



# STRUCTURETONE Organization *Insights*

Govan Brown | LF Driscoll | Pavarini Construction | Pavarini McGovern



# The Green Issue

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# A Message from Jim and Bob



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This April marked the 48th anniversary of Earth Day, on which millions of people across the planet take time to act on behalf of environmental causes. In those 48 years, incredible strides have been made in how we treat, protect and preserve our environment—and our industry certainly plays a role in that.

We have focused this Spring issue of *STO Insights* on the topic of sustainability and wellness in the built environment for that reason. From the impact of third-party rating systems like LEED and WELL, to renovating old, inefficient buildings into new, modern spaces, to incorporating innovative systems like geothermal cooling and heating, the way we design, construct and use buildings is changing the way they impact our environment.

Design and construction go hand-in-hand when it comes to sustainability and wellness. It's important that the construction team understands the goals of a sustainable design and keeps those in mind as we make adjustments for constructability. How we build matters, and we take that responsibility seriously. To date, we have over 130 LEED Accredited Professionals, and our team continues to earn new accreditations, like WELL and Passive House. We are founding Alliance Members of the Well Living Lab (more on page 23). And every year we report on the findings of our annual sustainability, wellness and resilience survey to ensure we understand the challenges and opportunities our clients face in building sustainable spaces.

Caring about our environment, along with the health and wellness of our employees and jobsite personnel, is directly linked to our commitment to safety in everything we do. Safety, health and environmental awareness are not just jobsite mandates we can mark on a checklist. They are inherent elements of our company culture and important factors in our everyday lives.

In this issue, we highlight some of the projects that showcase what's possible when it comes to sustainability and wellness, and we hear from a number of industry leaders who are driving that progress. We hope it serves as a resource and inspiration for your projects as you move toward your own healthy building goals.

James K. Donaghy  
Executive Chairman

Robert Mullen  
CEO

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100 Vandam will be a 25-story residential tower in the heart of Hudson Square

# BLENDING THE OLD WITH THE NEW: 100 Vandam

With charming neighborhoods like Greenwich Village, TriBeCa and SoHo, Lower Manhattan long ago became one of Manhattan's most sought-after residential areas. But a lesser-known district among those neighborhoods—the few blocks known as “Hudson Square” nestled between West Houston, Varick and Canal Streets—has been slower to transition. In the last few years, however, that shift has picked up steam, including a new residential tower in the works at 100 Vandam Street.



Above ▲  
Vegetation fills outdoor terraces and loggia

## MAINTAINING HISTORY

Like most of Lower Manhattan, the neighborhood is steeped in history. Once a destination for Revolutionary War-era luminaries like George Washington, the area transitioned into a more industrial district by the late 1800s. As a result, streets are lined with generally low-profile, brick buildings established for manufacturing purposes. The upcoming 25-story tower at 100 Vandam will blend that character with modern design and amenities, says building owner and developer, Jeff Greene.

“By maintaining the original warehouse façade, the building will preserve the history and aesthetic of the area while creating a base for the modern concrete-and-glass tower that emerges above it,” he says.

This ingenious design, led by COOKFOX Architects, has also meant taking a creative approach to construction. While the six-story façade of the original building will remain, the interior core is being rebuilt to support the subsequent tower floors. This rebuilding involves bracing the exterior walls in place with six individual bracing towers set on top of capped concrete piles. The towers each stretch 80 feet up to the top of the sixth story and tie into the building via a steel truss system at existing window openings. The entire system is designed to avoid impacts to both the façade itself and the ongoing work within the walls.

“Since the towers and façade are supported through the existing window openings, we’re able to minimize the impacts to the structure and to the structural slab work going on at each level,” says Keith Mason, Pavarini McGovern project manager. “This bracing will remain until the superstructure concrete reaches the seventh floor, and then we can start façade restoration while the tower construction continues.”

As demolition, excavation and foundation work have continued, the team has maintained a vigilant eye on the façade to monitor any impacts along the way. Using vibration monitors, remote electronic monitors and optical monitoring, they report any findings on a biweekly basis, keeping attention especially on the areas of some pre-existing cracks. “We couldn’t use typical means and methods of demolition for certain areas of the building,” Mason says. “We were constantly checking to make sure there was no movement, settlement or damage to the existing structure or changes in the existing cracks.”

## GARDEN VIEWS

Another area of special focus for the construction team was landscaping. As part of the project’s sustainability goals (it is targeting LEED Gold), and with little green space in the neighborhood, the design team incorporated connections to nature and vegetation wherever possible, including loggia, balcony and terrace gardens. “We designed the sky gardens as an extension of the home environment,” says Rick Cook, founding partner at COOKFOX. “They are an important feature for supporting the mental and physical well-being of residents.”

Proper irrigation and drainage, of course, are central to that success. Each individual planter is set in the concrete structure, which means its associated irrigation and drainage piping must feed through the concrete as well. “We are in the process of thoroughly coordinating the details of the piping feeding in and out of those loggia and balcony areas with the design team and responsible contractors,” Mason says. “Some of those details impact concrete reinforcement, building waterproofing and other interior elements, so that communication is crucial.”

## Project Details

<b>Size:</b>	207,000sf/25 stories
<b>Client:</b>	Jeff Greene
<b>Architect:</b>	COOKFOX Architects
<b>MEP Engineer:</b>	Lilker Associates Consulting Engineers
<b>Structural Engineer:</b>	Severud Associates
<b>Landscape Architect:</b>	terrain-nyc
<b>Services:</b>	Construction Management
<b>Sector:</b>	Residential
<b>Completion:</b>	Summer 2020
<b>Certification:</b>	LEED Gold (pending)

## BUILDING LEGACY

With 100 Vandam, the Hudson Square neighborhood continues to reinforce its place in the history of the city, all while becoming a new destination for modern Lower Manhattan living. The building is also an excellent example of how to make adaptive reuse work in a sustainable, efficient manner.

“Along with the façade, we’re reusing 100-year-old wood joists as interior features and installing efficient energy and water use technologies,” says Sade Obayemi, project executive for Pavarini McGovern. “This building will be a beautiful example of blending the old with the new.” ◀

A sophisticated bracing system protects the façade while construction on the tower continues





Wood is central to the office's design, including the wood-clad feature staircase



A third-floor terrace helps connect associates to the outdoors

## SEAMLESSLY SUSTAINABLE: LoyaltyOne Toronto Headquarters

Design is certainly a—if not THE—driving force behind the sustainability of the built environment. But construction plays an important role as well, particularly when it comes to reusing and recycling materials and enhancing indoor air quality.

When LoyaltyOne, a leading provider of loyalty and retail data analytics programs and services, determined to pursue LEED Platinum for their new, Gensler-designed Toronto headquarters, the Govan Brown team took that responsibility to heart, doing their part to ensure the construction process supported LoyaltyOne's sustainable vision.

### UP (AND DOWN) IN THE AIR

The quality of the air in a building is one of the determining factors of its overall environmental "health" in the LEED system, along with elements like thermal comfort, daylight levels and acoustic performance. The team used low-emitting adhesives, paints and other materials, but also paid special attention to a few factors of the building itself to maintain healthy air quality levels.

LoyaltyOne's 200,000sf new space is part of the newly built Globe and Mail Centre. The base building construction included a pressurized raised flooring system, which needed to be accommodated in the design and construction of

the LoyaltyOne space. Because the raised floor acts as a supply air plenum, maintaining under-floor cleanliness is vital to ensuring healthy indoor air quality.

"We implemented a system of cutting tents to control dust at its source and installed plastic film covers over raised floor air diffusers to prevent dust migration below the raised floor system," says Govan Brown vice president Colin Gray. "We also vacuumed the top of the floor regularly and did an extensive underfloor cleaning before we started installation of floor finishes."

### MOVING PARTS

As the LoyaltyOne fit-out began, the Globe and Mail Centre was still undergoing construction in lobbies and other spaces, plus tenant fit-outs were gearing up on other floors. With so much activity happening at once, the building's elevators were a hot commodity. The Govan Brown team had to very carefully manage the schedule, making sure they made the most of the available elevator time.

The team carefully selected what they moved up through the elevator versus via cranes to best fit the schedule. Rather than try to maneuver the massive kitchen exhaust hood as specified, the team had it manufactured in two pieces to accommodate the challenging site conditions. They used a crane to lift the steel in for the atrium stairs. And to fill the large planters on the third-floor terrace, the team "shot" soil up from the ground floor into the planters, avoiding the need to rely on the elevators for all the back and forth.

"The landlord did a great job providing all of the contractors in the facility with access to book blocks of freight elevator time," says Gray. "The key was to coordinate early and often with our subcontractors, suppliers and client stakeholders to ensure all required hoisting was booked well in advance."

Schedule management also became critical when it came to procuring the large quantity of high-end custom millwork incorporated into Gensler's

design. The millwork packages included extensive wood slats, wood-clad stairs, widespread wood veneer and faceted wood feature walls, along with a high quantity of case work, wood doors, frames, trim, etc. To accommodate the volume of millwork, Govan Brown split the millwork scope of work into four distinct packages awarded to separate millwork firms.

"Right from the outset of the project we saw the size of the millwork package as a challenge," Gray

says. "Our team decided to avoid putting all of our eggs in one basket, so we split the millwork scope into more reasonably sized packages to spread out the risk. We ensured the scope demarcation between each package was clearly defined and managed the procurement closely to ensure we did not end up with any scope gaps. To manage consistency in finishes between firms, we designated control samples for finishes that all subcontractors were required to match. The system was well managed and executed incredibly well."

### GOING BEYOND GOLD

Ultimately, thanks to that adherence to the schedule and an incredible team effort, the space was completed on time for LoyaltyOne's phased move-in plan and is on target to achieve the company's LEED Platinum certification—including a 78% recycle rate for the construction process.

But the most satisfying result, says Gray, is how LoyaltyOne's associates enjoy their new space.

