Commercial Real Estate Development WINTER 2020/2021

Development®

IDEAS | ISSUES | TRENDS

The Big Chill

A Look Inside Speculative Cold Buildings *50*

Life sciences real estate soars amid pandemic *56*

An unclear forecast for CRE, research directors say *62*

News and views from CRE.Converge Virtual *68*

NAIOP
COMMERCIAL REAL ESTATE DEVELOPMENT ASSOCIATION


Capital available for development and recapitalization.
USAA Real Estate has a successful history of investing equity and debt capital in development projects in all property sectors and partnering with best-in-class developers, tenants and brokers across the globe.
Office
Multifamily
U.S. Industrial Logistics
European Logistics
Retail
Hotel
USAA® REAL ESTATE
Atlanta · Chicago · Dallas · Los Angeles · New York · San Antonio
San Francisco · Washington D.C. · Amsterdam · Seoul
usrealco.com

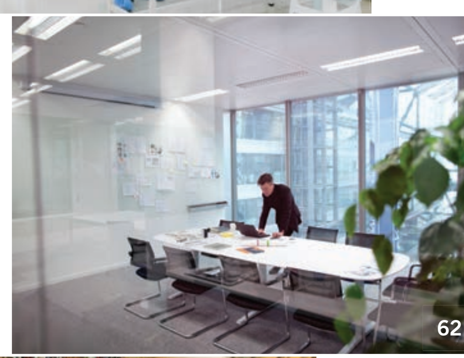

We See
The World
Differently
CenterPoint


Maximize Supply Chain Efficiency with Intermodal Properties
3-4x
Fuel Savings
25%
Drayage Savings
24/7
Move More Freight
centerpoint.com/railwayforward

Contents

Development® Winter 2020/2021

Volume LI No. 4



Development on the Web

NAIOP COMMERCIAL REAL ESTATE DEVELOPMENT ASSOCIATION

Read Development® magazine anywhere, anytime at www.naiop.org

Connect with NAIOP

www.facebook.com/NAIOPCorporate

http://twitter.com/DevMag_NAIOP

LinkedIn
http://bit.ly/9zYNI4 (NAIOP)
http://bit.ly/c5gNMO (NAIOP Developing Leaders)

YouTube
www.youtube.com/user/NAIOPCorporate

Contents

Development® Winter 2020/2021

COLUMNS

Ware Malcomb

This exploded view of a cold ready speculative building illustrates how the components of the prototype fit within the site.

Development®
(ISSN 0888-6067) is published quarterly and © 2020 by NAIOP, 2355 Dulles Corner Blvd., Suite 750, Herndon, VA 20171. 703-904-7100 FAX 703-904-7942

Unless otherwise noted, the views expressed in articles and advertisements are those of the authors, persons quoted and advertisers, and not necessarily those of the Association. Development magazine is protected by copyright and may not be reproduced in whole or in part without the expressed written permission of the publisher.

Subscription rate is $35/year for nonmembers. Periodicals postage paid at Dulles, Virginia, and additional mailing offices. POSTMASTER: Send address changes to DEVELOPMENT, 2355 Dulles Corner Blvd., Suite 750, Herndon, VA 20171.

Advertising for Development is accepted for quarterly issues: Spring, Summer, Fall, Winter. Insertion orders are due by the first of the month, two months preceding the month of publication. Rates are available upon request. NAIOP reserves the right to reject advertising that is inconsistent with its objectives.

Submit manuscripts that are educational and focus on industry trends, recently completed development projects and other issues of interest to NAIOP members. For more information, see www.naiop.org/magazine. Submit all inquiries to developmentmagazine@naiop.org.

Reprints and PDF files are available for a small fee; contact Gretchen Berg at berg@naiop.org for more information. You can also share your favorite articles with colleagues and clients via email and social media, with links to articles online (www.naiop.org/magazine).

Legal disclaimer: Development magazine is intended to provide information and insights to industry practitioners. NAIOP disclaims any liability for action taken as a reliance thereon.

A Note From the Editor

Challenges Continue Into a New Year

The good news is the U.S. economy grew 7.4% in the third quarter of 2020. The not-so-good news is the number of coronavirus cases continues to rise.


Jennifer LeFurgy

Despite the promise of a rapidly developed vaccine, the first half of 2021 will be uncertain for the commercial real estate industry. While the industrial sector continues to do well thanks to e-commerce demand, retail is struggling, and the office sector faces an adjustment. Many companies have extended their office closures and limited business travel into mid-2021. And some question if the current economic growth rate can be sustained.

We will undoubtedly face a markedly changed economic landscape and way of doing business next year. My hope is that we can learn from the challenges we have faced during this difficult year and share these lessons in our NAIOP community.

Stay safe,
Jennifer LeFurgy, Ph.D.
Editor-in-chief

A new class of speculative refrigerated facilities could be poised for strong growth amid record-setting demand for grocery deliveries during the COVID-19 crisis. (Page 50)

Life sciences real estate is one of the hottest investment opportunities right now, but it's important to note that these buildings are complex structures that can be costly to build and operate. (Page 56)

The COVID-19 pandemic has created challenges — and opportunities — for commercial real estate. Both aspects were topics of discussion during NAIOP's CRE.Converge Virtual 2020, held in October. (Page 68)

The NAIOP Research Foundation's National Research Directors Meeting in late September provided a virtual discussion of current trends in office and industrial development. (Page 62)

Future NAIOP Events

- **2021 Chapter Leadership and Legislative Retreat**, February 2-3, Virtual

For the most current information on upcoming NAIOP events, visit naiop.org/Events-and-Sponsorship ■

A survey of commercial real estate professionals shows that 2020 was a difficult year for pay, benefits and staffing levels — and 2021 might not be any easier. (Page 10)

The latest Commercial Real Estate Women (CREW) Network study measuring diversity in the commercial real estate industry shows that not much has changed since the last survey in 2015. (Page 82)

In the wake of the COVID-19 pandemic, building owners in many cities now must deal with property damage caused by widespread civil unrest and rioting. (Page 29)

Data center operators are increasingly making wholesale changes to their future business strategies and operations, from site locations to the types of employees they plan to hire. (Page 24)

Determining whether a building is "vacant" or "unoccupied" could be a crucial factor when it comes to paying insurance claims. (Page 27)

Most Popular From Fall 2020

1. **"Kilroy Realty Corporation: Commitment, Culture, People"** (naiop.org/20kilroy), page 60
2. **"Rethinking Real Estate: The Office of the Future"** (naiop.org/20futureoffice), page 68
3. **"Construction Uncertainty Continues as Pandemic Persists"** (naiop.org/20construction), page 10
4. **"There's Opportunity at the Office Park"** (naiop.org/20officepark), page 20
5. **"Cold Storage Can Be Complex and Costly"** (naiop.org/20coldstorage), page 16 ■

The COVID-19 pandemic has had a major impact on urban mass-transit systems across the country, straining budgets and reducing service for passengers. (Page 46)

Modular construction can be a good choice for workforce housing and other mid-market residential developments where affordability is a primary consideration. (Page 14)

In Calumet City, Illinois, a vacant Super Target store will soon be turned into a vertical farm with the capacity to produce 25 million leafy green plants each year. (Page 42)

Canada's federal government moved quickly with a series of wide-ranging economic support measures when the COVID-19 pandemic gripped the country in March. (Page 76)

Steve Martin, the owner of Atlanta-based SDM Partners and NAIOP's 2015 national chair, shares lessons learned as someone who struck out on his own in the commercial real estate business. (Page 32)

Landlords need to be aware of the many legal ramifications of leases that end up in bankruptcy. (Page 40)

The NAIOP Research Foundation recently published a report titled "The Evolution of the Warehouse: Trends in Technology, Design, Development and Delivery." Here's a preview. (Page 74) ■

Commercial Real Estate Professionals Faced a Challenging Year

Compensation survey reveals that difficult decisions lie ahead for firms regarding pay, benefits and staffing levels.

By Christopher Lee

2020 was the year that changed everything for the U.S. real estate industry. It is in a three-dimensional game of reactions, resetting and restructuring as a result of COVID-19 and the ensuing economic shock. Almost every aspect of running a business, including organizational architecture, staffing levels, remote work, adjusting to a new operational normal, revised budgets and year-end compensation unknowns, has been reconsidered.

Because total personnel costs can reflect 65% to 70% or more of a firm's operating budget, real estate organizations across the country are re-examining their entire talent management platform. According to a July/August 2020 CEL & Associates, Inc. survey, more than 78% of real estate companies have adjusted, or are planning to review and potentially adjust, one or more elements of their compensation and benefits program in response to COVID-19. While actions have varied by type of company, position and location, it is clear that the pandemic will impact talent management and compensation in 2021 and for years to come.

Staffing, Reskilling and More

While nearly all real estate companies are eager to develop and implement future proofing and long-term strategic plans, they are also committed to eliminating daily surprises that may be limiting growth. Recent CEL & Associates, Inc. surveys, administered prior to the pandemic, show that 72% of real estate firms are likely to use more independent contractors, contingency workers and freelancers. Before the pandemic, staffing levels were being adjusted to reflect greater automation of routine functions (e.g. accounting and administration). ESG (environmental, social and corporate governance) and DEI (diversity, equity and inclusion) initiatives have also garnered greater attention this year, while the adoption of digitally based productivity technologies and the re-examination ("reskilling") of various positions has been accelerating. Additionally, mandated remote work has put a spotlight on the challenges facing families. The table below highlights staffing considerations now underway.

Because total personnel costs can reflect 65% to 70% or more of a firm's operating budget, real estate organizations across the country are re-examining their entire talent management platform.

Real Estate Operational Shifts After COVID-19

Service/ Function	Required to Provide In-Person	Ability to Provide Remotely	Ability to Automate
Accounting	Low	Medium	High
Acquisitions	High	Low	Medium
Appraisal	Low	Medium	High
Asset Management	Medium	High	Medium
Construction - CM	Medium	Medium	Low
Construction - OnSite	High	Low	Low
Development Management	High	Medium	Low
Finance	Low	High	High
Human Resources	Medium	Medium	Medium
Investment Sales - Brokerage	Medium	Medium	Medium
IT / Technology	Low	High	Medium
Leasing	Medium	Medium	Medium
Legal	Low	High	Medium
Maintenance	High	Medium	Medium
Marketing	Medium	High	Medium
Project Management	High	Medium	Low
Property Management - Commercial	High	Medium	Low
Property Management - Residential	High	Medium	Low
Security	High	High	Medium

Source: CEL & Associates, Inc.

Benefit Options and Health Care Costs

Category	Percent Real Estate Firms 2018	Percent Real Estate Firms 2020
Formal Severance Plan	37.6%	41.8%
Benefits as % of Salary	24.3%	23.8%
Telecommuting Option	45.1%	55.2%
Flex Time Option	49.4%	54.6%
FT Business Casual Policy	44.6%	49.0%
Wellness Program	55.1%	57.6%
OnSite Workout Facility	34.1%	43.6%
Subsidized Professional Development	61.4%	68.0%
Formal Exit Interview	45.1%	57.0%

Source: CEL & Associates, Inc.

Category	2018	2020
Employer Health Care Cost (Annual Combined Medical and Dental)		
Full Time Employee (Single Coverage)	$6,411	$6,271
Full Time Employee +1 Adult	$10,703	$10,473
Full Time Employee + Family	$14,869	$14,860

Source: CEL & Associates, Inc.

Work Policies Change in the Aftermath of COVID-19

A universally agreed-upon fact during and after COVID-19 is that "talent matters." Great talent is hard to find, so it is crucial to attend to next-generation leaders and high-potential employees (HIPOs) while creating a valued workplace culture.

Real estate talent leaders are crafting and adopting new work policies around work-life balance, restructured benefits programs, enhanced transparency, better internal communications, and stronger "culture" initiatives. Among the major recurring questions facing real estate organizations are "what do we do about compensation in 2020 (i.e. bonuses and raises), and what changes do we need to make as we prepare to enter 2021?"

The State of Compensation

Compensation in 2020 has been a rollercoaster. Going into 2021, over two-thirds of real estate firms say they are likely to freeze C-suite salaries (with the potential for adjustment in the first or second quarters of 2021). According to the CEL survey, employee merit increases are expected to range from 2.4% to 2.6%. This is the first year-over-year decline in annual pay increments in more than a decade. Bonus realizations will likely be down 20% to 30% or more.

More than 80% of real estate firms say they have not adjusted 2020 performance goals. However, there is a growing movement toward increasing the discretionary percentage when determining bonus awards. Some firms have suspended 401(k) contributions, and special bonuses are being considered for select front-line responders such as property managers and maintenance personnel. In a time of uncertainty, firms are also examining and restructuring benefits to navigate and highlight wellness at the right price for the entire workforce.

During the past 24 months, CEL has found a number of benefits options have shifted, including but not limited to those in the tables above.

Recent CEL & Associates, Inc. surveys, administered prior to the pandemic, show that 72% of real estate firms are likely to use more independent contractors, contingency workers and freelancers.

While balancing business results with employee retention and satisfaction, real estate companies have looked into or embraced one or more of the following: cost containment, temporary salary reductions, furloughs, reductions in force, outsourcing and new-hire freezes. Some firms may adopt a quarterly or a mid-year review process in 2021 due to the uncertainty. "Getting through 2020" and "preparing for 2021's uncertainties" will likely continue to be the focus of most CEOs and talent managers.

The Future of Telework

One issue that is a growing concern is a perceived decline in worker productivity, dedication, initiative, commitment and desire to excel as a result of working at home or remotely.

While working remotely went smoothly in the first 60 to 90 days of COVID, there is a perception that the past few months have been less productive and/or collaborative. Flexible work schedules and working remotely were clearly needed in March, April and May. However, many real estate companies have adopted, or may adopt, technologies that track productivity for remote employees. Decisions on who should or must return to the office are frequently negotiable. Some firms are exploring a multi-tiered bonus structure based on time spent in the office or onsite vs. time spent working from home.

Yes, 2020 was the year that changed everything. The challenge for all real estate firms is to focus on the new ways people will work, be compensated and evaluated. ■

Christopher Lee is president and CEO of CEL & Associates, Inc.

Nonresidential Construction Outlook Darkens

A "second wave" of pandemic-related trouble looms on the horizon.

By Ken Simonson

After a rapid but partial rebound from the pandemic-induced shutdown of many construction projects last spring, nonresidential construction appears headed for its own "second wave" of project cancellations, layoffs, and probably permanent closures of some firms. Meanwhile, single-family construction is growing strongly, and multifamily work is highly variable by location.

Steep Decreases in Employment

From February to April, construction employment tumbled by a record-setting 1.1 million jobs, seasonally adjusted, or 14%, with similarly steep declines for residential construction firms (homebuilders, general contractors that concentrate on multifamily projects and residential specialty trade contractors) and nonresidential firms (general and specialty trade contractors, plus firms focused on heavy construction and civil engineering construction). Employment bounced back in May and to a lesser extent in June. But from June to September, residential and nonresidential employment diverged.

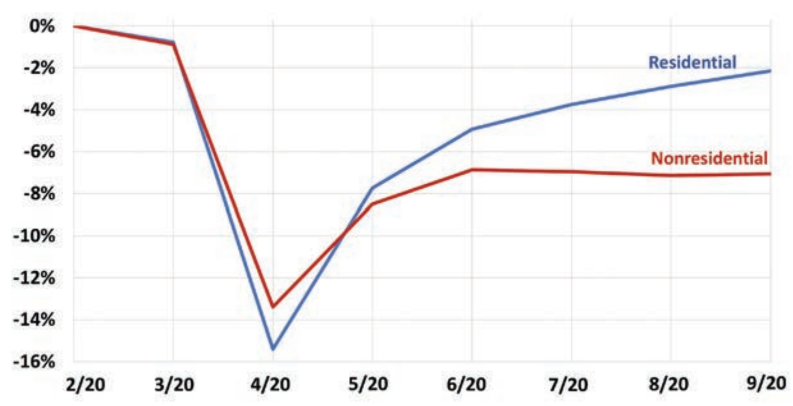
By September, residential employment was growing faster than total nonfarm employment and had recovered 86% of the jobs lost in March and April. In contrast, fewer than half of the lost nonresidential jobs returned, and employment on that side actually slipped 0.2% in the third quarter of 2020.

This dichotomy is likely to widen. While measures such as single-family housing starts, building permits and sales remain generally positive, leading indicators for nonresidential construction have all been pointing downward.

For instance, in a survey that the Associated General Contractors of America conducted October 7-19, 81% of building contractors reported that an owner had postponed or canceled a scheduled project. That share rose from 66% in a survey taken in August and 32% in June.

Residential and Nonresidential Construction Employment

Cumulative change, February-September 2020 (seasonally adjusted)



Source: Associated General Contractors of America

More Measures of Distress

Two firms that collect data on project starts reported dismal results for September compared to year-earlier levels. ConstructConnect said that spending on nonresidential building projects tumbled 41%, with commercial starts down 53%. Dodge Data & Analytics reported a 24% drop in nonresidential building starts over the same period, with commercial starts down 27%.

Looking a bit further ahead, two other indicators offer mixed signals. The American Institute of Architects' Architecture Billings Index, which the institute says leads nonresidential construction spending by 9-12 months, was unchanged from June through August at a level that indicated far more architecture firms were experiencing declining rather than expanding revenues. The reading for firms with predominantly commercial/industrial practices remained even lower.

Dodge's Momentum Index, a monthly measure of the initial report for projects in planning, which the firm says has been "shown to lead construction spending for nonresidential buildings by a full year," edged up 2.2% from the second quarter of 2020 to the third quarter. That came on the heels of a 13% plunge in the previous three months.

"The commercial side of the Momentum Index gained 7.4% in the third quarter, led by a large number of warehouse projects," Dodge reported. "Somewhat surprising is that office projects entering planning also posted a tepid gain despite concerns that office work is shifting to remote settings."

Warehouse construction does seem like a sure bet. Amazon alone "plans to open 1,000 small delivery hubs in cities and suburbs all over the U.S.," Bloomberg reported in September. "The facilities…will eventually number about 1,500."

By September, residential employment was growing faster than total nonfarm employment and had recovered 86% of the jobs lost in March and April. In contrast, fewer than half of the lost nonresidential jobs returned, and employment on that side actually slipped 0.2% in the third quarter of 2020.

But the gain in office planning may be deceptive. Dodge, as well as the U.S. Census Bureau in its monthly report on construction spending put in place, includes data centers in the office category and does not break out this fast-growing niche of facilities that only house servers from buildings where people work.

In other words, nearly all indicators for nonresidential building activity appear negative for at least another year. The only exceptions are likely to be distribution facilities, data centers, a limited number of manufacturing plants, and remodeling or repurposing of existing structures. ■

Ken Simonson is the chief economist with the Associated General Contractors of America. He can be reached at ken.simonson@agc.org.

Standardization and Panelization in Multifamily Housing

These high-tech construction techniques can save time and money on projects.

By Hill Pierce and Carl Malcolm

For many years, modular construction was dogged by concerns about quality and cost that prevented it from achieving wide market success. That's changing now, thanks to advances in supply chains, building information modeling (BIM) and construction management. In contrast to earlier modular construction, today's prefabricated solutions have the potential to deliver quality construction at lower cost, particularly when it comes to labor.

For example, construction startup Katerra, which specializes in modular construction, built a 24-unit garden-style apartment in Las Vegas in 90 days in 2019. That's about 50 days faster than typical stick-built units.

"Framing time took less than half the time as status quo for typically stick built construction," according to a white paper published by Katerra after the project, dubbed K90, was finished. "Installation of the mechanical, electrical, plumbing and fire-protection engineering systems took less than half the time of traditional construction — and much of the labor was in factory production, instead of the field. The drywall team was able to complete installation in three days per floor, when traditionally it takes more than five days per floor."

Modular construction can be a good choice for workforce housing and other mid-market housing developments where affordability is a primary consideration. Investment groups focused on high-rent/high-density projects are now exploring projects with lower rent rates, especially in semi-suburban markets.

There is a genuine need for this type of housing. According to the Harvard Joint Center for Housing's "State of the Nation's Housing 2019" report, 47.4% of renter households in the U.S. are considered cost-burdened. That means they spend more than 30% of their income to pay for housing. Among that group of renters, 10.8 million are considered severely cost-burdened, spending more than half of their incomes on housing.

Because builders have been focusing on higher-end units in recent years, the amount of lower-rent stock has decreased. A 2017 report by the National Apartment Association and the National Multifamily Housing Council predicts that the U.S. will need to build more than 4.6 million new rental units to serve all income levels by

Photo courtesy JHP/Katerra

Because of BIM modeling, many key decisions can be made early in the project. Being able to see the space in 3-D helps stakeholders understand what's being designed and how it will result in a space where people want to live. This project is in the planning stages in North Richland Hills, Texas.

2030. To achieve that, builders must construct more than 325,000 units a year, an increase from the average of 244,000 units that were built between 2012 and 2016.

An Overview

A 2020 report from Fannie Mae, "Multifamily Modular Construction Toolkit," provides an overview of modular construction.

According to the report, modular construction is a technique in which most of the construction of a building is done off-site, often in a specialized factory. The components, called modules or boxes, are then transported to a jobsite for assembly. This technique is used to build multifamily housing, as well as hospitality and health care facilities. (**See related story, page 18.**)

There are two broad categories of modular construction. In panelized construction, two-dimensional building elements such as walls and frames are built in a factory, then transported to a jobsite for assembly. Volumetric construction involves the off-site prefabrication of three-dimensional, enclosed units that are then transported to the jobsite and assembled to form a building.

Evolving technology has made prefabricated solutions relevant. This includes BIM modeling, which allows stakeholders to see in 3-D what a completed space will look like. As a result, designers can get buy-in at the earliest stages of design before components are manufactured in a factory. This paves the way for pre-engineered solutions that can be designed to meet the specifications with precision and cost savings.

New & Noteworthy

1.5 million sq. ft.

The Howard Hughes Corporation and **Riverside Investment & Development** recently opened **110 North Wacker Drive**, a 55-story downtown **Class A office tower** in **Chicago**. It is the city's tallest office building and the second-largest office building to be delivered in three decades, totaling 55 stories and more than 1.5 million rentable square feet. Several facilities enhancements address COVID-19 pandemic concerns, including advanced secondary air filtration systems, more air changes per hour than most office buildings, social-distancing limitations on elevators and touchless access.

1.1 million sq. ft.

Ware Malcomb, in collaboration with Danish architecture firm AK83, recently finished the new **DSV Canada head office and logistics warehouse facility in Milton, Ontario**. The new complex, the largest facility of its kind in the DSV – Global Transport and Logistics worldwide network, includes a multiclient warehouse and distribution center with state-of-the-art logistics capabilities and temperature-controlled compartments and cooler areas. The attached three-story corporate office including a large facility for the company's 800 employees at the mezzanine level.

1 million sq. ft.

KDC has entered into a partnership with **L. C. Fulenwider, Inc.**, to develop 1 million square feet of **build-to-suit office** at **Peña Station NEXT**, a master-planned, mixed-use community in **Denver**. Located at the first transit station out of Denver International Airport, Peña Station NEXT is home to Panasonic CityNOW and 218 multifamily housing units, with additional multifamily units and ground-floor retail currently being planned. The development also includes the 226-room Hyatt Place Hotel, located within walking distance of the rail stop.

A Look Ahead

This process of pushing decisions to earlier in a project also facilitates vertical integration — supply chain, construction and manufacturing working together as a single entity.

BIM's precision is increasingly important because it directly informs the manufacturing process.

Precision results in less construction waste on the site and in the cost of materials. It is more efficient to process the materials at the factory than at the jobsite, and the environmental footprint is reduced as well.

The virtual model impacts the final product, too. Sizing parameters that can be reduced in a standardized building would be impossible in a conventional building. For example, tolerances within one inch are considered adequate for conventional construction, whereas tolerances can scrutinize down to almost zero in manufactured panels. When taken in the aggregate throughout the whole unit, the inches gained through these tighter tolerances begin to translate into livable space in the unit.

In addition to increasing rentable space, higher precision also saves money. For example, when the depth of the wood floor trusses on one building was reduced from the standard 18 inches down to 16 inches through early detail work, the height of the entire building went down. Multiplied by all 12 three-story buildings in the project, this seemingly minor two-inch change saved tens of thousands of dollars in exterior skin materials cost.

According to the report, modular construction is a technique in which most of the construction of a building is done off-site, often in a specialized factory. The components, called modules or boxes, are then transported to a jobsite for assembly.

Finally, panelization assemblies typically require far fewer workers than would be needed for ground-up construction. This can produce big savings in labor costs, a key consideration during a time when there are worker shortages in the construction field.

According to a 2017 report from the Terner Center for Housing Innovation at the University of California, Berkeley, current modular construction techniques can save up to 20% on the cost of building a three- to four-story wood frame multifamily apartment building. These savings come from reducing labor time and costs, economies of scale in material use and procurement savings.

