Commercial Real Estate Development SPRING 2017

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E-commerce 2.0 The Rise of the Urban Warehouse *50*

50 years NAIOP

COMMERCIAL REAL ESTATE DEVELOPMENT ASSOCIATION

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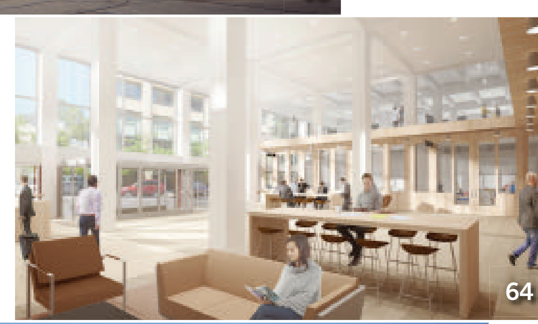

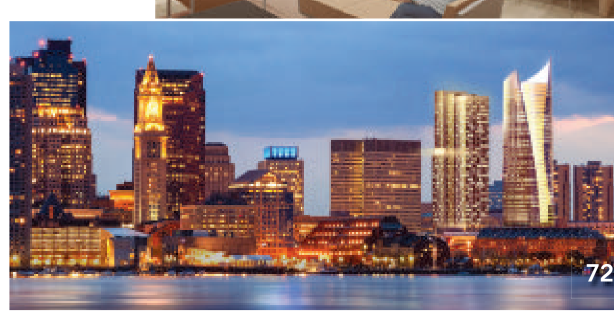

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Located just five miles from downtown Minneapolis, the Northern Stacks industrial park is attracting distribution tenants who value the site's proximity to their customers.
Photo by Peter Vondelinde Visuals, courtesy of Fridley Land LLC

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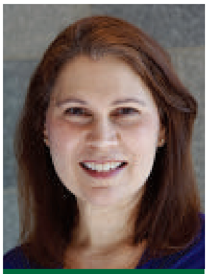
A Note From the Editor

E-commerce 2.0

THIS ANNUAL industrial-focused issue of Development magazine features a cover story titled "E-commerce 2.0: Last-mile Delivery and the Rise of the Urban Warehouse." The article provides an overview of the relatively sudden and growing demand for urban warehouses as consumers expect ever-faster delivery of goods ordered online.

As Colliers International's James Breeze writes, the challenge of how to get goods to the consumer both quickly and inexpensively is still being figured out. "What is clear," he says, "is that last-mile distribution is becoming more reliant on urban warehousing," which he defines as facilities located one to 10 miles outside the city center.


Margarita Foster

He continues: "In today's 'need-it-now' economy, a primary purpose of warehousing is to reduce delivery lead time — the time from receipt of the customer's order to delivery of the product — while keeping overall supply chain costs down." Key to cost containment are site selection decisions that are now being made based on "the full cost of moving products through their supply chains," including inventory carrying costs, an area that seems to be getting more attention than it did in the past.

Massive fulfillment centers dedicated to e-commerce distribution represented the first development phase of e-commerce. The buildout of the urban warehouse network that is taking place today could well become known as "e-commerce 2.0."

A second industrial feature, "Transforming an Industrial Building for Carnegie Robotics," tells the redevelopment story of a long-vacant factory in Pittsburgh. Developed by the nonprofit Regional Industrial Development Corporation (RIDC), the facility is now leased by Carnegie Robotics, which designs and develops robotics parts and systems there. The property's location within a now-hip urban neighborhood makes it attractive to the local workforce.

One of this issue's many column pieces, "The Third Place in the Modern Office," examines the notion of "a place without ties to personal obligations — an environment that encourages relaxation, collaboration and decompression." The author, Nelson's Gary Miciunas, explores how tenants are creating these "third-place" environments in their suites as well as how building owners are doing the same in common areas. ■

All the best,
Margarita Foster
Editor-in-Chief

Future NAIOP Events

- National Forums Symposium 2017, April 24-27, Indian Wells, California
- I.CON '17: Trends and Forecasts, June 8-9, Long Beach, California
- CRE.Converge 2017, Oct. 10-12, Chicago
- Chapter Leadership and Legislative Retreat 2018, Feb. 5-7, Washington, D.C.
- National Forums Symposium 2018, May 1-3, New York

Most Popular From Winter 2016/2017

1) **Office Development in Mixed-use Settings: Raising the Bar in Suburbia** (http://www.naiop.org/raisingthebar, page 50)
2) **The Future of Suburban Office Buildings** (http://www.naiop.org/suburbanoffice, page 64)
3) **Industrial Trends to Watch** (http://www.naiop.org/industrialtrends, page 70)
4) **Seniors Housing Moves Downtown** (http://www.naiop.org/seniorshousing, page 58)
5) **Industrial Real Estate Fundamentals and Investment Outperformance** (http://www.naiop.org/outperformance, page 32)

Data Center Outlook

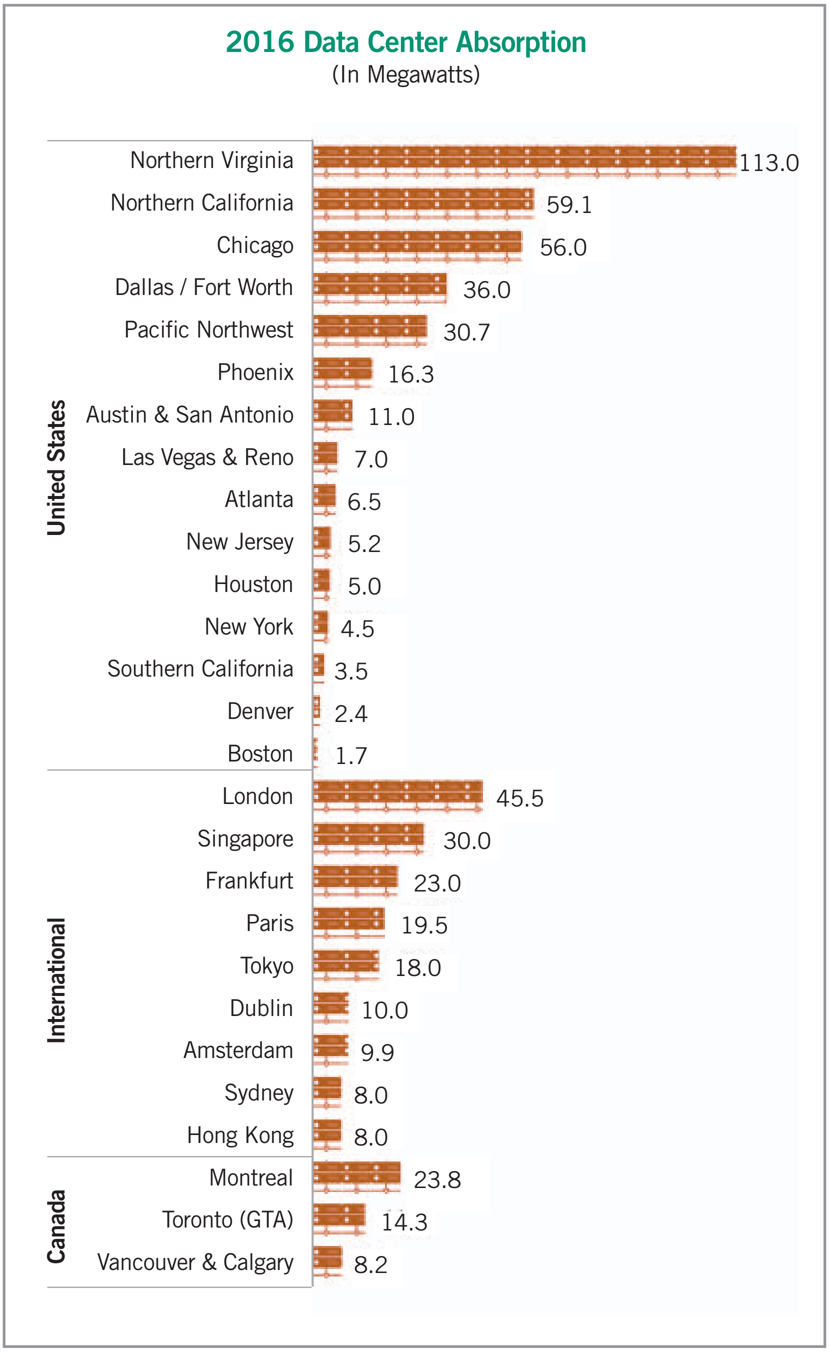
Increasing demand for cloud-based services is fueling data center leasing activity.

By Kelly McBride, Jeff Groh and Allen Tucker, JLL

As ADOPTION OF cloud technologies to support the Internet economy and digital content-driven consumption accelerates, demand for third-party data centers that support the cloud-managed service sector is projected to double in the next five years. Globally, the multitenant data centers (MTDC) market is expected to rise at a compound annual growth rate (CAGR) of 12.1 percent between 2015 and 2018. Market absorption for MTDCs, measured in megawatts (MW), is increasing exponentially in many U.S. metro areas, which currently represent 44 percent of the global market.

Today's data center IT decision makers are using increasingly sophisticated criteria when they shop for space and power. The "big six" data center REITs — Equinix, Digital Realty, DuPont Fabros Technology, CoreSite Realty, CyrusOne and QTS — have continued their development binge, while smaller MTDC players also made some notable acquisitions in 2016. As the data center market grows, cloud providers want to bring data applications and storage closer to consumers while decreasing latency and increasing reliability, opening new markets for potential data center construction. More flexible buildouts are allowing diverse players to enter a market once dominated by only the largest providers.

Clouds are growing in top data center markets; Ashburn, Virginia, is the global market leader. Enterprises continue to develop new software as a service (SaaS) while reducing the cost of and dependence on infrastructure as a service (IaaS).



While many property owners and investors want to take advantage of the burgeoning market, not every property is well-suited for data centers. As it does with most real estate, attractiveness to clients typically depends on location. Good locations for data centers require proximity to high-speed fiber networks with low latency to major markets, reliable and affordable power and water supplies, accessibility to users or potential tenants, limited natural hazards and reliable infrastructure such as power (including generators, automatic transfer switches, etc.) to critical support services. All of these are essential to the success of any data center venture.

Rapidly evolving international regulations over data sovereignty, which require that data be housed within the same country from which it is accessed, are influencing data center location decisions while acting as market-makers in certain countries, such as France and Brazil. Local data centers help protect data and necessitate new investment in local economies, so the industry's biggest data center developers and operators are rapidly expanding internationally to meet growing demand and help users remain compliant.

Climate change is also influencing location strategy, as more data center users evaluate performance from socially responsible, environmental and financial perspectives. Providers are eager to decrease utility consumption by implementing less resource-intensive cooling and powering strategies. Access to renewable energy sources and water are therefore becoming even more important factors in choosing data center locations.

Developers will need to carefully analyze these factors to best position themselves to capture data center market opportunities. Accurate forecasting of space and power needs will decrease the need to build for redundancy, as more data center users become better at using analytics to predict their resource needs. Creative approaches can help providers match their offerings to the rapidly evolving requirements of an industry undergoing transformative growth. ■

By **Kelly McBride**, **Jeff Groh**, and **Allen Tucker**, managing directors, JLL

Creative Industrial Workspaces

As industrial users consolidate operations under one roof, "creative industrial" is becoming the future of industrial space.

By Adam Robinson, RAF Pacifica Group

THE CONCEPT OF "creative office" space is making headlines as office users increasingly seek environments that foster innovation and collaboration. According to a 2016 Gensler Workplace Survey, today's most innovative companies are providing well-designed creative workspaces rather than simply traditional office environments. The survey reports that innovators are twice as likely to offer access to on-site lifestyle amenities, indoor-outdoor gathering spaces and more flexibility regarding when and where people work.

Recently, the elements of creative office environments began to spill over into the industrial realm. Recognizing this, RAF Pacifica Group designed and developed a new product type that the company trademarked as "creative industrial." These properties integrate a creative office, corporate headquarters aesthetic into state-of-the-art new industrial buildings to accommodate users from numerous industries.

What Makes an Industrial Project Creative?

"Creative industrial" projects combine the best characteristics of creative office and industrial space to deliver a better user experience. Creative industrial developments feature office amenities such as indoor-outdoor gathering areas, extensive glass for natural lighting, bifold vertical glass rollup doors and open floor plans for a collaborative work experience. Additional outdoor amenities might include fire pits, water features, a bocce ball court or a movie wall.

Completed in the first quarter of 2017, el•e•vate consists of two distribution buildings totaling 157,000 square feet in Carlsbad, California. Industrial features include 56 dock-high and 21 grade-level doors, 27- to 32-foot ceiling clear heights and T-5 fluorescent warehouse lighting. Creative office elements include extensive glass for natural lighting as well as outdoor gathering areas.

Courtesy of RAF Pacifica Group; Architect: Ware Malcomb

"Creative industrial development is poised to deliver what the next generation of industrial space users needs to bolster their corporate images and drive their businesses forward."

Adam Robinson

The industrial elements involve modern early suppression fast response (ESFR) sprinkler systems, higher clear heights (from 27 to 32 feet) and multiple true dock-high loading doors (where the height of the slab at the bottom of the door is about four feet above ground level, with limited use of wells).

By integrating creative office design elements and on-site amenities into high-quality, state-of-the-art industrial buildings, creative industrial development is poised to deliver what the next generation of industrial space users needs to bolster their corporate images and drive their businesses forward.

Growing Demand for Creative Industrial

Today's millennial workers place a high value on a company's work culture, and are seeking environments that cultivate a "live, work, play" lifestyle. A 2016 CBRE survey found

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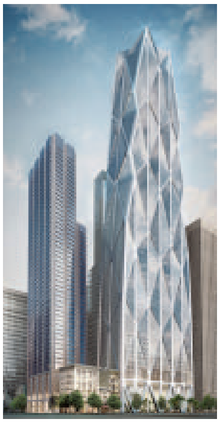
2.4 million sq. ft.



Beijing-based Oceanwide Holdings has begun construction of the First Street Tower of Oceanwide Center in downtown San Francisco. When completed in 2021, the 910-foot-tall tower will be the second-tallest building in the city. The 2.4 million-square-foot mixed-use structure will encompass about 1.1 million square feet of office space as well as 109 luxury residences. A second tower will feature additional residences and a 171-room Waldorf Astoria Hotel. Designed by Foster + Partners and Heller Manus Architects, the First Street Tower will also contain a 26,000-square-foot ground-floor "urban room" with 68-foot-tall ceilings. The urban room will include retail space as well as space for farmers markets, concerts and other events — plus a water feature that will convert to a stage and a second-floor viewing platform.

208,000 sq. ft.

The Opus Group has completed and fully leased the first building at Corporate Woods Industrial Park in Ankeny, Iowa. The building features 32-foot clear height ceilings, ESFR sprinkler systems and up to 50 dock doors. Power Distributors has leased nearly 70 percent of the 208,000-square-foot speculative warehouse. The company's 145,000-square-foot velocity distribution center will house and distribute parts and products to its customers across the Midwest. Set on 52 acres adjacent to Interstate 35 and just a mile from Interstate 80, Corporate Woods Industrial Park can accommodate up to three buildings, for a total of 600,000 square feet.

171,600 sq. ft.

Liberty Property Trust has broken ground on Caliber North, an extension of the company's five-building Caliber Ridge industrial park in Greer, South Carolina, near the BMW Manufacturing Plant as well as a new inland port. The market's first speculative warehouse will consist of a 171,600-square-foot structure designed to accommodate distribution, light assembly and/or manufacturing uses. Designed by MCA Architecture, it will feature 36-foot clear height ceilings and a seven-inch slab floor. Delivery is expected in April 2017; a second, 94,500-square-foot building is also planned. Both structures have been designed to LEED standards.

that 78 percent of millennials value workplace quality when choosing an employer, meaning that the physical workplace environment can have a tremendous impact on employee recruitment and retention.

Industrial developers understand that employees in the technology, biotech, life sciences and even manufacturing industries are beginning to select employers based on workplace amenities. Companies in these sectors are seeking workplaces that are conducive to innovation, in order to deliver brand value and retain the best employees.

This concept led to significant preleasing in San Diego, where RAF Pacifica Group preleased more than half of its first creative industrial project, el•e•vate, a 157,000-square-foot, two-building industrial property in Carlsbad, months before its completion in the first quarter of 2017. Tenants will include Unite Eurotherapy, a global supplier of premium hair care products; B&D Nutritional Ingredients, a distributor of dietary supplements; and Hydrogenics, a Canadian developer and manufacturer of clean energy technology specializing in hydrogen generation and fuel cell products.

What's Driving Demand?

Much of the demand for this creative industrial space is being driven by business innovation and industrial consolidation. In the San Diego region, for example, demand is being fueled by the innovation economy of the Carlsbad submarket. According to the Carlsbad Center for Economic

RAF Pacifica Group's dis•trib•ute, two new distribution buildings totaling about 277,000 square feet in the Carlsbad Raceway Business Park, will include both creative office and industrial space. Amenities will include glass exteriors, updated ESFR sprinkler systems, 30-foot ceiling clear heights and dock-high loading doors. The project, which is scheduled to be completed in the first quarter of 2018, will also incorporate an outdoor amenity space.

Courtesy of RAF Pacifica Group; Architect: Ware Malcomb

In addition to creative amenities like indoor-outdoor gathering areas, the 145,000-square-foot cre•ate industrial building in Carlsbad, California, will feature eight dock-high doors, four grade-level doors, 30-foot ceiling clear heights, ESFR sprinklers and a parking ratio of 2.5 spaces per 1,000 square feet.

Courtesy of RAF Pacifica Group; Architect: Ware Malcomb

"Demand for creative industrial space is likely to climb throughout North America as industrial users seek to consolidate their engineering, R&D and corporate operations under one roof."

Adam Robinson

Development, more than 650 patents were issued to local businesses in 2015, a rate that significantly outpaces other innovation hubs, including the Bay Area. Creative industrial development is designed to foster a culture of collaboration and innovation that will allow creative startups to grow their businesses.

Beyond Southern California, demand for creative industrial space is likely to climb throughout North America as industrial users seek to consolidate their engineering, R&D and corporate operations under one roof for maximum efficiency. In the New Jersey market, for instance, life sciences companies have begun to consolidate their operations to reduce operating costs, according to an August 2015 report in Real Estate Weekly. Many of these industrial users are demanding modern, corporate headquarters-type facilities that will reinforce their brand image and serve them in all facets of their business.

On the heels of the e-commerce boom, the concept of creative industrial space could well be the next big thing for the industrial sector. ■

By **Adam Robinson**, founder and principal, RAF Pacifica Group

New & Noteworthy

147,000 sq. ft.

Trammell Crow Company (TCC) and partner Artis REIT have announced the development of the third of four phases of Park Lucero as well as a full-building lease commitment by Silent-Aire USA, Inc. Park Lucero, a 48-acre industrial park in Gilbert, Arizona, features buildings with dock-high, truck well and grade-level loading; 24- to 30-foot ceiling clear heights; and an overall 2.1:1,000 square foot auto parking ratio. Silent-Aire will be relocating and expanding its U.S. headquarters in the 147,000-square-foot building. Construction began in late 2016 and the structure is expected to deliver in May 2017. Park Lucero is directly adjacent to more than 1 million square feet of retail amenities. Upon full buildout, it will contain nearly 600,000 square feet of industrial space in six buildings.

87,500 sq. ft.

Hullmark Developments Ltd. is developing 80 Atlantic, a five-story, 87,500-square-foot office building in historic Toronto's Liberty Village. Quadrangle Architects Ltd. has tailored the timber-framed structure to appeal to Liberty Village's young and creative professionals, many of whom work in the technology, marketing and media industries. The design uses heavy timber and stone to create a high-performance building envelope of curtain wall glazing. The first heavy timber building to be permitted since the provincial building code was changed in 2015, 80 Atlantic is expected to be completed in 2018.

80,000 sq. ft.

Primera Companies Inc. has begun construction of Town Square Place in Village 121, a mixed-use development in Plano, Texas. The 80,000-square-foot office building will feature 34 fully built-out suites ranging from about 1,000 to 3,000 square feet. Each suite will include a multipurpose break room with a sink and designated server cabinets. Designed by O'Brien & Associates, Towne Square Place will be Energy Star certified and will contain two shared conference rooms as well as a self-service cafeteria and food mart. The building will be ready for occupancy in early fall 2017.

A Look Ahead

Taller Wood Buildings Coming Soon

Mass timber is becoming a mainstream material for high-rise buildings.

By Steve White, AIA, Fentress Architects

THE FIRST QUESTION that usually arises when designers and developers begin discussing mass timber as an option for a tall structure is, "Wood is beautiful, but doesn't it burn?" Yes, it does burn. Technically, wood is a combustible material.

The 18-story Brock Commons at the University of British Columbia (shown here under construction in fall 2016) will be the world's tallest building constructed with cross-laminated timber (CLT). It will house approximately 400 students when it opens in September 2017.
Courtesy of Arup

The key fact here is that mass timber is just that — massive. Have you ever started a campfire with a log? It is a very difficult thing to do. Mass timber technology consists of dimensional lumber glued together in the same direction to form columns and beams (referred to as glulam), and glued together in the opposite direction to make large panels for floors and walls (called cross-laminated timber, or CLT). After a forest fire, a standing tree builds a layer of "char" that protects the wood from further damage and maintains its structural integrity. Mass timber is designed to do the same.

This technology is proven for buildings as tall as 18 stories, such as the nearly completed Brock Commons project at the University of British Columbia. The wood structure for this building was completed in 2016; the building is expected to open in September 2017. Research is currently underway that explores supertall wood structures with heights of up to 80 stories, such as the Oakwood Tower in London, a proposed 1,000-foot-tall skyscraper that would be the world's tallest wood structure.

