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# TRANSFORMING YESTERDAY'S SPEC OFFICE INTO THE DESTINATION WORKPLACE OF TOMORROW

Converting an existing cast-in-place concrete structural system to mass timber can improve embodied carbon performance, increase market appeal and offer more connections to the outdoors.







BY CRAIG CURTIS, ELIZABETH GORDON AND ALYSSA OLSON

MITHUN

A perfect storm catalyzed by the global pandemic, the rising impacts of climate change and current financial conditions has dramatically impacted the commercial office market. With the current record-high office vacancy rate of 19.6% nationwide, developers are finding that the workplace of tomorrow is in undeniable demand today and are taking action to ensure their properties are seen as desirable to current and potential tenants.

In these conditions, speculative office projects are a sector of particular concern and opportunity. To create a unique product that would appeal to future tenants, our client (a confidential Texasbased developer) sought to explore how a typical commercial office project could be redesigned as a mass timber structure, without impacting the existing entitlement, including FAR, general building massing and below-grade parking. Our team had recently completed an innovative workplace project for this developer, and we were brought in to employ similar thinking to reimagine this building and site.

Throughout the design exercise, the study focused on three major themes: converting the concrete structure to mass timber for improved embodied carbon performance and market appeal, advancing the health and wellness of occupants, and fostering community through shared amenities indoors and out.

### STRUCTURAL SOLUTIONS FOR A SUSTAINABLE FUTURE

The most significant challenge was converting the existing cast-in-place concrete structural system to mass timber, keeping in mind that the existing massing

and FAR had to be respected. Three levels of belowgrade parking were already designed, utilizing a standard and economical layout. The test was to design an efficient timber grid that would transfer to the parking grid, without an expensive transfer slab. At the same time, the goal was to create a timber grid for the office floors that would allow for standard 5-ply CLT panels, while achieving the 2-hour char requirements for Type IVB construction.

Due to good soil conditions and low seismic requirements, Mithun collaborated with Fast + Epp Engineers to develop an innovative structural scheme that incorporates timber bracing to satisfy the lateral structural requirements. The bracing also serves to transfer 15-foot one-way timber grid at the upper floors, to a 30-foot concrete grid at the parking below grade. The timber bracing is featured throughout the building, resulting in a dramatic effect that is not found in typical concrete construction.

### IMPROVING PHYSICAL AND MENTAL HEALTH

It is well known that many tech companies are embracing mass timber, not only due to the embodied carbon reduction, but to elevate performance of their employees through increased creativity, stress reduction and overall mental health improvement. Combining daylight, access to nature and views, and natural materials such as timber and stone, results in a biophilic environment that is accessible for all employees.

Wellness has become a key consideration in the design of workspaces, and was a major focus of our re-imagining exercise. Connection to nature is known to reduce stress, optimize creativity and contribute to a sense of overall well-being. Utilizing the mass timber structural system, our team was able to cantilever one-way glu-lam beams at the upper floors, adding square footage to the office floors without impacting the structural grid. This extra square footage allows The design adds new trail extensions at opposite ends of the site, providing tenants with access to the surrounding nature and inviting trail users to discover the building, where amenities such as a bike shop, juice bar and yoga deck with shade trellis are all envisioned.



IMAGE BY PLOMP FOR MITHUN

for the creation of "outdoor rooms" on each floor, providing every potential tenant space with direct access to nature—a valued amenity in the southwestern climate.

A unique approach to "parking" reimagines the parking lot to integrate wellness-based amenities and native plantings while maintaining parking count needs based on approved entitlements. The climate and context of the building inspired this nature-based approach, providing shade and healthy opportunities to users.

The original plan included a typical parking roundabout at the main entrance and a sea of surface parking above the garage behind the building. Utilizing the existing stands of live oaks, the new design creates a careful regrade of the site to preserve as many trees as possible, with an additional plan to "re-oak" the areas needed for construction. The surface parking that serves the employee entrance was modified to incorporate bosques of trees and other vegetation, integrating the building as an inherent part of the natural environment, and providing cooling shade

during hot summer months. In total, approximately 50,000-square-feet of pervious cover was added to the new plan.

Reaching beyond the property boundaries, an extensive trail system nearby presented potential for an additional amenity. By adding new trail extensions at opposite ends of the site, the revised design places the building along the trail. It not only provides tenants with unimpeded access to the surrounding natural environment, but also invites trail users to discover and visit the new building, creating a thoroughfare where amenities such as a bike shop, juice bar and yoga deck with shade trellis are all envisioned.

# CREATING COMMUNITY BY ELEVATING TENANT EXPERIENCE

The site, nestled between downtown and a beloved nature preserve, feels as though you have stepped into a tranquil retreat just minutes from the bustle of the city. Leveraging this unique condition, the building and site intertwine with ground floor programs that span inside and outside,

allowing tenants to integrate nature into their workday. Trails from the tree-lined parking and drop-off zones lead to the lobby, which features an enclosed double-story "breezeway" connecting the east and west entries. This space acts as a primary wayfinding element, housing the elevators and providing access to adjacent amenity spaces.

The lobby was imagined as a social hub for tenants and visitors alike—a place for meeting, gathering and working away from the desk, as well as a destination point for recreationalists. A coffee shop / co-working space activates the west side of the lobby and connects through an open stairway to a conference center on the mezzanine above. A shared fitness center with locker rooms, bike storage and flexible-use fitness room offers tenants an opportunity to integrate health and wellness into their workday. Outdoor porches on the east and west sides of the building extend the amenity spaces out to the site and provide covered areas to

DESTINATION — PAGE 17

# **ENGINEERING WITH SUPPORT FROM THE SKY**

By leveraging the capabilities of drones for aerial imagery, photogrammetry and construction oversight, engineers can access precise, detailed and visuallycompelling data that transcends traditional methodologies.





**BY LILY SCHREDER** 

LAUREN **ODE-GILES HERRERA** 

At its most basic application, deploying drones at a project site can capture conditions and provide site context through aerial photography and videography, showing the surroundings, documenting progress and offering visually-engaging deliverables to display conceptual and completed work. This can provide engineers and project partners with a shared understanding of site conditions, constraints and desired outcomes to develop a well-considered project approach.

Project managers and clients can use this information to better assess site conditions for improved project implementation. Our team

can apply the use of drones to architectural and engineering projects through conceptual design renderings, project concept communication, construction oversight and site characterization. Drones offer an alternative approach to data collection that provides engineers with unique advantages over traditional methods.

### **ADVANTAGES OF PHOTOGRAMMETRY**

In addition to capturing aerial photographs for basic site communication, drones enable nimble and highresolution site renderings through photogrammetry. In photogrammetry, drone pilots take many overlap-ping aerial photos which are then processed in specialsoftware to produce ized useful outputs, including distortion-corrected orthophotos, elevation surfaces and 3D models. These outputs can provide high utility at all phases of the project life cycle.

Distortion-corrected orthophotos are often used as high-resolution base imagery for CAD and GIS draw-



PHOTO BY LAUREN ODE-GILES, HERRERA

ings, enabling the production of detailed site plans that reflect most-current site conditions. This is especially valuable in areas with only low-resolution or outdated aerial imagery from conventional service providers.