*"It's clear that LoyaltyOne's associates have been really happy in their new space since day one. User experience is such an important measure of a well designed and built space, so seeing happy employees really validated our success on this project,"* says Gray. ◀



All photos these pages: Spencer Bowers/Courtesy of Govan Brown

Above ▲ Areas like the cafeteria reinforce the company's associate-centric philosophy

### Project Details

**Size:**  
200,000sf

**Client:**  
LoyaltyOne

**Architect:**  
Gensler

**Engineer:**  
Hidi Rae Consulting Engineers Ltd.

**Owner's Rep:**  
Nexus PM Inc.

**Services:**  
Construction Management

**Sector:**  
Commercial

**Completion:**  
September 2017

**Certification:**  
LEED Platinum (pending)

The terrace overlooks Dublin's iconic St. Stephen's Green

# INVESTING IN QUALITY: IPUT's New Dublin HQ

IPUT is Ireland's premier commercial real estate fund, with over 5Msf of real estate under management, and the largest owner of prime commercial property in Dublin's city centre. Following several years of growth, the company had doubled in size and needed a new office to accommodate that growth and reflect the level of quality occupiers can expect from an IPUT building.

## Project Details

- Size:** 6,500sf
- Client:** IPUT
- Architect:** MCA Architects
- Engineer:** Homan O'Brien
- Services:** Construction Management
- Sector:** Commercial
- Completion:** February 2018
- Certification:** WELL Certified™ Gold (pending)



Detailing and quality were central to the design

"We had an opportunity to move into a space that was within our portfolio," says Niall Gaffney, IPUT chief executive. "The move to St. Stephen's Green reflects both the ambition and personality of our business. We are authentic about promoting quality design across our estate and, in doing so, we recognise that thoughtful design will serve to improve the well-being of people."

Designed by MCA Architects, the 6,500sf new offices include all the features and amenities of a modern workplace, from an open, bright layout to a multitude of options for formal or informal collaboration in meeting rooms, private spaces, a kitchen and cafeteria or the 25-meter balcony overlooking the green. The office's state-of-the-art technology has also been a "game-changer" for the team, says Gaffney. "Our meeting rooms have interactive touchscreens, which is something we didn't have before," he says. "The level of collaboration that has afforded us has been a real bonus."

### WELL ON THEIR WAY

IPUT's new office is also leading the way when it comes to employee wellness, on track to become Dublin's first WELL-certified building. Aiming for WELL Gold status, the office includes such features as a lighting system designed in line with circadian rhythms, abundant natural light, optimised indoor air quality, fabric-wrapped panels and acoustic dividing screens to help decrease noise, flexible, ergonomic furniture and other amenities that, as a whole, were designed with the employee in mind.

"Our design focus on this project was quality, and the WELL standard tied into that," says Paul Cleary, IPUT project manager. "We also wanted staff to understand this. For instance, employees can log into

a website and see, in real time, the temperature, humidity and other factors in the office's air."

With its new space, IPUT had a vision to create a high-quality, healthy environment that promotes collaboration and comfort for its employees. Pursuing WELL certification fit into that vision nicely and is helping IPUT confirm that those goals were achieved.

*"We've taken this opportunity to demonstrate in our own office that we're serious about how we finish out buildings, about our environmental impact, about our employees," says Gaffney. "We're showing people what they get when they commit to our buildings."*

### LEARNING CURVE

Because the IPUT space was one of the first in Dublin to pursue WELL, the project team had to quickly familiarize themselves with the standard and what implications it has on design and construction.

"It did take some early coordination to make sure we all understood what we were looking to achieve," says Derek Slattery, Structure Tone project manager. "But for the most part it just meant working with some new systems and understanding the stringent controls around certain elements."

Also helping the cause was Structure Tone's WELL experience in the States. The firm's New York office had recently achieved WELL certification, and the



company was already working on several WELL projects in the US.

"It's a lot like when LEED was new. We were able to leverage our global experience to apply lessons learned to new projects," says James Reidy, Structure Tone managing director in Dublin. "We did the same thing in this case, using our US colleagues as a resource and bringing some of that understanding to bear if we ran into questions."

What's most important to IPUT, however, isn't necessarily the formal certification. It's the understanding they are fostering among their staff, their partners and the market that they are a company who does what's best for people.

"Whether we had our office certified or not, we'd still be doing what's right for employee wellness," Gaffney says. "It's not necessarily a new concept. Companies who look after their staff get the best productivity from them. People are having a bit more fun being in their space, and that's probably the best thing about it."

All photos these pages: ©Dorinda Murphy/Photo

# BACK AT HOME *for the Boston Globe*

Sixty years ago, the Boston Globe left downtown Boston to open a large newsroom and printing complex on the outskirts of the city. The workplace mirrored what was standard for a newspaper at the time—cubicles, telephones, stacks of paper and lots of beige.



The "news hub" area has TV screens in all directions for monitoring breaking news

With its recent move to 53 State Street, a modern, LEED Platinum office complex, the Globe is back to its downtown roots, just steps away from its original office on Boston's "Newspaper Row." The move isn't simply a physical one—it marks a major shift in the mindset of traditionally print media companies as they adjust to the digital age.

"The Globe belongs downtown," said the Globe's editor, Brian McGrory, at the time of the move. "This move puts us in a state-of-the-art newsroom built for the Globe of today; one that is digital-minded, rather than what we were in years gone by."

## A MODERN WORKPLACE...

That focus on today—and tomorrow—was the key driver of the change, says the Globe's Dick Bennett, one of the project managers for the move. "It was modernize first, right-size second."

The work environment as it was had become outdated. To keep up with modern expectations and attract the best staff, Gensler helped the Globe

re-envision the workplace, creating a more flexible, transparent space that better matches how their staff was already working. From fewer offices and bench-style work stations to abundant private and open meeting areas, collaboration and teamwork have become easier than ever in both the administrative areas and the newsroom.

The central staircase was also critical in making those connections. Like in many offices, the big, open staircase is a physical prompt for making connections with colleagues between the Globe's two floors. The stairs link the main lobby with the main kitchen area, serving as a central hub for the entire office. The stairs, however, are located in an older section of the building built primarily of terra cotta, which would not be able to hold up under the weight of the staircase.

"We built a platform at the bottom of the staircase, independent from the terra cotta, that creates that support," says Jim Custodio, Structure Tone senior project manager. "The design for that stair was a

challenge from an engineering perspective, but we worked with the design team and the Globe to come up with a way to make it work."

Technology also got a serious boost in the new space. Employees will have access to what Bennett calls "IT TV" in which a desk can have one monitor tuned to television stations and the other to the computer network. TVs also hang from the ceilings throughout the work areas—for both cultural and practical reasons.

"If there's a big news event with all hands on deck, the newsroom staff sometimes needs to spill into other areas of the office. This way they have the same technology and breaking news updates surrounding them no matter where they are," Bennett says. "It also helps the whole workplace feel like a true news organization, no matter what department you work in."

## ...WITH HISTORY AT ITS CORE

The nature of the news did require some special

All photos these pages: Courtesy of Structure Tone



Moving into a new, modern workplace marked a cultural shift for the Globe

accommodations. For instance, the building typically throttles back the heating and air conditioning overnight while the offices are vacant. But that obviously wouldn't work for a 24/7 news environment. Structure Tone worked with the building to build a separate chiller plant just for the Globe and connect it to the existing ductwork and building infrastructure. "When the building shuts down, the Globe system kicks in," says Custodio.

The Globe also wanted to ensure the history of the Globe and the city itself was infused throughout the new space. Boston Globe photography lines the walls and serves as privacy glazing on glass conference room doors and walls. The "B" from the Boston Globe's lettering on their former building

adorns the reception area, while the "G" hangs in the kitchen lounge space. Artifacts and historic newspaper covers are on display throughout the office, including an original Linotype machine used to set the Globe's type from 1894 to 1976.

Even the staircase that leads from the main building lobby to the Globe's second-floor entrance has history. Dating back to 1896, the staircase was closed off to the public in recent years thanks to out-of-date railing heights and other deficiencies. As part of the Globe fit-out, the project team worked to design and build a glass rail system to bring it up to code. "The history of that staircase as part of the original Boston Stock Exchange is so cool," says Custodio. "It was such a special oppor-

tunity to be part of that history and to work with such a landmark institution like the Boston Globe."

## EARLY ARRIVAL

When all was said and done, the move from old to new went smoothly. Originally facing setbacks that would move the project past its target move-in date, Bennett and the Structure Tone team were able to regroup and adjust the schedule so people could start moving in as planned.

"It went off like clockwork," he says. "When people first got in here there was a lot of excitement about the new opportunities they had. It was a positive feeling, and it still is to this day." ◀

Below ▼

The "B" from the Globe's former building now greets visitors at the reception desk



## Project Details

- Size:** 75,000sf
- Client:** The Boston Globe
- Architect:** Gensler
- Engineer:** Bala Consulting Engineers
- Owner's Rep:** Colliers International
- Services:** Construction Management
- Sector:** Commercial
- Completion:** June 2017



**Project Details**

**Size:**  
440,000sf

**Client:**  
Allergan

**Architect:**  
Gensler

**MEP Engineer:**  
Robert Director Associates

**AV:**  
Cerami Associates

**IT:**  
TM Technology Partners

**Owner's Rep:**  
VVA Project Managers & Consultants

**Services:**  
Preconstruction, Construction Management

**Sector:**  
Life Sciences

**Completion:**  
October 2017

**Certification:**  
LEED Silver (pending)

## ALL TOGETHER NOW: Allergan's New NJ Headquarters

There is a real estate trend afoot in New Jersey: Large companies are consolidating their dispersed offices into collaborative campuses in the region's suburbs. Pharmaceutical giant Allergan is one of the latest examples, bringing together over 1,800 employees from four different offices into a united, 440,000sf campus in Madison, New Jersey.

As part of the move, Allergan wanted to ensure employees would be happy in their new offices, so workplace amenities became a major focus. Features range from a two-story health and wellness center with golf simulator to mothers' rooms and prayer rooms, plus a Starbucks-like coffee bar and outdoor courtyards and walking paths.

*"Consolidating the offices is certainly helping Allergan operate more collaboratively and efficiently. But the move also gave them the opportunity to target the amenities that the modern workforce really wants, all on a beautiful campus where they can get outside."* says David Adams, Structure Tone account executive.

