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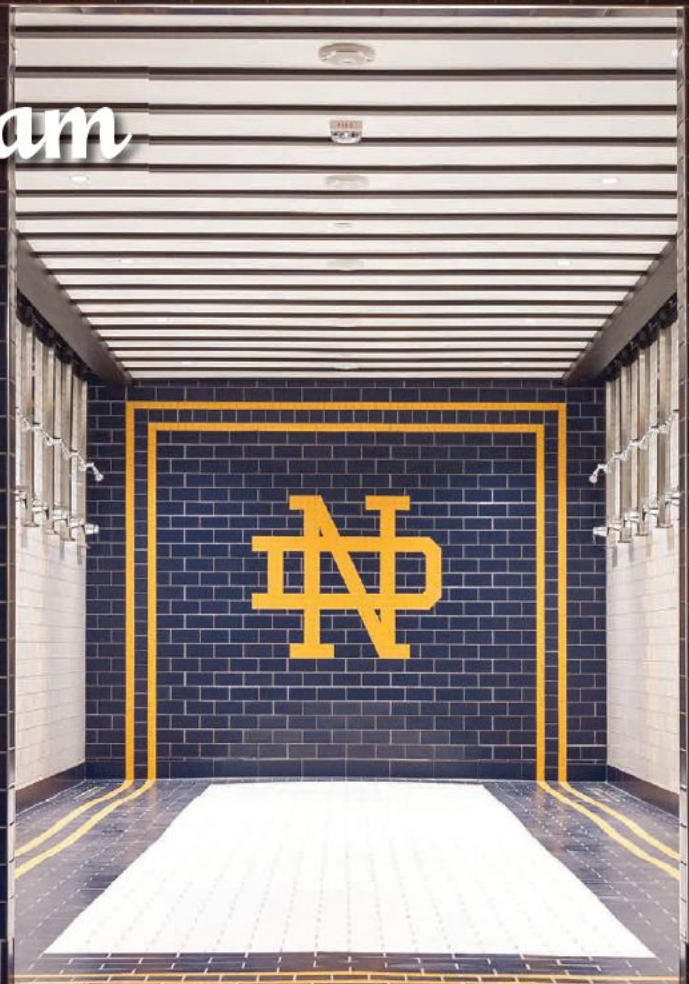
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-Eric Requist, Senior Project Architect, Ellis Architects

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- Farmington Country Club, Charlottesville, Va.
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- Tiger Stadium, Baton Rouge, La.



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RETROFIT // Vol. 11 // No. 2 is published bimonthly by Fisher Media LLC, 98 Booth Meadow Lane, Durham, NC 27713, (919) 641-6321. POSTMASTER: Send address changes to **retrofit**, 2409 High Point Drive, Lindenhurst, IL 60046.

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A SIGH OF RELIEF

I'm a worrier by nature. I like to think being a worrier is less about living life with the "glass half empty" but more about being prepared to handle negative situations before they arise. Fortunately, I'm often pleasantly surprised when things go better than my worrying mind allowed me to imagine. Most recently, the sale of my Chicago condo has been my main focus of worry.

If you read my columns regularly, you know that in October 2019 I began the process of selling my condo. And, of course, my anxious brain was moving at a high-rate of speed, throwing out every possible catastrophe that could occur while I tried to sell my unit. First, I dealt with the condition of my condo, which had hosted three tenants in five years (see the November-December 2019 issue's "Point of View", page 10, or www.retrofitmagazine.com/a-trusted-team-of-building-professionals-is-priceless).

While living 500 miles away from the condo, I made the necessary repairs to bring it back to its once beautiful condition. Then, I had many showings, a couple of which caused me more anxiety because showing agents

couldn't get keys to work or left my unit in disarray. Thank goodness for my next-door neighbors who are great friends; they not only were my eyes and ears during the process, but also my assistants, constantly checking on the unit and answering my regular phone calls and texts.

In January, I received two offers—one of which finally began to set my mind at ease. The prospective buyers included a letter and photo of themselves with their offer. I read through their letter several times and quickly realized they are everything I wasn't when I left the neighborhood.

When I moved out of my condo—after living there seven years—I was fed up with Chicago, particularly with my Albany Park neighborhood, a place that was up and coming when I bought in 2007 but never went anywhere because of the 2008 economic downturn. This young couple shared in their letter how dedicated they are to improving Albany Park through their professional work, as well as through volunteer organizations. I believe they truly will be a benefit to the community and condo building itself. It felt right to accept their offer.

After I accepted, the universe stepped in to show me I had made a good decision in selling the unit to this young couple. (You also know by reading my columns I'm a big believer in looking for signs that will lead me on my proper path in life. See "Point of View", March-April 2019 issue, page 10, or www.retrofitmagazine.com/follow-the-clues.)

For example, my next-door neighbor who was my eyes and ears told me he ran into the prospective buyers during their inspection. My neighbor is originally from Philadelphia and was wearing a Philadelphia Eagles ballcap at the time. Turns out, one of the prospective buyers also is from Philadelphia, so they struck up a conversation and developed an immediate rapport.

In another serendipitous moment, my real-estate agent, who is a friend I met while we both worked for a large, b-to-b publishing company in Chicago, was chatting with the appraiser of my unit. Turns out, the appraiser also once worked at the publishing company at which my real-estate agent and I had worked. What are the odds of that in a metropolitan area with a population of 9.5 million people?

As I was reading this issue, my condo situation reminded me a bit of our "Multifamily" feature, page 64. In 2008, Parkland Properties, a Muskegon, Mich., real-estate and development company that specializes in the adaptive reuse of historic buildings, purchased Muskegon's first skyscraper, the Hackley Union Bank Building, for \$1. Parkland Properties' team intended to transform the building into condominiums but the economy spiraled and the developer tried to sell it for nine long years. In 2017, recognizing the increasing demand for downtown housing, Parkland Properties representatives undertook a \$9.5 million restoration and redevelopment of the building into Highpoint Flats Apartments, a 56,000-square-foot mixed-use building, containing apartments and retail and office space. Today, the project has motivated five new market-rate housing projects in downtown Muskegon, proving that patience and the right vision can lead to successful outcomes.

The sale of my condo was finalized in February and, although a small part of me is sad to not have a physical connection to Chicago anymore, I am thrilled I was able to sell my condo to people who will do better by being in the neighborhood than I did. Maybe now I can stop worrying—at least about Albany Park anyway.

Christina Koch

CHRISTINA KOCH

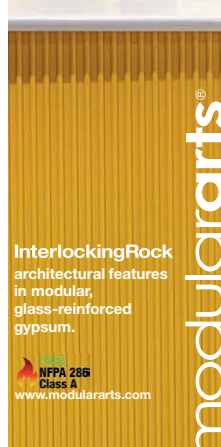
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CONTRIBUTING WRITERS



Two pieces of legislation are set to change the way our nation deals with natural disasters. The PREPARE Act and Disaster Recovery Reform Act of 2018 are explained by **Louisa Hart**, communications director for the EPDM Roofing Association, an early endorser of the PREPARE Act, in "Business", page 18.



Steve Ansel, AIA, is principal and chairman emeritus for The S/L/A/M Collaborative, where he applies his expertise in facilities master planning and design for complex institutional projects, including the University of Notre Dame's Campus Crossroads project for which he served as executive architect. Ansel writes about Campus Crossroads in our "Cover Story", page 24.



What happens when two lighting designers befriend a lighting researcher? The authors of "Component", page 44, will tell you! From left to right, **Rachel Fitzgerald**, CLD, LC, IALD, LEED AP BD+C, is the discipline lead for lighting design with Stantec; **Katherine Stekr**, CLD, MIES, IALD, EDAC, LEED AP BD+C, is an associate with Horton Lees Brogden Lighting Design; and **Andrea Wilkerson**, Ph.D., LC, is a senior lighting research engineer at Pacific Northwest National Laboratory.



Sam Manning, a partner with Clayton & Little, served as project architect on Eberly, an eclectic bar and restaurant in Austin, Texas. Manning says he enjoys creating meaningful experiences, memorable spaces and purpose-driven architecture. The inimitable Eberly, which is housed in a former print shop, exemplifies these traits, as shown in "Transformation", page 52.



As communications strategist and brand manager at Cushing Terrell, **Amanda Herzberg** relates the story of Buda Mill & Grain Co. in the Texas Hill Country in "Mixed Use", page 58. The former agricultural buildings, including a cotton gin and silos, now are 27,000 square feet of retail, restaurant and community-oriented space.



Kendra Achenbach is marketing coordinator for Ghafari Associates LLC, which completed the restoration and redevelopment of the Hackley Union Bank Building in downtown Muskegon, Mich. Known as the city's first skyscraper, the former bank has an illustrious history and inventive future as the Highpoint Flats Apartments. Read the story in "Multifamily", page 64.



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WRITTEN BY | LOUISA HART

Federal Legislation Focuses on Strengthening Buildings to Withstand Natural Disasters Before They Occur

1974 was a year full of news. Some of it made history; some of it faded into footnotes in long-forgotten books. Nixon resigned from office. The Dolphins beat the Vikings in Super-Bowl VIII. And the Universal Product Code, or barcode, was put into use for the first time on a pack of Wrigley's chewing gum.

One item that didn't make national headlines occurred in May 1974 when Congress unanimously passed the Disaster Relief Act. This vote on Capitol Hill established an important framework for how the federal government would provide disaster relief to the 50 states. Despite being

amended multiple times, the focus of the Disaster Relief Act continued to inform federal policy for more than four decades: In terms of natural disasters, funds would be provided after the damage was done and rebuilding would, at best, restore buildings to their original state.

This approach stayed relatively constant until October 2019 when Congress passed legislation, which then Federal Emergency Management Agency Administrator Brock Long hailed as "transformational," adding that it would "allow the emergency management community to continue to improve the way we deliver assistance before,

during and after disasters." Of special note here is Long's emphasis on "before."

The legislation, known as the Disaster Recovery Reform Act (DRRA) of 2018, incorporates funding for disaster relief, but its primary focus is prevention. After more than four decades, the federal approach is shifting from one of rescue and relief to one of mitigation and resilience. This is very good news for the retrofit community because federal funds, distributed through the states, can now be used to upgrade a structure in anticipation of future destructive weather events.

(continues on page 20)



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Although DRRA represents a seismic change in approach, FEMA has, in fact, been incrementally supporting mitigation activities since its founding almost 30 years ago. The agency defines mitigation as, “the effort to reduce loss of life and property by lessening the impact of disasters” with emphasis on activities before a storm to strengthen the built environment. Prior to the passage of the DRRA, mitigation activities were usually bundled with disaster relief funds, limited primarily to planning purposes or earmarked for recovery from specific events, such as earthquakes or floods.

In addition, federal funds earmarked for mitigation could be used to repair damaged buildings only to their prior standards, not improve them to better withstand the impact of future storms. Under the legislation passed last year, funds can be used to strengthen the built environment to heightened standards of resilience, so buildings can protect people and property during future storms and readily return to normal function in the wake of a disaster. In other words, buildings repaired in the wake of a storm can be built to standards that will not doom them to experience comparable damage in future storms.

Mitigation Saves

From 2010-19, extreme weather events inflicted staggering financial losses in the U.S. During this period, there were 590 presidential disaster declarations and 110 events that each caused at least \$1 billion in damage. Together, these disasters racked up \$418 billion in economic losses. Despite FEMA’s mitigation efforts during that period, this intensifying cycle of natural disasters—and the stress it has put on FEMA responders and budgets—brought the need for mitigation activities front and center.

Adding to the support for a mitigation-based strategy, the National Institute of Building Sciences (NIBS) released in January 2019 the results of its ongoing study, “Natural Hazard Mitigation Saves”, that clearly demonstrated mitigation represents a sound financial investment. NIBS illustrated “the benefits of designing

buildings to meet the 2018 International Residential Code (IRC) and 2018 International Building Code (IBC)” delivered a national benefit of \$11 for every \$1 invested. The organization’s research proved without question that mitigation saves, and it saves a great deal.

Implementation of the DRRA will be through the Building Resilient Infrastructure and Communities, or BRIC, Program, a new fund based on estimated post-disaster grant expenditures. FEMA has not yet published the specifics of the BRIC Program but, as of this writing, a FEMA spokesperson says the BRIC Program will begin in fall 2020. The existing Pre-Disaster Mitigation Program, focused primarily on community planning to cope with disasters, will end after the 2019 grant monies are obligated.

The DRRA legislation requires a 6 percent “set-aside” to fund the program, based on spending the preceding year through the existing FEMA Disaster Relief Fund. Elizabeth Zimmerman, a former FEMA executive, estimates the program will be funded at \$300 million to \$500 million per year, “with significantly greater amounts of money in years that have a high number of catastrophic disaster obligations,” per *Emergency Management*, Sept. 25, 2019. FEMA representatives emphasize this is not the first funding the federal government has committed to mitigation efforts, but it is potentially by far the largest amount earmarked for efforts to prevent damage from cataclysmic storms.

The scale of the BRIC Program, and the amount of funding it will deliver, has meant a relatively long run-up period until the program is activated and the money flows. FEMA has consulted a broad range of stakeholder groups, including the American Institute of Architects, Insurance Institute for Business & Home Safety, NIBS, State Farm, Liberty Mutual and USAA, as well as potential applicants for BRIC funding, to ensure the “full potential” of the disaster program is realized. Funding will be distributed through state, tribal and territorial governments. BRIC grants are expected to be awarded to applicants that have forged “whole

THE MESSAGE FROM FEMA AND CAPITOL HILL IS LOUD AND CLEAR: **WE DO NOT HAVE THE RESOURCES TO QUICKLY REPAIR THE DAMAGE INFLICTED BY THE INCREASING NUMBER OF CATAclySMIC WEATHER EVENTS. BUT WE WILL HELP YOU UPGRADE YOUR STRUCTURES TO WITHSTAND THESE DISASTERS.**

community partnerships” that will build a community’s capability to manage future emergencies.

PREPARE Act

Elsewhere on Capitol Hill, efforts are underway to intensify and bring order to the federal focus on mitigation. The PREPARE Act, which has bipartisan support from Reps. Matt Cartwright (D-Pa.) and Daniel Webster (R-Fla.), authorizes the creation of an interagency council to provide recommendations to all relevant federal agencies about the best means of planning and preparing for extreme weather incidents. Additionally, this new interagency council would serve as a clearinghouse to provide state and local stakeholders with the best

information available and best practices to help them formulate emergency preparation plans tailored to their local needs.

The legislation proposes to draw members from the departments of Defense, Transportation, Energy, Homeland Security, Justice, Housing and Urban Development, and 10 other agencies. It also will include “senior federal officials” with relevant policy expertise and policy responsibilities. This wide-ranging list gives an indication of the need for improved coordination of mitigation activities, as well as the currently dispersed responsibilities for disaster relief that are spread throughout the federal government. The sponsors of the bill emphasize that this is a “zero-cost” effort. In other words, their proposal draws

on existing resources in the federal government and reorganizes them to facilitate better communications among agencies involved in mitigation activities.

As with the DRRRA legislation, this approach does not attempt to make any judgment about the cause of the increasing intensity of cataclysmic weather events but is a response to their indisputable frequency and the escalating cost to federal, state and local governments. The sponsors of the bill point out “... extreme weather events are complex, crosscutting problems that pose risks to many economic and environmental systems—including agriculture, infrastructure, ecosystems, and human health—and present a significant financial risk to the federal government.”

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The focus is on preparing for the results of this indisputable destructive weather, rather than debating its cause.

The PREPARE Act has been endorsed by more than 100 organizations, including the American Institute of Architects, the EPDM Roofing Association (ERA), the International Code Council, The Pew Charitable Trusts and U.S. Green Building Council.

ERA, which represents the manufacturers of EPDM single-ply roofing products and their leading suppliers, endorsed the bill late last year calling it “an essential initiative to ensure prioritization of federal initiatives in dealing with our changing climate.” Jared Blum, then ERA’s executive director, said: “Our members stand ready to participate in the construction of resilient buildings that can withstand frequent cataclysmic natural events and quickly recover from their impact. The specific attributes of EPDM make it uniquely valuable in attaining resilience in a structure, and the availability of EPDM in both white and black provides energy efficiency in every climate.”

Responding to ERA’s endorsement, Rep. Cartwright noted the importance of roofing to a resilient structure. “As extreme weather events hit harder and more frequently with each passing year, providing relief funding after the fact is no longer enough,” Cartwright said. “It’s time to take proactive steps to ensure our communities are more resilient before disaster strikes. This bill promotes the adoption of disaster-preparedness strategies, and advanced roofing technologies should be a key part of the overall effort to bolster American businesses in the face of ever-intensifying extreme weather events.”

The message from FEMA and Capitol Hill is loud and clear: We do not have the resources to quickly repair the damage inflicted by the increasing number of cataclysmic weather events. But we will help you upgrade your structures to withstand these disasters. For the construction industry, this is good news and will result in accessible funding, manageable timetables and higher-quality finished products. Resilient structures and resilient businesses will protect Americans—and the American economy—from an unpredictable weather future.



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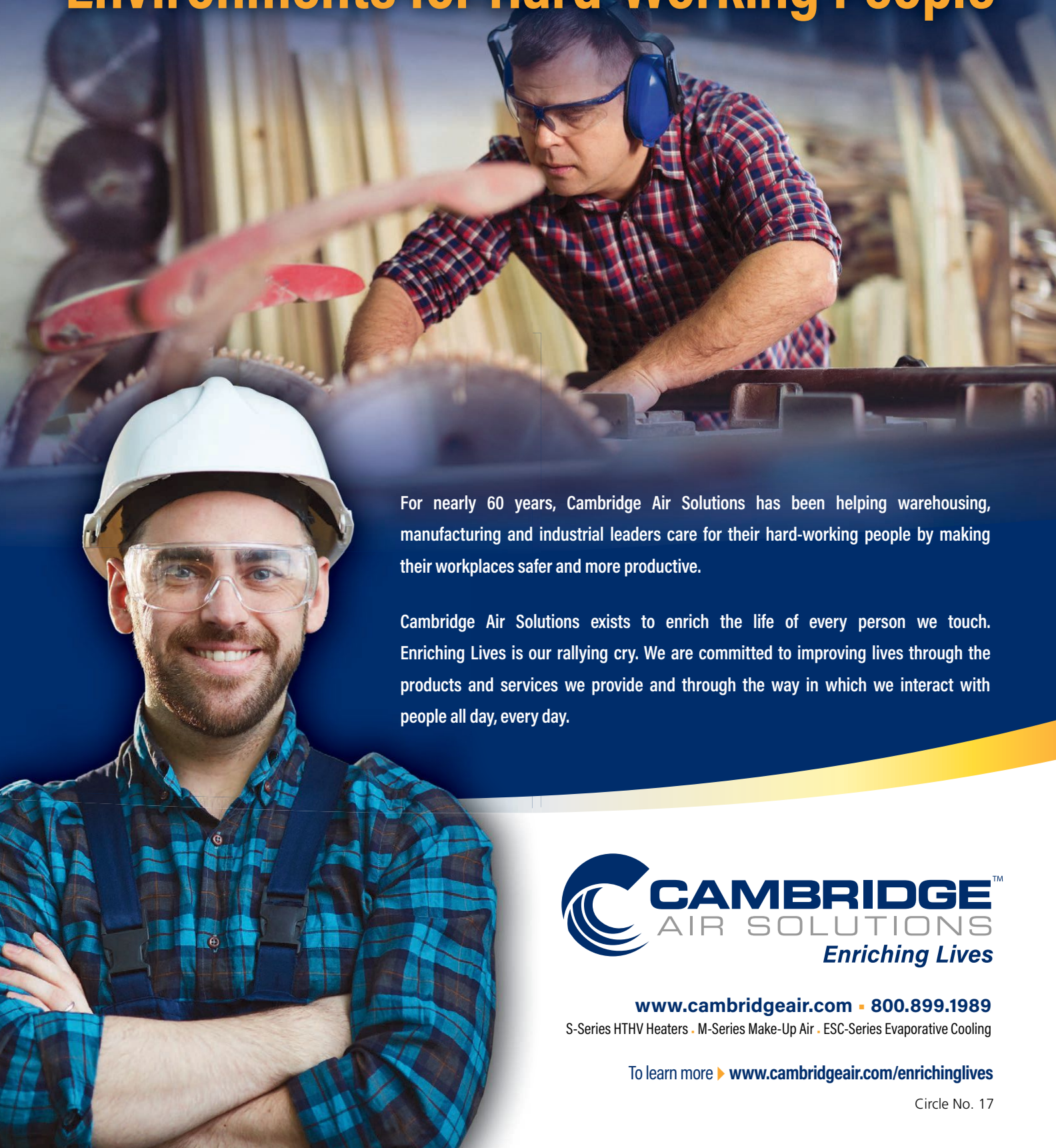
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CAMPUS CROSSROADS EXPANDS ON THE LEGACY OF NOTRE DAME STADIUM



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For its first 87 years, the University of Notre Dame Stadium provided a spectacular venue on six gamedays each year. When those games ended, the stadium emptied, the gates were locked and this part of campus fell silent. The Indiana university sought to change that with Campus Crossroads; the project would bring academics and student life to the stadium while improving the game-day experience.

