

EMPLOYEE VS.  
INDEPENDENT  
CONTRACTOR  
STATUS

INSULATION'S  
COMPLEXITIES

A 1913 PARISH  
HALL MEETS  
TODAY'S BUILD-  
ING CODES

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**CONTRACTOR:** Dane Construction  
**PANEL PROFILE:** 7.2, FW-120 (Silver Metallic)

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➔ *feature projects*

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An intensive adaptive-reuse project transforms an iconic pyramid into one of the world's largest stores.



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- Bailey's Fine Jewelry, Raleigh, N.C.
- One Canalside, Buffalo, N.Y.
- Tanger Outlet Center, Washington, D.C.
- Lincoln Park Centre, Chicago
- 2040 Market Street, Philadelphia
- Hensville, Toledo, Ohio
- The Old Bakery Beer Co., Alton, Ill.
- Hobie Surf Shop, San Clemente, Calif.



← cover

COVER PHOTO: O. T. MARSHALL ARCHITECTS

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# ARCHITECTURE THAT ELEVATES AND INSPIRES.

Discovery Center in the Discovery Park of America, Union City, TN  
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## IN DESIGN—AND LIFE—CHANGE CAN BE GOOD



Editor Christina Koch married Bart Thoreson on Aug. 29 along the lake behind their Iowa home. Director of Operations Becky Riestler served as a bridesmaid, and Publisher John Riestler (inset photo) kept the party fun. Barrett Hahn (not pictured), sales, was the wedding photographer.



If you read my column in the September-October issue, page 8, you know I've experienced a lot of change lately: I got engaged to a man I met through one of my high-school friends, moved from Chicago to rural Iowa (my home state), merged the households of two thirty-somethings, planned a wedding and now I'm married. If you had told me two years ago my world would change this dramatically, I would've scoffed. But that's the beauty of life: You never know what exciting adventure could be around the next corner.

I can't help but see the relation to giving a building a new, unexpected chapter in its life. As Contributor Melissa Martyr points out in "Transformation", page 48, designers must be thoughtful about their decisions to ensure a building retrofit can be successful. Often, that means taking cues from the existing building itself. In the case of a new Anthropologie store in Toronto, the vintage-inspired brand found the perfect home in an abandoned church. "With the old church, for example, exposed brick walls and historic fireplaces provide domestic backdrops for the Anthropologie HomeGoods merchandise selections that tend to include handcrafted, vintage or antique items," Martyr describes.

Sometimes change can create many challenges. Our cover story, page 22, expertly written by KJ Fields, a regular *retrofit* contributor, describes structural issues the design and construction team encountered while transforming a triangular building with 26.5 million cubic feet of enclosed volume into a Bass Pro Shops flagship store. The downtown Memphis location, along the Mississippi River, created seismic risks but the team found creative solutions, not only for the structure, but also for the interior, which lured more than 1 million visitors in the first 70 days it was open.

Changing a building—just like changing your life—isn't always going to be easy but, I think, with careful choices, success can be achieved. Like the designers in these stories, I think the choices I've made during my life have helped ease the transitions created by my

new, unexpected chapter. During my 14 years in Chicago, I maintained relationships with my high-school friends who remained in my hometown area, which not only led me to my husband, but also ensured I'd have friends when I moved back. Twelve years ago, I accepted a job offer from people who were willing to invest in me for the long term—John and Becky Riestler and Barrett Hahn. If I hadn't been lucky enough to meet them, I may not have been able to take my career with me to Iowa. And, of course, I made a great choice in husbands; he has made my life better in every way!

*Christina Koch*

**CHRISTINA KOCH**  
Editor in Chief

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## CONTRIBUTING WRITERS



**Daniel Knight**, an associate at Anderson Jones PLLC, Raleigh, N.C., practices general civil litigation with a focus on construction law, insurance law and collections. He and Katie Dunn, an Anderson Jones summer associate, write in "Business", page 16, about how a case involving Uber has states revisiting employee versus independent contractor status. Anderson Jones Attorney Caroline Trautman also contributed to the article.



**KJ Fields**, who writes about design, sustainability and health from Portland, Ore., unravels an intensive adaptive reuse for this issue's cover story, page 22. A 321-foot-tall stainless-steel-clad pyramid designed to attract an NBA team to downtown Memphis has been transformed into one of Bass Pro Shops' flagship stores. Today, it contains 525,000 square feet of retail and hotel space.



**Melissa Martyr** is the director of operations at NewStudio Architecture, White Bear Lake, Minn. In "Transformation", page 48, she writes about a former 19th century brick church in Toronto, which demonstrated its potential to house an Anthropologie store.



**Laura Rambin**, AIA, LEED AP BD+C, is a principal at Studio Bondy Architecture, Oakland, Calif., where she focuses on the design of educational spaces. One of her projects, the rehabilitation of a 1913 temporary parish hall into flexible multipurpose space for a growing school, is illustrated in "Transformation", page 54.



**Jeanine Quaglia** is a principal with Quinn Evans Architects, Detroit, and oversees marketing and communications for the practice. In "Transformation", page 58, she illustrates how historic Knapp's Department Store in Lansing, Mich., was converted into modern offices, retail and restaurant space, as well as 23 loft residences.

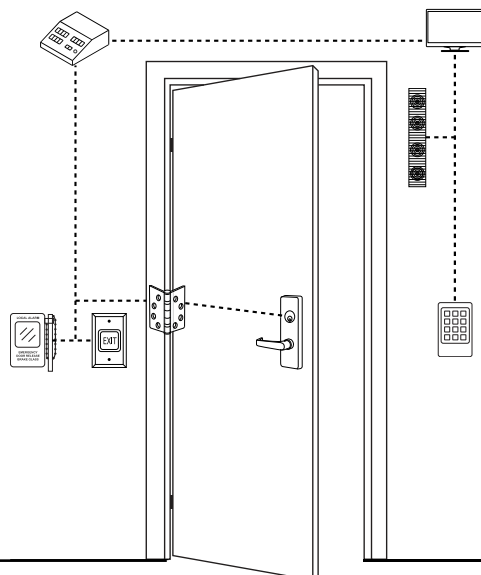
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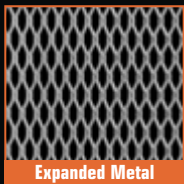


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*Edith Green-Wendell Wyatt Federal Building, Portland, OR*

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## RILA Releases Annual Retail Energy Management Report

The Retail Industry Leaders Association (RILA), Arlington, Va., has released its second Retail Energy Management Report, a resource for companies to compare energy-management programs across the industry and identify opportunities for progress. ¶ The 2015 Retail Energy Management Report was developed under the Retail Energy Management Program, a RILA initiative that focuses on two key opportunities for improving energy performance for retailers: financial management and leased-stores management. The program's goal is to develop leading practice implementation models, educate the industry, and spur adoption of implementation models for financial management and leased-stores management. Earlier this year, RILA received a \$750,000 grant from the Washington, D.C.-based U.S. Department of Energy for expansion of its financial management program focus area. ¶ The information in the report

was gathered from a 62-question survey of 47 national retail companies about their energy teams, budget and operations. RILA used this information to measure the maturity of respondents' retail-management programs against 23 energy dimensions, as identified in RILA's Energy Management Maturity Matrix. From the results of the survey, RILA identified four notable trends: ❶ Programs continue to improve. Even for the activities where retailers are the most mature, continued improvement in the coming years remains a goal. ❷ Energy managers understand the importance of maintaining relationships with internal and external stakeholders for effectively managing energy consumption. ❸ Retail energy-management programs can yield the most results by prioritizing and aligning energy goals with other company priorities. ❹ For each dimension, there is at least one retailer at a "leading" maturity level ¶ This year and last year's Retail Energy Management Report can be downloaded at [www.rila.org/energy](http://www.rila.org/energy).

## MANUFACTURERS IN BETTER BUILDINGS, BETTER PLANTS PROGRAM SAVE MORE THAN \$2 MILLION IN ENERGY COSTS

The U.S. Department of Energy, Washington, D.C., has announced that manufacturers in its Better Buildings, Better Plants Program (Better Plants) have racked up an estimated \$2.4 billion in cumulative energy-cost savings during the last five years. Across America, manufacturers spend more than \$200 billion each year to power their plants. As part of the Obama Administration's efforts to double energy productivity, American manufacturers and water and wastewater-treatment agencies made a voluntary commitment to improve energy intensity by about 25 percent over 10 years or an equally ambitious level for their sector through the Better Plants program. In fact, nine partners have met their energy-efficiency targets this year. They include:

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During the last year, 21 new industrial partners joined the Better Plants program, including 12 water and wastewater-treatment agencies—part of a strategic expansion to increase energy efficiency across the nation's water infrastructure. Close to 160 industrial organizations representing more than 2,400 facilities are partnering with the Energy Department through Better Plants. Together, these partners consume about 2.2 quadrillion Btus of energy, which is approximately 11.4 percent of the U.S. manufacturing sector's total use, or about the same as the state of Tennessee's annual energy consumption.

"When companies save energy, they also save money and reduce harmful carbon pollution," says Secretary of Energy Ernest Moniz. "This is especially true in the manufacturing sector, where energy costs are often a significant contributor to total operating costs. Manufacturers participating in the Better Plants program, including our new partners in the water and wastewater-treatment sector, are leading the way in showing how energy efficiency is a smart business strategy, as well as a smart conservation strategy that will help to protect our environment for future generations."

The plants' accomplishments are summarized in the Energy Department's Fall 2015 Better Plants Progress Update at [1.usa.gov/1Mbshsn](http://1.usa.gov/1Mbshsn).



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# EMPLOYMENT MISCLASSIFICATION

WRITTEN BY | DANIEL KNIGHT AND KATIE DUNN



## A CASE INVOLVING UBER HAS STATES REVISITING EMPLOYEE VERSUS INDEPENDENT CONTRACTOR STATUS

# W

hen it comes to employment misclassification, no industry is safe. Employee misclassification occurs when an employer improperly classifies a worker as an independent contractor rather than as an employee. Misclassification can be intentional and unintentional and it generally results in avoidance of employment taxes and other potential liabilities.

While misclassification is prevalent in the construction industry, the issue recently resurfaced in a case involving San Francisco-based Uber Technologies Inc., the increasingly popular transportation network company wherein drivers use their own personal vehicles to transport customers to and from their destinations. Uber drivers and customers use a mobile-phone application that allows drivers to indicate whether they are accepting rides and allows customers to locate drivers and pay their respective fares. Uber has always classified its drivers as independent contractors.

In a recent hearing, the California Labor Commission challenged Uber's classification of its drivers and reviewed whether Uber drivers were actually employees. Uber looked to the drivers' exclusive control over their schedules and which ride requests to accept to support their contention the drivers were independent contractors. To Uber's dismay, the commission ruled Uber drivers were, in fact, employees, entitling them to various benefits, including health insurance, unemployment benefits and workers' compensation. As a result, Uber also was forced to cover certain business expenses, including toll reimbursements and mileage. Of the labor commissions addressing the Uber issue, the California Labor Commission's decision directly conflicts with rulings in five other states: Colorado, Georgia, Illinois, Pennsylvania and Texas. All of these states' commissions held that Uber drivers were independent contractors.

As employee misclassification gains more visibility, more states are reevaluating how to properly classify workers. The North Carolina General Assembly, for example, is attempting to pass a law that would expressly

*(continues on page 18)*



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define the factors that would determine whether a worker is an employee or independent contractor. A few of the factors being considered by the North Carolina Legislature in House Bill 482 ([bit.ly/19MxACB](http://bit.ly/19MxACB)) include:

- Whether the individual is engaged in an independent business, calling or occupation.
- Whether the individual is paid a fixed price, a lump sum or upon a quantitative basis for the work performed.
- Whether the individual is not subject to discharge because he or she adopts one method of doing the work rather than another.

and enable them to reclassify their workers to their correct designation.

Other states, like Texas, who have already enacted a similar law, are successfully discovering and reclassifying misclassified employees. In 2013, the Texas Labor Commission conducted 6,158 audits—752 of which were in the construction industry. Of the 752 businesses, 37.6 percent were found to have at least one misclassified employee. A total of 3,638 employees—an average of about 16 per business—were misclassified as independent contractors. (Learn more at [bit.ly/1KSJ6Kz](http://bit.ly/1KSJ6Kz).) The construction

released to the McClatchy investigators and revealed employee misclassification was rampant throughout the construction industry.

The series revealed, among other findings, that employers in North Carolina and Texas with government contracts, which general contractors accepted on the condition they would adhere to all government laws and ensure all their subcontractors would do the same, were misclassifying employees 35.2 and 37.7 percent of the time, respectively. Additionally, Florida, where, like North Carolina and Texas, the construction workforce includes a higher-than-average concentration of immigrant workers, also experienced misclassification of 15.5 percent of workers.

The McClatchy investigation estimated misclassification resulted in \$467 million per year to North Carolina and \$1.2 billion per year in Texas of lost tax revenue from employers and workers failing to pay employment-related taxes. Not only did employers fail to withhold mandated taxes, such as social security and unemployment taxes, but North Carolina independent contractors who attempted to comply with tax law underreported their income by 56 percent to the state and federal governments. In addition to abusing the tax system, the practice has made it more difficult for smaller, law-abiding employers to compete with employers who are strategically undercutting the competition, placing lower bids made possible by the illegal tax benefit of misclassifying employees.

Though not currently being  
*(continues on page 20)*



## THE CONSTRUCTION INDUSTRY HAD ONE OF THE HIGHEST PERCENTAGES OF MISCLASSIFIED EMPLOYEES AMONG ALL INDUSTRIES.

→ Whether the individual is free to hire assistants as he or she may think necessary and whether the individual has full control over such assistants.

→ Whether the individual selects his or her own time.