Similarly, elevation surfaces produced through photogrammetry can offer high-resolution topographic representations of a site's current conditions, reducing surprises in the design phase

and enhancing communication among remote teams. This has additional benefits in construction oversight, as elevation surfaces produced from multiple drone flights can be applied to calculate cut and fill volumes, compare design elevations to onthe-ground conditions, and clearly identify and communicate where adjustments may be needed. For greatest efficiency and accuracy, modeled elevation surveys

can be tied in to established survey control on-site.

Elevation models orthophotos can be combined to create 3D models, which facilitate cross-team collaboration and vision-sharing for clients and stakeholders and can be deployed in augmented reality and virtual reality to illustrate the current state of the site compared to proposed changes. Photogrammetry empowers engineers with the data and tools to produce compelling, cost-effective deliverables while reducing time spent on-site for project personnel.

### **PBS**

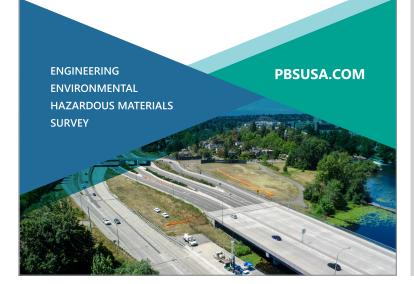






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### UN THE GUVEK

Mass timber serves as a structural element and an aesthetic driver of the new building facade for an already-entitled spec office project

SECTION EDITOR: SHAWNA GAMACHE • SECTION DESIGN: JEFFREY MILLER WEB DESIGN: LISA LANNIGAN • ADVERTISING: MATT BROWN

### A DRONE CASE STUDY

Herrera's support of the Northwest Straits Foundation's shore-friendly armor removal case study demonstrates how drones benefited the project and inspired further work. This study focused on the preliminary design phase of a broader program to facilitate grantfunded stewardship and restoration of privately owned coastal property in the Salish Sea. The project's objective is to remove shoreline armor, such as concrete bulkheads and rock walls, and restore the natural shoreline. In this case study, we focused on a portion of the project that initially involved a single private property but expanded to include two neighboring properties.

Herrera's pilot deployed the drone, capturing overview photos and overlapping images to create a high-reso**lution Digital Elevation Model** 

DRONES --- PAGE 14

# CENTERING THE PATIENT AND COMMUNITY IN RURAL HEALTHCARE DESIGN

Collaborative visioning can help designers push beyond generalizations of the issues facing rural healthcare providers and pinpoint solutions to best support unique communities and settings.





BY HEATHER Farrell

HAMID Estejab

**NAC ARCHITECTURE** 

Rural healthcare is facing a crisis on multiple fronts. Recent years have exacerbated challenges and reduced rural communities' access to quality healthcare. This means every rural healthcare project is a vital opportunity to change the direction of healthcare for these communities.

With aging facilities and a lack of amenities, rural hospitals have struggled to attract providers and staff and provide contemporary care models for patients. Rural com-

munities are also taxed with increased fatalities in all the leading causes of death, higher infant mortality rates, teen pregnancies, and obesity and diabetes in adults and children. Frequently these communities face cultural biases and misinformation in seeking medical care. Strong cultures of self-reliance often lead patients to postpone seeking treatment until an issue has progressed from critical to emergency.

### UNDERSTANDING WHERE WE START

Despite overall similarities in rural communities, each is unique and facing their own version of these challenges. Visioning and stakeholder engagement is crucial to understanding current and future needs. We have employed this process to guide design decisions at two recent projects, Quincy Valley Medical Center in Quincy, Wash., and Wayne

A rehabilitation and wellness center on the ground floor of Wayne HealthCare near the new main entrance includes a community center, education demonstration kitchen and fitness center, and is designed to encourage people to come to the building for more than just emergencies.

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HealthCare in Greenville, Ohio. Though these communities differ in their make-up and design execution, they are both strong indicators of a positive change in the landscape of rural health.

Quincy, like many rural communities, is primarily agrarian with a strong culture of self-reliance. The area was served by an aging facility

originally built in 1959. The importance of Quincy Valley Medical Center was well-stated by the General Services Director, Newton Moats, who described Quincy as "a place"



The City of Seattle's new waterfront enhances the urban environment with 32 acres of Urban Garden, including over:

250 species and cultivated varieties of custom grown plants 500 trees 17,000 shrubs 100,000 perennials

Waterfront Seattle Lead Landscape Architect: Field Operations

Planting Design by: Land Morphology where I could feel like I was doing important work, and at the same time, allowed me to raise my family, expand my career and have some amazing relationships with co-workers and community. I have stood in [these] halls and watched [the building] and our staff save life, after life, after life for decades."

However, Quincy was built under older health models and did not lend itself to modern concerns of privacy, ergonomics, or adaptability.

Wayne HealthCare faced similar barriers with an outdated facility and an agrarian economy, in addition to an aging and diminishing population. Approximately 8.6% of its patients lack insurance, and like many rural areas, a shortage of healthcare workers caused significant staffing challenges. Their existing facility served the community for nearly 100 years, but Wayne HealthCare wanted to evolve from a hospital to a hub for community wellness.

### LISTENING TO COLLABORATE

Visioning sessions combined with our analytics allowed us to push beyond generalizations of the issues facing all rural healthcare providers and pinpoint solutions that would best support these unique communities and settings.

When NAC began working with Quincy Valley Medical Center, we asked: "What do we want to create?" This led to a vision for a new hospital that would be adaptable and spacious, provide community gathering space, and incorporate nature. We held multiple visioning sessions with stakeholders, staff, caregivers, and community members.

We learned their community was willing to invest in its healthcare facility; district voters approved a \$55 million bond for the new hospital. Hospital leadership was committed to being good stewards of the community investment. As sessions continued, we identified areas of concern and developed collaborative solutions with the stakeholders.

Visioning sessions and observations revealed that the existing building had visibility and wayfinding problems. The new design will give the building a clear civic presence as a hospital, and provide two distinct public entrances, for the emergency department and the main hospital. These entries will be internally connected by a central lobby that is part of the primary circulation loop.

To be inclusive for the community, including a large English as a second language



RENDERING COURTESY OF NAC ARCHITECTURE

population, wayfinding will include bilingual signage and color coding for each department. The new facility will also provide several spaces with varying levels of privacy in addition to the central lobby, accommodating larger extended families of patients.

Attracting new staff surfaced in our discussions as a key need. The new design will respond with amenities such as four on-call suites with private shower rooms and ample off-stage respite space with views of the new healing gardens.

## PLANNING FOR GROWTH AND ATTRACTING PATIENTS

The new hospital will provide outpatient services, a new clinic, and be equipped with telehealth services, among other modern programmatic features. Analytics research into the demographics and future age cohorts of the hospital district and surrounding areas allowed us to plan for prospective growth with evidence-based data. Soft spaces are strategically placed in the design to allow programs to grow, and areas of the site are zoned for future building expansions.

The new Quincy Valley Medical Center is now under construction, due to open to its community in June of 2025.

At Wayne HealthCare, several key drivers surfaced during the visioning workshop. Wellness was one that continued to arise and ultimately drove planning, design, and operations. Because most of the impact on a person's health happens at home, work, and in social settings, Wayne HealthCare sought ways to positively influence a person's health beyond the walls of their facility. The project aimed to convey a welcoming image to the community.

In rural communities, reluctance to seek healthcare can stem from factors such as lack of insurance, limited health literacy, social stigma, concerns about privacy, and

mistrust or fear. Recognizing this, we proposed a shift in mindset from a focus on "sick-care" to an emphasis on "well-care."