Four years in the making, the Campus Crossroads

project is the University of Notre Dame's (UND's) largest construction project in the school's 178-year history. Opening in fall 2017 and fully occupied by spring 2018, Campus Crossroads is made up of three new adjacent buildings anchored to the south, east and west sides of the stadium—O'Neill Hall, Corbett Family Hall and Duncan Student Center, respectively.

Working alongside a diverse team of industry partners, The S/L/A/M Collaborative (SLAM) was the executive architect for this

\$400 million endeavor and led the programming, planning and design through construction of the Campus Crossroads project. The project provides a vibrant new face to the southeast side of campus while inspiring a collaborative and multidisciplinary approach to education and research amongst students and faculty. These new buildings add more than 800,000 square feet to the campus, designed to attract students to the area year-round to participate in many activities, including

ROCKNE BUILT



academics, research, student life, fitness, digital media, performance, meetings, events and hospitality, strengthening the stadium's connectivity to the surrounding campus.

ENVISIONING CAMPUS CROSSROADS

SLAM's 20-year relationship with UND spans several groundbreaking projects that revived Notre Dame's heritage of signature collegiate gothic architecture, including the Eck Center, Coleman-Morse, Jordan Hall of Science and the Notre Dame Law School.

As a trusted partner of

UND, SLAM was selected to lead the design team for a feasibility study on the Campus Crossroads project that began in the summer of 2013. SLAM engaged university leadership, administration, faculty, athletics, academics and student affairs in determining what programs belonged in the Campus Crossroads project while ensuring the entities were reflected in the university's strategic goals. An initial list of 20 academic and non-academic departments, including student life, recreational sports and career services, were considered. SLAM helped to

identify the departments that would belong in the Campus Crossroads project.

The study rendered the "big idea" of successfully integrating academic and campus life with an enhanced gameday experience.

The three new buildings of the Campus Crossroads project bring together diverse disciplines to engage in an experience they couldn't achieve alone.

O'Neill Hall, on the south side of the stadium, is a 6-story, state-of-the-art music facility and includes performance halls, the Sacred Music

program, a music library, classrooms and rehearsal halls, music departmental offices, and practice and teaching studios. The Foley's Club provides hospitality space for gameday, as well as receptions and events throughout the year.

On the east side of the stadium is the 9-story academic building, Corbett Family Hall, which includes the Martin Digital Media Center; the departments of anthropology and psychology; facilities for press and radio; and the Downes Club hospitality space, which serves as a 100-seat classroom on non-gamedays.



THE DESIGN TEAM REUSED WEATHERED REDWOOD BENCHES FROM THE STADIUM BOWL—WITH ORIGINAL SEAT NUMBERS INTACT—ALLOWING VISITORS TO TOUCH 90 YEARS OF NOTRE DAME FOOTBALL HISTORY.

The Duncan Student Center, on the west side of the stadium, stands 9 stories and incorporates gameday with student life and hospitality spaces. It is the heart of the greatest concentration of daily academic activity for students and faculty. The Danhke Ballroom serves as a club on gameday and a student-affairs ballroom on non-gamedays and is juxtaposed to other student-life spaces within the Duncan Student Center, including the Student Center, the Smith Center for Recreational Sports and the Meruelo Family Career Center. A large commissary kitchen and trucking

garage support gameday and other events.

Year-round use is evidenced by non-gameday activities occurring in the hospitality and club spaces located within the new buildings, where they extend above the rim of the stadium bowl.

DESIGN

Knute Rockne, the great coach who established the national reputation of Notre Dame football, convinced the university to build the stadium, which was completed in 1930. Although the new buildings of the Campus Crossroads project did not replicate the elements

of the original stadium, they derived inspiration from that structure.

SLAM studied the original building's drawings to understand the key design elements of the Rockne-era stadium. These characteristics include:

- A repetition of three-window bays marked with strong projecting vertical pilasters and deeply recessed windows, creating a lively shade and shadow effect on each element of the façade.

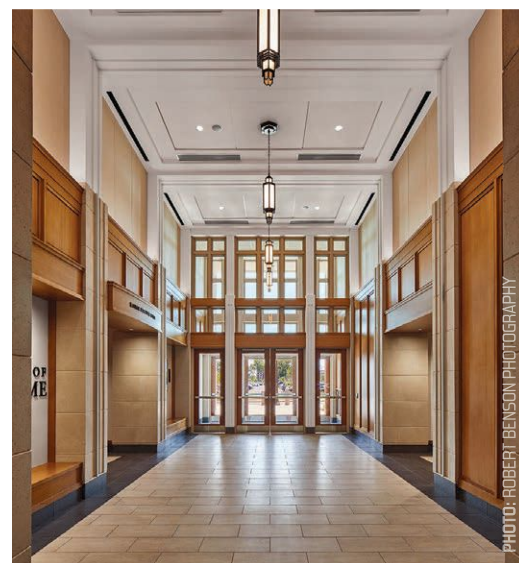
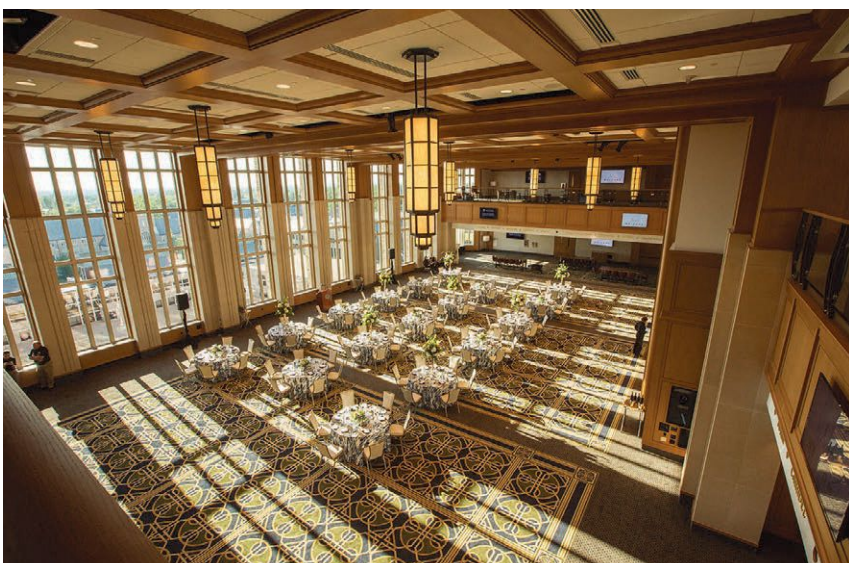
- In each bay, tall windows are capped with arches. Above the arched windows is a parapet that features a frieze of vertical niches, repeated along

the length of the façades.

- Contrasting stone details are used at the base, copings and windowsills. A distinctive geometric ornamental detail is located at the top of the projecting pilasters.

- The original stadium included tower elements marking key entrances with a subtle evolution of the typical bay details seen in the rest of the structure.

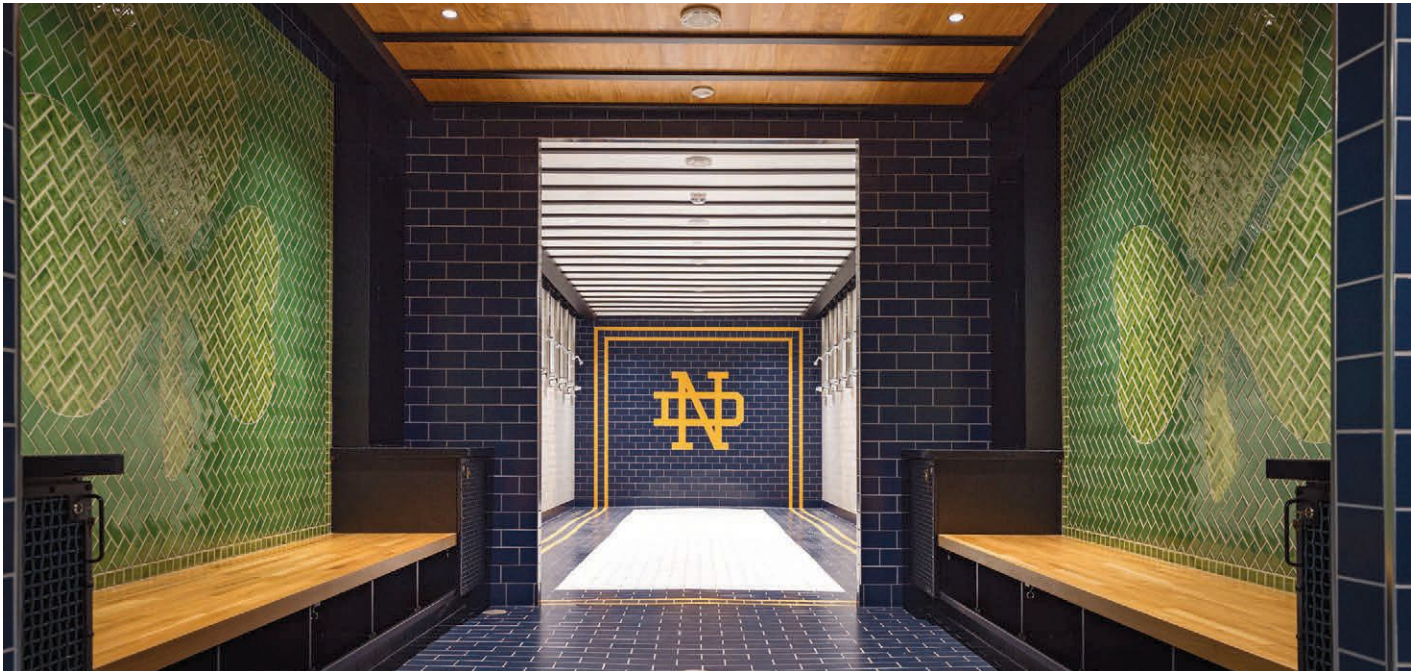
At Notre Dame, there is a characteristic campus palette created by a buff blended brick used on the university's original buildings (the brick was made of the clay dug from the lakes on campus). That blend



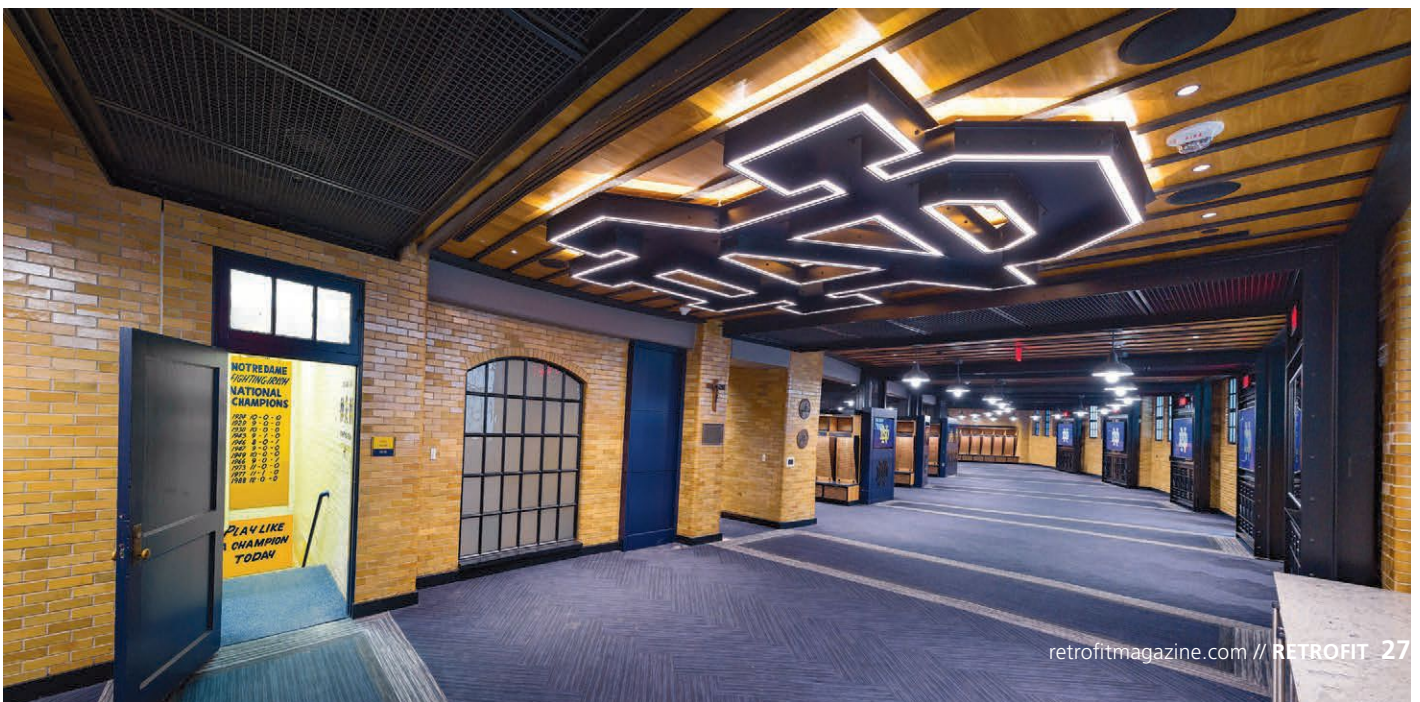
THERE ARE MANY INTERIOR SPACES THAT SOUGHT INSPIRATION FROM NOTRE DAME'S HERITAGE AND ARE ALSO MEANT TO UNIFY WITH THE NEW EXTERIORS. THESE RANGE FROM THE MONUMENTAL DANHKE BALLROOM (LEFT) TO MORE INTIMATE SPACES, SUCH AS THE O'NEILL HALL LOBBIES (RIGHT).



GREEN ROOFS ADORN THE NEW BUILDINGS THAT ARE ANCHORED TO THE SOUTH, EAST AND WEST SIDES OF THE STADIUM.



ORIGINAL 1930S GLAZED BRICK WAS METICULOUSLY SALVAGED AND USED THROUGHOUT THE RENOVATED HOME TEAM LOCKER ROOM. CUSTOM MILLWORK, LOCKERS, FLOORING AND WALL PANELS WERE DESIGNED TO EVOKE THE ROCKNE ERA.





NOTRE DAME FANS HOLD A SPECIAL PLACE IN THEIR HEARTS FOR THE ORIGINAL ROCKNE-ERA STADIUM. WHILE IT IS STILL THERE, THE ORIGINAL FAÇADE WAS OBSCURED BY AN EXPANSION IN 1997 AND ONLY EXISTS AS A PART OF THE CONCOURSE TODAY.



YEAR-ROUND USE OF CAMPUS CROSSROADS IS EVIDENCED BY NON-GAMEDAY ACTIVITIES OCCURRING IN THE HOSPITALITY AND CLUB SPACES LOCATED WITHIN THE NEW BUILDINGS, WHERE THEY EXTEND ABOVE THE RIM OF THE STADIUM BOWL.



PHOTO: ROBERT BENSON PHOTOGRAPHY

has evolved over the decades to become a rich combination of colors that gives an overall tan to buff color. A warm color is added to trim and details; historically, it has been limestone and, in recent decades, cast stone.

With new buildings up to 9-stories tall, the challenge was finding a way to maintain human scale appropriate to a campus of mostly 3- and 4-story buildings. To respect the original stadium and campus, a similarly scaled base was developed for the new buildings, which include tower elements to mark entrances.

The upper stories of the Campus Crossroads buildings progressively step back from the base and are meant to appear as if they unfold from those lower stories. The repetition of vertically organized window bays, each with deeply articulated masonry façades emphasize shade and shadow and provide a rich exterior without over-reliance

on applied ornament.

There are many interior spaces that sought inspiration from Notre Dame's heritage and are also meant to unify with the new exteriors. These range from the monumental Danhke Ballroom to more intimate spaces, such as the O'Neill Hall lobbies and Recital Hall. Millwork and stone details recall the composition and forms of the building exteriors while providing warmth and human scale.

An interesting historic artifact applied to many interior spaces was the reuse of salvaged benches from the stadium bowl. The weathered redwood benches—with original seat numbers intact—allow visitors to touch 90 years of Notre Dame football history.

All these elements are intended to recall the heritage of the iconic stadium while providing a powerful new presence on the Notre Dame campus.

