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WHY SEATTLE HAS BECOME A HOTBED FOR LIFE SCIENCES

Growth in life sciences development is amplified by the economic principle of agglomeration.

As Seattle continues to transform, the life sciences industry has helped buoy the commercial real estate market and has been a major driver in employment growth in the region. With a strong focus on research and development, Seattle has become a hub for biotech and pharmaceutical companies alike, drawing industry-leading talent from around the world.



BY LAUREN ZINKAN
MARTIN SELIG REAL ESTATE

At Martin Selig Real Estate, we believe that this growth is amplified by the economic principle of agglomeration, offering some explanation as to why Seattle has become a hotbed for life sciences.

Agglomeration economies refer to the social and economic benefits derived by like-minded businesses choosing to co-locate in a particular geographic area. This concentration of industry can lead to increased productivity and innovation, benefiting employers in a number of ways including access to specialized talent, shared infrastructure, and knowledge spillover. These benefits are particularly strong in the life sciences industry, where collaboration and knowl-



Martin Selig Real Estate's 635 and 645 Elliott buildings house innovative life science companies and share vital infrastructure.

PHOTO FROM MARTIN SELIG REAL ESTATE

edge sharing are key drivers of success.

Sustainability is another desirable byproduct of agglomeration economies. The clustering of businesses in a particular

HOTBED — PAGE 11

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ON THE COVER

The 101 Utah project has a focus on hospitality-driven spaces, with the lobby designed to connect research tenants as a community. Turn to page 20 to learn about more trends affecting the science workplace.

RENDERING COURTESY OF GENSLER

2023 LIFE SCIENCES TEAM

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NEW CHAPTER FOR LIFE SCIENCES STARTS IN THE U DISTRICT

With 22 towers coming, a new light rail station, and robust life sciences sector at the UW, it's no surprise the U District has the potential to be Seattle's next life sciences hub.

The addition of two new life sciences and office buildings in the University District signals the potential expansion of Seattle's strong technology and biotechnology sectors beyond South Lake Union and into one of the city's fastest growing neighborhoods.



BY KRISTINA RIVERA COLLINSWOERMAN

Located at 12th Avenue and Brooklyn Avenue, the "Chapter Buildings" are being developed by Touchstone (an Urban Renaissance Group company) and Portman Holdings with a joint-venture partner, Lionstone Investments.

The combined 400,000-square-foot development will leverage its proximity to the University of Washington as a major catalyst for life sciences education. This gives employers the opportunity to locate near the university to better recruit and retain talent as well as leverage the energy, access, and amenities of a well-established neighborhood.

"We are thrilled to have such a dynamic commercial development coming into the heart of our community," U District Partnership Executive Director Don Blakeney said. "Demand remains strong for life science space in Seattle, especially in relation to the start-ups coming out of the University of Washington. Having the Chapter Buildings next to the UW campus and the U District light rail station puts them at a competitive advantage to attract the life science workers of tomorrow to a neighborhood that's redefining Seattle's urban environment."

With 22 new towers coming to the U District, a new light rail station, and robust life sciences sector at the University of Washington, it's no surprise the U District has the potential to be Seattle's next life sciences hub. What sets the neighborhood apart from South Lake Union is it's a long-standing neighborhood with UW as its main generator of activity and energy. The Chapter Buildings and other private developments are building upon the life sciences resources that already exist and are expanding on them.

"The U District is arguably Seattle's most dynamic neighborhood right now," said Joe Polito, managing director of development for Touchstone. "With UW's investment in the West Campus

Chapter Building II looking north along Brooklyn Avenue Northeast.



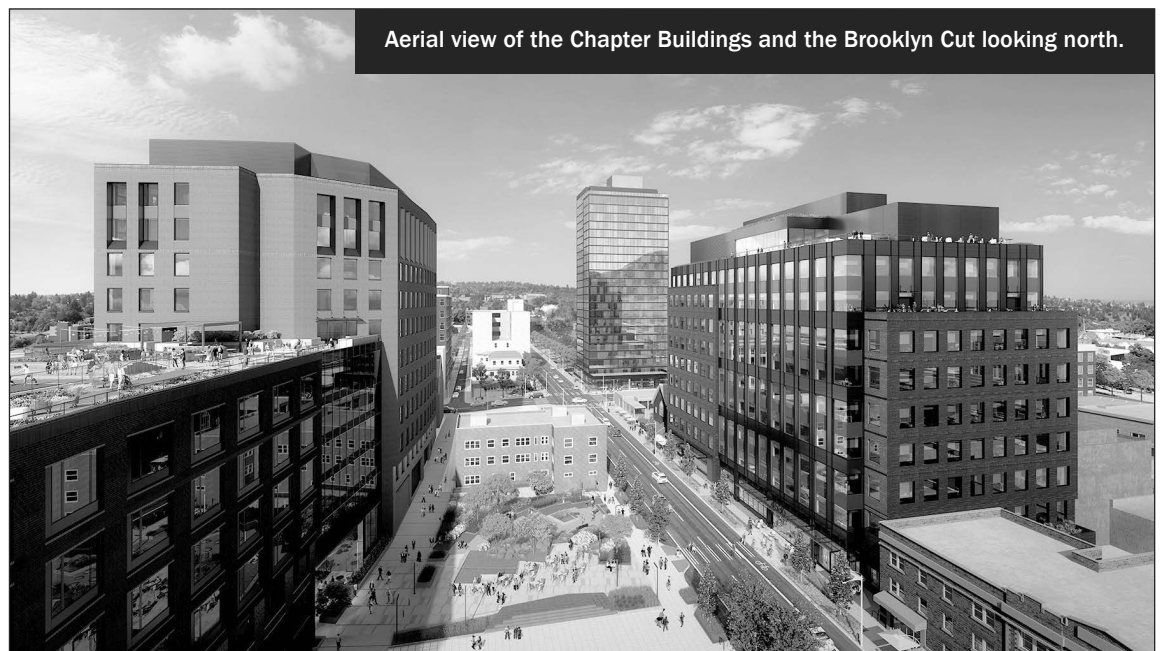
RENDERINGS BY COLLINSWOERMAN

Innovation District, a regional light rail station in the heart of the neighborhood, and more than 20 new high-rise towers in planning and development, the timing of the Chapter Buildings and natural growth of the tech and life sciences sector here is very exciting. The addition of new day-time employees and life science and office space to the district will bring new public-facing and ground-floor shops, open space, and amenities to Brooklyn and 12th avenues."

Chapter Building II, the first privately owned life science building in the U District, is 150,000 square feet and features 10 stories of Class A life science space with ground-floor retail, a rooftop deck, and amenity space. The building features taller floor-to-floor heights and more robust infrastructure for venting, mechanical, electrical, and plumbing to accommodate future life sciences tenants.

Chapter Building I is a 12-story office building with 240,000 square feet of office space with ground-floor retail and a rooftop showcasing sweeping city views as well as a pickleball court. Both buildings include easy, street-level access to bike storage, showers, and exercise facilities, and are pursuing LEED Gold and Fitwel certifications. The buildings are on track for second-quarter 2024 completion.

CollinsWoerman was the archi-



Aerial view of the Chapter Buildings and the Brooklyn Cut looking north.

tect of the Chapter Buildings, working with the overall vision to enhance the fabric of the neighborhood while complementing its existing character, connect university research and academics with local industries, and create opportunities for pedestrian connections across the site.

At the ground level, the Brooklyn Cut will connect Chapter Building I and Chapter Building II and serves as an outdoor pedestrian-focused mid-block connector between 12th and Brooklyn avenues. The Brooklyn Cut will turn what was once an

underutilized parking lot into an open space that enhances the pedestrian experience. The space offers just over 10,000 square feet of outdoor gathering areas, multiple seating areas, and a seamless entry into the main lobbies and adjacent retail spaces. Porous ground-floor retail spaces will allow pedestrians easy access to the lobbies and retail.

EXTENDED LIFE SCIENCES HUB?

CBRE reported that Seattle ranks ninth among emerging life

sciences hubs in the nation, and the same report found that Seattle experienced a 24% increase in life sciences researchers from 2015 to 2020.

The arrival of the Chapter Buildings in the U District is significant for many reasons in the neighborhood. They bring a booming hub to the area, and they're creating a pedestrian-friendly environment for the community that's highly accessible.

The U District underwent a robust and dense rezoning in

TEPID APPETITE FOR LOCAL LAB SPACE CONTINUES

Short-term challenges won't be a roadblock for the incredible growth predicted over the long term.

The life sciences industry has not been immune to the macroeconomic challenges plaguing the global, national, regional and local economies (and it is unlikely we will see the heady times of late 2020 and 2021 in the near future), but these short-term challenges won't be a roadblock for the incredible growth predicted over the long term. Science doesn't stop, and investment in new innovations and advanced modalities will continue to drive the industry forward over the long-term horizon. While we'd never call any industry recession-proof, the life sciences industry is better positioned than most because of its countercyclical drivers that will sustain forward momentum.



BY KRIS RICHEY CURTIS
JLL

Locally, Puget Sound life science employment has grown at the fourth fastest pace among peer biotech markets since 2015. Open positions rebounded sharply in the first quarter, rising across most occupations, with the largest increasing for medical scientists. Despite the job growth, the Puget Sound life science real estate market is no different than other top U.S. markets when it comes to real estate. It continues to be in transition, remaining dormant to start the year as the fourth quarter 2022's tepid appetite for lab space carried into the first quarter of 2023. This was driven by 2023 economic and capital markets turmoil that started in 2022. As venture capital funding fell, marking the lowest quarterly volume since the third quarter of 2019, life science companies remained focused on preserving cash and paused near-term growth plans.

Puget Sound life science leasing is likely to remain limited for the remainder of the year while life science companies' capital constraints remain. While venture capital dollars were few and far between in the first quarter of 2023, National Institutes of Health (NIH) funding continued at a healthy pace, supporting the region's top research institutions. These institutions' robust funding, as the region's largest occupiers and consistent sources of biotech spinouts, bodes well for the market's long-term health.