In addition to the much-needed clarification, the bill also proposes a penalty provision, where repeated intentional misclassifications by employers of their employees as independent contractors will trigger a \$1,000 per employee liability. The bill would also create a five-member investigatory team and an amnesty period that would provide an opportunity for employers to self-report their current misclassifications. The “temporary amnesty program” will provide misclassifying employers with immunity from civil penalty

industry had one of the highest percentages of misclassified employees among all industries.

An investigative series, “Contract to Cheat,” published in a number of Sacramento, Calif.-based The McClatchy Co.’s newspapers in 2014, revealed just how prevalent the misclassification issue is in the construction industry in high-development areas, such as North Carolina and Texas. (Read the series at [bit.ly/1MaU9BF](http://bit.ly/1MaU9BF).) The series resulted from a year-long investigation into U.S. Housing and Urban Development, Washington, D.C., and other government projects that were completed during the government stimulus era of 2009-13. Payroll records of 64 HUD projects with budgets of more than \$1 million were

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# CANADA HAS EMPLOYED THE USE OF A THIRD, INTERMEDIATE CATEGORY: THE DEPENDENT CONTRACTOR, A HYBRID CLASSIFICATION THAT INCLUDES BENEFITS OF THE INDEPENDENT CONTRACTOR AND EMPLOYEE CLASSIFICATIONS.


considered by state legislatures, the opportunity to create a third classification may present itself in the future. Canada has employed the use of a third, intermediate category: the dependent contractor, which is technically a subset of the independent contractor classification. The dependent contractor is a hybrid classification that includes benefits of the independent contractor and employee classifications. Dependent contractors enjoy some of the protections provided to an employee, such

as health insurance, severance protections, unemployment benefits, and workers' compensation, but they still enjoy the flexibility of schedule and control otherwise held by independent contractors.

In Canada, the classification hinges upon the number of clients the contractor has. A dependent contractor—like many contract construction workers—has only one client and depends on that client for income and sustenance of their business. A contractor with more than one client is

an independent contractor because they are not exclusively dependent upon any one client. Were a state to create a dependent contractor classification, legislators would then be tasked with determining which select employee benefits employers would be required to provide dependent contractors versus fulltime employees.

Although Uber is appealing the California Labor Commission's decision, the commission's ruling is important because it has sparked a renewed discussion of employee misclassification across not only the transportation services field, but also in the construction industry, where, as discussed above, it has long been an important issue.

As more states review employee misclassification, it is imperative employers, employees, and contractors alike be aware of any changes to state and federal employment laws. While employers are frequent targets of employee misclassification enforcement efforts, "independent contractors" may also be held liable, especially when they willfully comply with intentional misclassification. An employer should never assume that paying a worker by the hour, or any one of the other factors set forth above, guarantees the worker should be classified as one classification or another. If you are concerned about your business's employment practices, consult an employment law attorney in your area who can best advise you on your state's employment laws. 

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[COVER STORY]

# UNCOMMON ANGLE

PHOTOS: D. T. MARSHALL ARCHITECTS

An Adaptive Reuse Transforms an Iconic  
Pyramid into one of the World's Largest Stores



**F**ishermen come to the water with a sense of anticipation, some well-honed patience and an appetite for chance. These same qualities well served representatives from the city of Memphis, Tenn., and founder of Bass Pro Shops John Morris when they set out to create an experience like no other inside the Memphis Pyramid.

Originally erected in 1990 as a 20,000-seat sports arena, the 321-foot-tall stainless-steel-clad pyramid presides over the Mississippi River shore and downtown Memphis. “It was constructed to attract an NBA team,” says Wain Gaskins, associate at Memphis-based Kimley-Horn and former city engineer for the city of Memphis. “The Grizzlies agreed to relocate to Memphis in 2001 but they wanted a more modern sports facility. By 2004, the Grizzlies had moved into the new FedEx Forum and the pyramid was empty.”

Adaptive reuse of a triangular building with 26.5 million cubic feet of enclosed volume posed a conundrum. For two years, the city aggressively sought renovation opportunities. “People came to us with a lot of ideas but no one had any money,” says former Memphis City Councilman Tom Marshall, now principal of O.T. Marshall Architects, Memphis. “The city was very fortunate to eventually catch Morris’s eye. He’s an incredible visionary and saw the potential to turn the pyramid into a Bass Pro Shops flagship store.”

In 2010, a few years after Marshall retired from the Memphis City Council, Morris made a commitment to lease the 32-story space, and the city assigned O.T. Marshall Architects to design the pyramid’s renovation. Marshall brought Gaskins and Kimley-Horn onto the project to conduct civil engineering design.

## High Adventure

The destination retail experience of Bass Pro Shops at the Pyramid mixes theme-park elements with recreational amenities and shopping. The one-of-a-kind hybrid contains 525,000 square feet of retail and hotel space. There’s a swamp on the base level where 100-foot-tall, high-density-foam cypress trees tower into the pyramid above water marked by bridges, wharfs and working boats. The Ducks Unlimited Waterfowling Heritage Center includes a live duck aviary. On the second and third floors, a 103-room hotel furnished in rustic décor circumscribes the retail shops. Although there are no guestroom windows to the outside, balconies set in the vast interior perch over the swamp and peer into the trees.

Sports enthusiasts may perfect their aim in the building’s live-fire pistol or archery ranges while those who prefer leisure activities can head into the Fishbowl—a 13-lane bowling alley adjacent to one of the building’s two huge aquarium tanks so it appears to be underwater. Outside the bowling alley, a 3-story waterfall cascades down into the 50,000-gallon aquarium. “You achieve an ‘aha’ moment at every turn and twist in the building,” Marshall says. “There’s so much to see and do—it’s all about the thrill here.”

The space also contains two restaurants and a glass-floor observation deck at the pyramid’s 25th-floor pinnacle.

### >> Retrofit Team

**ARCHITECT //** O. T. Marshall Architects, Memphis, Tenn., (901) 791-0115

**CIVIL ENGINEER //** Kimley-Horn, Memphis, [www.kimley-horn.com](http://www.kimley-horn.com)

ORIGINALLY ERECTED IN 1990 AS A 20,000-SEAT SPORTS ARENA, THE 321-FOOT-TALL STAINLESS-STEEL-CLAD PYRAMID TODAY IS A BASS PRO SHOPS FLAGSHIP STORE.



Nearly 600,000 gallons of water fills the swamp and aquariums, creating a home for 1,800 fish of 36 varieties.

Making the building tenant-ready for the massive undertaking required a \$57 million investment on the city's part. To fund it, the city sold bonds that it will repay through the state's Tourist Development Zone. "The state allocates a 9.25-cent sales tax for every dollar spent in specific public-use facilities," Marshall says. "The Bass Pro Shops at the Pyramid qualified, so the state will rebate approximately 7 cents of the sales tax back to the city."

### Slippery Slope

Built before discoveries about potential activity in the New Madrid Seismic Zone and its fault line just 90 miles away altered building codes, the original structure did not have lateral-force resistance. The 450-foot-wide pyramid sits at a bend in the Mississippi River, and geological samples revealed a difference in soil stabilization between the building's western river side and the sturdier clay at the eastern portion of the site. The team realized seismically reinforcing the building by tying it down with pilings might lead to a 144-inch lateral soils displacement. If the western edge sloughed off into the river while the eastern side remained stable, it could result in a potential collapse.

"We had to come up with a sophisticated plan for seismic resistance," Marshall recalls. "We needed to make the steel building pliable, so it could achieve global displace-

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“It was so interesting to go from solving truly technical equations in relation to flooding concerns and seismic reinforcement in one moment to this very artistic endeavor in the next. Art and science married together at each step of the project.”

—Tom Marshall, principal,  
O. T. Marshall Architects

“There’s so much to see and do  
—it’s all about the thrill here.”

—Tom Marshall, principal,  
O. T. Marshall Architects

ment. Basically, the entire building needs to move in unison and remain within its elastic range if the ground starts shaking.”

The solution required below-grade and above-ground reinforcement. First, the team built a subterranean barrier wall between the pyramid’s western façade and the river. Approximately 500-foot long and 90-foot deep, the wall was constructed of reinforced zip sheet piles interlaced together.

The pyramid’s structure was made from four box frames that leaned in toward the center without any depth of support. The team added six pilings at the base of each box frame to prevent the frames from failing during a seismic event. To add ductility to the primary and secondary members (in a pyramid, the roof and walls are one and the same), the team added steel gusset plates to the thousands of welded connections to provide movement and elasticity.

The pyramid’s low elevation sits behind the concrete Mississippi flood-protection wall. When it was a basketball arena, the main entrance was located on a mezzanine level. As part of Bass Pro Shops’ conversion, the entrance was lowered to the ground floor. “The building was already at a low elevation and we were bringing the entrance down 12 to 15 feet,” Gaskins notes. “To minimize the potential for flooding, we needed to be sure that all the water that fell on the building’s 200,000 square feet of surface area was directed away from the building. During the seismic improvements, portions of the drainage system were taken out of service, so we needed to account for that, too.”

Concrete skirt partitions were added around the building, except at the north and south entrances and loading docks. The tremendous spaces beneath the skirts accommodate the mechanical equipment and other equipment needed for the restaurants, hotel and conservation areas.





The city created the **glass-enclosed elevator** to the observation deck without guide wires to support it. It is the largest freestanding unilaterally supported elevator structure in the world.



In each of the four quadrants, the team installed sump pumps into the drainage system as a precaution in case any water collected under the skirts. "There's a very large pump station near the Pyramid, so we could channel the water underground and direct it into existing pipes of the pump station. This was really fortunate because we wanted to minimize excavation onsite," Gaskins adds.

To complicate matters further, the Tennessee Department of Transportation

(TDOT) had been working on a seismic retrofit of the I-40 interchange for years. The tangle of ramps is immediately south of the project, and the pyramid's site offered the only construction staging available for TDOT's work. "Existing site conditions were constantly changing due to the retrofit of ramps," Gaskins says. "Between our contractors and TDOT's staff and contractors, it was the utmost team effort possible. We all made adjustments to minimize our impacts on each other's work."

*(continues on page 28)*

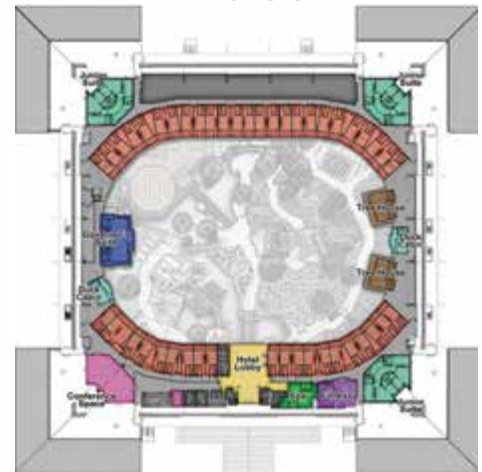
First Level



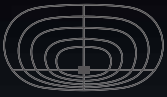
Second Level



Third Level



Bass Pro Shops at the Pyramid mixes theme-park elements with recreational amenities and shopping. The one-of-a-kind hybrid contains 525,000 square feet of retail and hotel space.



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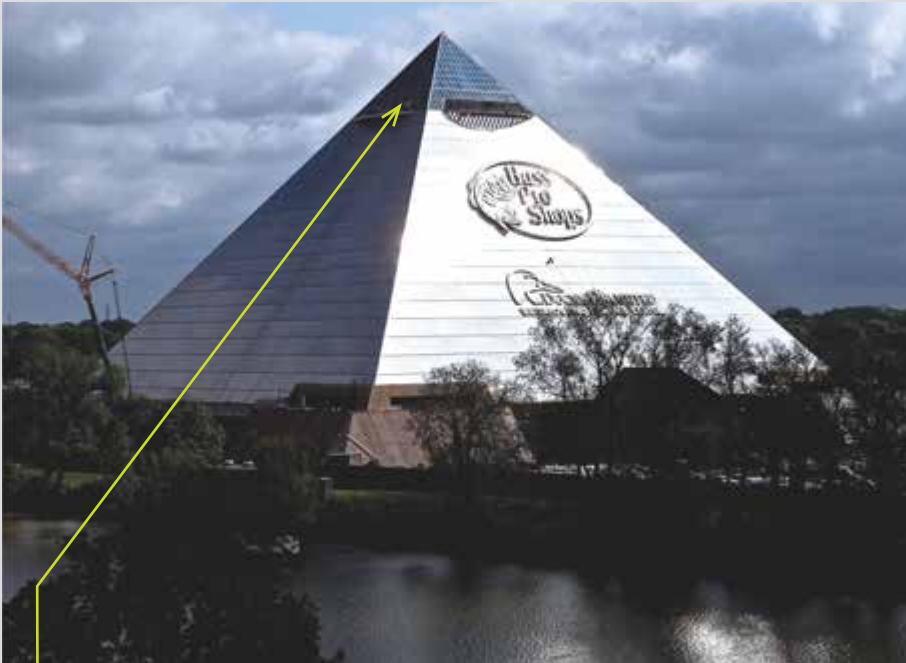
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## Float to the Top

The pyramid had been built with a glass observation deck but no inclinator was added, making it accessible only by a 435-stair climb on one of two stairways. O. T. Marshall Architects knew it was an unrealized opportunity for the citizens of Memphis. Initially, however, Morris wasn't interested.

"John [Morris] is a very hands-on person—he's the most interactive client I've ever had," Marshall says. "Every time he came to the site, he added something to the project. I knew if I could show him what that observation deck could be like, he'd change his mind."

On a day when they knew Morris would be visiting, Marshall and onsite Project Manager Alan Barner hauled a team with cleaning supplies to the observation deck and made the place sparkle. After experiencing the expansive 360-degree views above the Mississippi River and downtown, Morris was hooked.