(continues on page 30)

■ Retrofit Team

EXECUTIVE ARCHITECT //
The SLAM Collaborative,
www.slamcoll.com

SPORTS ARCHITECT //
HOK Architects, www.hok.com

EARLY-PHASE DESIGN //
RATIO, www.ratiodesign.com

DUNCAN HALL STUDENT CENTER DESIGN // Workshop Architects,
www.workshoparchitects.com

INTERIOR DESIGN //
Champalimaud,
www.champalimaud.design

ORIGINAL STRUCTURE RENOVATION // Integrated Design Solutions, www.ids-michigan.com

ORIGINAL STRUCTURE RENOVATION // Cardosi Kiper Design Group Inc.,
www.ck-dg.com

ENGINEER // BVH Integrated Services, www.bvhis.com

STRUCTURAL ENGINEER // SDI Structures, www.sdistructures.com

CULINARY DESIGN // Ricca Design Studios, www.ricca.com

DESIGN-BUILD CONSTRUCTION MANAGER // Barton Malow,
www.bartonmalow.com



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■ Materials

BRICK // The Belden Brick Co., www.beldenbrick.com

CAST STONE // Southside Precast Products, www.southsideprecast.com

TERRACE PAVERS // Hanover, www.hanoverpavers.com

GLASS FIBER REINFORCED GYPSUM // Plasterform from Armstrong Ceiling & Wall Solutions, www.plasterform.com

WINDOWS // Wausau Window and Wall Systems, www.wausauwindow.com

EXTERIOR DOORS // The Cook & Boardman Group, www.cookandboardman.com

INTERIOR DOORS // Masonite, architectural.masonite.com

ROOFING // Fibertite, www.fibertite.com

GREEN ROOFS // LiveRoof, www.liveroof.com

HARDWARE // Allegion, www.allegion.com

CARPET // J+J Flooring, www.jjflooringgroup.com, and Mohawk and Durkan, www.mohawkgroup.com

CERAMIC TILE // Garden State Tile, www.gstile.com

EPOXY FLOORING // Stonhard, www.stonhard.com

SPORTS FLOORING // Connor Sports, www.connorsports.com

CEILINGS // Armstrong Ceiling & Wall Solutions, www.armstrong.com

MILLWORK // Imperial Woodworking Co., www.imperialwoodworking.com

LABORATORY CASEWORK // Kewaunee Scientific, www.kewaunee.com

WATER CLOSETS, URINALS, FLUSHOMETERS, FAUCETS AND SOAP DISPENSERS // Sloan, www.sloan.com

OPERABLE PARTITIONS // Modernfold, www.modernfold.com

WINDOW BLINDS // Mecho, www.mechoshade.com

THEATRICAL RIGGING // JR Clancy, www.jrclancy.com

ELEVATORS // Otis, www.otis.com

STADIUM SEATING // Irwin Seating Co., www.irwinseating.com

AUDIOVISUAL // New Era Technology, www.neweratech.com

VIDEO BOARDS // ANC, www.ancsports.com

STADIUM LIGHTING // Musco, www.musco.com

GAMEDAY AND BEYOND

Concurrent to the design and construction of the three new buildings were enhancements to the stadium that combine history and innovative technology, making an already spectacular gameday for 80,000 Fighting Irish fans an even more memorable experience.

The two sideline buildings extend the length of the field and rise 3 stories above the stadium bowl. In these structures are indoor and outdoor hospitality seating and clubs.

Dramatic views of the playing field and campus are now possible from the terraces atop each of these buildings; fans and alumni can gather on these terraces for a more intimate sporting experience. In addition, there are necessary accommodations for press, broadcast, coaches and gameday management, including the NBC broadcast facilities.

Notable improvements for gameday include new stadium technology—video and ribbon boards, stadium sound and field lighting. Broadcast-quality, energy-efficient LED stadium lighting has been installed, providing exceptional visibility of the field and dramatic lighting of the seating bowl.

A first for the Notre Dame Stadium is the addition of a video board at the south end of the field, measuring 54-feet high and 95-feet wide with a 4.7-million-pixel high-resolution image. New sideline ribbon boards along the east and west sides of the stadium display key game statistics. This upgrade in technology facilitated removal of the previous scoreboard at the north end of the bowl, providing improved sightlines

to the famous mural on the Hesburgh Library, affectionately known as Touchdown Jesus.

STADIUM RENOVATIONS

Notre Dame fans hold a special place in their hearts for the original Rockne-era stadium. While it is still there, the original façade was obscured by an expansion in 1997 and only exists as a part of the concourse today.

Different from other buildings on campus, the original façade has a brick blend that is much more orange in hue and incorporates art deco stone detailing in lieu of the more common collegiate gothic. To celebrate this difference, the renovated concourse leans heavily into the history of Notre Dame football and borrows from those details, emphasizing that this stadium is the “House that Rockne Built”.

Art deco-inspired brick and limestone column enclosures support custom light fixtures that march the entire length of the concourse, creating an ambiance that didn’t exist before. Period-correct fonts were used to create new wayfinding signage that incorporates historic program covers from the team’s 133-year history. Original wood concession façades, nearly 90-years old, were restored and are highlighted throughout the original stadium.

The renovations were more than just aesthetic. For years, the stadium’s plumbing was drained after the final game of the season to prevent freezing. A new system of recirculating pumps, along with other methods of heating, keep toilet rooms and concessions operational when temperatures drop below freezing,

allowing the stadium to operate year-round. In 2019, this enabled the university to host the Winter Classic, the annual NHL hockey event.

Gameday improvements weren’t limited to fan amenities. The north end zone entry tunnel, being mostly exposed concrete from the 1997 addition, was renovated with the same art deco detailing of the concourse. Acting as the entry point for the home team, this zone houses new media rooms, officials’ locker rooms, equipment storage, the visiting team locker room and Schivarelli Players’ Lounge.

The preservation of history is capped off within the renovated home team locker room. Original 1930s glazed brick was meticulously salvaged and used throughout. Custom millwork, lockers, flooring and wall panels were designed to evoke the Rockne era. This theme extends to the smallest of details from the selection of mirrors to the tile patterns in the showers.

The stadium renovations allow future generations to create their own experience in this iconic structure while recalling the greatness of Notre Dame football history.

The entire Campus Crossroads project was a monumental undertaking for the University of Notre Dame, as well as for the design and construction team. The most rewarding part of this experience was seeing Campus Crossroads come alive—on gameday with 80,000 cheering fans and on each day of the academic year with thousands of students and faculty using the new buildings. A once quiet part of Notre Dame campus now is filled with the life of a great university. 



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LOS ANGELES MEMORIAL COLISEUM



BEFORE

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PHOTO: RANDY HOWARD

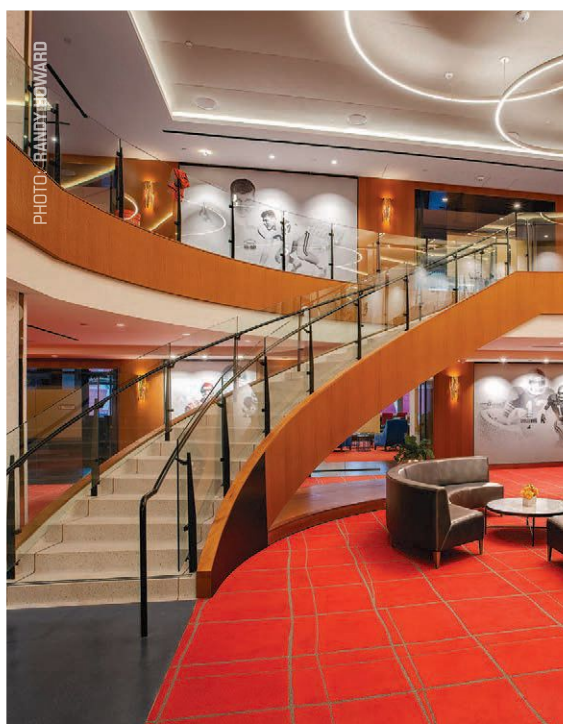
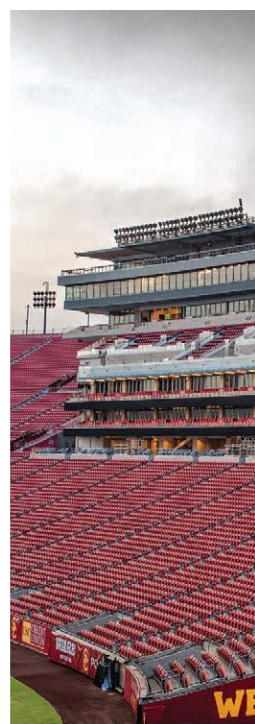
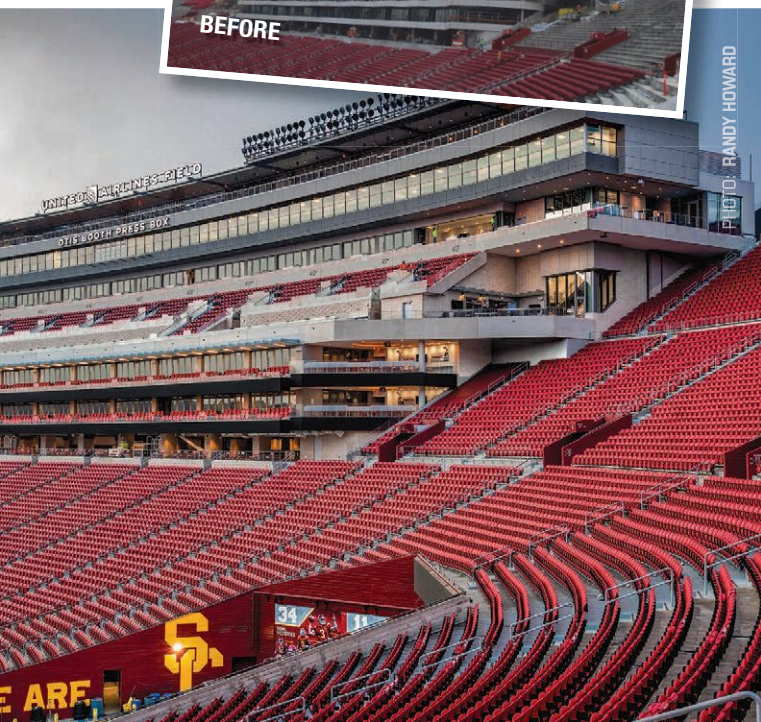


PHOTO: RANDY HOWARD





►► RETROFIT TEAM

OWNER/DEVELOPER: University of Southern California and USC Capital Construction, www.usc.edu

ARCHITECT: DLR Group, www.dlrgroup.com

GENERAL CONTRACTOR: Joint venture between Hathaway Dinwiddie, www.hdcco.com, and AECOM Hunt, www.aecom.com

►► MATERIALS

- A new 7-story, 252,000-square-foot Scholarship Club Tower provides patrons with an improved experience, including 360-degree views of Los Angeles, new suites, a press box, food and beverage amenities, and premium seating.
- Travertine limestone from Italy was utilized for the Peristyle restoration. This process replaced the broken pieces and polishing restored the stone to its original splendor, setting off the famed blue mural under the main arch.
- Engineers approached the Scholarship Club Tower and each floor's unique design by using a buckling restrained brace system, meant to provide the strength of a brace but with the flexibility that buckling brings. The 7 stories contain 94 braces, averaging 15 per floor. The rectangular shape—20 inches by 20 inches at its largest width—can handle up to 500,000 pounds of force. The diagonal placements—with 42 feet being the longest in the building—were designed for replacement if ever needed.
- Under-seat WiFi installation offered the best solution for coverage and kept equipment off the historic façade but also posed a challenge with an entire building of cast-in-place concrete built largely upon at-grade earth. The wireless and cellular infrastructure is scalable when new technology becomes available.
- A folding storefront system—manufactured and shipped from Germany by Dorma, www.dormakaba.com—is suitable for applications that may be exposed to higher wind loads.
- Wood veneer panels (wallcoverings) were manufactured and shipped from Japan.
- The team removed 93,759 seats that were 20 to 30 years old and replaced them with 76,700 cardinal-red seats that are wider, have more legroom and new cupholders.
- Two massive video boards on the stadium's east end improve the game experience by ensuring every fan has a direct sightline to a large video display.
- Mechanical, electrical and plumbing systems were upgraded.
- State-of-the-art ultra LED field and stadium lighting was installed.

►► THE RETROFIT

A demanding timetable to retrofit the legendary Los Angeles Memorial Coliseum within 18 months for the Fall 2019 USC Trojans football season required sophisticated construction technology, close-knit collaboration and a seasoned crew from the Hathaway Dinwiddie/AECOM Hunt partnership. An important Los Angeles icon designed by renowned architects Parkinson and Parkinson as a living memorial to soldiers of World War I, the coliseum has hosted countless events during its almost 100 years. It is the only facility to host two Olympic Games (X and XXIII); two Super Bowls (I and VII); one World Series (1959); a papal Mass; visits by three U.S. presidents, John F. Kennedy, Richard M. Nixon and Ronald Reagan; and USC home football games since 1923. The coliseum will again host the Olympic Games in 2028.

The \$315 million retrofit was carefully designed to protect the coliseum's historical integrity while improving the fan experience. The greatest construction challenge was to hollow out a 240,000-square-foot bowl (including basement) for the new Scholarship Club Tower without disturbing the existing structure. A second challenge was to accommodate sports events during construction, ensuring public safety while keeping to the building schedule. With approximately 30 different trades per day onsite, the job poured 13,514 cubic yards of concrete; used 2,654 tons of rebar and 2,131 tons of structural steel; and exported 47,136 cubic yards of dirt.



PHOTOS: RICHARD MANDELKORN

RAY LAVIETES PAVILION | Cambridge, Mass.

► RETROFIT TEAM

ARCHITECT: Bruner/Cott & Associates, www.brunercott.com
 CONSTRUCTION MANAGER: Consigli Construction Co., www.consigli.com
 STRUCTURAL ENGINEER: Foley Buhl Roberts & Associates Inc., www.fbra.com
 MEP, AV, IT, FIRE, SECURITY ENGINEER: BR+A, www.brplusa.com
 ACOUSTIC CONSULTANT: Acentech, www.acentech.com
 LIGHTING CONSULTANT: Lewis Lighting Design, www.lewislighting.com
 ATHLETIC CONSULTANT: Sasaki Associates Inc., www.sasaki.com

► MATERIALS

New white oak paneling and flashed red brick add resilience, character and connect the interior spaces throughout the building with a unified palette. New climate control systems, all-LED lighting, modern audiovisual amenities, wayfinding strategies and landscape improvements are also vital components of the project. The following is a sampling of materials used in the renovation:
 HIGH PRESSURE DECORATIVE LAMINATE: Nevamar, panolam.com/nevamar
 FACE BRICK: Glen-Gery, www.glenery.com

INSULATION: Thermafiber from Owens Corning, www.thermafiber.com
 MASONRY MOISTURE MANAGEMENT: Mortar Net from Mortar Net Solutions, mortarnet.com
 CLIMATE CONTROL SYSTEMS: Siemens Industry Inc., new.siemens.com
 LED LIGHTING: TivoTape from Tivoli Lighting, www.tivolilighting.com; Regolo by Nulite, www.nulite-lighting.com/architectural/regolo; Perseus Series from Xeleum, www.xeleum.com; Classix 6-inch Downlight and Classix 6-inch Round Lensed WW Recessed LED from Amerlux, amerlux.com; and Lightplane 3.5 – LP3.5 from Light Forms, www.lightforms.com
 AV AMENITIES: Crestron, www.crestron.com; Extron, www.extron.com; Blackmagic Design, www.blackmagicdesign.com; Chief from Legrand, www.legrandav.com/products/chief; Middle Atlantic Products, www.middleatlantic.com; and Integra, integraworldwide.com

► THE RETROFIT

First constructed in 1926 as Briggs Athletic Center, the pavilion is the second-oldest basketball arena in NCAA Division I. It was subsequently named for Raymond P. Lavietes, a Harvard basketball star and philanthropist who funded an earlier renovation of the facility. The \$15.5 million

revitalization of the pavilion was completed for the 2017-18 basketball season. A major goal of the Bruner/Cott & Associates' 35,556-square-foot restoration, renovation and new construction initiative was to celebrate the intimacy and historic charm of the venerable structure while showcasing the story of Harvard basketball and athletics there.

Bruner/Cott architects worked to weave 21st-century amenities into the existing building fabric. As the smallest basketball stadium in the Ivy League, there were many space constraints. Found space below the bleachers was utilized to free up the plan. The previous bleachers were retractable, but the team discovered if the top portion was fixed and only the lower was retractable then it could fit new toilet rooms, storage rooms, a concessions venue, training rooms and mechanical rooms while providing all the space needed for two practice courts and without reducing seating capacity.

A 2-story addition on the south side of the original building houses a new entrance lobby, ticket windows, merchandise shops, concession areas, team lounges and coaches' offices. Renovations to the stadium's interior include new home and visitor locker rooms, spectator seating media spaces, restrooms and meeting rooms.



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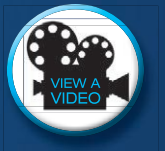
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FARMINGTON COUNTRY CLUB

Charlottesville, Va.

► RETROFIT TEAM

ARCHITECT: Cooper Robertson,
www.cooperrobertson.com

ASSOCIATE ARCHITECT: VMDO Architects,
www.vmdo.com

OWNER'S REPRESENTATIVE/PROJECT MANAGER/

ESTIMATOR: Cumming, ccorpusa.com

MEP CONSULTANT: KTA Group Inc.,
www.ktagroup.com

► MATERIALS

The following is a sampling of materials used in the project:

FLOORING: ADURA Max Vinyl Planks from
Mannington, www.mannington.com

EXTERIOR SHEATHING SYSTEM: Zip System from
Huber Engineered Woods, www.huberwood.com

BRICK: Old Carolina Brick Co.,
www.handmadebrick.com

FRONT ENTRANCE LIGHTING: French Quarter
lanterns from Bevolo, bevolo.com

► THE RETROFIT

The historic Farmington Country Club is one of the most storied private club campuses in the country. Thomas Jefferson himself designed the clubhouse building's east wing. Cooper Robertson was charged with transforming the organization's facilities to make the historically staid campus more inclusive for women, children and families, as well as more appealing to new generations who might otherwise look for different forms of social engagement.

"Historically, most clubs have catered to wealthy men, generally older than 40," explains John Kirk, AIA, partner at Cooper Robertson. "Facilities, such as women's locker rooms and lounge areas, were often converted from other

uses as an afterthought and then simply left untouched for years, making many clubs less desirable for women."

Because the base structures date back to the 1760s, a major challenge was modernizing while still maintaining historic appeal. To achieve this, the design team expanded and upgraded the club's social and dining venues, renovating one existing space and adding two additional spaces and outdoor patios. Additionally, the team added a children's center—so parents can work in a game of tennis or yoga class—and a shorter, nine-hole golf course to make it easier for diverse members to fit a quick game into their busy schedules.

Other work included a new guest cottage and outdoor pavilion, renovations and upgrades to the club's fitness and locker facilities, as well as new indoor and outdoor tennis courts and additional parking.



PHOTOS: FRANCIS DZIKOWSKI



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Feeney Makes it Easy.



ROSA JACKSON RECREATION CENTER

Macon, Ga.

►► RETROFIT TEAM

ARCHITECT: WM2A Architects, www.wm2a.com
 WALL PANEL INSTALLER: Southeast Roofing Solutions, seeroofingsolutions.com
 GENERAL CONTRACTOR: International City Builders, www.icbconstructiongroup.com
 WALL PANEL DISTRIBUTOR: Commercial Roofing Specialties, www.crrsupply.com

►► MATERIALS

A complementary combination of three PAC-CLAD exposed fastener profiles was specified. Approximately 8,000 square feet of Petersen's 7/8-inch Corrugated, 7.2 Panels and M-36 Panels finished in Bone White, Cardinal Red and Cityscape, respectively, were installed.

Architect Charles Green of WM2A Architects sees corrugated and other exposed fastener systems as important design elements for wall cladding. "Everyone was really pleased with the way it turned out," he says. "It was a successful job and the finished project is quite handsome."

