry by opportunistic intruders,” says Mark Fortun of Endura Products, Colfax, N.C., and vice chair of the AAMA Side-Hinged Door Auxiliary Test Methods Task Group. “This latest update maintains the proven method while further clarifying qualification criteria applicable to varying swing and glazing types and specific procedural details regarding loading sequencing and positions for both single and multipoint locking assemblies.”



In this update, several changes were made, including the addition of sections spelling out qualifications related to door swing and glazing types, a defined radius of a loading area and added criteria pertaining to broken glazing. Section 2.2 was updated to clarify this standard does not evaluate the resistance of glazing materials to deliberate impact or loading.

AAMA 1304-18 may be purchased from AAMA’s online store at bit.ly/2lB68KX. More information about AAMA and its activities can be found on the AAMA website, aamanet.org. 



SEND US YOUR NEWS Email your news to christina@retrofitmagazine.com.

Smart Building Solutions

Light, Shade, and Temperature Control
for your space, your budget, and your performance requirements

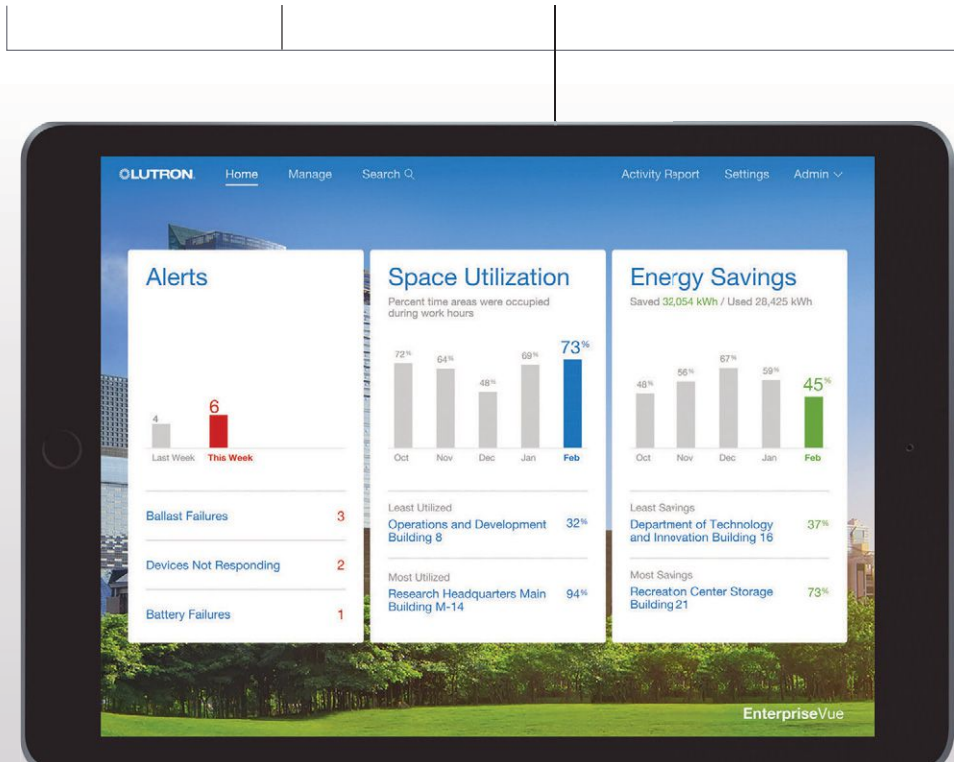


Single Spaces

Entire Floors

Entire Buildings
& Campuses

Exterior/Parking



Enterprise Vue

Connect smart lighting control systems across buildings or campuses with a single data and management platform

Lutron smart solutions empower:

- Occupant comfort
- Operational and space efficiency
- Energy savings

Create the Right Environment

Lutron.com/RightEnvironment

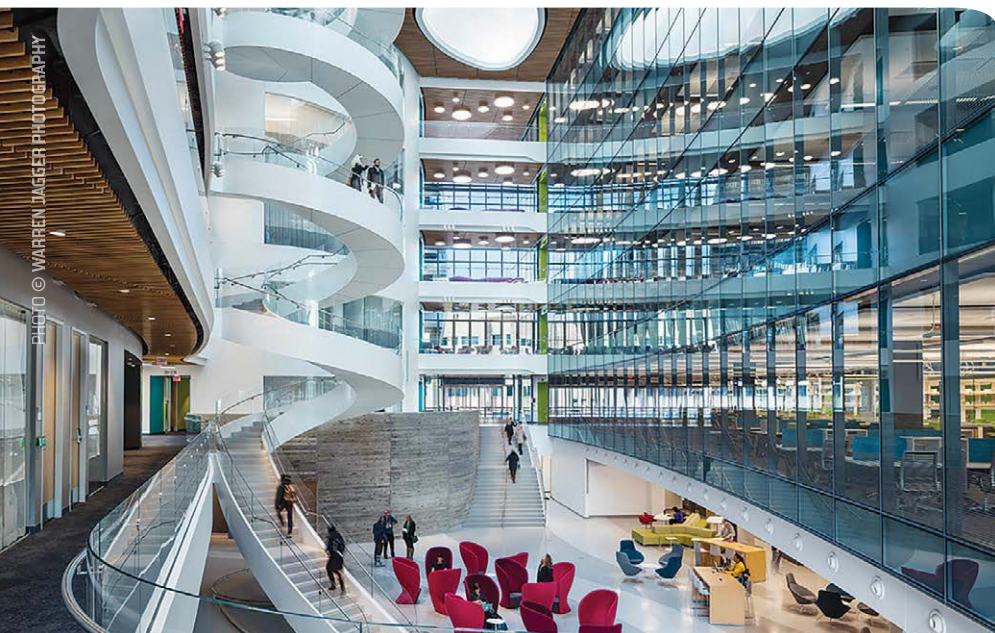
Circle No. 10



© 2018 Lutron Electronics Co., Inc.

MANAGING DATA AND CONTROLS ACROSS MULTIPLE SMART BUILDINGS AND SYSTEMS DELIVERS REAL-WORLD SAVINGS

Today's data-management solutions offer a connected approach toward maximizing smart-building performance



Viewing data from different systems in one place makes it increasingly clear that all parts of buildings have an impact on each other.

Technology has transformed the way buildings are operated and managed. From the early days of what we understand today as building automation systems (BAS), the capabilities and usability of these systems has taken a quantum leap.

A BAS is technology installed in new or existing buildings to monitor and control the building's mechanical and electrical equipment, including lighting, ventilation, power systems and security. When BAS began to come into common use, they tended to be a disconnected series of individual control systems with very limited interoperability.



"When I got into building automation about 10 years ago, the systems were largely proprietary," recalls Nathan Watkins, a BAS designer who has worked with major universities in the U.S. "The [building automation] ecosystem has matured, and interoperability is much better, so that has opened up a lot of doors."

The flexibility of current technology means that centralized BAS isn't just for new buildings. Wireless systems make it possible for retrofit applications to reap the benefits of monitoring and control by a reliable management platform. Building control can begin in one building and then be seamlessly scaled over many building types over a period of time.

Campus Consistency Provides Optimal Results

Managing the data and controls from one building is challenging enough but overseeing the operation of a campus or several buildings spread around different locations presents even greater degrees of difficulty. The kind of technology that

offers scalability to grow portfolios, as well as enables managers and operators to process data from multiple systems can have a big impact on how a suite of buildings are run.

"In managing multiple buildings, consistency is important," Watkins explains. "It's difficult for occupants when one building functions one way and another works in a different way."

For example, one building in a portfolio has exterior lights set on a photocell control and another has lights set for timed activation. The result: a sporadic and spotty process of lights coming on in different places. With integrated systems and controls, all lights across the portfolio of buildings can be simply set up to come on together.

"The aesthetics can be important, particularly in a building with a lot of glass," Watkins says. "You can have occupancy sensors turning on individual spaces when the first person arrives in the morning, but it can provide a more welcoming environment if the lights are already on."

Building Operators Benefit from Information and Control

As buildings and their vital systems become smarter and more advanced, it follows that managing and analyzing all the data those systems create will be more challenging. It would be easy to assume that more is always better in terms of data collection, but in a raw state, a massive amount of building performance data may be overwhelming.



A single software platform like Enterprise Vue management software can expand the possibilities of the connected campus.



PHOTOS: courtesy Lutron unless otherwise noted

The kind of technology that offers scalability to grow portfolios, and enables managers and operators to process data from multiple systems, can have a big impact on how a suite of buildings are run.

Building managers and operators need the most meaningful interpretation of all that data to make the best decisions for their portfolios.

"The fact is that most building operators are not data scientists, so they don't necessarily need the same toolset," Watkins says. "But they do need useful insight that can help with their decision-making."

The possibilities of what can be done when buildings and systems are connected are vast, but without a single software platform connecting those systems—allowing for a single point of monitoring and analytics—that great potential cannot be realized.

"One of the biggest problems we face is having systems installed that never end up being implemented or used effectively," Watkins says. "There might be a system that can schedule equipment, but people end up leaving things running all the time because it's easier."

To help combat these types of issues, it helps for the technology to be as simple, usable and scalable as possible. With an integrated control and analysis over a complex of multiple buildings, it's possible for a few specialists to do the work that was once done by larger groups of technicians.

"We see fewer and fewer people going into the trades, and this kind of work used to fall to professionals in the trades," Watkins says. "We're having to find ways to operate buildings with fewer workers."

Practical Applications Reap Benefits Across Building Portfolios

The ability to process and digest data from multiple buildings and different systems gives building control professionals a bird's-eye view of the operation of buildings over time. This can provide invaluable perspective for making decisions that can have a huge impact on efficiency and bottom-line performance.

"In one case we took a year's worth of electrical energy data and plotted it in a heat map to see the energy intensity," Watkins recalls. "This data helped us schedule our systems in a more efficient way."

When it is possible to view data from different systems in one place, it becomes increasingly clear that all parts of buildings, across many buildings, have an impact on each other.

"We also realized there were opportunities to use occupancy data from our lighting system to improve operation of other systems. I could see that certain areas of a particular building were only getting 20 or 30 percent usage, so that helped us identify where it made sense to make certain integrations," Watkins says. "You don't reap any benefit if you set up an occupancy sensor in an area that is occupied continuously. The real savings are in spaces that are underutilized, where these sensors would reduce cooling and lighting."

Access to data across systems enables operators to make proactive choices and do things differently than in the past. For example, in the past it was typical to replace lights as they burned out or on a set schedule, which guarantees periods of disruption and waste. With today's monitoring systems, operators can track the hours a particular light is on and know the right time to proactively replace it. Or, looking across many lights, they can replace lights in bulk at the right time across multiple buildings—decreasing how often vendors need to be on site.

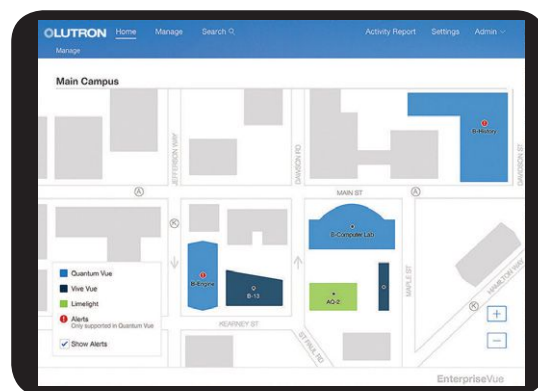
Still, smart building managers understand that efficiency is not the only factor. You have to balance the bottom line of your portfolio with occupant comfort.

"Energy may be 5 percent of a company's budget, and sometimes even less, so if you hurt overall productivity in trying to save energy, you can end up costing much more than you save," Watkins explains. "It's important to be as efficient as possible while having a minimal impact on occupants and ideally even improving occupant comfort."

He cites lighting as an example of a place where that balance can be a win-win: "We'll often find spaces that are over-lit, and occupants are taking out bulbs to reduce lighting levels. With

the lighting control systems we have today, we have dimming capabilities and can tune lighting levels to a point where we are saving energy while providing a more comfortable environment."

Advanced BAS and cutting-edge portfolio management applications can provide the kinds of solutions that allow scalable, efficient, smart operation of multiple buildings. As technology continues to grow, so do the possibilities for effective campus control systems.



Lutron's Smart Building Solutions: www.lutron.com/smartbuildings

Enterprise Vue: Connects multiple smart lighting control systems across buildings or campuses with a single data and management platform.

Quantum Vue: Provides full-system control, monitoring, and reporting for Lutron's high-performance lighting control and shading solutions.

Vive Vue: Allows facility teams to control and configure the lights and monitor, analyze, and report on the activity and performance of a Vive lighting system in a building.



World Headquarters 1.610.282.3800 | 24/7
Customer Support 1.844.588.7661

Circle No. 11



retrofit's Second-Annual Conference Is a Success



retrofit hosted its second-annual conference on Oct. 9 at the Westin in downtown Charlotte, N.C. The conference included a lineup of fantastic speakers who are experts in energy-efficient building envelopes, financing retrofits, resilient buildings and building codes, as well as two fascinating keynotes to inspire attendees. The conference also offered CEUs from the Washington, D.C.-based American Institute of Architects.

The day kicked off with a keynote from Galina Tachieva, managing partner of DPZ CoDESIGN, Miami. Tachieva is the author of the *Sprawl Repair Manual*, an award-winning publication by Island Press, which focuses on the retrofit of auto-centric suburban places into complete communities. She shared insight about how to make communities more walkable by creating neighborhoods in areas of existing sprawl.

The afternoon keynote from Ryan Colker, vice president of the National Institute of Building Sciences, Washington, D.C., underscored how resilient buildings are a key to resilient communities in the wake of extreme weather events. Colker also highlighted government agency publications and guidelines to help attendees create more resilient buildings.

The conference's three educational sessions—Energy-efficient Building Envelope, Retrofitting in Today's Market and Resilient Buildings—featured a panel of speakers per session who shared their experience related to their topics. Thank you to all our speakers for giving thought-provoking presentations.

ENERGY-EFFICIENT BUILDING ENVELOPE

- **Meghan McDermott**, BECxP, CxA+BE, owner, architectural engineer and business manager, High Performance Building Solutions, Charlotte
- **Francis Conlin**, P.E., owner, senior engineer and technical advisor, High Performance Building Solutions, Charlotte

RETROFITTING IN TODAY'S MARKET

- **D. Ryan Miller**, founder and executive director, North Carolina Building Performance Association, Raleigh
- **Will Clark**, vice president of Originations, CleanFund, Sausalito, Calif.

RESILIENT BUILDINGS


- **Cindy L. Davis**, CBO, deputy director of the Division of Building and Fire Regulations, Virginia Department of Housing and Community Development, Richmond
- **Chuck Miccolis**, vice president, Commercial Lines, Insurance Institute for Business and Home Safety, Tampa, Fla.
- **Abby Coulter**, commercial buildings and member services specialist, North Carolina Building Performance Association, Raleigh

Thank you to our moderators who helped lead each session—Nathan M. Gillette, AIA, LEED AP O+M, director of Natura Architectural Consulting LLC, Grand Rapids, Mich., and Marcin Pazera, Ph.D., technical director, Polyisocyanurate Insulation Manufacturers Association, Arlington, Va.

A special thank you to the following gentlemen for making introductions and helping coordinate the conference's lineup of expert speakers:

- **Nathan M. Gillette**, AIA, LEED AP O+M, director of Natura Architectural Consulting LLC, Grand Rapids, Mich., and a *retrofit* editorial advisor
- **Ryan Colker**, vice president, National Institute of Building Sciences, Washington, D.C.
- **D. Ryan Miller**, founder and executive director, North Carolina Building Performance Association, Raleigh

There was opportunity to network and socialize throughout the day in our Tabletops Area. Here attendees talked with our generous sponsors—without whom the conference would not have been possible—about materials and systems for effective building retrofits.

Finally, the day ended with a cocktail reception to celebrate a successful conference. 

Thank you to our sponsors!

ALUCOBOND®

Armstrong®

CAMBRIDGE
ENGINEERING INC.

CARLISLE
CONSTRUCTION MATERIALS

CSI
Charlotte Chapter

DTL
Energy Solutions Inc.
Commercial LED Lighting

FI-FOIL
SPAN

GE
GE Silicones

MBCI

METL
SPAN

MITSUBISHI
ELECTRIC
COOLING & HEATING

NCBPA
North Carolina Building Performance Association

PAC-CLAD
PETERSEN

PIMA
POLYISOCYANURATE INSULATION
MANUFACTURERS ASSOCIATION

UNITED
CoolAir
All-Indoor Solutions



VISIT WWW.RETROFITCONFERENCE.COM TO VIEW PRESENTATIONS
FROM OUR 2018 AND 2017 SPEAKERS.

PEER

A Certification Program Helps Buildings Be Better Grid Citizens

During the last 10 years, the relationship between buildings and the energy grid has gotten significantly more complex and continues to evolve. Traditionally, electricity for buildings was generated in a power station, sent along transmission lines to a substation, continued along distribution lines to an electricity meter and then made available to the building. Simply put, electricity traveled from point A to point B.

Today's growing demand for electricity coupled with new technologies and innovation has brought more choices to the marketplace and more options for buying and using power. No longer is electricity flowing in one direction. Now because of distributed energy resources (DER), buildings can be designed to generate their own electricity, store it, and send it to other buildings or even back to grid. It's a new

WRITTEN BY | BRENDAN OWENS

energy paradigm and it's giving designers, facility managers and owners an opportunity to decarbonize their buildings.

Electricity production is a major source of carbon emissions in the U.S. The Washington, D.C.-based U.S. Environmental Protection Agency estimates the electricity, or power, sector generates the second highest amount of greenhouse-gas emissions, primarily because of the burning of fossil fuels. (Learn more at bit.ly/2QZHnMa.) Meanwhile, buildings are consuming 70 percent of the electricity in the U.S., per the Washington-based U.S. Energy Information Administration, bit.ly/2IVXYN2. It means the relationship between these two industries is a key factor in mitigating the contribution of buildings to climate change.

Designing for Distributed Energy Resources

Energy-efficiency retrofits play an important role in reducing carbon emissions across the building sector. The retrofit industry itself is projected to be in the \$20-billion range, and global initiatives like the Investor Confidence Project (ICP) are helping to scale investment and increase confidence in the expected environmental and financial returns of efficiency projects. (Learn more about ICP in *retrofit*'s May-June 2018 issue, page 20, or bit.ly/2OWWPqY.) But energy efficiency is only one part of this new energy paradigm.

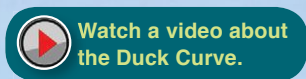
As renewables and alternative energy grow, they're creating new supply and demand patterns, putting excess pressure on the grid, a challenge that is infamously captured and visualized in the Duck Curve.

The PEER-certified NYU Langone Health Main Campus sits on the East River in New York.

[Editor's Note: Hover over this page with the free Layar app open on your smartphone or tablet—see page 10 for details—and watch a video about the Duck Curve.] Buildings can help address this challenge and be better grid citizens by incorporating DER, which can achieve several key objectives:

- ❶ Reduce overall energy use.
- ❷ Decrease peak demand.
- ❸ Improve load factors.
- ❹ Shape a building's load curve.
- ❺ Decrease energy demand for short intervals, or automated demand response.
- ❻ Shift peak demand.
- ❼ Generate renewable energy.
- ❽ Store energy.

Working toward these objectives will position buildings as a better asset on the grid—a building that is capable of being responsive to the operating conditions of the grid at distribution and transmission levels and adjusting its energy-use profile to provide the grid operators with reliability, resilience and renewable integration opportunities.



Leading the Way

As buildings become more responsive to grid conditions, standards for assessing progress and performance of pieces of the energy system have emerged. PEER is a certification program that evaluates, measures and improves power system and electricity infrastructure performance. Modeled after the Washington-based U.S. Green Building Council's LEED green building program, PEER evaluates the performance of energy generation, transmission and distribution through a certification program. PEER recognizes leaders in these sectors that demonstrate improvements in environmental performance, day-to-day reliability and overall resiliency.

The certification program works for all project types, including critical infrastructure, such as hospitals and data centers, as well as corporate campuses, transit systems, private microgrids, utilities and more. Like LEED, PEER was designed to grow with the market and create a global framework for defining high-performing power systems. PEER is a straightforward rating system for evaluating performance outcomes across four main categories:

● **RELIABILITY AND RESILIENCY:** Focuses on preventing interruptions, minimizing downtime, and monitoring and recording information related to interruptions in service.

● **ENERGY EFFICIENCY AND ENVIRONMENT:** Focuses on quantifying and optimizing energy generation and transmission for the triple bottom line of people, profit and planet.

● **OPERATIONS, MANAGEMENT AND SAFETY:** Focuses on the efficient operations and management of energy systems, considering risk for workers and customers.

