

TOP 50  
PRODUCTS

ROOF TEAR-  
OFF IS NOT  
ALWAYS BEST

BUILDING PROS  
DONATE THEIR  
SERVICES FOR KIDS

january-february 2017 / [retrofitmagazine.com](http://retrofitmagazine.com)

# retrofit

## \*Grand Slam:

The New Choctaw Lazy River Is  
a Home-run Amenity for a Texas  
Baseball Stadium

+ More Sports Projects

\*TREND ALERT:  
internet of  
things

THIS  
ISSUE IS  
INTERACTIVE!

See Page 12

IMPROVING YESTERDAY FOR TODAY





# Upgrade to Uponor.

Professionals who specify, design and install Uponor PEX piping report faster and more reliable installations and superb design flexibility. It's time to connect with better solutions, stronger support, smarter technology, bigger profits and greater peace of mind.

Connect with Uponor.  
Connect with confidence.

Check out commercial plumbing and hydronic piping solutions at [uponorengineering.com](http://uponorengineering.com)

**uponor**

PEX PLUMBING  
RADIANT HEATING & COOLING  
HYDRONIC PIPING  
PRE-INSULATED PIPING

Circle No. 1







ARE YOUR BUILDING DESIGNS  
SUFFERING FROM **OUTDATED**  
**TECHNOLOGY?**



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





Many things have improved  
over the last 9,000 years.



Until now, brick wasn't  
one of them.

**Introducing NewBrick.** The most important innovation in the history of brick. NewBrick is superior to clay brick in weight, energy efficiency, speed of installation and environmental impact. NewBrick offers the same classic size and appearance of clay brick, but raises the bar with improved performance.

Visit [dryvit.com/newbrick](https://dryvit.com/newbrick) to see all of NewBrick's colors and textures. Contact us to request samples, and to learn how NewBrick can greatly benefit your next project.

[newbrick@dryvit.com](mailto:newbrick@dryvit.com) | 800-556-7752 x9





PREMIER BUTYL SEALANT TAPES

# A LASTING DEFENSE

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

Circle No. 4



# Zinc Earns Gold

**Mundelein Village Hall, Mundelein, IL**  
Architect: Wight & Company  
General Contractor: Weston Solutions  
Installing contractor: Sullivan Roofing  
Profiles: Snap-Clad, Snap-On, PAC-750 Soffit, 7.2 Wall Panels  
Color: Zinc

Zinc-colored PAC-CLAD is an energy-efficient metal roofing that contributes to Mundelein Village Hall's LEED Gold certification.

## SNAP-CLAD

Zinc - Energy Star - Cool Color

### CASE STUDY



See us in January at IBS - booth S3057  
and in March at the IRE - booth 1219



Circle No. 5



**PAC-CLAD**  
P E T E R S E N

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





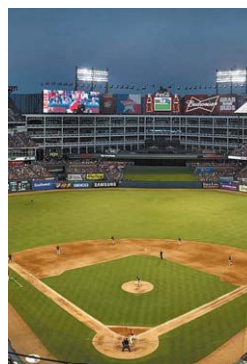
# INSIDE THIS ISSUE

JANUARY-FEBRUARY 2017 // VOL 8 // ISSUE 1

## ➔ feature projects

### HEAVY HITTER

The new Choctaw Lazy River is a home-run amenity for a Texas baseball stadium.



# 50

### PERUSE SPORTS PROJECTS FROM AROUND THE COUNTRY:

- The Center of Clayton, Clayton, Mo.
- Sloan Park, Mesa, Ariz.
- Clemson Memorial Stadium, Clemson, S.C.
- Globe Life Park, Arlington, Texas
- Fenway Park, Boston
- Amalie Arena, Tampa Bay, Fla.



← cover

COVER PHOTO:  
FRISCO ROUGHRIDERS

# retrofit



# INSIDE THIS ISSUE

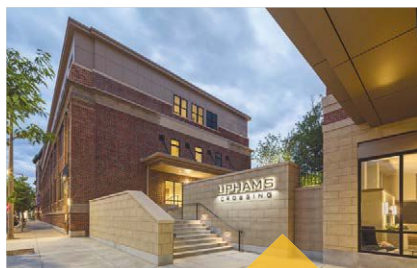
JANUARY-FEBRUARY 2017 // VOL 8 // ISSUE 1



## Special Report

### 20 TOP 50 PRODUCTS

These products from our September-October 2015 to July-August 2016 issues garnered the most leads from readers.



## Multifamily

### 57 SUSTAINING A COMMUNITY

A former church campus is transformed as supportive and workforce housing.

## Component

### 60 THE CHANGING FACE OF ROOF REPLACEMENT

With today's "new age" roofs, removing all system components may not always be required or in the clients' best interest.



## Transformation

### 66 COME TOGETHER

San Francisco building professionals charitably build out a space to inspire and educate under-resourced kids.



## Trend Alert

### 76 EVERYTHING'S CONNECTED

The Internet of Things is ushering in a new age of building automation but will require new ways of thinking.

## DEPARTMENTS

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

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

**90** INSPIRATION // An abandoned military base now provides stunning views of New York Harbor.

## COLUMNS

**12** POINT OF VIEW // Sports are a passion, or possibly a distraction, throughout the world.

➔ stay up to date

# retrofit

by subscribing to **retrofit**'s weekly e-newsletter at [www.retrofitmagazine.com](http://www.retrofitmagazine.com). You'll receive the latest news, blogs and content you won't find in the magazine.



# ELEVATE

YOUR EXPERIENCE

CELEBRATE THE PAST. INNOVATE THE PRESENT. ELEVATE THE FUTURE.

Marion Performing Arts Center



SCAN FOR  
VIDEO



EVE Series  
Life Safety



LF6LED  
Exterior Soffit



MC10LED  
Interior Auditorium



Circle No. 6

[www.hubbellighting.com](http://www.hubbellighting.com)

**HUBBELL**  
Lighting



**MOCKETT**  
DOUG MOCKETT & COMPANY, INC.

"Fine  
Architectural  
Hardware  
to Your Fine  
Furniture"®



Visit us in Orlando at

**IBS**  
Booth S806  
Jan. 10-12

**PCS77**  
Kitchen Power  
Grommet

Circle No. 7

www.mockett.com • 800-523-1269

# retrofit

January-February 2017 // VOL 8 // ISSUE 1

## PUBLISHER

**JOHN RIESTER**

john@retrofitmagazine.com

## DIRECTOR OF OPERATIONS

**BECKY RIESTER**

becky@retrofitmagazine.com

## EDITOR IN CHIEF

**CHRISTINA KOCH**

christina@retrofitmagazine.com

## MANAGING EDITOR

**BECKY RIESTER**

becky@retrofitmagazine.com

## SENIOR EDITOR

**ELYSE COOPER**

## CONTRIBUTING EDITOR, INTERIORS

**ROBERT NIEMINEN**

## EDITORIAL ASSISTANT

**ANDREA HOFFMEIER**

## ART DIRECTOR

**VILJA 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. 8 // No. 1 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](http://www.retrofitmagazine.com), and click on the "Subscribe" button, or email [lyn@retrofitmagazine.com](mailto:lyn@retrofitmagazine.com).





Great  
Value.  
Save  
Energy!

©2017 LEDVANCE LLC Licensee of product trademark SYLVANIA in general lighting

## Light is personal SYLVANIA LED Contractor Series

SYLVANIA Contractor Series LED 11,000 hour lamps are available in a full portfolio of form factors, offering long life, and a reduction in energy and maintenance costs. Start saving energy today.

For more information, visit [www.sylvania.com](http://www.sylvania.com)

Circle No. 8





## SPORTS WINS



I've had a little trouble watching the news lately. If you read my "Point of View" column in the September-October 2016 issue, page 16, or [retrofitmagazine.com/not-politics-usual](http://retrofitmagazine.com/not-politics-usual), you can make an educated guess why. I'll readily admit that instead of focusing on critical U.S. (and, ultimately, world) issues, I've been distracting myself with sports.

Before I got married, I played for many years in my brother's Fantasy Football League and have a decent record of making the playoffs. (My secret? I like to draft "sleepers".) I actually won the whole shebang once, which was a great feeling, considering I play against guys who've been my brothers' friends since we were kids (there's a lot of trash talk) and are football fanatics. I took a two-year hiatus from Fantasy while planning a wedding and enjoying the first year of marriage. This year, however, I was glad to be back in the game, entrenched in the statistics of certain players and cheering on new teams (since my beloved Chicago Bears stink) while avoiding arguably more important matters. Consequently, I'm happy to report I'm in the league's playoffs yet again!

Obviously, football, and other sports, are a passion (distraction?) for most of the world. In fact, sports is a multi-billion-dollar global industry. A quick look at the venues we showcase in this issue will illustrate how important it is for sports teams to have a stadium that will draw new and existing fans. For example, our "Cover Story", page 42, is about Dr Pepper Ballpark in Frisco, Texas. Its new Choptaw Lazy River is a 3-foot-deep pool in a figure-eight configuration that allows Frisco RoughRiders' fans to watch baseball in their bathing suits.

"I always wanted a signature visual element for the ballpark that no one would ever get used to seeing ...," says Chuck Greenberg, RoughRiders' general partner and CEO. "I wanted something everyone would want to come and see, to create buzz, and attract new fans to our ballpark and the ballpark experience."

The ballparks, football stadiums, hockey arenas and local sport facilities that follow the "Cover Story" provide examples of the many ways sports venues can be upgraded to "create buzz", whether through energy efficiency, luxury and/or fan experience.

To continue with the sports jargon, the MVPs of retrofit building materials are recognized in this issue, page 20. This is **retrofit's** fourth-annual Top 50 Products issue, which celebrates the products that received the most reader inquiries from the September-October 2015 to July-August 2016 issues. We asked the manufacturers to share case studies about how their top products solved a problem or achieved the desired result within a retrofit. Although many of the Top 50 are fairly new, a few manufacturers were able to share retrofit projects in which their top products were specified. We hope you take a look at and consider using the Top 50 in your next retrofit project.

The football season soon will come to an end and so will my Fantasy Football League's matchups. I guess I'm going to have to face reality. Actually, the Chicago Blackhawks are looking pretty good this season ...

P.S. **retrofit** is hosting its first conference this year in October. The one-day conference, which will take place in Chicago, will focus on retrofitting in that great city, as well as share examples of successful, repeatable projects from around the country. (See our house ad on page 35.) Stay tuned for more details in our next issue and follow us on social media for timely updates. We look forward to seeing you in the home of the World Series Champions!

**CHRISTINA KOCH**  
Editor in Chief

➔ follow us



**retrofit** is now available on iTunes. Check it out at [apple.co/1SODbx2](http://apple.co/1SODbx2).



### THIS ISSUE IS INTERACTIVE!

Download the free Layar Augmented Reality app. (The QR code will help you find the app.) Then, hover over pages 2, 3, 16, 26, 36, 53, 56, 74, 84, 87 and 90 with a smartphone or tablet and watch videos that bring the content to life.



layar

INTERACTIVE PRINT



Download the free  
Layar App



Scan this page



Discover  
interactive content





New Orleans East Hospital | New Orleans, LA | Manning Architects Eskew+Dumez+Ripple



Formawall® Dimension Series®

## THE RIGHT FIT

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

Circle No. 9

To learn more about how CENTRIA reimagines retrofit, call 1-800-250-9298 or visit [CENTRIAperformance.com/retrofit](https://CENTRIAperformance.com/retrofit).

 **CENTRIA** | REIMAGINE METAL

# 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.



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

**FLEX-ABILITY CONCEPTS**

The Curved Wall People™

Circle No. 10

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

## CONTRIBUTING WRITERS



**KJ Fields**, a Portland, Ore.-based **retrofit** contributor, writes in

our "Cover Story", page 42, about a new event party space retrofitted into Dr Pepper Ballpark, the Frisco, Texas, home of the Frisco RoughRiders minor-league baseball team. The new space includes the Choctaw Lazy River, which recently earned Ballpark Digest's Best Ballpark Improvement over \$1 million.



**Gary M. Kane**, AIA, LEED AP, is an associate with The Architectural

Team Inc., Chelsea, Mass. In "Multifamily", page 57, Kane describes how a former church campus has been transformed into supportive and workforce housing in Boston's Dorchester neighborhood.



**Thomas W. Hutchinson**, AIA, FRCI, RRC, CSI, RRP,

principal of Hutchinson Design Group Ltd., Barrington, Ill., shares his three-decade career in the roofing industry in "Component", page 60. Hutchinson discusses how today's "new age" roofs don't always require complete tear-off; in fact, tear-off may not be in the best interest of the client.



**Cynthia Gage** is director of Marketing for BCCI Construction Co.,

San Francisco, which donated its labor and fees to support 826 Valencia Tenderloin Center. The center is the newest location for a national non-profit that offers writing, publishing and tutoring opportunities for under-resourced students. Read about it in "Transformation", page 66.



Circle No. 11

## That's right...a Field-Installable LED Emergency Driver!



### THE ILB-CP SERIES

Constant Power LED Emergency Drivers

- Full range of wattage and mounting designs to meet your LED requirements
- Unrivalled constant power performance means no degradation of emergency output
- Backed by IOTA's Full Five-Year Warranty

For complete details on the ILB-CP Series LED Emergency Drivers and other IOTA emergency lighting solutions, visit us online at [www.iotaengineering.com](http://www.iotaengineering.com) or call us at 1-800-866-4682!





**NEW**



Connectrac 2.7 Under-Carpet Wireway

**It's so good at  
saving money**  
you can take it to the bank.

## **Introducing Our New Under-Carpet Wireway**

*Available 2017*

Connectrac® wireways provide a proven power and IT alternative to expensive and disruptive core drilling, trenching and unsightly power poles. Our ultra-low profile wireway is so discreet it's barely noticeable as it elegantly blends in to any environment while accommodating power and data.



Delivers Power + Data

# CONNECTRAC®

*Connect without core drilling*

Circle No. 12

**1.877.480.5637**

Patent pending

**connectrac.com**

**SCHWEISS**

**HYDRAULIC & BIFOLD**

# DOORS

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



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



**SCHWEISSDOORS.COM**

Circle No. 13

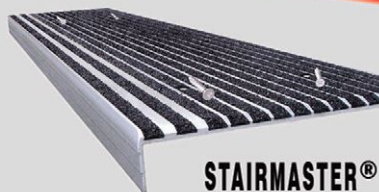


**Make Every Step a Safe One..**

**NEW**



**Walk-A-Sured®**



**STAIRMASTER®**



**Wooster Products**

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

[www.wooster-products.com](http://www.wooster-products.com) (800)321-4936

Circle No. 14

**ARTICLES ON**  
[www.retrofitmagazine.com](http://www.retrofitmagazine.com)

## BUILDING MANAGEMENT SYSTEMS ARE ENTERING A NEW TERRITORY

Many, if not most, large commercial buildings have a building management system or environmental management system controlling and monitoring the HVAC system. These BMS and EMS use BACnet as their basis of communications. The newest versions of the energy codes are requiring the addition of advanced lighting controls with alterations, and energy benchmarking for existing buildings is being required by many cities and some states. These factors provide an opportunity to bring lighting and other building systems under a "single pane of glass" for control and monitoring. Read a Q&A with Scott Ziegenfuss, a 2015 BACnet International Leaders of the Pack award recipient, to learn what's new and why it's important.

[www.retrofitmagazine.com/building-management-systems-bacnet](http://www.retrofitmagazine.com/building-management-systems-bacnet)

**BLOGS ON**  
[www.retrofitmagazine.com](http://www.retrofitmagazine.com)

## READ WHAT INDUSTRY EXPERTS HAVE TO SAY ABOUT RETROFITTING AND RELATED TOPICS.

Since **retrofit** was established, industry experts have been sharing their insight about energy efficiency, technology, codes, green-building programs, natural disasters, products and more via **retrofit**'s blog. Click on "Online Exclusive" in our website's top navigation and select "Blog" in the drop-down menu. New blogs are posted every two weeks and shared via our e-newsletter. The latest blog topics include:

- Building on Leadership
- Quality Sports Flooring Helps Athletes Avoid Injury
- Benefits of Humidification without the Headache
- Prevent Slip and Fall Accidents During the Winter Season
- The Age of the Virtual Intercom

[www.retrofitmagazine.com/category/blog](http://www.retrofitmagazine.com/category/blog)

**NOW PLAYING ON**  
**retrofitTV.com**



### ■ Useful – Project Walkthroughs

As part of Amalie Arena's 2015-16 upgrade, Pro Sound deployed a series of four mosaic-style video walls from Useful. The video walls are strategically located throughout the home of the Tampa Bay Lightning NHL team.

**retrofit**



Introducing  
EPCO's  
**NEW LED  
RETROFIT  
CONVERSION  
KITS FOR  
STRIP-TYPE  
FIXTURES**



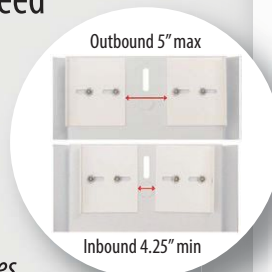
**Engineered Products Company's (EPCO) LED RetroFit Conversion Kits convert older 4-foot and 8-foot T8 or T12 "strip-type" fixtures into energy efficient LED luminaires.**

- High quality components and attractive design makes the retrofit look like a new LED luminaire at a fraction of the cost.
- Improves the quality, integrity, and sustainability of your lighting system.
- A complete, low-cost LED lighting upgrade solution to reduce energy consumption and improve energy management.
- Delivers high performance lumen output; no need to purchase a new LED luminaire.
- The adjustable bracket provides the contractor with ultimate "installation" flexibility for any "strip-type" fixture brand.

For more information contact Mark Lindstrom, EPCO National Sales Manager, at 952.767.8756 or [mlindstrom@engproducts.com](mailto:mlindstrom@engproducts.com).

[www.engproducts.com](http://www.engproducts.com)

5401 SMETANA DRIVE | MINNETONKA, MN 55343  
P 800.336.1976 | F 800.336.2801



Circle No. 15



N

E

W

S

## Agreement Makes It Easier to Pursue WELL and BREEAM Standards

The International WELL Building Institute (IWBI), Washington, D.C., and BRE, San Francisco, announced an agreement between the two organizations to pursue alignments between the WELL Building Standard and BREEAM that will make it easier for projects pursuing both standards. Under the agreement, the organizations will mutually identify specific credits whereby submitted documentation will be recognized by both organizations, saving project teams time and costs associated with submitting the documentation twice. ¶ BREEAM and WELL are evidence-based systems that have best practice, continual improvement, and the interest of the environment and people at their heart. Certification in both systems is achieved through the submission of project documentation and onsite post-occupancy performance testing. ¶ “Since the beginning, IWBI has worked to find ways

that WELL can work harmoniously with the world’s leading sustainable building standards because we believe sustainability and health are synonymous,” says Rick Fedrizzi, chairman and CEO, IWBI. “We look forward to partnering with BRE to advance this important concept by helping project teams who are using both BREEAM and WELL deliver a more sustainable and healthier built environment as efficiently as possible.” ¶ The announcement comes at a time when corporations, as well as the real-estate industry, are increasingly looking at how the built environment impacts human health and sustainability. The crosswalk identifying the applicable credits between the two standards is being done by WELL’s certifying body, Green Business Certification Inc., and BRE and is expected to be completed in January. ¶ For more information, visit [www.breeam.com](http://www.breeam.com) or [www.wellcertified.com](http://www.wellcertified.com).



### SEND US YOUR NEWS

Email your news to [christina@retrofitmagazine.com](mailto:christina@retrofitmagazine.com).

## NAVY AND AIR FORCE ARE SEASON TWO TEAMS IN BETTER BUILDINGS CHALLENGE SWAP

The Washington, D.C.-based U.S. Department of Energy has launched season two of its Better Buildings Challenge SWAP, featuring the U.S. Naval Academy and U.S. Air Force Academy. Both military operations swap energy teams to improve the energy efficiency of each one’s campus. [To read about season one and view videos, see *retrofit*’s March-April 2016 issue, page 52, or [retrofitmagazine.com/better-buildings-challenge-swap](http://retrofitmagazine.com/better-buildings-challenge-swap).]

“The Better Buildings Challenge SWAP has really helped reach those who can make our nation’s buildings better and their energy bills smaller,” says Kathleen Hogan, deputy assistant secretary for energy efficiency. “The reality style of the show combined with opportunities to go behind-the-scenes with some of our nation’s most respected organizations and energy leaders brings a fresh new light to energy-efficiency efforts in U.S. buildings.”

The web series, which can be found at [betterbuildingsolutioncenter.energy.gov/swap/season-2](http://betterbuildingsolutioncenter.energy.gov/swap/season-2), covers a two-day swap at each campus. The teams learn from each other that they can apply simple behavioral changes to help students and faculty be more mindful about lighting usage and plug loads in classrooms when not in use.

For example, the U.S. Naval Academy demonstrates how it improved the heating and cooling system for its student housing (the world’s largest dorm) and how flat, flexible solar panels still allow the beauty of the academy’s historic buildings to shine through.

“We operate a wide range of buildings, and many of them are historic—more than 100 years old,” explains Jabe Nekula, Public Works Department, Naval Academy. “It’s a challenge for us to maintain the historic appearance of our buildings while integrating new technologies to provide better energy savings. We came away from the Better Buildings Challenge SWAP with valuable recommendations and energy-saving solutions that work for our older buildings.”

The U.S. Air Force discovers new ideas to make its old, single-pane windows more energy efficient and finds energy improvements in the kitchen, such as adjusting refrigerators to be more efficient and turning off fans or closing warmer doors when not needed.

“SWAP offers a fresh set of eyes, and in this case, from a sister service with a shared mission,” adds Colonel John Christ, U.S. Air Force Academy. “Often, as engineers, we will just install LED lights and move on to the next project. This experience has shown us the powerful energy-saving potential of behavior change among our cadets and our faculty, and we’ll be taking that next step in the future.”

Through the Better Buildings Challenge SWAP, DOE is helping commercial and industrial organizations successfully explore and share new ways to reduce energy use by their organizations.

To view the full Better Building SWAP series and recommendations from this season or to learn more about the department’s role in advancing energy efficiency in U.S. buildings, visit [betterbuildingsolutioncenter.energy.gov](http://betterbuildingsolutioncenter.energy.gov).





# ONE FRAME

## COUNTLESS POSSIBILITIES



Up to four stories tall and unlimited bays, Strong Frame® special moment frames provide countless design possibilities. Our new Strong Frame multi-story, multi-bay solutions meet all code requirements, resist the most demanding lateral loads and let you create spacious, beautiful buildings.

Let Simpson Strong-Tie help you design your custom multi-story and multi-bay frames today. Contact us about our design services at [strongtie.com/strongframe](http://strongtie.com/strongframe) or call (800) 999-5099.

**SIMPSON**

**Strong-Tie**

®



Circle No. 16



## 2016 retrofit TOP 50 PRODUCTS

Products are an integral part of any trade publication. As such, *retrofit* is celebrating the 50 products that received the most reader inquiries from our September-October 2015 through July-August 2016 issues.

In addition, at the prompting of our editorial advisory board, we asked the manufacturers to share case studies about how their top products solved a problem or achieved the desired result within a retrofit. Although many manufacturers' products are fairly new, a few manufacturers were able to share actual retrofit projects in which their top products were specified.

Enjoy *retrofit*'s fourth-annual Top 50 Products!



### 1 WALL SYSTEMS ALLOW FOR MORE GLASS USE

Sierra Pacific Windows has unveiled a new line of architectural wall systems, which offer architects more freedom to design with expanded use of glass, clean straight lines, and transparency between indoors and outdoors. With their all-wood interiors and load-bearing structural integrity, the new line, in many cases, can eliminate the need for steel beams. The walls are tested to ASTM standards for air and water infiltration, as well as structural wind-load performance. Additionally, they meet today's energy standards for heat loss and solar heat gain.

[www.sierrapacificwindows.com](http://www.sierrapacificwindows.com) // Circle No. 17

### 2 REPLACE ALMOST ANY BULB WITH LED

The SYLVANIA Contractor Series LED Portfolio from OSRAM SYLVANIA includes lighting solutions that are rated up to 11,000 hours (L70) at price points for practically any socket. SYLVANIA Contractor Series A19 LEDs replace 40- and 60-watt traditional lamps using only 6 and 8.5W, respectively. The portfolio includes 75W and 100W replacement A19 LED lamps; solutions for track lighting, such as R20 (dimmable), MR16, PAR16, PAR20, PAR30, PAR30LN and PAR38 LED lamps; and dimmable BR30 and BR40 lamps and RT5/6 LED Recessed Downlight Kits for ceiling cans. For outdoor applications, the BR30, PAR20, PAR30LN and PAR38 LED lamps are UL-listed for damp locations, and the RT5/6 kits are suitable for dry, damp and wet locations.

