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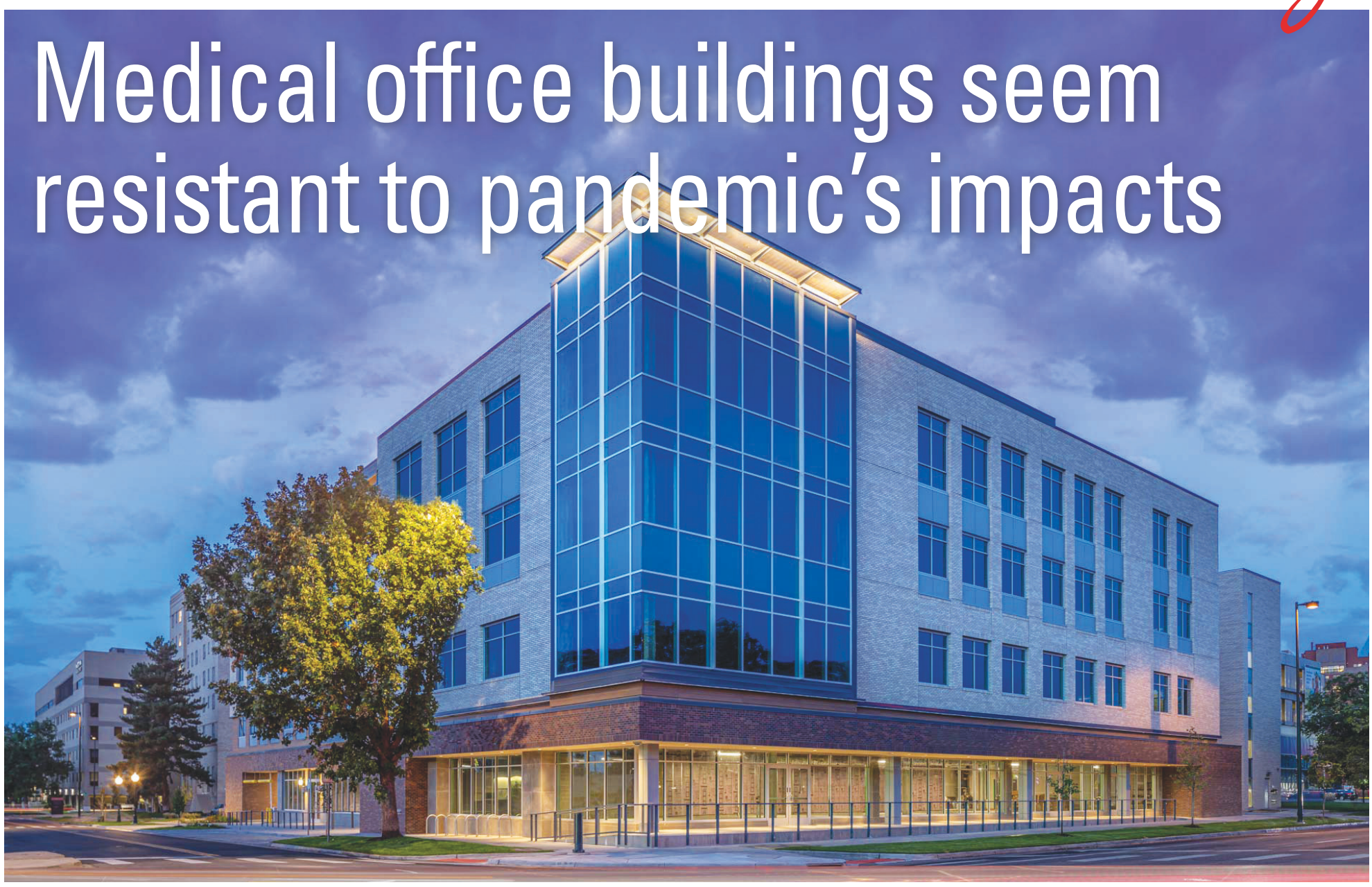
Medical office buildings seem resistant to pandemic's impacts



Good preleasing numbers suggest continued demand for medical office buildings in the metro area and confidence in a full economic recovery, despite challenges in the greater marketplace. New leases were signed in the second half of 2020 at two of the metro area's largest new additions to the medical office building inventory, including at St. Joseph Medical Office Pavilion at 1818 Ogden St. in Denver.

A strange dichotomy arose in 2020 for medical office buildings.

The property type, often seen as recession-proof relative to others because of the tendency of health care needs to ignore economic conditions and continue bringing people in to see the doctor regardless of the unemployment rate, suddenly found itself directly in the eye of the storm that has beset the rest of the global economy.

When COVID-19 struck the U.S. in March, need for medical real estate ramped up in a way previously unseen in modern history. But, of course, that need was for square feet in hospital emergency rooms and beds in intensive care units.

Daniel R. Burke, CCIM

First vice president, health care real estate, CBRE, daniel.burke@cbre.com

Medical office space, usually occupied predominantly by nonemergent physician practice groups, was sidelined as stay-at-home orders kept patients at home, shut down elective medical procedures and slammed the brakes on the economic and capital flow activity needed to sustain leasing activity in commercial real estate.

However, aside from a steep drop in net absorption of medical office space in metro Denver in the first half of 2020, the disruption seems to have barely registered in market fundamentals.

Net absorption clocked in at just 1,542 square feet, according to CBRE research, a decrease of 99% when compared to the first half of 2019. This was the result of pervasive uncertainty in the marketplace that kept medical practices, and companies of all types, from signing leases as they waited to see what the fallout of the pandemic would be.

But another important indicator, the average lease rate, increased slightly. Across the metro area, the average asking lease rate for medical office space crept up by 6 cents to $29.11 per sf. While small, the increase demonstrates the resiliency of the medical office building market in metro Denver.

The vacancy rate for these properties increased from 9% in the first half of 2019 to 10.5% in 2020, but a

Please see Page 14

INSIDE

Contents

HEALTH CARE

SENIOR HOUSING

Letter from the Editor

Pandemic-induced trends

I am excited to introduce myself as the new editor of this publication. The quarterly will continue to rely on our esteemed industry representatives who take the time to write about their areas of expertise, as well as continue to engage with our audience to ensure this publication remains a can't-miss periodical. For those of you who are avid readers, you'll notice a few changes to the layout as we try to give equal weight to both medical office and senior housing sections.

With that in mind, beginning on Page 17, our senior housing section features articles that cover statistical analysis as well as facility trends that are gaining in popularity. It's not hard to imagine that with all the negative headlines about COVID-19 outbreaks in senior living facilities, occupancy dipped throughout the state. This dip isn't limited to our state, although within the Mountain West, Denver is a leader in the unfortunate category. Lana Peck with NIC examines this and the factors more thoroughly. However, as the cover story explains, the baby boomer population is aging and Colorado's desirability as a place to retire was only strengthened during the past year, which gives Drew Lacey with Bow River Capital confidence in this market's long-term success.

Meanwhile, the first half of this publication is dedicated to health care facilities. Medical office buildings, long considered to be relatively recession resistant, continued to live up to their reputation. In general, the market stayed strong, but it appears the pandemic has sped up trends that already were occurring – forcing the medical industry to adapt at a much quicker pace than normal.

For example, telehealth went from being something only used occasionally, accounting for about 4% of all patient appointments before March, to representing 60% to 70% of non-COVID-19 patient appointments by the spring, according to Mary Loftus with EYP Architecture & Engineering. Now the number is sitting somewhere around 15%, and leaders seem to be in agreement that designing dedicated space for telehealth is important.

Another health care trend accelerated by the pandemic is the need to off-site ambulatory surgery centers, which already were gaining popularity as a way to lower costs and bring care closer to suburban areas, according to Taber Sweet with Mortenson. Factor in the desire to avoid COVID-19 exposure and demand has skyrocketed.

In order to meet that groundswell of demand, adaptive reuse is gaining popularity, with struggling retail assets taking center stage, Abby Bartolotta with JLL writes. It will be interesting to see how this trend develops over the next year.

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HEALTH CARE — TRENDS

Adaptive reuse in health care is a growing trend

Health care users often are a reliable pivot for the increasing number of office and retail owners grappling with vacant buildings. It is a layered process to evaluate whether an existing property will suffice for a medical use – but one that is becoming ever more prevalent as the commercial real estate industry continues to consider the post-pandemic era.

Adaptive reuse in health care certainly is not a novel topic, rather a consideration with growing velocity. In its simplest form, adaptive reuse converts a building from one use to another. Locally, there have been frequent occurrences of existing office or retail buildings converting into health care use – Centura's (now OnPoint's) urgent care was formerly a FirstBank, and Broe Real Estate Group's Mineral Medical Plaza was formerly WorldVenture.

However, the collision of two overarching factors allows health care adaptive reuse to occur on a larger scale:

• **Larger blocks of vacancies:** The pandemic has shuttered heretofore stout retailers in their entirety and large office users have exited in droves. According to JLL research, malls and neighborhood centers have seen the largest uptick in retail vacancy in the Denver metro area – overall vacancy will rise by approximately 110 basis points by year-end 2021. Office vacancy, meanwhile, tops 17% compared to 13.7% from one year ago.

• **Multispecialty flex medical office buildings:** Health care delivery is prioritizing value-based care that centers on outcomes rather than volume. As it relates to real estate, this includes optimizing the patient experience through ease of access and understandable pathways to care. Empty malls, shopping centers, event centers or educational campuses can provide the access – and dependent on layout, larger properties allow health systems to combine multiple service lines under one roof for simplicity of care.

Abby Bartolotta
Vice president, health care real estate, JLL, abby.bartolotta@am.jll.com

Inova Health System recently announced a future $1 billion hospital campus through the renovation of the Landmark Mall in Alexandria, Virginia. Rady Children's Hospital in San Diego purchased a former 60,000-square-foot school last month. According to CoStar, Duke Health filed plans with the city of Durham to begin the redevelopment of the Macy's store in the Northgate Mall.

■ **Pandemic pushes high-acuity care off campus.** Discernment between high-acuity and low-acuity care defines the shift away from hospital campuses. Hospital beds, staff and resources are needed for the sickest of patients – those requiring inpatient care. While COVID-19 hospitalizations is the current variable subset of patients, a frightening layer of the pandemic includes the increasing number of patients requiring attention for health issues that were previously nonemergent, but escalated to high-acute care as patients delay elective care and surgeries (whether via loss of health insurance, general trepidation to enter a medical facility or otherwise). Health systems and their hospitals need to preserve resources for high-acuity cases.

The transformation of health care into neighborhoods moved from a trendy topic to an established model of care delivery well before the pandemic. Our health care group provided a 2020 outlook outlining major industry trends accelerated and reinforced due to COVID-19, one being the segmentation of acute care (hospitals) vs. wellness locations (communities): "Wellness emphasizes prevention and a healthy lifestyle, which favor lower-acuity, lower-cost facilities that can be located in the heart of population centers easily accessible to patients as consumers."

■ **Speed to market and cost savings.** The immediacy of this stark divide between high-acuity vs. low-acuity (and lower cost) care delivery cannot be understated. The luxury of time does not exist as health care costs spiraled well before COVID-19 began taking its toll. The segmentation to outpatient settings is occurring with palpable urgency. Health care systems are needing to move quickly to stymie revenue loss, increase much-needed behavioral health services and keep low-acuity cases low.

While a ground-up development can take several years from conception to occupancy, an acquisition of an existing property with functional entitlements, core and shell, and utility infrastructure can save significant time.

At best, this also can include material cost savings (and possible tax incentives) – and at worst, negligible savings. Some health care users have found even the slightest construction savings are enough to justify an adaptive reuse project rather than a ground-up development simply for the prime location and speed-to-market benefits.

■ **Health care adaptive reuse benefits and drawbacks.** In an adaptive reuse project, the benefits circulate around the site. Retail sites often are in prime locations with access to major highways and high visibility. It often will be a familiar community landmark with ample parking. Big-box retail sites or special purpose buildings can come with facility attributes including loading docks, high ceilings and interstitial space for additional medical heating, ventilation and air-conditioning needs, and perhaps a backup generator.

While the large, open layouts can be a blank canvas for flexible health care space – they also can provide common drawbacks. A lack of natural light, expansive walking distances, under-reinforced structural elements and inefficient space are all important considerations in building evaluations.

Moving low-acuity care to outpatient community settings and quickly providing that care means it's imperative to repurpose existing properties. Adaptive reuse provides existing infrastructure in a location that already has been vetted by its predecessor, with the ultimate beneficiary being the surrounding population receiving medical care close to home. ▲

HEALTH CARE — TRENDS

How to support a shift to outpatient surgery centers

The pandemic in 2020 has accelerated multiple aspects of health care in the United States – from growth in telemedicine to the speed of vaccine development. Real estate is no exception, and the shifts taking place in where and how care is provided will have a significant impact not only on the health care industry in the coming years, but also on the construction, development and planning disciplines within our communities.

The desire to deliver more cost-effective, efficient and personalized patient care has been steadily driving a trend toward ambulatory surgery centers. Right now, there are nearly 6,000 such facilities nationwide. These often are located outside of the primary hospital setting and treat patients receiving routine, lower-risk procedures – everything from knee replacement surgery to in vitro fertilization.

With the onset of COVID-19, the trend toward these separate satellite facilities for nonacute patients has accelerated for two reasons. One, hospitals need the extra capacity to be able to treat seriously ill patients. And two, non-COVID-19 patients have become reluctant to come to the hospital for regular care in the midst of the pandemic. In fact, according to the Centers for Disease Control and Prevention, an estimated 40.9% of U.S. adults have avoided medical care during the pandemic because of concerns about COVID-19, including 12% who avoided urgent or emergency care and 31.5% who avoided routine care.

Taber Sweet
Director of real estate development, Denver operating group, Mortenson, taber.sweet@mortenson.com

Hospital systems, private practice groups and surgery center operators increasingly are recognizing the opportunity to respond by removing nonacute patients from the traditional hospital setting and treating them in outpatient surgery facilities. Since the pandemic began, we have seen an increased interest in developing and building these facilities not just here in Colorado, but nationwide.

■ **Factors influencing the move to outpatient surgery centers.** Outside of the pandemic, there are a number of other factors influencing the shift to providing care in ambulatory surgery centers; chief among those are cost, patient outcomes and experience. Per the ASC Association, a review of commercial medical-claims data found that U.S. health care costs are reduced by more than $38 billion per year due to the availability of ASCs as an appropriate setting for outpatient procedures. Medicare also has started expanding the types and locations of procedures covered, and other payers are likely to follow in their wake. Experts estimate that total ASC volume will increase 27% by 2027.

From a patient perspective, the lower cost of care can mean a lower out-of-pocket cost. These facilities increasingly are being built in suburban communities, so the procedures are theoretically more convenient and accessible because they are closer to home for many patients. There's also growing favorable data regarding patient outcomes at ASCs vs. traditional hospital outpatient surgery departments. All of these factors point to a mounting need for real estate development and construction partners who understand the process of developing and operating ASCs, and can bring expertise to address Colorado's growing demand.

Mortenson

The Oregon Clinic Gastroenterology South and Endoscopy Center in Newberg, Oregon, is a 19,000-square-foot free-standing ambulatory surgery center that included three Class C operating rooms along with nonlicensed space and associated services.

■ **Considerations for development, construction and planning.** When it comes to planning for and developing ASCs in communities, it's important to consider a variety of factors – from strategic planning, portfolio optimization and site selection to creative financing strategies and partnerships that can help bring a project to life. Most of these factors are dependent on the stakeholders involved. The ASCs themselves may be operated by a health system, a private practice group or a private surgery management company – or a combination of those parties. The development and construction needs evolve from there, depending on who is involved and the revenue strategy.