● **GRID SERVICES:** Addresses the implementation of programs and technologies that integrate the supply and demand side of energy, including automation, demand response and incentives.

For buildings, in particular, PEER values technologies and strategies that enable responsible grid citizenship. Projects are able to demonstrate energy cost savings, as well as a reduction in energy waste, interruptions and emissions through a variety of strategies, including:

- ❶ Islandability, which describes a facility's capability to disconnect





PHOTO: MONTGOMERY COUNTY PUBLIC SAFETY HEADQUARTERS

The Montgomery County Public Safety Headquarters is the first in Maryland and the first public safety headquarters to certify under PEER.

itself from the electric grid and continue to operate in some capacity. This usually requires some combination of onsite generation, storage and distribution infrastructure.

- 2 Renewable Integration
- 3 District Energy
- 4 Automation
- 5 Undergrounding
- 6 Storage
- 7 Load Shifting
- 8 Demand Response

PEER announced several new certifications in 2018, including NYU Langone Health, one of the leading hospitals in the U.S.; Delhi Metro Rail Corp. in India, the first transit project in the world to certify; Montgomery County Public Safety Headquarters in Gaithersburg, Md., the first project to certify in the state; and the city of Glasgow, Ky., the second municipal utility to certify. The guide and scorecard that outlines how projects achieve certification are available to download at peer.gbci.org. More about these specific projects can be found at peer.gbci.org/Projects.

In addition to PEER, USGBC is looking at how LEED can reward buildings that incorporate technologies and strategies that optimize their impact on the grid. The LEED v4.1 update released earlier this year in beta (new.usgbc.org/leed-v41) looks at energy management from a holistic perspective with a specific aim of reducing energy use. In particular, the demand response credit has evolved to have a focus on grid harmonization to better reflect the capability of DER to make energy generation and distribution systems more efficient, increase grid reliability and reduce greenhouse-gas emissions. In addition, USGBC and the New Buildings Institute, Portland, Ore., are working to develop Grid Optimal, a tool to assess

grid citizenship and guide project teams toward more integrated implementation of DER.

Reliable and Resilient Grids and Grid Citizens

PEER-certified systems demonstrate how power systems and electricity infrastructure can be designed and built to exceed basic expectations of day-to-day reliability by helping to strengthen systems in the face of catastrophic events.

In 2017, Schneider Electric, Andover, Mass., and Duke Energy Renewables, Charlotte, N.C., built an advanced microgrid to ensure more resilient and efficient power at the Montgomery County Public Safety Headquarters. The project included onsite solar and natural-gas power generation that enables the facility to operate reliably during emergencies. The islanding capability of the microgrid enables the facility to separate from the electric grid and continue to operate at, or near normal, capacity during outages. Through a public-private partnership with the county, the microgrid is helping to develop a roadmap for more efficient, reliable and resilient energy systems in communities.

Following Superstorm Sandy in 2012, NYU Langone Health experienced significant challenges related to its utility services and operations, including being forced to close its main campus in New York City for

nearly two months. Since then, the organization has implemented comprehensive adaptation and resilience measures designed to ensure operational continuity in case of future events and prepare for the risks associated with climate change. PEER provided NYU Langone with an opportunity to assess the effectiveness of work to-date, identify areas for improvement and benchmark progress against other world-class campuses.

High performance, green architecture, resiliency, healthy interiors and energy management are key focuses for NYU Langone's Real Estate Development & Facilities team and are integrated into the institution's GreenFirst program. Energy-conservation efforts and efficient operations have created \$29 million in net savings since 2008. These savings were delivered through energy audits, retrocommissioning and facility design. Key infrastructure on the main campus includes an 11 MW CHP, or combined heat and power, plant that serves the majority of electrical loads on campus in parallel with the local utility grid, district steam and district cooling systems, as well as comprehensive backup electrical generators for all critical loads and essential services. CHP also provides additional cost savings to the institution that can be put back into optimizing performance and enhancing clinical care.

After Superstorm Sandy, NYU Langone worked to harden the campus, elevating critical utility and IT infrastructure above a projected 500-year flood level adjusted to account for sea-level rise from climate change. It also put into place significant campus perimeter protection and flood-prevention measures. Redundant and backup systems help the campus maintain preparedness for the likelihood of increased extreme

(continues on page 24)

PEER program leaders discuss certification and efforts being made to create more resilient, reliable and sustainable power systems in front of an onsite microgrid at Greenbuild 2017.

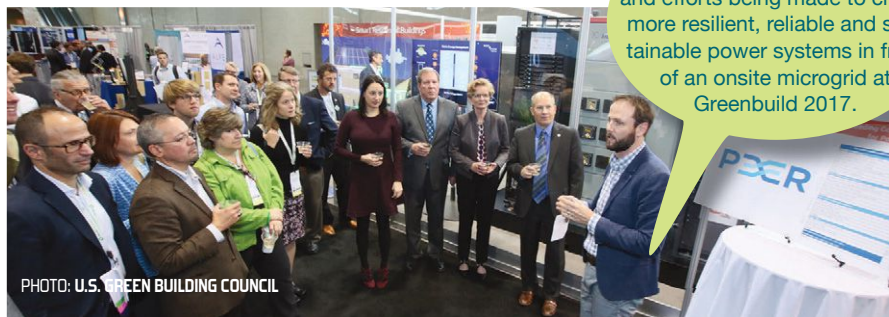


PHOTO: U.S. GREEN BUILDING COUNCIL



**FOR UNMATCHED
VRF SUPPORT,
PEOPLE TURN TO US.**



From unmatched training and project support to a powerful network of distribution, installation and service professionals, no one supports VRF better than Mitsubishi Electric. And, with our comprehensive portfolio of reliable, efficient and flexible products, there's never been a better time to let the industry experts help you **get comfortable with VRF.** Learn more at mitsubishipro.com



Circle No. 12

Flex-C Trac

Even Your Newest Guy Can Frame Precise Curved Walls



John is that newest guy. Using Flex-C Trac, he is already building curved walls like a veteran.



Circle No. 13

**Pick up Flex-C Trac
at Your Local Distributor
and Start Framing**

**FLEX-ABILITY
CONCEPTS**
The Curved Wall People™

Toll Free 866.443.FLEX
(866.443.3539)
www.flexabilityconcepts.com
MADE IN THE USA

heat and weather events in coming years. The implementation and performance of these integrated measures helped NYU Langone Health earn PEER Platinum certification.

Making the Case

Reducing carbon emissions across the building sector is imperative as companies and governments work toward sustainability and climate-change goals. Integrating DER, like building-scale renewables, batteries and thermal-energy storage will go a long way to help energy systems decarbonize. Ultimately, though, what those systems look like and how they operate will vary depending on location. For instance, California's solar capabilities will cause a building in Los Angeles to have a drastically different approach to integration of DER than a similar building in Houston. Nonetheless, core strategies exist that can help owners and designers take the necessary steps in most buildings to prepare them to be valuable assets in a carbon-free future.

The environmental benefits of decarbonizing buildings are not the only reason to consider how a building is impacting a grid. There is a significant financial argument to be made when companies consider the cost associated with a power interruption. According to an independent survey by Grafton, Mass.-based research and consulting firm ITIC, 98 percent of respondents estimated that downtime costs their companies more than \$100,000 in a 60-minute period. For large companies, this goes up significantly.

During the past 10 years, Dublin-based energy-management company Eaton has been tracking blackouts in the U.S., and its latest report showed a slight decline in the number of outages but the people affected by those outages more than doubled. According to the report, the average duration for an outage was 81 minutes. (Read the report at eaton.works/2OhVxdr.)

The impact of a building's energy system has serious environmental and financial implications. Looking beyond those factors, outages and disruptions can even impact a brand's reputation and customer perception. Ultimately, the argument for doing a comprehensive assessment of building energy systems can be made from many sides and it provides a significant leadership opportunity for building designers and operators.

To learn more about creating buildings that are well-positioned for a more sustainable, resilient and reliable future, email peer@gbci.org.

Whose Lives Are Counting On You?

The choices you make for your emergency lighting affect more than just the bottom line - they impact lives. Mothers, fathers, sons, and daughters are counting on you to make the right emergency lighting choices for their families and friends. We design and manufacture reliable, compatible emergency egress solutions that enable your lighting system to perform...not just on "Bid Day" but when it really counts.

**Request a free IOTA
Emergency Solutions Guide at
iotaengineering.com/solutions**



Emergency Lighting
...for the reasons that matter most



1-800-866-4682 www.iotaengineering.com



Circle No. 14

The Perfect Fit for Retrofit

C & C13-Series™

Units are of the horizontal hanging type for plenum installation and can also be slab mounted or vertically stacked with the evaporator section on top, saving space.

- 1 to 15 Tons
- Air-Cooled, Water-Cooled, Chilled Water, Water Source Heat Pump or Air Source Heat Pump



Alpha Aire

Alpha Aire is designed to provide a low CFM "one stop shop" product. All indoor installation only, one product to source, easy to install and easy to maintain makes this a great solution for IAQ challenges.

- 100 – 500 CFM
- Air Source Heat Pump
- Variable Air Volume
- Air-Cooled Self Contained
- Direct Expansion w/ Energy Recovery



VertiCool AURORA™

The AURORA is a self-contained vertical system. These floor-mounted units are particularly suited for tenant fit-out and for easy replacement of older units.

- 3 to 35 Tons
- Ships with Factory Charge
- Air-Cooled, Water-Cooled or Water Source Heat Pump



VertiCool CLASSIC™

The splittable feature helps to get the units into facilities. Multiple air path configurations make it easier to adapt the unit without extensive field alterations.

- 3 to 30 Tons
- Ships with Factory Charge
- Air-Cooled, Water-Cooled, Chilled Water, or Water Source Heat Pump



OmegaAir™

The 100% outside air OmegaAir system is designed specifically for indoor installations.

- Vertical or Horizontal Configurations
- 150 to 3,000 CFM
- Building Management System Compatible (optional interface card)
- Water-Cooled or Air-Cooled
- Air-Cooled with Indoor Ducted Condenser or Remote Outdoor Condenser



VariCool® EZ-Fit

These floor-mounted systems are designed for easy replacement of existing floor-by-floor VAV or constant volume units with minimal modifications to current building structures.

- 12 to 45 Ton Single Modules
- 24 to 90 Ton Dual Modules
- Modular Floor-by-Floor Systems
- Ships In 3 to 8 Sections
- Water-Cooled, Chilled Water or Water Source Heat Pump
- Ships with Factory Charge





WRITTEN BY | KJ FIELDS

A standing 750-pound stuffed brown bear, a shark projecting from a wall, the ability to have a few drinks at a bar and play a round of cornhole, or gather around a stage for a live music concert are not part of a typical shopping experience. But for YETI's new flagship store in Austin, Texas, entertaining and interactive exhibits launch visitors on a journey into YETI product territory.

The 8,000-square-foot retail showroom reclaims the ground floor of a historic warehouse set in the vibrant South Congress district next to Lady Bird Lake and near downtown. Aligning architecture, branding, merchandise and story, the project was a collaboration of Austin-based lauckgroup (now Perkins+Will) and Lake|Flato Architects' Austin office.

YETI was founded in Austin, and Michael Horton, senior project designer

and senior associate at Perkins+Will, says the company has a true presence there. "They wanted a place where the YETI faithful (their clientele) would come and share their stories," Horton recalls. "We were tasked with making the flagship unique enough to create a draw."

DESTINATION: BRAND

YETI produces ice chests and coolers that can hold up under extreme conditions,

URBAN EXCURSION

YETI's Foray into Brick and Mortar Carves a Path to Adventure



PHOTOS: CASEY DUNN PHOTOGRAPHY

making them appeal to outdoor adventurers, hunters, fishermen and ranchers. Online, YETI products' advantages are touted by "ambassadors" (famous outdoor enthusiasts) who recount their exploits through photos, videos and social media outlets. "We really had to immerse ourselves in the YETI brand to make the connection between their brand and social media presence come to life in a built environment," Horton recalls. "We added installations where people could touch

the items they've seen on YETI's Instagram stories and tried to create Instagrammable moments for visitors."

According to Trey Rabke, project architect at Lake|Flato Architects, to tell YETI's brand story through imagery, ideas and stories is one thing, but to sell the product is another. "It was a complicated set of directives," he notes. "It demanded a lot of coordination between our firm, the retail designers, branding agency, client and fabricators."

A TRIP INSIDE

To determine the range of exhibits and entertainment options, the team dived into anything-goes brainstorming sessions. "We just let the ideas fly," Rabke describes. "We asked: 'What if we hang a giant shark on the wall? How about we saw a truck in half?' It was really fun, and what resulted is a miniature museum."

In addition to the 8-foot bear and the shark, the flagship includes showpieces, such as the first fishing skiff able to



travel in a mere 6 inches of water, one of the first Jeeps to traverse the Sahara desert, an Aaron Franklin's BBQ Smoker and a Texas flag made from more than 11,000 beer bottle caps. The space promotes lingering and interaction through video displays, a hospitable bar, and a stage for YETI ambassador speeches and demonstrations, film screenings and music concerts that can align with Austin's SXSW festival.

YETI products are woven into every exhibit. For example, the live music stage is propped up by coolers, and camouflage-topped YETI coolers serve as seating in the bar. A wide range of merchandise from ice chests, coolers and drinkware to T-shirts, hats and bottle openers are ready to pick up and purchase. In fact, the flagship store is the only place where patrons can customize the color of their cooler's latches and handles and choose the logo.

The jam-packed retail and experiential program required flexibility and innovative thinking. "There are lots of rotating, one-off exhibits and we needed to be able to empty out the space to accommodate crowds during concerts and film screenings," Horton says. "This was a real logical challenge within a footprint where there's no large back-of-house storage."

The designers crafted retail fixtures that nest together and put wheels on the displays so they can be moved to the back of the store. A clever canopy tucked into the ceiling rolls down and hooks into the floor, concealing the displays when open-floor event space is needed.

RAW DURABILITY

The building retrofitted for YETI's flagship seems tailor-made for the brand. A survivor of extreme weather, the historic 1930s warehouse was one of the only



THE YETI FLAGSHIP STORE IN AUSTIN, TEXAS, ULTIMATELY IS A MINI-MUSEUM, PROMOTING PATRONS TO LINGER AND INTERACT WHILE CHOOSING, CUSTOMIZING AND PURCHASING THEIR YETI PRODUCTS.





THE BUILDING'S INTERIOR REFLECTS YETI'S **ROUGH-AND-TUMBLE CULTURE**, SPORTING SALVAGED BRICK AND RECLAIMED WOOD THROUGHOUT.

structures to withstand Austin's infamous 1935 flood. The building's robust concrete-frame interior emphasized its durability, and the team preserved and expressed this character.

"Given the grittiness of the building and YETI's rough-and-tumble culture, we wanted to augment the rawness that was there," Rabke recalls. "It made sense to let the story of the building be evident, so we left the concrete frame and brick walls exposed for texture and salvaged as much of the brick as possible."

Changes in use over the decades made for haphazard floors and columns, and items torn out over time affected wall finishes. Now, the back wall sports the project's salvaged brick, and reclaimed wood lines the floor and much of the wall space.

Concrete columns around the music concert stage that extended through to the basement had to be structurally reinforced. To accomplish this, the team bolted C-channels made of steel to either

(continues on page 32)

another superior product from
MAXXON
CORPORATION

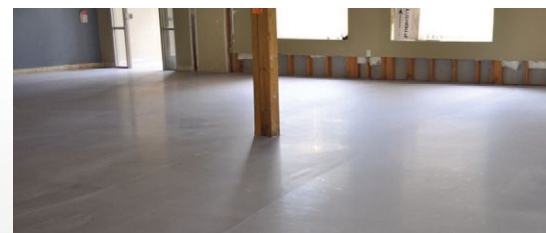
**LEVEL
ONE** **EZ**

THE **EZ** WAY TO REVIVE AN OLD FLOOR

Bring old floors back to life with Level-One™ EZ, a versatile, low-prep leveling underlayment ideal for commercial renovations. Level-One EZ requires no shot blasting in most applications and provides a robust bond over a variety of substrates, even over old adhesives.

Providing consistent results that you can rely on, Level-One EZ is sure to become your go-to self-leveler.

- Levels from 1/4" – 2"
- Suitable for virtually all floor coverings
- Ideal for large projects or small repair jobs
- Install flooring in as little as 16 hours



TO LEARN MORE: 800-356-7887
info@maxxon.com • www.maxxon.com

ORDERING INFORMATION: 763-478-9650
PAYMENT OPTIONS: CREDIT CARD, EMAIL CHECK, CREDIT TERMS AVAILABLE

MAXXON
THE FLOOR SPECIALISTS

Retrofit Team

ARCHITECTS // Lake|Flato, Austin, Texas, www.lakeflato.com, and Perkins+Will, Austin, perkinswill.com

BRAND DEVELOPMENT // McGarrah Jesse, Austin, www.mc-j.com

PROJECT MANAGEMENT // EPIC Management Resources LLC, Houston, epic-mr.com

GENERAL CONTRACTOR // Franklin-Alan LLC, Austin, franklinalan.com

MEP ENGINEER // Big Red Dog, Austin, bigreddog.com

LANDSCAPE ARCHITECT // dwg., Austin, studiodwg.com

LIGHTING DESIGNER // David Nelson & Associates LLC, Littleton, Colo., www.dnlighting.com

side of the concrete columns on both sides of the stage.

"It's an industrial cladding but it actually has a really beautiful, retrofit quality to it, which makes it cool detailing," Rabke says. "And because they keep the stage pretty active with concerts, acoustics became important, so we added coffers in perforated rusted metal panels that have acoustic baffles on top."

Part of the interior is clad in black sheet-plate steel with a treatment that alerts visitors to the building's history. "We etched a line in the panels where the water had risen to in the space during the 1935 flood," Horton explains. "Above the line the panels are black, but a rusted finish below the line looks like the panels were affected by the flood." An enlarged historic photo shows downtown Austin covered in water but the building still standing during the deluge, and an interpretive plaque in the back of the space explains the event.

THE GREAT OUTDOORS

Even with the exhibits and events, the space would be hard-pressed to convey YETI's outdoor lifestyle brand if it was left as an opaque, enclosed warehouse. "We wanted to create strong connections to the outdoors and have passersby see the activity and be drawn inside, so we expanded the experience to the street," Rabke explains. "It sounds like a simple thing, but creating visual connections and activity at the street level was one of the most successful moves."

The warehouse's sturdy concrete frame allowed the designers to remove brick, add expansive windows and create a large community porch. To reinforce the space as a hip hangout, the porch hosts YETI's indoor/outdoor bar, which is secured at night by hydraulically operated flip-up doors. Made of open-air steel-bar grate, the doors serve as a shading structure for bar patrons and provide detail and depth to the exterior when open.

Your team deserves a comfortable place to work.

Improving the indoor air quality for your hard working team will deliver huge, long-term dividends.

Let's start with a
**FREE HVAC
Retrofit Analysis.**

To schedule a meeting, simply go to:
www.cambridge-eng.com
and click on this icon:



Circle No. 17


Superior Heating, Ventilating,
and Cooling Solutions for
Your Retrofit Project.



S-Series HTHV Heaters • M-Series Make-Up Air Units • E-Series Evaporative Cooling

Inside, a series of transparent accordion folding doors protect the conditioned space from outside air. When the weather is temperate, the accordion doors easily fold to expand the entire space to the outdoors, and they allow staff to accommodate overflow crowds during events.

"The project is a unique blend of retail, exhibits and experience that captures the spirit of YETI's clientele," Rabke says. "It's very interactive the minute you walk in, and the immersive nature of the displays, events and bar keeps you entertained and in the space."

While some think that physical retail locations won't endure as e-commerce continues to gain traction, Horton has a different perspective. "Brick and mortar spaces will thrive as long as the brand has an important message and retailers find ways to tell their story," he says. "This space is a great example of that—it really engages the community." 

Materials

PERFORATED, ROLLED, BAR GRATE AND CORTEN STEEL // Sarabi Studio, www.sarabistudio.com

TIN CEILING TILE // Chelsea Decorative Metal Co., www.thetinman.com

MOONSTONE ANTIQUE MIRRORS // SPANCraft Glass, spancraft.com

WIRE MESH // McNICHOLS, www.mcnichols.com

PLASTIC LAMINATE // Nevamar, Panolam Surface Systems, panolam.com/nevamar

PAINT // Benjamin Moore, www.benjaminmoore.com, and Rust-Oleum, www.rustoleum.com

FLOOR TILE // Stone Source, www.stonesource.com

WALL TILE // Stone Source and Walker Zanger, www.walkerzanger.com

WINDOWS // U.S. Aluminum Storefront Windows, www.crlaurence.com

- Guardian Sunguard Advanced Architectural Glass, www.guardianglass.com
- Carvart Frosted Glass, carvart.com

HYDRAULICALLY OPERATED FLIP-UP DOORS // Crown Inc. Hydraulic Single Swing door, www.crowndoors.com

ACCORDION DOORS // Euro-Wall Euro-C5 Vista Fold thermally broken aluminum folding door system, www.euro-wall.com
■ FINISH: Dark Bronze Anodized

LIGHTING // LED Lighting Inc., www.ledlightinginc.com; Zaneen, www.zaneen.com; Juno Lighting Group, www.junoltg.com; and Modern Forms, modernforms.com

ZIPWALL®

DUST BARRIER SYSTEM

800-718-2255

**Start every job
with ZipWall®.**

- Sets up in just a few minutes
- No ladders, no tape, no damage

See how easy it is at
zipwall.com.