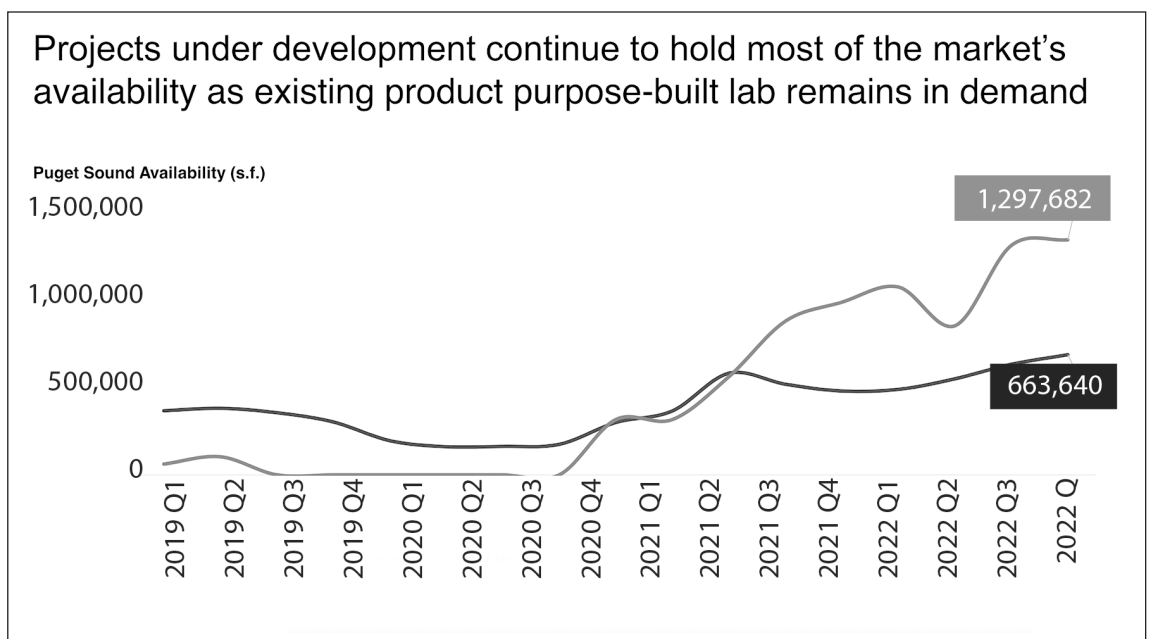
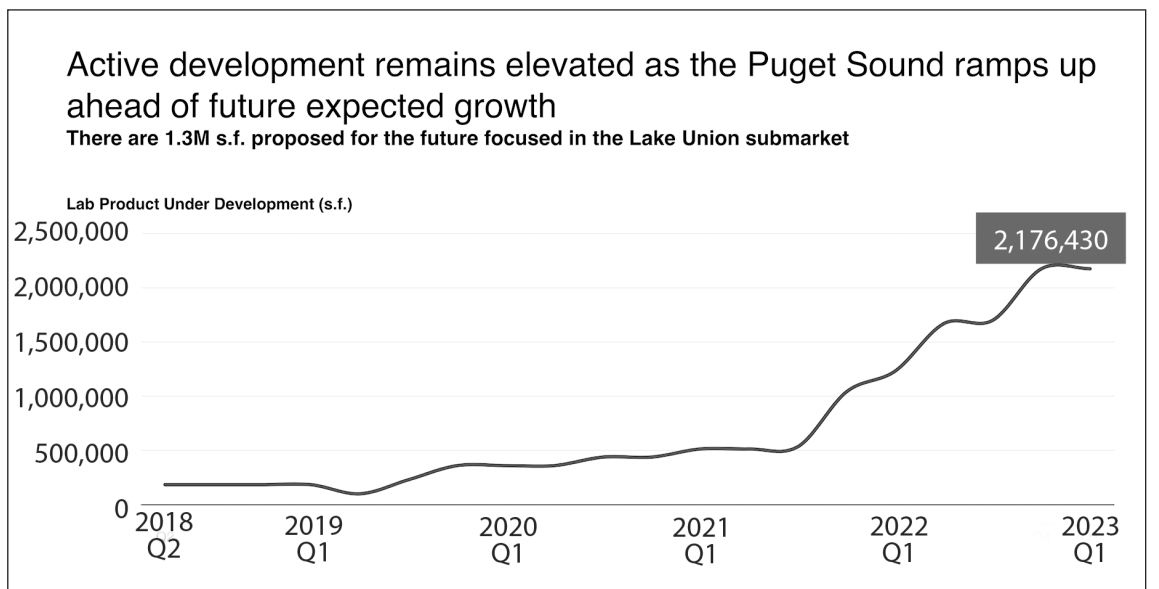
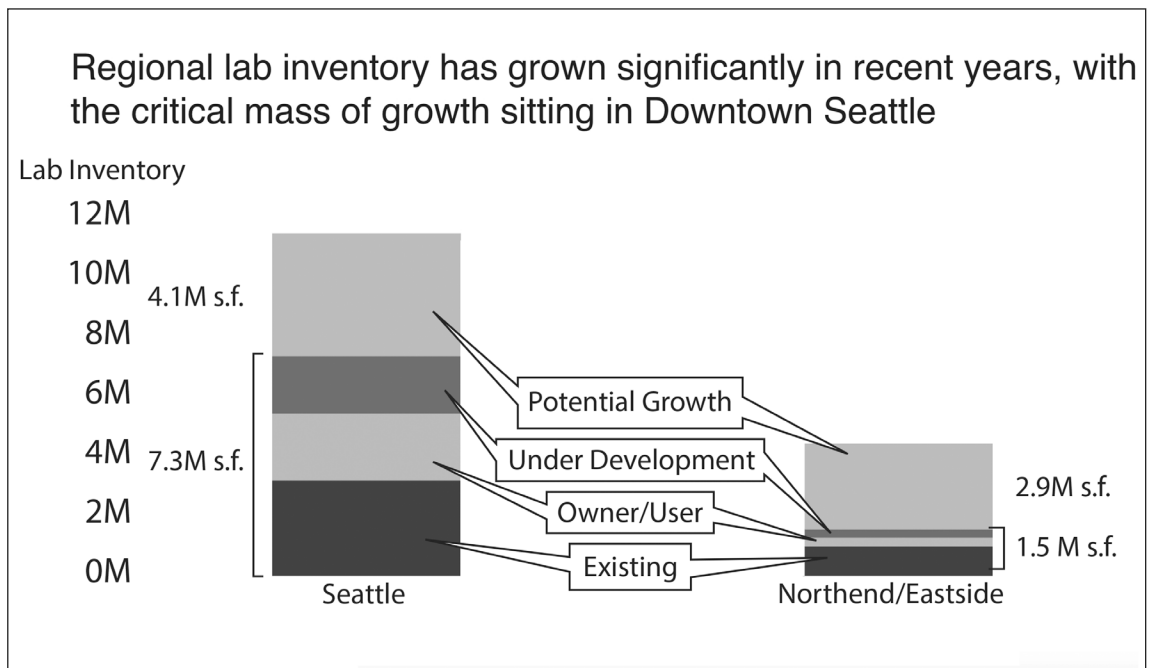
lar to the overall Puget Sound region as leasing activity remained slim in the first quarter of 2023 with only one agreement signed. While companies largely remained on the sidelines to start the year, Bristol Myers Squibb's 241,000-square-foot lease renewal at The Alexandria Center stands tall in a market that has averaged 453,000 square feet of annual leasing over the past five years.

Seattle availability rose slightly in the first quarter, both on a direct and sublease basis, although most availability remained within under-construction product. And while market availability is largely direct, subleases have now reached 4.8%. Contrary to Seattle office sublease space, current lab sublease asking rates aren't far off Graphics from JLL from direct availabilities as the master tenants have sunk significant capital into buildouts. Seattle sublease rates closed in the first quarter at an average of \$70 per square foot, triple net.

Northend-Eastside life science leasing activity remained in a holding pattern in first quarter as no deals were signed and vacancy increased by 30 basis points to 27.6%. But as the Puget Sound lab market has slowed and demand has fallen, a few large space requirements have skewed regional demand in Bothell's favor. While the region's largest lab requirements have their sights on Bothell, it remains to be seen whether the submarket can accommodate large companies seeking more than 100,000 square feet or if they'll instead opt for larger sites beyond the traditional Bothell GMP cluster as Seagen did with its Everett facility.

Puget Sound lab development remains robust as the market continues to quickly scale up. Following the market's 13.2% expansion since 2020, current development is set to accelerate the lab market's growth. As new projects deliver, it is likely that companies will continue to favor purpose-built lab over conversions while availability lasts. Lab space delivering through 2023 has been largely preleased, although projects delivering in 2024 and beyond remain available, resulting in 66.1% of the market's current availability sitting in product under development. When economic conditions and funding improve, this will position the area well as it will have new, purpose-built product ready to accommodate growing companies in a market where

Downtown Seattle was simi-

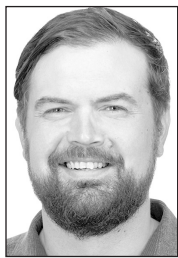


WHAT DOES IT TAKE TO CONVERT OFFICES TO BIOTECH LAB SPACE?

Major considerations include the building site, structure, enclosure, elevators and MEPF.

In many of the premier life science markets, developers are regularly acquiring office buildings and converting them to lab spaces.

However, all buildings are not created equal, and while many have the potential to house life science space, it may prove cost prohibitive or impractical without consideration of certain factors. Conversions can range from full demolition and renovation to minor modifications supporting lab-specific processes. Major considerations include the building site, structure, enclosure, elevators, and MEPF (mechanical/HVAC, electrical, plumbing,



BY STEVE GATES
BNBUILDERS

and fire protection systems.)

SITE CONSIDERATIONS

Life science tenants often require specific site features atypical of traditional office developments. For example, a loading dock and access drive aisle for shipping and receiving are essential. A life science tenant will receive much larger and more frequent deliveries than a typical tenant. Therefore, the drive aisle and loading area must accommodate large trucks with direct access to the dock and away from the public entrance.

In conjunction with the need for an appropriately sized loading dock, life science users often require a service or freight elevator, which has the size and capacity to move large, heavy equipment. Other site considerations include appropriate waste

utilities, electrical service sized to accommodate the load of a life science tenant, outdoor amenity areas, and utility yards for backup generators and central utility plants.

STRUCTURE

Key structural considerations include the capacity of the floors to support large lab equipment, a roof structure capable of supporting new mechanical units, slab openings for vertical utilities, and potential structural upgrades.