[www.sylvania.com](http://www.sylvania.com) // Circle No. 18



### 3 TROFFER NOW AVAILABLE IN LED VERSION

Hubbell Lighting's Columbia Lighting business has launched an LED version of its Zero Plenum Troffer, or LZPT, which is designed for restricted plenum spaces. For installation, the patented telescoping housing requires only 3 inches above the ceiling at one end of the fixture. Once installed, a housing height of 1 1/2 inches keeps the fixture from intruding into the useable plenum. The LZPT features 60,000-hour LEDs at L80 and four LED color choices. Multiple lumen packages range from 1900 to 9100 nominal lumens, and color consistency is to a 3-step MacAdam ellipse and 82 CRI. Soft, uniform light distribution provides vertical illumination free from harsh contrast.

[www.columbialighting.com/products/lzpt](http://www.columbialighting.com/products/lzpt) // Circle No. 19





Introducing Hydropon™ – the air-dry, field-applied PVDF coating that renovates unsightly metals.

## Breathe new life into your aging metal roofs

APPLIED SCIENCE

***Dura Coat's PVDF field-applied coating revitalizes older metal roofs. Change colors for a whole new look.***

Circle No. 20

DURA COAT PRODUCTS, INC.

RIVERSIDE, CALIFORNIA  
(951) 341-6500

HUNTSVILLE, ALABAMA  
(256) 350-4300

[www.duracoatproducts.com](http://www.duracoatproducts.com)

DURA COAT PRODUCTS CAN GIVE THAT TIRED-LOOKING METAL ROOF A LIKE-NEW APPEARANCE. With our new Hydropon™ line that is field-applied with an HVLP sprayer and dries within two hours, you can change that unsightly old roof into something so appealing, you'll think it's new. Hydropon™ is Dura Coat's new PVDF coating that can be applied to metal roofing and siding, plastic, wood, concrete, textiles and previously painted surfaces.

Hydropon™ uses Cool Pigments to repel heat, and like all Dura Coat coatings, has excellent adhesion, dirt, stain and mildew resistance, and excellent weatherability. After two years of field experience, this coating is available for sale.

A New Mexico school roof had felt the effects of time. Dura Coat's Certified Field Applicators did a thorough power washing and brush scrubbing followed by a careful rinse. When completely dry, Hydropon™ was applied with airless sprayers. Two hours later, the roof looked new again.

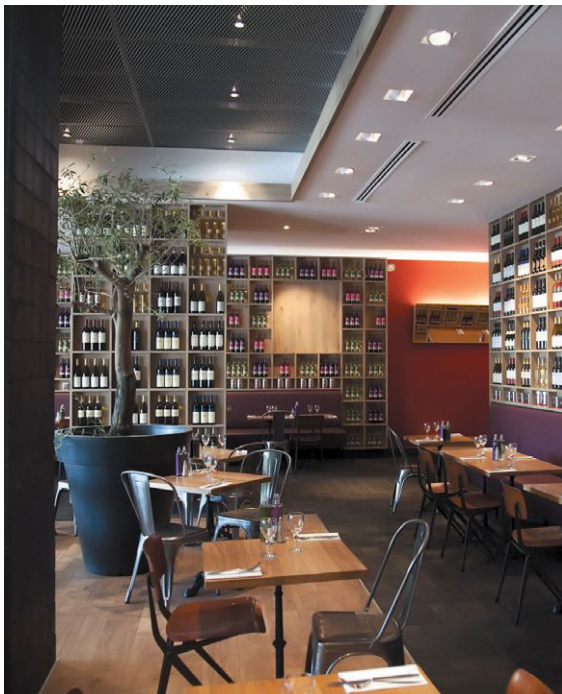
To get more information about restoring your metal roof, contact Dura Coat Products at 951-341-6500, 256-350-4300 or email [info@duracoatproducts.com](mailto:info@duracoatproducts.com).



#### 4 TRIMLESS LIGHT- ING BLENDS INTO CEILINGS

Nora Lighting's MLS (Multiple Lighting System) trimless fixtures are now available in one, two or three-light linear configurations. The fixtures are available in dedicated LED or PAR 30 medium base light sources. Each lighting module can be independently adjusted on two axes for effective illumination of displays or wall treatments. LED-dedicated models have dimmable fixtures and can be specified with 40- or 15-degree beam spreads. The PAR 30 medium base line voltage model has an adjustable socket for various lamp lengths and can be factory labeled with reduced wattage to meet watts-per-square-foot requirements.

[www.noralighting.com](http://www.noralighting.com) // Circle No. 21



A San Diego restaurant recently updated its dining area with Nora Lighting's MLS (Multiple Lighting System) trimless recessed downlights. The fixtures were selected because they can be independently adjusted on two axes to illuminate wall displays of fine wines while presenting a smooth flangeless appearance that blends into the ceiling. Energy-saving LED models were installed because there is no forward heat to affect the wines. One and two-light LED models were used in the renovation.

#### 5 CHOOSE THE WINDOW FEAT- URES YOU WANT

Through the 1500 Vinyl Collection from Ply Gem Windows, architects and builders have more options in customizable window design. Coupled with a white interior, the bronze exterior option aligns with authentic architectural styling while allowing architects and builders to select bold palettes that complement a building's exterior.

Bronze is currently available on all 1500 Vinyl Collection operating styles, including single-hung, sliding, picture and architectural-shape windows. For multifamily projects, the collection allows customers to pay only for the upgrade options they want without getting features they don't need. The line is completely customizable with colors that align with design trends, grilles, simulated divided lites, shape options and ENERGY STAR glass packages.

[www.1500vinylcollection.com](http://www.1500vinylcollection.com) // Circle No. 22

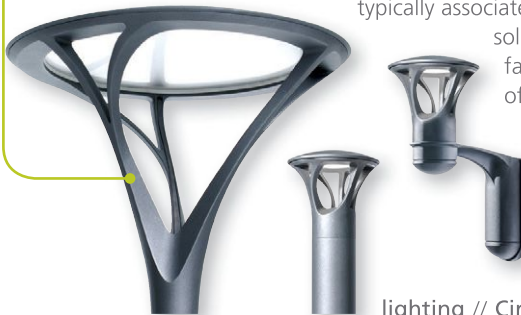


#### 6 SEAMLESSLY ILLUMINATE CAMPUSES

Eaton has launched the Invue Arbor LED family of luminaires with patented WaveStream LED technology. These post top, bollard and wall-mounted architectural luminaires provide visual uniformity, designed to create seamless architectural transitions from site to building applications across an entire campus setting. The products offer improved efficiency and performance while reducing the distracting LED pixilation and uncomfortable brightness

typically associated with other LED product solutions. The Invue Arbor LED family is available with a range of control options, including integral 0- to 10-volt dimming drivers, integrated occupancy sensors, and wireless monitoring and communication.

[www.eaton.com/lighting](http://www.eaton.com/lighting) // Circle No. 23



#### 7 CUSTOM DOOR HIGHLIGHTS MANUFACTURER'S CAPABILITIES

Kolbe built an oversized, pivoting entrance based on a request from an architect and now is showcasing the door to highlight its manufacturing capabilities. The custom, mahogany wood pivot door features a Rockwood GeoMetek locking pull handle in a satin-stainless finish and energy-efficient, tempered LoE2-270 reeded glass. At more than 6-feet wide by 9-feet tall, the specialized pivoting hardware is nearly invisible, creating a sleek appearance while allowing easy operation in spite of its large size. Kolbe's pivot door capabilities are a reflection of the company's drive to provide windows and doors that enhance spaces and push the boundaries of what is possible.

[www.kolbe-kolbe.com](http://www.kolbe-kolbe.com) // Circle No. 24







# **DURO-LAST®**

## **THE NEW GOLD STANDARD**

**888-788-7686**

Visit [duro-last.com/sustainability](http://duro-last.com/sustainability)  
or call to find out more.

Duro-Last has always been a proponent of sustainability, but we know it's no longer enough just to talk about it. That's why we are the first company to publish a product-specific PVC Environmental Product Declaration (EPD) for single-ply PVC roofing membranes. Our Duro-Last, Duro-Tuff®, and Duro-Last EV membrane product lines have also achieved NSF/ANSI 347 Gold Certification – giving Duro-Last the most certified sustainable product lines in the industry.



**First place in sustainable roofing.**



"Duro-Last," and the "World's Best Roof" are registered trademarks  
owned by Duro-Last, Inc. Gold Standard\_7.13.16\_v1

## 8 ARCHITECTURAL STONE VENEER OFFERS MODERN LOOK

Eldorado Stone has released its Modern Collection, which provides clean lines and a neutral color palette while manifesting Eldorado Stone's commitment to authenticity. Featuring six profiles in smooth and texturized applications, the Modern Collection offers larger, linear stones in 34 new colors with cool gray, soothing black and winter white tones. The collection, which can be used in interior and exterior applications, is hand-painted and created with a proprietary blend of natural stone and aggregate.

[www.eldoradostone.com](http://www.eldoradostone.com) // Circle No. 26



Chalk Dust TundraBrick



## 9 BEAM TIE IS CONCEALED

The CBTZ concealed beam tie by Simpson Strong-Tie provides a structural, as well as invisible, connection for installations that call for hidden joinery rather than standard beam-to-post connections. The product is designed to connect beams and posts ranging from 4xs to 6xs or even larger. Contractors now can easily install a connector that delivers structural strength for pergola, patio cover or arbor projects while having the aesthetic look their customer wants. Flattened sides on the tubular CBTZ make it easier for installers to lay the part on the beam or post to mark where holes need to be drilled. Locator tabs help with proper positioning so it lines up with the layout of dowel pin holes.

[strongtie.com/cbtz](http://strongtie.com/cbtz) // Circle No. 27

## 10 CREATE FIRE-RATED RADIUS ASSEMBLIES

National Gypsum has made available Gold Bond brand XP Fire-Rated 5/16-inch Radius Wall for radius applications requiring fire-rated assemblies. The product is used in double-layered construction. A one-hour UL tested assembly can be achieved with two layers, and a two-hour UL tested assembly can be achieved with four layers. The abrasion-resistant PURPLE XP paper protects against mold, mildew and moisture. It scores and snaps easily with no special handling requirements. Tapered edges allow joints to be reinforced with ProForm brand Joint Tape and concealed with ProForm brand Ready Mix or ProForm brand Quick Set Setting Compounds.

[nationalgypsum.com](http://nationalgypsum.com) // Circle No. 28



## 11 PROFESSIONAL-GRADE PAINT LINE EXPANDS

Behr Paint has expanded its BEHR PRO professional-grade paint line with BEHR PREMIUM Interior/Exterior Direct-To-Metal Paint, BEHR PRO Dryfall Paint, BEHR PRO Block Filler Primer, KILZ 2 Latex Gray and BEHR PREMIUM Granite Grip Coating.

These products, along with the BehrPro paint line that launched in 2015, provide a full breadth of products for the professional. Additionally, professionals have access to enhanced service capabilities at SuperCenter distribution locations across the country that can provide product specs, color-matching, high-volume order fulfillment, and detailed account management to tackle any residential and commercial project.

[www.behr.com/pro](http://www.behr.com/pro) // Circle No. 29







# Innovative solutions from a world leading manufacturer

Circle No. 30



Our continuing commitment to quality products may mean a change in specifications without notice.  
© 2016 **DAIKIN NORTH AMERICA LLC** - Houston, Texas - USA

**DAIKIN**  
[www.northamerica-daikin.com](http://www.northamerica-daikin.com)





## 12 ILLUMINATE SIGNS AND DISPLAYS

Super Bright LEDs has released a line of single-color LED light modules that

provide consistent illumination for channel letters, sign lighting, under-cabinet lighting, store-window lighting, display-case lighting and more. The weatherproof sign modules have multiple mounting options and are available in cool white, red, green and blue. Three enhanced Epistar 2835 SMD LEDs emit up to 89 lumens of powerful light and produce a 160-degree beam pattern, which is capable of illuminating channel letters up to 28-inches wide and as shallow as 3 inches. The dimmable LED sign modules are available in customizable quantity strands (up to 45 modules) with 3 1/2-inch spacing between each module.

[www.superbrightleds.com](http://www.superbrightleds.com) // Circle No. 31

In early 2016, Super Bright LEDs installed LED sign modules in the window of Red Fish Blue Fish, a bar/music venue in St. Charles, Mo. Positioned in the middle of a shopping center, the bar had average traffic flow but wasn't immediately visible from the nearby highway. Color-changing RGB LED sign modules were chosen to grab the attention of passersby on foot and in their vehicles.

The install took only 30 minutes to complete. A total of 56 sign modules were mounted on the inside of the bar's window using double-sided foam tape and screws. Sign module strands were joined with wire connectors. The final strand was connected to an RGB LED controller that was connected to a 12-volt power supply. The RGB controller was used with its wireless RF remote to control dynamic color-changing modes, speed, brightness and single-color options.

The illuminated bar window now is visible from the highway. It stands out against nearby businesses, and an increase in bar traffic was reported by Red Fish Blue Fish owners after the install.



**VIEW A VIDEO OF THIS PROJECT.**  
**SEE PAGE 12 FOR DETAILS.**



## 13 WATER AND AIR BARRIER ARE INCORPORATED IN ONE SHEATHING PRODUCT

PROSOCO Inc. has teamed with Georgia-Pacific Gypsum to release the DensElement Barrier System, a patent-pending sheathing barrier system that integrates a water-resistant and air barrier within the gypsum core through AquaKOR Technology. The system comprises three GP-approved system components: DensElement Sheathing; PROSOCO R-Guard FastFlash liquid flashing to fill and seal joints, fasteners and other penetrations; and PROSOCO PorousPrep water-based primer to prime exposed gypsum edges. As a system solution, the DensElement Barrier System eliminates the need to apply other water or air barriers that cover or coat the entire wall.

[www.prosoco.com](http://www.prosoco.com); [www.buildgp.com](http://www.buildgp.com) // Circle No. 32



## 14 STOREFRONT DELIVERS THERMAL PERFORMANCE

CRL-U.S. Aluminum has launched its ArcticFront Series 45X Storefront, which delivers thermal performance with the installer-friendly features of a traditional storefront. The center-glazed system, which has been tested per AAMA 1503/507 and

ASTM E283, features dual polyurethane thermal-break points that act as a thermal barrier and a 2- by 4 1/2-inch thermal frame. It can produce U-factors

ranging from 0.37, using 1-inch low-E insulating glass, to as low as 0.19, using specially configured insulated glass units. Additional features include screw spline or shear block assembly, sill receptors that require no additional anchoring of the sill member, and interior or exterior glazing options.

[www.crl-arch.com](http://www.crl-arch.com) // Circle No. 33

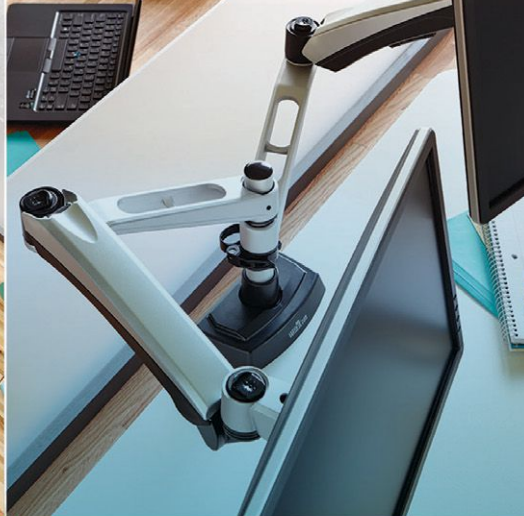
## 15 MANUFACTURERS PARTNER TO OFFER POLYISO

Fabral has partnered with Atlas Roofing Corp. to provide closed-cell foam insulation, also known as polyiso, for reducing thermal conductivity between the interior and exterior of a building. Fabral will offer three insulation products—ACFoam-III, ACFoam Nail Base and ACFoam CrossVent and fasteners—to simplify the ordering process for its customers. Suited for Fabral standing-seam metal roof systems, polyiso is manufactured using CFC-, HFC- and HCFC-free foam technology and is recognized by GREENGUARD as resistant to mold. The insulation offers high-unit R-value per inch, fire performance, no ozone depletion potential, and can be recycled or reused.

[www.fabral.com](http://www.fabral.com) // Circle No. 34







# SIT-STAND SOLUTIONS FOR THE WHOLE OFFICE



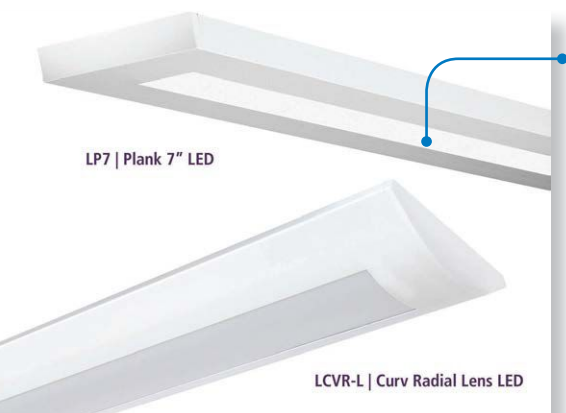
**VARIDESK® IS THE HEIGHT-ADJUSTABLE STANDING DESK SOLUTION FOR ANY OFFICE SPACE.**

- Solutions for desktops, cubicles, or full-desk replacements
- Usually ships within 24 hours
- Special pricing for bulk orders available
- All products require little or no assembly

**Order online or call 866-932-4602.**  
**FREE SHIPPING TO LOWER 48 STATES** 

**VARIDESK.com**  
WORK ELEVATED™

Circle No. 35



## 16 LINEAR LIGHTING SOLUTIONS OFFER VISUAL COMFORT

Hubbell Lighting's Alera Lighting has launched two linear lighting solutions—the Plank 7-inch LED (LP7) and the Curv Radial Lens LED. The Plank fixture, which has a rectangular form that can be used for uplight, downlight or a combination, can be used with external controls or shipped with integrated controls. The fixture is available in lumen packages ranging from 3165 to 7600 per 4-foot section and three LED CCT color choices. The Curv fixture's opal acrylic lens provides indirect-direct or direct illumination. The fixture is designed for areas where visual comfort is important, different light levels are required within the same space or where daylight harvesting is part of the building design. The Curv Radial Lens LED is available in lumen packages ranging from 4350 to 7250 and three LED CCT color choices.

[www.aleralighting.com](http://www.aleralighting.com) // Circle No. 36



## 17 FOLDING DOOR SYSTEM IS VINYL

LaCantina Doors has unveiled its Vinyl Folding Door System, which features contemporary styling with clean profiles. The door system is energy-efficient, low-maintenance and performs well in all environments. It is available in standard and custom door sizes up to 8-feet tall and 18-feet wide in a range of popular configurations. The door panels feature a narrow 2 15/16-inch stile and rail profile for more glass and light. The system's hardware package is available in stainless or bronze finish. Concealed multi-point locking provides added security, and standard low-E glass improves energy efficiency. Standard color options include white or tan.

[www.lacantinadoors.com](http://www.lacantinadoors.com) // Circle No. 37

## 18 CONTROL LIGHTING FROM ANY SMART DEVICE

Lutron Electronics has introduced its Vive wireless lighting control that allows facility managers and building owners to monitor and manage their system from any smart device. They can quickly adjust lighting controls to accommodate building churn, improve occupant comfort and enhance energy efficiency. Vive is ideal for commercial office spaces, K-12, and colleges and universities with options that specifically suit the unique needs of each different space type—without locking customers into more or less control than they need. Vive is also fully scalable—start with a single room and expand as the needs of the space and budgets allow.

[www.lutron.com/vive](http://www.lutron.com/vive) // Circle No. 38



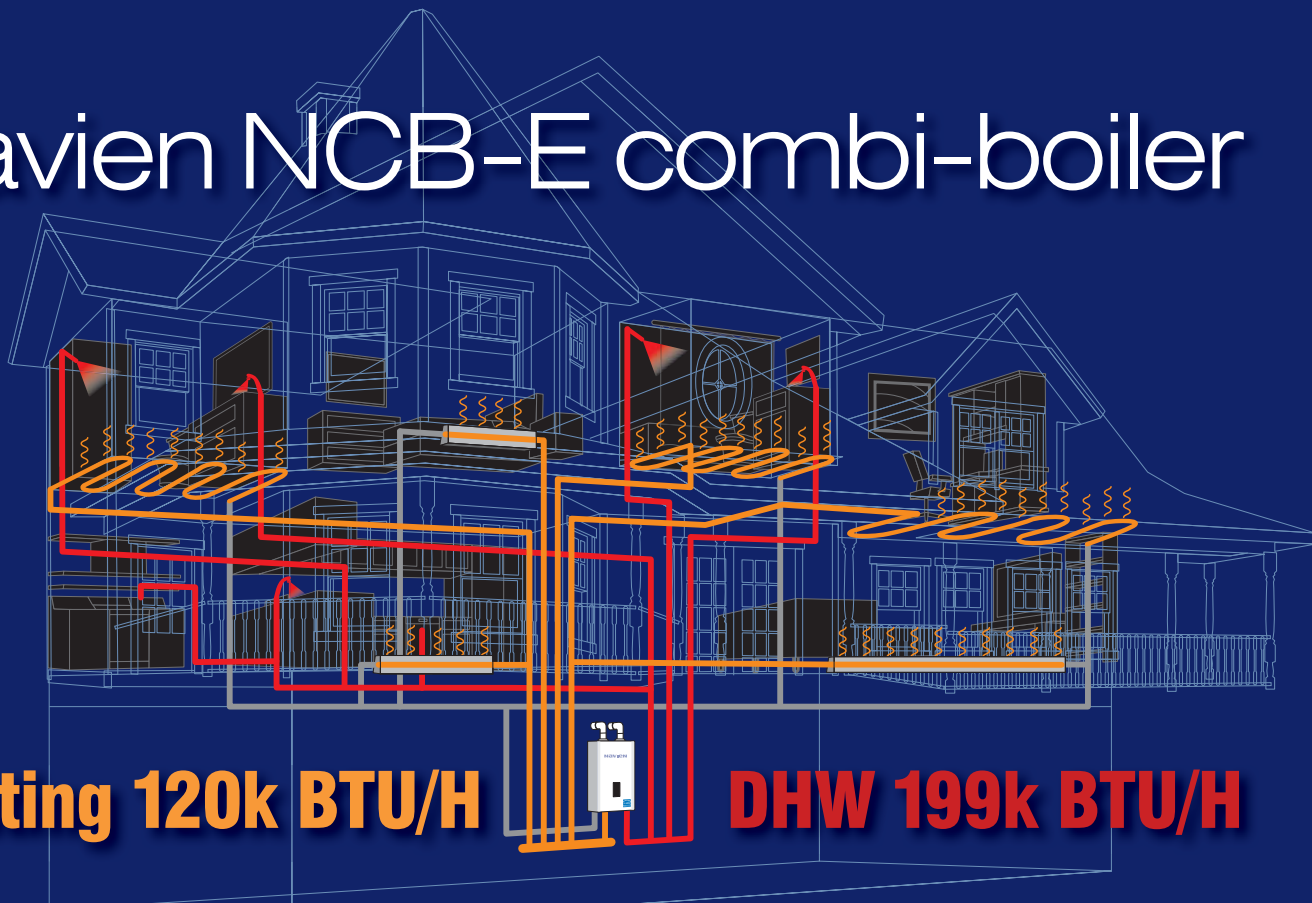
## 19 CEILING PANELS OFFER VARIOUS CONFIGURATIONS

Hunter Douglas has introduced four products to its Tavola beam and baffle ceiling series: Divergent, Levels, Canted and Cassettes. Tavola Divergent enables configuration of non-parallel, diverging beams and baffles in pinwheel, basket weave and chevron designs along with client-specific layouts. Tavola Levels combines beams and baffles of multiple heights and widths with various on-center spacing to create topography and rhythm across the ceiling plane. Tavola Canted supports three beam styles in three depths that can slope to create unexpected topographies. Tavola Cassettes provides linear arrays of factory-assembled aluminum beams, unitized for simple torsion spring installation. The series is available in a range of finishes, plus Woodwright wood-look powder coat, film and real wood veneer options.