Circle No. 18



85 UNION | Memphis, Tenn.



PHOTOS: KEN WEST PHOTOGRAPHY
unless otherwise noted

► RETROFIT TEAM

ARCHITECT AND INTERIOR DESIGNER: Looney Ricks Kiss, Memphis, www.lrk.com
STRUCTURAL ENGINEER: Tom Robison & Associates Inc., Memphis, (901) 754-4411
MECHANICAL ENGINEER: Gala Engineering Inc., Memphis, (901) 384-8400
PLUMBING ENGINEER: White Plumbing & Mechanical, Memphis, www.whiteplumbinginc.com
GENERAL CONTRACTOR: Montgomery Martin Contractors (general renovation), Memphis, www.montgomerymartin.com, and Metro Construction (advertising agency portion), Memphis, www.metro-gc.com

► MATERIALS

CARPET AND RESILIENT TILE: Mannington, www.mannington.com
CEILING TILE: Armstrong Ceiling & Wall Solutions, www.armstrongceilings.com
RESTROOM PORCELAIN TILE: Daltile, www.daltile.com
WHITEBOARD WALLCOVERING: Walltalkers, www.koroseal.com/walltalkers
FABRIC WALLCOVERING: Carnegie Xorel, carnegiefabrics.com/xorel
PLASTIC LAMINATE: Wilsonart, www.wilsonart.com; Formica, www.formica.com; and Laminart,

www.laminart.com
PLASTIC GLAZING: 3Form, www.3-form.com
WALL SCONCES: Artemide, www.artemide.com
DECORATIVE PENDANT: Luceplan, luceplan.com
DOWNLIGHTS: Cooper Lighting, www.cooperindustries.com

► THE RETROFIT

85 Union is located at one of the most iconic pedestrian-oriented corners in Memphis, the corner of Union Avenue and Main Street. The owner asked Looney Ricks Kiss to analyze the existing underperforming building to determine if it could be revitalized into more appealing, leasable space. Strategies were developed to reveal hidden architectural and programmatic gems.

The 17,000-square-foot building reveals itself as a simple arrangement of an upper-level mass composed on a floating ground floor of light. The upper-level mass is sculpted and edited to reveal the interior functionality of the building, putting ground-floor activity on display.

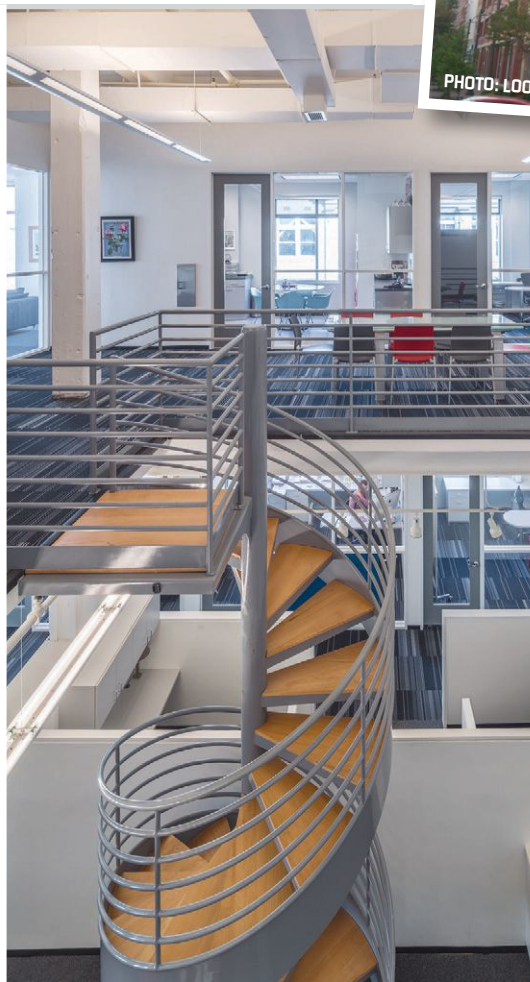
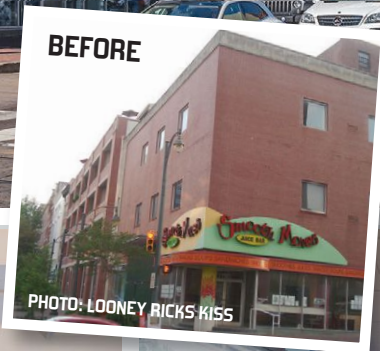
The office entry lobby creates a unique street-level pedestrian entry for the advertising agency, which is housed upstairs. The upper levels use interior glass walls to bring sunlight to the interior creative workspace. The new corner bay window, set amongst a backdrop of the city, creates

conference spaces that allow creative juices to flow. The corner bay window also allows views up and down the Main Street corridor and up Union Avenue toward the river. A new 2-story volume was created to enhance collaboration within the open studio spaces. The new floor opening creates connections and encourages collaboration. A restrained palette connects the exterior and interior spaces.

The existing cast concrete structure is revealed in the interior execution and exterior transparency, along with the signature red color of the advertising agency. The upper form of existing brick curtainwall was peeled back and punched to reveal the primary structural frame—a cast-in-place column and beam system.

This project has transformed an underperforming building into a mixed-use downtown icon. The contemporary proportions of the renovated building are revealed while complementing the adjacent historic fabric of Main Street. Citywide, the 85 Union renovation has been positively received, and there are two long-term tenants, a spa/salon on the ground floor and the advertising agency on the upper floors.

The renovation has garnered AIA Tennessee's Award of Excellence in Architecture and the Associated Builders and Contractors' (West Tennessee Chapter) Excellence in Construction Awards, Interiors Category.





PHOTOS: PETERSEN



HANOVER SQUARE | Hanover Park, Ill.

» RETROFIT TEAM

ARCHITECT: David Cornes Architect, Chicago, www.cornesco.com
GENERAL CONTRACTOR: Novak Construction, Chicago, www.novakconstruction.com
WALL PANEL INSTALLER: Anthony Roofing, a Tecta America company, Aurora, Ill., www.tectaamerica.com

» MATERIALS

Approximately 10,000 square feet of Petersen's Precision Series HWP wall panels were selected as the primary cladding. The 24-gauge steel, 16-inch panels were finished in Medium Bronze. An additional 6,800 square feet of PAC-3000 RS metal composite material (MCM) wall panels accent and highlight the façade. The

4-millimeter MCM rainscreen system panels were finished in White.

"The job was originally [specified] using a competitive product and there had been some delays in the early stages of the project," says Gianni Pellegrinon, sales and project manager, Anthony Roofing. "But when we got involved, we suggested looking at Petersen. We worked closely with the architect to get the most efficient layout ... to stay within the tight budget."

Both PAC-CLAD profiles were fabricated at Petersen's headquarters facility in Elk Grove Village, Ill.

METAL WALL PANEL MANUFACTURER: Petersen, pac-clad.com

» THE RETROFIT

Before its transformation, Hanover Square was a failing, barely 50 percent-leased strip center with few redeeming qualities. "It was completely run-down and had to have been one of the least attractive strip centers in the area," recalls David Cornes, principal at David Cornes Architect.

One constraint Cornes faced in designing the renovation was that the center was very long and low—1,400 linear feet with only 12-foot ceilings. "A major design goal was to articulate the front façade and make the structure appear more than it was," Cornes explains.

The other significant challenge was financial. "The budget constraint was overriding and influenced everything we did," Cornes says. The two metal wall panel profiles ultimately met the challenges.

OUR OBSESSION IS GROWING

VALSPAR IS NOW SHERWIN-WILLIAMS.

One name. Double the obsession for innovation. Twice the relentless dedication to color customization, performance, and expertise. Our portfolio offers the same architectural metal coatings you know and trust. Superior-quality, field-proven options including Fluorpon®, our flagship 70% PVDF, and Valflon®, our FEVE high-gloss coating, both known for their time-tested reliability.

Put us together and see where color can take you. Contact us at coil.sherwin.com.

Circle No. 19



SHERWIN-WILLIAMS
Coil Coatings





WATCH A TIME-LAPSE VIDEO OF THE PREFABRICATED WALL PANELS BEING INSTALLED ON THE EXISTING BUILDING.

309 EAST PACES | Atlanta

►► RETROFIT TEAM

ARCHITECT: Lyman Davidson Dooley Inc., Atlanta, www.ildi-architects.com
GENERAL CONTRACTOR: Balfour Beatty Construction, Atlanta, www.balfourbeattyus.com
WALL PANEL PRODUCER AND INSTALLER: Southern Wall Systems, Suwanee, Ga., southernwall.com

►► MATERIALS

The owners wanted to preserve the aesthetic of the brick building within a tight budget and swift timeframe. Balfour Beatty Construction introduced the idea of using StoPanel technology as an option that would enable the team to deliver the design intent in a short period of time and within budget while actually increasing the square footage of the building.

StoPanel Classic NEXt ci was chosen for the cladding. The lightweight prefabricated panel incorporates continuous insulation and StoGuard waterproof air barrier as standard components. Each panel allows for drainage via weeps in its patented Sto Wedge Design.

To achieve the look of brick and granite, the team chose StoCreativ Brick, a decorative wall finish

system that can be used over any Sto cladding or other prepared exterior surface to achieve the classic look of brick, and StoCreativ Granite, an acrylic-based interior and exterior wall finish that looks like cut or polished granite but in a lightweight finish coating. The panels were produced by Southern Wall Systems at its manufacturing facility and driven to the job site.

Prefabrication provided close to \$500,000 in savings, as well as a faster and safer method of reconstructing the envelope on the busy streets of Buckhead. "One of the considerations that is often overlooked on any job is keeping the neighbors happy," says Mark Buser, vice president of Operations at Southern Wall Systems. "We all wanted a responsible build with minimal intrusion into the surrounding neighborhood. Using Sto Panels meant less noise, disruption and traffic. It helped make us a good neighbor."

The panel manufacture occurred simultaneously with the demolition of the exterior of the building to reveal the structural core and shell. The panels, which were installed in 22 working days, were "flown" into place with a tower crane so there was minimal work required at height.

Using Sto Panel technology on the project actually increased the interior space by 2,000 square feet. The building's original skin was constructed of concrete masonry units and brick. The CMU sat on the slab infilling from the top of slab to the bottom of the beam. After restoration, the new skin sits outside and bypasses the edge of the slab, which added 8 inches around the entire perimeter of the building.

PREFABRICATED PANELS: Sto Corp., www.sto.com

►► THE RETROFIT

The 1963 12-story brick landmark was the oldest high-rise building in Buckhead and in dire need of a makeover. The revitalized 309 East Paces now offers 80,000 square feet of office space in a boutique building and 25,000 square feet of ground-floor retail with onsite parking. The wide-open, creative, loft-style spaces are a testament to the original vision to maintain the legacy of this vintage landmark and reposition it for the occupants of today.

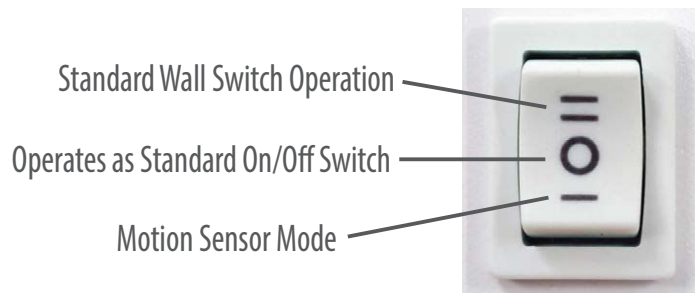
An LED Lighting Solution for Small Spaces

Small Space LED Luminaire with Motion Sensor

- ◆ For New or Retrofit Applications
- ◆ 1,000 Lumens at 13 Watts
- ◆ 4000K Cool White Light
- ◆ Easily lights a 100-Square Foot Space
- ◆ Detects Motion in a 20-Foot Range
- ◆ For Ceiling or Wall Mount Applications
- ◆ Significant Energy Savings
- ◆ Superior Performance vs. CFL or LED Lamps
- ◆ Operates with Motion Sensor or Standard Wall Switch



Operating Modes — Three (3) Switch Options



Want to Try it Out?

See why our Reliable and Sustainable Small Space LED Luminaire is right for you! To request your **FREE** product evaluation sample, contact Allen Guidry III at aguidry@engproducts.com!

Use Code: EPCO-SSL19

*Note: Free Evaluation Sample Offer
Expires December 31, 2018*

5-Year Warranty. Meets the requirements of the 2017 National Electrical Code. ETL Listed to UL Standards. May qualify for rebates from your local utility.

Circle No. 20



5401 Smetana Drive, Minnetonka MN 55343 • engproducts.com • 800.336.1976

© 2018 Engineered Products Company. All Rights Reserved.



PHOTOS: BOON EDAM

ANDAMAR LIFESTYLE CENTER

Veracruz, Mexico

► RETROFIT TEAM

DOOR INSTALLER: AVANCE Inteligente, Monterrey, Mexico, www.avans.com

► MATERIALS

Since opening in October 2014, Andamar Lifestyle Center struggled to contain strong Veracruz winds, which consistently left its swinging doors open and exposed the facility to heat, humidity and sea breezes. In turn, this allowed the shopping center's air conditioning to escape, resulting in a second challenge: higher electricity expenses. Taking the mall's estimated 5.3 million annual visitors into account, and the fact that 40 percent of them are entering through the main entrance, the air infiltration and loss situation became unsustainable. As a result, Rosa María Bueno, the

center's director, began looking for solutions.

In addition to its main guest entrances, Andamar Lifestyle Center has entryways to its terraces, which are primarily used by waiters in transit—making easy access a must. "Because we're beside the ocean, many people go outside to enjoy the air, take photos and eat; as a result, waiters go in and out with their hands full of food, huge trays, etc. We needed to find the right entryway that wouldn't make this process any more difficult," Bueno explains.

Bueno also had to consider the center's original architects' opinions. "The architects who designed the center were very worried the new doors would change its visual design and obstruct the ocean views, two important points that were taken into account from the beginning," she says.

In total, the shopping center installed eight Boon Edam doors: three Crystal TQ automatic revolving doors, three Crystal TQ manual revolving doors and two Crystal BoonAssist semi-automatic revolving doors. Each door was installed with the specific entryway's purpose and location in mind. In addition to receiving a customized analysis, the shopping center experienced assistance from Boon Edam support staff during the project's duration.

"We're very happy with the solution from all angles. It meets its functional and aesthetic purposes; it contributes to our positive image; and the doors have allowed for the flow of visitors to achieve a good rhythm," Bueno concludes.

REVOLVING DOOR MANUFACTURER: Boon Edam, www.boonedam.us



PHOTOS: FABRAL

RACE PACE BICYCLES | Ellicott City, Md.

► RETROFIT TEAM

ARCHITECT: Ammon Heisler Sachs Architects, Baltimore, www.ahsarch.com
 GENERAL CONTRACTOR: Bakers Construction, Westminster, Md., www.bakcon.com/BC/index.html
 METAL DISTRIBUTOR: N.B. Handy Inc., Lynchburg, Va., www.nbhandy.com

► MATERIALS

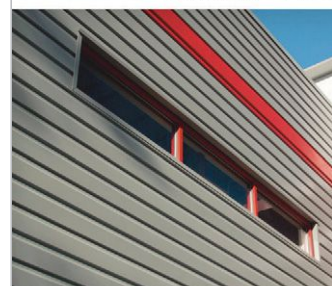
Fabral 12- and 16-inch Silhouette HCF Series metal wall panels finished in Sherwin-Williams Coil Coating (formerly Valspar Corp.) Fluoropon coating in Slate Gray and a custom red were installed in a continuous horizontal pattern on the building exterior. Thanks to its color-adhesion properties and vibrant pigments, the selected Fluoropon colors provide a modern and dynamic vibe to a once drab exterior. To maintain its strong local brand, it was important Race Pace Bicycles secure exterior colors that match the company's style. With Sherwin-Williams' color-matching abilities, the process was simple.

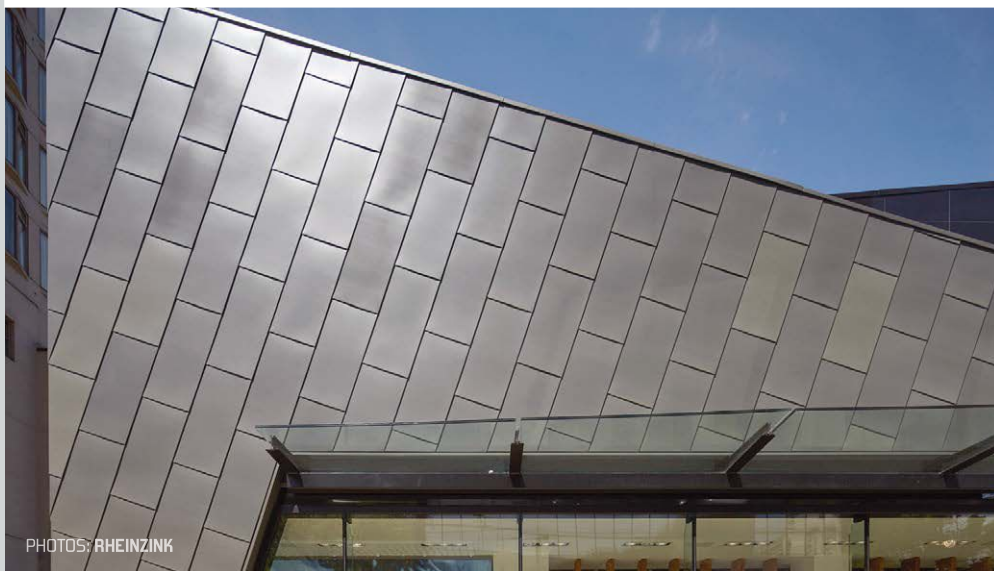
METAL WALL PANEL SYSTEM MANUFACTURER: Fabral, www.fabral.com
 COATINGS PROVIDER: Sherwin-Williams Coil Coating (formerly Valspar Corp.), coil.sherwin.com

► THE RETROFIT

Since 1978, Race Pace Bicycles has provided Maryland with high-quality support and expertise on all things bicycle-related. Beginning as a small two-room storefront in West Baltimore, the business has expanded to five locations. The third location, which opened in Ellicott City in 1984, had to be relocated when the strip mall that housed it was to be torn down. Wanting to maintain business in the area, Owner Alex Obrieht purchased a local warehouse to become the site of the company's next Ellicott City location.

Ammon Heisler Sachs Architects was hired to conduct a full-scale remodel of the interior and exterior of the warehouse. Plans also were developed to add 4,800 square feet to house the company's sales floor and storeroom. A major facelift was needed to the structure's façade to attract customers and convey the Race Pace Bicycle brand. Taking more than 21 months to complete, the Ellicott City location staffs 15 employees and is home to Bella Bikes, Race Pace Bicycle's exclusive store for women and the first all-women's bicycle store in the country.





PHOTOS: RHEINZINK

ARC'TERYX | Vancouver, British Columbia, Canada

► RETROFIT TEAM

ARCHITECT AND CONSTRUCTION MANAGER:
Unison Construction Management Ltd., Vancouver,
www.unisoncm.com

ZINC INSTALLER: Ace Copper Specialists, Surrey,
British Columbia, www.acecopperspecialists.com

ZINC DISTRIBUTOR: Alesther Metal Distributors
Ltd., Burnaby, British Columbia, alesthermetal.com

► MATERIALS

Custom RHEINZINK panels, installed on a diagonal, along with natural granite to symbolize the nearby mountain horizon, highlight the retailer's largest Canadian store.

Zinc for the exterior was inspired by Arc'teryx itself, according to Ehsan Vali, Unison Construction Management's lead designer on the project. "A lot of their products rely on metal components," he says. "I knew I wanted to use metal, and zinc caught my attention early on. I discovered that the nearby mountains contain significant deposits of zinc and copper. And I came across different

pictures of actual raw zinc and noticed the very linear, angular, clear lines with a bit of sheen. We quickly settled on RHEINZINK as the right material to deliver the 'cool', modern aesthetic to complement the brand."

