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Artscape: A Romanesque Revival-style Church Is Reimagined for the SoMa Arts Scene

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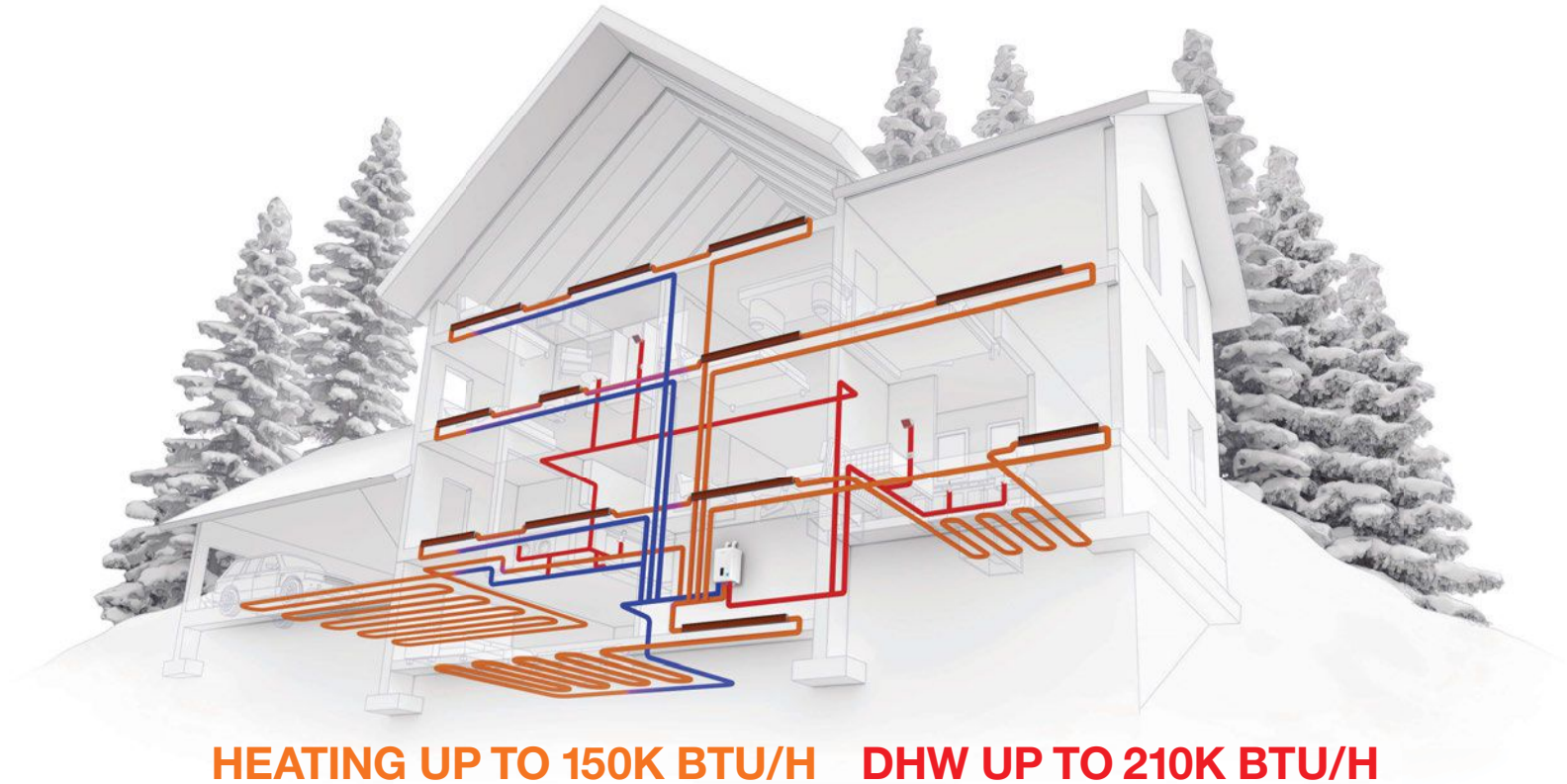
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-Derrick Mozingo, AIA, Senior Partner, Design Principal, Mozingo + Wallace



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COVER PHOTO: **COURTESY KEN FULK**

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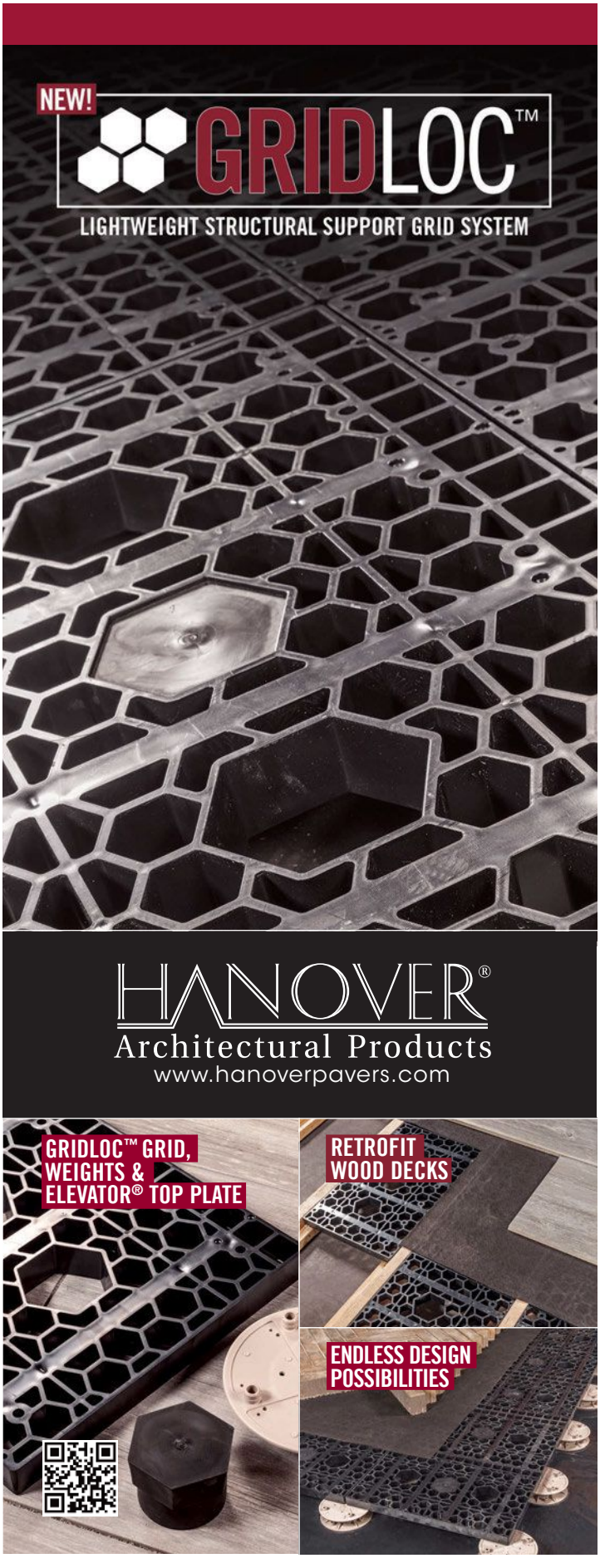
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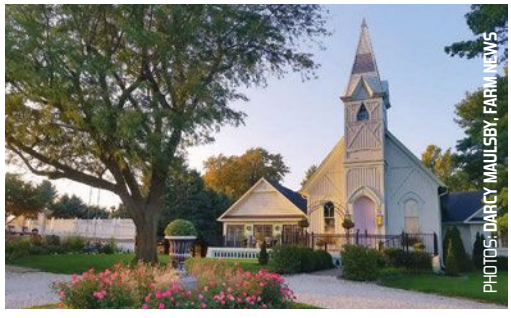
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THE VISION FOR SOMETHING TOTALLY NEW

About a decade ago, a family in my area of Iowa purchased a 24- by 40-foot Presbyterian church built in 1879 and transformed it into their home. The couple actually moved the church from where it stood for 133 years to an acreage 1 mile outside of town. During the move, the church's tall spire required power lines be disconnected, cutting off power to an entire town for hours. However, nobody complained about the lack of electricity. Instead, townspeople came out of their houses to watch the historic church begin its journey toward a new life as a family home. (The church had been abandoned for at least five years before the couple purchased it.)





PHOTOS: DARCY MAULSBY, FARM NEWS

This 1879 church turned single-family home in rural Iowa still inspires motorists to stop and photograph it almost 10 years after its transformation.

Today, the church's original wood siding, pine entry doors and interior woodwork have been lovingly restored, and the bell in the steeple still can be rung. The church itself contains the family's kitchen and living room while additions built on three sides accommodate bedrooms and other living quarters. The church/home is visible on a main highway, and I can't help but look at it every time I drive by. It truly is one of the most magnificent homes in our area, and the owners say people still pull off the highway to take photographs of it. I'd be willing to bet that a new-construction home—no matter the beauty, size or price tag—rarely draws this sort of attention.

In this issue, we celebrate the upgrades and adaptations of religious facilities, like this church/home. Religious facilities often are constructed with such care and craftsmanship that, when the congregation dwindles, not retrofitting them into another use would be just plain irresponsible. For example, our "Cover Story", page 28, features the 1913 St. Joseph Catholic Church in San Francisco. The Romanesque Revival-style church, which had been mostly vacant for 25 years, underwent a 13-year, $13 million restoration. The design team of Page & Turnbull and Ken Fulk brought the architecture back to its former glory while completely re-envisioning the interior as a studio for the arts community St. Joseph's now serves.

As the pandemic rages on, church leaders have been challenged to embrace technology and broadcast services into congregants' homes. Those congregations with the financial ability to upgrade their facilities have been adding video recording studios and state-of-the-art equipment to improve their broadcasts. Victor Body-Lawson, AIA, founder of Body Lawson Associates Architects and Planners, writes in "Business", page 24, how to retrofit existing space or build additions for these studios economically.

Speaking of the pandemic, who hasn't been stocking up on all types of products meant to help us live our lives as normally as possible while being safe from COVID? One product that has been around for nearly a century but finally is being embraced by everyone during the pandemic is germicidal ultraviolet (GUV) lighting, which is being marketed as a way to kill viruses. Currently, there are no standards regulating GUV products and, as Andrea Wilkerson, a senior lighting research engineer at Pacific Northwest National Laboratory, and Alex Baker, who manages government affairs and public policy for the Illuminating Engineering Society, point out in "Component", page 46, users must be informed and vigilant about safety protocols when using GUV products.

The pandemic continues to challenge all of us and, here at ***retrofit***, it actually has inspired us. For years, we've debated whether to cover single-family homes in ***retrofit***. I've been remodeling my house—and blogging about it on ***retrofit***'s website, www.retrofitmagazine.com/category/blog—and the excitement of the remodeling process, along with the unwavering vision of our publisher, John Riester, has finally convinced our team to go for it. The first standalone issue of ***retrofit home*** will be polybagged with your regular issue of ***retrofit*** in September. ***retrofit home*** will cover truly distinctive homes, like the church/home I mention in this column. We think, even if you don't work on single-family homes, these one-of-a-kind houses will inspire you, too. Learn more about ***retrofit home*** on page 49, and, in the meantime, if you know of or have worked on a structure that was not built as a single-family home but now is a truly inspiring residence, please contact me at christina@retrofitmagazine.com or (630) 308-4602.

Christina Koch

CHRISTINA KOCH
Associate Publisher/Editorial Director
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Meade Curtis is vice president of Development for WinnCompanies, one of the nation's largest operators of multifamily housing and a developer of historic adaptive-reuse and mixed-income properties. Curtis oversaw the redevelopment of Sibley Square, a 1.1-million-square-foot historic former department store in Rochester, N.Y. Laser scanning uncovered the true existing conditions of the mixed-use renovation project, saving countless hours and dollars. Read about it in "Business", page 18.



The global pandemic has challenged worship community leaders to embrace digital technologies and redesign brick-and-mortar worship spaces to integrate broadcast and recording studios with state-of-the-art equipment. In "Business", page 24, **Victor Body-Lawson**, AIA, a Nigerian-born, architect and founder of Body Lawson Associates Architects and Planners, writes about how to implement studios affordably.

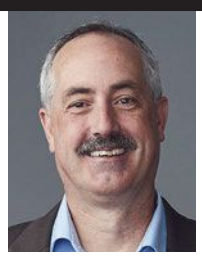


Ruth Todd, FAIA, is an architect and principal with Page & Turnbull, a firm devoted to bringing together architects, planners, historians, and conservators to build new structures or imbue new life into existing structures by adapting them to meet contemporary needs. The latter is the case with St. Joseph Catholic Church, which was built in 1913 but had been uninhabited for 25 years before becoming a pillar of the SoMa arts scene today. Read about the project in our "Cover Story", page 28.





Since the start of the pandemic, the broad availability of products that claim to use light to kill viruses and other pathogens may give consumers a false sense of confidence. In "Component", page 46, **Andrea Wilkerson**, a senior lighting research engineer at Pacific Northwest National Laboratory, supporting the U.S. Department of Energy Lighting R&D Program, and **Alex Baker**, who manages government affairs and public policy for the Illuminating Engineering Society, underscore vigilance is needed when implementing germicidal ultraviolet light to avoid wasting money or, more seriously, causing injury.



Steve Smith, AIA, serves as a principal in Cooper Carry's Washington, D.C., office with expertise in conceptualizing and leading projects that enhance workplace, residential and mixed-use environments for the highest community use. Smith writes about The Foundry, an office-to-residential transformation that not only is the largest adaptive-reuse project of its kind in the mid-Atlantic region, but also a harbinger of a rising trend among developers to reimagine former offices. Read about The Foundry in "Multifamily", page 52.



Meredith Morton, who writes about architecture and design from her home office in Chicago, uncovers the skylight restoration of the 1907 Beaux-Arts Surrogate's Courthouse in "Historic", page 58. The skylight restoration was highly involved and required a great deal of onsite research. Today, the skylight again illuminates the rich and highly articulated interiors of a central atrium that inspired the building's reference as the "most Parisian structure in New York."



PBDW Architects partner **Anne Holford-Smith** has more than 30 years' experience, focusing on preservation, renovation and adaptive reuse of historic buildings, as well as currently serves as a commissioner of the New York City Landmarks Preservation Commission. In "Historic", page 64, Holford-Smith writes about three important New York City preservation projects that help make the case that architects are stewards of the past.



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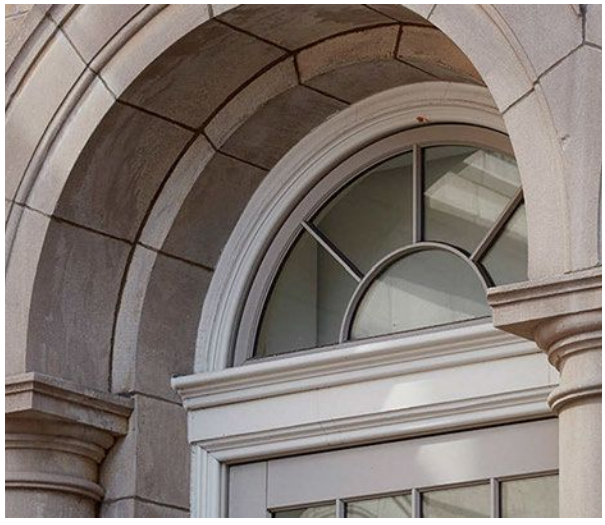
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Boys & Girls Club of Harlem | Dattner Architects | New York, NY

After 30 years of vacancy, Public School 186 was on its last leg. Built in 1903, the school was known for its Italian Renaissance Revival architecture and needed to be preserved for listing on the National Register of Historic Places. The Boys & Girls Club of Harlem called upon owner Dattner Architects and the Pella Architectural Solutions team to save the historical landmark while adding the innovation and performance of a new build.



JARON VOS
Manager, Architectural Solutions

INNOVATING SOLUTIONS

"Preserving history is one of our greatest passions. So when Dattner asked if it was possible to give these windows a performance upgrade while maintaining historical accuracy, we got excited knowing our products offered the solution," explained Jaron Vos, Manager of Architectural Solutions at Pella.

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RECREATING HISTORY

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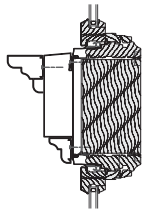
The insights and innovation brought to the table by Pella experts made this project possible. And after four years, Public School 186 was transformed from a run-down building to beautiful, affordable housing and headquarters for the Boys & Girls Club of Harlem.

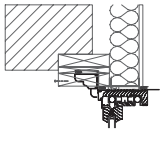
"It was incredibly rewarding taking fragments of history and bringing it back to life with innovations that will stand proud for generations," said Vos.

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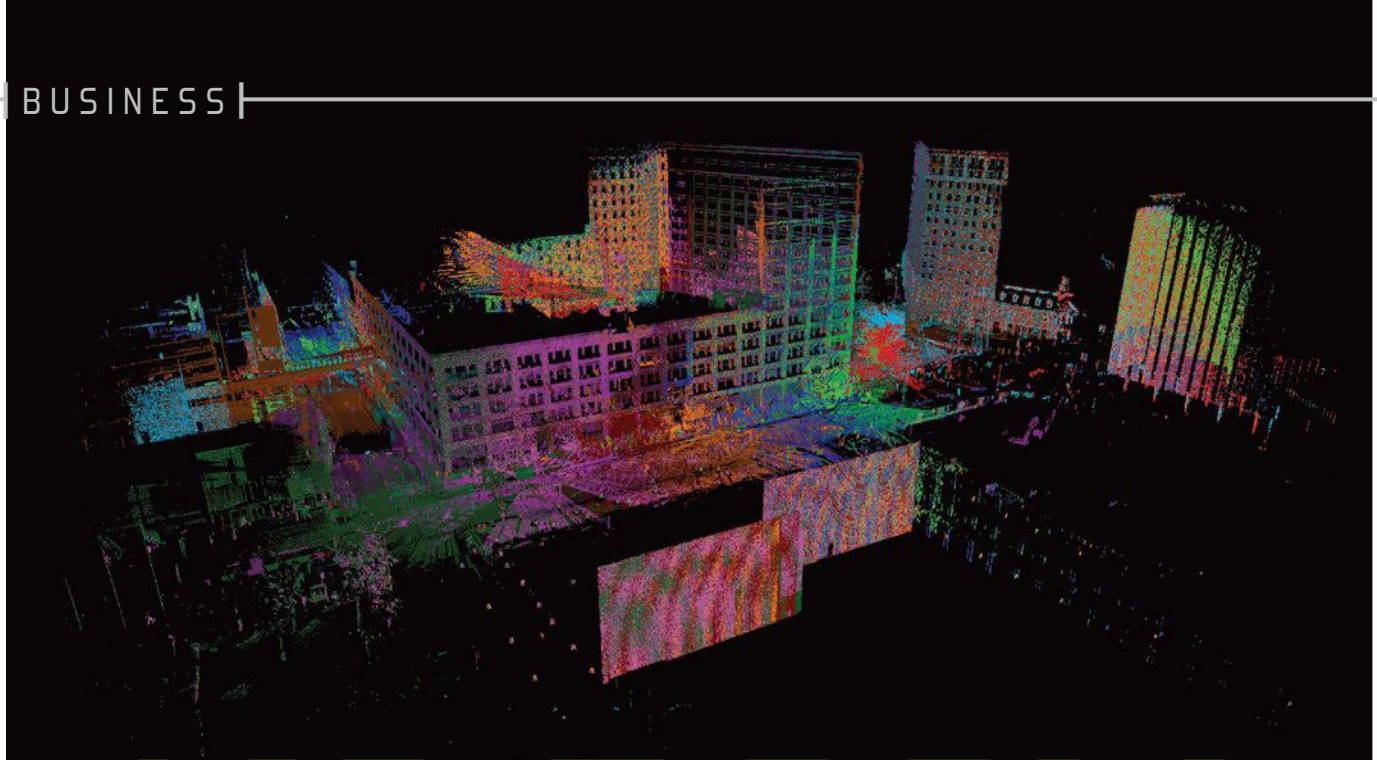
Preserving the past, building the future.

As Public School 186 in Harlem, New York, eclipsed 30 years of abandonment, its iconic architecture was in serious jeopardy. Dattner Architects and the Pella Architectural Solutions team worked together to bring new life to the building with custom solutions for complicated needs. Using old photos and architectural remnants found inside, Pella preserved the historical accuracy while adding modern innovations and durability.

FROM REMNANTS TO RESTORATION.

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NO ROOM FOR ERROR

SCANS: EXISTING CONDITIONS

Laser Scanning Uncovers the True Existing Conditions of a $200 Million Renovation Project

WRITTEN BY | **MEADE CURTIS**

When WinnCompanies purchased the 1.1-million-square-foot Sibley Building in Rochester, N.Y., the firm needed to understand, in detail, what it was going to own, so that it could map out the various components of the project it would be developing over the coming decade. WinnDevelopment, the company's development arm, partnered with Existing Conditions, which uses reality-capture technologies to deliver comprehensive building documentation.

When WinnCompanies CEO Gilbert Winn decided to buy the historic Sibley Building in Rochester, N.Y., in November 2012, he had an ambitious vision of transforming the massive building into a thriving mixed-use, mixed-income development that would anchor an emerging economic revival for the city's struggling downtown.

The obstacles standing in the way of that vision were formidable. One portion of the 1.1-million-square-foot structure was 107-years old. Another segment was 86-years old. The building was 80 percent empty. Its systems, the interior and the façade were run down and deteriorating. Many of its interior spaces had been haphazardly subdivided over the decades. Key historic ornamental features were hidden under ad-hoc renovations. There were eight separate entrances, 22 elevators and two sky bridges connected to adjacent parking structures.

The development team's first priority was understanding, in detail, what we were going to own, so that we could map out the various components of the project we would be developing over the coming decade. Trustworthy, precise knowledge of the building allowed us to plan three residential communities, a retail component and even high-tech incubator offices. The conditions of each part of the building were different and varied, so this front-end existing conditions survey was fundamental to our path forward and planning.

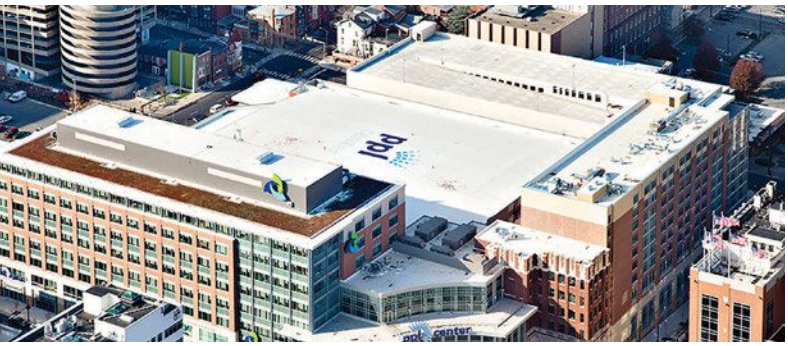
For WinnDevelopment, the company's development arm, the $200 million project—

(continues on page 20)

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which has since been rebranded as Sibley Square—represented the largest, most complex mixed-use effort in the company's 50-year history. To attract the public and private investment, the company needed to stabilize and retrofit the asset. There was no room for error.

The company relied on two key Boston-based partners to establish sound plans for the retrofit: The Architectural Team (TAT), an award-winning architectural firm that specializes in historic adaptive-reuse design, and Existing Conditions, a national leader in using 21st century reality-capture technologies to deliver the most comprehensive building documentation. Realistically, a mixed-use repositioning, urban revitalization project of this scale and complexity would have been impossible to get our hands around without the expertise of TAT, which had partnered with WinnDevelopment on dozens of historic adaptive-reuse projects, and the laser scanning expertise of Existing Conditions.

Scan Work

The first portion of the Sibley Building opened in 1906 as a 391,444-square-foot department store designed by architect J. Foster Warner. The 6-story steel structure boasted 5 acres of floor space and was sheathed in brown Roman brick with expansive, deeply set Chicago-style

(continues on page 22)



PHOTO: **STEPHEN S. REARDON PHOTOGRAPHY**

One portion of the Sibley Building was 107-years old at the start of the project; another segment was 86-years old. WinnDevelopment's charge to The Architectural Team was to transform the building into Class A multifamily, commercial, restaurant and retail space over a phased period, incorporating a central atrium, multiple interior courtyards, multiple roof decks and mechanical spaces, along with 12 elevator cores.



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To lower risk and empower The Architectural Team to confidently finalize design drawings, the Existing Conditions team returned to the site dozens of times over the course of three to four years, scanning spaces before and after demolition to accurately document conditions and precisely locate previously hidden elements.

windows. The design featured Baroque and Renaissance-style details, along with a copper-topped clock tower that quickly became a landmark for the bustling city's skyline. In 1911, an addition known as the Mercantile Building added six more acres of floor place. In 1924, six floors were added to the top of the Mercantile Building, creating Sibley Tower, the city's largest office building.

By the 1940s, the Sibley Department Store offered more than 1 million square feet of floorspace as the undisputed economic anchor of downtown Rochester, employing 2,400 people, serving as a favored shopping excursion for just about every family in the region and attracting visitors from throughout the Northeast and Mid-Atlantic. It closed in 1989, triggering a slow decline in terms of maintenance and capital improvements.

Our redevelopment needed to redesign the building from the inside out. We had to rediscover, preserve and accentuate its historic features in an innovative environment while creating spaces, systems and amenities that would appeal to a variety of new commercial and residential tenants. Essentially, we were reinventing the region's most important building as a modern hub for housing, retail and innovation that would attract renewed energy to the downtown.

Our charge to TAT was to transform the building into Class A multifamily, commercial, restaurant and retail space over a phased period, incorporating a central atrium, multiple interior courtyards, multiple roof decks and mechanical spaces, along with 12 elevator cores. We wanted floorplans with multiple uses, taking into account access, light and air, existing and future mechanical systems/risers, and fire and life safety. The deep footprint of the mid-rise building with the atrium lightwell, for example, was perfectly suited to be converted to technology-focused office space, but its interior spaces needed a substantial retrofit for residential uses. The tower with an interior courtyard seemed perfectly suited for apartment layouts. The ground floor, stretching along both Clinton Avenue and East Main Street, is adjacent to the city's transit center and ideal for retail.