Challenges and Solutions

Every detail must be resolved and understood before the first panel is manufactured. To begin with, panel dimensions affect both how they're sized to ship and how they'll be connected — panel to panel, panel to floor and ceiling, etc.

Then, details such as the openings for water lines and electric wires are determined. Because those will be cut into the panels before they ship, precision is essential. Much of this work can be done by robots in a factory.

Details affect logistics, too. Panels must be properly sequenced — completed and then transferred to trucks in the correct order. That order will determine the sequence of installation.

One of the key strategies for standardizing design is reaching agreement on important decisions early on. Depending on the process, manufacturers can develop libraries of predesigned floorplans and units based on detailed feedback from developers. Facilitating this early buy-in places the developer in the role of a design partner who can reinforce the concept of standardization and resist requests to make changes later in the project.

How Big is the Market?

According to the Modular Building Institute, projects that use permanent modular technologies:

- Grew by 12.8% in 2018
- Accounted for approximately $9 billion dollars in construction activity in 2018
- Represented an estimated market share of approximately 3.67% in key North American markets in 2018, up from 2.43% in 2015
- Represented an estimated market share of 4.05% of new construction starts in the U.S.
- Represented an estimated market share of 3.6% of new construction starts in Canada ■

Another challenge is arranging the sections on the building's exterior to create visual interest and variety. The goal is a building that doesn't look like a prefabricated product.

The common perception of modular construction is of finished units that resemble stackable boxes. However, today's standard panelization approach incorporates ready-to-assemble components — walls, floors, bathrooms, utility rooms, kitchens — that are manufactured in a factory, shipped to a jobsite and then assembled. This allows teams to incorporate prefabricated components without the look of stacked boxes.

Developers can arrange the components as they see fit as long as they stay within the design parameters to realize the benefits of the modular approach. For example, a decision during the design process to maintain a 12-foot width limit for an apartment unit must be adhered to in order to accommodate the transportation of panels or modules to the jobsite.

Innovation in Practice

Optimizing the size of shipping pieces is part of managing the supply chain, where involving logistics early in the process is a key part of the vertical integration. For example, designers need to factor the width of a truck driving down the road into the dimensions of panels and modules. Whether a panel is 12 or 8 feet wide can have major implications for the entire process.

Another example includes standardizing exterior wall panels with pre-installed windows. One breakthrough suggestion that is being used today is an 8-foot-by-8-foot panel with door and window configuration holes. A series of these panels, comprising fewer than a dozen different window/door configurations, could result in fewer panels manufactured overall while still providing variations in elevation. That would help the building look and feel more interesting and dynamic, while standardizing the bulk of the wall.

Yet another example is an innovative second wall at the back of a kitchen, a layer that helps standardize the kitchen module so plumbing can be installed in the factory. As a bonus, the second wall creates a space not just to house plumbing, but also to recess the refrigerator, making it appear more like a high-end built-in appliance.

The technical advances in the industry that have led to these increased efficiencies also result in higher-quality living spaces. This is an intended but perhaps surprising benefit that unquestionably adds value to a development. That value is reflected in rent rates, market share, leasing velocity and tenant retention. ■

Hill Pierce is an architect with Katerra. **Carl Malcolm**, AIA, is the vice president of JHP Architecture / Urban Design.

New & Noteworthy

1 million sq. ft.

US Capital Development is developing **Forsyth Pointe**, a **mixed-use project** in the central business district of **Clayton, Missouri**, the county seat of St. Louis County. McCarthy Building Companies is overseeing all construction work. The project includes two Class A office towers with 20,000 square feet of street-level retail space. The steel-framed glass structures rest atop a post-tensioned concrete-framed seven-level parking structure. At the top level of the parking structure, a 45,000-square-foot open-air garden terrace will serve as a signature amenity and be available for public events. The project is expected to be completed in the summer of 2022.

623,109 sq. ft.

Rockefeller Group has acquired approximately 30 acres of property in **Riverside County, California,** for the development of 623,109 square feet of **Class A industrial distribution space**. The first project, which will be marketed as the **Val Verde Logistics Center**, is located on 12.96 acres and will include a 289,556-square-foot speculative distribution building. The second project, the Harvill Avenue Logistics Center, is located on 16.86 acres and will include a 333,553-square-foot speculative distribution building.

522,000 sq. ft.

NorthPoint Development recently opened a 522,000-square-foot **Class A industrial logistics warehouse facility** near the Dayton International Airport in **Dayton, Ohio**. The building is constructed with load-bearing precast concrete wall panels, storefront glass and a mechanically fastened thermoplastic polyolefin roof system. Additional features include 52 dock positions, four drive-in docks and 127 trailer stalls.

KPMG's New Training Center Showcases Offsite Construction

Modular components helped bring the facility online faster.

By Bob da Silva and Bill Flemming

Corporate training centers can be more than just stark spaces full of classrooms. When done well, a facility can provide an environment that encourages collaboration and connection to an organization's culture while fostering innovation through engaging and multisensory architectural experiences.

This experience is what professional services firm KPMG sought when creating KPMG Lakehouse, the company's learning, development and innovation facility in Lake Nona, Florida, near Orlando. It features 90 collaborative learning and innovation spaces, dining and social areas for people to relax and connect, fitness and outdoor recreational areas, and design elements that reinforce KPMG's history, values and culture.

According to a February article from Quartz, KPMG spent $450 million to build Lakehouse, which opened in January. **David Turner**, KPMG's chief financial officer, told the publication that the firm created the facility because the company had been spending more than $100 million a year on the roughly 2,500 employee training sessions it hosts across the U.S.

KPMG used innovative building strategies to develop the facility on a compressed schedule, with construction commencing in May 2017. To complete the complex project as quickly and efficiently as possible without sacrificing the design elements, KPMG partnered with JLL Project and Development Services, DPR Construction and Gensler, a design and architecture company.

KPMG

KPMG's new Lakehouse training facility near Orlando was built using offsite construction and other advanced technologies.

Connection with Nature

The development team knew from experience that places of learning and collaboration benefit when all the senses are engaged through the use of elements of nature and natural light. For Lakehouse, this included drawing inspiration from Lake Nona's ecosystem and roughly 230 days of sunlight each year.

The building plan incorporated curves and bends to make movement through the facility an appealing experience. Large amounts of glass throughout the project provide natural daylight and expansive views. Natural light and ventilation have been shown to improve employee health and well-being, as well as performance.

At Lakehouse, different types of spaces — including "neighborhoods" for group work and nooks for individual quiet work — are integrated throughout the building to foster serendipitous meetings and places for focus, collaboration and networking. This reflects research from Gallup, which shows that organizations can yield nearly 150% higher earnings per share when compared to peers if they successfully connect and engage employees.

Offsite Construction Saves Time, Money

To ensure the project was delivered as quickly and cost-effectively as possible, one strategy deployed was to manufacture key energy infrastructure components offsite, rather than con-

The building plan incorporated curves and bends to make movement through the facility an appealing experience. Large amounts of glass throughout the project provide natural daylight and expansive views.

structing them onsite after the building shell was complete. For instance, the electrical equipment — including switchgear, switchboards, panel boards and transformers — was assembled on skids and tested before delivery to the site. Once delivered to the electrical rooms, the only remaining tasks were to connect the incoming and outgoing wiring.

Similarly, the central energy plant was manufactured as a fully modular system, comprising three 900-ton chillers, three chilled-water pumps, three condenser water pumps, a filter system, and all the electrical components, controls and piping to support an entire chilled water system. After being assembled at an offsite factory in South Carolina, the plant was shipped to the construction site in four sections and dropped into place.

Curtainwall units also were engineered and assembled offsite in Orlando. A subcontractor worked with the design team early in the process to produce the most efficient and expedient solution. Rather than construct the exterior walls on site — requiring each trade to follow the next as materials are delivered, loaded into the building, cut to fit and set in place — the curtainwalls arrived as ready-to-place panels, reducing the onsite labor and associated costs of installation. Based on a target value for this aspect of the project, the

New & Noteworthy

500,000 sq. ft.

Lewis Retail Centers recently finished work on **Renaissance Marketplace**, a new, 500,000-square-foot ground-up **retail development** in **Rialto, California**. Nadel Architecture + Planning provided architectural services for the project. Renaissance Marketplace features a Cinemark movie theater, as well as a range of dining options including Septembers Tap Room & Eatery, The Habit, Panera Bread, Miguel's Jr., Jamba Juice, Chick-fil-A, Chop Stop, Panda Garden, Starbucks and more. Retail offerings at the center include Bath & Body Works, Mattress Firm, Sprint, T-Mobile, Sherwin Williams, Burlington, Famous Footwear and 7-Eleven.

159,000 sq. ft.

Avista Development recently opened the five-story, 159,000-square-foot **Catalyst office building** in **Spokane, Washington**. It has integrated systems for on-site renewable energy generation using photovoltaic arrays, heating, lighting, and exhaust heat and gray water recovery. Catalyst's design, by Michael Green Architecture, uses roughly 4,000 cubic meters of locally sourced mass timber products produced by Katerra as structural and design elements, enabling the building to achieve levels of thermal performance that approach the strict Passive House standard. The use of mass timber also reduced the need for steel and concrete, helping to offset approximately 5,000 metric tons of carbon.

153,000 sq. ft.

SunCap Properties recently opened a 153,000-square-foot **manufacturing building** in **Lancaster, Ohio**, that will serve as **Magna Seating's** first dedicated automobile seat structure plant in the U.S. It is anticipated that the facility will bring more than 300 jobs to the area. The 30-foot clear building features 24,000 square feet of corporate office/lab facilities, a 400-car employee parking lot, 24 loading positions and 7,000 square feet of outside storage. Meridian Design Build built the project, with architectural services provided by Ware Malcomb.

team was able to meet both its design and budgetary goals.

In addition, 800 bathrooms were prefabricated to simply plug into the facility's single-occupancy guest rooms. These units were procured from a single source, rather than from dozens of vendors and suppliers. Single-source procurement reduced construction time and labor costs; most of the bathroom units were delivered before the building was even topped out.

Bathrooms typically constitute 80% of hotel room buildout costs — given the multiple trades and sequenced work in bathrooms, with only one trade able to work at a time — so the cost and schedule savings were significant. The bathrooms were built in sections, assembled at a factory and then delivered to the site. The prefabricated bathrooms exceeded quality expectations because they were produced in a controlled manufacturing environment. The wall panels, for example, were built and tiled on a flat work surface, which allowed for better craftsmanship. Given the usual 48- to 72-hour cure time for the tile and grout, building offsite also drove efficiency.

To ensure the project was delivered as quickly and cost-effectively as possible, one strategy deployed was to manufacture key energy infrastructure components offsite, rather than constructing them onsite after the building shell was complete.

An Assist from Technology

To further save time and reduce costs, the project team used Lean construction techniques. According to a 2002 report from researchers at the University of Huddersfield in England and the University of California, Berkeley, Lean construction is "a way to design production systems to minimize waste of materials, time, and effort in order to generate the maximum possible amount of value."

The KPMG team also used high-tech tools that improved the accuracy of the design and construction drawings. For example, cloud-based building information modeling (BIM) collaboration software was used to accelerate planning and collaboration on iPads. The team also used automated software powered by cameras and artificial intelligence to track all stages of the project, for sharing progress documentation in the field. This included cloud-based software that allowed the team to combine photos captured by drone into single images for construction review.

Additionally, the team used technology to accelerate drywall finishing, including a drywall fabrication machine that eliminated the need to apply beading on outward-facing drywall corners. By using a three-color drywall coating procedure, the craftsmen were able to identify each stage of finishing to avoid over-working an area or missing a stage in the finishing process across the nearly 800,000-square-foot space.

KPMG Lakehouse was operating at full capacity in the weeks after it opened, hosting up to 800 people per day. However, the threat of COVID-19 temporarily suspended in-person classes and trainings. No date for a full reopening has been set due to the uncertainty of the pandemic. ■

Bob da Silva is a senior vice president with JLL and **Bill Flemming** is managing director of real estate services with KPMG.

Riverwalk San Diego: From Golf Course to Mixed-Use Development

A transit-oriented project aims to create a village in the center of the city.

By Jennifer Whitelaw

Riverwalk San Diego, a $3 billion, 200-acre transit-oriented village that received unanimous approval from the San Diego City Council in November and will break ground in the second half of 2021, represents a shift in the city's regional planning and development away from car-oriented developments dominated by single-family homes. Hines, which will build the project over the next decade, will provide a mix of park space, 4,300 multifamily units, 150,000 square feet of retail and one million square feet of office space that capitalizes on San Diego's indoor/outdoor lifestyle.

In addition to being San Diego's first transit-oriented village, Riverwalk also represents a rethinking of land-use policy. The large site is currently an underused golf course in a centrally located area that could accommodate increased residential and office uses.

(Development first explored converting golf courses to other uses in an article from the Summer 2019 issue, "Tee-Commerce: Acing the Golf-Course Conversion.")

Converting the existing Riverwalk golf course into a mixed-use, transit-oriented village is simpler than other golf course conversions. The land has always been planned for redevelopment, and unlike many golf courses that are woven into the design of master-planned neighborhoods,

New & Noteworthy

87,000 sq. ft.

C.W. Driver Companies recently completed construction on **California State University, Dominguez Hills'** (CSUDH) new $71.5 million **Science & Innovation Building**. The 87,000-square-foot facility features laboratories, faculty offices and classrooms that will help prepare the university's students for careers in science, technology, engineering and math (STEM). Toyota USA Foundation provided a $4 million grant to CSUDH that was used in part to fund the project. The Science and Innovation Building was designed to achieve LEED® Platinum Certification.

33,064 sq. ft.

Left Deep Left LP is selling **Winfield Place**, a 33,064-square-foot, three-story historic **office building** in downtown **Fort Worth, Texas**. Originally constructed in 1919 as Fort Worth's first parking garage, the space has since gone through nearly $7 million in renovations to convert the 101-year-old building into an open, modern office environment. The showpiece of the original building was the car lift that transported vehicles to each level of the garage. That space has been transformed into an operational elevator serving as a glassed-in conference room that allows tenants to use the meeting space on each floor.

20,000 sq. ft.

Eventscape, an award-winning custom fabrication firm headquartered in Toronto, has opened a new **facility** in **New York City**. Located on the East River in Long Island City, the facility spans 20,000 square feet, including 10,000 square feet that was originally home to iconic retailer Barneys for its fabrication needs. The facility houses an advanced manufacturing wing complete with a 7-axis robot arm, a milling center, a CNC router, numerous woodworking machines, extensive metal fabrication tooling, and a generous material library, all overlooking the Manhattan skyline. ■

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.

In addition to being San Diego's first transit-oriented village, Riverwalk also represents a rethinking of land-use policy. The large site is currently an underused golf course in a centrally located area that could accommodate increased residential and office uses.

Riverwalk is a standalone, 27-hole course, allowing for a gradual closing as the neighborhood develops. Initially, a nine-hole course will be shuttered, leaving an 18-hole championship course operational for the early phases of the project. Eventually, the entire course will close to make way for the neighborhood and park areas.

Envisioning Transit as a Front-Door Experience

The city of San Diego, with the input of stakeholders, has addressed sustainable growth by increasing the number of places where transportation, housing and employment intersect. Riverwalk will accelerate this trend by creating an activated light-rail station that will be the center of this urban infill project.

Transit stops often seem like afterthoughts, and many lack connectivity with the surrounding environment. Hines will use this new light-rail station as a front door to the Riverwalk village. The platform and station will be integrated into a European-style town square surrounded with office space, retail and cafés.

Hines' vision for Riverwalk is in line with San Diego's Climate Action Plan to cut all greenhouse gas emissions in half by 2035. The plan includes strategies that will increase bicycling, walking and mass transit. The light-rail station, which sits along the Metropolitan Transit Service's (MTS) Green Line, is just one component of the sustainability and circulation strategy at Riverwalk.

The light-rail station will be positioned amid 4,300 planned multifamily homes, 430 of which will be designated as affordable.

"With the upcoming completion of the San Diego Trolley's mid-coast trolley extension, riders using the Riverwalk trolley stop will have less than a 20-minute commute to most major employment centers," said Hines Managing Director **Eric Hepfer**.

Riverwalk is also close to eight MTS bus lines. The ability to find affordable housing with transit access to major business centers without the expense of maintaining a car helped guide Hines' planning process. With a million square feet of office space planned at Riverwalk, some residents may be able to walk or bike to work.

Considering San Diego's ideal weather, Hines will further diversify the circulation mix at Riverwalk with more than six miles of pedestrian and bicycle paths, trails and lanes. Bicyclists will also have access to repair stations and rest areas, as well as showers and lockers in the employment and retail areas.

Riverwalk's circulation features will help meet the goals of San Diego's Mission Valley Community Plan Update, which was adopted in September 2019. It calls for pedestrian- and bike-friendly mixed-use development in this urbanized area in the center of San Diego, as well as better use of public transit.

The city of San Diego, with the input of stakeholders, has addressed sustainable growth by increasing the number of places where transportation, housing and employment intersect.

Walkability, Recreation and Conservation

Hines will open up more than 100 acres of outdoor space at Riverwalk to the community, including an 80-acre public park, and rehabilitate a large portion of the San Diego River, which runs through the project. River restoration is another goal included in the Mission Valley Community Plan Update.

"Riverwalk's park, which runs along the river, will be the largest recreation area accessible by light rail in San Diego and provides us the perfect opportunity to include extensive pedestrian paths," said Riverwalk Project Manager **Pete Shearer**.

As part of the river restoration work, Hines will extend a segment of the San Diego River Trail through the park, furthering the community's vision of a 17-mile, contiguous bike and walking path from the beach to the mountains. Additional walking trails will thread through the Riverwalk village.

Hines will also clear the river of invasive plant species and restore areas of concrete river bottom to natural materials. Hines plans to create a mitigation bank surrounding the river, which also helps finance this portion of the project through the creation of saleable wetland credits that can be purchased by other developers to offset their environmental impacts. The mitigation bank will be done in partnership with a habitat management company, which ensures that a high-quality habitat will be created and maintained in perpetuity.

Hines partnered with the landowners, the Levi-Cushman family, to develop the land with a joint venture designed for long-term ownership.

"Both the family and Hines felt it was important to engage the surrounding

Rendering by MVE + Partners, Inc., courtesy of Hines

A new light-rail station will sit at the heart of Riverwalk San Diego, a $3 billion, 200-acre transit-oriented development.

community from the beginning of the planning process in order to create a sense of community ownership of the project," Shearer said.

Riverwalk's circulation features will help meet the goals of San Diego's Mission Valley Community Plan Update, which was adopted in September 2019.

Community Engagement

Hines staff attended regular meetings of two nearby community planning groups for several years to remain accessible and informed. A Riverwalk project website offers citizens the opportunity to sign up for updates and learn more. Hines also operates social media platforms that provide information about Riverwalk and gather feedback from the community.

Hines conducted numerous community meetings and incorporated many of the community's requests into its Riverwalk plan. Creating an identifiable main street for Riverwalk and including neighborhood-serving retail are two project components that materialized from community suggestions.

Another feature of the plan that has community appeal is Hines' commitment to elevate a frontage road that is prone to flooding. Hines was able to engineer a solution that increased flood capacity while also enhancing the habitat of the San Diego River.

Pandemic Implications

When the pandemic struck, Hines was working on finalizing the environmental impact report (EIR), development agreement and approvals from the City of San Diego. Thanks to a strong working relationship with the city, Hines has not experienced delays in the entitlement process for Riverwalk during the pandemic.

"The lack of delays is a testament to San Diego's dedication to solving the ongoing housing crisis and strong leadership that adapted processes quickly in response to pandemic-related restrictions," said Hepfer.

A large, in-person presentation planned for the release of the Riverwalk EIR required Hines to pivot due to the COVID-19 pandemic. The Riverwalk team moved quickly to establish an online platform and presentation.

Building designs are still conceptual, which gives Hines the opportunity to create specific designs that respond to changes resulting from the pandemic. The Riverwalk village plan provides plenty of open space and outdoor amenities, which have gained popularity during the pandemic.

Additionally, Hines is monitoring emerging trends in design and technology to maximize wellness and safety at the Riverwalk village. Hines' corporate office maintains an Office of Innovation to focus on the intersection of technology and real estate and has a partnership with the Mayo Clinic + Well Living Lab to understand how indoor environments can improve human health and well-being. ■

Jennifer Whitelaw is a senior consultant with TW2 Marketing in San Diego.

Four Moves Data Centers are Making in Turbulent Times

COVID-19 forced owners and operators to adapt and adjust.

By Thomas "TJ" Ciccone

The COVID-19 pandemic turned the world on its head. Business leaders across industries and geographies were suddenly left to grapple with challenges they couldn't possibly have prepared for, such as losing half of their revenue or becoming a fully remote workforce overnight.

In times of crisis, most organizations take a reactive posture and implement short-term measures to survive. Often, they've invested significant time and resources into business continuity (BC) and disaster-recovery (DR) planning. This provides an enterprise-wide blueprint for what to do in case of an emergency like a power outage or significant weather event that could potentially take the business offline for hours or even days.

But COVID-19 has cast serious doubts on when situations will return to normal, or what a "new normal" might look like. Data center operators have had to take measures to address the pandemic's immediate existential threats to their businesses. Yet many are taking preparedness a step further by adapting their long-term, efficient strategies during uneventful times while aiming to avoid future calamity from sudden events.

Data center leaders are increasingly making wholesale changes to their future business strategies and operations, from site locations to the types of employees they plan to hire.

Getty Images

Technological advances are allowing data centers to be built in more diverse locations across North America.

Diversifying Geographies

Data centers have a long history of locating their facilities in network-dense, populous coastal regions like Northern Virginia, New York City and Los Angeles. But as cloud computing continues its astronomical growth, data center operators are aiming to add more options for low-latency connectivity to major user markets, also known as "cloud availability zones," to the mix. These are accessible from geographically distributed data centers spread across inland locations or in less expensive coastal markets. This trend may indicate a shift in development and value from traditional large markets to emerging, value-driven ones. Phoenix, Ohio and Atlanta may become the next hotspots, located only milliseconds from Los Angeles, Chicago and the East Coast, respectively.

The reasons for the shift are threefold. First is the rise in edge computing. Edge computing locates computation and data storage closer to the populations where it is needed, rather than relying on a distant central location. It is essential for handling the substantial increases in global network traffic driven by digital transformations around the world. These include exponential growth in data volumes from personal devices, 5G networks and internet of things (IoT) technologies. According to research from Gartner, between 20.4 billion and 31 billion IoT devices will be online by the end of 2020.

Second, edge computing is vital to address the increased demand for low-latency data processing. Edge computing increases processing speed by locating compute nodes physically closer to data sources and users. This is especially important for hyper-latency-sensitive applications like autonomous vehicles, "smart" medical devices and industrial sensors that rely on instant data transfer to make millions of split-second decisions.

Lastly, diversifying data center locations can help improve resilience and hedge against future disasters. Data center operators can strategically locate their facilities in areas with lower risk of both natural and man-made disasters while maintaining low-latency connectivity to secondary sites for better redundancy to avoid costly downtime.

Ultimately, this can help control development investments. A move to less dense, lower-risk and ultimately lower cost-of-living markets will help control land and construction costs with easier access to space and talent.

Focusing on Operational Resilience and Efficiency

In addition to spreading facilities out over greater geographical areas, data centers can also better position themselves to weather proverbial (and literal) storms by eliminating single points of failure and improving operating efficiency.

Many data centers are looking to fortify the core of their operations — power — by employing a diverse mix of sustainable, renewable and stored energy sources they can deploy on-demand and as a way to limit their reliance on a public grid that's subject to occasional outages, interruptions or potential attacks.

Beyond power resilience, data centers are also beginning to implement other business-continuity and enhancement strategies for facilities operations and staffing plans.

Data center leaders focused on fortifying mechanical operations are installing next-generation cooling management systems and technologies to use precious power resources more efficiently and sparingly. Artificially intelligent cooling management systems unburden human operators from manual monitoring, and water-based cooling technologies and energy recycling systems require significantly lower power consumption than conventional air-conditioned systems. This provides enterprises the opportunity to allocate those dollars to other areas of the business or bolster their rainy-day funds for emergency needs.

Meanwhile, other data center operators are making unprecedented changes to their staffing philosophies. Just a few months ago, having data center technicians work from home seemed impossible, as these teams historically executed on-site standard operating procedures and methods of operations (SOPs and MOPs). But video conferencing and other tools have become part of a long-term strategy for reducing operating expenses without sacrificing responsiveness or the ability to troubleshoot data center operations. IT administrators have had to implement VPN access at a scale never before seen, and almost overnight. Site leaders have had to transition to cloud-based operations management and data center infrastructure management (DCIM) or use remote systems. New concerns over system security and uptime have emerged with the introduction of these new methodologies.

The data center industry, long heralded as the most resilient critical-facilities business, has had to develop a playbook to bring that resilience into a new, cloud-based environment.