[www.hunterdouglasceilings.com](http://www.hunterdouglasceilings.com) // Circle No. 39



# Navien NCB-E combi-boiler



**Heating 120k BTU/H**

**DHW 199k BTU/H**

## Whole house heating and DHW for larger homes all in one compact combination boiler

Navien NCB-E is the high efficiency tankless condensing combination boiler with the capacity to supply both heat and DHW for larger homes — enough hydronic heat for the whole house, plus hot water to run two showers and a dishwasher at the same time.

Save installation time and reduce call backs, as your customers save energy and enjoy all the hot water they need, whenever they want it. **Now available in four sizes — NCB-150E, NCB-180E, NCB-210E and NCB-240E.**

To learn more visit [WholeHouseCombi.com](http://WholeHouseCombi.com) or [Navien.com](http://Navien.com).



**NaviLink**<sup>™</sup>

Optional new Wi-Fi remote control system  
Available for NCB-E combi-boilers

Circle No. 40

**KD navien**<sup>®</sup>

THE LEADER IN CONDENSING TECHNOLOGY



## 20 STRUCTURAL PANELS ARE NONCOMBUSTIBLE

USG Corp. has released its USG Structural Solutions, which include the USG Structural Panel Concrete Subfloor and USG Structural Panel Concrete Roof Deck. From mezzanines and mid-rises to platforms and roof decks, the panels provide the versatility of wood sheathing but are noncombustible and certified by Underwriters Laboratories Inc. The structural panels, which can significantly reduce design loads, can create one- and two-hour fire-rated assemblies. They will not buckle or warp, and they install quickly.

[www.usg.com/structural](http://www.usg.com/structural) // Circle No. 41

USG Structural Panel Concrete Subfloor enabled the construction of a premier movie theater as part of the development of Block 37, one of Chicago's newest entrainment and shopping complexes. The existing structure was built in late 2008 and was home to 3 stories of shopping and a fourth floor dedicated to a major tenant.

When the concept for a movie theater was in development, a number of construction materials and practices were evaluated to build the tiered platforms needed for the audience seating; however, due to occupancy and life safety requirements, some of those material options were deemed unsatisfactory because they did not meet building code requirements, like noncombustibility. The designers looked at other traditional options that would meet the noncombustibility requirement. The options initially reviewed were very heavy and re-

quired modification to the already existing structure.

The need for a lightweight, noncombustible, structural floor sheathing to build the tiered platforms in the theater pointed the designers to consider the USG Structural Panel Concrete Subfloor. In addition to meeting the noncombustible requirement, the sheet product comes cured from the factory. It fits on an elevator and is installed in three easy steps: lay, fasten and finish. The installation of this product fit within the compressed timeline for the project.

The project is more than 30,000 square feet and includes a full restaurant kitchen, bar and 12 screens with luxury recliners. Construction started in June 2015 and the theater opened its doors on Dec. 12, 2015. This project would have not been completed in such a timely manner without the use of the USG Structural Panel Concrete Subfloor.



## 21 LOCK, UNLOCK, OPEN AND CLOSE WINDOW WITH MINIMAL FORCE

Graham Architectural Products has introduced the GT6200 SL Single-Lever Operator Window, an outswing casement with single-lever hardware designed to operate with minimal force and limited motion requirements, like those specified by AAMA 513-12 (less than 5-pounds operational force). The GT6200 SL also can be configured to meet the NYC Falls Prevention criteria. The single-point, multi-functioning handle allows locking, unlocking, opening and closing with minimal force. It functions as a limited opening device, too. The GT6200 SL features Euro-Groove design, dual color capability and a polyamide strut thermal-break system for U-values.

[www.grahamwindows.com](http://www.grahamwindows.com) // Circle No. 42

## 22 TECHNOLOGY IMPROVES EFFICIENCY OF OUTDOOR UNITS

Mitsubishi Electric US Inc. Cooling & Heating Division has released its CITY MULTI L-Generation Air Source outdoor units. The L-Generation (6 to 30 tons) has improved efficiency ratings because of its HexiCoil technology, an aluminum flat tube heat exchanger that maximizes heat-transfer capability through its fin shape. The fin design of the HexiCoil product, along with its zinc outer coating, provides water-shedding capability and corrosion resistance, prolonging the outdoor unit's lifespan. The capillary tube system ensures even fluid distribution, further contributing to heat-transfer ability.

[www.mitsubishicomfort.com](http://www.mitsubishicomfort.com) // Circle No. 43





Flexible  
Installation

Energy  
Efficient

Product  
Options



## Experience the Difference of Proven-Performance PVC.

Carlisle's Sure-Flex™ PVC product line is one of the broadest in the industry, with a membrane for virtually any low-slope roofing application. Manufactured with a monolithic formulation above the scrim that ensures long-term weatherability and maximum protection against the elements, Sure-Flex PVC membranes provide excellent resistance to fire and wind uplift, and can also reduce energy usage and slow the formation of greenhouse gases.

Protect your investment with a proven-performance Sure-Flex PVC membrane.

Visit us at IRE in booth #851

Circle No. 44

### EXPERIENCE THE CARLISLE DIFFERENCE

800.479.6832 | [www.carlisesyntec.com](http://www.carlisesyntec.com)

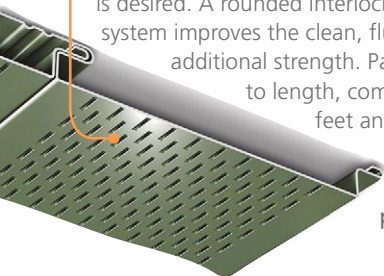
Carlisle and Sure-Flex are trademarks of Carlisle. © 2017 Carlisle.

## 23 SOFFIT PANEL AVAILABLE WITH FULL-VENT OPTION

Petersen's Flush Soffit panel is now offered with a full-vent option, designed to increase under-eave airflow and expand aesthetic appeal. The full-vent soffit is available in PAC-CLAD 0.032 and 0.040 aluminum and is tension-leveled to ensure flatness. PAC-CLAD Flush Soffit panels are designed for soffit, wall and fascia applications where a flush or flat appearance is desired. A rounded interlock leg and concealed fastening system improves the clean, flush appearance while providing additional strength. Panels, which are factory-formed to length, come in a maximum length of 25 feet and minimum length of 4 feet.

Availability and options may vary at each Petersen facility.

[pac-clad.com](http://pac-clad.com) // Circle No. 45



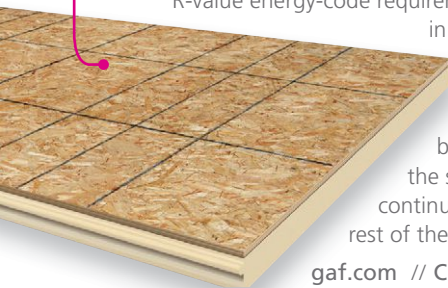
## 25 ADD INSULATION TO THE OUTSIDE OF EXTERIOR WALLS

GAF has released its ThermaCal Wall Insulation Panels, which are designed to add insulation value to the outside of structural exterior sidewalls and can be fastened to outside wall sheathing, metal or masonry walls. They serve as a nailable base for exterior sidewall coverings. The panels help reduce heat loss and cold drive into the space and can reduce associated energy costs and meet the increased

R-value energy-code requirements being adopted in certain climate zones.

Installing ThermaCal Wall Panels helps eliminate thermal bridging by covering the studs while adding continuous insulation to the rest of the wall.

[gaf.com](http://gaf.com) // Circle No. 47



## 24 REPLACE HID FIXTURES WITH LED CANOPY LIGHTS

RAB Lighting introduces VANLED, an energy-saving, low-maintenance and low-profile LED canopy light designed to cover the footprint of most traditional canopy fixtures. VANLED comes in six power packages—10W, 20W, 40W, 52W, 65W and 75W—and replaces 50W to 200W HID fixtures. The product offers an efficacy rating of 122 lm/W, reducing energy costs by more than 80 percent. Its low-profile design provides a clean contemporary look that makes it ideal for a wide range of applications, including those with vehicle height restrictions. VANLED is DesignLights Consortium-approved.

[www.rabweb.com](http://www.rabweb.com) // Circle No. 46

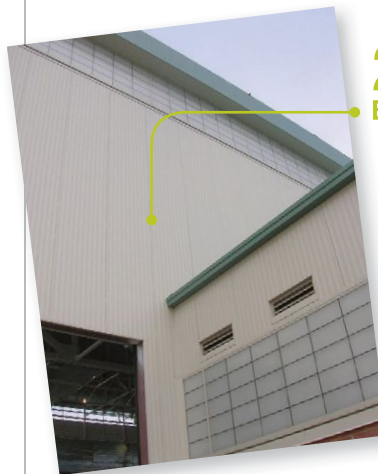


## 26 METAL PANELS NOW AVAILABLE WITH NON EXPOSED FASTENING

ThermalSafe panels from Metl-Span are now available with a Non Exposed Fastening (NEF) solution to offer architects, designers and building owners a flush appearance. Thermal-Safe NEF mineral wool panels are the latest development in fire-resistant wall construction technology with the aesthetic appeal of a smooth surface. The one-step, one-crew installation of the LockGuard interlocking side joint feature enhances the fire-resistant

characteristics of the panels. ThermalSafe panels are attached to the intermediate support members using concealed clips and fasteners. The end panels will still need to be attached with through-fasteners required for fire ratings but that exposed fastener head can be covered with trim.

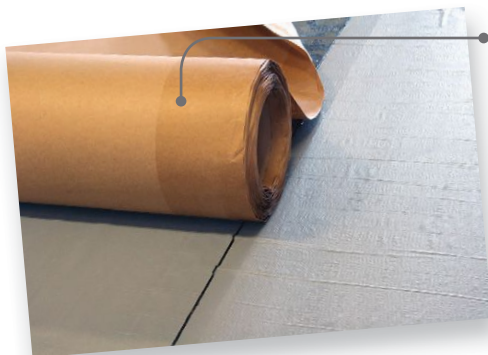
[www.metlspan.com](http://www.metlspan.com) // Circle No. 48



## 27 CREATE AIR AND VAPOR SEAL BETWEEN A ROOF AND BUILDING

Mule-Hide Products Co.'s F5 Air & Vapor Barrier allows contractors to quickly and easily create an air- and vapor-tight seal between a low-slope roofing system and the building below. The barrier is compatible with a wide variety of roofing systems and can be used on primed substrates, including concrete, plywood, exterior gypsum, DensDeck Prime and SECURROCK. It also can serve as a temporary roof for up to 120 days while work on the roofing system is completed. The membrane is a 40-mil-thick composite consisting of 35 mils of self-adhering rubberized asphalt laminated to a 5-mil-thick woven polypropylene film. Rolls are 39-inches wide and 75-feet long and cover approximately 244 square feet of substrate surface.

[www.mulehide.com](http://www.mulehide.com) // Circle No. 49





# TEAM USA



## XLERATOReco®

High Speed. No Heat.  
**500 Watts.**

## XLERATOR®

Original. Patented.  
**Still The Best.**

## ThinAir®

Surface Mounted.  
**ADA Compliant.**

Get on the cutting edge of green technology and design with Excel Dryer's expanded product line. Our high-speed, energy-efficient hand dryers are Made In USA Certified® and come fully equipped with adjustable speed and sound control, multi-voltage options, adjustable heat settings and an externally visible service LED. With new, enhanced features and the most options and accessories in the industry, including a HEPA filtration system and custom covers, you can design the best hand drying solution for any restroom environment.

**Eliminate Paper Towels And Make The Change Today!**



**TIME TO THROW IN THE TOWEL®**

Circle No. 50

877.816.8810  
exceldryer.com  
sales@exceldryer.com



## 28 CREATE SPACE BETWEEN A BUILDING AND THE ELEMENTS

WATERWAY Rainscreen Drainage and Ventilation Mats from Stuc-O-Flex International Inc. create space for moisture drainage and promote air circulation through convection. WaterWay consists of polypropylene filaments bonded to a Moisture Resistive Filter Fabric that functions like an additional layer of weather-resistant barrier. WaterWay is designed for stucco, EIFS, manufactured and natural stone, fiber cement, brick, lap and cedar sidings, and other wall-cladding systems.

[www.stucoflex.com](http://www.stucoflex.com) // Circle No. 51



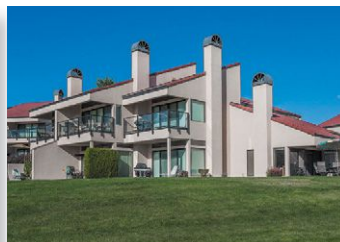
Following extensive forensic evaluation, it was apparent the cladding on this lakeside community was in desperate need of a comprehensive retrofit and repair. Years of exposure exacerbated by inadequate flashing and transition details allowed substantial water penetration. This resulted in disintegrated weather-resistant barrier (WRB); rusted laths, fasteners, casing and cornerbeads; deteriorated sheathing; and intermittent compromise of framing members.



With an adamant homeowners' association concerned about recurrence, OAC, the Seattle-based envelope consultant, suggested the WATERWAY Rainscreen Stucco Assembly, which incorporates fluid-applied WRB, Rainscreen Drainage and Ventilation Mat, stucco, a crack suppression layer (polymer-modified cement base and fiberglass mesh) completed with Stuc-O-Flex Breathable Elastomeric Acrylic Finish. After

thorough evaluation, all agreed the configuration offered high-performance reliability with built-in redundancy, durability and extended service life.

As demolition began, source and severity of the moisture intrusion were confirmed. Sheathing, framing, and insulation of impacted areas were repaired or replaced. With installation of the Rainscreen Stucco components started, diligence was employed in development



and execution of flashing and interface details. The general contractor was Tatley-Grund Inc., Seattle, and plastering was completed by Stucco by Alex, Entiat, Wash.

Upon completion, 24 buildings, totaling more than 385,000 square feet, had been repaired. Today, the WATERWAY Rainscreen Stucco Assembly continues to provide a low-maintenance exterior that looks great and performs admirably.

## 29 CULTURED STONE LINE OFFERS NEW TEXTURES

Cultured Stone by Boral has expanded its Contemporary Collection with two stone textures, Contemporary Pro-Fit and Limestone, which build upon the entire line's clean, linear aesthetic. Mirroring the same panel size as its Pro-Fit cousin, the new Contemporary Pro-Fit texture features three different depths of stone with a 1/2-inch difference in depths between stones. The texture is available as individual pieces across the three new colorways: Cream, Dove Gray and Light Brown. The Limestone texture, which also is available in the same subtle hues, comes in five different sizes and is sold separately to allow for greater blending flexibility and visual interest.

[www.boralamerica.com](http://www.boralamerica.com)  
// Circle No. 52



Contemporary Pro-Fit Modera  
LedgeStone in Intaglio



## 30 PORCELAIN TILE RESEMBLES WOOD

Ege Seramik's Savannah Series is a porcelain tile that resembles wood and is

offered in a large format. The 6- by

36-inch tiles are available in five colors: Honey, Pearl, Sand, Silver and Wenge. The 8- by 48-inch tiles come in four colors: Honey, Pearl, Sand and Silver. The tiles can be used on interior floors and walls, as well as exterior vertical surfaces. Ege Seramik's "pressing method" manufacturing process allows for this large-format tile to be consistent in overall dimension.

[www.egeseramik.com](http://www.egeseramik.com) // Circle No. 53



# MARK YOUR CALENDARS!

for a one-day  
retrofit conference



**OCTOBER 12, 2017**  
**Navy Pier, Chicago**

Learn about repeatable and scalable retrofits, deep-energy retrofits, financing and much more! More details to come.

Circle No. 54



Contact John Riester, *retrofit*'s publisher, at (919) 641-6321 or [john@retrofitmagazine.com](mailto:john@retrofitmagazine.com) if you're interested in sponsorship opportunities.



### 31 LED LIGHT ENGINES CAN BE USED AS RETROFIT KITS

Terralux has released the SR308 and SR312 series of energy-efficient LED light engines. The UL-recognized LEDs are suitable for use in new fixtures by OEM lighting fixture manufacturers and to upgrade existing incandescent or ballasted CFL lighting fixtures. They can be used in sealed or unsealed fixtures, including outdoor listed and labeled wet-location fixtures. All models have a seven-year warranty, including in non-stop commercial operation. The light engines, which are ENERGY STAR certified, are available in five different lumen packages (850 - 2100 lm), four different correlated color temperatures (2700K, 3000K, 3500K and 4000K), and include universal 120 - 277V 0 - 10V dimming.

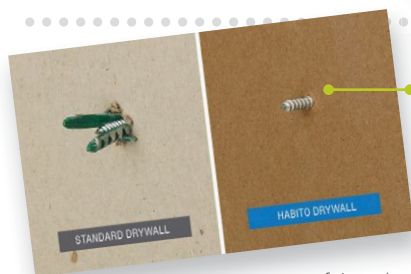
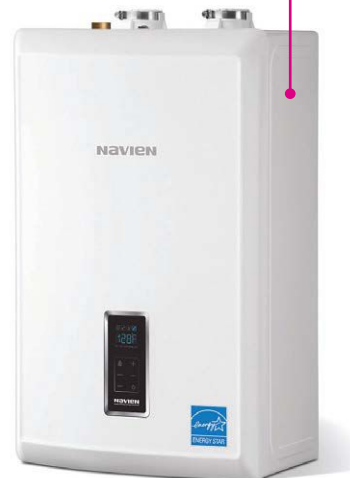
[www.terralux.com](http://www.terralux.com) // Circle No. 55



### 32 COMBI-BOILER IS IMPROVED

Navien has made available its next generation combi-boiler, the NCB-E. Navien's NCB series, as one unit, is capable of providing a whole-house heating system while providing the domestic hot-water output of a stand-alone tank-less water heater. The NCB-E will be a rolling replacement, now with a Grundfos pump, an integral air vent, a PRV top connection, a quieter fan and new front cover bevel design.

[www.wholehousecombi.com](http://www.wholehousecombi.com) // Circle No. 56



### 33 DRYWALL WITHSTANDS USE AND ABUSE

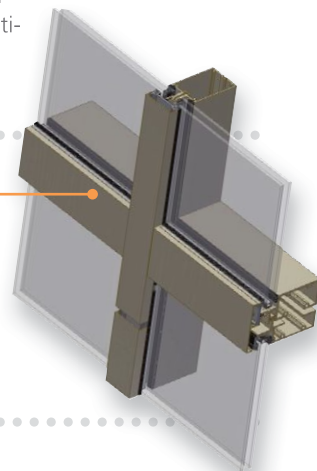
CertainTeed has introduced Habito, a 1/2-inch wallboard material that eliminates the need for threaded drywall anchors or nailing to wall studs for fixtures under 30 pounds; delivers sound insulation; is an alternative for high-traffic interiors that tend to see use and abuse, as well as areas where occupants will redecorate and mount shelves, media, décor and other fixtures. Habito combines the benefits of old-fashioned plaster and modern drywall, adding stability and substance. This allows builders to instill confidence in consumers while justifying the added expenses associated with high-performance building products.

[www.certainteed.com/gypsum](http://www.certainteed.com/gypsum) // Circle No. 57

### 34 CURTAINWALL CAN BE FABRICATED AND ASSEMBLED IN THE FACTORY

EFCO Corp.'s 5600 PG curtainwall system offers pre-glaze capability and factory fabrication/assembly options. Single- or multi-span and anti-bulking clips ease installation. The curtainwall itself has various system depths and span options, which allow it to adapt to multiple areas for individual building needs. The optional Duracast pressure plate, made of Pella's patented fiberglass pultrusion, enhances thermal performance and creates fewer installation steps. The curtainwall is capable of 6-, 7 1/2- and 10-inch systems.

[EFCOcorp.com](http://EFCOcorp.com) // Circle No. 58



### 35 RETROFIT A DESK FOR SITTING AND STANDING

Increase productivity and promote wellness with the WS1 Adjustable Height Workstation from Doug Mockett & Co. Inc. The universal platform fits any desk or workstation without compromising space or stability. The workstation features a 17-inch range of vertical motion. Transition from sitting to a standing-height desk in a matter of seconds.

[www.mockett.com](http://www.mockett.com) // Circle No. 59



LEARN HOW THIS PRODUCT WORKS VIA A SHORT VIDEO. SEE PAGE 12 FOR DETAILS.



## 36 EXTERIOR SHADES ARE DESIGNED FOR SKYLIGHTS



VELUX and RENSON have introduced Topfix VMS, a motor-operated sunscreen with special mounting feet engineered for fixed and movable VELUX Modular Skylights. It employs ZipShade technology, providing fabric tension and wind resistance up to 75 mph. The proprietary design integrates screen fabrics to which zippers are affixed and move within a side channel and guide system for smooth extension/retraction, consistent fabric tension and resistance to the elements. Topfix VMS is available in a variety of colors and blackout-shade options. It can be integrated into a building-management system.

[www.renson.us/external-blinds-united-states.html](http://www.renson.us/external-blinds-united-states.html) // Circle No. 60

## 37 COATING COMES WITH LIST OF INGREDIENTS

Fluropon Pure is Valspar's newest addition to its Fluropon 70 percent PVDF family of coil and extrusion coatings. Formulated with material transparency in mind, Fluropon Pure does not include hexavalent chromium, lead, phthalates and PFOA, allowing the product to meet Living Building Challenge's Red List 3.0-Compliant requirement. Fluropon Pure delivers the same capabilities of Valspar's original Fluropon line, including cool roof formulations. Additionally, the coating is trusted to protect buildings against harsh outdoor elements, including humidity and corrosion, dirt, stains and chemicals.

[valsparcoilextrusion.com](http://valsparcoilextrusion.com) // Circle No. 61



## 38 FAN COIL SOLUTION IS MINIMALLY INVASIVE

International Environmental Corp. has developed the Mini-ReStoraMOD, a minimally invasive high-rise fan coil solution that enables quick replacement for hospitality, multifamily and higher-education applications. The MiniReStoraMOD has the ability to fit into any current space by sliding into the shell of an existing unit, avoiding the need to shut down an entire riser, which can result in significant costs, downtime and revenue loss. Furthermore, because of the ability to be installed using existing materials with minimal disruption to the existing space, the replacement mini-minimizes the number of outside trades that need to be involved.

[www.iec-okc.com](http://www.iec-okc.com) // Circle No. 62



VGW102T Charred Oak

## 39 LVT PLANKS RESEMBLE AGED WOOD

Karndean Designflooring has expanded its Van Gogh collection with 12 wood-look planks that encapsulate the look of transforming wood over time through burning, liming and smoking. The collection includes four lightly lime-washed oak looks, reminiscent of salvaged antique flooring. Three designs are inspired by American redwood railroad ties and feature a 20-mil wear layer. Three rich brown designs incorporate fuming and smoking techniques that have been used by natural wood flooring manufacturers for years. Two plank designs feature combined liming and smoking techniques for areas in which a rustic feel is desired. Backed by lifetime residential and 15-year commercial warranties, the Karndean Van Gogh collection now features 32 wood designs.

[www.karndean.com/en/floors/range-overview/van-gogh](http://www.karndean.com/en/floors/range-overview/van-gogh) // Circle No. 63



## 40 TABLES AND SEATING CREATE DYNAMIC WORKPLACES

The HON Co. has made available two office solutions—Arrange Tables and Accommodate Seating—that support dynamic, active and collaborative modern office spaces. The solutions can be used separately or in tandem to create a productive and inviting environment, no matter where work takes place. Arrange Tables are available in a variety of work surface and base shapes and sizes, and they allow for quick and easy reconfiguration for maximum productivity. Accommodate Seating's lightweight chairs are easy to rearrange, encouraging people to form interactive work environments for impromptu collaboration or private meetings.

[hon.com/arrange](http://hon.com/arrange); [hon.com/accommodate](http://hon.com/accommodate) // Circle No. 64

When Boulder Valley's first charter school, Summit Middle School, Boulder, Colo., was undergoing a renovation, the three-time Blue Ribbon award-winning school's administrators knew they wanted to support the ways students learn by offering them a variety of settings in which to study and collaborate.

With a keen eye toward promoting academic achievement and creating a unique and vibrant setting, the school chose to take advantage of its common areas by selecting Arrange Tables by The HON Co. The collection of seated, counter and café-height tables brings a higher level of functionality to active learning spaces.

The versatility of shapes and sizes offered with Arrange Tables allowed the school to transform underutilized spaces into new areas for its students to collaborate and connect outside the classroom.