Given the building's development history, there was no way we were going to rely on the floorplans we inherited or traditional surveying techniques. We needed comprehensive 3-D images. We were not going to gamble on accuracy with so much at stake.

TAT turned to its longtime partner, Existing Conditions, whose building documentation services had consistently proven invaluable on complicated projects. The company's ability to provide an accurate baseline set of measurements and assumptions is critical to identifying and documenting issues, allowing for optimal design solutions and minimizing construction risk.

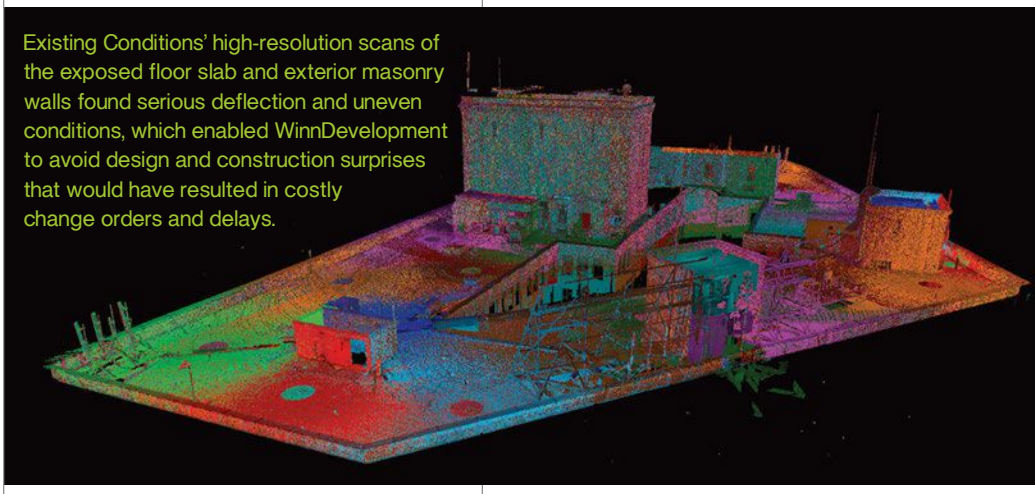
At Sibley, Existing Conditions' work was particularly crucial in documenting the intricate details associated with very specific and ornate areas that had been originally utilized for the historic department store's corporate offices, abandoned dining hub and expansive lobbies.

Sibley had very unusual plan geometry, to say the least. Access in some spaces was challenging, and many safety precautions needed to be taken. Multiple renovations over the course of decades had generated unknown conditions. The building also had a great deal of important but unusual architectural features, so the resulting existing conditions survey was complex.

To lower risk and empower TAT to confidently finalize design drawings, the Existing Conditions team returned to the site dozens of times over the course of three to four years, scanning spaces before and after demolition to accurately document conditions and precisely locate previously hidden elements. The company's high-resolution scans of the exposed floor slab and exterior masonry walls found serious deflection and uneven conditions, which enabled us to avoid design and construction surprises that would have resulted in costly change orders and delays. Our general contractor, DiMarco Constructors, had all the information it needed to do amazing work.

After two years of planning, systems renovation and intensive restorations of the art deco features in the main lobby, WinnDevelopment succeeded in listing the Sibley Building on the National Register of Historic Places in 2014. The company secured financing for its plans in 2016, kicking off a phased development that blended modern urban lifestyle offerings within a historic superstructure, including:

- A 68,000-square-foot research and development hub on the sixth floor of the mid-rise occupied by NextCorps, a high-tech incubator for start-ups supported by the University of Rochester, featuring co-working space, private offices and state-of-the-art labs, conference rooms and an auditorium.
- The Landmark at Sibley Square, affordable apartment housing for age 55-plus seniors located on floors seven and eight of the refurbished Sibley Tower.
- Spectra at Sibley Square, 104 market-rate apartments on floors nine through 12 of the tower.
- Liberty Lofts at Sibley Square, 104 workforce housing apartments on floors two through five of the original mid-rise segment.
- The Commissary, a 6,500-square-foot incubator for dozens of food business entrepreneurs sharing a commercial kitchen on the first floor.
- The Mercantile on Main, the first food hall in Rochester and one of the largest restaurant marketplaces in upstate New York. Occupying 10,000 square feet in the building's first-floor atrium, the Mercantile on Main features five eateries, a coffee shop and Rufus Cocktail Bar—named after Sibley Building founder, Rufus Sibley.
- Commercial tenants include DGX Grocery; Bank of America; hummus manufacturer, Ithaca Cold Crafted; a technology learning center, Boundless Connections; Citizens Bank; a daycare, Rochester Child-first Network; dental services at Eastman Dental; the Rochester Institute of Technology City Art Space; a Rochester Police Department substation; a Lifespan senior health center; and furnished offices for entrepreneurs at @SibleyWorx.



Existing Conditions' high-resolution scans of the exposed floor slab and exterior masonry walls found serious deflection and uneven conditions, which enabled WinnDevelopment to avoid design and construction surprises that would have resulted in costly change orders and delays.

Smart Work

Today, thanks to the smart work of TAT, Existing Conditions and DiMarco Constructors we were able to adapt and transform Sibley Square to host 350,000 square feet of residential uses, featuring apartments in every income category, expertly integrated with more than 400,000 square feet of Class A office space, 75,000 square feet of retail space and 68,000 square feet of high-tech educational space.

Measuring all this out with old-school design and surveying techniques would have taken nearly as long as the redevelopment itself. Being able to quickly drop the actual physical layout into an architectural model was the footing we needed for an efficient, on-budget and successful redevelopment. Without the foundational intelligence of accurate building documentation, we never would have accomplished all this in eight years.

It took 21st century design and scanning techniques to reinvigorate Sibley's century-old legacy as the destination for all people to work, play and live in Rochester and, in the process, create a national model for high-impact, mixed-use downtown redevelopment.



IMAGES: BODY-LAWSON ASSOCIATES ARCHITECTS AND PLANNERS

A STUDIO FOR THE CONGREGATION

Reinventing Worship Space for Virtual Services

WRITTEN BY | **VICTOR BODY-LAWSON, AIA**

The global pandemic has challenged worship community leaders to be as nimble as ever, forcing them to respond to increased need for inspiration and direct outreach, even as attendance and revenue streams shrink. Many are embracing digital technologies and new platforms to bring virtual services directly into congregants' homes. The success of worship-at-a-distance during pandemic distancing orders—documented in a Pew Research Center survey (pewrsr.ch/3px6w1J) late last year—has led congregation leaders to consider novel approaches to redesigning brick-and-mortar worship spaces, including integrating broadcast and recording studios with state-of-the-art equipment.

Not every congregation has the means for major renovations or upgrades, but many of those who can count land as an asset are exploring redevelopment opportunities, creating vibrant mixed-use complexes that serve their communities in new ways while bringing in new sources of income. For those who have the financial capacity to reimagine their spaces, the video recording

(continues on page 26)



The ideal solution for virtual services is a standalone room that can serve as a video recording studio and a remote-control booth for recording and broadcasting from the sanctuary and other locations onsite.



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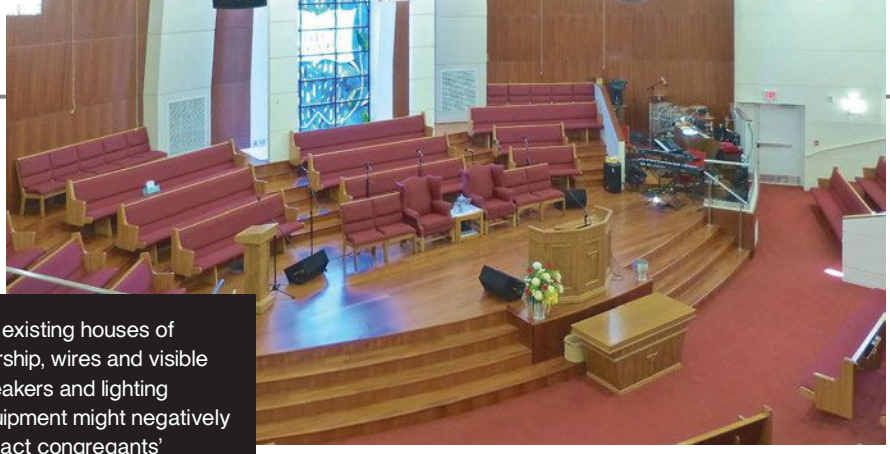
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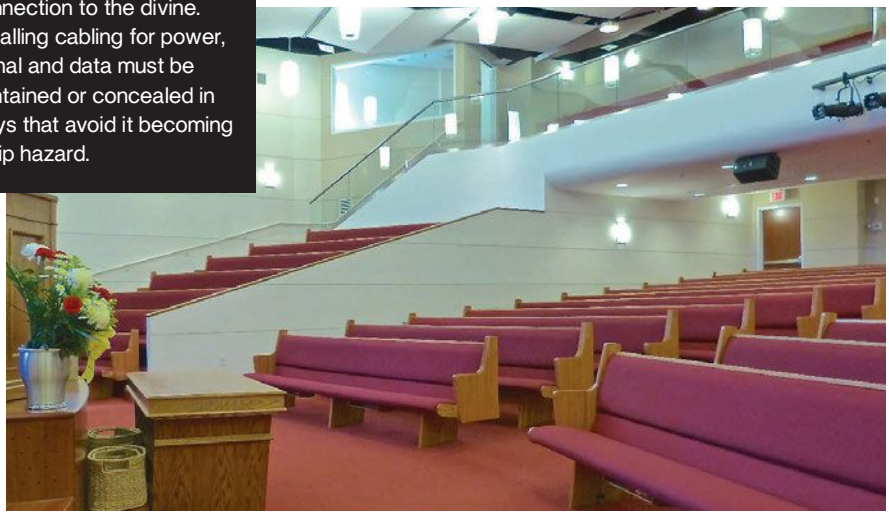
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VIEW A VIDEO





For existing houses of worship, wires and visible speakers and lighting equipment might negatively impact congregants' connection to the divine. Installing cabling for power, signal and data must be contained or concealed in ways that avoid it becoming a trip hazard.

studio is fast becoming a popular enhancement for both new construction and existing places of worship, allowing congregation leaders and community members to create content for distribution online and elsewhere, gather and organize via videoconferencing platforms, and share inspiring sermons and services.

A team led by Body-Lawson Associates Architects and Planners recently had to make adjustments mid-design phase for Holy Trinity Baptist Church, Brooklyn, N.Y., when the pandemic changed church representatives' needs and goals for the project considerably. The plan in motion for redevelopment included demolishing the original structure and building a new mixed-use complex with apartments above a new street-level church with sanctuary, offices and support spaces. With a creative midstream redesign, the development makes room for a new video studio at the rear of the site near the vestry, large enough to accommodate a full band of musicians and an engineering booth with upgraded electrical and data infrastructure, as well as acoustic interventions for a professional-quality sound. When it's complete, the facility will allow clergy, staff and others to record and livestream services, talks



and meetings—bringing the community together no matter where the members are.

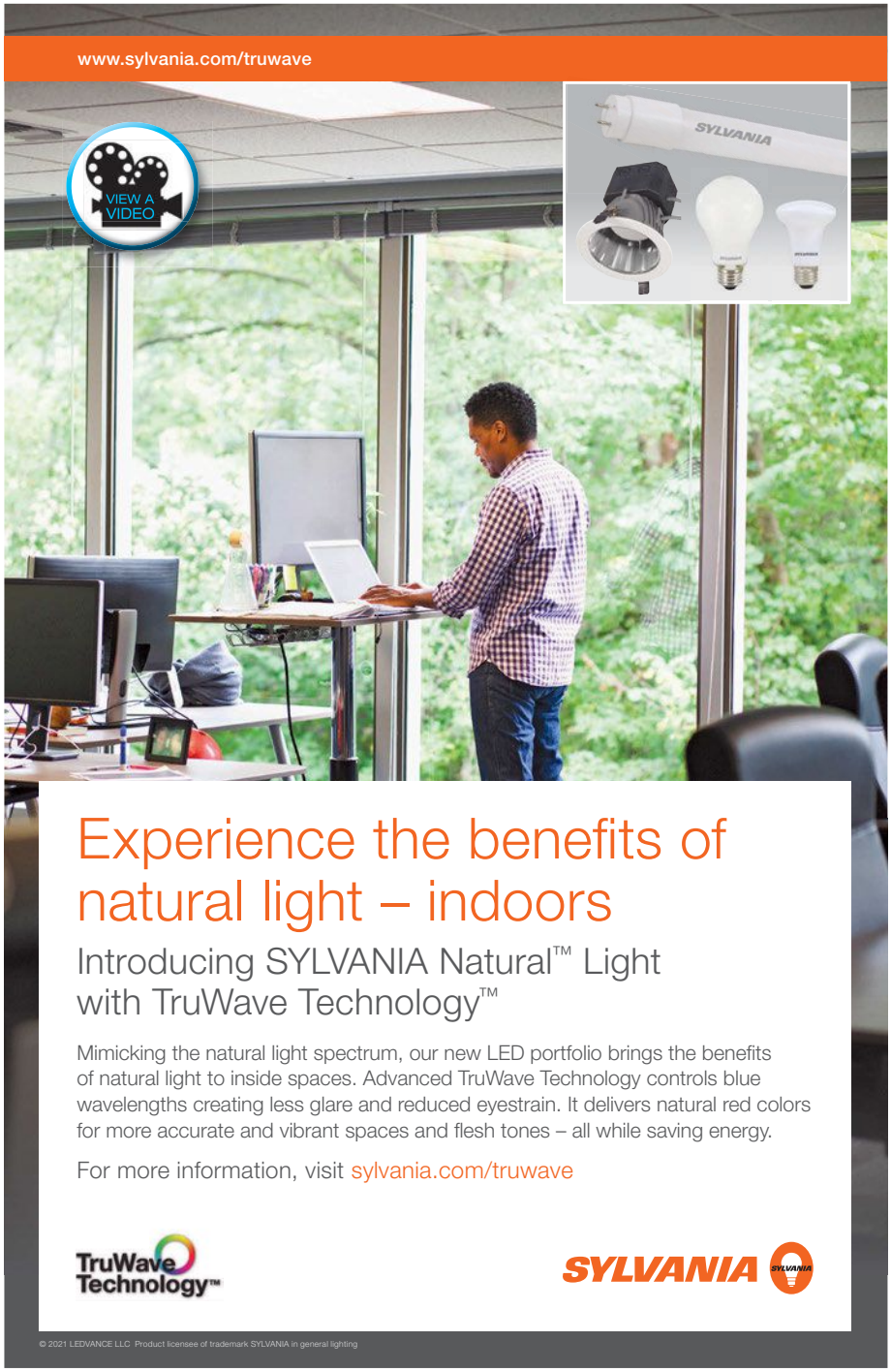
It is certainly possible to apply cost-effective approaches to accomplish something similar in an existing church with attention to solutions tailored for the original construction and project parameters. Still, whether a retrofit project or a new-construction challenge, an audiovisual amenity of this kind can serve as part of a larger strategy to help secure the future for a congregation. What follows are some additional considerations for this kind of project:

PLAN FOR VIRTUAL SERVICES. The ideal solution is a standalone room that can serve two functions: a video recording studio and a remote-control booth for recording and broadcasting from the sanctuary and other locations onsite. The primary goal is to be able to share services live or after the fact on YouTube, Facebook and other popular platforms with someone operating a mixing board for optimal audio quality. Equipped with soundproofing and sufficient electrical capacity, the studio also should be able to support rehearsing and recording of music. This can create enhancements for broadcasts, podcasts and other outreach, as well as serve as a potential revenue stream with musicians renting the studio to lay down tracks.

MANAGE INFRASTRUCTURE. It is critical to the success of such a project that utility services reaching the audiovisual facilities don't skimp on power. The project teams should verify that electrical capacity can support professional-grade equipment, especially the power-intensive lighting fixtures and lamps used for high-quality video production. For existing houses of worship, including historic buildings, this presents special challenges: Upgrading power infrastructure may require partial demolition to be seamless—an important consideration for the sanctuary where unsightly wires or visible speakers and lighting equipment might negatively impact congregants' connection to the divine. Installing cabling for power, signal and data also must be contained or concealed in ways that avoid it becoming a trip hazard. And while investing in upgrades of this kind, church leaders should simultaneously put resources into state-of-the-art broadband and Wi-Fi capabilities.

BALANCE PERFORMANCE WITH VALUE. These kinds of projects often appear very costly, especially when retrofitting an existing space. Congregation leaders should work closely with architects, engineers, audiovisual specialists and other consultants on the goals for a video studio and the expectations of what such an investment could yield in the near and long terms with respect to new membership, revenue and other metrics of success.

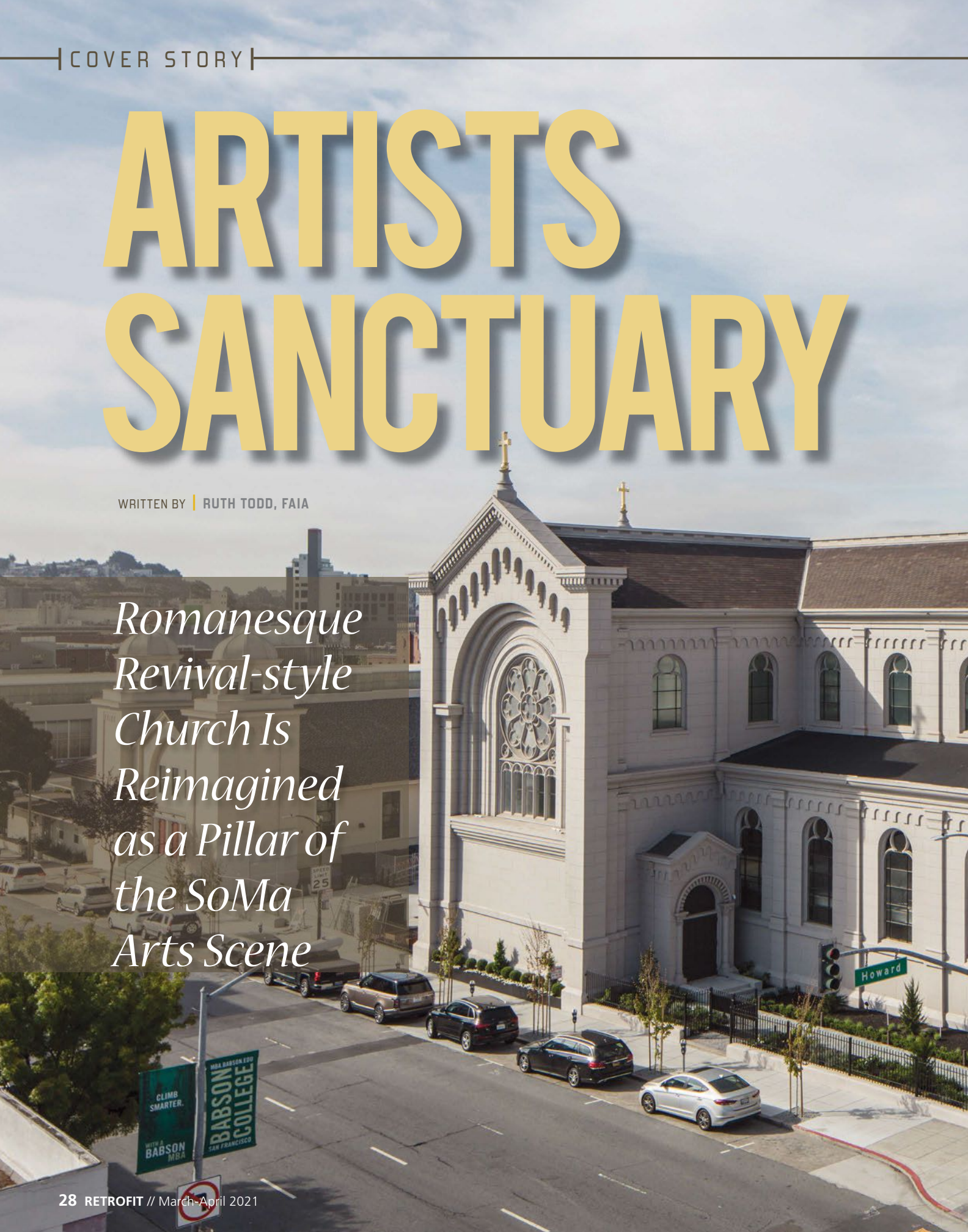
In all events, it's better to consider costs and benefits at the outset rather than during construction, when the value-engineering mindset creeps in and can undermine scope, facility capacity or audiovisual needs. If the resulting studio is prone to electrical shortages, poor acoustics or sound bleed from other spaces—or any other issues that detract from performance—then it will be less likely to yield the hoped-for benefits.



ARTISTS SANCTUARY

WRITTEN BY | RUTH TODD, FAIA

Romanesque Revival-style Church Is Reimagined as a Pillar of the SoMa Arts Scene





PHOTOS: **COURTESY KEN FULK**
unless otherwise noted

Established in 1861, St. Joseph Catholic Church served San Francisco parishioners, primarily the local Irish-Catholic community and later the Filipino-American community, in the neighborhood now known as South of Market, or SoMa.

Beloved by locals and visitors alike for its Romanesque Revival-style architecture, with ornate wall finishes and massive twin bell towers on the north side, the historic 1-story church was built in 1913 by architect John J. Foley following the destruction of the previous incarnation in the 1906 earthquake and the fire it sparked. At the time of its construction, St. Joseph's was one of San Francisco's most spacious (seating up to 1,000) and magnificent edifices.

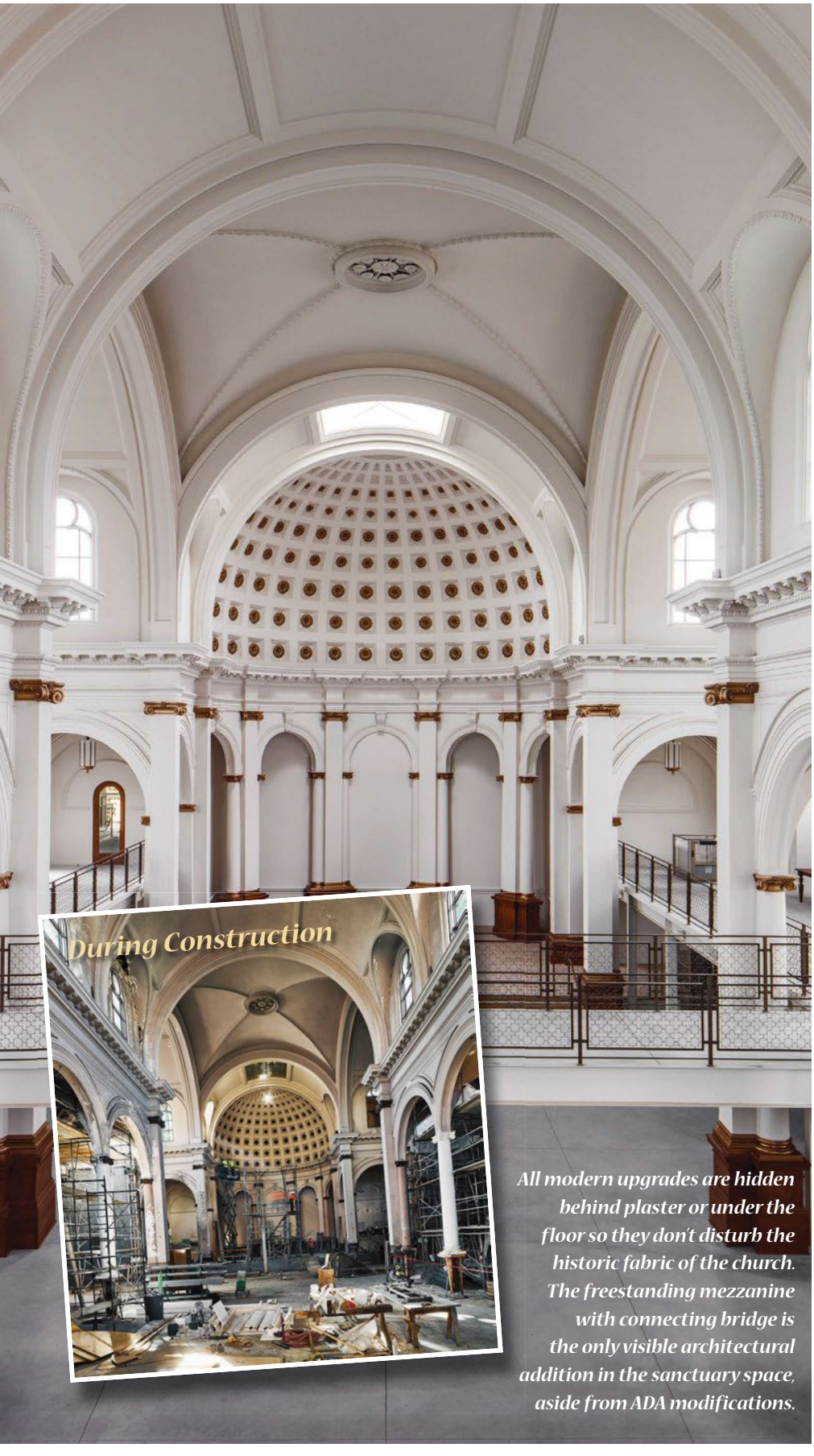
History attempted to repeat itself in 1989 when St. Joseph's was damaged by a major earthquake, after which the church was closed, deconsecrated, and sat mostly vacant and uninhabited for 25 years, during which time the edifice deteriorated significantly. Today, the former church has become a pillar of the SoMa arts scene, thanks to the visionary interior designer Ken Fulk who saw the potential for its rebirth. Fulk, along with co-owners Chris Foley and Doug Ross, assembled a team to redevelop the church—a San Francisco landmark, as well as being listed on the National Register of Historic Places—restoring the architecture to its former glory while completely re-envisioning the interior as a workplace and studio for the arts community St. Joseph's now serves.