Consider our work with the Oregon Clinic Gastroenterology Clinic and Endoscopy Center in Newberg, Oregon. For this project, we built a 19,000-square-foot free-standing ASC that included three Class C operating rooms along with nonlicensed space and associated

Please see Sweet, Page 14

HEALTH CARE — TRENDS

Leaders want flexible spaces for telehealth visits

Telehealth visits skyrocketed during the early months of the COVID-19 pandemic – a tectonic shift the likes and speed of which has seldom been seen in health care.

Just after COVID-19 hit the United States, telehealth visits rose nationally by about 50%. By spring 2020, some hospitals were seeing 60% to 70% of non-COVID-19 patients virtually, since many hospitals and clinics in surge areas hit pause on routine care, preventive screenings or elective surgeries.

When COVID-19 restrictions eased, telehealth visits went back down to about 15% of patient appointments, which is where many expect it to remain – still much higher than pre-pandemic rates of around 4%.

Why are telehealth levels expected to remain higher than prepandemic? Reimbursement parity. Many rules and restrictions around telehealth were lifted during the pandemic. Medicaid and Medicare programs and many private insurance companies agreed to reimburse for telehealth appointments at or near the same levels as in-person visits.

This has led some hospitals and clinics to ask for telehealth spaces to be incorporated into their existing facilities or to be added to new facilities.

"We are planning telehealth spaces on several projects for clients right now," said Akshay Sangolli, senior medical planner and managing principal of EYP Architecture & Engineering in Denver. "Clients tend to have two ways of looking at it. One is to create dedicated telehealth provider space, which can happen in physician office space. The other is to make provider spaces flexible, able to accommodate telehealth consults – more through shared consulting spaces within the examination rooms."

Mary Loftus
Senior manager, health sciences content, EYP Architecture & Engineering, mloftus@eypae.com

With more telehealth options available, patients are taking advantage of them – especially those who are older, live farther away, lack transportation or are at more serious risk from COVID-19 exposure.

"The telehealth numbers for our clients largely depend on their patient population and the type of care they need," said Miranda Morgan, senior medical planner at EYP in Dallas.

■ **The telehealth environment.** Creating appropriate telehealth areas in hospitals and clinics includes consideration of space, privacy, convenience, acoustics and technology.

Akshay Sangolli

"Clients want a few rooms that are more friendly for telehealth from the get-go, not to have to make do with what they have whether it works well or not," said Sangolli. "This can be as detailed as the wall paint and finishes, which affect light reflection."

Audio and visual privacy must be absolute in a health care interaction, remote or otherwise, not only because of health privacy regulations but also for the patient's and provider's sense of comfort and security. Wall thickness, adjacent areas, doors and windows are all variables to be considered.

One facility requested that its telehealth rooms be as minimal as possible, about 80 square feet, with a table and two chairs, basic furnishings and no fixed branding in the rooms.

"They can use digital branding depending on the physician, which allows for their affiliates to use the rooms as well," Morgan said. "And, if need be, the spaces can future flex into small offices."

Miranda Morgan

Technology should be high quality, since seeing and hearing the patient clearly during a remote visit is vital. For example, monitors should reflect true, consistent colors, since examining a patient's skin tone is an essential diagnostic element. And acoustics need to be clear, with no distortion.

■ **Flexibility is key.** "Right now, the telehealth spaces we are building out can evolve into an exam room, office space or a consultation room, to give the client flexibility," said Morgan. "We don't really know how this is going to land yet. Telehealth numbers may rise, or they may go back down."

Health care clients, she says, want to be prepared for either.

Kat DiPietro, a health care architecture project manager at EYP in Denver, says she sees telemedicine working most successfully as a hybrid system in the future – especially in areas like radiation oncology and other cancer care, breast imaging, bariatrics, etc.

Kat DiPietro

"Clearly, some areas do not lend themselves to telemedicine," she said. "But I believe, even in those areas, telehealth can be leveraged for things like virtual waiting, check-ins and follow-ups."

DiPietro's clients are eager to discuss options for how best to incorporate telemedicine spaces into their clinics and offices, favoring convenience and flexibility. "One of our clients is putting in equipment that can go anywhere in the room," she said. "You can rotate and move the camera to see the entire spectrum of the exam room, for telehealth consultations."

Sangolli believes telemedicine rates will continue to rise and fall, cyclically. "The big picture, from a

Please see Loftus, Page 15

Sky Ridge Hybrid Operating Room, Lone Tree

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HEALTH CARE — INSIGHTS

Medical properties become 'essential' real estate

During the pandemic, the term "essential services" has become commonplace. But is there such a thing as "essential real estate?"

The answer is yes, and that product type is health care real estate.

In terms of new development, health care real estate has fared much better last year and is expected to fare better in 2021 than most other nonresidential construction categories, according to the American Institute of Architects. Health care construction is projected to increase 3.4% this year and 3.5% next year, compared to 3% and 0.5% for office space, with declining construction volumes for hotels and retail through 2021.

On the investment side, commercial real estate research firms Real Capital Analytics and Revista agree that U.S. medical office building sales volume totaled about $7.2 billion through Sept. 30. Although that is a relatively small number compared to other product types, it is the stability of the MOB investment market that should be noted. Despite the pandemic, many brokers and investors are confident that total MOB sales will top $10 billion for the sixth consecutive year.

But what makes health care real estate "essential" for savvy investors?

■ **The health care industry is strong and growing**. According to the Centers for Medicare and Medicaid Services, national health care spending in the United States is projected to grow at an average annual rate of 5.4% from 2019 to 2028, outpacing the average annual growth rate of 4.3% for the gross domestic product. By 2028, CMS projects that health care spending will total $6.19 trillion, which would account for 19.7% of GDP, up from 17.7% in 2018.

Jim Pisula
Executive vice president and chief investment officer, Pisula Development, jim.pisula@pinecroftrealty.com

Favorable demographics also are driving a growing U.S. health care industry. By 2030, every baby boomer will be age 65 or older, which means that one out of every five U.S. citizens will be of retirement age, according to the U.S. Census Bureau's 2017 National Population Projections. It is well known that seniors tend to visit doctors and hospitals more frequently than other age groups.

The aging boomers will ensure a growing flow of patients for health care providers for years to come. This reliable revenue stream, along with their need for specialized buildouts, is why medical tenants typically hold longer-term leases than other users, providing stability for their landlords.

■ **Health care real estate performs well in good and bad times.** Health care real estate consistently outperforms, even during challenging times. It proved recession-resistant in 2007-09 and it's doing so again today. Springtime uncertainty and discussions about rent relief evaporated this summer and fall as patient volumes and provider revenues rebounded sharply. After an initial "pandemic pause" when some nonessential appointments were canceled or postponed, we have seen many physician groups in our properties working nearly nonstop ever since. Many medical practices never closed at all.

The vast majority of health care tenants throughout the state have proven to be highly stable and good credit risks, such as Denver West MOB, a 44,437-square-foot facility in the largest business park in west suburban Denver that is 95% occupied.

A good example is our Denver West MOB, a 44,437-square-foot facility in the largest business park in west suburban Denver. It is located in a growing, affluent community 15 minutes from downtown and near the Interstate 70 Colorado Mountain Corridor. It also is less than 10 miles from three hospitals: SCL Health-St. Joseph Hospital, St. Anthony Hospital and Lutheran Medical Center.

The 95% occupied building is anchored by Denver Eye Surgeons, which offers both elective and medically necessary procedures, including Lasik, cataract and glasses, as well as essential and emergency services. During the first shutdowns, the practice was unable to perform elective procedures due to the Jefferson County health order in effect, but still was handling emergency cases. To satisfy pent-up demand when nonemergent care resumed, the practice had to extend its hours to allow for additional

Please see Pisula, Page 15

HEALTH CARE — INSIGHTS

Navigating with no warning, precedence or rules

Surely 2020 was not "business as usual" and while it was a time of uncertainty, it also was a moment in time when our work as medical office owners was most critical to support our caregivers on the front line. It is not often that you find "deep meaning" in the business of real estate, but I believe 2020 showed us all how important we are in the progression of care, and that what we do … matters. I want to pause at this joyous time of year and take stock of what has happened and where we are headed to keep the wheels of commerce turning in 2021. I am guessing that our experience is not unlike most of yours.

■ **What didn't change in 2020?**

We changed how and where we worked, how we met with tenants and hospitals, and how we did business. We prioritized what was most important – each other, and, when times were most uncertain, we worked together to make sure we had planned for the worst, while still hoping and praying for the best. We transformed our guidelines for property management, leasing, accounting and relationship management. We doubled down on cross-training, tightened accountability matrices and figured out how to keep business moving even though restrictions were tightening. We were not only ready for COVID-19 to take our office out, but we put "paper plans" into place, as we also were concerned about an internet crash. Luckily, neither happened! With no warning, no precedence and no rules – we figured it out and got it done, together.

Michelle Brokaw
CEO, Fleisher Smyth
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■ **Gains.** We learned on the fly, under pressure and fear – but we executed with confidence and conviction of care. We reorganized building access and control points, partnering with our hospitals to assure their access restriction needs were met. Night after night, we were shocked when toilet paper disappeared right off the roll in common area restrooms, and we updated control systems and secured supplies. And what about masks? Finding supplies and continually tweaking our internal guidelines to match Centers for Disease Control and Prevention, along with policing others, was a never-ending chase. Testing for COVID-19 at the front doors of our medical office buildings, really? Do I need to say more about all the drama of "who was testing and where, and who tested positive" – a constant source of drama and resource utilization, when time was so limited.

Rent relief requests grew from zero to 100 in the matter of days, requiring massive amounts of discussion, negotiation and therapy for all. Eventually, the Paycheck Protection Program settled this down, but the massive allocation of time was lost. With no warning, no precedence and no rules – we figured it out and got it done, together.

We doubled down on cross-training, tightened accountability matrices and figured out how to keep business moving even though restrictions were tightening.

■ **Losses.** Losses, there have been too many this year. Many have experienced great personal losses over this past year and our hearts go out to you and your family. I watched as our FSB family came together in support, praying for those who were sick and jumping in to fill the gaps when one of ours was hurting. I watched as those with COVID-19 were valiant in their recovery and still giving to the team in spite of their ailments. With no warning, no precedence and no rules, we figured it out and got it done, together.

Across the world and in our buildings, people are feeling the economic effects of this crisis, and, sadly, I predict that things will get worse before they get better. While many sectors flourish, our partner health systems and hospitals are shouldering tremendous financial burdens, our physicians are tired from playing catch-up, and our community restaurants and small businesses are being forced to shut their doors.

I am grateful for all of our successes in battling COVID-19 over 2020 – but as the economy softens and the medical community continues to carry the financial and emotional burden, I suspect there will be a trickle-down impact to medical real estate. We need to watch for these shifts and be judicious and nimble in our response while bringing continued grace and respect to our dealings, as the stress increases and fuses shorten.

The good news is the vaccinations are out and marked change will be coming over the next six months. I am not sure I can say "back to normal," but the spikes will settle, and the new normal is in sight. I am grateful to COVID-19 for highlighting our weak points – making us stronger from its disruption. Thanks to all who let the shroud of competition fade in the face of fighting COVID-19 and shared ideas and learnings to support our community health, together.

Happy New Year to all, and I look forward to the new challenges and successes that will come with 2021, because I know we will figure it out and get it done, together. ▲

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HEALTH CARE — CONSTRUCTION TRENDS

Construction decisions during times of uncertainty

During these times of uncertainty, priorities are shifting for health care decision-makers when evaluating building a new facility or renovating existing space. The "easy answers" aren't nearly as available, and a great deal more research and thought needs to be given to the team – from the general contractor, to the owner's rep, to the architect and subcontractors. The construction industry is being impacted by the current volatility, and what once was the norm has changed dramatically.

Following are some of the things health care industry professionals should keep in mind when making decisions about their next design and construction project.

■ **Sub-bond protection market.** As the saying goes, "The bigger they are, the harder they fall." During a downturn, it is common practice to search out the larger companies under the assumption that their larger balance sheet will offer protection from the market as a whole. However, surety companies have become more tentative with respect to protecting larger subcontractors due to their size and risk potential as they get selected for more and more projects. This is causing many of the larger subcontractors to focus their resources on their biggest and most expensive projects, which means smaller construction projects aren't getting the attention they deserve. A concerted effort now has to be made to select the right teams for the time frame of your specific project.

Ryan Bonner
Co-founder, Vertix Builders, rbonner@vertixbuilders.com

■ **Force majeure claims.** Force majeure relates to the law of insurance and frequently is used in construction contracts to protect the parties in the event that a segment of the contract cannot be performed due to causes that are outside the control of the parties. Enter COVID-19 into this equation and the result is a perfect anecdote for construction companies to let smaller projects lapse and/or ask for more time and money to complete the project. In some cases, this is providing a convenient shelter for contractors whose projects already were in trouble or to enhance their profits. These claims are becoming more prevalent among the companies that are feeling the pinch of how to arrange their current workload to best meet their own fiscal demands.

■ **Flexibility and preparedness.** You and your general contractor need to be prepared to work together before a construction project begins, and especially throughout the duration of the work. Planning must involve new considerations for the scope of work, timing and ways to address the unpredictable, such as if/when a COVID-19 outbreak affects a job site or if there are delayed deliveries due to the pandemic striking elsewhere. Open lines of communication always are critical to a successful project, and in today's unpredictable times, the ability of an owner and general contractor to work together on different plans, risk analysis and how to best address unknowns as they arise will be key.

Ted Laszlo
Co-founder, Vertix Builders, tlaszlo@vertixbuilders.com

■ **Enhanced protocols.** Protecting patients and staff always is highest priority for the health care industry and for general contractors who specialize in health care construction. With the stark realities associated with COVID-19, it is even more imperative to make sure that you're working with a contractor who is fully knowledgeable and certified in health care protocols (for example, carrying a certification from the American Society for Healthcare Engineering). The general contractor also should understand how to work together with the hospital on an Infection Control Risk Assessment and implement an Infection Control Risk Mitigation Recommendations before any work begins. As work in other markets dries up, new contractors without these levels of experience may be able to offer attractive initial pricing, but inadvertently may put the patient and staff populations at higher risk.

■ **Interfacing with jurisdictions.** Medical construction requires the general contractors meet a higher set of standards as required by the Colorado Department of Public Safety. For example, there is a second permit review process that can take longer, there are more stringent fire-safety requirements, different coordination requirements for CDPS and the local fire department, and another set of inspections for the owner after the space has received a certificate of occupancy, to name a few.

Due to the nature of the working environment, health care and hospital construction always demands a unique level of service and attention to detail that isn't found on other job sites. During these unprecedented times, the bar has been raised even higher, and the people making the decisions regarding new construction projects must scrutinize their candidates for work all the more closely. With a population that includes patients, family members and caregivers, a hospital should seek out a construction team that ultimately is mindful of the care they're providing while performing their jobs at the highest – and most risk adverse – level possible. ▲

Ways to support facilities when they need it most

Renovating within an occupied health care facility inherently comes with lots of extra precautions and preparatory measures to ensure the work is accomplished in a safe manner; add a global pandemic and that brings a new layer of complexity. Our teams are well versed in quick-hitting, mission-critical projects. Nonetheless, in March, we faced a new challenge. Health care construction teams essentially became an extension of the front-line response to minimize the impact of the pandemic – not seen of this scale since the 1918 Spanish Flu. Additional dedication, teamwork, ingenuity and compassion were essential to ensure health care facilities were ready for the continual surge of patients.