(Hyper) Scaling for Emerging Technologies

Artificial intelligence (AI) and machine learning (ML) technologies are gaining adoption at a breakneck pace and show no signs of slowing down. According to Gartner, by 2022, AI will underpin 80% of emerging technologies. IDC predicts that AI will be a primary contributor to the 175 zettabytes of data expected to be produced annually worldwide by 2025.

AI and other latency-sensitive, data-hungry applications demand massive computing resources, and data center operators are working to accommodate current and future needs by vertically and horizontally scaling cloud deployments and investing in hyperscale data centers.

These massive facilities represent a relatively new evolution in data center development. Their size is a response to new, sprawling demands of growth. They can span hundreds of thousands of physical square feet, housing tens of thousands of "rack and stack" bare metal servers that can be stood

Data center operators have had to take measures to address the pandemic's immediate existential threats to their businesses. Yet many are taking preparedness a step further by adapting their long-term, efficient strategies during uneventful times while aiming to avoid future calamity from sudden events.

up quickly for immediate use, and running millions of virtual machines to offer nearly infinite scalability. But because of their sheer power and capacity, they also present new challenges in design and deal structure.

The modern hyperscale design focuses on resiliency, availability, security and operational use. Due to the uptime requirements of the hyperscale buyer, they must be located in close proximity to substations or sustainable power sources, with plenty of dark and lit fiber connectivity, and in an area with low seismic risk. Because lease timelines are often longer than 10 years, buyers also want long-term tax advantages on equipment purchase or operation. And hyperscale development often requires customizations on data center cooling, electrical, mechanical and connectivity specific to a single buyer.

Mixed Skill Hiring

The designs of facilities and the technologies they house aren't the only things data center operators are changing. Many are boldly reimagining the profile of the people who will staff the facilities.

While traditional technician-level data center jobs like network administrators, systems engineers and storage engineers are still part of future plans, data center executives are beginning to define the skills, experience and roles of the next generation of data center employees.

Already, many data center operators are devising reskilling programs to enact immediate changes to their business model and prepare for future evolutions. They're realizing that conventional hardware and engineering-based roles will eventually need to morph into multifaceted hybrid positions that bleed the edges between traditional IT operations and software development.

As traditional IT silos continue to converge and companies migrate more of their workloads to the cloud, employees will be expected not only to maintain their existing hardware and engineering expertise, but also take on roles such as DevOps engineers. These workers can build automation scripts and data analytics tools to help adjust to life in cloud-dominant environments.

At the same time, they're also prioritizing intangible qualities that don't show up on a résumé like leadership, diversity, and integrity that will help attract more qualified employees even as the overall talent pool continues to contract.

The data center industry has always been dynamic and rapidly changing. Advancements in enterprise technology and architecture emerge seemingly by the day, forcing data center executives to adapt in order to remain relevant and competitive.

But the COVID-19 pandemic has upped the ante, challenging even the most experienced business leaders to rethink not only about how they'll weather a temporary emergency but also how they'll survive and thrive when — not if — another seismic event occurs. ■

Thomas "TJ" Ciccone is vice president of critical operations for Stack Infrastructure.

'Vacant' vs. 'Unoccupied': When it Comes to Insurance, They're Not the Same Thing

Temporary building closures can put businesses at risk of losing their coverage.

By James "Chip" Stuart

The COVID-19 pandemic continues to force thousands of U.S. retailers to close their doors. A recent report from Coresight Research shows that U.S. retailers could close between 20,000 and 25,000 stores this year — about 60% of them in malls. That's significantly higher than Coresight's original closure estimate of 9,000 stores, which came out in March as the pandemic took hold across the country.

While closing the doors helps reduce costs such as utilities and the payroll for workers, it also puts the property's insurance coverage at risk. The status of the property as either vacant or unoccupied can be the determining factor in the payment of claims.

Getty Images

If a building is vacant, it can face a higher risk of loss than a structure that is just unoccupied.

What's the Difference?

The occupant's intention to return is at the heart of whether a building is considered vacant or unoccupied.

"Vacant" properties face a higher risk of loss compared with facilities that are simply "unoccupied." Most insurance policies for commercial properties include coverage restrictions for vacant buildings, which are also known as vacancy clauses. They restrict coverage for incidents such as theft when a building has been vacated for a set period of time, generally 30 or 60 consecutive days. For losses that are covered in vacant buildings, insurers typically pay the actual cash value instead of replacement costs.

By contrast, buildings deemed "unoccupied" are still maintained. Power and utilities are generally left on. Equipment, merchandise and furnishings may remain inside. Unoccupied but preserved facilities have a greater chance of having their claims covered by their insurance policies.

Here are some scenarios that could lead to a property being labeled "vacant," which can compromise property coverage:

- **Appearance and security.** A jewelry store that's well lit and secured even while unoccupied will be less likely to be broken into or vandalized than another one that is dark and lacks security.
- **Water damage.** Some building owners shut off the heat in empty buildings to reduce costs. If this happens in winter and a pipe bursts, there's a greater chance of water damage. Days or weeks could pass before damage is uncovered in

While closing the doors helps reduce costs such as utilities and the payroll for workers, it also puts the property's insurance coverage at risk. The status of the property as either vacant or unoccupied can be the determining factor in the payment of claims.

a vacant building. A building that receives regular maintenance even when unoccupied is less likely to experience water damage.

- **Fire protection.** A facility will likely be deemed vacant if the sprinkler system is disengaged and fire pumps and alarms are not tested or serviced regularly.
- **Use signage.** Place signs in a window to demonstrate that the location has visitations or showings.

Navigating Property Coverage

Here are some best practices for ensuring property coverage when facing a business closure:

- **Check the property policy.** Verify the language in the vacancy clause, if there is one.

A jewelry store that's well lit and secured even while unoccupied will be less likely to be broken into or vandalized than another one that is dark and lacks security.

- **Create a plan for the facility.** If tenants will return to the facility relatively soon, remove all perishables and valuables from inside and secure doors and windows. Spell out the duties of support employees, security personnel or facilities managers who are inspecting or maintaining the site. Some expectations include regularly testing faucets and the fire and sprinkler system. Make sure they continue to abide by all federal, state and local safety rules.
- **Actively maintain the property.** Don't shut off the heat. Test fire alarms and sprinkler systems. While these measures may add costs, they can greatly reduce the risk of a building being considered "vacant." They will also mitigate any potential damage to the building.

While the COVID-19 pandemic has left the fate of many facilities across the U.S. in limbo, understanding the difference between a "vacant" and an "unoccupied" property can be a game changer for maintaining coverage during the crisis. ■

James "Chip" Stuart is the chief sales officer for HUB International of California.

First Coronavirus, Now Civil Unrest: Be Prepared

Weeks of rioting across the U.S. this summer caused up to $1 billion in property damage.

By James "Chip" Stuart and David Chmiel

In June, Trepp, a provider of information and data analytics for the commercial real estate industry, noted that commercial mortgage delinquencies reached 10.32% this summer. That was just shy of the all-time record of 10.34% in July 2012. With retail outlets closed and office spaces emptied because of the COVID-19 pandemic, many businesses are unable to keep up with payments.

Government subsidies helped at first. But as they run out, it's unclear how long it will take the commercial real estate market to recover. Another wave of COVID-19 cases looms, and many businesses are planning to extend work-from-home through the first half of 2021.

Meanwhile, real estate owners and tenants also need to be aware of the risks associated with civil unrest, such as looting and vandalism.

The Insurance Information Institute (III) estimates that unrest across the U.S. in the aftermath of the death of **George Floyd**, who died in police custody in Minneapolis in May, exceeded $1 billion, and may be as high as $2 billion. III calls it "the costliest civil disorder in U.S. history."

In light of recent events, securing the right coverages and taking protective steps can help weather the storms of 2020.

Coverage to Secure

There are a variety of coverages that protect owners and occupants from damage of various kinds, including the effects of civil unrest and riots. For example, typical property coverage reimburses an owner for damages to the property itself, including the costs required to clean up the property and restore it. It is possible to include and insure stock and inventory, as well as tenant improvements. Crime coverage, on the other hand, reimburses a business for financial loss due to burglary and other crimes. And business-interruption coverage – possibly the most useful over the past year — can offer much-needed revenue to keep a business going until it can reopen.

While these coverages are helpful, it's challenging to protect a business during a pandemic closure. And with protests and civil unrest possibly growing, a closed storefront is likely to be an attractive target to looters and other criminals. It's also possible that regular coverages won't kick in, or might be reduced, if a business has been vacant or abandoned.

The core of this issue is the difference between vacant and unoccupied. Legally, vacant means "completely empty." A vacant space has no one consistently living or working there and it is likely empty of belongings as well. Unoccupied, on the other hand, means the space looks like the owners or occupiers could return at any moment to continue where they left off. (**See related story, page 27.**)

An unoccupied business could be a storefront that is closed, but its security system is running, its lights are on and an employee could have just stepped out to grab lunch. A vacant business may be full of things — office furniture or items for sale, for example — but it is clear that no one is watching over the property.

Steps to Take

First and foremost, organizations that could be affected by civil unrest or rioting should keep employees out of harm's way by reviewing safety and security procedures, crisis management and business-continuity plans with all employees.

Getty Images

Property damage caused by civil unrest and rioting has been a major concern for building owners during the second half of 2020.

Among other tasks, remove all perishables and valuables from inside the building and secure doors and windows. If looters want to get in, they will.

To date, most carriers are being lenient on claims due to looting and vandalism, so they are not likely to drop coverage because of a claim. On the other hand, due to the overall increase in claims during 2020, the insurance market is hardening, meaning premium increases at renewal. All businesses and property owners can expect 10%-15% premium increases moving forward. These will be much higher for high-risk businesses with recent claims.

And with protests and civil unrest possibly growing, a closed storefront is likely to be an attractive target to looters and other criminals. It's also possible that regular coverages won't kick in, or might be reduced, if a business has been vacant or abandoned.

Building owners and occupiers must take proactive steps to protect their buildings and businesses during any kind of closure. And when it comes to filing a claim, consider these tips:

Time is of the essence. Do not wait to file the claim, even if another claim was filed recently.

Document it. Collect video footage, photos and any other documentation of the damage. Share it with the broker, claims consultant and adjuster.

Maintain records. Create a detailed inventory of what was taken and its financial value. Note any clean-up and board-up charges. Take account of what is left as well.

Clean up and board up. Clean up as well as possible and board up the storefront to protect what's left. (This is required by policy conditions.)

Stay in constant contact. Even after the claim has been filed, maintain constant contact with the broker, claims consultant and adjuster. As questions surface for the adjuster, or the claim needs to be updated, being in touch will further facilitate the claims process — and may even result in a faster resolution. Remember, the broker works for the client, and the adjuster works for the insurance company.

The coronavirus pandemic has been unparalleled in its reach. With widespread shelter-in-place orders — and even lockdown in some places — a complete lifestyle shift has occurred. What's more, uncertainty in the world has led to greater civil unrest than the U.S. has seen in years.

Commercial real estate owners and occupiers can't afford to sit by the sidelines, hoping to avoid the worst of the looting and vandalism. Future riots could cause even more damage — and taking proactive steps now will go a long way toward protecting not just the property, but the business. ■

James "Chip" Stuart is the North American real estate practice leader for HUB International. **David Chmiel** is HUB's senior vice president and the national director of claims.

CEO on Leadership: Steve Martin, Owner, SDM Partners

The head of this Atlanta-based real estate firm offers his perspectives on running a small office-acquisitions and asset-management company and the leadership lessons learned as NAIOP's national chair in 2015.

By Ron Derven

Steve Martin

"They say what doesn't kill you makes you stronger. It turns out, they were right. I am 62 years old, and I am not ready to retire."

— Steve Martin, Owner, SDM Partners

***Development:** What led you to a career in commercial real estate?*

Steve Martin: The people, the culture and the entrepreneurial spirit I found in the business. I discovered early that I was not a person who would thrive in a corporate setting; I like to work for myself. I like real estate because it is a physical asset: I can buy broken buildings and fix them myself. There are hunters and skinners in the world. What you are is part of your "wiring." The hunters are wired to handle risk taking, while the skinners are smart, process-driven and need a paycheck coming in every two weeks. Because I work for myself, I do not get a salary. If I don't go out and hunt, I don't eat.

***Development:** How do you manage risk as a small company?*

Martin: I always want to mitigate risk as much as possible. You must know your market and you must know what value is. You mitigate risk by the partners you choose and the capital structure you develop. I cannot control the timing of a deal, but as long as I have enough money to get through whatever is happening in the marketplace, I can get to the other side.

***Development:** Talking about risk, you opened SDM Partners in 2009 at the very depths of the Great Recession. Why did you do it?*

Martin: Until the 2008-2009 period, I worked with a group of people for six years — wonderful people. However, my personality is such that when I think I am right about something, I am right. I never have any doubt. I realized at the time that I needed the freedom to make all my own decisions. I had a rough five years. I was fortunate to come out on the other side of it in 2015 a better person and a better businessman. They say what doesn't kill you makes you stronger. It turns out, they were right. I am 62 years old, and I am not ready to retire. It will take me about three years to work through the assets I have right now. I may need to add a year to that because of COVID-19.

***Development:** What is your primary role as CEO of SDM Partners?*

Martin: I think differently than many in the commercial real estate business. I don't want a lot of employees. Right now, I own five office buildings — two in Atlanta and three in Birmingham — and I outsource everything. That is, I hire people for the project. When it comes time to sell those projects, those people will go work for someone else. I never want to have a company that is big enough to have a human resources person. In today's world, you are either really big or really small. If you are somewhere in between, try to get to one of those two places, because you are now in no-man's land.

***Development:** Speaking of COVID-19, how has the business done during the pandemic?*

Martin: For many in the real estate business, COVID-19 has been like a football game where a timeout is called, but the clock keeps running. Lenders need to get paid. They are

"There will be opportunities for acquisitions that come out of the pandemic. I don't think it is now, but perhaps a year from now. Those opportunities will be short-lived."

— Steve Martin, Owner, SDM Partners

sympathetic, but they need to get paid. I have been fortunate in that I have not had a single tenant in Atlanta or Birmingham miss a rent payment. However, the next six to 12 months at a minimum will be difficult for all businesses.

Development: *What will be the impact of COVID-19 on the commercial real estate industry going forward?*

Martin: It will cost more to operate a building because of new cleaning standards and other things we will do. These costs are generally passed on to the tenant, so occupancy costs will go up. There will be opportunities for acquisitions that come out of the pandemic. I don't think it is now, but perhaps a year from now. Those opportunities will be short-lived. There is so much money poised to buy real estate that there will be a floor beneath those opportunities. That is, as soon as investors see a struggling fish in the water, there will be plenty of people to grab it.

Development: *What impact will COVID-19 have on the real estate itself?*

Martin: Everything about space planning and the way people use space that has been popularized in the past five years will change. Everything that is going on with this virus goes against that. Generally, the rule of thumb for office space planning used to be 250 to 300 square feet per employee. With densification, that got down to 150 square feet per employee. It will now go back up because we will need to spread people out more. Another big change will be with suburban business parks. These properties, long out of favor, will come back because of the way people are living and working.

Development: *How has your involvement with NAIOP, both as 1999 NAIOP Georgia Chapter president and as national NAIOP chair in 2015, helped you grow your leadership skills?*

Martin: You can never know too many people. I am an office guy in Atlanta, but working my way up through the chairs in the Georgia chapter allowed me to know people in multifamily silos, industrial silos and retail silos. Getting involved at the national level in NAIOP allowed me to meet people who I otherwise would never have met. In order to be successful, you need to have other people willing and able to help you be successful. It is never just you; I don't care how smart you are.

Development: *What is the best advice you have received over the course of your career?*

Martin: Relationships matter. Real estate is a people business. It is evolving away from that somewhat, but real estate and life are about relationships. About 80% of life is showing up, being nice, being early and doing what you say you will do.

Development: *What crucial lessons have you learned in the decades you have been in the business?*

Martin: I have learned four crucial lessons:

Intelligence is not enough. We all spend our youth trying to make all A's in school. However, life is not an intelligence test. You don't have to be the smartest, just smart enough. Don't get me wrong. Smart is good, but that alone is not enough. I can outsource smart.

Sales skills are crucial. We are all selling something, with the first and most important thing being ourselves. Sell yourself. If you are the smartest person in the room and you cannot sell it, you have less value.

Character is a must. Have it! People do business with people they know, like and trust, plain and simple.

Take educated risks. Inevitably, in business and in life, you are faced with risk. Be smart about it, but take it. Embrace it. Get used to it. High aspirations have a cost, and it is risk.

Development: *How do you de-stress?*

Martin: I ride a mountain bike, I love to snow ski and I play golf. One of my greatest pleasures is reading three newspapers a day. Pre-COVID-19, I always scheduled a breakfast appointment and a lunch appointment with someone every day. It is important to get to know new people. I would always get to the appointments early and read one of my three newspapers before the person I was meeting got there. ■

Ron Derven is a contributing editor for Development magazine.

How IoT Can Help Create Safer Workplaces During COVID-19 and Beyond

Data gathered by smart sensors can provide actionable information to guide social distancing, sanitizing and more.

By Mark Milligan

As the end of 2020 approaches, the commercial real estate industry continues to face uncertainty from the COVID-19 pandemic. Many companies have shifted to a work-from-home model where possible, with no clear timeline for bringing employees back to the office. The unpredictability created by COVID-19 is driving office tenants to stay as flexible as possible and increase their options — forgo renewing leases, subleasing their spaces and delaying commitments wherever possible. That makes it challenging for commercial real estate professionals to secure buyers and tenants.

In addition to the current challenges, there is much discussion in the industry about commercial real estate's future. For example, businesses are adjusting to a virtual workforce and might not need as much office space in the years ahead — and the space they do need will likely have different requirements than the recent past.

This was pointed out in a recent interview on CNBC with BlackRock CEO **Larry Fink**, who said he does not envision the firm's entire workforce ever being in the office at the same time.

Trey Barrineau

Smart sensors in office buildings can track occupancy levels, monitor lighting, and control temperature and air quality.

"I don't believe BlackRock will be ever 100% back in the office," he said. "I actually believe maybe 60% or 70%, and maybe that's a rotation of people. But I don't believe we'll ever have a full cadre of people in the office."

The industry is facing two key challenges — how to bring people back into the workplace safely, and how to adjust to the possible changing norms and behaviors of building occupants. Fortunately, new digital building technologies can help address both challenges and measure the likely changes that the new normal will inevitably bring.

The industry is facing two key challenges — how to bring people back into the workplace safely, and how to adjust to the possible changing norms and behaviors of building occupants. Fortunately, new digital building technologies can help address both challenges and measure the likely changes, twists and turns the new normal will inevitably bring.

Digitization of Buildings

The process starts with tiny, wireless sensors that can be installed in light fixtures or mounted on ceilings, walls or desks. These sensors build an internet of things (IoT) sensory system that can detect a variety of activities inside buildings, from motion to occupancy, temperature, ambient light and energy consumption. Data is stored and analyzed in the cloud. Applications translate the data into actionable insights that building operators can use to help make buildings safer and more efficient while improving the overall occupant experience. Energy can be saved. Space can be better maximized. Predictive maintenance can take place onsite or offsite.

However, the overall mission of this technology was always much bigger: to create future-proofed buildings with intelligent IoT endpoints that capture and process rich data streams to assist commercial real estate professionals — and in turn, occupants — in many ways. Case in point: COVID-19 and encouraging tenants to return to the physical workspace, renew leases and adjust to the new norms in a post-pandemic world.

Smart Sensors and COVID-19

According to an August 2020 study from marketing consultancy firm Edelman, only half of employees currently deem office spaces "safe" due to COVID-19. It is important for the commercial real estate industry to bring confidence and a focus on well-being — both mentally and physically — back into the workplace, and an IoT sensory system can play a key role.

The data from smart building sensors can help building owners and managers reduce the risk of occupants contracting COVID-19. For example, data can be used to help enforce physical distancing policies, direct cleaning efforts and reduce occupancy limits. IoT technology can provide insight into how much contact is happening within buildings by identifying

The process starts with tiny, wireless sensors that can be installed in light fixtures or mounted on ceilings, walls or desks. These sensors build an internet of things (IoT) sensory system that can detect a variety of activities inside buildings, from motion to occupancy, temperature, ambient light and energy consumption.

the busiest, riskiest and most over-occupied spaces so management can make proactive preventative decisions based on real-time data. Operators can see what is working and what is not, and they can continue to reduce contact risk.

Specifically, the IoT technology has the capability to:

- Identify densely populated areas so space or furniture can be reconfigured to reduce the number of people congregating, as well as focus cleaning efforts in these spaces.
- Locate popular pathways and hallways where risk is high and reroute traffic flow, while pinpointing higher traffic areas in need of extra cleaning.
- Digitally reserve desk and conference rooms in advance to ensure physical distancing.
- Measure person-to-person contact to evaluate risk and ensure physical distancing.
- Generate automatic alerts when specified to reduce occupancy limits — for example, when too many people are in a lobby or conference room.

IoT technology can also conduct digital contact tracing if an employee tests positive for COVID-19. This process of tracking down people and places that an infected person has been in contact with can help reduce the spread of the disease and enable employers to only quarantine those who have been exposed to keep healthy employees safe and productive.

Privacy is a key discussion point around digital contact tracing systems. Some have been built so that they do not require names to be entered into the system or require employees to use their personal cellphones. Building occupants wear Bluetooth badges, and the IoT system locates where within the building a positive individual has been, what other badges they have interacted with and for how long. This can circumvent the need to quarantine entire buildings of people while ensuring those potentially contagious stay home. This information also helps focus deep sanitization efforts.

The New Norm

Nobody knows how commercial real estate and business life will change and evolve. Will there be more satellite offices? Will there be an exodus from large cities as employees continue working remotely and potentially move to more affordable areas to live? What will happen to desk hoteling and coworking spaces?

One thing is certain: as the recovery phase of COVID-19 gets underway, data from smart sensors will help tell what is happening inside buildings and how the space is actually being utilized. This will empower owners and tenants to make data-driven decisions.

For example, if companies do start to open satellite offices, the data will show how often the space is being used, the volume of occupancy, peak usage hours, most popular locations inside the space and much more. Most importantly, it will provide data on when the space is at or over maximum capacity, allowing business owners to make decisions on expanding office space or bringing employees back into the headquarters.

Preparing for What is Next

Smart sensors and the data they provide can help guide developers and owners through changing norms at the enterprise, building and department levels, and even down to the usage of individual workspaces. The data will remove the guesswork and allow commercial real estate professionals to respond more effectively to whatever is next.

IoT technology will assist companies in optimizing their space usage, provide a granular, data-driven pulse on how workplace usage evolves in the new normal, and help their employees maximize productivity. And, during COVID-19, it can help tenants stay safe. This could give smart buildings and those who own and manage them an edge in the commercial real estate world now and into the future. ■

Mark Milligan is senior vice president of marketing at Enlighted, Inc., a Siemens company.


MARKET
INTELLIGENCE.
TOP TALENT.
INDUSTRY
LEADERSHIP.

Keeping Company Culture During COVID-19

Virtual tools can help maintain camaraderie and connectedness.

By Alice Devine

Company culture, sometimes apparent and other times intangible, is a cornerstone of the workplace. According to the Harvard Business Review, culture resides in "shared behaviors, values, and assumptions and is most commonly experienced through the norms and expectations of a group — that is, the unwritten rules."

Remote work, which has become widespread since the pandemic, has disrupted engagement and, in some cases, minimized meaningful employee interaction.

Technology and Interaction

In real estate, culture can manifest itself through design and configuration of physical space. During the pandemic, however, technology has become the vehicle by which people interact. So how do tenants cultivate culture when much of their staff must work remotely? Companies can and do create, maintain and amplify culture by doubling down on their corporate values and sparking employee engagement through innovative practices.

Companies are extending a sense of the physical workplace to remote settings. In much the same way that an office manager might order comfortable furniture, companies have funded employees' remote workspaces. **Elizabeth Ford**, a corporate assistant at the Fenwick & West law firm in Mountain View, California, says she has received multiple allowances totaling nearly $1,000 to upgrade her home office. With the autumn fires that ravaged much of California and spread poor air throughout the state, even items such as air filters were considered appropriate expenditures.

Getty Images

While in-person work gatherings are difficult or impossible during a pandemic, many companies are finding virtual ways to keep employees engaged with corporate culture.

In real estate, culture can manifest itself through design and configuration of physical space. During the pandemic, however, technology has become the vehicle by which people interact.

Other companies create a sense of connectedness with desk accessories. For instance, **Adrian Suarez**, a Johns Hopkins University neuroscience major who now works for Mindstrong Health in Mountain View, California, appreciates the small touches. Mindstrong sent Suarez small pieces of office decor, all branded with the company logo. While Suarez admits the gifts might seem "relatively superficial," he appreciates the thoughtfulness and sentiment they express. Biotech giant Genentech offers its employees virtual ergonomic evaluations of their home offices to support comfort and productivity. So while employees settle in disparate locations, company values of appealing and productive workspaces remain the same.