Codes

In the U.S., building codes have been one of the biggest barriers to mass timber's entry into the marketplace, but this is changing. For the first time, the 2015 International Building Code (IBC) recognizes CLT as a building material. Under this code, buildings can be up to 85 feet tall with five or six stories of wood over a noncombustible podium, exactly the same parameters as for conventional wood frame construction.

In 2014, the U.S. Department of Agriculture held a competition to stimulate the use of mass timber for high-rise construction. A $3 million grant pays for testing labs to conduct the two-hour fire rating tests needed for U.S. code authorities; these tests have been ongoing since July 2016. Once the tests are completed, they will be made available to the public.

One of the winning projects in the competition is Framework in Portland, Oregon, designed by Lever Architecture and engineered by Arup. At 12 stories, this building is anticipated to be the tallest wood structure in the U.S. by the end of the decade. Although prescriptive codes do not yet allow for wood structures over 85 feet tall, designers believe the codes will catch up, once a few of these progressive projects are actually built under performance-based codes.

Sustainability

Because trees sequester carbon during their lifespan, that carbon is stored in timber for the life of the building. This means a timber structure is actually carbon negative, making it one of the most sustainable building materials available. One article describes it this way: "When CLT is used to build high-rise towers, the carbon savings can be enormous. The 186 tons of carbon locked into Stadthaus [a nine-story CLT apartment building in London] are enough to offset 20 years of its daily operations, meaning that for the first two decades of its life, the building isn't carbon neutral — it is actually carbon negative. Rather than producing greenhouse gases, Stadthaus is fighting them." ("The World's Most

Framework, in Portland, Oregon, is expected to be one of the first tall timber structures to be completed in the U.S. It will feature one level of ground-floor retail space, five levels of office space, five levels of workforce housing and a rooftop amenity space.
Courtesy of Lever Architecture

Advanced Building Material Is … Wood," Clay Risen, Popular Science, Feb. 6, 2014.)

Mass timber is also a renewable resource. As long as forests are managed and maintained properly, the world will have an endless supply of trees. And mass timber, unlike heavy timber, does not take decades to grow and mature. The wood used in

New & Noteworthy

20,000 sq. ft.

eBay's corporate campus in San Jose, California, has a new "front door" known as Main Street. The 20,000-square-foot hub, which was designed by ESI Design and completed in late 2016, features a 7,150-square-foot "main hall" for conferences and other large events, a coffee bar and an outdoor deck. Glass walls provide an open, airy environment, while interactive installations allow visitors to experience the company's global reach. The centerpiece is a 15-foot touchscreen wall where employees and visitors can tap icons representing shoes, handbags or other goods, then see how many items in that category were sold in the past few hours or days. Additional interactive screens showcase eBay buyers, sellers and others.

Courtesy of eBay

166 units

Aspen Heights Partners is working with Grand China Fund to develop a 166-unit, 464-bed student housing high-rise in Austin, Texas. The project is Grand China Fund's first venture into student housing. Floor plans will range from efficiencies to five-bedroom units. The 17-story building will also feature a sixth-floor amenity terrace with a fitness center, game and study lounges and a pool area with grills overlooking the University of Texas campus. Construction began in September 2016 and is expected to be completed by fall 2018.

80 units

The Norwalk Housing Authority and Trinity Financial broke ground in November 2016 on the redevelopment of Washington Village Phase One in Norwalk, Connecticut. This phase, which is expected to be completed in March 2018, will consist of 80 new mixed-income apartments: 40 replacement public housing units, 18 affordable tax credit units and 22 market-rate units. Upon completion of all three phases, this initiative will replace Connecticut's oldest public housing project with 273 new apartments, half of which will be public housing.

mass timber is fast-growth spruce, Douglas fir and pine, all renewable and abundantly available species. Although scoring in the current LEED v.4 program does not yet recognize the true value of mass timber as a sustainable material, "innovation and design" credits and the traditional "resources and materials" credits can be used toward LEED certification of mass timber structures.

The Marketplace

Transit-oriented, mid-rise neighborhoods just beyond the urban core are great locations for mass timber buildings. These areas often have rents that are high enough to justify building with concrete in order to maximize the number of floors achievable within height limits. Thus CLT starts to make financial sense.

Mass timber construction is more expensive than stick-built conventional framing, but should be less expensive than concrete or steel frame construction. Because there are currently only four mass timber suppliers in North America, pricing in some areas is losing out to traditional steel and concrete, but with increasing competition and familiarity with CLT construction by the general contracting community, pricing can be expected to adjust accordingly.

Exposed timber has a warm, creative and loft-like appeal that complements a revitalized urban environment.
A case in point is the T3 project in Minneapolis, designed by Michael Green Architecture and developed by Hines. Completed in fall 2016, this seven-story, 220,000-square-foot office building in the North Loop office submarket, formerly a mid-rise warehouse district, was designed to attract creative tenants. T3 is currently the largest mass timber project in the U.S. Another example is Platte Fifteen, Denver's first CLT building. The five-story, 150,000-square-foot office project with street-level retail space was designed by OZ Architecture and is scheduled to deliver in 2018.

Exposed timber beams and ceilings at T3, a seven-story, 220,000-square foot office building in Minneapolis, were designed to attract creative tenants.
Photo by Ema Peter, courtesy of Michael Green Architecture

Schedules and Labor

Mass timber is fabricated almost entirely off-site, reducing on-site labor costs and time. In some instances, mass timber construction can be significantly faster and more efficient than concrete or steel construction. In one recent construction model, only three skilled carpenters and eight laborers would have been required to build a 100,000-square-foot CLT building. In addition, wood doesn't require reshoring, which allows trades to come in below the wood crew the very next day. CLT construction projects can therefore often shave typical schedules by one to three months.

An Aesthetic Differentiator

The quality of the interior environment of mass timber is truly exceptional. Exposed ceilings, beams and columns are all options because CLT is fireproofed through "charring." The exposed portions come with various grades of finish to suit the needs of the project. The Washington, D.C., development community is already demonstrating a lot of interest in finding creative ways to make mass timber economically feasible, in order to capitalize on its differentiating characteristics in a very competitive marketplace.

Mass timber is a carbon-friendly renewable building material that offers the added benefit of creating wonderful spaces. ■

By **Steve White**, AIA, principal, Fentress Architects, and director of the firm's Washington, D.C., studio

Rubberized Roads, Sustainable Concrete and Smart Bridges

Researchers are exploring new materials and smart sensors, paving the way to better transportation infrastructure.

By Allie Nicodemo, Arizona State University

ROAD AND bridge building technology has changed little during the past several decades. But researchers at Arizona State University are exploring new techniques for building transportation infrastructure that will last longer, cost less and protect the environment as well as human lives.

Arizona State University Professor Narayanan Neithalath and Assistant Research Professor Sumanta Das work with a student in their lab to test new materials for roads and bridges.
Photo by Nick Narducci

Rubbery Roads and Sustainable Cement

ASU engineering professor **Kamil Kaloush** tests and recommends improvements to pavement performance. His team found that materials for roads can be made better by including a special ingredient derived from cars themselves: recycled tires.

Producers process the tire scraps and grind them into a material called crumb rubber. The rubber reacts as an enhanced elastic component when mixed with asphalt cement. The mixture forms rubberized or asphalt rubber pavement. This is one of the projects Kaloush oversees as director of the National Center of Excellence on SMART (Sustainable Materials and Renewable Technologies) Innovations at ASU.

Rubberized pavement has many benefits. Just like the egg in a recipe for chocolate chip cookies, rubber makes roads much more resistant to cracking. That results in less maintenance over time, as well as a smoother and safer ride for drivers.

"Reduced deformation and cracking translates into road-user benefits such as better ride quality, less fuel consumption, lower maintenance frequencies and safer roadways," Kaloush says.

The asphalt-rubber mixture is cost effective compared to conventional pavement and is better for the environment. Rubberized pavement is also stronger and better performing than traditional types, so it can be applied as a thinner layer, using less material. Because it incorporates recycled materials, rubberized pavement requires fewer natural resources to produce. Its smoother surface also reduces particle emissions from tire wear and tear, resulting in better air quality.

Because rubberized pavement is thinner than traditional pavement, it stores and gives off less heat. Researchers have shown this can help mitigate the urban heat island effect, which results when buildings and paved surfaces absorb and retain heat. Curbing that effect results in cooler temperatures both on and off the road.

Kaloush's colleague **Shane Underwood** focuses on improving road materials down to the nanoscale. His team at ASU is adding tiny synthetic fibers to asphalt concrete. At just 10 microns in diameter, the fibers are about one-fourth the size of a human hair. But with a strength of 400,000 pounds per square inch, these tiny fibers are about six times stronger than most structural steel.

When a crack forms in traditional concrete, it gets wider and more severe over time. That's because the weight of a load can't be transferred across the concrete, causing the material to separate.

"When you're driving down the road and you see a large crack, it didn't just appear that way out of the blue. It got bigger over time," Underwood says. The synthetic fibers his lab is testing help take on some of the weight from a passing vehicle. They reinforce the concrete and keep cracks from widening. This prevents water from getting in and making the damage even worse.

ASU engineering professor **Narayanan Neithalath** is also developing new materials for infrastructure. Some of his research focuses on longer-lasting concrete and cement for roads, bridges, tunnels and dams.

Portland cement is the most commonly used material for these projects, but it only lasts 20 to 25 years and has an environmental footprint like a fleet of Hummers. Neithalath wants to replace Portland cement with a material that lasts twice as long and requires fewer resources to manufacture, making it the Prius of the concrete world.

Kaloush says effective transportation infrastructure is a balancing act of durability, safety and efficient mobility of people and goods. In the future, those challenges will be compounded by the clashing of two forces: climate change and a rapidly growing population.

New & Noteworthy

66 stories

In Miami, global developer G and G Business Developments plans to begin construction of Aston Martin Residences in summer 2017. Set along the waterfront where the Miami River meets Biscayne Bay, the 66-story tower will mark the Aston Martin brand's first foray into luxury living. The building will include approximately 390 condominiums, ranging from one- to four-bedroom units as well as penthouses with private pools and terraces. The luxury automaker's design team will design all interior common spaces, including two private lobbies, a two-level fitness center and a full-service spa. Additional amenities will include a 55th-floor infinity pool and a private yacht marina. The project is expected to be completed in 2022.

18 acres

Al. Neyer has acquired 18 acres in the Cool Springs area of Franklin, Tennessee, for the development of Mallory Green, a walkable mixed-use project that will include a speculative five-story office building and two business hotels. New York Life Insurance Co. is joining Al. Neyer as an investment partner in the Nashville-area office building, which will feature floor-to-ceiling glass, an open floor plan and almost 1,000 parking spaces. Dakota Legacy Group will develop the hotels. Al. Neyer envisions the project as "a modern destination where people can enjoy walking paths and easy access to more than 45 dining and retail options just steps away from their office or hotel room." Mallory Green will incorporate four acres of protected green space. A future phase could include a second office building and parking garage to serve both office buildings and hotels. ■

Do you have a new and noteworthy project in the planning, design, or construction stage that you'd like to share with fellow real estate professionals? Send a brief description and high-resolution rendering to developmentmagazine@naiop.org.

Brainy Bridges

Neithalath's team is also hoping to advance another new area of infrastructure technology that borrows a technique from the medical field. Just as an electrocardiogram monitors the rhythm of a patient's heart, Neithalath wants to develop sensors that monitor the health of the nation's highways.

This technique is already in use. For example, the bridge that replaced Minnesota's Interstate 35W is self-monitoring, with 323 fiber-optic sensors embedded in the concrete.

Neithalath's team is working on a new, more accurate type of fiber-optic sensor. These sensors are coated in chemicals that react with the pavement to measure markers of deterioration. The sensors detect the presence of chlorides and sulfates, then transmit their findings back to engineers.

"For example, if you're putting a lot of salt on your bridge and it starts to go through and corrode the steel, my fiber-optic sensors will tell me how much salt is inside the concrete," Neithalath says.

Before sensors, the only way to determine a bridge or roadway's health was to sever it open and peer between the cracks, or wait for a catastrophic failure. This new approach is like preventative medicine. As soon as the sensors detect vulnerability, they diagnose the problem and alert engineers that repairs are needed. Engineers can then order more tests or decide on a course of treatment.

Catching corrosion early on is especially important as more people move into cities. As urban populations grow, shutting down roads and bridges for major repairs becomes harder. With this in mind, ASU researchers want to build infrastructure that puts safety and sustainability on cruise control.

"We can use fewer resources, we can make bridges last longer and we can make them less risky," Neithalath says. "Sustainability is a collaboration of all these different things." ■

By **Allie Nicodemo**, science writer, Office of Knowledge Enterprise Development, ASU

This article is adapted from one that originally appeared on research.asu.edu.

CEO on Leadership:
Chuck Scott, CEO, Cushman & Wakefield Canada

The CEO of the Canadian operation of a major global real estate services firm with more than 43,000 employees in over 60 countries offers his perspectives on leading and growing the business up north.

By Ron Derven


Chuck Scott

UPON EARNING a degree in economics from the University of Western Ontario, Chuck Scott entered the real estate business in the early 1990s at a national boutique real estate consulting firm known as The Gordian Group. He later became president of the company and held that position when the company was sold, in 2008, to Cushman & Wakefield, where he became president of its occupier services business. After Cushman & Wakefield merged with DTZ in 2015, the company's global leaders launched a search for a new CEO of Canada. Scott — who was born and raised in St. John, New Brunswick— was appointed to that position in February 2016.

***Development:** As CEO, what are your core areas of focus?*

Scott: My No. 1 focus is to expand the company through a strategic combination of organic and acquisition-based growth initiatives. This is all framed by a well thought-out strategic plan and guided by three main imperatives:

First, we're driving a culture of high performance within Cushman & Wakefield. High performance does not mean ruthlessness; it means a desire to be the best. That is what our people, our clients and our community deserve. When you get high performance right, everything else is easier.

Second, we're laser focused on making sure we have the right people in the right places. We want the best people in the business working at Cushman & Wakefield … but more than that, they need to be doing the right things. I can have a team of rock stars, but if they are not in their positions of highest and best use, we're shortchanging ourselves and our clients.

Third, we make sure we're organizing ourselves around our clients. I am a huge proponent of alignment. Understanding what is truly important to our occupier and investor clients is the key to managing our relationships.

***Development:** What qualities do you look for when hiring senior staff?*

Scott: The real estate business is like a roller-coaster ride, with lots of ups and downs. Therefore, I need people in senior positions who are calm and can keep things in perspective. The next quality I look for is courage: I need senior staff to be brave, and that means sometimes having difficult conversations with people in real time and making decisions that may not be popular, but are right.

Finally, and this may be the Maritimer in me, but I want to work with people who are humble. Humility is probably the No. 1 criteria for all employees, but particularly for senior staff.

***Development:** Apart from the data your own firm produces, what economic or market indicators do you track on a regular basis to keep up with the industry?*

Scott: We focus on data that gives us predictive insights, data that drives real estate indices. For example, we track real GDP growth, job growth, benchmarking data, migration patterns and demographics from suburbs to downtown. Cushman & Wakefield has 350 researchers around the globe and produces 1,800 market reports annually. We track core data in 80 major U.S. cities and across all of the major Canadian markets. This is critical for many of our clients, particularly those who have an Americas focus.

"One of the biggest changes I have seen during my 23 years in the industry, which will continue to impact us three to five years out, is the way that stakeholders make decisions. People are not looking for just a real estate broker anymore; they are looking for an integrated real estate solutions provider."

Chuck Scott

Development: *Over the next 18 months, what challenges/opportunities do you see for the commercial real estate industry?*

Scott: We are watching markets like Calgary that are dependent on the oil sector. These markets have given back space over the last couple of years because of that depressed resource market. These markets will come back, but will continue to face challenges over the near term.

We also need to monitor interest rates in the U.S., as the modest rate rise initiated in December 2016 is already putting upward pressure on interest rates in Canada. This, of course, will impact debt service costs, which will touch a variety of real estate sectors, including the investment markets. Of course, we do not yet know what the impacts of shifting U.S. government policies around real estate will be, but interest rates are already rising.

In terms of opportunities, today's challenges in the resource sector could turn into an opportunity if oil prices continue to rise.

Development: *Looking out three to five years, what do you see on the horizon that will impact the industry? What are you doing today to prepare for those challenges?*

Scott: One of the biggest changes I have seen during my 23 years in the industry, which will continue to impact us three to five years out, is the way that stakeholders make decisions. People are not looking for just a real estate broker anymore; they are looking for an integrated real estate solutions provider.

Today, stakeholders are thinking about things such as corporate social responsibility and attracting and retaining the best talent. These were not part of the real estate decision 20 years ago. Market intelligence, research and information are still important, but today it is what you do with that information that differentiates you.

Stakeholders will still need someone to negotiate a great deal, but today they also need so much more than that. Although we at Cushman & Wakefield will never lose sight of the fact that we are a brokerage firm, and that is at the very core of what we do, we are making sure that we are also a service partner with the thought leadership and experts who can help clients make an occupancy decision as opposed to just a real estate decision.

Development: *What is the most valuable lesson you've learned over the course of your real estate career?*

Scott: I have learned not to try to be the smartest person in the room because, No. 1, I rarely am and, No. 2, in the grander scheme, that is not what's important. So I have learned to listen and to try to understand what makes people tick and what is important to them — and then to develop a solution that fits them. ■

By **Ron Derven**, contributing editor, Development

The Time for Succession Planning Is Now

CRE companies must take proactive steps to develop succession plans for management and other key positions.

By Julie Eisenhauer, CPA, Clark Nuber PS

FINDING AND RETAINING great talent has always been a challenge for executives, no matter the industry or geographic location. As current leaders prepare to retire, companies are also challenged with identifying qualified successors. According to **Christopher Lee**, president and CEO of CEL & Associates, Inc., and producer of the "2016 NAIOP Commercial Real Estate Compensation Survey," nearly 71 percent of surveyed real estate firms are having a hard time finding, recruiting and hiring talent. Nothing is more important to a firm's ongoing success than the quality and depth of the team.

Top-performing companies respond to this challenge by taking proactive steps to develop succession plans for management and other key positions within the organization. The development of these plans can serve two purposes: to keep valued employees engaged with professional development opportunities and to identify successor candidates for management positions.

An effective succession plan should include the following steps:

Identify Potential Leadership Gaps

Take an inventory of your company's current leadership team. Identify who will be retiring and when. Start with the following questions:


Julie Eisenhauer

1) What positions will need to be filled in one year, three years and five years?
2) Which skills, talents and abilities do members of your management team require? Which of these is it currently missing?
3) Considering changes in the industry, technology and the environment, what additional skills, talents and abilities will be needed in the future?

As you go through this analysis, evaluate your organizational structure. Are the right people in the right positions? Establish a timeline for leadership transition and list the skills, talents and abilities required for each position. Document a plan to resolve any leadership gaps that have been identified.

Identify Successor Candidates

Review your current staff and identify those who have the skills, capacity and passion to grow with the firm. Who would be the most effective leaders? Do they have the technical

Median Years of Tenure With Current Employer For Employed Wage and Salary Workers by Industry

Employee By Industry	Median Tenure (Years)
Construction	3.9
Real Estate & Rental Leasing	3.8

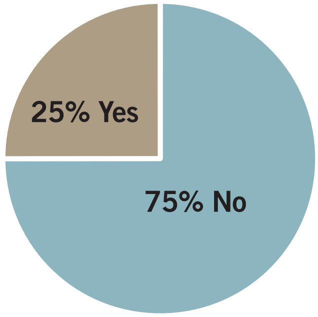
Source: U.S. Bureau of Labor Statistics, January 2016

Employee Tenure Summary

Worker by Age	Median Tenure (Years)
All ages	4.2
55-64	10.1
45-54	7.9
35-44	4.9
25-34	2.8

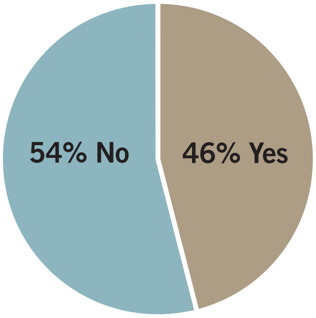
Source: U.S. Bureau of Labor Statistics, January 2016

Percentage of Respondents Who Have Identified Successors for Key Positions



Source: Stanford Graduate School of Business, "2014 Succession Planning and Talent Development Survey," March 2014

Percentage of Respondents Who Have a Process For Developing Candidates



Source: Stanford Graduate School of Business, "2014 Succession Planning and Talent Development Survey," March 2014

and "people" skills required? Make a list of the gap in skills identified and have a conversation with each candidate to understand his or her interests and desire to take on a future leadership role. Determine what actions are needed to close the skills gap and the timeline in which that must be accomplished.

Develop Action Steps

Once you have identified successor candidates, create an individual development plan for each. This plan should be aligned with the timeline established for leadership transition. It should include requirements for education, training, core competencies and exposure to specific business operations.

Locate or create training programs and provide opportunities for candidates to get involved in operations. Provide mentors who can coach these candidates and hold them accountable in achieving their goals. Schedule regular check-in meetings to review the status of goals, accomplishments and areas for improvement. Evaluate the need to revise the development plan based on changes in the business or leadership skills required.

One national general contractor and development company that has implemented many of these steps in its leadership development plan has experienced positive results in staff retention, achievement of employee career goals and accelerated promotions. On an annual basis, the company looks out five to seven years to identify gaps in leadership positions and the "rock stars" within the organization who may fill those gaps.