The onset of the pandemic required quick action and the deployment of design and construction professionals, all of whom were ready and eager to help. These teams needed to be quick to react and adapt while being able to focus on multiple requests and adjustments at once. All the while, design and construction needed to continue within existing hospital facilities during all periods of the pandemic to ensure that the buildings were functioning in a manner to keep all patrons safe.

"We do health care because we like a challenge," said Eric Hansen, Saunders project manager/estimator. "It is more of a puzzle. This theme was in spades on these projects. It was important to the community and caregivers. We were all emotionally attached to getting it done."

To name a few adjustments, negative air needed to be pulled from rooms that were not designed in such a manner, ventilated headboards needed to be constructed and installed, and entire building areas needed to be segregated to accommodate COVID-19 patients. All of these items were being designed, built and installed on the fly. This was one of the shining moments of 2020; the collaborative effort by all parties to think, react and implement to help our front-line workers.

Brian Rankin
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■ **Ensuring the safety of workers.** None of this could have been done, however, without safety continuing to be a top priority as COVID-19 measures were implemented. Ensuring the health and safety of the construction team members as well as the hospital patients was of the utmost importance while working on these projects, especially given the increased potential exposure. Well-developed infection control protocols were deployed and implemented. In addition, special protective equipment was provided, including medical hazmat suits, face shields, masks, gloves, and daily intake and outtake screenings. As a result of these industry-best Healthcare Infection Control programs and extra precautions taken, construction operations were allowed to continue, allowing the entire architecture/engineering/construction community a chance to help in the fight.

COVID-19 complications require work in health care facilities to follow even more precautions and preparatory measures.

In general, construction teams across Colorado and the U.S. provided:

- Containment setup and tear down;
- Plexiglass placements;
- Negative air machine setup;
- Refrigeration truck install;
- Scaffolding install;
- Operating room preparations;
- Room separation for multiple patients in multiple rooms;
- Remodel existing spaces for COVID-19 testing and check-ins;
- Information technology support cables; and
- Wayfinding and employee appreciation signage placements.

■ **Innovation with prefabricated/rapid deployed solutions.** As COVID-19 seemingly struck overnight, it required the ingenuity of prefabricated and modular construction. Across the country, we saw field hospitals being built from convention centers to warehouses and continued to see a plethora of different prefabricated solutions. All of these solutions were great in the response, making it clear that prefabricated construction will continue to change the way we construct buildings – specifically health care facilities. Having the ability to minimize the number of hours that construction crews were spending on site and allowing this work to occur off site not only creates a safer envi-

Please see Rankin, Page 15

HEALTH CARE — CONSTRUCTION TRENDS

Innovation success in a state of constant change

The new normal. Many of us have frequently heard or used these words this past year. We miss our "old normal," like sports with fans in the stands, dining in restaurants, and meeting in person with family and friends. That being said, some of the new norms and innovations we have embraced throughout the pandemic likely will last well into the future, and it will be for the better.

This most certainly will be the case for those of us in health care design and construction. Navigating the constant state of change during the pandemic has presented challenges for our industry, as well as our owners and partners. But those challenges have produced countless positive and lasting changes, which have inspired and enabled us to be more nimble and effective than ever. During this time, we have worked with each other to enhance our collaboration and communication efforts. In addition to learning how to work together in a different way, we also have worked safer in many ways, including social distancing as well as heightened cleaning and disinfecting protocols. The future is now, and we are working together to maneuver the ever-evolving modifications while preparing for what awaits us in health care construction. During this time, we have worked differently out of necessity while continuing to honor the design and construction process. The phrase "the only thing that is constant is change" seems to ring true here.

Jason Oltman
Rocky Mountain health care market leader, JE Dunn Construction, jason.oltman@jedunn.com

■ **Innovations in collaboration and communications.** Technology has allowed us to seamlessly conduct virtual face-to-face conversations and document sharing with just a click of a button. In-person big room design meetings have been replaced with virtual big room meetings. We're leveraging new technology to virtually conduct everything from owner, architect and contractor meetings to virtual pull planning sessions and user group meetings, to virtual inspections with design partners and local authorities having jurisdiction. While face-to-face collaboration and interaction always will be valuable, in many cases, technology has allowed us to eliminate the barrier of proximity. Like most things, eliminating barriers often removes things from the critical path, resulting in enhanced speed to market for our clients. While I personally look forward to getting back in the same room with colleagues and team members, one could argue that the industry has quickly leaped forward several years in our ability to communicate virtually out of necessity.

■ **Enhancing safety and infection control.** Protecting construction workers, health care workers and patients during the pandemic has further raised our already high standards for safety and infection control. Our industry has taken great measures to enhance education and awareness, communications, standards and processes regarding infection control. Thanks to things like screening project employees for illness, frequently cleaning high-touch areas and installing temporary wash/sanitizing stations, our job sites are safer and cleaner than ever before. Of course, it has been a learning curve, but it has now become routine to get over 200 employees on a job site through daily screenings safely and in a timely fashion, allowing projects to move forward. We'll continue to live by many of these heightened standards long after the pandemic is behind us, simply because it is in the best interest of our workers and the patients we serve.

■ **Implications for design and construction.** The pandemic also is impacting how and what we build. For example, in April we partnered with AECOM on a design-build alternate health care facility for emergency COVID-19 treatment at The Ranch Events Complex in Loveland. In 21 days, our team went from elbow bump introductions to converting a facility normally used for 4-H events and rodeos to a health care facility capable of treating 400 patients. Prior to 2020, delivering a project like this, complete with emergency power redundancy, medical gas systems, shower facilities, enhanced fire alarm and data capabilities and a pharmacy, in less than a month's time would have been unfathomable. Despite being designed for temporary use, examples like this from across the country illustrate how our industry can leverage collaboration, process efficiencies and modular or prefabricated solutions to enhance speed to market for our owners in the future, without compromising quality.

We also can expect the pandemic to leave its mark permanently on the built health care environment. Future designs are likely to feature innovative solutions like more acuity adaptable patient rooms; negative pressure rooms; medical gas and electrical outlets to accommodate patient surges; enhanced mechanical systems; surfaces and finishes that mitigate against airborne or surface infection transmission; and capabilities for telehealth, just to name a few.

■ **Looking ahead and embracing change.** The challenges presented by the pandemic have been countless. And most of us probably long for the day when we can do things like meet in person and attend large events together again. Nevertheless, as we move into the new year, we also can reflect on all we have gained. Born out of necessity and our desire to push forward amid uncertainty and change, the resulting innovations and enhancements in collaboration, technology, processes, safety and health care design will serve us well for years to come. ▲

Focus on project preplanning and communication

Preparing for the expansion or renovation of an existing health care facility takes careful preplanning and communication. While the community is ready for the improved or expanded asset, hospital associates are eager to have new amenities for their patients. To ensure that ongoing operations remain running safely, phasing, logistics, sequencing and mitigation of risk plans must be complete, accepted and shared with everyone they may impact prior to any construction starting.

Projects can vary wildly in scope and range from a $20,000 operating room renovation to a more than $90 million tower addition. However, there are some basic principles and considerations for preplanning to keep in mind for the overall success of any project. Basics like existing conditions, structural capacities, tie-in locations and existing utilities must be evaluated. Understanding the impacts of construction on existing functions of the facility in terms of access and other items is crucial. Teams must understand the construction project's impacts on site logistics, as driveways and parking often are displaced during construction to allow for an addition as well as equipment and material relocations and staging. Consider how to best communicate changes of ingress and egress to users, including helping them understand timelines and providing wayfinding and interim life safety measures signage. Interior logistics plans with paths of travel for both construction and hospital personnel, temporary wall locations and shut-off valve locations need to be reviewed with the construction team and communicated frequently. It is important to review these with the authority having jurisdiction and the owners so they can coordinate with staff and incorporate patient needs.

Ron Doolittle
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■ **Collaborate with hospital staff.** On the St. Francis Medical Center expansion in Colorado Springs, preplanning started in the design process with an analysis of the current facility including an environmental perspective, vehicular traffic patterns, utility locations, easements and zoning restrictions. In addition to site analysis, the team observed the existing facility to better understand how departments operated, and patient and staff behavior and flow. A plan was developed for the work on the new addition to start with minimal impact or disruption to the existing facility since there were connections in multiple locations. The success came when the project team collaborated with the hospital staff to determine the best approaches and work times to reduce the impact to the operating facility, and communicated the work and phasing plans ahead of time so the staff felt informed.

Michelle Robinette
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This project was completed 57 days ahead of schedule, and without any interruptions in the existing hospital.

■ **Logistics reviews.** On a patient room wing renovation at Parker Adventist Hospital, a logistics plan was created and reviewed with the hospital's infection prevention-ist, department managers and facilities team. This review step was critical because it brought to light the need for staff to be able to access support spaces to keep adjacent hospital sections/wings functioning. Scenarios of moving supplies and shifting temporary walls were run, and the final plan to perform the renovation in two phases was executed successfully for both the construction team and the hospital's staff.

■ **Confidence through communication.** At the Vail Health West Wing expansion, the construction team worked directly with the hospital to maintain infection control risk assessment best practices and methods of procedures throughout the renovation and addition. Specialized infection control procedures were developed to minimize patient exposure to mold and pathogens, such as establishing negative pressure environments, sealed wall containment and cleaning work areas with HEPA filter vacuums and disinfectants. From the onset of the project, the team recognized that consistent communication would ensure the safety of patients and staff, and let the staff know that infection control was always in place and top priority. The deployed communication plan advised staff of the upcoming work, the majority of which was scheduled to occur on weekends when fewer staff were working to diminish disruption.

At the Craig Hospital expansion and renovation project in Englewood, early engagement with specialty subcontractors was fundamental in obtaining important feedback on scheduling, phasing and logistical planning. A dedicated staff/patient liaison communicated project work activities and hospital functions between the construction project team and hospital staff, ensuring no activity impacted patient comfort. This liaison was on call after hours and on weekends for the 28-month project and Craig Hospital staff was empowered to shut down activities at any time if a patient was impacted.

No matter the operational disruptions to the existing facility with the construction of an addition or during a renovation, ongoing preplanning and communication for the project remain vital to successful execution. Take the time to preplan, communicate and adjust the plan as needed to keep your health care project running smoothly and built successfully. ▲

HEALTH CARE — DESIGN TRENDS

Design guidelines for seniors & low-vision patients

Many seniors have diminished vision and hearing that can make navigating a trip to the clinic or emergency department challenging and overwhelming. There are many design elements to consider when planning care spaces for seniors and low-vision patients. It is wise to design with three important senses in mind: sight, touch and sound. We recently completed the design for the new Banner Boswell Emergency Department in Sun City, Arizona. During the design process, we focused heavily on designing for the senses for the retirement community this hospital serves.

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We will start by sharing our design consideration for the sense of sight. Glare is a negative in any health care environment regardless of patient population. Glare can impair our ability to adapt to changes in light levels and, frankly, it is blinding. A covered approach and vestibule give the eyes a moment to adjust while transitioning from the outdoors to indoors and the next step along one's journey in care. Eyes need time to adjust to differing light levels so that they can then read signage and see landmarks such as registration desks and elevator banks. In addition, a restricted field of vision and depth perception are common eye impairments. Because of this, avoid high-contrast patterns when creating floor designs. Dark colors can be interpreted as a step or hole, creating a perceived trip hazard. However, high contrast can be beneficial in other areas of design to draw attention to critical details. Door frames and the wall base should stand out from their surroundings. A dark door frame on a light wall announces there is an opening. Black wall base against a light floor and wall creates a break between the floor and wall plane. Dark handrails that contrast against a light wall will make them easier to spot and, therefore, use. Restroom components (toilets, grab bars and sinks) also are more visible when specified in a high-contrast color to the wall. Other architectural components that should be in high contrast to their background include stair nosing, wall switches and signage. For writing surfaces, such as registration and checkout locations, a dark-colored counter creates contrast for white forms patients need to read, fill out and sign. Bright and evenly lit spaces create the best clarity for reading and seeing what is in the distance as well as in front of you. Dramatic lighting that creates shadowing and hot spots should be avoided as it can be confusing and hard to interpret with low vision.

Banner Boswell Emergency Department registration desk

Banner Boswell Emergency Department nurse station and exam rooms, all of which were designed with the senior community in mind.

Much consideration should go into color selection in spaces for seniors and low vision. As we age, the lens of our eye hardens, thickens and becomes more yellow. Perception of hue, saturation and brightness varies. Colors that are hard to distinguish include:

- Navy blue, brown and black;
- Blue, green and purple; and
- Pink, yellow and pale green.

I test color palettes by wearing low-vision simulation glasses to

Please see Brennan, Page 16

Embrace the science surrounding biophilic design

Biophilia is "humankind's innate biological connection with nature" and the theory that as humans we have an inherent need to affiliate with the world around us. Yet according to the Environmental Protection Agency, 87% of our time is spent indoors, mostly sedentary, and an additional 6%, on average, in vehicles. Our natural inclination to a love of living systems exists from birth onward. As much as we gravitate toward "life," however, we also can be averse to it. For instance, we might naturally want to be outside in the sunlight and warmth of a summer day, but also we do not want to find ourselves near a poisonous snake.

Biophilic design helps us discover how commercial spaces within the built environment, health care and otherwise, could – and should – be radically reconceptualized around the fundamental workings of the human mind as it relates to the natural realm. Biophilic design has 14 patterns that can be broken into three categories: nature in the space, design natural analogues and nature of the space.

Nature in the space addresses the direct, physical and ephemeral presence of nature in a space or place. This includes plant life, water and animals, as well as breezes, sounds, scents and other natural elements. Common examples in and around medical office buildings might include green walls, courtyard gardens, aquariums, potted plants and butterfly gardens, as well as fountains and other water features. The strongest nature in the space

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experiences are achieved through the creation of meaningful, direct connections between these natural elements and patients, medical personnel or other occupants – particularly through diversity, movement and multisensory interactions. Nature in the space encompasses seven biophilic design patterns:

1. Visual connection with nature: The ability to view natural elements and living systems.
2. Nonvisual connection with nature: Experience through auditory, haptic, olfactory or gustatory stimuli.
3. Nonrhythmic sensory stimuli: Random and ephemeral connections that may be unpredictable but capable of statistical analysis.
4. Thermal and airflow variability: Subtle changes in air and surface temperatures that mimic natural environments.
5. Presence of water: Ability to see, hear and/or touch the element.
6. Dynamic and diffuse light: Varying intensities of light and shadow (over time) create conditions that occur in nature.
7. Connection with natural systems: Awareness of natural processes (e.g., seasonal and temporal changes) characteristic of a healthy ecosystem.

Design natural analogues address organic, nonliving and indirect evocations of nature. Objects, materials, colors, shapes, sequences and patterns found in nature may manifest themselves in a medical office building setting as artwork, furniture, décor and textiles. Mimicry of shells and leaves, furniture with organic shapes and natural materials that have been processed or extensively altered (e.g., wood planks, granite tabletops) each provide an indirect connection with nature. While they are real, they are only parallel to the items in their "natural" state. Natural analogues encompass three patterns of biophilic design:

1. Biomorphic forms and patterns: Symbolic references that correspond with the contoured, patterned (e.g., fractals), textured or numerical arrangements found in nature.
2. Material connection with nature: Elements from nature that, through minimal processing, create a distinct sense of place.
3. Complexity and order: Rich sensory information that adheres to a spatial hierarchy similar to those encountered in nature.