Transitioning from a physical to a virtual office landscape implies consideration of employee interaction. In past decades, architects and designers planned open office space with connection in mind. The notion behind such configurations is that true innovation results from "chance encounters and unplanned interactions between knowledge workers, both inside and outside the organization," according to sociometric data published by the Harvard Business Review.

Remote work, however, eliminates these chance collisions, requiring companies to create connection via alternate methods. Companies such as Mindstrong have responded with events such as Donut, which matches workers in a one-on-one virtual coffee klatch. The Donut program intentionally pairs employees from different departments in an effort to replicate the interaction that might occur in a building cafe.

Remote work can emphasize human-centric values. In a recent presentation from the UC Berkeley-Hass Culture Initiative, **Doug Milliken**, vice president of marketing transformation at The Clorox Company, notes that when high-ranking executives speak from a home environment — which might involve children, dogs and personal effects in the background — there's a sense of empathy and openness. While companies shift from a campus to virtual spaces, the underlying values of connection remain present, and can seem more authentic.

Ironically, technology can allow for a more varied level of employee engagement. Genentech has also established no-meeting zones during particular times of the day and week as an electronic reprieve. Further, Genentech offers online counseling sessions to provide support for anxiety that threatens productivity. A virtual setting also solves the issue of off-site workers who, in the past, may have been excluded from campus-centric activities.

Despite the losses felt by the absence of physical connection, technology and human concern fill much of the gap — at least for now.

For example, when Genentech rang its bell in celebration of a recent drug approval, 13,000 employees — not just those on the South San Francisco campus — cheered online. Technology offers flexibility, both in terms of time and geography, that might remain an important workplace component long after a quarantine period subsides.

Face-to-Face is Still Better

Despite these adaptations, the virtual world is often a poor substitute for in-person workplaces. Suarez, who deals with weighty topics of mental distress, especially misses the office camaraderie. Office mates would offer advice and comfort to each other during face-to-face meetings.

"I miss the balance between work and the people who understand the workflow and who can help me cope," Suarez says.

Communicating over text just isn't the same, either, because it is precluded by confidentiality practices or because such online chats burden an already overloaded chain of communication.

Ford also misses the dynamic environment of a headquarters office. She says that for holidays such as Halloween, an entire floor might be turned into a pumpkin patch, complete with balloon making and games. It was an event that included families and significant others, allowing for genuine firm-wide participation.

In addition, training can suffer. Ford notes that office settings place assistance a short hallway walk away. While that same paralegal is virtually available, Ford notes that it requires "scheduling and blocking it online." Motivated employees such as Ford do this, yet one wonders how much employee development might be lost in a more formal multistep process.

Despite the losses felt by the absence of physical connection, technology and human concern fill much of the gap — at least for now. These adaptations may persist in some regard, such as more flexible work schedules, but on the whole, tenants feel the absence of a central workplace keenly. Although it is too soon to tell when, a return to the office will help reinforce company culture and help retain employees who value face-to-face interaction. ■

Alice Devine is the author of "Suite Deal: The Smart Landlord's Guide to Leasing Real Estate," the 2019 Bruss/Robinson Book Award winner from the National Association of Real Estate Editors.

What to Do When Commercial Leases End Up in Bankruptcy

The COVID-19 pandemic is forcing many businesses to close, leaving landlords in the lurch.

By Gary M. Kaplan and Gregory B. Shean

The COVID-19 pandemic continues to shake up the nation's economy. Long-standing companies such as JC Penney, J. Crew, Neiman Marcus, Modell's Sporting Goods, Brooks Brothers, Lord & Taylor, Men's Wearhouse, GNC, California Pizza Kitchen, 24 Hour Fitness and Gold's Gym have filed for bankruptcy. Unfortunately, it is highly likely that many more companies, large and small, will file for bankruptcy protection in the coming months.

For landlords of commercial real estate, these bankruptcies can have significant impacts on their rights and remedies under their leases. When confronted with a tenant who has filed for bankruptcy or may be considering it, understanding the basics of those effects is helpful.

Getty Images

It's important for landlords to understand the laws around bankruptcies and leases, especially as more businesses shut down during the COVID-19 pandemic.

Know the Code

The treatment of leases in bankruptcy is governed by the U.S. Bankruptcy Code. When a bankruptcy petition is filed, Section 362 of the code dictates that an "automatic stay" immediately applies. This prevents all actions against the debtor or their property. It also generally means that a landlord cannot take any actions to enforce their rights under a lease, such as sending a notice demanding the payment of rent or other lease obligations incurred before the bankruptcy filing or pursuing an eviction action.

The treatment of leases in bankruptcy is governed by the U.S. Bankruptcy Code. When a bankruptcy petition is filed, Section 362 of the code dictates that an "automatic stay" immediately applies.

Section 365 of the code governs the assumption, assignment (following assumption), or rejection of a debtor's real property leases. The general rule is that the debtor must continue to pay rent and other obligations under a lease after petitioning for bankruptcy, until the rejection of the lease, but not delinquent rent and other lease obligations accruing prior to the bankruptcy (which instead are addressed through the bankruptcy claims process). However, the bankruptcy court may permit deferral of such payments until 60 days after filing.

Indeed, in a number of recent retail bankruptcy cases (including Pier 1, 24 Hour Fitness and Modell's Sporting Goods), courts have permitted debtors to defer payment of their postbankruptcy lease obligations because they suffered revenue shortfalls following shelter-in-place and similar governmental restrictions related to the COVID-19 pandemic.

Generally speaking, a tenant has 120 days after a bankruptcy filing to decide whether to assume or reject its real property leases. Following a motion by the debtor or the landlord, a bankruptcy court has the discretion to extend this 120-day period by up to 90 days; however, any further extension requires the consent of the landlord. A lease that is not assumed or rejected within the relevant time period (or confirmation of a Chapter 11 plan if earlier), is deemed rejected, and the tenant is required to immediately vacate the premises.

If the debtor assumes a lease, they are required to cure all lease defaults from before and after the bankruptcy petition, including any delinquent rent and other obligations (with some exceptions for incurable nonmonetary defaults). The debtor also must provide "adequate assurance of future performance" under the lease. There are special requirements if the leased property is in a shopping center, including assurance that any percentage rent due under the lease will not decline substantially; continued compliance with radius, location, use and exclusivity provisions; and no disruption to the shopping center's tenant mix or balance.

Once a lease is assumed, any ongoing obligations must be paid in a timely manner, with any unpaid amounts treated as an "administrative expense" of the bankruptcy estate. These generally must be paid in full in order for the debtor to exit bankruptcy under the code.

Generally speaking, a tenant has 120 days after a bankruptcy filing to decide whether to assume or reject its real property leases.

Importantly, if an assignee satisfies the conditions for lease assumption, a debtor may assign an assumed lease despite provisions of the applicable lease that restrict or condition the tenant's ability to assign. However, if the leased property is in a shopping center, then the financial condition and operating performance of the proposed assignee must be similar to that of the debtor at the time they became a tenant.

Into the Breach

If the debtor rejects a lease, it is deemed a breach. This allows the landlord to terminate the lease and retake possession of the premises. In addition, the landlord can assert a claim against the bankruptcy estate for damages resulting from the lease rejection. State laws govern the initial calculation of these figures.

However, Section 502 of the code caps such damages at an amount equal to the "rent reserved by such lease, without acceleration, for the greater of one year, or 15%, not to exceed three years, of the remaining term of such lease." If the landlord's damages under state law are less than the code's cap, then they simply have a claim equal to damages under state law. "Rent reserved" for purposes of calculating the cap generally includes base rent, percentage rent, real estate taxes, insurance and common area maintenance (CAM) charges, especially if the latter three categories are described as "rent" or "additional rent." After exhausting any security deposit, the landlord's claim for rejection damages is treated as a "general unsecured claim" under the code, which typically ends up being paid a fraction of the amount owed.

If the debtor rejects a lease, it is deemed a breach. This allows the landlord to terminate the lease and retake possession of the premises.

Other issues that may arise in a particular situation include treatment of "stub rent," which is the portion of rent remaining when a tenant files bankruptcy in the middle of the month; application of security deposits; recovering guaranties or letters of credit securing a lease; and preferential transfer claims for lease payments received shortly before bankruptcy.

Further complicating matters, U.S. bankruptcy courts do not view these issues uniformly. For example, while some courts require debtors to fully pay prorated stub rent, CAM and property taxes attributable to the portion of the month following a bankruptcy filing, other courts only require payments that fall due after the bankruptcy. ■

Gary M. Kaplan is a partner in Farella Braun + Martel's San Francisco office and leads its restructuring, insolvency and creditors rights practice. **Gregory B. Shean** is a partner at Farella and chairs the real estate transactions and development industry group.

From Vacant Super Target Store to Vertical Farm

An automated vegetable-growing process offers a creative solution for filling empty big-box stores.

By Mary Ingram-Schatz

Chicago-based Wilder Fields, which calls itself a "technology-enabled food company," plans to spend $40 million to turn a vacant 135,000-square-foot Super Target store in Calumet City, Illinois, into a vertical farm with the capacity to produce 25 million leafy green plants each year. Leafy greens sales are a $5 billion industry.

The introduction of a new category of business to an outmoded space demonstrates one way to revitalize an empty shopping center anchor. Malls already have changed from exclusively retail environments to social centers with dining and entertainment venues. Now the increasing shift to online shopping, accelerated by the impact of COVID-19, creates a new incentive to find fresh alternatives to help these struggling properties thrive.

The COVID-19 pandemic has severely challenged the commercial real estate sector. According to Statista, before the pandemic emerged in March 2020, there was a 9% vacancy rate in retail real estate nationwide. By July, that number had jumped to 20%. Additionally, The Wall Street Journal reported in June 2020 that the retail market is on pace to rival the number of bankruptcies seen in the aftermath of the 2007 to 2009 financial crisis.

"We are creating a blueprint for how to impart new life to empty, expansive buildings," said **Jake Counne**, who founded Wilder Fields in 2016. In July 2020, he told the Chicago Sun-Times that as far as he knew, "converting a big-box store to a farm has never been done before."

The interior of the former Super Target store in Calumet City, Illinois, that will be transformed into a vertical farm in the coming months.

High-Tech Farming

To establish a vertical farming enterprise, Wilder Fields developed proprietary technology to improve labor efficiency and reduce the energy costs associated with traditional vertical farms. Wilder Fields' design for commercial vertical farming also offers a number of environmental benefits. Growing in highly controlled cleanrooms eliminates the need for herbicides and pesticides, uses 95% less water and returns thousands of acres of farmland to nature.

In traditional vertical farms, plants are stationary, and workers move among the plants to tend them and harvest produce. Wilder Fields has devised a transport system that uses a series of conveyers and lifts to move the plants around the facility at a high throughput. This allows the farm technicians to work at their stations while the plants come to them, significantly improving efficiency and reducing waste.

A second set of innovations at Wilder Fields uses artificial intelligence to monitor plant health and progress multiple times per minute. Computers analyze videos and images to dynamically control exactly how much lighting and cooling plants receive at any given point in their life cycle. This reduces wasted resources.

"We created our systems to be flexible enough to fit into existing buildings, including big-box anchor retail spaces in distressed shopping centers like our first site," Counne said.

At the Calumet City site, 24 separate cleanroom growing environments will house dozens of varieties of greens grown year-round. Leafy greens are a well-understood crop, can be grown profitably from Day 1 and are one of the biggest categories in fresh produce. As vertical farming evolves and becomes more economical, Wilder Fields may expand to add different crops, according to Counne.

Wilder Fields will use back-of-the-house areas of the former Super Target for a research laboratory, seeding station, office and an employee break-room. A large loading dock already is in place for shipping produce to nearby supermarket distribution centers, as well as directly to supermarkets and select restaurants throughout metro Chicago. The first phase of the full-scale commercial vertical farm includes building and operating a retail store for fresh produce grown onsite for the surrounding community, and an AgTech learning center for families and school groups.

The introduction of a new category of business to an outmoded space demonstrates one way to revitalize an empty shopping center anchor.

Buildout Underway

With this initial project funded by a group of private investors, construction is planned in two phases. Phase 1, to be completed in early 2021, includes building critical infrastructure and completing the first two cleanrooms. Each cleanroom houses racks with eight levels of growing space as well as the proprietary technology. The second, larger phase is slated to begin in 2022.

"There's no how-to guide about converting shuttered retail big boxes into farms," Counne said. "Building out the space in two phases gives us the opportunity to develop efficiencies during our initial construction and operations that will expedite our progress for our major completion with Phase 2. It also makes it possible for us to start generating revenues and educating customers sooner in early 2021."

Wilder Fields' location on the perimeter of a major urban market is essential to reducing the carbon footprint associated with transporting greens. By developing vertical farms inside the regions where people will consume their produce, Wilder Fields ensures that the greens can be consumed when they are freshest. It also eliminates the financial costs and negative environmental impact of trucking produce long distances. In 2008, researchers with Carnegie Mellon University estimated that food transportation may account for 50% of total carbon emissions generated by the processing of many fruits and vegetables.

Ultimately, the longer the distance the food travels, the greater the emissions and fossil fuel consumption required to transport it. Additionally, most consumers today only have access to leafy greens grown on a commercial scale that are predominantly designed to withstand an extended and bruising supply-chain journey.

"Wilder Fields' model for vertical farming enables us to eliminate several days or even weeks of the typical supply-chain paradigm," said Counne. "We also can avoid the inevitable storage in a warehouse and the bruises and damage incurred during long-distance shipping time. Growing and shipping locally is an essential part of our business model."

Wilder Fields plans to establish commercial-scale vertical farms in other urban areas across the country.

Officials Embrace Concept

Many factors go into converting a big-box store to a full-scale commercial vertical farm or similar venture. Installing the advanced technology requires an extensive buildout, so longer lease agreements or purchase options are an essential incentive.

While scouting possible locations, Counne was introduced to Calumet City officials in the summer of 2019. His proposal won the support of city leaders eager to revive an ailing retail corridor and bring a new venture to their community. In addition, Wilder Fields will provide jobs in which workers with no experience can start as entry-level harvesters — where they learn about agriculture as well as artificial intelligence and automation technology — and then advance to higher-level positions.

Still, there were obstacles to overcome. Calumet City officials and Wilder Fields leaders worked together to address retail zoning issues and to negotiate tax breaks and incentives. Because the vacant Super Target was located in a tax increment financing (TIF) district for Calumet City, funds had already been allocated to fortify that commercial area. According to Counne, Wilder Fields benefits from a 10-year TIF agreement. Additionally, the Chicago Tribune reported in July that Calumet City bought the vacant store from Target and will lease it to Wilder Fields for 12 months. Counne told the newspaper that he plans to purchase the property from the city when the lease is up.

The city met with other nearby retail tenants to gain support.

"Even with a retail store, our vertical farm will generate much less traffic than a large retailer," Counne said. "So upfront, open communication is vital in order to set expectations and encourage buy-in from other tenants."

Shopping center tenants include WOW Furniture Outlet and Beauty Hair accessible from the parking lot along with the Super Target site for Wilder Fields. The shopping center also includes an indoor mall featuring Old Navy, Party City and Ross.

"Part of the Wilder Fields strategy is to find big-box spaces in already ailing retail corridors," said Counne. "The Calumet City location had been empty for five years. When big retail spaces are empty that long, there can be a vicious cycle of downward effect. The spaces get harder to fill over time and tend to generate more empty spaces. Wilder Fields will have a retail component and educational programs that will generate considerably more traffic than an empty building, so the neighboring retailers see this as an improvement." ■

Mary Ingram-Schatz is a senior account executive with Sheila King Marketing + Public Relations.

Indoor Agriculture's Potential

The U.S. Department of Agriculture (USDA) predicts that global population will exceed 9 billion by 2050. The agency says that indoor farming could be a crucial tool for relieving food shortages, particularly in urban areas.

According to a 2019 report from Statista, crop yields from indoor farms can be more than 10 times greater than outdoor farms. Because of that, indoor farming is expected to see strong global growth. Estimates range between about 8.5 million square feet to 16.55 million square feet by 2021. The market for food products grown indoors could be worth up to $6.4 billion by 2023, according to Statista. ■

Public Transit During COVID-19: Essential Service for Essential People

Safety on trains and buses will be a critical concern for cities in the foreseeable future.

By Robert T. Dunphy

The COVID-19 pandemic that gripped the U.S. earlier this year created a massive and immediate decline in all forms of travel as businesses shut down and governments issued stay-at-home orders. Transit ridership in many places dropped by 90% or more according to an April 2020 report from the Eno Transportation Foundation, "COVID's Differing Impact on Transit Ridership." Many commuters began working from home, unemployment grew, and both leisure and business travel almost ceased. Road traffic in the U.S. saw an unprecedented 40% reduction overall, according to an April report by the Federal Highway Administration.

While reduced travel means less greenhouse gases, a major environmental benefit, it also leads to lower revenues for transit agencies. Fares pay about 36% of transit system operating costs on average, according to a 2019 study by the Federal Transit Administration.

According to the American Public Transit Association (APTA), reduced revenues from depressed ridership, together with increased operating costs to protect workers and riders, are straining public transit agency budgets. A survey conducted by APTA in September found that almost one-third of public transit agencies expect to furlough employees, more than one-third of public transit agencies have had to delay capital projects, and nearly one in five agencies have shifted funds from their capital budgets to their operating budgets. Bringing back passengers will require ensuring that riding is safe.

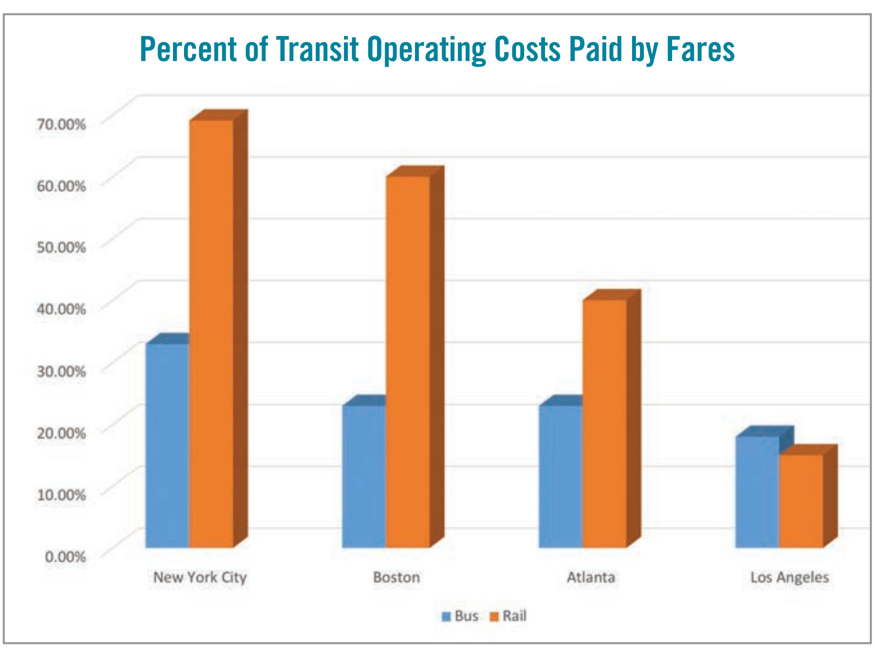
Is it Safe to Ride Public Transit?

The immediate response to the pandemic by transit agencies was a sharp reduction in service in April. New York City became the COVID-19 epicenter in the U.S., and ridership on the subway, the nation's largest rapid-transit system, cratered in April to a mere 8% of normal, according to a September 2020 report commissioned by APTA and published by Sam Schwartz Consulting.

A more existential concern is whether New York and other transit-oriented cities will bounce back, even once transit operations return to a sustainable level. Will higher-income workers continue to work from home, and possibly move to communities further away from urban cores?

A study that came out in April from the National Bureau of Economic Research suggested — with qualifications — that the city's subways were responsible for spreading the virus. It was a warning for transit users everywhere, and a chilling threat for transit's recovery.

However, the September 2020 report commissioned by APTA and published by Sam Schwartz Consulting found no COVID-19 outbreaks that were clearly linked to intracity public transit. The study was based on a comprehensive review of global research regarding COVID-19 transmission and public transit. It also included interviews with public health experts. According to the report, "studies from around the



Source: 2018 National Transit Profile, Federal Transit Administration. Published 2019.

world indicate minimal risk from using public transit, especially where specific safeguards are in place, such as face coverings, well-functioning ventilation systems, and minimal talking by riders."

A June article in The Atlantic by **Janette Sadik-Khan**, a former New York City transportation commissioner, pointed out that fear of public transportation got ahead of the evidence.

An Essential Service

Mass transit serves two broad markets: "captive" riders who have no alternatives and "choice" riders who have options, especially driving. Transit employees were generally considered essential workers during COVID-19 lockdowns and continued on the job in the face of outbreaks. Other front-line workers also considered essential — health care, food, restaurant and delivery people — tend to be in low-income populations. They are a core component of transit's "captive riders."

An analysis of commute patterns by the University of California, Davis found that on an average day in Spring 2020, about half of respondents were working from home, but high earners were more likely to be teleworking than lower-income workers. The latter are also more likely to have jobs that require them to be physically present. Many of those low-income workers still on the job require public transit for commuting.

In addition, transit serves a critical function for many minority riders, who account for 60% of transit trips. Many of them have no other options. The American Public Transit Association estimates that 87% of their trip purposes involve "direct economic impact on the local economy," such as work, shopping and recreational spending. ■

As transit usage started to recover in April and began to approach pre-pandemic levels, no outbreaks were traced to increased ridership. At the same time, numerous outbreaks occurred in regions and states with no significant levels of public transit.

Critical tasks in moving forward will address steps to make transit as safe as possible. These include contactless payment options, sanitizing high-touch surfaces, requiring travelers to wear masks, and physical distancing whenever possible.

Many of these steps are already in place. For example, transit operators in the San Francisco Bay Area joined forces to develop "Riding Together — Bay Area Healthy Transit Plan." It advises face masks (a California requirement), hand hygiene, daily cleaning of vehicles, physical distancing, and special protections for transit employees.

Although physical distancing might be difficult on public transportation, the recommendation in the Bay Area is "where practicable, transportation providers will provide for a minimum three-foot physical distancing metric." Coupled with mandatory face covering, this is an adjustment to the Centers for Disease Control and Prevention's six-foot spacing suggestion.

Will Riders Return?

Even with the best safety precautions, the big challenge and great unknown is when riders will feel comfortable to return. Research by the University of California, Davis Institute of Transportation Studies targeting 15 regions in the U.S. and two in Canada indicates that the COVID-19 pandemic will continue to have a "profound impact" on how much people move around, their means of transportation, and who gets to stay home. These trends will create "long-term shifts" in transportation usage. Those who need transit the most, the "captive" riders, will no doubt

As transit usage started to recover in April and began to approach pre-pandemic levels, no outbreaks were traced to increased ridership. At the same time, numerous outbreaks occurred in regions and states with no significant levels of public transit.

return. In fact, most probably have, at least those still working.

A more existential concern is whether New York and other transit-oriented cities will bounce back, even once transit operations return to a sustainable level. Will higher-income workers continue to work from home, and possibly move to communities further away from urban cores?

This is critical not just for New York, but also for older cities that developed around transit and need it to serve a significant share of commuters. New York has been counted out many times in the past and recovered, and it will likely do so this time. The development of a vaccine, combined with the realization of the creative and social benefits that flow from working with others in an office, could eventually encourage a return to city centers via reinvigorated transit systems.

One distinct possibility is that working from home one or two days a week will become widely adopted. The hit for public transit in such a scenario could be catastrophic — perhaps a 20%-40% loss — but the reduction in daily road traffic due to increased teleworking could be a welcome consequence. ■

Robert Dunphy is a transportation consultant, an Emeritus Fellow of the Transportation Research Board, and an Adjunct Professor in Georgetown University's Real Estate Program in the School of Continuing Studies.

Speculative Cold Building Development: Trends and Strategies

This sector of industrial was booming even before the pandemic, and future demand is expected to soar even higher.

At a Glance

- Growing demand for cold storage space is being fueled by the recent explosion in e-commerce.
- "Cold ready" speculative buildings could help meet that demand, and there are several ways to construct them.
- All refrigerated facilities come with higher costs for construction and operation.

By Cameron Trefry

In the age of one-hour package shipments, the infrastructure needed to serve a growing on-demand culture is scrambling to keep up. This has taken on even greater significance amid the COVID-19 pandemic, which forced millions to stay home for months.

According to Coresight Research's U.S. Online Grocery Survey 2020, online grocery sales are expected to increase by about 40% this year due to the pandemic. That's after a 22% increase in 2019.