WALL PANEL MANUFACTURER: Petersen, pac-clad.com

►► THE RETROFIT

Completion of a major renovation and expansion of the Rosa Jackson Recreation Center in the historic Fort Hill area of Macon has been met with rave reviews. The facility now includes a new multipurpose room, gymnasium, computer lab, playground and other amenities to make the center a family destination.

The community provided input regarding the building's design. "We developed a community wish list and followed it faithfully," Green explains. "Better yet, the project came in under budget and was completed ahead of schedule. It was a win/win for everybody."

PHOTOS: © HORTONPHOTOSINC.COM





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PHS LED High Bay

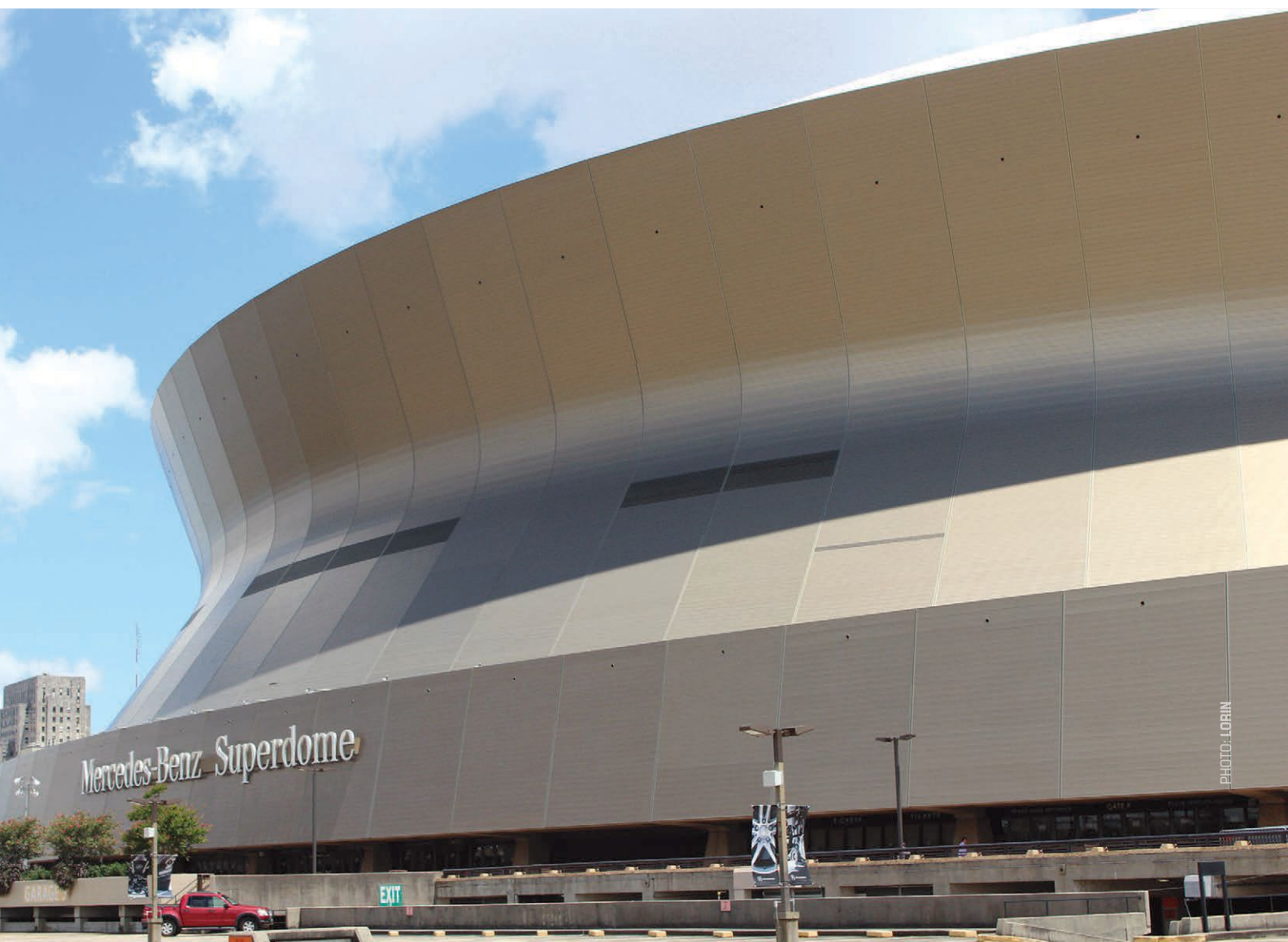


PHG LED High Bay



PHZ LED High Bay





MERCEDES-BENZ SUPERDOME

New Orleans

» RETROFIT TEAM

ARCHITECT: Trahan Architects,
trahanarchitects.com

» MATERIALS

The Superdome renovation includes 365,000 square feet—more than 400,000 pounds—of Lorin Light Bronze ColorIn Stucco embossed anodized aluminum with an architectural Class I anodized layer. Each panel, covered with a fade-proof finish, weighs approximately 27.5 pounds.

Trahan Architects team members were looking for a color that replicated the original finish and resembled the New Orleans Saints gold. The team wanted the beauty of the embossed aluminum to show through

while retaining its color for years to come. To achieve this goal, Lorin developed a new product by using its color-consistent processing capabilities and continuously communicating with the team involved in the project to ensure its product would bring the vision to life. The resulting aluminum enhances the natural characteristics of the metal through an oxide layer that also protects the multidimensional look.

The stadium's exterior LED lighting system illuminates the aluminum exterior and can reproduce any color, pattern, or image onto the unique finish of the stadium panels.

ANODIZED ALUMINUM PANEL
MANUFACTURER: Lorin, www.lorin.com

LITTLEJOHN COLISEUM | Clemson, S.C.



» RETROFIT TEAM

ARCHITECT: LS3P, www.ls3p.com

WALL PANEL DEALER/INSTALLER: Steel Clad Inc., www.steelclad.com

GENERAL CONTRACTOR: Turner Construction, www.turnerconstruction.com

» MATERIALS

Renovations and an addition to Littlejohn Coliseum at Clemson University utilized CENTRIA's Formawall Dimension Series insulated metal panels. Addressing aesthetic and technical challenges, the metal panels—in Arctic Ice and Slate Grey—in addition to IW Series rainscreen panels in Midnight Bronze, improved the building's overall appearance and the fan experience at the arena.

"The existing coliseum was constructed with exposed steel columns and exterior wall

plates and over the years had patinated to a dull rust color, leaving heavy stains on the concrete pedestrian apron that surrounded the facility," explains Scott May, principal at LS3P. "The exterior steel cladding plates were originally uninsulated, which transferred a tremendous amount of radiant heat into the facility. CENTRIA's insulated metal panels offered an opportunity to not only clad the facility in an insulated skin, but possessed colors and textures to unify the building façades and impart a contemporary aesthetic."

The previous building addition, completed in the mid-2000s, was not of sufficient size to accommodate the university's growing sports program, and there was an opportunity for the new addition to provide a cohesive aesthetic to the overall structure, which spans 220,000 square feet. The Formawall Dimension Series panels, which feature an embossed finish

and are coated with Fluorofinish, were able to achieve the desired project aesthetics with a limited number of panels, diminishing the likelihood of air or water infiltration while providing the desired level of insulation.

The architect also specified Super-Rib and Style-Rib exposed-fastener rainscreen panels coated with Duraguard in a smooth finish.

CENTRIA also was responsible for custom flashings, custom louvers and custom ACM per the design requirements. Throughout the multifaceted process, all involved parties were in close contact to achieve the project goals in a timely fashion—a critical part of the overall schedule, which was expedited by the university's sports season.

METAL PANELS MANUFACTURER: CENTRIA, www.centria.com

TIGER STADIUM | Baton Rouge, La.



►► RETROFIT TEAM

INSULATION INSTALLER: Calmar Corp.,
calmarinc.com

►► MATERIALS

Calmar team members installed 3 inches of Atlas EnergyShield Pro continuous insulation on the ceilings below the club suites. The panels provide an R-Value of 19.7, durable aluminum facers, water-resistive barrier capability and Class A fire-resistance properties. Although designed to be used as an exterior continuous insulation, EnergyShield Pro also works well for interior ceilings where a smooth structure and clean appearance are desirable—the requirements at Tiger Stadium.

Calmar painted the panels and fasteners gray to match the concrete walls of the corridors.

INSULATION PANEL MANUFACTURER: Atlas,
www.atlasrwi.com

►► THE RETROFIT

Louisiana State University is known for its fans' devotion to attending football games. To maintain that legacy, the school recently renovated the club-level suites in historic Tiger Stadium, which was built in 1924. The club suites provide private seating and superior amenities for guests.

Because of the higher ticket prices in these suites, the university sought a high level of

comfort and a premium experience. The suites were located directly above poorly insulated cast concrete public corridors, so they experienced extreme temperature variations. The concrete trapped excessive heat in Baton Rouge's hot summer and fall months, which led football fans across the country to refer to Tiger Stadium as "Death Valley." In the late fall and winter, the concrete corridors were cold.

In July 2018, LSU representatives increased the level of insulation in its club suites to combat these issues, and visitors walking through the corridors beneath the suites see a streamlined insulation system that blends in nicely with the existing concrete structure.



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DESIGNERS BEFRIEND A RESEARCHER



FOUR LIGHTING PROJECTS ILLUSTRATE THE POTENTIAL GAPS BETWEEN CURRENT **RESEARCH** AND THE REALITY OF THE **DESIGN PROCESS**

WRITTEN BY | RACHEL FITZGERALD, CLD, LC, IALD, LEED AP BD+C; KATHERINE STEKR, CLD, MIES, IALD, EDAC, LEED AP BD+C; AND ANDREA WILKERSON, PH.D., LC

The lighting industry is ever evolving, from the obsolescence of traditional lighting technologies to stricter energy codes and changes in the broader building industry. Researchers around the world are hard at work advancing understanding of human responses to light while developing new meters, software and lighting products. Yet the latest information often seems to live in a vacuum. Designers often read white papers and articles to track industry changes, but the design process is often not evolving fast enough to incorporate the latest research, best practices and technology.

The widespread adoption of LEDs has created a need for new test methods, tools and metrics, particularly relating light stimulus to human response. New questions have been raised regarding flicker, color perception and glare, along with other responses to light. The ability to tune the spectrum of light coincides with our emerging understanding of circadian rhythms and other biological responses to light with new metrics continuing to emerge.

With all these changes, one thing that has not evolved as quickly are the methods and metrics lighting designers use as tools to craft their designs. Why is this? For some perspective, two lighting designers befriended a lighting researcher and set out to evaluate four recently completed projects to better understand potential gaps that inevitably occur between current research and the reality of applying it in the design process.

- The first stop was a law firm in downtown Denver. The firm moved to a new office space in 2016 and at the time of installation was an early adopter of LED technology. LEDs are everywhere in the design, providing general office illumination to highlighting artwork and providing visual interest with a custom 3-story chandelier.
- The next two stops were Denver tech companies with all LED office spaces completed in 2019.
- The last stop was a Denver architecture firm with offices completed in 2008—in the not-so-distant days of fluorescent. The majority of buildings still have fluorescent luminaires, so this visit provided an important baseline.

These projects afforded a unique opportunity for conversations regarding the challenges in applying research, including LED lifetime, LED color, illuminance measurements and flicker.

LED LIFETIME

» *Research* There has been extensive testing of LED products over the past decade with specific requirements for predicting lifetime developed by the Illuminating Engineering Society (IES) and approved by the American National Standards Institute (ANSI) detailed in ANSI/IES-LM-80 and ANSI/IES-TM-21.

Research continues to explore additional factors that may affect lifetime, such as cycling (turning off and on), along with other failure modes, such as color



Field Verification Designers often do not have the opportunity to field verify a project once it is complete. However, partnering with a researcher gave the designers access to new tools and provided the researcher an opportunity to get out in the field.



Law Office Completed in 2017, the performance characteristics of the originally installed LED lighting in this downtown Denver office were evaluated to determine if performance several years later matched expectations.

Attend this Presentation at LIGHTFAIR

The authors of this article will be co-presenting “Bridging the Gap: Research to Design” at this year’s LIGHTFAIR, scheduled for May 3-7 at the Las Vegas Convention Center. The session, which takes place May 6, will help attendees navigate the complex world of emerging lighting research, knowing where to look and what questions to ask to apply research to the everyday design process. Learn more and register at www.lightfair.com.



shift. Most manufacturers complete laboratory testing of their LED diodes for no more than 10,000 hours; these test results are used along with other information to estimate luminaire lifetimes.

» *Reality* Estimations of lifetime based on tests that are looking at limited information leave a lot of questions unanswered. How accurate are these estimations? What happens after 10,000 hours? It also leaves designers with little choice but to trust manufacturers.

Additionally, designers must figure out how to help owners understand that LEDs do not typically die; they just get dimmer with age.

Following project completion, lighting designers often support the project through contractual obligations and warranties for a few months up to a few years, but hardly any in the industry are doing additional follow up on the performance of LED products beyond a few years. Because of the incredible life of LEDs and because mainstream adoption of LEDs started around 2010, this hasn’t been an issue, but these questions are likely to start coming from previous clients as these systems age and approach end of life.

LED COLOR

» *Research* Along with research related to lifetime, there has been extensive focus on the color appearance and color-rendering properties of LED light sources. One major



PHOTOS: STANTEC

shift since the advent of LEDs is a new set of color-rendering metrics detailed in IES-TM-30-18, providing much more detailed information than the color rendering index (CRI). Researchers continue to focus on human color perception to better understand how particular LED light source spectral power distributions (SPDs) will be perceived, consumer preference, and communicating information about color rendering and light source color appearance.

Condensing how the human visual system processes SPDs, spanning 380 to 780 nm, into one number or even two meaningful numbers is very difficult. Our eyes are very good at white-balancing to different SPDs when transitioning between spaces and can also easily identify small differences in SPDs when light sources are side by side. The SPDs of LEDs shift over time, but if everything shifts together it is difficult to notice. The problem of replacing a failed LED product after several years is one of the reasons why researchers continue to focus on LED SPD shift over time.

» *Reality* Ideally, all possible lighting issues would be figured out during design or fixed during construction with all products arriving to the job site around the same time. When replacements or additions to lighting systems need to occur, there can be a noticeable color variation between older and newer products.

The Denver law office’s art collection was curated over three years, resulting in a desire to add new lights to highlight the additional pieces. The same luminaire was ordered and installed and, once viewed onsite by the

(continues on page 48)



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PHOTOS: ASTULA INC./RAUL J. GARCIA



Tech Office In this recently completed tech office, the lighting reflects the varied work spaces from open office to open collaboration to private meeting rooms with an array of lighting solutions to meet the unique needs of each space.

lighting designers, it was visually apparent there was a color shift. Field verifying the color temperature and chromaticity coordinates confirmed there was a color shift between the “older” luminaires to the newly installed luminaires. Although enough daylighting and other sources helped to make this change indistinguishable to most observers, these situations are likely to happen more frequently.

Designers do not have as much control as they'd like over the LED diodes selected and are often assured by manufacturers there is consistency in LED diode selections for products. Questions often swirling around in designers' heads include what is acceptable color shift and will occupants notice the visual difference? The reality is most probably will not notice, but lighting designers will.

In general, current design practice includes making sure all light sources match in color, but in the future, more projects may include different areas within a space using warmer or cooler colors, and these colors may vary throughout the day. Will occupants like spaces with varying colors,

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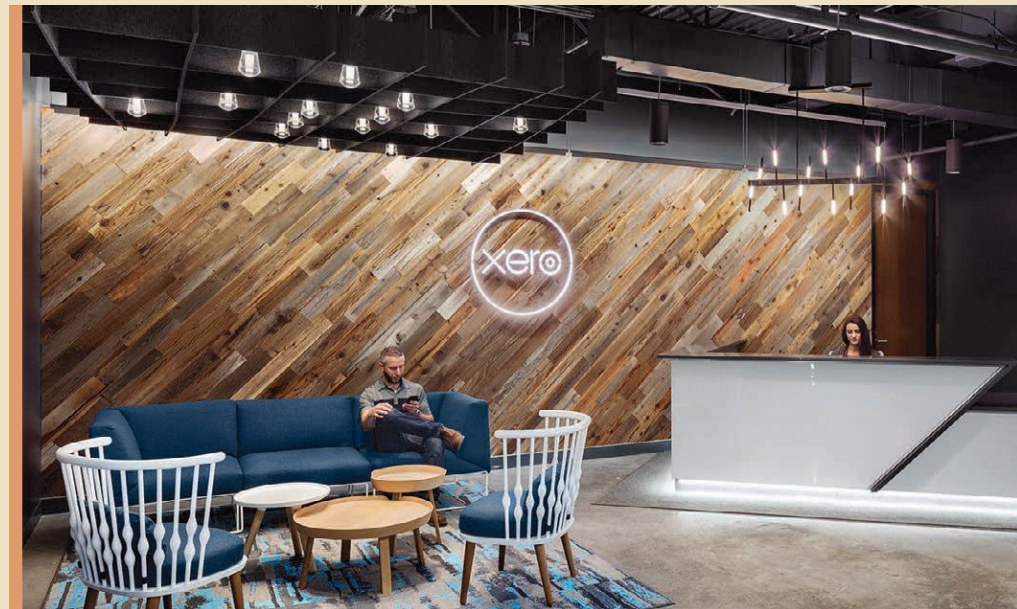


or will they even notice? Designers can help researchers understand what matters to clients/building owners because researchers rarely work with building owners.

ILLUMINANCE MEASUREMENTS

» *Research* Accurate illuminance measurements are a focus of the National Institute of Standards and Technology (NIST), lighting meter manufacturers and calibration laboratories. Much of this information is not easily accessible by the public, except for manufacturer literature. Illuminance meter designs may vary by detector shape and filter type, among many other design decisions by the manufacturer. The application the meter is designed for is also important because different applications, such as photography, have different needs. The variation in illuminance meter performance is why meter calibration is so important.

» *Reality* After collecting all the illuminance meters the authors had access to, as well as downloading numerous free phone



apps claiming to measure illuminance, there were 12 illuminance meters and apps tested against each other by putting them on the same spot on an office table with no daylight in the room. (These meters and apps ranged in cost from free to hundreds of dollars.)

It was quickly apparent that phone apps relying only on the phone camera SHOULD NOT be considered reliable illuminance meters. Additionally, it was clear that yearly calibration of meters is essential so that lighting designers can verify the accuracy of their designs in the field.

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THE **DESIGN PROCESS** IS OFTEN NOT EVOLVING FAST ENOUGH TO INCORPORATE THE LATEST RESEARCH, BEST PRACTICES AND TECHNOLOGY.

The projects were designed to IES-recommended maintained light levels for the varying tasks in these offices with lighting power density values better than code requirements. Field illuminance measurements recorded during the site visits were close to the illuminance values calculated by software during the design process for each project. Illuminance will decrease over time, so designers tend to be conservative, designing projects with higher illuminance levels initially because they want to make sure there is enough light several years down the road when light output decreases because of dirt, aging LEDs, etc. It is much more difficult to add more light later, although some control systems adjust the dimming level to maintain approximately the same illuminance over the life of the lighting system.

less likely. Researchers continue to try to better understand flicker so responses to flicker can be better understood and LED luminaires and controls can be better designed to minimize the chance of flicker.