Nature of the space addresses spatial configurations in nature. This includes our innate and learned desire to be able to see beyond our immediate surroundings, our fascination with the slightly dangerous or unknown; obscured views and revelatory moments; and sometimes even phobia-inducing properties when they include a trusted element of safety. Nature of the space encompasses four biophilic design patterns:

1. Prospect: Unimpeded views over a distance for surveillance and planning.
2. Refuge: A place "protection" that allows for withdrawal from environmental conditions and/or the main flow of activity.
3. Mystery: Promise of achieving more information through partial obscurity or other sensory devices that entice the individual to travel deeper into their surroundings.
4. Risk/peril: An identifiable threat coupled with a reliable safeguard

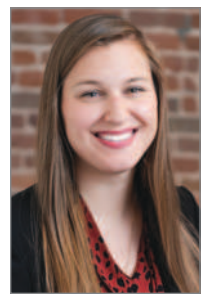
Applying the concepts of biophilic design to spaces within medical office buildings has the potential to dramatically change patient outcomes and positively influence the experience of those who work there. In traditional health care environments including patient rooms, for example, this especially rings true. Nature-inspired motifs can help manage behavioral health and environmental conditions. Patients with a view of the outdoors instead of a nondescript wall are more likely to experience hospital stays that are 8.5% shorter, with fewer negative observational comments from nurses, and significantly fewer strong, post-surgical analgesics.

Healing environments should nurture the positive connections that enable the occupants within the space to thrive. Notions of biophilia throughout the built environment ultimately can help create tranquil spaces that enrich the connections of patients, caregivers and staff to the natural world. ▲

HEALTH CARE — DESIGN TRENDS

2020 showcases the importance of the right textiles

As health care designers, we often are asked about the durability and cleanability of materials before aesthetics are taken into consideration. If materials in a health care setting cannot be maintained by the Environmental Services team, it can pose a risk to patient safety, as well as the design of the interior being ruined by these failing materials. A highly debated topic is the upholstery used on furniture in public and clinical spaces. Today, fabrics seem like a thing of the past due to their limited cleanability, and many users have adopted durable coated fabrics in all spaces.



Emily Leck, EDAC, NCIDQ
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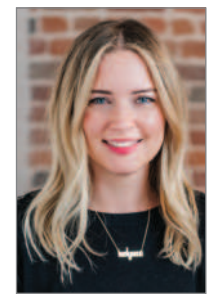
Enter 2020 and the COVID-19 pandemic: Our roles as designers are more critical now than ever. Clients value the research we do to ensure that the materials being specified in their buildings will withstand their cleaning regimens. Durability, cleanability and performance of surfaces have become an essential topic in all industries, not just health care. Heavily used furniture within health care facilities, senior housing communities, restaurants and airports is being disinfected more during the pandemic. EVS teams have increased cleaning protocols tremendously. These steps are necessary for decreasing the spread of the COVID-19 virus. Can we take what we know about the cleanability of textiles in the health care industry and apply that knowledge to furniture used in other building types within our communities?



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Tkach Photography & Design
The Infusion Clinic at Cherry Creek Medical Center furniture is all upholstered in durable coated fabrics.

Durable coated fabrics are textiles that are coated to become nonporous. They include vinyl, polyurethane, thermoplastic elastomers and silicone materials. When these fabrics hit the market just a few years ago, they were marketed as bleach cleanable fabrics and were extensively used in health care facilities. They have since been specified in senior housing communities, restaurants and office workplaces due to their ability to be cleaned. Over time the materials started failing, causing an industrywide problem. Manufacturers and designers soon came to realize that not all health systems and facilities strictly use bleach to clean their porous and nonporous finishes. There are many different rigorous protocols for EVS teams to follow within a health care setting; not every facility uses the same process. Examples of these issues are delamination of the material, soiling and staining, cracking and puddling. Has this ever occurred in a facility or interior you have visited or work in?

We are more aware in today's environment of the difference between cleaning and disinfecting, however, this may not have been the case prior to the pandemic. Cleaning is defined as the removal of dirt, soil, bodily fluids, etc. Germs are removed by using water or a type of cleaning agent. Disinfecting is defined as inactivation of pathogens. This happens by sterilizing the area that contained the pathogen and destroying it. Products like bleach can accomplish this. Durable coated fabrics need to be able to withstand both cleaning and disinfecting processes. These textiles have had to endure more aggressive cleaning and disinfecting protocols due to the pandemic. A deep clean of each patient room is conducted after every visit, as well as routine cleanings occurring in all public spaces more regularly. Many facilities have removed furniture in waiting rooms or have taped off

Please see Leck, Page 16

Effective options for sound masking in health care

There are so many moving parts to health care and the built environment in which it lives. For it to all come together, every little "box" on the list needs to be checked. One of the most neglected subjects in this arena is acoustics and, more specifically, speech privacy.

What exactly is speech privacy? Simply put, speech privacy is the inability of an unintentional listener to understand another person's conversation. In other words, speech privacy, or the lack of, is when someone can understand someone else's conversation and possibly understand private or confidential information. The Health Insurance Portability and Accountability Act of 1996 is a federal law that required the creation of national standards to protect sensitive patient health information from being disclosed without the patient's consent or knowledge, which includes conversations. So, what can we do to create more speech privacy?

There is a limited number of ways to change how sound behaves in a space. Aside from not making the sound, you can alter the physical properties. For example, changes to the built environment can help, such as building walls that have a higher sound transmission class rating, which will stop more sound transfer. Implementing higher ceiling-attenuation-class-rated ceiling tiles also can keep sound in an office better. However, improving barriers from point A to point B might not always be possible, and it often isn't the easiest or least expensive way. Plus, the approach of improving one issue just exposes the next weak link, and so the corrections keep coming.

Adam Faleck
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There is another way that does not require the same physical changes to space and it is adjustable so the next weak link is simple to correct. About 50 years ago, the technique of masking sound came into play. Sound masking in a simple description is when one sound "covers up" another – much like when you are washing dishes in the sink with the water running. It is more difficult to hear something in the other room because you are hearing the water running. Masking sound reduces or eliminates perception of sound. The technology is promoted as a widespread application to an entire area to improve the acoustical satisfaction by improving the acoustical privacy of the space. Not only does this improve one's ability to focus and improve productivity, but also it creates more privacy in speech.

A sound-masking system consists of a series of speakers that distribute an electronically generated background sound within a facility. People often refer to such systems as "white noise systems," but that term is actually a misnomer. White noise describes a specific type of sound spectrum that was used in early masking systems developed in the 1970s. The term "white noise" became widely used and people still refer to these systems as such. Over the years acousticians learned there were other spectrums to use that worked better by being more comfortable, unobtrusive and effective. Despite sound masking's extensive history, it still often is overlooked today.

In health care not only is addressing the lack of speech privacy important, but also the reduction of other environmental sounds is extremely important for patient comfort and healing. Conversations, footfall, medical equipment and procedures, televisions, telephones, carts, and mechanical and paging systems – among many other sources – ensure that noise is ever-present in most health care facilities. These noises contribute significantly to patient, visitor and staff stress levels. In fact, several studies identify noise as a health hazard. Documented effects include elevated blood pressure, quickened heart rate, changed metabolism and sleep disruption. HCAPS studies consistently rank sound as the most common problem in health care.

Because noise is disruptive, it also can affect mood. Individuals report feeling irritable, anxious or agitated in noisy environments. Furthermore, the noises, discussions and sounds of distress patients overhear can become the context for their health care experience. Because illness can cause increased sensitivity to environmental stressors, such sounds can create anxiety and increased nursing calls, as well as more pain and sleep medication requests.

There are many benefits to sound-masking systems. They can address acoustical concerns regardless of the physical properties of a space, and they most often are the most cost-efficient solution. Not only do quality systems last for decades, but also they can be expanded and relocated with ease. Systems are adjustable to changes that can occur during their lifetime, for example, when an areas changes usage, or staff/patient populations change. Sound-masking systems also can provide quality paging and music. Systems do not require any maintenance or subscriptions. Sound-masking systems can be installed pre or post occupancy, and can be installed throughout a building or target a small problem area.

When selecting a sound-masking system, it is important to consider the following key features, which can significantly influence its effectiveness and long-term benefits, as well as the comfort of the workplace occupants:

- Method of control;
- Size of adjustment zones;
- Frequency and volume adjustment capabilities;
- Masking sound generation;
- Zoning technology;
- Timer functions;
- Masking uniformity;
- Installation versatility;
- Scalability; and
- Appearance (in situations where the masking system is visible).

A number of sound-masking systems are available today because success depends on more than just the right product. It also is important to select a sound-masking system supported by professionals who can properly design and implement the system and provide you with ongoing support as your organization grows and changes. ▲

HEALTH CARE — TECH

Pandemic-embraced technologies are here to stay

While the health care industry has accelerated through the COVID-19 pandemic with many organizations forced to adapt to new technology and embrace telehealth at a pace unexpected and unplanned, the construction industry also has adapted to meet the new challenges.

From the way meetings are managed, how subcontractors bid work and the support services offered during design, contractors have quickly adopted new technologies to stay competitive, while ensuring workforce safety, and providing new benefits to clients through various tools.

■ **Matterport and OpenSpace.** Matterport and OpenSpace are different technologies that offer similar functions: virtual snapshots of existing spaces at a point in time. Benefits of these technologies remain instrumental during COVID-19, while their offerings will continue into post-pandemic construction. Each technology has its own advantages. Matterport takes more time but produces higher-quality images; OpenSpace takes less time, but outputs lower-quality images. Both programs output a digital reconstruction of the existing space that allows project teammates to virtually tour the site on their own timeline, as needed, while reducing the number of people walking through an occupied health care facility.

Through these platforms, communication during design coordination meetings with end users improves as they can pinpoint and drive detail into their challenges and opportunities within their spaces. Project teams can work remotely but stay informed of progress.

Viewing the digital files improves subcontractors' understanding by allowing them to walk the space and see intricate details often missed when taking stationary photos, resulting in more comprehensive pricing and scheduling.

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During design kickoff meetings, these technologies replace the need for each project teammate to walk the space and take photos of those items important to each peron. With a single link, individuals can tour the space from their computer with information and details at their fingertips.

Practical application of this technology fostered coordination among Swinerton, the design team, end users and subcontractors on a recent electrophysiology lab renovation on a major Colorado hospital campus with the following benefits:

- One person walked the potential project area, reducing risk of infection and disruption;
- Reduced site walk time frame to 20 minutes;
- All team members, including subcontractors, could revisit the space virtually as needed; and
- Project realized cost savings of tens of thousands of dollars and limited project contingencies through clear understanding of the space.

This is just one example and the depth of advantages these technologies offer. Below, find a higher-level breakdown of some additional technologies, which are proving valuable during the COVID-19 era and will continue to prove beneficial in the post-pandemic future.

■ **Robotic "dogs."** Mobile robots, particularly Boston Dynamics' quadruped robots, walk through construction sites to document progress, measure and report data points, create a digital project twin, and compare as-builts to building information modeling. This technology is instrumental in tracking and creating consistent, real-time point cloud data.

■ **Big data improves site efficiencies.** QR codes and personnel tracking have minimized risk and maintained production during the pandemic. COVID-19 has increased the need to accurately track personnel who visit a site to monitor worker safety, manpower counts and manpower load to ensure safe worker separation every day. This information also allows contact tracing between job sites as workers move between projects. Tracing provides swift communication and manages the risks COVID-19 places on each project. While not a new technology, its application has improved protocols to keep workers safe.

Post-pandemic, these technologies will improve their initially intended function of identifying inefficiencies and waste within the workday or worker experience. Better placement of stored goods, tools and regularly used equipment in more functional and accessible locations will improve worker efficiencies for installation. Improved production tracking creates more efficient schedules and reduces trade stacking.

■ **Daily digital huddles**. Pre-COVID-19, daily stretch and flex routines prepared workers for the tasks on hand and fostered coordination across different trades.

Although some degree of stretch and flex routines still occur with appropriate social distancing, the daily huddle has become the necessary replacement of this construction staple. Slack and Trello, communication platforms used in other industries, are flowing into construction as a necessity for communication and managing both direct and indirect workers remotely.

The reduction in manpower caused by the pandemic isn't just in the field; COVID-19 has limited support staff and foremen from attending in-person meetings. Today's superintendents need to understand how to communicate through technology tools and help others excel with this type of communication.

■ **Prefabrication and modular.** Prefabrication and modular construction continue to advance in the health care environment. The control and versatility of personnel management through prefab and modular parts will continue to improve workforce safety, reduce field labor and limit the interactions between patient services and the support role construction plays. In response to COVID-19, prefabrication reduces on-site manpower, yet generates efficiencies that can reduce cost by as much as 20%.

■ **Post-COVID-19 construction.** While the COVID-19 vaccine rolls out, it is safe to assume that the technologies employed and improved during the pandemic will not fade as they have contributed significantly to the construction industry being more proactive, more communicative and less disruptive to occupied health care facilities. ▲

The benefits of virtual reality in architecture design

Maybe it's my Midwest roots, but I'm going to be honest – I don't consider myself a virtual reality expert. I say this because I know enough about VR to realize just how much there is out there to know. This field is moving so quickly and progressing at such a rapid pace that people are dedicating their entire careers to it. I consider myself an architect who is an avid VR enthusiast, excitedly trying to keep up with the progressions while advocating for the use of this amazing tool among my peers and clients.

Technology, in general, has progressed rapidly over the past few decades; we've all heard the common "back in my day" statements about the now antiquated technology, from not all that long ago. The first time I put on a pair of VR goggles in college, I immediately felt nauseous and it lasted through the rest of the day. Although VR became a focus of my studies, I could only be in a headset for about 5 minutes a day in the beginning. The technology just wasn't far enough along to combat my propensity for motion sickness. Now, however, I can work in a headset for hours with no problems and I can tell you from personal experience, it's not my motion sickness that's improved.

Because I believe so strongly in the tool, I want to help people understand it and take advantage of the capabilities. VR can and is being used for so many different purposes. Personally, I've seen firsthand how beneficial it can be when designing health care environments. I'd like to break down what VR exactly is and how to use it effectively.

Zak Kvasnica
Project architect, EUA, zakk@eua.com

■ **What are the benefits of VR in architectural design?**

I've noticed that people who are unfamiliar with VR sometimes can think it's more complicated than it actually is. We are accustomed to viewing 2D images created from a single camera. The magic of VR is easily created by adding another camera – one for each eye. VR digitally recreates the way we see the world every day. The cameras are showing each eye a slightly different image and tracking it in space. A lot of current VR products, including consumer ones, have this technology built into headsets so it's meant for anyone to be able to use it without a high degree of technical knowledge or software; it's the equivalent of kids using Nintendo with the same level of user friendliness.

When designing built environments, architects and interior designers utilize a variety of tools. Drawings and renderings, while very useful for getting an idea for the vision of a space, only represent a single moment in time. VR, on the other hand, allows for a more immersive experience, giving users an idea of how a space will feel, providing the ability to walk through it before construction begins.

Using virtual reality, a client can see a space to review layouts, approve finishes and visualize project details in real time.

Through training and daily work, architects gain increased spatial intelligence. That said, being talented and being perfect are two very different things. For that reason, I would argue that there still are big benefits from utilizing VR internally. I'm sure even the most experienced and successful architects can think of spaces they've designed that didn't quite turn out how they pictured in their minds. VR allows us to not only more accurately design spaces that match our perceptions and our client's goals and desires, but also helps eliminate mistakes or change direction before construction. For example, when designing Orthopaedic Associates of Wisconsin, our client had a question about how the finishes would look so we put together a VR model. During the presentation, the client was able to see the space to approve the finishes in real time, but then while walking through the model, the client was able to review the initial layout of the physical therapy gym and easily give direction on modifica-

Please see Kvasnica, Page 16

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HEALTH CARE — MARKET UPDATE

Continued from Page 1

good portion of that can be attributed to new construction coming on line in the second half of 2019 that was not immediately filled.