The strong growth in e-commerce is a main reason that the industrial real estate sector is a bright spot in the U.S. economy, as developers and tenants continue to construct millions of square feet of warehouses and logistics centers.

Within the industrial sector is a unique class of buildings that maintain the continuity of the "cold chain," which is crucial for the integrity of U.S. food and pharmaceutical logistics. While market factors are driving rising demand for cold buildings, there are also practical reasons behind the need for this asset class. The existing cold building stock in the U.S. is

Ware Malcomb

A section view of a cold-ready building showing refrigerated storage, the cold dock and the equipment mezzanine.

becoming antiquated, with an average age of 34 years, according to CBRE research.

In the past, cold storage buildings were built to suit, but due to the surge in demand and the need to upgrade these facilities, the era of the speculative cold building could be upon us.

Cold Demand

Recent research by CBRE estimates that demand for cold storage will increase by 100 million square feet in the next five years. However, there is less than 5 million square feet of cold storage currently being built across the U.S.

"In our view, there is the potential for an enormous amount of new climate-controlled space," **David Egan**, former global head of industrial and logistics research at CBRE, told attendees at NAIOP's CRE.Converge 2019 in Los Angeles.

These cold buildings take various forms. Food processing facilities are located near farms and ports, which have specialized requirements to meet the needs of tenants and comply with food safety protocols. Processing facilities are supported

Ware Malcomb

At refrigerated facilities, a significant amount of site area is required for refrigeration equipment and storage silos that supply the manufacturing process.

by gateway cold storage buildings, which feed regional distribution facilities. Finally, there are the local last-mile facilities, which provide service to grocery stores, restaurants and, increasingly, directly to consumers.

Cold buildings have traditionally been purpose-built for a specific end user with a particular set of needs. These can range from high-bay, fully automated cooler and freezer buildings to lower-clear-height processing facilities. While unique to the end user's needs, these buildings share many common design features: refrigerated space (often well below zero degrees Fahrenheit), enhanced thermal and vapor envelopes, areas of insulated freezer slabs, space on site and within the building for refrigeration equipment, and a number of other requirements.

Using these common building attributes, Ware Malcomb recently developed a "cold ready" speculative prototype building that can be adapted for a number of uses requiring refrigeration and freezer areas. Finding a solution for a cost-effective and highly flexible speculative cold building has long been an issue, and this new prototype could help accomplish that.

Cold-Ready Strategies

There are two primary strategies that can be implemented for the cold ready speculative building. The first uses insulated metal panels as the primary exterior building skin. This requires columns at the building perimeter and increased roof insulation as part of the thermal envelope. This building offers a stable thermal and vapor envelope. However, it can be more challenging to place internal walls between temperature zones because the insulated metal panel walls will not be able to penetrate the metal roof deck if not planned as part of the initial building construction.

The second option for the cold ready speculative building is commonly referred to as the "box in a box." This building utilizes a precast or tilt-up concrete exterior wall panel, which can be load bearing and avoids the need for perimeter steel columns. The building's thermal and vapor envelope uses insulated metal panels to line the exterior walls, as well as insulated metal panels suspended from the roof structure to create a ceiling. This design offers more flexibility to add future walls as the thermal and vapor envelope can be accomplished by the suspended insulated metal ceiling panels. The "box in a box" design also allows the majority of the cost for the building thermal and vapor envelope to be deferred to the tenant improvement and can help keep the first cost of the building lower.

Both options share many unique design traits that make them suitable for cold building users. More space on the site is dedicated for refrigeration equipment and generators that are required for cold buildings, as well as sufficient queuing area for trucks and ample parking for refrigerated trailers. Office pods are located adjacent to the building cold dock for better separation from primary freezer and cooler areas as well as easy access to the cold dock. The dock doors are spaced slightly wider than a typical dry warehouse building to allow for the increased dock equipment and enhanced dock seals. The dock doors themselves are insulated and are designed be at a 50-inch height above grade. This allows for better accommodation of refrigerated trailers that have a higher bed height.

The cold ready building offers flexibility to tenants by leaving out floor slabs and placing all building columns on base isolation blocks. This allows for insulated freezer slabs to be placed only where a tenant requires freezer areas.

Cold Chain and COVID-19 Vaccines

In November, Pfizer announced that it had developed a vaccine for COVID-19 that is 95% effective. A week later, Moderna announced that its COVID-19 vaccine showed similar effectiveness.

However, both vaccines require cold storage, which could present logistical challenges in the months ahead as billions of doses are distributed across the country.

According to a November report from the New York Times, Pfizer's vaccine must be stored for extended periods at minus 94 degrees Fahrenheit, though it can be held in conventional freezers for five days. Moderna's vaccine requires long-term storage temperatures of minus 4 degrees Fahrenheit, but it can be stored in standard refrigerators between 36 and 46 degrees Fahrenheit for up to 30 days ■

> **Like other new concepts in real estate, the market will watch carefully** as the first few speculative cold storage buildings are built and fully leased. So far, the results are reassuring.

Using either of the development strategies for the speculative cold-ready building allows developers to significantly reduce the initial capital expenditure investment, but still provides the building shell with the specialized features mentioned above that allow for quick tenant buildouts. The question is, does the market demand it?

Ware Malcomb

An engine room with compressors lined up inside a cold storage facility.

The Broker Perspective

Development magazine has covered the explosion in demand for cold storage in recent issues (see "Cold Storage Can Be Complex and Costly" in Fall 2020 and "The Cold Storage Market is Heating Up" in Spring 2020). Despite the intense interest, some in the industry remain cautiously optimistic about future growth.

"Grocery delivery is here to stay, but the scale remains to be seen," said **David Sours**, senior vice president with CBRE's National Food Facilities Group. "Time will tell whether the industry is really growing or just evolving."

Sours added that historically, developer and investor interest in cold storage has been cautionary. The sector was perceived as expensive with modest growth and discounted exit values. Built-to-suits were the norm, and speculative development was unheard of until recently. Over the years, some developers marketed speculative cold storage buildings but lacked the equity and/or debt to allow construction to commence unless it was preleased or presold.

Like other new concepts in real estate, the market will watch carefully as the first few speculative cold storage buildings are built and fully leased. So far, the results are reassuring. For example, Ware Malcomb recently worked with a developer in Texas to complete what is believed to be the first cold storage speculative development in the country. The building is 296,840 square feet at 45-foot clear height and was designed with an insulated metal panel skin. The Texas project has been fully leased, and the final phases of the tenant build-out are underway.

Sours points out that the learning curve is steep within the sector. There are several highly unique, expensive facility build-out subtypes, each with their own nuances. It is not one-size-fits-all for what the real estate industry broadly calls "cold storage" — that is, anything with refrigeration.

Many investors and developers do not realize there are several distinct food building subtypes. These can be broadly classified by the amount and configuration of each temperature zone: freezer (space that maintains temperatures at 0 degrees Fahrenheit or lower), cooler (space that maintains temperatures between 0 and 50 degrees Fahrenheit) and dry. These facilities have custom details throughout nearly all elements of the facility design. Understanding design differences is key to aiming for the right targets when it comes to speculative design.

Like all complex building types, diligent planning and proper design are paramount, as well as the optimal project location and cost structure. For example, JLL research from 2018 indicates that cold-storage facilities can cost from $250 to $350 per square foot to build. They can also take several months longer to construct than standard warehouses.

The Developer Perspective

As is the case in traditional speculative industrial building development, flexibility remains a priority. When conducting site selection and planning activities for cold buildings, **Anthony Pricco**, president of Bridge Development Partners, says these attributes are important to consider:

- Sites capable of supporting 200,000 to 300,000 square feet of building.
- 50-foot clear height buildings to accommodate tenant automation needs.
- Strongly consider accommodations for packaged rooftop refrigeration systems.

- Make provisions for equipment mezzanines.
- Urban infill locations are preferred due to limited supply in these areas.

Another important consideration is the current inventory of cold buildings throughout the country. According to **Scott Pertel**, the president and CEO of Cold Summit Development, and **Alex Langerman**, the company's co-founder and COO, the existing inventory is largely old, inefficient and poorly located. Old buildings can cause significant issues for food processing and cold storage operations. Deteriorating insulation and vapor intrusion due to poor construction detailing or lack of required maintenance can cause ice buildup in freezers and coolers. These problems can also increase operating costs due to diminished envelope efficiencies. Food safety is a priority for companies in the food industry, and shutdowns for building maintenance are costly. Likewise, when it is time for expansion, companies cannot afford to wait years to construct new buildings for their exact needs.

When delivering cold buildings across the country, there are a few key factors to consider:

Efficiency. Build in efficiency in terms of cubic footage and racking as well as energy and operating expenses.

Location. Build facilities where they are needed — desirable logistics hubs, in and around major population centers, and adjacent to where food is grown.

Cost. Build facilities at a cost basis that keeps real estate costs low.

Pertel and Langerman also rate the complexity of cold buildings. On a scale of 1 to 10, with 1 being the least complex and 10 being the most, they rate traditional dry warehouses from 1 to 2. Refrigerated warehouses score from 7 to 8. Automated/high-bay freezer facilities rate from 8 to 9, and food-processing facilities score 9 to 10.

Ware Malcomb

A cold dock with palettes waiting to be loaded into refrigerated trucks.

The Capital Markets Perspective

The capital markets have taken notice of the imbalance between supply and demand for cold buildings in the U.S. An October 2020 article from the Wall Street Journal noted that Lineage Logistics LLC, the world's largest landlord of temperature-controlled warehouses, recently raised $1.6 billion in a fundraising round and may pursue a public offering of stock. Additionally, Americold Realty Trust, which is currently the only publicly traded cold-storage REIT, saw its net operating income jump 6% in the second quarter. According to the Wall Street Journal report, those two firms control 59% of the cold-storage market in the U.S.

Research from CBRE shows that the slim portion of capital focused on cold buildings is currently heavily weighted toward private investors. Private investors make up nearly 80% of the buyer pool, but with cap rate spreads shrinking, REITs and institutional capital may join in greater numbers.

Sours said the capital markets have never been more focused on cold storage, but investors are still primarily looking at buying buildings with credit tenants and long-term leases that are in core industrial markets. Only a small number of transactions check all the boxes each year. Nevertheless, yields for cold storage have narrowed tremendously in recent years while maintaining a healthy premium over dry industrial warehouses with similar term and tenant credit profiles.

Build-to-suit cold buildings often cost at least three times more than traditional speculative warehouse buildings, with many costing much more. Dry-to-cold conversions can have comparable costs to build-to-suit, but greater speed to market in many cases. This has been a barrier to investment in these buildings — greater cost equals greater risk.

The cold-ready concept can reduce the initial costs to as low as 20% over traditional speculative warehouses, deferring the rest of the building costs until a tenant is in place, likewise lowering risk. The cold-ready shell and tenant improvements together have comparable costs to build-to-suit, but with speed to market for the tenant comparable to dry-to-cold conversions.

The Design and Construction Perspective

Given the specialized nature of a cold building, a properly designed project is critical to success. There are more decisions to be made at the project start with speculative

Given the specialized nature of a cold building, a properly designed project is critical to success. **There are more decisions to be made at the project start with speculative cold storage buildings than traditional dry spec buildings.** How the refrigeration will be handled is one of the most important decisions.

cold storage buildings than traditional dry spec buildings. How the refrigeration will be handled is one of the most important decisions.

Kate Lyle, studio manager for industrial cold and food with Ware Malcomb, notes that refrigeration systems must be customized to the end user's temperature requirements. Unlike an HVAC system, where temperatures fall in a consistent range from user to user, refrigeration systems can range from 55-degree cold processing rooms down to negative 20-degree freezers (or even colder for blast freezers and pharmaceutical super-freezers).

Furthermore, users of refrigeration systems might have specific requirements regarding air flow, incoming product temperature, type of refrigerant and best placement of air coils for their room layouts. Deferring the installation of the refrigeration system until the end user is identified seems to be the best course of action, but it's important to consider the needs of that future refrigeration system.

Types of refrigeration systems can include central ammonia plants, low-charge ammonia packaged rooftop units, packaged "freon" rooftop systems using approved refrigerants, pre-fabricated ammonia "rack systems" and CO2 cascade systems. The central ammonia system has traditionally been the favorite method of refrigeration for many large end users due to its reliability and efficiency at a variety of temperature ranges.

However, it comes with significant first costs, requires room within the building for the compressors, space on the site for condensing units, and a certified and competent on-site maintenance technician. As previously mentioned, some preference is given to packaged rooftop refrigeration systems with speculative cold buildings. This is due to the inherent flexibility of these systems, which allow for faster and more cost-effective installation.

The challenge with rooftop systems is their weight, which can be difficult to accommodate in speculative structural systems. Ware Malcomb's cold-ready design allows plenty of site area for ground-mounted prefabricated ammonia "rack" systems, which are another viable solution. The overall goal of cold ready is to allow flexibility in the end user's choice of systems.

The speculative cold building is designed for cold storage or food processing. Typical design attributes may include insulated metal panel building envelopes, increased insulation in roofs, increased roof load capacity for insulated ceilings, enhanced insulation in dock doors, preparation for the use of insulated floor slabs for freezer spaces, specialized freezer and cooler personnel doors, and heightened attention to construction details with vapor and moisture control in mind.

Another feature of the cold-ready building is the sprinkler system.

"It's very important to many cold users to avoid in-rack sprinkler systems," Lyle said. "The accidental impact of an in-rack sprinkler head can fill a dry sprinkler system with water that quickly freezes. It can be an enormous ordeal, both from a time and financial perspective."

Lyle said cold users often also consider vertical storage to be very important, because the same refrigeration systems can cool more pallets and thus gain efficiency as height is added. To gain height while minimizing risk, build-to-suit cold building projects have been on the forefront of adopting new fire protection technologies, like Quell, and low-oxygen systems. However, these new technologies can be rejected by local fire jurisdictions, adding risk to speculative development.

"Unlike refrigeration, we likely cannot defer the fire sprinklers and still achieve a temporary certificate of occupancy at project completion," Lyle said. "Recent innovations in early suppression, fast response (ESFR) sprinkler technology provides part of the answer, as the latest sprinkler heads can accommodate ceiling-only protection up to 50 feet top of product. ESFR can be designed as a fully dry system, or as a wet system with dry sprinkler heads. Most importantly, fire jurisdictions are familiar with ESFR because it's clearly mentioned in fire codes, which reduces risk for the developer."

The enhancements required for a speculative cold building drive the cost increases outlined above. This heightens the importance of having a qualified contractor on the team. There are many nuances when building a cold facility, such as sequencing of construction activities to ensure proper sealing of the building thermal envelope. A contractor with experience on cold facilities typically also has relationships with subcontractors who install critical building components such as insulated metal panel walls and floor slabs. ■

Cameron Trefry, RA, LEED AP, is a principal with Ware Malcomb.

Learn More About Cold Storage

The NAIOP Center for Education is currently offering an online course, "Understanding the Temperature-Controlled Environment." It examines trends and the current market landscape for cold storage facilities.

To sign up for the course or to learn more, visit: learn.naiop.org/products ■

Life Sciences Real Estate Surges Amid Pandemic

Investment pours into the sector as the world seeks vaccines and treatments for COVID-19.

At a Glance

- Life sciences have seen tremendous investment during the COVID-19 pandemic.
- The life science industry tends to cluster in geographic areas that are close to major research institutions.
- Many life science facilities require higher ceilings and more infrastructure for air systems and plumbing. ■

Getty Images

Life sciences real estate can include lab spaces that are highly complex to build and maintain.

By Trey Barrineau

Life sciences real estate was performing well before the COVID-19 pandemic struck earlier this year. For example, CBRE's "U.S. Real Estate Market Outlook 2020" notes that the sector (including medical office) accounted for an annual average investment of $18.7 billion from 2014 to 2019.

However, the challenges and opportunities presented by the public health crisis have boosted interest and investment in the sector at a time when other areas of commercial real estate such as retail and office have struggled.

"If you look at activity from February through May, the repurposing of resources, the new companies that were formed and the investing that went into COVID therapies and treatments, it brought a lightning bolt of energy to the entire industry," **Chris Haskell**, Ph.D., head of Bayer's West Coast Innovation Center in San Francisco, said during a recent webinar for NAIOP's San Francisco Bay Area chapter. "It's an immediate call to purpose."

According to Crunchbase, a service that provides information about public and private companies, investors poured $16.55 billion into the biotech and life science sector in the first half of 2020. By comparison, $13.4 billion flowed into the sector during the same period in 2019.

Life sciences also gets significant funding from the federal government. For example, California's life sciences industry received more than $4.95 billion from the National Institutes of Health in 2019, with $1.87 billion of that flowing into the Bay Area, said **Rebekah Studer**, leasing manager with Phase 3 Real Estate Partners in the San Francisco Bay Area. She moderated the recent life sciences webinar for NAIOP's San Francisco Bay Area chapter.

"This has really helped drive the pace of innovation in the region," she said.

History and Overview

Geoff Sears, a partner with Wareham Development in San Rafael, California, said the life sciences industry in the Bay Area has evolved far beyond the early research into recombinant DNA that companies like Genentech pioneered in the 1970s.

"Forty years ago, people didn't understand it," he said during the NAIOP San Francisco Bay Area webinar. "There were lots of movies about Frankenstein bugs that were invented in a lab and were going to kill the planet. Even in this area, it was an industry that sort of hid. It grew up in places that were off the radar, like old industrial areas that had lost their purpose. But nowadays people are much more aware of it. People understand its benefits

Types of Life Science Tenants

During a recent webinar for NAIOP San Francisco Bay Area, **Gregory Theyel**, director for the East Bay Biomedical Manufacturing Network, described the six major sectors in life sciences.

Biotech firms: Use living material to make products, including drugs.

Pharmaceutical companies: Make drugs from chemicals.

Medical device manufacturers: Design and build products that are inserted into the body, such as pacemakers.

Medical equipment manufacturers: Design and build products for use by health care providers. This includes diagnostic equipment, treatment equipment, life-support equipment and lab equipment.

Digital health care: Products where medical science intersects with software, sensors or wearable devices.

Genomics: "The study of all of a person's genes (the genome), including interactions of those genes with each other and with the person's environment," according to the National Home Genome Research Institute. ■


Getty Images

Specialized equipment and plumbing are part of many life sciences facilities.

generally, and right now because of COVID, I think there are a lot of real estate people thinking 'this is it.' "

Gregory Theyel, Ph.D., director for the East Bay Biomedical Manufacturing Network, told webinar attendees that the life sciences/biomedical industry can be divided into six subsectors — biotech, pharmaceuticals, medical devices, medical equipment, digital health care and genomics. (**See box, page 57.**)

Theyel said each subsector has different real estate requirements. For example, a medical device company is usually more of an assembly line with clean rooms, while pharmaceutical and biotech companies are much more focused on laboratories, which typically require four times as much space per person as offices.

By contrast, Theyel said digital health care and genomics companies have much smaller footprints.

"They are as much like tech companies as you can get," he said. "They need desk space and computing power."

Sears said the industry can be financially risky because there is a high failure rate for any single idea, and it can take years before achieving profitability.

"There are a lot of players in the business," he said. "Some are very large companies with capital resources. But many of them are funded externally, fueled with money from venture capitalists. These companies grow if people are willing to fund their ideas."

Theyel said patience is a major requirement for potential life science landlords.

"These companies can take a long time to get revenue," he said. "They're not companies that are going to need a lot of space overnight. They're capital-intensive, so they have a lot of equipment needs. It's a different type of company."

However, Theyel noted that the variation across the biomedical industry provides a range of leasing and investment opportunities.

"It's a big umbrella," he said. "Maybe the better way to see it as a real estate person is to think about what my property is best for underneath that larger umbrella. Maybe it's not biotech or pharma. Maybe it's digital health care, which is as tech as you can get. Or it could be medical devices, which is assembly in a clean room."

Workforce and Locations

Employment in the life sciences sector has been strong, even at the height of the pandemic. According to research from Newmark Knight Frank, the life sciences workforce only fell 2.5% from February to April 2020, compared to a drop of 14% for the U.S. workforce as a whole during that time. Before the pandemic, employment in the life sciences sector increased 19% between 2010 and 2019. Nationally, overall employment grew 16% during the same period.

Sears said the life sciences work-

According to Crunchbase, a service that provides information about public and private companies, **investors poured $16.55 billion into the biotech and life science sector in the first half of 2020.** By comparison, $13.4 billion flowed into the sector during the same period in 2019.

force is among the most highly educated in the world.

"These aren't necessarily like computer science majors coming out of college who can add value to an app company," he said. "We've had tenants with 70% of their employees having doctoral degrees. So that's a very high-value staff."

Areas in close proximity to life science research institutions also tend to have higher concentrations of jobs in the field. It's an example of the cluster development theory described by Harvard Business School Professor **Michael Porter** in a 1998 article in the Harvard Business Review.

"Clusters are geographic concentrations of interconnected companies and institutions in a particular field," Porter wrote. "Clusters affect competition in three broad ways: by increasing the productivity of companies based in the area; by driving the direction and pace of innovation, which underpins future productivity growth; and by stimulating the formation of new businesses, which expands and strengthens the cluster itself."

JLL's "2020 Life Sciences Real Estate Outlook" shows that Boston, San Francisco and San Diego are the leading life sciences clusters in the U.S. Together, these three areas accounted for 70% of all venture-capital investment in life sciences in the country in 2019. They are home to major research institutions that feed into the local life-sciences workforces — MIT and Harvard in Boston; UC San Francisco, Stanford and UC Berkeley in the Bay Area; and UC San Diego in San Diego.

"Those institutions are producing the people fueling the businesses, and the businesses depend on them," Sears said. "Often coming out of academic institutions, they want to work in places where there are lots of other scientists that create a community with a campus feel."

Safety When Returning to the Lab

While many corporations have seamlessly transitioned into working from home during the COVID-19 pandemic, the shift has not been possible for scientists who work in laboratories. Equipment, safety measures and team collaboration can't be replicated virtually.

Until a vaccine is widely available, social distancing is officially the "new normal" for public interaction in labs and life sciences facilities. Employees should follow the basic protocols that are familiar to everyone by now — maintaining at least six feet of distance from others, lower maximum occupancies, alternating shift schedules, one-way movement through workspaces with separate entries and exits, enhanced cleaning protocols, and the addition of hand sanitizer stations. Touch-free automation of doors and digitalizing more processes can also limit the chance of virus spread through hand-to-hand contact.

Inherently, laboratories are most efficient with a high-density open floor plan that is flexible and configured to encourage collaboration. This is especially true as the ratio of work that happens in the "lab" vs. outside of the "lab" shifts because of innovation in computational technology and software, as well as for safety concerns. In response to this shift, the collaboration and heads-down workspaces are just as important as the labs for the enterprise's success. Research groups often meet in conference spaces and huddle rooms to facilitate cooperation, and casual "drop in" team meetings have become the norm in recent years.

To lessen the chance of a supply chain disruption during a possible second wave of coronavirus outbreaks, small conference rooms can be converted into storage spaces to stockpile chemicals and gases that are important to research initiatives.

Once immediate needs are addressed, property owners and their COVID-19 response teams can begin to contend with long-term changes, such as modifications to mechanical systems and improving air quality to ensure that air systems don't do more harm than good.

Laboratories generally have ventilation systems that can provide high airflow rates with 100% outside air and no recirculation. These systems can be paired with high-efficiency particulate air (HEPA) filtration to enhance dilution rates, so infected air doesn't spread. To further contain spread, ultraviolet light (UVC) placed high in a room can kill airborne coronaviruses that are structurally similar to COVID-19, according to a recent study by Columbia University. Putting UV lights into a duct system is less effective, however, and requires a much higher wattage and an extended length of ductwork. Ultraviolet germicidal irradiation (UVGI) should also be considered in high-occupancy spaces, but the devises need to be carefully placed to avoid direct exposure to skin and eyes. ■

Mark Jensen and **Brent Amos** are principals in the Science + Technology Studio at design firm Cooper Carry.

Not a Typical Office Building

While demand is surging for these spaces, developers should understand that many life science buildings are complex structures that can be costly to build and operate. A 2018 report by JLL's Boston

Getty Images

HVAC systems in a life sciences cleanroom must meet strict standards, including HEPA filtration.

office noted that lab construction costs in that market can range from $350 to $1,325 per square foot. According to JLL, construction considerations include 14-foot floor-to-floor heights to accommodate the mechanical, plumbing and fire protection systems that labs require. Additionally, life science buildings may need thicker floor slabs to support heavy research equipment.

"The research buildings that we build are very different from office buildings," Sears said. "They have a huge amount of infrastructure capacity under the hood in terms of air movement, heating and cooling. The buildings are machines that our tenants use as a key part of their business as opposed to just a conditioned bubble where their employees work. The machine needs to keep running, and a lot of office buildings just aren't going to work that way."

HVAC is one of the biggest considerations in life science facilities, both for initial construction and ongoing energy usage. Most labs have single-pass HVAC systems that pull outside air in and exhaust it for health and safety reasons. Many require a minimum of six air exchanges per hour with continuous exhaust ventilation. Labs might also require humidity and temperature to stay within specific ranges.