Encouraging individuals to visit the facility for wellness activities and not solely for health emergencies allows Wayne to empower and educate the community about health issues proactively. This concept inspired the creation of a rehabilitation and wellness center on the ground floor near the new main entrance. This center, which includes a community center, education demonstration kitchen, and fitness center, places Wayne's commitment to community health and wellness center stage.

Wayne also wanted to combat another problem in rural

healthcare - higher fatalities in infant and maternal care. The aging facility struggled to attract mothers to choose Wayne HealthCare, and traveling long distances to reach newer facilities puts mothers and infants at risk. A 2023 report by Marmolejos and Silverston notes that maternity care deserts are on the rise, with 1,119 more counties lacking hospital or birth center obstetric care and providers in 2022 than 2020. In response, Wayne HealthCare's new addition includes the "Special Beginnings" area, designed to provide state-of-the-art care close to home.

With Wayne, we can see the results of a collaborative visioning process in practice. Following the completion and occupancy of Wayne HealthCare's new addition, the facility experienced a notable increase in its HCAHPS score, a key indicator of patient satisfaction. This improvement in the score, along with positive testimonials from both patients and staff, stands as proof of the impact a patient and community-centered facility can have in a rural healthcare setting.

Heather Farrell is a senior associate in NAC's Spokane office and a leader in its healthcare practice with extensive rural healthcare expertise. Hamid Estejab is a design and analyst synthesizer with a focus on healthcare, data analytics, and research in NAC's Columbus office.



# **EIGHT TRENDS SHAPING DESIGN FOR CITIES IN 2024**

Innovative urban design solutions are coming to fruition around the world in response to the crises we're facing.





BY RYAN Haines

8 JENSEN Gensler

With the roller coaster of 2023 behind us, we are optimistically looking ahead to a new year ripe with opportunities across the building industry. Gensler recently published our design forecast, comprised of the latest insights and expertise from across our 33 practice areas. Through extensive research, surveys, and conversations, we've identified significant themes we believe will fuel key trends shaping design and our cities in 2024.

### 1 BUILDING CONVERSIONS: A NEW VALUE PROPOSITION

Office-to-residential conversions and other creative repositioning will represent a new value proposition for the building industry, transforming under-performing office buildings into housing and addressing a vital need for new residential options in cities. As organizations seek out amenity-rich, recently built projects, this "flight to quality" is stranding undercapitalized and unoccupied B and C buildings in urban cores around the world. In 2024, expect more government municipalities to incentivize adaptive reuse strategies and conversions whose renovations breathe new life into cities and offer vital infrastructure enhancements — and do it in an environmentally responsible way.

Here in Seattle, we are seeing this flight to quality put new strains on office building owners seeking to retain value or adding value for tenants in a climate of reduced occupancies and lower rental income. Conversions of office space to residential is an opportunity to breathe new life into a building and neighborhood, but it is not without challenges. But for those who can tap the incentives and see beyond the near-term, the result will bring value beyond the boundaries of the site. It will infuse activity into our urban core to enhance the vibrancy of our city and re-ignite the economic engine of the city.

### 2 SUSTAINABLE DESIGN BECOMES NON-NEGOTIABLE

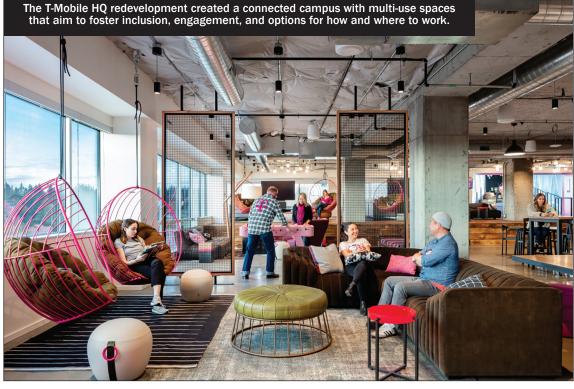
As intense weather and climate change assail the built environment, sustainable design shifts from an option to an obligation. By 2024, building and real estate industries around the world will recognize the value of environmentally conscious design and its ability to mitigate risk. Higher standards for products and materials, the adaptive reuse of existing buildings, net zero energy strategies, and regenerative design principles will define our sustainable future.

As we feel the sense of urgency that climate change presents, embodied carbon reduction legislation and regulations require immediate action. Additionally, corporate ESG initiatives are moving from visionary to actionable as the message finally disseminates into the actual development of real estate and buildings. Architects and designers can now utilize tools like carbon calculators and product sustainability standards to elevate the outcome of the design process and eliminate the need to laver on additional work to achieve climate goals. Designing through the lens of resiliency demonstrates a commitment to people, the environment and our broader community.

## 3 NO MORE RETURN-TO-OFFICE METRICS

As more organizations understand that the workplace landscape has permanently changed, the focus will be less on how many people come into the office and more on what the future of work looks like to support people's needs. In 2024, organizations will continue to plan for in-person experiences in spaces that are agile and flexible enough to evolve with the changing demands of the workforce and useful enough to earn people's commutes.

Tenants are expecting more from their buildings, seeking to both realize efficiencies in their workplaces, and leverage shared amenity spaces



PHOTOS BY HEYWOOD CHAN

in the building for their company. In their workplaces, it's about balancing "me" and "we" spaces, but there isn't a one-size-fits-all model. Our workplaces must meet the needs of employees across all lenses of diversity, including the neurodiverse, and through the incorporation of elements in space where people can see their diverse backgrounds reflected. Empowering employees to be successful, which is appreciated by both employee and employer, these spaces have come to include different seating postures, tactile feel, light levels, acoustic privacy, and access to music, but some also provide relief from sensory overload.

# 4 MIXED-USE LIFESTYLE DISTRICTS BRING CITIES BACK TO LIFE

Monolithic, office-focused downtowns have become a thing of the past, replaced by vibrant, experience-driven social districts focused on a mixed-use collection of retail, entertainment, sports, housing and other lifestyle-anchored developments. By prioritizing safety and mobility in these new multimodal districts, cities can attract residents and tourists and bring COVID-impacted neighborhoods back to life.

Mixed-use neighborhoods are key to reviving urban centers and addressing their economic hardships. Developers and building owners can play a role in this by creating unique opportunities to bring people together through a variety of spaces, offering a multitude of experiences. Flexible public spaces will be in high demand, as will the right blend of housing, entertainment, and retail spaces. Historically, Seattle's development has followed rather single-use modes, with diversity of uses among adjacent blocks, but not typically on the same block. Given the verticality of the downtown core, mixed-use buildings need to be explored as a complementing option to full building conversions to resi-

# **5** DESIGNERS HARNESS AI TO ACCELERATE INNOVATION

In 2024, Al will open the door to new ideas, new talent and new creative opportunities. Far from replacing designers, Al will become a collaboration tool that will help designers redefine the design and innovation process with new insights, rapid iterations and more immediate response times. Buildings and spaces designed with the help of Al will be more sustainable, better performing and more responsive to individual needs and preferences.

It's inspiring to witness how our talented designers are combining human creativity with the power of technology to transform our processes, delivery and human experience. We are witnessing artificial intelligence becoming a spark for design inspiration, an opportunity for enhanced design exploration and a catalyst for conversation around delivering design solutions that challenge the status quo.