From active learning spaces like classrooms, common areas, libraries and student lounges to today's modern office space, Arrange Tables create a highly productive and inviting environment, no matter where work takes place.



## 41 CONTROL PLUG LOADS BY SWITCHING OFF SELECTED RECEPTACLES

WattStopper has made available its Wireless Receptacle Controls (WRC) series. The WRC line of products helps lighting-control professionals meet new ASHRAE 90.1 and California Title 24 requirements for switching off selected receptacles to control plug loads. The solution also minimizes costs for retrofits and new construction as it utilizes RF technology and works with existing line voltage wiring. The WRC line of products comes in two versions: for use with stand-alone occupancy sensors or WattStopper's Digital Lighting Management platform.

[www.wattstopper.com](http://www.wattstopper.com) // Circle No. 65



## 42 SIMULATE ENERGY USE OF HEAT-PUMP AND HEAT-RECOVERY SYSTEMS

Daikin North America LLC has released a bespoke plug-in for its Daikin VRV systems to be used with the IES-VE integrated analysis tool. The Daikin VRV Plug-in is a new specification tool enabling consultants to make energy simulation for Daikin heat-pump and heat-recovery VRV systems, including the Variable Refrigerant Temperature function, in a modeling methodology. It includes data sets for Daikin VRV III and IV, as well as all the currently available indoor unit models. The plug-in helps determine the system requirements needed to meet the energy-efficiency and building regulations.

[www.daikinac.com/content/resources/software-tools/#ies-ve](http://www.daikinac.com/content/resources/software-tools/#ies-ve) // Circle No. 66



## 43 FLOORING SYSTEM IS AVAILABLE IN BLACK

Protect-All has added black to its Protect-All Rapid Weld System, an installation process that utilizes chemical welding that dries quickly and enables same-day installation and welding. Other color options include dark gray, light gray and brown. Protect-All flooring derives its durability and slip-resistance from a thermal-fusion process that blends remnant industrial-strength vinyl together into one monolithic piece. Protect-All and Protect-All Rapid Weld can reduce downtime and flooring seams by up to 80 percent. Fewer seams eliminate the need for regular and costly regrouting.

[www.protect-allflooring.com](http://www.protect-allflooring.com) // Circle No. 67







# PoleVault Digital Systems

## Complete AV Switching and Control Systems for Digital Sources

Extron PoleVault® Digital Systems are easy-to-use AV switching and control systems that seamlessly integrate digital and analog video sources. Each system uses economical twisted pair cable for transmitting AV signals and includes network connectivity for Web-based AV resource management, monitoring, and control.

### High Resolution Digital Switching

Local HDMI and Decora®-style AV input wallplates provide connections for common classroom sources including laptop, tablet, Apple TV, Blu-ray, or document camera, at resolutions up to 4K.

### Twisted Pair Transmission

Extron twisted pair technology sends high resolution digital AV signals over a single CATx shielded twisted pair cable providing high reliability and maximum performance on an economical and easily concealed cable infrastructure.

### Easy-to-use Room Control

The included MediaLink Controller is designed to simplify operation of the AV system. Backlit buttons provide intuitive control of power, input switching, and volume.

### Multiple Mounting Options

Standard systems are available for a wide variety of display and room configurations including ceiling mount projection, wall mount ultra short-throw projection, and flat panel display.

### Ethernet Connectivity

An integrated switch allows systems to be configured, managed, and controlled over the network as well as provides data access for three additional Extron devices over a single network drop.

### Energy Efficiency

As an ENERGY STAR® qualified AV product, the switcher includes Extron exclusive power saving modes designed to reduce energy usage and operating costs.

**Grants Available**  
Register your project online

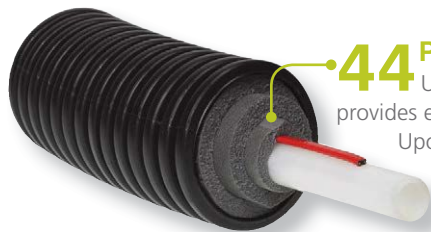


**Extron Electronics**  
INTERFACING, SWITCHING AND CONTROL

800.633.9876 • [www.extronclassroom.com](http://www.extronclassroom.com)



**New AV Technology**  
for Learning Environments  
Design Guide Available



## 44 PRE-INSULATED PIPE OFFERS FREEZE PROTECTION

Uponor now offers a pre-insulated PEX pipe system for underground potable-plumbing applications that provides energy-efficient freeze protection in cold climates. The Ecoflex Potable PEX Plus pipe features 1 1/4-inch Uponor AquaPEX service pipe with a 7-Watt-per-foot heat-trace cable that runs the entire length of the pipe. The pipe is available with a full line of accessories and uses Uponor's ProPEX ASTM F1960 expansion fittings for durable connections. It is offered in 300-foot coil lengths and custom-cut lengths.

[www.uponorpro.com](http://www.uponorpro.com) // Circle No. 69



The Quail Hollow residential community outside of Charlotte, N.C., offers convenience for its residents who live in close proximity to a PGA-ranked golf course, shopping and other lifestyle amenities. But the 30-year-old condominium complex, consisting of 12 separate buildings, was starting to show its age.

The existing pre-insulated steel distribution piping system was far from sound or energy efficient. Groundwater had penetrated the pipe's insulation, providing higher-than-normal energy costs while corroding the connections, result-

ing in leaks. The system had been forced to shut down several times to allow for costly repairs. Tired of the problems and the added energy costs of the outdated system, the condo association decided to look for a solution.

Piedmont Natural Gas, Charlotte, was awarded the contract for the underground repipe. Upon researching possible piping products, Project Manager Brad Stroud was excited to learn about Ecoflex from Uponor, a flexible, durable pre-insulated piping system that consists of crosslinked polyethylene (PEX) service pipes surrounded

by PEX-foam insulation and covered by a corrugated HDPE jacket.

"I had worked only with steel pipes in these types of installations," Stroud says. "But Uponor provided training and installation assistance to make climbing the learning curve quick and easy."

Because the property surrounding Quail Hollow consists of mature trees, roads, parking lots and sidewalks, it was important to work around the existing design. With its flexible coils up to 1,000 feet in length, Ecoflex requires less trenching, fewer connections and less disruption to existing

landscape, as well as faster installation times.

Because of its insulation properties, durability and flexibility, Ecoflex was a perfect fit for the job, which included two central energy plants for the hot-water heating, chilled-water cooling and domestic hot water to each unit in the complex.

Now, the residents of Quail Hollow are enjoying their new, reliable, energy-efficient system. Gone are the days of worrying about costly system repairs, unreliable water temperatures and inconvenient system shutdowns.

## 45 HAND DRYER IS COST EFFECTIVE

When tested to guidelines established in the new, global Product Category Rules from UL Environment, Excel Dryer's ThinAir Hand Dryer recorded a dry time of 14 seconds with 3.7 Wh energy per use. Operating on 960 Watts, ThinAir is a cost-effective hand-drying solution. Its slim profile protrudes no more than 4 inches making it a retrofit solution for any facility requiring an ADA-compliant hand dryer. Additionally, because ThinAir can be surface mounted rather than recessed into a wall, it is a sound choice for difficult to modify restrooms. ThinAir has enhanced standard features including adjustable speed and sound controls; adjustable heat settings; a service LED for streamlining maintenance; and multi-voltage options, accommodating electrical needs for retrofitting buildings and new construction globally.

[exceldryer.com/products\\_thinair.php](http://exceldryer.com/products_thinair.php) // Circle No. 70



## 46 TEMPERATURE SENSOR IS INCONSPICUOUS

The LG Remote Temperature Button Sensor, Model ZRTBS01, is a Type 3, NTC temperature sensor, providing fast and accurate temperature readings. The sensor is suspended in a round enclosure that is easy to install and discreet, measuring less than 1 inch in diameter. The sensor requires a 7/16-inch hole at its mounting location and is secured to the wall with a peel-off tape strip. Only a flush 7/8-inch dot on the wall is visible. The sensor can be painted with typical interior wall paint. The Remote Temperature Button Sensor is compatible with all LG indoor units, except wall-mounted units.

[www.lghvac.com](http://www.lghvac.com) // Circle No. 71

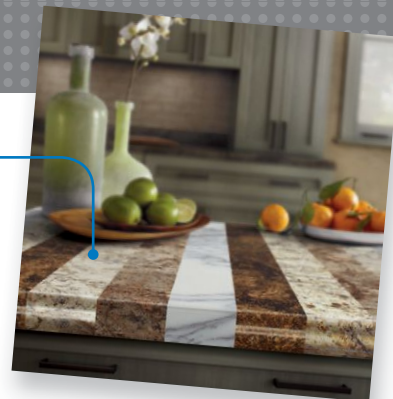




## 47 QUARTZ SURFACES AVAILABLE IN A VARIETY OF PRICE POINTS

VT Industries now offers premium quartz surfaces in a variety of on-trend colors and price points. VT GeoScapes Architectural Stone Surfaces make the high-end luxury of quartz available nationwide. TruQuartz surfaces come in a selection of up to 20 colors to match any style. VT VersaTop, available in six on-trend colors, provides an entry-level surface for consumers seeking quartz with a more modest price point. The design of VersaTop combines a slim deck cut with an edge build-down to create the look of a 3-centimeter slab.

[www.vtindustries.com](http://www.vtindustries.com) // Circle No. 72



## 48 FLOORING UNDERLAYMENT CONTAINS RECYCLED PLASTIC BOTTLES

MP Global Products' LuxWalk is a high-performing acoustic and insulating underlayment engineered for use under new Luxury Vinyl Flooring. Containing 31 percent post-consumer materials (fibers from discarded plastic beverage bottles), the underlayment streamlines the installation of floating and glue-down LVF by smoothing out minor sub-floor imperfections. It also helps retard movement of the finished flooring and adds the right amount of compression-resistant cushioning to the floor assembly. It minimizes impressions and indentations that can occur in LVF from footfall or stationary furniture. The product effectively soothes impact sound and minimizes floor to ceiling noise.

[www.mpglobalproducts.com](http://www.mpglobalproducts.com)

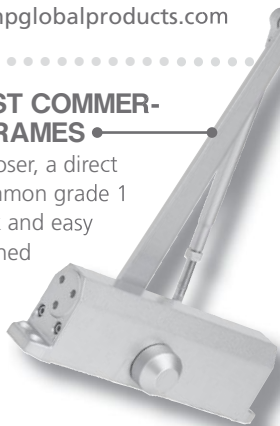
// Circle No. 73



## 49 DOOR CLOSER FITS MOST COMMERCIAL HARDWARE AND FRAMES

DORMA has launched its U1500 Door Closer, a direct replacement closer that fits the most common grade 1 surface door closer hole pattern for quick and easy new or aftermarket installation. It's designed to work with most commercial hardware door and frame types. The product has been independently tested and certified to ANSI Grade 1 requirements.

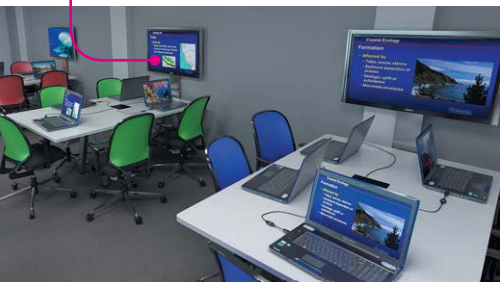
[www.dorma.com](http://www.dorma.com) // Circle No. 74



## 50 SYSTEMS ALLOW STUDENTS TO SHARE THEIR WORK WITH THE CLASS

Extron Electronics has introduced TeamWork and ShareLink, systems that provide integrated collaboration solutions for a wide variety of classroom environments. The Extron TeamWork System is a simple, intuitive collaboration system that allows small groups of students to share content from digital and analog sources on a common display. Extron ShareLink is a wireless collaboration gateway that allows schools to support almost any smartphone, tablet or laptop that makes its way onto campus. Either system can be used to create a stand-alone collaboration or presentation system or be integrated with any PoleVault, WallVault or PlenumVault system, allowing students to cooperatively share their work with the entire class.

[www.extronclassroom.com](http://www.extronclassroom.com) // Circle No. 75



## EARLY WARNING WATER LEAK DETECTION

*Installed in over 23,000 sites!*

**CEILING GUARD®**



**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**

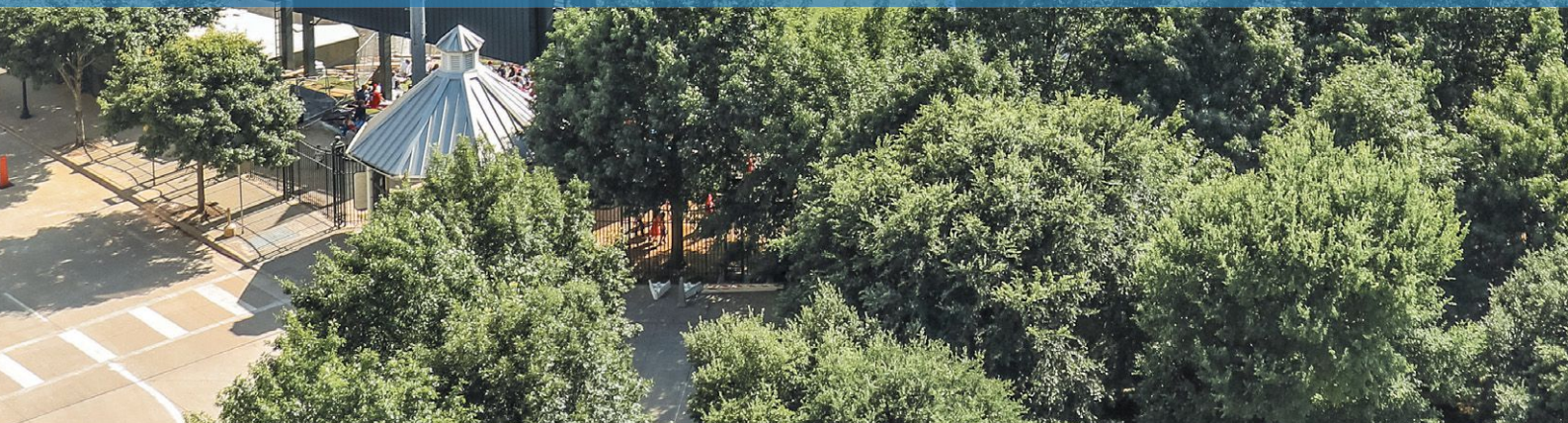
Circle No. 76



# HEAVY H



THE NEW **CHOCTAW LAZY RIVER** IS A HOME-RUN AMENITY FOR





# ITTER



## A TEXAS BASEBALL STADIUM

The city of Frisco, Texas, ranked as the fourth fastest-growing city in the nation in a U.S. Census Bureau report released in May 2016. The Frisco RoughRiders minor-league baseball team has seized opportunities to draw in new residents and reward loyal fans with major stadium renovations. Since 2014, RoughRiders' ownership and the city of Frisco have invested more than \$7 million in facility upgrades and improvements to Dr Pepper Ballpark, including the unique retrofit of a concourse entertainment area above the outfield wall.

"I always wanted a signature visual element for the ballpark that no one would ever get used to seeing, like a giant roller coaster at an amusement park," says Chuck Greenberg, RoughRiders' general partner and CEO. "I wanted something everyone would want to come and see, to create buzz, and attract new fans to our ballpark and the ballpark experience."

The renovated concourse is sponsored by Choctaw Casinos & Resorts, Durant, Okla., which is an easy drive from the stadium. The new event party space includes the Choctaw Lazy River (a 3-foot-deep pool in a figure-eight configuration), a cascading waterfall, two large rain curtains and two open-air cabanas to serve guests. Last fall, the Choctaw Lazy River project earned distinction as Ballpark Digest's Best Ballpark Improvement over \$1 million.

### Key Players

The city of Frisco contracted architect Patrick Magill, principal at Magill Associates in Plano, Texas, and pool design consultant Tyler, Texas-based The Brannon Corp. to design the pool area, two party Cabanas and water features. "We didn't have a lot of space to work with but the goal was to have something significant, so we removed the existing pool and designed one that stretched out over 180 feet, adding a concrete and wood seating deck," Magill recalls.





THE CHOCTAW LAZY RIVER'S FIGURE-EIGHT SHAPE AND CONSISTENT 3-FOOT DEPTH DIRECT THE WATER'S FLOW AND MAINTAIN THE CONSISTENT CURRENT NEEDED TO GLIDE GUESTS IN INNER TUBS THROUGH THE "RIVER". AS GUESTS DRIFT ALONG THE CURRENT, THEY TRACK INCOMING HOME-RUN BALLS JUST AS IF THEY WERE SITTING IN THE STANDS.







Greenberg says he wanted to add a current so fans could float in rafts in the pool—thus, the lazy river concept was born.

Gold Medal Pools, Frisco, Texas, became the 11,500-square-foot renovation's general contractor. Josh Sandler, CEO of Gold Medal Pools, says the Choptaw Lazy River brought some unusual challenges. "The entire project is adjacent to a city street and set into a hillside, and we had to rebuild all of the components into a 9-foot embankment," Sandler describes. "To me, the [lazy river's] equipment room under the stadium is just as impressive as the concourse structures. We created a series of custom-built, very large commercial filters and their sheer size meant we had to crane them out over the street to drop them into place."

A fast three-month project timeline and very constricted staging area further complicated matters. From a purchasing standpoint, Sandler had to order equipment the day his firm was awarded the job to receive components on time. To achieve a project that would normally take more than twice the allotted time, crews worked seven days a week. "Baseball season had already started and our deadline was in June, when a series of home games were scheduled. In addition to immediate procurement, this project had a lot of moving parts in a tight space and we had to rigorously coordinate and schedule our resources," Sandler says. "There were many nights when we had to have the groundskeeper turn on the lights so we could keep working."

### On Deck

The Choptaw Lazy River's figure-eight shape and consistent 3-foot depth allowed the team to direct the water's flow and maintain the consistent current needed to glide guests in inner tubes through the "river." To form the pool's structure on schedule, the crew used nine Gunite pressure guns and completed the entire process in a single day.

The pool's interior is coated with a polymeric resin. After applying epoxy to the Gunite structure, the crew used compressed air to shoot the poly resin



BEFORE

AS CAN BE EXPECTED IN A BALLPARK, THE STADIUM RAILINGS WERE SHOWING SIGNS OF NORMAL WEAR AND TEAR. ALL RAILINGS WERE RESTORED BY SOUTHLAKE, TEXAS-BASED ROCK BUILT WITH COATINGS FROM PPG.



AFTER







HOLDING MORE THAN 68,000 GALLONS OF WATER, THE CHOCTAW LAZY RIVER IS THE LARGEST BODY OF WATER IN A U.S. SPORTS STADIUM. THE "RIVER" WAS DESIGNED TO DRAW IN NEW RESIDENTS AND REWARD LOYAL FANS OF THE FRISCO ROUGHRIDERS MINOR-LEAGUE BASEBALL TEAM.



through a gun equipped with a propane flame at the base of the nozzle, which heats the resin and bonds it to the epoxy. "This resin was a great choice because the surface is PH neutral so it makes it a lot easier to balance the chemicals in the water; it's very smooth so it's easy on the feet; and it's a very durable coating so the water doesn't etch it or change its texture," Sandler notes.

Holding more than 68,000 gallons of water, the Choctaw Lazy River is the largest body of water in a U.S. sports stadium. As guests drift along the current, they track incoming home-run balls just as if they were sitting in the stands, but the RoughRiders also equipped the concourse area with lifeguards who use fishing nets to catch the balls.

(continues on page 48)

“

I WANTED SOMETHING EVERYONE WOULD WANT TO COME AND SEE, TO CREATE BUZZ, AND **ATTRACT NEW FANS** TO OUR BALLPARK AND THE BALLPARK EXPERIENCE. —Chuck Greenberg, general partner and CEO, Frisco RoughRiders

”



# INNOVATIVE. INTELLIGENT. EXTERIORS.



## WHY DRI-DESIGN?

Dri-Design Tapered Series panels have the ability to create a unique effect of rich texture, giving buildings their own individual identity. Although painted a single color for the Mill Woods Library project, the multifaceted wall panels allow nature to create its own color palette as natural light reflects differently off each individual piece. Even with this unique look, Dri-Design's signature ease of installation and water management system are maintained, and only a single plane of substrate is needed.

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



Circle No. 77

616.355.2970 | [dri-design.com](http://dri-design.com)

Mill Woods Library, Seniors and Multicultural Centre - Edmonton, Alberta  
Architects: Dub Architects and HCMA Architecture + Design





## Highly Visible Features

A 113-foot-long waterfall starts at the stadium-side's edge of the Choctaw Lazy River and drops more than 8 feet off the concourse area where the hillside falls away. The waterfall runs on a series of 20-horse-power pumps, large 12-inch plumbing and Gold Medal Pools' custom filtration system.

The waterfall feature was created to appeal to spectators, but the area needed more visibility to get views from across the field. "We came up with the idea of the water curtains to provide the height we needed to be impactful from the far side of the stadium," Magill says. "We wanted these water curtains to really stand out, so we added a series of LED lights that make for a dramatic element at night. They became a signature piece to the pool area."

Two 28-foot-wide rain curtain structures are separated by an outdoor cabana. The custom-built framework that houses each rain curtain contains side towers that are internally illuminated using LED

color-changing lights. The exposed steel frame blends with other elements of the ballpark and is skinned inside with opaque plastic liner to hide piping and provide the special glow.

The team installed additional colored LED lights at the top of the structures to illuminate the 20-foot-tall wall of water as it exits the structures, and the color of the lights carries through the streams of rain as they descend. RoughRiders' management can change the color of the structures' lighting and rain curtains independently, and the glowing rain curtains can be seen from the adjacent city street, as well as the stadium. More than strictly visual elements, however, guests can run across the decking beneath the falling water to cool off.

Gold Medal Pools self-performed the decking as textured concrete with an architectural finish of saw-cut decorative acid-stained bands. The company also custom-fabricated the steel structures for the two cabanas.



Discover the unmatched realism and performance of our naturally-made full-bed and thin stone products.

[arriscraft.com](http://arriscraft.com) | [Twitter](#) [Pinterest](#) [Facebook](#) [YouTube](#) [LinkedIn](#)

Circle No. 78


**Arriscraft**  
Building Stone • Brick • Limestone



## America's Pastimes

"Baseball is a huge attraction here and the RoughRiders have made the ballpark an amazing destination to take the family," Sandler says. "The city knows there's a symbiosis with having a sports team and an increased desire for people wanting to live here and companies wanting to conduct business here."

The Choctaw Lazy River space can be rented out year-round for events ranging from corporate meetings to birthday parties. "It provides a venue after hours and on non-game days, which gives the general public an opportunity to experience the ballpark in many ways," Magill adds.

Greenberg says the lazy river has received a winning response from RoughRiders fans and Frisco residents. "The difference between just installing a giant pool or opting for our lazy river was night and day in terms of exposure, not to mention the actual experience," he asserts. "The original vision was good, but in every respect, the finished product is even better." 

### Retrofit Team

**ARCHITECT //** Magill Associates,  
Plano, Texas, [magillassoc.com](http://magillassoc.com)

**POOL DESIGN CONSULTANT //**  
The Brannon Corp., Tyler, Texas,  
[www.brannoncorp.com](http://www.brannoncorp.com)

**GENERAL CONTRACTOR //**  
Gold Medal Pools, Frisco, Texas,  
[goldmedalpools.com](http://goldmedalpools.com)

**RAILING RESTORATION //** Rock Built,  
[www.rockbuilt.org](http://www.rockbuilt.org)

### Materials

**POOL INTERIOR SURFACE //**  
aquaBRIGHT from ecoFINISH,  
[www.ecopoolfinish.com/aquabright](http://www.ecopoolfinish.com/aquabright)

**ALL OTHER WORK WAS SELF-PERFORMED BY //** Gold Medal Pools,  
[goldmedalpools.com](http://goldmedalpools.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](http://zipwall.com).**

Circle No. 79



## THE CENTER OF CLAYTON | Clayton, Mo.

### » Retrofit Team

SKYLIGHT INSTALLER: St. Louis Skylights, St. Louis, [stlouisskylights.com](http://stlouisskylights.com)  
MANUFACTURER'S REPRESENTATIVE: Roofing Sales Associates, St. Charles, Mo., [www.roofingsales.net](http://www.roofingsales.net)

### » Materials

Durability, light transmittance and energy efficiency were challenges facing this replacement project. The original translucent skylight system experienced extensive delamination between the face sheet and interior aluminum grid after only nine to 10 years. Inspection also revealed that sunlight and heat caused these panels to deteriorate and yellow, preventing them from transmitting much natural, healthy sunlight.