As both architectural designer and preservation architect for the project, Page & Turnbull enjoyed the honor and responsibility of beginning consultation on this unique, $13 million adaptive-reuse challenge in 2005 and carrying through to completion in 2018. At that time, the house of worship reopened its doors as the newly established home and headquarters of the St. Joseph's Arts Society, a sanctuary and workspace for artists, as well as a place to showcase works for patrons and art lovers.

Historic Challenge

The project team for the restoration and adaptive reuse of St. Joseph's worked together to create innovative and robust solutions for a number of unique challenges, including:

- Carving a flexible mixed-use space from a



All modern upgrades are hidden behind plaster or under the floor so they don't disturb the historic fabric of the church. The freestanding mezzanine with connecting bridge is the only visible architectural addition in the sanctuary space, aside from ADA modifications.

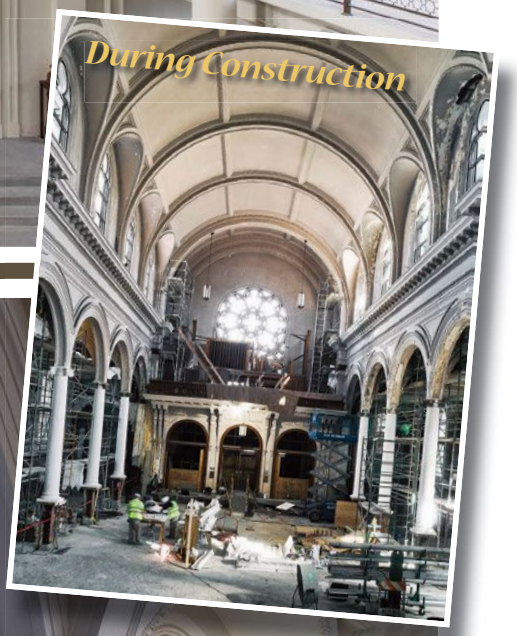
deconsecrated house of worship, historic landmark and architectural treasure.

- Rehabilitating and modernizing the structure, addressing seismic issues while rendering it ADA-compliant.
- Designing a freestanding mezzanine for the interior while preserving the original volume and finishes.
- Adding code-compliant toilets, wheelchair lifts, radiant heat, mechanical ventilation, data infrastructure and lighting systems.
- Taking advantage of Historic Rehabilitation and New Market tax credits and adhering to the Secretary of the Interior's Standards for the Treatment of Historic Properties.
- Activating the site and surrounding neighborhood by putting the iconic building to new use, thereby revitalizing the community and restoring local pride.

The project scope started with a primary goal: Convert St. Joseph's from a 17,000-square-foot church to a 22,000-square-foot mixed-use office, retail and assembly space, one that could support and help realize Fulk's vision, which was a reimagined nave as the home of St. Joseph's Arts Society, a work-study-showcase space for emerging artists. The seismic reinforcement; additions to the interior, such as the freestanding mezzanine; and ADA-compliance work were introduced to support the primary mission. Additional historic-preservation work, including repair and restoration inside and out, was intended to achieve related goals, such as securing an architectural treasure for posterity and aligning the work to be consistent with federal standards for rehabilitation—the latter being essential to securing the tax credits that would make the project financially viable.

Those rehabilitation standards presented significant challenges for Page & Turnbull in the dual role of design architect and preservation architect, as well as for the structural engineer, Sattary Structural Engineering. Strategies for seismic strengthening had to have minimal impact on, and be sensitive to, the spatial characteristics and historic fabric of the church. Ultimately, the solutions would have to stabilize the masonry walls to provide life-safety protection and extend the life span of St. Joseph's while maintaining the









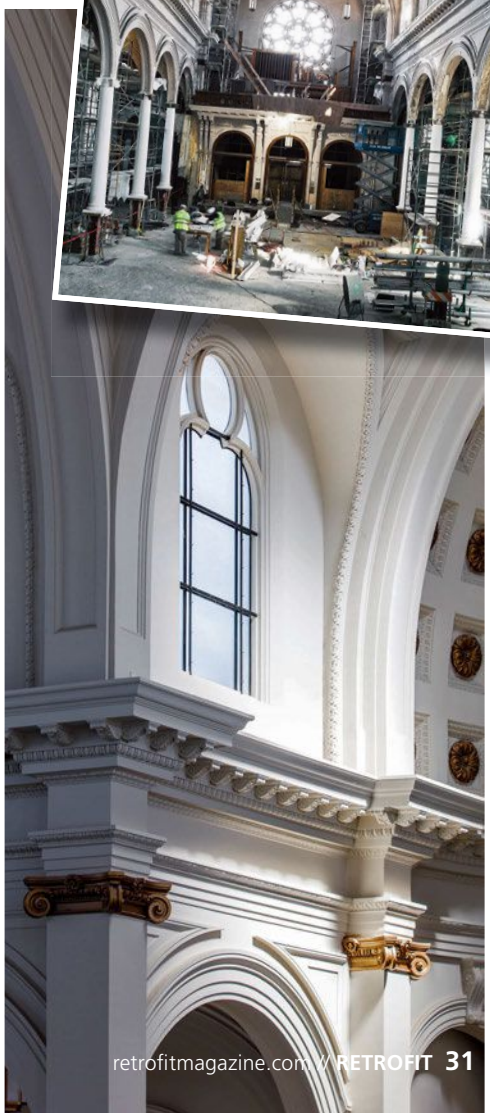
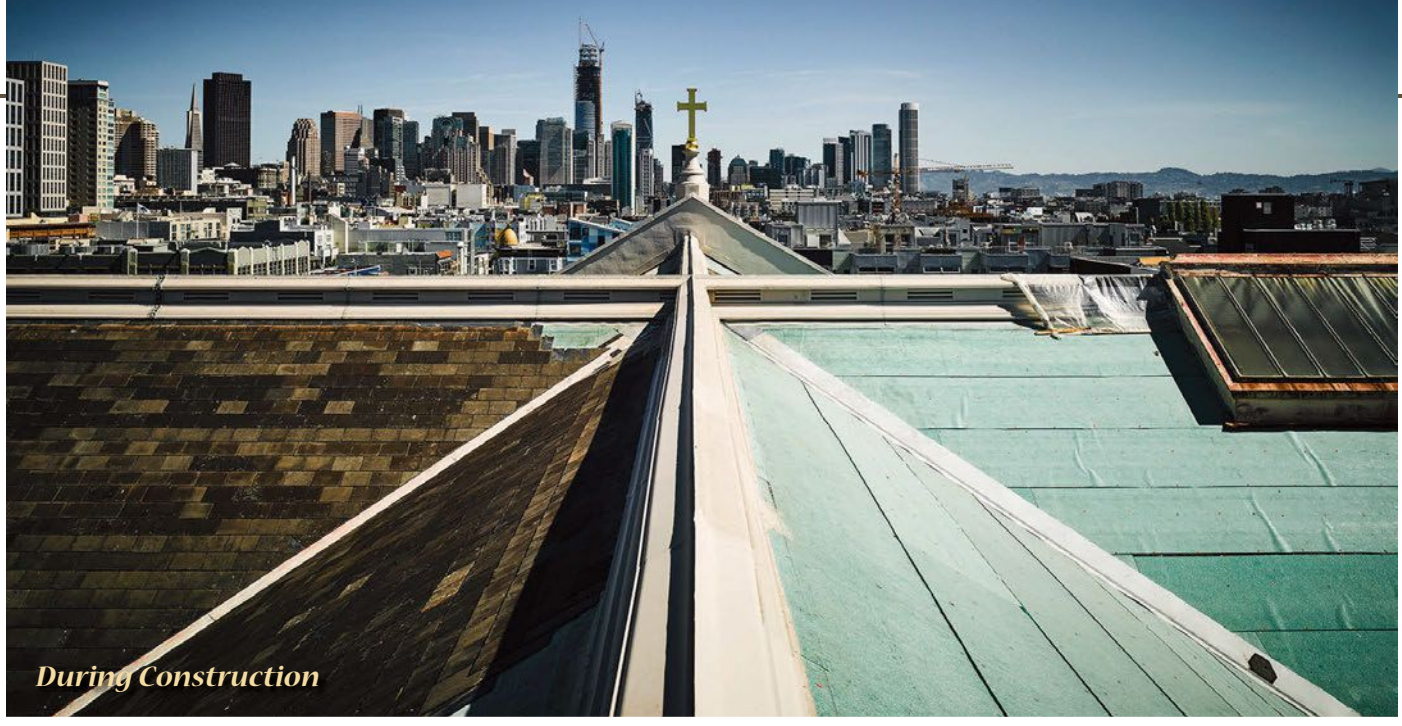
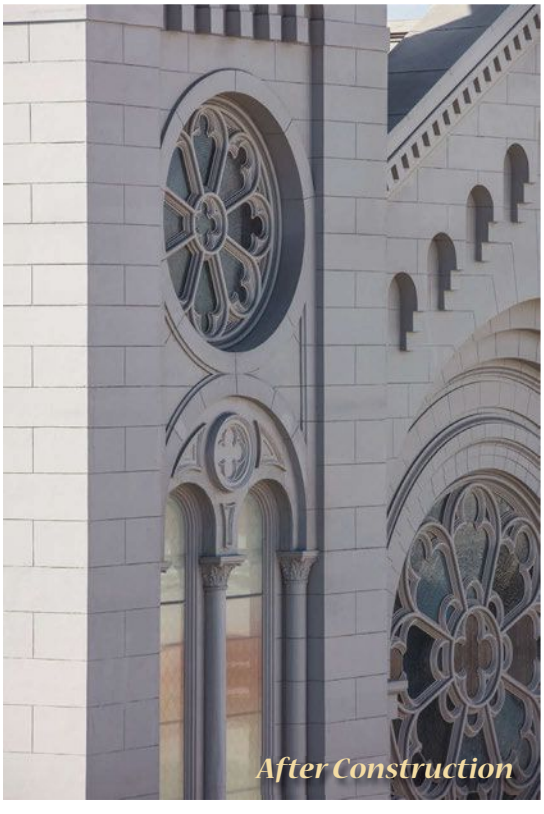


PHOTO: RICH STAPLETON, COURTESY PAGE & TURNBULL



During Construction



After Construction

To seismically support the structure, the design team had to contend with the irregular configuration of a neo-Romanesque church, especially at the north side where large openings for entrance doors, rose windows and clerestory windows penetrate the existing masonry and where discontinuous nave walls present complications.



During Construction

Details









original architectural features and preserving large clerestory windows, rose windows and wall finishes. Page & Turnbull's architects and conservators conducted detailed analyses and field investigations and determined with Sattary Structural Engineering that the best course would be to incorporate a lateral force-resisting system of braces and supplemental resisting walls to augment the existing steel framing and bolster the strength of the original masonry.

To do this, the design team had to contend with the irregular configuration of a neo-Romanesque church, especially at the north side where large openings for entrance doors, rose windows and clerestory windows penetrate the existing masonry and where discontinuous nave walls present complications. The solution for stabilizing the north façade involved strengthening the two bell towers substantially through the application of supplemental shear walls inside each tower, constructed from reinforced concrete and supported on a shallow mat foundation—designed to match the opening pattern of the exterior walls and maintain the rose windows. Auger-cast concrete piles were added to resist overturning force.

Dynamic analyses conducted for the transept and the south façade considered weight and stiffness while tests determined the projected strength of the archaic masonry construction. Field investigations clarified the composition and construction of these tall walls and located embedded steel elements. Seismic work for this portion integrated concrete shear walls to shore up the transept and strong-back steel framing behind the altar wall. These interventions were carefully coordinated with removing the interior wythe, minimizing the impact on the interior space and historic finishes.

Adding 5,000 square feet of mezzanine to the sanctuary presented a significant challenge for the team's goal of conforming to the Secretary of the Interior's Standards for the Treatment of Historic Properties. Ultimately the intervention would have to be free-standing and structurally separate from the original historic edifice, which would ensure the insertion could be removed relatively easily in the future, if needed, thereby reducing

Retrofit Team

ARCHITECT AND PRESERVATION ARCHITECT // Rick Feldman, Page & Turnbull, www.page-turnbull.com

INTERIOR DESIGN // Ken Fulk Interiors, kenfulk.com

GENERAL CONTRACTOR // Palisade Builders Inc., pbicorp.com

STRUCTURAL ENGINEER // Sattary Structural Engineering, (415) 422-0456

LANDSCAPE // Bella Vita, www.bvita.com

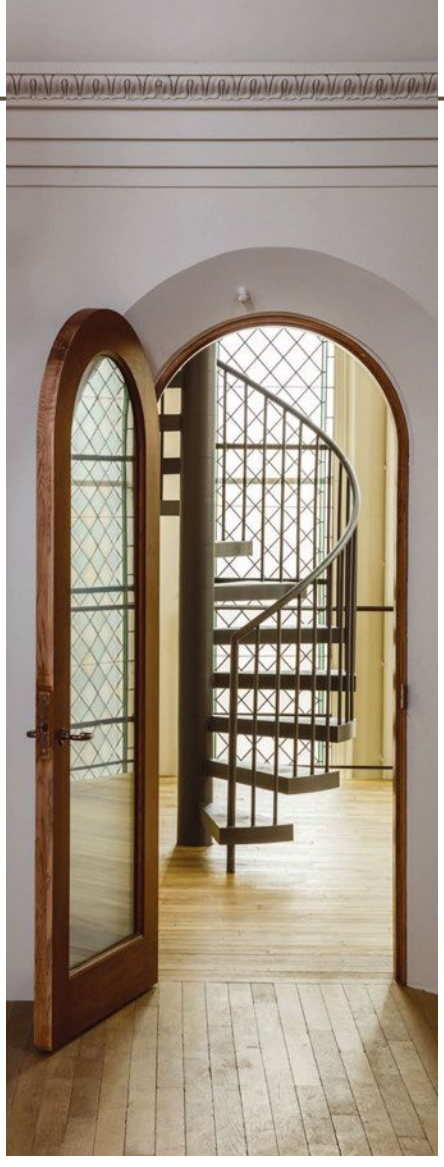
ELECTRICAL AND DATA INFRASTRUCTURE // McKimmey Electric Inc., mckimmeyelectric.com

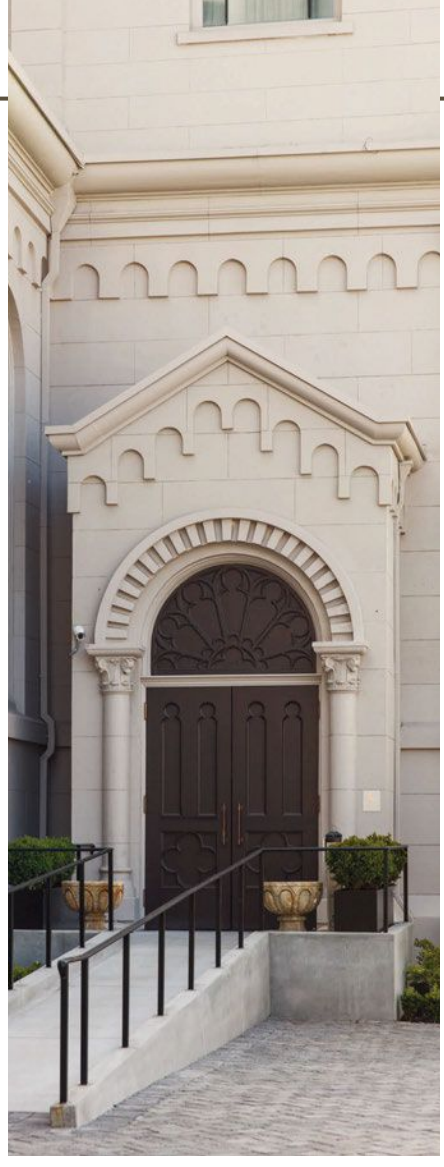
INTERIOR STUCCO, LATH AND PLASTER REPAIRS // William O'Neill Lath & Plastering, oneillstucco.com

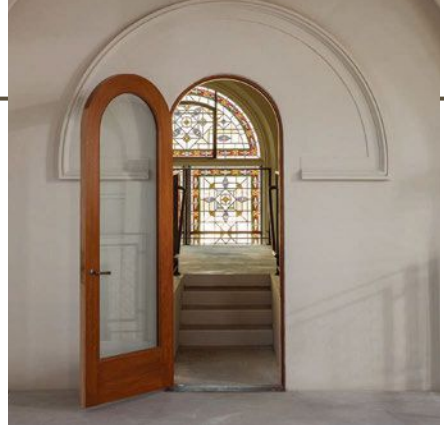
STAINED-GLASS RESTORATION // John Joy Art Glass Studio, www.johnjoystudio.com

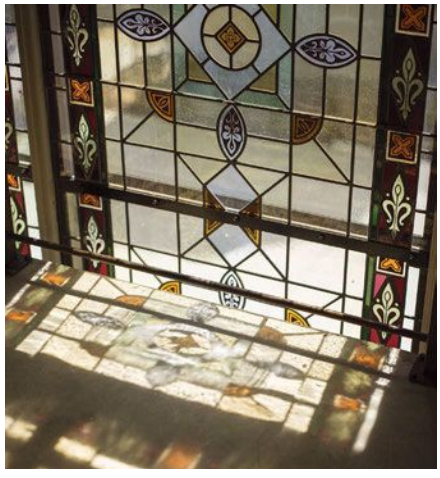
CLIENT // 1401 Howard Street LLC

Strategies for seismic strengthening had to have minimal impact on, and be sensitive to, the spatial characteristics and historic fabric of the church.









More than 100 individual panes of stained glass were carefully removed from the towers, labeled, dismantled, individually restored and then reinstalled. All original doors were likewise meticulously restored and, to the extent possible, door hardware was salvaged and restored.

Materials

WHEELCHAIR LIFTS // McKinley Elevator Corp., www.mckinleyelevator.com

RADIANT HEAT // AquaHeat from ComfortPro, www.comfortprosystems.com/aquaheat-1

CUSTOM LIGHTING // Steven Handelman Studios, www.stevenhandelmanstudios.com

FABRICATED STEEL (Lateral Force-resisting System of Braces and Spiral Stair) // Carlos Welding Inc., carlosweldinginc.com

CUSTOM DOOR HARDWARE AND PLUMBING FIXTURES // Van Cronenburg, vancronenburg.be

MEZZANINE KITCHEN FURNITURE // Clive Christian Furniture Co., www.clivechristianfurniture.com

MURAL ARTISTS // Bears by Dutch Artists Darwin, Sinke & van Tongeren; Vestry Mural by Rafael Arana (In-house Artist at Ken Fulk Interiors); and Apothecary Mural by Deborah Phillips

the impact on the original architecture.

To preserve the look and feel of the Romanesque Revival sanctuary, the mezzanine addition was located primarily along the two side aisles, keeping the center space lofty and open. To connect them, a long-span bridge element was designed with a reduced profile, minimizing its visual impact.

Restoring the Glory

At the outset of the project in the mid-2000s, the façade was clad in a layer of warm beige-yellow stucco intended to look like stone. At Ken Fulk's request, the project team restored the stucco while altering the color to a cool light gray. Coincidentally, a thorough study by Page & Turnbull's architectural conservators revealed the original color was a similar gray, furthering the project's goal of matching the original appearance. Various ornamental details crafted from sheet metal or wood have been painted to resemble stone—except for domes and crosses, which were re-gilded instead.

The historians also found archival photos from the 1940s showing ivy covering much of the south façade. The project team recommended climbing plants for this elevation as an ode to the church's past and for an added benefit: to create a visual screen obscuring the only visible intervention, the steel columns and horizontal strongback beam installed to shore up shear capacity.

The rose windows dominating much of the façade have been fully restored utilizing salvaged glass dating back to the early 20th century. More than 100 individual panes of stained glass were carefully removed from the towers, labeled, dismantled, individually restored and then reinstalled. All original doors were

likewise meticulously restored; graffiti and blemishes painstakingly were removed and corrected before repainting. To the extent possible, door hardware was also salvaged and restored but some considerations needed to be made to achieve compliance with fire- and life-safety codes, as well as ADA requirements.

Other restoration work included carefully removing the altar and confessional booths, cleaning and repairing historic materials throughout the main sanctuary and salvaging original wire glass to be reused in a refurbished skylight. The freestanding mezzanine with connecting bridge is the only visible architectural addition in the sanctuary space, aside from ADA modifications. Intriguingly, the mezzanine allows occupants to enjoy unprecedented up-close view of ceilings, column capitals and other historic details.

All seismic components have been designed to alter the historic fabric as little as possible, and all modern upgrades (electric, mechanical, etc.) are hidden behind plaster or under the floor for the same purpose. The original oak guardrail in the choir loft has been brought into compliance with current building codes through the integration of new wooden base, built with a profile similar to the existing while effectively raising its height.

Regarding the choir loft, it's worth mentioning one other unique aspect of the restoration. Page & Turnbull set out to repair the historic plaster in this section, for which artisans from Ireland were engaged. That team devised a new recipe to replicate the historic mix of lime, sand and horsehair—without harming any horses. The new mix used burlap instead of hair as the binding agent.

All members of the project team found the adaptive reuse and restoration of St. Joseph's to be a deeply satisfying undertaking. Working with Ken Fulk as a client and collaborator is a rare enough opportunity, and it was especially rewarding to do so in a way that nurtures San Francisco's arts community while safeguarding the city's cultural heritage. Page & Turnbull's architects, historians and conservators are especially gratified to have been able to bring to bear our knowledge of historic tax credits to make the redevelopment economically feasible.



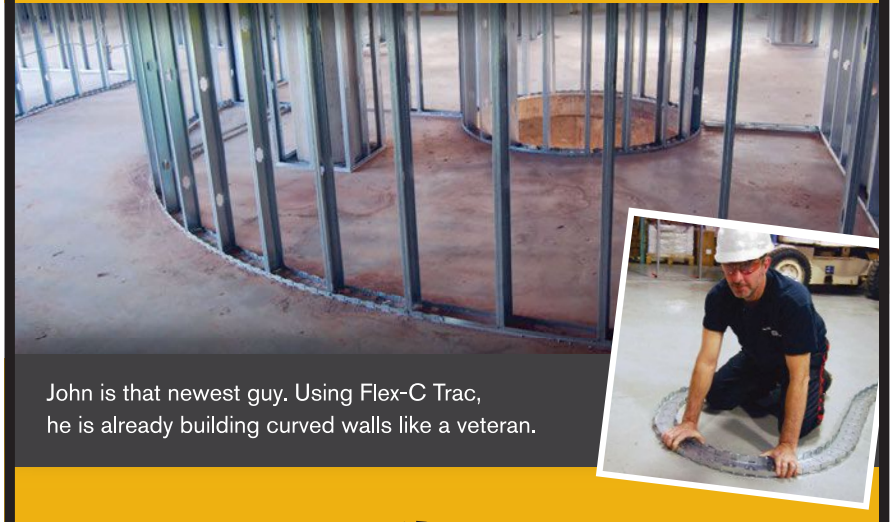
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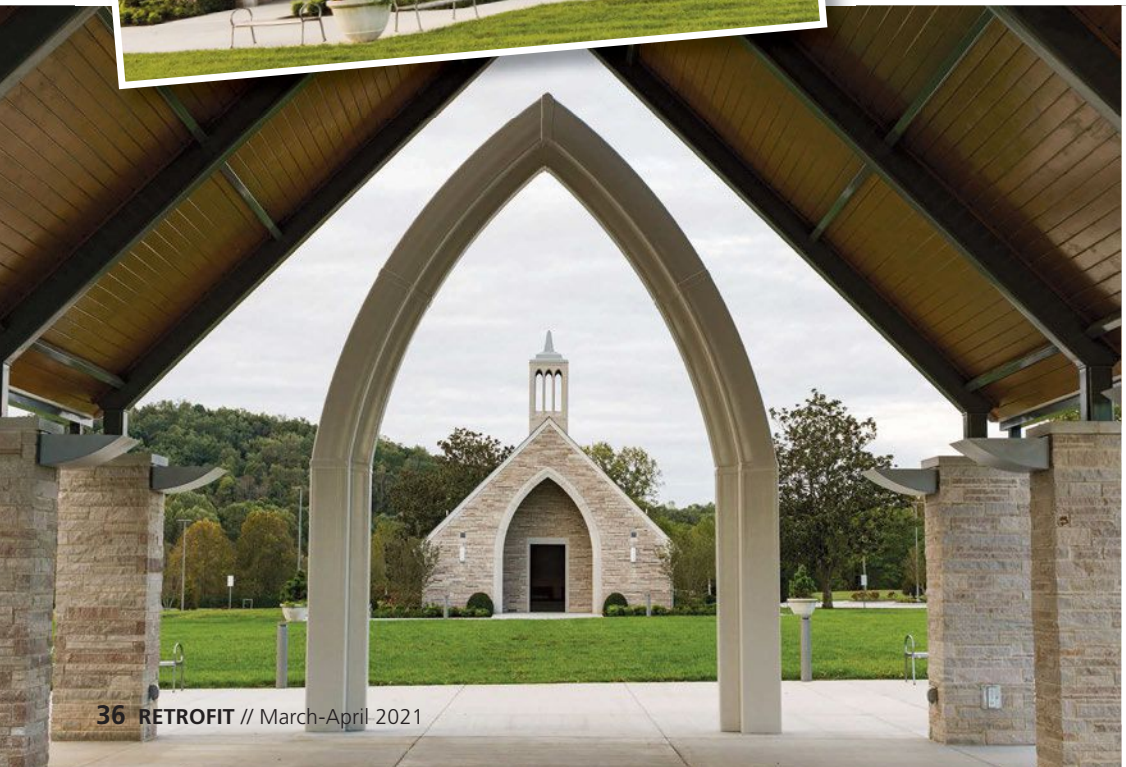
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MARBLE HALL

Knoxville, Tenn.











PHOTOS: BEN FINCH

RETROFIT TEAM

ARCHITECT OF RECORD: Johnson Architecture Inc., jainc.com
LANDSCAPE ARCHITECT: Ross/Fowler, rossfowler.com
GENERAL CONTRACTOR: Denark Construction, denark.com
CLIENT REPRESENTATIVE: Partners Development, partnersinfo.com

MATERIALS

During the design process, the team realized much of the structure and character of Marble Hall needed to be restored and preserved. The no-longer-watertight cupola, which remains accessible, was repaired. The stained-glass window and Tennessee marble were restored, and much of the four-by structural tongue-and-groove wood ceiling needed to be replaced and refinished. All wood elements were treated with a marine-grade sealer to stand up to its now exterior environment.