The company then invests in the development of these future leaders by getting them involved in an advanced leadership program that focuses on the development of technical, leadership and strategic thinking skills. The participants in the program work with their managers and sponsors to create an action plan with both short- and long-term goals. Participants are then held accountable for achieving their goals during check-in meetings throughout the year.

Finding, retaining and grooming great talent can be a challenge for many businesses. To compete successfully, a commercial real estate company must take proactive steps to develop a plan that engages talented employees and provides for smooth transitions of leadership. Consider working with an advisor who can help management develop a systematic plan that will ensure the sustainable success of the business. ■

By **Julie Eisenhauer**, CPA, audit and assurance shareholder, Clark Nuber PS

The Third Place in the Modern Office

"Third places," both in common areas and within tenant spaces, can add value to office buildings.

By Gary Miciunas, Nelson

URBAN SOCIOLOGIST **Ray Oldenburg** first wrote of the "third place" in his 1989 book "The Great Good Place." He enlightened readers about the importance of a place without ties to personal obligation — an environment that encourages relaxation, collaboration and decompression — for people's overall well-being. In his words, "daily life, in order to be relaxed and fulfilling, must find its balance in three realms of experience. One is domestic, a second is gainful or productive, and the third is inclusively sociable, offering both the basis of community and the celebration of it." Now, almost three decades later, this third place has become even more relevant for people seeking work-life balance.

Consider the rise and prominence of the open office; it can encourage collaboration, foster learning and cultivate a strong culture. However, if poorly implemented, it inhibits the employee's ability to find personal solace as well as the ability to process complex ideas and revitalize oneself during working hours. Current studies reveal the importance of balancing group interaction and personal space. While collaboration is essential in today's workplace, so is "sequestered time," which enables individuals to process information and develop their own perspectives.

The idea that the third place must be entirely separate from the office environment is quickly fading away. Office culture is changing, and corporate executives now recognize the need to include respite spaces and interactive, fun places within the workplace.

The "respite space" at Gogo Inflight's corporate headquarters in Chicago enables employees to work, play, socialize or simply relax.
©Halkin Mason Photography LLC

It's widely known that companies like Microsoft and Facebook have created entertainment- and food-based third places where employees can rest, have fun and enjoy a meal or a snack. These places can incorporate Ping-Pong tables, cafes, bars, video game stations, karaoke lounges and more. Other types of third places include a variety of multipurpose, interactive collaboration spaces.

Corporate Third Places

Gogo Inflight's new corporate headquarters in Chicago, for example, incorporates an entire, connected area based on the third place ideology. A cafe, Ping-Pong table and multiple comfortable gathering and seating areas take up a significant portion of the floor plate. These enable employees to work in more collaborative environments while also providing spaces in which they can unwind, connect with one another and nurture a sense of belonging and community, all without leaving the workplace.

A pioneer in wireless in-flight digital entertainment solutions, Gogo sought a workplace that would facilitate its aggressive growth and flexibility while also offering employees new ways of working in a collaborative space as well as places to unwind and connect with one another. Its third place is defined by exposed brick, offering a warmth that sets it apart from the cool whites and blues of the rest of the workplace.

Google's Cambridge, Massachusetts, campus features a multitude of game rooms as well as connector and collaborative spaces like this one, which allows employees to connect with their coworkers.
©Halkin Mason Photography LLC

The common space at the Plaza Seven office tower in Minneapolis incorporates multiple seating areas similar to those found in a hotel lobby as well as upgraded building amenities.
©Halkin Mason Photography LLC

Google is another example. The company recently revitalized and expanded its offices in Cambridge, Massachusetts, on a campus that consists of three interconnected buildings occupied by thousands of Googlers. A multitude of game rooms, casual meeting spaces and various "nooks and crannies" enable Googlers to connect with their coworkers in ways that often are more meaningful and engaging than traditional workplace interactions.

Other Types of Third Places

Office building owners and landlords are also implementing third place concepts in common spaces. Those who have done so have found that third places can help drive up property values, attract top-quality tenants and revitalize a building's reputation. These third places typically include retail spaces, restaurants, cafes and fitness centers as well as lobby areas and outdoor spaces with comfortable and collaborative seating clusters that encourage tenants and their guests to interact, be themselves and enjoy a sense of peace and belonging.

For example, when working on capital improvements for Plaza Seven tower in Minneapolis, Nelson upgraded building amenities and incorporated multiple comfortable seating areas more akin to those typically found in a hotel lobby or high-end bar than in an office tower. The upgrades helped raise occupancy from 58 to 97 percent, which in turn helped increase the price at which the building was sold in July 2016.

What type of third place is right for your buildings and tenants? It's important not to lose sight of the tenants' office culture and objective. The third space should be an extension of this culture, not a separate entity. It should always meet the needs of the company and its employees. If your building already has a cafe in the lobby, adding another won't necessarily benefit tenants. But a fitness center or game room might be highly valued by tenants whose employees work long, irregular hours. A knowledgeable design team will take into account the needs of your existing or prospective tenants to create relevant, useful third places that can help make your building "the place to be." ■

By **Gary Miciunas**, principal, advisory services, Nelson

Mitigating Fitness Center Impacts

Upgrades to walls, ceilings and floors can mute disruptive noise and vibration.

By Terence Tyson, PE, CDT, Acentech

FITNESS CENTERS are valued amenities in many office, residential and mixed-use buildings, but they can also create noise and vibrations that make then less than ideal neighbors. Can a fitness center "play nice" with other building tenants? The answer is a qualified "yes," depending on both the building construction and the type of fitness facility.

Solutions

Jarring noise from dropping weights, the music that often accompanies spin and aerobic classes, and continual clatter and impact sounds caused by treadmills and other equipment are a source of headaches for many trying to work or live adjacent to these facilities. Successful control of this type of noise requires careful planning, and may also involve some special construction techniques. While it's best to address these issues before construction is underway, that isn't always possible if a fitness center is added later, or if a new fitness center tenant takes over an existing workout facility or other retail space.

When the offending noise issue involves only loud music or the low-intensity impact-related sounds and vibration associated with treadmills, dance or spin classes, the problem can usually be resolved. Doing so typically requires upgrading walls or floor-to-ceiling assemblies with something considerably more robust than standard residential or office construction. For example, a resiliently supported barrier ceiling assembly is often needed to reduce vertical airborne sound transmission. This assembly consists of two layers

For its new North American office in Waltham, Massachusetts, Cimpress expanded an existing fitness center and added a spin room. Acentech provided acoustical design and mechanical noise consulting for developer Hobbs Brook Management. The developer acoustically isolated the ground-floor fitness center from the sound-sensitive office space above with a resiliently supported, two-layer gypsum board barrier ceiling above the visual acoustic tile ceiling.

Warren Patterson Photography

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of five-eighth-inch gypsum wallboard with batt insulation hung from the structure on resilient clips or hangers. It can cost $10 per square foot or more, depending on the types of hangers employed, the height of the ceiling, etc.

Periodic high-amplitude disturbances resulting from dropping free weights or stacks of plates in weight-lifting machines — or from the more violent impacts associated with classes that encourage participants to drop or throw weights or medicine balls — can be more problematic. The low-frequency booming sounds caused by those activities are extremely difficult to contain. Neighbors above, adjacent to and especially below will often find the situation intolerable.

Of course, it's a good idea not to locate such a facility directly above or adjacent to a sound-sensitive neighbor. However, noise problems can also extend to spaces above the exercise facility, sometimes several floors above, even if the gym is located on grade. Heavy impacts from dropping weights can shake the building structure, excite natural frequencies and produce vibration and audible noise in all directions.

Some relief can be found by employing resilient materials — such as specially designed 0.75-inch or thicker ribbed rubber floating subfloor underlayment systems or 2.75-inch fitness floor covering products — to decouple exercise equipment from the building slab. However, even thick resilient underlayments designed for athletic room applications cannot always compensate for the effect of heavy impacts on lightweight building structures.

"Property owners must recognize that sound and vibration can travel in all directions, both vertically and horizontally, throughout the building."

Terence Tyson

Building Type Matters

Some building types are simply poor candidates for gyms sharing space with residences, retail establishments or offices, because of their lightweight steel structure, less massive floor slabs and/or uncorrectable flanking conditions, which may include exposed building structure and exterior curtain walls. Unfortunately, situations involving heavy impact activity may defy a satisfactory solution for all parties; the only solution may be to prohibit such activities or limit them to hours when office or residential tenants are unlikely to be present.

For example, in an older masonry building with five-inch or thicker concrete slab floors, treadmills might be successfully located above office space without complaint, provided an appropriate resilient fitness flooring system and a spring-supported, heavy secondary barrier ceiling can be added to the office space below.

On the other hand, when a high-intensity workout facility moved into a ground-floor retail space in a low-rise office building, directly below an office tenant, the results were not as good. Although initial complaints regarding loud music and voices were addressed by improved sealing of penetrations in the office floor slab and along the curtain wall facade, the introduction of resilient fitness flooring products did not totally abate the effects of dropping weights on the grade-level building slab. The heavy impact still shook the lightweight structure, generating audible noise throughout the building.

Ensuring Congenial Coexistence

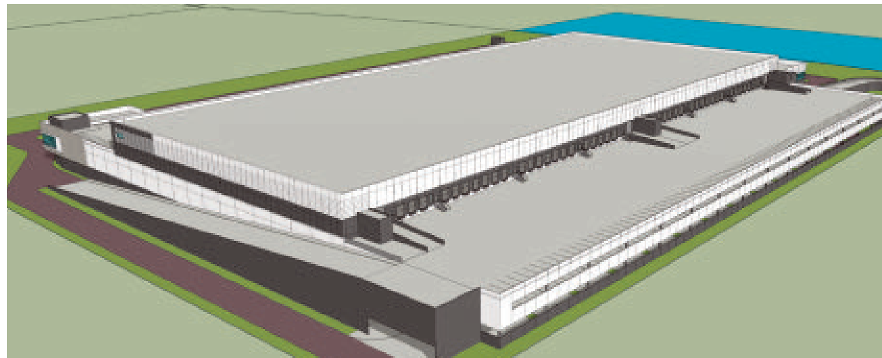
Developers and building owners can ensure the congenial coexistence of fitness centers and other tenants by carefully considering location and building structure before introducing a fitness center, particularly a high-intensity or weight-lifting facility. Ideally, such facilities should be located on or below grade, away from all residences and offices. Property owners must recognize that sound and vibration can travel in all directions, both vertically and horizontally, throughout the building. When planning for such a fitness center, expect to make significant upgrades to wall and ceiling types at a minimum, and assume that resilient or floating floor details will likely be required. Recognize, however, that, particularly in some lightweight steel structures, such facilities just may not be able to coexist with noise- and vibration-sensitive neighbors. ■

By **Terence Tyson**, PE, CDT, principal consultant in acoustics, Acentech

Industrial Goes Vertical

Jay Todisco, AIA, LEED AP, Ware Malcomb

Cultural shifts in society are leading to disruptive changes in ecommerce fulfillment. The turn towards just-in-time and 1-hour delivery is becoming mainstay in a market where a shipment cannot be fast enough. Simultaneously, uncertain and fluctuating fuel prices, among other changing market factors, are driving industrial back to urban areas. As delivery timelines continue to compress and trucking transportation costs rise, fulfillment facilities need to evolve to keep up. How? They are going vertical.



Ware Malcomb Vertical Prototype

The concept of vertical warehouses is not new. Starting in colonial times, major port cities received shipments delivered by cargo ships daily. The confluence of transportation networks distributed the goods from the port to consumers. Goods were transported by trains to the suburbs and then delivered by horse and buggies to consumers. Items not distributed were stored in warehouses close to the port. Expensive and limited land availability spurred the inception of vertical warehouses. Over time as the prevalence of truck transportation expanded, warehouses moved out to rural areas where more land was available at a lower cost, and so began the emergence of single-story industrial distribution and fulfillment centers.

Today, we have come full circle with the need to go vertical once again. As the demand for faster delivery increases, industrial fulfillment centers in rural areas need to relocate closer to urban centers to provide quick, on-demand service. Vertical warehouses have been built in certain Asian markets due to high urban concentration and very limited land availability at ports and population centers, and the trend is now starting to gain traction in North America.

Location, Location, Location

How do you determine the best and most efficient location for the warehouse? The old formula-driven paradigm took rooftop numbers, zip codes, and population demographics into consideration. The warehouse and retail stores were then placed at a determined location to best serve that specific area's needs, largely based on population size.

Today, location is driven by clicks. The new data-driven paradigm is based on the click through rate of purchases, where the clicks are coming from, and data mining of buying habits and trends. As product demand increases, so does the need for rapid fulfillment. Vertical warehouses will fulfill the quick delivery demands necessary to get the purchased products to consumers. These warehouses will typically house the fastest moving SKUs to enable the company to deliver their best selling products the fastest.

Vertical Prototype Design

Ware Malcomb is currently designing some of the first multistory warehouse facilities in the United States which include ten facilities in key markets such as Los Angeles, New York, Vancouver, Hawaii, and Seattle, among others. Ware Malcomb has developed a 4D prototype that encompasses a holistic view of the entire project type. Our in-house architectural and engineering teams have partnered with major national developers, structural engineers, and general contractors to develop the prototype. We have analyzed the total project costs from site improvements, structural systems, building skin options, and the complex building code and planning issues these hybrid buildings will require. With these powerful tools we have created, our clients will be able to evaluate sites in real time. By having the ability to quickly develop proformas based on accurate, local construction pricing and specific land values, tenant lease models can be generated. This prototype will solve the functional, construction, and financial puzzle of today's rapidly increasing industrial market demands.

Jay Todisco, AIA, LEED AP
Executive Vice President
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Why Investors Are Flocking to Student Housing

Purpose-built student housing has matured into an institutionally acceptable asset class.

By Paula Poskon, STOV Advisory Services

ONCE CONSIDERED a niche subset of the rental housing sector, purpose-built student housing (PBSH) has matured into an institutionally acceptable asset class. A large and increasingly college-bound population of young adults, set against a backdrop of underinvestment in on-campus housing, have together created a housing shortage for college students in many markets. Developers have been seeking to fill this with off-campus student housing.

A Unique Product

The key differentiator between PBSH and traditional apartments is the leasing model. PBSH leases by the bed, not the unit. If a roommate decides to drop out at winter break, the remaining roommate — and his or her parents — are not on the hook for the entire amount of the unit's rent, only for their respective portion. A typical unit consists of three bedrooms and three bathrooms, as well as a shared kitchen and living-dining area.

"With development yields still offering an approximately 150 bps spread to acquisition cap rates, it is logical to see the dominant players weighting capital allocation more heavily toward development."

Paula Poskon

Another differentiator is the leasing cycle. Generally, leases are based on a 50-week time frame, payable in 12 monthly installments. This allows for the annual "turn" ahead of the start of the academic year, when most tenants move out, giving the owner/operator just two weeks to complete needed repairs and maintenance before new tenants move in. Thus, unlike a traditional apartment that can be rented any time, a PBSH community that starts the school year with an empty bed will likely see it remain empty for the entire coming year. On the flip side, however, is the high visibility of cash flows. With tenants in place by the start of the school year, forward 12-month revenue is essentially locked in.

With steady demand year-over-year and limited comparable competing product, net operating income (NOI) annual growth produced by stabilized assets owned for more than one year (same-store) has remained in a stable range of 1 to 5 percent over the past five years. Thus, while it did not enjoy the double-digit growth seen in the apartment sector during the economic recovery, PBSH was likewise shielded from declining NOI during the downturn.

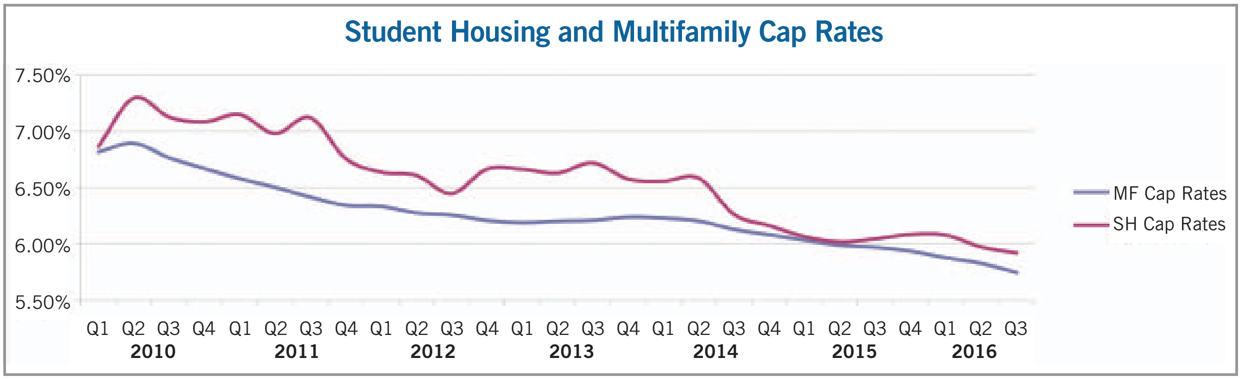
Bill Bayless, CEO of publicly traded American Campus Communities (ACC), often cites in his investor presentations the fact that ACC has produced 11 consecutive years of positive same-store NOI growth, even through the Great Recession. That track record dates back to the company's initial public offering in 2004, a stellar track record by any measure.


Paula Poskon

Institutional Investment Increases

This predictability of cash flows and recession resilience is attracting increasing institutional investment into PBSH, particularly at a time when other real estate sectors may be viewed as being closer to the end of the cycle. For example, the two largest transactions last year each exceeded $1 billion, and neither of the two public REITs involved in PBSH were among the buyers.

Chicago-based private equity firm Harrison Street Real Estate Capital LLC acquired the assets of Campus Crest Communities, which had been one of only three publicly traded REITs specializing in PBSH, in a roughly $2 billion deal. Similarly, Scion Group, also based in Chicago, formed a joint venture with equity partners Canada Pension Plan Investment Board and GIC Real Estate to acquire a portfolio of approximately 11,000 beds serving 18 campuses from University House Communities Group in a deal valued at about $1.4 billion. Despite its size, this joint venture has remaining capacity to continue making acquisitions.



Note: Includes quarterly cap rates for transactions over $2.5 million in the U.S., according to Real Capital Analytics.
Source: Cushman & Wakefield

Commenting on the influx of capital into PBSH, **Dorothy Jackman**, managing director at Colliers International and a broker specializing in student housing transactions, notes that cross-border dollars account for 40 percent of total sales year to date, up from just 2 percent in 2013.

Yet, these two transactions are the exception in PBSH, not the norm. **Justin Glasgow**, who specializes in student housing at Cushman & Wakefield, says PBSH has "only a few well-capitalized, fully integrated owner/operators and a small number of PBSH-focused equity capital sources. The result is a relatively small sector with just a handful of large investors funding multiple competitors. We see a significant shift among investors interested in the space, both traditional and nontraditional, to partner on an exclusive or near exclusive basis to get involved."

Not surprisingly, the impact of increased institutional investment has been compressing cap rates, in particular closing what had been a historical spread of 50 to 75 basis points above traditional multifamily housing.

This has compelled the largest players to begin recycling capital in larger volumes. In late 2016, ACC sold a portfolio of roughly 12,000 beds in a transaction exceeding $500 million, at a reported 6.1 percent average going in economic cap rate, calculated using NOI adjusted for recurring capital expense and management fees. Proceeds, along with those of asset sales earlier in the year, are being redeployed into the company's development pipeline, currently projected to deliver $600 million worth of assets by the start of the 2017/2018 academic year and another approximately $230 million already underway for 2018/2019. With development yields still offering an approximately 150 bps spread to acquisition cap rates, it is logical to see the dominant players weighting capital allocation more heavily toward development.

The more relevant question for these players, rather than acquisition versus development, becomes where to focus development investments. For the two publicly traded REITs, ACC and Education Realty Trust (EDR), that answer brings the story full circle.

A New Model

The emerging trend in PBSH, led by these two companies, is the public-private partnership model. REITs are partnering with universities to replace aging on-campus student housing and add new housing capacity on campus. In the last five years, such investment by the two companies has grown from zero to $2 billion. Their respective operational track records, financial transparency and access to the spectrum of options in the capital markets position them as a duopoly to capture this growing opportunity set.

The university gets new housing, helping it attract the best students and win the matriculation battle, without drawing on its own balance sheet. The companies add assets to their portfolios — assets that have even lower leasing risk and thus more stable cash flows than their off-campus student housing assets.

Key terms of such partnerships typically include a long-term ground lease exceeding 50 years, often with multiple 10-year renewal options; noncompete provisions; collaborative marketing efforts; and ground lease payments by the developer that are adjusted based on how much non-revenue generating space the university wants in the structure, such as classrooms or faculty offices.

With the public REITs weighting capital allocation more heavily to on-campus development, some smaller private players see a window of opportunity to ramp up acquisition volume. In their view, the REITs are moving to a quasi-infrastructure business model and effectively ceding their leadership as industry consolidators. "That's just nonsense," says **Randy Churchey**, CEO of EDR. "Looking back over the last decade, two-thirds of the REITs' growth has come from acquisitions, and I suspect when we look back 10 years from now, the same will still be true." ■

By **Paula Poskon**, founder, STOV Advisory Services

The Property Life Cycle: Planning for Effective Cost Segregation Strategies

New regulations create more cost segregation complexities and opportunities, making tax planning more complicated.