A healthy, comfortable office also means a sustainable one for Allergan. The company is targeting

LEED Silver certification through such strategies as reduced water use, HVAC and lighting controls, enhanced commissioning, recycled and local materials, access to alternative forms of transportation and myriad other features.

Implementing those features in a 30-year-old building did pose some challenges, particularly since the building had not been occupied for the last several years. The operational status of the building systems and other features was a bit of an unknown, meaning Structure Tone and its team had to systematically assess and trouble-shoot systems before determining the best path forward.

The project schedule also put pressure on the team to make those decisions quickly. Allergan employees were coming from several different offices, each of which had its own lease expiration date.

"The leases really drove the move-in strategy," says Adams. "From our own project phasing to the parking garage and roof work going on in separate projects, we had to coordinate closely with



Above ▲ Collaborative areas were another focus for the new offices

everyone and keep a tight watch on the schedule to make sure all the moving parts were moving in the right order." ◀

All photos this page: ©Garrett Rowland/Gensler

## DISRUPTING THE NORM: TaskUs San Antonio

Customer experience outsourcing firm TaskUs is disrupting the outsourcing space. And their new office in San Antonio shows just what that looks like.



Above ▲ The office has all kinds of modern touches, from reclaimed wood to bold branding

TaskUs provides next-generation customer experience that powers the world's most disruptive companies through the partnership of amazing people and innovative technology. With their new 32,000sf office in San Antonio, Texas, the company has taken the now commonplace idea of a "collaborative" workplace to a whole new level.

"They have large collaborative areas, break areas, play areas, workout areas, TV areas—you name it," says Structure Tone Southwest regional vice president Mark Jones. "All the things companies talk about doing, TaskUs is doing them."

Employee happiness and collaboration is, in fact, integral to the way they work. Their space is essentially a contact center, but an outsider would never know it. For instance, the production floor features wide open spaces, bench-style work stations, hot desks and common seating areas rather than cubicles. "At TaskUs, our employees come first and it's important that our office spaces reflect this thinking," explains TaskUs site director Claudia Bazaldua.

### OLD BECOMES NEW

TaskUs is changing the way business is done, and they wanted a workplace that reflects that. The space maintains its industrial heritage, with exposed ceilings and plenty of brick, metal and terra cotta. Striking that balance of the new with the old did require some creative problem-solving.

To start, the polished concrete floors put the team to the test from day one. Polished concrete floors require grinding down the concrete to a smooth finish and then polishing it. Facing a tight 12-week schedule, the question became, "Do we build out the space and then make a mess sanding the floors,

or do we grind and polish the floors on the front end and then protect them?" The team settled on the latter idea, protecting the floors throughout and having the subcontractor return to seal them.

The original floors were also a challenge. Over 100 years old, the long wood pine floors were no longer structurally sound. The team salvaged the wood and reused it for a number of accent walls, complementing the re-exposed terra cotta of the original exterior walls. In addition to the floors, the team also added all new steel to support the 16 new rooftop air handling units required for the modernized space.

"The building had been added onto over the years, so we needed a lot of additional support," says Dale Dmitrzak, senior project manager for Structure Tone Southwest. "But combining these original features with modern touches has really created a unique look."

### GROWING TOGETHER

Given the nature of TaskUs' work and their tech client base, IT infrastructure was another necessary upgrade, essentially requiring mini data centers. Keeping all that equipment and the start-up processes in mind put added pressure on scheduling.

The security to protect that infrastructure—and the company's processes—also became a major focus. Given the nature of their work, only authorized personnel have access to the production floor. The new office, therefore, involved a state-of-the-art thumbprint security system.

"This was a case where our clients were the true experts and educated us on the next wave of technology, and that was refreshing," Jones says. "Not

many of our clients require security systems quite like this so we embraced the opportunity to learn."

The team was able to put that learning to work almost immediately when TaskUs found the need to expand into two more available floors.

*"When we were awarded the original project, TaskUs had the client base to fill maybe 10% of the space. By the time we had completed it, they already needed to expand. It's amazing."* says Dmitrzak.

The Structure Tone Southwest team was able to jump right in, not only taking on the security system element this time, but also simply extending the relationship they had built with the client, the building and other members of the team to that next phase of work.

### THE FUTURE OF SAN ANTONIO

While TaskUs is thrilled with their new space, the City of San Antonio might be even more proud.

"The Chamber of Commerce touts the cutting-edge office as the future of San Antonio," says Jones. "It just goes to show the support the city has shown for the company and what they're bringing to the local economy." ◀

### Project Details

**Size:**  
32,000sf

**Client:**  
TaskUs

**Architect:**  
Insite Architects, Inc.

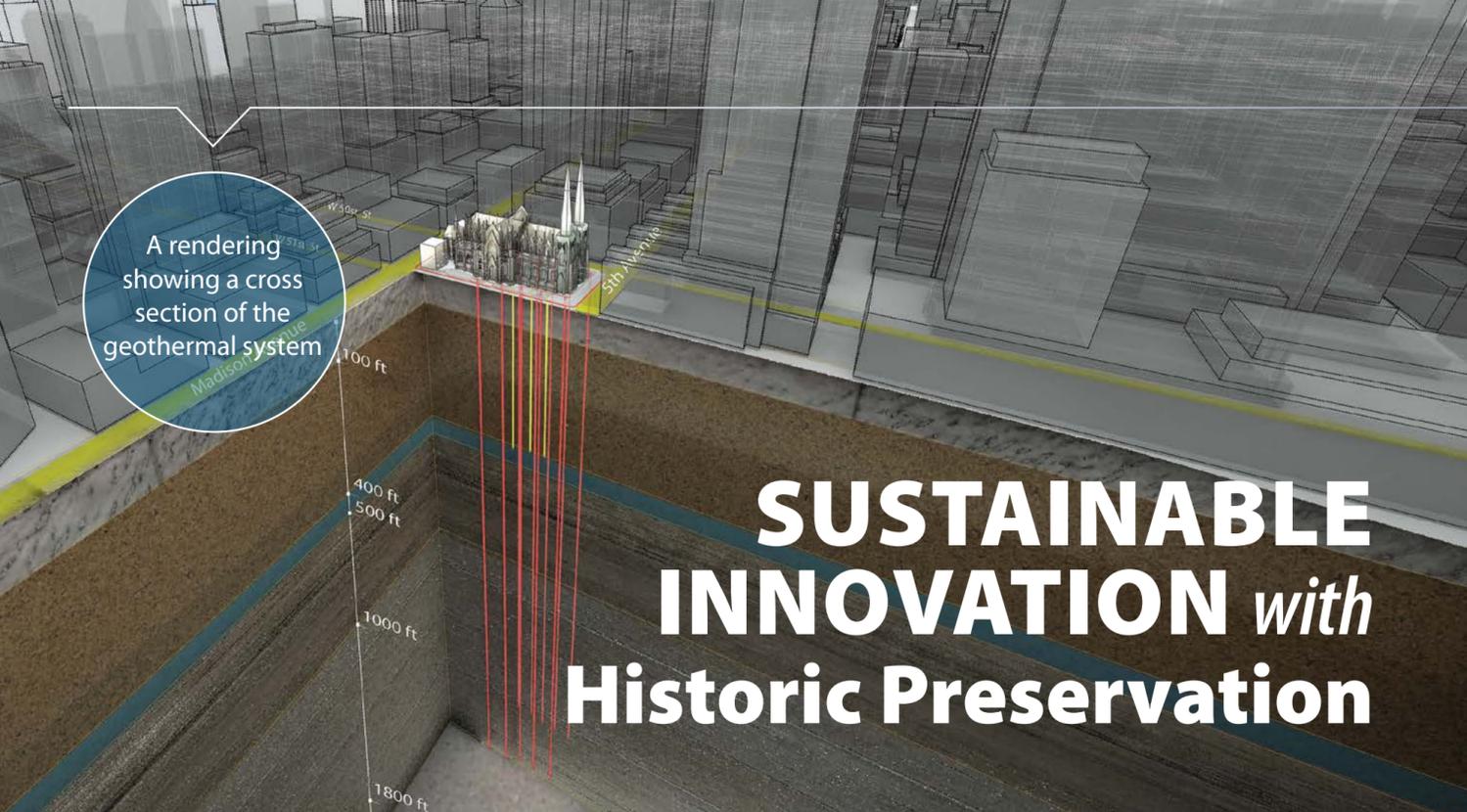
**Engineer:**  
KCI Technologies

**Owner's Rep:**  
Whitebox Real Estate

**Services:**  
Construction Management

**Sector:**  
Commercial

**Completion:**  
September 2017–December 2017



# SUSTAINABLE INNOVATION *with* Historic Preservation

When it comes to sustainability, New York City is now looking to one of the oldest institutions in the world—the Catholic church—as an innovator. As part of its nearly \$200-million restoration effort, St. Patrick’s Cathedral recently updated its heating and cooling system, opting to install a 240-ton geothermal system that uses the ground’s energy to regulate building temperatures.

## BELOW GROUND

During planning, the project team assessed other, more traditional options, but complications arose given the cathedral’s historic nature and limited space. “Many buildings have cooling towers on their rooftops. But at St. Patrick’s, there is no roof to hide them,” says Paul Keosayan, Structure Tone project manager. “Another idea was to build a full mechanical plant, but that quickly became cost prohibitive due to the amount of rock excavation and foundation work required.”

Excavation was obviously part of the process for a geothermal system as well, but in a much more specific, less obtrusive way. Digging the wells involved a special truck with a drill rig on the back, slowly moving from well site to well site along the cathedral’s lawn. Over the course of almost a year, the team drilled 10 wells, each anywhere between 600 and 2,200 feet below the ground and carefully planned around the complex maze of Manhattan’s underground infrastructure. The project team also coordinated closely with the ongoing building renovations, scheduling the drilling and associated system installations to avoid impacts to that progress.

“We barely had to touch the cathedral itself since the physical plant is in a basement area,” Keosayan says. “All of the underground piping went through the gardens and crawl space areas with just a few spots where the system attaches to the building.”