Multiple new elements used to assist the transition from enclosed structure to open-air, multipurpose pavilion included new precast wall caps that matched the original stone color and healed the areas where walls had to be removed. Large fans draw air through the space, minimizing the need for extensive mechanical systems. Simple, modern lighting replaced dated pendants, and stage fixtures and linear ceiling wash fixtures were added to the faux bulkhead that was created at the new openings to highlight the structure.

LIGHTING: SESCO Lighting, sescolighting.com; CORE family by v2 Lighting Group, www.v2lightinggroup.com; and Medley View II by Insight Lighting, insightlighting.com
FANS: Big Ass Fans, bigassfans.com

THE RETROFIT

Marble Hall—constructed in 1958 as a chapel for the Eastern State Psychiatric Hospital, later renamed Lakeshore Mental Health Institute—is one of the few remaining buildings on the property from that era. Following the closure of the institute in 2012, the state of Tennessee conveyed the property to the city of Knoxville for recreational purposes.

Johnson Architecture's design opened the 3,367-square-foot former chapel while preserving its frame and enhancing its architectural elements amid the landscape.

Among the key design elements:

- The classic architectural identity remained intact while part of the skin was peeled away to allow the public to experience its simple elegance.
- Existing Tennessee marble cladding remained, as well as the structural glue-laminated wooden frame and ceiling and the intricate rose window.
- New restrooms carved from existing space support the multipurpose area.
- The new, 1,265-square-foot Marble Hall Pavilion was designed on axis with the existing chapel and features a material palette reflective of its counterpart: Tennessee marble columns, simple steel frame and triumphal arch to denote its entry.

Lakeshore Park draws thousands of visitors each year to experience its rolling hills, river and mountain views, and historic overlooks. It serves as a showcase for Knoxville's public recreation opportunities. The renovation of Marble Hall and addition of the Marble Hall Pavilion enhance the park's sense of place then and now.

The Marble Hall project has earned a merit award from the East Tennessee Chapter of the American Institute of Architects, an Award of Distinction from the East Tennessee Historical Society, an East Tennessee Preservation Award from Knox Heritage and an Orchid Award from Keep Knoxville Beautiful.





THE CROSSING AT CHESTERFIELD CHAPEL | Chesterfield, Mo.



PHOTOS: **JEFF WELLMAN, JEFF WELLMAN PHOTOGRAPHY** unless otherwise noted

RETROFIT TEAM

ARCHITECT: Gray Design Group, www.graydesigngroup.com
GENERAL CONTRACTOR: Kadean Construction, www.kadean.com
STRUCTURAL ENGINEER: Alper Audi Inc., www.alperaudi.com

MATERIALS

The following is a sampling of materials used in the renovation:
REAL-WOOD BEAMS: Boardwalk Hardwood Floors, www.boardwalkhardwood.com
FAUX BEAMS: Barron Designs, www.barrondesigns.com
CARPET: Bentley, www.bentleymills.com
LUXURY VINYL TILE: Interface Flooring, www.interface.com
STONE VENEER: Castle Stone, www.castlestoneproducts.com

THE RETROFIT

The growing congregation requested a new wedding chapel that could also serve as a multipurpose area for community meetings, funerals or spill over from the main auditorium during church services. A space that remained untouched following a recent addition and renovation, known as The Loft, was the perfect solution to meet the congregation's needs.

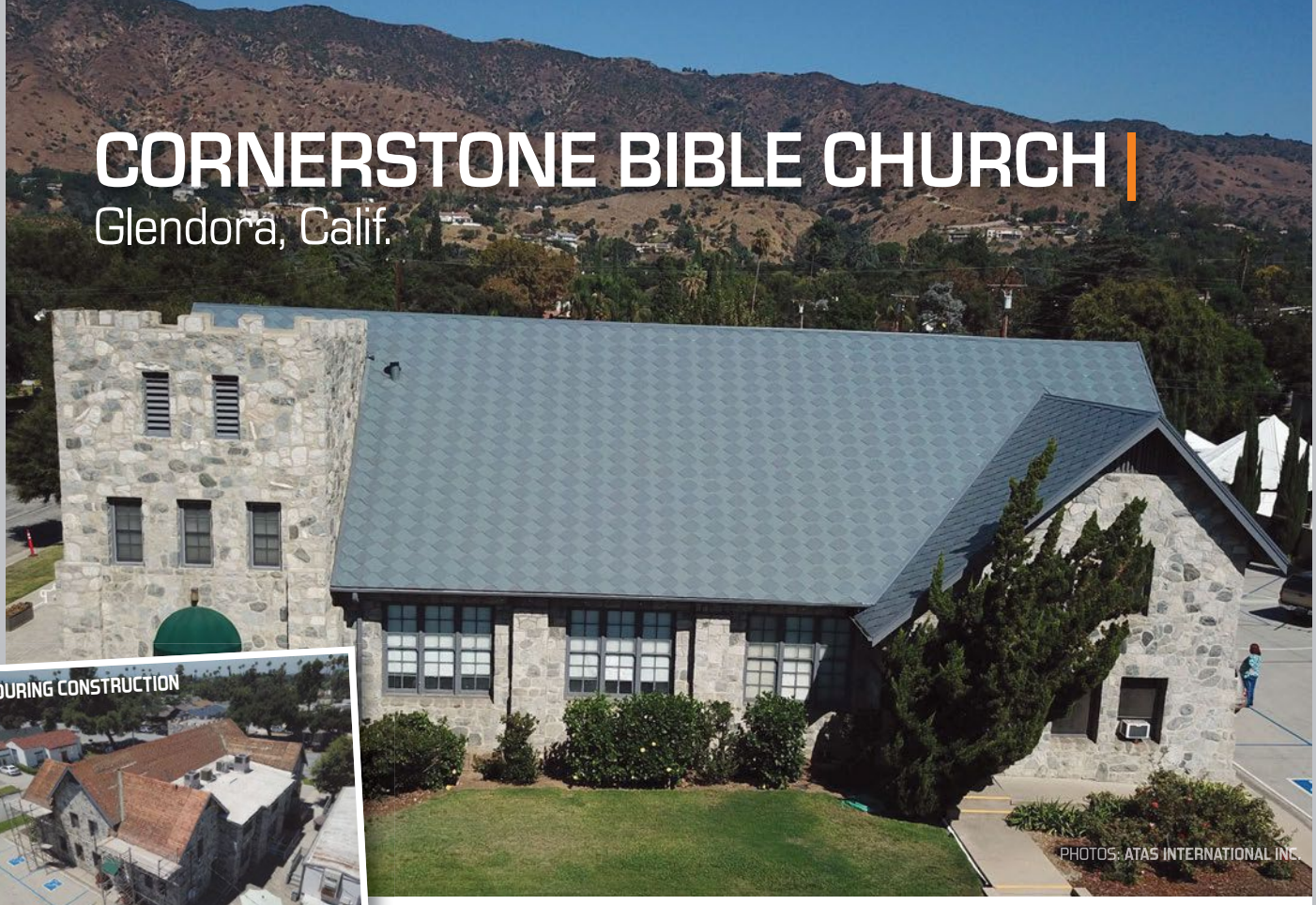
The loft's second-story area was closed off and converted into offices while the 2-story space below became the chapel. The inspiration for the 250-seat chapel was derived from the outdoor performance area with its heavy-timber framing. The use of reclaimed barn wood and faux timber were mixed throughout, providing the timber look without compromising the structural integrity of the roof. Two large rustic chandeliers along with strategically placed accent lighting highlight the heavy-timber construction.

There is a separate beverage bar and soft seating area with a stone fireplace for a more intimate setting adjacent to the chapel area. The new chapel is reserved several times a week for day and evening functions, as well as weekend weddings.



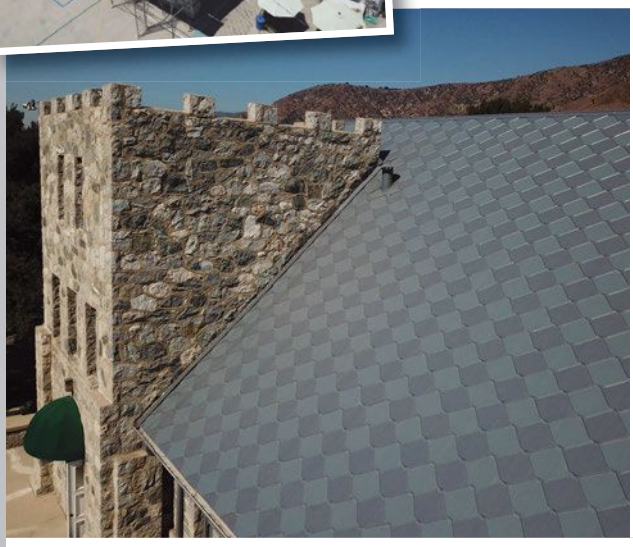


CORNERSTONE BIBLE CHURCH
Glendora, Calif.





PHOTOS: ATAS INTERNATIONAL INC.





RETROFIT TEAM

ROOFING CONTRACTOR: Howard & Sons Inc., www.hnsca.com
ROOFING SUPPLIER: RoofLine Supply and Delivery, rooflinesupply.com

MATERIALS

When the church's asbestos, diamond-shaped shingles began to fail, ATAS International's CastleTop was chosen as a replacement. The shape of the .032 aluminum panels, which resembled the original shingles, was an important factor in the choice. Church representatives also appreciated the longevity and durability of a metal roof, along with the fire resistance of the panels, a concern in Southern California.

After the asbestos shingles were removed, the CastleTop metal panels were installed over a solid wood deck. CastleTop aluminum shingles are 15 3/4 by 15 3/4 inches in size and offer coverage of 13 1/2 by 13 1/2 inches. They have an embossed texture with a 70 percent PVDF paint coating. The shingles also are available in anodized aluminum, copper and zinc. A minimum roof slope of 3:12 is required for installation.

For the Cornerstone Bible Church, Rocky Grey and Charcoal Grey were used together to create a pattern on the roof and complement the church's natural stone walls. Prior to the building's opening in 1931, members of the church mined rock quarries in the mountains above the citrus farms of Glendora and brought down large stones, out of which they built the Cornerstone Bible Church.

The project earned third place in the 2019 ATAS Project of the Year competition in the Commercial Roofs category.

ALUMINUM ROOFING PANEL MANUFACTURER: ATAS International Inc., www.atas.com

GRACE MIDTOWN CHURCH | Atlanta



PHOTOS: COURTESY KRONBERG URBANISTS ARCHITECTS

RETROFIT TEAM

ARCHITECT: Kronberg Urbanists Architects, kronbergua.com
LANDSCAPE ARCHITECTS: Sylvatica, www.sylvaticastudio.com, and Scapes, scapesgroup.com
STRUCTURAL ENGINEER: Stability Engineering, stabilityengineering.com
MEP ENGINEER: Proficient Engineering, proficientengineering.com
CIVIL ENGINEER: Flippo Civil Design, www.flippocivil.com
GENERAL CONTRACTOR: Derucki Construction, deruckiconstruction.com
ACOUSTICAL CONSULTANT: Acustica, www.acusticadesign.com
AUDIO, VISUAL, LIGHTING DESIGN: Pendley Productions, www.pendleyproductions.com

MATERIALS

The following is a sampling of materials used in the project:
WATERPROOFING: Permaquik by Tremco, bit.ly/3t2AixC
ACOUSTICAL VIBRATION SEISMIC CURBS: MGM Products, mgmproducts.com
ACOUSTIC INSULATION: International Cellulose Corp., www.spray-on.com/k13
ALUMINUM AND GLASS OVERHEAD DOORS: Haas Door, www.haasdoor.com/commercial
COUNTERTOPS: Caesarstone, www.caesarstoneus.com
STOREFRONT WINDOWS: Frame by Kawneer, www.kawneer.com, with AGC Energy Select Glass, www.agcglass.com
WINDOW SHADES: Mechoshade, www.mechoshade.com

THE RETROFIT

In 2012, Grace Midtown Church purchased a former industrial property 1-mile northwest of downtown Atlanta. Formerly the home of a demolition contractor, the site included three warehouse buildings with an attached 2-story building, all built incrementally in the early 1960s. After minimal renovation of three of the four buildings, the site operated as a campus for the church with dedicated spaces for holding services and events, a child-care facility and offices. The fourth and largest building was left unrenovated, to be upgraded when more space was needed and funds were available.

Four years later, with a growing congregation and an evolving slate of programming, church representatives sought to renovate a warehouse and the attached 2-story office building. In addition to adapting the industrial building to a new event space, the surrounding site, covered entirely with asphalt or gravel, also needed major improvements. The renovated building would contain a new state-of-the-art auditorium space capable of seating 1,000 visitors, administrative offices, meeting spaces, and the surrounding site needed to provide inviting and flexible outdoor spaces.

The 200-foot-long by 75-foot-wide warehouse building was not inherently suited to be an event space: The interior was dark and sightlines were limited by the proportions of the space. To solve both problems, the design team proposed raising the middle portion of the warehouse roof, creating much-needed height and introducing natural light into the space via large clerestory windows on three sides of the new roof "pop-up."

To preserve interior sightlines, large custom-fabricated steel trusses were designed to clear-span the full width of the building, maintaining an open floor plan and eliminating visual obstructions. The open event space was organized directly underneath the pop-up with wings on either side for additional seating. Bathrooms, meeting rooms, a recording room, family room and storage were placed at the extreme ends of the building. A large doorway opens into the lower level of the 2-story building, which now contains a café. The upper level houses administrative offices and additional meeting rooms. New openings were cut into the upper-level exterior walls to bring in natural light and provide views into the courtyard.

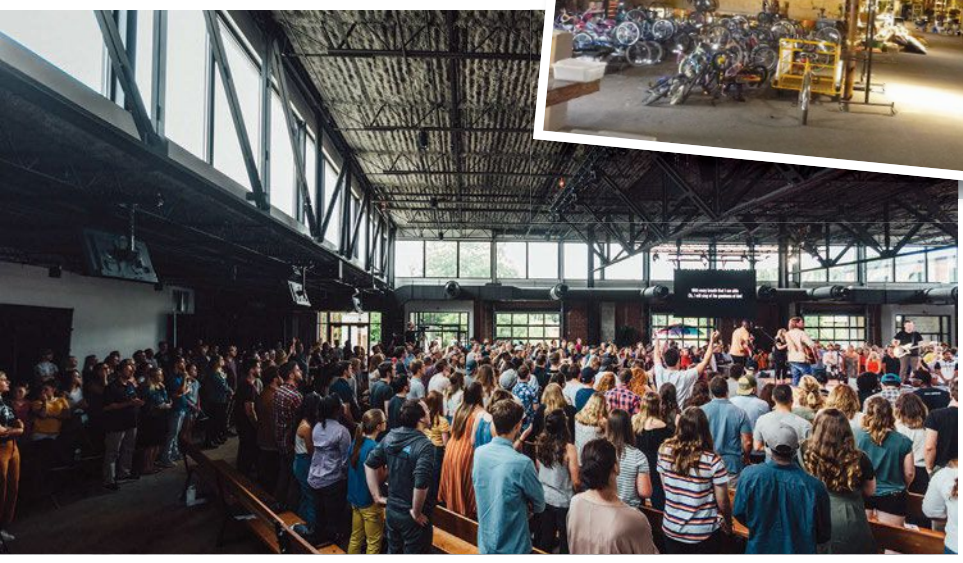
Outside, a covered patio runs the full length of the event space, and large garage doors allow for seamless connection between interior and exterior. A landscaped courtyard is enclosed on three sides by the 2-story building, event space and a new covered patio at the far end. Steel bar joists from the removed portion of the existing warehouse roof were saved and reused in the structure of new steel canopies over the exterior patios.

The church now is better equipped to welcome and engage with the surrounding community, not only because of the enhanced facilities, but also because of the connection to the adjacent Atlanta Beltline trail.

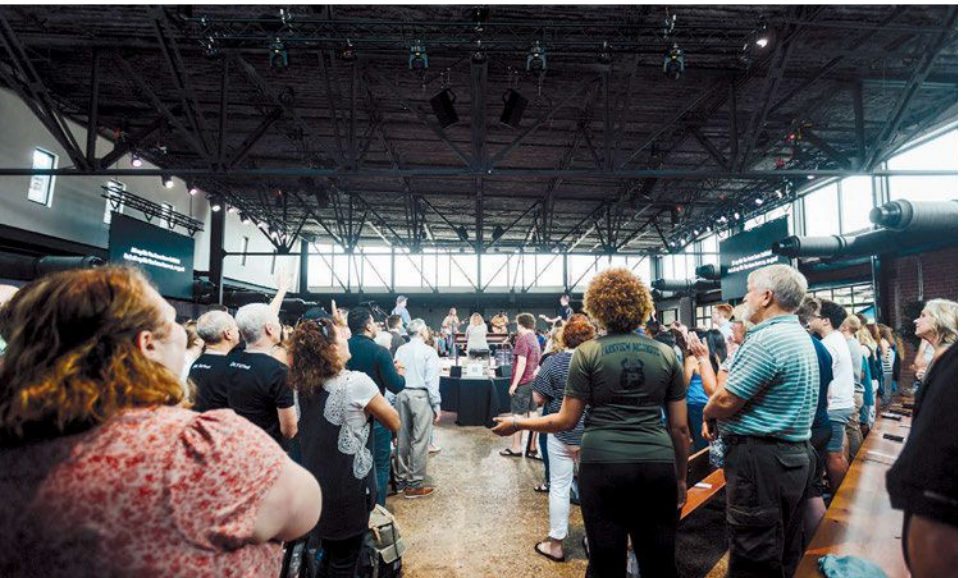


BEFORE


BEFORE









ST. THOMAS PARISH | Washington, D.C.







PHOTOS: **RON BLUNT ARCHITECTURAL PHOTOGRAPHY** unless otherwise noted

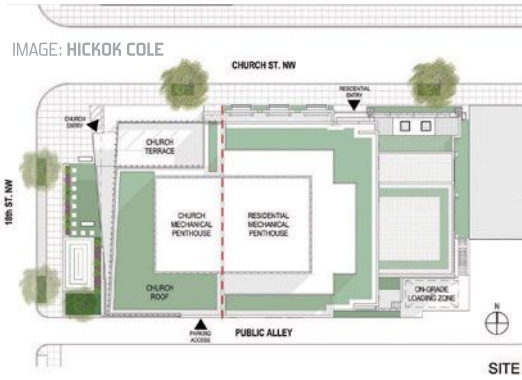


IMAGE: **HICKOK COLE**

RETROFIT TEAM

ARCHITECT: Hickok Cole, hickokcole.com
- Laurence Caudle, principal, director of Housing
- Stefano Sani, associate principal, senior project designer
- Bertin Radifera, senior associate, senior project manager
- Peter McCarthy, senior associate, project designer
- Quy Nguyen, associate, project designer
- Ryan Sloan, senior associate, director of Construction Administration
- Jeffrey A. Lockwood, AIA, NCARB, senior associate, project designer

OWNERS: St. Thomas Parish (church), stthomasdc.org, and Capital Security Advisors (residence), www.capitalsecurityadvisors.com
DEVELOPER: May Riegler, www.mayriegler.com
DEVELOPMENT/CONSTRUCTION MANAGEMENT: May Riegler, www.mayriegler.com, and Zeus Living, zeusliving.com
GENERAL CONTRACTORS: Forrester Construction (church), www.forresterconstruction.com, and Snead Construction (residence), (202) 506-2721

MATERIALS

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

CHURCH EXTERIOR
TERRA COTTA: NeaCera Matte in White Natural from Avenere Cladding, www.avenereclading.com/architect-overview/neacera-colors
GLASS: Zephyr Aluminum, Kawneer 1600 Wall System 1, www.kawneer.com
PORCELAIN TILE: Basaltina Pantelleria from Casalgrande Padana, www.casalgrandepadana.com/en/product/basaltina
CROSS: Goldtastic from Prismatic Powders, www.prismaticpowders.com
METAL PANELS: Kanalco, www.kanalco.com, and Alucoil, alucoil.com/northamerica
GLASS ENTRANCES: J.E. Berkowitz, jeberkowitz.com
FIRST FLOOR COMMONS
PORCELAIN TILE (FLOOR): Basaltina Pantelleria from Casalgrande Padana, www.casalgrandepadana.com/en/product/basaltina
REREDOS: Rugo Stone, www.rugostone.com
FONT PORCELAIN TILE: Moon White Nature from Porcelanosa, www.porcelanosa-usa.com/products/moon-white-nature
FONT FIBERGLASS SHELL: Water Structures LLC, www.waterstructuresco.com
CHAPEL
ACOUSTICAL PLASTER CEILING: StarSilent, www.starsilent.com
SECOND-FLOOR SANCTUARY
INDUSTRIAL WOOD FLOOR: Bauwerk, www.bauwerk-parkett.com/en
ACOUSTIC FABRIC PANEL: Carnegie, carnegiefabrics.com
FOURTH-FLOOR FELLOWSHIP HALL
VINYL FLOORING: Tandus Centiva, commercial.tarkett.com/en_US/brand/tandus-centiva
THROUGHOUT
ARCHITECTURAL LIGHTING: Aion LED, aionled.com; Coronet, coronetled.com; Focal Point, www.focalpointlights.com; LF Illumination, lfillumination.com; Fabbian, www.fabbian.com; Lumenpulse, www.lumenpulse.com; Soraa, www.soraa.com; Visa Lighting, www.visalighting.com; and Prolume, prolumeled.com







PHOTO: MEERO PHOTOGRAPHY VIA ZEUS LIVING



PHOTO: MEERO PHOTOGRAPHY VIA ZEUS LIVING

THE RETROFIT

St. Thomas Episcopal Church was designed in the late 1800s by Philadelphia architect Theophilus Chandler, followed by the construction of its Parish Hall in 1922. Frequented by Franklin Roosevelt, Harry Truman and other prominent Washington, D.C., residents throughout its history, the church was long considered a sacred relic within the Dupont Circle community. It continued to play a supportive role during the civil rights movement in the early 1960s and, again, for the LGBT community in the 1970s and '80s as one of the few churches conducting funerals for those who died from HIV and AIDS.

In 1970, arson destroyed much of the original church, leaving behind only a few walls and a portion of the Parish Hall, forcing the congregation to meet in a much smaller onsite structure for the years following. Several decades later, parish representatives resolved to rebuild and partnered with a local developer who would help alleviate some of the construction costs by using part of the property to construct a new residential building. The resulting renovation and development transforms the English Gothic church ruins and surviving parish hall into a 47,869-square-foot, 55-unit multifamily residence, which complements the character of the surrounding townhomes, and an 18,000-square-foot church that reinvigorates the congregation's presence within its community.

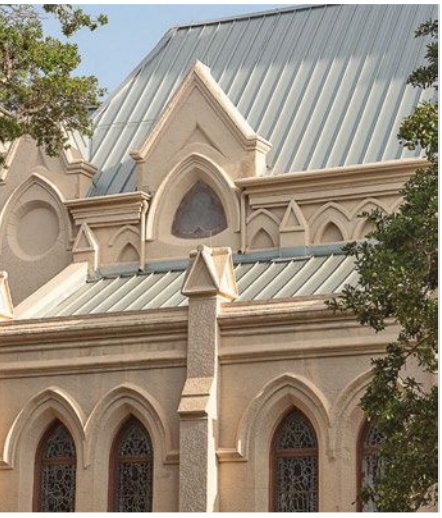
Rising to a height of 65 feet, the project is composed of three distinct sections, including the repurposed parish hall with two added floors, the restored Cloister entrance leading to a new block of apartments and the new church along 18th Street. The final design concept supports a resolution the developer made in partnership with the Dupont Circle Conservancy, which includes the use of high-quality materials and gradual steps back in height to maintain the neighborhood's pedestrian experience. This resulted in the creation of several outdoor terrace spaces. From east to west, the development blends with the neighborhood, transitioning seamlessly from the nearby townhouses to the residence and ending with St. Thomas Parish.

To accommodate the new residence, the bulk of the church shifted to 18th Street and was stacked vertically. Its new design is inspired by the concept of ascension, which represents the church's symbolic rise from the ashes while properly reflecting the church's modern approach and progressive values. To articulate this concept, the church is designed to lead the observer from the glazed corner entrance at Church and 18th Street, through the rising profile of the ascending stair and the dynamic composition of the façade, which culminates at the large metal cross embedded in the light tower above the entrance. The church's contemporary façade stands out amid the surrounding Dupont Circle neighborhood and features a faceted surface of terra-cotta modules, traversed by a dynamic sequence of multi-height openings, filtered by a sunscreen veil of gently projecting terra-cotta baguettes.

St. Thomas Parish opened successfully in April 2019, welcoming the congregation by celebrating its first service on Easter Sunday, signifying the church will remain cemented in the fabric of the community for years to come.



PHOTOS: BUENAVISTAPHOTOGRAPHY.COM





ST. PATRICK CATHOLIC CHURCH | Galveston, Texas

RETROFIT TEAM

ROOFING CONTRACTOR: Morgan Roofing LLC, www.morganroofingtexas.com

MATERIALS

The building's aging asphalt-shingle roof was replaced with Snap-Clad aluminum roofing panels from Petersen's PAC-CLAD lineup. According to David Morgan, owner of Morgan Roofing, installing the 9,000 square feet of .040-gauge panels was a labor-intensive process. "When you work on historic buildings, the buildings tell their own story," he says. "You'll uncover something and say, 'Well, yes, this needs to go here.'"

The building's gutter system offers one example of the complications installers faced. The box-style gutters are built into the parapet walls surrounding the roofs with downspouts connecting at varying intervals along the gutters' full length. "To recreate the existing piece, it took 47 breaks in one piece of metal," Morgan says.

The roof's steep slope also required some creative thinking once panel installation began. This included designing some new equipment to improve safety and efficiency. "We had to build chicken ladders to hook over the ridge of the building," Morgan recalls. "That way, four guys could work on the panels at once."