The city created the glass-enclosed elevator to the observation deck without

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guide wires to support it. It is the largest freestanding unilaterally supported elevator structure in the world. The elevator tower also provides structural support for a 13-foot-tall, 10,000-gallon aquarium that Morris wanted on the top floor. "We designed it as a cylinder so it's an aquarium in the round," Marshall says. "It was so interesting to go from solving truly technical equations in relation to flooding concerns and seismic reinforcement in one moment to this very artistic endeavor in the next. Art and science married together at each step of the project."

Although the project was years in the making and required enormous risk from all parties, the sweeping success of Bass Pro Shops at the Pyramid surpassed everyone's expectations. The project has been a big lure for the public, logging over 1 million visitors in the first 70 days. The plan was to pay off the \$57 million in bonds in 20 years but it now appears the city may be able to amortize them in half that time. 

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## BAILEY'S FINE JEWELRY | Raleigh, N.C.

### » Retrofit Team

MASONRY CONTRACTOR: Custom Brick and Supply Co., Raleigh, [custombrick.com](http://custombrick.com)  
 GENERAL CONTRACTOR: Barnhill Contracting Co., Rocky Mount, N.C., [www.barnhillcontracting.com](http://www.barnhillcontracting.com)

### » Materials

The building's existing stucco façade was removed and the exterior was reframed to include an air and water cavity, protecting the structure from extreme weather conditions. Thin masonry units with tight dimensional tolerances, high strength, high density and low water absorption were installed. The stone, which breathes and ages naturally, can be cut, chiseled, dressed and more onsite.

MASONRY UNITS: 3/4-inch Renaissance ARRIS tile Thin-Clad in a limestone color from Arriscraft, [www.arriscraft.com/us](http://www.arriscraft.com/us)

### » The Retrofit

Serving eastern North Carolina since 1948, Bailey's Fine Jewelry is a family-owned and -operated jewelry store with locations in Greenville, Rocky Mount, Fayetteville and Raleigh. Known throughout the state for its commitment to quality, customer service and product innovation, the firm has strategically upgraded its various locations on a regular basis. After months of renovation, Bailey's 11,000-square-foot Cameron Village flagship location became the largest jewelry store in North Carolina.

The shopping center plaza was built in the late '70s with a focus "to be unlike cookie-cutter malls". The initial design included tree-lined walkways, one-of-a-kind shops and restaurants/cafés that welcomed people to a unique shopping experience. Ultimately, time took its toll.

"This job took roughly four months," says Ben Aiken, cast stone manager for Custom Brick and Supply. "It was truly a unique project consisting of just under 1,500 square feet of highly detailed work. Right from the start, it was evident this was a highly professional undertaking, as all involved were 100 percent invested in partnering together to achieve an outcome with optimal results."

The grand reopening took place in late 2014 with the largest diamond show in Bailey's history. "We've been growing rapidly, and the renovations really allow us to show all of our expanded collections, as well as introduce some new designers," states Clyde Bailey, president and owner of Bailey's Fine Jewelry.



PHOTOS: ARRIS-CRAFT





## TANGER OUTLET CENTER | Washington, D.C.

### » Retrofit Team

ARCHITECT: Adams + Associates Architecture, Mooresville, N.C., [adamsassociatesarch.com](http://adamsassociatesarch.com)

### » Materials

For the open-air shopping center to maintain steady year-round retail traffic, project architects needed to provide shoppers with protection from the East Coast elements. After looking at multiple options, they specified six open-air ridge skylights, enclosing the shopping space with more than 63,000 square feet of Pentaglas glazing.

“We selected CPI because of its single-source system and warranty; large panel sizes, which eliminated the need for transverse connections; panel strength; UV protection; and unobtrusive connection using their fastening system,” explains Lynn Carney, AIA, LEED AP BD+C, project manager/architect with Adams + Associates Architecture.

The 100 percent recyclable panels feature Nano-Cell technology,

which promotes long-term resistance to impact and wind loading. They also are made with internal flexibility to absorb thermal expansion in all directions.

GLAZING MANUFACTURER: CPI Daylighting, [www.cpidaylighting.com](http://www.cpidaylighting.com)

### » The Retrofit

More than one year since the Tanger Outlet Center installation, Carney and her team say the “quality, durability and aesthetics” of the long-spanning Pentaglas panels have helped achieved their design objectives. “The CPI galleries have held up very nicely; the shoppers love it and the owners are quite pleased,” she says. “In fact, the owners have contacted me for production information from this project to use on other centers, as well.”

## 2040 MARKET STREET | Philadelphia

### » Retrofit Team

ARCHITECT: Varenhorst, Philadelphia,

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

FABRICATOR: Universe Cladding Solutions, Bridgeton, Mo., [www.universecorp.com](http://www.universecorp.com)

INSTALLER: Fast Track Construction, Fort Washington, Pa., [fstrack.com](http://fstrack.com)

### » Materials

For an architect working on a project that meshes an existing building with new construction, finding the right exterior cladding product to visually connect the two structures can be a challenge. Meteon panels were selected for the building's façade, blending the old building with the new structure to create one seamless, modern look. The design flexibility and low maintenance of the panels made them an appealing choice for Varenhorst because the building is located in an urban setting with heavy exposure to vehicle and foot traffic.

"The cladding panels did a great job of seamlessly unifying the appearance of the renovated existing building with the new building expansion, more than doubling the original building's size," explains Neil Garrioch, studio director for Varenhorst.

Three custom colors were used to enhance the building's curb appeal and make it a unique property within the landscape of downtown Philadelphia. Garrioch says the panels had just the right amount of reflectivity and responsiveness to the natural light conditions to create a welcoming effect for the building. In fact, he adds, the panel installation created such a buzz the building owner was able to fully lease the building before construction was even finished.

PANEL MANUFACTURER: Trespa North America Ltd., [www.trespa.com/tdc](http://www.trespa.com/tdc)

### » The Retrofit

Although the former headquarters of AAA Mid-Atlantic (the old part of the building) had an iconic look in the early 1960s, by today's design standards the building looked tired and needed a fresh, contemporary skin. Transformed into a stunning, mixed-use, multi-family complex, the space today is highly sought with its sleek, contemporary design and central location within the city.

The building, which contains 282 units and 14,000 square feet of first-floor retail space, includes a community roof deck, fitness center and hotel-style lobby.



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PHOTO: TECTUM INC.

## THE OLD BAKERY BEER CO. | Alton, Ill.

### » Retrofit Team

ACOUSTICAL ENGINEER: Pearl Pro Audio, Godfrey, Ill., [www.facebook.com/Pearlproaudio](http://www.facebook.com/Pearlproaudio)

### » Materials

The glazed white brick and high ceilings throughout the structure are charming but when combined with concrete floors and ceilings, cavernous spaces and traffic noise from a busy nearby freeway, they created a serious problem for the brewery's owners. It was critical to the business plan that patrons, employees and performers be heard and understood, but it could be difficult for just two people standing in the raw space to have a conversation.

The plan for the large space called for three distinct areas, two of which would need to include a good sound system and speech intelligibility. The 10,000-square-foot brewery area with eight stainless-steel brewing vats would add to the hard surfaces and acoustic challenges but would not be part of the entertainment zone.

"There were a few options for wall and

ceiling panels that could have provided the acoustic dampening needed and we reviewed these with the owners," explains Don Lanier, acoustical engineer with Pearl Pro Audio. "But for the acoustic performance combined with environmental credentials, nothing really compared to 2-inch Finalé panels."

The panels' substrate is FSC-certified, manufactured from aspen trees that are self-propagating and the SoniCor infill is made of recycled materials. The aesthetics also fit the look of the refurbished industrial space. Installed on the walls, ceilings and as clouds in roughly 8,000 square feet of pub and restaurant space, the 3,100 square feet of panels create the acoustic conditions necessary. "I was able to create a suitable robust sound system for the space on a reasonable budget because we'd taken the time and effort to fix the acoustics first," Lanier adds.

ACOUSTIC PANEL MANUFACTURER: Tectum Inc., [tectum.com](http://tectum.com)

AMPLIFIERS: Crown Harman, [www.crownaudio.com](http://www.crownaudio.com)

MIXER/AMPLIFIER AND LOUDSPEAKERS: Peavey Commercial Audio, [www.peaveycommercialaudio.com](http://www.peaveycommercialaudio.com)

### » The Retrofit

The materials, workmanship, scale and heritage of old industrial buildings from the late 1800s and early 1900s can't be duplicated. The owners and founders of The Old Bakery Beer Co., James Rogalsky and Lauren Pattan, prioritized sustainability for all their operations. "As an organic brewer, we believe that our environmental impact is rightfully a part of every decision we make," Rogalsky says.

The owners were very happy with the outcome of the acoustic panel application and have had many compliments on the treated space still retaining its live feel yet letting conversations remain quiet while intelligibility is high. "We've been really happy with the results," Pattan, who manages the brewery's front-of-house activities, notes. "We have many loyal, happy customers and that really is the goal."

## ONE CANALSIDE | Buffalo, N.Y

### » Retrofit Team

OWNER/DEVELOPER: Benderson Development, University Park, Fla., [www.benderson.com](http://www.benderson.com)

ARCHITECT: Fontanese Folts Aubrecht Ernst Architects P.C., Orchard Park, N.Y., [www.ffae.biz](http://www.ffae.biz)

GENERAL CONTRACTOR: Clark Construction Group LLC, Bethesda, Md., [www.clarkconstruction.com](http://www.clarkconstruction.com)

INDEPENDENT GUARDIAN SELECT

FABRICATOR: United Plate Glass, Butler, Pa., [unitedplateglass.com](http://unitedplateglass.com)

### » Materials

Design guidelines required glass for the first two stories of retail. Tinted or reflective glass was not permitted. A high-performance curtainwall system was required to meet the prescribed design and energy standards. To address noise from a nearby elevated interstate and multi-modal facility where light rail, passenger and freight railways converge, SunGuard SNR 43 triple-glazed units were used for the office space on the upper four floors and for the hotel's lower floors. The high-performing acoustic glazing system was designed to keep the noise out and provide a comfortable workspace and respite for guests.

"The glass system gave us a minimum

40-decibel reduction in sound from the plus 80-decibel average noise level outside the building," says Philip S. DiNicola, R.A., principal at Fontanese Folts Aubrecht Ernst.

In a 1-inch double-glazed (1/2-inch air gap) system, SunGuard SNR 43 was used for the vision units on the retail spaces on the first floor while 1-inch insulating units with a 1/4-inch warm gray ceramic frit were installed at the spandrel locations in the curtainwall portions.

SunGuard SNR 43 glass is designed to take advantage of the local climate to reduce cooling and heating needs while letting in abundant natural light. With a low solar heat gain coefficient of 0.23 and neutral appearance, SunGuard SNR 43 glass helps architects Build With Light and achieve energy savings.

"There is an abundance of natural light in our offices," notes Becky Farbo, chief marketing officer for Phillips Lytle LLP, the law firm occupying the top four floors of One Canalside. "We know that environments with more daylight can improve morale and well-being, as well as realize energy efficiency."

GLASS MANUFACTURER: Guardian Industries Corp., [www.guardian.com](http://www.guardian.com)

### » The Retrofit

Once a thriving business center along the Erie Canal, the William J. Donovan State Office Building became dormant in 2007. Fontanese Folts Aubrecht Ernst Architects was charged with rebuilding the facility, renamed One Canalside, into a mixed-use structure. Despite the structure's good foundation, the existing building would not meet the design and performance goals set by the owner and building team, so the building was stripped to its core before being transformed into a hotel, office and retail space.

"To meet performance and energy standards, the building essentially needed to be skinned entirely and refitted," DiNicola says. "That meant doing away with a curtainwall system that was outdated, inefficient and dilapidated." Reduced to its core, the existing envelope was removed from the original building, along with any non-permanent structure elements. Those involved in the project salvaged as much of the building as possible.

One Canalside was built with the goal of achieving LEED Silver certification. Building materials were required to help reduce energy consumption and operating costs while taking advantage of the local climate.



PHOTOS: COURTESY OF ERIE CANAL HARBOR DEVELOPMENT CORP.

## LINCOLN PARK CENTRE | Chicago

### »» Retrofit Team

PANEL FABRICATOR: Sobotec Ltd., Hamilton, Ontario, Canada, [sobotec.com](http://sobotec.com)

PANEL INSTALLER: Architectural Panel Systems Inc., Naperville, Ill., [www.architecturalpanelsystems.com](http://www.architecturalpanelsystems.com)

GENERAL CONTRACTOR: Ernie Loberg Construction, Rolling Meadows, Ill., [www.lobergconstruction.com](http://www.lobergconstruction.com)

ARCHITECT: Weiss Architects LLC, Chicago, [www.weissarch.com](http://www.weissarch.com)

DESIGN SCHEMATICS: Sayigh + Duman Architects, New York, [sayighduman.com](http://sayighduman.com)

### »» Materials

The renovated façade was clad in a combination of uniquely ribbed-and-curved aluminum composite material (ACM) wall-panel sections, U-shaped ACM panels and rectangular zinc panels. It includes 9,652 square feet of 4mm Alucobond Plus naturAL ACM in the Brushed Stainless finish. The panels were installed utilizing Sobotec's SL-2000 Dry Joint Rainscreen System.

Alucobond, which consists of 0.020-inch aluminum thermobonded to a plastic core, provides flatness and rigidity, formability, low weight and weather resistance. Alucobond naturAL panels feature textured aluminum surfaces that amplify the natural character of aluminum. Alucobond Plus wall panels have a flame-spread index of less than 25 and a smoke-developed index of less than 450 when tested in accordance with ASTM E 84. They also have a Class A interior finish classification.