The buildings we evaluate for office-to-lab conversions consist of various structure types, from tilt-up to cast-in-place concrete to structural steel. Since they were built to house office spaces, these buildings are typically not designed to accommodate lab floor loading requirements and do not meet the vibration criteria required by life science

equipment. Therefore, working closely with a structural engineer to determine the most efficient and cost-effective method for improving the structure is imperative.

For example, evaluating floor-to-floor heights is a critical early task. Life science buildings are most efficient at 15 feet, floor to floor. However, many office buildings have a high first floor but shorter floor-to-floor heights on the upper levels. To define the potential ceiling height, we must first determine the bottom of the structure and consider the above-ceiling MEPF layout. Next, we review available as-built drawings and laser scan the space to accommodate our ideal ceiling height and locate major structural elements. Using this information, we seek creative ways to implement ceiling height while designing the critical MEPF infrastructure.

Control areas are another

critical element needed in any building that may house hazardous materials. Each control area can accommodate a set quantity of hazardous materials and must be separated by fire-resistive construction. Determining whether fire resistance is added vertically or horizontally depends on the building layout, type of structure, and plans for dividing the space. Additionally, office buildings often only have one control area and insufficient fire resistance, greatly reducing the maximum capacity of chemicals allowed in the building. This, in turn, reduces leasing flexibility to multiple tenants. Conversely, creating larger or multiple control areas allows leasing to multiple or chemistry-heavy life science tenants.

MEPF SYSTEMS

HVAC systems often require

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upgrades or replacements as labs necessitate a higher level of HVAC performance to aid in contamination control. This means installing larger and more complex systems.

The electrical criteria for labs, including the need for emergency power, often exceed the existing systems in a building. For example, a life science tenant may use energy-intensive lab equipment or critical components like refrigeration units with uninterrupted power sources. Additionally, life science buildings require plumbing systems that can accommodate lab waste or specialty utility services like air and gas. These systems can be installed in a centralized “shared service” application or localized within a specialty lab area.

Finally, there may be need to incorporate specialty fire protection systems. These include pre-action, dry-pipe/gaseous, chemical, or foam-based fire suppression. It is also crucial to determine the hazard rating of the existing system, making sure that it can support a life science buildout. Often, older office building systems don't meet lab requirements and necessitate extensive rework. This could mean replacement of existing main and branch line piping to allow for adequate water flow.

HVAC and mechanical systems often require upgrades or replacements as labs necessitate a higher level performance than offices.



PHOTO BY ROSS WILDMAN/BNBUILDERS

FINAL CONSIDERATIONS

The key to a successful office-to-lab conversion relies on thoroughly evaluating various factors, including aesthetics. Potential tenants are competing for talent; therefore, the appearance of the building must be appealing and reflect the use of the space. Most conversions require an exterior skin upgrade, and an early task is to help position the client's cost model to include these components in their design. While these upgrades don't have much bearing on performance, they

play a vital role in the marketability of the building.

The main goal of conversion is to find the most cost-effective solution while anticipating future needs and allowing for meaningful upgrades.

Steve Gates has worked with BNBuilders for 17 years and is a project executive specializing in life sciences and pharmaceutical manufacturing.

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BEST PRACTICES FOR SUCCESSFUL OUTCOMES TO COMPLEX HEALTH CARE PROJECTS

Demand remains extremely high for health care workers and brick-and-mortar facilities.



Project Planning Partners and Perkins&Will collaborated with client Century Therapeutics on a recent life science tenant improvement in downtown Seattle. The build-out required intense planning, risk management and project team communications due to occupied adjacent spaces.

IMAGES COURTESY OF PERKINS&WILL

As economic headwinds continue to impact growth, even in historically robust markets like Seattle, investors and other real estate professionals are increasingly looking to high-performing asset classes to move confidently into the future.



BY JODY ELSOM
PROJECT PLANNING
PARTNERS

One of those product types is health care and biotech. Recent studies show that demand remains extremely high for health care workers and brick-and-mortar facilities, with one source, the U.S. Bureau of Labor Statistics, citing that the "healthcare and social assistance sector is projected to add about 2.6 million jobs from 2021 to 2031," the most of any U.S. job market sector. More locally, the Seattle Office of Economic Development says that one in five jobs here are directly associated with the health care industry, a number many believe will continue to rise.

Furthermore, in the Downtown Seattle Association's 2022 Economic Report, research shows that the "sale of biotech properties has remained strong over the past few years," with several buildings trading for record highs. In that same report, real estate research firm Newmark indicated that the Puget Sound region ranks third nationally for overall life science growth, and that related venture capital in the area increased by 200% over the past five years.

With so much attention being given to public health these days, and rightly so, it stands to reason that demand for health care, biotech, and life science industry workers — and the facilities which support their patient care and R&D — should be in significant demand. We can see that growth in South Lake Union and other neighborhoods where tower cranes loom over ground-up health care-related developments, as well as facilities additions and renovations. That trend won't likely slow down anytime soon.

So, it's incumbent upon commercial real estate professionals who, along with their clients, are responsible for these highly specialized and complex product types to do everything possible to deliver projects quickly and efficiently. That's easier said than done, though, especially with recent escalations in costs impacting the entire development and construction industry.

The name of the game, particularly among owner's reps in health care

and life science, is to deliver value to our clients, no matter the size and scale of their projects. But working in an industry where many factors can greatly stress a project — including complex regulatory requirements, occupied critical spaces, challenging site conditions, and the ongoing need to deliver more with less — a set of best practices are crucial for success.

The most important "north star" goal for any project manager on a health care or life science development is to keep everyone on track and acutely informed of their responsibilities and timelines. That's done by managing expectations, monitoring risk, and communicating with the client and development team.

Before examining these best practices, it's important to note the owner's rep job is more than just tracking. We engage with teams to ensure we've demonstrated proof of progress, understand where challenges may exist, identify potential hurdles to overcome, and provide alternative solutions to resolving the issue. Project management is by no means a passive role; it requires constant brainstorming sessions with team leaders to identify innovative solutions and persistent personal interaction with all project stakeholders.

As costs continue to rise and budgets tighten, one innovative tool owner's reps use is a detailed matrix that weighs the value of each of the project's key design components. This method of prioritizing ensures adherence to overall project goals while keeping our teams aligned with the client's target budget. The matrix also helps project managers to control scope as we work to meet the client's broader vision for the development's impact on the industry and community at-large.

Along the way, guiding principles will be used to facilitate confident decision-making among all project stakeholders. We utilize a target value design approach to assign costs to each of the project's programmatic spaces. And as design evolves, we prioritize any scope modifications by assigning "must-haves," "want-to-haves," and "nice-to-haves" to all project elements, enabling the team to compare cost to need, as well as to easily determine the most important investments. This process has consistently enabled our clients to maximize buildable space and prioritize what's implemented within defined budget parameters, in the end helping to retain critical features to support the building's operations and project goals.

Since construction isn't the main focus of health care clients' business and given the development industry's

own unique language, today's best project managers provide value by ensuring all essential scope items are translated into design documents. This begins with a training session for key stakeholders defining the process to each level of engagement.

This was critical in our work on a major lab development in Seattle recently, where we provided a detailed definition of everything the client would need to know early during the design phase — from project expectations to how the scope develops over time to milestone decisions for company leadership. For Fred Hutchinson Cancer Center, we used life-sized cardboard mock-ups to help determine critical building-block requirements for repetitive exam room spaces in the clinical environment, an approach that helped the client to understand the implications of the final built solution and adjust appropriately while costs are not impacted.

To communicate effectively with clients and development team members, and to help manage project risk, experienced project managers utilize detailed activity logs as the primary tracking tool — especially for tasks and issue resolution, as well as to keep the construction schedule on

time. Integrating key milestone activities into the activity log can often prove beneficial, as it did on a recent project with bluebird bio (now named 2seventy bio) — a leading immuno-oncology cell therapy company focused on discovering and developing new therapies that truly disrupt the cancer treatment landscape.

The company's tight development timelines and intense equipment needs required significant coordination with the design and procurement challenges to relocate people, equipment, and other critical resources from an old facility to the new development without any interruption to ongoing science.

Aside from client correspondence, activity logs can also be instrumental in communicating with AHJs, or the "authorities having jurisdiction," a term used for describing the municipal agency responsible for issuing permits or approving construction drawings. These processes are becoming especially critical and complex with the increasing regulatory oversight in the health care industry. The activity logs help to coordinate the various building permit approvals and licensing requirements for operating these specialty facilities.

In addition, there is a tremendous amount of cross-over coordination

required between different AHJs, ranging from local building departments, counties issuing plumbing permits, and state departments of health providing construction review services for health care spaces. This collaborative effort ensures everyone receives proper documentation and coordinated requirements during reviews and final approvals, helping to align expectations and final installations that, in the end, facilitate streamlined operations.

Jody Elsom is owner and managing partner at Project Planning Partners, a Seattle-based real estate company providing project management, advisory services, and strategic planning to companies in the health care, life science and other industries.

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APPETITE

CONTINUED FROM PAGE 5

the average biotech salary represents a significant savings over peer markets.

Touching on investment, lab capital markets remained silent through the first quarter following a quiet 2022. This marks the fourth consecutive quarter with no trades. The Puget Sound has seen relatively few lab properties trade historically as many investors and developers plan to hold their assets long term. It is unlikely there will be much in the way of transaction volume in 2023 as lab leasing remains on hold.

While economic and capital markets uncertainty remain, I expect the Puget Sound

life science market to proceed with cautious optimism while planning for growth. Leases and development projects will be much more calculated, scrutinized and risk averse. Make no mistake — the Puget Sound will be on the radar for life science companies for years to come because of its human and physical capital.

Kris Richey Curtis is a managing director at JLL in Seattle where she specializes in working with biotech, technology and health care companies with their real estate needs.



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by Marriott, at 19608 International Blvd. in SeaTac, sold for a bit over \$51.1 million, according to King County records.
The seller was RI SeaTac Property LP, associated with Texas Western Hospitality of Dallas, which acquired the land in 2016 for about \$4.2 million, then developed it. Jensen Fey was the architect. The buyer was M2 SeaTac LLC, associated with MCR

The new development might start this fall, but owner Retail Opportunity hasn't yet announced a groundbreaking.

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HOTBED

CONTINUED FROM PAGE 3

industry reduces strain on utilities and infrastructure, while also reducing carbon emissions and transportation costs. Reducing costs to operate businesses frees up capital to invest into additional growth. Seattle can embrace the idea of agglomeration and foster continued economic growth by maintaining the city's existing infrastructure, and investing in transportation methods that alleviate strain in our daily commutes.