Roughly 344,000 sf of construction was underway at the end of the second quarter, more than two-thirds of which is located on existing hospital campuses. This reflects a decrease from construction levels in the first half of 2019, when developers were busy on 506,000 sf, but preleasing levels were higher in 2020.

About 54% of the space under construction in 2020 was preleased, compared with 21% in the same period of 2019. Additionally, 89% of the 124,000 sf of space that was delivered in the first half of 2020 was preleased.

Good preleasing numbers suggest continued demand for the product type in the metro area and confidence in a full economic recovery, despite challenges in the greater marketplace. New leases were signed in the second half of 2020 at two of the metro area's largest new additions to the medical office building inventory: St. Joseph Medical Office Pavilion at 1818 Ogden St. in Denver and the Synergy Medical Office Building at 500 E. Hampden Ave. in Englewood.

Overall, the economy in metro Denver is better positioned to recover from the ongoing economic downturn than other parts of the country. A decade of economic growth and a record-low unemployment rate prepandemic of 2.1% created a more favorable environment for businesses and people trying to weather the storm than in other major metro areas that did not experience such growth.

To be sure, the area suffered setbacks as a result of stay-at-home orders and continued depressed activity in certain sectors such as office and retail.

But once the strictest orders put in place in March were relaxed, many people returned to their regularly scheduled appointments with providers in medical office buildings. It can be easier for consumers to go back into their dentist's office, where employees have always worn masks and sterilized everything, than into a restaurant where staff still are adjusting to new safety rules.

Health care employment is a good indicator of where the industry is trending. The industry lost 12% of its jobs in metro Denver from January to April, according to 2020 data from the U.S. Census Bureau, but recovered them quickly. By October, health care industry employment was down only 1.3% from January, at 186,900 jobs.

But it's important to note that the pandemic and its economic fallout are ongoing. A dramatic upswing in COVID-19 case counts in Colorado heading into the fall caused elected officials to once again impose restrictions on people and businesses going into the winter and holiday season. And although several vaccine candidates have emerged and are rolling out across the country, it will take months for those vaccines to be distributed on a large enough scale to have a real impact.

Looking ahead, medical office building developers and users should be prepared for change. Post-pandemic, an even greater focus on cleanliness, healthy air circulation and policies around keeping sick patients separate from well patients can be expected, all of which will be reflected in the way the real estate is used.

In metro Denver, the medical office real estate market remains healthy and is likely to continue that way. The somewhat muted changes in fundamentals in the first half of the year reflect a measured response to the current challenges in the marketplace, which will serve the industry well as it emerges from this downturn, hopefully later in 2021.▲

Sweet

Continued from Page 4

services. This was a practice of 16 physicians, four nurse practitioners/physician assistants and approximately 90 total staff members. With free-standing clinics, the facilities can be deployed more strategically within a community, based on need. In this case, the goal was improving access to colonoscopies, cancer screening and prevention for the local community. This also allowed the building to serve as an extension of the clinic's brand, versus being lumped into the branding of a larger campus.

Beyond the parties involved, the location and function of these facilities, their size, design and technical needs all vary widely. For the Hennepin Healthcare Clinic and Specialty Center in Minneapolis, the client was a comprehensive academic medical center and public hospital with world-class trauma services. In this instance, the ASC was just one part of the clinic and specialty center, which included primary care clinics, specialty clinics, as well as the outpatient surgery facilities.

We constructed the six-story clinic and specialty center bringing together 40 clinics that previously were distributed across nine facilities to better serve the growing residential population in the downtown Minneapolis market. In a larger facility like this, the location of the ASC within the building was a critical consideration affecting everything from ventilation to patient experience. For example, a ground-floor location might be the most convenient for patient access, but from a constructability perspective, it might be easier to punch through the ceiling in a top-floor location for proper ventilation and to minimize disruption to the operating rooms from other floors. These factors had to be considered by the design team in the broader context of the complete needs for the center.

Right now, there are more than 130 Medicare-certified ASCs in Colorado, more than double that of any of our neighboring states. Meeting an increase in demand, we actively are engaging providers across the country in developing and building new facilities.

In the course of our experience building or developing more than 3 million square feet of health care space in Colorado over the last decade, the trend is clear. Regardless of the speed with which people become vaccinated against COVID-19, the models of care in this country are evolving rapidly. So, too, must the real estate industry's approach to the health care market.▲

Loftus

Continued from Page 5

design/construction standpoint, is that offices and exam rooms need to be a lot more flexible – they can't be filled up with huge, fixed physician's desks, file cabinets and massive storage spaces," he said. "We need to be very thoughtful about the bare minimum that needs to be built in."

As for location, clients are saying they want telehealth rooms to be nearby, not "clustered together in a faraway suite, so providers can move seamlessly between in-person and telehealth appointments throughout their day," Morgan said.

■ **Family support.** If a clinician is meeting with a patient in an exam room and the family can't be there, telemedicine could allow them to join for diagnosis and treatment planning.

Morgan and her family were able to experience this personally, when her father was going through prostate cancer treatment in New Orleans. "With my dad, it helped us feel included and supportive."

Many families have at least basic medical devices at home – a thermometer, blood-pressure cuff and monitor, diabetes test kit if needed, and, since COVID-19, a pulse oximeter – that could provide valuable measurements to providers.

DiPietro's twin toddlers recently had a telemedicine checkup and their dad, a nurse, was able to provide the physician with all the necessary information. Although, the visit did prove challenging in a predictable way: "The twins were really good in the beginning and then they started running around," she said.

■ **Evolving uses.** Telehealth and telemedicine are hard terms to define. While telehealth is technically broader, including elements such as health education, preventive care, nutrition information, exercise or rehabilitation regimens, and mental health care, the terms often are used interchangeably.

Telemedicine alone can refer to a variety of interactions: between patients at home and their clinicians, among a clinical group (such as a tumor board), or between a rural patient/local provider and a specialist at a nearby hospital.

"You can distribute comprehensive care to a lot more places than before," Sangolli said.

In fact, says Morgan, the Veteran's Administration is working with Philips on a patient telehealth booth it is piloting within the VA system, with plans to put booths in Veterans of Foreign Wars halls as part of a community-based telehealth effort to increase veterans' access to care.

"I don't think it's a question of is telemedicine going to stick? It will stick. It's part of the changing and evolving continuum of care," said Sangolli. "The modality and protocols might change but telemedicine will definitely be incorporated into patient care in the future. Telehealth is not only about technology – it's about people and bringing value." ▲

Pisula

Continued from Page 6

appointments as it worked through the backlog.

Another tenant in the same MOB, Denver West Pediatrics, has stayed open and busy throughout the pandemic. The practice, like Denver Eye, has implemented strict safety protocols for patients, staff and physicians. It also has staggered check-in times and expanded its virtual visits for patients with more minor conditions.

Our experiences with the Denver West MOB are not unique. The vast majority of health care tenants throughout the state and nation have proved once again to be highly stable and good credit risks.

■ **Health care real estate provides diversification and reduces risk.** Health care real estate also can provide diversification from other real estate product types to reduce overall investment portfolio risk. Over the years, more investors have been rotating out of retail and hospitality and, to some degree, general office – because, while these product types provide higher returns in good times, they are hit harder during downturns. Medical real estate is seen as a steady and noncorrelated asset class compared to other sectors.

A Revista study from October found that although many sectors, including office and hotels, were negatively impacted by the pandemic and economic downturn, MOB fundamentals held firm. In the top 50 U.S. metro markets, including the Denver-Aurora-Lakewood metropolitan statistical area, MOB occupancy rates were steady and nearly 100% of rents were successfully collected from tenants during the third quarter.

All of these trends and characteristics have shown investors that they can count on health care real estate to facilitate diversified, risk-adjusted, high-yielding portfolios. During challenging times, as well as good times, this property type is indeed essential for a stable, well-diversified real estate investment portfolio. ▲

Rankin

Continued from Page 8

ronment for the inherent dangerous work that construction provides but also ensures patient and hospital staff safety.

These implemented prefabricated and modular solutions will continue to have a use for health care facilities. We all will continue to deal with the impacts of COVID-19 in our daily lives for the foreseeable future. These modular solutions will continue to allow for rapid changes and adjustments as we settle into how COVID-19 will continue to impact us, whether it be future vaccine deployment or patient check-in and checkout. These solutions will provide a conduit to enable the health care system to adapt to the unknown.

■ **A full team effort.** None of this effort could have been made possible without the willingness of the entire AEC community to work collaboratively in doing our part to help combat the virus. COVID-19 has reminded us that working as a team is of the utmost importance on each and every project delivery. This collaboration and clear communication among all parties continues to be the guiding light as not only a city, nor a state, but a nation continues to combat COVID-19.▲

Brennan

Continued from Page 10

view color combinations as there are so many variables within hue, saturation and different types of vision loss.

Touch also is an important sense to consider in terms of floor surfaces. Many patients may shuffle feet or use a cane, walker or wheelchair. Uneven floor surfaces and transitions between differing floor materials can create a trip hazard. Floating the floors can avoid this design hazard. Ideal floor materials are neither too tacky nor slippery. Clear and unobstructed pathways provide safety. Having clear space at walls will allow for caning and handrail use.

The sense of sound needs to be addressed through acoustics. Seniors may have diminished hearing, which makes background conversation, overhead paging, monitor alarms and ambient noise impossible to hear over and clearly understand a conversation with their care team. Because health care spaces require surfaces that can be easily wiped down and sanitized, they tend to be nonporous and reflect sound. A couple of design considerations would be to extend walls to structure, include acoustical batt within the wall, and to specify an acoustical tile with high noise reduction coefficient and ceiling attenuation class for acoustical sound absorption. Noise reduction coefficient refers to a surface's ability to reduce noise by absorbing sound. Ceiling attenuation class is a standard measurement of a ceiling system's ability to block sound between two closed spaces. Specify a noise reduction coefficient rating of 0.80 or greater to absorb ambient sound. A ceiling attenuation class value of 35 or greater is recommended to achieve speech privacy.

Planning patient care spaces for elderly and low vision requires detailed planning and coordination with all elements of design. Planning through the eyes of the patient from the initial approach to the clinic, emergency or hospital, the route to registration and the path to their examination is critical to the success outcome of the experience. ▲

Leck

Continued from Page 11

every other seat for social distancing to occur. Regardless of the social distancing protocols facilities are taking into consideration, the longevity of all interior finishes is crucial. Stronger cleaning agents are being used today with an increased frequency of cleanings. Textiles need to be tested to meet these higher standards and ensure a fail-proof result for the future.

The upholstery industry lacks a universal testing method that focuses on health care specifications. When these fabrics fail, the durability and cleanability of them are jeopardized, threatening the health and safety of users. Failure of these fabrics can result in the material cracking and exposing the porous cushion beneath, which is difficult to disinfect. Not disinfecting the seating properly can result in the spread of hospital-acquired infections. Time and money will go into replacing failed textiles, causing frustration to the owner. The Chemical Fabrics and Film Association Inc. has introduced a minimum performance standard for contract upholstery used indoors in health care applications. This next step is going to change the design industry's ability to specify upholstery for end users that will not fail.

We have not yet emerged from the other side of this pandemic, but there are many takeaways that can be applied to our buildings currently in design. Selecting materials that are highly durable and can withstand rigorous cleanings in all industries, having early conversations with EVS teams to understand the cleaning protocols and products they use, and communicating these protocols with interior finish and fabric manufacturers to ensure materials are tested thoroughly will help create a safer environment for users.

As designers, it is our responsibility to design buildings that not only are aesthetically pleasing, but also are designed with responsible materials to maintain a safe environment, no matter the circumstances. We challenge all our industry partners to examine their materials for cleanability and durability and learn how to continue to provide high-performance materials that will serve the end user well for many years. ▲

Kvasnica

Continued from Page 12

tions to best suit the project's needs. Reworking the layout during the design phase was infinitely easier and more cost effective than if the client wanted to alter things during or after construction.

Another example was in the design of the surgery suite renovation for ProHealth Oconomowoc Memorial Hospital. The surgeons wanted to access all equipment from both sides of the patient bed. Instead of providing unique rooms for each scenario, the proposed solution was to rotate the bed and adjust the equipment accordingly. We worked with the medical equipment vendors to model the space to include exactly what equipment the surgeons will have and where, to ensure the bed still could rotate and they will have access to what they need. When we presented to the surgeons via VR, they were able to virtually stand in their future operating room, understand reach ranges, lines of sight and ultimately confirm the design. The experience gave them confidence and reassurance as we moved into construction.

Examples like this remind me of the enormous advantage we have today with VR – something I'm sure many past architects wish they could've had access to and would marvel at now. If you are doing a building project or about to start one and haven't yet tried VR, I'd recommend asking your architect if it would make sense to try it out – it just may make a positive impact on the final result. ▲

Colorado Real Estate Journal Publication

January 2021

SENIOR HOUSING PROPERTIES

Market assessment: Short-term pain, but long-term optimism

Given the country's aging population and the vital role these facilities play in protecting high-risk elderly individuals in our communities, it is unlikely that the demand for needs-based senior housing will be reduced in the coming years. Pictured above is The Lodge at Grand Junction.

The COVID-19 crisis undoubtedly has created challenges in the senior living sector. Residents and their families are being impacted, lease-up activity has slowed due to state and local guidelines, prospective residents have delayed their move-in decisions until a vaccine is readily available, facilities have been forced to increase expenses due to the need for personal protective equipment, and staff shortages have arisen due to positive COVID-19 cases among employees. These challenges have led to a distressing year for many facilities. As the health and safety of staff and residents is critical in any senior living portfolio, the recent news of vaccinations is extremely positive. Vaccines will allow for these facilities to be a safe, secure places for residents and providers alike.

Drew Lacey
Vice president, Bow River Capital, lacey@bowrivercapital.com

Given the country's aging population and the vital role these facilities play in protecting high-risk elderly individuals in our communities, it is unlikely that the demand for needs-based senior housing will be reduced in the coming years. This article outlines several reasons why our firm is optimistic about the long-term future of senior living facilities despite the ongoing COVID-19 pandemic.

■ **Historical performance.** Historically, senior living has seen strong performance relative to other real estate asset classes. As illustrated in the chart on Page 23, senior housing has outperformed all other asset classes over the past 10 years; only industrial properties generated higher returns over the past one-, three- and five-year periods.

The question is, how will the impact from COVID-19 effect returns over the next 10 years? We believe this asset class will continue to outperform into the future due to dramatic increases in senior demographics expected over the next 10 years.