By Edward D. Meyette, Crowe Horwath LLP

WITH RENEWED expectation of comprehensive federal tax reform and a corresponding reduction in corporate rates, tax planning strategies that usually provide only timing benefits, such as cost segregation studies, may become much more effective. Strategies to move deductions from a lower-tax rate year to a higher-tax rate one will provide a permanent rate benefit in a falling tax rate environment. A recent discussion about cost segregation in a previous issue of Development magazine ("Cost Segregation Is Just the Beginning," Bruce Johnson, summer 2016) made the point that there are more cost segregation complexities and opportunities under the new tangible property regulations (TPRs). This article examines those areas of complexity and opportunity.

In matters of tax depreciation and capitalization rules, building owners should think comprehensively about how tangible property rules interact as a property progresses through its life cycle. In September 2016, the IRS issued an audit techniques guide for agents examining taxpayers' adoption of and adherence to TPRs. In that guide, the IRS states that "the final regulations fundamentally change the way we examine the tax treatment of buildings. Under these regulations, the acquisition, depreciation, improvement, restoration, adaptation, and disposition of a building and its structural components are interrelated. As a result, an audit of one event must include consideration of the others."

One of the new opportunities brought forth in the Modified Accelerated Cost Recovery System (MACRS) disposal regulations that were published concurrently with the TPRs is the partial disposition election. A taxpayer incurring facility renovation costs that result in an improvement should consider the benefits of making this election to recognize a loss on the disposal of a portion of the asset. A companion provision in the TPRs allows a taxpayer making the election to also currently deduct the removal costs or costs of demolition.

It is important to note that the partial disposition election is a prerequisite to currently deducting the removal costs. If the election is not made, then the removal costs must be capitalized to the improvement. While these provisions present two lucrative opportunities for taxpayers, they also make it necessary to plan for the benefits in a timely and coordinated fashion.

Timing Is Essential

The types of facility renovation projects that give rise to these disposition and demolition benefits often take place over a number of months or even years. However, the demolition activities giving rise to these benefits generally occur near or at the beginning of a renovation project. Because the deductions are current period opportunities, they must be accounted for properly on the tax return for the year the cost was incurred or invoiced. Historically, taxpayers simply would wait until the project was complete to begin evaluating how to segregate the

Edward D. Meyette

costs. Waiting that long, however, may result in a loss of these new opportunities.

Consider the following example: In November 2015, Company Y, a calendar-year taxpayer, begins a complete renovation that will result in an improvement to its headquarters. Company Y completes the demolition of the existing structural components in December 2015 and files its 2015 federal income tax return on Sept. 15, 2016. The project is completed on Oct. 1, 2016.

In November 2016, Company Y commissions a cost segregation study to help it properly account for the costs of the project. In December 2016, the cost segregation provider informs Company Y that it likely missed the opportunity to take a partial disposition loss on the old headquarters components and to deduct the costs of demolition because it failed to do so on its 2015 tax return. The only remaining avenue for pursuing the benefits would be through the uncertain and potentially costly late election relief provisions of Treasury Regulation Section 301.9100-3.

"Proper tax accounting for the life cycle of a property has become more complex with the advent of the TPR and related MACRS disposal regulations."

Edward D. Meyette

Ownership Is Important

Another hurdle to obtaining this new benefit relates to the issue of ownership. While some commentary suggests there is ambiguity on this point, the TPRs seem to require that a taxpayer first take the loss on the partial disposition to deduct the removal costs.

This requirement will present a challenge when the entity incurring the cost of the renovation is a tenant and the property the tenant is removing is, in fact, the landlord's property. Therefore even though the tenant incurs the cost of removing the old items, it may not deduct that cost because it cannot take the partial disposition loss.

In this situation, a taxpayer should proactively consider two possibilities that would allow it to deduct the removal costs. First, the taxpayer tenant should consider whether any of the items being removed are tenant improvements that it originally placed in the facility. If that is the case, the taxpayer/tenant will meet the ownership requirement.

Another situation in which a proactive taxpayer can plan for optimizing its outcome is when the tenant and landlord are related parties. In this scenario, the related group management could consider the disposition and removal cost rules when determining which party should incur the cost of renovating the property. If otherwise advisable, the related group management may determine that the landlord should incur the cost of renovation. Since the landlord is the owner of the underlying property, it may then maximize its deductions under the disposal and removal cost rules.

Proceed With Caution

Proper tax accounting for the life cycle of a property has become more complex with the advent of the TPR and related MACRS disposal regulations. Because issues such as repairs, improvements, disposals and depreciation methods are now interrelated, a simple reactive approach may no longer be sufficient. Taxpayers who consider all of these interrelated issues in a timely manner at each critical point will best optimize the tax benefits throughout the life cycle of the property. ■

By **Edward D. Meyette**, CPA, partner, Crowe Horwath LLP

Plantscaping and the Value of Biophilic Design

Interior plantings can make a big impact on LEED and/or WELL certification — and on building occupants' comfort and productivity.

By Kenneth Freeman, Ambius

IN AN INDUSTRY that's steadily becoming more conscious of its environmental impact and the value of sustainable design, developers, property managers and owners are increasingly seeing the value in building to LEED standards, even when they don't pursue LEED certification. In recent years, the WELL Building Standard has also emerged, with particular attention to the built environment's impact on the people who occupy buildings as well as the ecological footprint of the building itself.

Planting to Meet Green Standards

When making improvements to existing buildings or kicking off a new project designed to LEED standards or with the goal of LEED and/or WELL certification, it's important to consider the role that "plantscaping" – interior as well as exterior landscaping – can play in meeting these standards. One should also consider the impact plants can have on boosting property values and improving the experience of the tenants who reside or work in commercial properties.

LEED specifies areas where interior plants – living green walls, in particular – can contribute to a building's scorecard, generating as many as 30 points toward certification. Interior plants can have an even greater impact on WELL Building certification, by improving the experience of a building's occupants. The concept of biophilia, which focuses on the innate connection between humans and nature and its impact on happiness and well-being, plays an important role in WELL's "Mind" category, one of the seven key concepts of the WELL Building Standard.

The San Francisco offices of tech company Segment IO feature five- to six-foot-high Chamadorea plants in 10-inch-tall planters as well as comfortable seating, creating a more natural setting that may lower workers' stress levels.
Courtesy of Ambius

Many people spend more than 90 percent of their time indoors, where they are typically separated from the natural environment. Implementing indoor plant features is an important step toward providing access to elements of the natural world. This can be done in several different ways.

Strategically placed potted plants of varying heights can mimic the look and feel of a natural setting, providing a connection to the outdoors that's missing in more sterile interiors. To contribute to a project's WELL score, such plants must cover at least 1 percent of the floor area on each floor of the building. Living green walls are also a great way to meet the requirements of this standard as the space permits. A living wall must cover the equivalent of 2 percent of the floor area or occupy the largest available wall to contribute to the building's WELL score.

Measurable Results

Incorporating plants in a building's design can both increase the building's property value and enable it to command premium rents. In general, interior and exterior plantscaping can increase property values by as much as 5 percent, according to researchers **Robert Laverne** and **Kimberly Winson-Geideman** ("The Influence of Trees and Landscaping on Rental Rates at Office Buildings," Journal of Arboriculture, September 2003).

The offices of Gree, a mobile game developer in San Francisco, feature an 8-by-30-foot living wall that consists of approximately 850 plants, including a mix of Chlorophytum, philodendron, dracaena and jade pothos.
Courtesy of Ambius

Beyond enabling a building to achieve "green" certification, biophilic design impacts a building's occupants in a number of measureable ways, and can also result in improvements in air quality and energy savings. According to research by **Marlon Nieuwenhuis** et al. ("The Relative Benefits of Green Versus Lean Office Space: Three Field Experiments," Journal of Experimental Psychology: Applied, September 2014), the presence of plants in an office increased the well-being of workers by up to 40 percent and their productivity by more than 15 percent. The researchers conducted their studies in the offices of Deloitte in London and Achmea Insurance in the Netherlands.

Direct access to nature has been shown to alleviate stress and reduce absenteeism. Studies performed by **Ihab Elzeyadi** in an administrative office building at the University of Oregon ("Daylighting Bias and Biophilia: Quantifying the Impacts of Daylight on Occupants' Health," in "Thought and Leadership in Green Buildings Research, Greenbuild 2011 Proceedings," USGBC Press) demonstrated that views improved by biophilic design resulted in an average of 11 fewer hours of sick time per year for each employee working in these spaces. Exposure to complex natural scenes can lower pulse rate by 15 percent, lower stress hormones by 6 percent and lower blood pressure.

Recent developments in living green walls connect these features directly to a building's HVAC system, providing a natural biofilter for the air circulated throughout the interior space. A number of companies are working on ways to make retrofitting green walls into an existing space easier and more efficient. These green walls also increase the building's energy efficiency, because they're very effective as insulators, keeping spaces warmer in winter months and cooler during the summer. Potted plants can also play an important role in regulating interior temperatures by adding shade when placed near large windows. In large numbers, potted plants can reduce humidity and draw excess heat from the environment. This is especially true for larger plants that can be installed in large spaces such as a lobby or atrium.

The impact of plants on building interiors is growing in importance as the industry learns more about the benefits of plantscaping. Beyond LEED and WELL certification, plants contribute to the quality and value of a building in measurable ways, and the industry's increased focus on the impacts of biophilic design is generating creative new ways to incorporate plants in commercial real estate projects. ■

By **Kenneth Freeman**, head of innovation for Ambius, a division of Rentokil Initial PLC

The Sustainability Officer and Real Estate Operations

Corporate sustainability efforts vary widely in their approaches to real estate.

By Sam Black

SUSTAINABILITY IS becoming a big issue in commercial real estate. For real estate developers and owners, it typically involves considering factors such as location, site design, architecture, stormwater management, LEED or other certifications, energy efficiency and emissions from HVAC systems. For the owner-occupant or tenant, it may involve interior build-outs, workplace safety and health, solid waste disposal and other issues.

Different industries have different real estate sustainability concerns. Many companies focus much of their sustainability attention on their core business activities. This may mean that real estate-based concerns rank as a lower priority. For example, transportation and package delivery companies may highlight vehicle emissions reductions rather than sustainability issues at their warehouses or offices. A financial services firm with offices in many cities may report its sustainability accomplishments in terms of the carbon footprint of employee travel rather than on the emissions of the HVAC plant in each building, over which it likely has no control.

"Many of our professionals get training on green management practices, and scores of them are on track to get sustainability certifications. This is very important to the bottom line."

Megan Stearman

The nature of other industries makes them less able to focus on certain sustainability issues. For example, a manufacturer may have to be near an interstate highway, a port or a rail line rather than in an area served by transit. But sustainability efforts remain important for these industries, which may, for example, have brownfield remediation issues at their facilities.

In addition to focusing on a company's own activities, its sustainability efforts may also include the environmental footprints of its suppliers, such as electrical power producers, as well as its employees, customers and products.

How do major companies and employers relate sustainability to their real estate activities? It varies, depending on whether the company is primarily in the real estate business; whether its real estate holdings are a factor in its customers' experience with the company; and to what extent the firm controls the design and operation of the space it inhabits.

Court Gould, executive director of Sustainable Pittsburgh, a nonprofit group that works with businesses, says companies are responding to expectations about sustainability. "Customers, employees, investors and the public are interested in a firm's performance relative to its environmental, social and governance (ESG) impacts and are looking for signs of good practice. Many companies are responding by adding a discussion of these ESG issues to their disclosures. At many larger businesses," Gould adds, "hiring or appointing a sustainability officer/coordinator or vice president is on the rise." He notes that this role can enable companies to address operational low-hanging fruit such as improving their energy, water and waste efficiencies.


Sam Black

This is a good starting point for a look at the practices of several national firms, whose experience varies by firm and by commercial sector.

Oxford Development

More real estate industry firms are making sustainability part of their branding and operations. Pittsburgh-based Oxford Development Co. provides brokerage, consulting, energy management, investment advising, and project and building management services. Oxford develops, builds and owns office, retail, hospitality and institutional properties throughout the U.S.

The company has been an owner of or service provider for 5.4 million square feet of LEED-certified holdings. "Sustainability is a core company culture," notes **Michael Barnard**, a project director at Oxford. "We're endeavoring to build on this. We see the value for our clients. Customers ask: 'What are the sustainability aspects of the building? How can the building achieve a certain rating? What is its energy performance?' Sustainability offers operating value to our clients."

Yet Oxford has no specific position, office or title relating to sustainability. Instead, as **Megan Stearman**, director of marketing, explains, "Many of our professionals get training on green management practices, and scores of them are on track to get sustainability certifications. This is very important to the bottom line."

Stearman adds: "For some clients, sustainability is in their brand already. Office tenants see it as an employee productivity and retention tool. Our residential tenants, especially those in the younger generation, represent a well-educated demographic, and they expect features like proximity to bike and running trails, renewable energy, electric-vehicle chargers, and large bike-storage rooms. We have a 300-unit building where the bike storage area filled up before the garage spaces were leased."

"In our main markets, the public sector is very committed to bold sustainability goals," Barnard says. "Sustainability is a way for Oxford to distinguish itself as a leader, and we've been active in civic affairs on these issues."

Ikea

The Ikea Group places responsibility for sustainability both with senior headquarters professionals and with line managers at all 389 of its stores worldwide. Sustainability is part of both the Ikea brand and everyday operations. Almost all Ikea employees receive sustainability training every year. **Joseph Roth**, U.S. property public affairs manager, points out that the company has, in its global headquarters and at the national level, a separate management and ownership structure for real property. It also has a facilities management team at each store. Sustainability is a factor in store design.

Roth reports that "While we have several LEED-qualified stores, we are building at a global sustainability standard, and we intend that all new store designs will exceed LEED standards." Building systems embody many aspects of Ikea's sustainability policies; 90 percent of its U.S. buildings incorporate solar technology, and the company's U.S. solar and wind assets can meet all of Ikea USA's power needs.

> **"In companies where the CEO is the driver, the sustainability dynamic grows. The sustainability officer becomes an ombudsperson interfacing with all departments."**
>
> *Court Gould*

Each Ikea store's facilities manager sits on a local sustainability committee that also includes managers from Ikea's community outreach, food services, marketing, operations and product recovery departments. **Jennifer Stockdale**, an Ikea marketing specialist, characterizes this committee's function as a clearinghouse for both bottom-up and top-down sustainability initiatives. The goal is to reduce the store's environmental footprint and help customers reduce their environmental footprints. Sustainability at Ikea is "everyone's responsibility," states Stockdale.

Fairmont Hotels

Fairmont Hotels & Resorts, now part of the AccorHotels Group, operates more than 70 properties in 22 countries. Many of these hotels and resorts are historic structures or are situated in well-known beach, mountain or wildlife habitat areas. The company aims to preserve period architecture and environmental features as part of the Fairmont image.

Local hotel engineering staff often deal with sustainability issues. **Guy DeFazio**, chief engineer of Fairmont Pittsburgh, calls this the "boots on the ground" approach. DeFazio explains that the engineer is likely to be responsible for indoor air quality, water quality and waste disposal, among other factors. "Good performance in these areas makes the customer and employee environments safer, and adds value that you can leverage into a better hotel product with still-competitive input costs," he says. Fairmont's commitment to sustainability is "built into day-to-day operations."

The company has a central sustainability staff. Its senior sustainability executives are responsible for industry and issue partnerships as well as environmental public communications. When a new hotel is being developed, real estate issues may well be intertwined with sustainability issues. Although the sustainability staff may not be involved in the design of a new hotel, Fairmont's real estate development staff are also committed to sustainability.

It Starts at the Top

Sustainable Pittsburgh's **Court Gould** believes that the CEO ultimately determines whether a company will be content with the low-hanging fruit or whether it will go further to address sustainability issues. "In companies where the CEO is the driver, the sustainability dynamic grows. The sustainability officer becomes an ombudsperson interfacing with all departments. The C-suite integrates sustainability into the corporate strategy, usually starting with facilities but moving into marketing, product development, strategic planning and corporate governance. Some companies cement their commitments by tying them to the annual performance review for senior executives, including the CEO." ■

Sam Black, a former contributing editor at Development, attorney and past chairman of the Washington, D.C., Smart Growth Alliance

Are Suburban Office Parking Ratios on the Rise?

About a third of the suburban office developers responding to a recent NAIOP survey have already added parking to existing properties; even more expect parking ratios to rise in the future.

By Robert T. Dunphy

HOW MUCH PARKING do suburban office tenants need today, and how much will they need in the future? When "The Suburban Office Parking Conundrum" (Development magazine, fall 2016) explored this issue, expert opinions varied. NAIOP therefore decided to ask members about their recent experiences with suburban parking and likely future trends. From Oct. 6 to 13, 2016, NAIOP conducted two surveys that asked suburban office developers as well as architects and engineers from throughout the U.S. about those experiences.

Focusing on previous trends, nine out of 10 developers who responded indicated that a range of 3.5 to 4.5 parking spaces per 1,000 square feet of office space has been adequate for leasing over the past decade:

- The most common parking ratio (46 percent) previously used by occupiers was 4.0/1,000.
- Roughly equal numbers (20 and 24 percent, respectively) reported using less, at 3.5/1,000, or more, at 4.5/1,000.
- A mere 10 percent of developers indicated that tenants need even less parking, typically 3.0/1,000.

While the 3.5 to 4.5/1,000 ratio has worked in the past, respondents indicated that tenants have been asking for more parking recently.

Nearly 90 percent of developers reported that, within the past 24 months, at least half of all prospective tenants were requesting ratios of more than 4.0/1,000:

- The most common "ask" (40 percent) was for 5.0/1,000.
- Twenty-three percent of developers said potential tenants wanted 6.0/1,000.
- Eight percent said prospective tenants would settle for 5.5/1,000.
- A small share of developers (3.5 percent) said potential users were looking for even more parking: 6.5/1,000.

> **"The current trend is to increase employee occupancy to five or six people per 1,000 square feet in an attempt to save money."**
>
> *Paul Giannone*

Looking to the Future

When asked to forecast parking ratios in five years, the most common number offered, by about one-third (34.5 percent) of developers, was 5/1,000. About equal numbers (20 and 24.5 percent, respectively) projected higher and lower ratios of 6.0/1,000 and 4.0/1,000, respectively. **Tom O'Keefe**, CEO of O'Keefe Development, who has been developing office properties in the Seattle suburbs for 30 years, reports that the 4.0/1,000 ratio has held; he believes that it will probably continue, and that it has become the standard for brokers to convey to users. Only about one in 12 survey respondents projected parking ratios of 3.0/1,000 or lower.

Respondents' speculation about future demand for parking are reinforced by their recent experience. About one-third of developers acknowledged that they had recently added parking to existing properties. Those reports were reinforced by NAIOP's survey of architects and engineering consultants: Almost two-thirds of those surveyed (61 percent) had been asked to determine the feasibility of adding surface or structured parking, reinforcing the owners' own assessments.

The consultants' projections for future parking ratios were substantially lower than those of the owners, however. They ranged from 3.0 to 5.0 spaces per 1,000 square feet of office space, distributed almost equally between ratios of 3.0, 4.0, and 5.0/1,000. Only 9 percent forecast a higher ratio (6.0/1,000), while another 9 percent forecast a ratio as low as 2.0/1,000.

One broker surveyed, **Paul Giannone**, executive managing director of Cushman & Wakefield in New Jersey, was surprised that the survey didn't indicate demand for an even higher parking ratio. "I always thought the [conventional] ratio of 3.2/1,000 was inadequate," he reports, because "our recent experience generally falls in the 4.5 to 5.5/1,000 range, with some industries, such as insurance companies, requiring six spaces per 1,000 rentable square feet in suburban markets. The current trend is [to increase] employee occupancy to five to six people per 1,000 square feet in an attempt to save money. This new space standard has increased demand for parking, making buildings with only 3.2 spaces per 1,000 square feet difficult to lease. The increased density is also an issue for older HVAC systems that are designed for a capacity of four employees per 1,000 square feet."

The most common "write-in" comment by respondents was that increasing density of employees — for e-commerce, call centers and other labor-intensive office users — is increasing parking requirements. According to one developer, "Offices are crushing more and more people per square foot, so more parking is required." Several respondents noted that balancing this trend are locations with good transit and other more urban transportation options, such as car-hailing services like Uber and walking.

Considering Costs

The cost of developing additional parking can be significant. The vast majority of developers who estimated the cost (both hard and soft) of additional surface parking spaces reported that it ranges from $2,000 to $6,000 per space. Giannone adds that, with development costs for new suburban office space in New Jersey at about $350 per square foot, the costs of structured parking decks in new developments are currently not supported by market rents. (Structured parking can cost from $12,000 to $25,000 per space.)

In one case, he notes, Cushman & Wakefield had to get creative to handle increased parking demand in a building that was 75 percent leased. "An agreement was made with a new tenant that needed six spaces per 1,000 square feet to use the spaces allocated to the vacant units until the vacant space was leased. We agreed that once the building was leased up, parking would be added in the available green space and the cost to create more surface parking would be shared, 60 percent by the tenant and 40 percent by the landlord." The theory was that the additional parking would benefit the tenant initially, but in the future would benefit the landlord.

Parking at suburban office projects continues to be a key issue, and these survey results indicate there is still great uncertainty over likely trends. Because parking — particularly structured parking, which may be the only option for adding parking in denser inner-ring suburbs — is so expensive, developers must carefully examine tenants' parking requirements. The newest piece of this puzzle, the coming impacts of autonomous vehicles, was not addressed in this survey, but will be explored in future articles. ■

By **Robert T. Dunphy**, transportation consultant; adjunct professor, Georgetown University Real Estate Program; and emeritus fellow, Transportation Research Board

Maximizing Revenue Through Dynamic Parking Pricing

Sensors, software and apps make dynamic pricing feasible — and profitable.