» *Reality* In this time of circadian rhythms and LEDs, the idea of flicker has seemingly fallen to the wayside. Additionally, the days of flickering linear fluorescents are mostly in the past because of the switch from magnetic to electronic ballasts. But flicker is still a big deal with LED technology. Through the process of measuring flicker in these recently completed spaces, the discussion quickly revealed that to the lighting design community, flicker is not a well understood concept and there is not a current universally accepted metric to characterize flicker. Percent flicker, flicker

to manufacturers and researchers; this is critical feedback they cannot easily replicate in their laboratories. Manufacturers can help by publishing more information about flicker, and researchers can help by determining which of the flicker metrics is the most important for designers to understand. Continual dissemination of what researchers and manufacturers are learning is pivotal to the lighting design community, improving their understanding of flicker.

Final Thoughts from a Design Perspective

LED technology has done wonders for advancing research within the lighting community, placing much-needed focus on lighting and its effects on humans. These advancements allow lighting designers to create unique and beautiful spaces utilizing less energy. The seemingly increasing gap between what researchers are studying and what designers have access to and fully understand is becoming larger. The lighting industry is evolving on a monthly basis and keeping all emerging technologies, research and practice guidelines at the forefront of a design that is code compliant and aesthetically pleasing is definitely a challenge.

The lighting profession is part of a collaborative environment with designers often reaching out for help on complicated subjects. However, too often this collaborative environment does not include the research community. Hopefully, in the future as the lighting community continues to grow, researchers can be brought in as advisors for complicated lighting projects that want to go beyond normally accepted lighting practices and can help interpret and field verify results. On the flip side, researchers need to incorporate the expertise of the lighting design community as researchers design experiments and translate the research results to the broader context of the lighting community. With these types of collaborations, the gap between researchers and designers is bridged. 



Lighting Meters A sampling of the lighting meters used when investigating lighting performance at the four offices.

FLICKER

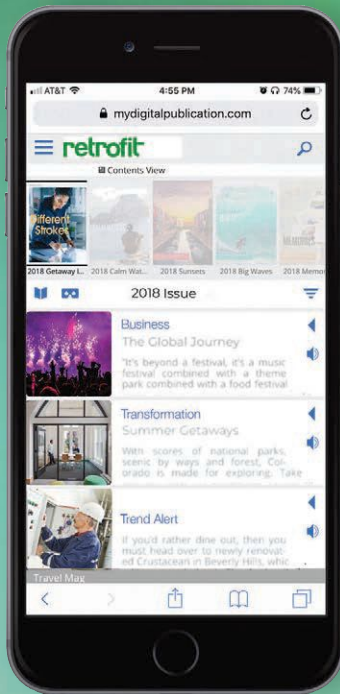
» *Research* Flicker is a repetitive change in light output over time, and the rate at which the change happens is particularly important. Many light sources flicker, but the change in light output happens so fast that it is not perceptible to our visual system. Global interest in flicker research was reignited with the emergence of LEDs; many early LED products flickered, particularly when dimmed.

Human response to flicker varies from mild annoyance to seizures for some higher-risk populations. When LEDs are dimmed, flicker is most likely to occur, but products are improving so this is less and

index and SVM (Stroboscopic Effect Visibility Measure) are three metrics calculated by the meter the team used in the field.

A flicker meter is typically not a tool that most lighting design firms have on hand, and the physical act of measuring flicker requires measuring after products are installed because there are many other factors that can affect flicker, particularly in older buildings. Several steps would improve flicker understanding, including designers showing the same enthusiasm about flicker as they are currently showing with circadian rhythms. Designers should also consider using flicker meters for field verification and provide the results

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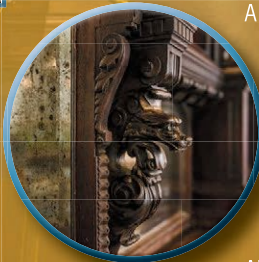
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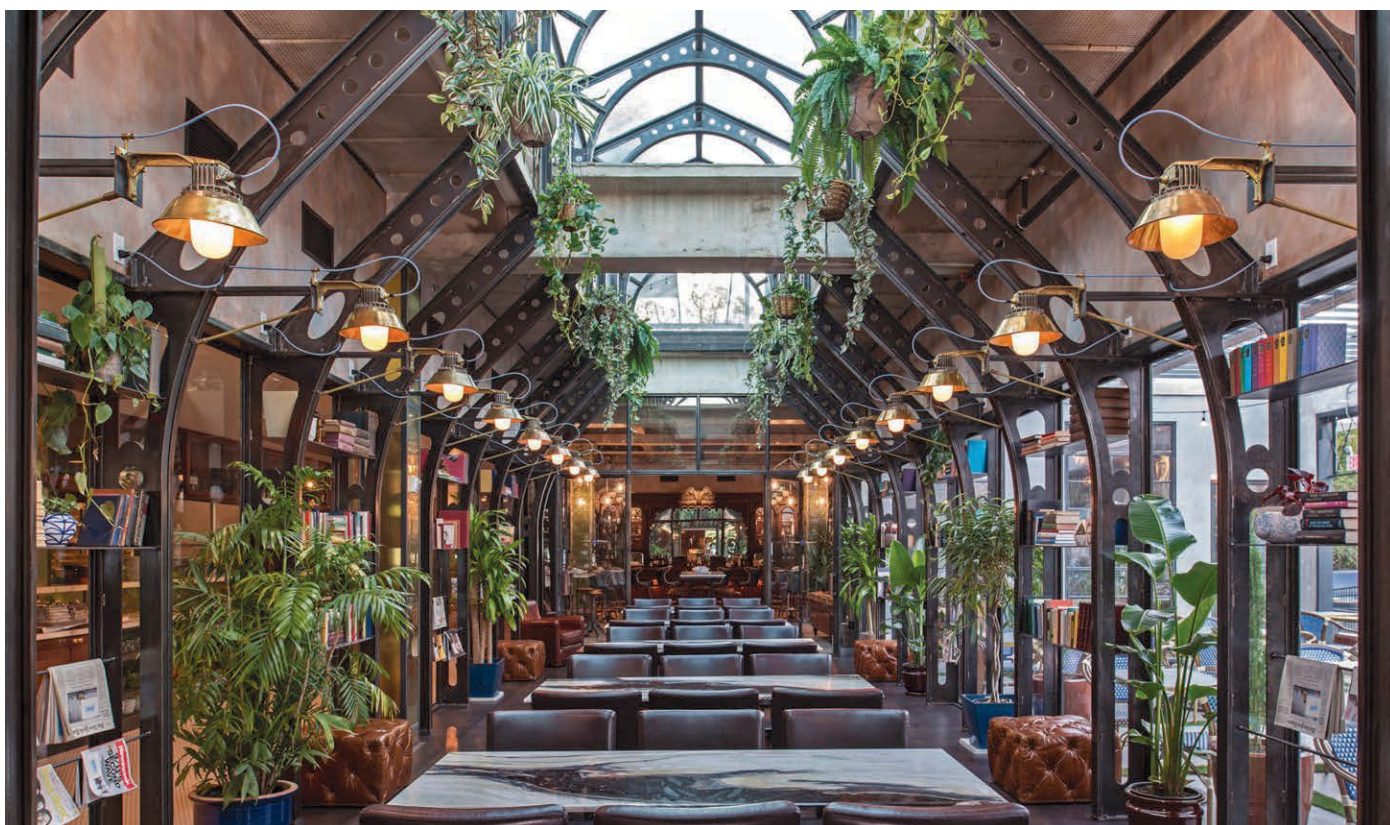
WRITTEN BY | SAM MANNING, AIA

Ean a salvaged mahogany bar inspire the design of a new bar/restaurant? In the case of Eberly, a vibrant meeting spot housed in what once was a print shop in Austin, Texas, the answer is yes. The impressive 30-foot-long by 10-foot-tall, 150-year-old hand-carved mahogany bar formerly presided over the storied Cedar Tavern in New York's Greenwich Village.



A 150-YEAR-OLD HAND-CARVED MAHOGANY BAR IS KEY TO EBERLY'S WARM ATMOSPHERE. DURING ITS HISTORY, THE BAR HAS HOSTED NOTABLE ARTISTS, LIKE JACKSON POLLOCK, JACK KEROUAC AND BOB DYLAN.

Today, the bar top creates an atmosphere in Eberly worthy of the time when notable artists, such as Jackson Pollock, Jack Kerouac and Bob Dylan, pulled up their stools to it for a drink. Eberly's owner sought to give new life to the venerable bar, continuing its story by adding the diverse influences for which the city of Austin is known.



➔ Retrofit Team

ARCHITECT // Clayton & Little, claytonandlittle.com

- Paul Clayton, principal
- Sam Manning, project architect

INTERIOR DESIGNER //
Mickie Spencer

GENERAL CONTRACTOR // ICON Design + Build,
(512) 825-5574

STRUCTURAL ENGINEER //
JM Structural Engineering,
(512) 505-8533

MECHANICAL & ELECTRICAL ENGINEER //
Bay & Associates Inc.,
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Situated just south of the Colorado River on the edge of downtown, Eberly is within walking distance of Austin's beloved Ladybird Lake, its hike and bike trails, as well as numerous retail spots and other commercial buildings. The establishment marries the raw concrete and glass of the nondescript print shop with the warmth of the restored bar. To promote an artistic atmosphere, the design team at Clayton & Little, which has offices in Austin and San Antonio, divided the vast space into three distinct settings: a "restored" Cedar Tavern, mod Dining Room and book-filled Study.

VISUALLY LAYERED SPACES

Rather than demolishing the utilitarian 1970s print shop, the design team took advantage of the concrete structure's gritty vibe by juxtaposing it against the refined material palette selected for Eberly. From a practical standpoint, demolishing a building that was built like a bunker did not make sense. Early in the design process, a rooftop function space was envisioned and the massive concrete-framed structure allowed that design with minimal structural additions. Not only would the cost of a new structure have been prohibitive, it would have resulted in a different design solution altogether. The large open expanses retained from the print shop's original shell provided a blank canvas to create a sprawling interwoven series

of spaces that result in rich, layered and varied experiences.

The establishment's visually layered spaces produce an exchange of creative energies that feed off each other. For example, as patrons enter the Dining Room, a dark, almost brooding atmosphere defines the space. The moody darkness is contrasted by the light-filled Study immediately adjacent to the entry, which draws the eye to and through toward the historic Cedar Tavern.

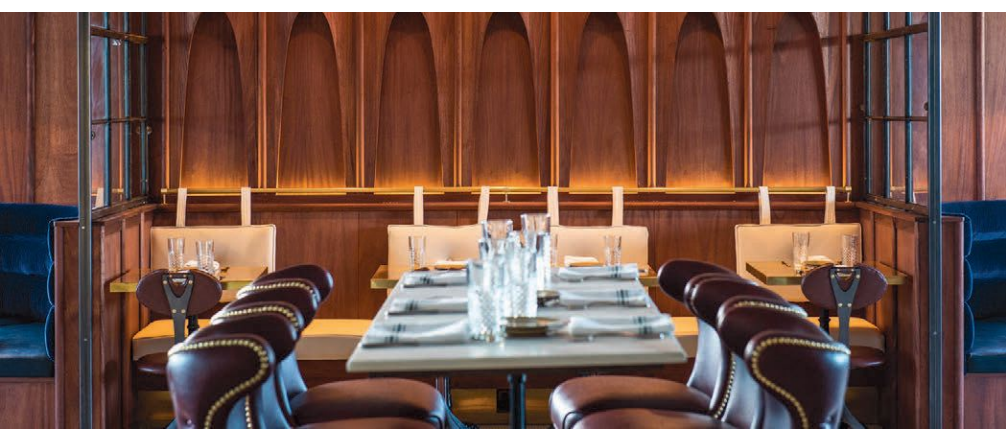
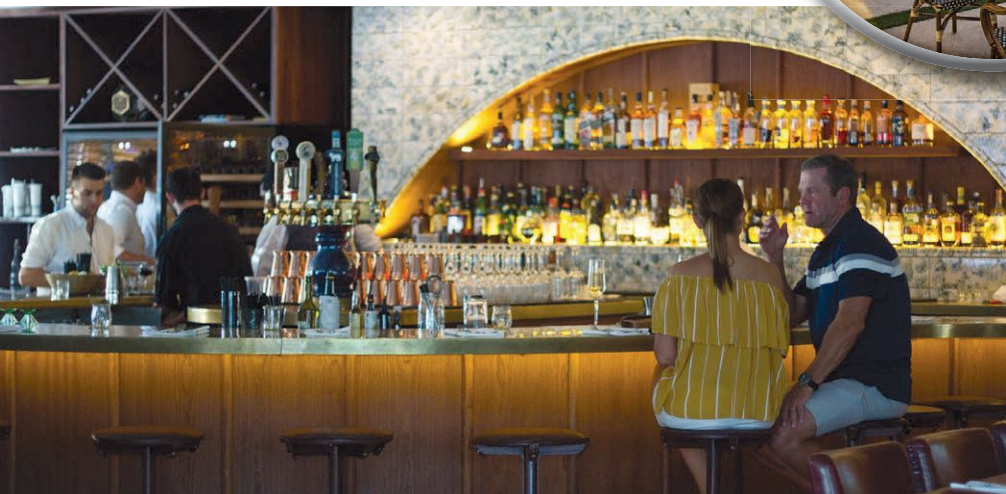
Creating a spatial flow to result in a memorable experience necessitated reworking the organization of the 10,000-square-foot building. Given the size of the building's footprint, the newly configured space had to be broken into smaller areas to bring it down to human scale. "Eberly could have ended up as separate rooms, though a segmented solution would not have spoken to the tapestry of cultures, thoughts and experiences that make Austin such a beloved city," notes Paul Clayton, principal with Clayton & Little.

The existing building's open layout featured a regular column grid and concrete masonry unit walls that largely drove the new spatial division. The dividing wall between the Dining Room and Study shares a line that previously separated the former print shop front offices from the rear floor production. A glass wall connects the Cedar Tavern to the Study. The design works within the existing

PHOTO: CHLOE HOPE GILSTRAP



PHOTO: CHLOE HOPE GILSTRAP



Creating a spatial flow to result in a memorable experience necessitated reworking the organization of the 10,000-square-foot building. The team created visually layered spaces that produce an exchange of creative energies that feed off each other. For example, as patrons enter the Dining Room, a dark, almost brooding atmosphere defines the space. The moody darkness is contrasted by the light-filled Study immediately adjacent to the entry, which draws the eye to and through toward the historic Cedar Tavern.

BEFORE



Materials

CERAMIC GREEN TILES, CERAMIC WALL TILE // Pratt & Larson, prattandlarson.com / image-gallery / eberly

TEXTURED CONCRETE TILE BAND, CONCRETE PENDANT LIGHTS, AND CONCRETE TABLETOPS AND COUNTERTOPS // Paul Oglesby, www.paulclarenceoglesby.com

ACOUSTIC CEILING PANELS // Tectum from Armstrong Ceiling & Wall Solutions, www.tectum.com

VERTICAL PLATFORM LIFT // Garaventa Lift, www.garaventalift.com

CUSTOM MAHOGANY WALL PANELS // ICON Design + Build, (512) 825-5574

CUSTOM GLASS AND STEEL DOORS // ICON Design + Build

CUSTOM MONITOR/SKYLIGHT // Steel House MFG, www.steelhousemfg.com

CUSTOM LIGHTING // Mickie Spencer

WINDOWS // Salvaged from offsite and restored existing windows

CUSTOM PLASTER // KMC Paint Design, (646) 322-1736

FURNITURE, MILLWORK // Michael Yates Design, www.michaelyatesdesign.com

CUSTOM SIGNAGE // Evan Voyles, The Neon Jungle, theneonjungle.com

Rather than demolishing the utilitarian 1970s print shop, the design team took advantage of the concrete structure. For example, a rooftop function space was created with minimal structural additions.

structural module to create a series of balanced, proportionate spaces.

Circulation and flow dictated the secondary organizing principle. The Study and kitchen hallway serve as the central spine connecting the Dining Room back to the Cedar Tavern. Rich interiors deftly mix and match styles from the mid-mod Eberly Dining Room to the industrial Study to the refined yet gritty Cedar Tavern. These stylistically distinct yet complementary interiors serve as an invitation for patrons to explore all spaces.

Distinct Settings

The street-facing Dining Room greets visitors with sleek forms and rich textures. Inspired by English greenhouses, the Study serves as a coffee shop by day, filling the large, open-plan building with natural light. At night, the Study is an extension of the Cedar Tavern with glowing openings to the adjacent courtyard and rooftop bar. The Cedar Tavern showcases the historic mahogany bar and low lounge seating, which fosters communal conversation.

DINING ROOM

To deliver on the owner's desire for a more intimate space, the Dining Room features a lowered, coffered ceiling that sets the tone upon entry. The mahogany wood wall panels nod to the historic bar and take inspiration from mid-century modern design but with an Art Nouveau twist, bringing a modern take on old contemporary furniture and wall paneling. Velvet upholstery covers central and perimeter banquette seating. A large, central banquette accommodates large groups while remaining

flexible enough to separate out for smaller parties. Ample banquette seating was chosen to foster the notion of the place as ideal for gathering, thinking, drinking and dining.

CEDAR TAVERN

Based on size alone, the Cedar Tavern bar's presence is impressive, notwithstanding its 150-year history of notable patronage. Brown and oxblood tufted leather sofas surround coffee tables in a lounge configuration to promote gathering and conversations beyond the bar. Vibrant blue barstools with brass tacks contrast with the mahogany bar while gold and purple ottomans are arranged throughout to enliven darker, rich tones. Brass serves to unify all spaces and is showcased in custom-designed and -fabricated light fixtures that surround the columns. Exposed steel beams support the additional weight of the new rooftop patio.

The ground-level Private Bar and Cannon Room, accessible from a nondescript service door, are hidden from sight directly behind the Cedar Tavern. This arrangement creates a speak-easy vibe well suited for private events with a direct connection to the kitchen.

THE STUDY

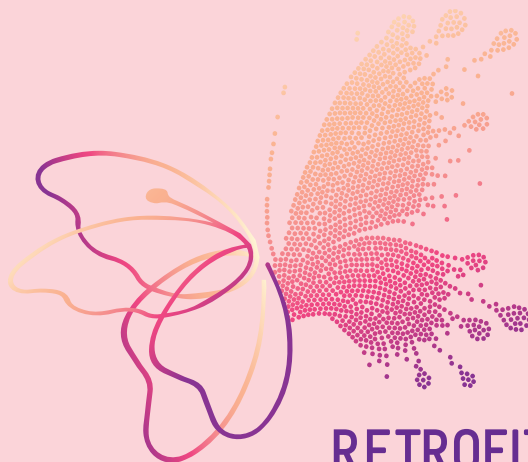
To create an appropriately light-filled Study, the ceiling height was increased and the roof was opened to showcase the new addition of an extended steel skylight monitor above. The monitor adds visual lightness to the space while maintaining the structural integrity. The Study's furnishings take cues from Cedar Tavern, albeit in simplified forms so as not to detract from the light-filled steel structure. Carefully curated books, curios and plants adorn the walls creating a sense of a lived-in space. Custom-designed and -fabricated wall sconces continue the industrial character of the steel and utilize heat-sink fins to create the unique style of the lights.