The radius of this building's profile was its "key feature," according to Vlad Sobot, president, Sobotec. Sobotec fabricated approximately 1,400 Alucobond ribs—curved or flat—that were shop-installed with concealed fasteners into 200 wall panel sections averaging 4- by 8-feet. Additionally, Sobotec fabricated 24 U-shaped 4- by 5-foot Alucobond panels for installation around first- and second-story windows on the retail center's space.

"These wall sections were easy to install in the field with hidden fasteners," Sobot says. "We've completed many projects in this manner. By assembling these panel sections in the shop, labor costs are reduced because labor is much more expensive in the field. The controlled shop environment also allows us to match all of the ribs from one panel section to the next."

ACM PANEL MANUFACTURER: 3A Composites USA, [www.AlucobondUSA.com](http://www.AlucobondUSA.com)

### »» The Retrofit

The 61,000-square-foot shopping center, located at the highly trafficked intersection of North and Clybourn avenues on Chicago's north side, has undergone the kind of major changes in just a few short years that have made it a real-estate-investment company's dream venture.

When White Plains, N.Y.-based Acadia Realty Trust acquired the urban retail property in April 2012 for \$31.5 million, Lincoln Park Centre was suffering from tenant losses, including the shuttering of the Borders Books and Music store that had occupied its 25,000-square-foot anchor space. In January 2015, Acadia announced its sale of Lincoln Park Centre to The Georgetown Co. LLC, New York, for \$64 million—more than double its purchase price.

Key to that investment success was an approximate \$5 million renovation, including an extensive redesign of the shopping center's light-hued brick-and-stone exterior façade with a modern metal look that focused on creating a custom, contemporary image for new tenant Design Within Reach Studio. The home furnishings and decor merchandiser opened in July 2014 in Lincoln Park Centre, occupying the second story of the vacated Borders anchor space.

The successful sale of the shopping center, which now is home to Design Within Reach Studio, Eddie Bauer, and Mitchell Gold + Bob Williams, as well as legacy tenants Sur La Table and Carter's, may be the best endorsement for this renovation project's design.



PHOTOS: PAUL BIASCO



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## HENSVILLE | Toledo, Ohio

### » Retrofit Team

FLOORING INSTALLER: Commercial Flooring Toledo, Toledo, Ohio, cf-toledo.com

### » Materials

The renovation of a 4-story, 24,800-square-foot warehouse brought with it the challenge of a poor subfloor. The construction manager and architect were looking for a more cost-effective flooring solution than tearing it all out and repouring. They found the right product in a synthetic gypsum-based, self-leveling compound. This fiber-reinforced material allows for a smooth and level floor that is poured directly over the existing floor, slashing the amount of demolition waste.

To ensure its product would meet the

client's performance criteria, the manufacturer inserted INSTALL language into the Hensville specification, requiring the installation only be performed by an INSTALL Warranty Contractor. INSTALL, the International Standards and Training Alliance, is an alliance of major flooring manufacturers, contractors, and professional installers across the U.S. and Canada. It consists of a comprehensive training and certification program for its floor-covering installers and a marketing program for its alliance members. For more information about INSTALL, visit [www.installfloors.org](http://www.installfloors.org).

Commercial Flooring Toledo was awarded the bid, having received training directly from the manufacturer through the INSTALL training curriculum. Commercial

Flooring Toledo completed the installation in two weeks. The finished floor will include LVT, carpet tile and ceramic tile.

LEVELING COMPOUND MANUFACTURER: Schönox, [hpsubfloors.com](http://hpsubfloors.com)

### » The Retrofit

Hensville, when completed in spring 2016, will be the result of efforts by the Toledo Mud Hens baseball organization and other community partners to transform the downtown space surrounding Fifth Third Field. Adjacent to the ballpark is a series of abandoned warehouses that are on their way to soon housing retail, corporate and restaurant space, including rooftop decks for Mud Hens' fan.



Before



After

PHOTOS: SCHÖNOX

## HOBIE SURF SHOP | San Clemente, Calif.

### » Retrofit Team

GENERAL CONTRACTOR: Chris McQuaide Construction, San Clemente, (949) 498-2326

### » Materials

About 3,000 square feet of empty storefront space was transformed into an eco-friendly location for Hobie Surf Shop. A combination of LED lighting and 18 290 DS Solatube Daylighting Systems with universal light kits were installed to maintain the business' green concept.

DAYLIGHTING SYSTEMS MANUFACTURER: Solatube International Inc., [www.solatube.com](http://www.solatube.com)

### » The Retrofit

Hobie Surf Shop, purchased by Mark Christy in 1996, became one of Laguna Beach's first businesses certified green by the California Green Business Program. By going green, Hobie Surf Shop is able to save hundreds of dollars a month on utilities at all its locations—Laguna Beach, Dana Point and San Clemente.

The newly retrofitted San Clemente building has been standing on an iconic corner for more than 50 years. It demonstrates how a space can become green while maintaining its unique character.



PHOTO: SOLATUBE INTERNATIONAL INC.

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# SEEK EDUCATION ABOUT INSULATION

Industry Experts Underscore the Benefits of All Types of Insulation When Installed Properly and with the Right Objectives

WRITTEN BY | CHRISTINA KOCH

There is more complexity to insulation than one may first believe. After all, we know what it is, what it does and that our buildings need it. What seems to be less understood is how much insulation buildings need, where insulation should be installed for utmost benefit (inside the building envelope, outside or both) and how it will perform in real-world conditions versus in a laboratory. Needless to say, none of these considerations matter if the chosen insulation type is not installed properly.

As building energy codes continue to elevate energy-efficiency requirements, the insulation industry strives to test products, assist building

*(continues on page 42)*



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PHOTO: HUTCHINSON DESIGN GROUP LTD.



Closed-cell foam insulations, like polyisocyanurate (shown here with organic facers), combine traffic and moisture resistance.

PHOTO: NORTH AMERICAN INSULATION MANUFACTURERS ASSOCIATION



Fiber glass is used in commercial buildings, as well as can be found insulating pipes and ductwork.

PHOTO: RIMA INTERNATIONAL



Reflective insulation, like this white-faced product, also can help illuminate structures.

"There are all these different varieties of insulation for a reason: climate differences and the needs of the building owner can be different. To me, it's like you can go to a doctor or you can self-medicate; I'd still recommend going to the doctor." —Dr. James Hoff, president, Tegnus Research Inc., explaining why he thinks hiring a local consultant is in a building owner's best interest

professionals in choosing and installing insulation materials, and prove their insulation will meet any building requirement. However, the onus still falls on the building owner/property manager to ensure the chosen insulation meets the specific needs of the building. "I think the concepts are more important than the products," says Dr. James Hoff, president of Carmel, Ind.-based Tegnus Research Inc., a consulting firm that focuses on business and technical issues of the building envelope. "There are some larger issues that need to be considered and sometimes very complex reports can be overly simplified to the detriment of the building's owner and occupants."

### Inside the Building Envelope

When one thinks of insulation, the first image that often comes to mind is fiber-glass batts rolled out in an attic or tucked between wall studs. In fact, fiber glass is installed in 90 percent of U.S. homes and maintains a healthy residential market share. It also is used in commercial buildings, as well as can be found insulating pipes and ductwork. The Alexandria, Va.-based North American Insulation Manufacturers Association represents fiber-glass, rock-wool and slag-wool manufacturers and touts these insulations' decades of proven performance, safety, versatility and cost-effectiveness. In addition, many NAIMA member manufacturers have completed Environmental Product Declarations to help consumers and building professionals better understand the materials that make up the insulations and their impact on the environment during their life cycles.

Stacy Fitzgerald-Redd, NAIMA's communications director, notes to remain competitive with newer—and what may seem to be "sexier"—forms of insulation, NAIMA and its members take part in industry studies to emphasize their products' performance benefits. Most recently, "The Thermal Metric Project", which was conducted

by Westford, Mass.-based Building Science Corp., a building science consulting and full-service architecture firm, demonstrated there are no superior insulation products as long as products are properly installed and walls are air sealed. (Learn more about the study at [buildingscience.com/documents/special/thermal-metric](http://buildingscience.com/documents/special/thermal-metric).) "Put simply, R-value is R-value," Fitzgerald-Redd says. "This is a significant finding that helps dispel lots of myths about product performance within the insulation industry. People considering retrofit work need to evaluate cost per R-value based on their need."

Rick Duncan, technical director for the Fairfax, Va.-based Spray Polyurethane Foam Alliance, notes one of spray foam's many benefits is its multipurpose capabilities. "Not only does it provide insulation value, it is a key component of the air-barrier system that seals the building envelope, which the U.S. Department of Energy says can provide anywhere from 20 to 40 percent energy savings in heating and cooling," he says.

In recent years, spray foam's health impacts have come into question. "We were approached by a number of federal agencies, including EPA, OSHA and NIOSH, to address chemical-safety questions agencies had with application of spray-foam products," Duncan explains. As a result, SPFA is working with the industry to develop test criteria for accurately measuring emissions. Duncan adds: "Emissions of installed spray foam have been measured and most products will pass long-term emissions standards for VOCs. However there may be certain airborne chemicals present during and just after the application of spray foam. Specific test methods are being developed to measure the levels of these spray-foam chemical compounds."

In addition, SPFA has published an industry-wide Environmental Product Declaration that is available from UL Environment, Northbrook, Ill. In fact, Duncan often receives questions about the

(continues on page 44)



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PHOTO: METL-SPAN



Custom insulated metal panels cover more than 150,000 square feet of exterior wall surface on Detroit's public safety headquarters.

use of petroleum in spray foam, which has been put into perspective with the EPD. "Our EPD shows that for every unit of energy used to make spray foam, you can save anywhere between 60 and 200 units over the life of the building by the insulation and air sealing spray foam provides," he adds.

### Outside the Building Envelope

Today's energy codes require a level of insulation that is virtually impossible to achieve without a significant amount of insulation put on the exterior of a building as continuous insulation.

"The whole industry is trying to recalibrate as to what the most effective, efficient way of meeting new wall R-value requirements is, and there are a lot of different ways to do it," Dr. Hoff says. "But I also think one of the big challenges—at least in wall system design and construction—is exactly how well insulation is installed and how much that depends on very accurate installation field conditions."

Because there are differences of opinion about application of different types of insulation, Hoff is a proponent of hiring a local consultant

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to oversee design and installation. "There are all these different varieties of insulation for a reason: climate differences and the needs of the building owner can be different," he says. "To me, it's like you can go to a doctor or you can self-medicate; I'd still recommend going to the doctor."

To further his case, Hoff points out the design goals of a building may require different types of insulation. "There are situations where it is important to resist moisture movement within a wall or roof system and other instances when moisture should move through a system," he says. "Roof systems offer another layer of complexity because they also have to resist roof traffic; you don't walk on walls."

Closed-cell foam insulations, like polyisocyanurate and extruded polystyrene, combine traffic and moisture resistance and, consequently, make up more than 80 percent of the total roofing market. In addition, moisture-resistant gypsum products are being used as cover boards to protect the insulation underneath. However, Hoff says, a highly moisture-resistant cover board will not help if it is placed over an insulation susceptible to moisture degradation. "The key issue is making the right decisions about moisture's impact on a building, and there are a lot of different



PHOTO: HUNTER PANELS

insulations that could accomplish that," he notes. To learn more about the effects of moisture and roof traffic on roof insulations, see a new report released by the Bethesda, Md.-based Polyisocyanurate Insulation Manufacturers Association at [bit.ly/1ECdc5l](http://bit.ly/1ECdc5l).

Hoff and PIMA also have been working to mitigate confusion surrounding R-value changes in polyiso insulation. Polyiso's blowing agent, which is a major factor in the insulation's performance, begins to condense as temperatures decrease. At some point, which will vary for different polyiso foam products, this condensation will result in a marginally reduced R-value. As a

This exterior continuous insulation has a coated glass-mat facer that provides thermal and fire performance, as well as resistance to moisture and mold growth.

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"Our EPD shows that for every unit of energy used to make spray foam, you can save anywhere between 60 and 200 units over the life of the building by the insulation and air sealing spray foam provides." —Rick Duncan, technical director, Spray Polyurethane Foam Alliance

PHOTO: SPRAY POLYURETHANE FOAM ALLIANCE



Spray foam provides insulation value and is a key component of the air-barrier system that seals the building envelope.

result, researchers have been studying whether the nominal R-value of polyiso insulation should be reduced in colder climates. Specifically, the Rosemont, Ill.-based National Roofing Contractors Association published an article using a mean reference temperature as low as 20 F to estimate R-values in cold climates.

In response, PIMA's "Thermal Resistance and Mean Temperature: A Report for Building Owners and Design Professionals" ([bit.ly/1OX7sGd](http://bit.ly/1OX7sGd)) concludes that any apparent reduction in polyiso roof insulation thermal value in colder climates is related to the use of an unnecessarily low estimate of "mean reference temperature" to calculate R-values in cold climates. Polyiso roof insulation R-values, when calculated using an adjusted mean reference temperature range indicated by analysis of North American climate data, appear to be higher than the values suggested and do not differ significantly from current PIMA member-published R-values.

"The NRCA recommendations were directionally accurate; they were talking about what is obviously a real phenomenon," Hoff states. "But

that information was, in my opinion, over-leveraged into an extreme situation that would not be suitable for judging the insulation in normal practice. My concern is looking at the extremes of temperature and not average temperatures overestimates the potential for energy savings to the building owner, so the building owner following this may think, 'I'm getting my fair value'. However, he or she may be getting more insulation than expected while not getting the fair return off that insulation."

If you have the luxury of re-cladding your building and are looking for a cladding and insulation product in one, insulated metal panels, or IMPs, may be the answer. Jeff Irwin, president of J.H. Irwin Consulting LLC, Canal Winchester, Ohio, is a 35-year veteran in the metal wall and roof industry, having spent 24 years focused on IMPs. Today, Irwin is director of the Chicago-based Metal Construction Association's IMP Marketing Group, which develops market strategy for MCA's IMP Council members.