By Tim Flanagan, Sentry

PARKING IS AN important source of revenue for many owners of commercial buildings and complexes. Yet it can be difficult to determine whether parking facilities are performing as well as they should. Many owners find themselves managing this valuable asset without a mechanism for fully realizing that value. This is particularly true for downtown parking facilities.

The problem: Unlike many other products and services, it has always been difficult to apply market-driven pricing to parking. Until recently, there hasn't been a good way to measure parking demand and adjust prices as demand rises and falls. Property owners and their parking operators have traditionally been forced to rely on historical data to predict future demand, then set prices accordingly. But no matter how much data you have about past parking demand, it's impossible to know for certain how much demand there will be in the future.

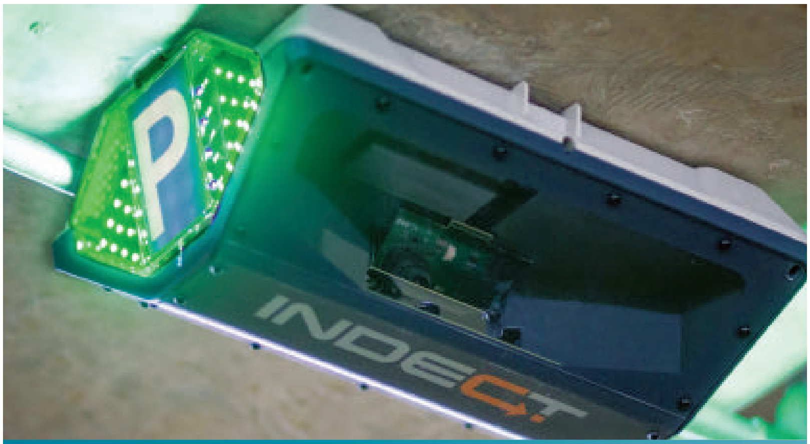
A Technological Solution

The good news is that the technology that has transformed the parking industry in recent years is making dynamic pricing possible.

The key to success begins with the parking guidance sensors that have become increasingly popular over the past few years. One of the key roles of those sensors has been to monitor utilization. The most visible manifestation of this is the series of lights that indicate to drivers whether a particular space is available. Typically, a green light indicates that the space is available, red means it's occupied and blue means the space is reserved for handicapped-accessible parking.

These same sensors can also work in conjunction with software to analyze when and how often spaces are used, to help owners and operators better manage their facilities. That software can be customized to continuously monitor occupancy levels and automatically modify pricing in real time. If occupancy rises above a certain level, the price rises accordingly. If it falls, the price drops. Owners and operators can base their pricing on use, rather than on guesses about how full or empty their facility will be on a given day.

Tim Flanagan



Dynamic pricing begins with parking guidance sensors that measure utilization and transmit that data to software that can automatically adjust pricing as occupancy rises and falls.

Of course, as with parking guidance systems, communication is required for the dynamic pricing system to work. Just as the sensors communicate in real time with signs at facility entrances so they can tell parkers how many open spaces are available on each floor, the system must also communicate how much parking costs at that exact moment. Drivers must not enter a parking lot or garage expecting to pay one amount, only to be charged more when they leave.

These technologies enable the use of dynamic pricing in any parking facility. Typically, ground-based sensors are used in outdoor lots, while ceiling-based sensors are hung above parking spaces in garages.

Good News

Dynamic pricing is good news for parking owners and operators; it enables them to generate maximum market-rate revenue in their park-

The parking guidance systems that measure occupancy also inform parkers where open spaces can be found within the parking facility.

ing assets. When the first gateless off-street automated dynamic pricing solution was introduced last spring in downtown Los Angeles, the owner began benefitting immediately. Over the first two months of implementation, revenues increased by 100 percent each month, before settling at around 35 percent per month. When the owner factored in decreased labor and associated costs from directed enforcement and the ability to manage the facility from a central location, profits increased over 50 percent per month. As this example demonstrates, while the installation of a sensor-based system requires an initial investment, that investment can pay for itself in just a matter of months. In this case, installation cost approximately 5 percent of annual revenue and ROI took two months.

Interestingly, business at this facility has actually picked up since the owner installed the dynamic pricing package. Drivers seem to appreciate knowing that the rates they are being charged are based on the actual value of the space, and not some arbitrary number.

The benefits also extend to drivers. Those who typically park in low-utilization lots or garages will no longer pay more than they should for parking, because the price of parking in those facilities will go down. The sensors that are managing the system continue to guide drivers into open spaces, which makes the entire parking experience more convenient and pleasant.

Added Value

Moving forward, these systems will be able to offer even more amenities for drivers. For instance, owners and operators can offer parker loyalty programs through smartphone apps. These apps may include features such as preferred parking and discounts, as well as access to added services such as auto detailing. The features can be customized to the unique desires and requirements of customers at each parking facility which, in turn, can increase connectivity among owners and operators and their customers. The apps will also be able to guide parkers back to their vehicles if they forget where they parked.

"Dynamic pricing is good news for parking owners and operators; it enables them to generate maximum market-rate revenue in their parking assets."

Tim Flanagan

These benefits will grow exponentially in the future. As the era of connected cars and self-driving vehicles approaches, sensor-based networks will be a key to the success of these efforts. They will be the tool that connects all of a community's parking spaces to the transportation grid.

Of course, not all sensor systems can manage dynamic pricing. While accuracy is essential in any type of parking guidance system, it's particularly important when the price of parking is being adjusted on the fly. Inaccurate systems can cost owners and operators thousands of dollars by improperly dropping prices when occupancy is too high. With dynamic pricing, anything below 99 percent accuracy is unacceptable.

Dynamic pricing can provide extraordinary benefits to building owners who rely on parking revenues. It's a concept whose time has come, now that the necessary technology is available. ■

By **Tim Flanagan**, managing director, Sentry

CBRE's Ongoing Journey of Diversity and Inclusion

A CRE services and investment organization has long recognized the value of a diverse workforce.

By Rachel Brown

DIVERSITY AND inclusion are not new concepts to CBRE Group, Inc. Its first employee network group (ENG), the Women's Network, recently celebrated its 15th anniversary, and the firm has instituted six additional groups. In 2013, it established a formal mentoring program; in 2015, the firm launched a pilot program to offer professional coaching to a select group of high-potential female employees. To keep all of its initiatives and goals fresh in the minds of top leadership, diversity and inclusion briefings are sent to 130 of its most senior employees on a bimonthly basis.

Natalie Nichelson, senior vice president of human resources — who also serves as head of CBRE's Americas Diversity and Inclusion Team — is quick to point out that none of this happened overnight. "Give yourself time," she advises other firms working on developing diversity initiatives. "Rome wasn't built in a day."

Once CBRE's ENGs were up and running, Nichelson says, the increased engagement and connections quickly translated into business value. One of the global company's biggest challenges is its huge geographic footprint. "In the U.S. alone, we have hundreds of offices and several of those have five, 10 or 15 people," Nichelson says. "If you are the only person of a particular demographic group in a small office, the ENGs are a way to let you reach out and connect to a broader employee pool and say, 'I have a question' or 'I need help.'"

CBRE is also focused on encouraging multiple ENGs to come together and work collaboratively. "We bring the leaders of the ENGs together to talk about how things are going and what their plans are for the future," Nichelson adds.

Mutually Beneficial Mentoring

Nichelson notes that one of CBRE's newest ENGs, the Rising Professionals Organization — also known as the Millennial Network — is already delivering surprising results. "They are growing rapidly in national membership numbers and local chapters, and they're interested in reverse mentoring," she says, noting that younger employees want to mentor senior employees about things like social media.

Mutually beneficial mentoring is also occurring in CBRE's EMPOWER Mentoring Program. This nine-month mentoring and professional development program, which began in 2013, matches junior- to mid-level employees with more senior-level employees based on their professional goals and interests.

Andrew Foote, vice president of learning and development in CBRE's Americas region, explains that this program follows a structured, formal approach, especially at the outset. "Mentor and mentee candidates go through an extensive system to find the right match," he says, adding that prospective mentees can either be nominated by others or nominate themselves. "It's a lengthy process and it takes some time, but you want to find the right chemistry."

Mentees are asked what they hope to gain from the process, what areas of the business they are interested in, and what their professional goals are.

Natalie Nichelson

Mentors are asked why they would like to take on this role and what they have to offer. Mentors read prospective mentees' applications, which helps speed the process.

"Reading about Toni allowed me to get a sense of who she was and what she wanted to work on," Foote says, referring to **Toni Stovall**, senior program manager with global workplace solutions, with whom he was paired as a mentor in September 2016. "That meant that after our initial meeting, we were able to set up goals and timelines." Although the program wraps up in March, Stovall expects to continue to talk with Foote, and hopes to maintain her connection with him for years to come.

Foote says he'd like to see an even larger mentoring culture. "We are now in our third year, but already we are seeing the benefits in terms of retention, employee engagement and promoting a mentoring culture overall in the firm," he says. "Our goals as a company are developing, attracting and retaining top talent. Mentoring fits nicely into that corporate strategy."

CBRE's African-American Network Group aims to advance diversity and inclusion, with a particular focus on recruiting, retaining and developing black professionals.

Making an Impact

A pilot program called IMPACT! that was launched in 2015 has already exceeded its goals. CBRE nominated 15 women employees for this unique leadership development opportunity. "We identified high-potential women in every organization and offered them one-on-one personal development and guidance," Nichelson explains.

Georgia Collins, senior managing director of workplace strategy, who joined the firm in 2012, was flattered to be nominated. "It was such an honor and an indication that I was on the radar screen beyond just my immediate supervisors," she says, adding that she greatly appreciated the professional coaching provided by the program.

Continuing the Conversation

Another component to keeping the goals of diversity and inclusion at the forefront of CBRE's corporate culture involves regular briefings sent out to the firm's top 130 senior executives. According to **Jennifer Ashley**, global director of human resources, the bulletins are short and easy to digest — no more than half a page — and provide clear calls to action. Sample topics include resources and tools to educate, build vocabulary and raise awareness. "For example, we recently discussed aging in the workplace and how to successfully manage a team that includes mature workers," Ashley says.

Fostering an atmosphere of diversity and inclusion, as well as encouraging mentoring, are endeavors that represent a cultural change. Nichelson adds that these types of programs must be tailored to fit the company; this is not an area in which a "one size fits all" approach will work. ■

By **Rachel Brown**, freelance writer

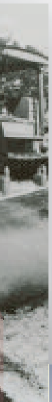
This article is adapted from the NAIOP Diversity Resource Center, www.naiop.org/diversity. For more information, see the "Company Best Practices" section.

CBRE's Key Diversity Initiatives

CBRE has long recognized the value of a diverse and inclusive workforce. Its key diversity initiatives include the following:

- Seven employee network groups (ENGs):
  1) Women's Network.
  2) African-American Network Group.
  3) Hispanic Network Group.
  4) Asia Pacific American Forum.
  5) LGBT & Allies.
  6) CBRE Military.
  7) Rising Professionals Organization, the Millennial Network.
- The EMPOWER Mentoring Program, a nine-month mentoring and professional development program that matches junior to mid-level employees with senior employees, based on professional goals and interests.
- IMPACT!, a two-year leadership development opportunity for female employees.
- Diversity and inclusion executive briefings that are sent to 130 top CBRE executives every other month. ■

What will commercial real estate be like in 2042?



50 years NAIOP
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E-commerce 2.0
Last-mile Delivery And the Rise of the

Northern Stacks, a mixed-use redevelopment underway outside Minneapolis, features both adaptive re-use and new development of modern warehouse and office/warehouse space designed to attract distributors who want to be located close to their urban customers.
Photo by Sky Candy Studios, courtesy of Fridley Land LLC

Urban Warehouse

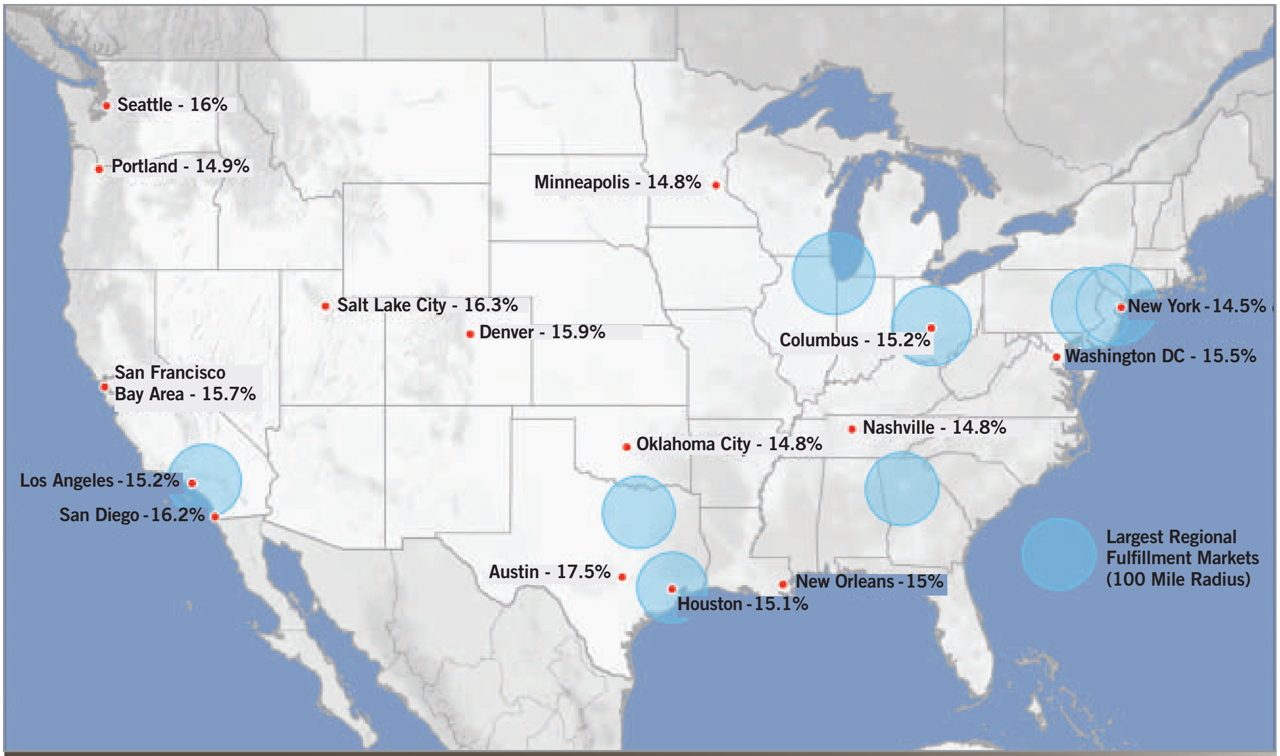
Today's industrial users are looking beyond rental rates to consider transportation and inventory carrying costs when making location decisions.

By James Breeze, Colliers International

THE ERA OF e-commerce began unceremoniously in July 1995, when **Jeff Bezos** boxed up the first book sold on Amazon.com from his Seattle garage. Over time, nearly all major retailers began selling and shipping items from their own websites. This is now having a monumental impact on the way goods are created and distributed — and on the industrial real estate necessary to do so.

By the end of the second quarter of 2016, e-commerce sales had grown 16 percent year-over-year, a rate that dwarfs the 2 percent overall retail growth for the same time period. Enormous e-commerce sales have been a boon to industrial real estate, with record-low vacancies and record-high asking rents, net absorption and development.

A majority of U.S. industrial real estate is concentrated in massive big-box distribution centers in core markets such as California's Inland Empire, Atlanta, Chicago, Dallas, northern New Jersey, Houston and eastern Pennsylvania. Each of these markets is strategically located near a large population center. But not all of them are close enough to the demographic that is one of the biggest driving forces behind e-commerce: millennials.



This map illustrates a 100-mile radius around each of the largest regional fulfillment markets in the U.S., as well as the locations of the cities with the highest percentages of millennials.

Source: Headlight Data, Colliers International

Millennials grew up in a "one-click" world, where convenience is king. As millennials aged and their purchasing power grew, they continued to prefer the one-click lifestyle. Many moved to urban areas where they could live, work and play without having to get into their cars to drive to and from suburbs.

While big-box warehouses in core industrial markets represent the "first mile" of distribution, the "last mile" of distribution to reach this growing consumer base — to get goods directly to the purchaser's home — is still being figured out. Real estate professionals generally define a last-mile facility as one from which goods are delivered directly to the consumer. What is clear is that last-mile distribution is becoming more reliant on urban warehousing to get products to consumers quickly while mitigating rapidly expanding supply chain costs.

The map above illustrates a 100-mile radius around each of the largest regional fulfillment markets in the U.S., as well as the locations of the cities with the highest percentages of millennials. In markets like New York, Los Angeles and Houston, fulfillment centers and millennials overlap. But some markets with fast-growing millennial populations, including Austin, Seattle, Portland, Salt Lake City and New Orleans, have limited regional distribution center capabilities nearby. This can create significant demand for urban warehousing in these locations, as well as significant opportunities for industrial developers.

Deciding to Occupy an Urban Warehouse

Just five years ago, the primary purpose of warehousing was to store product at low cost. Since then, however, Amazon has demonstrated that next-day and even same-day delivery is possible in many markets. In today's "need-it-now"

"A true 'end-to-end' perspective is necessary when making warehouse location decisions."

Brad Bossence

economy, a primary purpose of warehousing is to reduce delivery lead time — the time from the receipt of the customer's order to delivery of the product, while keeping overall supply chain costs down. A retailer aiming to ensure customer satisfaction must now carefully consider transportation and inventory carrying costs as well as warehousing costs.

To understand the complex decisions that go into occupying an urban warehouse, one first must understand what goes into overall supply chain decision making. **Brad Bossence,** vice president of LeanCor and a professional education instructor at Georgia Tech's Supply Chain & Logistics Institute, offers some insights into supply chain costs and how urban warehouses can lower costs while getting products to consumers more quickly. Bossence notes that many companies are learning to embrace a "total cost of fulfillment" point of view.

"A true 'end-to-end' perspective is necessary when making warehouse location decisions," Bossence insists. "Typical supply chain network modeling should look at the ideal locations and numbers of warehouses as well as their size, stock-keeping unit (SKU) strategy — what inventory and how much of it is stored where — etc. Transportation costs are only part of the total picture, and transportation strategy should enable speed to market and the ideal level of inventory on hand."

Both large and small organizations are working to assess the full cost of moving products through their supply chains and whether having an urban warehouse will lower those costs. Transportation costs are easy to see, according to Bossence, because "they have a profit-and-loss category that can be connected to rate per mile or cost per load." The same is true for warehousing. Rent and common area maintenance, labor, material handling equipment and technology are all typical warehousing costs that are visible on an income statement. Inventory carrying costs (ICC), however, are not easily captured, because these costs are spread throughout financial statements.

Inventory carrying costs typically range between 18 and 25 percent of total inventory value, depending on the commodity and storage requirements. The inventory snapshot illustrated in the table on the following pages breaks down ICC by category, totaling 23 percent of total inventory value based upon the average days on hand (DOH). Lean warehousing practitioners recommend measuring inventory in DOH because time is a measurement that is easily understood. For simplicity, assume that the value of one day's inventory equals $1 million. If the average days on hand for the inventory is 40 days, the inventory value is $40 million, so the inventory carrying cost in this example is $9.2 million.

If the amount of time the inventory is held can be reduced from 40 to 30 days, as illustrated in the table, an additional $10 million in working capital is available, while the ICC is reduced from $9.2 million to $6.9 million, resulting in cost savings of $2.3 million.

An understanding of inventory carrying costs creates a better base upon which to model the warehousing, transportation and inventory costs that will best service customer expectations. Locating distribution points closer to customer bases will minimize both delivery lead times and inventory levels in warehouses. Today, the competitive advantage rests with Amazon in many retail categories because of its ability to service its customer base in many markets almost immediately.

Location and Features

After a retailer decides that an urban warehouse would be a cost-effective investment to more quickly reach a target demographic, it must find a location for that facility. Urban areas typically offer only infill locations, since they typically

Inventory Carrying Costs

Inventory Snapshot		Value of Inventory
		$40,000,000
Category	**Carrying Cost Inputs**	**% of Inv Value**
Capital Cost	Cost of Capital	7%
Inventory Service Cost	Administrative Overheads	2%
	Technology-Systems	1%
	Taxes	1%
Inventory Storage Cost	Facility Costs	3%
	Excess Space	2%
Inventory Risk Cost	Obsolescence	2%
	Excess Transportation	2%
	Shrinkage	1%
	Damage	1%
	Insurance	1%
Total Inventory Carrying Cost		**23%**

Source: Brad Bossence

have little land available for development. Urban warehouses may be located within the urban core. But because many emerging urban infill sites are zoned for creative office or apartment use — since warehouses have a reputation for bringing an influx of unwanted trucks — most urban warehousing is located one to 10 miles outside the urban center.

Some existing urban warehouses may suit modern distribution facilities. But many have low clear heights, shallow bay depths and a lack of employee amenities such as break room space, suitable restrooms and sufficient parking spaces, making them less than optimally functional. Because of this, many investors are getting creative in redeveloping sites to provide modern distribution facilities near urban areas. Former manufacturing plants, big-box retail stores and even obsolete office buildings are being redeveloped to close the "last-mile" gap.

What features and amenities are prospective occupants of these redeveloped urban warehouses demanding? Their requirements include the following:

- 28- to 32-foot clear height ceilings.
- Extensive glass for natural light.
- Modern design.
- Numerous dock-high and ground-level doors.
- 50 by 50-foot column spacing.
- LEED elements.
- Easy access to bike or walking paths.