ALUMINUM ROOFING PANEL MANUFACTURER: Petersen, www.pac-clad.com

THE RETROFIT

Members of this church are well aware of their island home's vulnerability. They lost their first sanctuary to storms in 1871, just a year after it was built. That wooden structure was replaced with a grand Gothic masonry church in 1877. However, that building was destroyed when its massive spire—then the tallest in Texas—collapsed onto the sanctuary during the Great Hurricane of 1900. The current church was completed in 1902 to be every bit as grand (though with a shorter spire).

Just five years later, the parish heeded the city of Galveston's call to raise the elevation of all structures as part of a broad flood-prevention effort. A crew of 100 men turned manual screw jacks to lift the church by 5 inches. This move saved the church from certain flooding during Hurricane Ike in 2008, according to Rev. John Bok, a parish priest.

An easy decision for the roofers, Morgan says, was the choice of PAC-CLAD aluminum panels for the job. Only Petersen offered a warranty the company felt it could trust, given the severe weather Galveston frequently experiences.

CHAPEL OF THE RESURRECTION |

Valparaiso, Ind.

RETROFIT TEAM

PRESERVATION CONSULTANT: Architexas, architexas.com

MATERIALS

The Chapel of the Resurrection underwent an extensive preservation project that included the replacement of its 24 soaring windows surrounding the chapel's nave. The original 58-foot-tall windows, covering a combined surface of 16,700 square feet, were removed and replaced with fixed and operable Hope's solid hot-rolled steel windows.

Hope's Jamestown175 Series design suite was selected to precisely match the sightlines and color of the original windows. The series features hot-rolled, solid steel that allows for narrow frame dimensions and maximum glass area. The energy-efficient windows are customized for each project's design vision.

WINDOW MANUFACTURER: Hope's Windows Inc., hopeswindows.com

THE RETROFIT

The Chapel of the Resurrection is the crown jewel on the 350-acre Valparaiso University campus. Used for religious and secular events, the chapel observed its 60th anniversary in 2019.

It has been said that inspiration for the chapel's design was provided in part by the Church of the Nativity in Bethlehem. The chancel of the chapel is 98-feet high and circular in shape with a roof shaped like a nine-point star. The nave is 58-feet high and 193-feet long. It seats more than 2,000 people.



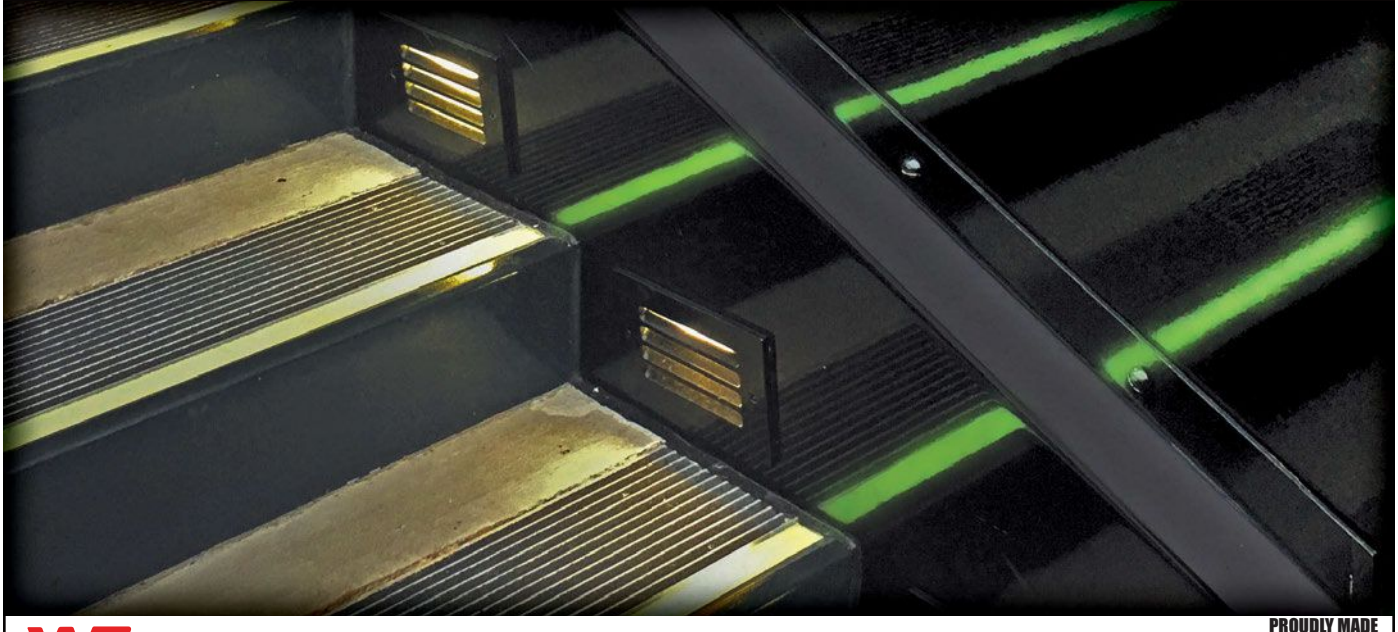


PHOTOS: JON HENDRICKS/ VALPARAISO UNIVERSITY



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BEFORE RETROFITTING GUV PRODUCTS, IT IS IMPORTANT TO BE INFORMED AND IMPLEMENT SAFETY PROTOCOLS

WRITTEN BY | ANDREA WILKERSON AND ALEX BAKER

Editor's Note: The photo is a representation of a GUV installation at New York Penn Station. An actual GUV installation does not exist in the train hall.

In early 2020, design and construction teams had to respond quickly to the spreading SARS-CoV-2 virus, including figuring out how to keep safely working as an essential service in a time when guidance seemingly changed daily. Immediately, disinfecting wipes and hand sanitizer were in short supply, leading distilleries to market hand sanitizer while other manufacturers marketed lighting products for killing viruses. This article will help to filter the claims of virus-killing light.

Just like purchasing a vehicle and then realizing how many people have that same vehicle, writing an article about germicidal ultraviolet (GUV) products and practice made the authors realize just how many GUV products are available for purchase and already deployed. While standing in a socially distanced line at a hospital, reading the email giving the go-ahead on this article topic, one of the authors looked up to see a banner highlighting the integration of a UV-C disinfecting light into a check-in kiosk. Since then, there has been a steady flow of forwarded emails from co-workers shocked at the unsubstantiated



PHOTO: **STEPHEN MCFADDEN, UNSPLASH.COM**

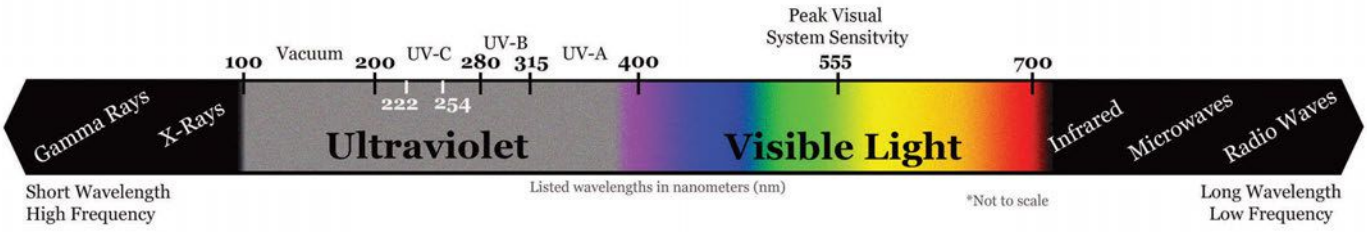
advertisements of virus-killing light they have received and mentions from friends and family of the products they have seen or have been asked to use.

The broad availability of products that claim to use light to kill viruses and other pathogens may give consumers a sense of confidence, but it may be a false sense of confidence. The reason for the proliferation of these products is in part due to a lack of standards, which are critical to enable consumers and end-users to compare product performance and make informed decisions. The lack of standards also makes it easy for claims to be made—with little accountability. Vigilance is needed when implementing GUV to avoid wasting money or, more seriously, causing injury.

GUV: WHAT IS IT?

Ultraviolet wavelengths are segmented into UV-A (315 to 400 nanometers [nm]), UV-B (280 to 315 nm), UV-C (200 to 280 nm) and vacuum UV (100 to 200 nm). Slightly overlapping the ultraviolet region is the visible light region, approximately 380 to 780 nm. There is some potential for using the violet portion of the visible light region for disinfection; however, it requires a combination of greater duration and intensity than UV-C. Here we'll focus on the application of UV-C to inactivate pathogens, including bacteria, mold spores, fungi and viruses.

Low-pressure mercury lamps have been in use for nearly a century for disinfection purposes, and they are still the most commonly deployed and efficient UV-C source. These lamps resemble familiar fluorescent lamps but are constructed with specialized quartz glass and without the phosphor coating that shifts fluorescent lamps' UV



ELECTORMAGNETIC SPECTRUM*

An **ELECTROMAGNETIC SPECTRUM** illustration, highlighting the ultraviolet and visible light regions. UV-C ranges from 200 to 280 nanometers (nm), but research has traditionally focused on 254 nm; this is typically the peak emission band of low-pressure mercury lamps. More recently researchers have been studying excimer lamps as a potentially safer alternative because the peak emission band is at 222 nm.

UPPER-ROOM AIR DISINFECTION SYSTEMS use GUV to treat air at approximately 7-feet above the finished floor and higher, keeping the UV-C above head height. However, application of GUV requires careful maintenance and attention; incorrect use can result in eye and skin injuries that could become cancerous over time. UV-C for disinfection purposes also may harm materials in a space.

discharge to the visible light region. Solid-state ultraviolet sources, such as UV LEDs, do exist, yet considerable improvements still are needed to match the performance of low-pressure mercury.

Deploying GUV requires careful design to make sure the right spectrum and amount are hitting the target surface over a given period of time. For the SARS-CoV-2 virus, researchers are still working to understand the spectrum most effective for deactivating the virus. The effectiveness of GUV is proportional to the wavelengths used and the exposure dose, which is a product of source output, area irradiated and time. Without careful design and installation, many GUV products can be a waste of money at best, or worse, can result in acute injuries and/or lead to an unwarranted relaxation of manual cleaning efforts and overall caution.

GUV: WHY and HOW?

Before the COVID-19 pandemic, health-care-associated infections (HAIs)—for example, developing a bloodstream infection during a hospital stay—were already a serious problem and GUV was being studied as a potential solution, particularly for antibiotic-resistant infections. According to the Centers for Disease Control, on any given day, one in 31 hospital patients has an HAI (www.cdc.gov/hai/eip/antibiotic-use.html). Hospitals combat HAIs in a variety of ways from handwashing to standardized manual cleaning and verification protocols. Some facilities use GUV disinfection procedures to further reduce pathogen transmission.

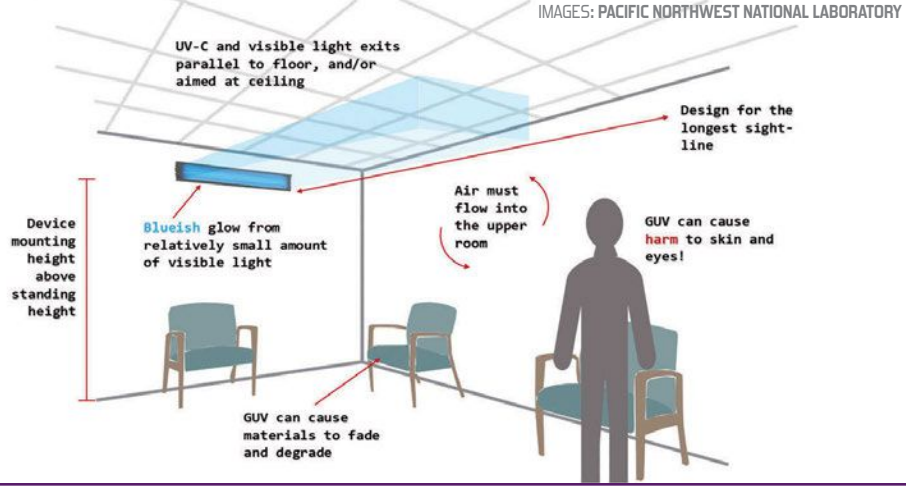
Although the use of GUV products in health care is a relatively established practice, there is likely to be increasing adoption of GUV products and practices in the coming years in response to the COVID-19 pandemic. Upper-room air disinfection systems use GUV to treat air at approximately 7-feet above the finished floor and higher, keeping the UV-C above head height. A key component is the circulation of room air via ceiling fans or other systems to keep air moving through the upper portion of the room. GUV can be permanently integrated into mechanical ductwork to deactivate airborne pathogens or plumbing systems to address waterborne pathogens; these are alternative applications with a reduced risk of exposure to building occupants. GUV can also be integrated into portable devices for room surface disinfection. For example, a portable unit may be wheeled into intensive-care unit patient rooms and operating rooms after the patient is discharged. These units are left for a period of time to inactivate surface pathogens that are within line of sight; importantly, pathogens lying in the shadows of GUV emissions are not deactivated.

GUV applications require careful maintenance and attention; incorrect use can result in eye and skin injuries that could become cancerous over time. It is easy for failed lamps to go unnoticed or the wrong

(continues on page 50)

UPPER-ROOM AIR DISINFECTION CONSIDERATIONS

IMAGES: PACIFIC NORTHWEST NATIONAL LABORATORY



retrofit Home



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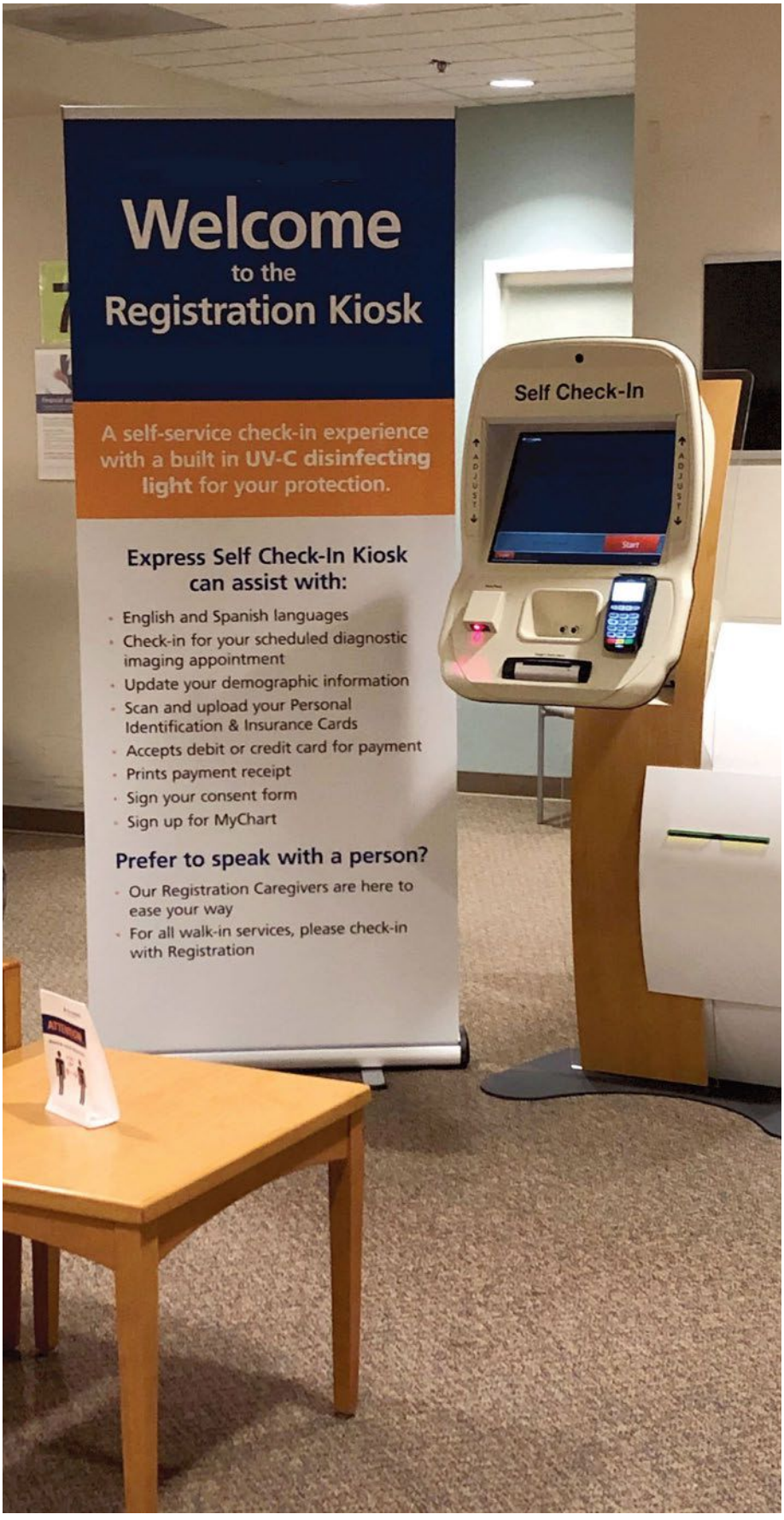
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replacement lamps to be installed. Safety sensors and timers can malfunction, and the presence of children and pets may go undetected by sensors. Regardless of the application, it is important to educate and implement protocols that prioritize safety.

Another consideration when implementing GUV is the types of materials within a space. Room surfaces absorb UV-C, potentially causing damage to these surfaces ranging from relatively benign, such as fading of fabrics, or, more seriously, it can cause material to degrade to the point of creating another safety concern. This is more commonly witnessed with daylighting—the ultraviolet (UV-A and UV-B) portion of the daylight spectrum causing materials to fade and some plastics to become brittle.

Although there are many reasons for caution when implementing GUV, there are also many case studies, papers and reports outlining how to use it safely. One of the most common uses of UV-C radiation prior to 2020 was for minimizing the spread of tuberculosis in health-care settings. In 2009, the CDC's National Institute for Occupational Safety and Health (NIOSH) published a report (bit.ly/3j79zeE) providing detailed guidance for upper-room ultraviolet radiation for tuberculosis, a disease usually transmitted via airborne particles. Since 1997, NIOSH studies have consistently shown that properly designed and maintained upper-room air disinfection systems can deactivate and kill tuberculosis. And it isn't all about the UV-C. Air-circulation, humidity and temperature are all key to the effectiveness of these systems.

The broad availability of products that claim to use light to kill viruses and other pathogens may give consumers a sense of confidence, but it may be a false sense of confidence. While standing in a socially distanced line at a hospital reading the email giving the go-ahead on this article topic, one of the authors looked up to see this banner, highlighting the integration of a **UV-C DISINFECTING LIGHT** into a check-in kiosk.

EXPERTS WITH THE **ILLUMINATING ENGINEERING SOCIETY** AND THE **INTERNATIONAL ULTRAVIOLET ASSOCIATION** ARE COLLABORATING TO PUBLISH INDUSTRY STANDARDIZED METHODS FOR TAKING ACCURATE AND REPEATABLE ULTRAVIOLET MEASUREMENTS, ENABLING PRODUCT COMPARISON BETWEEN MANUFACTURERS.

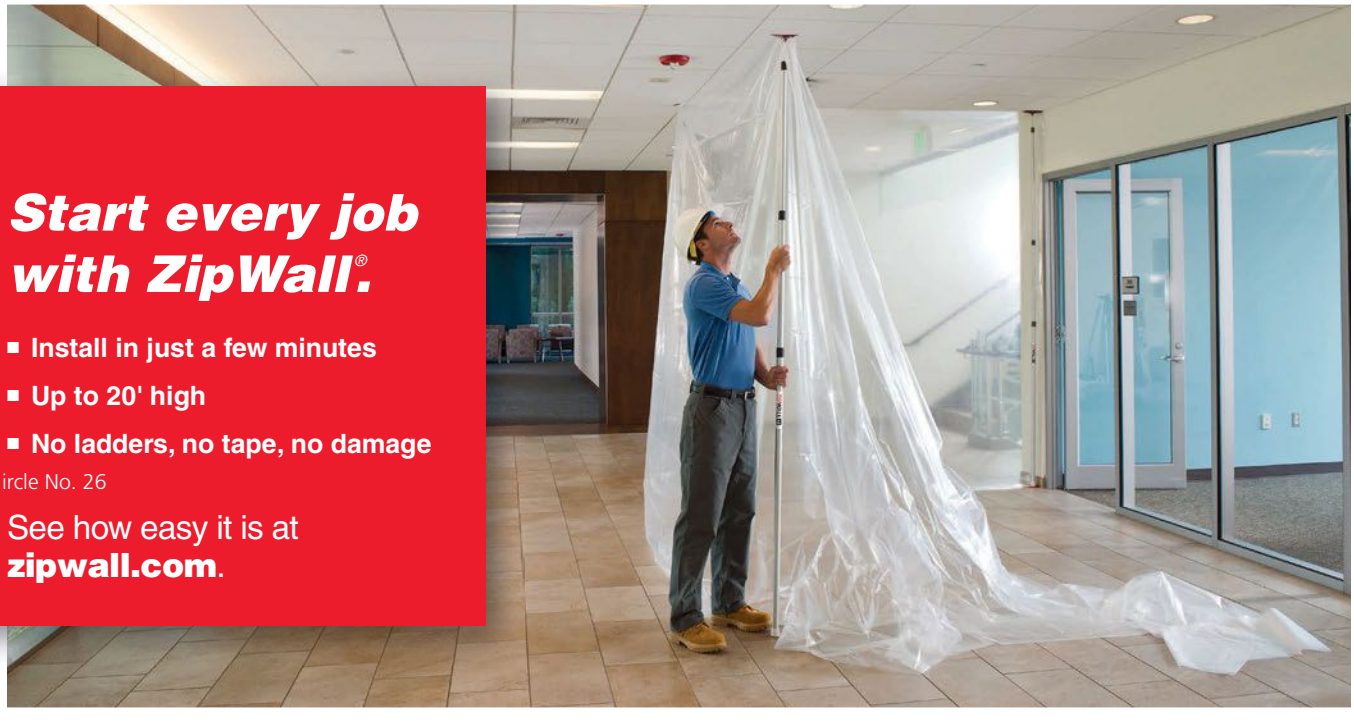
GUV: WHERE ARE THE STANDARDS?

There are presently no industry standardized methods of measurement to characterize the performance of GUV products, leaving manufacturers to employ their own largely proprietary methods for measuring spectrum and intensity, thereby making comparisons between products very challenging. Consequently, the presence of a product safety label, like UL, may only mean the product has been tested for electrical safety. (Note: It is good practice to verify the authenticity of any safety label.)

Thankfully, the standards void will begin to be filled later in 2021. Experts with the Illuminating Engineering Society (www.ies.org) and the International Ultraviolet Association (www.iuva.org) are collaborating to publish industry standardized methods for taking accurate and repeatable ultraviolet measurements, enabling product comparison between manufacturers. The first of these American National Standards published by IES will be methods of measurement for the sources themselves, including low-pressure mercury lamps and UV LEDs. A great resource for learning more is the IES Committee Report 2-20-V1, Germicidal Ultraviolet (GUV)—Frequently Asked Questions, available on the IES website at www.ies.org/standards/committee-reports.

It may be surprising that the adoption of GUV in the U.S. has remained relatively low given it has been around for nearly a century, but it was also not that long ago that many transitioned away from the century-old incandescent light sources for illumination. The reignited interest in GUV is leading to new research, technology and products, giving designers and engineers new opportunities to improve the spaces where we work and live.

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RISING

FORMER OFFICE BUILDING IS REINTERPRETED AS A MIXED-USE RESIDENTIAL HIGH-RISE

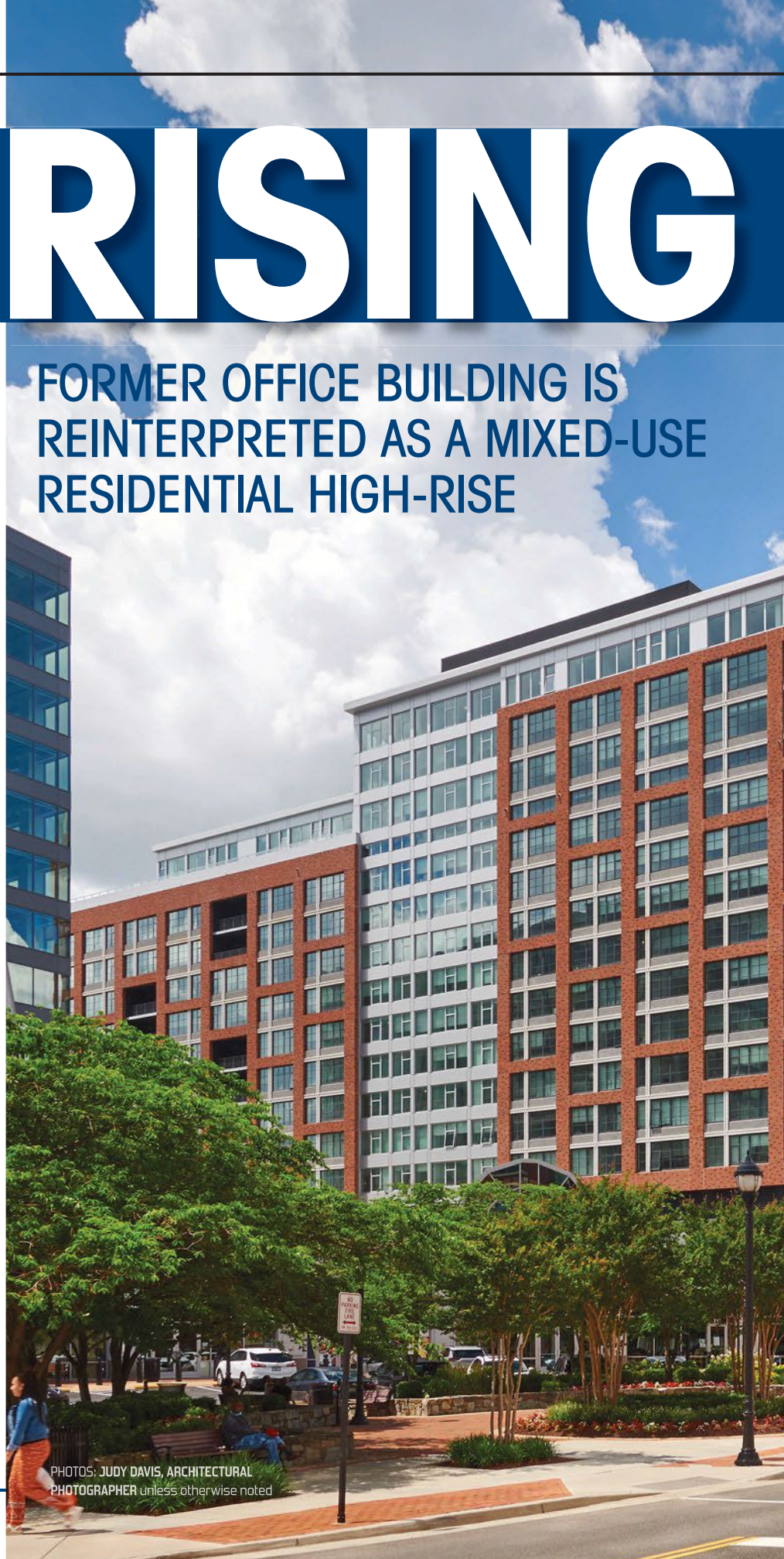
WRITTEN BY | **STEVE SMITH, AIA**

The new occupants of 2470 Mandeville Lane in Alexandria, Va., are no longer suited government employees working in cubicles. Once serving as the home to the U.S. Department of Defense, the 741,000-square-foot office building has been converted into The Foundry, a residential tower comprising 520 units and 25,000 square feet of retail space and parking. Designed by Cooper Carry, in partnership with Perseus TDC, the office-to-residential transformation is not only the largest adaptive-reuse project of its kind in the mid-Atlantic region, but also a harbinger of a rising trend among developers in the D.C. region and beyond to reimagine old structures—particularly former offices—for innovative use.