## TIGHT QUARTERS

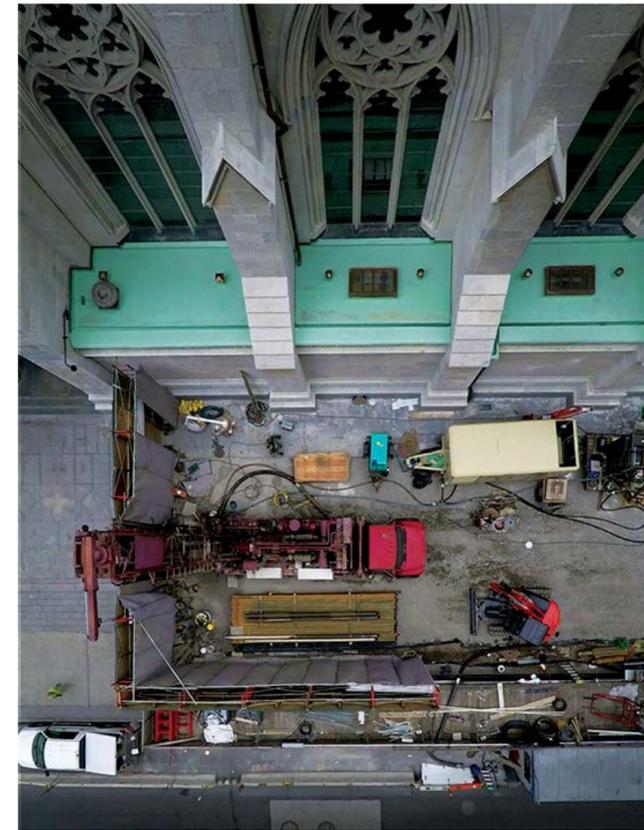
Space was a defining challenge of the project since so much work was happening at once, and the geothermal system design is extremely compact. Weaving the supply and return lines from the south side of the cathedral to the physical plant involved drilling several 10-inch-diameter holes through 18 feet of foundation, plus 12 more holes

through knee walls in the crawl space every 12 feet. Once the piping was installed and electrical conduits were roughed out, the team then had to seal those openings to ensure they were secure and water tight. Needless to say, all of this work was done in very tight spaces, requiring extra safety oversight and monitoring.



Above ▲ Much of the effort involved working in confined spaces

Rendering Above: Courtesy Murphy, Burnham & Buttrick Architects; Photo left: Michael Verzelio, courtesy Structure Tone



Above ▲ The truck with the drilling rig drilling wells on St. Patrick’s grounds

“The crawl space was about three feet high, and many of the areas we worked in were similarly confined,” says Keosayan. “This required special confined spaces permitting and training, plus constant monitoring to make sure everyone stayed safe.”

Fitting all of the equipment into the cathedral site’s footprint also required some intense coordination. Structure Tone worked together with the engineering team to make the system all fit together, plus meet expectations for aesthetics, serviceability and functionality. The plant itself includes not only the chiller and a cooling tower for backup, but also 10 heat exchangers, more than 20 pumps and, as Keosayan puts it, “what seemed like miles of piping.”

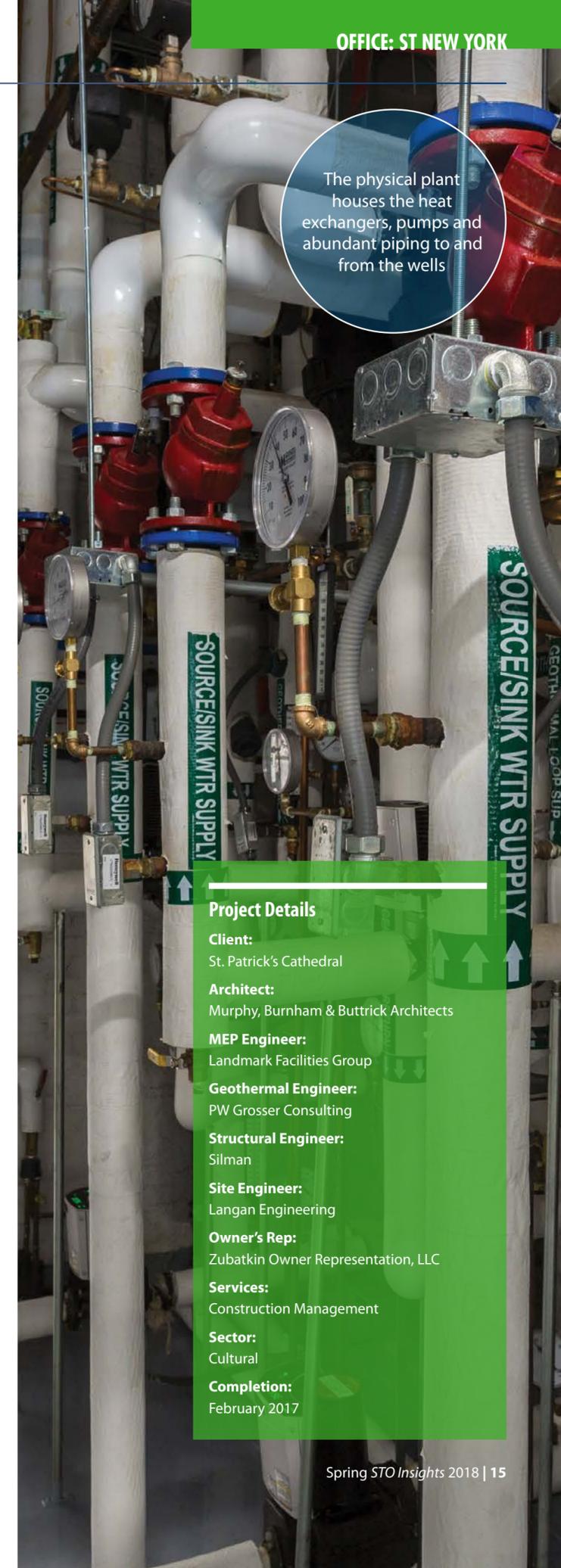
But in the end, he says, all that effort was worth it. “It was so rewarding to see that once everything was complete and the areas were landscaped, no one would ever know there are wells in the gardens and all the other components that support them.”

## INTO THE FUTURE

The geothermal system went online in February of 2017, and the church is looking forward to the efficiencies it will bring. They are also proud of the model they provide for others looking to be more environmentally resourceful.

*“We are now heating and cooling the cathedral with renewable energy, reducing our carbon footprint and making our city that much greener,”* Msgr. Robert T. Ritchie, St. Patrick’s rector, noted in a message to members. *“We are very grateful for this opportunity to do our part as stewards of creation.”* ◀

All photos this page: ©John Baer/Bulfinch Images Photography



### Project Details

**Client:**  
St. Patrick’s Cathedral

**Architect:**  
Murphy, Burnham & Buttrick Architects

**MEP Engineer:**  
Landmark Facilities Group

**Geothermal Engineer:**  
PW Grosser Consulting

**Structural Engineer:**  
Silman

**Site Engineer:**  
Langan Engineering

**Owner’s Rep:**  
Zubatkin Owner Representation, LLC

**Services:**  
Construction Management

**Sector:**  
Cultural

**Completion:**  
February 2017

30



STRUCTURETONE

2018 CELEBRATING 30 YEARS IN LONDON



# CELEBRATING 30 YEARS OF STO LONDON

Structure Tone's history in London actually dates back more than 30 years—32 to be exact. In 1986, Olympia & York, a client of the Structure Tone New York office, began plans for the redevelopment of Canary Wharf, now one of London's most prominent districts. They asked Structure Tone to help with the effort, so we did, putting down permanent roots in 1988.

From that point on, more clients with a London presence started seeking out Structure Tone's help, and the office began securing local clients and building a local workforce. "We initially came here because a client asked us to. That is the foundation on which the London office was built," says Dean Manning, Structure Tone International's managing director. "But we grew from being a US-centric business to one with local expertise and credibility, which now allows us to offer the best of both worlds to local and global clients alike."

## A CULTURE OF IMPROVEMENT

The London office has always operated like a family, from supporting each other to get the job done to giving back to their community, but, as Dean Manning puts it, they can't get complacent. "We have a culture of improvement, of doing better. It's all very self-fulfilling and very exciting." One way

they are doing just that is by hosting regular "operational workshops" that allow everyone from supply chain vendors and subcontractors to internal staff to voice their opinions on what the company is doing well and could improve upon. "It's helping us stay fresh and make sure our standards are up to date, consistent and transparent," says Manning.

The company has also wholeheartedly joined in "Heart of the City," the City of London's Responsible Business Forum. This forum is creating a community of London businesses aimed at improving the environment of the workplace, including everything from sustainability and community service to workforce diversity and innovation.

## 2018: OWNING OUR FUTURE

With such a solid foundation beneath them, STO London is honing in on what matters most to cli-

ents: how best to build their space. The team has committed to a "back to basics" approach, focusing on using digital construction and other tools to make the construction process more efficient. The group is looking to the future in other ways too, from expanding their expertise into the science & technology and education sectors to investing personally in the company through its new employee ownership model.

*"All of this gives us a terrific platform and opportunity to truly become #1 in our industry to our clients, our partners and our staff. Why would you shoot for anything less?" says Manning.*

## IN THE KNOW

In the last three decades, Structure Tone London has become recognised experts in several specialised areas



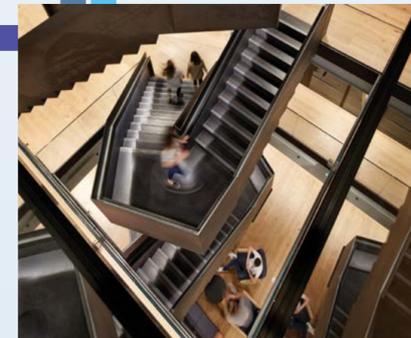
### MISSION CRITICAL FACILITIES.

Structure Tone was one of the first construction firms to begin building data centres in the UK in the early 1990s. By 2010, when many more firms had begun competing in the mission critical market, Structure Tone had clearly become the leader in smaller, more complex projects. "We have established a bit of a niche in this market," Manning says. "We work with the same consultant team of engineers and specialists, and those relationships have been key to our continued mission critical work."