Because of the huge demand for life sciences spaces right now (**see box on facing page**), many developers are looking to convert office space to labs. While that can be a successful strategy, it requires a lot of experience, Sears said.

"It can be done, but it's not easy even for people who are pretty experienced," he said. "I think there's a reason that the few companies that work in this space do so in a very focused way with a pretty broad portfolio of buildings, because it's very hard to do one off."

Haskell said choosing the wrong landlord could potentially have trickle-down effects on the research that's done in a building.

"When we were looking for spaces, we looked at some that were a lot cheaper and were not life science landlords," he said. "I think there's some risk in going with a crossover landlord or someone trying to repurpose space. In particular, when a company conducts animal studies, these are really sensitive to external environments. If you get a landlord who doesn't understand these things, it can impact your science in a way that you have to live with for a long time. Having experience and working with life science companies is really important."

Looking Ahead

Theyel said reshoring was happening in life sciences before COVID-19 hit, but the pandemic has accelerated it.

"I've seen a real rush to shorten supply chains, to bring produc-

JLL's "2020 Life Sciences Real Estate Outlook" shows that Boston, San Francisco and San Diego are the leading life sciences clusters in the U.S. Together, these three areas accounted for 70% of all venture-capital investment in life sciences in the country in 2019.

Most labs have single-pass HVAC systems that pull outside air in and exhaust it for health and safety reasons. Many require a minimum of six air exchanges per hour with continuous exhaust ventilation.

tion back to the U.S.," he said. "Some of it is because it can't get done somewhere else, but mostly because of the feeling of vulnerability that COVID has brought forth. This industry is really what I call a high-value industry. The manufacturing that occurs isn't just a pass-through. The manufacturing adds significant value through the processing of the components. In addition, the need for knowledge workers enables it to stay in the Bay Area."

Sears said another area with big potential in the future is personalized medicine and self-therapies.

"People will be making drugs specifically for one individual, so it's on a much smaller scale, he said. "You're not making millions of pills. You're making medications designed for specific people."

Theyel said that could mean much smaller manufacturing facilities located closer to demand.

"Instead of scaling up, you're scaling out," he said. "You're scaling to cover more people in more locations." ■

Trey Barrineau is the managing editor of Development magazine.

The Formula for Life Sciences' Growth

During NAIOP's CRE.Converge Virtual 2020 in October, **Rob Griffin**, U.S. head for capital markets at Newmark Knight Frank, discussed the stratospheric growth in life sciences.

"I have been in the market for 35 years and I have never seen the wind at the back of an asset class more than it is in life sciences right now," he said.

Early players in the sector have benefited from strong demand amplified by the COVID-19 pandemic. For example, Griffin said one of his company's clients recently sold a life science property for 22 times the cost of their initial investment, while another company sold a life science property for a $200 million profit.

According to Griffin, some of the trends his company is seeing in the laboratory market include:

- Strong tenant demand.
- No rent erosion and rent growth.
- Many companies are working 24 hours a day, seven days a week in order to respond to the COVID-19 crisis.
- "Conversion mania" with life sciences tenants looking into properties that can be quickly remade for their purposes.

"In the last 18 months, our firm has sold 15 million square feet of life science sites to be built," Griffin said. "There's not a lot of supply over the next couple of years, especially 2021 and 2022, and a lot of the supply is spoken for."

In recent years, there has been about 2 million square feet per year of demand, and closer to 1 million square feet of absorption. Griffin said his company expects those numbers to flip in 2021. The most recent trend is the movement of life sciences to suburban areas.

The demand has been surprising and fierce, according to Griffin.

"Anything that has a life science flavor right now is very, very highly sought after," he said. "The new money in the field is really active and aggressive and not willing to lose."

Between January 30 and July 30 of this year, Griffin said his company did $3.5 billion in trades, and most of it has been in life sciences or industrial.

"One of the reasons people have courage to buy and convert is because tenants are so urgently looking for space," he said.

Life sciences tenants are looking for projects that can be ready without delay. That often makes conversions more attractive than new construction.

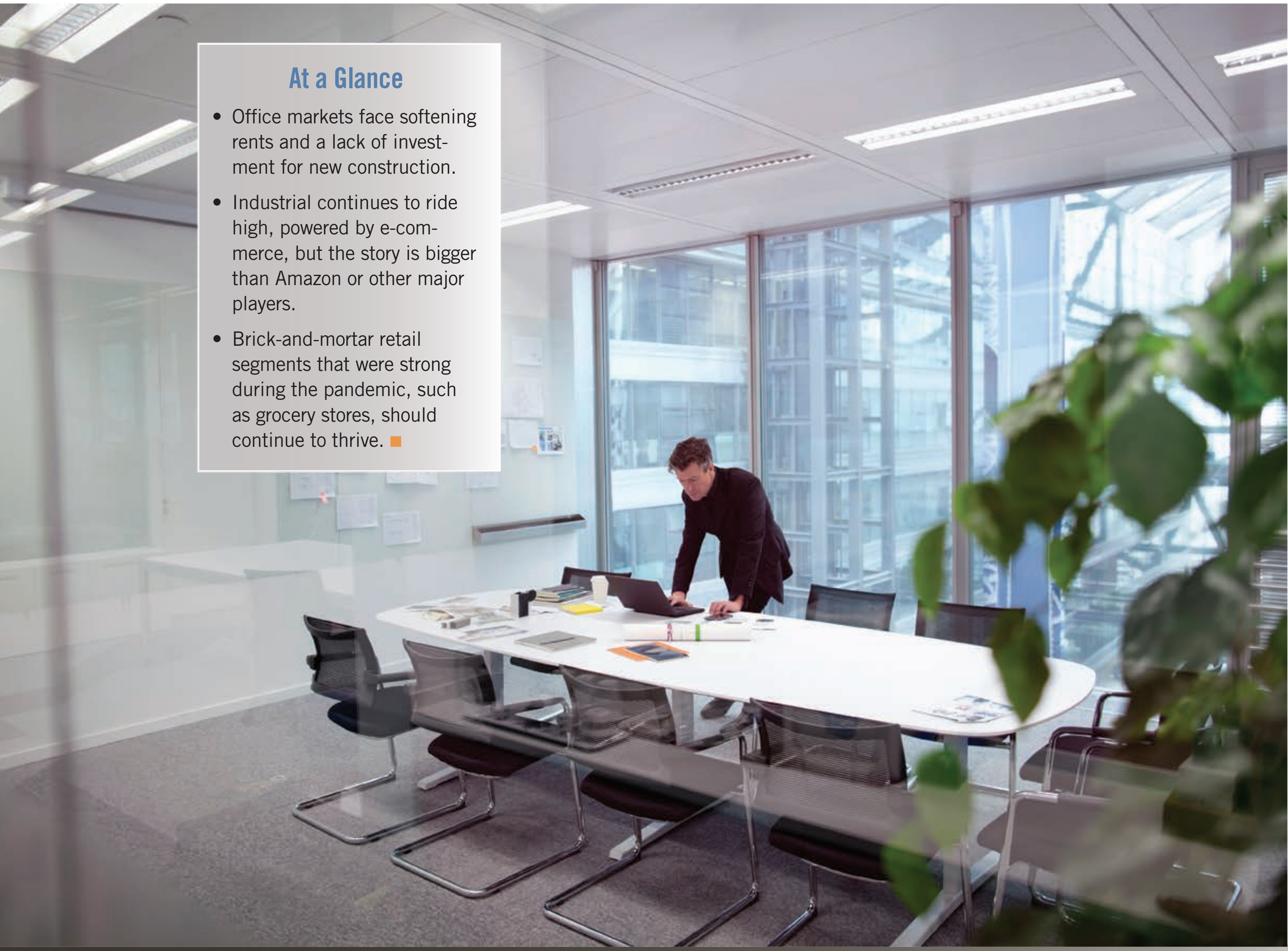
"It's a great asset class to be in," Griffin said. "There are some great opportunities for great returns, especially if you can find conversion deals closer to where people want to be. Certainly, I think this will be an asset class that stands on its own for a long time."

The stock market is noticing, too. The Wall Street Journal reported in July that Alexandria Real Estate Equities Inc., the largest life-sciences REIT in the U.S. (and NAIOP's 2019 Developer of the Year), raised $1.1 billion through a new share offering.

"It was the largest equity offering in the company's history, the tightest pricing (in the last 10 years) and massively oversubscribed," **Joel Marcus,** the company's founder and executive chairman, told the newspaper. — Marie Ruff ■

A Difficult Forecast for Commercial Real Estate

The COVID-19 pandemic and its impacts were major topics during the NAIOP Research Foundation's National Research Directors Meeting in September.



At a Glance

- Office markets face softening rents and a lack of investment for new construction.
- Industrial continues to ride high, powered by e-commerce, but the story is bigger than Amazon or other major players.
- Brick-and-mortar retail segments that were strong during the pandemic, such as grocery stores, should continue to thrive.

Getty Images

Attendees at the NAIOP Research Foundation's National Research Directors Meeting said office tenants may be seeking shorter-term leases for the foreseeable future.

By Trey Barrineau

The NAIOP Research Foundation held its National Research Directors Meeting in September ahead of CRE.Converge Virtual 2020. The meeting, which was conducted via Zoom because of the ongoing COVID-19 pandemic, brought together NAIOP's Distinguished Fellows and research directors from national real estate brokerage, data and investment firms for a virtual discussion of current trends in office and industrial development, as well as the effects of the pandemic on the commercial real estate industry.

Office Markets: Current Conditions

Shawn Moura, Ph.D., NAIOP's director of research, opened by asking the panelists their thoughts on general conditions for office development in the near future. The consensus point of view was that investors continue to be reluctant.

For example, **Jim Costello,** senior vice president of Real Capital Analytics, noted that construction financing dried up in the second quarter of 2020 as the pandemic gripped North America.

"If you don't give developers financing, they're not going to build," he said. "The largest, most aggressive types of lenders in the past have been the investor-driven lenders, the debt funds. Not anymore."

John Affleck, vice president of market analytics with the CoStar Group, said his company's research bears that out.

"Our data shows it's really dropped off a lot for national or institutional buyers," he said. "It's hard to get on an airplane and visit an asset these days. But the local players and individuals have been relatively more active."

Mark Stapp, executive director of real estate programs at Arizona State University's W.P. Carey School of Business, said predictions for commercial real estate are difficult right now.

"It's really hard to look beyond 30 days, let alone two quarters or a year from now," he said.

Stapp added that the strength of the economy in the months ahead could depend on future government stimulus packages, as well as what happens when individual states end their prohibitions on evictions.

Dean Violagis, vice president of research with CoStar, noted that rents are softening in major markets.

"It's not a landlord's market, it's a tenant's market," he said. "It's also in the concessions. From what I hear, landlords are offering very aggressive concessions to lure tenants to buildings, depending on the city. Washington, D.C., the Bay Area, New York, these markets are very different than they were six or seven months ago."

Violagis also said that an enormous amount of sublease space is being released, which could hurt a number of major cities.

The pandemic is affecting different property types in different ways based on geography and asset types. For example, Stapp said the industrial market is doing very well in his hometown of Phoenix, and the office market hasn't fallen off significantly from the first of the year.

"We've yet to see the full effects of what started six to eight months ago," he said.

Next, Moura asked attendees to share what they're hearing with regard to occupancy and leasing. Most predict shorter leases and fewer people in the office because of COVID-19.

"People are not ready to renew their leases for 10 years," Violagis said. "They're more on a shorter time period. People are not committing to long-term leases until we get out of this mess we're in. From a landlord's perspective, with a shorter lease, at least you have the rent for a year or two instead of a vacancy, and that's troubling."

Raymond Wong, vice president of data solutions with the Altus Group, said that's happening now in Toronto, where leasing activity fell

50% year over year in the first six months of 2020.

"We're already starting to see shorter-term leases, or less of the seven- or 10-year leases," he said "Unless their leases are expiring tomorrow, they're not going to do anything."

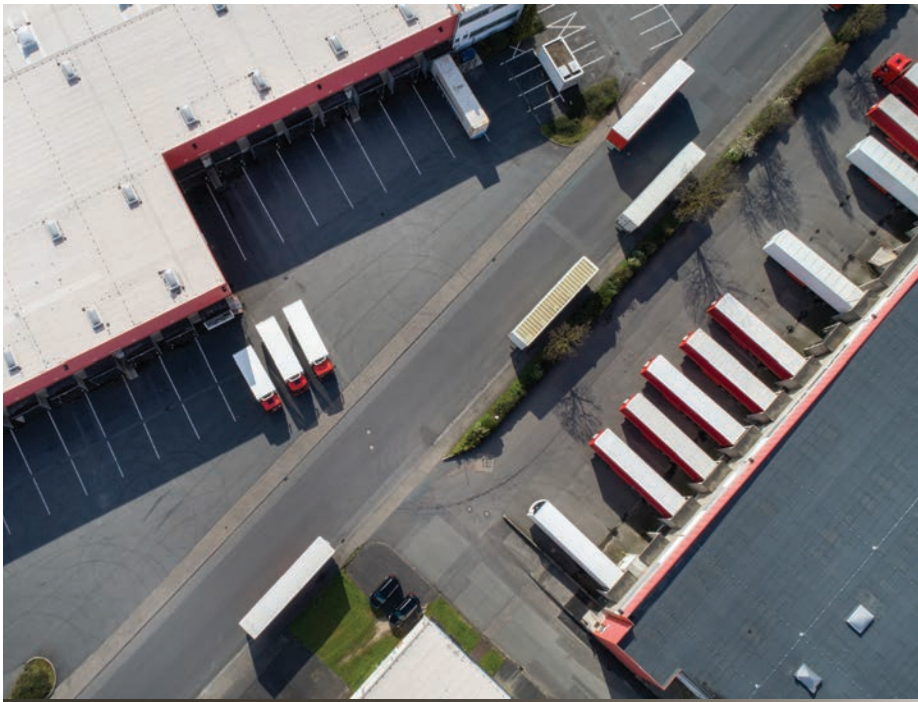
Wong said Altus was going to adjust its forecast upward for square footage per employee before COVID-19, but the pandemic forced an immediate change into the market.

"There will be more space per employee, but the footprint of the office will shrink," he said. "It will be more of a hybrid. With the growth in teleworking, not everyone will be in the office together at once, so you don't need that space to accommodate everyone."

Bill Argeropoulos, principal and practice leader for research with Avison Young's Canadian operations, said he sees working from home becoming a complement to, rather than a replacement for, the office. However, that could shift once workers feel safe in their old workspaces.

"People are not ready to renew their leases for 10 years. They're more on a shorter time period. **People are not committing to long-term leases until we get out of this mess we're in.**"

— Dean Violagis, vice president of research, CoStar



Getty Images

Industrial's strong performance during the COVID-19 pandemic has been a bright spot for the commercial real estate industry in 2020.

"Despite the easing of some government restrictions and a commendable effort by landlords and employers to provide safe and healthy work environments, the return to the office has been slower than initially thought," he said. "There is a growing awareness and acceptance of the idea of more 'flexible' or 'fluid' workplaces, and longer-term remote work plans will ultimately result in a more distributed workforce going forward. However, there is also staunch support for the physical office remaining a key component in the increasingly hybrid workplace."

Anthio Yuen, director of research and strategy with GWL Realty Advisors, noted that there will be a higher focus on employee flexibility, wellness, and health and safety looking beyond COVID-19. Greater use of technology will be key in this regard, whether monitoring air quality and HVAC systems, or adoption of proptech to optimize employee densities and collaboration.

Lexi Russell, director of research and analysis with CBRE, reminded the group that structural limitations are also in place.

"If you can only have 20% to 50% capacity now, that's where you're going to be for the foreseeable future instead of measuring demand in new square feet per person," she said. "It also depends on what industry you're in, what type of building you're in, and how many people can work remotely."

The panelists offered their thoughts on whether more offices might move from central business districts (CBDs) to the suburbs in the wake of the pandemic. For example, in major cities like New York that rely heavily on public transportation, attitudes toward returning to CBD offices appear to be more cautious.

"It depends on the geography," Violagis said. "It's possible that a satellite office for a subset of workers may be an ideal scenario for some companies, depending on their situation and depending on where they are."

Argeropoulos said he's seeing that dynamic play out in the Toronto area, where Avison Young has three offices — one downtown and two in the suburbs.

"For me, the hub-and-spoke model and/or the ability to work from home part-time minimizes the time to and from the urban core, the cost of parking (if you drive) and eliminates the risk of transmission by taking transit, for now," he said.

Affleck said CoStar's data shows that the negative net absorption for office and the increase in sublease space is more pronounced in CBDs, but it's an issue in suburban markets as well.

According to Affleck, CoStar's multifamily data shows rent divergence between CBDs and suburban markets, as well as strong evidence of people moving out of downtown areas, though he said he'll need to wait for government statistics to confirm that.

Russell noted that it's not just about urban vs. suburban, it's also about primary vs. secondary markets.

"Think San Francisco vs. Oakland," she said. "Where can you have your family and your downtown? The demographic change is going to show a shift toward larger 'suburban' markets where the infrastructure is still there."

Affleck said the geographic areas seeing the strongest demand and rent growth in multifamily are affordable, regional markets.

"Richmond, Virginia, along with Sacramento and the Inland Empire in California, offer significant discounts to D.C. and San Francisco," he said.

"With labor increasingly democratized or at least freed from location because of telework, a lot of firms may begin to look to those secondary markets as a home for offices."

Industrial Markets: Current Conditions

Panelists agreed that the strong performance of industrial during the COVID-19 pandemic, when e-commerce soared amid stay-at-home orders, should continue for the foreseeable future.

"In Canada, overall investment activity is down 20%, but industrial investment is up 24%," Wong said. "It's a very safe bet."

However, not all industrial properties will thrive. For example, Wong noted that small-bay operators are seeking rent deferments at a much higher rate than other industrial properties.

"We're seeing deferment rates of around 10% to 15% for these operators, compared to 5% to 7% for other operators," he said. "It will be interesting if we get a second wave of COVID. Some of the small-bay users serve the restaurant and hospitality industries, and as we know, they're taking a hit right now."

Amazon continues to take on an enormous amount of warehouse and distribution space. The e-commerce giant has added more than 58 million square feet in 2020, and a lot more is on the way. During an earnings call in July, CFO **Brian Olsavsky** said the company wants to increase the square footage in its fulfillment network by 50% before the end of 2020 to keep up with demand driven by the pandemic.

Participants

NAIOP Research Foundation National Research Directors

Adam Brueckner, *Oxford Properties*

Alexander Paul, *Newmark Knight Frank*

Alexandra Kosmides, *General Services Administration*

Amanda Ortiz, *Colliers International*

Anthio Yuen, *GWL Realty Advisors*

Bill Argeropoulos, *Avison Young*

Chris Caton, *Prologis*

Dean Violagis, *CoStar Group*

Del Kendall, *Real Estate Research Corporation*

Garrick Brown, *Cushman Wakefield*

Ian Anderson, *CBRE*

Jack Kern, *Yardi Matrix*

James Breeze, *CBRE*

James Cook, *Retail, JLL*

Jennifer Vaux, *Avison Young*

Jim Costello, *Real Capital Analytics*

Jimmy Hinton, *Newmark Knight Frank*

John Affleck, *CoStar Group*

Keith Reading, *Morguard*

Lexi Russell, *CBRE*

Maria Sicola, *CityStream Solutions*

Melinda McLaughlin, *ProLogis*

Raymond Wong, *Altus Group*

Steig Seaward, *Colliers International*

Victor Calanog, *Moody's Analytics*

Will McIntosh, *USAA Real Estate*

NAIOP Distinguished Fellows

Anthony Pennington Cross, *Marquette University*

Chris Caplice, *Massachusetts Institute of Technology*

Dustin Read, *Virginia Polytechnic Institute and State University*

Jim Clayton, *Schulich School of Business at York University*

Julia Freybote, *Portland State University*

C. Kat Grimsley, *George Mason University*

Keven McGhan, *NAIT*

Mark Stapp, *Arizona State University*

Mirle Rabinowitz-Bussell, *UC San Diego*

Zhou Yang, *Robert Morris University* ■

However, panelists pointed out that the operators fueling the expansion of distribution space are more diverse than most people realize.

"It's not all Amazon," said **James Breeze**, global head of industrial and logistics research with CBRE. "While Amazon is dominating 2020, if you take out all the Amazon deals, industrial transactions are still up. Just 1% or so, but they're still up. The reason for this is the continued strength of the third-party logistics (3PL) industry. 3PLs have accounted for 30% of transactions this year, the most for any occupier type."

Breeze said that in the short term, a big driver for expansion is the need for higher inventory levels and increased safety stock.

> **"There will be more space per employee, but the footprint of the office will shrink. It will be more of a hybrid.** With the growth in teleworking, not everyone will be in the office together at once, so you don't need that space to accommodate everyone."
>
> *— Raymond Wong, vice president of data solutions, Altus Group*

Getty Images

The retail sector was hit hard by the COVID-19 pandemic. Class B and C malls in particular could face a gloomy future.

"Demand from inventory control is not coming from retailers so much," he said. "It's coming from wholesalers and outsourced 3PLs. They need to keep more product on shore to keep retailers happy. If they don't, the supplier will lose shelf space or the 3PL could lose the contract. These kinds of companies will require more space and could be a major demand driver in the next 12 to 24 months because of this."

Chris Caton, senior vice president of global strategy and analytics with Prologis, said he's seeing that as well.

"We've seen other multichannel retail fulfillers growing, too," he said. "In addition, 3PLs are active as they can quickly spool up. They offer expertise, real estate and the labor for logistics operations. We've seen some essential industries such as food, beverage and health care companies taking space."

Looking ahead, panelists said automation and robotics in distribution facilities should continue to grow, as will cold storage (**see related story, page 50**). Conversions of obsolete retail buildings into last-mile facilities should also accelerate.

Because the pandemic exposed vulnerabilities in global supply chains, panelists discussed the future of nearshoring and reshoring to ensure that critical supplies are always available in North America during a crisis. They indicated that it could be years before a permanent change takes place.

"It takes time and money to completely revamp supply chains, but our desire for decreased reliance on China will support that trend," said **Amanda Ortiz**, national director of industrial research with Colliers. "There's a lot of benefits to reshoring. Offshore costs are rising. We could respond to needs so much faster. We could also reduce unemployment and create jobs, which are all good things for the industrial sector."

Despite that, Caton said it might not be a crucial part of business plans for most major logistics operators.

"A lot of the response to the China trade deal was to go to other Asian locations and potentially Mexico," he said. "We've seen that along the northern border of Mexico, but the trend is just beginning. It's expensive to manufacture in the United States. If nearshoring is a trend, it will be concentrated in small markets. In those locations, that's not really a real estate strategy, that's a financing strategy."

Conversion of empty retail spaces into distribution facilities has been a hot topic in the commercial real estate industry in recent years. However, Caton said he takes the other side of the retail-conversion conversation.

"I think it could be big for certain categories for retail, but it won't be big for our business," he said. "I have a hard time seeing this get past 10 million square feet a year in retail conversions. The sites are not suitable for logistics. Many are too small. Also, there are a lot of people at the table to negotiate. The value differential between retail and logistics is too wide. In the end, it gets down to economics, it gets down to legal, and it gets down to municipalities, which are often worried about traffic and noise associated with these facilities."

Rethinking Retail

Panelists were asked what types of retail are going to survive and thrive, and whether ground-floor retail will remain attractive.

Panelists agreed that the types of brick-and-mortar stores that stayed above water during the pandemic — grocery-anchored retail, open-air centers and power centers — should continue to see strong business.

"They're a value proposition for the shopper who is on a budget, especially as we're exiting a recession," said **James Cook**, Americas director of retail research for JLL. "Target, Walmart, Aldi, TJ Maxx, anything like that has a good outlook."

Malls, however, continue to face a difficult business climate. Decimated by the rise of e-commerce, they've struggled even more during COVID-19 lockdown orders. As anchor stores vanish, mall owners are searching for new ways to drive foot traffic. While food, beverage and entertainment helped prior to the pandemic, those are on hold right now across the country because of COVID-19.

"It's really the malls we're most worried about, particularly the B and C malls in major metros," Cook said. "But I'm pretty positive that a B or C mall in a relatively small town that's nowhere near a bigger city, even if it's a declining mall, even if it loses the JC Penney, they could make it if it's the only place to go shop."

Cook said gyms will struggle as well, noting that most are saying memberships are down 50% to 70% from the previous year.

"It's going to be a tough two years for gyms," he said. "People aren't going to feel safe, even though they're rolling out these great safety and hygiene procedures. It's going to take a long time for them to recover. It's going to be a long haul."

Cook said movie theaters could survive if they take social distancing and hygiene seriously.

"Movies only have to sell about 30% of seats in order to break even," he said. "That's why they have blockbusters on some screens and niche films on others. If you can space people out and have a big enough multiplex, you can break even."