Approximately 2,000 square feet of custom RHEINZINK panels were fabricated and installed. "I wanted a fabricator and installer that could do an art piece," Vali says. "Ace did a fantastic job. We're very pleased with the outcome."

Paul Dore, president of Ace Copper Specialists, worked closely with Vali in designing the 24- by 48-inch custom RHEINZINK graphite-gray panels. The mountain-inspired architectural design called for the RHEINZINK panels to be installed on the diagonal and wrapped around a sharp 90-degree corner. "To further complicate the job, the cap line at the roof was at a slightly different angle than the angle of the shingles," explains Jason Dore, Ace Copper Specialists' chief operating officer. "We hand-fabricated all of the top shingles onsite. The designer didn't want seams when we wrapped the

panels around the corner. The installation had to be perfect to keep the angles all in place. The job was a challenge but turned out to be really striking." RHEINZINK also was used on the interior as infill material for various racks and product display areas.

ZINC PANEL MANUFACTURER: RHEINZINK,
www.rheinzink.us

► THE RETROFIT

The retail chain, founded by local climbers in 1989, offers high-performance outdoor equipment and clothing. The chosen building for this location previously was two adjoining linear structures that required major renovation to meet design objectives. "We demolished a significant portion of the front of the building and reconstructed it to increase support for the façade height that was added," Vali explains. "It was a big challenge for our structural engineers. And we had to bring the building up to code in all disciplines—it was quite complicated for what you would expect from a 4,000-square-foot building."

MACY'S | Walnut Creek, Calif.

PHOTOS: DRYVIT



►► RETROFIT TEAM

LEAD DESIGN FIRM: Nelson (formerly Ka Inc. Architecture), Cleveland, www.nelsononline.com
GENERAL CONTRACTOR AND CONSTRUCTION MANAGER: Swinerton Builders, San Francisco, www.swinerton.com
EIFS INSTALLER: The Raymond Group, Orange, Calif., www.raymondgroup.com

►► MATERIALS

The existing exterior was a red curtain wall composed of ceramic tile and areas where the cast-in-place concrete came forward to be in plane with newly framed walls as part of the renovation. It was imperative the new EIFS finish comprised of Dryvit's Outsulation Plus MD integrated with these sections of the original wall.

As called for in the design guidelines governing Macy's renovations, the EIFS cladding had to have a uniform texture in white and gray. The challenge for the architect was to somehow make a 55-year-old box and newly built box appear as though they had always been there. To realize these design requirements, the architect had to

rely on the EIFS applicator delivering crisp reveals and sharp lines combined with minimal texture. The overall design employed a crenelated dark gray horizontal panel mixed with varying sizes of large white panels.

EIFS MANUFACTURER: Dryvit, www.dryvit.com
GYPSUM SHEATHING MANUFACTURER: Dens-Glass from Georgia-Pacific, www.buildgp.com

►► THE RETROFIT

This 2-story 60,000-square-foot Macy's underwent a core and shell expansion and renovation. Located at the popular Broadway Plaza Shopping Center, the project included a complete remodel of the 55-year-old storefronts, canopies, and entire core and shell.

A major challenge of the renovation was working in an existing retail space that needed to remain open. This stretched construction over a nearly two-year period. Another challenge was to provide a remarkable facelift when the store's previous remodels had not been particularly well planned. In addition, the team had to take care not to allow debris to fall into an adjacent creek.

*Real Kiln Fired
Thin Brick
that installs like Tile*



ROYAL
THIN=BRICK
Ironrock Since 1866

ROYALTHINBRICK.COM
1.888.325.3945

Circle No. 21

BUILDING INSPECTIONS

WRITTEN BY | STEVEN SAFFELL

Invest in Evaluations of Your Existing Buildings—including Fenestration Products—Before Renovation to Save Money Down the Road



PHOTOS: COURTESY OF EFCO CORP. Unless otherwise noted

When the owners of **THE PEABODY HOTEL** in Memphis, Tenn., set out to renovate their property, they looked at feedback from former guests to help them determine what deserved the most attention. One of the biggest areas of opportunity was noise control. Pitman Glass Co., Memphis, installed EFCO Corp.'s fixed windows, which replicate a hung configuration and were glazed with insulated glass. These characteristics raised the thermal and acoustical performance of the windows, providing a quieter and more comfortable environment for guests.

When a commercial renovation is in the planning stages, it is easy to want to get started as soon as possible. However, there are some important steps to take before anything else. A common step that is skipped is one of the most important—building inspection.

Inspections comply with the scope of what is specified in ASTM E2018, “Standard Guide for Property Condition Assessments: Baseline Property Condition Assessment Process”. They involve, among other things,

a comprehensive in-person inspection of the building's construction, such as its structure and foundation, building envelope and more. Although completing an inspection can add cost and time, it can save more later.

“Inspections can be pretty helpful and, in most municipalities and jurisdictions, it's the law,” explains Jonathan Barnes, principal of Jonathan Barnes Architecture & Design, Columbus, Ohio.

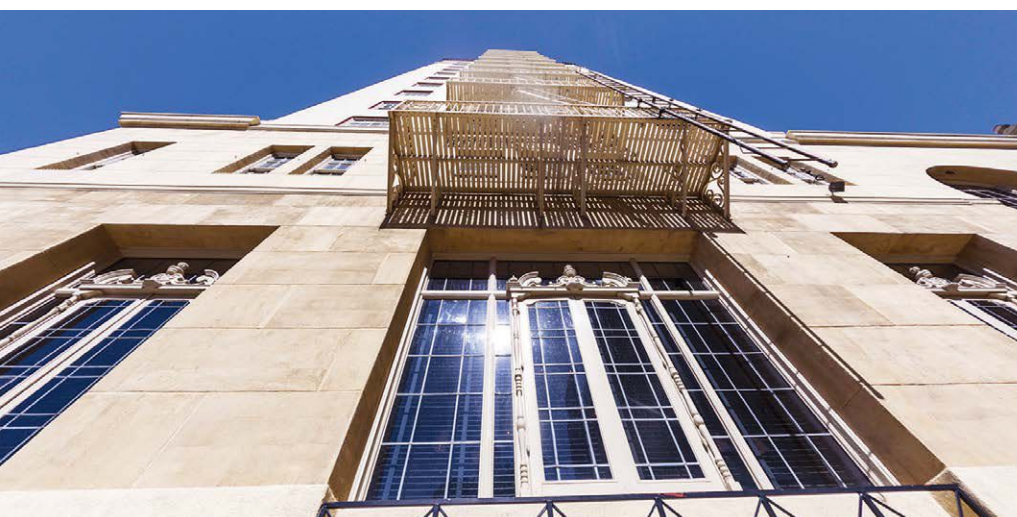
Owners and installers may want to forgo the building evaluation in favor of a

“one size fits all” approach. This may work for a small residence, but hiring a professional on larger jobs can be well worth it. Potential benefits include environmental cost savings, properly specifying and estimating products, more accurate scheduling, and avoiding unpleasant and expensive surprises. Any one of these benefits could far outweigh the investment for the building analysis.

One size does not fit all. This is especially true when it comes to fenestration products.



The large floor-to-ceiling arched wood-framed windows served as the focal point for this historic **RITZ-CARLTON RESORT** hotel. The renovation project required custom-designed aluminum framing that not only matched the original aesthetics, but also provided the needed upgrades for Florida's stringent building codes. In addition, the renovation needed to meet wind-load and hurricane-impact specifications, as well as improve thermal efficiency. All was accomplished using windows and doors from EFCO Corp. that were installed by Naples, Fla.-based Safezone LLC on a tight construction schedule to minimize the disruption to guests and business.



Replacement windows from Graham Architectural Products in the historic **HOLLYWOOD ROOSEVELT**, Los Angeles, improved the building's energy performance while maintaining its iconic style. The 12-story hotel opened on May 15, 1927, and is the oldest continually operating hotel in Los Angeles. Named after the 26th U.S. president, Theodore Roosevelt, the hotel was officially recognized as a Los Angeles Historic-Cultural Monument in 1991.



This 100-year-old historic hospital building in Indianapolis underwent a \$50 million renovation. Indianapolis-based Schmidt Associates Inc.'s design revived it as a community center and learning facility for **IVY TECH COMMUNITY COLLEGE**. The new windows were provided by EFCO Corp. and installed by Hoosier Glass Co. Inc., Indianapolis, as part of the project's restoration and refurbishing, which included preservation of the historical features of the building.



Site- and Product-location-specific Evaluations

When specifying windows, doors, curtain-walls, storefronts or skylights for retrofit projects, a simple yet detailed process ensures the best products for the application are installed. This starts with an upfront investment in a site-specific building evaluation.

According to John Runkle, vice president of building science solutions for London-based inspection and certification company Intertek, the building enclosure has been largely ignored in retrofit projects, specifically ones that dealt with energy upgrades. Conventional wisdom was that the rate of return on investment for building enclosure upgrades was well in excess of 10 years. Now, the ROI is less than 10 years and sometimes less than five. This opens new opportunities for owners to save money, especially with renovation.

According to the "AAMA 2017/2018 Study of the U.S. Market for Windows, Doors and Skylights", 155 million square feet of vision area was renovated in 2017. That number is expected to increase 5 percent by 2020.

A design professional can determine the correct specification for each fenestration product on the building. The evaluations and calculations are complicated and should only be performed by a licensed architect or engineer. Chapter 16 of the

PHOTOS: © PROGRESS PHOTO, COURTESY KAWNEER



The **MONTREAT CONFERENCE CENTER**, Montreat, N.C., dates back to 1897 and hosts more than 35,000 visitors each year. In 2012, center representatives moved forward with renovations that included more than 600 windows in approximately 25 different sizes. To meet aesthetic requirements, combinations of fixed and outswing casement windows, along with radius transom windows from Kawneer, were used to replicate the appearance of the original windows. Thermal performance of the new windows was one of the most important features to be considered for the project. The center had experienced issues with heat gain in the summer and cold conduction in the winter.

International Building Code (IBC) along with ASCE/SEI 7, "Minimum Design Loads and Associated Criteria for Buildings and Other Structures", provides the details for determining the design loads for all exterior cladding, including fenestration.

This evaluation likely will determine the fenestration product's structural design requirements differ depending on their position on the building and the project's location. For example, the structural ratings needed to satisfy the code criteria on the front of a first floor of a large building facing an open field may be different than those required on the corner of a fifth floor at the back of that same building. Installing products per the worst-case condition could lead to over-specifying, causing undue costs. Under-specifying the product for the building risks future building issues and possible litigation.

Additionally, if the building was rotated 90 degrees on that same lot or if the building was set in an urban environment surrounded by tall buildings, each product's required rating could change dramatically. Evaluations must be specific to the site and specific to the product location on the building. One size truly does not fit all.

How to Develop Specifications

Armed with this information, the design professional can develop the specifications for each fenestration product on the building. The Schaumburg, Ill.-based American Architectural Manufacturers Association (AAMA), along with the Washington, D.C.-based Window and Door Manufacturers Association (WDMA) and the Mississauga, Ontario-based Canadian Standards Association (CSA), recommends the AAMA/WDMA/CSA 101/I.S. 2/A440, "North American Fenestration Standard/Specification for Windows, Doors, and Skylights (NAFS)". The NAFS document serves as the IBC's basis for product certification.

NAFS has two driving principles that make it objective, reliable and simple to use. First, it is performance-based. NAFS rates complete, fabricated products according to how well they perform under prescribed conditions. Second, it is material-neutral. Again, because it is performance-based, the framing material does not matter. It can be metal, wood,

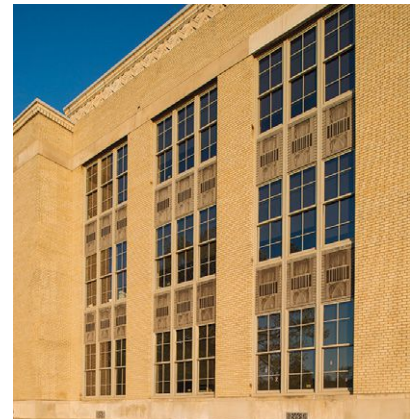
composite or vinyl as long as it meets the minimum requirements and performs to the desired ratings.

Start with determining a Performance Class. This is a description of the likely target application for a window, door or skylight. These are based on minimum gateway sizes for testing with R being the smallest and AW the largest. Since 2008,

Next, understand the Performance Grade (PG). To have a PG rating on a NAFS-compliant fenestration product, the product must pass all the applicable testing requirements. At a minimum, this includes the Design Pressure corresponding to a specified maximum expected wind velocity (ASTM E330), maximum structural performance (ASTM E330), water-pene-



The renovation of the Rochester City Schools' **CHARLOTTE HIGH SCHOOL**, Rochester, N.Y., was designed by CJS Architects, Rochester. The project required not only a dual-glazed window to help reduce the cost of glass replacement in lieu of standard insulated units, but also needed to meet thermal performance mandated by the State Education Department. In addition, it needed to maintain the original aesthetic of the windows to preserve the historic restoration standards. Along with the technology upgrades and added building space, EFCO Corp. was able to provide windows and curtainwall materials, installed by Rochester-based BRG Corp., that met the project's needs.



NAFS has identified four Performance Classes, defined as:

- **R:** commonly used in one- and two-family dwellings.
- **LC:** commonly used in low- and mid-rise multifamily dwellings and other buildings where larger sizes and higher loading requirements are expected.
- **CW:** commonly used in low- and mid-rise buildings where larger sizes, higher loading requirements, limits on deflection and heavy use are expected.
- **AW:** commonly used in mid- and high-rise buildings to meet increased loading requirements and limits on deflection and in buildings where frequent and extreme use of the fenestration products is expected.

tration resistance (ASTM E547 or E331), air-infiltration resistance (ASTM E283), uniform load-deflection testing (ASTM E330) and forced-entry testing (ASTM F588 or F842).

Rather than providing a multi-page, material-based specification that calls out every detail, a specifier can simply state the operator type (fixed, casement, etc.), the material (aluminum, wood, steel, vinyl, etc.), the Performance Class (R, LC, CW or AW) and the Performance Grade (PG-50, for example).

Next, the basic configuration and the desired performance requirements for the product can be defined. Color, screens and thermal performance may need to be addressed with the manufacturer, but the playing field has been leveled to more easily compare specifications from multiple fenestration product suppliers.



MAGNATAG®
Visible Systems

WhiteWalls®

Magnetic Whiteboard Steel Wall Panels

An **uninterrupted** magnetic dry-erase steel writing surface with **nearly invisible seams** and a **sleek frameless edge design**

WhiteWalls.com

800-624-4154

EARLY WARNING WATER LEAK DETECTION

Installed in over 23,000 sites!

CEILING GUARD®



Circle No. 23

WATER ALERT®

**WATER ALERT
SENSOR CABLE**



- 5 Year Warranty
- Made in the USA
- In Business 40 Years
- Ultra High Quality

DORLEN Products Inc.

1-800-533-6392

WWW.WATERALERT.COM

» **CONVENTIONAL WISDOM** was that the rate of return on investment for building enclosure upgrades was well in excess of 10 years. Now, the ROI is less than 10 years and sometimes less than five.

Additional Assurance

Runkle has witnessed firsthand the benefit of a building evaluation. In a New York high-rise project, a vapor-permeable air barrier was sprayed to the interior of the masonry to create a continuous air barrier across the entire assembly. That air barrier was tied into the new replacement windows; the exterior cladding remained in place. There was some minor tuckpointing and a new roof was put on. At the end of the project, the air-leakage performance of the building was almost 10 times better than the original performance.

Thanks to early conversations regarding the project's building-enclosure upgrades, the mechanical engineer was able to create a smaller, more efficient system. Both annual and initial savings were realized by looking at the enclosure differently.

"We were not doing this even five years ago. More often than not, we can be successful, not just in achieving energy savings, but also in solving performance problems and extending maintenance cycles. There are lots of other tangible benefits like better occupant comfort and increased property values," Runkle explains.


In addition to helping specify the correct product, AAMA product certification provides assurance that the manufacturers' products should consistently meet the established standards. AAMA 103, "Procedural Guide for Certification of Window, Door and Skylight Assemblies", outlines the process for certification of windows, doors and skylights for air-water-structural and thermal performance. This program provides a third-party inspection and labeling program to ensure products are built to the same high standard as the tested products.

"Getting the right product makes a big difference," Barnes says. "You can have a good design, but if you're not using the best materials and specifying the best products, it doesn't really matter."

To confirm product installations are done correctly, AAMA offers additional testing protocol. AAMA 501.2, "Quality Assurance and Diagnostic Water Leakage Field Check of Installed Storefronts, Curtain Walls, and Sloped Glazing Systems", and AAMA 502, "Voluntary Specification for Field Testing of Newly Installed Fenestration Products", are two common standards for this purpose. (Note: If using these standards in the field to verify compliance, it is recommended all interested parties agree to the method and level of testing during the contract phase.)

"Often, inspectors will find things like work that hasn't been done properly, inadvertently or not, and that's important to find early on," Barnes adds.

Inspection costs vary based on the size and scope of any project. In some cases, with extremely large buildings, the evaluation cost is based on a percentage of the property's sale price, sometimes 1 or 2 percent. An average cost for a commercial real-estate inspection is approximately 10 cents per square foot. Naturally, when spaces are especially large or involve unusual features, this amount may increase.

Every project should perform an evaluation. Doing this step upfront will save money in the end. 



This will shatter a window.



This will shatter every preconceived notion about brick the world has ever had.

NewBrick delivers the classic beauty of traditional clay brick, with enormous advantages in weight, ease of use, environmental impact, system cost, and energy efficiency.

To learn more about why NewBrick is the choice of forward-thinking architects, builders, contractors, developers, and homeowners, visit newbrick.com or call 1-833-NEWBRIK.

NEWBRICK®



TOWNH

WRITTEN BY | BRIAN LIBBY

When the trio of Victorian-era townhouses now forming the base of Toronto's 7 St. Thomas office tower were first completed in the 1880s, they reflected a time of transformation as the city's population grew by six-fold over the latter half of the 19th century. The 3-story homes, designed in a Richardsonian Romanesque style, were "heavily ornamented, with lots of stone and red brick," explains Michael McClelland of Toronto-based ERA Architects, a co-designer of the project along with Hariri Pontarini Architects, also of Toronto. The townhouse design is believed to be by one of Toronto's most celebrated architects, E.J. Lenox, who was responsible for the original City Hall and a number of local landmarks. "Toronto had a reputation in the 19th century of being a brick city," McClelland explains. "The whole building is so well made, and that Richardsonian Romanesque style has this wonderful exuberance."

Today this central-city location, in the Yorkville district, has become a place of tall buildings that dwarf the original townhouses. Finding the right programmatic response from a business-development perspective had to be weighed against what zoning and heritage-protection laws would allow. Compared to the rowhouses, a tower would bring much more sellable space. But if there was going to be a tower here, it would have to play nicely with the townhouses.

"The heritage homes ... had to stay. That was a given. But we weren't sure about the use for the tower itself," explains Patrick Quigley, president of St. Thomas Developments, which developed the project. "In the neighborhood there's a lot of high-end residential



PHOTOS: doublespace photography



HOUSES AND TOWER

A Toronto Office Building
Respects the Trio of Victorian
Residences at Its Base

RETROFIT TEAM

DESIGN ARCHITECT // Hariri Pontarini Architects, Toronto, hariripontarini.com

- David Pontarini
- Michael Attard
- Douglas Keith
- Mark Siemicki
- Paulo Milanes
- Matthew Hallett

HERITAGE CONSULTANT AND DESIGN ARCHITECT // ERA Architects, Toronto, www.eraarch.ca

STRUCTURAL CONSULTANT // Jablonsky, Ast and Partners, North York, Ontario, Canada, astint.on.ca

MECHANICAL AND ELECTRICAL CONSULTANT // Able Engineering, North York, www.ablengineering.com

ROOFING CONTRACTOR // Roof Tile Management Inc., Mississauga, Ontario, roofilemanagement.com

CURTAINWALL AND METAL WORK // BVGlazing Systems, Concord, Ontario, www.bvglazing.com

LANDSCAPE ARCHITECT // GH3, Toronto, www.gh3.ca

INTERIOR DESIGN CONSULTANT // Studio Munge, North York, www.studiomunge.com

INTERIOR DESIGN CONSULTANT (SUITE 606) // STOA Design Collective, Toronto, www.stoa-collective.com

CODE CONSULTANT // Randal Brown and Associates Engineering Ltd., North York, (416) 492-5886

SUSTAINABILITY CONSULTANT // EcoVert Sustainability Consultants, Toronto, www.ecovert.ca

MATERIALS

CURTAINWALL // Guardian Glass SunGuard SuperNeutral 68 coating on low-iron bent and flat glass from Guardian, www.guardianglass.com

LIMESTONE CLADDING // York Marble, www.yorkmarble.com



buildings. But we had to stay behind the peak of the roof line. That meant the floor plate would be narrow for apartments and condominiums. We looked at executive suite hotels, a high-end retirement home and then we came up with this scheme of the office condominium. There are only a few others that have come to market."