## **6** SHIFT TO AGELESS SPACES AND DESIGN FOR A LIFETIME

Over the past 50 years, the average life expectancy for people around the world has expanded by more than 10 years, a figure that will only grow in the coming decades. With the global trend toward increased longevity, 2024 will mark a shift toward designing age-inclusive communities. Demand for flexible and multigenerational communities that foster accessibility and affordability will have universal appeal.

This is especially true for our region, where people are active and seeking to remain in their homes and communities as they age. Developments must address age diversity and accessibility without compromising experience. Flexibility to respond to a broad set of needs and interests as well as neighborhoods with resources and amenities will attract and retain those who are seeking a living experience aligned with the lifestyle they value.

# 7 TWENTY-MINUTE CITIES LEAD IN EQUITY AND ACCESSIBILITY

As city leaders seek out design strategies to help enhance their central business districts to be more lifestyle-oriented, the idea of the 20-minute city remains increasingly attractive. These vibrant, walkable neighborhoods, where all essentials lie within a 20-minute reach including restaurants, retail spaces, medical facilities, educational places and much-needed residential alternatives — are redefining city living. This trend under-scores the importance of creating accessible, inclusive urban spaces that promote equity, connectivity and community.

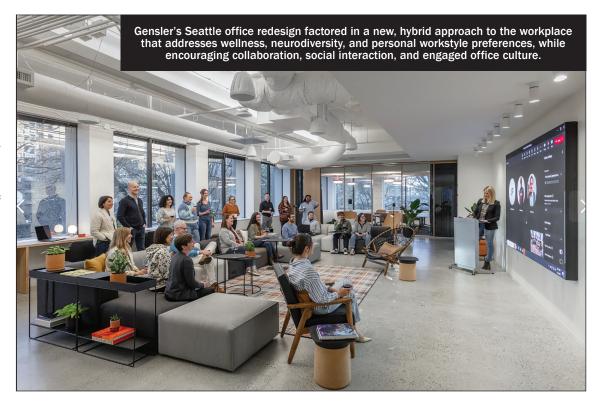
Planners are reimagining downtowns to respond to the evolving and varied needs of those living there, starting with public safety, and focusing on uses that provide activity beyond the workday. Urban planners and designers should consider more mixed-use, flexible approaches that integrate living, working and leisure into every district and development to address the varied needs of city dwellers. As a result, reimagining the world's cities requires an

interdisciplinary approach that can address multiple priorities facing equality, safety, sustainability, flexibility and experiences that people want from their cities.

### EXPERIENCE MULTIPLIERS PAY PREMIUM DIVIDENDS

Now more than ever before, people are craving phenomenal, visceral and connected experiences in every part of their lives, whether that's in a workplace that feels like a clubhouse or a sports stadium that anchors a vibrant, 24/7 mixed-use entertainment district. In 2024, real estate leaders will find success reclaiming human connection with "experience multipliers" — immersive designs that drive loyalty, boost sales, and improve vibrancy with a shared sense of inspiration and belonging.

We've entered the experience economy, demonstrated by where we spend our time and our money. Experience is the top goal of any new design project – regardless of use. It is no longer enough to just serve a purpose as every space needs to be worth the effort of leaving home. Crafting spaces for entertainment or that merely make room for and encourage community,



connection and engagement is part of the formula for revitalizing our neighborhoods and cities.

As we look ahead to 2024, we recognize that the challenges impacting the global real estate market are ongoing. The upside to these challenges is the creative visions they've imagined and encouraged. Innovative design solu-

tions are coming to fruition in cities around the world in response to the crises we're facing. These trends for 2024 build on that positive momentum and represent the most promising and exciting design opportunities in our market right now.

Ryan Haines is a managing director and principal of

Gensler Seattle with expertise in design strategy, workplace design, master planning, retail, transportation and civic engagements. Kristin Jensen is a managing director and principal of Gensler Seattle with extensive experience in commercial real estate development overseeing projects for significant local developers.

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# THE NEED FOR HIGH-PERFORMANCE BUILDING ENCLOSURE DESIGN

Choosing the right material for your structure involves careful consideration of building use, the surrounding environment and your client's unique needs.

There's been something of a container renaissance recently. Whether you fall into the Stanley camp or the Yeti league, there's been a renewed appreciation for vessels like these.

It's not just a trend: A savvy consumer knows it's all about smart design. A great bottle will keep your drinks appropriately hot or cold. They'll keep the elements out and



BY BRADY GAUER CUSHING TERRELL

Sure, you could use a regular old plastic bottle to hold your drink, but they're far less likely to stand up to any sort of stress, and

your bever-

age intact.

you can bet on a room-temperature sip after a short while. But invest in a quality product, and you can expect great results that last.

This is the same concept behind a high-performance building enclosure. If you invest in the right materials for your structure, ones that respond to both the occupants' needs and the local environment, you set yourself up for a comfortable, responsive building that will stand the test of time.

### WHAT IS BUILDING ENCLOSURE DESIGN?

Sometimes called a building envelope, the enclosure is the physical separator between the conditioned and unconditioned environment of a building. It determines its ability to resist air, water, heat, light, and noise transfer. Like our beverage vessel example, it's both a barrier and a container.

The four key components of building enclosures are waterproofing, air tightness, insulation, and moisture vapor diffusion. Each of these components is considered for roof, wall, and below-grade surfaces, and is planned for at all openings, terminations, building transitions, and intersections of differing materials.

#### WATERPROOFING

At a basic level, the focus on waterproofing for build-

ing enclosures is to prevent water intrusion from rain, snow, groundwater, and more. Waterproofing a building may seem obvious, but investing in topperforming waterproof solutions can save you a lot of headaches (and money) in the long run.

Consider that water infiltration is consistently one of the top causes for insurance claims and contractor callbacks for business and residential building owners, which can inflate insurance rates, operating costs, and maintenance costs. Water can seep in through roofs, below-grade foundations, wall-system openings, and discontinuous waterproofing membrane transitions. Water damage might be covered by insurance, but the repair for the cause of the water intrusion often is not.

#### **AIR TIGHTNESS**

As the seasons change, there can be a loss of heating or cooling within a building. The best prevention for this occurrence is to keep the building envelope airtight, plugging any holes or gaps that could cause a leak. This may sound a lot like insulation, but the two tactics work best together to increase the building's performance.

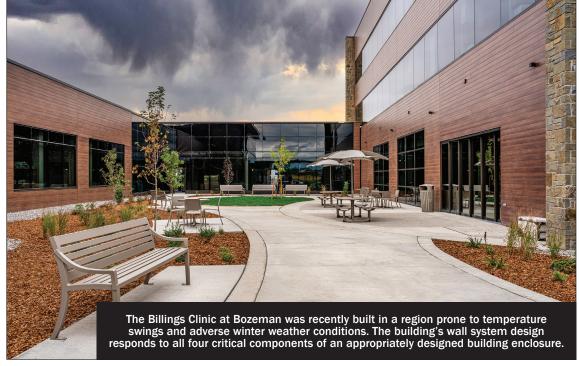
This even goes beyond a building's temperature: When local outdoor air quality is poor, a building that allows air to leak within can also be a health risk.