"One of the skylights has a double pitch

and the sunny side has much more damage than the non-sunny side," says Tim Wonish, director of Facility Services for Clayton School District. In addition, the delaminated panels would not meet OSHA load requirements.

Heat gain and energy efficiency would also pose a potential problem because of the very large span of each skylight.

Pinnacle 350 structural ridge and double pitch metal-framed skylight structures with multiwall polycarbonate panels were chosen to replace the existing skylights. The new skylights offer durability, large-span capability, and fast onsite assembly and installation. The multiwall polycarbonate panels also are protected from damage or discoloration by UV rays. They were filled with Lumira Aerogel, which allows minimal thermal transfer while still providing an

abundance of highly diffused natural light.

"The new skylights let in so much more light compared to the previous system—so much that on sunny days we are able to shut off rows of electrical lights," Wonish notes.

The following materials were used in the project:

- Four Pinnacle 350 Double Pitch: 9 feet 6 inches by 42 feet, 5:12 slope, 25-millimeter glazing, clear multiwall polycarbonate filled with Lumira Aerogel in a mill finish.

- Two Pinnacle 350 Structural Ridge: 9 feet 6 inches by 83 feet, 5:12 pitch, 25-millimeter glazing, clear multiwall polycarbonate filled with Lumira Aerogel in a clear anodized finish.

SKYLIGHT MANUFACTURER: Wasco Skylights, [www.wasco Skylights.com](http://www.wasco Skylights.com)



PHOTOS: WASCO SKYLIGHTS



BEFORE



AFTER



## » The Retrofit

Located on the Clayton High School campus, the building offers sports; fitness; swimming; and recreational, educational and lifestyle-enhancement programs. The 136,000-square-foot facility features four gymnasiums, two pools, a lazy river, suspended jogging track, weight lifting, aerobic/dance areas, a 30-foot climbing wall, classrooms, lounge, meeting rooms and a Subway.

Construction presented a number of unique challenges. The center is open every day except for Christmas and Thanksgiving from 5 a.m. until 10 p.m. Because the building project is a joint venture between the city and school district, work had to accommodate student use and that of the community at large. Protecting the gymnasium floor and pool from falling debris also was a major concern. The final challenge was finding a reputable contractor.



PHOTOS: SLOAN



## SLOAN PARK | Mesa, Ariz.

### » Materials

The public restrooms behind the suites on the Party Deck level at the Spring Training home of the Chicago Cubs were recently retrofitted with AER-DEC integrated sinks.

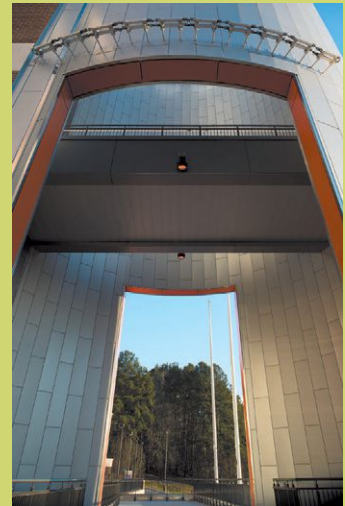
Incorporating the Sloan Soap Dispenser, BASYS Faucet, AirBasin sink of Quartz or DuPont Corian, and Sloan High-Speed Hand Dryer all in one, AER-DEC is designed to work together for a touch-free, hygienic and efficient system. The new sinks make handwashing a quicker, more efficient process, especially for crowds. Not only will users miss less of the game during restroom visits, but they'll have cleaner hands when they go to the concession stands.

Baby-changing stations also were added in all the suite restrooms on the Party Deck level. Changing stations previously were only available in family restrooms.

AER-DEC  
MANUFACTURER:  
Sloan, [www.sloan.com](http://www.sloan.com)

### » The Retrofit

The new restrooms were ready for Opening Day against the Los Angeles Angels of Anaheim on March 4, 2016. As an Opening Day promotion, the first 5,000 fans received a Sloan Park baseball suitable for autographs, courtesy of Sloan.



PHOTOS: MARK KEMPF, ST. LOUIS

## CLEMSON MEMORIAL STADIUM | Clemson, S.C.

### » Retrofit Team

ARCHITECT: LS3P, Greenville, S.C.,  
www.ls3p.com

METAL PANEL INSTALLER: Pickens Roofing Inc.,  
Anderson, S.C., www.pickensroofing.com

### » Materials

LS3P selected 0.080-inch aluminum Dri-Design Painted Aluminum Panels in a Silver color for the Oculus of the WestZone Complex—the iconic structure that serves as the center of the Clemson Athletic District. The metal accentuates the tower while providing a shimmering effect. During the day, sunlight modulates the intensity of the material, and accent lighting causes a dramatic effect at night.

Pickens Roofing installed 21,625 square feet of the single-skin metal panel system. Sealants, gaskets, caulk and tape were not needed for the installation. The panels, which are 100 percent recyclable, are available in any painted

color and are sized and detailed to meet the specific requirements of each project.

“A metal panel rainscreen was selected because it could easily be faceted to clad the cylindrical geometry of the tower,” says Jaime Henderson, associate architect with LS3P. “The rainscreen system did not require any sealants or gaskets, which was an important maintenance consideration for a 140-foot-tall tower.”

LS3P also appreciated that the panels are an integrated system that does not have separate panel and reveal pieces. This feature allows installations to be completed faster and with increased precision. “The speed of installation proved to be vital, as the project had to be complete by the start of football season,” Henderson says. “Scheduling of scaffolding and other concurrent work mandated a quick installation.”

WALL PANEL SYSTEM MANUFACTURER:  
Dri-Design, www.dri-design.com

### » The Retrofit

LS3P was asked to renovate the existing west end zone and include a new pedestrian bridge and tower. Logistically, this renovation improves safety at the stadium and enhances the fan experience. Physically, the Oculus creates a sense of balance with the stadium’s size and provides a logical transition from the pedestrian scale at street level to the multi-level scale of the stadium seating.

The Oculus was the final phase of the WestZone Complex three-phase project. The 6,000-square-foot addition has four levels and serves as a gateway to the stadium and Tigers pride. The tower complements Tillman Hall bell tower by perfectly aligning along a campus axis.



## GLOBE LIFE PARK | Arlington, Texas

### » Materials

The Texas Rangers played their first regular season game in 2016 against the Seattle Mariners under a new Ephesus LED Lighting and Controls system. The new solid-state lighting system features Ephesus Stadium Pro lights and a DMX control system that readily interfaces with many common lighting and theatrical devices and is expandable to allow the system to control and perform in harmony with other in-venue systems, such as the scoreboard, ribbon boards and more. Additionally, the touchscreen controllers allow the event operations team to control dynamic lighting scenes and effects, as

well as dim (from 0 to 100 percent) and color temperature tune from 4800 Kelvin to 5600K while maintaining specified illuminance levels on the playing surface.

"Reducing the fixture count and being more energy efficient represents significant advantages and we're especially impressed with the improved field lighting for our players, fans and broadcast partners," says Rob Matwick, executive vice president, Business Operations for the Texas Rangers. "The Rangers are thrilled to be among the early adopters of this new LED technology."

The system also includes a self-contained fiber-optic communications

network, which eliminates the risk of electronic interference while providing self-healing redundant technology in the event of a disruption. Despite installing half the number of fixtures, Eaton's Ephesus system offers optimal lighting that shines more uniformly on the playing surface, creating an improved stage for players and fans watching live and on high-definition television. The Ephesus LED solutions are easy to install, virtually maintenance-free for years and offer low total operating costs.

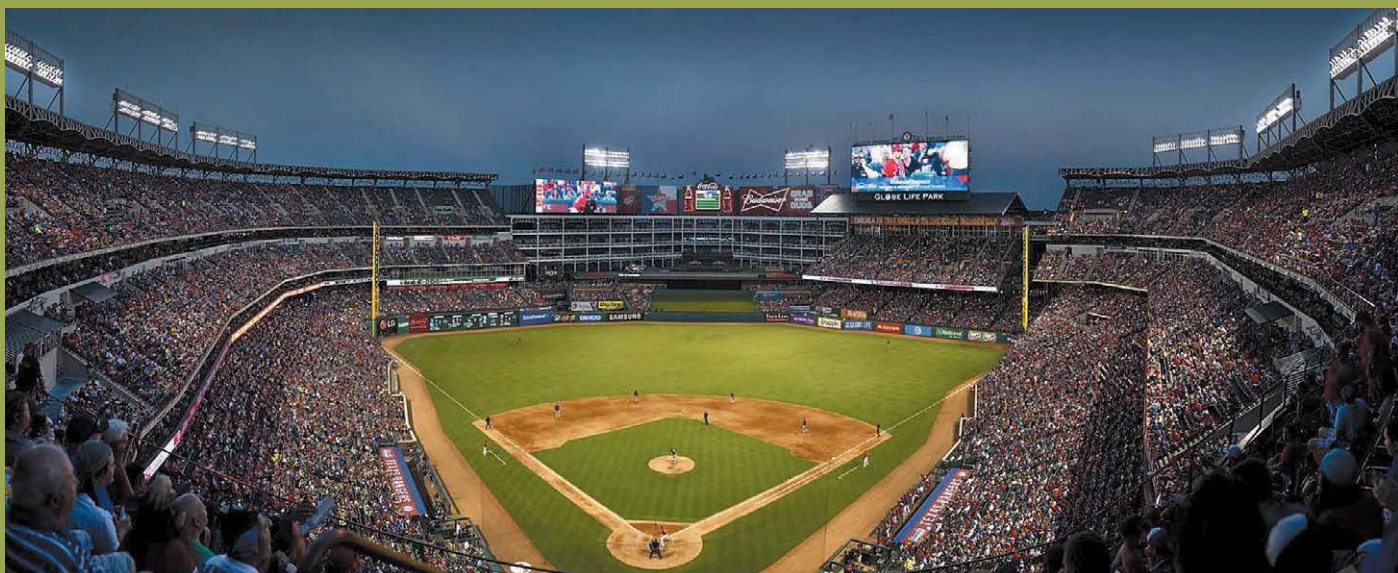
LIGHTING SYSTEM MANUFACTURER:  
Eaton's Ephesus Lighting,  
[www.ephesuslighting.com](http://www.ephesuslighting.com)



PHOTOS: GAVIN KELLY/TEXAS RANGERS



Eaton, the Texas Rangers and their broadcast partner Fox Sports Southwest conducted a test of the lighting at Globe Life Park following the installation. View highlights of this project via a short video. See page 12 for details.





PHOTOS: ACOUSTIBLOK INC.



## FENWAY PARK | Boston

### » Materials

Nineteen 4- by 10-foot All Weather Sound Panels were installed at this famous ballpark to resolve noise issues from a chiller and other mechanical equipment in an exclusive outdoor function area. After installation, sound meter results showed 81dB inside the enclosure and 64.4dB outside of the enclosure, a reduction of more than 16dB (a 10dB decrease in sound is perceived as half the amount of reduced sound to the human ear). The panels were painted to match the park's color scheme, and vines were planted in containers to grow in front of the panels creating a natural look to complement

the adjacent Fenway Farms, which was created in 2015.

The panels are entirely welded aluminum, washable, hydrophobic, UL STD 723 tested and 0 smoke/flame. Easily stored, 50 panels can be stacked within a 10-foot height.

ALL WEATHER SOUND PANELS'  
MANUFACTURER: Acoustiblok Inc.,  
[www.acoustiblok.com](http://www.acoustiblok.com)

### » The Retrofit

The panel manufacturer was contacted by Fenway Park when stadium officials decided to take some unused deck space

and create an outdoor function area that could be used by groups.

Half the deck area was used for a chiller and some mechanical equipment that was noisy and needed sound abatement. After reviewing their options, the officials decided on All Weather Sound Panels because they are cost effective, easy to install and offer advanced soundproofing capabilities while being attractive.

The project began in February 2016 and was completed in May. Currently called the Jeano Deck, the space is designed for groups to rent and can accommodate up to 200 people.



Introducing  
**AquaBalance™**  
by **WEIL-McLAIN®**



Condensing Combination Wall Mount Gas Boiler,  
designed for home and domestic hot water heating

**94.4%**  
AFUE energy  
efficiency

**155K**  
heating  
input

**4.0 GPM\***  
at 70° rise  
minimum

Bringing  
**heat** and **hot water**  
into perfect **Balance**

For more information, visit [www.aquabalanceboiler.com](http://www.aquabalanceboiler.com).

- **Stainless Steel Heat Exchanger** — durable 316L titanium infused design
- **Compact Size** — saves valuable space
- **Insulated Cabinet** — ensures whisper quiet operation
- **Removable Panels** — designed for easy maintenance
- **Multiple Vent Options** — accommodates different structure styles

Circle No. 80

\*Gallons per minute



Watch a video that showcases the arena's new displays. See page 12 for details.

## AMALIE ARENA |

Tampa Bay, Fla.

### » Retrofit Team

AV INTEGRATOR: Pro Sound, Miami,  
[www.prosound.net](http://www.prosound.net)

### » Materials

As part of the arena's 2015-16 upgrade, Pro Sound deployed a series of four unique mosaic-style video walls strategically located throughout the home of the Tampa Bay Lightning NHL team. Standard video walls were turned into pieces of art with unique artistic layouts that showcase stunning views of the city and other local attractions at ultra-high definition 4k resolution.

The Useful Network Video Wall, which delivers 4k and larger content over the network in real time from a single Core i7 PC, was the chosen solution because it addressed all the arena officials' requirements in a cost-effective manner. It offers the flexibility to rotate individual displays to any angle and allows the placement of displays anywhere on the video wall canvas, giving customers the ability to create one-of-a-kind digital art-walls.

Sean Miller, Pro Sound's director of Technical Operations, led the deployment team, which installed a total of 32 displays—a mix of 55-inch and 22-inch square displays—distributed in the four video walls. "One of the things we like best about Useful, besides being able to fulfill all the unique requirements of this project, is that it's a very simple solution," Miller explains. "The learning curve was about five to 10 minutes. Useful kept offering technical support but it wasn't necessary. It's a very easy platform to use."

VIDEO WALLS MANUFACTURER:  
Useful, [www.userful.com](http://www.userful.com)



# SUSTAINING A COMMUNITY

PHOTOS: GUSTAV HOILAND



WRITTEN BY | GARY M. KANE, AIA, LEED AP

What's the best way to redevelop a prominent site in the business district of a community that sorely needs housing options? In the case of the former St. Kevin's Parish in Dorchester, Mass., the answer was the creation of a mixed-income residential campus called Uphams Crossing, a development integrating adaptive reuse and new construction into the uniquely landscaped existing parish grounds. With the creative financial stewardship of the Planning Office of Urban Affairs (POUA), safe and affordable housing has been delivered to the Upham's Corner community.

A Former Church Campus Is **Transformed** as Supportive and Workforce Housing





Uphams Crossing is a mixed-income complex with 60 units of workforce housing; 20 units of permanent affordable housing; office space; and a common area that holds two resident lounges, an exercise room, computer learning center, bike storage and central laundry.

DORCHESTER is one of Boston's largest and most vibrant and diverse neighborhoods. But it also has a history as one of the city's most distressed. More than 20 percent of its residents live near the poverty line, and it has one of the highest foreclosure rates in the area. The St. Kevin's site in the heart of Dorchester's business district, known as Upham's Corner, presented an ideal location to create a mixed-income residential complex. POUA led an innovative project team that could address the housing issue through a creative vision for serving the Dorchester community.

The result is a mixed-income complex with 60 units of workforce housing for people who contribute to the local economy, such as teachers, technicians and service industry workers. Additionally, 20 units of permanent affordable housing were set aside for formerly homeless individuals or families. Supporting the residential units is a full-time onsite manager, as well as office space for St. Mary's Center for Women and

Children, an onsite provider of supportive services. A multi-use community room was designed to provide space for resident programs and hosting neighborhood community meetings. All of these services are centrally located in a spacious common area that also holds two resident lounges, an exercise room, computer learning center, bike storage and a central laundry.

The original school building, which also served as St. Kevin's Church, is now home to 21 residential units. The entire team felt it was especially important to preserve this structure. With a strong and appealing street presence, and as the school where multiple generations of local children attended class, it has a prominent place in the community eye—literally and emotionally. The gut rehabilitation preserved the exterior walls and most of the interior structure while adding a third full story. Since the structure predated current seismic codes, shear walls were added to provide the lateral bracing needed to

support the additional story. With a new code-compliant second stairwell and a four-stop elevator integrated into the structure, the former school building is now fully accessible.

FLANKING THE RENOVATED former school, two new structures replace older ones that didn't reflect the surroundings and were not easily adapted to residential use. Working with the renovated school building, the new apartment blocks address the complex scales of their urban surroundings. The greater density and entry into the site was placed on Columbia Road where it was most appropriate while the side streets required a more modest scale that better complements the smaller patterns of residential development. The new structures' relationship to Upham's Corner required a more civic gesture; here, the building corner was folded and a large projecting canopy frames the public community spaces with the building. In the space behind the three buildings, the St. Kevin's campus's parklike open grounds were preserved with access geared toward residents but available to the community at large, preserving an important civic space.

Uphams Crossing is within walking distance of convenient public transit with multiple city bus lines and the Upham's Corner commuter rail. New housing here opens up numerous opportunities for residents, making it easier to engage with the commercial heart of Dorchester and bringing people closer to necessary services. At the project's grand opening, Boston Mayor Marty Walsh described Uphams Crossing as "a place that serves a compassionate, value-driven community. One of the great things about Boston," he continued, "is it preserves its past and prepares for its future." The project team couldn't agree more. 





# Managing Resources is Your Job

## Advanced Geothermal HVAC is Our Job

ClimateMaster geothermal systems are some of the most advanced systems in the HVAC industry. Geothermal heat pumps tap the constant temperature of the earth as the exchange medium instead of the outside air. ClimateMaster systems are highly efficient, quiet, last longer, need little maintenance and do not rely on the outside air temperature.

Find out how to use ClimateMaster geothermal for your next project. Visit: [www.cmbuildernet.com](http://www.cmbuildernet.com).



SEE US AT BOOTH #C1113



LAS VEGAS JAN 30-FEB 1 2017

# The Changing Face of ROOF REPLACEMENT

WRITTEN BY | THOMAS W. HUTCHINSON, AIA, FRCI, RRC, CSI, RRP

WITH TODAY'S 'NEW AGE' ROOFS, REMOVING ALL SYSTEM COMPONENTS MAY NOT ALWAYS BE REQUIRED OR IN THE CLIENTS' BEST INTEREST

**Y**ears ago, reroofing design involved removing all roof-system components down to the roof deck and rebuilding a new roof system up from there. Although that is still a viable option and often performed, the coming of age of many single-membrane roofs has altered the method of installing a new reroof system. Options now include EPDM roof restoration; removal of the roof membrane and the addition of new insulation and roof membrane; using the existing roof membrane as a vapor retarder and adding new insulation and roof membrane; removal of the roof cover and installation of new, leaving all the existing insulation in place.

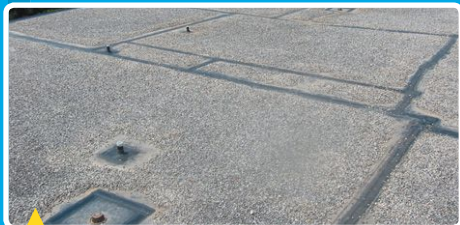
When I first moved into roof-

system replacement design some 35 years ago, the dominant roof systems being removed were bituminous, specifically gravel-surfaced asphaltic and coal-tar-pitch built-up roofs. As they aged, their surfaces often started to blister, crack and undulate with ridges—surfaces often unsuitable for roof recover. The bitumen often was deteriorating because of ultraviolet-light exposure; when that occurred, the deterioration of the felts was not far behind. The insulation was mostly perlite or high-density wood fiber; the amount was minimal (low thermal value) and, more often than not, flat or with very minimal slope. Drains were erratically placed, tapered insulation was not often the case and roof edges were predominately gravel stops. In

the Midwest, many roof decks were cementitious wood fiber. The roof covers were often patched again and again, even as water infiltrated the system.

When replacement was necessary, the roof-edge sheet metal was removed; the entire existing roof system was removed down to the roof deck; and a new roof system was designed, often incorporating vapor retarders/temporary roofs so the removal of multiple layers of roofing could be accomplished, roof curbs raised, and enhancements of roof drains, curbs and roof edge could occur prior to the installation of the new roof cover. Tapered insulation designs became common; this would often require realignment of the roof drains to simplify the tapered design

*(continues on page 62)*



❶ This EPDM roof's service has been extended for nine years and counting, approaching 30 years in-situ performance. Here, the restoration of perimeter gravel-stop flashings and lap seams, as well as detailing of roof drains, penetrations and roof curbs, is nearing completion.



❷ The re-flashing of roof curbs is an integral part of the restoration of EPDM roof membranes.



❸ When restoring EPDM roof membranes, the removal of roof penetration flashings and installation of new with target patches will provide another 20 years of watertight protection.



❹ On this roof, the existing loose-laid membrane was removed, open insulation joints filled with spray-foam insulation and new insulation added to meet current code requirements. A new 90-mil EPDM membrane was installed and existing ballast—10-pounds-per-square-foot coverage—moved onto it.



*A superior solution for shingle recover . . .*

# 138T

## Shingle Recover System

**Ease of Installation**  
**No Tear Off\* / Disposal of Existing Roof**  
**No Underlayment Required**  
**Above Sheathing Ventilation Airspace (ASV)**  
**Decades Long Service Life**  
**Reduced Utility Expense**  
**Patented**

\* Confirm with local code authority.

*138T Shingle Recover System . . .*  
*A long-term and*  
*economical solution!*



**138T** with Plank & Pencil Rib



**4" ASV Clip**  
for new construction  
or remove and replace



**8" Shingle Recover Clip with ASV**



**Metal Roof and Wall Panels**



Ph: 800-562-3576 • Web: [www.mcelroymetal.com](http://www.mcelroymetal.com) • E-mail: [info@mcelroymetal.com](mailto:info@mcelroymetal.com)

Join Our Talent Network

Circle No. 82



⑤ The new EPDM membrane over new insulation (left) is in the process of being ballasted. The “night tie-in” is easily accomplished with seam tape and self-adhering cover strips.



⑥ On this school, the existing EPDM roof membrane is being utilized as a vapor retarder. After cleaning, two layers of insulation are being installed in full-coverage spray foam. The amount of new insulation above the existing membrane was determined by dew-point calculations.



⑦ The blue spray-foam adhesive applied to the existing EPDM is allowed to rise prior to setting the new double-coated, fiberglass-faced, mold-resistant insulation. To ensure positive embedment into the adhesive and bonding, the insulation is weighted in place. The author's spec requires 5- to 35-pound weights per board for a minimum of five minutes.



⑧ The roof drains were extended with the new reversible collar pinning the existing EPDM to maintain the integrity as a vapor retarder. A 1/2-inch-per-foot tapered insulation sump is being installed, tapering the top layer of insulation to the new roof-drain extension.

and installation. To accommodate the new insulation thickness, the roof edge had to be raised as did roof curbs, RTU curbs, plumbing vents and roof drains via extensions. Roof membranes changed from bituminous to those classified as “single plies”: EPDM, PVC, CPE, CSPE.

These new roof-system replacement designs resulted in superior roofs—85 percent of all the reroofs I have designed are still in-place, still performing, still saving the owner money. Life cycles have moved from eight to 12 years, up to 18 to 25 years and longer. They certainly were more expensive than the original installation and, if a roof designer didn't have a handle on costs to provide the owner with estimated costs of construction, were often shocking. But these roof systems were good for the client, economy, environment and public.

Over the years, codes and standards have changed, especially in the past decade, requiring increased insulation values and roof-edge sheet-metal compliance with greater attention to wind-uplift resistance. As the new millennium arrived, these “new age” roofs came of age and owners started to look at their replacement—often with increased costs stifling their budgets.

## Lean Thinking

A factor that increased the performance of many roof systems in the past 20 years was the emergence and growth of the professional roof consultant, often degreed in architecture or engineering, educated in roofing, tested and certified. These professionals brought a scientific approach to roof-system design. Raleigh, N.C.-based RCI Inc. (formerly Roof Consultants Institute) was the conduit for this increased level of knowledge, professionalism, and the growth in quality roof-system design and installation.