"There are still architects that don't know what an IMP is," Irwin says. "IMPs serve the institutional, commercial, industrial, cold-storage and architectural markets within the building products industry. They can be a significant part of a total envelope solution, managing rainwater penetration, controlling air leakage and acting as continuous insulation."

IMPs can be custom-fabricated to meet the goals of a design while integrating with windows, louvers, sunscreens and other accessories. Panels can be fabricated anywhere from 1 1/2-inch thick to 8-inches thick, providing R-values from 10 to 40 without thermal breaks. "Panels feature male-female interlock with a horizontal and vertical joint you can seal. Usually there is a continuous gasket or an insulated vertical joint," Irwin says.

IMPs often can be installed over existing substrates. "An IMP fastens to the structure of the building to control air and water penetration," he adds. In fact, MCA has released a paper, titled "Controlling Air and Rainwater Using Insulated Metal Panel Enclosure Systems". It can be found on MCA's website, [www.metalconstruction.org](http://www.metalconstruction.org),

## ASK THE INSULATION EXPERTS

Interested in locating a member from one of these organizations?

Visit the following websites:

- North American Insulation Manufacturers Association: [bit.ly/1JN7Dpg](http://bit.ly/1JN7Dpg)
- Spray Polyurethane Foam Alliance: [www.sprayfoam.org/membership](http://www.sprayfoam.org/membership)
- Polyisocyanurate Insulation Manufacturers Association: [www.polyiso.org/?page=Members](http://www.polyiso.org/?page=Members)
- Metal Construction Association IMP Members: [bit.ly/1MBcshs](http://bit.ly/1MBcshs)
- RIMA International: [www.rimainternational.org/index.php/members/manufacturers](http://www.rimainternational.org/index.php/members/manufacturers)

under “Technical Resources” and the Insulated Metal Panels dropdown.

## An Additional Layer of Protection

Robert Wadsworth, chair of the PR and Membership Committee for RIMA International, Lenexa, Kan., describes reflective insulations as products that consist of reflective, low-e surfaces on one or both sides of a substrate, which can be a variety of materials, like polyethylene bubble film or foam. “The difference between a reflective insulation and what we consider conventional insulation is that conventional insulation slows heat transfer by resisting its passage through that material, so it doesn’t penetrate into the occupied space of a building that you’re trying to keep conditioned,” Wadsworth explains. “Reflective insulation reflects 95 percent of the heat that strikes it, so most of the heat never gets beyond the reflective surface.”


Wadsworth says there is still confusion in the building industry surrounding reflective products; insulation education has been focused on conductive heat transfer because it’s easy to measure. “With conventional insulation, the rate of heat transfer through the material can be easily measured in a laboratory. From the standpoint of being able to guide consumers, it’s helpful to have a benchmark that can be supported by controlled testing,” he says. “Reflective insulations also have standard test methods to determine their performance in various applications but they’re a little more difficult to understand than just an R-value. That’s because the R-value of a reflective insulation is dependent upon the direction of the heat flow and the size and amount of air spaces facing the reflective surfaces. The R-value for a conventional insulation is essentially the same regardless of the direction of the heat flow.”


As part of its approach to educate the marketplace, RIMA International hosts an “Ask the Expert” area on its website, [www.rimainternational.org/index.php/technical/ask-the-expert](http://www.rimainternational.org/index.php/technical/ask-the-expert).

“People who have questions about reflective insulation or have a special application can ask questions and typically receive a response within 24 hours,” Wadsworth notes. “We’ve been able to save consumers a lot of money and advise them against potentially disastrous applications.”


Although reflective insulations are designed to stop heat transfer, Wadsworth stresses they are not the only insulation material you may need in your structure. “It very much depends on the climate,” he says. “There are winter conditions where other insulation materials are as important as reflective materials. Often combining conventional and reflective insulation in a

building system is the best performance option—but remember to provide an air space facing the reflective surface.”

Based on the information shared by these industry experts, it’s important to complete your due diligence and rely on a knowledgeable local consultant to ensure your next insulation installation meets your building’s specific needs. 





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# A TORONTO CHURCH BUILT IN 1864 IS RECAST TO COMPLEMENT AN ON-TREND MERCHANDISER



PHOTOS: JENNA MARIE WAKANI



PHOTO: ADAM JARVI

WHITE BEAR LAKE, MINN.-BASED NEW STUDIO ARCHITECTURE'S TEAM RECOGNIZED THE CHURCH'S INTERESTING HISTORIC ARCHITECTURE AND KNEW IT WOULD WORK WELL FOR TORONTO'S FOURTH ANTHROPOLOGIE STORE.

# Vintage Inspired

**A**nthropologie, an international clothing and home-décor brand owned by Urban Outfitters (UO), evokes a charming, spirited and fresh personality. NewStudio Architecture, White Bear Lake, Minn., and the UO design team have collaborated for several years to discover opportunities to revitalize and reinvent unusual and often neglected buildings for creating the brand's unique shopping experience. The UO design team shapes the vision and drives the aesthetic elements; NewStudio Architecture implements the concepts in a cost-effective, safe and faithful manner. A former 19th century brick church crowning Toronto's Queen Street West hinted its potential for Anthropologie.

"From the minute we first saw it in September 2013, we all agreed there was interesting historic architecture that would work well for Toronto's fourth Anthropologie store," says Adam Jarvi, AIA, senior associate at NewStudio Architecture and the project lead. "We just weren't sure exactly what we'd find along the way. That's how it always is with these projects."

WRITTEN BY | MELISSA MARTYR



## UNCOVERING THE PAST

Jarvi and Wale Falade, associate architect at NewStudio Architecture, tackled the initial survey of the 13,000-square-foot structural section marked for the new store location. They thought it would take two days like any other survey; it took four lengthy days of intense scrutiny. "We camped out there, checking everything from the basement to the roof—where we discovered one of the best views of Toronto," Jarvi says.

Multiple tenants and purposes over time had reconfigured the structure and produced irregular floor plans and a maze of partial walls. Built in 1864 for the Euclid

Avenue Methodist Church, the building later became home to the United Church of Canada. A major addition in 1904 bricked off many of the original stained-glass windows. Eventually, the worship area was subdivided into two levels of offices with years of vacancies between leases.

"At first, we didn't even see the worship space as a whole. It took some imagination," Falade recalls. Stripping back the layers of construction to reopen the main area again would help rekindle the sense of the building's former glory. "Our intention as designers is to be sensitive about a

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### WHEELCHAIR LIFT // Garaventa Lift,

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

### ANTI-THEFT EQUIPMENT // Checkpoint

Systems Inc., [us.checkpointsystems.com](http://us.checkpointsystems.com)

### SECURITY SYSTEM // Vector Security,

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

### SOUND SYSTEM // PlayNetwork,

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

### RECLAIMED WOOD // Urban Evolutions,

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

### STOREFRONT AND FIXTURES //

C. Chandler Co. Inc.,

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

### CUSTOM DOOR PULLS AND CUSTOM

HARDWARE // IronStudio, [ironstudiolt.com](http://ironstudiolt.com)



THE CHURCH'S ORIGINAL FIREPLACES AND ARCHED WINDOWS WERE IMPORTANT ARCHITECTURAL ELEMENTS TO REVIVE IN THE ANTHROPOLOGIE RENOVATION PLAN.

place's former or original use; we want to be thoughtful about our solutions," he adds.

The NewStudio Architecture team also cited the original fireplaces on the second floor and the arched windows as important architectural elements to revive in the Anthropologie renovation plan. Jarvi notes: "It's a challenge to decide what goes away, what stays. We want to find ways to celebrate what stays, not just keep it for the sake of keeping it. For that reason, we're also very selective about what we add back into the space. We want just enough for merchandising and retail functions, so we maintain the aesthetic qualities."

Renovation of historic buildings, such as the Queen Street West church, beautifully complements the Anthropologie brand's focus on creativity, sustainability and attractive design. "The brand isn't slick or glossy," Jarvi says. "We try to manifest the brand identity architecturally."

After developing plans to open the

*(continues on page 52)*

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## RETROFIT TEAM >>

### CLIENT DESIGNERS AND PLANNING

// URBN Inc., Philadelphia, [www.urnb.com](http://www.urnb.com)

- Senior Planning Manager: Jennifer Calliagas
- Construction Manager: Tony Ignecci
- Store Design Director: Robert Jamieson
- Designers: Jenna Murphy, Leslie Mignin, May Narisaranukul

### ARCHITECT OF RECORD // New

Studio Architecture, White Bear Lake, Minn., [www.newstudioarchitecture.com](http://www.newstudioarchitecture.com)

- Principal In Charge: Sean M. Wagner, OAA, AIA, LEED AP
- Project Lead: Adam Jarvi, AIA
- Project Staff: Brita Hauser, Assoc. AIA; Maureen Smith Johnson, Assoc. AIA; and Marcy Conrad-Nutt, AIA
- Survey Team: Adam Jarvi, AIA, Wale Falade, Assoc. AIA

### STRUCTURAL ENGINEER OF

RECORD // Advanced Structural Technologies, Edina, Minn., [astmn.com](http://astmn.com)

- Principal In Charge: David C. Buchanan, P.E., SE, P. Eng.

### MEP CONSULTANTS // Hallberg

Engineering Inc., White Bear Lake, [www.hallbergengineering.com](http://www.hallbergengineering.com)

- Principal In Charge: Paul Fetting, P.E., LEED AP
- Project Staff: Michael Bleeker, P.E., and Dave Quigley, P.E.

### MEP ENGINEER OF RECORD //

Cronnox Inc., Oakville, Ontario, Canada, (905) 257-2148

- Principal in Charge: Mark Peric, P. Eng.
- Project Staff: Sandor Kosa

### CODE CONSULTANT / PERMIT

EXPEDITER // Michelle Grant, OAA, SimonJames, Toronto, [simonjames.ca](http://simonjames.ca)

### GENERAL CONTRACTOR //

SAJO, Montreal, [www.sajo.com](http://www.sajo.com)

- Project Manager: George Meckel, Director

main floor to its full double height, the team wanted a way to connect shoppers to the second-story fitting rooms and merchandising area. A grand staircase now anchors the generous open space, allowing customers to fully appreciate the dramatic interiors. The material palette includes reclaimed wood and hand-troweled plaster to regain the crafted feel that had long since been erased from the old church.

### TAKING CUES FROM THE CHURCH

Because Anthropologie responds to each site's individual characteristics, store-merchandising plans take cues from the original building features. With the old church, for example, exposed brick walls and historic fireplaces provide domestic backdrops for the Anthropologie

HomeGoods merchandise selections that tend to include handcrafted, vintage or antique items. Anthropologie clothing, too, has a vintage-inspired edge to the styles, often emphasizing texture and quality fabrics. It's an intentional approach that honors the connection between people and places; the effect seems to encourage customers to linger and enjoy their shopping experience.

Jarvi notes architects always face challenges and constraints when converting a building from one purpose to another. Head clearance in some areas of the old church, such as the front door vestibule and staircase, barely reached 7 feet 6 inches. "We needed to run ductwork there, but we had absolutely no room overhead," he says. "We ran it through the wall and now the air comes out the side of wall. You



just have to shoehorn modern equipment into old buildings sometimes.”

The Anthropologie project opened in early summer 2014 with a warm welcome from the gentrifying Queen Street West neighborhood. Early in the design process, community members had been skeptical of Anthropologie joining the retail scene there. They were wary of an international chain store and were afraid to see more cookie-cutter pressure on the recently reviving sector known for its artistic and eclectic vibe. Not to worry. Anthropologie was just the right store in the right place for this vibrant neighborhood. “That old church could have been sold to a developer who would have blown it down, and then all of this beauty would have been gone forever,” Jarvi says. Now it’s one of Toronto’s treasures for years to come. 



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Circle No. 27

# Designing for the Future

WRITTEN BY | LAURA RAMBIN, AIA, LEED AP BD+C

## RETROFIT TEAM >>

**ARCHITECT** // Studio Bondy Architecture, Oakland, Calif., [www.studiobondy.com](http://www.studiobondy.com)

- Principal-in-charge: Bill Bondy
- Project Architect: Laura Rambin

**STRUCTURAL ENGINEER** // Harrell Kane Structural Engineer, San Francisco, [www.hk-se.com](http://www.hk-se.com)

**SHORING ENGINEER** // Degenkolb, San Francisco, [www.degenkolb.com](http://www.degenkolb.com)

**CIVIL ENGINEER** // Sandis, Oakland, [www.sandis.net](http://www.sandis.net)

**STEEL MOMENT FRAMES & STEEL BEAMS**

**FABRICATOR** // Olson Steel, San Leandro, Calif., [olsonsteel.com](http://olsonsteel.com)

**MECHANICAL/ELECTRICAL ENGINEER** // MHC Engineers Inc., San Francisco, [www.mhcengr.com](http://www.mhcengr.com)

**LIGHTING DESIGNER** // Illuminosa, Berkeley, Calif., [www.illuminosa.com](http://www.illuminosa.com)

**GENERAL CONTRACTOR** // Plant Construction Co., San Francisco, [www.plantco.com](http://www.plantco.com)

- Nathan Dunn
- Martin Donohue
- Josh Hecock
- Scott Oakes

**PAINTING SUBCONTRACTOR** // Jerry Thompson & Sons Inc., San Rafael, Calif., [jtspainting.com](http://jtspainting.com)

**OWNER'S REPRESENTATIVE** // Project Focus, [www.project-focus.net](http://www.project-focus.net)

- Mara Chase

Presidio Knolls School was founded in 2008 as a preschool, combining a Reggio Emilia-inspired educational approach (based around certain fundamental values about how children learn) with Mandarin language immersion. The popular school quickly outgrew its original site in San Francisco's Marina district and moved to its current location south of Market Street. The site includes multiple buildings, which will allow the school to continue to expand and reach its goal of serving preschool through 8th grade.