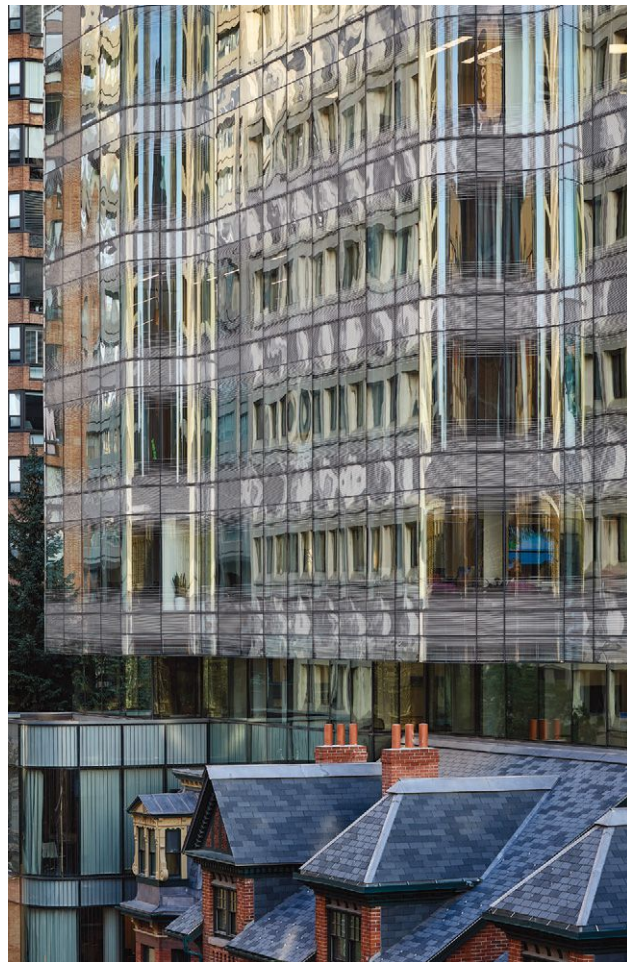
At first, the team explored letting the rowhouses operate again as single-family houses after years as offices. Yet there are no other such stand-alone homes here anymore. That's when it was decided the rowhouses would become part of a small tower, for which zoning already allowed. Many large building projects in downtown Toronto have negotiated with the city to change zoning to allow height, but because Quigley's company owned the adjacent building, the Robert A.M. Stern-designed One St. Thomas condominium tower, there was a desire to not block views. Then there was the question of mixing styles. "The city was concerned about how the buildings would relate to each other," McClelland says of the rowhouses and the tower. "It took some convincing, but I think they felt this was an appropriate response. The tower just floats above the heritage buildings, and there's a large reveal so they're not sitting heavily on them."

THE DESIGN DID ALTER the rowhouses in one significant way, lowering them by a few feet so the entrances were on-grade instead of a few steps up. "If we made them serviceable for retail or offices, they had to be barrier-free accessible," McClelland says. "We didn't want some to come in by the sides of these buildings. That would lose the legitimacy of the street face. That was

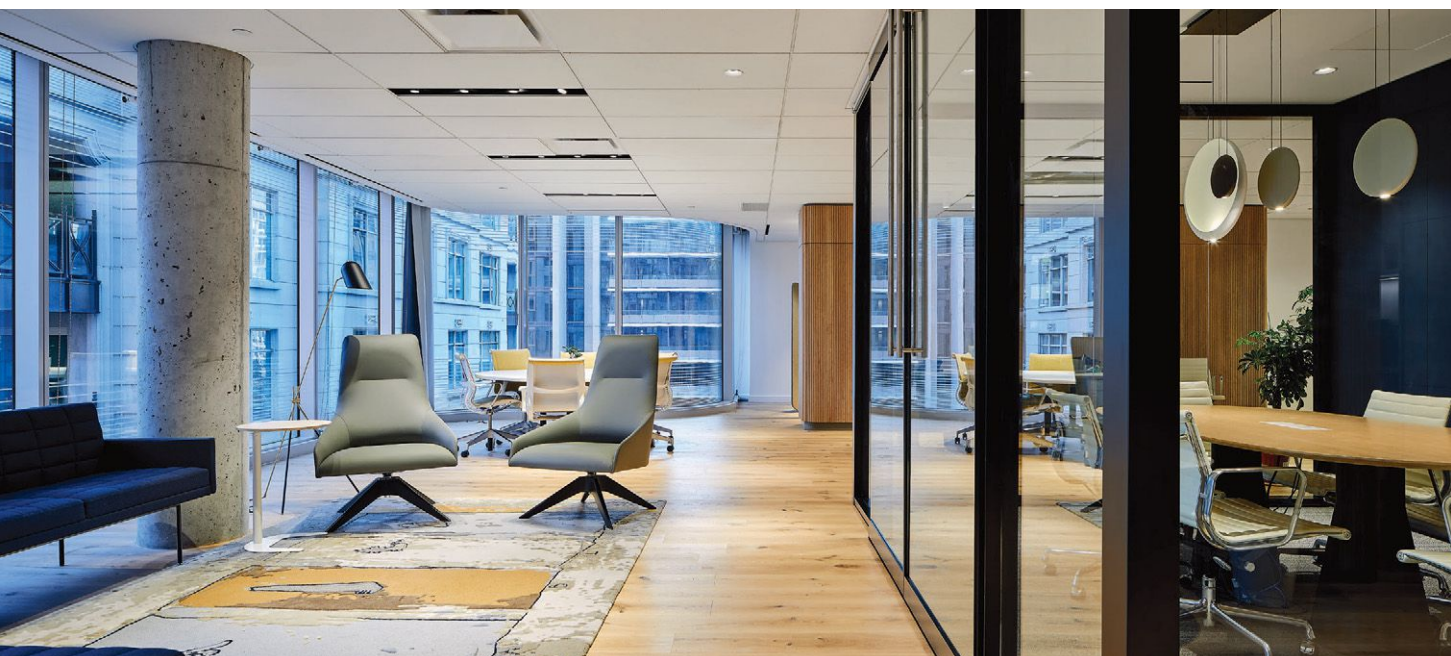
something we had to debate carefully with the city. They were concerned about the impact on the architecture. We modeled it out a few different ways. We're pleased with how it's been pulled off." Although it's a departure from the original intent, the change arguably makes sense; an affluent Victorian homeowner wants to be removed from the street, hence the stairs, but an entrance on-grade with the street is more in keeping with a commercial purpose, as well as 21st-century ideas about urban design.

Although the architects early-on explored the idea of cladding the tower in brick, they instead sought to juxtapose the new architecture against the old. The 9-story tower is clad in curving glass. "I've heard someone describe it as the equivalent of an emcee onstage, standing in front of the curtain before it opens," says Michael Attard, an associate with Hariri Pontarini Architects. "Having these small offices that you move in and out of, we came to this idea of a sinuous curtainwall. Instead of hard boxes of bay windows, this could have a nice smooth line that carries across the façade. We came to think of it as a veil backdrop for the townhomes, which were really the jewel of the site. If anything, the tower was fading into the background: this simple building that floated above what we hoped to be a really beautiful restored base and a legible break line between old and new."

The project gained acceptance with the city in part by how it was constructed. Instead of dismantling the 19th-century townhouses to make construction of the tower easier, the team chose to keep the buildings in place. What's more, the lower floors of the townhouses retain their original, more



THE ARCHITECTS JUXTAPOSED THE NEW ARCHITECTURE AGAINST THE OLD. THE 9-STORY TOWER IS CLAD IN CURVING GLASS, FLOATING ABOVE A RESTORED BASE OF VICTORIAN ROWHOUSES, WHICH TODAY ARE OFFICE CONDOS AVAILABLE FOR PURCHASE.



MAKING THESE 1880S TOWNHOUSES WORK FOR 21ST-CENTURY USE ALSO MEANS THEY MUST ADAPT, AND THUS SOME HISTORICAL DETAILS ARE MORE IMPORTANT THAN OTHERS.

compartmentalized configuration. “The city began to appreciate that: that they felt even from the street like real townhomes and not just a screen on the front,” Attard says. “It wasn’t just a façade treatment.”


That said, the interiors retain few, if any, of the original details or even the original structural components. “Because the heritage buildings became essentially part of the new tower, it had to be non-combustible construction,” McClelland explains. “The wood framing had to be removed. That was a significant alteration. We’d love to have left the wood, but our building code doesn’t permit combustible construction integrated with an addition that’s more than 6 stories.” In addition to the structural components, wood columns and other architectural aspects of the interior had to go. “There’s not a lot of trim left,” the architect adds. “But that

does allow tenants to design their own raw space.”

THAT THESE TOWNHOUSES could be stripped of most of their historic interiors reflects the case-by-case nature of the heritage designation. “It depends on the reason for designation,” McClelland adds. “Many heritage buildings have been altered over time for different kinds of uses. There weren’t any significant interiors left. But it does vary. In some projects you’ll have rooms or hallways or sets of stairs protected. In this case, what was important was the street face and how they read on the street. The standards vary, and they’re very specific to each and every building.”

Making these 1880s townhouses work for 21st-century use also means they must adapt, and thus some historical details

are more important than others. Yet this pragmatic adaptability, Attard argues, is ultimately what allows them to survive. “If you take a hard line with some of these elements, especially for buildings 120- or 140-years old, you’ll completely stall development,” he says. “You’ll lose all the opportunities that the site can have. There’s always an understanding that buildings have to adapt and evolve and work within certain restrictions. But on another level, because development is surrounding us more and more, there’s this fear of losing too much of our heritage fabric, as well.”

That’s why despite the fact that a glass tower rises 9 stories above these Victorian-era rowhouses, the smaller, older structures more than hold their own. “From the get-go, the star of this project has been heritage,” Quigley notes. “We wanted to complement it.” 



SPONSORS












SUPPORTING ORGANIZATIONS





COMMISSIONING | ENERGY MANAGEMENT | BUILDING DIAGNOSTICS

APRIL 15-18, 2019 • ORLANDO, FLORIDA



WHO SHOULD SPONSOR & EXHIBIT?

Manufacturers and Providers of:

- Cx Software & Tools
- Building Automation & Systems
- HVAC & Lighting Systems
- Sensors & Monitors
- Energy Meters & Tools
- Instrumentation
- Building Envelope Materials
- Design Tools

WHO ATTENDS CxENERGY?

- Commissioning Providers
- MEP Engineers & Energy Managers
- Building Owners & Facility Managers
- Lighting & Control Technologists
- HVAC Testing & Balancing Professionals
- Utilities & Energy Service Providers
- Plant & Facilities Engineers
- Building Control & Automation Experts
- Code Consultants
- Government Officials
- Financing Experts

Circle No. 25

PRESENTED BY:





www.CxEnergy.com
info@commissioning.org | 202.737.7775



© 2018 MechoShade Systems, Inc. All rights reserved. All trademarks herein are owned by MechoShade Systems, Inc. No part of this advertisement may be reproduced or otherwise used without the express written consent of MechoShade Systems, Inc. ©Photo: GWP Inc. Honeywell HQ.

Performance is power.

Get the most out of your workday with the natural energy boost from daylight.

Mecho's motorized solutions power good design and occupant performance. From manual shading to standard motors to our predictive automation system, SolarTrac, we have the solution to power your next office project.

Visit mechoshade.com to see how we can power your workday.



T: +1 (718) 729-2020
W: mechoshade.com
@mechosystems

Circle No. 26

CHANGING with



1]

1] The reception area for the physical therapy practice features brightly colored chairs and ductwork.



2]

2] Elements of the original Dan River Research Building are incorporated into the exhibits and features of the conference room, which overlooks the Dan River.

3] The restaurant and event hall are housed in the oldest portions of the mill building, dating as far back as 1828.

The city of Danville, Va., established in the 1790s, can trace its history through several industrial eras that have driven its evolving economy. The city first thrived on its agricultural roots and, most notably, the production of tobacco and cotton in the region. Beginning in the late 1800s, Danville also became known for its numerous textile mills, a once-prosperous industry that supported the city's economy for more than a century.

Today, having survived the decline of the tobacco industry and the departure of the textile companies as jobs moved overseas, Danville has successfully diversified its economic base and revitalized much of its downtown district, where several of the old mill buildings still line the Dan River. Among them, the Riverside Mills Mill No. 1 building now serves as a distinctive example of the community's vision for preserving the local architectural heritage while welcoming new uses for historic structures. The riverfront building has recently been renovated and converted into mixed-use space, including

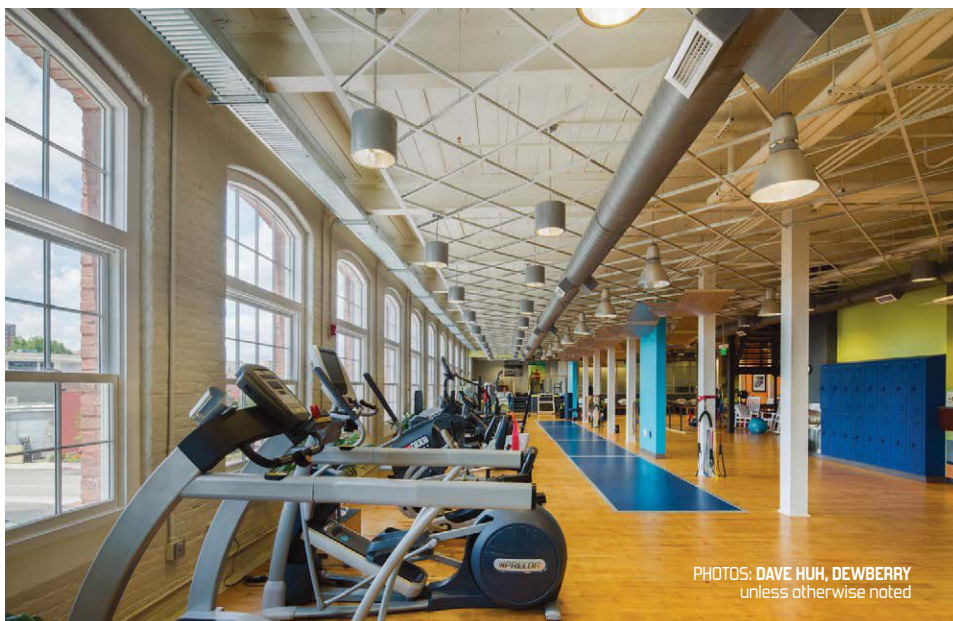
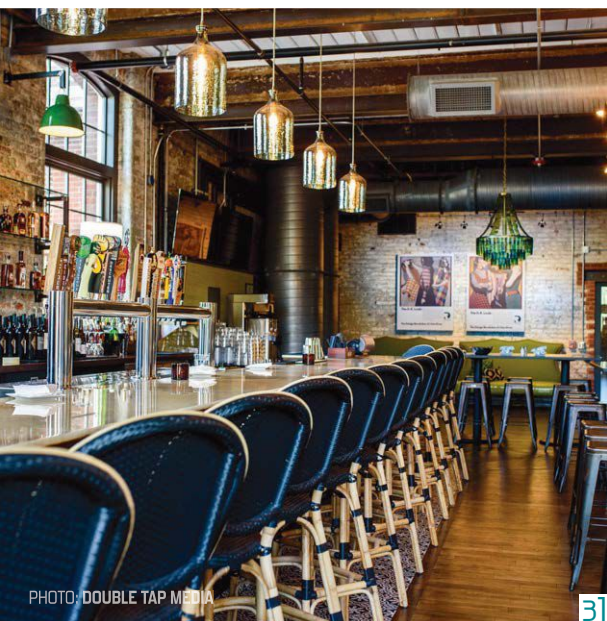
state-of-the-art medical offices, clinics, a restaurant and banquet hall.

From Tobacco to Textiles

Mill No. 1 was built in 1882, incorporating an old tobacco-picking warehouse or "picker house" constructed in 1828 where farmers once gathered to sell their harvested tobacco. The building is located at the corner of Main and Bridge streets and serves as a prominent landmark in downtown Danville. The 4-story, 13,000-square-foot building was typical of the era: an American-bond brick structure with a "slow-burning" interior wooden structural system, basement, gable parapet, and rows of segmental arch windows to provide light and ventilation. When it opened, local residents gathered on the Main Street bridge to watch as the Dan River, released by the Roanoke Navigation Co.'s canal, began to turn the enormous water wheel that would power the mill in its early days.

During its first year of operation, the mill housed 100 looms and more than 2,000 spindles. By 1886, a machine shop had been

the TIMES



added, along with rooms for weaving, carding and spinning. Multiple additions expanded the building to 140,000 square feet through the early part of the 20th century. Mid-century, the building became known as the Dan River Research Building as its use shifted to accommodate experimental technologies and new manufacturing techniques to produce fabric.

Although the textile industry in Danville flourished for many years, employing as many as 14,000 people at one time, the influx of imported textiles eventually caused the area's mills to close. The Dan River Research Building was abandoned in the late 1990s.

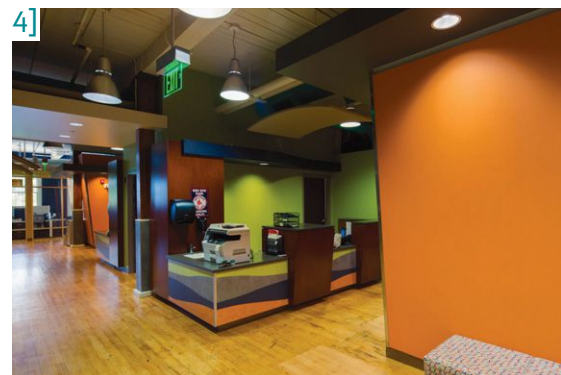
The building remained vacant for several years, until Mark C. Hermann, M.D., a Danville-based orthopedic surgeon, recognized an opportunity to convert the historic property into mixed-use space. Working with a design team from the Danville office of Dewberry, Dr. Hermann toured the building and envisioned a renewed purpose for the structure with modern health-care space, including extensive facilities for physical rehabilitation and a multi-tiered restaurant overlooking the river.

RIVER DISTRICT TOWER HOSTS MEDICAL SERVICES AND A RESTAURANT WHILE HONORING ITS TEXTILE PAST



WRITTEN BY | DODIE HUDSON, CID, AND LARRY HASSON, AIA, DBIA





1] The historic River District Tower, a working textile mill for more than a century, is set along the Dan River in downtown Danville, Va.

2] A wave pattern along the ceiling was created with Armstrong Ceiling & Wall Solutions' Infusions Accent Canopies.

3] The two-cab elevator rides through the center of the River District Tower and is illuminated by an LED chandelier that changes color throughout the day. The building is located at the gateway to Danville's historic downtown district.

4] Vibrant colors reminiscent of the old fabric samples enliven the medical practice spaces on the third and fourth floors.

◆ **A Storied Past Brought to Life**
 ◆ During Dewberry's initial walkthrough of the 140,000-square-foot building, the design team discovered much of the mill's equipment and materials had been left in place—a room-by-room time capsule of the hard-working textile manufacturing era. In addition to large-scale machines, the designers found colorful fabric samples, patent books, old spools of thread, advertisements, posters and historic photos. They gathered the materials to use as inspiration for the design of the space, including interior paint colors, patterns, shapes and the basic elements of design.

With much of the funding for the building's rehabilitation coming from state and federal historic tax credits, Dewberry's team worked closely with the Virginia Department of Historic Resources, Richmond, to comply with stringent guidelines for the restoration. Unimposing additions, including tall glass towers that frame the building's original exterior texture and serve as distinctive entryways, minimized the impact of the renovation on the surrounding historic district. Most of the building's interior brick walls were left exposed, as were ceilings and structural elements.

The original maple floors were restored.

The fire doors and original structure were also retained, but only a few of the 284 windows were salvageable. Dewberry worked with a window manufacturer to create window casings and mouldings to match the original profiles within 1/16th of an inch. (See the "Materials" sidebar, page 59.)

The building's first floor contains leasable space with floor plans ranging from 800 to 4,200 square feet. The second floor houses medical practitioner space, a general surgery clinic and a radiology technician school. An additional medical practice occupies the third and fourth floors, providing spaces for physical therapy, pain medicine, specialty spine care, orthopedics, clinical research, rheumatology, and administrative and support staff. The addition of the glass-enclosed atrium and tower positioned against the existing brick façade provides vertical circulation within the space and defines the building's entry.