#### INSULATION

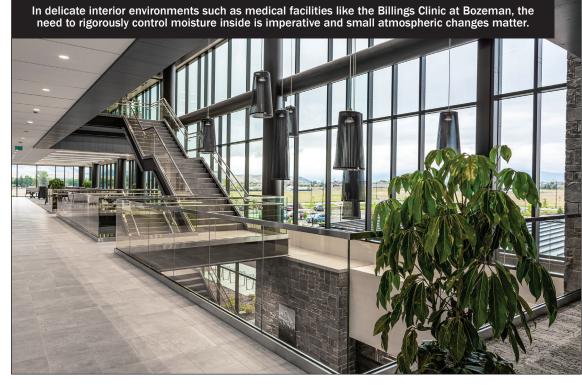
As mentioned above, a building's air tightness and insulation should work in tandem for the best building performance results. Insulation is key to ensuring the continuity of a building's thermal insulation system. When these components are of high quality, it can lower HVAC operations that keep occupants comfortable and reduce the utility costs for the building owner.

building owner.

Both insulation and air tightness also help with soundproofing and noise reduction, further improving the environment for the



PHOTOS BY REX CONNELL OF MARTEL CONSTRUCTION



occupants and avoiding disturbances from the neighbors.

### **DIFFUSION**

This final component helps prevent and manage moisture transfer through finished exterior materials. Water vapor diffusion is the movement of water molecules through a solid material from an area

of higher concentration to an area of lower concentration. And as we highlighted in the importance of waterproofing, uncontrolled moisture can be both difficult and expensive to fix, often causing mold, rotted wood, corrosion, and freezethaw damage.

The building envelope that best controls moisture vapor diffusion can depend on the region (is it a wet or

dry environment?), but also depends on what's within the building's walls. Interior environments that experience high indoor humidity levels — such as pools, manufacturing facilities, water treatment plants, or school gymnasiums — require special consideration to manage the diffusion of moisture vapor

ENCLOSURE DESIGN — PAGE 21

# TRENDS TRANSFORMING LIFE-SCIENCE BUILDING DESIGN

Taking an integrated approach to facility planning allows designers to consider the full biotech life cycle from early advances to expansion and maturity.

Imagine a future where cancer patients receive personalized treatments tailored to their genetic makeup. Not only is this possible today, but it's just one of several biotech breakthroughs stemming

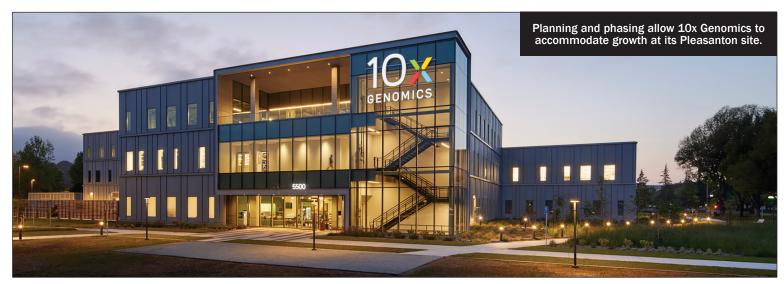
from gial in To ta ab in the form of the control of

BY DAN SENG Hok

from recent giant leaps in science. main-Τо tain their ability to innovate in the search tomorfor row's cures, drugmakers updating

facilities across the drug product delivery pipeline — from research to market delivery.

The key is for facilities to support their changing priorities at each stage in a company's growth. To maintain productivity during these transitions, design teams can adopt an integrated facility planning approach that



PHOTOS COPYRIGHT BRUCE DAMONTE

considers the full product life cycle.

### SCIENTIFIC ADVANCES TOWARD PERSONALIZED MEDICINE

Advancements in genetics, immunology and cell biology are unlocking new possibilities for targeted, personal-

ized therapies. These treatments are shifting production from traditional largescale batches to smaller, patient-tailored offerings.

This momentum toward individualized medicine requires more flexible manufacturing facilities. These U.S. Food and Drug Admin-

istration-validated drug manufacturing facilities are also called CGMP (Current Good Manufacturing Practices) facilities. Manufacturing technology like automation and robotics are improving production speed, precision and consistency. This technology, coupled with scien-

tific advancements, has led to highly promising patient outcomes.

#### STARTUPS AND GROWTH

In early stages, startups minimize space by occupying flexible spaces that emphasize movability and

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collaboration. Startups often emerge from an academic environment before expanding into speculative lab leases or research incubators.

Space needs change often, so lay out your labs with open plans and modular benches that provide flexibility for quick iteration and refinement of different therapies. Give users adaptable multiuse spaces that maximize functionality. Define specialty equipment rooms only when it's essential. Boost interaction through open office designs and shared common spaces that accommodate expansion for evolving staffing needs.

When research yields promising results, startups may seek financing to pilot test products at a small scale. Not only does this increase demand for office and colbut laboration spaces. research facility needs also grow. These needs might include a pilot plant to test small batches and conduct early clinical trials. In these spaces, diagram personnel and material flows, identify gowning requirements, and define air lock configurations and airflow cascades to mitigate contamination risks. Also consider flows to adjacent support spaces like prep rooms, quality labs, utility and storage rooms.

At a confidential company's pilot facility in Gaithersburg, Md., researchers are pioneering groundbreaking new medicines. To support the company's Phase 1 and 2 clinical trials on this campus, HOK designed a cell therapy suite meeting U.S. and E.U. regulations, and an antibody drug conjugate (ADC) pilot manufacturing facility.

#### **EXPANSION AND MATURITY**

As life science companies transition from R&D to commercialization, their manufacturing facilities must scale up production capacity. This requires major capital investments that may exceed available funding and delay their growth plans — even if product development stays on schedule.

An imminent FDA approval of a drug can thrust an organization into high gear. Its facility needs suddenly expand to include large-scale production and warehousing, often requiring significant capital infusions. At this stage, companies may go public, seek private investment or partner with larger corporations to expand.

To support this growth to large-scale production and commercialization, create a master plan that evaluates factors like utility infrastructure, transportation access,

expansion planning and environmental risks. Then plan the facility for phases. Allow for expansion off of a shared central supply or return corridor.

This approach maintains operation of existing cell therapy suites and provides shared use of the consumable warehouse and existing entry points. Facility resiliency during climate events or equipment failure is important. Identify single points of failure to ensure the site can sustain long-term operations while enabling optimal functionality through every stage of development.

10x Genomics' new lab and office building in Pleasanton, Calif., integrates research labs, cold storage, warehouse facilities and cleanroom space that enable in-house production of consumable biologic products. This is the first phase of a three-building "science village." Emphasizing flexibility and scalability, the design accommodates the evolving requirements of modern biotechnology, and can adapt to 10x Genomics' growth.

### **PEOPLE FIRST**

We have already described how designers of cGMP facilities must address elements like manufacturing scale, growth stage and flexibility. Along with these considerations, the most successful cGMP facilities prioritize one aspect above all else — the people who work there.

Craft a human-centered design process which:

Reflects the clients' mission and culture

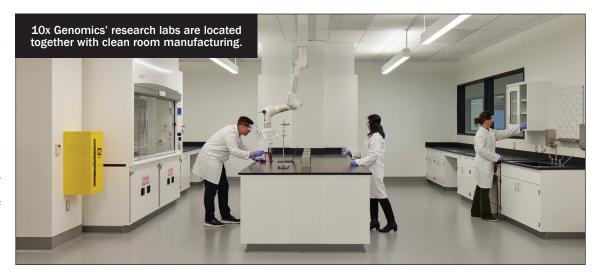
Incorporates sustainability Promotes equity and community

#### REFLECTING MISSION AND CULTURE

Collaborate with your clients to understand their ethos and values, then translate them into the design of their facilities. As products and teams scale, consider how new spaces will support the organization's culture.