The site previously belonged to the Catholic Archdiocese, originally serving St. Joseph's parish. When the church left the site, the buildings were reused by a variety of other organizations, including a preschool, but were poorly maintained. Presidio Knolls School initially undertook small renovation projects to improve existing classrooms. However, as enrollment increased, additional space was needed to meet programmatic needs. To accommodate this growth, school leaders examined the buildings on campus and chose to renovate an existing contributing historic building, renamed Pioneer Hall by the school.

### MEETING BUILDING CODES

Pioneer Hall was originally constructed in 1913 as a temporary home and parish hall for St. Joseph's Church, whose original building had been destroyed in San Francisco's 1906 earthquake. The gabled, wood-framed building had one large assembly space interrupted

## A 1913 TEMPORARY PARISH HALL IS REHABILITATED TO SERVE A SCHOOL'S CURRENT AND FUTURE NEEDS

by two rows of intermediate wood posts supporting wood roof trusses. At the rear of the building, there were three floors of classrooms and restrooms, originally thought to be a later addition to the building that could potentially be demolished.

The current project's goal was to bring the 1913 building up to current building-code standards, including seismic safety and accessibility; to provide a flexible multipurpose space for the growing school; and to maintain the historic exterior of the building.

The structural strategy utilized a mat slab foundation and steel moment frames, which would allow the assembly space to have a clear span from exterior wall to exterior wall, with horizontal steel beams providing a means of supporting a new mezzanine level where there were previously three levels. The elevation of the slab was set to provide level-in disabled access at one entrance with additional accessible entrances to be provided during a later phase of renovation. Setting the slab elevation as high as possible while maintaining disabled access also minimized required excavation. The resulting finish-floor elevation, however, is 3 1/2-feet lower than the original building's raised wood-finish floor.

The first step in the complex construction process was to stabilize the existing building. Temporary concrete footings were poured to support the steel moment frames that would be used to shore the exterior walls and roof and were later incorporated

into the finished project. Careful coordination was required between the general contractor, shoring engineer and structural engineer to establish splice locations for the steel frames so they could be craned through holes in the building's roof and field bolted and welded.

Determining where to place the moment frames relative to the building also proved challenging. The existing building was a more than 100-year-old, wood-framed structure that had not been well maintained and had significant water damage. Because it was erected as a temporary home for an earthquake-displaced congregation, it is also likely that it was built with some haste. The building lacked dimensional regularity; though it appeared to be rectangular in plan, it was more of a parallelogram. Field measurements determined the maximum and minimum dimensions so that an intermediate datum could be established and used as a work point for setting the new rigid, orthogonal structural grid.

After the moment frames were placed, additional steel cables and wood shoring stabilized the roof trusses and exterior walls. The bottom 5 feet of the exterior walls were then cut away and the building was left draped over the steel frame. The existing foundations were removed to make way for the new mat slab and concrete stem walls that would become the new exterior wall below the existing wood framing.

The original main façade and domed towers on Tenth Street,

## MATERIALS >>

### ACOUSTICAL PANELS //

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Burke Flooring, [www.burkeflooring.com](http://www.burkeflooring.com)

### PLASTIC LAMINATE //

Nevamar, [nevamar.com](http://nevamar.com)

### HVAC //

Daikin, [www.north-america-daikin.com](http://www.north-america-daikin.com), and Carrier, [www.carrier.com](http://www.carrier.com)

### DIMMABLE, HIGH-BAY LED

DOWNLIGHTS: Whiz Series from Meteor Lighting, [www.meteor-lighting.com](http://www.meteor-lighting.com)

### LINEAR PENDANT LEDs //

Mod Series from Litecontrol, [www.litecontrol.com](http://www.litecontrol.com)

### OTHER LIGHTS //

EcoSense Lighting, [ecosenselighting.com](http://ecosenselighting.com); Borden Lighting, [www.bordenlighting.com](http://www.bordenlighting.com); Bartco, [www.bartcolighting.com](http://www.bartcolighting.com); Pathway, [www.pathwaylighting.com](http://www.pathwaylighting.com); Lightolier, [www.lightolier.com](http://www.lightolier.com); and Ligman Lighting USA, [www.ligmanlightingusa.com](http://www.ligmanlightingusa.com)

### PAINT //

Kelly-Moore Paints, [kellymoore.com](http://kellymoore.com)

### ROOFING //

CertainTeed Landmark Fiberglass Reinforced Shingles, [www.certainteed.com](http://www.certainteed.com)

### CERAMIC TILE //

Daltile, [www.daltile.com](http://www.daltile.com)

### TERRAZZO RESTORATION (front

entry stairs): American Terrazzo Co., [americanterrazzo.net](http://americanterrazzo.net)



PHOTO: KEN GUTMAKER ARCHITECTURAL PHOTOGRAPHY

which were required to be maintained, were left untouched. However, the foundations of the towers were at different elevations than the new mat slab and required stabilization. Different strategies were examined and ultimately permeation grouting was utilized because of the site's sandy soil.

### UNEXPECTED DISCOVERIES

As demolition progressed, several discoveries were made. The entirety of the exterior of the existing building is cement plaster, but it became clear that everything except for the front façade and towers was originally horizontal wood siding. Based on the placement of the diagonal wood sheathing, it also became clear that the 3-story classrooms at the rear were original to the building and, therefore, could not be demolished. In this area, some of the roof framing and trusses had been modified to create occupied spaces. As a result, the structural integrity was compromised and the roof had a significant amount of sag that required reframing.

The building's windows had been replaced at some point with inexpensive aluminum windows. To improve energy performance, these were replaced with commercial-grade, low-e, double-glazed aluminum windows. With the expectation that the space would one day be used for athlet-

ics, laminated glazing was specified for the interior face to prevent breakage from ball strikes. When the existing windows were removed, it was discovered that the sash weight chambers of the building's original wood double-hung windows remained, creating a void at the jamb of each window. In the case of some of the paired windows in the classrooms, the sash weight chambers between the windows also showed water damage. Additional wood framing and blocking were required to provide a solid substrate for securing the new windows.

There was also water damage and dry rot throughout the building. Because it was not in the school's budget to completely replaster the building, strategic repairs were made where water had migrated under the finish and damaged anchors holding the lathe to the siding. Water had also infiltrated the valley where the gable roof meets the towers and had caused significant damage to original structural members that subsequently required replacement.

### PLANNING FOR THE FUTURE

The interior of the renovated building was designed to be flexible with smaller spaces at the rear utilized for temporary classrooms and the large assembly space for more active group uses. Restrooms were designed for the initial installation of kindergarten-sized toilets that can be re-

AFTER THE MOMENT FRAMES WERE PLACED, ADDITIONAL STEEL CABLES AND WOOD SHORING STABILIZED THE ROOF TRUSSES AND EXTERIOR WALLS. THE BOTTOM 5 FEET OF THE EXTERIOR WALLS WERE THEN CUT AWAY AND THE BUILDING WAS LEFT DRAPED OVER THE STEEL FRAME. THE EXISTING FOUNDATIONS WERE REMOVED TO MAKE WAY FOR THE NEW MAT SLAB AND CONCRETE STEM WALLS THAT WOULD BECOME THE NEW EXTERIOR WALL BELOW THE EXISTING WOOD FRAMING.



placed with full-sized toilets as the school's population expands and grows up. Once the campus is fully redeveloped, temporary classrooms will be converted to a catering kitchen and dining room, and the assembly space will be converted to a multipurpose gym and theater. With this eventual use in mind, the mat slab was depressed to allow for the future installation of a sprung floor. At entrances, the floor was floated to provide a gradual and smooth transition to exterior grade. Modular carpet tile is used throughout the building, to allow for ease of maintenance and to simplify removal when the sprung floor is eventually installed. Acoustical ceiling panels were used in the assembly space for their durability and impact resistance.

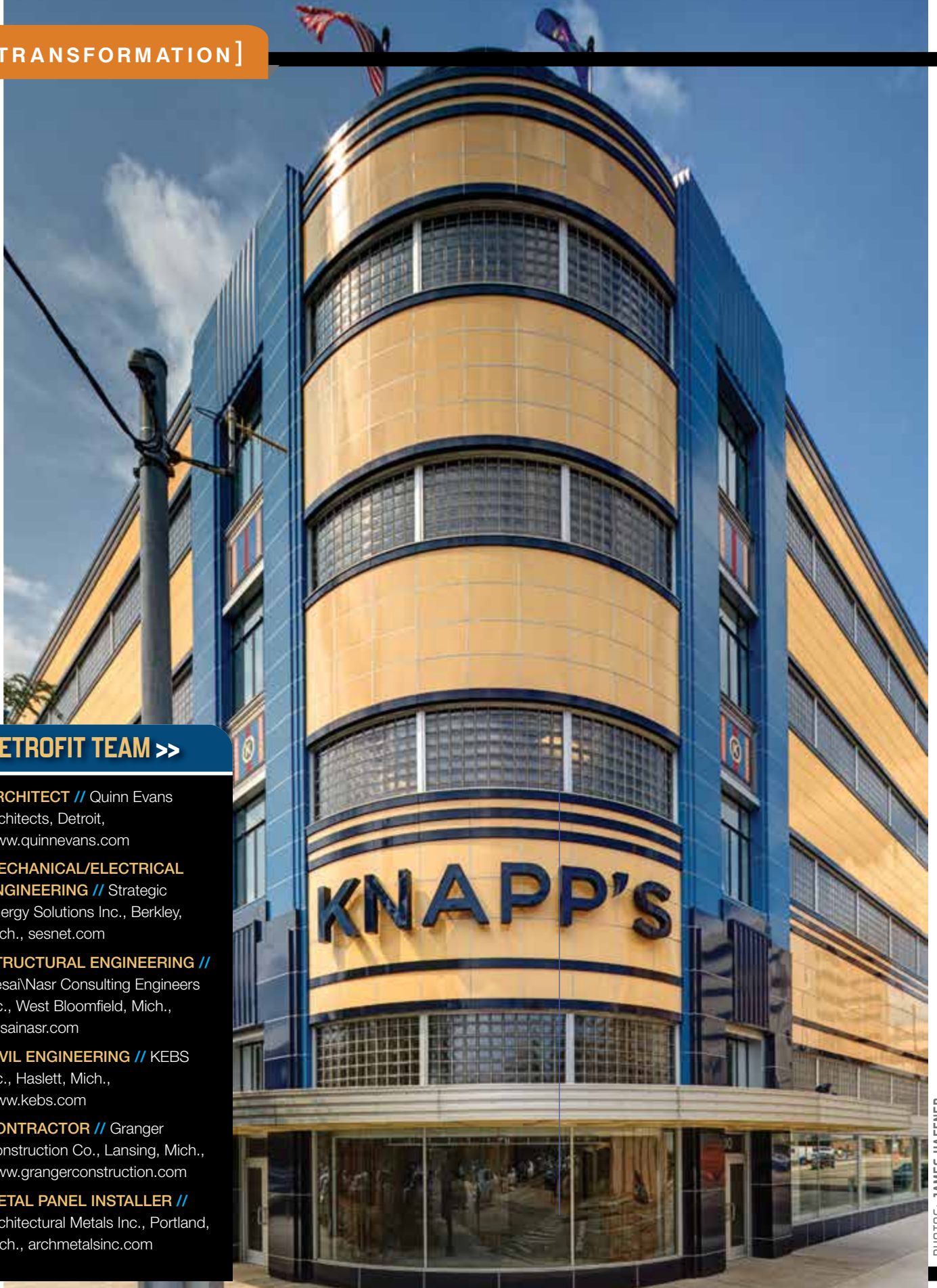
Given San Francisco's temperate climate, a modest and economical approach was taken for the design of the mechanical systems. The temporary classrooms have heating and cooling and the assembly

space features operable windows and air-conditioning for a moderate occupant load. The lighting design for the assembly space utilizes a layered strategy with dimmable, high-bay LED downlights and strategically placed directional lighting to illuminate the walls. Classroom lights are linear pendant LED fixtures with an up/down component to ensure all of the surfaces in the room are equally well-lit without distracting scallops on the walls. Conduit and junction boxes are located adjacent to the head of each assembly room window so motorized shades can be installed when the school's budget allows.

Undertaking the rehabilitation of the parish hall took great vision on the part of the school's leadership. Transforming it into the Presidio Knolls School Pioneer Hall brings new life to this historic structure and starts another chapter in its long narrative. It will serve the school well as it continues to grow and evolve. [R](#)



PHOTOS: STUDIO BONDY ARCHITECTURE



## RETROFIT TEAM >>

**ARCHITECT** // Quinn Evans Architects, Detroit, [www.quinnevans.com](http://www.quinnevans.com)

**MECHANICAL/ELECTRICAL ENGINEERING** // Strategic Energy Solutions Inc., Berkley, Mich., [sesnet.com](http://sesnet.com)

**STRUCTURAL ENGINEERING** // Desai\Nasr Consulting Engineers Inc., West Bloomfield, Mich., [desainasr.com](http://desainasr.com)

**CIVIL ENGINEERING** // KEBS Inc., Haslett, Mich., [www.kebs.com](http://www.kebs.com)

**CONTRACTOR** // Granger Construction Co., Lansing, Mich., [www.grangerconstruction.com](http://www.grangerconstruction.com)

**METAL PANEL INSTALLER** // Architectural Metals Inc., Portland, Mich., [archmetalsinc.com](http://archmetalsinc.com)

# Reinventing an Art Moderne Icon

A HISTORIC DEPARTMENT STORE IS TRANSFORMED INTO MODERN OFFICES, RETAIL AND RESTAURANT SPACE, AND 23 LOFT RESIDENCES

WRITTEN BY | JEANINE QUAGLIA



The Streamline Art Moderne façade, one of the largest examples of this classic Art Deco treatment in the U.S., now consists of an aluminum rainscreen system layered over insulation and a thermal barrier.