A housing shortage has gripped the Washington, D.C., area, giving rise to skyrocketing rents and home prices. In 2019, the Metropolitan Washington Council of Governments anticipated the area needs 320,000 new units, primarily affordable, by 2030 to keep up with booming business, as well as a 20 percent reduction in traffic congestion if the majority of the new housing is near transit hubs.

Now, as more employees become accustomed to working from home during our current pandemic, there's a strong likelihood many corporations will continue to gravitate toward modernized, healthier offices that serve smaller groups of revolving workers in the future, negating the need for the overabundance of lower-end workspaces that currently exist in urban cores. Conflating the urgent demand for housing with increased office vacancies, we can expect to see more opportunities for office-to-multifamily conversions.

The Foundry is one solution to narrowing the area's housing gap, introducing a mix of studio, one-, two- and three-bedroom market-rate units to accommodate a range of residents. Through the upgrading



PHOTOS: **JUDY DAVIS, ARCHITECTURAL PHOTOGRAPHER** unless otherwise noted

TREND





of the exterior and surrounding elements, reconfiguring of interior floor plans and the addition of thoughtful amenities, Cooper Carry was able to strategically recycle the shell of a former office building for a more purposeful use.

Evolving the Exterior Structure

The first order of business for the design team was to devise a workable plan to update and reimagine the building's exterior, contemporizing the nearly 50-year-old tower's original façade to better align with the changing face of the neighborhood while retaining key elements of the existing structure.

Built in 1972, the tower had been hard hit by years of degradation. A vision of the previous century, The Foundry was in dire need of a facelift, prompting the design team to gut and strip the building of its outdated features and start from scratch. Using the historic, brick-clad architectural vernacular present in Old Town Alexandria as a primary source of inspiration for the new and improved façade, the tower was reskinned in red brick-faced precast concrete panels, a time-saving measure that prevented the development team from having to spend on traditionally laid brick.

Diminutive windows were replaced with expansive warehouse-style treatments that allowed for higher levels of natural light inside the building, and the design team added three additional floors to the previous 13 levels. To break up and freshen the outward expression of the building, slick metal paneling was affixed to the uppermost levels, facilitating an industrial-meets-modern look favored by ownership. The team also incorporated a series of staggered, recessed balconies designed to mix up the façade and create a sense of playfulness and changing shadows.



Office-to-residential conversions bear repeating in other urban cores grappling with an oversupply of demand foiled by an undersupply of inventory.



Right-sized Residential

One prominent challenge faced by the design team during the renovation was adapting the original layout of the office building to conform to what is commonly found in residential builds. Drawing a sharp contrast to typical residential dimensions of 65- to 70-feet deep, The Foundry's extensive 374-foot length and 124-foot depth already were larger than the average office floor plate—and required extra creativity.

After the interior of the building was gutted, the design solution included filling excess space at the core with multi-floor amenity spaces, creating residential units with mid-point entries, rather than entrances at either end of the building, and implementing additional personal storage areas for residents. Apartment units form the perimeter of the building, strategically placed to maximize daylight. The interiors of the residences feature a loft aesthetic with exposed concrete slab ceilings, ductwork and clerestory windows that leverage high ceiling heights and make units feel larger and enhance access to sunlight. In addition, mechanical and plumbing systems were brought up to code through the renovation.

There was also the issue of parking, which needed to be provided to accommodate city requirements for multifamily developments. To address the problem, three of the old office floor slabs were converted into parking—one of the catalysts for the creation of additional floors to replace lost square footage for apartment units.

Elevating Amenities

Significant square footage of the building is allocated to amenities, a win-win byproduct of the too-large footprint depth challenge. In addition to housing stairs, electrical rooms and elevators, the central core of the building is also where amenities live, including a three-level gym, featuring cardio, weight-lifting and a yoga studio; a two-level bar; a makerspace; and a lounge room for neighborly hangouts.

Dual rooftop entertaining spaces deliver impressive views of the nearby Masonic Temple and historic Old Town Alexandria. Featuring lush landscaping, intimate seating arrangements, a partially covered terrace and outdoor grills, the first rooftop is an ideal setting for open-air gatherings. The southwest-facing, 14th-floor, second rooftop is akin to a retreat, where residents can take a dip in the heated pool and relax on chaise lounges while enjoying an



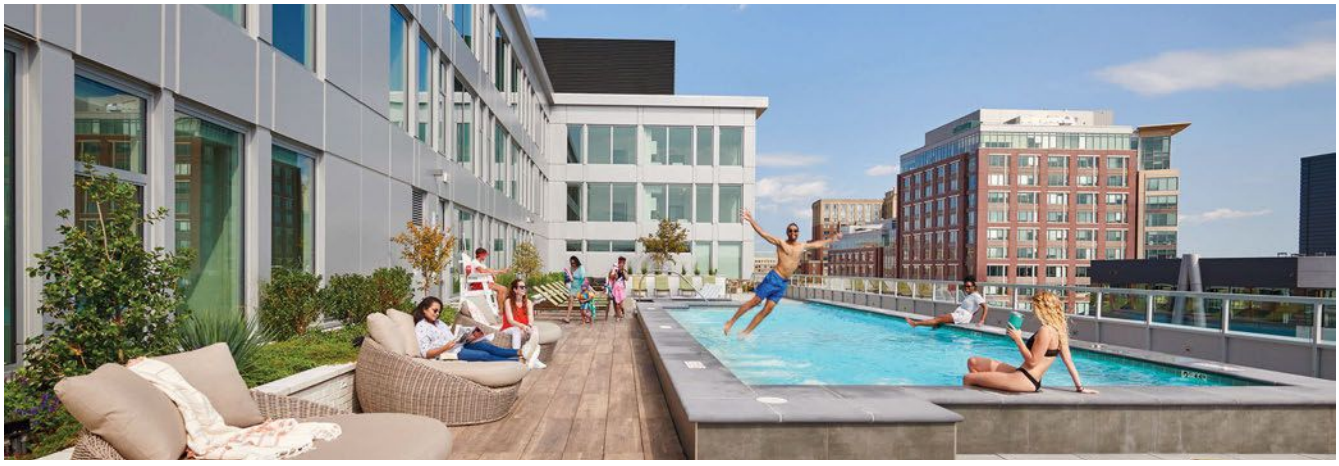
The Foundry's extensive 374-foot length and 124-foot depth already was larger than the average office floor plate—and required extra creativity. After the interior of the building was gutted, the design solution included filling excess space at the core with multi-floor amenity spaces. Meanwhile, apartment units (left) form the perimeter of the building, strategically placed to maximize daylight



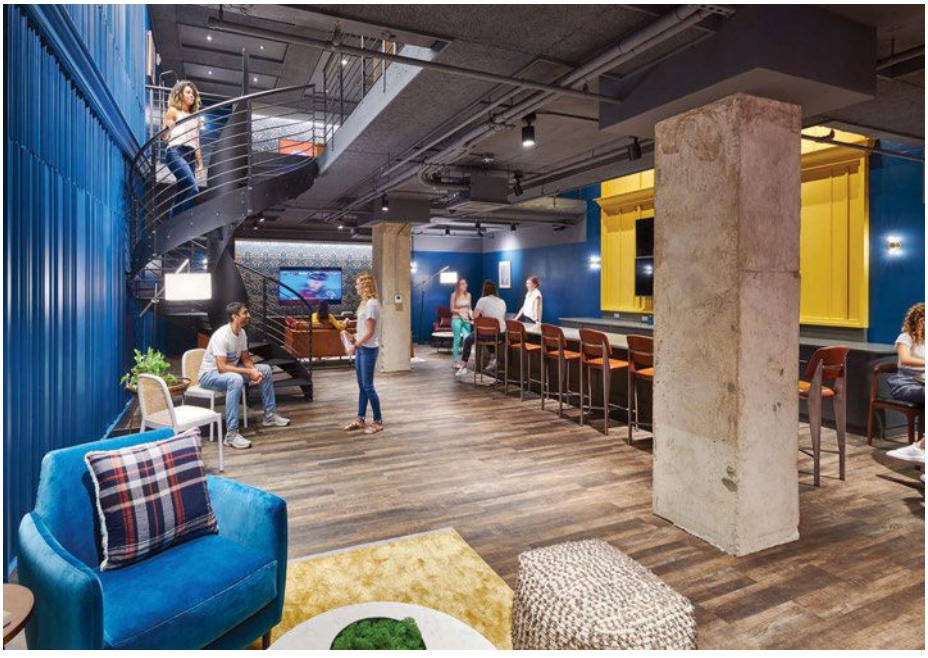




The relative walkability and transit-adjacency made the building ripe for redevelopment.







outdoor environment anchored by a diverse array of plant species.

At the base level, Cooper Carry made room for expansive retail space. Spanning 25,000 square feet, the retail portion of the building is designed to fit a range of uses, from local eateries and fitness studios to a daycare center and retail shops as a welcome resource for residents and locals alike.

Improving the Pedestrian Experience

Although the viability of the building for an office-to-residential conversion was an important consideration for the development team, the location and liveliness of the surrounding neighborhood were key factors in determining The Foundry's potential for success.

Located in Alexandria's vibrant East Eisenhower District, a neighborhood well regarded as an urban hotspot for unique shopping and dining destinations, The Foundry is about a block away from the Eisenhower Metro Station. This relative walkability and transit-adjacency made the building ripe for redevelopment. The building is also close to the forthcoming Carlyle's Crossing mixed-use development, which will be anchored by Alexandria's first Wegmans grocery store. To root the revitalized tower within its environment and enhance the pedestrian-experience, Cooper Carry implemented a variety of upgrades at the street-level to foster a strong urban connection.

Working together with the city government, Cooper Carry rescaled the street, enlarging sidewalks and downsizing the roadway to better engage pedestrian activity and allow residents to explore the neighborhood on foot more easily. The redesign also involved the inclusion of parallel parking for a more city-leaning setting. In addition, one entrance to the building serves as a direct connection to a covered walkway that leads to the nearby transit station.

Paving the Way for Future Development

The Foundry opened for resident move-ins in Fall 2020, boasting strong momentum on the leasing front as potential dwellers flock to urbanizing alcoves of the city. Demand for housing is not unique to the Washington, D.C., metro region, and office-to-residential conversions bear repeating in other urban cores grappling with an oversupply of demand foiled by an undersupply of inventory.

As additional vacant space comes up for grabs in the coming months and years ahead as the pandemic weeds out a glut of outdated office properties, there's enormous potential for the adaptive reuse of these buildings. Serving as an example for future community-focused multifamily developments, The Foundry is a blueprint for what can become of a little reimagination.

Retrofit Team //

ARCHITECT // Cooper Carry, www.coopercarry.com, in partnership with Perseus TDC, perseustdc.com
GENERAL CONTRACTOR // Balfour Beatty, www.balfourbeattyus.com
CIVIL/SITE ENGINEER AND LANDSCAPE // Christopher Consultants, www.christopherconsultants.com
STRUCTURAL ENGINEER // SK&A Structural Engineering Consulting, www.skaengineers.com
MEP ENGINEER // Integrated Design Consultants LLC, www.idcmep.net
LIFE SAFETY // Jensen Hughes, www.jensenhughes.com
INTERIOR DESIGN // Studios Architecture, www.studios.com
LIGHTING DESIGN // Palindrome Design Associates, www.palindromedesign.us
VRF INSTALLER // Havtech, www.havtech.com

Materials //

PRECAST // Arban & Carosi, www.arbancarosi.com
BRICK // Taylor Clay Products Inc., taylorclaybrick.com
METAL PANELS // Reynobond, www.arconic.com
CURTAINWALL AND STOREFRONT // YKK AP America Inc., www.ykkap.com
WINDOWS // Oldcastle BuildingEnvelope, www.crhamericas.com/building-envelope
ROOFING MEMBRANE, AMENITY DECK // American Hydrotech, www.hydrotechusa.com
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GLASS AND ALUMINUM GUARDRAILS // Atlantic Aluminum Products, www.atlanticaluminumproducts.com
ENERGY STAR APPLIANCES // GE Appliances, www.geappliances.com
WATERSENSE PLUMBING FIXTURES // Delta, www.deltafaucet.com
RESIDENTIAL UNIT LIGHTING // Abra Lighting, abralighting.com
AMENITY AREA LIGHTING // Lightheaded, lightheadedlighting.com; Apparatus, apparatusstudio.com; WAC Lighting, www.waclighting.com; and Luminii, www.luminii.com

THE MOST PARISIAN STRUCTURE IN NEW YORK

WRITTEN BY | MEREDITH MORTON



PHOTOS: OLA WILK/WILK MARKETING COMMUNICATIONS unless otherwise noted

Completed in 1907, the Beaux-Arts Surrogate's Courthouse encompasses an entire block in downtown Manhattan, bounded by Chambers, Centre, Reade and Elk Streets. The interior and exterior are New York City Landmarks. The building, which was also placed on the National Register of Historic Places in 1972 and designated a National Historic Landmark in 1977, holds the city's municipal archives and features ornate courtrooms for New York County's Surrogate's Court on the fifth floor.

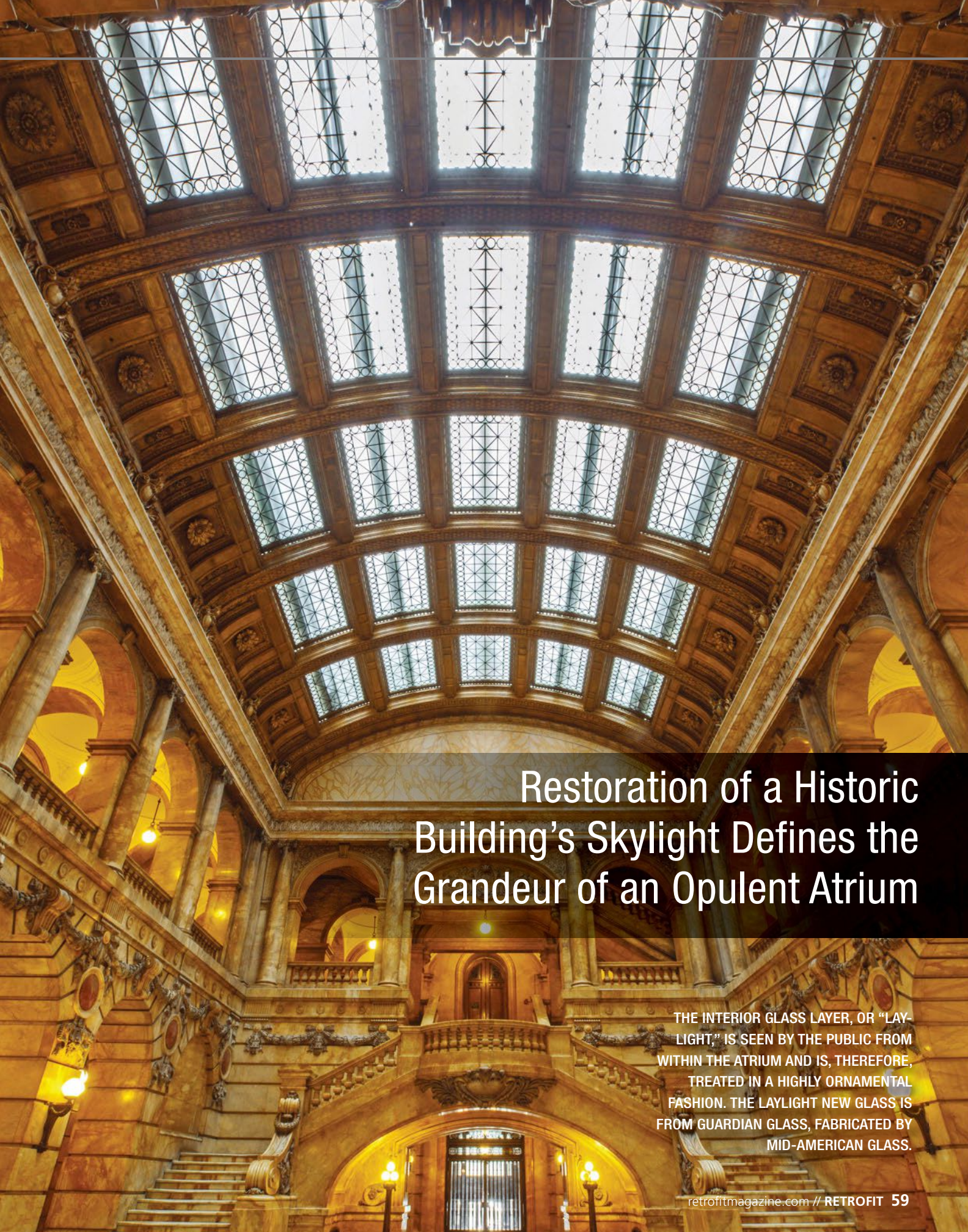
John R. Thomas, one of the United States' most sought-after architects of public edifices in his day, designed the 7-story building. Thomas considered this building his masterpiece. The opulent 3-story atrium features a 40- by 60-foot skylight that soars overhead, allowing natural light to flood in, illuminating the rich and highly articulated interiors. The Paris Opera purportedly inspired the skylight and, in fact, when the court building was completed it was called the most Parisian structure in New York.

A SKYLIGHT TO BEHOLD

When it was built, this atrium was the grandest, most expensive and most controversial—because of its cost and opulence—part of the building. The monumental atrium space features an extraordinary double staircase of Tuscan marble imported from Siena, which leads to upper-level balconies. The walls and columns are lined with matching Siena marble with blood-red marble roundels and elaborate carvings that include garlands of fruit and foliage. Mosaic murals by William DeLeftwich Dodge feature the signs of the zodiac. For the floor, the original architect chose pink marble from Tennessee and blue marble from Belgium, laid out in geometric patterns.

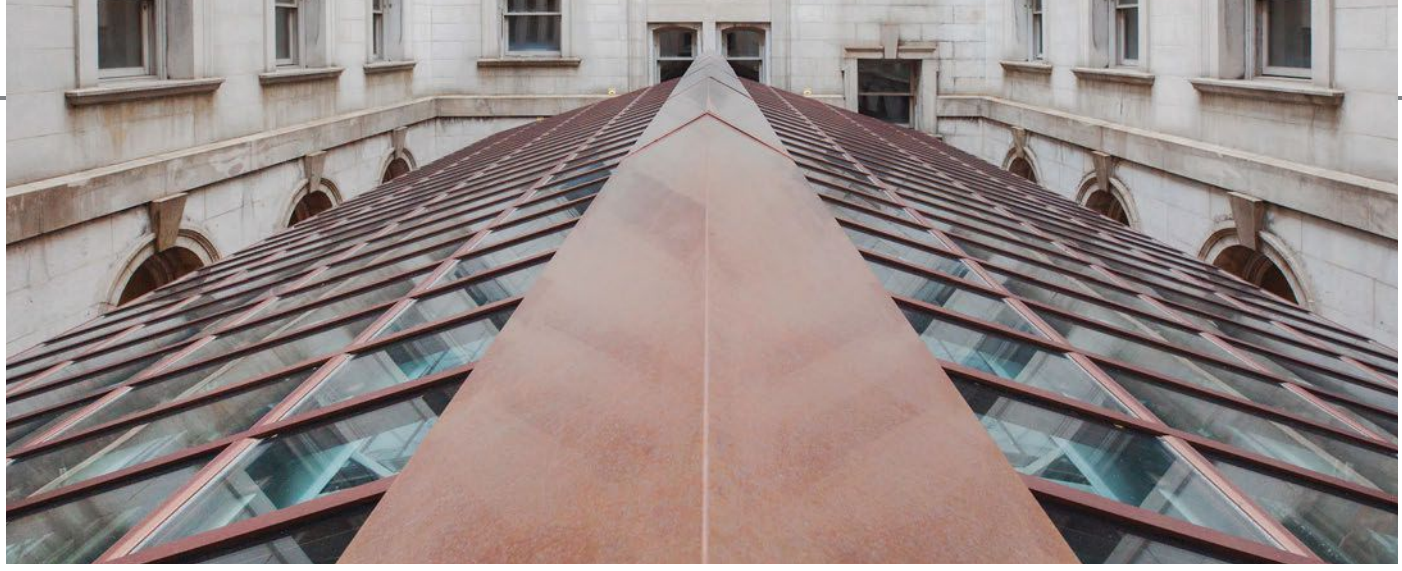
Although many of the courtyard's sumptuous finishes were imported from Europe, the original skylight was fabricated just a couple dozen blocks north of the building itself, in Chelsea.

The original skylight monitor actually consisted of two separate glazed assemblies with an interstitial



Restoration of a Historic Building's Skylight Defines the Grandeur of an Opulent Atrium

THE INTERIOR GLASS LAYER, OR "LAY-LIGHT," IS SEEN BY THE PUBLIC FROM WITHIN THE ATRIUM AND IS, THEREFORE, TREATED IN A HIGHLY ORNAMENTAL FASHION. THE LAYLIGHT NEW GLASS IS FROM GUARDIAN GLASS, FABRICATED BY MID-AMERICAN GLASS.







space. The outer assembly faced the sky and provided protection from the weather. The interior glass layer, or laylight, was seen by the public from within the atrium and was, therefore, treated in a highly ornamental fashion. In addition to its visual function, the laylight provided code-required occupant protection from potentially falling glass. The monitor that projected from the roof was gable-shaped with glass panels originally supported by a copper frame structure with a ridge at its peak. Ten clerestory windows on the vertical sides where the skylight drops to a walkway stretched around its perimeter. The walkway extended along the built-in gutters at two sides and consisted of hexagonal glass block set within cast-iron panels. The laylight within the atrium was comprised of hundreds of translucent glass panels set in an ornamental bronze clad cast-iron frame forming a monumental barrel vault.

Although the skylight first began to leak in the 1990s, rehabilitation was postponed because of the near constant use of the building. In addition to its municipal use, the building hosts major public and private events and is rented out as a film set. By the time the phased restoration had begun in November 2016 the atrium's grandeur was diminished by the damaged and grimy skylight. There also was extensive damage to adjacent materials, including marble and plaster.

RESTORATION PROCESS

Urbahn Architects worked with Jablonski Building Conservation Inc., the New York City Department of Design and Construction, and New York City Department of Citywide Administrative Services to develop a scope of work and procedures to repair and restore the historic elements on the interior and at the skylight level. The project involved a great deal of onsite research because there were no original drawings. Prior to any work beginning, Urbahn Architects' team surveyed and documented the existing conditions, including the exterior skylight monitor, leaded-glass laylight panels, the bronze-clad barrel-vaulted frame and the plaster lunettes. The design team conducted its survey from a lift so materials could be inspected up-close. The design team also surveyed the skylight's elements from within the interstitial space between the monitor and laylight.

The inspection included documenting each of the glass laylight panels, including the condition of the leading and the glass panes. The top-facing, unfinished side of the bronze was in good condition. However, because the bronze cladding concealed the cast-iron frame, the full extent of corrosion from water infiltration was not evident until the construction phase. During design, Urbahn Architects and Jablonski Building Conservation determined a significant

percentage of the glass blocks at the exterior walkway were cracked or missing, thereby requiring casting of replacement blocks and frame to replicate these elements. The plaster substrate of the lunettes had blistered and much of the paint was peeling.