### CONSTRUCTION TECHNOLOGY.

When the UK government mandated the use of BIM for its projects, Structure Tone seized the opportunity to truly make advanced technology part of its culture. "Construction is an old-fashioned industry," Manning says. "We realized we had to bring it all in-house to use these tools in a way that improves how we build." The team has now taken this ability and pushed it past the flashy, marketing-focused uses toward digitizing the entire process, from takeoffs and estimating to schedule management and design coordination. "It's really getting back to construction basics and using these tools to make projects more efficient and buildable," says Manning.



### VERTICAL VILLAGES.

The UK is one of the world's leaders when it comes to innovative working practices like hot-desking and informal, communal working areas. The next wave in this evolution is creating a community feel across a large office by connecting floors in an open, collaborative way—vertically, instead of horizontally. The new London headquarters of both Havas Media and MEC/Ogilvy take this very approach, locating staircases in strategic places and creating an environment where people have to interact.



### COMPLEX STAIRCASES.

Feature staircases have been a trend for years now, and the vertical village approach only raised the bar further, whether in scale, use of materials or schedule. "Staircases are us," says Manning. "We've built every kind you can think of—spiral, elliptical, straight, kite winder, half landing stairs, scissor—in every kind of material. It's phenomenal what has been built in just the last few years."



### COMPLEX STRUCTURAL REFURBISHMENT.

Often a large-scale fit-out project brings with it some challenging structural elements, making the project part fit-out, part new construction. From cutting through the slab for an atrium or stair and elevator core, to reshaping sections of the exterior and recladding, Structure Tone's London team has built an impressive portfolio. JP Morgan's new 450,000sf offices, for example, essentially entailed replacing a corner of the building with a glass structure, all while the building was occupied.



# ULTIMATE EXPERIENCE: Sewell BMW of Grapevine

## Project Details

**Size:**  
290,000sf

**Client:**  
Sewell Automotive Companies

**Architect:**  
Gensler

**Landscape Architects:**  
Lamberts/Caye Cook & Associates

**Structural Engineer:**  
L.A. Fuess Partners, Inc

**Civil Engineer:**  
Bury Civil Engineers

**MEP Engineer:**  
JJA Mechanical and Electrical Engineering

**Services:**  
Construction Management

**Sector:**  
Commercial

**Completion:**  
June 2017

The Sewell family of auto dealerships in Texas has always put the customer experience at the center of their business. As they put it, they're aiming to build "customers for life." The company's newest dealership in Grapevine, Texas puts that purpose on display with a building that creates an experience not only for customers, but also for associates.

Sewell BMW of Grapevine is more than a car dealership. It's four stories and 290,000sf of showroom, collision center, autoshop and garage space, plus offices, meeting areas, children's rooms, client and event spaces and other amenities that make this the flagship dealership for BMW America.

Achieving such an impressive vision didn't come easy—the Structure Tone Southwest team worked with the client and design team to overcome a few construction challenges to make sure those high standards were met.

**1. Soil.** The project site features very expansive soil, which had implications on the extensive plumbing and piping on the site. Typically, moisture conditioning is used on the soils to manage the issue. In this case, however, the owner wanted to prepare for the absolute worst-case scenario and specified building open-air trenches for all underground piping with form liners to maintain trench integrity and the space between the pipes and expansive soil. Because this approach is unconventional, the effort took more crew members than usual. "We had up to 30 people digging trenches, installing piping and other tasks," says Blake Evans, Structure Tone Southwest senior project manager. "But we made sure we were all on the same page and working safely."



Above ▲  
The building includes over 11,000sf of exterior glass

All photos these pages: Kevin Bowers Photography



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**2. Lead times.** With several high-end finishes and special materials, the team had to plan carefully around lead times. The feature exterior sunshade, for example, is manufactured in England. Our team managed the milestone schedule to ensure construction was at the right stage for the sunshade's arrival, and then subcontractors assembled the shipped pieces on site, keeping overall progress on schedule.

**3. Vendor coordination.** An auto dealership features a number of specialty services such as mechanic equipment, hazardous materials management, a car wash, etc. "The original design for each floor of the garage and showroom had the supply pipes and conduits running in the slab," says Evans. "We had to precisely locate everything so it would fit within the equipment structure and remain hidden." An additional challenge for routing these elements in slab was to work around the two layers of rebar, post

tensioning, embeds, etc., which, in many cases, left only the minimum amount of space for the conduit and pipe.

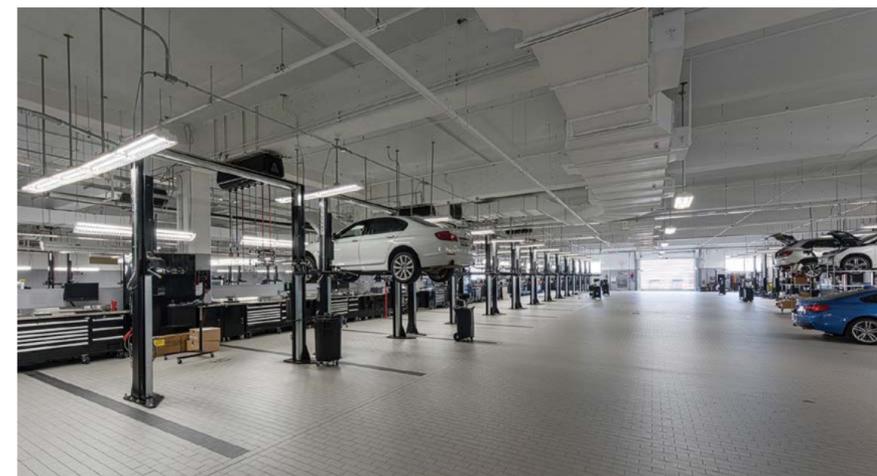
**4. Weather conditions.** Compounding the previous delays were the 100 rain days over the course of the project. Working around these weather conditions required more creative thinking by the construction team when it came to scheduling and materials. For example, the team was using carton forms below the slab during construction. Made of cardboard, those forms would quickly be ruined in the rain. To avoid that issue, the team explored other materials to allow them to work more quickly during and around the rain, as well as pumped water off site as soon as they were able after and in between storms.

In addition to some unique project challenges, building the Sewell BMW dealership also added some unique features for a facility of its type. One example is the site and the building's sustainability goals. The project is built to LEED standards, including water capture and reuse from the car wash, LED lighting throughout, trees grown on George W. Bush's tree farm and other sustainable features. The showroom also accommodates two floors of vehicles, meaning it needed the structural stability and reinforcement of a parking garage with the aesthetic and finishes of a polished auto showroom and workplace.

Sewell BMW of Grapevine was built to be BMW's flagship store in the US—and it shows. The large, sleek dealership has not only caught the eye of



Above ▲  
The two-story showroom includes lounges, a café and a children's area



Above ▲  
The site includes a 113-car service shop

buyers, but also has garnered renewed attention by the community and local media for the auto industry, particularly in this area of North Texas. The client has been thrilled with the results, even using the space for company functions, such as a corporate BMW management meeting. The new building has significantly raised the bar for what an auto dealership can be, and both the industry and greater Dallas community are taking note.

"We doubled the typical number of on-site employees overseeing construction to ensure everything came out just as they envisioned," says Evans. "We knew this place was special. It's truly a one-of-a-kind car dealership." ◀



**Project Details**

**Size:**  
57,000sf

**Client:**  
Xylem, Inc.

**Architect:**  
Amenta Emma Architects

**Engineer:**  
Edwards & Zuck (now Stantec)

**Owner's Rep:**  
CBRE

**Telecommunications:**  
Syska Hennessy Group

**Services:**  
Construction Management

**Sector:**  
Commercial

**Completion:**  
December 2013

**Certification:**  
LEED Gold

## A Global Mission for Xylem, Inc.

As a water technology provider, Xylem understands the importance of sustaining our planet's natural resources. The company's name, in fact, comes from the vascular tissue in plants that transports water from the roots to the leaves.

As part of the inherently sustainable nature of the company's work, they have developed a long-term sustainability plan that lays out measurable goals for the company's products, operations, corporate responsibility activities and organizational culture. When time came to relocate their Rye Brook, New York headquarters, Xylem seized the opportunity to also upgrade their workplace to a sustainable, LEED Gold certified space.

### TEAMWORK MAKES THE DREAM WORK

The new, 57,000sf offices blend open working space and private offices with such features as high-tech conference rooms, breakout areas and a product showcase space. Tones of white, blue and green flow through the entire space, echoing the company's water-based mission and products, including full-wall artwork highlighting company processes

and other imagery. The fit-out work also included upgrading the interior and infrastructure to meet LEED Gold certification standards, from updates to the HVAC system for indoor air quality to using sustainable and regionally sourced building materials.

Charged with fitting out the two-story space in just 14 weeks and within a firm budget, the Pavarini Northeast team worked together with Xylem and the design team to determine how they can meet the vision of the space within those constraints. For example, the glass specified for the "floating" central staircase was a potential budget-breaker. "They originally wanted to use a type of structural glass, which would be extremely expensive," says Timothy Papps, Pavarini estimator. "We were able to find another type of glass that gave them the look they were going for but a little more affordably."

The team put their value engineering skills to work for other features too, such as the lighting package, HVAC units and unique ceiling. "We started working with the designers on those elements on preliminary drawings," Papps says. "We were able to get the same effect but come in under budget. We really worked well as a team."

Scheduling became a challenge as well—particularly thanks to an eight-week delay in getting a building permit. But the project team was able to use the delay to their advantage for preparation. "We ordered all the materials and equipment and organized the exact sequence of events so that everything was lined up and ready to go as soon as the permit came through," says Brian Boyce, Pavarini project manager.

### A CUT AHEAD

That preconstruction organization paid off when it came time to build the staircase. Understanding that they were working on a post-tensioned slab, the team purposely allotted extra time to cut the staircase slab openings. Again, the preconstruction team helped keep things on the right track, finding the subs with the right experience in that type of work. "You can't just cut through that slab. It takes a lot of upfront work to find out where the cables are, and then surgical precision during cutting," says Papps. "We were able to schedule that accordingly and find the right team to maintain the design but keep it within Xylem's budget."