In Seattle, agglomeration in the life sciences industry has been driven in large part by the

presence of major research institutions such as the University of Washington, Fred Hutchinson Cancer Research Center, Seattle Cancer Care Alliance, and the Allen Institute for Brain Science. These institutions have built a solid foundation for life sciences in the region, attracting top talent and creating fertile ground for entrepreneurship in the life science industry.

As a real estate developer, we are keenly aware of the impact agglomeration economies can have on the Seattle market. We have seen firsthand how the

concentration of businesses and talent in the life sciences industry has created demand for specialized workspaces, from lab facilities to supporting office space. We have also seen how the success of these companies has led to spin-off businesses and startups, further driving growth in the industry.

Our office portfolio at Martin Selig Real Estate is clustered in most of Seattle's main commercial submarkets, making us well-suited to provide space for any business seeking adjacency to their industry peers. We pro-

vide flexible design options for all commercial spaces and are in the process of bolstering our portfolio-wide amenity spaces, such as conference rooms, fitness centers and communal areas, encouraging collaboration and knowledge sharing amongst our tenants.

Looking ahead, we believe that agglomeration economies existing in the life sciences will continue to drive growth and innovation in Seattle. With new breakthroughs in research and development on the horizon, we expect to see even greater

demand for specialized commercial space in the years to come. Martin Selig Real Estate is committed to supporting Seattle's emerging life science community by providing flexible lease terms and room to grow. As a family-owned operation for more than six decades, our approach emphasizes human interaction; a refreshing contrast to the increasingly automated world we live in.

Lauren Zinkan is the head of marketing and communications at Martin Selig Real Estate.

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NEW CHAPTER

CONTINUED FROM PAGE 4

2017 that allowed developers to build higher buildings in exchange for building affordable housing or paying into the city housing fund. The University District is one of the fastest growing neighborhoods in Seattle — there are currently 22 new towers in planning or development, and UW's West Campus Innovation District's 10-year development plan includes 4 million square feet of new development. Plus, the arrival of light rail to the U District, located one block south of the Chapter Buildings, in the fall of 2021 increased connectivity and brought robust private development to the area.

"In addition to bringing hundreds of new employees and much needed life-sciences space to the U District, the Chapter Buildings will also be creating new public-facing ground floor shops and restaurants, open spaces and amenities to the heart of this growing neighborhood," Blakeney added. "Only steps away from the new light rail station, the new commercial developments along Brooklyn Avenue are creating a third primary corridor through the neighborhood to complement the existing Roosevelt Way and the Ave."

Kristina Rivera is the marketing coordinator at CollinsWoerman.



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'SUPERSIZED' TEAM FINDS SUCCESS AT SEATTLE CHILDREN'S FOREST B

The team worked within an occupied campus to achieve aggressive sustainability and seismic resiliency goals.



BY KYLE MALASPINO & STEVE J. SAVAGE
COUGHLIN PORTER LUNDEEN

full of thoughtful details and experience-driven designs. It's clear that patient care is at the center.

To create such a successful facility, the project team over-achieved in the categories regularly challenging to health care projects, including collaborating as a supersized project team, working within an occupied health care campus, and achieving aggressive sustainability and seismic resiliency goals.

FULL TEAM EFFORT

With large projects, come large project teams. And high stakes. Led by ZGF (architecture), Sell-en (construction), and Coughlin Porter Lundeen (structural and civil engineering), the Forest B addition is the second phase of a 1 million-square-foot campus expansion. In addition to understanding the hospital's big picture vision, it was impor-

Seattle Children's provides advanced pediatric research and treatments for patients from Washington, Alaska, Montana and Idaho, the largest region of any children's hospital in the country. As families travel in, Forest B is the new space through which many patient families enter. And what a space it is. The eight-story diagnostic and treatment facility is beautiful, functional, and



The first phase of the expansion (on the right, built in 2013) is now connected to the recently completed second phase on the left.

PHOTO BY BENJAMIN BENSCHNEIDER

tant to align against the shared project goals and key questions upfront. How will we provide the best-possible environment for all? How will designs support transformative care? How can

we make these state-of-the-art spaces even more functional and streamlined for doctors, surgeons, nurses and staff? And ultimately, how can we best serve families and children dur-

ing their journey at Seattle Children's?

Answering these questions, and creating this 310,000-square-

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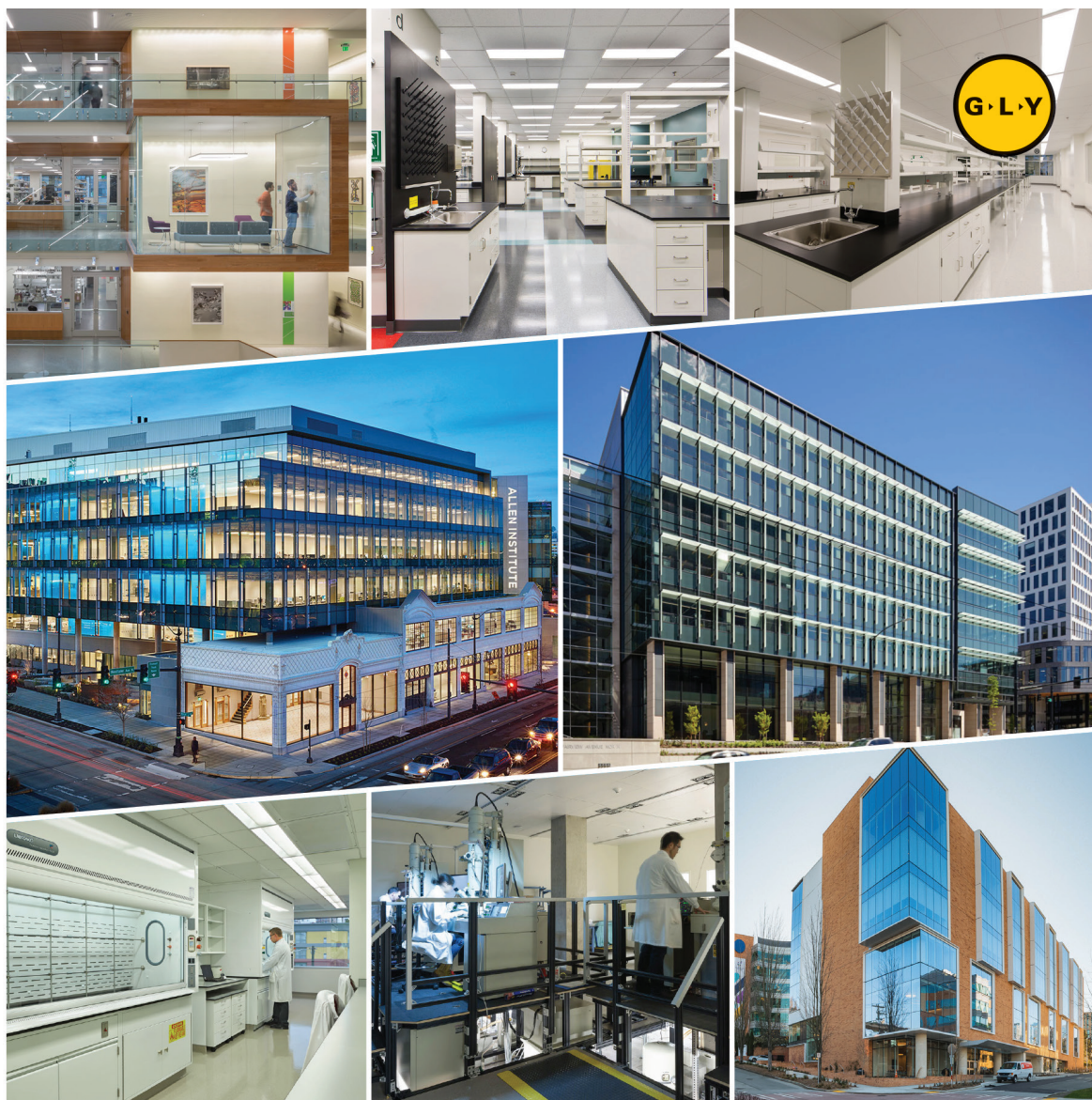
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SUPERSIZED

CONTINUED FROM PAGE 13

foot facility, was truly a team effort. Forest B includes eight new operating rooms, 20 new patient beds, outpatient and clinical space for the Cancer and Blood Disorders Center (CBDC), two new catheterization labs, 3T MRI machines, an outpatient infusion center, pharmacies, labs and support spaces, and even a new rooftop helipad for emergency access.

And every inch of it was shaped by those who use it each day: care teams, patients and their families.

Seattle Children's and ZGF were determined to involve all parties as designs took shape, honoring the needs and listening to the perspectives of those who would be working there every day.

"The design of Forest B from day one involved not only architects, but conversations with workforce members — and, most importantly, families. This was an opportunity to start from the ground up and build something that was entirely designed around the patient-family experience," said Mandy Hansen, senior director of Facility Planning, Design and Construction at Seattle Children's.

For the design team, this meant establishing an off-site "workshop" space (a warehouse in Ballard) where the team, the contractor and hospital stakeholders could come together. There, designs were reviewed in real time, and developed via true collaboration. Cardboard mockups were constructed in the warehouse so medical staff could interact with the proposed design and layout. A large conference room hosted frequent design meetings. Decisions were tracked using the (Toyota) A3 process, allowing for planning, problem resolution, and knowledge-sharing to happen quickly and be visible to all.

Both the shell-and-core and TI designs were born from this collaborative environment, impacting the final structural, architectural, MEP and medical systems throughout the building.

In addition to the hospital staff, patients and families contributed to design workshops, helping the design team understand their needs at each step of their journey and visit. Designs attempt to provide a comfortable environment and provide the best-possible experience, considering everything from ease of navigation and playful, inspiring artwork, to carefully created waiting and respite spaces.

OCCUPIED CAMPUS

In development for the past 70 years, the Seattle Children's campus continues to grow and evolve. Forest B occupies a large

portion of the remaining developable space on the campus, as allowed in the current city-approved Major Institution Master Plan (MIMP).