By 2030, the entire baby boomer generation will reach age 65 and will make up approximately 21% of the total population in the U.S. Over the last 100 years, life expectancy has increased by approximately 30 years in America. At the same time, the prevalence of heart disease and cancer in the senior community has grown. As a result of a surging senior demographic, coupled

Please see Page 23

INSIDE

SENIOR HOUSING — MARKET UPDATE

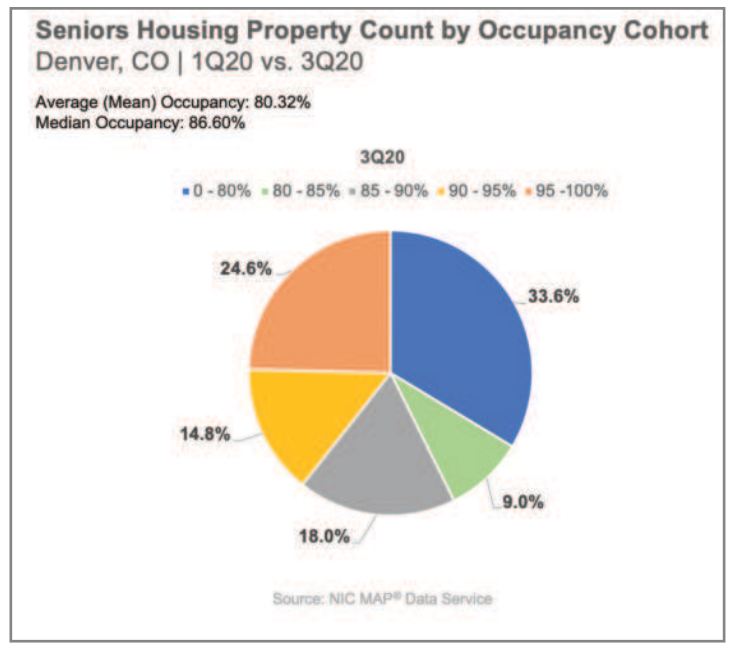
Evaluating Denver's senior housing occupancy

Editors note: *The following narrative, based upon data from the NIC MAP Data Service, provides a comparison of the senior housing sector's occupancy performance in the Denver metropolitan market during the COVID-19 pandemic, an event that dramatically impacted market conditions across the nation.*

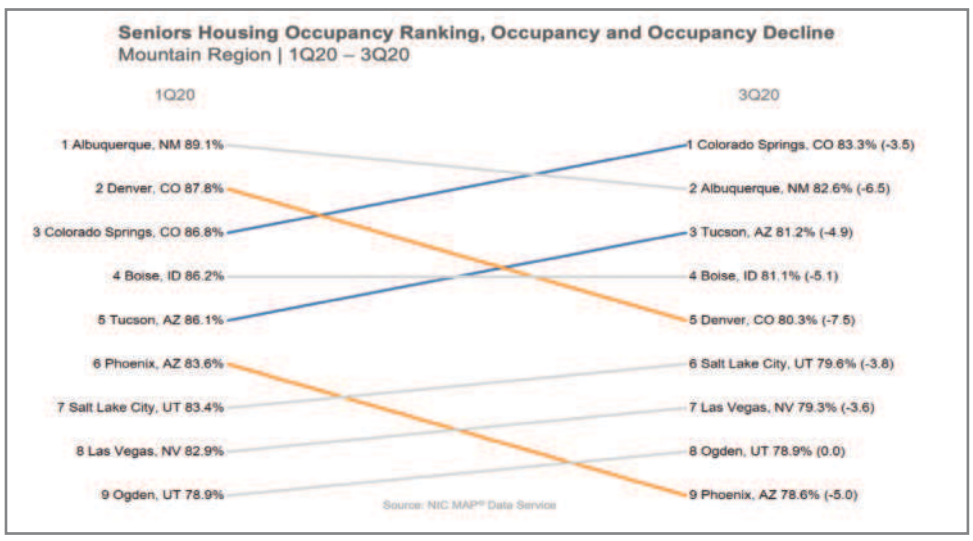
Lana Peck
Senior principal, National Investment Center for Seniors Housing & Care, lpeck@nic.org

Denver's senior housing occupancy rate was equal to the NIC MAP Primary Markets' average rate heading into the COVID-19 emergency. Denver's senior housing occupancy rate, inclusive of independent living, assisted living and memory care, was 87.8% at the end of first-quarter 2020, ranking Denver 14th out of the 31 markets tracked. By the end of third quarter, however – in just two quarters – Denver's senior housing occupancy declined 7.5 percentage points to 80.3%, the lowest level since we began reporting the data in 2005. Ranking 22nd out of the 31 NIC MAP primary markets, Denver's average occupancy dropped nearly 2 percentage points further than the average primary markets' prepandemic benchmark during the same time period (5.6 percentage points).

Denver was not alone; all markets saw dramatic occupancy rate declines since March. Directly related to the COVID-19 pandemic, the average occupancy rate for all senior housing fell 2.7 percentage points in the third quarter to a time series low of 82.1%. But the pace of deterioration in occupancy has been sharper in some markets than in others – Sacramento, California; Denver; Boston; and St. Louis have seen the most loss in occupancy, while Washington, D.C., San Antonio and Las Vegas experienced the least deterioration in occupancy since the first quarter.



The range of occupancy rates is broad and the distribution wide; weaker occupancy rates were more prevalent in the third quarter than earlier in the year. There was a large decline in the number of properties with an occupancy rate above 95% (from 44 to 30) and a large increase in the number of properties with occupancy below 80% between the first and third quarters of 2020 (from 26 to 41). Going forward, properties with less than 80% occupancy (some of which still are in lease-up) are more likely to have financial challenges weathering the pandemic than other properties.



The positioning of the strongest- and weakest-performing senior housing markets in the Mountain Region, starting with first-quarter 2020 as the prepandemic benchmark and ending with the third quarter

It is important to note that the range of occupancy rates is broad and the distribution wide; weaker occupancy rates were more prevalent in the third quarter than earlier in the year. There was a large decline in the number of properties with an occupancy rate above 95% (from 44 to 30) and a large increase in the number of properties with occupancy below 80% between the first and third quarters of 2020 (from 26 to 41). Going forward, properties with less than 80% occupancy (some of which are still in lease-up) are more likely to have financial challenges weathering the pandemic than other properties.

Occupancy in nearly all of the regional markets declined during the first two quarters of the pandemic – some more than others. The

Please see Peck, Page 27

SENIOR HOUSING — LAW

Nursing homes should check tax classification

On Oct. 22, the Adams County District Court granted a motion for summary judgment and declared that all nursing homes should be classified as residential for property tax purposes. This means nursing home properties will be assessed at the residential rate of 7.15% instead of the commercial rate of 29%, which will provide significant tax savings to nursing homes currently classified as commercial.

■ **Background.** Recently, some nursing homes have been classified as all or part commercial property by Colorado assessors based on the case ER Southtech, Ltd v. BOE. (E.R. SOUTHTECH, LTD. v. BOE, 972 P.2d 1057 (Colo. App. 1999)). ER Southtech defined "short-term" versus "long-term" stays for hotels based on a 30-day rule. In April 2019, the state property tax administrator issued a bulletin citing ER Southtech, stating that "facilities that provide short-term convalescent care and rehabilitation services, where patrons visit the facility periodically or temporarily reside there for less than 30 days" are commercial properties.

Neil Oberfeld
Shareholder, Greenberg Traurig LLP and co-chair, National Leasing Practice, oberfeldn@gtlaw.com

One month later, the Adams County Assessor's office classified a nursing home in Adams County as 100% commercial property for the 2019 tax year. The commercial classification resulted in about a 400% increase in property taxes as compared to a residential classification. We appealed the classification to the Adams County District Court, asking the court to reclassify the nursing home as residential.

On behalf of the property owner, we argued that nursing homes, like apartments, were residential property because these facilities are required, by their license, to provide a "homelike" environment for their residents. We also asserted that the state property tax administrator's manual for classifying properties failed to provide guidance on the meaning of those terms and that the assessor did not articulate a methodology to identify some licensed nursing homes as residential and others as commercial.

Amy Kramer
Shareholder, litigation practice, Greenberg Traurig LLP, kramera@gtlaw.com

■ **Summary judgment order.** The court ruled in favor of the property owner on summary judgment, indicating it did not need the case to go to trial to grant the relief that the property owner was seeking. The court's order effectively adopted the property owner's position that there was nothing in the state classification manual that would provide a distinction between some nursing homes being classified as commercial and other nursing homes as residential. Regarding the state classification manual, the court noted that any nursing home that allows for people to reside therein, regardless of length of stay (excepting hotels and motels), should be classified as residential property.

While the order acknowledged the "policy reasons" behind Adams County's attempt to classify the nursing home as commercial, it rejected those policy reasons and stated that until further distinctions are made by the Legislature, the court could not find any legal grounds upon which to deny the request of the property owner that the nursing home should be classified as residential for tax purposes.

Laurinda Frederick
Associate, real estate practice, Greenberg Traurig LLP, frederickl@gtlaw.com

■ **What this means for nursing homes.** The order is expected to serve as persuasive authority to classify nursing facilities as residential in Adams County and other Colorado counties. Going forward, it appears that ER Southtech and the 2019 bulletin may no longer be appropriate to use in valuing nursing homes.

Nursing home owners may be able to use this decision to appeal commercial classifications of their property, particularly if the commercial classification by the assessor was based on a methodology involving the length of stay of its residents. Nursing home owners can view their property's classification at the county assessor's website. If your nursing home is classified as commercial, you should speak with an attorney or tax adviser to determine whether a property tax abatement or property tax appeal is appropriate. ▲

> The court's order effectively adopted the property owner's position that there was nothing in the state classification manual that would provide a distinction between some nursing homes being classified as commercial and other nursing homes as residential.

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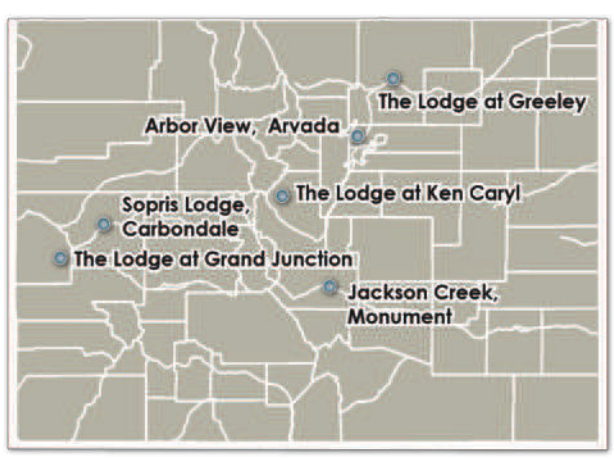

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SENIOR HOUSING — TRENDS

Cost-effective strategies to prevent repeat havoc

As long-term care facilities and nursing homes around the United States were receiving the first wave of COVID-19 vaccinations in mid-December (a couple weeks ahead of their Colorado counterparts), there was a palpable sense of relief and even cautious optimism that the end to a pandemic that has caused incalculable loss within older adult communities was in sight.

As heartening as it was to contemplate the end of a particularly dark and trying period for people who live or work inside older-adult communities, for those of us who design these communities, the arrival of a vaccine also was a reminder that we now need to focus on what we can and should do from a design perspective to better protect residents, staff members, and visitors from virus and infection.

Prior to the pandemic, the focus in designing older adult communities had largely shifted to creating spaces that promote socialization, connection with nature, and overall mental and emotional well-being. Now we're seeing design priorities shift again, this time to thoughtful approaches that help to curb the spread of disease while still honoring the need for spaces that inspire interaction and combat isolation. An article I wrote for CREJ earlier in the pandemic contemplated a wide range of possibilities for doing so, some of which would require major investment and others that could be implemented at little or no cost.

Now, six months deeper into the pandemic, with a clearer understanding of older adult communities' priorities and financial constraints, here are several design strategies that our team is considering as we move forward.

Jami Mohlenkamp
Principal, OZ Architecture, jmohlenkamp@ozarch.com

■ **Creating flexible, compartmentalized spaces.** Designing flexibility into residential spaces so they can be separated into smaller, self-contained compartments is one way to limit virus spread by reducing interactions among residents, their visitors and staff during an outbreak. In practice, that could mean creating compartmentalized residential wings that, in an emergency, can be quarantined to minimize exposure to or from the broader community, with the ability to convert ancillary spaces into common, localized living and eating areas that meet regulatory requirements and preserve continuity in caregiving services.

■ **Taking a thoughtful approach to third-party entry.** In "normal" times, mail carriers, package, food and supply delivery people, salon and fitness professionals, and other outside sources bring considerable traffic to older-adult communities. During a pandemic or outbreak, these outside providers also may present a significant exposure risk. Design can limit that risk by locating spaces used by outside services in a concentrated area within a community, accessed via a single, closely monitored perimeter entry point. So, for example, the mailroom could move to an exterior wall that's equipped with rear-loading mailboxes or automated parcel lockers. Likewise, a refrigerated receiving zone for food and bulk deliveries could be created on the perimeter of a building.

Limiting third-party entry also provides an opportunity to elevate and vary a community's design aesthetics. A community's salon, barbershop or fitness club, for example, could be architecturally designed to look like mixed-use shopfronts with a Main Street feel.

■ **Spatially distanced site design.** There are a range of opportunities to (re)configure exterior and outdoor active and resting spaces for socially distanced interactions, at little to no cost, so residents and their visitors can be active and interactive, without compromising safety. Outdoor paths/walkways can be widened, with pull-offs added at regular intervals to allow people who use a mobility device to create separation without going onto unstable terrain. Separation between outdoor seats, benches and picnic tables can be increased, so resting spots are adequately distanced to prevent transmission, yet close enough to still encourage the conversation and interaction that are critical to helping residents feel connected at a time when their sense of isolation may be particularly acute.

■ **HVAC design.** While cost may prevent communities from completely overhauling their heating, ventilation and air-conditioning systems with expensive, hospital-grade systems with high exchange rates and filtration, there are opportunities for small yet important HVAC upgrades. One is to create individual isolation units or suites with negative pressure capability to quarantine an infected resident or employee. Another less common approach would be to put an upgraded system such as needlepoint bipolar ionization in designated common areas where people tend to socialize. While we are seeing some owners adding these systems now, most are implementing monitoring to validate air quality before making such an investment.

■ **Tabled for now.** As theoretically appealing as concepts like communitywide, hospital-level HVAC, infrared temperature-check systems for people entering buildings and widespread internal use of antimicrobial materials may be in helping prevent outbreaks like those that so many older-adult communities endured in 2020, the jury still is out on whether approaches like these will deliver enough benefit to justify the cost.

What is clear, though, is that the COVID-19 experience will forever change how we design and build spaces for older adults, from memory care to assisted living and beyond. Now comes the work of identifying areas where we can make meaningful change, and do so cost-consciously, with the physical and emotional health of community residents remaining top of mind. ▲

Wellness, medical care access are growing trends

As members of the architecture, engineering and construction community, we're always looking for ways to continuously improve on existing methods for creating welcoming senior living facilities, which may one day be home to our beloved family members. Two recent development, design and construction trends involve incorporating wellness elements into every aspect of the facility, and including safe and speedy access to health care for residents.

Pfizer defines wellness as "the act of practicing healthy habits on a daily basis to attain better physical and mental health outcomes, so you're thriving instead of just surviving." Wellness encompasses social connectedness, physical activity, proper nutrition, sleep habits and mindfulness. While senior living developers historically have focused primarily on providing safe shelter, exercise opportunities and proper nutrition in their facilities, developers, designers and builders now see the importance of, and are working together to include, all wellness elements in their projects.

Assuring the interior and exterior of the facility are cohesive and work together to benefit all who dwell in and visit the facility is key, according to Bryan Warne, PLA, and director of landscape architecture and planning at Pi Architects. To achieve that level of coordination, the project team needs to involve the landscape architect and civil engineer in the earliest planning stages.

The big change we're seeing nowadays is the entire team works together early in the design process to put high value on how exterior spaces can contribute to resident wellness, including their visiting family members and the facility's staff.

Brian Mulnix
Business development manager, Catamount, brian.mulnix@catamountinc.com

As a result of this team collaboration, we're seeing healthy and beautiful outcomes. Residents not only have better access to the outdoors, but also they are motivated to get up and move in a safe, relaxing and purposeful environment. Residents have ample access to natural light and Vitamin D, aka "the sunshine vitamin" that is known to protect against a number of health problems, including bone pain and muscle weakness, cognitive impairment in older adults and fatigue, to name a few.