As a result, Xylem now has a modern, sustainable workplace that helps the company continue to serve its customers and communities across the globe in, as Xylem puts it, making "smarter, better use of our world's most precious resource."

All photos this page: Keith Williams Photography



Above ▲ Efficient HVAC systems and sustainable building materials helped Xylem achieve LEED Gold



Flood waters completely submerged this Houston neighborhood

## GIVING BACK: Hurricane Harvey Relief

Last August, Hurricane Harvey ravaged the southern United States and the Caribbean, hitting the Houston, Texas region especially hard. Reports estimate that the storm left over \$125 billion of damage in its wake, tying it with Hurricane Katrina as the costliest hurricane in recorded US history, according to the National Hurricane Center.

Structure Tone Southwest's Houston-based team, thankfully, made it through the storm safely. But employees and their families were left with hundreds of thousands of dollars in damages, ranging from ruined lawns to completely destroyed homes, cars and other property.

The Structure Tone family quickly galvanized to help our Houston colleagues. Once the storm passed, Structure Tone Southwest staff met at employees' destroyed homes to help with demolition and clearing out debris. The company also set up a GoFundMe page for employees to contribute to, which ultimately raised over \$95,000. With an added company contribution, the total recovery fund came to over \$160,000, which went directly to Structure Tone employees' recovery efforts.



Above ▲ John Halpin at one of the sites

*"The devastation was so staggering that rebuilding seemed like an almost impossible task in the immediate wake of the storm. Without the money raised by the Structure Tone team, I really don't know how our employees would be dealing with this. It's made a huge difference—the response was just amazing,"* says John Halpin, Structure Tone Southwest's human resources manager.

As the Houston area approaches the one-year anniversary of the storm, recovery is still a work in progress. Contractors and other professionals are hard to come by as the entire region is rebuilding. One of Structure Tone's Houston employees who lost everything had to wait more than three months before a contractor could even begin the renovations.

"We are renting an apartment while we renovate our house. We finally have a contractor that started last week," he says. "I know we have a long recovery ahead, but it is wonderful to know that I have a larger family in Structure Tone to stand with me during this difficult time."

# WHAT IS THE PASSIVE HOUSE STANDARD and Why Should You Care?

By Chris Donnelly, project manager, LF Driscoll

Initiated in Europe, Passive House is a third-party sustainable building standard that has started to pick up steam in the US. Passive building involves a set of quantifiable, performance-oriented design principles. These design principles work in conjunction to, in the words of the Passive House Institute (PHI), "maximize your gains, and minimize your losses."

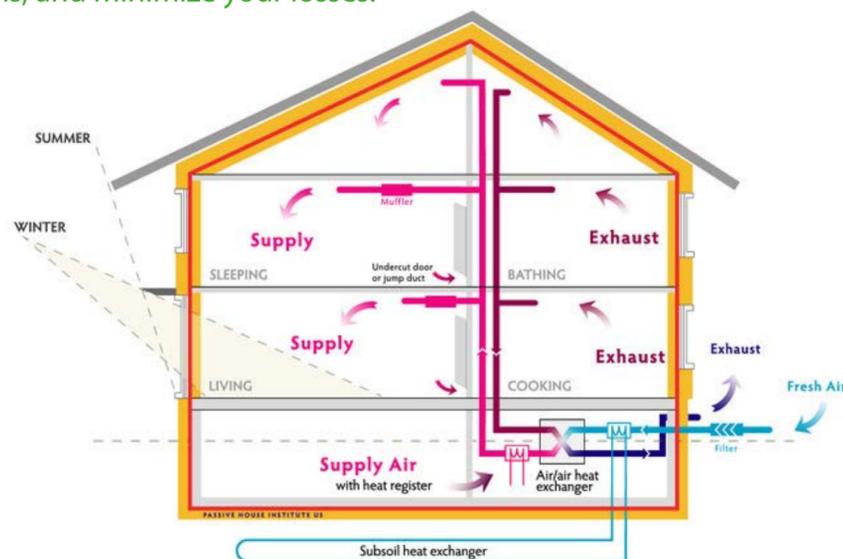


Above ▲ Chris Donnelly

There are five basic building science concepts at the core of the standard:

1. The use of high R-value insulation materials
2. A continuous, air-tight building envelope
3. High-performance windows (typically triple-pane) and doors
4. Installation of a moisture and heat recovery ventilation unit
5. Building orientation that maximizes solar gain during the heating season and minimizes the effect (typically via shading) during the cooling season

To become a certified project, performance testing is conducted under pass/fail criteria. According to PHI, these criteria are a Space Heating Demand not to exceed 15kWh/sm of net living space; a Renewable Primary Energy Demand, or the energy used for all domestic applications, which can't exceed 60kWh/sm of treated floor area; Airtightness that cannot exceed a maximum of 0.6 air changes per hour; and select Comfort measurements related to indoor air temperature. If all testing requirements are achieved, the building receives Passive House certification.



In the overall marketplace, opportunities to bid on Passive House projects have been increasing. We are seeing more, and have already proposed on, RFPs for projects trying to attain Passive House certification. Some cities and states, including New York City, have even begun to incorporate Passive House standards into building codes or municipal requirements.

For this reason, it is crucial for members of a project team to have Passive House knowledge. Estimators must understand the requirements so that trades can be bought out in an efficient and cohesive manner. Superintendents need to develop comprehensive quality control programs to perform the work correctly the first time. Project managers must plan the work and material deliveries in proper sequence so that all trades have the opportunity to correctly implement Passive House principles. Sequencing the installation correctly is imperative to a successful Passive House project, especially in regards to the continuous

air-tight exterior membrane. This is all why I, a project manager, chose to become a Certified Passive House Tradesperson.

From a client perspective, employing a contractor with experience in Passive House can be a significant value-add to the construction process. According to the Passive House Institute, Passive House projects can reduce space heating and cooling energy needs by over 90% compared to a "typical" building. Formal certification does not have to be the goal; the principles of the standard still create an opportunity to deliver a higher-quality project. On its most basic level, the Passive House standard strives for a building that provides increased levels of comfort, energy efficiency and affordability at the same time. ◀

To learn more about Passive House and how it impacts construction projects, visit [passivehouse.com](http://passivehouse.com)

# REAL-WORLD RESEARCH: WELL LIVING LAB



## MISSION

The Well Living Lab is the first research center to focus on how buildings affect human health and well-being. The purpose of the lab is to study these indoor environments and create healthier indoor spaces for people to work, live and play. The lab includes 5,500sf of simulated, real-world office, home and other indoor spaces where researchers can study human subjects in those built environments.

"Through our work, we're seeing first-hand the ways that the built environment passively affects those that come in contact with its elements. We are committed to the education and research provided by the Well Living Lab to the industry as a whole."—Robert Leon, senior vice president at Structure Tone

## A COLLABORATION OF DELOS AND MAYO CLINIC



## RESEARCH

### Three-year study launched in 2018

This February, the lab announced an extensive three-year scientific research plan to identify how indoor environments affect five significant facets of people's lives:

- HEALTH
- PERFORMANCE
- STRESS & RESILIENCY
- SLEEP
- COMFORT

All images this page: Well Living Lab imagery used with their permission

The results will help the industry understand the interplay of elements such as sound, lighting, temperature and air quality, and how facilities can be designed to maximize positive health habits and reduce negative influences.

1st lab exclusively committed to researching the real-world impact of the indoor environment on human health and well-being

90% of average American's time is spent indoors

23 Alliance Members. Structure Tone is a founding member.

2015 The Well Living Lab was launched

"The lab idea itself came from multiple discussions about what kinds of workplace wellness studies would be useful. Out of that emerged our ideas on the kind of building we needed to do that research."—Dana Pillai, Well Living Lab executive director

2018 Edison Award winner for collective disruption

To learn more, visit [welllivinglab.com](http://welllivinglab.com)