**B**uilt in 1937, Knapp's Department Store was once a proud shopping destination in the heart of the Washington Square district in downtown Lansing, Mich. The building was a distinctive example of Streamline Art Moderne architecture, designed by architect Orlie Munson with a sleek, curved façade clad in horizontal bands of yellow panels punctuated with bright blue vertical pylons. When construction was complete, Knapp's new location was praised in the local press as "the most modern building in the Midwest". By 1949, after a major expansion, the 5-story building occupied a full city block.

Knapp's Department Store welcomed shoppers to a state-of-the-art retail setting with deep, inwardly focused floorplates that encouraged browsing and



A new full-height atrium brings natural light into the mixed-use building and serves as an elegant lobby and event space.



circulating from floor to floor. The signature façade included ribbons of prismatic glass block windows that allowed natural light into the interior without “distracting” shoppers with views of the outdoors. Also known as the J.W. Knapp Company Building, the store thrived for decades but, by 1980, after several changes in ownership, it finally closed its doors. The Eyde Co., a local real-estate developer, purchased the building in 1983—the same year that it was added to the National Register of Historic Places. At that time, the Knapp’s building was acknowledged as “a landmark in the progress of the modern movement in architecture in Michigan”.

The Eyde Co. divided the retail floors into offices and leased much of the building to state government agencies. By 2003, however, the state offices moved out, leaving the building vacant for many years. Recognizing its historic status, prominent location and cherished history among local residents, Eyde Co. officials sought strategies to redevelop the building yet preserve its unique architectural heritage. After several years of planning, design and careful reconstruction, Knapp’s Department Store was reborn in 2014 as

*(continues on page 62)*

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Restoration of the department store's colorful façade became a central challenge; an assessment of the existing enameled steel panels revealed extensive moisture damage.

a vibrant mixed-used development, once again claiming its legacy as a downtown landmark and architectural icon.

### SAVING A 'WHITE ELEPHANT'

Architect Elisabeth Knibbe, FAIA, a principal with Quinn Evans Architects in Detroit first became involved with planning for the building's future in 2001 when she was asked by the state's historic-preservation office to study the building for a potential renovation. "The building had become a white elephant," she says. "With such a deep footprint and no windows, it required a significant intervention to make it attractive for continued office use or to bring in a residential component." Knibbe outlined three alternatives in a report: retain the building's office use as is and restore the façade; restore the façade and cut into the center of the building with an atrium to bring in more light; and, in a third option, add residential units to the top floors.

Although the market conditions for a major renovation weren't right at the time, Knibbe and Nick Eyde, project developer with The Eyde Co., recognized the building's potential and its value as a downtown landmark. They reconnected in 2008 after The Eyde Co. officials began reconsidering the project and dusted off Knibbe's initial report.

Four years later, after carefully researching adaptive-use options with the Quinn Evans Architects team, The Eyde Co. launched construction with an ambitious plan to restore and reconstruct the iconic façade; slice into the building with an elegant new atrium; and transform the former department store with modern, Class A offices, street-level retail and restaurant space, and 23 top-floor loft residences.

As part of its research and design process, Quinn Evans Architects provided



National Historic Preservation Act - Section 106 documentation for historic preservation. A major challenge involved the building's ceramic metal panel and glass block wall system. Updates to this crumbling exterior would need to meet preservation requirements for the project to qualify for federal and state tax credits.

Innovative in the 1930s, the "Maul MacCotta" façade was composed of enameled steel and cast-in-concrete panels that were hung from a steel substructure and glass block. The panels had deteriorated because of age and moisture and were replaced with a state-of-the-art rainscreen system consisting of a 2-inch aluminum panel layered over 6 inches of insulation and a thermal barrier. The original, emblematic "K" panels were preserved along the replicated façade.


### TRANSFORMING THE INTERIOR

The building's glass block windows had also failed because of moisture and were replaced with clear glass block. The improvement enhanced views to the outside but maintained the historic integrity of the building skin. Quinn Evans Architects also raised the floors to heighten the windows for outward views while allowing for underfloor installation of a new HVAC system and network cables.

A full-height, skylit atrium was inserted into the building to brighten the interior and create efficient new floor plans for office configurations. The atrium also serves as a dynamic gathering space, hosting receptions and even a community film festival. The atrium glazing system reflects the scale and rhythm of the façade, while its railing is an interpretation of the historic railings elsewhere in the building.

Restaurants and stores are moving into the street-level space, and 23 one- and two-bedroom apartments, now mostly leased, are located on the fifth floor and penthouse level. The residences each have access to a private outdoor roof deck.

"This is a project where patience, perseverance and creativity clearly paid off," Knibbe says. "It's wonderful to see this Streamline Moderne landmark not only restored but given a new life in Lansing's downtown." Historic preservation experts agree; in May 2015, the project was recognized with the 2015 Governor's Award for Historic Preservation.

"Bringing this building back is almost like a sense of bringing justice to this building, a sense we've done it right and a sense of fulfillment," Eyde stated at the grand opening. "You don't find a building like this very often." 



The original department store design included deep, inwardly focused floorplates with little natural light.

- METAL PANELS** // Sobotec Ltd., Hamilton, Ontario, Canada, [sobotec.com](http://sobotec.com)
- GLASS BLOCK** // Pittsburgh Corning, [pittsburghcorning.com](http://pittsburghcorning.com)
- WINDOWS** // Graham Architectural Products, [www.grahamwindows.com](http://www.grahamwindows.com)
- ROOFING** // Firestone Building Products, [firestonebpco.com](http://firestonebpco.com)
- COMMERCIAL CARPET** // Milliken & Co., [www.milliken.com](http://www.milliken.com)
- ACCESS FLOORING** // Haworth, [www.haworth.com](http://www.haworth.com)
- HVAC SYSTEM** // York with Johnson Controls, [www.york.com](http://www.york.com)
- ELEVATORS** // Otis Elevator Co., [www.otisworldwide.com](http://www.otisworldwide.com)
- DECORATIVE IRONWORK AND STAINLESS STEEL FABRICATION** // Couturier Iron Craft, [www.couturierironcraft.com](http://www.couturierironcraft.com)
- KITCHEN CABINETRY** // Armstrong Cabinets, [armstrongcabinets.com](http://armstrongcabinets.com)
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—Bjarke Ingels

WRITTEN BY | ROBERT NIEMINEN

If Ingels’ assertion about the nature of buildings as ecosystems is correct, then it stands to reason that investment capital is the wellspring from which the built environment originates. Without it, the economy and flow of resources

(continues on page 66)





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What makes **crowdsourcing** such an attractive option over traditional methods of urban development isn't so much the size of the deal, but a very real sense of involvement and buy-in by the local community that helps ensure its success.

through our cities is choked, and the promise our buildings once held as living systems to support urban life is crushed.

As many local redevelopment projects fail due to lack of funding, our aging infrastructure isn't the only thing that suffers; entire communities absorb the economic fallout, to which many cities in America's Rust Belt bear witness, for example.

However, hope for the restoration of existing buildings and communities is surfacing from a somewhat unlikely place: social media. Just as crowdfunding sites like Kickstarter and GoFundMe have made artistic, entrepreneurial, and fundraising projects hugely successful, a number of similar platforms are emerging in the

*(continues on page 68)*



Pittsburgh-based Small Change, which matches developers to investors, currently is developing a building in Rochester, Pa., to become a brewery.



PHOTOS: SMALL CHANGE



RENDERINGS: PFAFFMANN AND ASSOCIATES

Nello Development Group Inc., Canonsburg, Pa., plans to take advantage of the location's riverfront views when creating the brewery and gathering spot for the Rochester community.



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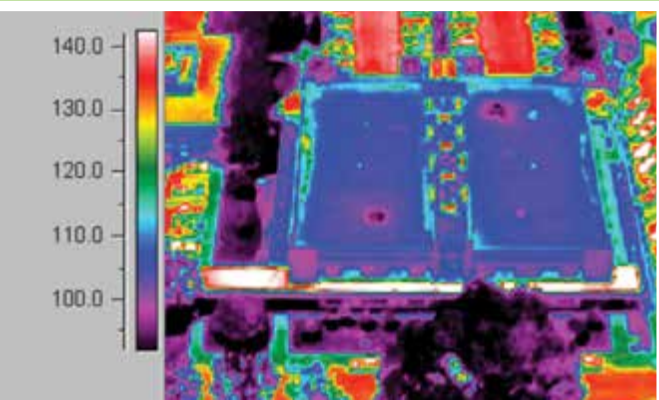
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Massolution found the number of crowdfunding platforms jumped from 308 in 2013 to 1,250 in 2014. ... What was once a niche business model for hopeful entrepreneurs who might not have been able to attract traditional financing is now a **bona fide investment vehicle** for investors of virtually every size.

commercial real-estate arena and opening up new channels for real-estate investors large and small.

### Crowdfunding 101

To the uninitiated, crowdfunding—defined as “the practice of funding a project or venture by raising many small amounts of money from a large number of people, typically via the Internet”—and real estate may seem like strange bedfellows. However, as Brian O’Conner of online financial education platform Investopedia notes, “the two ‘odd couples’ appear to be pairing up quite nicely and giving investors a new way to leverage profits from the burgeoning U.S. real-estate market.”

In fact, the size of the combined real-estate and crowdfunding market is estimated at \$11 trillion, according to crowdfunding site iFunding, and active global crowdfunding platforms generated \$16.2 billion in 2014—a figure that is expected to more than double in 2015 to \$34.4 billion, according to crowdfunding research firm Massolution, Los Angeles. Further, Massolution found the number of crowdfunding platforms jumped from 308 in 2013 to 1,250 in 2014. In other words, what was once a niche business model for hopeful entrepreneurs who might not have been able to attract traditional financing is now a bona fide investment vehicle for investors of virtually every size. And it took an act of Congress (literally) to legitimize the concept.

Recognizing cost-effective access to capital for companies of all sizes plays a crucial role in the health of the nation’s economy, President Obama signed the Jumpstart Our Business Startups (JOBS) Act into law on April 5, 2012, which

basically requires the SEC to simplify the regulations for investors to fund startup businesses. Title III of the JOBS Act specifically addresses equity crowdfunding for real-estate investing but, to date, only accredited investors (those with incomes or net worth that meet SEC requirements) are able to participate. The SEC has yet to write rules for equity crowdfunding by non-accredited investors, which has led many states to write their own that only apply within their boundaries.

In the meantime, several crowdfunding platforms are leading the way toward restoring our buildings, communities and cities, making the most of this emerging tool for financing our futures.

### BlocPower: Retrofitting Underserved Communities

When it comes to retrofits, often the buildings most in need of upgrades are the ones in the most underserved communities without access to traditional financing. The result is a sort of Catch 22 in which building owners who want to participate in energy retrofitting for economic reasons are unable to do so ... for economic reasons.

Enter Brooklyn-based BlocPower, a socially responsible business that connects impact investors to institutional networks of energy-efficiency projects in churches, synagogues, non-profits and small businesses in underserved communities.

“We focus on energy-efficiency retrofits in financially underserved communities, mostly urban communities,” explains Donnel Baird, founder and CEO of BlocPower. “We aggregate projects into a portfolio. We analyze them for energy-

*(continues on page 70)*

The Emery contemporary apartments signals Portland's South Waterfront's urban future.



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Photo courtesy of The Bryer Company, Auburn, WA





## More on Crowdfunding and the JOBS Act

**FUNDABLE-CROWDFUNDING GUIDE:** [www.fundable.com/learn/resources/guides/crowdfunding-guide](http://www.fundable.com/learn/resources/guides/crowdfunding-guide)

**JUMPSTART OUR BUSINESS STARTUP ACT (JOBS)-H.R. 3606:** [www.gpo.gov/fdsys/pkg/BILLS-112hr3606enr/pdf/BILLS-112hr3606enr.pdf](http://www.gpo.gov/fdsys/pkg/BILLS-112hr3606enr/pdf/BILLS-112hr3606enr.pdf)

**SECURITIES AND EXCHANGE COMMISSION-JOBS ACT Q&A:** [www.sec.gov/divisions/marketreg/tmjjobsact-crowdfundingintermediariesfaq.htm](http://www.sec.gov/divisions/marketreg/tmjjobsact-crowdfundingintermediariesfaq.htm)

**SMALL BUSINESS ADMINISTRATION-INTRODUCTION TO CROWDFUNDING FOR ENTREPRENEURS (ONLINE COURSE):** [www.sba.gov/tools/sba-learning-center/training/introduction-crowdfunding-entrepreneurs](http://www.sba.gov/tools/sba-learning-center/training/introduction-crowdfunding-entrepreneurs)

efficiency and financial potential and roll them up into a portfolio and then connect them to investors via our online marketplace. That marketplace has kind of a crowdsourcing function.”

What makes crowdsourcing such an attractive option over traditional methods of urban development isn’t so much the size of the deal, but a very real sense of involvement and buy-in by the local community that helps ensure its success.

“I think crowdfunding lets local people participate in urban development. It helps to provide data on projects that may or may not be financeable by traditional criteria, but the flexibility of crowdsourcing allows you to create special risk tranches,” Baird says.

The downside to what BlocPower is doing is it’s fraught with risk. Baird says without government subsidies, retrofits in low- and moderate-income communities in urban environments are very hard to accomplish. However, he doesn’t consider the core obstacles to be on the financial side; rather, “they’re actually on the engineering side,” he says.

“The high cost of energy-efficiency audits and analysis, certainly externally, by third parties is super expensive. It’s super slow,” Baird observes. BlocPower is working on the problem and has designed a set of internal protocols that allow it to lower the cost of energy-efficiency audits—a proposition that, while admittedly tricky, is really important to Baird.