Navigating the logistics, magnitude, and complexities of an occupied health care campus can be likened to a dance. But while we'd like a ballroom to do this particular number, we were allotted a postage stamp. Working within the constraints of the site is a common project challenge, but here, the constraints were extreme. Not only is the site extremely constrained, but it's situated in the quiet Laurelhurst neighborhood, where builds take extra logistics as teams respectfully work with the neighbors. Additionally, as the primary 24/7 emergency pediatric facility for the region, project teams must work around occupancy. Noise control, dust control and vibration control for all construction activities had to be taken into account as part of the design plan.

Keeping a building operational, and in particular a hospital, presents a complicated puzzle, and nowhere is this more evident than in the Rubik's cube of civil plans. Traffic, operational utilities, and civil details present significant challenges. Some of Forest B's included a storm line in the footprint of the new building (which required a complicated reroute), the widening of Helen Lane (displaced Seattle Children's shuttles needed a temporary home), and a temporary emergency drop-off (shifting ambulances to a temporary location during construction).

Coordinating the temporary and permanent drop-offs was especially complicated. The window for the ambulance relocation, moving them from a temporary drop-off location to the permanent location, was only a matter of hours. And the transition from the two conditions came down to inches. Elevations of the proposed drive and temporary drop-off were within a few inches of one another to minimize both earthwork and downtime during the swap. The civil team closely aligned grades and minimized work during the transition, and it was a successful transfer!

SUPERIOR SEISMIC STANDARDS

Each building is unique and seismic components fall on a spectrum, but in case of a seismic event, even a very large one, Forest B is engineered to continue occupancy, and remain up and running with minimal service disruption.

Seattle Children's began expanding the west side of the campus with Building Hope in

Forest B was designed around the patient-family experience, providing easy access to the rest of the campus, locating lab services close to the ORs to reduce surgery times, and offering universal ORs that accommodate all surgical specialties.

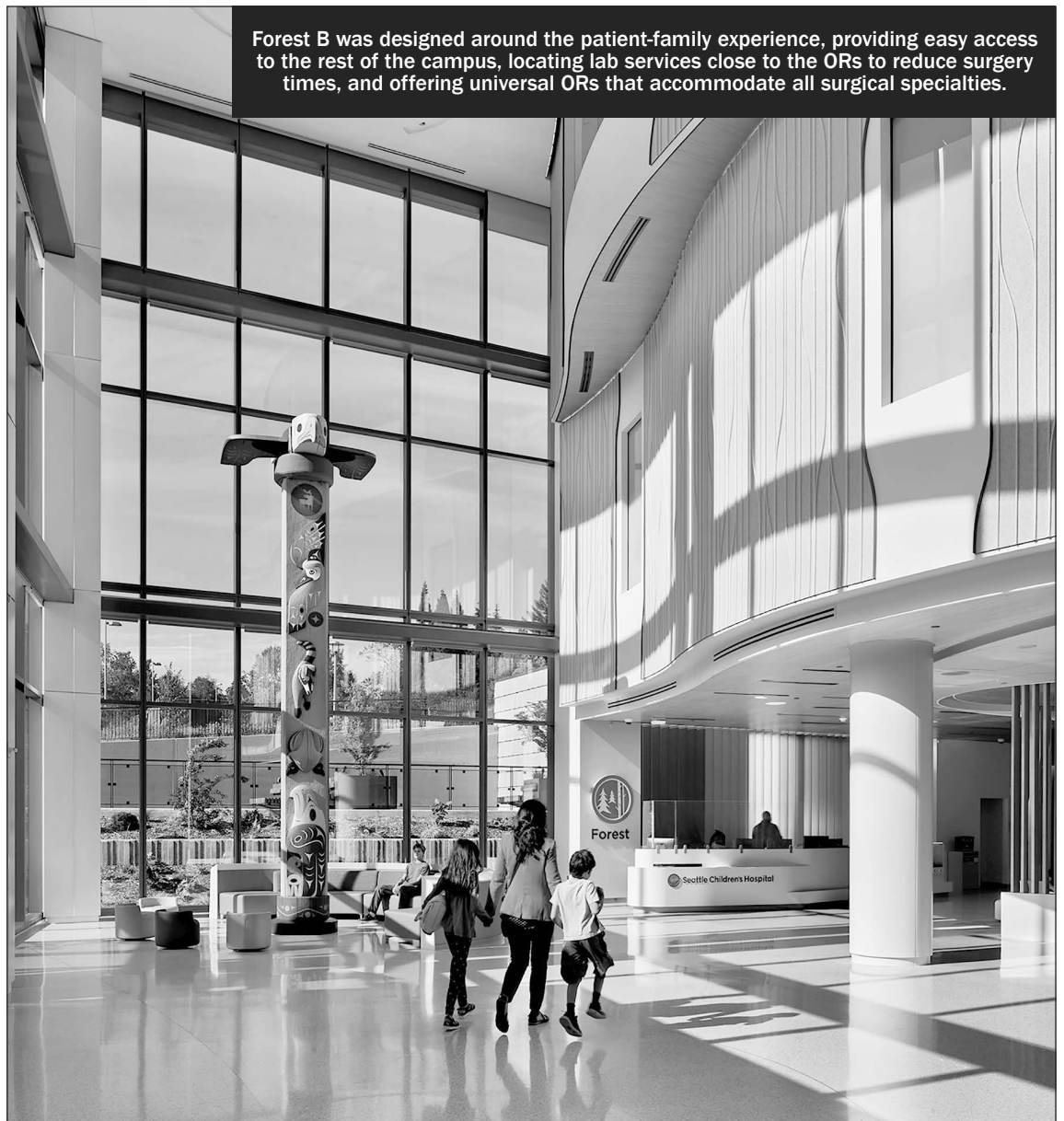


PHOTO BY BENJAMIN BENSCHNEIDER

2012. Working with Children's leadership team, Coughlin Porter Lundeen Founding Principal Terry Lundeen helped drive the decision to provide more predictable seismic behavior for the new inpatient bed tower. The idea was to voluntarily implement more robust seismic performance criteria via California health care standards (formerly OSHPD, currently Department of Health Care Access and Information or HCAI). Recent earthquakes around the world had shown that hospital structures tended to perform well, but it was the non-structural components that caused the most significant damage and facility downtime.

The design of Forest B retained the seismic resiliency philosophy of Building Hope in all aspects of the design. The goal? Provide an enhanced performance design that yields a building that not only withstands a large seismic event, but maintains the integrity of contents, and allows for an "immediate occupancy" design level. Structurally, non-linear analysis was used to enhance the lateral system behavior and identify and upgrade any potential weak spots.

Architecturally, the exterior cladding systems, including

the curtain wall glazing, were designed to allow for inter-story seismic movements. A "rubber band" weatherproof system at each story within the steel stud-backed cladding allows for significant independent floor movements, while keeping the exterior watertight. Similar to the exterior cladding systems, the interior partition walls were designed and detailed to allow for building movements, minimizing the need for post-earthquake repairs.

The HCAI process is not inherent in Washington's codes, so the team implemented a specifications-based comprehensive procedure for the design and construction of all non-structural components, including mechanical, electrical, plumbing, and medical equipment. The design and construction process is rigorous, as every component rises to the same level of performance. All systems design, calculations and shop drawings were engineered by subcontractors and vendors and then reviewed and approved by Coughlin Porter Lundeen prior to field installation. Full-time special inspection ensured conformance to the construction documents.

Implementing HCAI criteria and ultimately raising a build-

ing's standard beyond local code requirements is relatively low-cost, but extremely high benefit. And in such a critical facility as a children's hospital, the value of resiliency cannot be understated.

Seattle Children's Forest B is an exceptional project and an example of overachievement in the health care market. As the campus continues to evolve, the integrated design allows for future flexibility and additional phases. From stakeholder collaboration and end-user input to management of an occupied campus and seismic and sustainability achievement, Forest B anchors Seattle Children's hospital campus and provides a new safe, easy way to enter the hospital to receive care.

Kyle Malaspino is a civil associate principal at Coughlin Porter Lundeen. He supports some of the firm's largest and most complex projects, and is an expert in navigating city of Seattle permitting and issues associated with dense urban sites. Steve J. Savage is a structural associate at the firm. He has assisted with campus expansion and upgrades at Seattle Children's for over two decades.

WELLNESS NESTLES IN THE TREES AT THE EVERGREEN STATE COLLEGE

The new student wellness center, at the top floor of an existing classroom building, uses the Danish concept of “hygge” to create a mood of coziness and contentment.

National statistics confirm that this generation of college students is facing physical and emotional issues like never before, and yet stigmas still exist that hinder those who are struggling from seeking care.



BY RON VAN DER VEEN
NAC

According to the National College Health Assessment during the 2020-2021 academic year, nearly 75% of college students in the U.S. reported moderate or severe psychological distress. Even before the pandemic, schools around the country were facing a surge in demand for care that far outpaced capacity, and it was becoming evident that the traditional counseling center model was ill-equipped to address the issue.

Connected to mental health concerns is the general decline of student physical health, also exacerbated by COVID-19. A yearly national survey by the Higher Educational Research Institute at UCLA shows that today only 50% of incoming freshmen report an above average ranking in physical health. Obesity among students continues to be a growing concern. Per the Obesity Medicine Association, college students today are among the most health-affected population in the U.S., with one-third having significant weight issues.

WHAT IS SO DIFFERENT TODAY?

College students currently are confronting a unique array of challenges, from increased coursework, family and relationship responsibilities, adjustment to campus life, work, and economic strain, to social equity issues, fear of violence, substance abuse, political acrimony, and aftereffects of the pandemic. This sociological cocktail not only strains the health and wellbeing of college students, but also the institutional staff, which negatively impacts graduation rates everywhere.

THE EVERGREEN STATE COLLEGE

These issues are manifesting

The design's central concept brings all the functions of the clinic into the core of the space, allowing open circulation and gathering places along the perimeter with broad views directly into the surrounding tree canopy.