One Example

One such redevelopment is Northern Stacks, a mixed-use redevelopment just a few miles outside Minneapolis, a city with a large and growing millennial population. Northern Stacks is a joint venture between Hyde Development and M.A. Mortenson Co.

Hyde Development Founder and Partner **Paul Hyde** is familiar with the many challenges involved in redeveloping industrial sites as modern distribution facilities. According to Hyde, redevelopment of blighted sites is vital for inner-ring communities that have no land available to grow their tax bases. The Northern Stacks project faced many challenges, including the following:

- Cleanup of an environmentally contaminated site.
- Working with multiple regulatory agencies with jurisdiction over the pre-existing on-site pollution, including the U.S. EPA, U.S. Navy and Minnesota Pollution Control Agency.
- Rezoning the site from its prior heavy industrial zoning to a modern industrial zoning standard.
- Assembling financing from a variety of sources to fund the $12 million environmental cleanup and $18 million worth of new infrastructure.
- Demolishing 1.5 million square feet of the existing 2 million-square-foot 1940s-era building.
- Adaptive re-use of 561,000 square feet of the former building into a state-of-the-art technology center for BAE Systems.
- Development of over 1 million square feet of new industrial buildings for multiple uses.
- Creation of a brew pub in the former boiler room to entice companies to locate at Northern Stacks.
- Retaining and up-lighting smoke stacks as the park's signature element.

According to Hyde, tenants looking to lease space in urban warehouses rarely just want to store boxes. They lease in urban locations because

	Days on Hand		Value of Inventory	Days on Hand		
	40		$30,000,000	30		
	ICC		% of Inv Value	ICC		Improvement
	=	$2,800,000	7%	=	$2,100,000	$700,000
	=	$800,000	2%	=	$600,000	$200,000
	=	$400,000	1%	=	$300,000	$100,000
	=	$400,000	1%	=	$300,000	$100,000
	=	$1,200,000	3%	=	$900,000	$300,000
	=	$800,000	2%	=	$600,000	$200,000
	=	$800,000	2%	=	$600,000	$200,000
	=	$800,000	2%	=	$600,000	$200,000
	=	$400,000	1%	=	$300,000	$100,000
	=	$400,000	1%	=	$300,000	$100,000
	=	$400,000	1%	=	$300,000	$100,000
	=	**$9,200,000**	**23%**	**=**	**$6,900,000**	**$2,300,000**

they value the benefits of those locations. The tenants at Northern Stacks — including Everlast Climbing Industries, a manufacturer of indoor climbing walls, and Lindenmeyr Munroe, a paper distributor — were drawn to the site because they concentrate on servicing people living in the Twin Cities and companies doing business there. Urban warehouse tenants prefer to be near a skilled labor force and public transit, close to the interstate highway system and the downtown core, and proximate to customers, so they can reach those customers as quickly as possible.

The Future of Urban Warehousing

There is no question that as e-commerce continues to grow and consumer habits continue to change, urban warehousing is becoming more useful and practical. But challenges will persist. Obtaining sites for redevelopment will continue to be difficult in an environment where older warehouses can also be redeveloped into higher-value uses such as creative office space and residential lofts.

Another challenge is the availability of labor. According to Bossence, "the largest challenge urban warehousing will face is sustaining a competitive and well-trained labor force." Warehouses usually cluster or locate within an industrial park, so tenants often compete with one another to find and retain well-trained associates. Companies with higher pay and benefits, more committed leadership, safe working conditions and opportunities for advancement typically "lead the pack" as preferred employers.

Creative, multistory development could also shape the direction of urban warehousing in the coming years. In October 2016, Prologis

"**Obtaining sites for redevelopment will continue to be difficult** in an environment where older warehouses can also be redeveloped into higher-value uses such as creative office space and residential lofts."

James Breeze

> “The largest challenge urban warehousing will face is **sustaining a competitive and well-trained labor force.**”
>
> *Brad Bossence*

The Twin Cities' largest infill redevelopment project, Northern Stacks, features both office and bulk warehouse space. Its first building, Northern Stacks I (at right in the photo above), received NAIOP Minnesota's Award of Excellence for Industrial-Bulk Distribution in 2015. Five additional buildings are planned or under construction.
Photo by Peter Vondelinde Visuals, courtesy of Fridley Land LLC

announced that it will develop what is believed to be the nation's first multistory distribution center in Seattle, another city with a strong millennial population that is outside the core regional distribution markets. Hyde believes multistory warehousing will be confined to markets with limited product available for redevelopment.

The cost of constructing a multistory warehouse could be at least double the cost of redeveloping an existing building, depending on the location and materials needed for construction, so owners will need to find tenants willing to pay a premium for this type of space in these locations. While it is too early to forecast the future of demand for multistory warehouses, markets with little land for redevelopment that may see multistory warehouses in the future include the Bay Area, New York City, Miami and the South Bay submarket of Los Angeles.

E-commerce is rapidly changing the face of the retail world. Traditional big-box competitors are under pressure to reduce delivery lead times in order to increase speed to market. In addition to Amazon, the majority of demand for urban warehousing will come from the following users:

- The growing food distribution industry, including online food distributors like Blue Apron and Hello Fresh.
- Delivery firms such as UPS, FedEx, USPS and On-Trac.
- Companies that service millennials' active lifestyles, such as those that support sports like hiking and biking.
- Industries servicing the growing office, retail and residential markets in urban areas.

While many challenges remain, as long as urban populations continue to increase and demand to reduce delivery lead time remains, urban warehousing will continue to grow and shape urban landscapes throughout North America. ■

James Breeze is national director of industrial research for Colliers International.

Transforming an Industrial Building for Carnegie Robotics

A "building within a building" at Carnegie Robotics' facility contains three levels of enclosed space that house labs, office space and more. Windows look out onto the original factory floor, which is now used to manufacture and test large robotic components. *Carnegie Robotics photos by Alexander Denmarsh*

RIDC, a nonprofit developer in Pittsburgh, has converted a long-vacant factory building in a now-hip neighborhood into an industrial robotics facility.

By Adrienne Schmitz

SINCE 1955, Regional Industrial Development Corporation (RIDC) has been helping the city of Pittsburgh and surrounding southwestern Pennsylvania move its economy forward. In recent years, this has meant shifting from old heavy manufacturing to 21st century technology-based industries.

RIDC is a private nonprofit economic development organization whose mission is to support and stimulate manufacturing and technology jobs and improve the tax base of the region through its real estate holdings and activities, which include land development, build to suit services, and financial assistance. Because of its nonprofit status, RIDC can take on projects that might not be immediately profitable, but provide great benefit to the community.

RIDC is self-funding; its real estate portfolio generates the revenue it needs to support its development activities. The corporation currently owns and leases 7 million square feet of industrial and office space throughout 11 counties. Over time, the organization has developed office and industrial parks totaling 9,000 acres. In more recent years, much of its activity has involved urban brownfield redevelopment. RIDC's efforts have added $3 billion to the regional economy.

To successfully move into new economies, **Don Smith**, president of RIDC points out that "it is important to be embedded with companies to know where the technology is headed and to understand real risks as opposed to perceived risks." The risks for these unique startups may be different and longer-term than those experienced by more traditional businesses. For example, it can take years before the technology advances enough to even be marketable, let alone profitable.

From Heavy Manufacturing to High Tech

For about 100 years, Pittsburgh's identity was its steel mills. They lined its riverfronts, belching black smoke and producing much of the nation's steel. Today, having gone through several reinventions, Pittsburgh is better known for its "eds and meds" economy supported by the city's noted universities and medical centers. One important niche of this new economy is the robotics industry. Pittsburgh-based Carnegie Mellon University (CMU) is a leader in the field of robotics, bringing talent from around the world to the city and nurturing numerous startup companies.

The Lawrenceville neighborhood was a working class enclave that had fallen into decline with the demise of the steel industry. Lawrenceville's first sign of recovery came in the early 2000s, when its retail strip along Butler Street was reborn as an arts district with galleries, design shops and a lively dining and nightlife scene.

The next wave began in 2009, when Children's Hospital relocated to the 10-acre former St. Francis Hospital site and built a 1.5 million-square-foot medical complex. The hospital's medical and research staff settled into the neighborhood, spurring a revitalization of the housing stock. Today, Lawrenceville blends high-tech businesses with a trendy retail strip. It also contains a variety of urban housing types at a wide range of prices, and is considered "the city's hottest, hippest neighborhood," according to Smith.

Another pivotal event was CMU's establishment in 2009 of the National Robotics Engineering Center

A crane hangs in the lobby, evidence of the building's old industrial roots. The concrete floors, exposed rivets and shaftless elevator are also original features.

(NREC), now the world's largest robotics research and development organization. The center has drawn about a half-dozen robotics startups to the neighborhood, including Carnegie Robotics LLC. Founded in 2010, Carnegie Robotics develops components for industrial robots for mining, farming and military uses. The company now designs, manufactures and tests its products at its Lawrenceville facility.

The Heppenstall Building and Site

RIDC purchased the 12.5-acre Heppenstall site in 2002. The site was originally home to the Heppenstall Steel complex, which included a steel mill and other factory buildings. RIDC demolished most of the structures, but the building that had once housed the Heppenstall Forge and Knife factory was deemed usable and was preserved. RIDC completed the necessary environmental remediation and installed underground infrastructure, including new water and sewer lines, to bring the remaining site to pad-ready condition.

RIDC has been working for more than a decade to help stimulate the local robotics industry and recognized that most of the firms

“**Robotics companies typically require ‘tinker space’** that is not well defined in the traditional real estate market.”

Adrienne Schmitz

The structure’s original wooden delivery doors have been repurposed as sliding doors to an employee break room.

spinning off from the NREC wanted to locate nearby. One such firm was Carnegie Robotics, with which RIDC had already built a relationship. By the time the company was ready to lease its own space, RIDC understood its needs and saw the firm as a good match for the Heppenstall Building, which had been largely vacant for 30 years.

Robotics companies typically require “tinker space” that is not well defined in the traditional real estate market. Carnegie Robotics needed a mixture of high-bay maker space, high-quality office space and testing space in an integrated design. The Heppenstall Building offered great design potential, outdoor testing space and an ideal location for the growing company.

Carnegie Robotics CEO **Steve DiAntonio** notes, “The company has 60 employees, about 35 of whom are engineers. Over the next two to three years, the firm expects to grow to about 100 employees, with most of the growth on the production side.” It is a young company; the average employee is in his or her early 30s and most are single. The building’s aesthetics and location are very appealing to this demographic. About half of the employees live in the neighborhood, says DiAntonio.

Pittsburgh-based Desmone Architects has worked with RIDC on many industrial projects over the years and designed the renovation, working collaboratively with RIDC and Carnegie Robotics to get the desired look and feel for the building. **Brad Frankhouser**, the project architect, is proud of the transformation, “from old to new — a space that shows off the building’s history.”

Minimal changes were made to the exterior of the 29,600-square-foot high-bay building. The architects added more windows for offices and fiberglass roof panels to allow light to filter into the building. An exterior balcony was added off a break room. A single loading door at one end of the building was retained; it is large enough to allow a truck to drive into the building. A surface parking lot had already been constructed and was suitable for the new tenant.

A small multistory office structure had existed within the superstructure of the factory, but it was largely demolished. A new “building within a building” was then constructed, containing three 8,000-square-foot levels of enclosed space housing three clean room assembly labs, two R&D labs, office space, team building space and conference space.

Carnegie Robotics Project Summary

Location	4501 Hatfield Street, Pittsburgh, Pennsylvania
Type of Site	Urban, Industrial Area
Development Type	Adaptive Reuse, Brownfield Redevelopment, Building Renovation
Transportation Modes	Car, Truck, Bus, Bicycle, World's First Self-Driving Uber Service
Project Size	
Building Footprint	29,600 sq. ft.
Total Building Size	51,100 sq. ft.
Land Area	3.8 acres
Surface Parking	50 Car Spaces, 1 Drive-through Dock
Development Team	
Developer/Owner	RIDC
Architect	Desmone & Associates Architects
Timeline	
Land Purchased	2002
Infrastructure Started	2007
Lease Signed	2013
Building Renovation Started	2014
Tenant Move-in	2014
Development Costs	
Acquisition Cost	$425,000
Tenant Improvements	$4,700,000
Infrastructure and Other Costs	$2,063,000
Soft Costs	$512,000
Total Project Cost	**$7.7 million**
Project Website	http://ridc.org/view-property/lawrenceville/

This structure has walls of corrugated steel and windows that look onto the factory floor. The original factory floor is used for R&D, manufacturing and testing of large robotic components. The space can be reconfigured as needed. As the company grows, more space can be finished.

Features that remain from the original building include concrete floors, exposed rivets and ceiling braces, and a shaftless elevator with exposed workings. The original wooden delivery doors were reused as sliding panels to close off the employee break area. A large industrial crane hangs in the new lobby.

The result is a blend of old large-scale industrial space with highly functional tech space and a large degree of flexibility.

Sustainability

This brownfield redevelopment is inherently more environmentally sustainable than greenfield construction, in large part because of the reuse of the building and the public infrastructure and transportation systems that are already in place. The urban location allows employees to walk, bike or take public transit to work.

The original factory building was designed to let heat *out,* so energy efficiency was improved for the outer structure by adding insulated panels. Radiant floor heating is energy efficient and creates a very comfortable space; it also eliminates the need for ductwork in the ceilings. The building within a building is already highly energy efficient.

The Heppenstall Building and site are part of a larger brownfield site that went through Pennsylvania's Land Recycling Program, which is sometimes referred to as "Act 2." The program encourages voluntary cleanup and reuse of contaminated sites by issuing uniform standards, liability relief and financial assistance through grants and low-interest loans for assessment and remediation. RIDC invested nearly $8 million in remediation and infrastructure upgrades to make the overall site developable. In hindsight, RIDC's Smith says he would have preserved more of the buildings. "It is easier to reuse than build from the ground up. And it creates a more authentic experience."

The property was zoned "Urban-Industrial," so the redevelopment was permitted by right. There were no real challenges from the surrounding community. The renovation of this long-vacant industrial building was considered an improvement over what had been a neighborhood eyesore. Around the same time this building was rehabilitated, several new, upscale homes were constructed directly across the street, illustrating that industrial facilities can successfully coexist with residential development.

Leasing and Financing

When Carnegie Robotics had grown to the point that it needed its own space, leaders began working with RIDC to identify and secure an appropriate property, and in February 2013 it signed a lease

"Because of its nonprofit status, **RIDC can take on projects that might not be immediately profitable**, but provide great benefit to the community."
Adrienne Schmitz

for the Heppenstall Building. The company moved into the renovated facility in December 2014. The lease terms were for 15 years, modified net, with escalations and with an option to purchase. The lease also required that RIDC provide about an acre of outdoor space for testing robots.

Because Carnegie Robotics was a startup and was not considered a credit tenant, it would have been very difficult for the company to obtain financing from traditional lenders, who likely would not take on the level of risk involved. RIDC was able to provide equity and a small loan through its Manufacturing Loan Fund. The state provided an additional loan. "The Pennsylvania Department of Community and Economic Development has been a key financing partner, providing support via several programs, including the Commonwealth Financing Authority's Business in Our Sites program" indicates Smith.

If, for some reason, Carnegie Robotics does not continue in this space, RIDC believes there is enough industry growth in this location that it will have no trouble leasing the space to another robotics firm, justifying its expenditures in this build-to-suit project.

Building a Robotics Community

RIDC is one of the major players rebuilding the Lawrenceville neighborhood as a center for robotics. RIDC had already been working closely with the NREC, so was familiar with the spinoff company, its history and its leaders. This relationship gave both sides confidence in the partnership. The value added was knowing the technology business and the ability to accommodate its growth. Long-term public benefits in terms of potential jobs and the city's improved image are far more important to RIDC than financial gain. This transaction clearly strengthens the city's profile in the world of robotics.

While RIDC made minimal changes to the exterior of the old Heppenstall Building, it did add windows and fiberglass roof panels to bring in more light, as well as a balcony off a break room.

Carnegie Robotics is a member of a growing community of robotic companies in Lawrenceville. RedZone Robotics, located next door, provides robotic wastewater inspection services. The founders of Carnegie Robotics recently went on to start Uber's Advanced Technologies Center, the driverless car division that is now testing its self-driving cars with local Uber customers. Caterpillar Inc. has leased up to 11,000 square feet in a new 65,000-square-foot robotics research building that will be completed in late 2017 on a five acre portion of the original Heppenstall site.

The partnership between RIDC and Carnegie Robotics worked because RDIC understood the startup's business and vision, having worked for years with similar kinds of companies. RIDC was able to respond to its needs by putting significant funding into the project, assuming the development and operations risks. RIDC provided exactly the right kind of space at the right location and cost. CEO DiAntonio says his company is very pleased with the facility. "The building has given us the capacity to grow and to impress our clients. When we have visitors, we get instant credibility from the beautiful facility. They see that this company thinks big, that we give our employees a great workspace. For the same reasons, it helps us recruit the kind of talent we need." The project also earned RIDC the NAIOP Pittsburgh Best Industrial Renovation Award in 2015. ■

Adrienne Schmitz is a freelance writer and real estate researcher.

Additional photographs of this project can be viewed at http://desmone.com/portfolio/carnegie-robotics/.

Redeveloping Newspaper Headquarters

The redeveloped Oregonian newspaper building at 1320 SW Broadway will feature this spacious, open lobby, accessible from the SW Broadway entrance. The building's expansive windows and high ceilings were long hidden behind plain vanilla finishes and drop ceilings.
Rendering courtesy of Allied Works/URG

Redevelopment of former newspaper headquarters and other facilities is becoming big business in more markets, as news companies offload valuable real estate with great structural bones in high-quality locations.

By Patricia Raicht and Julia Georgules, JLL

RISING PROPERTY values resulting from heightened demand among tech companies and other tenants for urban settings, combined with the downtown location of many newspaper headquarters, have created an opportunity for news organizations. Many that own their headquarters or print facilities are monetizing those investments, selling to investors and developers looking to convert the buildings to apartments, hotels and other forms of in-demand real estate. Others are maintaining at least partial ownership of their property while partnering with developers and investors to generate additional revenue.

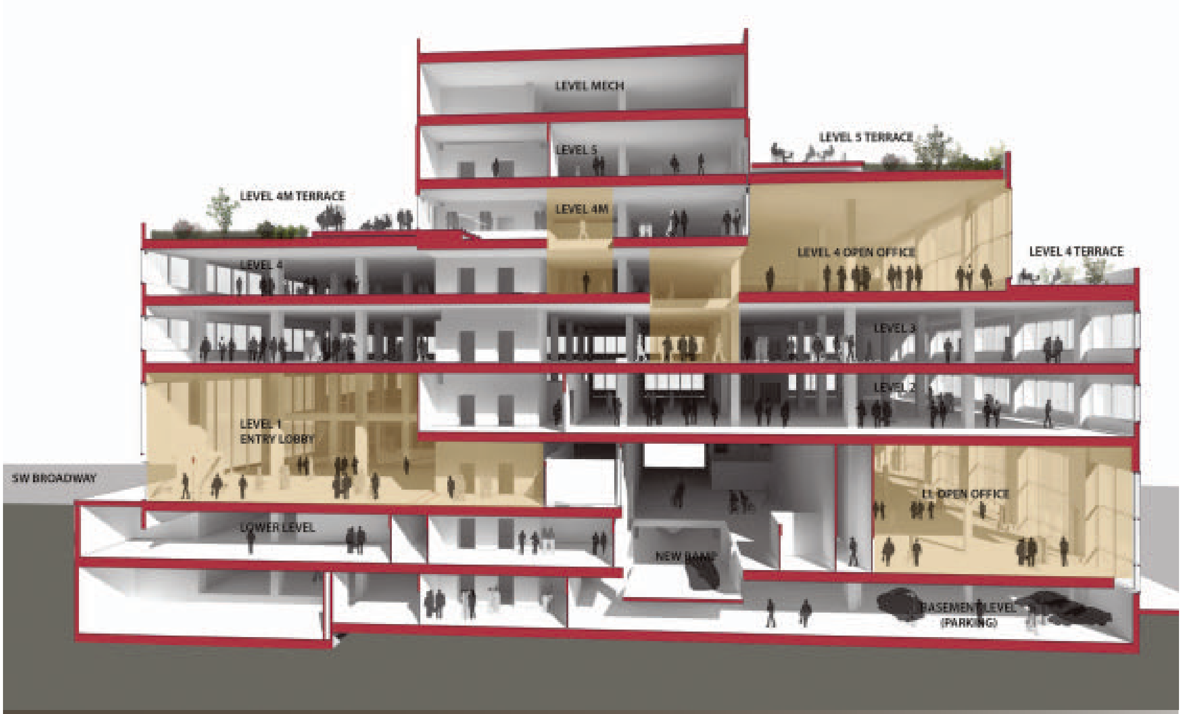
One of the most popular redevelopment uses is office space, as these older buildings lend themselves to being recycled into the collaborative office environments so valued by tech and other creative tenants. The open newsroom so prevalent in the 20th century was apparently a trend ahead of its time — or perhaps this is just a case of what once was old is new again. Because of the open newsroom design, many newspaper buildings provide office developers with a canvas on which to create open, column-free environments with high window lines. Their location, typically in a traditional downtown area or close-in urban neighborhood, appeals to today's growing millennial workforce.

Here are some leading-edge examples from around the U.S.

The Oregonian, Portland, Oregon

The Oregonian, Oregon's primary newspaper, operated its headquarters from 1948 to 2014 out of a six-story building at 1320 SW Broadway in downtown Portland. Completed in 1948, the building was designed by renowned Portland architect **Pietro Belluschi** and is a prime example of his modernist style. The structure is a rare full-block property in downtown Portland, a highly sought-after commodity by area developers. It once housed the paper's primary printing press, as well as its newsroom and other executive and support functions. In 2014, the publishing company sold the then-vacant building to Urban Renaissance Group (URG) and partner Clarion Partners, on behalf of a separate account.