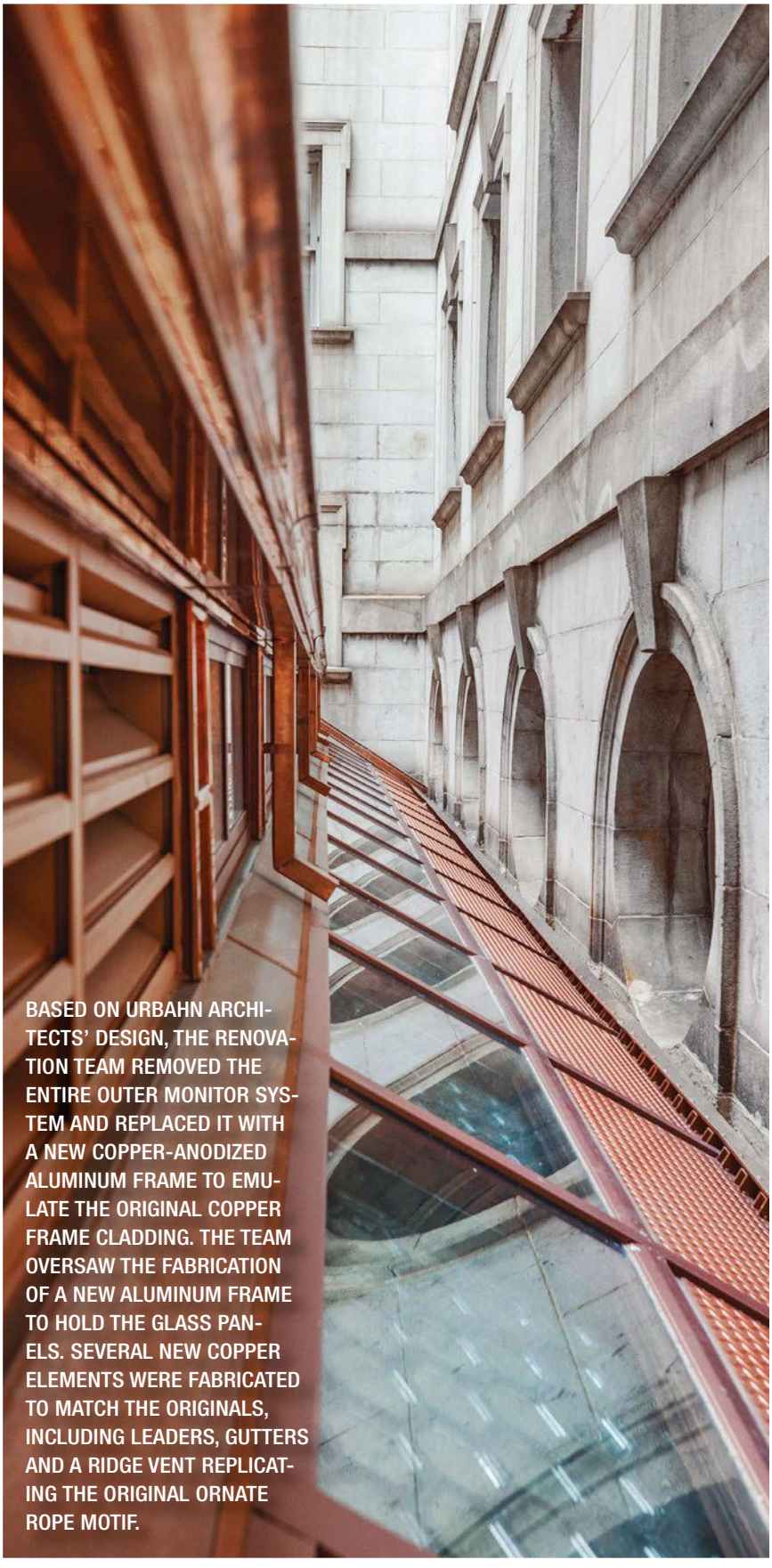
Some of the original steel-frame elements supporting the skylight were corroded or missing because of years of water infiltration and deferred maintenance. Engineering consultant Ysrael A. Seinuk P.C. prepared new drawings based on field measurements and developed a restoration method for the structural aspects of the project.

"We found numerous structural elements that support the skylight had to be replaced or reinforced," notes Salvatore Paratore, AIA, LEED AP, project manager for the work and a senior associate at Urbahn Architects. "For the temporary roof, erected to protect the interiors during the renovation, we lifted the steel up for installation using a hoist set up on a scaffolding platform above the work area. All of the other materials and equipment were brought up by an internal hoist."

Mary Jablonski, Jablonski Building Conservation's principal, also noted that scaffold access revealed multiple unforeseen conditions, including marble spalls, cracks and losses on the cornice. "Many of the marble spalls were due to corrosion of the structural steel, which was assessed and then repaired," she recalls. "Work on the marble cornice could not be completed until the scaffold was modified to provide a lower work platform below the cornice fascia. Once the work platform was modified, the marble cornice and fascia were vacuumed to remove dust and debris. Then they were cleaned using a latex-based cleaner to minimize the amount of water used. Cracks and spalls were then identified and repairs were made using tinted epoxy and the dutchman method."

COMPLEX LOGISTICS

The construction team was operating in a tight space within a historic structure, so logistics were carefully planned. First, crews erected barricades within the atrium to safeguard the public while they installed a working platform resting on scaffolding with a stair access to the skylight from below. The construction team also provided a temporary roof to make the atrium watertight during construction. The temporary roof consisted of steel beams spanning the courtyard with metal deck and waterproof



BASED ON URBAHN ARCHITECTS' DESIGN, THE RENOVATION TEAM REMOVED THE ENTIRE OUTER MONITOR SYSTEM AND REPLACED IT WITH A NEW COPPER-ANODIZED ALUMINUM FRAME TO EMULATE THE ORIGINAL COPPER FRAME CLADDING. THE TEAM OVERSAW THE FABRICATION OF A NEW ALUMINUM FRAME TO HOLD THE GLASS PANELS. SEVERAL NEW COPPER ELEMENTS WERE FABRICATED TO MATCH THE ORIGINALS, INCLUDING LEADERS, GUTTERS AND A RIDGE VENT REPLICATING THE ORIGINAL ORNATE ROPE MOTIF.

> WORKING WITHIN A CHERISHED HISTORIC EDIFICE, SUCH AS SURROGATE'S COURT, REQUIRED A TEAM THAT IS ATTUNED TO THE AESTHETICS, MATERIALS AND BUILDING PRACTICES OF ANOTHER AGE, AS WELL AS WELL-VERSED IN BOTH THE LIMITATIONS AND ADVANCES OF MODERN CONSTRUCTION TECHNOLOGIES.
>
> —*Rafael Stein, AIA, principal, Urbahn Architects*





PHOTOS: EVERGREENE ARCHITECTURAL ARTS

SCAFFOLD ACCESS REVEALED MULTIPLE UNFORESEEN CONDITIONS, INCLUDING MARBLE SPALLS, CRACKS AND LOSSES ON THE CORNICE.

membrane. These components were hoisted over the building's main roof and assembled in place over the skylight within the courtyard, surrounded on all sides by the court building's tower. Select skylight components designated for removal were manually disassembled and lowered down within the building from the working platform. The temporary roof was disassembled and removed by crane from the street once the renovation was completed.

In addition, there were multiple security restrictions; the building remained a working courthouse that required heightened security. Security personnel constantly monitored each entrance. There also was an increased need for noise control; the construction team had to carefully coordinate their work with tenants.

Because of the grandeur of the atrium, the interior is often used as the backdrop for the filming of movies and commercials, and it is frequently rented out as an event space. The television show "Law and Order" and movies "The Devil Wears Prada" and "Great Expectations", as well as many other productions feature scenes shot within the building. Construction could not commence until such pre-booked shoots and events taking place immediately below the skylight were completed. No events were scheduled during the construction period.

PROJECT ELEMENTS

Based on Urbahn Architects' design, the renovation team removed the entire outer monitor system and replaced it with a new copper-anodized aluminum frame to emulate the original copper frame cladding. The team oversaw the fabrication of a new aluminum frame to hold the glass panels. Several new copper elements were fabricated to match the originals, including leaders, gutters and a ridge vent replicating the original ornate rope motif.

The leaded-glass laylight panels were removed and crated for restoration by Bovard Studio. The lead cames were heavily fatigued and failing, having exceeded their practical life span. New reinforcement and new lead caming were installed. The team carefully selected new etched glass to match the texture and translucency of the original.

The design team addressed the inherent vulnerability of the glass block walkway to water infiltration by designing a new protective assembly, including laminated glass protecting the glass blocks with new durable aluminum panels as a walking surface, all within a new metal frame system.

Although the original intent was to salvage as many glass block units as possible and install replica units to replace damaged ones, extensive corrosion of the cast-iron frames made it impossible to remove any units without breaking them. Instead, molds for new glass blocks were taken from castings of existing blocks. New hexagonal glass blocks were casted by Gillinder Brothers to match the original hexagonal glass blocks, which are 1 1/2-inches thick and 3 1/2-inches wide, with groups of blocks forming a total of 24 glass panels running on two sides of the skylight. The new glass blocks include the original embossed snowflake pattern on the surface. Meanwhile, Wemco Casting fabricated new cast-iron frames.

RETROFIT TEAM

ARCHITECT // Urbahn Architects, www.urbahn.com

PROGRAM MANAGER // New York City Department of Design and Construction, www1.nyc.gov/site/ddc/about/about-ddc.page

OWNER // New York City Department of Citywide Administrative Services, www1.nyc.gov/site/dcas/index.page

HISTORIC CONSERVATOR // Jablonski Building Conservation Inc., jbconservation.com

CONSTRUCTION MANAGER // The LiRo Group, www.liro.com

GENERAL CONTRACTOR // BQE Industries Inc., (718) 429-1648

STRUCTURAL ENGINEER // Ysrael A. Seinuk P.C., yaseinuk.com

LAYLIGHT RESTORATION // Bovard Studio Inc., www.bovardstudioinc.com

CAST-IRON FRAMES // Wemco Casting LLC, www.wemcocastingllc.com

GLASS BLOCK CASTING // Gillinder Brothers Inc., www.gillinderglass.com

SKYLIGHT INSTALLER // Linel, www.linel.com

LUNETTES AND ORNAMENTAL BRONZE CLADDING // EverGreene Architectural Arts, evergreene.com

Based on historic photographs, Jablonski Building Conservation determined initially the plaster was unfinished. Then it had been painted a pale yellow overlaid with a simple, light stencil pattern. It was subsequently painted with a faux-Siena marble finish in 1933, signed by the artist, Luka Jolis. The team decided to replicate this most recent finish, to match the Siena walls and columns. The lunettes were heavily cracked and the painted finish was actively flaking from the surface. EverGreene Architectural Arts repaired the flat plaster using a mesh-and-skim coat system before the lunettes were repainted. The ornamental plaster border was repaired and missing plaster elements were recast before repainting to match the adjacent fire-gilt-bronze finish. The painstaking paint detailing included elaborate veining and faux joint lines.

The bronze enclosures were stripped of all finishes and cleaned by EverGreene Architectural Arts. To access these enclosures, the team first removed several large bronze garland elements that were bolted to the enclosures. EverGreene Architectural Arts cleaned the surfaces with solvents, fire-gilded them and then coated them with Permalac. According to Jablonski, fire-gilding, also known as ormolu, is a process by which an amalgam of gold and mercury is applied to a metallic surface. The surface is heated, which causes the mercury to evaporate and leave the gold particles behind. The surface is then burnished or treated with waxes. The waxes may have additives, such as ochres or verdigris, which, when the wax is fired and melted from the surface, leave behind a slightly tinted finish with highlights on the surface.

"The overall effect is a rich golden color, chemically bonded to the metal surface and, therefore, more durable than a traditional gilded finish. The restored fire-gilt-bronze surfaces were monitored throughout construction for any signs of corrosion or deterioration of the finish," Jablonski states.

"Working within a cherished historic edifice, such as Surrogate's Court, required a team that is attuned to the aesthetics, materials and building practices of another age, as well as well-versed in both the limitations and advances of modern construction technologies," explains Rafael Stein, AIA, an Urbahn Architects principal. "For example, the two lunettes on either end of the atrium had been so damaged that it was nearly impossible to understand what they had once looked like. Our research revealed there had, in fact, been different decorative layers over time. We selected the most recent iteration and developed a restoration approach based on review of archival photographs and an analysis of multiple paint and plaster coats. We then carefully specified the design so that the lunettes could be lovingly restored by experienced artisans."

SURROGATE'S COURTHOUSE SKYLIGHT RECEIVES ACCOLADES

The replacement and restoration of the historic skylight within the landmark Manhattan Surrogate's Courthouse received a 2020 Lucy G. Moses Preservation Award from the New York Landmarks Conservancy and 2020 AIA New York State Design Merit Award.

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IN HONOR OF THE PAST

Architects Are Stewards of Historic Resources

WRITTEN BY | ANNE HOLFORD-SMITH



1]

1] The Educational Alliance continues to fulfill its original mission to serve its immigrant neighborhood. It is housed in the reinvigorated Manny Cantor Center that has brought the institution into the 21st century while respecting its long history.

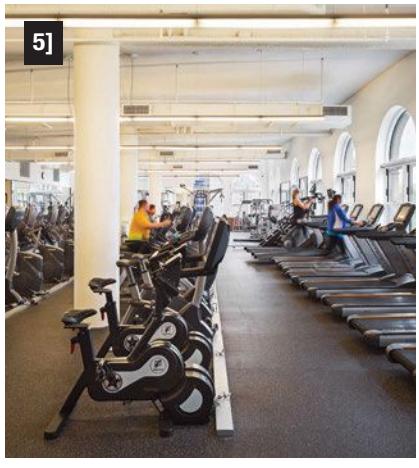
PHOTOS: JONATHAN WALLEN unless otherwise noted





PHOTO: PBDW ARCHITECTS





2] and **4]** The Educational Alliance's newly reconfigured classrooms for early learning incorporate up-to-date teaching methods. Tall ceilings wrap around the perimeter, bringing in abundant light, while dropped ceilings containing mechanical systems are kept toward the interior.

3] The lobby pre-restoration had inadequate space for the number of people who used the building daily.

5] The fitness center takes advantage of the top-floor arch-topped windows, a vast improvement over the ad hoc fitness spaces of the early 20th century.

Why do so many people love old buildings? For most, they represent a favorite architectural style, a sense of reminiscence or simply the "good old days". For an architect, an old building is a puzzle waiting to be solved, peeling back the layers of history, like peeling an onion, to reveal the building's past lives and its larger significance.

What you see when you encounter an old building is often an accumulation of many past interventions, undertaken over the course of its history to accommodate changing styles and usage. It is important to understand the history of a building to ensure a planned renovation or adaptation continues to tell the story of the building's evolution and does not erase important aspects of the building's past.

The following projects offer three examples to revitalizing historic buildings, ushering them into the future while honoring their past:

ADAPTING FOR A CHANGING PEDAGOGY

In 2014, the Educational Alliance completed the PBDW Architects-designed comprehensive renovation of its flagship building in New York City. Established in 1889 as a settlement house to serve Lower East Side immigrants, in 1891 the alliance constructed a new building at 197 East Broadway to house its classrooms and offices.

The alliance spearheaded many educational firsts, including an Art School and Children's Educational Theater in the 1900s and one of the first Head Start programs in the nation in 1965. The programs continued to grow and evolve, reflecting the changing needs of its constituency and advancements in educational pedagogy.



PHOTO: COURTESY PBDW ARCHITECTS

6] Classrooms in the 1891 flagship building served the Lower East Side immigrant population but were no longer suitable for 21st century education.

For 130 years the alliance continued to provide these services using the building largely as it had been built—or jerry-rigged to work—with outmoded classrooms, labyrinthine corridors and obsolete mechanical systems. When PBDW Architects was called upon to "update the elevators", it was clear that the 19th century building was not meeting the alliance's 21st century needs.

Working closely with the alliance, PBDW Architects assessed the building's existing conditions and usage, as well as alliance representatives' aspirations for the future, and ultimately recommended a thorough reworking of the building rather than the limited scope the alliance first imagined.

PBDW Architects' design for the renovation synthesized the team's findings into a plan for new classrooms, a fitness center, meeting spaces and offices, working within the constraints of the original flagship building. The 5-story Romanesque Revival building is characterized by its restrained pale brick and terra-cotta façades, large windows and prominent corner site.

Modernizing the building while maintaining its original integrity was the guiding principle behind all design decisions. These include the design of new classrooms, which take advantage of the large windows and tall ceiling heights by locating new mechanical systems, with their attendant dropped ceilings, toward the interior of the building. The fitness center was located on the top floor of the original building to maximize the views out from the large arch-topped windows on that floor. The rooftop addition creates a new amenity for large gatherings and includes a wraparound terrace that also takes advantage of neighborhood views.

The Educational Alliance's Manny Cantor Center is a completely reimagined building that draws on the legacy of the institution while positioning it for the future. It still proudly fulfills its mission to serve the local immigrant population, who has changed over time and whose needs in turn have changed the institution.

HELPING A PRIVATE INSTITUTION GO PUBLIC

The New-York Historical Society was founded in 1804 as New York's first museum. The original 1908 York and Sawyer building reflected the use of the building mostly for scholars and as a repository of New York's historic artifacts. Its small dark-bronze entry and windows barred with heavy iron guards set within the classically symmetrical limestone façade signified a private institution.

Over time, the society began to reimagine itself as an institution that was more open to the public. PBDW Architects facilitated that change by literally opening the building to the street, replacing the unwelcoming entry doors with a glass-enclosed vestibule; removing the window bars; and changing windows to glass doors, bringing in more light and inviting curiosity as to what was taking place inside.

It was important to honor the original architecture while allowing the institution to be relevant and accessible for the present and future. The existing ground-floor plan represented an early 20th century formality that no longer fit the institution. PBDW Architects envisioned a more open ground floor, eliminating closed galleries and creating opportunity for display immediately upon entering. The design preserves the arched openings and vaulted ceiling that leads to the historic marble staircase and upper-floor galleries and the auditorium.

Long a key feature of the institution, the auditorium configuration was outmoded and ill-equipped to provide a fulfilling experience. The renovation is confined to the original volume but takes advantage of the tall ceiling height to introduce a mezzanine, increasing capacity. New AV systems allow for a variety of uses, including the showing of the immersive multimedia film "We Rise", which profiles some of the remarkable women whose advocacy for change had lasting effects on our country.

Building on the society's desire to grow and change into an institution relevant in the 21st century, galleries championing women's history and that of the underserved and oppressed have also been created. PBDW Architects' design for the fourth-floor galleries took its cues from the building's iron trusses, creating a tall, vaulted space that accommodates the institution's many artifacts in new and varied ways between the trusses.

The most recent transformation at the historical society is the installation of a reduced-scale reproduction of the White House Oval Office. PBDW Architects orchestrated the rigorous research and painstaking attention to detail that brought this space to life. This historically faithful recreation allows the public to experience history and the present close-up and in-person.

The historical society, working with PBDW Architects, continues to adapt its galleries and spaces to reflect the needs of a modern institution that remains rooted in its own history.



1]

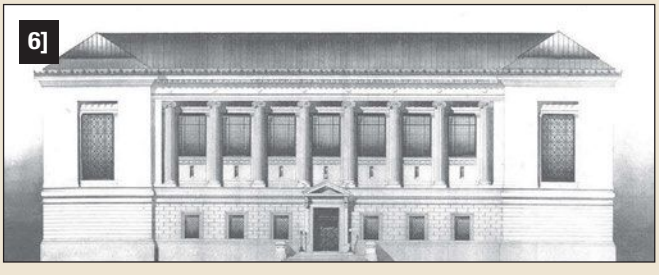

2]

PHOTOS: FRANCIS DZIKOWSKI


3]











1] and **2]** The New-York Historical Society's latest installation is a reduced-scale replica of the Oval Office, bringing history up-close and personal.

3] The outmoded auditorium was reconfigured to expand capacity and provide technology to support multimedia performances.



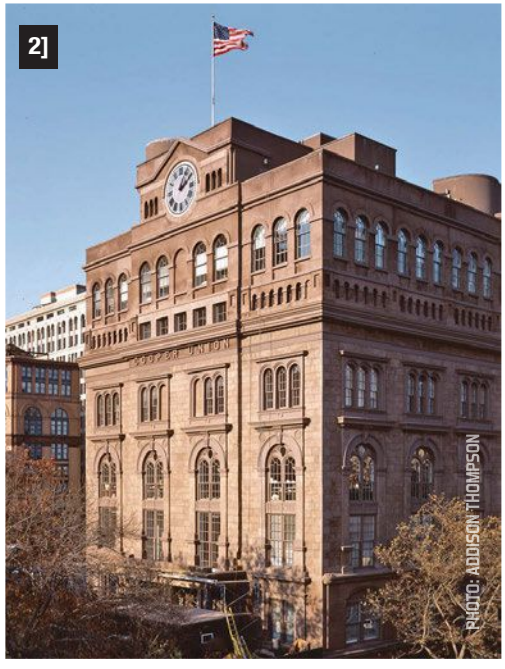
4], **5]** and **6]** The New-York Historical Society building's design was an uninviting, fortress-like presence. PBDW Architects opened the entry and added glass doors to signify a more public institution.

7] The original arches and vaulted ceiling were preserved in the renovated lobby.

8] Fourth-floor galleries took their architectural cues from the building's structural trusses.

9] PBDW Architects created an open, inviting ground floor with gallery space visible to the exterior.











1] The restored Foundation Building is faithful to original architect Frederick Petersen's and Peter Cooper's aspirations for the building and preserves significant changes to the building over time.

2] The restored south façade features the words COOPER UNION. The date of the change from UNION alone on the prominent main façade of the building is unknown.

3] and **4]** Intricately carved brownstone elements that had lost all their detail were meticulously restored or recreated.

5] The restoration returned the ashlar to a close approximation of the original smooth surface, restoring the contrast between the flat ashlar and decorative window surrounds.

OUR RESPONSIBILITY IS TO SAFEGUARD [A BUILDING'S] UNIQUE SIGNIFICANCE FOR GENERATIONS TO COME THROUGH RIGOROUS RESEARCH, CLIENT COLLABORATION AND VISIONARY DESIGN SOLUTIONS.

MAINTAINING A MESSAGE

The 19th century industrialist Peter Cooper built the Foundation Building in New York City in 1858 to house his vision of a free and open institution for men and women of all races. Cooper strongly believed education was the key not only to personal prosperity but to civic virtue and harmony.

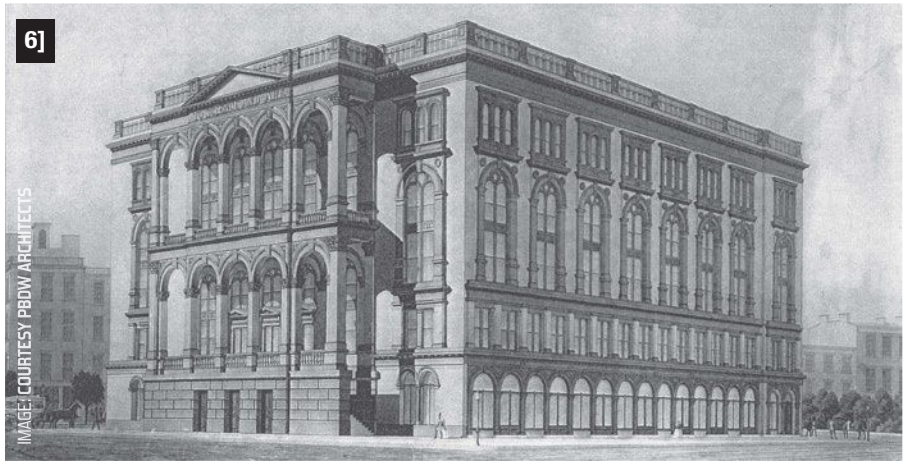
The design of the building by Frederick A. Petersen embodied the open and aspirational ideals of the forward-thinking Cooper. The smooth brownstone façades are a taut backdrop for the monumental windows that create the openness that characterizes the institution.

As the uses inside the building changed over time, so did the building itself. New floors and skylights were added and removed, and the entire interior was rebuilt to John Hejduk's 1970s modern design to accommodate the art and architecture departments.

When PBDW Architects started work on the building in 1997, the façade had undergone a disfiguring campaign that had meant to revive the aging brownstone by applying a cementitious coating. After this coating failed, only the chisel marks used to create a bond for the stucco remained. Petersen's taut flat façades had melted into an undistinguished lump.

Before setting out to design the restoration of the building's façades, PBDW Architects undertook a master plan that researched the building's history, use, present conditions and the school's plans for the future. This phase allowed the architects to understand why the building was built, what it symbolized, what had changed over time and what was significant to restore.

Petersen's renderings offered the first clues to the original intent, as did Cooper's philosophy of an open, inclusive venue for learning. It became evident that the selection of smooth flat brownstone for the building ashlar was a deliberate choice to create a foil for the large amount of glass and decorative window surrounds. Not only did the chiseled surface need to be smoothed to prevent future deterioration, but to bring back the contrast between the flat ashlar stone and the window surrounds.



6] Petersen's 1853 rendering of the Foundation Building was instrumental in understanding the architect's and Cooper's original vision for the building.

Equally important to the reading of the exterior were the major renovations that contribute to the modern viewing of the building, including the distinctive late 19th century saw-toothed skylights and the cylindrical elevator shaft that Hejduk extended to the roof in the 1970s. These significant features had taken on historical importance that contributed to the overall reading of the building.

One item discovered during construction that was not restored was the word UNION spelled out on the south façade. It is difficult to make out but the word is visible in an image of the building taken circa 1876. Whether this south-facing sign was meant to stir up support for that cause in the years immediately before the Civil War or was simply a bit of modesty on Cooper's part, one of Cooper Union's most famous events was the "Right Makes Might" speech that Abraham Lincoln gave in its Great Hall in 1860, pivotal to his nomination for president. PBDW Architects chose, however, to maintain the words COOPER UNION that have graced the south façade of the building for the past nearly 100 years and give credit to Peter Cooper for founding this remarkable institution.

The result is a long-term restoration of the building's façades, not only ensuring their longevity and weather resistance, but continuing to represent the open and free institution that Peter Cooper imagined.

As architects, our historic buildings are important to us for the stories they tell, and an important role for any firm is to steward these buildings into the future while ensuring their stories are preserved. For PBDW Architects, and many of their colleagues throughout the industry, the design of a building restoration is rooted in the history of the building and its place—both its provenance and potential—and our responsibility is to safeguard its unique significance for generations to come through rigorous research, client collaboration and visionary design solutions. PBDW Architects looks forward to continuing this necessary work as the firm is presented with new preservation, restoration, and retrofit efforts for institutions and clients from all walks of life.



HUMANITARIAN DESIGN

PHOTOS: PATHWAYS TO EQUITY

ARCHITECTS INCREASINGLY SEEK TO IMPROVE LIVES AND FACILITATE EQUITY THROUGH DESIGN

WRITTEN BY | **ALLAN BARRY**

Architects take a great deal of pride in the fact that their profession is aimed at making the world a better place. Buildings are the molecules that make up communities, cities and society as a whole. A big part of architecture is problem solving, and good design can make an enormous impact on how individuals and groups of people work, live and interact together.