One past client of mine established a custom of taking puzzle breaks to reset its team's focus. As this organization grew, our design team honored this tradition by ensuring its facilities always included puzzle tables. Design customized spaces that resonate with each organization. This aids in employee engagement and retention while helping new employees connect with the company's unique culture.

For more insights into trends in scientific workplace design, refer to HOK's article, "Trends in the Scien-



tific Workplace: The Shape of Labs to Come."

### INCORPORATING SUSTAINABILITY AND RESILIENCE

With their high energy and water demands, research and manufacturing facilities offer significant opportunities for integrating sustainable design strategies. Air flow in clean room environments and pure water systems are both energy drivers in pilot and cGMP facilities. Closedprocess single-use systems can significantly reduce clean room air flow requirements and the associated power consumption and eliminate on-site cleaning and sterilization requirements, which further reduces the facility carbon footprint. A single-use strategy combined with new reduced-energy options for water sterilization make carbon-free manufacturing sites a possibility.

For AstraZeneca's lab and office facility in South San Francisco, our team designed a research facility that fits the company's culture while creating a highly collaborative research environment. Designed with a focus on sustainability, the project earned LEED Platinum certification.

Scientific innovation is driving the development of more targeted, personalized

therapies. As startups transition into global enterprises, their facilities must support changing priorities at each stage. Using a humancentered design approach focused on understanding our clients' mission and culture, we translate what we learn into spaces tailored to their specific needs, always balancing customization with standardization. By combining strategic modular planning with deep technical expertise, we create facilities that are ready for the future.

Dan Seng is a practice leader of science and technology at HOK.



# **DISRUPTING INEQUALITY IN HOUSING**

Involving diverse voices early in the process was essential in drafting Shoreline's racial equity report evaluating past and present housing regulations.

In the late spring months of 2023, planners at Atwell were selected by the city of Shoreline to do something new and innovative for the city: dig into its history, demographics, and socioeconomic data, and use that information to draft its first racial equity analysis.

BY AMANDA HUNT ATWELL

in northwest King County, received a missing middle housing grant in late 2022 to conduct the analysis, evaluating past and

Shoreline,

present regulations and policies that may have caused housing inequity impacts.

Leading this effort was no small task, requiring meticulous research, communication with local leaders, and education and outreach in the community. However, not only did we get the opportunity to learn more about the unique urban-coastal community, but we also had the chance to contribute to the city's current and future planning while serving as a voice for local housing accessibility.

#### RESPONDING TO THE EVOLVING GMA

First enacted in 1990, Washington's Growth Management Act (GMA) requires fast-growing cities and counties to develop comprehensive plans and development regulations for their communities. In 2021, the legislature amended the GMA to require cities to plan for and accommodate housing that is affordable to all income levels, and implores cities to evaluate how historic laws, regulations, and development practices have created housing inequity, displacement, and exclusion of racial groups.

Not only did the amendment require cities to develop step-by-step plans to accommodate affordable housing, but also a racial equity component in the housing elements of their municipal comprehensive plans. Shoreline's Racial Equity Analysis proposed policies to be submitted to the state for approval. These proposed policies were intended to reduce and mitigate displacement risk, and begin to undo racially dispa-



PHOTO COURTESY OF SOUND TRANSIT

rate impacts; for example, removing certain language from policies that can cause unintentional harm or be interpreted or implemented in a way that could impact residents disproportionately.

It took about three months to draft the report. We started with an investigation into the city's history, asking questions such as: Is there evidence of redlining? Were the housing regulations from the 1940s through the 1960s restrictive? Were historic comprehensive plan policies unintentionally harmful?

We sought answers to these questions while digging through any evidence we could find indicating exclusion, displacement, and racially restrictive covenants. We were able to divide this research into four main goals:

- 1. Identify local policies and regulations that result in racially disparate impacts, displacement, and exclusion in housing, including:
- a. Zoning that may have a discriminatory effect
- b. Disinvestment
- c. Infrastructure availability
  2. Identify and implement policies and regulations to

address and begin to undo racially disparate impacts, displacement, and exclusion in housing caused by local policies, plans, and actions.

**3.** Identify areas that may be at higher risk of displace-

ment from market forces, zoning, development regulations and capital investments.

The jurisdictions are expected to establish antidisplacement policies and actions to make sure that historically displaced communities, or people currently experiencing racially disparate impacts, have support

INEQUALITY — PAGE 23



PHOTO BY ATMELL

# DESIGNING FOR HEALTH IN AFFORDABLE HOUSING

Simple and effective design improvements like increasing natural light, improving the quality of materials and creating intentional spaces for casual interaction are essential to healthy affordable housing.

Housing is fundamental to our health as individuals and as a community. Centering human health and well-being in housing design can begin with crafting connections to nature, healthy indoor environments and spaces that foster community.

Nowhere is healthy design more important than in our stock of affordable housing. The growing awareness of housing as a health issue

shift-

levels.

Medic-

Fed-

state

local



funds initiatives. BY JEFF REIBMAN Washington WEBER THOMPSON House

1866 now requires housing to be provided as a part of medical care for people experiencing chronic homelessness along with a major medical condition or disability. King County's Health Through Housing Initiative is another notable example.

The imperative extends far beyond people exiting homelessness. Much of our affordable housing supply serves low-income families and individuals who simply cannot afford the high cost of stable housing in our region. Seniors on fixed incomes represent a growing share of those seeking affordable housing options, and many existing residents remain in affordable housing longterm, leading to an aging population of residents with growing health concerns.

Funders of affordable housing projects have taken notice, prioritizing projects in partnership with community health and services organizations. Many examples have recently opened their doors or are currently under construction.

• Orenda at Othello Square provides workforce housing above the new Odessa Brown Children's Clinic in partnership with Seattle Children's.

• Pride Place on Capitol Hill, a partnership between Community Roots Housing and GenPride, has opened the first LGBTQ+-affirming Affordable Senior Housing project that provides health and wellness services to elders.

• On North Beacon Hill, the

Pacific Hospital PDA recognized housing as a part of their public health mission and sold a portion of their historic site to the Seattle Chinatown International District PDA. Their project, Beacon Pacific Village, is an intergenerational affordable housing project with an elder care center operated by A.I. Pace and an early learning facility by El Centro de la Raza.

Each project centers on health for residents and the community. Building on this awareness, we can and should prioritize healthy homes for everyone, especially for the most vulnerable among us.

### THE HEALING POWER OF **NATURE: BIOPHILIC DESIGN**

Biophilic design harnesses the innate affinity humans have for being exposed to nature. Studies have consistently shown better outcomes for patients in healthcare settings with access to daylight and views of natural settings.

Similar studies have shown lower absenteeism in workplaces and improved test scores in schools when biophilic design elements such as high levels of natural light, indoor gardens, and views of nature are integrated into the space. Similar strategies can be used to incorporate biophilic design into afford-

able housing.