As these professionals started to examine the older “new age” roofs, those whose first responsibility was doing what was best for the client saw greater opportunity than just a costly full-roof replacement. Although many roofs today still need to be fully removed, prudent professionals see other opportunities, such as the following:

## ■ ROOF RESTORATION

EPDM membrane ages with little change in physical characteristics as opposed to its built-up roofing predecessor; therefore, EPDM membranes often can be “restored” in lieu of removing and replacing the roof. (Studies to support the lack of change in EPDM's physical characteristics while it ages include Gish, 1992; Trial, 2004; and ERA, 2010.)

I first arrived at this conclusion based on my experience and observation of an aged EPDM roof that did not reflect the characteristics of deterioration caused by exposure. My firm's first restoration was in 1994 on Milwaukee's main library, which resulted in a savings of more than \$1 million compared with removal and replacement. I reported and presented this concept at the IX 1995 International Waterproofing Association Congress in Copenhagen, Denmark.

In 2006, at Hawthorne Elementary School South, Vernon Hills, Ill., I restored a ballasted EPDM roof that I designed in 1985 and observed, fulltime, while it was installed in January 1986 (see Photo 1). The restoration included lap-seam enhancement with self-adhering cover strips, target patch installation at all roof drains, re-flashing of all roof curbs and penetrations, re-flashing the gravel-stop flange, and removal and replacement of eight skylights (see photos 2 and 3). The restoration cost 52 cents per square foot, or \$52,000, versus the \$400,000 cost to remove and replace the roof system. This restored roof is still performing today.

During my RCI presidency, my motto was “Learn, Share, Grow”; thus, I have shared all my restoration details on the Washington, D.C.-based EPDM Roofing Association's website, [www.epdmroofs.org](http://www.epdmroofs.org).

## ■ ROOF-COVER REMOVAL, ENHANCED WITH ADDITIONAL INSULATION

As many of the new age roof covers were membrane roof covers, a possibility presented itself that was not previously perceived: removing only the roof cover and leaving the existing insulation in place. We have recently completed and currently are bidding several such projects.

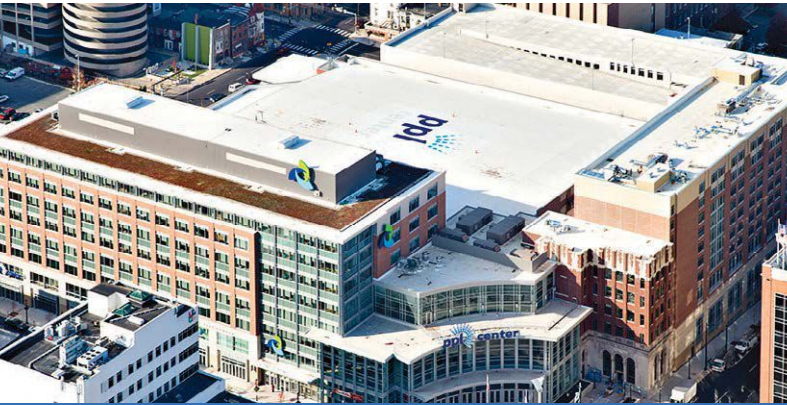
As the aged insulation may have

*(continues on page 64)*





# Thermoplastic Single Ply & Multi-Ply Roofing Systems



COMMERCIAL



INDUSTRIAL



INSTITUTIONAL



RESIDENTIAL

## The Right Choice for Over 25 Years

Flex has been committed to manufacturing the highest quality Elvaloy® KEE, PVC and TPO roofing products for the Commercial and Residential Roofing Markets for over 25 years with more than 220 million square feet installed throughout the country.

- Flex Elvaloy® KEE
- Flex PVC
- Flex TPO
- Waterproofing Systems
- Green Roof Solutions
- Flex Deck Systems

### Cool Roof solutions to help improve energy-efficiency

Flex partners with roofing consultants and contractors to design and install systems that preserve energy, save the environment and last for decades.

See us at:

IRE, March 1st - 3rd / Booth #1318  
NFMT, March 7th - 9th / Booth #2640

Circle No. 83



Leader in Thermoplastic  
Single Ply & Multi-Ply Roof Systems

1-800-969-0108

[FlexRoofingSystems.com](http://FlexRoofingSystems.com)





## GRAND HALL AT WESTLAKE GARDENS | Indianapolis



PHOTOS: MCELROY METAL

### Retrofit Team

**ARCHITECT** // The Etica Group,  
New Haven, Ind.,  
eticagroup.com

**ROOFING CONTRACTOR** //  
Master Steel Roofing, Elkhart, Ind.,  
www.mastersteelroofing.com

### Materials

When the first bids came back higher than expected, there was a scramble to find another method to re-cover the aging asphalt shingles on the Grand Hall at Westlake Gardens. Master Steel Roofing suggested the 138T Shingle Recover System, which met the criteria for aesthetics and budget.

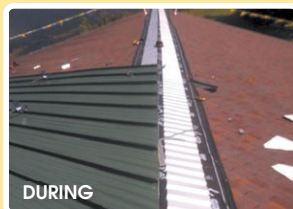
"The original spec asked for a roofing system on top of a hat channel and all the bids came in higher than expected," says Roland Shetler, who handles sales and estimating for Master Steel Roofing. "We offered the 138T Shingle Recover System, which doesn't require a hat channel but uses elevated clips to create an energy-saving ASV (above sheathing ventilation) between the original roof and the new standing-seam panels. And this system helped get them in line with their budget while the ASV will reduce utility expenses."

Almost 25,000 square feet of 138T symmetrical standing-seam panels were manufactured at the job site. The 24-gauge Galvalume AZ50 was PVDF Evergreen. Shetler says this is the third project where Master Steel has installed 138T panels.

"We like the system for a lot of reasons," he says. "One of the reasons that surprised us is that it saves time. The 138T features a symmetrical seam, which enables our crew to



BEFORE



DURING



AFTER

install the panels on the part of the roof that doesn't have penetrations, then skip over the areas with penetrations and keep going. Later, we come back to those areas because they take a little more time and attention to detail. We also don't need to hold up our entire crew for this detail work. We simply can't work that efficiently with other standing-seam panels that require installation to be in sequence. This system keeps everybody moving."

Symmetrical standing-seam systems do not have male and female seams but are comprised of panels with matching left and right seams. The panels are joined with a mechanically seamed cap. The panels are non-directional, meaning they

can be installed left to right, right to left or even from the center out.

For the Grand Hall at Westlake Gardens, most of the time-consuming detail work was on and around a couple of dormers located at one corner of the building where there were a number of penetrations. The Master Steel Roofing crew worked on this portion of the roof last.

Master Steel Roofing's crew also manufactured the 6-inch gutters onsite, installing them by extending the 138T seam caps to the front of the gutter where they were fastened to the lip.

"I was out there at the end of the project, helping install the gutters and the snow-retention system," Shetler says. "Using the seam caps to support the gutters is not only strong, but also installs quickly and conveniently. It requires less labor than conventional gutter installation methods."

The roof was finished off with almost 600 feet of the Color-Gard snow-retention system.

### 138T SHINGLE RE-COVER SYSTEM

**MANUFACTURER** // McElroy Metal, www.mcelroymetal.com

### COLORGARD SNOW-RETENTION

**MANUFACTURER** // S-5I, www.s-5.com

### The Retrofit

The Grand Hall hosts weddings, corporate events, award ceremonies, family reunions and memorial gatherings, offering onsite catering, event planning, bartenders, covered outdoor seating, a bridal suite, stage and dance floor. It's a bustling hub of local activity. The roof re-cover was completed in October 2016.

dimensionally changed, we specify, after removal of the membrane, all open joints between insulation panels, voids at penetrations and the roof edges be filled with spray-foam insulation (see Photo 4). Then, new insulation is added, attached as required by design, followed by the new roof cover—typically, one that is much thicker than the existing. Roof edges often will need to be raised, as will roof curbs, RTUs and roof drains. This methodology is very easy with existing EPDM ballasted roof systems where the existing ballast can often be reused and incorporated with a filter fabric on the membrane and below the ballast for added protection (see Figure 1 and Photo 5).

### EXISTING ROOF MEMBRANE AS VAPOR RETARDER

Because of the long-term aging of membrane roof covers, they have the potential to be left in place and reused as a vapor retarder. A dew-point analysis will determine the amount of insulation required above the roof cover; in the Chicago area, it is 5 inches installed in two layers of 2 1/2 inches (see Figure 2 and photos 6 and 7). Certainly any minor deficiencies in the existing membrane need to be repaired, roof drains extended (see Photo 8) and roof edges often modified. However, the benefits are great: reduced costs, minimization of interior disturbance, less material to the landfill and enhanced thermal performance.

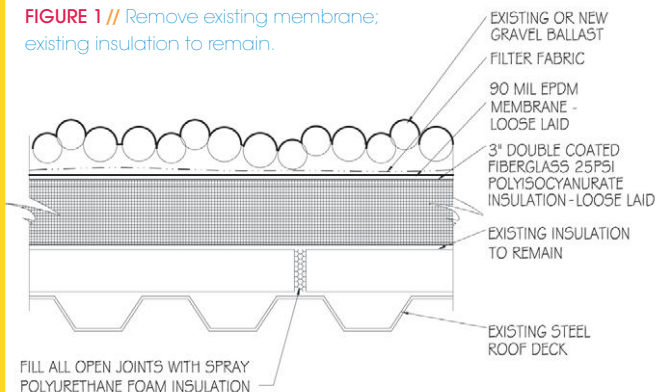
### MEMBRANE REMOVAL, INSTALLATION OF NEW ROOF COVER

The IECC, or International Energy Conservation Code, requires that if you expose the insulation you must increase the insulation to achieve the required thermal R-value. Many new age roofs have considerable insulation and the potential may exist to remove the existing roof membrane and install a new roof membrane. Prudence suggests that at least a minimal layer of insulation or cover board be installed.

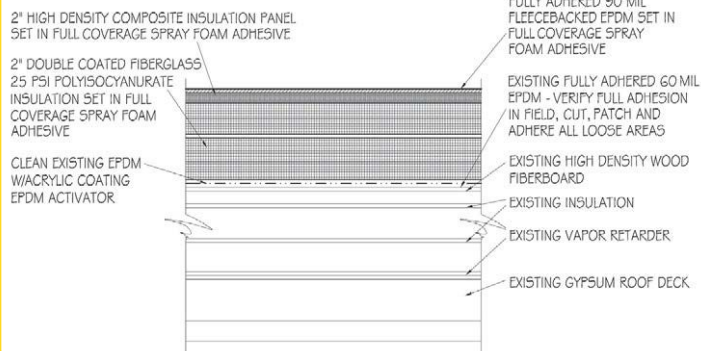


Because of the long-term aging of **MEMBRANE ROOF COVERS**, they have the potential to be left in place and reused as a vapor retarder.

**FIGURE 1** // Remove existing membrane; existing insulation to remain.



**FIGURE 2** // Using the existing roof cover as a vapor retarder.



Although all of the above may be options, the licensed roof designer must use professionalism to make prudent engineering decisions; do what is right for the client; and meet all code requirements, including

wind-uplift resistance and roof-edge sheet-metal compliance (ANSI-SPRI RP1).

The face of the roofing industry is changing rapidly and so are available reroofing options. Although not all existing

roofs are candidates for the innovative solutions I've mentioned, some are, and the potential to save our clients money, reduce interior disturbance and be environmentally prudent is too much to ignore.



## Decorator Series Baseboard

PREMIUM BASEBOARD • PREMIUM COLORS





**Heating for a Cure**

Purchase a pink Sentry gas boiler, at no extra cost, and SlantFin will donate a portion of the proceeds to Breast Cancer Research and Support Charities!

(S-90 and S-120 available in pink)

### Premium colors to choose from:

Brite White • Shell White • Almond • Mineral Bronze  
Rubbed Bronze • Cloud Grey • Flat Black • Mirror Black








Since 1949

**SlantFin**

BOILERS & BASEBOARD

[www.slantfin.com](http://www.slantfin.com)

- America's #1 baseboard brand now enhances any décor
- Available in assorted decorator colors
- Scratch Resistant, appliance like finishes
- Easy to clean and keep beautiful
- Environmentally friendly process using 100% organic compounds








[TRANSFORMATION]

# COME TOGETHER

WRITTEN BY | CYNTHIA GAGE

San Francisco Building Professionals Build Out a Space to Inspire and Educate Under-resourced Kids



PHOTOS: MATTHEW MILLMAN PHOTOGRAPHY





826 VALENCIA is a non-profit named after its first location, which was established in 2002 in San Francisco's Mission District. Founded by Educator Nínive Calegari and Author Dave Eggers, 826 Valencia offers writing, publishing and tutoring opportunities for under-resourced students. It is regarded as

one of San Francisco's most notable educational organizations working toward closing the academic achievement gap and igniting a love of learning. Today, with the support of more than 5,000 volunteers in a total of eight centers across the country (Ann Arbor, Mich.; Boston; Chicago; Los Angeles; New York; and Washington, D.C.), 826 Valencia helps more than 30,000 children per year.

In 2015, 826 Valencia sought to open a second location in San Francisco. The Tenderloin, a 50-block neighborhood in the heart of the city, has long been challenged by poverty, homelessness, and crime and was in dire need of safe spaces for youth. Calegari, Eggers and 826 Valencia Executive Director Bitá Narzarian also recognized a lack of educational programs in the Tenderloin, specifically for writing.







826 VALENCIA TENDERLOIN CENTER includes a themed retail storefront that offers student-published books and an array of unusual products to create community awareness and raise funds to support the non-profit's educational programs. The eclectic design elements, like the trapdoor, portholes and wall of doors, reinforce the exploration theme.

Along with their lead architect Jonas Kellner, Calejari, Eggers and Narzarian looked at several potential spaces in the neighborhood that were too small or too expensive before locating a 5,000-square-foot ground-floor space for lease in a 2-story brick structure at the corner of Golden Gate Avenue and Leavenworth Street. During its nearly 100-year history, the building had been used as a carriage repair warehouse; film archive; Filipino restaurant; and, finally, a corner store known for criminal activity.

Chosen primarily for its proximity to area housing, schools, and the Tenderloin Boys & Girls Club, the building required extensive tenant improvements—including demolition, abatement of asbestos and lead, and structural upgrades—to create a safe and comfortable environment for children to learn and thrive.

Kellner contacted San Francisco-based BCCI Construction Co. about joining the construction team for the build-out of what would become 826 Valencia Tenderloin Center. "I've always wanted to get involved with a project that would really give back to the city that has been so good to BCCI," says BCCI President and CEO Michael Scribner. "I really believe in what 826 Valencia stands for—the children it serves and the changes they've seen in the neighborhoods where they are located."

Consequently, BCCI donated all its labor and fees to support the new center, making it the largest charitable project that BCCI has been involved with to date. The general contractor also spearheaded an outreach program with the local subcontractor community that proved tremendously successful. Some of the Bay Area's largest companies, including more than 60 subcontractors, suppliers and designers, came together to collectively devote their time and energy to build out the space and benefit the city's urban youth. (See the "Retrofit Team" and "Materials" sidebars on pages 71 and 74, respectively.)











Initially we got involved simply to support Mike Scribner, but as we got to understand the mission of 826 Valencia, it took on a greater meaning. And now as I drive by it every day on my way home and see how that corner has improved, I get a grin on my face knowing we were part of it.



—Mike Paganini, president, Paganini Electric Corp.

## The Build-out

Structural deficiencies and many unexpected conditions were uncovered during demolition. For example, it was discovered that the building was without a foundation. New footings were poured and structural posts and beams were installed to support the unreinforced masonry structure.

Previously, the ground-floor space had been rented as three separate units, which all contained a number of small rooms and partitions. With the removal of walls and drop ceilings, the new layout creates a

contiguous, open plan and 18-foot exposed ceilings in the writing center.

On the exterior, BCCI tore out plywood finishes; built an entirely new storefront; and installed new doors, windows, metal panels and two new roll-up doors for security. The building also received a fresh coat of paint and the addition of a sea creature mural with a giant octopus.

The retrofit team took advantage of the extraordinary salvage opportunities available in the Bay Area, incorporating reclaimed doors, wood, mirrors, windows, sheet metal and a fireplace.

Although the non-profit did not target green-building certification, the project had to meet LEED-CI Silver equivalency as part of San Francisco's Green Building Code. To help minimize electrical costs during the life of the lease, the project was designed to exceed California's Title 24 energy-efficiency standards. Modern materials assisted with these strategies. For example, window film was installed to minimize thermal loads on the space while also redirecting light for glare control and providing protection against breakage.



## RETROFIT TEAM

**GENERAL CONTRACTOR //** BCCI Construction Co., [bcciconst.com](http://bcciconst.com)

**CONSTRUCTION MANAGER //** Valerie Veronin

**DESIGN TEAM //** Gensler, [www.gensler.com](http://www.gensler.com); INTERSTICE Architects, [www.intersticearchitects.com](http://www.intersticearchitects.com); Jonas Kellner, Architect, [jonaskellner.com](http://jonaskellner.com); and MKThink, [www.mkthink.com](http://www.mkthink.com)

**WALL OF DOORS DESIGNER //** Design Workshops, [www.design-workshops.com](http://www.design-workshops.com)

**ENGINEERS //** Glumac Engineering, [www.glumac.com](http://www.glumac.com), and Tipping Structural Engineers, [www.tippingstructural.com](http://www.tippingstructural.com)

**MECHANICAL CONTRACTOR //** Pribuss Engineering, [www.pribuss.com](http://www.pribuss.com)

**LIGHTING REPRESENTATIVE //** ALR I Associated Lighting Reps Inc., [www.alrinc.com](http://www.alrinc.com)

**ARTISTS //** Qris Frye; Dylan Gold, [www.dylangold.com](http://www.dylangold.com); Raven Mahon,

[raven-mahon-6hjp.squarespace.com](http://raven-mahon-6hjp.squarespace.com); and Bill Plumb, [billplumb.com](http://billplumb.com)

**METAL FRAMING //** B Metals, [www.bmetalfabrication.com](http://www.bmetalfabrication.com)

**INTERIOR CONSTRUCTION //** California Drywall Co., [www.caldrywall.com](http://www.caldrywall.com); DW Nicholson Corp., [www.dwnicholson.com](http://www.dwnicholson.com); Richard Hancock Inc., (707) 528-4900; and Stockham Construction Inc., [www.stockhamconstruction.com](http://www.stockhamconstruction.com)

**FIRE ALARM INSTALLER //** Fire Detection Unlimited Inc., [www.firedetect.com](http://www.firedetect.com)

**SPRINKLER INSTALLER //** Golden Gate Fire Protection, [www.goldengatefire.org](http://www.goldengatefire.org)

**ELECTRICAL SUPPLIER //** Independent Electric Supply Inc., [www.iesupply.com](http://www.iesupply.com)

**ELECTRICAL CONTRACTOR //** McMillan Electric Co., [www.mcmillanco.com](http://www.mcmillanco.com); Paganini Electric Corp., [pagcos.com](http://pagcos.com); Sprig Electric, [www.sprigelectric.com](http://www.sprigelectric.com); and Young Electric Co., [www.youngelec.com](http://www.youngelec.com)

**PLUMBING //** Ayoob & Peery Plumbing Co., (415) 550-0975

**GLAZING INSTALLER //** Mission Glass Co., [www.missionglass.com](http://www.missionglass.com), and Progress Glass Co. Inc., [progressglass.com](http://progressglass.com)

**DRYWALL INSTALLER //** Surber Drywall Construction Inc., (650) 529-9244

**ACOUSTICAL CONTRACTOR //** SF Interiors, [sfinteriors.com](http://sfinteriors.com)

**PAINTING //** Giampolini Inc., [www.giampolini.com](http://www.giampolini.com), and Monticelli Painting and Decorating, [monticellipainting.com](http://monticellipainting.com)

**ROOFING //** The Lawson Roofing Co. Inc., [lawsonroofing.com](http://lawsonroofing.com)

**GRAPHICS/BRANDING //** BBDO San Francisco, [bbdosf.com](http://bbdosf.com), and Office, [visitoffice.com](http://visitoffice.com)

**DECONSTRUCTION //** Bluewater Environmental Services Inc., [www.bwserv.com](http://www.bwserv.com)

**COMMISSIONING //** National Air Balance Co., [www.nabco.biz](http://www.nabco.biz)



At McMillan Electric, we felt that it was important to give back to our great city in a way that would help create opportunities for others to learn and prosper. It is our hope that the children will be inspired by this great space and carry forward a shared pride of San Francisco and sustained generosity that will continue to help others into the future.

—Bill Musgrave, president, McMillan Electric Co.



As with all 826 Valencia locations, the new space includes a themed retail storefront, King Carl's Emporium, which students traverse before entering the writing lab. The retail concept was originally born out of need. When the founders discovered their first writing center in San Francisco's Mission District was zoned for retail, they had to come up with something to sell and, ultimately, became a pirate supply store. Since then the retail stores have become an essential component to each location. Not only do the stores create

community awareness and raise funds to support the non-profit's educational programs, each store has a unique theme to appeal to the kids they serve and offers student-published books for sale, as well as an array of unusual products (see 826national.org/chapters for details).

With eclectic design elements, such as a fog bank, rope shelving, a trapdoor, portholes and a wall of doors, the Tenderloin center store reinforces a theme of exploration. The interactive wall of doors is the gateway to the student writing

lab, providing various options as points of entry: through a standard door, bunny door and even a hidden passageway in the fireplace.

Once inside the writing lab, a treehouse is perched high above the room with treasures tucked in cubbyholes below. Two different floor levels in the writing lab—an existing condition revealed during demolition—turned out to be a benefit, supporting multifunctional use for tutoring and presentations. Beyond the writing lab is a conference room and 826 Valencia's new

# CX ENERGY 2017 CONFERENCE & EXPO

**APRIL 24-27, 2017  
ORLANDO, FLORIDA**

Omni Orlando Resort at ChampionsGate

## Speakers Include

**SIEMENS**

**ABM**  
Building Value

**TLC**  
ENGINEERING  
FOR ARCHITECTURE

**Rheem**

**SSR**  
FACILITIES COMMISSIONING

## Presented By

**acg**  
AABC  
Commissioning  
Group

**EMA**  
ENERGY MANAGEMENT  
ASSOCIATION

**AABC**

## COMMISSIONING | ENERGY MANAGEMENT | TECHNOLOGY

Register to attend before  
March 20, and **save 10%**  
with promo code **ENERGY10**



## CASE STUDIES AND TOPICS IN:

- Building Envelope
- Test & Balance
- ASHRAE Energy Standards
- Data Center
- BAS Cyber-security
- Energy Water Nexus
- Energy Audits
- Lighting Controls

## WHO ATTENDS CxENERGY?

- Commissioning Providers
- Energy Managers
- MEP Engineers
- Energy Service Providers
- HVAC Testing Professionals
- Building Owners & Managers
- Manufacturers
- Architects

Register at **www.CxEnergy.com**,  
**info@commissioning.org** or call **202-737-7775**.





administrative office to support the non-profit's operations.

One of the gems found during demolition was vintage, hand-painted wallpaper that included the image of a map. The map, which is located in a conference room in the main learning center, now symbolizes the places students, as explorers, can travel by opening their world to education and expression.

### Renovation Team

The design of the project is the result of an

incredible collaboration between multiple firms in San Francisco. MKThink and Jonas Kellner took the lead on the interior architecture for the writing center while INTERSTICE Architects created the vision for the exterior. Gensler drove the retail concepts, designing the interiors for the emporium while Office worked on the store branding, signage and product design.

The generous contributions from San Francisco-based subcontractors and suppliers, all provided at cost or in-kind, amounted to nearly \$2 million. Typically

on a commercial build-out, there is one subcontractor hired per trade to complete the scope for its particular specialty. However, on 826 Valencia Tenderloin Center, there were many instances where multiple subcontractor firms, who are typically competitors, worked side-by-side to shoulder the work and minimize the final cost of the project.