In addition, the practice has gone all-in on the issue of climate change, making sustainable design just a normal part of doing business. Reducing emissions, materials and waste are now a requirement of the projects architects work on, not just an afterthought.

In the same way, there is a growing recognition of the good that can come from design focused on people rather than just on economics and logistics. In the wake of the events of 2020, many firms are more dedicated than ever to the cause of equity and social justice. With the right intent and understanding, good architecture can raise up the lives of those it touches.



WITH THE RIGHT INTENT AND UNDERSTANDING, GOOD ARCHITECTURE CAN RAISE UP THE LIVES OF THOSE IT TOUCHES.

The concept is not new, even if it has become more front-of-mind in the past year. Sometimes referred to as humanitarian architecture, the idea is fairly broad but at its heart basically refers to architects using their skills to help at-risk people and communities. This may take the form of humanitarian work to build schools for impoverished villages around the world and it also may be retrofitting structures in inner-city neighborhoods here at home to create new services and opportunities for residents. Humanitarian architecture is working to address societal problems by rethinking our approach to the design of the built environment.

People Focused

"Humanitarian architecture is the creation of a built environment that is centered on the needs of people. This positions the structure being built in a context greater than that of its walls and seeks to address other needs and quality of life," explains Tya Winn, executive director of the Philadelphia-based non-profit Community Design Collaborative. "I believe architecture has to truly focus on health, safety and welfare and the context in which a project is situated. It must consider both the people and the global environment."

The idea of designing first for the good of occupants seems like it would be obvious, but it does require a different kind of thinking. When planning a building, architects and the construction team must balance multiple—often competing—goals and requirements. Performance, aesthetics, sustainability and budget tend to fight for the front seat, and it's easy to see how the needs of people and communities can get pushed to the side. It's the way construction has always happened and doing it differently requires thought, effort and a paradigm shift.

"We [as architects] are trained to design within a certain system for certain people who can afford our services," says Shalini

PATHWAYS TO EQUITY

Pathways to Equity is a program committed to centering equity and racial justice in architecture and design practices. Its goal is to create transformative learning experiences, shifting the field toward anti-racism and equitable outcomes. Pathways to Equity is taking applications for its next virtual program. To learn more, visit www.pathwaystoequity.org.

PATHWAYS TO EQUITY

COMMUNITY DESIGN COLLABORATIVE

COMMUNITY DESIGN COLLABORATIVE

The Community Design Collaborative provides pro-bono preliminary design services to non-profit organizations in greater Philadelphia. It creates engaging volunteer opportunities for design professionals and raises awareness about the importance of design in revitalizing communities. To learn more, visit cdesignc.org.



The first step is to listen and understand the needs of a community and, most importantly, of the people for whom a building is being designed.

Agrawal, director of Programs for Open Architecture Collaborative and co-director of Pathways to Equity, based in San Francisco and Oakland, Calif., respectively. "But there are a host of communities and people who do not have the same level of access and yet would benefit from the availability of these problem-solving skills."

"This mode of practice has always been compelling to people, but never had the same amount of attention. Whether one calls it humanitarian architecture, social impact design, people-centered, public interest or spatial justice, it is addressing the same thing," Winn says. "The practitioners have always existed because the need has always been there, but it has been labeled as 'non-traditional.' I think the last year caused a reckoning, both in society and our field, so many will turn their attention to this kind of practice in the short term."

Year of Change

While the nation and the world grappled with the challenges posed by COVID-19, as well as experienced a renewed rise of social justice and equality movements, the outlook of the architecture profession evolved. Adjusting to the pandemic has created a

(continues on page 74)



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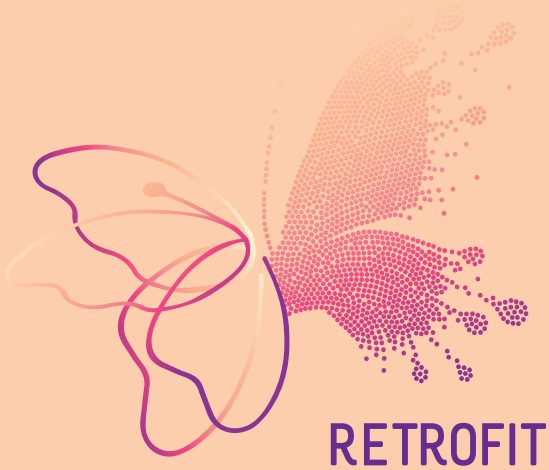
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> WE LEARN ABOUT THE HISTORY OF ARCHITECTURE, BUT WE DON'T NECESSARILY UNDERSTAND THE HISTORY OF EXCLUSIONARY PRACTICES IN ARCHITECTURE. WHEN WE START TO UNDERSTAND THE HISTORY [of exclusionary practices], IT HELPS US BRING ABOUT A DIFFERENT MINDSET.
>
> *—Shalini Agrawal, director of Programs, Open Architecture Collaborative, co-director, Pathways to Equity*

demand for rethinking spaces in healthier ways. And recognizing institutional inequality has likewise inspired many in the design community to help struggling communities.

"As long as we have had people and buildings, we have had forms of humanitarian architecture," Winn says. "The very idea of this way of working is mostly about problem solving to support and improve the lives of those in need. One would think with all our technologies and changes in society, we would no longer have a need for humanitarian architecture."

But challenges certainly do remain, as does the need for humanitarian architecture. The concept itself encompasses a spectrum of areas, ranging from helping communities in need all around the world to simply applying a more human-focused emphasis in the design of structures of all kinds. With the pandemic, many parts of that spectrum came together as efforts were made to adapt the function of buildings to better help and serve at-risk populations.

"All of our work is about forwarding projects important to the development of local neighborhoods, and some of our most recent work was responding to the pandemic," Winn says. "The organization quickly pivoted to address issues non-profits and local businesses faced in trying to adjust to new regulations brought by COVID-19. Projects included new ways to serve customers or clients that kept people safe and distanced, signage and wayfinding to direct traffic to minimize virus spread, and ways to protect workers. One of the most exciting things we did this year was a design competition to look at outdoor learning spaces to transform underutilized schoolyards into outdoor classrooms. We used these lessons to create a guidebook for public use."

When looking to solve any problem, there can be a temptation to make assumptions on what would be best for those impacted. For optimum results, however, the first step is to listen and understand the needs of a community and, most importantly, of the people for whom a building is being designed.

"It is great when architects and designers share their skills in places of need, but going in with good intentions does not always lead to solutions that help communities," Agrawal says. "Issues, such as environmental, racial, health or social inequities, that impact communities are often systemic, and the built environment

is just one part of the system. Addressing these inequities with architecture may not address the root cause of these issues. Solutions have to be systemic, and those closest to the issues are often closest to the answers. It's important to lead with listening, understand the impacts on communities, and not go straight to the design at the beginning."

Equity and Justice

It was with an eye toward creating a different level of awareness among building professionals that Open Architecture Collaborative launched a new initiative, Pathways to Equity, whose mission is to educate building professionals about ways to engage with communities and eliminate injustice through design.

Agrawal explains: "Many of the social issues and inequities we see today are not accidental, they are by design. For example, the lasting consequences of redlining and eminent domain still show up today, affecting the quality of life for those communities that have been negatively impacted by these practices. We learn about the history of architecture, but we don't necessarily understand the history of exclusionary practices in architecture. When we start to understand the history [of exclusionary practices], it helps us bring about a different mindset."

Pathways to Equity seeks to guide building professionals into a different point of view to be most effective and help the populations and communities they are working to serve.

"Pathways to Equity is about architects taking leadership. It aims to provide professionals working in the built environment with foundational knowledge of bringing racial equity to engaging communities," Agrawal explains. "It's about building teamwork and taking a systems design approach to achieve equity in all practices. Biases in our systems are so pervasive that designing without an equity lens risks perpetuating the inequities."

To best address humanitarian design, architects and building professionals must look both inward, to identify cultural and built-in bias, and outward to the communities they serve. Working on these terms can be unfamiliar territory.

"Working in communities is very different from working with clients. It's a different power dynamic," Agrawal says. "It's important for us to understand that the community holds knowledge and we hold knowledge and we can benefit from listening to each other. This results in better problem-solving."

By listening to those impacted by design and incorporating concepts of equity and justice in the early stages, any project, whether a retrofit or new construction, can be better aimed at addressing some of those systemic, underlying issues. And there are resources from which building professionals can draw. But the first step is intent.

"The best resources are your own sense of empathy, design skill and hands," Winn says. "Humanitarian architecture is really the first thing we all learn in school. It's about creating spaces and places where people live their lives. No architect sets out to design something that diminishes the quality of life. I believe this mode of thinking should be universal: one that fights privilege and does not strip the Earth of its ability to sustain us all. To care about people or the environment should not be a luxury or relegated to aid work. It should be the primary focus of every project we work on."

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www.greenheck.com

VIDEO INTERCOM ASSISTS WITH IDENTIFYING VISITORS

Aiphone has added the IXG-MK IP Video Guard Station to its portfolio of IXG Series Multi-Tenant Video Intercom Systems. The IXG-MK provides visitors a way to call a building's concierge, receptionist or security guard from the entrance station. This is helpful when visitors are unsure how to reach a tenant or if they are simply trying to deliver a package to the front desk. Once safe-intent has been determined, calls can be transferred to the proper apartment, or the door can be unlocked for deliveries. The IXG-MK features a 7-inch touchscreen for clear video identification, video communication between guard stations, call recording and the ability to forward calls directly to a tenant.

www.aiphone.com/home/products/ixg-mk



PP-RCT AND CONSTRUCTION SERVICES ROUND OUT POLYMER OFFERINGS



Uponor North America has launched its Complete Polymer Solution for commercial-piping applications in the U.S. Uponor PP-RCT (PolyPropylene, Random copolymer with modified Crystallinity and Temperature resistance) is reliable for commercial hydronic heating, chilled-water cooling, and distribution piping for radiant heating and cooling applications. PP-RCT is 80 percent lighter than steel pipe and offers higher resistance to corrosion, rust and scale buildup. Uponor also has expanded its Uponor Construction Services, featuring regionally based designers and a team of BIM experts. The Uponor team of skilled designers and project managers offers a menu of design and construction services at no charge, as well as fee-based system design services, quoted to meet the particular needs of individual projects.

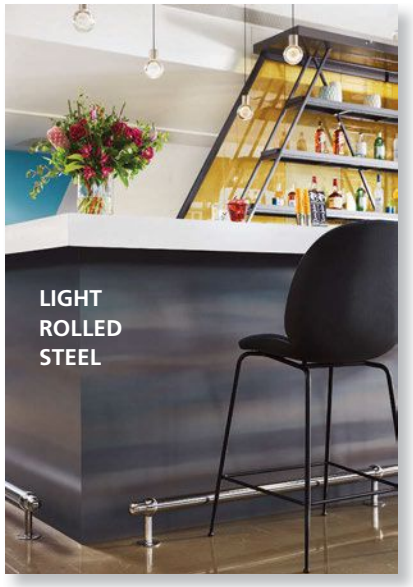
uponor-usa.com



YEAR-ROUND HEATING AND COOLING FROM AN ALL-IN-ONE INVERTER

LG Air Conditioning Technologies USA has expanded its portfolio of single- and multi-zone products with LGRED° (Reliable to Extreme Degrees) technology, bringing heating capability to more single-zone products. Boasting heating capacity performance down to 5 F and continuous heating operations down to -13 F, products featuring LGRED° heat technology provide an electric option that reliably delivers year-round heating and cooling in an all-in-one inverter heat-pump system. Offered in capacities ranging from 18,000 to 48,000 Btu/h, the expanded suite of LG single-zone systems meets a variety of load sizes and is matched with ducted and ductless indoor unit styles, including the LG Multi-position Air Handler Unit.

lghvac.com



METAL LAMINATE LINE EXPANDS WITH WARMER TONES

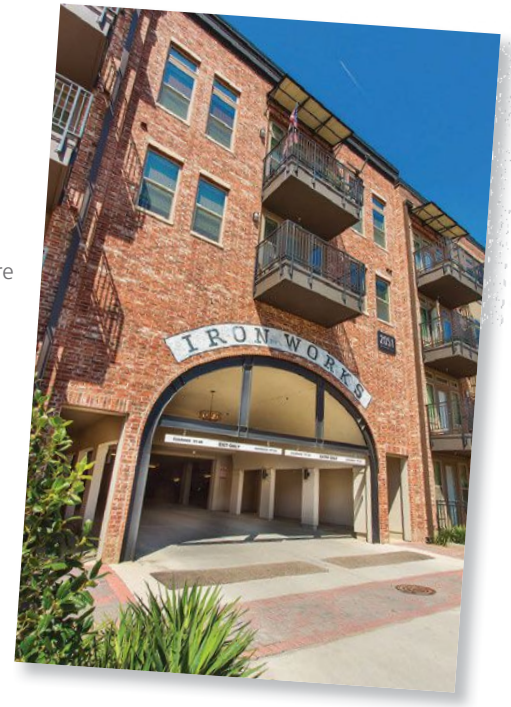
Formica Corp. has released several additions to its DecoMetal Metal Laminate collection. Thirteen new metal visuals add warm tones of brass, copper, light gold and black, providing designers with a total of 37 metal laminate designs for architectural interiors. The Printed Solid Metal line, including the Rolled Steel and Patina series, features solid aluminum sheets printed with visuals enhanced by a metal sheen base. Expanding the Metal Laminate available, Formica added warmer copper, brass and gold tones to balance the collection's existing cool-toned aluminum visuals. The Metal Laminate line features the Polished, Brushed and Stainless series, as well as Copper Veil.

www.formica.com/specialty

MODULAR STAIRS, BALCONIES, AWNINGS INSTALL IN HOURS

Construction Specialties has made available Platform Solutions, patented modular stair, balcony and awning solutions that install in hours, not days. CS modular stair systems are self-supporting, install when the foundation is complete, and are 100 percent usable instantaneously, mitigating the need for heavy reliance on scaffolding and ladders. Construction crews can now have sturdy stairs before the first level is complete for safe ingress and egress while a building is under construction. CS' Platform Solutions are designed and packaged in kits to save time and money on the job site from construction to inspection.

www.c-sgroup.com/platform-solutions





CEILINGS, WALLS AND MORE MEET CDC DISINFECTION RECOMMENDATIONS

With the introduction of its CleanAssure portfolio of cleanable and disinfectable ceilings, walls and installation systems, Armstrong Ceiling & Wall Solutions is meeting the need for building materials that can address COVID-related cleaning recommendations from the CDC. CleanAssure disinfectable products are available across a broad portfolio of Armstrong products, including mineral fiber and fiberglass families. CleanAssure products are also available in Armstrong wood, metal, translucent, fabric and felt families, as well as in suspension systems. Cleaning and disinfecting guidelines for Armstrong CleanAssure products are available on each product line page on the website, indicating which EPA-approved disinfectant solution or standard cleaning method is recommended. Identifiable icons for the recommended fog, spray and wipe cleaning methods also appear in product literature.

armstrongceilings.com/cleanassure

INVERTER MAINTAINS PERFORMANCE IN EXTREME COLD WEATHER

Mitsubishi Electric Trane HVAC US has unveiled three new sizes—24,000, 30,000 and 36,000 Btu/h—for the SUZ universal outdoor unit with Hyper-Heating INVERTER (H2i) technology. The SUZ with H2i technology delivers indoor comfort in extreme cold weather conditions maintaining performance at outdoor temperatures as low as -13 F. At 5 F outdoors, the system can deliver up to 100 percent of its rated heating capacity. Also available in 9,000, 12,000, 15,000 and 18,000 Btu/h capacities, the single-zone outdoor unit features a built-in base heater and is compatible with two ducted indoor units: the PEAD mid-static unit and SVZ multi-position air-handler unit.

www.mitsubishicomfort.com





CUSTOM-CUT ROOF MEMBRANE FOR EFFICIENCY

Duro-Last Inc. has introduced a custom-cut roll good membrane solution, Duro-Last X. Manufactured with the same formulation as the Duro-Last membrane, Duro-Last X is available in 10-foot-wide rolls that can be custom-cut up to 200 feet in length. This customization provides contractors with efficiency on roll good installations, reducing T-Patches, end rolls and scrap. Available in 50-, 60- and 80-mil thicknesses, Duro-Last X features a smooth matte finish and is available in standard roll lengths. Additionally, Duro-Last X is compatible with Duro-Last's line of custom-fabricated accessories and qualifies for the Duro-Last supreme warranties, which offer coverage for consequential damages on commercial installations.

www.duro-last.com

COVERBOARD MEETS FM GLOBAL'S VERY SEVERE HAIL STANDARD

More people and property are in the path of severe weather than ever before, with an estimated 75 percent of American cities experiencing a hail storm annually. Georgia-Pacific has launched DensDeck StormX Prime Roof Board, a high-performance gypsum roof coverboard designed to help commercial rooftops hold tough under the dangers of impact and puncture caused by very severe hail conditions. DensDeck StormX Prime Roof Board joins DensDeck Prime with EONIC Technology as a gypsum roof board with manufacturing specifications that include 5 percent total water resistance by weight and 1-gram surface water absorption performance on both sides of the board. The product, which is classified for use in approved assemblies meeting FM Global's Very Severe Hail Standard set in 2019, is available nationwide.

www.buildgp.com





MODEL EXT-TN-1071511

LIGHT SENSORS INTEGRATE WITH BUILDING MANAGEMENT SYSTEMS

Belimo has made available light sensor models EXT-TN-1071511 and EXT-TN-1066869. The EXT-TN-1071511 outdoor light sensor is designed for grow farms, greenhouses, warehouses and industrial applications. The sensor transmits the ambient brightness to a building management system (BMS), which can control powered light levels in the space for energy-saving strategies, such as daylight harvesting. The EXT-TN-1066869 indoor model provides a low-profile ceiling-mounted multi-sensor, designed for occupancy detection in a room or office space. Integration to the BMS allows energy savings by controlling temperature and the powered light levels within a space.

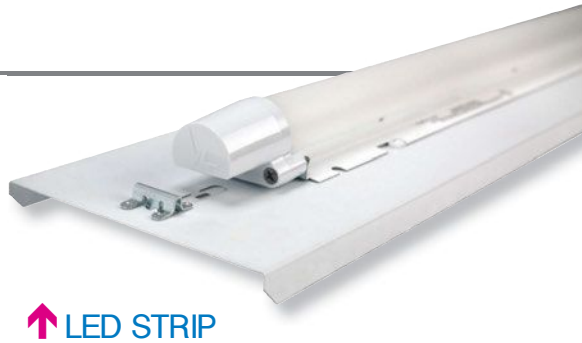
(800) 543-9038



STONE COMPOSITE PANELS CAN BE CUSTOMIZED

Norwegian façade-panel manufacturer Steni has launched Steni Vision, its first range of panels available to the U.S. market. Steni Vision panels are made of stone composite and can be used for exterior and interior walls in commercial, institutional and industrial building projects. The Steni Vision range is delivered in 14 standard designs and three gloss variations, and Steni Vision Custom can incorporate custom graphics printed directly onto the panels to suit the building or environment. Steni Vision Custom visual effects can appear to change a building's perceived size and height. The panels require minimal maintenance and have a 60-year functional warranty.

steni.com



LED STRIP RETROFIT KIT FEATURES BLUETOOTH

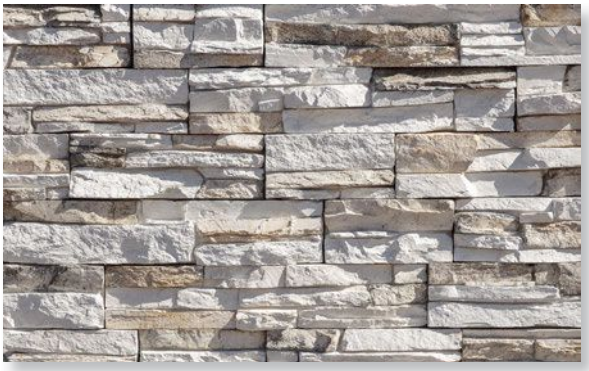
Universal Lighting Technologies Inc. has released its LRAxC LED Strip Fixture Retrofit Kit with Bluetooth Controls. The kit replaces 4- or 8-foot fluorescent strip fixtures with LED, including a Bluetooth Controller for app-based wireless control. Beyond simplifying LED upgrades, the Bluetooth control allows users to unlock the potential for location-based services. The kit also enables IoT wireless capabilities now or in the future. The Bluetooth Controller is factory-mounted to the light bar while the aux power and dimming control leads are prewired to the driver. Utilizing a commissioning app, the installer can zone and group fixtures within a room and add room controls photo sensors and occupancy sensors.

www.unvlt.com

STACKED STONE LOOKS LIKE A HAND-LAID DRY-STACK SET

Eldorado Stone has debuted Koryak Ridge to its Stacked Stone profile. Koryak Ridge features a gradient of white, cream, and ivory tones with touches of tawny-brown and sand infused throughout. The Stacked Stone profile offers the appearance of a precision hand-laid dry-stack set. Stones within the profile measure 4-inches high and can be found in widths of 8, 12 and 20 inches to offer a simple panel system installation for expansive walls and column fascia. The panelized format of Koryak Ridge Stacked Stone reduces installation time, which can be a benefit for builders and designers working under tight timelines.

eldoradostone.com





WOOD-INSPIRED TEXTURES ARE PRINTED ON ACOUSTIC SOLUTIONS

TURF has made available eight organic, wood-inspired textures that can be printed on its polyester (60 percent pre-consumer PET) felt. The natural finishes can be purchased in select TURF ceiling baffles, including Beam, Block, Boom Stick, Datum, Hex, Metro, Slab, Timber and Wedge. The "woods" join forces with an array of existing and new collections to form systems that are effective at reducing noise while being visually appealing. Digital printing on 9-millimeter felt provides a realistic grain, derived from an algorithm that develops random patterns, allowing virtually no repeats across the board.

turf.design

AD INDEX

MARCH-APRIL 2021

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02 ☐ Architect
03 ☐ Facility Manager
04 ☐ Building Owner
05 ☐ Contractor
06 ☐ Remodeler
10 ☐ Other

WHAT TYPE OF FIRM?

02 ☐ Construction
03 ☐ Architectural
04 ☐ Government
05 ☐ Remodeling
10 ☐ Other

HOW MANY EMPLOYEES IN YOUR FIRM?

01 ☐ 1-10
02 ☐ 11-20
03 ☐ 21-30
04 ☐ 31-50
05 ☐ 51-75
06 ☐ 76 or more

FIRM'S ANNUAL DOLLAR VOLUME:

01 ☐ Less than 1 million
02 ☐ 1-2 million
03 ☐ 2-4 million
04 ☐ 4 million plus

FOR MORE INFORMATION BY PRODUCT CATEGORY:

235 ☐ Building Controls
236 ☐ Retrofit Roofing
237 ☐ Retrofit Walls
238 ☐ Insulation
239 ☐ Mechanical Systems, HVAC
240 ☐ Electrical/Lighting
241 ☐ Flooring
242 ☐ Water Management
243 ☐ Solar
244 ☐ Windows/Doors
245 ☐ Clips/Attachments
246 ☐ Fasteners
247 ☐ Tools and Equipment
248 ☐ Paints/Coatings
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AN ESTIMATED 72 PERCENT OF CURRENT BUILDINGS ARE MORE THAN 20 YEARS OLD AND WERE BUILT WITH LITTLE CONCERN FOR ENERGY SAVINGS. *—American Institute of Architects and Rocky Mountain Institute*

HALF OF ALL COMMERCIAL BUILDINGS WERE CONSTRUCTED BEFORE 1980; THE MEDIAN AGE OF BUILDINGS IN 2012 WAS 32 YEARS. *—CBECS 2012, U.S. Energy Information Administration*

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HEAVENLY HORTICULTURE

Iconic Conservatory Dome Constructed in 1902 Is Restored



PHOTOS: NEW YORK BOTANICAL GARDEN

MATERIALS

CAST AND EXTRUDED ALUMINUM COMPONENTS // (Replacing Bald Cypress) Rough Brothers Inc., www.roughbros.com

METAL COATINGS // Sherman-Williams, industrial.sherwin-williams.com

DOME/EXHIBITION LIGHTING // Saliot Lighting/NMB Tech, www.nmbtc.com/saliot; ETC from Barbizon Lighting Co., www.barbizon.com; and B-K Lighting, bklighting.com

PATH LIGHTING // Touché Lighting Control, www.touchecontrols.com



The Enid A. Haupt Conservatory at the New York Botanical Garden (NYBG) in the Bronx recently reopened to the public after an $18 million restoration project upgraded the infrastructure of a 119-year-old dome. The dome is home to the conservatory's celebrated Palms of the World Gallery, and the restoration will ensure the palms on display continue to thrive.

The project, which began in April 2019, also provided an opportunity for NYBG horticulture curators to redesign and replant the collection to highlight the history of tropical plant research at NYBG and the ecological and economic importance of the palm family.

Constructed by Lord & Burnham Co. and completed in 1902, the Enid A. Haupt Conservatory is considered one of the most superb glasshouses of its time. It was designated a New York City landmark in 1973.

The restoration, which was led by Jan Hird Pokorny Associates and Silman Structural Engineers and completed by EW Howell Construction Group, focused on the central dome, comprising the cupola, upper dome, drum (or compression ring) and lower dome. Interior scaffolding and a temporary horizontal work surface erected below the drum and an enclosed cylinder around the exterior of the drum and portions of the lower and upper domes enabled the work to take place efficiently while providing a weatherproof barrier to safeguard the tropical plants that remained in the gallery below.

Using leading-edge materials and technologies, the restoration makes the building more energy efficient and increases its longevity while respecting its landmark status. The painted wood cladding around the drum and the wood cornice—constructed with rot-resistant, first-growth bald cypress that is now very rare—were replaced with cast and extruded aluminum components that are durable and require less maintenance.

Structural repairs to the compression ring were completed, and a new high-performance metal coating was applied to all structural members to protect them from future deterioration.

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