Larger windows bringing natural light into units, corridors and common areas, can provide views out to natural settings whenever possible. Well-designed outdoor spaces and community gardens provide direct access to nature and can encourage physical activity and community building. Bringing the outdoors in, with features like green wall systems, provides the benefits of nature regardless of the weather. We can also specify natural materials and finishes that enhance both units and community spaces. Updated codes now allow more exposed mass timber structure in larger buildings, another great opportunity to showcase the beauty of

### HEALTHY MATERIALS, HEALTHY AIR

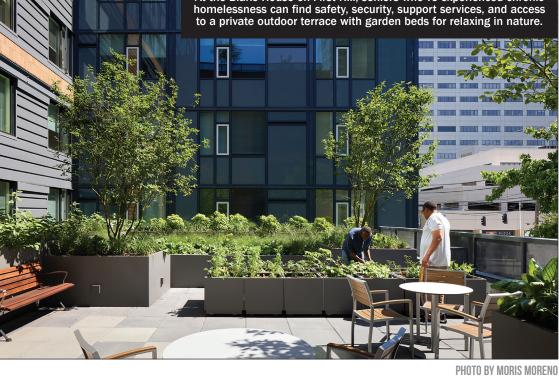
Sick building syndrome and wildfire smoke are just two of the issues raising our awareness of indoor air quality. Whether working from home or adjusting to the northwest seasons, many of us are spending more time indoors. Tight building envelopes and mechanical ventilation systems required by our new energy codes make indoor air quality even more critical for human health and wellbeing. Adding higher levels of filtration to mechanical systems protects us from outdoor pollutants — but not the products inside our

homes. Fortunately, transparency in the supply chain is making it easier than ever to specify healthy materials in our buildings. Numerous green certifications, along with product databases such as Mindful Materials and Declare assist designers in finding better options. Certified red-list free products (products that do not contain known harmful chemicals) can be found for nearly every component of a modern structure, often with no added cost.

Materials and finishes that bring nature into our homes, such as natural wood and stone, as well as live plants can bring biophilic benefits along with improved indoor air quality.

#### **COMMUNITY MATTERS**

Designing to combat isola-



At the Blake House on First Hill, seniors who've experienced chronic

tion and support the community is just as critical. Humans are social beings. Even the introverts among us (this author included) need interaction to thrive.

Isolation can lead to downward spirals of mental and physical health, especially for seniors living alone or

others who are not working outside the home. We take better care of ourselves when we know other people care about us and depend on us for community activities.

The concept of the third place, popularized by social

HEALTH — PAGE 23



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### **DRONES**

**CONTINUED FROM PAGE 3** 

(DEM) and an orthophoto mosaic. These serve as base images for GIS, CAD, or onthe-ground measurements. Our engineer developed a preliminary design using CAD surfaces, enabling our team to calculate quantities and rough estimates for a grant funding pursuit. While the site location has current LiDAR with a 3-foot resolution, crucial small features to the project, like the bulkhead, weren't detected. Drones facilitated quick data collection and processing, generating detailed,

high-quality products guiding future decision-making and engineering work. Our landscape architect then created conceptual renderings depicting the site's potential appearance post-bulkhead removal.

In this case study, this influenced two neighboring properties to agree to restoring their shorelines as well, resulting in a more competitive application for grant funding and a more impactful restoration project.

In case any delays occur in the funding process of this project, the team can easily review the digital assets and products saved to reorient themselves to the project and pick it back up a year or two after with the high-quality products and visuals achieved from the drone flight

This case study illustrates the cost-saving benefits of drones. In the lifetime of the project, our team saved money in the initial conceptual design because they didn't have to hire a surveyor to come to the site, coordinate schedules, wait on data pro-

cessing, and review surface data. Herrera was able to process the data in-house, which required only a few hours of work while streamlining the project.

### **LOOKING AHEAD**

How will drones be used in the future? It is hard to predict what will happen, but we are happy to be at the forefront of using this exciting technology, risking a bad pun: the sky is the limit with drone technology.

We're already seeing unique

applications of drones for autonomous mapping, infrastructure inspection, energy efficiency assessments, and production of digital twins, and all of this is happening at data resolutions that aren't possible with manned aircraft or satellites. We're only going to see the technology become easier and cheaper to operate over the coming years, and we can see it becoming a very normal tool for engineers to rely on.

Drones have emerged as transformative tools in the realm of engineering, redefining how projects are conceptualized, developed, and communicated. Herrera's use of drones is revolutionizing data collection and management throughout the project lifecycle. By leveraging the capabilities of drones for aerial imagery, photogrammetry, and construction oversight, engineers can access precise, detailed, and visually compelling data that transcends traditional methodologies.

The Shore Friendly Armor Removal case study vividly illustrates how drones not only expedite data collection and processing but also facilitate collaboration, inspire stakeholders, and significantly reduce project costs. The ability to create highquality deliverables, influence decision-makers, and revisit projects underscores the invaluable role drones play in engineering, marking a pivotal shift towards efficiency, innovation, and costeffectiveness in the industry. Herrera is excited to see how drones are integrated into our work in the years to come.

Herrera's drone team, led by Lauren Ode-Giles, helps clients obtain aerial imagery and video of project sites for precise and repeatable data collection. Herrera's eight licensed UAS pilots use this technology during all phases of project development, from initial project planning to final as-constructed site documentation and monitoring. Our firm's UAS data collection and management solutions include aerial video, aerial photography, vegetation monitoring, habitat assessments, topographic surveys, orthomosaics, and construction volume surveys.

Lily Schreder is a marketing specialist at Herrera with a background in marketing and environmental studies. Lauren Ode-Giles is a GIS analyst and environmental scientist at Herrera and runs the company's drone program.







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# SEATTLE'S COMMERCIAL DEVELOPMENT AT A CROSSROADS

Downtown's post-pandemic recovery requires a shared public and private sector vision for - and financial commitment to - the city's future.

The future of commercial development in Seattle's downtown core is more uncertain than ever. The bullish trend of the recent decade of development has given way to a disquieting lull that begs the question, "What next"?

tion, "What next"?

While none of us can predict the future, it is increasingly clear that



BY ERIK MOTT Perkinsawill

development in Seattle will look different in the coming years to serve the expectations and needs of future generations. During this hopefully momentary lull in development investment, we can reflect on how to best shape the future of our down-

town intentionally. With a shared vision, we can act together to have the most positive impact on our urban and natural environment.

### **INERTIA AND UNCERTAINTY**

There are amazing opportunities ahead, as well as systemic challenges to overcome. Economic momentum has shifted away from growth, and we are now faced with inertia and uncertainty as market leaders contemplate their next move. Those in and associated with the commercial real estate and development industry can see the challenges ahead, and it's a common refrain that "this time feels different" due to cultural and economic shifts with impacts that remain unknown. What we do know is that downtown is struggling to recover its pre-pandemic vitality, and that additional growth and development will be challenging. Fundamental shifts in financial markets and social behaviors arising from the pandemic have made visible impacts on the downtown core and the outlook for the foreseeable future. One catalyst for change is to make a shared commitment to improved public and private cooperation to overcome the current dilemma.

According to JLL's Global Real Estate Outlook in Summary, at the end of 2023, return to office rates in the U.S. were at a meager 55%, significantly lower than in Europe (75%) or Asia-Pacific (85%). In Seattle, the trend towards remote work has shown up as the greatest decline in demand for office space among seven major cities including Los Angeles, San Francisco, Boston, Washington, D.C., New York, and Chicago, according to commercial real estate analysis by VTS. Downtown recovery is hovering at about half of pre-pandemic levels of 2019 according to a University of Toronto study analyzing 66 cities in North America.

While many socioeconomic factors may contribute to Seattle's significant lag in economic and civic recovery, the impacts are visible on streets

and sidewalks that lack activity. They are lined with vacant retail store-fronts, projecting a feeling of decline. With significant vacancies and an absence of multi-family residential density in the center of the city, Seattle has become less inviting to a healthy and industrious populace.