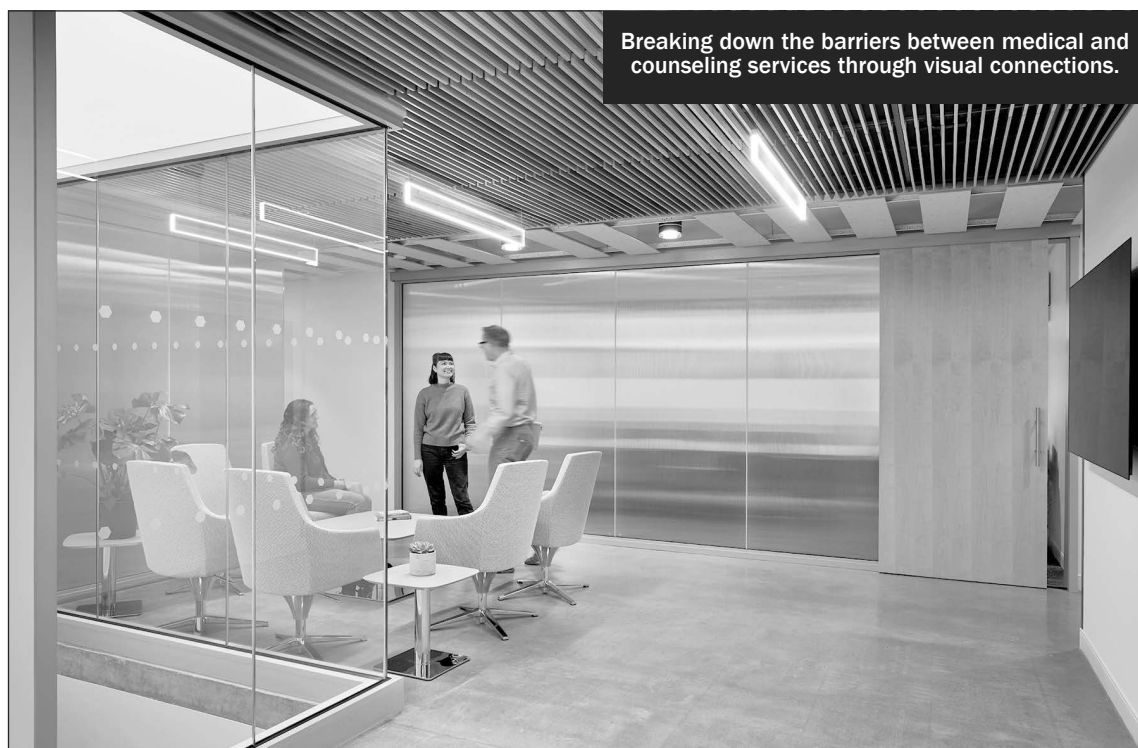
PHOTOS BY BENJAMIN BENSCHNEIDER PHOTOGRAPHY

throughout the public and private college system in Washington state, including The Evergreen State College near Olympia. In the context of outdated and unwelcoming facilities dispersed throughout the Evergreen campus, the college was having difficulty encouraging students to seek health and wellness support. Moreover, an internal campus health survey confirmed a widening gap in percentage of usage between Caucasian students and students of color, especially Native Americans.

With urgency, NAC was commissioned by Evergreen to create a transformative new health center that celebrates student wellness while dissipating the negative stereotype associated with receiving care.

The project was initially envisioned by the college as

Breaking down the barriers between medical and counseling services through visual connections.



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The design for OOC's new building brings the landscape directly up to the edge of the building, making the building feel grounded and natural.



IMAGES BY SABARCHITECTS

TRANSFORMING THE CARE MODEL IN THE ROGUE VALLEY

OOC's ambulatory surgery center prioritizes patients, staff, process clarity, and security.

Fundamentally, the team at Orthopedic Outpatient Center (OOC) knew that it wanted to provide a bespoke health care experience that prioritizes patients, staff, process clarity, and security. It knew that redefining the patient experience would begin with redefining the health care delivery process and program, so it sought out the Virginia Mason Institute, engaging the expertise of Chris Back-



BY IAN STEVENS
SABARCHITECTS

ous, a Lean and Transformative Care expert, to facilitate in a series of process improvement exercises.

"Going into the process improvement workshops, we had a broad desire to improve the staff efficiency, patient dignity and privacy, and also safety," said Tammy Spohn, CEO of Orthopedic Outpatient Center. "The more hand-offs there are between care providers, the more risks there are for things to fall through the cracks. Our guiding principle was asking ourselves how we can maximize patient safety and provide a world-class patient and family experience."

Orthopedic Outpatient Center engaged SABArchitects (SABA) to program, design and deliver the 30,815-square-foot freestanding ambulatory surgery center and physical therapy suite in Medford, Oregon.



Warm wood tones are provided by cross-laminated timber beams.

SABA's Phil Duff said, "The ambulatory surgery project for the Orthopedic Outpatient Center is organized like a machine designed to do two things: Provide operating rooms for outpatient surgeries and realize a concept for the patient spaces to increase patient satisfaction and improve safety."

Designers often use 3P exercises (production, preparation and process) to pull together

stakeholder groups to develop a new product or service concurrently with the process of delivery. In health care, the process often includes numerous 3P events assessing patient flows, material flows, and process flexibility through mapping and prototyping exercises. Each step pushes the product towards optimized experience, efficiency, and value.

However, as a new facility for

OOC, the stakeholder groups did not yet exist — a challenge compounded by the pandemic that made what was once a robust series of in-person and hands-on processes impossible.

It became apparent that defining a new health care process and breaking out of the shell of prior care models would require OOC to begin onboarding its team of technical experts and care providers during the 3P

process. OOC's commitment to investing in its team and the process allowed for robust dialogues and buy-in, which heavily influenced the final care model. And the pandemic-driven digital summits quickly became a boon for team members across the country who could easily provide input months ahead of relocation to Medford.

CARE MODEL — PAGE 18

CARE MODEL

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The OOC team had never gone through a 3P process, having previously used the resources of local hospitals for its surgical processes. Backous helped the team to establish a set of guiding principles early in the process, an essential step that would help it make challenging decisions down the line.

Backous said, "It's hard to attract and retain good people. OOC wanted to make sure that the space worked for their people and that those people would attract staff and patients."

What emerged from the 3P was an innovative patient-focused flow diagram, which ultimately culled handoffs in the patient experience by condensing pre-op and recovery functions into a single universal room located adjacent to a complementary operating room. The program reinforces OOC's Dedicated Care Model.

In a typical model, both the patient and the surgeon will commonly interact with an entanglement of three or more nurses with each different point of contact, creating an opportunity for error and increasingly impersonal experience for the patient. The

Dedicated Care Model improves patient and care provider experiences by limiting the number of hand-offs and creating an all-day connection between the same surgeon, anesthesiologist, and dedicated nursing team for each patient. It is meant to develop an excellent rapport with the primary team internally and externally to maximize communication and efficiency. Executing the model required onboarding a team that understood the mission, the diagram, and the 3P practices that informed them.

OOC engaged SABA to bring the project to life based on SABA's past performance delivering projects using Lean processes. Utilizing the DCM flow diagram, the SABA team began designing the patient experience and health care delivery flows. The ambulatory surgery center program includes six operating rooms, a clean-core, 20 private prep and recovery rooms, an on-site sterile processing department, a main nurse's station with individual nurse's perches at each room, administrative and staff support spaces, and a receiving area. The secondary program includes a 2,400-square-foot

physical therapy space as well as a 1,250-square-foot tenant space.

"The appeal of this project was OOC, from day one, being committed to the Lean process improvement and innovation to meet their goals," Duff said. "Many aspects of the project were tweaked through the design process, but we were ultimately able to realize their vision of the patient journey while incorporating building code and health care guidelines into the project."

The program is organized into four concentric layers: Operating rooms are at the center of the diagram. Next, restricted circulation adjacent to operating rooms allows for the efficient transfer of staff and patients into and out of surgical spaces. Universal rooms make up the next layer, allowing patients to store their belongings, family members to visit and wait, and a familiar recovery place after operation. Finally, outer circulation creates a space of autonomy often lacking in healing environments; filled with natural light, the outermost corridor allows patients to self-room, family members to come or go from their rooms

without hurdles, and easy egress and pickup when operations are complete.

At each main entry and exit — four in total — there is a prominent sloped wood canopy. This creates a clear hierarchy of entry and exit points. It also serves to break up the long facades. Between these entry points, SABA developed a simple rhythm of materials that alternate between wood, fiber cement panels, stone and EIFS — depending on your location around the building. The architectural design draws inspiration from both classic Pacific Northwest- and craftsman-inspired architecture. Key defining elements include the utilization of natural materials and the layering of both forms and textures. These elements, when put together, create a varied design that breaks up the building into smaller, human-scale moments related to patient movement and wayfinding.

SABA design lead Shaun Danielson said, "For the client, it was important to tie the patient experience to the aesthetics. This patient-forward approach led us to warm wood tones pro-

vided by cross-laminated timber beams, with vaulted ceilings to bring light into the space."

The landscape design draws inspiration from the raw and natural landscapes found throughout the Rogue Valley. Planted areas will consist of native vegetation of varying heights, shapes and colors. The design brings the landscape directly up to the edge of the building, which makes the building feel grounded and natural. In addition, there will be substantial planting throughout the site, which will create pockets of usable outdoor space as well as screen the parking areas from adjacent properties and roads.

Together, the design elements make the new building seem at home in Medford. Soon, the space will become open to its first patients to begin putting the Direct Care Model to the test. OOC opens the doors to its new ambulatory surgery center in September.

Ian Stevens is the marketing and business development director at SABA. A University of Washington graduate, his interests include poetry, filmmaking, and the built environment.

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WELLNESS

CONTINUED FROM PAGE 15

a traditional subdivided medical clinic. Discussions with the staff clarified the opportunity to accomplish much more. Not only was there a growing desire to destigmatize medical and mental health support, but the stakeholder team also wanted to approach health from an integrated perspective, connecting mental and physical wellness with fitness, dining, living on campus, and academic achievement.

While working closely with the Student Wellness Services staff in visioning and programming, the NAC team introduced the college to WELL Building and biophilia principles. A concept quickly emerged surrounding the Danish concept of “hygge,” a word referring to a mood of coziness and contentment.

Hygge also informs the art of building a sanctuary and community, a feeling of belonging to the moment and to each other, and of celebrating everyday pleasures. From a hygge perspective, the stakeholder team was able to focus on simple and natural approaches and solutions that would have the greatest positive impact on students and staff.

One significant challenge was the location selected for the new wellness center — the top floor of an existing concrete classroom building, which was not ideal for exploring new WELL Building and biophilic ideas. But whereas the old clinic’s programs were on the outskirts of the campus, the new wellness center would be in the heart of student activities and quite visible.

A series of questions provoked the design direction: How to create a safe and welcoming place

for all students? How can the institution seamlessly offer interconnected medical and mental health services? How can the institution integrate fitness, dining, and wellness with student academic success? And how can the new clinic encourage students to stop by for wellness information and teaching seminars?