The approximately $20 million redevelopment plan created by Clarion and URG envisioned 169,000 square feet of creative office space with large floor plates and the modern amenities sought by today's creative tenants. The redevelopment team, working with Portland-based Allied Works Architecture, discovered many especially compelling



The redesigned 1320 SW Broadway building will feature outdoor terraces, below-grade parking, bicycle access and open office space.
Rendering courtesy of Allied Works/URG

design features in the building as demolition progressed. Hidden beneath drop ceilings and plain-vanilla finishes were 28-foot clear exposed, board-formed concrete ceilings in the lobby and expansive 20-foot-high windows along the Broadway frontage.

"Belluschi led the modern movement in American architecture and this building is one of the real treasures among the 1,000 or so buildings he designed. It's a tremendous opportunity to be able to work on a design to reveal the work of a truly great architect in a modern context," says **Kyle Lomman**, principal of Allied Works.

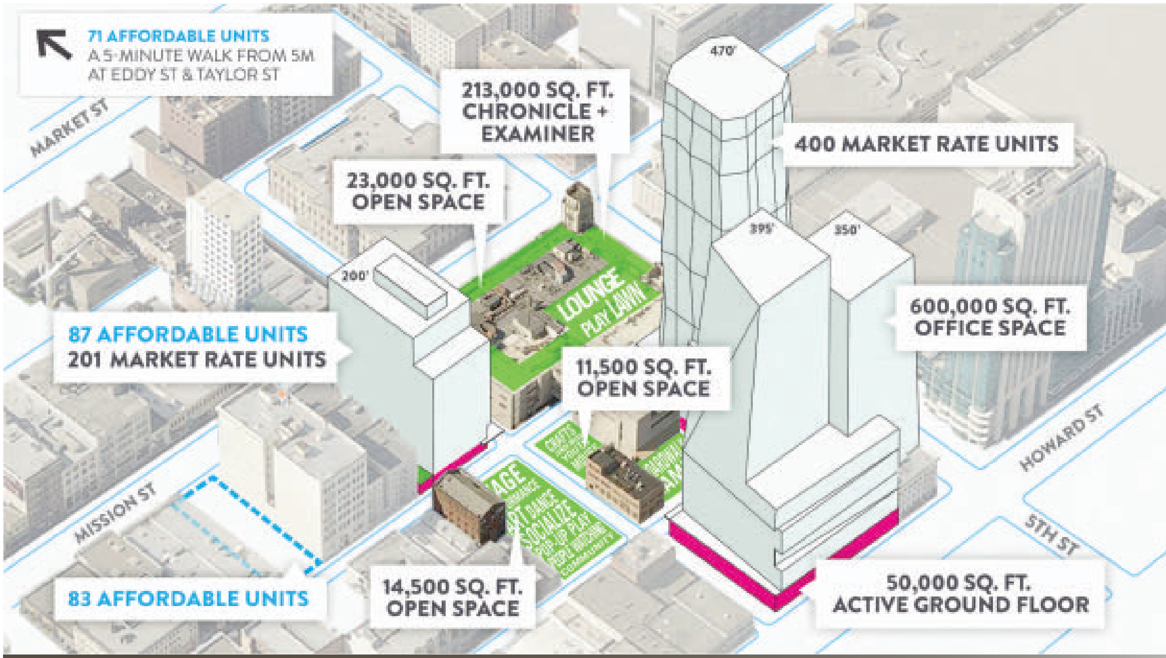
The rest of the building has 14-foot clear heights on floor plates of up to 40,000 square feet, a rare find in downtown Portland. Additional components to the renovation involved adding three outdoor terraces on the upper floors with expansive views to the east and west, as well as bike parking for up to 200 bicycles in the building's remodeled lower level, which also features private showers and lockers.

"When we looked at the building, we saw tremendous opportunities to reposition both the exterior and interior," says **Tom Kilbane**, head of URG's Portland office. "On the outside, because of its prior usage, the building had for years had its back turned to Broadway, the main thoroughfare in the neighborhood. Our goal, with the team from Allied Works, was to open up the Broadway facade and reconnect the building to the neighborhood, returning Broadway, from Jefferson to Columbia streets, to its previous position as a vibrant part of downtown Portland. On the inside, by peeling back the layers of improvement, we've exposed some of the most interesting office space that we've ever seen in Portland," he adds.

Urban Renaissance and Clarion also recruited Ristretto Roasters, a local, artisanal coffee roaster to operate the lobby cafe, with an eye toward creating a bright and engaging community space.

The building's leasing agent, **Jake Lancaster**, a managing director in JLL's Portland office, applauds the developers' vision in creating a modern, amenity-rich environment while preserving critical elements of the building's original design. "This is a building that really checks all of the boxes in terms of amenities as well as having the kind of 'cool factor' that can differentiate creative users from their peers and wow their employees," he says.

The building has secured two major tenants, who will occupy more than 87 percent of the rentable area. Elemental Technologies will move its Portland headquarters to the building, having leased 101,000 square feet (all of floors three through five). D+H Financial Technologies has leased 45,000 square feet, taking advantage of unique space



This aerial plan illustrates developer Forest City's plans for the 5M project, which will consist of housing, office and open space on and around the old San Francisco Chronicle and Examiner property in the city's South of Market area.
Rendering courtesy of Forest City/5M

on the first and second floors, which have 200 lineal feet of windows. Leasing activity remains strong; as of mid-February, a lease was in negotiation for 13,000 square feet of office space on the lower level of the building, facing SW Sixth Avenue. Asking rates are in the $28 to $30 per square foot range, triple net. The building opened in January 2017, when D+H moved in.

"The open newsroom so prevalent in the 20th century **was apparently a trend ahead of its time.**"

Patricia Raicht and Julia Georgules

The San Francisco Chronicle

When the DeYoung brothers founded The Daily Dramatic Chronicle in 1865 they had a vision that transcended newsworthy events and opinions; it also materialized in the form of real estate. The DeYoung family's 135-year ownership of the newspaper, now the San Francisco Chronicle, included the design and development of three headquarters locations. The third and current location is at 901 Mission Street, at the corner of Fifth and Mission streets, in San Francisco's newly coined Mid-market submarket, just blocks from Union Square, Westfield Shopping Center and the Yerba Buena Center for the Arts.

A Gothic revival building designed by **Charles Peter Weeks** and **William Peyton Day** and constructed in 1924, the Chronicle Building was stripped of its gothic revival vestiges in 1968 and remains today in its latest stucco version. With more than 178,000 square feet across three floors, the Chronicle Building, in combination with the neighboring Examiner Building, which is connected by a bridge, offers some of the city's largest floor plates — just over 60,000 square feet — as well as excellent access to public transportation, neighborhood amenities and new multifamily developments.

Owned by the Hearst Corp. since 2000, the Chronicle Building quietly became a location for tech start-ups during the Great Recession. By then, Hearst had set up in partnership with Cleveland-based developer Forest City Realty Trust and was preparing a plan for redevelopment of the newspaper's property at Fifth and Mission. A big round of newsroom layoffs in 2007, followed by more in 2009, as well as outsourcing of the newspaper's

The Julia Morgan-designed Beaux Arts Herald Examiner building was commissioned by newspaper magnate William Randolph Hearst.
Rendering courtesy of The Georgetown Company

printing operation, created a significant amount of vacant space in the three-story building.

In 2010, 901 Mission became the first home to mobile payment company Square. The then 10-person company worked out of space once occupied by the Chronicle's accounting department. When Square moved to new premises in 2013, the 70,000-square-foot space it vacated was snapped up by Yahoo on a five-year lease. Impact Hub, which offered co-working, meeting and event space before the co-working industry exploded a few years later, also set early roots in the building. Once its only occupant, today the Chronicle occupies only about a third of the total leasable space at 901 Mission.

The most exciting iteration of the Chronicle Building is yet to come, however. Over the next several years, Forest City will be developing the 5M Project, a four-acre mixed-use project anchored by the Chronicle Building that will offer office, residential, retail and open spaces. The Chronicle Building will be retained as an historic icon and a rooftop park will be added. The property will host a range of ongoing activities, from art installations to pop-up retail shops. The 5M Project was approved in December 2015 and construction is planned to take place over the course of several years.

The Chicago Tribune

The Chicago Tribune site at 700 West Chicago Avenue in the River West area of the city totals more than seven acres of developable riverfront land across from the newspaper group's Freedom Center printing and distribution facility. Mixed-use development has been on the rise in Chicago, as has demand for creative and tech space in the city center. Long-range development plans are pushing the city's growth beyond the traditional Loop core, outward to urban micro-districts, including the River West area, where larger floor plates are possible.

Tribune Media, the owner of the Chicago Tribune site, is trying to generate revenue from the company's vast real estate holdings. The redevelopment of the 700 West Chicago site is a key component of this goal. Tribune Media will partner with Chicago-based Riverside Investment & Development, which will serve as the master developer for a phased mixed-use project that will involve the redevelopment of the 115,000-square-foot building that sits on the site. The first phase is expected to include 435,000 square

Georgetown's renovation of the Herald Examiner building will make it available to new office tenants for the first time in more than 100 years.
Rendering courtesy of The Georgetown Company

feet of office space. Subsequent phases will incorporate multifamily residences, public space and, potentially, a hospitality offering.

Pending approvals, the first phase will likely feature a mid-rise office tower that will include outdoor spaces in the form of rooftop and other decks with green features. The development will also include an open market area and public green spaces. Plans for the project are ongoing.

"The Herald Examiner building is a jewel surrounded by a host of new amenities, including hotels and residential development."
Carl Muhlstein

The Herald Examiner, Los Angeles

The stately Herald Examiner office building at 1111 South Broadway, which was commissioned by publisher **William Randolph Hearst**, opened in 1914 but has been empty of daily office workers since the publication closed in 1989. The building was designed by Beaux Arts graduate **Julia Morgan** in the Mission Revival and Spanish Colonial Revival styles with a red tile roof and prominent architectural arches. The structure also featured spectacular arched windows at the ground level that were enclosed with cement in the late 1960s after they were damaged during a labor strike. Soon after the publication closed, the building was converted into one of the preeminent filming locations in greater Los Angeles.

The Hearst Corp. recently sold a stake in the property for an undisclosed amount to The Georgetown Company, a New York-based developer that plans to repurpose it as a mixed-use center.

"We entered this project with a vision of retaining, restoring and highlighting the architecturally significant features of the original Julia Morgan design while creating unique, modern workspaces within the bones of this great building," says **Michael Fischer**, vice president, The Georgetown Company. "It's a significant commitment but a worthwhile one to

Reusing Other Newspaper Buildings and Sites

Many other former newspaper buildings are currently in various stages of redevelopment across the U.S. Here are just a few more examples:

The Seattle Times. Canadian developer Onni Group purchased the former Seattle Times headquarters building in the South Lake Union neighborhood in November 2013 for $29 million. It plans to demolish the 1930s era building, preserving the historic facade, and build four residential towers with almost 2,000 multifamily units as well as ground-level retail space.

The Washington Post. Washington, D.C.-based Carr Properties purchased the former Washington Post headquarters buildings in downtown Washington in 2013. It began demolishing the structures in March 2016 and is now developing a $650 million mixed-use project on the site that is expected to deliver in mid-2018. The building, which will house the new Fannie Mae headquarters, will be known as Midtown Center.

The San Diego Daily Transcript. San Diego-based SDPB Holdings LLC recently purchased the 35,000-square-foot former headquarters of the Daily Transcript, which is located in the city's emerging Uptown/Bankers Hill neighborhood, for $5.3 million. The developer has plans to convert it into creative office space.

Knight Ridder, San Jose, California. Knight Ridder was once the second-largest publisher of daily newspapers in the U.S. Its holdings included the Akron Beacon Journal, Charlotte (North Carolina) Observer and San Jose Mercury News. The San Jose-headquartered media conglomerate lost its corporate identity when it was acquired by McClatchy Newspapers in 2006. Ten years later — and long after it moved out of its corporate offices at 50 West Fernando — two huge Knight Ridder signs still sat atop the downtown San Jose skyscraper. In August 2016, the building's owners, DivcoWest and Rockpoint Group, completed the first phase of a major capital investment program in the building by unveiling new rooftop signage promoting San Francisco's Public Broadcasting Service-affiliate, KQED. ■

preserve one of downtown LA's finest architectural gems and a piece of journalism history," he adds.

The $40 million project will feature 100,000 square feet of creative office space as well as ground-floor retail space. Many of the property's architectural features will be returned to their former status, including the lobby, a once-ornate entrance with hand-painted tiled flooring, gilded arches and marble features. Gensler will transform the iconic building into modern creative office space.

The renovated five-story building will feature 24-foot ceiling heights, operable windows and skylights on the top floor. Three main floors of office space, each of which will be designed with a unique character and flavor, will appeal to creative tenants such as entertainment and advertising companies. The renovation is expected to be completed and the building available for occupancy by the end of 2017.

"The Herald Examiner building is a jewel surrounded by a host of new amenities, including hotels and residential developments," says **Carl Muhlstein**, international director, JLL, and the leasing agent for the project. "Georgetown's plans for the building have been extremely well received and we are already seeing strong interest from creative as well as traditional tenants who want to be in this dynamic part of town," he adds.

Opportunities Remain

For most of the late 19th and early 20th centuries, the newspaper industry underwent a land rush, as publishers fought to build their news empires across the continent. On the way, some acquired real estate assets in central city locations that they and their organizations doggedly clung to as physical representations of their brand. Many commissioned esteemed architects of the day to design buildings to reinforce their brand as the biggest, best and first.

Today, the industry's need to run a tight ship — to streamline operations, reduce costs and, where appropriate, monetize valuable assets — has become even more important. This is providing real estate investors and, more specifically, experienced office developers, with a blank canvas upon which to build the next iteration of creative office space. ■

Patricia Raicht is senior vice president and national research director at JLL; **Julia Georgules** is vice president and director of U.S. office research there.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Bulfinch Crossing
The Next Phase of Urban Revitalization in Boston

When completed, Bulfinch Crossing — the high-rises at the far right — will be a dramatic addition to the Boston skyline.
Rendering by CBT, courtesy of HYM

A 4.8-acre mixed-use, transit-oriented development on the site of the Government Center Garage aims to meet the future needs of Bostonians.

By Thomas N. O'Brien, The HYM Investment Group LLC

SPANNING TWO city blocks at the geographic center of Boston's urban evolution, Bulfinch Crossing — the redevelopment of the Government Center Garage site — has been planned as a 2.9 million-square-foot mixed-use development. Situated atop two MBTA subway lines, a short walk from the city's two commuter rail stations and a mere five-minute drive from Logan Airport, the project is expected to set a new standard for transit-oriented development.

At buildout, the 4.8-acre project will feature 1.15 million square feet of office space, much of it in One Congress, a 43-story, 1 million-square-foot office tower designed by Pelli Clarke Pelli Architects and CBT Architects that will rise more than 500 feet at its namesake location, offering unparalleled 360 degree views. Tenants are expected to include financial services, technology and/or other Boston-based industries. Bulfinch Crossing will also contain 85,000 square feet of new street-level retail space that will activate the area and complement the established surrounding neighborhoods, as well as more than 800 residential units, 200 hotel rooms and approximately 1,160 parking spaces. It will feature a one-acre rooftop garden on the west parcel and a more than one-acre public square on the east parcel. Bulfinch Crossing will reestablish a prominent central gathering point in downtown Boston and help knit together adjacent neighborhoods — including the North End, West End and Beacon Hill — that have been divided for more than 50 years.

The project is a bold vision for the future of Boston. Owner National Real Estate Advisors (National) and developer The HYM Investment Group (HYM) are working together to realize their vision for the transformation of the late 1960s urban renewal above-grade garage into a new active destination. Bulfinch Crossing's initial phase, the reconfiguration of the garage, is currently underway. It consists of $25 million of interior improvements, including reconstruction of four interior parking ramps, a new parking office and new structural brace framing. The majority of the enabling work has been completed. The existing garage has remained open throughout this initial construction phase and will stay operational through the six-building redevelopment.

The first phase of the redevelopment itself will involve the construction of one of Boston's tallest rental apartment towers on Bulfinch Crossing's west parcel. The 480-foot tall, 45-story residential tower, which has been designed by Boston-based CBT Architects, will comprise 486 luxury units with views from Boston Harbor to the Back Bay and the Charles River. Demolition for the

Bulfinch Crossing will feature 1.15 million square feet of office space as well as more than 800 residential units, 85,000 square feet of new street-level retail space, 200 hotel rooms and more. It will also help knit together adjacent historic neighborhoods that have been divided by the Government Center Garage for more than 50 years.

Site plan by CBT, courtesy of HYM

foundations of the first residential tower in the southwest corner of the garage commenced in December 2016. The tower's multiple amenity floors will feature an outdoor pool, two outdoor decks, a 4,000-square-foot fitness facility, a yoga studio, a golf simulator, a private dining room with a chef's kitchen, two great rooms and a dog spa/daycare area. The residential tower will be completed in summer 2020.

Bulfinch Crossing's west parcel will be anchored by the One Congress office tower — to be built in the second phase — and will also include a second 300-foot-tall high-rise residential tower in addition to the first-phase apartment tower.

On the east parcel, three mid-rise structures — including a hotel/condo building, a boutique office building and an iconic 60-foot-tall glass "jewel box" retail building — will surround a new urban net-zero public square with al fresco dining, cafes and chic retail shops. The square has been designed to help reconnect the surrounding neighborhoods and improve walkability. The retail building will connect Boston's famed Faneuil Hall with MBTA's North Station commuter/Amtrak station, with access to TD Garden, via historic Canal Street. The redevelopment will also house a bicycle parking facility and a new Hubway bike-sharing station, provide electric vehicle (EV) charging stations and offer multiple car-sharing options.

Emphasizing Access With Transit Options

The generational shift away from car-centric design to a preference for multimodal transportation access has spurred redevelopment in cities around the world. In Boston, it's one of the leading factors behind the trend to find new uses for downtown public garages. As soon as it was built in the 1960s, the multiblock Government Center Garage became a visual eyesore that physically divided surrounding neighborhoods.

The redevelopment will transform the existing 2,300-space garage into a mixed-use development that will reduce the amount of parking by approximately 50 percent and will apply a robust and realistic shared parking model. The facility will provide parking for on-site users and the public, including event parking as well as parking for residents of adjacent parking-constrained historic neighborhoods such as the North End and Beacon Hill.

The garage currently spans Congress Street, hovering above it and covering an entire city block. The demolition of more than half of the garage will bring daylight to this portion of Congress Street for the first time in 50 years. It will also help reestablish a visual connection between two parts of downtown Boston and create two more appropriately urban-scaled city blocks.

The eastern portion of the Government Center Garage currently shelters the Haymarket Bus Station, a major MBTA regional bus station that provides an important link for many commuters from North Shore communities. It also features a headhouse for direct access to two on-site subway lines. In the later phases of the development, this station will be temporarily relocated off-site, then integrated back into one of the east parcel buildings. Roads surrounding the project will also be upgraded with adaptive signal technology, and new bicycle lanes will be added to some road segments.

Focusing on Sustainability

Boston will face a number of complex sustainability and resiliency issues relating to climate change and sea level rise in the coming years. National and HYM are striving to incorporate sustainable practices and strategies into Bulfinch Crossing throughout each phase. Retaining the western portion of the garage reduces the amount of new construction materials and energy associated with fabrication and transportation, as well as the amount of waste created in the demolition phase.

Bulfinch Crossing's buildings have been designed to various LEED standards, including one building at LEED Platinum, four at LEED Gold and one at LEED Silver, with elements that aim to achieve energy savings and significant reductions in greenhouse gas emissions. Each building will feature low-flow, high-end fixtures; will locate critical mechanical equipment above street level; and will connect some additional building elements, such as domestic water pumps and common area outlets, to an emergency generator, to improve the building's resiliency during power outages.

> "The redevelopment will **transform the existing 2,300-space garage into a mixed-use development that will reduce the amount of parking by approximately 50 percent** and will apply a robust and realistic shared parking model."
>
> *Thomas N. O'Brien*

The development team is also committed to creating a net zero energy public square through the future installation of solar panels on one of the east parcel buildings. A one-acre green roof and roof garden will be constructed on top of the remaining garage and will be shared by the three west parcel high-rise buildings. The roof deck will provide additional environmental benefits, reducing the project's "heat island" effect and helping to manage stormwater runoff.

The site of the massive Government Center Garage (at lower right in "before" photograph) site is being redeveloped as the 4.8-acre, 2.9 million-square-foot mixed-use Bulfinch Crossing,

Photo and rendering by Neoscape, courtesy of HYM

Working With the Community to Reunite Neighborhoods

Bulfinch Crossing is a natural extension of the legacy of Boston's Bulfinch Triangle, both in location and in name. Bulfinch Triangle was originally master-planned by **Charles Bulfinch**, widely known as the first American-born professional architect, as one of the first mixed-use districts in the U.S. It was designed to be a place in which industry and commerce flourished. As urban renewal took hold in the 1960s, however, construction of the Government Center Garage interrupted the area's historic fabric.