A Challenging Interior Fit-Out

Among the most challenging aspects of the retrofit was incorporating cutting-edge medical and physical therapy space within the building, including extensive equipment and a large therapy pool located on the third

floor. The pool, installed by crane, required a special structure and waterproofing containment design. With the ceilings and structure exposed throughout the medical spaces, the designers created a box-within-a-box concept for the examination rooms to retain acoustical privacy. In the orthopedics area, each physician has his or her own pod, centrally located around one of three x-ray rooms to create an efficient workflow. A monumental open stair was inserted between the third and fourth floors to link the orthopedics practice with the physical therapy practice below. Vivid colors reminiscent of the old fabric samples distinguish certain rooms within the pods and assist in wayfinding throughout the practice.

In the oldest portions of the building, dating as far back as the circa-1828 picker house, Dr. Hermann's vision for a multi-tiered restaurant space has been fully realized. On the first floor, an upscale restaurant welcomes diners into a warm, inviting space with large windows clearly recalling the building's industrial heritage. On the ground floor below, an expansive, 3,750-square-foot banquet hall and events venue serves multiple purposes, including

meetings and weddings. Set close to the river, the banquet hall is located within a floodplain and is flexibly designed with "wet floodproofing" measures to withstand storm events. The space features concrete floors, raised mechanical and electrical systems, and easily removable stainless-steel furniture. Another restaurant, which will also offer panoramic views of the Dan River, is planned for the second floor.

A museum showcasing the history of the textile mills in Danville will soon occupy the first floor of the medical portion of the building. Dr. Hermann takes pride in the building's new role as it accommodates modern medical practices within a historic space that has meant so much to the city during the past century. "This building has the ability to touch everybody with restaurants, a large medical practice, and hospital-led clinics and teaching facilities. People that would not normally come to the River District are now coming and discovering something they didn't expect," he says. "The architectural innovation in combining the historic elements, technical and functional medical necessities, and exciting design features make this project truly unique." 



◆ ◆ ◆ ◆ ◆ ◆ ◆ ◆ ◆ ◆
THE USE OF **HISTORIC TAX CREDITS** GUIDED
MUCH OF THE RESTORATION WORK,
INCLUDING PRESERVATION OF WINDOWS,
MAPLE FLOORING, WALLS AND BEAMS.
◆ ◆ ◆ ◆ ◆ ◆ ◆ ◆ ◆ ◆

◆ retrofit team

ARCHITECT AND INTERIOR DESIGNER //

Dewberry, Danville, Va.,

www.dewberry.com

■ Dodie Hudson, CID, project manager

■ Larry Hasson, AIA, DBIA, architect

MECHANICAL AND ELECTRICAL
ENGINEER // Dewberry

STRUCTURAL ENGINEER // Dewberry

ENVIRONMENTAL ENGINEERING AND
SURVEYING // Dewberry

HISTORIC PRESERVATION CONSULTANT //

Sadler & Whitehead Architects PLC,
Richmond, Va.,

www.sadlerandwhitehead.com

LANDSCAPE ARCHITECT // Callaway
& Associates, Greensboro, N.C.,
www.chipcallaway.com

RESTAURANT ARCHITECT // Architectural

Partners, Lynchburg, Va.,
www.architecturalpartners.com,
and Alem Dickey Keel Interior Design,
Greensboro, www.alemdickeykeelinteriordesign.com

STOREFRONT INSTALLER // Piedmont Glass,
Danville, www.piedmontglass.com

WINDOW INSTALLER // LG Flint, Lynchburg,
www.lgflint.com

◆ materials

CARPET // Shaw Contract,
www.shawcontract.com

LUXURY VINYL TILE // Armstrong Flooring,
www.armstrongflooring.com

WINDOWS // Marvin Windows and Doors,
www.marvin.com

STOREFRONT // Kawneer,
www.kawneer.com

SPECIALTY CEILINGS // Infusions Accent
Canopies Panels and Soundscapes
Acoustical Canopies from Armstrong
Ceiling & Wall Solutions,
www.armstrongceilings.com

PAINT // Sherwin-Williams,
www.sherwin-williams.com

HVAC // Trane, www.trane.com, and
Daikin, www.daikin.com

BUILDING AUTOMATION SYSTEM // Tridium
Niagara by Honeywell, www.tridium.com

PARK YOURSELF

WRITTEN BY | DANIEL GENSCH

*A 500-car Parking Garage Is
Ambitiously Converted into 44 One-bedroom
Apartments with Ground-floor Office Space*



Michael Ramsey of Bokeh Development, Wichita, Kan., had the ambitious idea of turning an old, obsolete, concrete parking facility in downtown Wichita into a cool, modern, mixed-use apartment building.

Listed on the National Register of Historic Places in 2016, Broadway Autopark (originally called Knightley's Parking Garage and built in 1949) has been reimagined and repurposed from its original heritage as a 500-car parking garage into a 44-unit, trendy, urban, residential and commercial complex—becoming a community asset to downtown Wichita.

Farha Construction Inc., which was the contractor on this project, now leases the office space on Broadway Autopark's ground floor. The next four levels are one-bedroom apartments. Residents get the best of both worlds: covered and secure parking directly in front of their door, plus the convenience of living downtown. Each unit is a modern, industrial, open-concept living space with amenities any urban dweller would desire.

Building History

The arrival of the automobile in the first decade of the 20th century played a significant role in Wichita's growth. By 1923, one in five Wichita residents owned an auto, making downtown congestion and parking top concerns for city leaders. With its diversified industrial economy, Wichita weathered the Great Depression and WWII. Following the war, its population returned to wartime highs and the city nearly doubled in size. The post-war

growth heightened the struggle between needing cars to bring people to shop and work downtown without overburdening city streets.

Local oilman D.R. Lauck realized the multi-level parking garage could address the challenge of congestion by removing parked vehicles from busy streets and making efficient use of downtown real estate. Upon opening in March 1950, Knightley's Parking Garage was proclaimed as a civic and commercial asset to Wichita, providing a much-needed service to downtown businesses and customers: the ability to park and shop or work in close proximity to the destination. The garage is a rare surviving example of a post-war, privately owned and attendant-operated garage, in contrast to self-park garages that became dominant in the 1950s. A dual-function facility, the garage also served as the offices of Lauck Oil Co. for more than 25 years.

Knightley's Parking Garage also is an excellent representative of the multi-story parking garage, a unique Modern building type characterized by its open-air design, its concrete construction and its minimalist exposed skeletal structure distinguished by horizontal banding. The garage featured parking on the roof deck, a novelty for the city. Other distinguishing features were its twin spiral ramps, porthole windows, integral flared canopies at the perimeter rail and the 4-story neon "PARKING" sign on the Broadway façade. Incorporating the latest advances in concrete construction, Wichita's largest parking garage (at the time of construction) reflects the convergence of architecture



DESIGN IS MORE OFTEN A DISCOVERY OF SOMETHING THAT SEEMS ALREADY THERE RATHER THAN THE CREATION OF SOMETHING NEW.



and engineering in a modern building form. All these unique features remain, including the manlift that allowed parking attendants to move themselves between floors. Although, no longer functional, the manlift remains as an artistic and aesthetic part of the building.

In the 1950s, wealthy Wichitans would drop their cars off with a valet at the garage before going shopping downtown. As customers shopped, downtown merchants would ship their purchases to Knightley's Parking Garage. An advertisement of the grand opening of Knightley's Parking Garage in 1950 announced an air-conditioned waiting room, restrooms and parcel storage. There was also a safe used to guard valuable purchases.

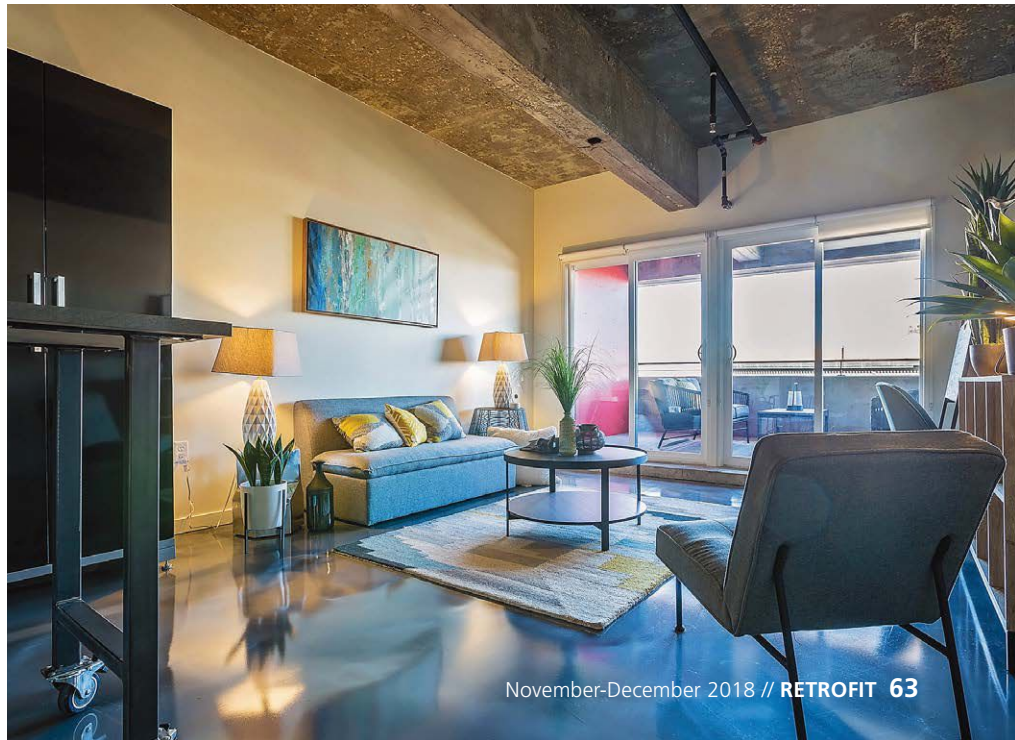
The garage was open 24/7, 365 days a year until the early 1980s when it closed because there no longer was demand for valet parking services. The building owner unsuccessfully tried to make conversions so the garage would be self-parking; however, the facility sat vacant and trash-filled for the next few decades until Bokeh Development acquired the building in 2016. The garage was in rough shape—not structurally but cosmetically. There was trash everywhere and graffiti all over the walls. Inside the office area, crews found parking tickets they estimated had been on the ground 30-plus years.

After it was listed on the National Register of Historic Places, the renovations began. The renovations took a little more than two years to complete.

The Creativity of Constraints

For most professions, the idea of “constraints” would have a negative connotation. In the world of architecture, however, constraints often become the vehicle for discovery. Knightley's Parking Garage had its fair share of constraints to design around.

The building was listed on the state and national historic registries, both of which enforce strict renovation and preservation requirements for historic buildings. Pair that with the constraints from the International Building Code when changing occupancy type—from an open-air parking structure to an R-2 residential occupancy building type—as well as getting local city plan review to buy off on an unprecedented project, you end up with a seemingly uphill design battle. To top it off, this poured-in-place concrete bunker offered very little vision for a





■ *Retrofit Team*

ARCHITECT // Shelden Architecture Inc., Wichita, Kan., sheldenarchitecture.com

■ Stan Shelden

■ Daniel Gensch

DEVELOPER // Bokeh Development, Wichita, bokehdevelopment.com

GENERAL CONTRACTOR // Farha Construction Inc., Wichita, farhaconstruction.com

MEP ENGINEERS // Integrated Consulting Engineers Inc., Wichita, www.iconengineers.net

STRUCTURAL ENGINEERS // Hartwell Structural Engineering, Wichita, (316) 683-6644, and MKEC, Wichita, www.mkec.com

HISTORIC PRESERVATION SPECIALIST // Spencer Preservation, Wamego, Kan., spencerpreservation.com

HVAC SUBCONTRACTOR // Waldorf Riley Heating & Cooling, Arkansas City, Kan., waldorfriley.com

ELECTRICAL SUBCONTRACTOR // Tejeda Electric, Wichita, (316) 832-9558

SIGN REFURBISHMENT // Ron's Sign Co., Wichita, www.ronssignco.com

■ *Materials*

HVAC // Halcyon from Fujitsu, bit.ly/2xNER3a

FLOORING // Reflector from Elite Crete Systems, www.elitecrete.com/products/reflector-enhancer-flooring

CABINETS // NewAge Performance 2.0 Series from NewAge Products Inc., newageproducts.com/garage-storage-cabinets-performance-2-0-series

INTERIOR AND EXTERIOR PAINT // Sherwin-Williams, www.sherwin-williams.com

PATIO DOORS // 60- by 80-inch chestnut bronze, exterior/white, interior Builders Vinyl Sliding Patio Door from Jeld-Wen, www.jeld-wen.com

EACH ONE-BEDROOM APARTMENT, WHICH RANGES IN SIZE FROM 650 TO 670 SQUARE FEET, FEATURES POLISHED CONCRETE FLOORS AND CONCRETE WALLS.

viable place to live. The optical illusion of deep concrete beams, wide columns and limited height floor-to-floor was enough to scare off other interested parties during the last decade.

What resulted from all the barriers and red tape was a very obvious solution to developers and architects: shotgun living units with deep covered patios that preserve historic sightlines, as well as extend the living space from the inside out. Exterior elevations were demolished to maintain an open-air parking garage while increasing the amount of southern natural lighting, adding the feeling of security and transparency. Design is more often a discovery of something that seems already there rather than the creation of something new. Broadway Autopark certainly offered a lot to “be discovered.”

Working with the Architecture

The top four floors of the 5-story garage are split between parking areas and long, narrow apartments. All residents have front-door parking. Each floor has 10 apartments on the east side with terraces overlooking Broadway Street and one uniquely shaped apartment on the west side with rounded, curving walls from the existing car ramps. (These four west-side units were the first to be rented because they are slightly larger and

very unique with their rounded walls.) That’s one example of being forced to embrace part of the floor plan that the building already had, culminating in an apartment that no architect would ever purposely design in new construction.

Front-door parking offers a secure feeling. Residents are able to use a door opener or a code to get past the first-floor, secured-access gate. Downtown Wichita is safe, but there’s still a lot of people who aren’t used to that kind of urban living—especially in Kansas.

All the apartments are one-bedroom units with full-size kitchens. The kitchen cabinets and countertops utilize repurposed toolboxes and industrial material, fitting in with the urban garage theme.

The apartments have polished concrete floors and concrete walls. Each unit features an accent wall painted one of the three official interior colors of the complex: terra cotta, green or gold.

There’s an open-air trash chute on each floor of the garage, where residents can dump bags of trash, letting height and gravity deposit them in a dumpster below.

The building also has a first-floor common area with a 24-hour fitness center, dog wash and entertainment room. In that common room, there are tinted windows original to the garage and painted parking lines still visible on the floor.



Apartment rent prices range between \$800 to \$1,000 per month, depending on what floor the apartment is on. Each unit varies between 650 to 670 square feet. As of press time, only eight units of 44 still are available for rent in the building, which contains a mix of retired people; young, single professionals; and military members who work at McConnell Air Force Base in Wichita.

Vision for the Future

Bokeh Development owns several renovated Wichita properties and the firm's representatives prefer to retain the character of the buildings by repurposing and bringing new life. There's hope that Broadway Autopark will be the catalyst for future development along the Broadway corridor, which is the primary north-south spine of downtown. In fact, there has been a significant surge in all downtown development projects in Wichita, including the new Spaghetti Works District with its apartments, city park and mixed-use development; WAVE, a unique outdoor venue; a future medical school; and FireWorx, a former firehouse being reimaged into a shared workspace. [B](#)

KITCHEN CABINETS AND COUNTERTOPS UTILIZE REPURPOSED TOOLBOXES AND INDUSTRIAL MATERIAL, FITTING IN WITH THE URBAN GARAGE THEME.



HERE COMES THE SUN

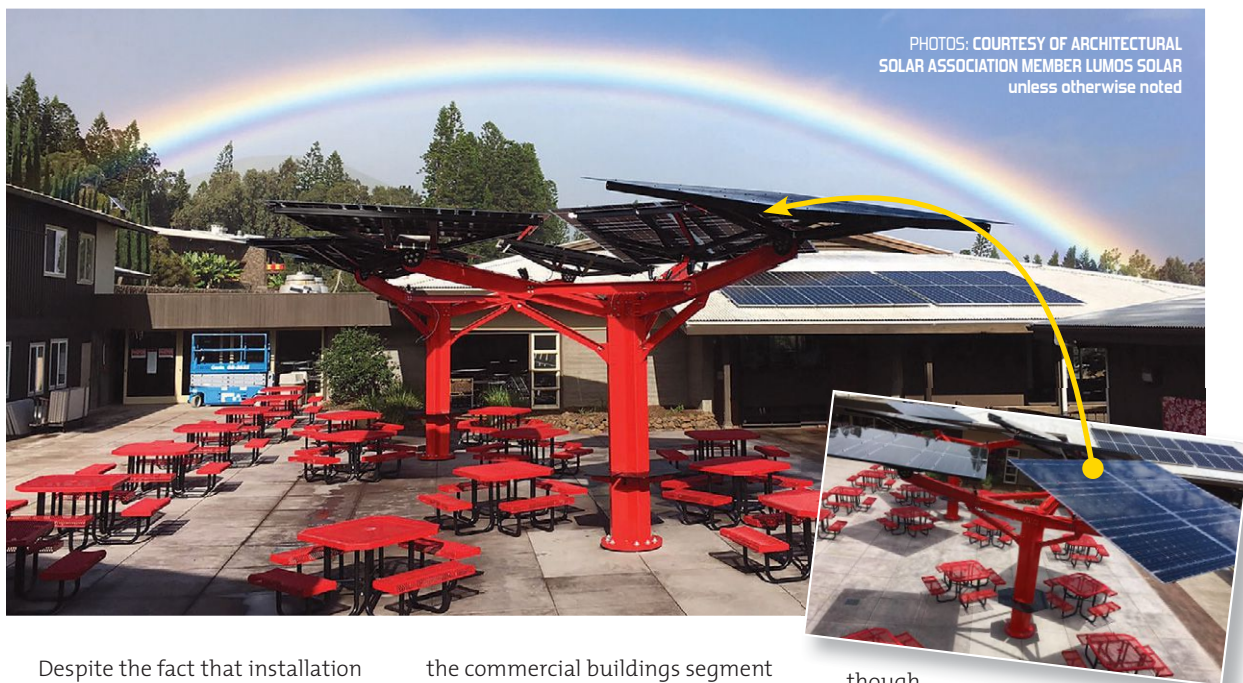
WRITTEN BY |
ROBERT NIEMINEN

THERE'S A NEW DAY DAWNING
WITH NEXT-GENERATION SOLAR
TECHNOLOGY, BUT THE PATH
TO BUILDING INTEGRATION
ISN'T WELL-LIT... YET

Building integration with photovoltaics, like this awning system, represents a tremendous opportunity for the commercial market.

PHOTO: COURTESY OF ARCHITECTURAL SOLAR ASSOCIATION MEMBER WALTERS & WOLF

Earlier this year, the Trump administration imposed a significant tariff on imported solar panels. The tariff caused a major stir in the industry. Opinions vary over the impact the move will have on the market. Some suggest it will boost domestic solar manufacturing while others point to the cancellation or stalling of multibillion-dollar installations as a major blow to renewable energy.



Despite the fact that installation growth is projected to remain flat through 2018 as the industry adjusts to the tariff, solar continues to be a very bright spot on the renewable energy horizon, according to the Solar Energy Industries Association (SEIA), Washington, D.C. Solar has experienced an annual growth rate of 59 percent during the past decade and accounted for 30 percent of all new electric capacity in the past three years, SEIA reports. Additionally, prices have dropped 52 percent during the past five years though declines slowed somewhat in 2017. Further, SEIA notes the rapid rise of community solar has boosted the non-residential segment in recent years, coupled with increasing numbers of offsite and rooftop corporate procurement by such companies as Amazon, Apple, Target and Walmart.

But wide-scale adoption and integration of photovoltaics (PV) in

the commercial buildings segment remains somewhat of a challenge. "Five years ago, the building industry wasn't even really thinking about solar," says Christopher Klinga, P.E., technical director of the Architectural Solar Association (ASA), Boulder, Colo., and owner of engineering design company SolMotive Design, Boulder. "It was just kind of a pain [...] to them, and it wasn't integrated into their supply chain at all. It was just happening elsewhere in the solar industry."

Klinga notes while solar panels are easy to install on rooftops and on ground mounts, the building envelope itself remains largely untapped—and building integration with PV represents a tremendous opportunity for the commercial market.