Warne advises, "The primary goal of the landscape design and planning should not be to create a beautiful view from the inside looking out. Instead, the goal should be to create an exterior environment that draws people outdoors."

Recent senior living facility designs include porches in the dining areas, with access to views of water features and sculptures, for example, that create a desire for the resident to independently get up and get closer to those elements. It's important to note that designs always should include residents being in the line of sight of staff at all times.

Hord Coplan Macht

Hilltop Reserve Senior Living in Denver will offer outpatient rehab services on site. This facility, currently under construction, will feature an attractive outdoor spaces, a salon and spa, arts and craft classes, executive chef services and more.

Outdoor-focused designs in senior living facilities also include areas – both outside and inside with walls of windows – for residents to exercise, bird-watch and create arts and crafts projects. While COVID-19 has made many developers, senior living facility leaders, residents and their family members "landscape woke," according to Warne, it's not the main driver behind the need to draw people outside. Senior living facilities need flexible spaces that can be shared and utilized by multiple groups of people safely, such as those found in outdoor environments.

For facilities and their design to be successful, the developer and operator must be on board to justify the cost and understand design advantages for overall quality of life for residents.

Building medical facilities, such as a smaller doctor's office, into senior living facilities is another trending practice when developing relevant, safe and competitive facilities that meet the needs of residents, their families and staff members. Certainly, there's a need for safe and convenient health care in this age of COVID-19; however, there are other advantages to having medical offices within senior living residences. Such offices offer a quick, convenient and secure way to transport residents to their doctor.

Please see Mulnix, Page 27

SENIOR HOUSING
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SENIOR HOUSING — TRENDS

Behavioral health considerations for senior care

Traditionally, environments for elder care put more emphasis on medical care than behavioral care. Even within settings for specialized dementia and Alzheimer's care, there tends to be an obvious medical preference to care for the body first and the emotional health second.

The reality is that many residents of these types of facilities also are dealing with depression and other behavioral health issues. Where possible the introduction of physically active and socially engaging environments may greatly reduce additional issues with depression and loss of purpose, according to research from the Applied Health Economics and Health Policy.

Creating senior care facilities that are less institutional and more residentially focused is a worthwhile goal, but one that needs to be balanced against practical needs. Factors like cost and functionality for care staff always will weigh heavily on the design of these spaces, but there still is room to consider design choices that can have a meaningful positive impact on the mental health of residents. Examples of these opportunities and examples of their application include:

■ **Calming introductory spaces.** Environmental psychologists tend to agree that introductory spaces should evoke a sense of calm and familiar orientation, according to the Handbook of Environmental Psychology. That is, the space needs to feel familiar; like walking into the living room of any home – you understand it is the living room even if it is not yours. Modeling intake and community spaces on homelike environments can help soften the transition for new residents and encourage connectivity with others.

Curtis Hendershott
Principal, TreanorHL, chendershott@treanorhl.com

At the Idaho State Building Authority Secure Skilled Nursing Facility designed by TreanorHL, the facility dining/community room was positioned in the midzone of the facility between entry/administrative area and residents' rooms. The light fixtures, stone columns, wood hearth and fireplace provide homelike elements that add warmth, familiarity and comfort. Closer to the residence room wings are day rooms/lounges that serve as nodes along the building's circulation. They open up the corridor similar to how a dining room in a residence may connect the kitchen and family room.

■ **Familiar orientations and micro-environments.** The nature of damage to the brain in Alzheimer's patients indicates that introducing familiar orientation and landmarks will reduce the frustration of patients at losing context in an environment (why patients wander). Including micro-environments of familiar landmarks like a living room, a garden, a bus stop, front stoop or porch can ease emotional outbursts because the brain recognizes the landmark – it simply does not recognize the context of it, according to Healing Spaces: The Science of Place and Well-Being. Thus, a patient can safely move about a space.

At the Idaho State Building Authority Secure Skilled Nursing Facility, the facility dining/community room was positioned in the midzone of the facility between the entry and administrative area and residents' rooms. The light fixtures, stone columns, wood hearth and fireplace provide homelike elements that add warmth, familiarity and comfort.

Even for non-Alzheimer's residents, familiar orientations of layering public to private spaces (dining and gathering spaces toward the front followed by private rooms) like we do in our homes offers an increased sense of comfort. The use of familiarly scaled and oriented furniture, art and color also should be considered to elicit familiarity.

The lower-scale ceilings and familiar detailing of furniture, wall coverings, artwork and fireplace present in the residence room wings of the ISBA Secure Skilled Nursing Facility offer a homey feel while still meeting desired quality, durability and security requirements. Resident corridors integrate color schemes, signage and artwork for wayfinding. Imagery unique to different Idaho mountain regions identify each corridor and provide the residents with memory queues

Please see Hendershott, Page 27

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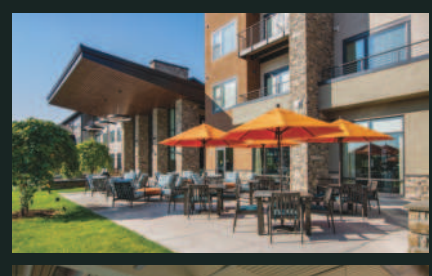

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SENIOR HOUSING — MARKET UPDATE

Continued from Page 17

with an increase in need for care, the demand for senior housing care has risen dramatically.

In evaluating the future of this asset class, it is important to understand there are several different types of senior living facilities.

The congregate care facilities include independent living, assisted living and memory care service facilities, with AL and MC classified as "needs-based" services. While skilled nursing facilities also are needs-based, they have higher-acuity residents and are classified as health care service providers. As health care service providers, the sources of payment by residents come largely from Medicare and Medicaid.

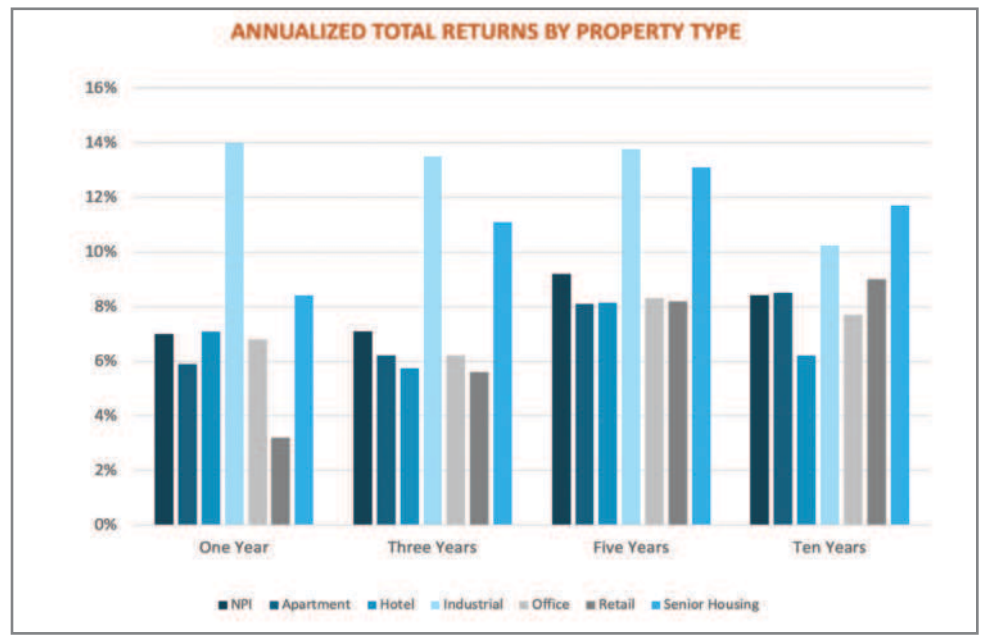
In contrast, newer IL, AL and MC facilities primarily operate on a private pay structure. One source of private pay that has become increasingly important is home equity. National census data suggests that the 65 years and older age demographic holds significant equity in their home due to year purchased and standard inflation. According to the 2016 American Community Survey conducted by the U.S. Census Bureau, seniors age 65-plus have an average of 83.98% equity in their home. As illustrated in the chart, home prices in the Mountain West have appreciated significantly over the past 10 years.

Within the senior housing industry, each asset type has experienced a decline in occupancy since the beginning of the year due to the pandemic. Per NIC, the stabilized occupancy rate for majority AL properties fell by 7.2%, to 80.6%, on a three-month rolling basis in the November 2020 to March 2020 reporting periods. Similarly, the stabilized occupancy rate for majority IL properties fell 0.3% in November to 86.1%. These numbers are well below the historical occupancy rates of 85% to 90% that have been reported over the past 10 years, as well as the occupancy rates of 88% for majority AL properties and 92% for majority IL properties reported in January 2020, prior to the pandemic. This is indicative of the impact that the pandemic has had on these facilities and why we can expect occupancy levels to return to historical averages.

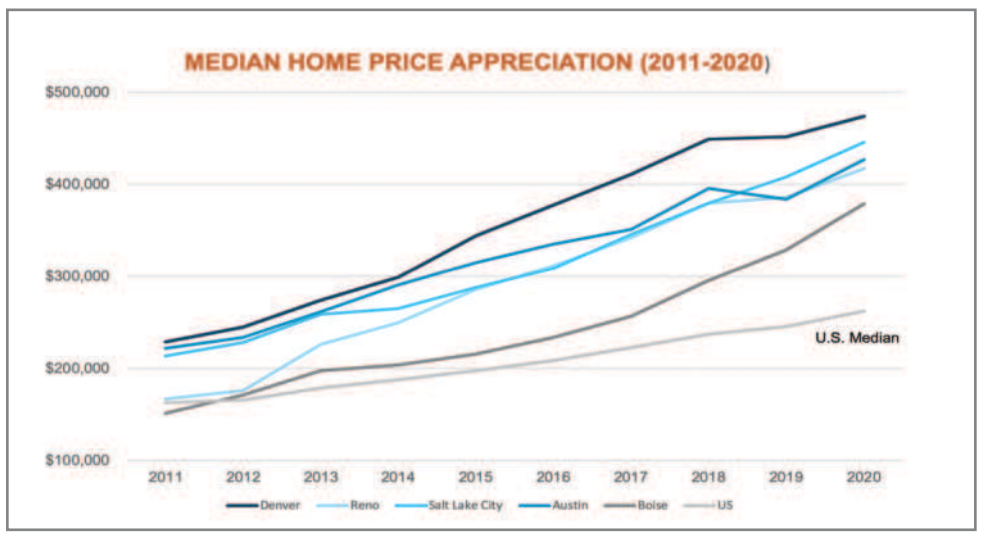
SENIOR LIVING FACILITY TYPES

Independent Living (IL)*	• Ideal for individuals who can still live independently but enjoy having access to assistance as needed • Typically more hospitality centric • Not needs-based
Assisted Living (AL)*	• Ideal for individuals who have moderate difficulty with daily activities at home • Assistance with cleaning, meal prep, laundry, transportation, medication management, etc. • Needs-based
Memory Care (MC)*	• Provides a safe, structured environment with individuals with Alzheimer's or dementia • Assistance similar to AL facilities, but for individuals with a more significant need for assistance • Needs-based
Skilled Nursing (SN)	• Nursing care provided by registered nurses for individuals with a high need for assistance • Assistance with all aspects of daily life; essentially one step down from hospital care • Needs-based

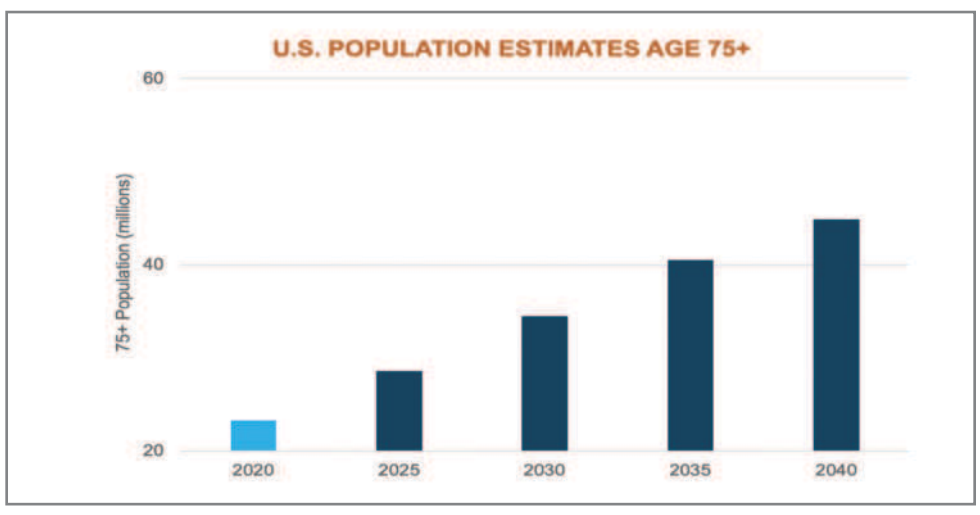
* Bow River Capital Investment Areas



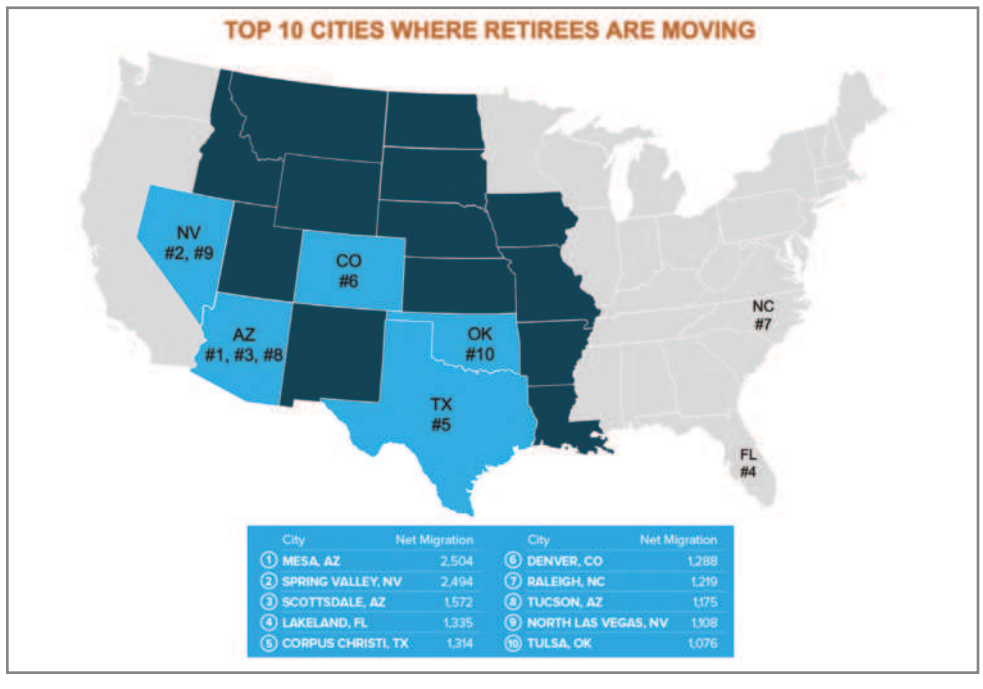
Senior housing has outperformed all other asset classes over the past 10 years; only industrial properties generated higher returns over the past one-, three- and five-year periods.



Home prices in the Mountain West have appreciated significantly over the past 10 years.



According to ESRI, the U.S. 75-year-old and older population is estimated to grow by 21.2% over the next five years.