The Study shares a glass wall with the outdoor patio, creating a clear visual connection through while adding to the lightness of the space. The Dining Room and Cedar Tavern sit on both ends of the Study and are connected via large glass doors allowing guests to see through the spaces and view the variety of atmospheres.

Subtle threads link the distinct spaces, though each offers guests a different version of the Eberly experience. The interplay between the Dining Room, Study, and Cedar Tavern is key to changing the mood between spaces, producing varied dining experiences and options that work together to create an overall rich experience. 

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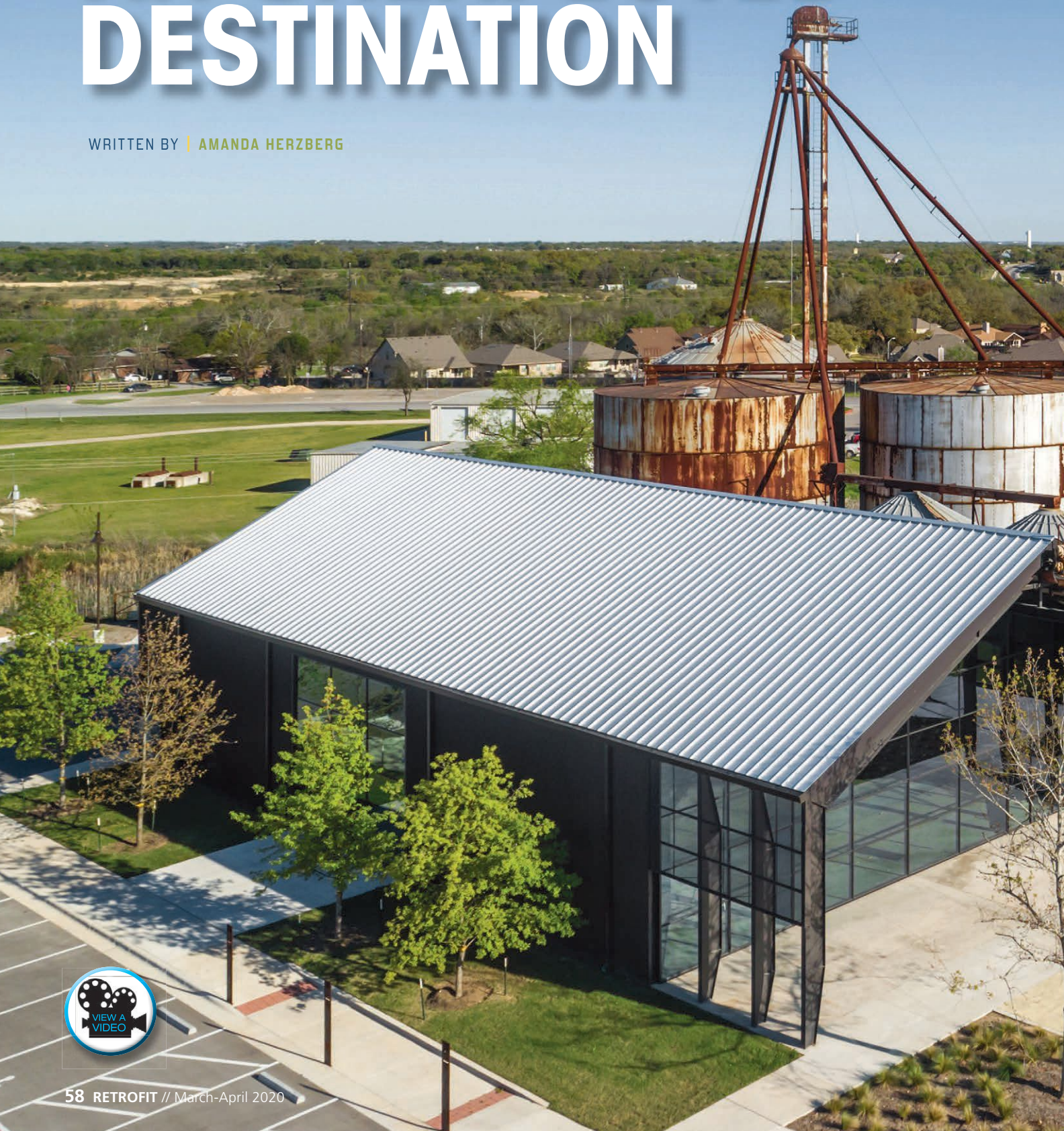
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AN UNEXPECTED DESTINATION

WRITTEN BY | AMANDA HERZBERG



Once dotted with dilapidated metal sheds, silos and a cotton gin dating to 1914, historic Buda Mill & Grain Co. in the Texas Hill Country is finding new life as a multifaceted, community-focused destination. Firmly entrenched in the history of Buda, Texas, the redeveloped site now offers more than 27,000 square feet of retail, restaurant and community-oriented space that brings locals and visitors together within a vibrant setting.

The complex is composed of multiple structures—a mix of old and new—including a renovated 106-year-old cotton gin

building; large, renovated steel equipment shed; historic elevated grain augur; and vintage silos. The challenge was to preserve the bones of what was there while making the existing structures and new facilities a cohesive assembly to revitalize a once-bustling community and small town (population approximately 16,000).

Long-held Dream

First settled in the 1880s, as a railroad town, Buda now is one of the fastest-growing suburbs of nearby Austin. Buda is famous for its annual wiener dog races—the town officially is “The Wiener Dog Capital of

Texas”—which attract visitors from across Texas and has helped define the relaxed, small-town vibe. In addition, Buda’s proximity to Texas Hill Country, which features scenic parks and is known for some of the best hiking, biking and adventure opportunities for residents of more heavily populated cities in the area, has positioned Buda as a candidate for revitalization.

It was this potential that Buda Mill & Grain Co. owner Gay Dahlstrom (who died in 2014), daughter Dodi Ellis and grandson Saenger Ellis recognized, ultimately inspiring the redevelopment of the town’s historic feed and grain mill.

PHOTOS: PETER MOLICK



Converted Agricultural Buildings Bring Locals and Visitors Together



“ People would stop by to see what was happening and tell us their stories of buying grain at the feed store or how they once held a summer job, cleaning out the silos. We loved the sense that we were saving a part of Budá’s collective memory. —Dodi Ellis, owner, Budá Mill & Grain Co. ”



At one time, the mill served as the heart of the community, a place for business—picking up feed and grain—as well as for socializing with friends, family and neighbors. As the dynamic of the city's economy changed, the mill eventually ceased operation and was used as grain storage for the U.S. government until it was purchased by Dahlstrom in 1963. As a community member invested in the future of her home city, it was Dahlstrom's longtime dream to redevelop the site to once again provide Buda with a community hub. Dahlstrom started by renting parts of the mill to hobbyists throughout the 1990s, a precursor to the full renovation, which began in 2011.

"Gay envisioned entertainment, like a roller-skating rink, paired with casual food options, such as a hamburger joint, and we just updated those concepts to include yoga and a neighborhood coffee/bar to accommodate the needs of modern Buda," explains Dodi Ellis.

Community Support

With the bones of the site still mostly intact, Dodi and Saenger's intention was to tackle one space at a time, but the city of Buda required a master site plan, which forced the mother-son duo to begin documenting their overall vision. The plan was developed with the notion of preserving the mill's history while adding vitality and modern appeal with steel, poured concrete and repurposed equipment. "We keep saying we are looking back and moving forward and hope that's what we've succeeded in doing," Dodi says.

Once the master plan was complete, the next step was securing city approval and funding for the redevelopment initiative. Saenger gained an audience with the Buda Economic Development Corp. (EDC) and attained a \$5,000 grant, enough to install a new roof on what now houses SalonOne12. Gay, Saenger and Dodi sold old construction equipment and sourced private loans, as well as acted as their own general contractor on the project. The project was eventually approved for a tax credit through the Buda EDC and city of Buda.

The response from the Buda community has been positive. While under construction, residents would sometimes check on the progress. "People would stop by to see what was happening and tell us their stories of buying grain at the feed store or how they once held a summer job, cleaning out the silos," Dodi recalls. "We loved the sense that we were saving a part of Buda's collective memory."



The footprint of the mill was left largely unchanged, and many of the original structures were preserved. When parts, pieces or structures couldn't be saved, materials, like wood trusses, floor joists and shiplap, were salvaged for tenant build-outs.



Although the development, even in the early stages, faced no major opposition, Buda officials expressed some concern that the three blocks between the mill and downtown Buda was too far to attract sufficient foot traffic. Quite the opposite has proven true. “One of the most exciting changes we have seen in the past two years is the young families with their dogs and kids walking down to Nate’s [a tenant, serving sandwiches, coffee and cocktails] or heading to the downtown Buda Farmer’s Market,” Dodi says.

Mix of Old and New

Once through the planning and approvals stages, Dodi and Saenger enlisted the help of Cushing Terrell, an integrated architecture and engineering firm, to bring the mill to life. The result: a safe gathering space for residents and a unique destination for those who live in surrounding areas.

The footprint of the mill was left largely unchanged, and many of the original structures were preserved. When parts, pieces or structures couldn’t be saved, materials, like wood trusses, floor joists and shiplap, were salvaged for tenant build-outs, examples of which can be seen in Buda Bike Co., a current tenant of the mill.

The largest of the site’s buildings is a 6,000-square-foot, steel-framed equipment barn, nicknamed Big’un. It measures roughly 120-feet long by 60-feet wide. Taking advantage of the simple, modular elegance of its structural system, the walls of the first bay were removed to create a Texas-sized covered porch that faces Main Street. A glass wall delicately defines the back of the first bay to fully enclose the remainder of the building, which is slated for a future retail space, restaurant and/or brewery. The thinly detailed glass wall was made possible using insulated steel mullions. Supporting the mullions behind the glass wall, surplus steel columns removed during Big’un’s renovation were repurposed to provide structural support. The original metal roof, historic silos and overhead auger were integrated into the final design as a nod to the site’s former use. The auger became the armature for the new Buda Mill & Grain Co. sign, designed by Cushing Terrell, and the silos, though currently empty, are thought to be slated for use soon.

Retrofit Team

ARCHITECT, MECHANICAL ENGINEER, ELECTRICAL ENGINEER, FIRE PROTECTION, SIGNAGE DESIGN //

Cushing Terrell, www.cushingterrell.com

■ Sheri Blattel, project manager / principal in charge

■ Alex Bingham, architecture project lead and designer

■ Brad Thigpen, architect of record

■ Joshua McCalip, mechanical and plumbing engineer

■ Buckley Parks, electrical engineer

GENERAL CONTRACTOR // Buda Mill & Grain Co., www.budamillandgrain.com

CIVIL ENGINEER // Southwest Engineers Inc., swengineers.com

STRUCTURAL ENGINEER // Hollingsworth Pack, www.hollingsworthpack.com

SIGNAGE FABRICATOR // Sign Crafters Inc., signcrafters.net

Materials

STEEL DOORS AND WINDOWS //

Presidio Steel Doors & Windows, presidiodoors.com

EXTERIOR CORRUGATED METAL

PANELS, BIG’UN // Berridge, www.berridge.com

SHEATHING // Zip System from Huber Engineered Woods, www.huberwood.com

GLAZING // SunGuard SNX 51/23 insulated glass from Guardian, www.guardianglass.com

GARAGE DOOR // Overhead Door, www.overheaddoor.com

The historic, 3,000-square-foot, brick cotton gin building was kept largely intact with work limited to stabilizing the structure and adding a modest addition to the rear. Exposed steel and concrete additions complement the existing brick while making clear the distinction between what’s historic and what’s modern. Trees and coated glass in the windows with a 0.23 solar-heat-gain coefficient block the hot, Texas sun. These features provide comfort while preserving views of the historic building, resulting in an inviting space where patrons can meet and linger. Bricks removed during the renovation were salvaged and repurposed to fix holes and damaged brick elsewhere. Board-formed concrete site walls provide space for

signage, and concrete pathways guide visitors through the complex.

The main challenge according to Alex Bingham, Cushing Terrell’s architecture project lead and designer, was balancing the new with the old. “We kept the rusty metal bits and framed them with black steel and glass,” Bingham says. “The new work enhances what is already there without being bashful that it is new. I hope that the mill keeps this spirit moving forward so that generations in the future will still have the memories of the past.”

Community Hub

Awarded the Texas Downtown Association 2018 Best Economic Game Changer project, which recognizes projects or programs that had a measurable impact on a downtown or commercial district, the development has attracted local businesses and patrons alike. The leasing of the spaces has happened gradually and organically even as the renovations were underway. Local entrepreneurs would stop by the mill office to pitch their visions for occupying the space until nearly every location was occupied. The Ellises wanted to attract a mix of tenants, who would collectively support one another. Current tenants include a bakery, salon, yoga studio, mercantile, coffee and cocktail café, art gallery, boutique and bike shop, as well as one franchise.

With only Big’un and the silos awaiting occupancy, the development has significantly increased leasable space in the downtown sector. In fact, tentative plans to build a multi-story office building on the south end of the 8-acre property, as well as renovate a house on the north end, are currently in discussion. This very central revitalization effort opened the doors for local, small businesses to be a part of the downtown transformation. In addition, Buda Mill & Grain now hosts several community events, including the Buda Farmer’s Market, held every Sunday year-round, and South Main Music Nights, a recurring summer concert series.

Just like when Buda Mill & Grain Co. operated for the local agricultural community, its new chapter provides opportunity and experiences that keep locals engaged and coming back. The venue has become a place for Buda locals and other Texans to meet friends and build community. 

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A COMMITMENT TO DEVELOPMENT

A Michigan Building Maintains a History of Creating Growth in a Community that Continues to Survive Troubled Times

WRITTEN BY | KENDRA ACHENBACH



Charles Hackley, a prominent figure in the history of Muskegon, Mich., came to town in 1856 to work on the creation of the area's early roadways. He opened the Hackley-Hume Lumber Mill on Muskegon Lake, a large inland lake with direct access to Lake Michigan. Over time, Hackley grew his company to be the largest in the country, cutting an average of 30 million feet of lumber each year.

By the turn of the century, most of Michigan's lower peninsula had become effectively deforested and the mill closed. As a result, many lumber mills moved their operations to the Pacific Northwest, but Hackley remained in Muskegon because he believed there were new opportunities to be had. He and other community leaders saw urban revitalization as essential for Muskegon's survival and brought new industries to the area, effectively ebbing the flow of people leaving Muskegon. Throughout his life, Hackley gifted \$12 million to Muskegon (valued today at \$360 million), and his generous gifts—parks, libraries, museums, art collections, hospital buildings and more—are considered one of the biggest factors in the town's transformation from a small lumber community into a bustling city with diverse industries.

In 1918, Hackley's legacy was honored through the opening of the Hackley Union Bank Building, designed by world-renowned Weary and Alford Co. To this day, the 9-story building is one of the most noticeable structures in downtown; it

remains the tallest manmade structure in Muskegon County and is considered Muskegon's first "skyscraper".

After years of vacancy (see "Brief History of the Hackley Union Bank Building", www.retrofitmagazine.com/highpoint-flats-apartments), Parkland Properties, a local real-estate and development company that specializes in the adaptive reuse of historic buildings, undertook a \$9.5 million restoration and redevelopment of the building into Highpoint Flats Apartments, a 56,000-square-foot mixed-use building, containing apartments and common space, as well as retail and office space.

To complete the restoration and redevelopment of the historic building, Parkland Properties enlisted Ghafari Associates LLC to provide architectural and interior design services for the project, Visser Brothers Construction as general contractor, and the law firm of Warner Norcross and Judd to assist with tax credits.

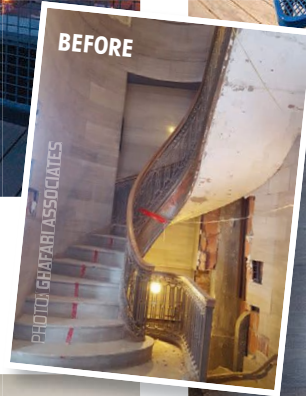
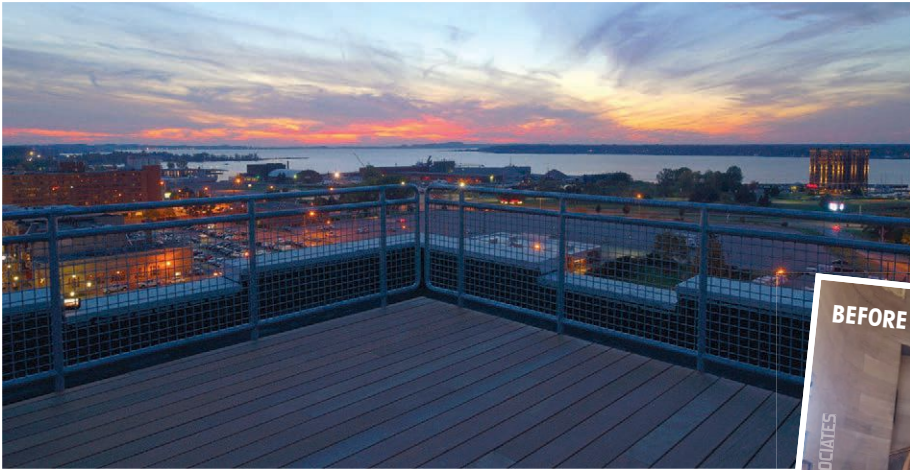
Original Elements

The project kicked off in mid-April 2017,

beginning with abatement and installation of safety controls, followed by demolition in early May. The project had critical milestones mandated by the city of Muskegon and the state of Michigan to earn tax credits. The exterior renovation, including window replacement, needed to be complete by Nov. 1, 2017, and the city set a substantial completion deadline for the apartments, which would occupy floors three through eight, by May 31, 2018. The extensive renovation work required new water service for domestic and fire, new electrical and gas service, and the repair of existing sanitary and storm services. Although the building had two existing elevators, they had not been used in decades, requiring the team to demo the existing shaft walls because of their poor condition. New shaft walls were built in their place to support new elevators.



THE HACKLEY UNION BANK BUILDING OPENED IN 1918 AND IS CONSIDERED THE FIRST SKYSCRAPER IN MUSKEGON, MICH. IN 2017, AFTER YEARS OF VACANCY, PARKLAND PROPERTIES, UNDERTOOK A \$9.5 MILLION RESTORATION AND REDEVELOPMENT OF THE BUILDING INTO HIGHPOINT FLATS APARTMENTS.



GHAFARI ASSOCIATES WORKED METICULOUSLY TO CREATE THE 47 DESIRED APARTMENTS AND HIGH-END AMENITIES, LIKE A ROOFTOP DECK, IN THE HISTORIC BUILDING. IN ADDITION, ORIGINAL ELEMENTS, LIKE THE CURVED GRANITE STAIRCASE, ASCENDING FROM THE BASEMENT UP TO THE THIRD FLOOR, AND BRICK ON THE PERIMETER WALLS AND WINDOW OPENINGS, WERE PRESERVED.



IN SEARCH OF CIVIL WAR GOLD

The Hackley Building was featured on a 2019 episode of the History Channel's "The Curse of Civil War Gold". A team from the show believed the building's namesake, Charles Hackley, had acquired the Confederate's Civil War gold after the war ended. During the Civil War, Muskegon, Mich., had more millionaires per capita than any other city in the nation, and Hackley, who was a lumber baron, was one of these millionaires. The History Channel team thought some of the gold was hidden in the Hackley Building's basement behind clay walls or in one of the existing vaults. Ultimately, the History Channel team did not find any gold hidden in the building.