Construction began in September 2015 and was completed in May 2016. The project took longer than expected because of the unforeseen structural conditions;

## NO WAX SHEET RUBBER FLOORING



- Excellent for auxiliary gyms & multi-purpose rooms
- No wax / high shine
- Soft underfoot
- Will not shrink
- Available in over 60 colors

*For more information  
visit our website at  
[www.mussonrubber.com](http://www.mussonrubber.com)  
or email us at  
[info@mussonrubber.com](mailto:info@mussonrubber.com)*



**MUSSON RUBBER CO.**

P.O. Box 7038 • Akron, Ohio 44306  
800-321-2381 • Fax 330-773-3254  
[info@mussonrubber.com](mailto:info@mussonrubber.com) • [www.mussonrubber.com](http://www.mussonrubber.com)

CREATING ENVIRONMENTS WHERE PEOPLE CAN SHINE™



Image courtesy of muller architecture + interior design

## CONTROL SUNLIGHT NOT YOUR IMAGINATION

**MORE** glazing choices  
**= MORE** design versatility

Call or visit us online to find out **MORE**  
about our translucent FRP adapter panel  
systems that easily integrate with  
existing curtainwall framing, plus  
other mixed glazed options.



SKYLIGHTS, CANOPIES & TRANSLUCENT WALL SYSTEMS


**MAJORSKYLIGHTS.COM**

Circle No. 87

888-759-2678

“AR&B felt it was extremely important to support the people helping the kids of working families. —Bob Buckley, president, Anderson, Rowe & Buckley Inc.”

a dated electrical panel that was original to the building; and the challenge of scheduling and coordinating donated resources, especially during a construction boom. Despite the obstacles, everyone involved is extremely proud of what was accomplished and looks forward to seeing how the new writing center will positively impact the local community and inspire the next generation of San Franciscans.

“We’re grateful to our architecture, design, and construction partners for donating their time and materials, so the rest of our resources can go to creating more free programs for kids,” Eggers says. 



Learn how kids from the Tenderloin neighborhood assisted in 826 Valencia Tenderloin Center’s vision. See page 12 for details.



### MATERIALS

**GRAPHICS** // AMP Printing and Graphics, [ampprinting.com](http://ampprinting.com)

**MECHANICAL SYSTEM** // Anderson, Rowe & Buckley Inc., San Francisco, (415) 282-1625

**WOOD** // Arrigoni Woods, [www.arrigoniwoods.com](http://www.arrigoniwoods.com)

**FLOORING** // Bay Area Concretes, [www.bayareaconcretes.com](http://www.bayareaconcretes.com); California Wood Floors, [www.californiawoodfloors.com](http://www.californiawoodfloors.com); Interface, [www.interface.com](http://www.interface.com); Majestic Floors Inc., (925) 825-0771; Nor Cal Floor Design, [norcalfloor.com](http://norcalfloor.com); Shaw Floors, [shawfloors.com](http://shawfloors.com); and Tandus Centiva, [www.tandus-centiva.com](http://www.tandus-centiva.com)

**TILE AND STONE** // Daltile, [www.daltile.com](http://www.daltile.com); De Anza Tile Co. Inc., [www.deanzatile.com](http://www.deanzatile.com); Design and Direct Source, [www.designanddirectsource.com](http://www.designanddirectsource.com); and Emser Tile, [www.emser.com](http://www.emser.com)

**MILLWORK** // Commercial Casework Inc., [commercialcasework.com](http://commercialcasework.com)

**CEILINGS** // Creative Ceilings and Drywall Inc., [www.creativeceilingsanddrywall.com](http://www.creativeceilingsanddrywall.com)

**WINDOW COVERINGS** // Cutting Edge Drapery, [www.cuttingedge.com](http://www.cuttingedge.com)

**LIGHTING** // Finelite, [www.finelite.com](http://www.finelite.com); Orion Chandelier, [orionchandelier.com](http://orionchandelier.com); and Philips Lighting, [www.usa.philips.com](http://www.usa.philips.com)

**LIGHTING CONTROLS** // Wattstopper, [www.legrand.us/wattstopper.aspx](http://www.legrand.us/wattstopper.aspx)

**HARDWARE** // HD Supply Construction & Industrial—White Cap, [www.hdsupply.com/construction-industrial](http://www.hdsupply.com/construction-industrial), and Service Metal Products Inc., [servicemetalproducts.com](http://servicemetalproducts.com)

**FURNITURE** // Jak W, [www.jak-w.com](http://www.jak-w.com), and Vitra, [www.vitra.com](http://www.vitra.com)

**UPHOLSTERY** // Kay Chesterfield, [www.kaychesterfield.com](http://www.kaychesterfield.com)

**DOORS** // Minton Door Co., [www.mintondoor.com](http://www.mintondoor.com), and Overhead Door Co., [www.ohd.com](http://www.ohd.com)

**SECURITY SYSTEMS** // Microbiz Security Co., [mbiz.com](http://mbiz.com)

**SIGNAGE** // New Bohemia, [www.newbohemiainsigns.com](http://www.newbohemiainsigns.com)

**SHEET METAL** // Omni Sheet Metal Inc., (415) 635-1584

**PAINT** // PPG Paints, [www.ppgpaints.com](http://www.ppgpaints.com)

**COATINGS** // Rubio Monocoat, [www.rubiomonocoatusa.com](http://www.rubiomonocoatusa.com)





## 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



# EVERYTHING'S CONNECTED

WRITTEN BY | ROBERT NIEMINEN

## The Internet of Things Is Ushering in a New Age of Building Automation but Will Require New Ways of Thinking

"THE building controls market is not building controls anymore—it's integrations and building operations," says Shad Buhlig, president of Automatic Controls Engineering, Hayward, Calif.

If the above quote rings a bell, it's probably because you've read it before in a previous issue of *retrofit* (see the May-June 2015 issue, page 82, or [bit.ly/26ALLrP](http://bit.ly/26ALLrP)). At the time, we reported on the trend in building automation toward mobile devices. Although the statement about building controls still rings true, advancements in technology are shifting the conversation yet again.

There's no doubt mobile technology still plays a vital role in building automation; however, it's only part of the picture. Connecting products and systems within a commercial building through the Internet

of Things (IoT) is what's making headlines—and for good reason. "Of all the current technology trends, perhaps the most revolutionary in terms of its ability to completely transform the way we live is IoT," a recent report by Allegion suggests.

To the uninitiated, IoT is "a suite of technologies and applications that equip devices and locations to generate all kinds of information—and to connect those devices and locations for instant data analysis and, ideally, 'smart' action," as defined in a Deloitte study, "The Internet of Things in the CRE Industry". Within the context of the commercial real-estate market, this means using cloud-based computing and networks of data-gathering sensors that allow products within a building to communicate

*(continues on page 78)*



REGISTER NOW

free for a limited time

# EXPERIENCE THE FUTURE OF HVACR

- SEE NEW PRODUCTS FROM 2,000+ EXHIBITORS
- NETWORK WITH 60,000+ HVACR PROFESSIONALS
- ATTEND SEMINARS & ASHRAE WINTER CONFERENCE



**AHR  
EXPO®**

Circle No. 89

**LAS VEGAS JAN 30-FEB 1 2017**

CO-SPONSORS  

**AHREXPO.COM**



## LED LIGHTS

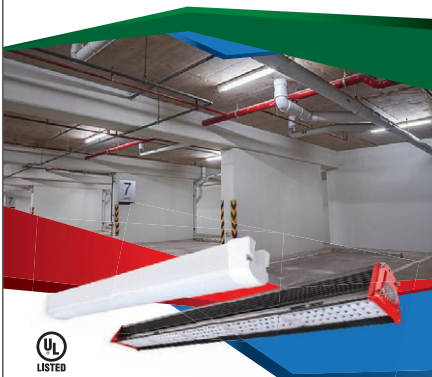
for all of your commercial and industrial needs.



even-glow®  
UL LISTED

### LED PANEL LIGHTS

Replace traditional commercial/residential drop-ceiling troffers with LED Panel Lights or flush mount to a ceiling J-Box. Achieve unmatched energy savings with Even-Glow technology and multiple dimming options. These LED panels offer smooth, long-lasting illumination.



UL LISTED

### LED LINEAR LIGHT FIXTURES

Designed to last 5x times longer than fluorescent fixtures while consuming a fraction of the energy, these Linear LED Light Fixtures are perfect for warehouse aisles and parking garages. Vaporproof and waterproof versions available.

### OTHER POPULAR PRODUCTS



High-Bay Lights



Parking Lot Lights



Wall Packs

### SHORT ROI, ENERGY EFFICIENT AND MAINTENANCE FREE

Quantity discounts available for all products.

**superbrightleds.com**

For commercial pricing call **866-590-3533**  
or email [commercial-sales@superbrightleds.com](mailto:commercial-sales@superbrightleds.com)  
Circle No. 90

IoT can turn virtually any object into a source of information about its usage and environment, which opens up incredible potential for commercial buildings.

with each other within an interconnected system. In other words, we're talking about intelligent buildings that can gather data without human input.

"What I think we're trying to get to is a situation where we can—using software and hardware—fully automate and optimize the building without the need for human intervention," explains James McHale, managing director, owner and founder of technology consulting company Memoori, London.

Rob Martens, futurist and director of connectivity platforms for Allegion Security Products, Dublin, agrees: "Until very recently, the internet has been almost completely dependent on people and their inputs for its supply of information," he observes in the Allegion report. "However, as tools and products evolve, these new smart devices are able to input data into the internet themselves. When groupings of these smart devices work in unison, they can reveal previously unseen patterns and opportunities. These results generate huge opportunities."

Although McHale points out that full adoption of IoT in commercial buildings is a long way off, its significance is tremendous because of the proliferation of smart, connected devices and the data they can capture about building performance. The authors of the Allegion report project by the year 2020 there will be as many as 200 billion connected devices across the globe, which translates to roughly 26 smart objects per person. Further, a recent Deloitte Center for Financial Services study suggests that IoT technology has huge potential in commercial real estate with sensor deployment projected to grow at a compound annual growth rate of 78.8 percent between 2015 and 2020 to nearly 1.3 billion.

As such, IoT can turn virtually any object into a source of information about its

usage and environment, which opens up incredible potential for commercial buildings. As the Deloitte study illustrates, the value created from the information generated by IoT "has the potential to widen the lens on value creation beyond location through a level of efficiency and effectiveness that could distinguish buildings within a marketplace from a desirability and profitability standpoint."

### Opportunities and Challenges for Retrofits

While implementing the latest technology solutions is a given in new construction, the real opportunity lies in retrofitting the existing building stock. That's not to say the process is straightforward, but when existing buildings are the starting point, the solutions are more robust.

"It is actually the most difficult to start with an existing building, but the beauty is if you solve for the existing building case, it solves for all other use cases," notes Tanuj Mohan, chief technology officer and co-founder of Enlightened Inc., a Sunnyvale, Calif.-based provider of IoT solutions for commercial buildings. "If you can do it in an existing building properly, the new construction problem is a lot simpler."

Mohan says the days of putting power packs into junction boxes and pulling wires to sensors have all but disappeared. Now, OEM manufacturers can simply integrate sensors into their products so only fixtures are being installed, and control systems can be configured later on without any additional construction work.

Additionally, with the price of sensors decreasing, McHale says there's huge potential to more intelligently retrofit buildings, which is good news for facility executives. "One of the driving forces of the

*(continues on page 80)*





# SHAPING THE ROOFING INDUSTRY

The 2017 **International Roofing Expo®** [IRE] is where new products are launched, great ideas are born and creativity and innovation unite. Register now to find unparalleled access to the tools, technologies and resources you need to maximize your roofing success.



Exhibits & Conference:

**MARCH 1-3, 2017**

Mandalay Bay Convention Center  
Bayside Halls D-E  
Las Vegas, Nevada USA

Register at **[www.TheRoofingExpo.com](http://www.TheRoofingExpo.com)**  
to receive **FREE** Expo Only admission.

During the online registration process, enter **ADG**  
when prompted to enter a discount code.

Discounts apply to new registrations only. Discounts not applicable to MA or NEM registrations. No refunds issued for pre-existing registrations.

**[Info@TheRoofingExpo.com](mailto:Info@TheRoofingExpo.com)**  
**800.684.5761 | 972.536.6415**

Circle No. 91

**informa**  
exhibitions

Official Show Sponsor:  
 **NRCA**

Official Show Publication:  
**ROOFING**  
**CONTRACTOR**



A “bolt-on” or “Band-Aid” approach isn’t going to cut it. What’s needed is a **broader perspective** that embraces end-users and improves outcomes overall, rather than just cost or efficiency.

Internet of Things has been this proliferation of sensors, so the cost of sensors has come down a lot,” he says. “Our ability to process data is increasing bandwidth, so how [quickly] these things will be able to process and how much data ... they can transfer is increasing, so it’s all leading to a situation where these things are becoming more affordable.”

Given that 80 percent of the buildings in the existing stock will still be in use in 2050, McHale says we need to be smarter about how we’re using them. To his point, Mohan notes that because of aggressive energy-saving incentives in the market and even complete rebates for installations, people are pushing the cheapest solutions for the maximum return on investment. But he says it’s the wrong way to look at the issue because, “if a dumb system goes [into a building], you’re stuck with it for 10 years.”

That being said, many in the industry still react to emerging technologies with a “bolt-on” mentality when it comes to retrofitting existing buildings. For example, Mohan says some facility executives have added networking components to existing lighting controls that have made them remote but neglected to incorporate data collection, which is a big missed opportunity. Yet this “bolt-on” thinking is where most of the industry is today, he adds.

When it comes to network connections in existing structures, however, the options are limited. Mohan says wireless is really the only solution because it’s too expensive and risky to lay the miles of cable needed for power over Ethernet connections. Fortunately, wireless technology is becoming more reliable and secure all the time.

### Hitting a Moving Target

Speaking of security, with increasing interconnectedness of building automation systems, the need for heightened security is perhaps higher than ever. As a result, facility executives, security, and IT departments can no longer exist in silos but must come to the table early to communicate and work together.

For example, cameras and access control hardware need bandwidth and software support, so security departments should look to IT early on for implementation, as



## Go ahead. Walk all over us.

Give us your toughest environment. Protect-All® Flooring provides slip-resistant durability that withstands temperature extremes and moisture. But just because we’re tough, doesn’t mean we’re not a softie. Our flooring reduces leg fatigue and absorbs sounds.

We even offer a ground-breaking installation system called Protect-All Rapid Weld™ that’s fast, easy to install and long-lasting.



800-544-9538  
protect-allflooring.com



 **Protect-All®** For all walks of life.  
Flooring

Circle No. 92

“Oscoda Plastics” and “Protect-All” are registered marks owned by Oscoda Plastics, Inc. Walk All Over Us\_8.19.14\_v1



well as education about what the products are designed to do, according to Mark Casey, integration sales manager for Allegion.

"Another benefit of involving IT early in security planning is that they can often provide valuable information about best practices in system architecture. When they are more informed about what devices do and how they work, the whole process is more successful," Casey says.

McHale agrees that departments need to coordinate closely to establish clear protocols to determine who's responsible for which operational components and how budgets will be shared. Additionally, he suggests manufacturers train and educate customers to ensure the products they sell are as secure as possible while installers should make sure systems are working properly and updated with patches regularly.

Because, ultimately, security is a moving target. "People will find new compromises every day, so you have to be able to adjust by upgrading yourself on a continuous basis to thwart that," Mohan says. "That thinking has to go in on day one."

## A Change in Thinking

To successfully integrate IoT solutions, many facility executives need a change in perspective. As Mohan noted previously, a "bolt-on" or "Band-Aid" approach isn't going to cut it. What's needed is a broader perspective that embraces end-users and improves outcomes overall, rather than just cost or efficiency.


For example, Mohan says it's common for building professionals to think about lighting and lighting controls in terms of cost and code, but "they forget that the light from buildings are for the people in the first place." He says most people think energy first, humans second. But he argues that the equation needs to be flipped on its head.

"If you bring the human in, do the right thing for the human, everything else would solve itself," Mohan once told a client. "If I know what the human is doing in the space [on] day one, I can optimize for lighting, HVAC, his own productivity, for life safety situations—all of that."

He's right, of course. Because at the end of the day, the promise that the Internet

of Things and every other technological advancement to our buildings holds is to enhance our quality of life.

"This thinking about how we can make buildings better by focusing on outcomes—I think the Internet of Things is going to play a huge part in that because it just allows us to measure and validate

what those outcomes are," McHale says. "I think it does have a huge part to play in us improving the built environment. That's ultimately what we're trying to do here. Society needs buildings and it needs cities, and the more optimized and the better performing they are, the better it is for everybody." 

## Tough Protection for What's Inside Your Building



### Garland's New Thermoplastic Membrane The Ultimate in Waterproofing Protection

- KEE-Stone® is the most durable KEE sheet in the industry, providing superior waterproofing protection and excellent puncture and hail resistance
- KEE-Stone has been formulated to provide superior heat and UV resistance, providing long-term protection
- Industry's best KEE stands up to weathering to keep you worry free and leak free longer than our competition
- KEE-Stone's unique scrim provides superior sheet strength for a longer lasting roof



The Garland Company, Inc.®  
[www.garlandco.com](http://www.garlandco.com)

**KEE-STONE**  
ONLY THE BEST

## [PRODUCTS]

### CONVERT T8 AND T12 TO LED LUMINAIRES

Engineered Products Co.'s LED RetroFit Conversion Kits convert older 4- and 8-foot T8 or T12 "strip-type" fixtures into energy-efficient LED luminaires. The kits are available in two or three T8 fluorescent lamp equivalent. The kits' components and design make the retrofit look like a new LED luminaire at a fraction of the cost. The kits also deliver high-performance lumen output and achieve a quick retrofit regardless of "strip-type" fixture brand because of the one-piece construction. The kits are ETL listed to UL Standard 1598C and DLC listed and approved (standard wattage driver only). Kits are available with or without a frosted diffuser lens, and a five-year warranty is included.

[engproducts.com](http://engproducts.com) // Circle No. 94



### CEILING GRID PROVIDES LONG SPANS FOR CORRIDORS

CertainTeed has introduced QuickSpan Locking Drywall Grid System, a ceiling grid that provides long unsupported spans for flat drywall, offering faster, easier installation in hallway and corridor applications. QuickSpan features solid cross tees that audibly click into place for a positive lock, comprised of a heavy-duty metal material for maximum rigidity and screw grip. This greater strength and stability is achieved with a double-stitched web. Its locking channel includes pre-engineered locking tabs spaced every 8 inches on center, allowing tees to twist and click into place, ensuring installers the layout is accurate and the channel is set. The locking tab also prevents lateral and upward movement or deflection.

[certainteed.com](http://certainteed.com) // Circle No. 95



### IoT PROGRAM ADVANCES TECHNOLOGY

Legrand has launched ELIOT, an IoT program that advances connectivity and intelligence in the built environment and enhances value in the use of connected products. ELIOT offers a purpose-built cloud; gateways for installed legacy offerings; an array of natively connected new products; and innovative solutions comprising connected, intelligent technologies and services. ELIOT is designed to evolve the experience of living, working and operating in buildings while minimizing the impact those buildings have on the environment. ELIOT intends to create a world where residential and commercial buildings will be smarter and better connected, easier to design and build, and deliver simpler yet more productive occupant experiences.

[www.legrand.us](http://www.legrand.us) // Circle No. 96

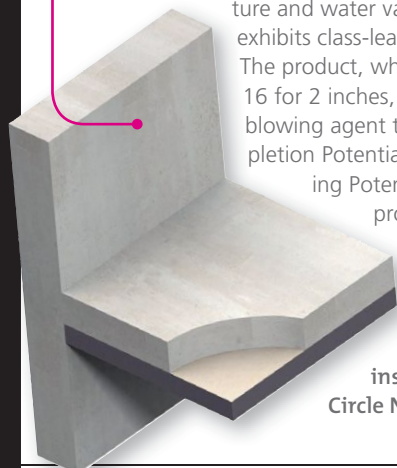


### RIGID THERMOSET INSULATION ENTERS U.S. MARKET

Kingspan Insulation has launched Kooltherm rigid thermoset insulation into the U.S. market. The Kingspan Kooltherm line offers an extensive range of products for wall, floor, soffit and rainscreen applications. It has a fiber-free rigid thermoset phenolic insulation core that resists moisture and water vapor ingress, as well as exhibits class-leading fire performance. The product, which offers an R-value of 16 for 2 inches, is manufactured with a blowing agent that has zero Ozone Depletion Potential and low Global Warming Potential. Kooltherm can provide reliable long-term thermal performance during the lifetime of the building.

[www.kingspaninsulation.us](http://www.kingspaninsulation.us) //

Circle No. 97



### SPECIFY LED LIGHT OUTPUT TO MEET PRECISE NEEDS

Hubbell Lighting's Litecontrol now delivers its MOD product line of linear slot lighting for general lighting in architectural spaces in a cost-sensitive solution. The new MOD x features Litecontrol's



Variable Intensity (Vi) Technology, which allows specification of LED light output to meet precise needs. Vi technology also provides verifiable wattage, which is critical for specifiers who are responsible for program, agency, state and local code compliance. The MOD x will arrive onsite with clear, specific labeling, allowing specifiers to calculate wattage based on actual versus the highest possible value. Specifiers can also select output or power—in 50-lumen increments per foot—for desired specifications.

[www.litecontrol.com](http://www.litecontrol.com) // Circle No. 98



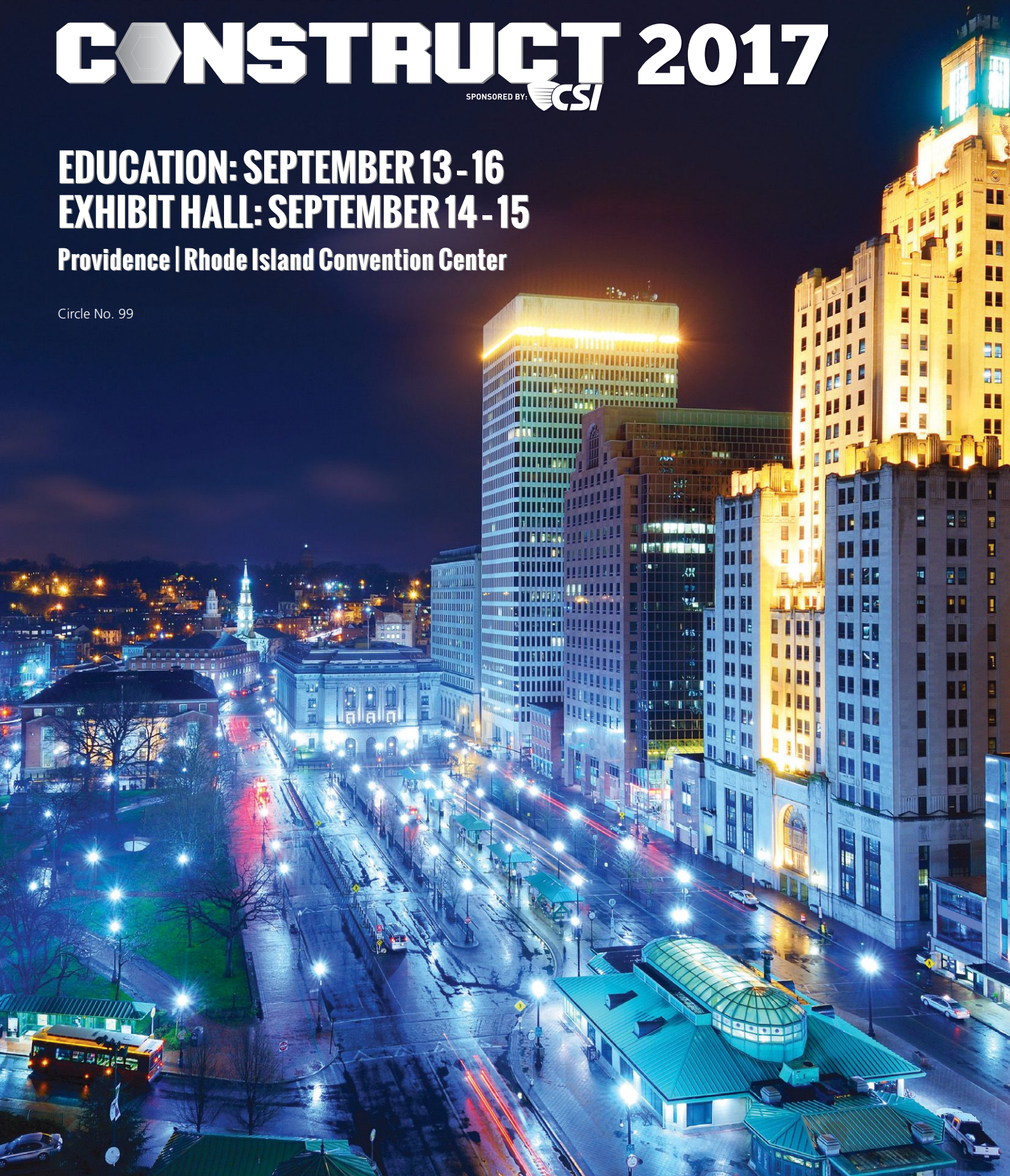
# Save-the-Date for **CONSTRUCT 2017**

SPONSORED BY: 

**EDUCATION: SEPTEMBER 13 - 16**  
**EXHIBIT HALL: SEPTEMBER 14 - 15**

**Providence | Rhode Island Convention Center**

Circle No. 99





## [PRODUCTS]



### IoT PLATFORM ENHANCES BUILDING SAFETY, EFFICIENCY AND MORE

Schneider Electric has launched its next generation EcoStruxure architecture and platform to deliver IoT-enabled solutions at scale for building, grid, industry and data center customers. The enhanced architecture and platform is open, scalable and interoperable, connecting the three core layers of Schneider Electric's technology stack, from connected products, to edge control, to applications, analytics and services. The first layer builds on Schneider Electric's core competency in developing connected products with embedded intelligence, such as sensors, medium- and low-voltage breakers, drives and actuators. The Edge Control layer gives organizations the capability to manage their operations on-premises, as well as from the cloud, depending on their needs. A portfolio of vendor-agnostic apps, analytics and services that work with any hardware, system or control forms the third layer of the stack.