> "It takes time and money to completely revamp supply chains, but our desire for decreased reliance on China will support that trend. **There's a lot of benefits to reshoring. Offshore costs are rising. We could respond to needs so much faster.**"
>
> *— Amanda Ortiz, national director of industrial research, Colliers*

Finally, Cook said he doesn't think that recent news about major mall property owners like Simon Property Group and Brookfield Property Partners buying out some of their distressed retail tenants such as JC Penney will become a widespread strategy.

"I think it was an opportunity to handle an occupancy issue and get out ahead of it and buy something," he said. "Ultimately those purchases made economic sense for them, but I don't see a lot of shopping center owners buying a bunch of retailers." ■

Trey Barrineau is the managing editor of publications for NAIOP.

Opportunities in a Post-Pandemic World

Discussions at NAIOP's CRE.Converge Virtual 2020 revealed optimism for the future despite current challenges.

At a Glance

- Retail is in a period of transition that will require creative thinking from businesses and developers.
- E-commerce should continue the strong performance that's been seen during the pandemic.
- Office space could be redesigned in the future to accommodate social distancing and more teleworking.

Getty Images

During the second quarter of 2020, total retail sales fell 8.1%, the largest decline since the global financial crisis in 2009.

By Marie Ruff, Betsy Rosso, Linda Strowbridge and Brielle Scott

The COVID-19 pandemic has created challenging conditions for commercial real estate, particularly for speculative projects and for sectors that are more exposed to cyclical risk. However, it has also created opportunities, particularly as the economy emerges from the crisis.

Both aspects of the pandemic were a major focus of discussion during NAIOP's CRE.Converge Virtual 2020, held in October.

A Period of Transition for Retail

Compared to industrial activity this year, "it's been a tougher year overall in retail, although it shows signs of great activity lately," said **John Morris**, executive managing director, Americas industrial & logistics and retail leader at CBRE. "In late September we saw the best transaction week we've had since last year."

Wade Achenbach, executive vice president of portfolio management for Kite Realty, explained that not all retail is created equal. While already struggling shopping malls were hit hard by COVID-19 closures, open-air shopping centers were performing at their peak before the pandemic and continue to have the highest small-shop occupancy in the history of the sector.

However, during the second quarter of 2020, retail trade was among the hardest-hit areas by U.S. annualized GDP growth, according to CBRE research. Total retail sales fell 8.1% in that quarter, the largest decline since 2009 during the global financial crisis.

Approximately 9,000 national and large retailers announced bankruptcies this year, part of a longer-term restructuring of the retail business — the number was twice that in a year just five years ago, according to Morris. CBRE research shows the early economic recovery as V-shaped with retail sales bouncing back before plateauing, driven by the e-commerce surge and economic stimulus.

"This is definitely a period of transition," Morris said. "It's also a period during which changes are very local, very market-driven, very region by region, city by city, urban vs. suburban."

The future of retail is "retail reimagined," Morris said, with retailers using multiple channels to provide customers the ability to shop, experience and return products anytime and anywhere.

CBRE's "retail reimagined" concept leverages data to make smarter decisions — viewing retail stores and distribution facilities holistically, not as separate entities, in order to build optimized, aligned networks. CBRE asserts that successful omnichannel strategies are designed around the customer while also adapting to specific market conditions and scenarios.

E-Commerce Boom

The brightest spot in retail since the start of the pandemic has been the explosion in e-commerce activity.

"If there was a person who had not shopped online before the pandemic, that person doesn't exist now," said **Rene Circ**, senior managing director and COO of GID Industrial at GID Investment Advisers LLC. He noted that e-commerce sales grew by 44.5% year over year in the second quarter of 2020 and now make up 16.1% of total sales. Even brick-and-mortar retailers are relying more heavily on e-commerce to sustain themselves.

"What we've seen over the years is an extreme change when you're talking about what distribution networks look like," said **Matt Powers**, executive vice president of retail and e-commerce distribution with JLL. Ten years ago, most retailers had a dedicated distribution network in place. The standard has been set for next-day and same-day service, and for companies to maintain market share, they have to meet that demand.

Over the past 10 years, many big retailers have made plans to meet increasing e-commerce demand. However, the rush of pandemic-related orders overwhelmed them.

"As good as the plans were that those companies made, those companies are at volumes three or four times what they'd usually see on

Getty Images

E-commerce sales grew by 44.5% year over year in the second quarter of 2020 and now make up 16.1% of total sales.

certain items," said **Chuck Graefen**, senior director of distribution support with KeHe Distributors. "In February, March and April, we saw incredible volumes. You couldn't forecast anything in March and April."

While things have leveled off, Graefen said they're still seeing twice the normal volume for certain items, causing his company to adjust constantly.

"COVID has accelerated (companies') five- to 10-year plans to two- to three-year plans," Powers said.

And while some retailers see their brick-and-mortar store footprint as an opportunity for a last-mile hub, panelists pointed out that those stores are built only to house in-store inventory, not significant amounts of stock.

"So just because you have a store in downtown Chicago, that doesn't mean you have a fulfillment center in downtown Chicago," Powers said.

One challenge for e-commerce is that the industry is changing so quickly, it's forcing tenants in distribution centers to change just as rapidly, said **Adon Panattoni**, CEO of Panattoni Development Company.

"You're trying to get in front of opportunities as a developer/investor," he said. "An eight-acre site you thought would work a few years ago now doesn't work anymore."

Another challenge for industrial developers and investors has been securing the community support needed for a successful project. Entitlements are critical.

"When they hear about a distribution center, they think of a 1970s-era truck terminal with constant traffic," said Powers.

The speakers agreed there is an opportunity for the development and brokerage community to convince local governments that these facilities can benefit communities.

"I've seen positive headway in a lot of communities, but it's going to take a concerted effort," Powers said.

Labor is another major issue for e-commerce.

"Retention is the No. 1 challenge in our company," Graefen said. "That's part of why we're investing so much into automation. We're also modifying the amenities in our buildings to make them more appealing to today's workforce."

Changes in Office Designs

The pandemic has accelerated several trends in office design that had started to emerge before 2020. Those include touchless technologies and health-conscious design.

"On the design side, we are seeing clients who were just starting construction saying, 'Time out, I want touchless toilets,' which by the way are very expensive, 'I want touchless doors,' which are also expensive, 'I want to crank up the mechanical system, I want UV everywhere,'" said **John Adams**, Southwest regional managing principal at Gensler. One client "completely redesigned the cafeteria so you don't have to touch anything. You get your food delivered to this little cubby that opens up on its own. It will be really interesting see best practices develop."

Tenants' desire for improved air quality is stoking interest in indoor-outdoor workspaces, said **Robert Paratte**, executive vice president for leasing and business development at Kilroy Realty Corp. Those spaces include sheltered balconies or rooftop decks that are the size of conference rooms, as well as building lobbies and meeting rooms with large windows that can be opened.

The need to provide cleaner air, less dense environments and other measures to prevent disease spread is also prompting developers to rethink some design fundamentals, such as how many elevators should be included in a new high rise to safely and efficiently move workers to their offices.

Future Demands for Office Space

While workers' reactions to the sudden shift to remote work are mixed, CRE.Converge panelists agreed that 2020 has made one profound change to American work culture: The 9-to-5 workday is part of the past.

"Employers have learned through this crisis, and I think it's good that people don't want to work 9-to-5. I think that was generational," said **Kevin Smith**, executive managing director at Cushman & Wakefield.

Big tech companies started the trend of allowing talent to alter their working hours to match the times when they could be most creative and productive, as well as accommodate other aspects of their lives. Expanded technology adoption and this year's crash course on how to telework has convinced other Americans and their employers of the benefits of a nonconventional work schedule.

As a result, CRE owners will need to adjust building operations to accommodate longer arrival and departure windows, and longer stretches of the day when tenants will need full building services.

All of 2020's turmoil, however, has not halted demand for office space. In Gensler's "U.S. Work From Home

Realities of the Infill Market

The flourishing e-commerce sector is driving demand for industrial space, and that demand is now extending from the massive, port-side logistics facilities to last-mile distribution centers tucked into communities. A panel discussion at CRE.Converge Virtual 2020 dissected some of the opportunities, challenges, tenant needs and emerging trends in the bustling niche of infill, industrial developments.

Infill environments pose extra challenges. "The environmental aspect of infill redevelopment is always there, and it has to be part of your core competency," said **Drew Hess**, regional senior vice president for Duke Realty. In addition to thoroughly identifying and remediating environmental issues, developers must also be ready to address uncertainties and challenges involving entitlements, utilities and other site issues.

Developers need to be good neighbors. Although residents are often pleased to see jobs created by these facilities and are willing to accommodate some changes to their communities, developers need to engage extensively with neighborhood groups and work to address their major concerns, such as traffic, noise and sightlines.

Templates can be challenging, flexible and small. The facilities that many tenants want on infill sites can also be challenging from a financial perspective. Increasingly, companies (other than Amazon) that are looking to set up a last-mile center want a 100,000- to 150,000-square-foot facility with 25-30 docks and excess parking — in other words, a comparitively small building with significant functionality and a fairly large site.

Yard space is prime. Faced with increased needs to park trucks and trailers, tenants seek out facilities with ample yards. In some instances, tenants will compromise on the age or location of the facility in order to get sufficient yard space. In other facilities, owners are netting increasingly healthy lease fees per parking stall or square foot of yard space.

Costs and leases keep rising. The demand for more distribution facilities, especially near population centers, has driven land prices higher and challenged developers to secure sites. Even brokers who quietly approach landowners in hopes of securing off-market purchases have often found themselves facing competitive bids. The other side of the balance sheet, however, is also increasing. Lease rates, especially on the West Coast, are continuing to climb, and tenants are willing to pay higher rates for highly desirable facilities that can be built quickly.

There is wisdom in not developing. Many cities have ample stock of under-demolished, under-utilized real estate that could, in theory, be used for infill development. However, sometimes the smartest business move is to leave the property alone. "Sometimes you can't replicate these Class B and C facilities," said **William Lu**, senior vice president at CenterPoint Properties. For example, his company purchased a 1 million-square-foot facility from JC Penney in Los Angeles with the intention of redeveloping it. "But we were able to get a much better return by just re-leasing the building the way it is and cleaning it up a little bit," he said.

Prepare for a greener future. While the adoption of electric vehicles for personal or corporate use is still an emerging trend, some industrial developers are already outfitting new properties to support electric vehicle chargers and onsite renewable energy generation. ■

By **Linda Strowbridge**

Steve Forbes Sees Reasons for Optimism in CRE

In a special CRE.Converge Virtual 2020 keynote exclusively for NAIOP National Forums members, **Steve Forbes**, chairman and editor-in-chief of Forbes Media, shared some reasons for the commercial real estate industry to be optimistic about the future.

Big changes in health care. Forbes sees more specific-purpose offices, not just open space, but geared to biosciences and health care. In health care, there is a continued push for transparency, more competition from new online health companies, and the proliferation of price-comparison tools for common procedures.

A renaissance of small-business formations. This used to be a great source of strength in the U.S., and it added vibrancy to the economy, he said. In recent years, startups were reviving until the pandemic hit. Forbes said the biggest number of startups by ethnic group came from the Latino community — they have established about three times as many startups as any other group. For the first time in decades, there's been a real pickup in business start-ups by Black entrepreneurs, too. "Once they're out of the home, (small businesses are) going to want space — it might not be much, but they will want space."

Cheaper, safer energy sources. "What if the energy cost for your building was little to none?" Forbes said. He outlined two new sources of energy that will become cheaper and more widely used in the next decade: Molten salt nuclear power and nuclear fusion power. He called them "safer, more easily scalable and far more versatile" than the options used today. ■

By **Brielle Scott**

Survey 2020," 70% of respondents said they wanted to work three or more days per week in their employer's office. Meanwhile, market activity this year has demonstrated employers' continued interest in securing prime office space.

"We have seen during the COVID period some major leases signed on behalf of tech firms," said **Kevin Bender**, managing director at JLL. "As we hear of so many tech firms looking at long-term incorporation of some of these work-from-home strategies, at the same time, they are being very opportunistic in real estate deals."

In addition to securing expanded or choice space, tenants are looking to execute certain strategic goals. Some companies, for example, have decided to split their operations among multiple properties to accommodate employee preferences for work locations, to take advantage of tax opportunities, or to mitigate against business interruptions. That trend is creating opportunities for some suburban locations and smaller cities. Meanwhile, demand for office space in major urban centers persists.

"Companies are locating in urban areas because that's where the talent is," Paratte said.

As long as young, highly educated employees from top universities want to work in the city, companies will continue to locate there. Paratte said Kilroy interviewed some of its clients about their location preferences.

"The feedback was interesting," he said. "They said they are looking at some suburban locations due to some employee requests to do so. But some recent graduates may not want to work in suburban locations."

Al Pontius, senior vice president, national director, office and industrial divisions with Marcus & Millichap, pointed to the choices that millennials are making as the largest segment of this cohort moves into their 30s and begins to establish families.

"As much as anything, this is a demographic discussion," he said. "Your residential market is in many ways a forward indicator of what we might expect in office's future — affordability, value and convenience — I am going to argue that these are now showing up more extensively in a suburban format."

Pontius also said that offices will face some challenges in the one- to two-year horizon. However, he also noted "the arguments are pretty powerful that office is going to be back."

Citing Gensler's "U.S. Work From Home Survey 2020," he noted that just under half (44%) of workers surveyed do not want to work any days at home at all. Pontius pointed out that there are a lot of people who don't have a perfect at-home work environment and want the ability to go into the office to work. ■

Marie Ruff and **Brielle Scott** are senior communications managers with NAIOP. **Betsy Rosso** is a writer and editor based in Arlington, Virginia. **Linda Strowbridge** is a freelance business writer based in Baltimore.

The Future of the Warehouse Takes Shape

New technologies are accelerating the evolution of industrial real estate.

By Shawn Moura, Ph.D.

Rapid growth in e-commerce sales over the past decade has reshaped industrial real estate, creating demand for large distribution centers and smaller fulfillment centers located in urban and suburban areas. E-commerce supply chains require distribution and fulfillment centers to handle a larger number of items in smaller quantities than traditional retail or manufacturing supply chains, making them more labor- and capital-intensive. Retailers and third party logistics firms have responded to these increased demands by investing in automated systems and other logistics technologies to increase operational efficiency and productivity.

Advancements in these technologies are creating new possibilities in commercial real estate. The NAIOP Research Foundation has published a report titled "The Evolution of the Warehouse: Trends in Technology, Design, Development and Delivery," by **Steve Weikal** and **James Robert Scott**, researchers at the MIT Real Estate Innovation Lab. Weikal and Scott reviewed recent publications on emerging logistics and building technologies and interviewed industry practitioners to evaluate how these technologies will influence the future of logistics real estate. Continued advances in automation, data analytics and artificial intelligence promise to make industrial assets more productive and profitable, create new opportunities in building design, and blur traditional boundaries between property types.

> **Continued advances in automation, data analytics and artificial intelligence promise to make industrial assets more productive and profitable, create new opportunities in building design, and blur traditional boundaries between property types.**

Evolution of Industrial Buildings

A range of automated technologies are improving throughput at distribution and fulfillment centers, and increasing their potential value. Automated storage and retrieval systems (ASRS) are increasingly common, and they can be tailored to fit in both large and small buildings. Collaborative mobile robots, once a novelty, are also being adopted by a range of industrial tenants, and they can be easily adapted to existing building layouts. Emerging technologies such as humanoid robots that can pick, move and lift items have reached a stage of development that they could soon appear alongside human workers.

These automation technologies can help industrial tenants store, retrieve, pick and pack goods more quickly and use vertical space more efficiently, making industrial buildings with higher clear heights or multiple stories more cost-effective. Automation can also improve worker safety and productivity by reducing the need for workers to perform repetitive motions or lift heavy objects. Although future technological advances might allow for fully automated facilities, Weikal and Scott do not expect that automation technologies will completely replace human workers in most facilities in the near future. Instead, these technologies will increasingly allow workers to focus on creative problem solving and other tasks that are not easily automated.

In addition to physical automation technologies, advances in data analytics and artificial intelligence are making supply chains more efficient and are helping developers, retailers and logistics firms make better locational decisions. Better data collection and analysis can allow end-users to optimize the allocation of inventories across industrial properties and can help developers predict which locations are best situated for distribution or fulfillment centers.

Get the Report

To view and download "The Evolution of the Warehouse: Trends in Technology, Design, Development and Delivery," visit naiop.org/Research-and-Publications/Research-Reports.

Blurring Traditional Boundaries in Land Use

ASRS systems that can be scaled up or down and tailored to a variety of different building formats also allow retailers to add e-commerce fulfillment capabilities to existing stores and allow building owners to transform vacant storefronts into microfulfillment centers. These adaptations of ASRS technology blur traditional distinctions between industrial and retail real estate and create new opportunities for tenants, building owners and developers. Similarly, advancements in 3-D printing hold out the possibility of mixed-use buildings where products are printed or customized onsite for sale to retail customers.

These automation technologies can help industrial tenants store, retrieve, pick and pack goods more quickly and use vertical space more efficiently, making industrial buildings with higher clear heights or multiple stories more cost-effective.

The report also explores other implications of technological advancements for land use in urban and suburban areas. Architects are already developing innovative mixed-use building concepts, such as placing multifamily units on top of distribution centers in dense urban or suburban locations. Large ASRS systems could even be adapted to tall urban buildings that combine retail and distribution with other uses. Advances in drone and autonomous vehicle technologies could reduce congestion from delivery vehicles on city streets and make urban distribution centers more viable.

Some of the more innovative technologies and building concepts identified in the report may still be a few years away from widespread adoption. However, it is clear that continued technological advancements and growth in demand for distribution capacity near urban centers are accelerating the evolution of industrial buildings and unlocking new opportunities for developers, investors, architects and engineers. ■

Shawn Moura, Ph.D., is the director of research for NAIOP.

The Canadian Response to the COVID-19 Pandemic

The government acted rapidly to prop up the economy, including supports for rent and personal income.

By Rebecca Askew, Natalie Dash and Anand Pye

When the COVID-19 pandemic swept across Canada in March 2020 and businesses began shutting their doors, Canada's federal government moved quickly with a series of wide-ranging economic support measures. The measures included a $2,000-a-month benefit for those forced out of work; wage subsidies to help businesses keep their employees; interest-free loans for businesses; mortgage deferrals; and a rent-assistance program for small- and medium-sized businesses. Of these programs, the Canada Emergency Commercial Rent Assistance (CECRA) program provided the most direct support for NAIOP's members impacted by COVID-19.

CECRA was aimed at helping small-business tenants with a 70% or greater drop in revenue. Under the program, eligible tenants would have their rent reduced by 75%, with the federal government paying 50% of the rent directly and the property owner covering the other 25%. While CECRA was initially welcomed as much-needed support for a struggling retail sector, it soon became clear that the program was complicated, plagued by technical difficulties, and overly burdensome for property owners. Some of the problems were:

NAIOP's Canadian chapters, recognizing the growing trouble, arranged a virtual roundtable with the senior federal officials responsible for the program from the Department of Finance and the Canadian Mortgage and Housing Corporation.

Getty Images

Canada's government at all levels worked together to provide support to the country's economy and commercial real estate industry.

- While many small businesses were struggling, they had not yet met the 70% revenue loss threshold in the initial three months of the qualification period either because some sales continued through direct delivery or a shift to online sales.
- Landlords were responsible for making applications on behalf of their tenants, but only one application was accepted per property, and no amendments were allowed. This made it difficult for property owners with multiple tenants. Landlords were also required to vouch for their tenants' reported losses.
- Property owners were required by the program to forgive 25% of the rent.
- CECRA was only available to businesses with rents of less than $50,000 per month.

There were numerous technical concerns, including the government's ability to protect sensitive leasing information, the calculation of revenues, and how partial eligibility should be handled.

While many large landlords made an effort to participate, other landlords were harshly criticized in the media for not joining the program. Frustrated provincial governments, responding to calls from struggling businesses, then instituted moratoriums on commercial evictions. CECRA was a flawed program with good intentions, but it led to many unintended consequences that helped neither landlords nor tenants.

The Canadian government has pulled out all the economic stops to help Canadians weather COVID-19. Out of a population of 37.5 million, more than 3.7 million Canadians have had their jobs supported to some extent through the Canada Emergency Wage Subsidy, and another 8.9 million have received monthly unemployment support through the Canada Emergency Response Benefit. More than 765,000 emergency business loans have been approved as of early October.

NAIOP's Canadian chapters, recognizing the growing trouble, arranged a virtual roundtable with the senior federal officials responsible for the program from the Department of Finance and the Canadian Mortgage and Housing Corporation. More than 325 NAIOP members from around Canada participated in the discussion. The NAIOP Roundtable and continued ongoing advocacy allowed our members to pose questions, highlight program deficiencies and get a better understanding of government objectives.

As criticism of CECRA continued throughout the early fall and a second wave of the pandemic approached, the federal government announced a new program to replace CECRA that took into account recommendations from NAIOP members, tenants and other property owners.

The new Canada Emergency Rent Subsidy (CERS) boasted significant improvements over CECRA:

- It will provide up to 65% of rent or mortgage payments for businesses suffering revenue losses due to COVID-19.
- Instead of requiring a 70% decline in revenues, any businesses with a decline in revenue may apply and will receive a gradually decreasing amount of support depending on revenue loss.
- An additional "top up" subsidy of 25% will also be available for businesses temporarily shut down by a mandatory public health order, bringing the total available subsidy up to 90% for certain businesses.
- CERS will be directly accessible by tenants instead of requiring property owners to undertake the arduous application process on behalf of tenants.

And, it appears that the government will allow most businesses to access the program regardless of size but with a cap on the total amount of funding dispersed per location and per company.

NAIOP and its members played an important role in dramatically improving the federal support program in a way that will be a great relief for property owners dealing with a major economic crisis, tenants and businesses trying to survive and, ultimately, benefit Canadians across the country.

While expensive, these initiatives have been a lifeline for Canadian businesses throughout COVID-19. CECRA supported over 130,000 small businesses and 1.18 million jobs in Canada in the first wave, even though only $1.8 billion of the $3 billion funding envelope was dispersed. As CERS is rolled out and additional improvements are made, this program will likely see a greater uptake as it becomes more attractive to the commercial real estate industry.

The Canadian government has pulled out all the economic stops to help Canadians weather COVID-19. Out of a population of 37.5 million, more than 3.7 million Canadians have had their jobs supported to some extent through the Canada Emergency Wage Subsidy, and another 8.9 million have received monthly unemployment support through the Canada Emergency Response Benefit. More than 765,000 emergency business loans have been approved as of early October.

The federal government, Parliament, and all the provincial and territorial governments found a way to work together across partisan political divides. In discussions with both provincial and federal officials, it was clear that they were happy that the usual political and jurisdictional differences could be set aside. Per-capita deaths and infections were also lower than the U.S. experience.

However, the success of these programs and Canada's economy depend on factors mostly outside of the government's control. Canada's recovery relies on an improving world economy driving demand for Canadian exports, implementing public health measures to keep COVID-19 cases low, and delivering successful vaccines and treatments. While significant progress has been made on these fronts, Canada is not out of the woods yet. ■

Rebecca Askew is the chair of NAIOP Greater Toronto's Government Relations Committee and senior legal director at Cadillac Fairview. **Natalie Dash** is a senior government relations consultant with Campbell Strategies, a Canadian government relations and communications firm. **Anand Pye** is the executive director at NAIOP Edmonton.

Chapter Profile: NAIOP of Florida

This coalition of five chapters across the state sees growth continuing despite the pandemic.

By Trey Barrineau

NAIOP of Florida is the coalition representing five individual chapters in the state (Central Florida, Tampa Bay, Northeast Florida, Northwest Florida and South Florida). NAIOP of Florida is focused on all aspects of real estate development in these markets. According to NAIOP's "Economic Impacts of Commercial Real Estate 2020" report, commercial real estate contributes $26 billion to Florida's GDP, generates $10.4 billion in wages and salaries, and creates or supports more than 227,000 jobs.

NAIOP of Florida Chapter President **Darcie Lunsford**, executive vice president with Butters Realty & Management in Coconut Creek, Florida, spoke to Development magazine about commercial real estate in the Sunshine State.

Getty Images

NAIOP of Florida's legislative efforts in Tallahassee have reduced regulations. One of the biggest wins in 2020 was a reduction in the state's business rent tax.

Development: *How are the market conditions for member companies in Florida?*

Lunsford: Florida's commercial real estate markets have generally been resilient except for the retail and hospitality sectors, which have been hit hardest by the pandemic. The industrial market continues to be strong with leasing, vacancy and rents holding mostly to pre-pandemic levels. Investment dollars continue to flow into industrial deals.