■ **Market overview and future outlook.** Construction of senior living facilities fell to 2.9% growth in 2019, below the 30-year average of 4.2%. Activity in 2020 has been consistent due to operators delaying expansion plans to focus on their existing resident base as well as the debt market pulling back. As of November, year-over-year inventory growth was 2.7% for majority IL facilities and 3.1% for majority AL facilities, with approximately 41% of all units under construction located in the top 10 metropolitan statistical areas. According to ESRI, the U.S. 75-year-old and older population is estimated to grow by 21.2% over the next five years. If only a portion of this figure translates to actual prospective residents with a viable income stream, the senior housing industry is facing a severe shortage of inventory.

Several factors, including lower borrowing costs, lower equity return requirements, a larger variety of capital allocators, higher-quality communities, and lower perceived risk of future operational and investment headwinds, have caused capitalization rates for senior housing facilities to drop. The cap rate spread between traditional multifamily and senior housing has consistently narrowed over the last 10 years. In 2010, senior housing cap rates were at 9%, with multifamily at around 6.75% (a 225 basis point spread). Today, senior housing rates are near 6% with multifamily rates at 5.5% (a 50 basis point spread).

■ **Strength of asset class in Mountain West.** Prior to the pandemic, a recent report from Business Insider noted that retired Americans are flocking to Mountain West states like Colorado, Nevada, Arizona and Texas. Numerous factors, including cost of living, taxes and quality of life, are driving people to retire in this region. However, the report notes the biggest factor driving people to relocate is affordability of medical care. The onset of the coronavirus has accelerated the trend of individuals leaving large coastal markets and moving into less densely populated cities within the Mountain West.

A recent report by SmartAsset.com notes that roughly 930,000 people over 60 moved across state lines in 2018. The report illustrates that eight of the top 10 cities where retirees are moving in the U.S. were located in the Mountain West.

Senior living facilities located in secondary and tertiary markets have been somewhat shielded from the impact of COVID-19. A recent article from Senior Housing News sheds light on the remarkable resilience of Sabra Health Care Real Estate Investment Trust's senior housing portfolio, which is primarily located in secondary and tertiary markets. In the article, Sabra's chief investment officer notes that COVID-19 cases per capita in primary markets are 26% higher than in secondary markets, and 64% higher than in tertiary markets.

■ **COVID-19 related changes.** Changes are continuously being made to the way senior housing facilities are designed. Many of these trends already were occurring prior to the pandemic and now are being implemented much quicker. One trend includes independent living cottages being built adjacent to AL facilities. While this may not be feasible in more urban locations, cottages in rural areas are in high demand due to a desire for residents to be within a senior living community, but outside of a group setting. Other changes include designing larger rooms to add comfort during isolation periods, upgrading air filtration systems, adding technology enhancements related to visitation with friends and family, and providing health care to residents via telehealth.

On the operations side, many changes have been noted this year. Developers can make as many design or technology enhancements that they wish; however, without the right operator, the community, its residents and its staff are not set up to succeed. One of the biggest enhancements being made by operators is related to supply chain. At the onset of the pandemic, personal protective equipment and medical equipment was in high demand and many communities were left short of what they required. While much of this was outside of the operator's control, a secure supply chain is an even higher priority going forward.

As changes in facility design and operation make facilities safer for residents, and more Americans understand the significance of having a controlled health care solution for their elderly loved ones, our firm expects the senior living sector to emerge from the COVID-19 pandemic stronger than before. ▲

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303-629-0221
www.frontierfireprotection.com

Integrity Fire Safety Services
Cody Refosco
cody.refosco@integrityfiresafetyservices.com
303-557-1820
www.integrityfiresafetyservices.com/

Western States Fire Protection Company
Kevin Olmstead
kevin.olmstead@wsfp.us
303-792-0022
www.wsfp.com

FIRE STOPPING/FIRE PROOFING

Alternate Resistance Specialists, LLC
Stephen Kohara
stephen@arscolo.com
720-767-1661

FURNITURE FOR PUBLIC SPACES

Streetscapes
James Shaffer
james@streetscapes.biz
303-475-9262
www.streetscapes.biz

GLASS

Horizon Glass
Lou Sigman
lsigman@horizonglass.net
303-293-9377
www.horizonglass.net

LIGHTING/INSTALLATION & MAINTENANCE

CAM – Common Area Maintenance Services
Shanae Dix, CSP
shanae@camcolorado.com
303-295-2424
www.camcolorado.com

LOCKSMITHS

Mathias Lock & Key
Dispatch
303-292-9746
dispatch@mathias1901.com

MECHANICAL/HVAC

CMI Mechanical, Inc.
Rick Dassow
rdassow@coloradomechanical.com
303-364-3443
www.coloradomechanical.com

Murphy Company
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720-257-1615
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RK Mechanical
Marc Paolicelli
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303-785-6851
www.rkmi.com

Tolin Mechanical Systems Company
Tom Padilla
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303-455-2825
www.servicelogic.com

METAL ROOFING/WALL PANELS

B&M Roofing of Colorado, Inc.
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303-443-5843
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Bauen Corporation
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Douglass Colony Group
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The BOSS Directory

BUILDING OPERATING SERVICES & SUPPLIERS

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www.superiorroofing.com

METAL SERVICES

Reidy Metal Services Inc.
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303-361-9000
www.reidymetal.com

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Buehler Companies
Tami Anderson
tami@buehlercompanies.com
303-667-7438
www.buehlercompanies.com

Cowboy Moving & Storage
Michael Folsom
mike@cowboymoving.com
303-789-2200
www.cowboymoving.com

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jim@dccpaint.com
303-861-2030
www.denvercommercialcoatings.com

Ponderosa Painting & Remodeling, Inc.
Bob Murphy
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303-887-4973

Preferred Painting, Inc.
Chris Miller
chris@preferredpainting.com
303-695-0147
www.preferredpainting.com

PARKING LOT STRIPING

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PLUMBING

MAI Mechanical
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Murphy Company
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www.murphynet.com

RK Mechanical
Marc Paolicelli
303-785-6851
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PRESSURE WASHING

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Rocky Mountain Squeegee Squad
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720-408-0014

Snow Pros Inc. Sitesource CAM
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Top Gun Pressure Washing Inc.
James Ballen
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720-540-4880
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PROPERTY IMPROVEMENT/ TENANT FINISH

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Facilities Contracting, Inc.
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ROOFING

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Bauen Corporation
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CRW, Inc. – Commercial Roofing & Waterproofing
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Western Roofing, Inc.
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Roof Anchorage/ Fall Protection

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SECURITY SERVICES

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SIGNAGE

DTC Signs & Graphics
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SNOW REMOVAL

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Snow Pros Inc. Sitesource CAM
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SOLAR

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SOUND MASKING

adi Workplace Acoustics
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Margenau Associates
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SWEEPING

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TREE AND LAWN CARE

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SavATree
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Fort Collins: 970-221-1287
North Metro Denver:
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savatree.com

WEATHERPROOFING

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weathersuresystems.com

WINDOW CLEANING

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Rocky Mountain Squeegee Squad
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CBRE cbre.com	●	●	●	●	●	●		●	●	●	●		**Simon Gordon** simon.gordon@cbre.com
Colliers International colliers.com	●	●		●	●	●		●					**Robert Miller** robert.miller@colliers.com
Drake Asset Management drakeam.com		●				●		●	●		●		**Perry Radic** perry@drakeam.com
Dunton Commercial dunton-commercial.com	●	●	●	●	●	●		●	●		●		**Nate Melchior** nmelchior@dunton-commercial.com
Elevate Real Estate Services elevateres.com		●	●	●	●	●		●		●	●		**Dan Meitus** dmeitus@elevateres.com
ELKCO Properties, Inc. elkcoproperties.net					●	●	●	●	●		●		**Ken Cilia** ken@elkco.net
Griffis/Blessing griffisblessing.com	●	●	●	●	●	●		●	●				**Kerry Egleston** kerry@gb85.com
JLL us.jll.com	●	●	●	●	●			●		●			**Paul F. Schloff** Paul.Schloff@am.jll.com
Newmark Knight Frank ngkf.com	●	●	●	●	●	●		●	●	●	●	Land, Association Mgmt.	**Josh Shoemaker** jshoemaker@ngkf.com
NewMark Merrill Mountain States https://www.newmarkmerrill.com/						●		●	●	●	●	Retail / Community Engagement	**Alex Staneski** astaneski@nmc-mountainstates.com
Olive Real Estate Management Services olivereg.com	●	●	●	●	●	●			●			Association Mgmt.	**David Hewett** dhewett@Olivereg.com
Panorama Commercial Group panoramacommercialgroup.com	●	●	●	●	●	●		●	●	●	●		**Don Palik** don@panoramaproperty.com
Revesco Property Services, LLC revescoproperties.com				●	●	●		●	●	●	●		**Brian Fishman** bfishman@revescoproperties.com
RISE Commercial Property Services RISEcps.com	●	●	●	●	●	●		●	●	●	●	Association Mgmt.	**T.J. Tarbell** ttarbell@RISEcps.com
Sessions Group LLC sessionsllc.com	●	●		●		●		●		●	●	Association Mgmt.	**Kade Sessions** kade@sessionsllc.com
Stream streamrealty.com		●	●		●	●			●				**Tom Bahn, CPM** tom.bahn@streamrealty.com
Western Asset Services westernassetservices.com	●	●	●	●		●		●					**Lisa A. McInroy** lmcinroy@westdevgrp.com
Wheelhouse Commercial wheelhousecommercial.com	●	●	●	●	●	●		●	●		●	Mixed-Use: MF/Retail	**Mark Kennedy** mkennedy@wheelhousecommercial.com
Tranwestern transwestern.com		●		●	●	●		●	●				**Rene Wineland** rene.wineland@transwestern.com
Vector Property Services, LLC vectorproperty.com				●	●			●					**Linda Mott** linda.mott@vectorproperty.com
Zocalo Community Development zocalodevelopment.com						●		●		●			**Madeline Grawey** madeline@zocalodevelopment.com

	Multifamily < 100 units	Multifamily > 100 units	Residential HOA	Metro Denver	Colorado Springs	Boulder	Fort Collins / Northern Front Range	Other	Contact
MULTIFAMILY DIRECTORY									
Atlas Real Estate Group realatlas.com		●		●	●	●	●	Single family	**Ryan Boykin** info@realatlas.com
Echelon Property Group echelonrents.com	●	●		●	●	●	●		**Bryan Stern** bstern@echelonpg.com
ELKCO Properties, Inc. elkcoproperties.net	●	●		●	●		●		**Ken Cilia** ken@elkco.net
Greystar greystar.com	●			●	●	●	●		**Brandon Rich** brich@greystar.com
Griffis/Blessing griffisblessing.com	●	●		●	●				**Kerry Egleston** kerry@gb85.com
Silva-Markham Partners **silva-markham.com**	●	●		●	●	●	●		**Alfonso Silva** asilva@silva-markham.com
Wheelhouse Apartments / Boutique Apartments wheelhousecommercial.com	●	●						Mixed-Use: MF/Retail	**Brian Lantzy** blantzy@wheelhousecommercial.com
Zocalo Community Development zocalodevelopment.com		●		●	●				**Madeline Grawey** madeline@zocalodevelopment.com

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Peck

Continued from Page 18

chart on Page 18 illustrates the positioning of the strongest- and weakest-performing senior housing markets in the Mountain Region, starting with first-quarter 2020 as the prepandemic benchmark and ending with the current quarter. The left-hand column on each chart is the ranking and occupancy rate in the first quarter, and the right-hand column on each chart is the ranking and occupancy rate in the third quarter. The blue lines show the markets with improving rank and the orange lines show the markets with declining rank. The number in parentheses is the change in occupancy across the first three quarters of the year. The first quarter represents prepandemic occupancy rates or a base from which to compare the impact of the pandemic, while the third quarter shows the impact of six months of COVID-19. Colorado Springs improved its senior housing occupancy ranking from third to first, and Denver fell from second to fifth – with the largest occupancy decline of the nine regional markets (7.5%).

The size of the market, inventory growth, the share of properties in the early stages of lease-up, as well as the impact of the pandemic help to explain these changes in occupancy rates. Larger markets and those with greater amounts of new inventory have been especially hard-pressed to hold onto occupancy, while smaller markets and those with limited new inventory have been less challenged. Annual inventory growth in the Mountain Region was highest for Denver and lowest for Colorado Springs in the third quarter of 2020. However, as the prepandemic development pipeline shifts into new units coming on line, future occupancy rates may be pressured lower in many markets, including Denver and Colorado Springs.

While this analysis has provided a snapshot of occupancy metrics in the Denver metropolitan area and Mountain Region, it is important to note that under more "normal" conditions there are many factors that contribute to occupancy performance that should be considered, including market-level supply and demand characteristics, consumer sentiment and preferences toward senior housing, demographic growth rates and economic factors, just to name a few.

The NIC MAP Data Service will release fourth-quarter 2020 data Jan. 7, the day this issue went into production. The NIC MAP Data Service collects data for assisted living and independent living, as well as CCRCs and stand-alone memory care. ▲

Mulnix

Continued from Page 20

Hilltop Reserve Senior Living in Denver, for example, will offer outpatient rehab services on site. This facility, which we are building, was designed by Hord Coplan Macht for Ascent Senior Living. Rich with attractive outdoor spaces, it also will include the signature "525 Club" amenities that offer a salon and spa, arts and craft classes, executive chef services, and more.

While many senior living facilities offer various types of medical care, there still are several obstacles to overcome before internal medical facilities become standard.

Christopher Laxton, CAE and executive director of AMDA-The Society for Post-Acute and Long-Term Care Medicine – an organization that represents medical practitioners from post-acute and long-term care settings in senior living facilities – notes there are no existing standards and quality guidelines for medical care provided within a senior living facility. Those guidelines will need to be written and adopted prior to senior living facilities offering in-house medical offices.

Developers, planners, designers and builders also should be mindful of state and federal regulations for including medical care within a facility, as well as Medicare and Medicaid insurance, which may not cover costs for medical care provided within the senior living facility. ▲

Hendershott

Continued from Page 22

to orient them in the building. Exterior room signage with a personal photo then helps residents, staff and visitors identify individual rooms.

■ **Acoustic and sensory control.** Minimizing noise and sensory overload is an important consideration for senior living environments, especially for those with behavioral health support needs, according to research from Patricia Ortega-Andeane and Cesarea Estrada-Rodriquez.

When considering building materials and finishes, consider how they will impact patients from a sound and visual perspective. Clustering living spaces apart from public spaces can help with auditory control as well as functional flow.

For example, linear wood acoustic ceiling panels tune the dining/gathering room acoustics at the Idaho Secure Skilled Nursing Facility to dampen noise levels in a high-occupant space that is used extensively for meals, socialization, group discussions and activities.

■ **Outdoor accessibility.** The use of nature as a positive distraction can directly impact the levels of cortisol and blood pressure to reduce the physical anxiety patients may feel, according to research from Stephanie Liddicoat. Whether it is an outdoor courtyard, gardens, a patio or large exterior windows with a scenic view, offering connections to the outdoors is an impactful way to boost resident satisfaction and mental/emotional state.

Residents of the ISBA Secure Skilled Nursing Facility are encouraged to connect with the outdoors through the facility's welcoming dining patio with barbeque grills, multiple garden areas and raised planter tables. Views from each resident room face into landscaped areas to provide natural light and a therapeutic connection to nature even when indoors.

By prioritizing care for emotional health equally alongside care for physical health, senior care environments can make a meaningful difference in the lives of their residents, enabling them to feel like a resident at home instead of a patient needing care. ▲

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