[www.schneider-electric.com](http://www.schneider-electric.com) // Circle No. 100



### LATH AND RAINSCREEN PRODUCT PROVIDES MOISTURE CONTROL

Boral USA has made available Boral Drain-N-Dry Lath with Delta-Dry Technology for advanced moisture control. Developed with Cosella-Dörken, Drain-N-Dry Lath combines a reinforcing lath and a rainscreen that replaces the need for a secondary water-resistant barrier (WRB), enabling builders to address drainage, drying and moisture vapor control underneath stone and stucco. The lightweight product is available in 150-square-foot rolls that allow builders to cover large portions of a wall in a single step, reducing the likelihood of water infiltration through fastener penetrations in the WRB. The solution also features an integral Alkali Resistant fiberglass lath, addressing concerns related to rust and corrosion associated with expanded metal lath and potential alkaline attack associated with coated E-glass fibers.

[www.drainndrylath.com](http://www.drainndrylath.com) // Circle No. 101



View a video about this product. See page 12 for details.



### AIR PURIFIER AUTOMATICALLY TESTS AND CLEANS AIR

Blueair has released the Pro XL Series air purifier for commercial installations; it is available for rooms up to 1,180 square feet. The air purifier features the Blueair Air Intelligence Module, which automatically tests particle and gas levels in indoor air and adjusts the fan speed to maintain the optimal clean-air environment. The product is available with two types of HEPASilent Filters: standard, which removes bacteria, viruses, pet dander, dust and pollen, and alternative, which removes formaldehyde, tobacco smoke and particles. These filters can be coupled with the Blueair Carbon+ Filter for additional protection against heavy gaseous pollutants.

[www.blueair.com](http://www.blueair.com) // Circle No. 103

### CHARGE TOOLS WITH THE BATTERY ON OR OFF THE TOOL

Robert Bosch Tool Corp. has introduced the Bosch Power Ready Wireless Charging System, which powers tools virtually anywhere with the battery on the tool or off. When the charger is plugged in and the compatible battery is placed on it, the charger begins wirelessly transmitting an alternating magnetic field. The battery's internal copper coil acts as a receiver. As the alternating magnetic field penetrates the coil, voltage is induced and a charging current flows to the cells until full. Each charger also features Foreign Object Detection, which detects when any other object besides the compatible battery is on the charging pad. If sensed, the charger will not turn on until the object is removed.

[www.bosch-professional.com](http://www.bosch-professional.com) // Circle No. 102



### SHADECLOTH MEETS HEALTHIER HOSPITAL INITIATIVE

MechoSystems has released its EcoVeil Sheer Collection, which meets the stringent Healthier Hospital Initiative Safer Chemicals Challenge. The 100 percent polyester product is PVC free, GREENGUARD Gold certified, Cradle to Cradle Material Health Assessed at the Bronze Level and is a Cradle to Cradle Certified Manual Shade Assembly. It also achieves material transparency with a Health Product Declaration and Declare label. The fabric is available in 1 and 3 percent openness in a broken twill weave and stocked at 118-inches wide. Woven from pigmented yarns, rather than piece-dyed, the broken twill weave is reversible and woven in a palette of cooler whites and off whites, as well as warm midtones and sleek grays.

[www.mechosystems.com](http://www.mechosystems.com) // Circle No. 104

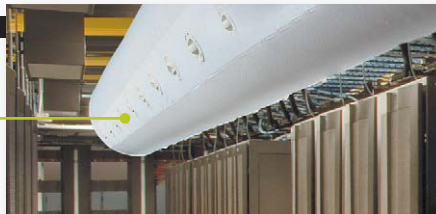




## DUCTWORK COOLS DATA CENTER EQUIPMENT

DuctSox has released DataSox, customizable air displacement ventilation ductwork with onsite directional adjustability for effectively and energy-efficiently cooling commercial data center equipment. The round, overhead and porous fabric HVAC duct system distributes a large volume of air down into data center cold aisles with low 400-FPM velocities that don't upset critical equipment intake and exhaust or room return-air containment balances. It offers directional spot cooling with adjustable nozzles for high-wattage servers. The nozzles allow onsite testing and air balancing for optimum performance. DataSox results in cold aisle temperatures 3- to 5-degrees F lower than traditional distribution but with up to 40 percent less computer room air-conditioning flow rates, especially when complemented with variable frequency drive equipment.

[www.ductsox.com](http://www.ductsox.com) // Circle No. 105



## QUICKLY CUT SHEET METAL

Kett Tool Co. has made available the KL-2020 14-Gauge Nibbler, a wrench-free nibbler featuring a rotating head for easy operation. The KL-2020 boasts a die design that allows maneuverability when cutting sheet metal. The nibbler can be locked into four different positions (in 90-degree increments). A rotation of the hand changes the angle of the die while the free-floating punch design extends time between replacements. The KL-2020 cuts 14-gauge cold rolled (C.R.) mild steel and most grades of stainless to 16 gauge. At 10 1/2 inches and 4 pounds, the 4-amp, 2500 RPM straight handle electric nibbler delivers a burr-free cut of flat and corrugated sheet metal up to 65 inches per minute.

[www.kett-tool.com](http://www.kett-tool.com) // Circle No. 106



## OPPOSING-PORT TEES MINIMIZE TEES AND ELBOWS

Uponor North America now offers a solution for PEX hydronic heating and cooling applications with back-to-back installation spacing constraints. The new ProPEX engineered polymer (EP) opposing-port tees eliminate the need for additional tees and elbows to facilitate piping in two directions, reducing the number of required fittings by 75 percent. Available in 1-, 1 1/4-, 1 1/2- and 2-inch flow-through sizes with 3/4-inch outlets, the ProPEX EP opposing-port tees are listed to ASTM F1960 and NSF 14, as well as are code-compliant with the International Mechanical Code and Uniform Mechanical Code for hydronic heating and cooling applications.

[www.uponorpro.com](http://www.uponorpro.com) // Circle No. 107



## Take Our Free AIA Course at [www.SnowRetention101.com](http://www.SnowRetention101.com)



SnoBlox Deuce • EcoBlox



[www.Snojax.com](http://www.Snojax.com)

SnoBar • ColorBar • ColorRail



[www.SnoBarColorBar.com](http://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](http://www.RoofClamp.com)



VentSavers: HD • FB-151 • P-383



Standing Seam  
Adaptor Plate  
Now Available!

[www.VentSaver.com](http://www.VentSaver.com)

[www.SnoBlox.com](http://www.SnoBlox.com)

1.800.766.5291

[www.SpacingTool.com](http://www.SpacingTool.com)



## SPRAY GLASS MINERAL WOOL IN SIDE WALLS

Knauf Insulation has introduced JetSpray Thermal Insulation System, a spray-on glass mineral wool that can be applied in a net-less, side wall application. It installs around wiring and other wall obstructions, eliminating gaps to fill cavities completely

while preventing settling. Excess material is scrubbed during installation, vacuumed and reused. JetSpray typically dries within 24 hours and drywall can be installed the next day. JetSpray provides R-values of R-15 when installed in a 2- by 4-inch wall cavity and R-23 in a 2- by 6-inch cavity. Adding JetSpray to wall cavities can also reduce sound transmission up to 5 STC points. Additionally, JetSpray's glass fibers are innately mold-resistant.

[jetspray.knaufinsulation.us](http://jetspray.knaufinsulation.us) // Circle No. 109

## PANELS RESEMBLE WEATHERED STEEL

ATAS International has introduced its oxide series of metal panels—seven colors made to look like weathered steel with a rust-like appearance. By combining the aesthetic appeal of aged metal with the advantages of new metal cladding with a PVDF finish, a timeless appearance can be added to projects. In addition, ATAS has expanded its natural metals to include two types of stainless steel that are now available in classic and terne-coated finishes. For zinc finishes, black ANTHRA-ZINC and the PIGMENTO series of colors in brown, blue, red and green have been added to the standard QUARTZ-ZINC color offering.

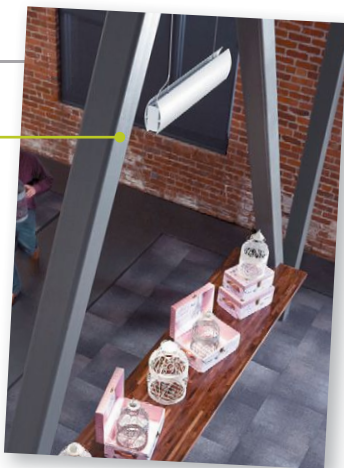
[www.atas.com](http://www.atas.com) // Circle No. 110



## LUMINAIRES 'GRAZE' AND 'SHOWCASE' SURFACES

The Hyltr family from Architectural Lighting Works features patent-pending Double Slot Optics light-sculpting LED technology. For grazing applications, Hyltr highlights walls and ceilings with better than 3:1 candela uniformity at distances spanning 40 feet and beyond. Available in recessed, perimeter and rotatable surface-mount models, Hyltr provides near laser-beam precision illuminating textured surfaces. Hyltr also illuminates long, narrow horizontal surfaces, such as countertop displays, lab benches and aisles. Available in suspended and recessed models for "showcasing" applications, Hyltr provides slender, hard-edge illumination in one direction to light only the desired linear surface while wide illumination is kicked in the other direction to cover an elongated expanse.

[www.alwusa.com](http://www.alwusa.com) // Circle No. 112



## CHILLER FEATURES CONTROLS AND TOUCHSCREEN

WaterFurnace International Inc. has updated its Envision2 NXW Reversible Chiller to include HydroLink Aurora controls and a 10-inch color touchscreen display. The communicating controls combine field-proven Aurora compressor management with a HydroLink NiagaraAX-based system-level controller to manage setpoint, control, staging and the touchscreen display. The controls also communicate more than 200 points to the BAS network via BACnet, LonWorks or through the NiagaraAX bus. Custom-built HydroLink Supervisory controls are also available with the ability to consolidate all mechanical room chillers and hydronic components under one controller. The chiller's 10-inch color touchscreen HMI tablet display is factory-installed on the cabinet exterior and provides high-end graphics on system performance and control.

[www.waterfurnace.com](http://www.waterfurnace.com) // Circle No. 111



## DIMMING RELAY INCLUDES ENOCEAN TECHNOLOGY

Hubbell Control Solutions has announced the wiSTAR 0-10V Dimming LED relay module. This addition to the wiSTAR line of self-powered wireless controls features EnOcean technology. The new dimming relay links to a variety of wiSTAR self-powered input devices. With no batteries and no wiring, the input devices can be placed anywhere. Compact motion sensors and rocker switches utilize solar cells or small kinetic energy-harvesting switches. A standard on/off switching relay is also available. The ceiling-mounted daylight sensor utilizes a solar cell to harvest energy from indoor light. Also available is Navigan commissioning software, which makes for easy linking between multiple sensors, switches and relay modules to program an entire room at one time.

[www.hubbell-automation.com](http://www.hubbell-automation.com) // Circle No. 113



## LVT IS AVAILABLE IN REFRESHED DESIGNS •

Armstrong Flooring has enhanced its luxury flooring with refreshed design offerings of its Parallel 20 and Parallel 12 luxury vinyl tile. Parallel 20, with a 20-mil wear layer, and Parallel 12, with a 12-mil wear layer, accommodate multiple budgets and performance needs. Featuring a variety of neutrals with the realism of wood, stone and contemporary textural visuals, Parallel 20/12 are suited for specialty retail, office and multifamily spaces. The multipurpose and stair nose trim coordinate with Parallel 20/12, giving a smooth transition from LVT to another type of flooring at differing height and covers the expansion space on stair edges with a finished trim. The commercial UV-cured urethane finish eliminates polishing and spray buffing in some applications.

[armstrongflooring.com](http://armstrongflooring.com) // Circle No. 114



## SEAL PENETRATIONS DURING WINTER MONTHS •

The Dow Chemical Co. has expanded its weatherization solutions to include LIQUIDARMOR LT Flashing and Sealant. The LIQUIDARMOR Flashing and Sealant portfolio is used to treat board joints and wall penetrations during construction, reducing air leakage and moisture intrusion within commercial buildings. LIQUIDARMOR LT now enables application during cold winter months in temperatures as low as negative 20 F. Contractors facing skilled labor shortages recognize the sealant as an effective solution for saving time on the job site by reducing the steps needed to construct a commercial wall, as well.

[building.dow.com](http://building.dow.com) // Circle No. 115



View a video about this product. See page 12 for details.



## LARGE-FORMAT CEILING PANELS PROVIDE MONOLITHIC VISUAL •

Lyra Concealed ceiling panels from Armstrong Ceiling Solutions combine the monolithic look of drywall with downward accessibility for projects with minimal plenum heights. Featuring an Articulation Class of 190 and a Noise Reduction Coefficient of 0.95, Lyra Concealed ceiling panels are available in standard 48- by 48-inch, 30- by 30-inch, 24- by 48-inch, 24- by 72-inch and 24- by 96-inch panel sizes. The fiberglass panels install on a new or existing Prelude 15/16-inch XL suspension system. The panels' high light-reflective white finish provides a smooth, durable surface that is washable, scratch-resistant and soil-resistant. The panels have a 30-year guarantee against visible sag, mold, and mildew and are made with up to 71 percent recycled content.

[www.armstrongceilings.com](http://www.armstrongceilings.com) //  
Circle No. 116

# RAINSCREEN

WATERWAY - Rainscreen & Ventilation Mats

Google/Youtube:  
**RAINSCREEN 10 THINGS TO KNOW**

Circle No. 117

Stuc-O-Flex International Inc  
1-800-305-1045 | [www.stucoflex.com](http://www.stucoflex.com)



# AD INDEX

RETROFIT // January-February 2017



**AHR Expo** .....Page 77  
www.ahrexpo.com



**Arriscraft** .....Page 48  
www.arriscraft.com



**Carlisle Syntec** .....Page 31  
www.carlislesyntec.com  
(800) 479-6832



**CENTRIA** .....Page 13  
www.centriaperformance.com/retrofit  
(800) 752-0549



**ClimateMaster** .....Page 59  
www.climatemaster.com



**Connectrac** .....Pages 15, 89  
www.connectrac.com, (877) 480-5637



**Construct** .....Page 83  
www.constructshow.com



**CX Energy** .....Page 72  
www.cxenergy.com, (202) 737-7775



**Daikin** .....Page 25  
www.northamerica-daikin.com



**Dorlen Products** .....Page 41  
www.watalert.com



**Doug Mockett & Co. Inc.** .....Page 10  
www.mockett.com, (800) 523-1269



**Dri-Design** .....Page 47  
www.dri-design.com



**Dryvit** .....Pages 4, 89  
www.dryvit.com



**Dura Coat** .....Page 21  
www.duracoatproducts.com



**Duro-Last** .....Page 23  
www.duro-last.com, (800) 248-0280



**Engineered Products Co.** .....Page 17  
www.engproducts.com  
(800) 336-1976



**Excel Dryer** .....Page 33  
www.exceldryer.com, (800) 996-1096



**Extron** .....Page 39  
www.extronclassroom.com  
(800) 633-9876



**Flex** .....Page 63  
www.flexroofingsystems.com  
(800) 969-0108



**Flex-Ability Concepts** .....Page 14  
www.flexabilityconcepts.com  
(866) 443-3539



**The Garland Co. Inc.** .....Page 81  
www.garlandco.com



**GSSI** .....Page 5  
www.gssisealants.com, (800) 288-9489



**Hubbell Lighting** .....Page 9  
www.hubbelllighting.com



**IOTA Engineering** .....Page 14  
www.iotaengineering.com  
(800) 866-4682



**International Roofing Expo** .....Page 79  
www.theroofingexpo.com



**Major Industries** .....Page 74  
www.majorskylights.com  
(888) 759-2678



**McElroy Metals** .....Page 61  
www.mcelroymetal.com



**Mitsubishi Cooling & Heating** .....Page 3  
www.mitsubishipro.com



**Musson Rubber** .....Page 73  
www.mussonrubber.com  
(800) 321-2381



**Navient** .....Page 29  
us.navient.com



**Petersen Aluminum Corp.** .....Pages 6, 89  
www.pac-clad.com, (800) 323-1960



**Protect-All Flooring** .....Page 80  
www.protect-allflooring.com  
(800) 544-9538



**RSK Avanti Partners** .....Page 89  
www.rskavantipartners.com  
(972) 234-0180



**Samsung HVAC** .....Page 91  
www.samsunghvac.com



**Schweiss Bi-Fold** .....Page 16  
www.schweissdoors.com  
(507) 426-8273



**Simpson Strong-Tie** .....Page 19  
www.strongtie.com



**Slant Fin** .....Page 65  
www.slantfin.com



**SnoBlox** .....Page 85  
www.snoblox.com, (800) 766-5291



**Stuc-O-Flex** .....Page 87  
www.stucoflex.com, (800) 305-1045



**Super Bright LEDs** .....Page 78  
www.superbrightleds.com  
(866) 590-3533



**Sylvania** .....Page 11  
www.sylvania.com/luminaires



**Titus** .....Page 89  
www.titus-hvac.com



**Uponor** .....Page 2  
www.uponor.com



**USGBC** .....Page 75  
www.usgbc.org



**Valspar** .....Page 92  
www.valspar.com



**Varidesk** .....Pages 27, 89  
www.varidesk.com



**Weil-McLain** .....Page 55  
www.weil-mclain.com



**Wooster Products** .....Page 16  
www.wooster-products.com  
(800) 321-4936



**ZipWall** .....Page 49  
www.zipwall.com



## 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](http://www.rskavantipartners.com)

972-234-0180

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

Circle No. 118



Perforation Perfection

7.2 PANEL PERFORATED

Musket Gray - Energy Star - Cool Color

Circle No. 119

**PAC-CLAD**  
PETERSEN

PAC-CLAD.COM 1 800 PAC CLAD

## CONNECT WITHOUT CORE DRILLING



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](http://www.connectrac.com)

Toll Free 1.877.480.5637

Circle No. 120

Many things have improved over the last 9,000 years.



**Until now, brick wasn't one of them.**

**Introducing NewBrick.** The most important innovation in the history of brick. NewBrick is superior to clay brick in weight, energy efficiency, speed of installation and environmental impact. NewBrick offers the same classic size and appearance of clay brick, but raises the bar with improved performance.

Visit [dryvit.com/newbrick](http://dryvit.com/newbrick) to see all of NewBrick's colors and textures. Contact us to request samples, and to learn how NewBrick can greatly benefit your next project.

[newbrick@dryvit.com](mailto:newbrick@dryvit.com) | 800-556-7752 x9

Circle No. 121

**NEWBRICK™**  
by dryvit



## SIT-STAND SOLUTIONS FOR THE OFFICE

Turn existing desks and cubicles into standing desks with VARIDESK. Each ships fully assembled and there's no installation required. Order online now.

**VARIDESK.com**  
Circle No. 122 WORK ELEVATED™

## VALUE AND VERSATILITY



Titus offers an AHU with up to 30,000 cfm capacity: RevolutionTFX. 36 cabinet and 34 segment options let you create just the AHU you need for your next project, whether new or retrofit.

Other notable features include outstanding casing performance and easy-to-maintain pan design. Details at [www.titus-hvac.com/revolution](http://www.titus-hvac.com/revolution).

**Titus**  
Redefine your comfort zone.™

**Titus**  
[www.titus-hvac.com](http://www.titus-hvac.com) // (972) 212-4800  
// Circle No. 123



This historic postcard of Governors Island from the World War I era shows dozens of warehouses used for the war effort.

## ABANDONED MILITARY BASE NOW PROVIDES STUNNING VIEWS OF NEW YORK HARBOR



PHOTO: TIMOTHY SCHENCK



PHOTO: TIMOTHY SCHENCK



PHOTO: TIMOTHY SCHENCK



PHOTO: IWAN BAAN




PHOTO: IWAN BAAN

The Hills are a newly designed 10-acre park rising 25- to 70-feet above Governors Island, a 172-acre island in the heart of New York Harbor, 800 yards from Lower Manhattan and 400 yards from Brooklyn. The Hills offer a 360-degree panoramic experience of the harbor and mark a major milestone in the transformation of Governors Island from an abandoned military base into an iconic destination for New Yorkers and visitors alike.

"Our Hills are the culmination of an eight-year collaboration with West 8 urban design & landscape architecture [New York] and the many New Yorkers and visitors who contributed ideas to this ambitious project,"

says Leslie Koch, president of the Trust for Governors Island. "The Hills are a triumph of imagination, state-of-the-art engineering and smart design that will ensure access to beautiful green space, the waterfront and incomparable views of the harbor for years to come."

The four hills are constructed of recycled demolition debris, general fill and light-weight pumice, stabilized with geotechnical reinforcement and covered with shrubs, trees and grassy lawns. Although the Hills provide striking vistas and comfortable settings for relaxation and play, they also improve the island's resilience against increasingly dramatic weather patterns and rising sea levels.

The Hills are home to more than 860 new trees and 41,000 new shrubs planted in new high-quality topsoil and protected from brackish groundwater by the new topography. The planting of each of the four hills is designed according to the micro-climates: varying degrees of slopes, exposure to sun, salty spray and prevailing wind, as well as to accentuate key view corridors. The new lawns, plantings and permeable paving also reduce erosion and storm run-off while allowing for water collection and irrigation. 



Learn more about the Hills on Governors Island. See page 12 for details.



# EXTREME CONDITIONS CALL FOR EXTREME PERFORMANCE

Samsung's Max Heat line is engineered to deliver high performing heating at -13°F providing warmth and comfort. With a wide range of different systems available for almost any application, Samsung's Max Heat systems are the solution for homes and businesses.



COMMERCIAL • LIGHT COMMERCIAL • RESIDENTIAL

6-24 TON VRF (DVM S)



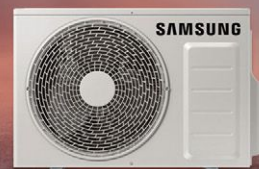
1:1 CASSETTE and  
DUCT SYSTEMS (CAC)



MULTI ZONE SYSTEM (FJM)



HIGH WALL UNITS (RAC)



samsunghvac.com



2017 AHR EXPO  
JAN 30 - FEB 1 Las Vegas

BOOTH # N8117

Circle No. 124

**SAMSUNG**



Pure innovation.  
Pure transparency.  
Pure sustainability.



Developed with sustainability top-of-mind, Valspar introduces Fluropon® Pure. Fluropon Pure is the first of its kind in the coil and extrusion coating industry, formulated with reduced hazardous materials. Appropriate for metal roofing and wall panels, curtain wall, and window and door frames, it's ideal for buildings with extreme environmental requirements. Valspar supports our customers who participate in LEED® v4 and Living Building Challenges's Declare program. Call 1-888-306-2645 today to speak with an expert, or visit us at [valsparcoilextrusion.com/fluroponpure](http://valsparcoilextrusion.com/fluroponpure).

Circle No. 125

valspar®