The office sector has borne the new work-from-home economy amazingly well so far. While there has yet to be a wholesale offloading of large corporate offices, smaller sublets under 5,000 square feet are on the rise as small businesses contend with the pandemic fallout. After an initial wave of rent deferments and closures, office tenants are still, by and large, paying rents.

"Florida's commercial real estate markets have generally been resilient except for the retail and hospitality sectors, which have been hit hardest by the pandemic. The industrial market continues to be strong with leasing, vacancy and rents holding mostly to pre-pandemic levels."

— Darcie Lunsford, president, NAIOP of Florida

Office vacancy rates are seeing some erosion, and leasing velocity and absorption are noticeably shaken. To date, we have not seen across-the-board slashing of rents. Office sales, put on hold at the start of the pandemic, are now re-emerging. Early indications are that pandemic discounts have been nominal for most well-leased quality office properties. But the office sector is not out of the woods yet. Many major institutional-quality buildings have yet to be full repopulated by tenants, so as leases roll over and corporate footprints are re-evaluated in the era of remote work, Florida's office market will likely face headwinds well into next year. The good news is that the last expansion cycle did not deliver a deluge of new office product, so inventory remained controlled and constrained going into the coronavirus-induced downturn. As the pandemic's seismic shocks rumble through the market, Florida's office sector should quickly find its footing again.

Development: *What business or regulatory challenges are you facing?*

Lunsford: Regulatory hurdles remain a persistent challenge for the commercial real estate sector. Delays in permitting for tenant improvement buildouts, a lengthy approval process for new development, and requirements for well-intentioned but often over-reaching mitigation measures exacerbate development costs and construction bottlenecks at a time when developers and owners struggle to navigate the pandemic economy. NAIOP of Florida is succeeding in its mission to foster and deliver sensible regulatory and tax policies for the state's commercial real estate industry, a crucial component of the Florida economy. One of the more significant issues is Florida's assessment of sales tax on commercial rent, and eliminating that tax has been a primary NAIOP of Florida initiative. We have successfully rolled back that rate for the past three years, delivering a $150 million tax cut to commercial real estate occupiers. Winning further sales tax cuts remains a NAIOP imperative this year as we seek to unlock more capital for businesses to invest, grow and hire. Florida was also one of the few states that still required witness signatures on commercial leases despite being decades into the digital era. NAIOP of Florida worked this year as part of an industrywide coalition to remove that antiquated requirement so that leases could more safely be executed electronically. That new law went into effect on July 1.

"Florida's underlying economic fundamentals, population growth, low-density suburbs, business-friendly environment, low-tax policies and comparatively low cost of real estate — commercial and residential — indicate that it is likely that the state will be a national leader as the country exits this downturn."

— Darcie Lunsford, president, NAIOP of Florida

Development: *What are the opportunities in commercial real estate in Florida right now?*

Lunsford: Florida's underlying economic fundamentals, population growth, low-density suburbs, business-friendly environment, low-tax policies and comparatively low cost of real estate — commercial and residential — indicate that it is likely that the state will be a national leader as the country exits this downturn. People want to live and work here, and the cost and experience of doing so remain compelling. Even during the height of the pandemic, companies and people were relocating from denser parts of the country to Florida. I think there will be great opportunities for those who are well-capitalized and able to look beyond the near-term risk of investing. The hastened disruption of conventional uses previously assigned to assets in prime locations opens a door for them to be creatively re-imagined. Particularly in South Florida, which is largely built out and geographically constrained by the Everglades to the west and the Atlantic Ocean to the east, redevelopment will gain more momentum. There is always opportunity in change.

Development: *What are some of your other legislative priorities?*

Lunsford: NAIOP of Florida has set its 2021 legislative priorities as:

- Enacting legislation that brings consistency, transparency and certainty to the local permitting and inspection process. This includes established timelines for approval of a permit application certified as complete.
- Eliminating the Business Rent Tax.
- Maintaining and boosting the effectiveness of the commercial real estate building representative on the Florida Building Commission.
- Improving the state fire code to address financial burdens placed on developers and building owners for the installation of bi-direction antenna systems for new and existing commercial properties.
- Monitoring and maintaining oversight legislation as set by the state to address onerous linkage and impact fees on CRE development. These fees are charged on a per-square-foot basis and are placed in a fund to be used to build affordable housing.

> **"NAIOP chapters across Florida have doubled down on their mission to bring real-time intelligence and market assessment to our members through a series of virtual programs."**
>
> *— Darcie Lunsford, president, NAIOP of Florida*

- Supporting enforcement of the Internet Sales Tax.
- Implementing a COVID-19 CRE property tax relief package.

Development: *What are some notable projects happening in Florida?*

Lunsford: One of the most high-profile and ambitious new projects has to be soccer legend **David Beckham**'s plans to build a $1 billion-plus, 25,000-seat Major League Soccer stadium with a million-square-foot mixed-use complex on city-owned land in Miami. As part of that, a $60 million, 18,000-seat stadium opened earlier this year further north in Fort Lauderdale for Beckham's new Inter Miami CF franchise team, and it will eventually be used as the team's permanent training facility when the larger Miami facility opens. The team was all set to start hosting games at the Fort Lauderdale stadium this year when the pandemic hit.

Development: *Education is an essential part of NAIOP's mission. What kinds of educational sessions have NAIOP of Florida participated in or presented?*

Lunsford: NAIOP chapters across Florida have doubled down on their mission to bring real-time intelligence and market assessment to our members through a series of virtual programs. We've hosted numerous deep dives into emerging trends, market-maker sector-specific panels, and high-level discussions with national experts such as CBRE Senior Economist **Spencer Levy**. We continue to roll out timely expert panels to help members navigate this unprecedented public health and economic crisis. ■

Trey Barrineau is the managing editor of publications for NAIOP.

PRIORITIZE YOUR PROFESSIONAL DEVELOPMENT IN 2021

THE NAIOP CENTER FOR EDUCATION

allows you to access the latest continuing education covering all aspects of the profession.

Access all education resources at learn.naiop.org.

Certificate Program

Demonstrate your commitment to the CRE industry and your own professional development by earning a **Certificate of Advanced Study** in either **Commercial Real Estate Development** or **Real Estate Finance**.

On-demand Courses

Exceptional education in a convenient, flexible format.

Easily integrate best-in-class learning into your already busy schedule!

- **Advanced Development Practices**
- **Advanced Real Estate Finance**
- **Basic Real Estate Finance**
- **Brokering in the Digital Age**
- **Construction Management for Developers and Owners**
- **Essentials of the Development Process**
- **Financial Analysis of Development Projects**
- **Leasing, Marketing and Negotiations**
- **Modern Industrial Development**
- **Real Estate as a Service**
- **Real Estate Investment and Capital Markets**
- **Real Estate Law and Land Use Policy**
- **Site Feasibility and Market Analysis**

INDIVIDUAL COURSE MODULES ARE NOW AVAILABLE FOR PURCHASE. These short courses are under two hours each and allow you to explore specific topics or trends if your time is limited.

Share Your Expertise in a NAIOP Webinar

We're looking for commercial real estate experts who can share their experiences and best practices through NAIOP's twice monthly webinars. These webinars, covering a range of topics from across the industry, are free for NAIOP members and open to nonmembers for a fee. **Learn more about how you can participate by contacting Sandy Hudson at hudson@naiop.org.**

NAIOP THE CENTER FOR EDUCATION

CREW Benchmark Study: Still a Long Way to Go Toward Diversity, Equity and Inclusion

Women and other traditionally underrepresented groups in commercial real estate earn less than their white, male counterparts.

By Jennifer LeFurgy, Ph.D.

In September, the Commercial Real Estate Women (CREW) Network released its fourth study measuring women's progress in achieving parity in the commercial real estate industry, and the results indicate not much has changed since the last survey in 2015.

The 2020 CREW Network Benchmark Study: Gender and Diversity in Commercial Real Estate, conducted in partnership with the MIT Center for Real Estate, found that women comprise 36.7% of commercial real estate professionals and hold just 9% of C-suite positions, figures that have not changed substantially since the survey began in 2005. Additionally, women continue to make less than men — about 90 cents for every dollar a man earns in fixed salary and 45 cents for every dollar a man earns in commission and bonuses (**see box below**).

ThinkStock

The 2020 CREW Network Benchmark Study finds that women only hold 9% of C-suite jobs in the commercial real estate industry.

Women (21%) are more likely than men (8%) to report that their compensation and/or career advancement has been adversely affected by their marital status or the need to care for family. The percentage of women who reported being "very satisfied" with the level of success achieved in their careers decreased in 2020, while men's satisfaction levels continued to increase.

New Data on DEI

The survey included respondents from the U.S. and, for the first time, Canada and the United Kingdom. To gather benchmark data on Diversity, Equity and Inclusion (DEI) in CRE, CREW asked new questions on demographics, diversity and workplace culture. Of the 2,930 respondents, 82% identified as women, 18% as men, and 13% identified as Black, indigenous or persons of color (BIPOC). A majority responded that they don't work in "very diverse" environments — only 16% of respondents said that 25% or more of their coworkers are BIPOC. However, more than half reported a culture shift regarding DEI due to "mandates from leadership" and "pressures from the industry."

The study found BIPOC on average earn less than white men and women in entry-level positions, but the earning gap narrows in middle and upper man-

Earnings Disparities

CREW Network consulted external sources to further explore the significant bonus and commission disparity. A 2019 pay study conducted by the ADP Research Institute that tracked more than 11,000 professionals over six years found that the average bonus amount for women was less than two-thirds of the amount paid to men who had equivalent base pay, age and tenure. The Personal Salary website, a comprehensive database of real estate industry compensation by market and position, reports a 9% base salary gap and 28% overall bonus/commission gap. ■

agement. The average total compensation of BIPOC at the C-suite level is slightly higher than the average for all C-suite women.

BIPOC respondents identified several "barriers to success" including lack of promotion opportunity, lack of a mentor, gender discrimination, choices in maintaining work and life balance, and limited access to decision makers.

A Call to Action

While the industry has experienced dramatic economic upheaval during the past 15 years, many of these survey results have remained the same. CREW encourages all real estate professionals to work toward transforming the industry by:

Closing the commission gap. CREW points to the industry's "entrenched gender bias" as being most evident in the difference between men and women's earnings from commissions and bonuses. This can be addressed by reconsidering commission-sharing processes, hiring practices and an employee's personal circumstances.

Recruiting and retaining diverse employees. A majority of respondents do not work in diverse environments and only 13% identified as racially diverse. Employers should recognize biases in hiring, promoting and business practices and conduct pay equity tests to identify disparities.

Creating pathways for career satisfaction. According to the most recent survey, women's career satisfaction has decreased. Access to mentors, team-oriented tasks, colleagues' respect, and flexible schedules can contribute to improved satisfaction and employee retention.

Improving the culture: Almost half of all women respondents experienced offensive behavior in the office in the past year despite most participants reporting positive workplace culture changes. Although attitudes may be shifting, CREW advises company leaders to continue to create policies that result in "tangible improvements" for women's status in the workplace.

Listening to the new generation. The most recent survey had a larger share of younger respondents than in previous years. A new generation of employees could usher in changes such as increased expectations for career goals, flexible schedules and workplace standards around DEI. ■

NAIOP's Diversity Resources

NAIOP offers scholarships, career guidance and CRE summer immersion programs for those of diverse backgrounds who are interested in the commercial real estate profession. For more information, go to naiop.org/en/Education-and-Career/Diversity-Resources. ■

Jennifer LeFurgy, Ph.D., is vice president of knowledge and research for NAIOP and editor-in-chief of Development magazine.

Hear From NAIOP's Developing Leaders Awardees

Outstanding 35-and-under members see opportunities in the current crisis.

By Marie Ruff

As we close out an unpredictable year and head into 2021, NAIOP's 2020 Developing Leaders Award winners share their perspectives on the opportunities for positive change that they have seen amid the upheaval, along with their favorite aspects of working in commercial real estate.

The Developing Leaders Award winners represent the most outstanding emerging leaders, ages 35 and under, in the industry. They were honored in October during NAIOP's CRE.Converge Virtual 2020 in recognition of their remarkable professional accomplishments, strong leadership and significant community involvement.

> **"I believe the biggest opportunities emerging from today's crisis lie in developing new ways to build and use real estate to promote meaningful change. Personally, I am passionate about addressing the complex issue of creating a more diverse, inclusive and equitable workforce in commercial real estate."**
>
> *— Briana Harney, vice president, debt and equity, NorthMarq*

Q: What do you think will be the biggest opportunity emerging from today's crisis?

Janelle Gallagher
Vice President, CBRE
NAIOP Nashville

"People will start to think differently about health and wellness, especially in the workplace. There is also more awareness around work-life balance; companies that have not already adapted to flexible schedules for staff will start to do so. All the hats working parents wear on a day-to-day basis have become very apparent, and I believe society is becoming more accommodating."

Briana Harney
Vice President, Debt and Equity, NorthMarq
NAIOP San Francisco Bay Area

"The confluence of the pandemic and racial injustice in the U.S. has placed a spotlight on how our communities and social systems have failed to protect the most vulnerable populations and provide equal opportunities for all to thrive. I believe the biggest opportunities emerging from today's crisis lie in developing new ways to build and use real estate to promote meaningful change.

"Personally, I am passionate about addressing the complex issue of creating a more diverse, inclusive and equitable workforce in commercial real estate. I joined NorthMarq's DE&I (Diversity, Equity and Inclusion) Committee; as co-chair of NAIOP San Francisco Bay Area's membership committee, I have worked cross-functionally with our chapter's I.D.E.A. (Inclusion, Diversity, Equality and Accountability) Committee to address diversity initiatives; and through BREAA (Berkeley Real Estate Alumni Association), I have helped develop a series of panel events focused on racial issues and community development. It is my hope that our industry emerges from this crisis with a more diverse workforce so that commercial real estate, and the economic opportunities it represents, is more reflective of and better serves the communities in which we live and work."

Q: What is your favorite part of your job and why?

Lauren Gilchrist
Senior Vice President, Senior Director of Research, JLL
NAIOP Greater Philadelphia

"My favorite part of my job is working with our investor clients to help them better understand Philadelphia's commercial real estate market dynamics, especially if they have never invested in Philadelphia before. It's a complex market to comprehend, but there is a lot of potential here thanks to the college students who now stay here after graduation, our population growth, our walkable downtown, and the upgrades that have been made to the public environment over the last 10 years. I also really enjoy collaborating with our brokers to pitch and win business. There is nothing more fun professionally than being part of a winning team."

Anthony Rinaldi
Founder and Managing Principal, Saxum Real Estate
NAIOP New Jersey

"The best part of my job, and this industry as a whole, is the ability to create things that can leave a lasting, tangible legacy on the communities in which we live, work and play. Real estate — especially good real estate — engages all of the senses, and to properly execute a project you must engage a wide variety of skill sets to bring forth a successful investment. Real estate at its core is one of the most influential aspects of a person's life; we are all constantly engaging with our surrounding environment, which is rooted in real estate. Having the ability to shape that environment is a blessing, and one we do not take lightly."

Peter Shearer
Associate, Hines
NAIOP San Diego

"The best part of my job is that I get to create something new. With Hines' Riverwalk project, for example, we entered into a development agreement with the city of San Diego — the first in decades. It will allow us to build a new light rail station and one of the largest parks in San Diego history. Ultimately, we will create a new transit-oriented village — another first for San Diego." ■

> **"The best part of my job, and this industry as a whole, is the ability to create things that can leave a lasting, tangible legacy on the communities in which we live, work and play."**
>
> *— Anthony Rinaldi, founder and managing principal, Saxum Real Estate*

Marie Ruff is a communications senior manager with 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 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.

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 and are mobile-responsive for those who want to read 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, in state legislatures and in Canadian provinces.

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

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

U.S. Postal Service Statement of Ownership, Management and Circulation

1. Title of Publication: Development
2. Publication Number: 0888-6067
3. Date of Filing: September 16, 2020
4. Frequency of Issue: Quarterly
5. Numbers of Issues Published Annually: 4
6. Annual Subscription Price: $35
7. Complete Mailing Address of Known Office of Publication: NAIOP, 2355 Dulles Corner Boulevard, Suite 750, Herndon, VA 20171
8. Complete Mailing Address of the Headquarters of General Business Offices of the Publisher: NAIOP (same address as above).
9. Full Names and Complete Mailing Address of Publisher, Editor, and Managing Editor: Publisher – Marc Selvitelli, Senior VP, NAIOP, 2355 Dulles Corner Boulevard, Suite 750, Herndon, VA 20171; Editor – Jennifer LeFurgy, NAIOP, 2355 Dulles Corner Boulevard, Suite 750, Herndon, VA 20171; Managing Editor – Trey Barrineau, NAIOP, 2355 Dulles Corner Boulevard, Suite 750, Herndon, VA 20171
10. Owner: NAIOP, 2355 Dulles Corner Boulevard, Suite 750, Herndon, VA 20171
11. Known Bondholders, Mortgages, and Other Security Holders Owning or Holding 1 Percent or More of Total Amount of Bonds, Mortgages or Other Securities: NONE
12. Publication title: Development
13. Issue Date for Circulation Data Below: Fall 2020 (September 16, 2020)
14. Extent and nature of circulation: A. Total no. copies: 1) Average no. copies each issue during preceding 12 months – 22,100; 2) No. copies of single issue published nearest to filing date: 22,000; B. Paid and/or requested distribution; 1) Paid or requested mail subscriptions stated on PS Form 3541: (a) Average no. copies each issue during preceding 12 months – 17,890; (b) No. copies of single issue published nearest to filing date – 17,999; 2) Copies Requested by Employers for Distribution to Employees by name or position stated on PS Form 3541: (a) Average no. copies each issue during preceding 12 months – 0; (b) No. copies of single issue published nearest to filing date – 0; 3) Sales through dealers and carriers, street vendors and counter sales: (a) Average no. copies each issue during preceding 12 months – 0; (b) No. single issue published nearest to filing date – 0; 4) Requested copies distributed by other classes mailed through the USPS: (a) Average no. copies each issue during preceding 12 months – 0; (b) No. copies of single issue published nearest to filing date – 0; C. total paid and/or requested circulation: 1) Average no. copies each issue during the preceding 12 months – 17,890; 2) No. copies of single issue published nearest to filing date – 17,999; D. Nonrequested distribution by mail: 1) Free or Nominal Rate Outside-County Copies stated on Form PS 3541: (a) Average no. copies each issue during preceding 12 months – 3,687; (b) No. copies of single issue published nearest to filing date – 3,513; 2) Free or Nominal Rate In-County copies stated on Form PS 3541: (a) Average no. copies each issue during preceding 12 months – 0; (b) No. copies of single issue published nearest to filing date – 0; 3) Free or Nominal Rate copies mailed at other classes through the USPS: (a) Average no. copies each issue during preceding 12 months – 0; (b) No. copies of single issue published nearest to filing date – 0; 4) Free or Nominal Rate distribution outside the mail: (a) Average no. copies each issue during preceding 12 months – 365; (b) No. copies of single issue published nearest to filing date – 278; E. Total nonrequested distribution: 1) Average no. copies each issue during preceding 12 months – 4,052; 2) No. copies of single issue published nearest to filing date – 3,791; F. Total distribution: 1) Average no. copies each issue during preceding 12 months – 21,942; 2) No. copies of single issue published nearest to filing date – 21,790; G. Copies not distributed; 1) Average no. copies each issue during preceding 12 months – 158; (2) No. copies of single issue published nearest to filing date – 210; H. Total: 1) Average no. copies each issue during preceding 12 months – 22,100; 2) No. copies of single issue published nearest to filing date – 22,000; I. Percent paid and/or requested circulation: 1) Average no. copies each issue during preceding 12 months – 82%; 2) No. copies of single issue published nearest to filing date – 83%
15. This Statement of Ownership will be printed in the Winter 2020/2021 issue of this Publication.

I certify that all information furnished on this form is true and complete. I understand that anyone who furnishes false or misleading information on this form or who omits material or information requested on the form may be subject to criminal sanctions (including fines and imprisonment) and/or civil sanctions (including multiple damages and civil penalties).

Jennifer LeFurgy, Editor-in-Chief, September 16, 2020

People + Companies INDEX

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

2020 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 services and products for your business.

Premier Industry Partners

CenterPoint (centerpoint.com)
CoStar Group
Cushman & Wakefield
FCL Builders
Majestic Realty Co.
Prologis
Marcus & Millichap
Newmark
Rockefeller Group
USAA Real Estate

Gold Industry Partners

JLL

Silver Industry Partners

Avison Young
CBRE
Dalfen Industrial

Bronze Industry Partners

Bank of America
BentallGreenOak
Colliers International
Nelson
Wipfli
Wonderful real estate Development

Chairman's Circle

Black Creek Group
First Industrial Realty Trust
Granite
Powers Brown Architecture
Tradepoint Atlantic
Clarion Partners
Lee & Associates Commercial Real Estate Services
Duke Realty Reliable. Answers.
Pacific Southwest Region LiUNA! Feel the Power
Martin-Harris Construction
Ware Malcomb

Navigating This Unprecedented Year

Within a matter of days, we were providing critical information to our members and have continued to do so over the past nine months.

What an unusual and unprecedented year it has been for all of us. When I took on the role of chair last year, nobody could have predicted that a global pandemic would be declared only a few months later, putting a stop to our record period of economic growth and resulting in much change for our lives and businesses.

Larry Lance

Despite the challenges, NAIOP has continued to serve the membership and deliver the tools and knowledge we all needed now, more than ever. I am so proud of the way this organization responded to the pandemic's impact on our industry.

Within a matter of days, we were providing critical information to our members and have continued to do so over the past nine months. From Development magazine to research to webinars and conferences, our content has been highly focused and struck just the right tone to convey the seriousness of the pandemic's impact and an optimism for ensuing opportunities.

Opening our library of on-demand courses at no cost to members was a strategic decision that has been met with much appreciation. When the offer ended on August 1, NAIOP had more than 10,000 course enrollments, and many individuals were able to earn a certificate of advanced study.

Legislatively, our team worked at the federal level for provisions in the CARES Act and subsequent relief packages, and our events and sponsorships have remained strong even as we've pivoted to virtual delivery. Some of the most valuable experiences for me were the weekly calls with our chapter executives and staff. We would talk through challenges, brainstorm solutions and share what we were experiencing locally. The support offered in those conversations helped us all feel more connected to each other and to the organization.

During the last six months, I've observed leaders within our industry and association step up and help us deal with the uncertainty. Times like these can push us to our limits — and trust me, I've had my moments of panic throughout it all. I give my sincerest thanks to those who have set an example for their teams, given back to our Developing Leaders through mentorship, and shown us all how to keep our focus on the big picture and navigate these unexpected obstacles. It's your fortitude and steady guidance that remind us to depend on our core values, trust ourselves and keep pushing forward, even when the waters ahead seem murky.

I recently read "Leadership through Uncertainty: 10 Enduring Lessons for Turbulent Times," published by Russell Reynolds Associates. This passage stuck with me: "Great leaders must honestly accept the gravity of challenging situations. They communicate this openly and honestly and are humble enough to admit they don't have all the answers." To me, this embodies the leadership of our association this year. We approached every tough conversation with both optimism and realism, acknowledging that our challenges, while brought in an unexpected way, are opportunities for growth. I'm proud of this association for its hard work this year, and grateful to have been a part of it.

As the chairs who have come before me would attest, this job would be impossible without the knowledge and support of the NAIOP staff. They are an impressive group who did not stop working for our members, coming up with new ways of providing member services and delivering value. I'd like to thank each staff member for all they do!

Even though I did not get to travel to chapters as much as I'd planned, I have enjoyed meeting many of you virtually during our online conferences or virtual meetings with your chapters.

I look forward to the leadership of **Molly Carson** as our 2021 chair, and I know her dedication to this association and our industry will take NAIOP far.

Thank you for the opportunity to lead this organization through this extraordinary year. ■

Larry Lance, Executive Vice President, Everwest Real Estate Partners
2020 NAIOP Chairman

Need A Title Company That Can Handle Any Deal, Anywhere In The Nation?

OUR PEOPLE

Our underwriters have broad and deep industry expertise to help you with transactions across all commercial real estate sectors.

OUR SERVICES

From title and closing solutions to 1031 exchanges, construction disbursing and UCC insurance, we provide a one-stop shop.

OUR COVERAGE

You can depend on us for any transaction, whether it involves one site or multiple sites across multiple states.

OUR STRENGTH

Gain peace of mind knowing that you are protected by the resources of the nation's largest title insurance company.

Let's Talk.

With Commonwealth, you can rely on one title company for all commercial real estate transactions nationwide. Any size. Any location. Streamline deal flow and seize your opportunities quickly and efficiently.

Contact us to discuss your next deal.

Commonwealth®
LAND TITLE INSURANCE COMPANY
NATIONAL COMMERCIAL SERVICES

cltic.com/commercial

Commonwealth is a member of **Fidelity National Financial**, the nation's largest provider of title insurance services. **NYSE: FNF**