"We believe that the only way for solar to get integrated into the envelope or into architecture in any way, the building industry really needs to have buy-in," Klinga explains. Al-

though the concept of building-integrated photovoltaic (BIPV) isn't new, the term can be confusing because it doesn't necessarily mean total integration into the envelope itself, which can be a problem if there's a panel failure, Klinga says. Rather, BIPV can be used as an overhead glass canopy, standalone architectural structures, window awnings, rain-screens, balustrades or even flooring. As such, he prefers the term "architectural solar" to BIPV and believes there's a larger market opportunity when people better understand what BIPV means and its potential applications.

Challenges to Building Integration

While opportunities for building integration abound, so do the challenges, which range from site orientation and storage to codes and permitting,



Tutt Library at Colorado College, Colorado Springs, showcases the LSX Module System, which is composed of the LSX Frameless Solar Module and LSX Rail from Lumos Solar.

The UCAR Anthes Building, Boulder, Colo., features the LSX Module System from Lumos Solar. The system's through-bolt mounting design and integrated wireway provide design freedom.

as well as aesthetics. But none are insurmountable and, with thoughtful planning, they can be effectively addressed.

Perhaps the most obvious hurdle to implementing solar is the fact that the sun simply doesn't shine all the time and, as such, storage is a major factor in successfully implementing the

technology. Taylor Harvey, Ph.D., co-director, NSF I/UCRC on Next Generation Photovoltaics, Texas A&M University, Central Texas, Killeen, says: "There's a lot of advantages that could be gained if you were able to build a larger system to provide both your power but also dump some of the energy into batteries and be

able to use that at nighttime or for smoothing purposes. I think that's a big thing." [Note: Smoothing is required because renewable energy is intermittent.]

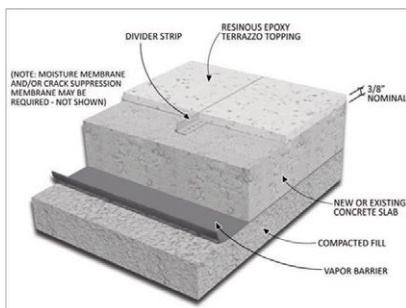
Robert C. Tenent, Ph.D., senior scientist at the National Renewable Energy Laboratory (NREL), Golden, Colo., says while higher-performance next-generation

solar materials are available, silicon-based panels still dominate the commercial building market because they are the least expensive—but also the most difficult to integrate. "One, there's the roof space issue that certainly presents a problem," he says, which can effectively be

(continues on page 70)



TERRAZZO • TERRAZZO • TERRAZZO • TERRAZZO • TERRAZZO • TERRAZZO • TERRAZZO



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

National Terrazzo & Mosaic Association
www.NTMA.com
 800.323.9736

Uline Arena • Architect: Antunovich Associates, Arlington, VA • General Contractor: Davis Construction, Rockville, MD • Photographer: Brycen Fischer



PHOTO COURTESY OF ARCHITECTURAL SOLAR ASSOCIATION MEMBER ENERGY GLASS

Torino Porta Susa Train Station, Turin, Italy, includes custom BIPV Sloped Glazing.



addressed offsite with community solar programs. But in terms of the building itself, Tenent says silicon panels tend to be problematic.

“Silicon panels can have a good bit of dependence on basically how they’re oriented toward the sun with how they perform,” he explains. “Some technologies can allow you to put things into a non-optimal orientation and still be OK, but silicon is one that’s got some problems with that.” For example, if they are installed on a vertical surface or one that is predisposed to shading, “you end up losing a lot of performance pretty quick with some of those baseline technologies,” Tenent observes.

“Permitting is still, in my view, a big issue,” Harvey adds. “In the U.S., every single municipality has a slightly different permitting process and slightly different paperwork, so it makes it so that you have to have a local expert to get through the permitting—and that costs additional money.” In Germany, on the other hand, Harvey points out solar permitting involves a two-page application that is consistent across the entire country. [Note: SEIA and non-profit solar advocacy group The Solar Foundation, Washington, are working with cities and counties in the U.S. to streamline permitting processes and reduce local barriers to going solar.]

Likewise, building codes reference solar panels and modules differently than they do for glass, which can make building integration—even on non-structural applications—difficult. Klinga suggests the codes need to pull these two references together so that the building side addresses structural panels and the electrical side of the code deals with instances when solar is fully integrated. “It doesn’t do that quite yet,” he observes.

However, he says there are standards in development that are BIPV-focused, and “what they’re doing is, they’re connecting the standards that are specific to solar and standards that are specific to the building industry and providing a way of

looking at BIPV and understanding which standards should apply rather than writing a whole new standard, which I think is a good approach.”

Finally, with typical silicon solar panels, the ugly truth is they are not very attractive—and that can be a turn-off to architects and building owners. “That’s a real concern, the aesthetics of the actual panels,” Tenent says. “If we could make them look better, more people would put them on their buildings, and that is really difficult to do with silicon because silicon in a lot of ways is not a great solar material even though we use it so much.”

(continues on page 72)

2019 INTERNATIONAL ROOFING EXPO®

REGISTRATION IS OPEN
NASHVILLE, TENNESSEE
FEBRUARY 11-13, 2019 | MUSIC CITY CENTER



Official Show Sponsor:



Official Show Publication:

**ROOFING
CONTRACTOR**

REGISTER NOW

USE PROMO CODE **AD100** FOR 15% OFF
CONFERENCE SUPER PASS.*

WWW.THEROOFINGEXPO.COM

Circle No. 28

*Discount not applicable to Manufacturing Agents/Dealers, non-exhibiting Manufacturers/Distributors or Wholesalers registrations. Discounts apply to new registration only; no refunds issued for pre-existing registrations.

BENEFITS OF INSTALLING SOLAR

There are numerous paybacks that solar installations offer to existing facilities. As outlined in the Washington, D.C.-based U.S. Department of Energy's Better Buildings report, "On-Site Commercial Solar PV Decision Guide," the advantages to adding photovoltaic (PV) panels to a commercial building include:

- **FINANCIAL BENEFITS** Solar PV can offset the costs of electricity and reduce monthly electric-bill costs through reduced energy and demand charges. In addition, a variety of federal, state and local incentive programs can reduce the initial cost. Finally, many third-party ownership models have been developed that increase the financial attractiveness of solar PV.

- **ENVIRONMENTAL BENEFITS** Installing solar PV directly offsets purchases of grid-supplied electricity. The emissions offsets of doing so will vary depending on the location but will generally result in reduced carbon dioxide, nitrous oxide, sulfur oxide, and particulate matter emissions from the combustion of fossil fuels in natural gas- and/or coal-fired power plants.

- **MARKETING BENEFITS** Solar PV can help meet corporate sustainability targets and, for commercial buildings that lease floor space, the energy savings may be passed on through the lease price. Additionally, for schools and other educational buildings, solar PV can be used as an educational tool to teach students about solar energy and sustainability.

- **RELIABILITY** If solar PV is part of a microgrid installed at a facility, it can help power the building during an outage or when disconnected from the grid.

- **COOLING-LOAD REDUCTION** Adding solar PV to a roof will reduce a building's cooling load. If solar PV is installed as a canopy, it can also provide shading. Both of these configurations reduce the urban heat island effect.

- **LEED CREDENTIALS** Solar PV counts toward a number of credit categories within the LEED rating system.

Simple Strategies for Solar

Nevertheless, there are relatively easy and cost-effective ways building owners and facility managers can retrofit their existing buildings with available solar technology. Klinga suggests there is ample opportunity to utilize BIPV with overhead-glass applications because it doesn't delve as deeply into structural issues.

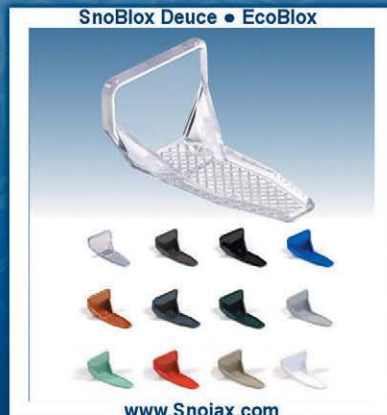
"I think that's kind of the low-hanging fruit of architectural solar because it's not enclosing the envelope," he says. When solar is integrated into the structure, the complexity increases because warranties come into the picture. If the solar modules fail, for example, they are much more difficult to remove or repair, Klinga says. "So, overhead solar offers a far less risky opportunity to create architectural solutions that people can interact with, and there's still a great benefit to them."

Harvey suggests, "Anybody who has a lot of roof space, there's a lot of configurations that can easily be installed on rooftops at this point for a really reasonable cost." He adds the caveat that the most important factor with implementing

Take Our Free AIA Course at www.SnowRetention101.com



IceBlox Inc., D.B.A.
SNOBLOX
The Originator of Polycarbonate Snow Guards



SnoBlox Deuce • EcoBlox

www.Snojax.com



SnoBar • ColorBar • ColorRail

www.SnoBarColorBar.com

RoofClamp RC And RCT Universal Mounting Clamps

Best Pricing Ever Offered!

RCT \$6 (250+)
Fits 95% of today's standing seams including bulb and t-seams

RC \$5 (250+)
Fits 90% of today's standing seams



www.RoofClamp.com



VentSaver: HD • FB-151 • P-383

Standing Seam Adaptor Plate Now Available!

www.VentSaver.com

www.SnoBlox.com

1.800.766.5291

www.SpacingTool.com

solar panels today is to find a reputable installer.

On the Horizon: Next Gen Technology

Although complete integration of solar solutions into the building envelope is still a ways off, emerging technologies are opening the door to tremendous possibilities, starting at the window.

"There's currently a handful of technologies that are coming out that lend themselves to the laminated glass fabrication process; that's super interesting," Klinga says. "It's a big change in the industry, and I think once that stumbling block gets broken down, the others will follow. That's kind of the linchpin of the problem right now," he says.


The benefit of integrating solar at the window is that it covers much more surface area than on the roof, especially in multi-story commercial buildings. However, a major obstacle with integrating solar into the vertical surface is the tradeoff between capturing as much sunlight as possible while allowing enough sunlight to see through it, according to Tenent. "Most of the solar energy is in that visible light spectrum you can see with your eyes, but you also want to harvest that, so people will either play in the infrared or the UV space to try and harvest energy from there, but you end up leaving a lot of the energy on the table when you do that," he explains.

NREL is working with a number of early-stage companies to further develop PV technology into windows that have higher conversion efficiency and are more tolerant of the sun-angle issue. Among them are perovskite solar cells, an emerging thin-film PV class of material that reacts to different wavelengths of light, which lets them convert more of the sunlight that reaches them into electricity. Another promising technology gaining in popularity is cadmium telluride (CdTe) solar cells, a thin-film technology with active layers that are just a few microns thick, or about one-tenth the diameter of a human hair. CdTe represents the largest segment of commercial thin-film module production worldwide, and recent improvements have matched the efficiency of multicrystalline silicon while maintaining cost leadership, according to NREL.

Among the more interesting concepts in solar technology development is the

work that Harvey completed during his graduate studies and with the company he subsequently launched, called Lucelo Technologies, creating low-cost, flexible solar cells that can be applied using paint. These ultra-lightweight, flexible solar cells suspend light-absorbing nanocrystals in paint (just like pigment in traditional paint) to turn virtually any surface into a solar collector. Although the technology is

viable, Harvey says it still needs development. But paintable solar is an indication of where the industry may be headed in the future.

"We have to make some layering that's pretty precise so [the technology is] not quite to where you can go to Home Depot and just buy a can and paint it on your wall, but that's the idea—and eventually we'll get there," he says. 

New ThermaLift™ System from Varco Pruden



Raises Roof Performance

Varco Pruden's patented insulation system lifts SSR roof panels up to 7" above secondary structurals allowing two layers of blanket insulation for a U-factor performance as low as 0.029.

- Cost effective & easy to install
- Meets more stringent energy codes
- Hot-box tested & approved assemblies
- Ideal for new or retrofit installation

Circle No. 30

With our value-engineered steel framed building systems, recycled material content and long-life "cool paint" choices, VP Buildings can provide energy-efficient structures to reduce operating costs. Innovative products. Advanced technology. Building solutions for tomorrow today.

For more information about VP's ThermaLift Insulation System for SSR roof, visit www.VP.com/ad/RETRO.

 **BUILDING SOLUTIONS**
...one relationship at a time



↑ DAMPER FEATURES INSULATED BLADES FOR REDUCED NOISE AND PRESSURE LOSS

The TED40x2 low-leakage insulated control damper from Ruskin features insulated airfoil blades, which offer strength and sealing ability while reducing noise and static pressure loss. With an 8-inch frame and aluminum construction, the TED40x2 traps a minimum 4 inches of dead airspace between the double blade assembly when closed. Additionally, a thermal break between frame sections prevents heat transmission through the frame. As an added feature, blade cavities are filled with urethane foam. The damper's unique double-edge blade seal design enables higher pressure on either side to assist in blade-to-blade seal shutoff. Seals are mechanically locked in extruded blade slots but can be replaced in the field. The TED40x2 also features linkage concealed out of the airstream for low maintenance and reduced air turbulence.

www.ruskin.com/model/ted40x2 // Circle No. 32

→ HARNESS HUMAN POWER FOR YOUR BUILDING

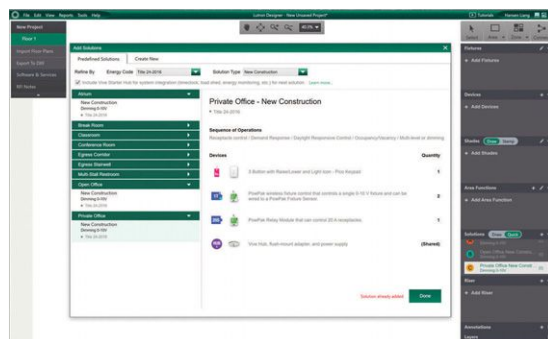
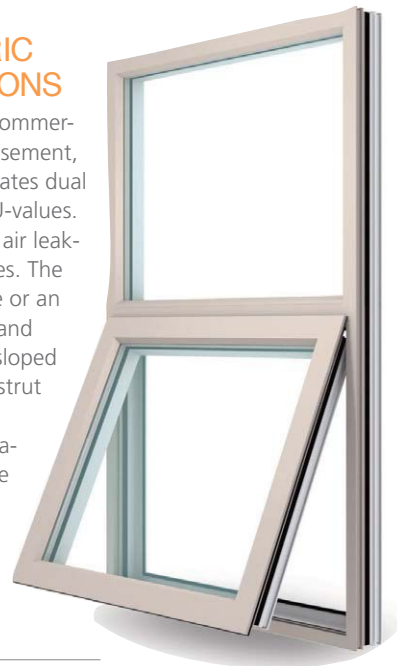
SportsArt's ECO-POWR line captures human exertion and turns it into usable electricity. Micro-inverters are housed inside the shrouds, so there are no extra cords or boxes to manage. Simply plug in any ECO-POWR product, or daisy-chain several units, into a standard outlet, and each workout will reduce your building's carbon footprint while lowering power consumption.

us.gosportsart.com // Circle No. 34

→ WINDOW IS OFFERED IN A HISTORIC PROFILE AND VARIOUS CONFIGURATIONS

Graham Architectural Products has released its GT6700 commercial window system with an available historic profile in casement, projected and fixed configurations. The GT6700 incorporates dual thermal strut technology for thermal efficiency and low U-values. It is AAMA AW rated in all configurations with minimum air leakage, high water resistance and impressive design pressures. The projected window system is available with a slim sightline or an equal sightline fixed option, depending on intended use and preferred aesthetics. The window incorporates a deeper-sloped glazing bevel for a more authentic historic look, and the strut framing allows for an optional dual finish. A euro groove frame design enables accessory attachment and a wide variety of multi-locking hardware. True and applied grids are available, as well as optional roto operator or single-lever operator and limit devices.

www.grahamwindows.com // Circle No. 31

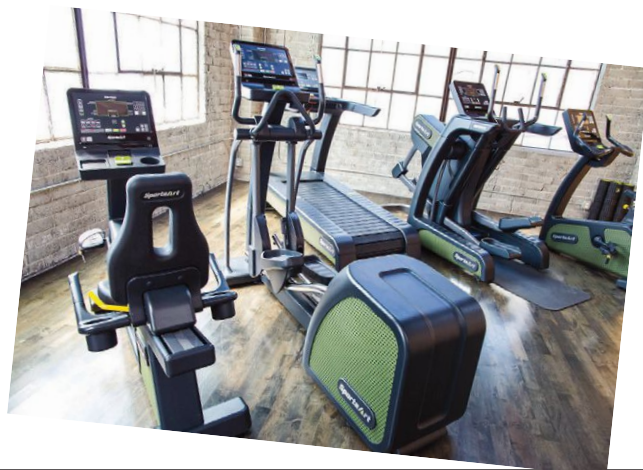


← DESIGN A LIGHTING CONTROL SYSTEM IN MINUTES

Lutron Electronics has released its Designer+ 11.2, the latest version of Lutron Designer+ software for Vive solutions. Designer+ for Vive offers a guided experience that walks users through the program, enabling them to get an appropriate lighting control system design

in just minutes. No formal training is required, and users do not need to know a single Lutron part number. Users can select the energy code they need to meet and the room types that require control. Designer+ for Vive automatically selects the gear and programming needed, based on a cloud-synced database of the latest code-compliant solutions. From there, each area on a floorplan is stamped with the proper solution, and in just a few clicks a customized bill of materials, sequence of operations, one-line diagram, and CAD-exportable floorplan is generated, allowing users to effectively communicate design intent and create a professional bid package.

www.lutron.com/vive // Circle No. 33





↑ AIR HANDLERS FIT IN CLOSETS

Three new vertical upflow air handlers from The Unico System are designed to fit in closets and other small, concealed spaces within homes and multi-tenant buildings. The units provide draft-free airflow, lower humidity and uniform room temperatures in a compact size no taller than 5 feet. Each vertical unit is lined with sound-deadening insulation, muffling the sound and vibration of the all-in-one unit's blower and coils. Available in three sizes, the units require a connection to the ductwork and a refrigerant or water line. Flexible mounting of the control box, which is compatible with most thermostats, can be done at the top, front or either side of the unit.

www.unicosystem.com // Circle No. 36

➔ LUXURY VINYL TILE OFFERED IN TILES AND PLANKS

Roppe Corp. has launched its Northern Parallels LVT. Consisting of six collections, the line is available in 24 colors/patterns that vary from 12- by 24-inch and 18- by 18-inch tiles and a 9 1/4- by 59 1/4-inch plank. Northern Parallels is available in a full 1/8-inch thickness offering a 28-mil wear layer with C-Shield UV-cured ceramic bead finish that adds durability by resisting scuffing and traffic patterns on the surface while promoting ease of maintenance. In addition to a 20-year commercial warranty, Northern Parallels palettes complement Roppe's popular neutrals to provide a complete set of flooring options across several different product categories.

www.roppe.com // Circle No. 38

➔ DECORATIVE LIGHTING FIXTURES ARE INSPIRED BY PLUMBING PIPES

Meyda Custom Lighting has unveiled PipeDream, a family of decorative lighting fixtures. PipeDream features an industrial look inspired by a configuration of various winding pipes used in today's structures. Shown is the 36-inch-square PipeDream Alva 20 Light Cascading Pendant (model 201071), which highlights Clear Coated Pipes with matching hardware. Each stem features an Edison-style bulb for ambient illumination. Custom sizes, designs and finishes are available. The fixtures are UL and cUL listed for dry and damp locations.

www.meyda.com // Circle No. 35



↓ COAT SMALL ROOF AREAS WHILE MINIMIZING WASTE

Realizing there was no easy and cost-effective way to apply rapid-cure sealants for small applications with minimal setup time and little material waste, BASF discovered the Sulzer MIXPAC MixCoat system for small and touchup applications in roofing. Only an air compressor and a MixCoat spray system are needed. Preparation time can be reduced to 15 minutes. With MixCoat's use of cartridges, very small areas can be coated while minimizing coating waste, and partially used cartridges can be recapped and reused for the next project. The



prefilled cartridges also protect the applicator from direct contact with unmixed material, adding another layer of safety. In addition, the MixCoat system uses low pressure compressed air, 7 bar (100 psi).

www.basf.com // Circle No. 37





↑ PROTECT PERFORMANCE OF ACCESS CONTROL DEVICES

ASSA ABLOY Electronic Security Hardware has made available the Securiton AQ Series Power Supplies, a scalable solution to protect and enhance the performance of any access control device or system. Available in 1 to 16 Amp variants to support the smallest single door systems to the largest enterprise access control systems, customers can use any combination of the seven power supplies and nine distribution boards in any UL-listed enclosure and maintain UL certification. The product offers up to 93 percent efficiency, thermal shut-down protection with auto restart, and integrated or dedicated battery charging circuit to prevent overvoltage on locking devices.

www.assaabloyesh.com // Circle No. 40

➔ CONNECT LUMINAIRES' HOUSING FOR UNINTERRUPTED RIBBONS OF LIGHT

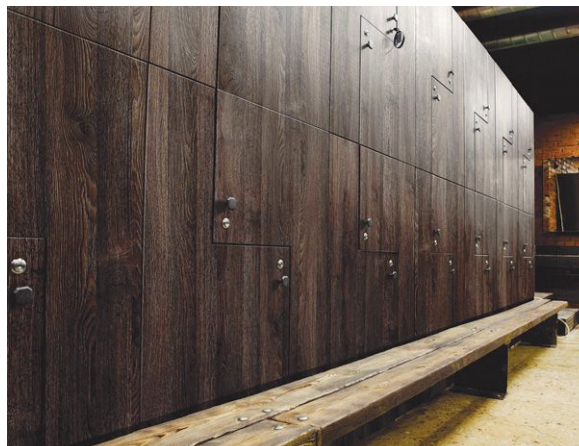
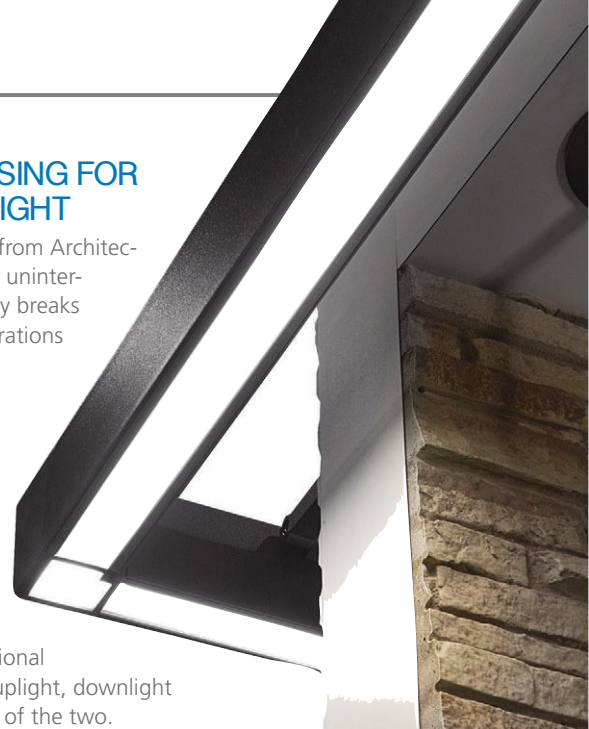
Housings of the Pursuit exterior linear luminaire from Architectural Area Lighting can be connected to form an uninterrupted ribbon of light up to 150 feet without any breaks or light leaks. Pursuit removes the need for separations by providing seamless continuous runs with IP68 end-to-end internal connections and a continuous, external diffuser. The diffuse lens material is shipped in a coil that can then be installed onsite after multiple housing sections have been attached to one another. AAL engineers designed Pursuit to be IP65 rated to withstand environments where dust, oil, non-corrosive material and water intrusion are concerns. Pursuit is available in five housing lengths, 2, 3, 4, 6 and 8 feet with direct, indirect and bi-directional

distributions for uplight, downlight or a combination of the two.