“We think there’s \$400 billion worth of retrofit opportunity in American inner cities, and we have to provide better engineering and financing that’s really flexible, and crowdsourcing allows us to do that,” he explains. “We very much think it is the future, and we’re fortunate to have venture-capital investors that invest according to that thesis.”

### Small Change = Big Impact

Similarly, Eve Picker, president and co-founder of Small Change, Pittsburgh, not only has a passion for serving underserved communities but believes in the opportunities that crowdfunding offers to effect change. As a former real-estate

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“To the extent that we are able to directly invest in the companies we believe in, instead of having to go through the bank or go through Wall Street, I think that is going to be a good day in our future.” —Grady Thrasher, CEO and cofounder, CrowdVested

developer, she always had an interest in projects that would revitalize the community and was often the first (and only) one interested in them, which drew skepticism by investors and compounded the problem of financing.

“All of the projects I have done in my career had appraisal issues,” Picker recalls. “Because I was typically the first developer into a neighborhood, and banks and appraisers are very leery about ‘how do you appraise something when it’s the first [of its kind]?’ But if you don’t have a first, how are you ever going to move forward? So it’s a really circular problem.”

After having been introduced to the JOBS Act, Picker sought to circumvent the dilemma by launching Small Change, a limited liability company dedicated to making a positive difference in the communities in which it operates. The company matches investors with developers, undertaking what Picker refers to as “transformative real estate”—projects that bring about positive change based on a set of criteria the company refers to as the “Change Index.”

The Change Index is a proprietary scoring system that illustrates the impact its projects have on their surroundings. It uses data points, such as an area’s walk- and bike-ability, public-transit access, proximity to green space, availability of commercial and cultural amenities, and other measures of quality of life, to produce a composite score of 1 to 10 (10 being the best) to gauge the possibilities of a project.

Once a project has met the criteria, developers offer partnership positions in real-estate projects in return for investment made. Small Change acts as the intermediary, vetting the projects before offering them on the platform. Investments can be as small as \$1,000 but vary from project-to-project.

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For Picker, the platform is an ideal way for people who want to invest with a conscience—and she’s not alone. “I think there are a lot of people like me,” Picker says. “Even mutual funds are now clarifying what they invest in for people who don’t want to invest in shale oil or something like that. There are people who care enough about where their dollars go that they don’t want them to be put somewhere that’s not [in line with] the way they see the world.”

### CrowdVested: Democratizing the Investment Stream

Unlike many crowdfunding platforms that are targeting SEC-accredited investors, companies like Atlanta-based CrowdVested are reaching out to the smaller fish in the pond, so to speak—the ones right in their backyard to be exact.

“We are trying to do something that is different than what most of the other markets are doing—and whether that’s the right position for us we will find out. We’re trying to open up the investment opportunity beyond the [typical] crowd of investors,” says Grady Thrasher, CEO and cofounder of CrowdVested. “Currently the vast majority of platforms out there are limited to selling to accredited investors only. Here in Georgia, we are a little bit unique in that the rules allow us to sell to unaccredited investors, but only if they’re from Georgia.”

Thrasher says there is a strong motive to invest locally in the same way people desire to support local businesses, local farmers, etc. To that end, CrowdVested’s online crowdfunding platform offers real-estate developers and project sponsors access to a large network of qualified investors in the state of Georgia only, offering an alternate funding source and working in conjunction with traditional financing sources to fill the gap between debt and equity funding.

“This is really a way to democratize that whole investment stream,” Thrasher asserts. He believes we are not far from a time when raising money through crowdfunding is as commonplace as going to a bank.

Thrasher muses: “To the extent that we are able to directly invest in the compa-

nies we believe in, instead of having to go through the bank or go through Wall Street, I think that is going to be a good day in our future—a day when we have truly reconnected with our neighbors and have reconnected with what’s going on around us instead of being isolated by all these middle men.” □



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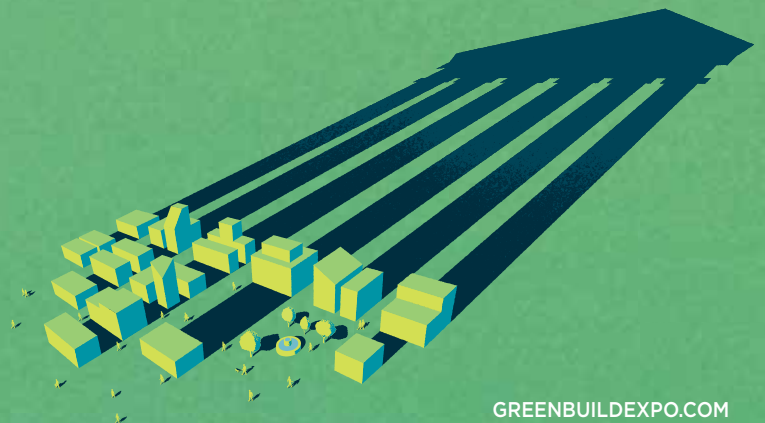
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WaterFurnace International Inc. has released a waterside economizer option to its 2- to 6-ton horizontal and vertical Versatec Base and Versatec Ultra Envision2 Compact and 7- to 25-ton horizontal and vertical Envision XL products. The option allows the use of a building's interior loop water to provide "free" cooling. The waterside economizer passes air through an internal coil cooled by loop water. The unit contains a water-to-air heat exchanger, a three-way valve and controls that manage the flow of water through the heat exchanger. When cooling is required and the building loop water temperature is below the economizer setpoint, water passes through the economizer. Air is drawn through the cool economizer and the heat pump's compressor is turned off.

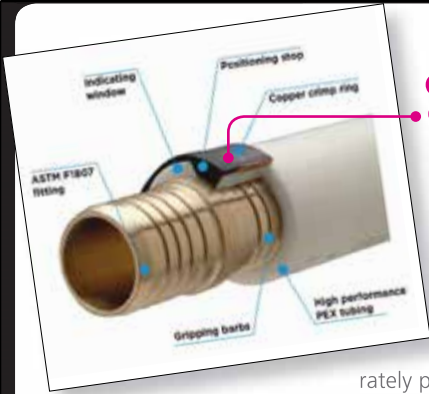
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**CREATE WORRY-FREE PIPE CONNECTIONS**

Zurn Industries LLC has introduced the Zurn PEX QickCap Crimp Rings with Positioning End Cap for crimp connections in plumbing and radiant-heating applications. The crimp rings enable optimum crimp connections, virtually eliminating ring movement during installation, making it easier to accurately position the copper crimp rings onto Zurn

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Each kit includes one 16 1/2-foot strip with 150 to 300 Epistar 3528 or 5050 SMD LEDs. Strips can be cut into three or six LED segments (depending on the kit) and reconnected with one of four solderless connectors, which are included.

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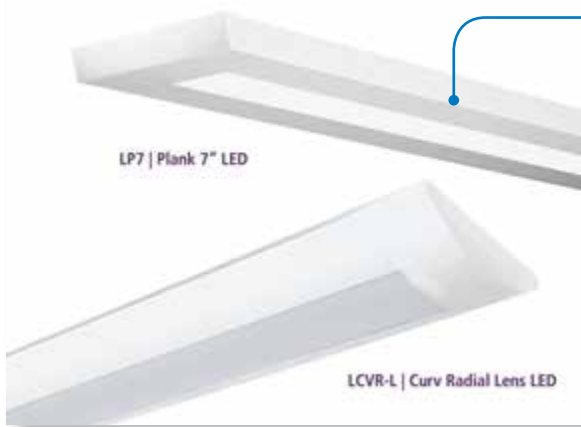
**CEILING PANELS OFFER VARIOUS CONFIGURATIONS**

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) // (800) 727-8953 // Circle No. 41



Tavola Divergent



**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.

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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.

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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.

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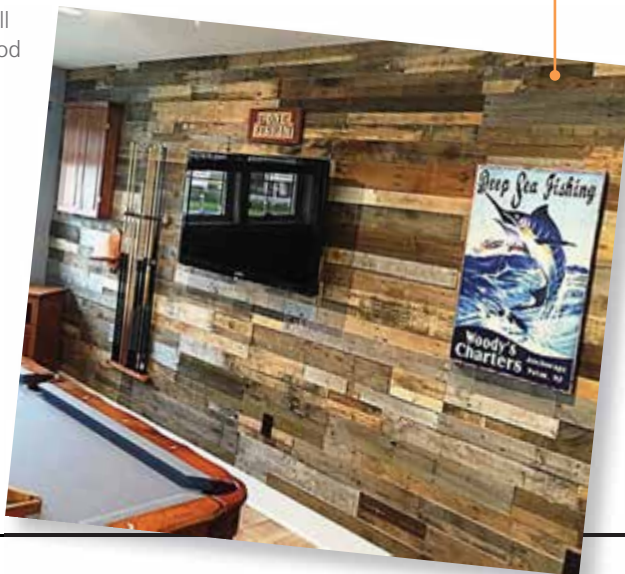
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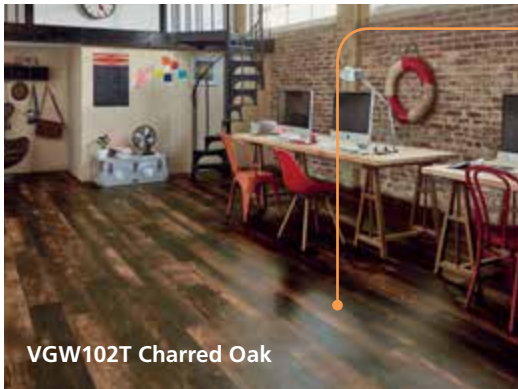
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# PARK(ING) DAY FOCUSES ON CREATING A MORE SUSTAINABLE URBAN LANDSCAPE



PHOTOS: SARAH SMITH

Clark Condon's PARK(ing) Day parklet featured a contemplative pass-through space that visually redirected users' focuses away from the surrounding downtown context and up to a framed view of the sky.

Clark Condon, Houston, with the help of participating sponsors Trees for Houston and Key-scape LLC, Houston, temporarily transformed parking spaces at Capitol and Travis streets in downtown Houston into a public park as a part of the national PARK(ing) Day event on Sept. 18.

Originally invented in 2005 by Rebar, a San Francisco-based art and design studio, PARK(ing) Day challenges people to rethink the way parking spaces are used and reinforces the need for broad-based changes to urban infrastructure.

"In urban centers around the world, inexpensive

curbside parking results in increased traffic, wasted fuel and more pollution," says Rebar's Matthew Passmore. "The planning strategies that generated these conditions are not sustainable, nor do they promote a healthy, vibrant human habitat. PARK(ing) Day is about reimagining the possibilities of the urban landscape."

Clark Condon's PARK(ing) Day parklet, themed "Look Up", featured a contemplative pass-through space that visually redirected users' focuses away from the surrounding downtown context and up to a framed view of the sky. Users were encouraged to stop

looking forward, backward and down, but instead to #LOOKUP toward the sky. The temporary installation was an embodiment of positivity, curiosity and reverence, promoting social and environmental awareness and challenging the public perception of how urban spaces are—and can be—used.

Since 2005, PARK(ing) Day has blossomed into a worldwide grassroots movement. It is an "open-source" user-generated invention created by independent groups around the globe who adapt the project to champion creative, social or political causes that are relevant to their local urban conditions. 

"In urban centers around the world, inexpensive curbside parking results in increased traffic, wasted fuel and more pollution. The planning strategies that generated these conditions are not sustainable, nor do they promote a healthy, vibrant human habitat."

—Matthew Passmore, Rebar



PHOTOS: SAM MCNEILL; INSTAGRAM: @STEEZMCNEEZE



## Retrofit Solution for Soft-Story Buildings

Thousands of San Francisco building owners are now required by law to seismically retrofit multi-unit (at least five) soft-story, wood-frame residential structures that have two or more stories over a “soft” or “weak” story.

These buildings typically have parking or commercial space on the ground floor with two or more stories above. As a result, the first floor has far more open areas of the wall than it actually has sheathed areas, making it particularly vulnerable to collapse in an earthquake.

That was the case in both the Loma Prieta and Northridge earthquakes, which is why cities in California, including Berkeley and Oakland, have recently passed similar legislation and many others, including Los Angeles, are now considering it. San Francisco’s ordinance affects buildings permitted for construction before January 1, 1978.

One solution to strengthen such buildings is the Simpson Strong-Tie® Strong Frame® special moment frame. Its patented Yield-Link™ structural fuses are designed to bear the brunt of lateral forces during an earthquake, isolating damage within the frame and keeping the structural integrity of the beams and columns intact.

“The structural fuses connect the beams to the columns. These fuses are designed to stretch and yield when the beam twists against the column, rather than the beam itself, and because of this the beams can be designed without bracing. This allows the Strong Frame to become a part of the wood building and perform in the way it’s supposed to,” said Steve Pryor, S.E., International Director of Building Systems at Simpson Strong-Tie. “It’s also the only commercially-available frame that bolts together and has the type of ductile capacity that can work inside of a wood-frame building.”

Another key advantage of the Simpson Strong-Tie special moment frame is no field welding is required, which eliminates the risk of fire in San Francisco’s older wood-framed buildings. “Field welding is not a good thing, particularly in an existing building because the chance of fire is just too great. A bolted solution is much safer.”

The special moment frame has been recognized in the construction industry for its innovation. It was one of only 16 products selected to win a 2014 Parade of Products@PCBC award, given by the California Building Association.



Soft-story retrofit using Strong Frame® special moment frame

The Strong Frame special moment frame is in the final stages of the prequalification process for inclusion in AISI 358-16. For more information, visit the website at [strongtie.com/strongframe](http://strongtie.com/strongframe).

Watch a video about San Francisco’s retrofit ordinance at [strongtie.com/softstory](http://strongtie.com/softstory).



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