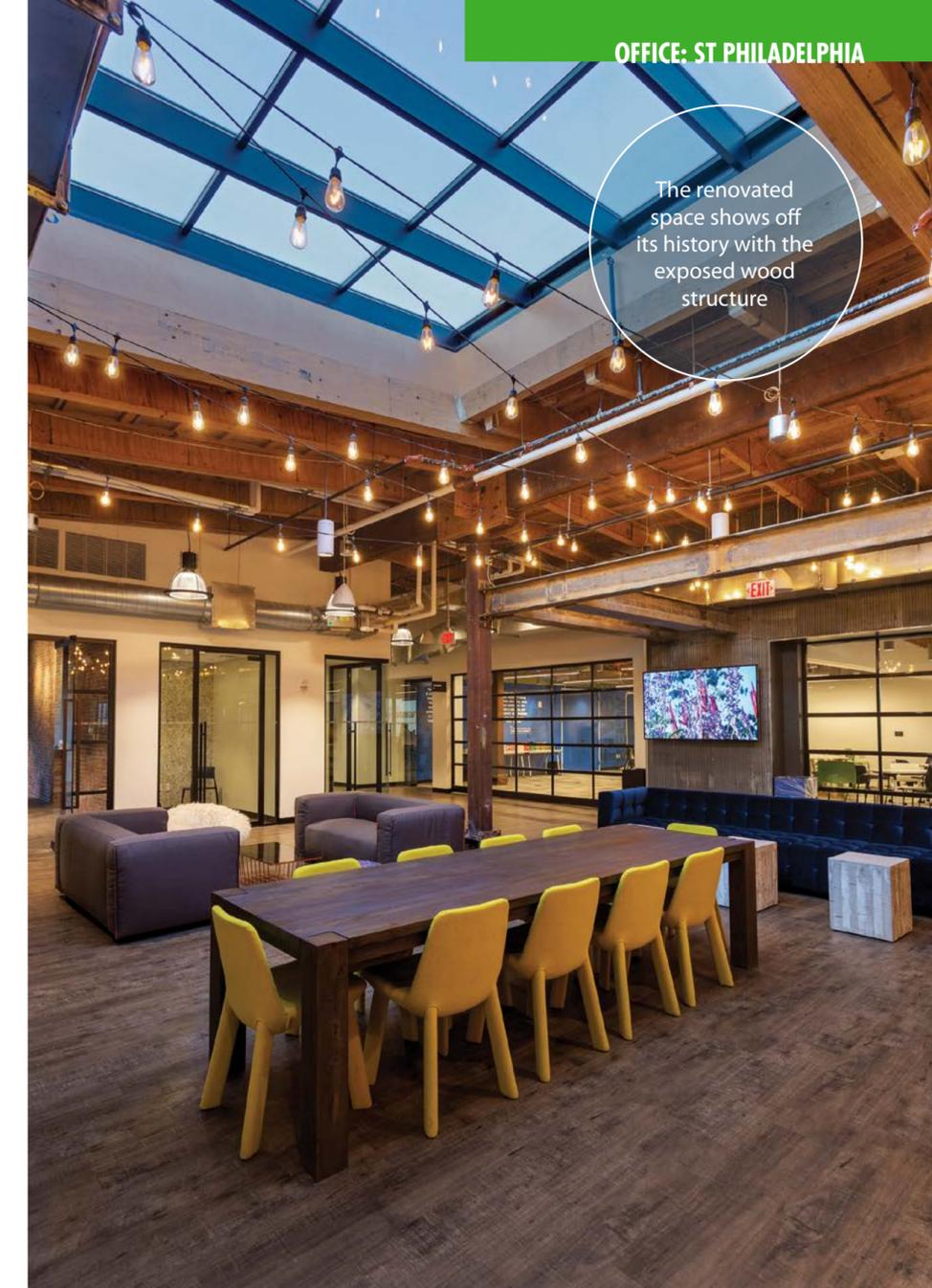
# Welcome to WOWTOWN

Founded in 2002 and based in the City of Philadelphia, extreme value retailer Five Below has been growing in leaps and bounds, now with over 640 stores across the country. To keep up with their growth, the company needed a new corporate headquarters, one that would inspire employees and better reflect the company's culture, brand and number-one focus on "wowing" their customers.



Above ▲

The office overlooks the atrium area of the Lits Building



The renovated space shows off its history with the exposed wood structure

As a result, "Wowtown" was born. The new 125,000sf headquarters occupies three floors of a former discount department store whose building was converted to corporate offices in 1989. The sixth and top floor of the building is Five Below's reception area and conference center, full of meeting rooms and event spaces. The second and third floors are primarily employee work spaces, with 7,000sf dedicated to a mock store where merchants and Five Below staff can experiment with displays and store layouts. Throughout all the floors, bright colors and bold designs contrast with the historic building's original features.

## Project Details

**Size:**  
125,000sf

**Client:**  
Five Below

**Owner:**  
Brickstone Companies

**Architect:**  
D2 Architecture

**Engineer:**  
HF Lenz

**Owner's Rep:**  
CBRE

**Services:**  
Construction Management

**Sector:**  
Commercial

**Completion:**  
January 2018



Above ▲

Five Below has dubbed their new HQ "Wowtown"

## HISTORY REPEATS ITSELF

Maintaining that connection to the history of the building was important to Five Below as they redesigned the space as a modern workplace. The Victorian building was the original home of the Lit Brothers department store, which began as a small millinery shop in 1890 and expanded through the building into a major affordable alternative to more expensive competitors. As an affordable retailer for teenagers and preteens, Five Below was attracted to that symbolism and the building's roots in Philadelphia's retail history.

"This is the passing of the baton," said Five Below CEO Joel Anderson as he showed off the space in opening tours. "Five Below started in Philadelphia 15 years ago. The Lit Brothers were the original discount department store... and here we are 125 years later, Five Below is providing value. We exist because of value and experience."

## WHAT LIES BENEATH

The building's historic nature—and piecemeal expansion over the years—posed a few challenges from a construction perspective, however. The building is essentially a compilation of over 30

buildings, organized into A, B and C "sections." The A building is a concrete structure while the B building is wood-framed, and the Five Below offices cross into both.

"The way the building developed over 125 years means there were some unknowns," says Vincent Sarnatora, Structure Tone project manager. "So not only were we dealing with blending two entirely different building structures into one unified space, but we also had unexpected issues popping up as we opened walls and floors."

One of the major challenges in the project entailed two separate intercommunicating stairs, one in building A and the other in building B. The concrete slab in building A is 19 inches thick and made of terra cotta arch with steel beams embedded in it. The existing beams, however, were not exactly in the expected locations. On the wood side, the mixture of wood joists and steel beams made the approach to construction a little unusual.

"Once we exposed it all, we had to work with the structural engineers to make sure the steel configuration worked with the stair layout," says Sarnatora. "The layout had some angles we had to address too, so it took a lot of teamwork to make sure they came together correctly."

## STRATEGIZE AND ORGANIZE

The varied building sections also made for varied floor elevations. Particularly where the concrete side met the wood side, the change in elevation called for adding steel railings and ramps to ensure the office was ADA compliant.

All photos these pages: ©John Beer/building Images Photography

The older wood floors also required some special treatment to ensure the substrate would hold up. The team leveled the floors on top of the wood using a special gypsum-based product, which included a curing period of at least five days before work could resume. With an understanding that leveling was part of the plan, the team scheduled other phases of the work around the curing floors, including ordering the office fronts using hold dimensions to keep the process moving.

The team made similar schedule accommodations to install the top floor's two 12-foot-by-12-foot skylights. The glass was ordered well in advance, and the areas surrounding the skylights were completed first. They also had to coordinate with the city to use a crane and negotiate around rainy weather forecasts.

"It took a lot of advanced planning," Sarnatora says. "We really had to have our ducks in a row so we could get the skylights in as quickly as possible while the rest of the project continued around them."

## WOW FACTOR

With the transformation complete, Sarnatora says the company's commitment to a sustainable environment that makes people happy is evident. "Employee happiness is a key focus," he says. "There's reclaimed wood and salvaged materials throughout the space, lots of natural light, cool design features and a really energized vibe."

And Five Below isn't done yet. The company has rights to an additional 83,000sf, meaning nearly a third of the Lits Brothers complex will get the Wowtown treatment. Wow, indeed. ◀

# WELL Done: Delos' New York Headquarters

In just a few short years, Delos has established itself as a pioneer in creating indoor spaces that promote human health and wellness. Most notably, the company helped develop the WELL Building Standard, the first rating system to focus attention on the health of the people who live or work inside a building.

When it came time for Delos to upgrade its own offices to a larger space, it only made sense that the firm would pursue WELL Certification through the International WELL Building Institute. The new, 19,000sf space leaves no wellness stone unturned. Flexible working stations encourage movement. Lighting systems mimic circadian rhythms. Plant walls and other foliage—plus floor-to-ceiling exterior windows and an outdoor terrace—support the space's biophilic design. A "wellness" café even provides healthy snacks for employees and visitors alike. With features and operational programs like these (plus many more), the space was officially certified as WELL Platinum this spring.

## PUSHING BOUNDARIES

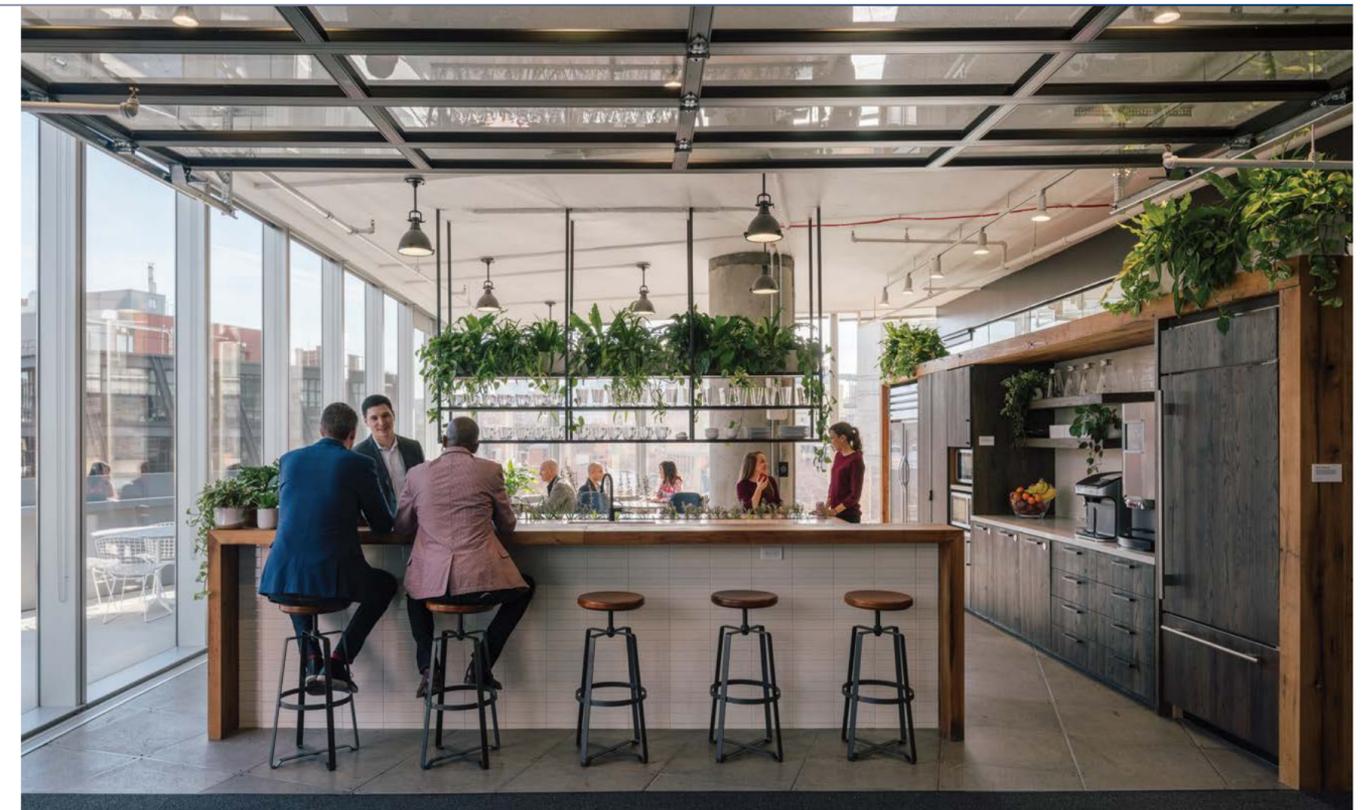
But Delos' new headquarters aims beyond wellness too, targeting Living Building Challenge and LEED v4 certification to create the most sustainable environment they can.