Learn more about Pursuit via a short video.

bit.ly/2xFVhvg // Circle No. 39



➔ LAMINATE CAN BE MATCHED WITH COMPLEMENTARY PRODUCTS

ARAUCO has debuted its Prism Thermally Fused Laminate (TFL) collection, which includes 16 décors and two new textures—Boreal, a deep, tactile, striated texture, and Velvet, a smooth, matte texture. ARAUCO manufactures the particleboard, MDF or HDF substrate used for Prism TFL in North America and has full paper-treating and lamination operations in multiple locations across the

continent. These capabilities combined with a network of distribution partners enable customers to have access to the collection wherever they are. As part of its service model, ARAUCO partners with trusted suppliers of complementary products, such as edgbanding, doors, molding, HPL and 3DL, so matching products can be sourced for projects specifying Prism TFL.

www.arauco-na.com // Circle No. 41



➔ RETROFIT EXISTING CAN LIGHTS WITH LED

HyLite LED has released its LED Lotus Lamps, PAR46, PAR56 and PAR64 Retrofit Solutions. The lamps are designed for quick installation in existing can lights. They increase illumination while reducing energy costs and are available in multiple beam angles: 150, 250, 400 and 1200. With lamp life of up to 60,000 hours, HyLite LED Lotus Lamps reduce re-lamping, maintenance and disposal costs. The lamps, which are available in 3000K and 5000K, also reduce light pollution.

www.hyliteledlighting.com // Circle No. 42



LEED: A LEGACY

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

Circle No. 43

→ WALL PANEL INSULATION IS RED LIST FREE

Kingspan's QuadCore Technology insulation is now standard on all its BENCHMARK Designwall 4000 insulated metal panels. First introduced to the North American market in June, QuadCore is backed by a 30-year thermal warranty. The insulation has earned GREENGUARD Gold and a Silver Level Material Health Certificate, earned through the Cradle to Cradle assessment. In addition, QuadCore is Red List Free, so it can contribute to credits in health and wellness certifications, such as WELL, the Living Building Challenge, LEED v4 and BREEAM. Panels featuring QuadCore were certified to FM 4882 standards for use in smoke-sensitive occupancies. This technology offers reduced flame spread (ASTM E84), high flash ignition temperature (ASTM D1929) and 20 percent less heat released (ASTM 1354).

www.kingspanpanels.com // Circle No. 44



← HEAT PUMP CAN SAVE UP TO 47 PERCENT ON ENERGY USE

Johnson Controls has made available the YORK Affinity Series YZT two-stage Heat Pump. The ENERGY STAR-rated heat pump is 19 SEER, 10.0 HSPF efficiency and can save up to 47 percent on energy use. Even greater efficiency can be achieved when installed

with the Alexa-compatible, Wi-Fi-enabled Affinity

Hx3 Touch-screen Thermostat. The product incorporates a sound-reducing swept-wing fan blade, composite base pan and sound containment cloak to reduce typical outdoor operating sound levels. It also allows further fine-tuning of the blower for specific applications, whether to compensate for arid environments or maximize the use of additional air-quality accessories, including system-matched humidifiers, germ-killing UVC lights and high-efficiency MERV 16-rated filtration for reduced dust and contaminants.

www.york.com // Circle No. 45



↗ SAVE WATER WITH TOUCH-FREE FLUSH PLATES

The new Sigma10 flush plates from Geberit offer touch-free activation that is suited for private or semi-public restrooms, helping save water and reducing the spread of germs. The touch-free plates for in-wall toilet systems are activated with a wave of the hand or by simply walking away. Designers, architects and end-users will enjoy the hygienic and user-friendly hands-free actuation, as well as the wide range of finishes and the seven color options. The Sigma10 is available hard-wired or with battery power. Vandal-resistant stainless steel and manual flush override versions are offered. A matching urinal actuator also is available.

geberit.us // Circle No. 47



↓ MARINE-GRADE FABRIC NOW AVAILABLE FOR SHADING

Recognized in the marine market for its weather resistance and durability, Sunbrella SeaMark is entering the commercial shade market with a wide selection of colors. Sunbrella SeaMark is a marine-grade fabric that delivers protection from extreme precipitation and moisture without sacrificing style. Fabricated from durable Sunbrella performance fabric and 100 percent impervious waterproof backing, Sunbrella SeaMark is available for restaurant patio enclosures, office canopies and awnings. In addition, the Skin Cancer Foundation recommends Sunbrella fabrics in shading products as an aid in the prevention of sun-induced damage to the skin as part of a complete sun protection regimen.

sunbrella.com/seamark // Circle No. 46



EXPERIENCE EVERYTHING NEW IN HVACR ALL IN ONE PLACE

- ▶ 2,100+ Exhibitors | 60,000+ Industry Professionals
- ▶ Held Alongside ASHRAE Winter Conference
- ▶ Hundreds of New Product Demonstrations
- ▶ Robust Training and Education Program



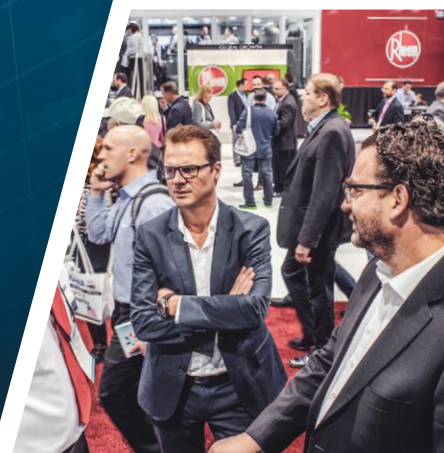
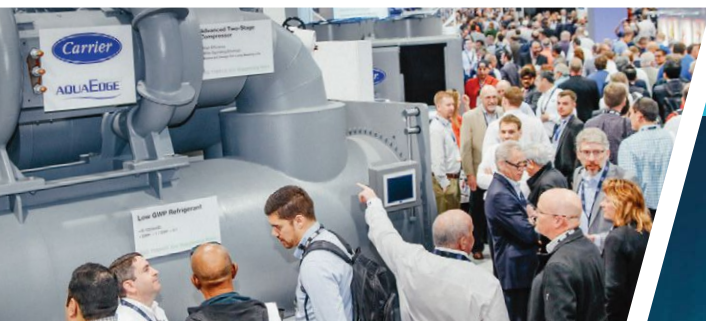
AHREXPO®
Atlanta JAN 14-16 • 2019
GEORGIA WORLD CONGRESS CENTER

FREE REGISTRATION at **AHREXPO.COM**

CO-SPONSORS



Circle No. 48



AD INDEX

NOVEMBER-DECEMBER 2018



AHR Expo Page 79
www.ahrexpo.com



ASSA ABLOY ESH Page 11
www.assaabloyesh.com
(800) 626-7590



Cambridge Engineering Inc. Page 32
www.cambridge-eng.com
(800) 899-1989



CENTRIA Page 81
www.centria.com/reformulate



Connectrac Pages 7, 81
www.connectrac.com, (877) 480-5637



CxEnergy Page 54
www.cxenergy.com

DORLEN PRODUCTS INC.

Dorlen Products Inc. Page 48
www.wateralert.com



Engineered Products Co. Page 39
www.engproducts.com
(800) 336-1976



Flex-Ability Concepts Page 24
www.flexabilityconcepts.com
(866) 443-3539



Geberit Page 81
www.geberitnow.com



GSSI Pages 2-3
www.gssisealants.com, (800) 288-9489



International Roofing Expo Page 71
www.theroofingexpo.com



Iota Engineering Page 24
www.iotaengineering.com
(800) 866-4682



IRONROCK Page 43
www.royalthinbrick.com



Kingspan Page 83
www.buildwithoptimr.com



Lutron Pages 15, 16-17
www.lutron.com



Major Industries Page 12
www.majorskylights.com
(888) 759-2678



MAXXON Page 31
www.maxxon.com



Mechoshade Systems Inc. Page 55
www.mechoshade.com



Mitsubishi Electric Page 23
www.mitsubishipro.com



NanaWall Page 84
www.nanawall.com



National Terrazzo & Mosaic Association Page 69
www.ntma.com



Navien Page 9
us.navien.com



NEWBRICK Page 49
www.newbrick.com



Petersen Pages 4, 81
www.pac-clad.com
(800) 323-1960



Phifer Inc. Page 13
www.phifer.com



RSK Avanti Partners Page 81
www.rskavantipartners.com
(972) 234-0180



Schweiss Page 8
www.bifold.com



Sherwin-Williams Page 37
www.coil.sherwin.com



SnoBlox Page 72
www.snoblox.com
(800) 766-5291



United CoolAir Page 25
www.unitedcoolair.com



USGBC Page 77
www.usgbc.org



VP Buildings Page 73
www.vp.com



WhiteWalls Page 48
www.whitewalls.com

WOOSTER PRODUCTS

Wooster Products Page 8
www.wooster-products.com
(800) 321-4936



ZIPWALL Page 33
www.zipwall.com

retrofit

[RESOURCE GUIDE]

For more details, contact:

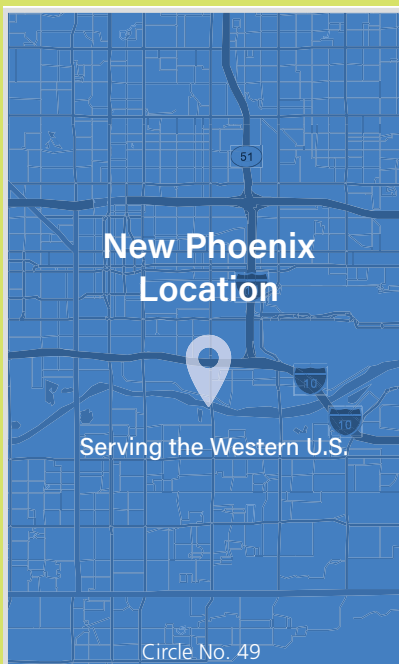
John Riester
(919) 641-6321
John@retrofitmagazine.com

Or

Barrett Hahn
(919) 593-5318
Barrett.hahn@gmail.com

Or

Dan Burke
(732) 241-6720
Dan@burkemediagroup.com



New Phoenix
Location

Serving the Western U.S.

Circle No. 49



PAC-CLAD.COM

GEBERIT
GEBERIT WALL-HUNG TOILET SYSTEMS
CHANGE YOUR PLANS

Circle No. 50

Architects, contractors, remodelers, and facility managers are discovering there is one sure way to better meet the needs of their owners and tenants. Hide the toilet tank inside the wall! Learn how at geberitnow.com/d4259p9, or call 866-787-3924.

RSK Avanti Partners, LLC

Insightful + Strategic Consulting

Focused on Building Construction Markets Through Product + Market Development

RSK Avanti Partners is a full-service consulting firm with expertise in conducting market studies, developing products, marketing plans and promotional tools.

RSK and its team of associates bring over 130 years of credible experience to help serve our clients around the world.

Our proficiencies include:

- **Product line assessment: metal building components, coatings and integrated solar technologies**
- **New business development**
- **Strategy business assessment and planning**
- **Market research and product line development**
- **Sales planning and training**

www.rskavantipartners.com

972-234-0180

Email: rgscichili@aol.com or skriner1@verizon.net

Circle No. 51

FORMAWALL®

the world's safest
foam-insulated
metal wall panel



CENTRIA

CENTRIA.com/reformulate

Circle No. 52

CONNECT WITHOUT CORE DRILLING

Circle No. 53



Connectrac® In-Carpet Wireway systems provide a proven power and IT alternative to expensive and disruptive core drilling, trenching and unsightly power poles.

CONNECTRAC®

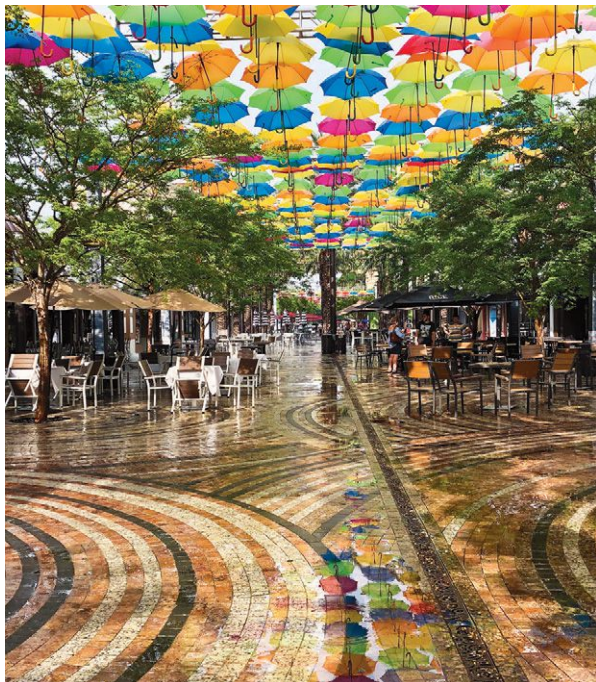
www.connectrac.com

Toll Free 1.877.480.5637

MIRACLE MILE AND GIRALDA PLAZA

STREETSCAPE

A Reimagined Avenue Captures the Warmth and Charm of a European Piazza




During the summer, the streetscape hosted an art installation by the Umbrella Sky Project. Coral Gables, Fla., is only the third U.S. city to receive the installation.



This streetscape project reimagines the Miracle Mile and Giralda Avenue corridors as distinctive pedestrian-dominant environments with character unique to the city of Coral Gables, Fla. New York-based Cooper Robertson's design strengthens the identity of Miracle Mile as Coral Gables' premier public place and creates an exceptional streetscape with world-class character composed of authentic and resilient materials.

On Miracle Mile—the four-block length of Coral Way between LeJeune and Douglas Plazas—three staggered rows of trees soften the edges of the street to slow traffic flow. Changing the 45-degree parking to parallel enables the widening of sidewalks to accommodate dynamic street furniture and outdoor seating at restaurants and cafés. An emphasis on a sense of arrival at the plazas and the north-south circulation of pedestrians at crosswalks and paseos knits together the surrounding downtown streets.

Giralda Avenue is transformed into a curbsless, pedestrian-dominant street that can be closed to vehicular traffic for special events. To give Giralda Avenue its own unique character, it is differentiated by concentric paving patterns inspired by raindrops. At the center of the block between Ponce de Leon Boulevard and Merrick Way, the design creates the focal point of an outdoor room where palm trees, distinct paving and suspended dashes of LED lights create a unique sensory experience. 

RETROFIT TEAM

ARCHITECT // Cooper Robertson, New York, www.cooperrobertson.com

ASSOCIATE ARCHITECT // Rodriguez and Quiroga Architects Chartered, Coral Gables, Fla., www.rodriguezquiroga.com

LANDSCAPE ARCHITECT // Local Office Landscape Architecture, Brooklyn, N.Y., www.localofficelandscape.com

ASSOCIATE LANDSCAPE ARCHITECT // Geomantic Designs Inc., Miami, geomanticdesigns.com

LIGHTING DESIGN // Fisher Marantz Stone, New York, www.fmsp.com

SIGNAGE AND WAYFINDING // Two Twelve, New York, www.twotwelve.com

MATERIALS

PAVING // Stone & Equipment, www.stoneandequipment.com

LED LIGHTING // Selux, www.selux.us; Hydrel, hydrel.acuitybrands.com; OCL, ocl.com; and Primus Lighting, www.primuslighting.com

OUTDOOR FURNISHINGS // Stone & Equipment; Landscape Forms, www.landscapeforms.com; and DCL, www.designcommunicationsltd.com



PHOTOS: STEVEN BROOKE, COURTESY COOPER ROBERTSON

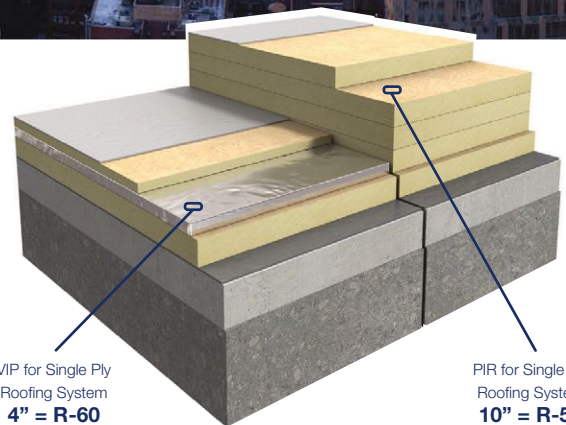
WHAT IF YOU COULD ACHIEVE R60 IN 4"?

OPTIM-R®

NEXT GENERATION INSULATION SOLUTIONS FOR SINGLE PLY SYSTEMS

59%
REDUCTION
IN HEIGHT

163%
GREATER R-VALUE
PER INCH THAN PIR



Kingspan **OPTIM-R®** is a next generation insulation comprising rigid vacuum insulation panels (VIP) with a microporous core, which is evacuated, encased and sealed in a thin, gas-tight envelope to give outstanding R-values and an ultra-thin insulation solution. The high level of thermal efficiency, up to 5x better than other commonly available building insulation materials, with minimal thickness achieved by *Kingspan* **OPTIM-R®** provide solutions for applications where a lack of construction space or depth is an issue.

- Optimum Performance Rigid Vacuum Insulation Panel
- R-value of 28 per inch
- Ideal for New Construction and Retrofit Applications
- UL and FM Approved

Contact us for your **OPTIM-R®** solution at optim-r.us@kingspan.com

buildwithoptimr.com


Kingspan®

*Low Energy –
Low Carbon Buildings*

Circle No. 54



LIMITING.



Our HSW systems' single track sliding glass walls stand up to the toughest weather and commercial use. With limitless spans and place-anywhere swing doors that convert to panels and slide away, our systems maximize space—while leaving views (and creative opportunities) entirely unobstructed. Learn more at nanawall.com/hsw.

NanaWall®