◆ Retrofit Team

ARCHITECT AND INTERIOR DESIGNER // Ghafari Associates LLC, www.ghafari.com

GENERAL CONTRACTOR // Visser Brothers, www.visserbrothers.com

MEP ENGINEER // Classic Engineering, classicengineering.com

STRUCTURAL ENGINEER // JDH Engineering, jdheng.com

APARTMENT STAGING, LOBBY FIXTURES AND ARTWORK // Tylor Devereaux Interior Design, tdinteriordesign.com

Through close collaboration with Parkland Properties, Ghafari Associates worked meticulously to fit the 47 desired apartments into the space, accommodate existing conditions and apply current building code to the historic building. Of paramount importance to the owner was the desire to leave some of the original building features untouched, requiring the architectural team to evaluate the existing construction to determine what could be left exposed. Original elements include the curved granite staircase, ascending from the basement up to the third floor, the brick on the perimeter walls and the window openings.

To expose the brick on perimeter walls, for example, the team removed the plaster that was added in the 1960s and then cleaned and repaired the original brick. In the areas where the original terrazzo flooring was left, extensive polishing and repair was required. The original Hackley Union Bank logo was left untouched in the terrazzo flooring but was protected with glass. On the exterior, existing granite stone panels and joints needed to be repaired because of damage and vandalism, and masonry tuckpointing of the exterior brick façade also was necessary.

Parkland Properties wanted to keep the original treads and railing on the internal stair that spans from the third floor to the roof but, because the staircase did not connect to the point of egress, it did not meet current code. To rectify this, holes were saw-cut into the second and third floors and a new stair was built that connected the first floor to the third, allowing the stair to exit to the outside.

Living Space

Filled with the historic features of a bygone era, Highpoint Flats Apartments brings vibrant living to Muskegon, attracting young professionals, empty-nesters and retirees alike. In total, there are 14 apartment floor plans, featuring one- and two-bedroom market-rate units that range from 600 to 1,100 square feet. The units contain high-end finishes, walk-in closets and in-unit laundry, as well as exposed brick walls, concrete pillars and beams. In addition, each unit features high ceilings and expansive picture windows offering views of Muskegon Lake and a bustling downtown area. On clear days, Lake Michigan can be seen from some units.

Prior to the transformation into apartments, the building contained office and support space for the bank. The entire building was gutted before work began on the apartments, and no walls or ceilings were saved in the process. Because of the existing building shape and column locations, each apartment is unique. In addition, not all spaces are stacked from floor to floor because there was a change in the building footprint and also because the art deco stair only reaches the third floor.

To allow for more insulation and greater sound attenuation, thicker walls were added and resilient channels were used. A greater STC rating than what is required by code was achieved between the units and corridors to ensure more privacy for tenants. The existing concrete floor was not thick enough to provide the required acoustic ratings, so a new ceiling system was added, and LVT flooring with acoustic backing was incorporated.

Every unit has its own heat pump. To hide the heat pumps, the entries into the units and kitchen ceilings are lowered while the rest of the living spaces have high ceilings to expose the ductwork in these rooms. Meanwhile, bathroom and kitchen exhausts had to be vented outside the building. On the façades facing the street, a metal panel was placed into the top of the windows, where ducts are exhausted through small vents that magnetically close when not in use. This prevented the team from cutting holes in the marble façade.

Highpoint Flats Apartments successfully incorporates many of the standard amenities commonly found in modern, high-end buildings without losing sight of its historic roots. Amenities include a ninth-floor clubhouse in the old elevator equipment room, and a large ipe rooftop deck with grills and furniture, in addition to a main-floor game room, fitness center, and onsite parking and storage.

The bottom two floors of the building contain 5,000-square feet of retail space and a mezzanine, adding another 5,000-square feet of office space. The two floors of commercial space were completed in December 2019 and now include a credit union, which kept an original bank vault as a design feature; an insurance agency; a doctor's office; and charitable organization office. Future plans aim to utilize an area under the sidewalk for exterior access to an 8,000-square-



foot, 14-foot-tall basement, which houses the other large bank vault, ultimately bringing in natural light and hopefully attracting a restaurant or nightclub tenant.

Catalyst for Growth

Highpoint Flats Apartments strategically engages tax benefits to help generate demand. Parkland Properties secured a Renaissance Zone designation for the property, which provides state and local tax abatements for tenants through 2023. The Renaissance Zone has had a monumental impact in spurring interest and success for new projects in emerging markets, ultimately kickstarting the establishment of a new residential market in Muskegon. The tax credit means the developer pays no property taxes and residents are exempt from city and state income tax, meaning it saves them 5.25 percent of their income annually until gradually phasing out in 2023. Under this program, the more money an individual makes, the more money he or she saves in rent. For example, a couple collectively earning \$160,000 per year would only spend \$650 per month for an apartment that would otherwise rent for \$1,350 because of \$700 in state and local income tax savings, according to Parkland Properties.

Highpoint Flats Apartments opened in spring 2018, and the project has made one of the biggest impacts in Muskegon in the last 30 years. It has motivated five new market-rate housing projects downtown, successfully building on the legacy of Charles Hackley and his commitment to the region's economy. 

THE FIRST FLOOR OF THE HIGHPOINT FLATS APARTMENTS BUILDING CONTAINS THE LEASING OFFICE, GAME ROOM/ LOUNGE, AND FITNESS STUDIO, ALONG WITH TWO TENANT SPACES. THE SECOND FLOOR CONTAINS FOUR ADDITIONAL TENANT SPACES.

Materials

CARPET // Lure 18585 and Azure Heather from Shaw Contract, www.shawcontract.com

WALLCOVERING // Sway in Firefly from Knoll, www.knoll.com/knolltextileproductdetail/Sway

CERAMIC BACKSPASH // Expression in Dusk from Ceramic Tiles International, www.virginiatile.com

LUXURY VINYL TILE // Silver Spur Oak Embossed from Eagle Creek, eaglecreekfloors.com/products/silver-spur-oak

CABINETRY // Avenue Laminate Cabinetry in Classic White from Armstrong Advanta, www.advantacabinets.com/products/avenue

LIGHTING // Lithonia Lighting, lithonia.acuitybrands.com, and Lighting Science Group, www.lightology.com

ACOUSTIC CEILING TILE // Armstrong Ceiling & Wall Solutions, www.armstrongceilings.com

HEAT PUMPS // Carrier, www.carrier.com

LOCAL FLAVOR

BUILDINGS ARE STARTING TO LOOK MORE LIKE THE COMMUNITIES IN WHICH THEY'RE LOCATED. HERE'S WHY THAT'S SIGNIFICANT.



IN THE DESIGN OF ITS SACRAMENTO, CALIF., OFFICE, DPR CONSTRUCTION LOOKED TO SACRAMENTO'S MONIKER "CITY OF TREES", WHICH LED TO AN INNOVATIVE USE OF WOOD THAT RESULTED IN A CHANGE IN THE BUILDING CODE.

Not long ago, you could walk into a major hotel or restaurant chain anywhere around the world and you wouldn't know if you were in New York or New Delhi. Consistency in the look and feel of properties was considered essential to a successful brand strategy—and it worked for a while.



PHOTOS: CHAD DAVIES

“There was a time in the ‘80s and ‘90s when larger hotel brands felt having a homogenous product gave the consumer a sense of security, and this established expectation worked in favor of the larger branded properties,” explains Giana DiLeonardo, partner at design firm DiLeonardo International, Providence, R.I.

Marriott is a great example of a hotel brand that embodied this cookie-cutter approach, according to Barbara Parker, owner of Parker-Torres Design Inc., Sudbury, Mass. “The original sort of homogenization of the design aesthetic was because Mr. Marriott felt like you should feel at home and it should feel familiar no matter where you were. That’s why all their hotels looked the same.”

DiLeonardo notes hotel guests today rely more on the level of service for the consistency they expect, which gives design “the freedom to celebrate the unique and exceptional qualities of a certain place.” The change in the hospitality industry happened in large part because of

the disruption of the market by the boutique hotel trend of the 2000s, she says, as well as the further segmenting of the market. In the case of Marriott, its merger with Starwood in 2018 signaled the shift in its approach to become more design-oriented.

This trend favoring local geographic and cultural influences in place of standardization is happening in the design of not only hotels and restaurants, but also corporate offices and retail locations. It’s not that corporate branding is being done away with—far from it. Rather, organizations are repositioning their properties to create destinations where people want to spend their time, strengthening the brand by forging stronger connections with their communities.

What else is behind the localization trend? How can design professionals and building owners ensure their properties thoughtfully reflect local influences? And why is it important? For the answers to these and other questions, read on.

Social Media, Expectations Are Driving Change

As noted earlier, the hospitality industry began moving toward more localized design in response to market segmentation and the success of smaller, boutique hotels entering the market. Across the board, however, people today are looking for authentic experiences, DiLeonardo remarks, and they want to share them through social media channels.

“Travelers today are exposed visually to so much through social media, and the expectations of unique moments and new discoveries has been elevated,” she says. “Online reviews and ‘Instagrammable’ moments can drive revenue, and this is where designers play a key role on the return of investment.”

Parker agrees and notes when people travel to a place they want to experience the destination they’re in and share it with others. “I don’t want to be in a Boston-area hotel that feels like it could



ULTIMATELY, BUILDINGS AND INTERIORS THAT REFLECT THE COMMUNITIES THEY ARE IN ARE A WIN-WIN BECAUSE THEY HELP INSTILL A SENSE OF LOCAL PRIDE. SUCH IS THE CASE FOR THE DENVER MARRIOTT TECH CENTER, DESIGNED BY PARKER-TORRES DESIGN INC.

PHOTOS: COURTESY OF PARKER-TORRES DESIGN

be anywhere in the world," she explains. "When guests are traveling, they want to post their special event or the highlight of their trip, and they want to have that fabulous backdrop that lets everyone in the world know 'I'm here in Phoenix.'"

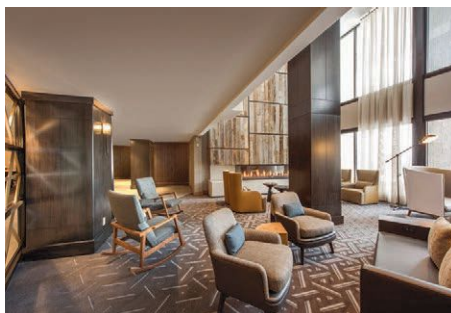
Bryan Kent, business unit leader for national contractor DPR Construction, adds people's expectations have changed and younger travelers, in particular, are looking for intriguing destinations. "That's what people want. They're looking to go stay somewhere hip and cool," he says.

Beyond the cool factor, Kent adds many hotel properties and offices alike are seeking to separate themselves from the competition and provide spaces that differentiate them from the business down the street—whether it's to spend a night or sign a long-term lease in an office building.

"From a branding perspective, many companies are using this as an opportunity to do something that isn't really expensive, makes their product stand out and tells a story more than, 'It's just another office building or just some other hotel room,'" he states. "[Localization] makes it feel different, and that story is what gets spread around."

Research, Authenticity Are Key

Creating a genuine sense of place isn't as



straightforward as it sounds because to reflect a culture accurately and respectfully, you need to understand it—and that requires doing some homework early on.

"Research is key to this process and understanding a place can not only be skin deep," DiLeonardo points out. "While finishes and color palettes might reflect one element of a place, a designer can further explore in the organization of a plan or a local industry."

Case in point: for a hotel project in the seaport community of Mystic, Conn., the obvious approach would have been creating a maritime theme with nautical references and colors. But as the design team at DiLeonardo International dug deeper, they discovered the harbor was developed in response to local farming communities and manufacturing. "From here, planning and materiality referenced the way in which early settlers used dry stacked stone walls and early furniture manufacturing details," DiLeonardo recalls. "The results are an unexpected and thoughtful renovation that has guests feeling a part of the culture of Mystic in an authentic and subtle way."

Parker adds cultural differences require designers to do their due diligence. As a firm based in the Boston area working on a project in Thailand, for example, research is



THE CONCEPT FOR THIS METAL SCULPTURE IS INSPIRED BY THE IDEA OF TURNING ONE'S SPIRIT TO THE SUN FOR WARMTH AND COMFORT. AS GUESTS ENTER THE LOBBY OF THE PHOENICIAN RESORT, PHOENIX, THIS FIGURATIVE PIECE GREETES THEM WITH THE UPLIFTING AND INSPIRING FEELING OF SURRENDER TO THE WARMTH AND BEAUTY OF THE LANDSCAPE AND ALL THAT THE PHOENICIAN RESORT HAS TO OFFER.

ARTIST: Lee Seong-gu

PHOTOS: GARRETT ROWLAND PHOTOGRAPHY



PHOTOS: ISAAC MAISELMAN

THE DESIGN INSPIRATION FOR THE RENAISSANCE TOLEDO DOWNTOWN HOTEL DRAWS FROM THE REGIONAL HISTORY OF TOLEDO, OHIO, KNOWN AS "THE GLASS CITY" BECAUSE OF THE LEGACY THE GLASS INDUSTRY LEFT IN THE REGION. AS SUCH, THERE WAS A STRONG FOCUS BY THE DILEONARDO INTERNATIONAL TEAM TO INCORPORATE GLASS AND ITS NATURAL PROPERTIES IN THE DESIGN DNA.

crucial to understanding the local culture and creating designs that look authentic and are respectful of the community and its values. "The colors and symbols mean completely different things here than they do there, so you need to be careful," she warns. Likewise, she says it's important to pay attention to the indigenous design of an area, such as in the Southwest where the Native American culture is prominent. "You want to make sure you're working with and referencing the right cultural sources." However, the Internet has made access to information more readily

available, so "it's much easier to do it today than it was 25 years ago," she adds.

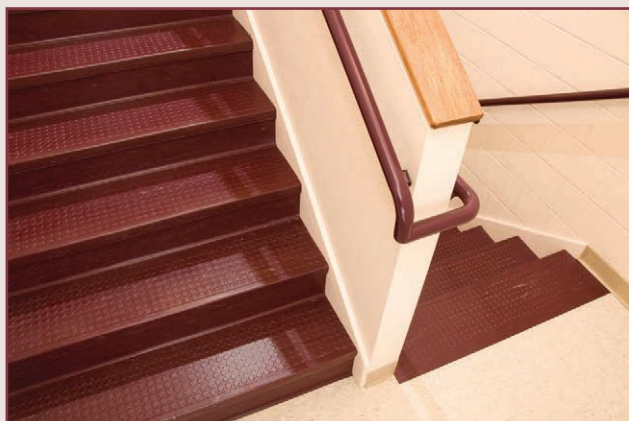
Local culture isn't always external, either. In the design of its Sacramento, Calif., office, DPR Construction turned the process inward and scheduled a full-day city tour with a diverse group of employees to take in the sights and local influences. The team visited a railroad museum, nearby rivers, local coffee shops and restaurants, public art installations and other historic renovations taking place in the city to determine how they could incorporate these elements thoughtfully into the design of their work-

place—a process that was key to its success, according to Marshall Andrews, project manager at DPR's Sacramento office.

"If you just get caught up in what you think localization should be and operate in a silo, it's not going to be as successful," Andrews observes. "Going through that full-day experience with others and all of us really learning something different added quite a bit of value I don't think would have been incorporated into the project otherwise."

The danger with the localization design trend is going too far and

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LIFE IMITATES ART

Perhaps one of the most obvious and effective ways to incorporate local flavor into a building project is to work with local artists whose work can be a powerful reflection of the community. Further, bringing artists into the design process early on can result in novel approaches that wouldn't be considered otherwise.

"Design teams can bring local craftspeople and artists in the fold as soon as possible to collaborate, share ideas and develop the design together," says Giana DiLeonardo, partner at design firm DiLeonardo International, Providence, R.I. "Oftentimes, their knowledge of process and material is invaluable and can lead to unique solutions that are surprisingly cost-effective and high-impact."

Barbara Parker, owner of Parker-Torres Design Inc., Sudbury, Mass., says her team typi-



cally brings on an art consultant early in the design process for a project and partners with local artists who "have a feeling for the color, the patterning and the graphic design of the area."

For example, in the recently completed San Antonio River Center Marriott, the general manager had recommended a

local glassmaker to the Parker-Torres Design team, who commissioned the artist to complete a blown-glass art installation behind the front desk in the lobby. "That really brought local flavor in and anyone who comes into the hotel will be like, 'Oh my God, that's so-and-so's glass,'" Parker states.

Likewise, DPR Construction saw an opportunity to add local art into the front entrance of its Austin, Texas, office. The team had local artists build a set of ornate, decorative wood doors that draw the attention of guests but also serve as a nod to the local community, which features many of these bespoke doors.

Noting the popularity of murals in the city, an employee at DPR Construction painted an entire wall in the office inspired by a mural in a local coffee shop where someone spray



painted "I love you so much." The office mural adapts the phrase to read, "I love to build so much."

"She took the idea from the coffee shop on the wall and made it more about us, but at the same time it's an iconic Austin thing that people know and see," explains Bryan Kent, business unit leader for DPR Construction, based in the Austin office. "So, when you walk in, you immediately are able to attach those two things together."

PHOTOS: PETER MOLICK

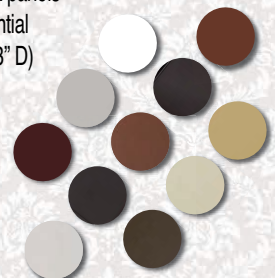
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www.slantfin.com

Circle No. 30

“IF YOU JUST GET CAUGHT UP IN WHAT YOU THINK LOCALIZATION SHOULD BE AND OPERATE IN A SILO, IT’S NOT GOING TO BE AS SUCCESSFUL. —Marshall Andrews, project manager, DPR Construction”

overcompensating by overloading a space with local cues. “It needs to feel natural. It can’t be forced,” Kent states. “I can see where you could go and do too much and then it’s going to feel kind of quirky and awkward.”

The Importance of Materials

Historically, buildings reflected their locale by the raw materials they were constructed with because they were sourced nearby. Today, using local materials in thoughtful ways can not only reflect the region, but also may result in innovative solutions.

“Materiality is important on many levels. It can be the best environmental and economic choice but it should go beyond detailing and craftsmanship and should reflect why a material was chosen,” DiLeonardo says. “In some cases, this could mean taking a traditional material and using it in a completely new and innovative way

or vice versa—using a new material in a traditional detail.”

For example, the design inspiration for the Renaissance Toledo Downtown Hotel draws from the regional history of Toledo, Ohio, known as “The Glass City” because of the legacy the glass industry left in the region. As such, there was a strong focus by the DiLeonardo International team to incorporate glass and its natural properties in the design DNA. Exploring the dynamic opportunities of glass material, each space reflects the energy of the city beyond transparency and results in unexpected, yet intriguing design elements.

Similarly, DPR Construction looked to Sacramento’s moniker “City of Trees” for inspiration for its new offices, which led to an innovative use of wood that resulted in a change in the building code. Andrews recalls the team’s decision to construct a

6,000-square-foot expansion entirely out of cross-laminated timber: “With Sacramento’s moniker being the ‘City of Trees,’ we really thought this structured-type wood would be quite reflective of that, so we decided to go down that route. But our decision to pursue the option of the new structure being made entirely out of wood wasn’t adopted by building code.”