The central design concept brings all the clinic’s functions into the core of the space, allowing open circulation and gathering areas along the perimeter with broad views directly into the surrounding tree canopy. All the internal spaces have glazing that provides a variety of privacy levels while ushering in natural daylight and the healing power of nature.

Placing contiguous medical and counseling services under one roof, the new facility now provides integrated care to engage students in healing, growing, and developing lifelong wellness habits. The program is subdivided into clearly defined zones to promote easy wayfinding, while the public lobby, reception, and waiting area greet visitors immediately off the vestibule in a deliberate effort to destigmatize self-care.

For those who have been on the iconic Evergreen campus, the idea of the college nestled in the woods is quite evident. The new student wellness center rises students off the forest floor and into the canopy of the trees to experience wellness integrated with nature.

Ron van der Veen is a principal at NAC.

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The 101 Utah project has a focus on hospitality-driven spaces, with the lobby designed to connect research tenants as a community.

RENDERING COURTESY OF GENSLER

THE EVOLUTION OF SCIENCE: TRENDS AFFECTING THE SCIENCE WORKPLACE

Low inventory and finite parcels to be built upon will likely bring increasing competitiveness to delivering new space.

Over the past several years, the science industry has grown in the Puget Sound region with this building type garnering substantial attention in our post-pandemic economy. The sciences market has experienced the collateral effects of the softening office real estate market and the temporary slow-down of venture capital.



BY EDWARD PALUSHOCK
GENSLER

Despite the tempering of growth, this sector rests in a position of

strength for its next evolution.

So what trends are we experiencing now and how will this affect new future lab space? Looking across our region as well as to other cities, the low inventory and finite parcels to be built upon will likely bring increasing competitiveness to delivering new space. We are anticipating the following factors coming into play as owners and developers in the Puget Sound region look to find space, increase existing efficiency, and strategize scientific development:

- **Proximity to tech districts and universities will drive where companies choose an address.**

Science developments have traditionally established themselves around anchoring institutions or existing clusters. Most science work needs to be performed in person, where there is a reliance on networks, resources, knowledge, and talent. For the Seattle-area market, clusters have emerged around several institutions including a number of University of Washington research institutes and centers, the Allen Institute, the Fred Hutchinson Cancer Center, among others.

As central institutional clusters such as Eastlake, South Lake Union, and Bothell densify, future development has begun and will likely continue into their

peripheries. New development projects such as at 222 Fifth Avenue bring new science uses to the doorstep of Seattle Center, while creating the potential for new sub-clusters or tech centers forming. This instance of blending building-specific spaces with localized neighborhood amenities in proximity to major institutions creates new offerings of “more” for researchers and scientists.

- **Large capital investments will make office-to-lab conversions more frequent, sophisticated, and muscular.**

In a post-pandemic environment, repositioning existing office spaces to other uses

increases diversity of active uses. Converting existing office space into production-ready, speculative lab suites offers early-stage start-ups and science companies an opportunity to begin work sooner while addressing larger ESG or sustainability aspirations. While this approach is not limited to existing buildings, we are finding this repurposing approach also being applied to new development either just prior to commencing construction or during construction.

While each existing building offers its own set of unique conditions affecting the degree of improvements to be made,

EVOLUTION — PAGE 24

CONSIDERATIONS FOR SUCCESSFUL ADAPTIVE REUSE PROJECTS

Adaptive reuse for health care has several advantages: speed to market; overcoming a lack of real estate available for development; and reduced capital investment.

It's been highly publicized that Washington hospitals and health care institutions are in a tough place. They are experiencing financial strain, reporting more than \$2 billion lost in 2022. Ongoing burdens of the pandemic, rising costs for supplies, and increasing personnel costs, as labor is in short supply and high demand, are all contributing factors. There's also an ongoing shortage of beds and continued congestion in emergency rooms, further exacerbating the problem and the imperative of getting people the care they need.



BY GEORGE WARD
ALDRICH +
ASSOCIATES

While the costs of health care continue to be a much-discussed topic, institutions are also grappling with how to take action. At the recent Health Care of the Future event hosted by the Puget Sound Business Journal, Ketul Patel, CEO of Virginia Mason Franciscan Health, highlighted the need to improve the intake process at the ER to divert patients to the appropriate level of care. Part of this solution is also increasing care at the community level. You can readily see this strategy taking hold with more urgent care clinics and ambulatory facilities opening in suburbs as well as more rural communities. Many of these facilities are using former retail or other commercial buildings that were not initially intended for health care use.

While not a new concept, adaptive reuse for health care seems to be gaining greater traction. It brings several advantages to increasing community-based health care options, such as speed to market, overcoming a lack of real estate available for development, and reduced capital investment.

ADAPTING TO ADAPTIVE REUSE

Aldrich has been converting office and retail facilities to health care use for decades. From a Ross department store turned ambulatory surgery center, Walgreens pharmacy turned veterinary hospital, Circuit City retail store turned multi-specialty

The Animal Medical Center of Seattle adapted a retail pharmacy building into an emergency veterinary facility in Shoreline.



PHOTO BY DENNIS BISHOP

clinic, we've been part of making adaptive reuse an effective strategy for many facility types.

From the outside, many existing facilities look perfect for health care applications — conveniently located, open floor plans, and ample parking for staff and patients. However, when changing a building's use, there is more than meets the eye; most of these buildings lack the necessary infrastructure to effectively serve a health care program. It is important to accurately anticipate the infrastructure requirements early so that the owner can make informed decisions before making a significant investment.

As an experienced health- and sciences-focused contractor, we play an important role in help-

ing these essential organizations make business decisions about their facility needs and options. We provide feasibility studies and systems conditions investigations to inform acquisition decisions, partner with design teams early to provide accurate early estimates and budgeting for renovations and system upgrades, and follow through with quality construction to bring these new facilities to life.

There are unique considerations for all medical facility projects that design teams and contractors must address to create a facility that successfully meets their requirements and delivers a positive patient experience — for both human and animal patients! Several of our recent adaptive reuse health

care projects demonstrate these considerations:

UNDERSTANDING STRUCTURAL REQUIREMENTS

Many existing office buildings are light-frame structures with limited floor-to-floor height, requiring close assessment and often upgrades to accommodate medical uses and required infrastructure. For example, Proliance Orthopaedics & Sports Medicine (POSM) celebrated the grand opening of its new Bellevue clinic in late February, which was an adaptive reuse project converting a three-story commercial building into a clinic. Prior to purchasing the building, we worked with POSM on its feasibility study to assess suitability for creating

a clinic, PT, imaging (X-ray, MRI, CT), and an ambulatory surgery center. Our team studied the integrity of the exterior envelope, HVAC systems, electrical service, and structural systems.

The initial program desire was to include an ambulatory surgery center; however, the light framing and limited floor-to-floor height led the team to advise against this but still maintain clinical, imaging, and PT. This still required creative logistics and design to navigate, including additional structural considerations to support lead shielding for X-ray imaging equipment, lowering the floor to accommodate the MRI machine, and innovated and intentional routing and loca-

ADAPTIVE REUSE — PAGE 22

ADAPTIVE REUSE

CONTINUED FROM PAGE 21

tions for MEP distribution equipment and infrastructure.

The opposite but equally challenging structural condition often occurs in retail facilities. Since most retail buildings have a high floor-to-structure height (often up to 25 feet), design and construction teams need to find creative solutions for the plethora of ceiling-mounted equipment for imaging rails and surgery lights. Utilizing a self-supported structure can be an efficient alternative to trying to attach to the existing roof structure.

EXISTING UTILITY SERVICES

Medical facilities require significant utility infrastructure to serve specialty equipment. The costs of system upgrades and modifications can outweigh the capital investment savings of purchasing an existing structure. For example, the Animal Medical Center of Seattle adapted a Walgreens retail pharmacy building into an emergency veterinary facility in Shoreline. Prior to the client landing on this location, we provided high-level constructability feedback on other potential sites. While several seemed promising, these due diligence investigations revealed that the modifications required for reuse were going to be too financially challenging.

The key to informing our client's evaluation of multiple sites was using our experience to accurately anticipate the facility upgrade requirements and provide rough order-of-magnitude pricing to help avoid budget surprises later.

Careful consideration needs to be made for the existing utility services. Most adaptive reuse projects for health care require an upgrade to the electrical service to meet the higher demand of specialty equipment. Also, depending on the specific program, domestic water service may also need to be increased. These factors can be a significant cost and schedule challenge when working with utility providers.

The Animal Medical Center of Seattle included larger-capacity HVAC systems and MRI, CT, and X-ray imaging equipment, requiring a significant electrical service upgrade. The subsequent annex project for the veterinary hospital required upgrades to the domestic water service and new fire water service and sprinklers. All major cost considerations to the owner's business plan.

REVITALIZING COMMUNITY HUBS

Northgate Mall in north Seattle has been completely transformed in recent years, anchored by the demolition of the mall and the addition of the new Kraken

Community Iceplex. Northgate Plaza across the street has experienced its own revitalization as well, part of which was renovating the ground-floor former Ross Dress for Less store into a surgery center for Northwest Eye Surgeons.

The existing Ross space was located in the midst of a multi-story retail development, and the surgery center required new dedicated HVAC equipment and an emergency power generator to meet requirements for the Department of Health. Locating the new equipment and running the utility connections became a significant challenge and required creative solutions and negotiation with the landlord. The emergency generator and fuel tank were particularly challenging with limited options for security, safety, noise, vibration and exhaust. Understanding these unique requirements and working with the fire marshal and local jurisdiction early in the process is critical.