Understandably, this high-profile redevelopment project underwent a detailed review by the city of Boston when it was first proposed in 2013. During the approval process, National and HYM took care to involve the public on every level. HYM representatives met with neighborhood residents in small groups over the course of several years, listening to their concerns and absorbing their feedback along the way. For example, after residents expressed a desire for bicycle accessibility, National and HYM incorporated an 850-space bicycle parking facility — the largest such facility in the city — along with a new bike-share station, into the project. Throughout the process, HYM also worked with

Bulfinch Crossing Project Summary

Location	One Congress Street, Boston, Massachusetts	
Type of Site	Urban	
Development Type		
Redevelopment, Ground Up/New Development, Adaptive Re-use, Mixed Use, Transit Oriented		
Transportation Modes		
Transit (Commuter Rail, Subway and Bus), Bicycle, Pedestrian, Car		
Mix of Uses		
Office	1.15 million sq. ft.	
Retail/Restaurant	82,500 sq. ft.	
Residential	800+ units	
Hotel	200 rooms	
Open Space	2 acres (1-acre rooftop garden and 1-acre public plaza)	
Structured Parking	Approx. 1,160 spaces for cars; 850 spaces for bicycles	
Site Dimensions		
Total Acreage	4.8 acres	
Total Square Footage	2.9 million sq. ft.	
Development Team		
Developer	The HYM Investment Group LLC	
Owner	National Real Estate Advisors	
Project Architects	Pelli Clarke Pelli Architects, CBT Architects	
Landscape Architect	Dirtworks Landscape Architecture PC	
General Contractor	Tishman Construction Company of Massachusetts	
Leasing Agents	Transwestern I RBJ	
Timeline		
Master Plan Approved		December 2013
Garage Reconfiguration Started		November 2015
Phase I Residential Construction Begun		December 2016
Phase I Residential Completion (Projected)		Summer 2020
Completion (Projected)		To be determined
Total Project Costs		$2 billion
For More Information		
www.bulfinchcrossing.com		
https://vimeo.com/bulfinchcrossing		

"Extensive and responsive community outreach resulted in **strong community support and unanimous approvals by the city of Boston.**"

Thomas N. O'Brien

a city-appointed advisory group, integrating feedback into the project design.

This feedback loop helped tailor the design of Bulfinch Crossing so that it now reflects both the concerns and ideas of residents from bordering neighborhoods. Working with the city and its various departments was key to the project's successful planning and permitting. This extensive and responsive community outreach resulted in strong community support and unanimous approvals by the city of Boston.

By listening carefully to the local community from the beginning, the team recognized that people are looking for more than just a place to live or work. Residents of Bulfinch Crossing — as well as those who work there — will find a wide array of neighborhood amenities at and surrounding their homes and offices, including shops, restaurants and open space where they can gather and take part in community activities. In addition, the project's east parcel abuts another area developed with civic uses in mind, the Rose Kennedy Greenway.

Bulfinch Crossing continues to strive to unlock potential: the potential to dramatically improve the public realm and architectural character of downtown Boston through thoughtful redevelopment and the creation of a new, pedestrian-friendly public square. The project won't just visually connect Bulfinch Triangle with its surrounding neighborhoods; it will provide a physical and even emotional connection that all visitors to this place will experience. ■

Thomas N. O'Brien is the founding partner and managing director at The HYM Investment Group LLC.

2017 Guide to Economic Development AUTHORITIES

The economic development authorities throughout North America listed here can help you attract businesses to your area and to your developments.

This annual guide provides sources and key contacts to enable you to benefit from the myriad of incentives available for commercial real estate development. From site selection assistance to energy saving rebates, state and local enterprise zones to bond financing, public-private initiatives to financing help and assistance in navigating approvals, you'll find it all right here.

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The knowledge economy is a human race – the competition between the best companies in the world for the brightest minds in business, science, technology and all manner of industry. Mississauga is where leading companies win that competition. To learn more visit: winthehumanrace.ca

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The Arizona Commerce Authority is the state's leading economic development organization tasked with growing and strengthening Arizona's economy. The ACA attracts companies to the state, helps Arizona companies expand, and works with talented entrepreneurs to facilitate the creation of new technologies

CALIFORNIA

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Hesperia is located in California's Inland Empire along I-15, where there are expansive tracts of land and city-owned rail-accessible property, making Hesperia the location of choice for any industry.

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Amazon, Procter & Gamble, Walgreens, Skechers, ALDI, Deckers, Karma Automotive, and Fisher & Paykel are some of the Fortune 500 and international companies enjoying Moreno Valley's strategic advantages from ideal location, available land, and competitive incentives. Moreno Valley—Accelerating Opportunities.

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Bowie, MD 20716
(301) 809-3042

Bowie is one of the largest cities in Maryland. Bowie is also an excellent business location, easily reached from Washington D.C., Annapolis and Baltimore. Bowie's proximity to these major cities brings business and workforce into the area via Routes 3, 50 and 301. Bowie has more than 90 restaurants, 200 shops, and a dozen recreation opportunities. With this winning combination of location, access and amenities your business is certain to grow and succeed. The City's Economic Development Office is ready to help with your business and development location needs, whether it is current market information, introductions to key officials in the development or site location process, or just general information about business opportunities.

Frederick County Office of Economic Development
Helen Propheter
hpropheter@frederickcountymd.gov
www.discoverfrederickmd.com
118 N. Market Street, 3rd Floor
Frederick, MD 21701
(301) 600-1058

The Frederick County Office of Economic Development (OED) serves as the primary contact for businesses who are interested in expanding and relocating to Frederick County. OED assists businesses with all facets of their projects including site selection, permitting, financial assistance and workforce issues

NEW MEXICO

Albuquerque Economic Development, Inc.
Gary Tonjes
gary@abq.org
www.abq.org
851 University SE, Suite 203
Albuquerque, NM 87106
(505) 246-6200

AED's mission is to strengthen the Albuquerque metro area economy by recruiting export-oriented employers, and by assisting in the retention and expansion of existing business and industry.

NEW YORK

Buffalo Urban Development Corporation (BUDC)
Peter M. Cammarata
pcammarata@buffalourbandevelopment.com
www.buffalourbandevelopment.com
95 Perry Street, Suite 404
Buffalo, NY 14203
(716) 362-8361

BUDC's mission is to support urban economic development efforts through acquisition, remediation and management of distressed properties, and to engage in real estate development activities for the purpose of attracting and/or retaining new and existing businesses to the City.

Operation Oswego County
L. Michael Treadwell
ooc@oswegocounty.org
www.oswegocounty.org
44 W. Bridge St.
Oswego, NY 13126
(315) 343-1545,(315) 343-1546

Operation Oswego County, Oswego County's designated economic development organization, provides assistance with accessing special incentive programs, financial packaging, site selection as well as specialized research and technical assistance.

OHIO

Ohio's Electric Cooperatives
Dennis Mingyar
dmingyar@ohioec.org
www.ohioec.org
6677 Busch Boulevard
Columbus, OH 43229
(800) 282-6962

Ohio's Electric Cooperatives provides comprehensive economic development services to 77 of Ohio's 88 counties. A resource for 25 local electric cooperatives, Ohio's Electric Cooperatives provides site selectors and business owners with site location assistance. Contact Dennis Mingyar at dmingyar@ohioec.org or (614) 430-7876.

PENNSYLVANIA

Westmoreland County Industrial Development Corporation
Jason Rigone
wcidc@wpa.net
www.westmorelandcountyidc.org
Fifth Floor, Suite 520
40 North Pennsylvania Avenue
Greensburg, PA 15601
(724) 830-3061

The WCIDC has developed 17 industrial parks, leads public/private partnerships, and provides companies with one-stop-shop economic development service. Located within 30 miles of Pittsburgh, Westmoreland County is located within a 500 mile radius of 70% of America's total population. One premier development is the Westmoreland Logistics Park Rail Freight Terminal. It is one of just a few in the United States that is served by three Class I railroads, and helps provide rail service to the entire region.

SOUTH CAROLINA

Santee Cooper
Yates Reynolds
yates.reynolds@santeecooper.com
www.santeecooper.com
One Riverwood Drive
Moncks Corner, SC 29461-2901
(843) 826-5010

Santee Cooper is South Carolina's largest power producer, providing electricity to 2 million people and businesses directly and through the state's 20 electric cooperatives. By partnering our low-cost, reliable power and development opportunities with our state's attractive tax base, relocation incentives and an unparalleled quality of life graced with Southern hospitality, Santee Cooper powers South Carolina.

TEXAS

Allen Economic Development
Dan Bowman
dbowman@allenedc.com
www.allenedc.com
700 Central Expwy South, Suite 210
Allen, TX 75013
(972) 727-0252

Located thirty minutes north of downtown Dallas, The Allen Economic Development Corporation is committed to attracting, growing and serving businesses in our community. Our services include site selection assistance, economic incentives, custom research and data and connectivity to community resources.

Cedar Hill Economic Development Corporation

Allison J. H. Thompson, CEcD, EDFP
allison.thompson@cedarhilltx.com
www.cedarhilledc.com
285 Uptown Blvd., Bldg 100
Cedar Hill, TX 75104
(972) 291-5132 ext.5

Companies of all types have found that Cedar Hill is a prime location for their success. Located in the beautiful hill country environment, Cedar Hill is the natural choice for those who want big-city amenities with a small-town ambience.

- 20 minutes from Downtown Dallas
- Easy access to I-35, I-45, I-20, I-30, DFW Airport, Dallas Love Field
- US 67/Rail-served Business Park
- Workforce of over 1 million within a 30-minute drive time
- Type A sales tax funds to offer aggressive economic development incentives

City of Sugar Land

Robert Lung
rlung@sugarlandtx.gov
www.sugarlandecodev.com
2700 Town Center Blvd. N
Sugar Land, TX 77479
(281) 275-2229

The City of Sugar Land is one of the top locales for business relocation and expansion, due to a highly educated workforce, aggressive economic development program, excellent access to the Gulf Coast and one of the lowest tax rates in Texas. The Office of Economic Development has a number of resources to assist your new/existing business to grow, expand or relocate. Our highly qualified staff understand the importance of response requirements in the site selection process and deliver on time.

The Colony Economic Development Corporation

Keri Samford
edc@thecolonytx.org
www.thecolonyedc.org
6800 Main Street
The Colony, TX 75056
(972) 624-3127

It's hot in The Colony, where the Nebraska Furniture Mart/400-acre Grandscape is open, and Sheels (an over 300,000 square foot sporting store) to open in 2020! Named one of the Top 20 Places to Live in the U.S. and Top 10 for Most Affordable Housing by CNN/Money Magazine, The Colony has plenty of prime retail, office space, and office-flex including mixed-use centers like The Cascades and Austin Ranch. All just 25 minutes north of Downtown Dallas and 15 minutes to DFW Airport.

Greater Ft. Bend Economic Development Council

Mark Witte
mwitte@dfwairport.com
www.dfwairport.com/landhere
PO Box 619428
DFW Airport, TX 75261
(972) 973-4657

With global connectivity, cost-efficient transportation, a central location, and a sophisticated infrastructure, DFW Airport is an ideal location for business. DFW Airport leases land for commercial uses such as industrial/warehouse and distribution, and office and retail development.

Greater Ft. Bend Economic Development Council

Jack Belt, Jeff Wiley
jbelt@fortbendcounty.org
www.fortbendcounty.org
1 Fluor Daniel Drive
Sugar Land, TX 77478
(281) 242-0000

As a public-private partnership, we are the leading advocate of economic vitality, quality development, and quality of life issues in Ft. Bend County, Texas.

VIRGINIA

Loudoun County, Virginia Economic Development

Buddy Rizer, Executive Director
DED@Loudoun.gov
www.LoudounPossible.com
43777 Central Station Dr.,
Suite 300
Ashburn, VA 20147
1-(800)-LOUDOUN

Your Business Success is #Loudoun-Possible. If you're looking for (1) a new corporate headquarters; (2) Greenfield space near a Metro train station; (3) Access to one of the top 10 international airports in the U.S.; (4) A prime location in D.C.'s tech corridor; (5) Walkable mixed-use developments 25 miles from the nation's capital and 25 minutes from scenic farmland; it's #LoudounPos-sible. Contact us today to discover the possibilities.

WISCONSIN

Wisconsin Economic Development Corporation

dobusiness@inwisconsin.com
www.inwisconsin.com
201 W. Washington Avenue
Madison, WI 53703
(855) INWIBIZ

The Wisconsin Economic Development Corporation (WEDC) leads economic development efforts for the state and nurtures business growth and advance-ment by fostering Wisconsin's positive business climate. WEDC provides tools and resources for businesses to start, expand or relocate their operations In Wisconsin®. Visit inwisconsin.com, email dobusiness@inwisconsin.com or call 855-INWIBIZ. ■

Want to see your company featured in our special directory listings?

Contact Joel Stecura at stecura@naiop.org or 800-666-6780, ext. 112 for more information.

National Groups Shift Focus to Cities

NAIOP and its members must be on the lookout for local initiatives driven by national organizations that could impact commercial real estate.

By Toby Burke

WITH PRESIDENT **Donald Trump** in the White House and Republicans in control of both chambers of the U.S. Congress, the federal debate is expected to be driven by conservative principles of governance that will reassess the role and responsibilities of the federal government on domestic matters. These principles will often stand in direct conflict with national organizations that support a more activist role for the federal government on public policy matters.

These national organizations will continue to advocate for their priorities at the federal level. However, given the policy challenges in Washington, they are also expected to shift and expand their local advocacy efforts. The goal will be to enact local policies consistent with their agendas — policies that, with few exceptions, would be unattainable at the federal or even the state level. One example of the emphasis on achieving goals and objectives through local policies is the expansion of the City Energy Project (CEP). Following the election, it grew from 10 to 20 cities, many of which are home to NAIOP chapters.

The CEP is a national initiative to promote and improve the energy efficiency of commercial buildings. It is supported by the Natural Resources Defense Council (NRDC) and the Institute for Market Transformation (IMT). The project focuses on working with local governments to develop "customized energy efficiency plans." These efforts frequently begin with the adoption of local ordinances that require commercial property owners to report and disclose the energy usage of their buildings, typically referred to as energy benchmarking requirements. While many NAIOP chapters have worked cooperatively with their localities to advance energy efficiency measures, we should be concerned that ordinances pushed by outside groups will be attempts to put cities on paths to mandate energy efficiency goals without meaningful consideration of cost, return on investment or available technology.

The NRDC and the IMT are not the only national organizations expected to expand their local advocacy efforts to achieve progressive policy goals. NAIOP chapters and members need to stay informed of similar initiatives driven by other national organizations that will impact commercial real estate. Such initiatives may include efforts to address economic growth, affordable housing, workforce development and environmental management, among others.

> **"We should be concerned that ordinances pushed by outside groups will be attempts to put cities on paths to mandate energy efficiency goals without meaningful consideration of cost, return on investment or available technology."**
> *Toby Burke*

Local policies and initiatives are subject to intergovernmental oversight, and may be preempted when they conflict with federal and state policies. Even if they are not preempted, federal and state governments can influence local polices by either reducing or limiting the use of available federal and state funds. The loss of these federal and state resources may lead to local governments looking to commercial real estate and the private sector to make up for lost funding through fees and taxes and, in some instances, through unfunded mandates.

Some states are expected to be in conflict with expected federal government actions that could run counter to their own existing policies. California, for example, has been at the forefront on many public policy initiatives, and has enacted state legislation to address those issues. Gov. **Jerry Brown** says the state will challenge the Trump Administration and Congress on many of these issues, if the federal government attempts to change policies. Even before President Trump was sworn in, the state hired former Attorney General **Eric Holder** to defend state policies from federal interference.

> **"The loss of federal and state resources may lead to local governments looking to commercial real estate and the private sector to make up for lost funding through fees and taxes and, in some instances, through unfunded mandates."**
>
> *Toby Burke*

The combination of the federal policy debate now shifting to cities, intergovernmental influences on local policy development and potential conflicts between states and the federal government means that NAIOP and its chapters must remain engaged at every level of government, alert to both threats and opportunities. ■

By **Toby Burke**, senior director of state and local affairs, NAIOP

NAIOP represents commercial real estate developers, owners and investors of office, industrial, retail and mixed-use properties. It provides strong advocacy, education and business opportunities, and connects its members through a powerful North American network. **For more information, visit www.naiop.org.**

Programs and Services

NAIOP Membership
For membership, information or changes to your membership record, contact membership@naiop.org.

Chapter Network
NAIOP chapters, provide local and regional education, networking and legislative affairs.

www.naiop.org
NAIOP's central resource for industry and association news, programs, advocacy efforts and connections.

National Forums
Special-interest groups that comprise senior-level NAIOP members in a non-competitive environment for exclusive networking and experience exchange.

Center for Education
The principal learning resource for the commercial real estate development professional. Offerings include online, on-demand and live courses, plus two certificate programs.

Development Magazine
Current and past issues are available online. Readers can also access an interactive digital version and download a mobile app for Development magazine on-the-go.

NAIOP Research Foundation
Research projects and initiatives to improve the understanding of the built environment and the challenges that lie ahead for individuals and organizations engaged in real estate development, investment and operations.

Career Center
Online resource designed to help employers and job seekers find new commercial real estate job opportunities.

Business Development Industry Partners
Enhance your company's presence as an industry partner by sponsoring, exhibiting or advertising.

Government Affairs
Strong, effective support and guidance to create, protect and enhance development and property values. NAIOP's government affairs team is active on Capitol Hill, state legislatures and Canadian provinces.

Market Share Blog
Insights on trends, CRE-related topics and professional development tips. Subscribe to weekly posts, interviews and news. blog.naiop.org.

Mobile Apps
Take NAIOP wherever you go. Access the membership directory, find news, chapters and events, and connect on social media. ■

** This is a listing of NAIOP members who are mentioned in this issue, as well as paid advertisers, which appear in bold.*

2017 Industry Partners

NAIOP wishes to thank our Industry Partners, whose financial support helps us to provide quality programs and communications to you throughout the year. We encourage you as a NAIOP member to include these partners, wherever possible, when you are considering service partners and products for your business.

Premier Industry Partners

Cushman & Wakefield · Majestic Realty Co. · Prologis · USAA Real Estate Company

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Gold Industry Partners

JLL

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Conor Commercial Real Estate · NAI Global · Rockefeller Group

Bronze Industry Partners

Avison Young Intelligent Real Estate Solutions · Colliers International · FCL Builders · Wipfli CPAs and Consultants

Chairman's Circle

powers brown architecture · Clarion Partners · touchstone · Tratt Properties LLC · Lee & Associates Commercial Real Estate Services · Ware Malcomb

Meet NAIOP's Chairman

AS I START MY NEW role as chairman, I reflect on how much the industry has changed since I joined NAIOP back in the 1980s, and how critical my NAIOP membership has been to my professional growth and understanding of this dynamic business. As chairman, I intend to share my story of what NAIOP means to me and how members can take advantage of the numerous professional resources, leadership opportunities at the local and corporate level, legislative activities and valuable connections that membership offers. I am particularly passionate about the role our association plays in advocating for our industry on major legislative issues, including Internal Revenue Code Section 1031 like-kind exchanges. Development magazine asked me to share a little about my story. I hope to be able to share it with many of you in person.

Jonathan Tratt

What do you find most engaging about the CRE industry?

We are blessed to be in an industry that allows us the opportunity to shape the landscape of our communities. There is no shortage of creative opportunities to dream, design and build. Our industry is a microcosm of the economy, with financial systems and functions, plus marketing, planning, architecture, engineering, construction, transportation, technology and so forth. You can have just about any job you can dream of within the real estate industry.

You are a longtime National Forums member. What has this group done for your career and business?

When I first joined the Forums program well over a decade ago, I was very impressed with the level of professional achievement of my fellow members. I did my largest development deal in a joint venture with a fellow Forum member's private equity fund. That development helped propel me to a level that would have taken me years to reach on my own. The entire six-year experience was like getting a Ph.D. in industrial real estate development.

What's the impact of tax reform on CRE?

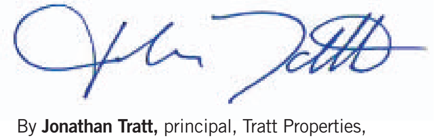
We need to be judicious in our strategy and prevent the government from making systemic changes that might create unintended consequences. NAIOP has a great government affairs team in Washington, D.C., led by **Aquiles Suarez,** and with the impetus and direction of NAIOP's President and CEO **Thomas J. Bisacquino,** I have no doubt we and our industry will be, as Tom has often said, at the table — rather than on the menu.

What innovations do you think will have the biggest impact on the industry in the next three to five years?

Technology in general is still in its infancy within CRE. There is untold potential for further advancements that may have significant impact on the industry. Everything from fundraising to acquisitions and dispositions could look dramatically different with innovations in technology. This could lead to significant benefits for many of our constituents.

How can millennials become more integrated into NAIOP and our industry?

We "seniors" in the industry have an obligation and opportunity to help train, mentor and guide the next generation of leaders so that we can continue to help our local communities and country move toward a brighter future. ■



By **Jonathan Tratt,** principal, Tratt Properties, LLC,and 2017 NAIOP Chairman

All About Jonathan

Industry experience
I've been in the CRE industry for 35-plus years, starting in property management for an overseas investment company. I managed an office/industrial complex in suburban Cincinnati for the company while I was an undergraduate at the University of Dayton. Then I started my brokerage career in Phoenix in 1986, specializing in industrial property. In the late '90s, I transitioned from brokerage into development.

Family
I married later in life, as I was a late bloomer and found my life partner at age 46. Irit and I are blessed with three wonderful children: Maya (10), Rachel (8) and Ari (3), who all attend a private Yeshiva day school.

Last book read?
"Smart Money Smart Kids" by Dave Ramsey and his daughter, Rachel Cruze.

Favorite out-of-the-office activity?
Hiking in the Phoenix Mountain Preserve, which I can walk to from my house. ■