After meetings with the city’s structural engineers and submitting calculations for structural loads and shear, the DPR team managed to get their design (and local thematic element) approved. “It’s the first [project] in Sacramento to have this mass timber in a sheer wall application and the first time this product has been used for a sheer wall in the state of California, which is a pretty big deal if you consider the earthquake and seismic requirements,” he recalls.

Parker remarks, whenever possible, her firm will source stone materials from local quarries or purchase products and artifacts from nearby stores and antique shops that reflect the region. However, with larger properties, sourcing locally isn’t always possible, but it doesn’t need to be a deterrent if approached thoughtfully.

“Doing hotel work, because we’re working in large quantities, it’s often the case we’re not sourcing any of the major elements locally,” Parker remarks. “But we have to take care to make sure it looks like it’s sourced locally.” For instance, in specifying rough-hewn, weathered wood planking for projects in Denver and Calgary, Alberta, Canada, Parker says neither project featured locally sourced wood. “They were sourced from someplace else, but they looked appropriate for the location.”

Ultimately, buildings and interiors that reflect the communities they are in are a win-win because they help instill a sense of local pride.

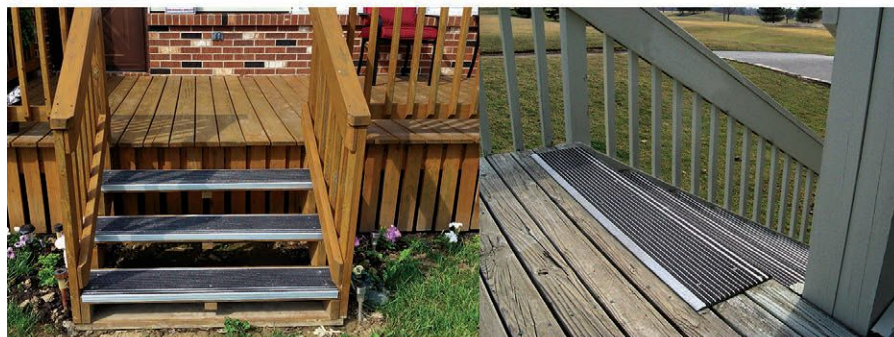
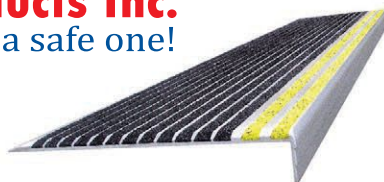
“We work with small companies, as well as large companies, and certainly the smaller owners are very proud of the properties they own and they want that reflected through the design,” Parker notes. “We really feel if you do it thoughtfully and well, then it’s very successful.”



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→ CEILING TILES SIMULATE A STARRY SKY

Acoustic Geometry has made available its StarField Ceiling Tiles, acoustical ceiling tiles with a realistic starry-sky effect. The drop-in fabric-wrapped fiberglass panels tame reverberation and ambient noise. StarField Ceiling Tiles are available in small (2 by 2 feet) and large (2 by 4 feet) sizes for standard 15/16-inch ceiling grids. Custom-sized and -shaped panels are available upon request. They connect to main lighting control systems through an RS232 adapter. The design on the ceiling tiles is customizable, allowing for constellations, planets, shooting stars, galaxies and even fireworks. In addition, Acoustic Geometry offers several add-ons, including shooting star and acrylic moon/planet inserts. All designs simulate “twinkling” with dim, medium and bright stars for a natural starry-sky appearance.

www.acousticgeometry.com // Circle No. 32



← PORCELAIN ROOF TILE IS CLASS 4 IMPACT RATED

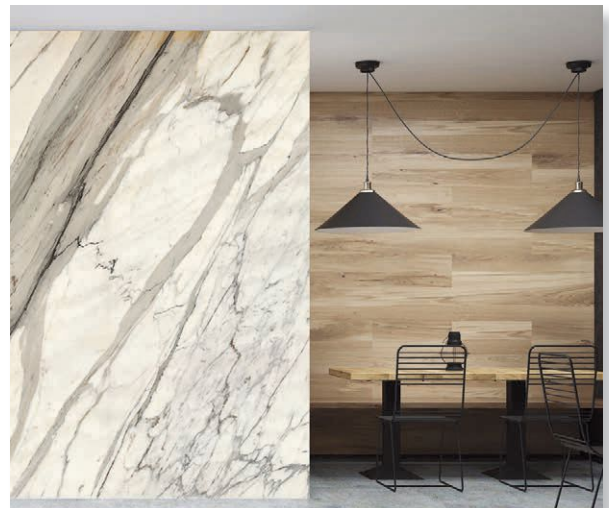
Daltile has released its Perennial Porcelain Roofing Tile, which is resistant to frost, impervious to water and walkable. Class 4 impact-rated by Intertek Labs, the tiles also boast a 110-mph wind rating and Class A fire rating. The product offers high breaking strength, low overall weight and a lifetime limited warranty. Perennial Porcelain Roofing Tile is made in the U.S.

daltile.com // Circle No. 33

↓ TUBING CONNECTOR CLICKS INTO PLACE

The Unico System has changed the connection system for its flexible supply tubing, reducing the steps and time involved in the installation of its products. A provider of small-duct high-velocity central heating and cooling, The Unico System uses flexible tubing in 2- or 2.5-inch inner-diameter configurations to deliver conditioned air to various rooms within a structure. Consisting of lock-and-release tabs, new Twist-Fit couplings are attached to lengths of sound attenuator or standard supply tubing by threading the base of the coupling into the tubing's inner core. The internal insulation and outer mylar jacket of the supply tubing are then tucked into the rim of the Twist-Fit and the connection is secured with UL-181B foil tape. Matching Twist-Fit couplings are attached to the desired plenum take-offs, terminating outlets or additional lengths of supply tubing. To make a connection, the installer lines up the tabs to their corresponding slots and twists clockwise until a click is heard.

www.unicosystem.com // Circle No. 34



↑ DECORATIVE COMPOSITE PANELS AVAILABLE IN DIGITAL DESIGNS

Uniboard, a North American manufacturer of decorative composite wood panels (thermally fused laminate), has introduced Studio, a collection of 20 digital designs. Inspired by the arts and creative expression, the panels are suitable for large-scale projects. Studio is offered in the Vellum finish on a particleboard or MDF core. The new colors also are available on high-pressure laminate.

www.uniboard.com // Circle No. 35



↑ NATURAL STONE PRODUCTS ARE EASY TO INSTALL

Polycor has launched its Hardscapes & Masonry product line, formed via mergers with Swenson Granite Works, Indiana Limestone Co. and Elliott Stone. The line brings the aesthetics and durability of 100 percent natural stone to the hardscapes market with easy-to-install products, including pavers, pool coping, steps and treads, veneers, walls and caps, edging, accents, posts and ornamentals. Suitable for landscaping and outdoor applications that withstand freeze-thaw cycle in northern climates and the scorching heat of southern summers, natural stone products resist cracking, flaking and discoloration. Polycor Hardscapes & Masonry products are sourced responsibly and manufactured in the U.S.

hardscapes.polycor.com // Circle No. 36



↑ TAPES CAN BE APPLIED IN WIDE TEMPERATURE RANGE

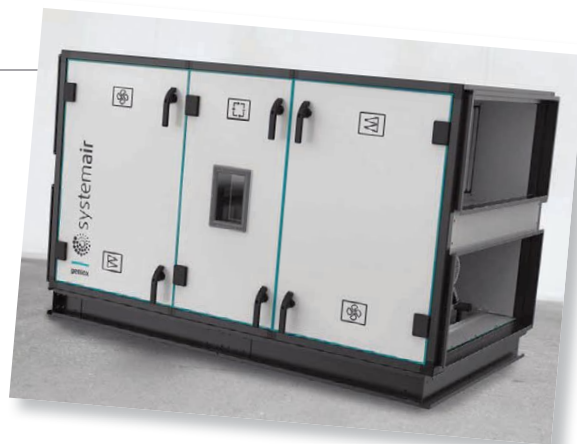
Huber Engineered Woods has expanded its line of ZIP System sealing solutions to now include five ZIP System stretch tape options and five ZIP System flashing (straight) tapes. While developing tape options for new widths and lengths, the company enhanced its tape formula to provide stronger performance in a broader range of temperatures. ZIP System tapes can be applied between 0 and 120 F. ZIP System sealing solutions also include ZIP System liquid flash, a fluid-applied flashing alternative to ZIP System flashing and stretch tape.

zipsystemsealingsolutions.com // Circle No. 37

→ AIR HANDLERS CAN BE ADAPTED FOR EACH PROJECT'S NEEDS

Systemair has introduced Geniox, air-handling units designed for optimal efficiency. The units feature thermally insulated double-wall construction and ABS corners to minimize heat loss and eliminate thermal bridging, as well as 2.4-inch foam-injected insulation to reduce sound transmission. The semi-custom modular platform allows for heat and energy recovery, cooling, filtration, mixing, and other sections to be selected, oriented, and adapted to suit each project's individual needs. Systemair's free design program, SystemairCLICK, assists specifiers in the configuration of Geniox air-handling units. The tool is directly connected to products, so once an order is confirmed, the company sends unit data to production where it is immediately made to order. The Geniox family can handle airflows from 2,700 to 16,300 CFM in five casing sizes.

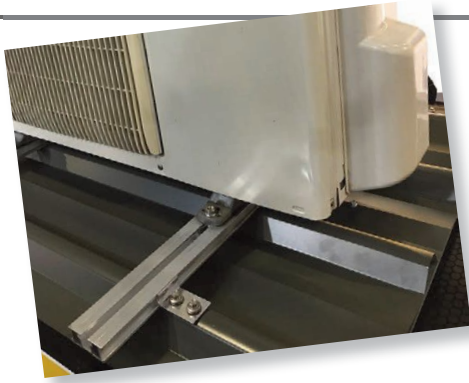
www.systemair.net // Circle No. 38



← BEHAVIORAL HEALTH LIGHTING COLLECTION IS HOME-LIKE

Visa Lighting has introduced six models to its growing behavioral health collection, which includes fixtures with safe and therapeutic designs. The company's new Symmetry models are tested to IK10+ standards, which means they can withstand more than 100 joules of mechanical impact. They are constructed with an additional 3/16-inch polycarbonate lens, which is fastened behind the minimal frame with tamper-resistant screws. Each model can be installed flush to a drywall/sheetrock ceiling and recessed 5 to 7 inches. In addition, Visa Lighting's engineers have crafted luminaires that look more home-like and minimalist. For example, the tamper-resistant screws that fasten the frame and lenses to the ceiling structure are barely visible and painted with the same finish as the frame.

www.visalighting.com // Circle No. 39



◀ MOUNT ITEMS TO METAL ROOFING WITHOUT DAMAGING THE ROOF

S-5! has introduced its GripperFix system, which makes mounting almost anything on standing-seam and exposed-fastener roof profiles easy. Mounting rooftop ancillary items, using concrete blocks for ballast, damages a roof and provides a temporary fix. GripperFix ensures a secure and dependable attachment solution that preserves

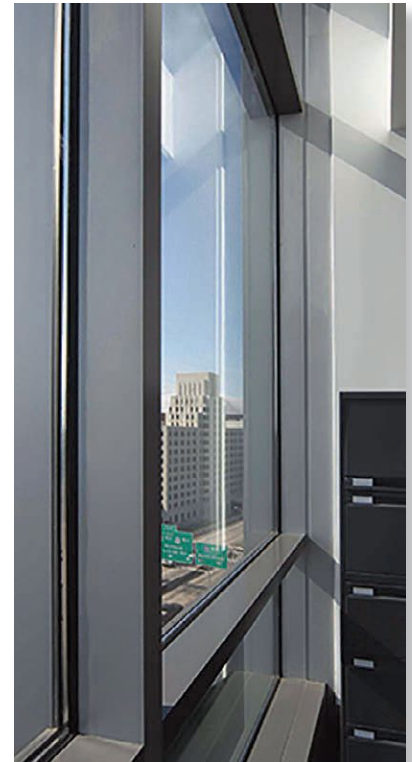
the integrity of the roof and avoids destructive corrosion. The system is quick to install, lasts the life of the roof, maintains roof warranties and is inexpensive.

www.s-5.com // Circle No. 40

➔ RESERVE A DESK WITHIN AN OPEN-OFFICE WORKPLACE VIA AN APP

Comfy and Enlighted have partnered to integrate Comfy's workplace experience platform with Enlighted's building IoT technology. The partnership's first project is an intelligent desk reservation system addressing the growing need for open, activity-based workplaces. The reservation system, which combines a consumer-grade employee-facing app and smart, desk-level sensing capabilities, empowers employees to quickly identify desks anywhere in the building that meet their needs, are unoccupied and available in real time. Enlighted's smart sensors are placed under each open-office workspace. These sensors detect when the desk is in use and provides this information to the Comfy platform, delivering real-time desk availability information to office workers through the Comfy mobile app or kiosks. The sensor data is also aggregated within Comfy, enabling business leaders to gain transparency into peak usage hours, most frequently used workspaces and other desk utilization analytics.

www.comfyapp.com, www.enlightedinc.com // Circle No. 41



↑ GAP CLOSURE ELEMENTS PROVIDE SOUND CONTROL

Around a building perimeter, the gap between partition walls and window mullions or partition walls and glass curtainwalls can present aesthetic, sound, and material choice and installation quandaries. Mullion Mate and Window Mate from Gordon Inc. are adjustable two-piece extruded aluminum gap closure elements used to block the space and create a transition between window mullions or windows and partitions. Gordon recently performed a series of independent lab tests, using ASTM E90-09 (2016), with distinct setups where the gap closures manufactured by Gordon were tested on walls with different STCs and configurations mimicking true field installation boundaries. Testing showed the weakest barrier of sound attenuation—in this case, the window mullion (tube), when present—dictated the resulting composite STC. Additionally, for the wall and gap closures tested, the STC of the wall dictates the high limit of the composite STC.

www.gordon-inc.com/interiors/ceilings/mullionmate.aspx // Circle No. 43



◀ DECORATIVE FLOORING SOLUTION WITHSTANDS HIGH TRAFFIC

Protect-All Flooring has introduced Protect-All Designer Series, a line of decorative flooring solutions for commercial applications. The flooring system, which features a solid base color with varying accent colors speckled throughout, is currently available in three color schemes: Cityscape, Graphite and

Northern Lights. Protect-All Designer Series can withstand high-traffic areas without showing wear and features an easy application for installers familiar with Protect-All. The system is available in varying sheet sizes and thicknesses, interlocking and square tiles, as well as 1/8-inch rolls.

www.protect-allflooring.com // Circle No. 42

➔ HIGH BAY FIXTURE IS LIGHTWEIGHT, IMPACT-RESISTANT

The SYLVANIA ValueLED UFO High Bay is a DLC Premium LED fixture that has a lightweight, impact-resistant design and offers up to 78 percent energy savings compared to traditional luminaires. With various wattage, color temperature, mounting, optics and sensor options, it provides the flexibility to meet the specific needs of warehouses, gymnasiums and other industrial applications.

www.sylvania.com // Circle No. 44



➔ CONTROL CONFERENCE ROOM LIGHTING WITH AN APP

Douglas Lighting Controls has paired its Conference Room Controls App to its system of Bluetooth Wireless devices. The app, which can support up to eight zones with a maximum of eight presets, provides customers with a touchscreen solution for controlling light in conference-room atmospheres. Preset scenes, like meeting, presentation and video, can be chosen to quickly set the desired light levels with one tap on the screen. The control console includes mounting hardware for wall or tabletop applications. The wall mount can be used in place of wall station switches, or a table-mounted control solution can be used to place controls directly on the boardroom table or a convenient side table.

www.douglaslightingcontrols.com/products/wireless // Circle No. 45



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↑ PRIVACY BOOTH ASSEMBLES AND DISASSEMBLES QUICKLY

VARIDESK now offers phone-booth-like privacy pods for today's workplace. The Privacy Booth can be assembled or disassembled in minutes. It is built with contract-grade steel to ensure quality and stability. With sound-dampening capabilities, like foam insulation in the wall panel and felt lining the interior, the Privacy Booth offers a retreat for focus work, personal phone calls and other matters requiring quiet and confidentiality. The booth comes with a built-in desk that fits a laptop and other essentials. It includes an LED task lamp and AC and USB ports. Its glass skylight feature allows for natural light while its motion-sensor fan provides ventilation.

www.varidesk.com // Circle No. 47



↑ METAL PANELS NOW CAN LOOK LIKE WOOD

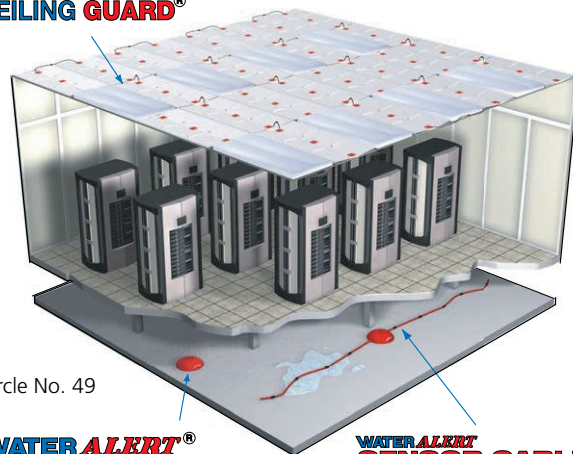
AkzoNobel has released Expressions, a metal print system that adds depth and dimension to exterior finishes by using texture over a print pattern. The Expressions system enables manufacturers to combine the durability of metal with many appealing visuals, including the aesthetic of wood. AkzoNobel also produces metal coatings products, such as CERAM-A-STAR, a silicone-modified polyester coating; TRINAR, a PVDF coil coating system; and Polydure, a polyester paint system.

www.akzonobel.com/ccna // Circle No. 48

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RETROFIT / MARCH-APRIL 2020



PIAZZA POD PARK

Parking Lot + Shipping Containers = Dining and Recreation Hub



Once dusty parking lot in Philadelphia's Northern Liberties neighborhood has become a popular dining and recreation spot after Post Brothers, a local real-estate developer, created a pop-up mixed-use park with recycled shipping containers.

The contemporary Piazza Pod Park includes beer-garden-style dining, open-air shopping, art installations, fitness activities and family play areas. The 35,000-square-foot space is dog-friendly, seats up to 300 people and is open seven days a week to the public.

Post Brothers representatives chose Britten Inc., a creative production house, as their partner in producing the customized shipping containers. From initial shop drawings to fabrication to final delivery and installation, Britten created 15 units, ranging from 10- to 40-feet long, in under four months.

Many of the brightly painted pods include air-conditioning, upper deck systems, glass windows and doors, LED light fixtures, powered retractable awnings, insulation, HVAC, oak flooring, stereo systems and more.

"I am in awe of the unique ways in which the vendors chose to make these spaces their own," says Wayne Stiles, director of Industrial Design & Engineering at Britten. "During the design process, you are always wondering how they will be used—and then, surprise! They totally take it in a direction that makes you say, 'Why didn't I think of that? What a fun project!'" 



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