*"We really want to showcase sustainability in every regard, from the built environment itself to its effect on people. We targeted certification in the leading sustainability programs to show that all of those things can be achieved,"* says Paul Scialla, Delos founder and CEO.

So many added sustainability and wellness goals really did not pose a major challenge on the construction side, says Structure Tone project manager Eileen McCarthy. "The build-out wasn't the hard part. The building is the building, with normal construction approaches for the most part," she says. "Making sure we had the right products and the right documentation was really where we had to get organized."

The Living Building Challenge (LBC), for example, includes a materials "red list," which outlines the chemicals that cannot be found in any LBC-certified space. Some of those chemicals—asbestos, lead and others—are limited in most modern construction. But some are still commonly found in typical materials, like the hexavalent chromium in certain types of sheet metal or PVC in the jacket of most cabling. Ensuring the job specified compliant materials that still met the design vision, schedule and budget added a new wrinkle to the team's typical preconstruction and construction process.

"Generally, the construction industry is familiar with LEED. But the Living Building Challenge is still new to most of us," says McCarthy. "Many of our subs aren't that familiar with it, and some common building elements, like sprinkler heads, have limited options for compliant alternatives."



Above ▲  
Plants and access to natural light are abundant throughout the space

To help get a handle on the many requirements, McCarthy and her project team partners—Tyler Symons from Structure Tone and Janna Wandzilak from Delos—compiled all the requirements for each rating system into one master checklist. A seven-page request-for-information form not only outlined the criteria they needed to follow as they worked with the subcontractors to purchase materials, but also left a clear paper trail of each decision.

"It would have been a mad scramble if we had to chase all that paperwork with our subs at the end of the job," McCarthy says. "Doing it upfront kept us organized and really pinpointed where we would have to do some extra work."

## MODEL BEHAVIOR

Delos' new space is not only a comfortable, healthy workplace for employees, but it's also a working

test lab for the methods and outcomes the company's work fosters. Sensors are located throughout the office to collect data on air quality, acoustics, thermal lighting, steps taken up and down the staircase and myriad other factors. "We display that data right in our main lobby so everyone can see it," says Scialla. "It's a great way to showcase the invisible impacts."

The office also serves, of course, as the "model home" for Delos as they meet with companies about the potential of applying WELL principles in their own spaces.

"We're doing tons of tours for clients, prospective clients and industry partners," Scialla says. "It's been an incredible tool, and the feedback has been universal. Our own folks, industry folks, our clients—they love the space and all agree that this is exactly the way a workplace should be." ◀

All photos these pages: Courtesy of Gensler and Delos



Pending

Pending

## Project Details

**Size:**  
19,000sf

**Client:**  
Delos

**Architect:**  
Gensler

**Engineer:**  
AKF Engineers

**Sound Consultant:**  
Longman Lindsey

**Lighting Designer:**  
Atelier Ten

**Sustainability Consultant:**  
WSP Built Ecology

**Services:**  
Construction Management

**Sector:**  
Commercial

**Completion:**  
September 2017

**Certifications:**  
WELL Platinum  
Living Building Challenge (Pending)  
LEED v4 (Pending)



# RATING SYSTEMS: Which One Is for You?

Every year, Structure Tone surveys clients and partners on the state of sustainability, wellness and resilience. So far, the data shows people are a bit overwhelmed by the number of third-party rating systems on the market. With that in mind, Structure Tone's director of sustainability, Jennifer Taranto, spoke with the leaders of four prominent rating systems to discuss the aims of their system, how these systems differ from and complement each other and what trends and challenges they see ahead.

## Jennifer Taranto: Why was your rating system initiated?

**Niall Trafford, COO, BRE Group & President, BRE America:** Back in the 1980s, there was much talk of "low energy" buildings but no credible way of independently measuring the claims. By the end of that decade, leading professionals at the BRE Trust came together to change that. This culminated in the launch of BREEAM in 1990 as the first holistic green building rating system in the world. Since then, BREEAM has become an established global metric for green building standards worldwide that assesses the environmental performance of all commercial buildings. Nearly all other major green building standards have used BREEAM as the foundation for new rating systems.

**Mahesh Ramanujam, President & CEO, US Green Building Council:** USGBC created the LEED green building rating system as a way to measure and

define what green building means and to provide a roadmap for sustainable development. Before the introduction of LEED, there was no universally agreed upon definition for green building, and LEED created a common language for this by establishing a simple, metrics-based system.

**Rick Fedrizzi, Chairman & CEO, International WELL Building Institute:** The WELL Building Standard was the natural evolution from the established green building certifications, igniting what I call the "second wave of sustainability." It builds on the tremendous work established by these leading green building systems, all of which have incorporated human health.

**Amanda Sturgeon, CEO of the International Living Future Institute:** Our mission is to lead the transformation toward a civilization that is socially just, culturally rich and ecologically restorative. In order to do that we must have a world full of living build-

ings, living products and living communities. We saw a void in the market from doing less bad to doing more good, meaning elevating the sustainable design movement to a regenerative movement.

## Taranto: What makes your rating system different from others?

**Ramanujam:** LEED has become the industry standard for green building—no program has greater global reach or credibility or is as trusted in the marketplace. What sets it apart is that it works for all building types—from homes, to corporate headquarters, to neighborhood developments and even entire cities—at all phases of development.

**Trafford:** BREEAM is a series of schemes covering all lifecycle stages, including infrastructure, communities, new construction, in use and refurbishment. All of the schemes use worldwide best prac-

tise and science to underpin the credits, adapted for each country it is operated in.

**Fedrizzi:** WELL is an evidence-based and performance-verified certification program, meaning that projects must prove that a space is not only designed for health, but that it performs for health. For companies, this could mean increased productivity and reduced sick days. For residences, this could mean healthier families and an improved quality of life.

**Sturgeon:** The Living Building Challenge is based on actual performance rather than modeled performance. Prior to certification, third-party auditors verify that each project is meeting the highest sustainability metrics based on a 12-month performance period, showcasing that the LBC is not a checklist of best practices. Instead, it encourages people to think more holistically about the design of a building and what the solutions are to the greatest threat of our time—climate change.

## Taranto: What is the impact you are seeing on the built environment as a result of rating systems like yours?

**Ramanujam:** Green building rating systems are crucial to addressing the impacts of climate change and, collectively, these rating systems are working together to continue to raise the bar on our built environment. In partnership with Booz Allen, our 2015 Green Building Economic Impact Study found that, to date, green building has created millions of jobs and contributed hundreds of billions of dollars to the US economy, and that LEED was a pivotal contributor to this total impact.

**Fedrizzi:** The first projects to achieve certification are now releasing results based on pre- and post-occupancy surveys. This research brings to light the measurable impact and benefits of WELL Certification, such as enhanced air quality and improved employee collaboration.

**Sturgeon:** That the built environment sector understands how buildings must perform in order to actually make a difference to global climate change.

**Trafford:** In the various countries which BREEAM operates, we often see the best practise that BREEAM promotes to become the norm. This is not only rewarding to improve their buildings, communities and infrastructure, but it drives local jobs, knowledge and opportunities. All the rating tools drive change, not just in the built environment, but wider transformation. All of those in this article should be proud of the combined impact we have; BRE also have a series of innovation parks that are a collection of Exemplar buildings and technologies being shown and trialled live.

## Taranto: With so many rating systems on the market, do you foresee greater collaboration across these systems?

**Fedrizzi:** Absolutely. Last year we released "crosswalks" with several green rating systems, includ-

ing LEED, BREEAM and Living Building Challenge, as well as Green Star in Australia. These crosswalk documents identify opportunities to streamline the process of achieving dual certifications. Higher performing buildings are fundamental to high performing people.

**Sturgeon:** Yes, as Rick mentioned, we have developed crosswalks with other leading programs and are creating more so that people can choose what works best for their situation. I think an ecosystem of choices is a healthy place for the market to be in.

**Trafford:** This question often comes up. We are both competitors and allies. Competition is good for the market, ensuring we give the best service, best schemes. But as Rick and Mahesh have said, initiatives like the crosswalks and some of the research we are doing don't happen by chance, but active and positive conversations between all. The real question is how can we all together certify more buildings and, in turn, help them improve.

**Ramanujam:** Over the last few years, Green Business Certification Inc. (GBCI), the global certification body for LEED, has actually expanded to administer several other complementary rating systems to LEED. The next phase of this integration is bringing all of our available rating systems into one platform so projects can seamlessly attempt multiple rating systems at once.

## Taranto: What emerging industry sustainability trends excite you the most?

**Sturgeon:** It excites me how quickly the building product manufacturing sector is embracing healthy, transparent materials and moving towards Living Products. I also see more companies committed to zero energy across their entire building portfolios.

**Fedrizzi:** We're just now starting to see the emergence of continuous monitoring and sensor technology, and the impact is going to be immense. Our environments are constantly changing, and these new innovations can help us identify gaps and optimize our buildings and communities in real time to best support our health and wellness.

**Ramanujam:** The emergence of data and performance as a driving force in sustainability really excites me. I like to say that data is the new natural resource. Data and technology have transformed the market and changed literally every aspect of life. Those who fail to adopt these advances will be left behind.

**Trafford:** There are so many emerging trends that we need to be aware of...data, use of sensors in certifying buildings, beyond shareholder value, net-energy-positive buildings, ultra-transparency, circular economy, Internet of Things, collaboration recognised as accelerators. All of which are articles in their own right. But all are driving change at a pace we haven't seen before and creating an exciting time for us all in the industry. ◀



Above ▲  
Jennifer Taranto, Director of Sustainability, STO



Above ▲  
Rick Fedrizzi, Chairman & CEO, IWBI



Above ▲  
Mahesh Ramanujam, President & CEO, USGBC



Above ▲  
Amanda Sturgeon, CEO, ILFI



Above ▲  
Niall Trafford, COO, BRE Group & President, BRE America  
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