By reusing this retail building that was already integrated in the Northgate community, North-

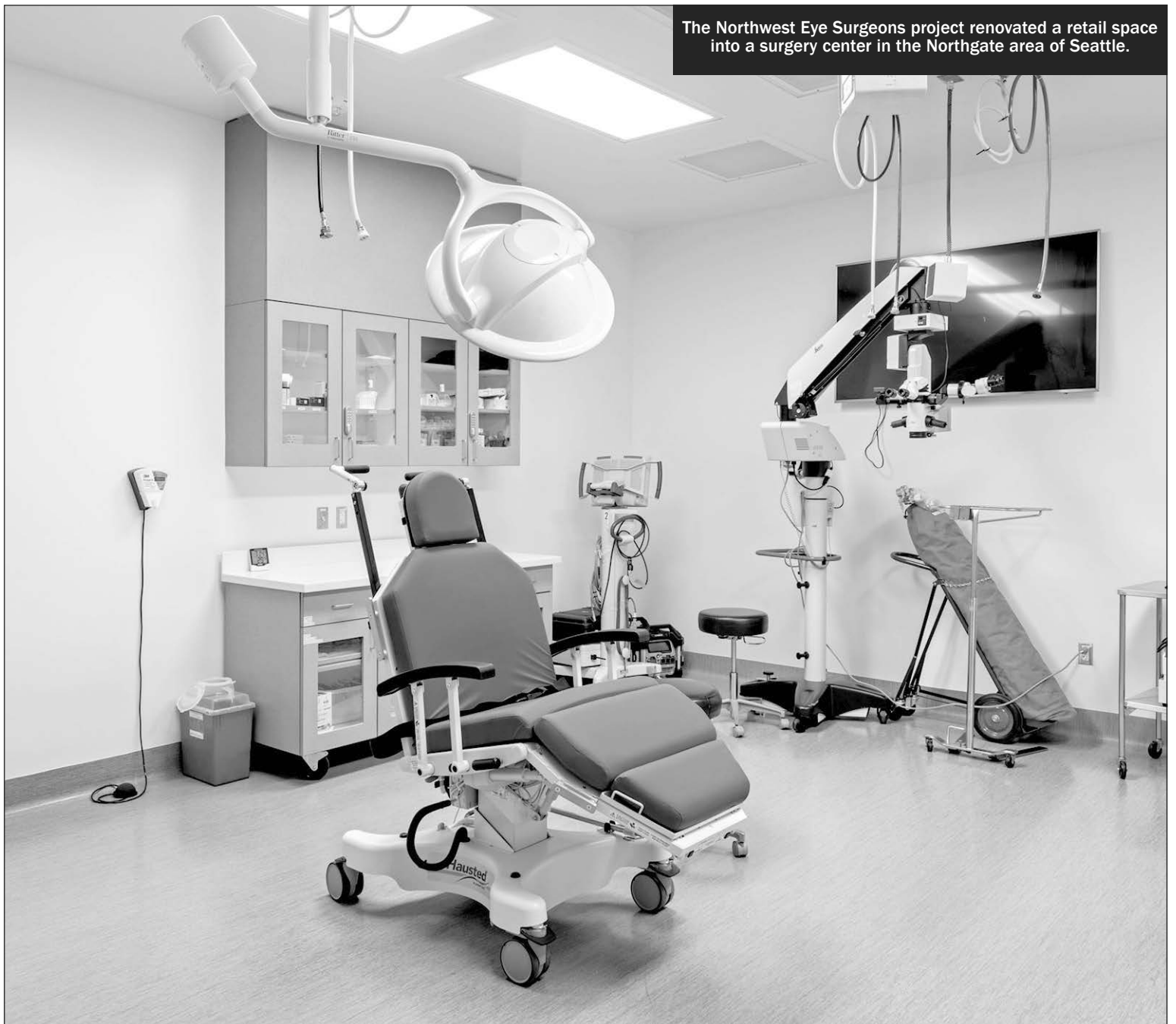
west Eye Surgeons created ready access to its services.

A WORTHY CAUSE

Speed to market is often considered the primary value of adaptive reuse. However, we see the value going much deeper — care organizations are able to progress their goals for more accessible care, with the added benefit of revitalizing neighborhood developments that otherwise might be run down or sit vacant.

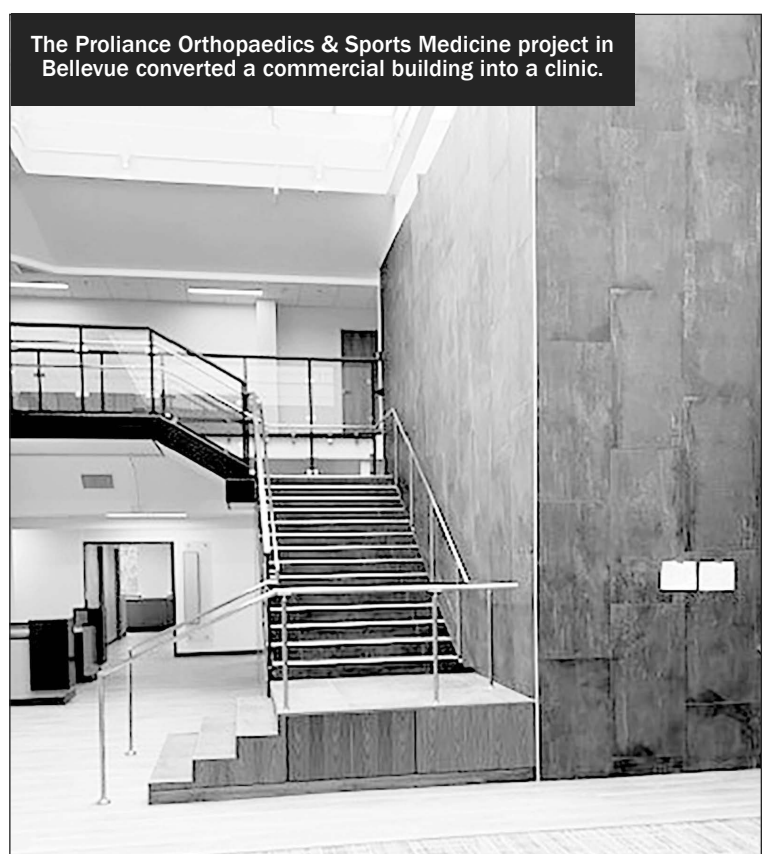
Space and funding are finite resources. Partnering with owners and designers to creatively maximize the value of both in ways that enrich the community is a truly rewarding aspect of constructing adaptive reuse projects for health and wellness providers.

George Ward is president of Aldrich + Associates. With 30 years' experience in the construction industry, Ward leads Aldrich's business development and is an active project leader, supporting teams through the full project lifecycle.



The Northwest Eye Surgeons project renovated a retail space into a surgery center in the Northgate area of Seattle.

PHOTO BY FRANCIS ZERA



The Proliance Orthopaedics & Sports Medicine project in Bellevue converted a commercial building into a clinic.

PHOTO FROM ALDRICH + ASSOCIATES



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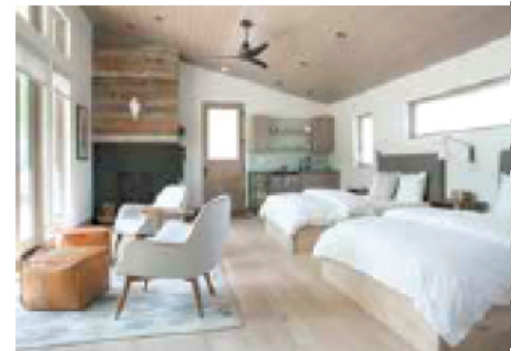
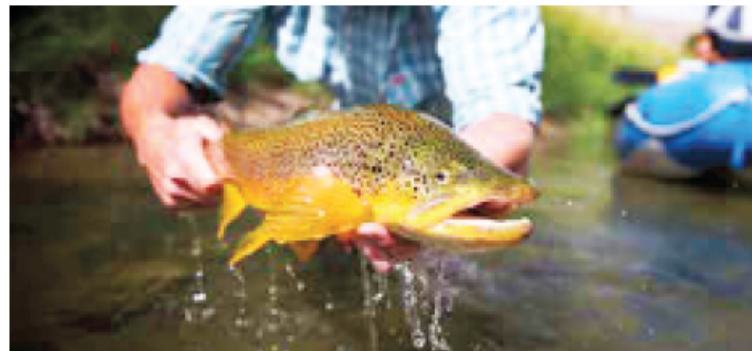
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EVOLUTION

CONTINUED FROM PAGE 20

in low-rise buildings these improvements can be more readily addressed. The robustness of the existing structure, column grid spacing, floor-to-floor heights, HVAC pathways, and other features all necessitate careful evaluation. Pairing available solutions on the market to address potential challenges can be creatively found, such as dampening devices applied to existing building structure that might not otherwise be stiff enough to address lab vibration criteria.

- **Controlling air exchange could yield global energy reduction for labs and other energy-intensive buildings.**

The average energy usage of science buildings consumes up to 10 times more energy than a typical office building. One contributing feature of this intensity is the number of air changes required, which could be up to six more air changes per hour. Lab spaces built speculatively commonly over-compensate on base building systems to maintain a high degree of flexibility for potential lab companies or researchers.

Lab space as a spatial typology has not dramatically evolved over the past 20 or even 40 years. New approaches that consider demand-based systems could allow “right-sizing” ventilation usage and could lead toward potentially a two to four reduction in air-changes and reducing operational energy, while still providing a flexible, speculative approach in base building systems. Additionally, if segregated office space was allocated into a design, those spaces could utilize natural ventilation approaches to reduce the over-conditioning of all interior spaces.

- **Artificial intelligence (AI) and the internet of things (IoT) will transform labs and offices into intelligent spaces that can operate more efficiently and respond to needs.**

In our lab planning efforts, we have been seeing an increased amount of equipment that has helped researchers and scientists collect, analyze, and process data. As software begins to include aspects of AI for processing automation, the ability to make near-immediate connections between what is being initially reviewed and previously run data sets is expected to open greater potential. While AI is still in its earliest stages, the ability to mass-analyze and draw new relationships is astounding. We’ve already been seeing a trend towards dedicated labs for mass processing, so an ability to bring this greater range of discovery into the lab space is already on its way to happening.



222 Fifth Avenue is a new science building under construction in the shadow of the Space Needle.

RENDERING COURTESY OF GENSLER

With the likelihood of more equipment and processing time at our doorsteps, the current lab space typology again comes into question. It’s expected that the immediate realization will be a shift in the allocation of office and lab space. Preparing our new lab projects for resiliency in accommodating more processing equipment is one part of the future of labs. Additional considerations include the impacts on the researcher’s and scientist’s daily activities, roles, and new-found time allocated to science, and how this affects the spatial workplaces we are making.

The largest science companies in the Puget Sound Region have adopted ESG goals, which most commonly aim towards minimizing operational carbon, reducing potable water usage, and decreasing waste to landfills. Taken in combination with their anticipated commitments to established clusters, increased repositioning of existing buildings to begin the science work, sustainability aspirations, and the forthcoming efficiency in processing makes the science workplace ripe for change.

Edward Palushock is a project director with Gensler Seattle.

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