## RESTORING AND REGENERATING OUR URBAN FABRIC

Against this backdrop, the commercial development pipeline in Seattle has slowed substantially with a sharp decrease in immediate demand and uncertainty of future demand. By late 2023, only 15 commercial building permits had been issued downtown, as compared to more than 100 in 2016 and an average of 65 per year between 2016 and 2019, according to the DSA 2023 Year End Development Guide.

That may seem like grim news. Absent a new trend emerging, it could be. But there is good news too. The Seattle region remains in a robust economic position as a home for global leaders and is a beautiful natural setting with a community known to be resilient, innovative, progressive, and socially conscious. Surely, we can turn the development trend upward again by taking this opportunity to knit together public and private investments toward a shared goal of a restored and regenerated urban fabric.

A true recovery can only take place when community leaders align around proactive coordinated strategies to promote and deliver quality urban development. City and community leaders are to be lauded for bringing forward the Downtown Activation Plan, the Building Emissions Performance Standard (BEPS), and the Third Avenue Vision Initiative. More needs to be done.

These visions, accompanied by meaningful public investments in Seattle's future could amplify the benefits of a healthy downtown. Modifying the zoning, regulatory, and fee framework could truly unlock the future potential of downtown. Other improvements that could make a huge difference in activating progress include incentivizing and rewarding developers for creating intelligent density in mixeduse neighborhoods, simplifying the outdated zoning code, eliminating height limits throughout downtown, and striking through regulatory impediments that overburden the risk and cost side of every proforma.

Development is a sign of life, vitality and civic health. We must connect the dots between our economic and cultural goals and the built environment, and work together to find creative solutions to support development. Given the profound recent shifts in macro-economic trends and social norms, it is no wonder that mature cities with more well-estab-



PHOTO BY STERNSTEIN PHOTOGRAPHY

lished density, diversity, and public space are recovering faster. Seattle, this is a collective learning moment.

Beyond policy, code revisions, and enhanced public and private partnerships, forward-looking leaders are revisiting expectations for design and construction to address what people want today and in the future. Innovations have made their way into the skyline through projects that embrace new paradigms for use and new standards of performance.

The next tranche of development in Seattle will bring a steep change

in the evolution of quality projects as citizens, tenants, and residents demand healthier, more distinctive, and inviting buildings and spaces to fulfill the potential of a flexible and healthy urban lifestyle. New city initiatives alongside new development standards can shape the future of commercial development in the Seattle downtown core. Only time will tell if we are up for choosing the right path.

Erik Mott is principal and design director at Perkins&Will.

# BYPASSING REVIEW TO BOOST AFFORDABILITY

Design review and MUP exemptions for affordable housing could shave six to seven months off of planning and design, and allow projects to begin construction in 14-18 months, or even faster.

Seattle, like many other urban environments across the United States, still grapples with meeting the rising demand for affordable housing to support the needs of low-income families and individuals. The 2022 Annual Homelessness Assessment Report concluded that over 13,000 people in King County were experiencing home-



BY DAVID KELLEY Ankrom Moisan

lessness, a staggering number that points to a need for radical change.
While other

temporary fixes have been proposed and implemented, the city

council's latest amendment to the land use code makes two important changes to the public design review process aimed at encouraging additional low-income housing. The first change permanently exempts low-income housing projects from the design review process. The second change provides a new design review exemption for projects that fulfill Mandatory Housing Affordability (MHA) requirements by offering on-site units through the Performance Option under the Land Use Code. By encouraging developers to build affordable units within market-rate buildings, a greater number of housing options will arise, providing shelter sooner for vulnerable populations.

Currently, most developers pay a fee in place of providing affordable units onsite. Now there is an incentive to incorporate this component into any market-rate project, leading to greater options available sooner for those in need. This new exemption under the Land Use Code, administered by the Seattle Department of Construction & Inspections (SDCI), allows projects that have opted into the Performance Option to skip the Seattle entitlement process called the Master Use Permit (MUP) including design review and proceed directly to building permit submittal.

This change could save a project six to seven months from project start to construction date, and allows projects to begin construc-



PHOTO COURTESY OF ANKROM MOISAN

tion in 14-18 months, or even faster, based on the construction phasing chosen by the development team.

While designers and architects can conceive and execute plans on a consistent timeline, there are often external factors that can hinder any given project. Receiving permits and approvals from the city is a necessary part of maintaining proper integrity and standards, but disrupts the linear process. The elimination of the design review process allows for a more seamless transition from design to construction to completion, meaning more units can hit the market and more quickly contribute to efforts to rem-

edy the lack of housing.

While SDCI staff can move quickly, other city departments can still impact permitting timelines. The Seattle Department of Transportation (SDOT), for example, may still place holds on project building permit submittals. Design teams must engage in the Street Improvement (SIP) process as soon as possible. Both the landscape architect and civil engineer need to be engaged early and share the expedited schedule with SDOT staff.

SDOT staff have the authority to waive the building permit submittal hold, but need to have confidence that the project will meet the city's street improvement requirements. Additionally, Seattle City Light (SCL) will not

expedite any processes, and can delay construction and project opening dates. It is critical that the design electrical engineer is engaged early to create the service letter application and can attend the pre-application meeting with the necessary design information.

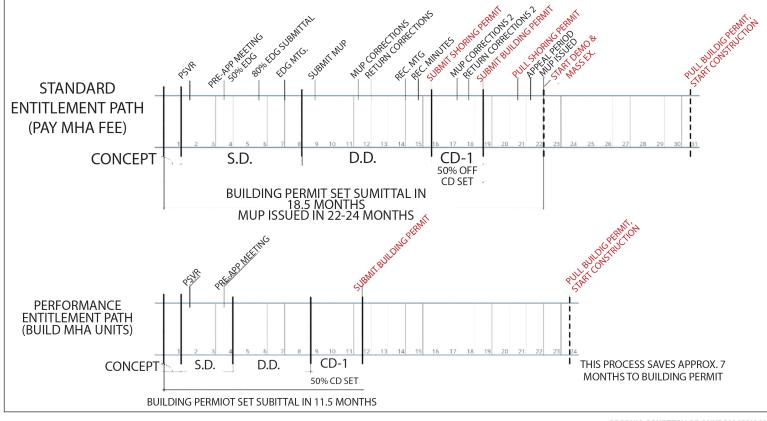
A significant amendment in the land use code, removing



the public design review process, implies a reduced risk of unexpected impacts. Fees and the quantities of on-site units are listed in the land use code, and can be computed by the design team. The developer can then weigh the time and risk reduction with the elimination of the design review process with the requirements for the on-site units.

However, on-site affordable housing units provided to satisfy the requirements of the Performance Option cannot be used to earn public subsidies such as through the Multifamily Housing Property Tax Exemption (MFTE Program). This is an important consideration as many developers leverage the savings provided by MFTE program. Navigating these intricate requirements demands an experienced design team, but successful implementation can yield significant time savings for development teams.

Ultimately, every stride toward producing affordable housing and addressing the current shortage is an enhancement of the existing framework. If the objective is to change, then new ideas and amendments become essential. The opportunity to bypass such a complicated aspect



GRAPHIC COURTESY OF ANKROM MOISAN

of the overall design and construction process will be transformative in how housing projects are conceived and executed.

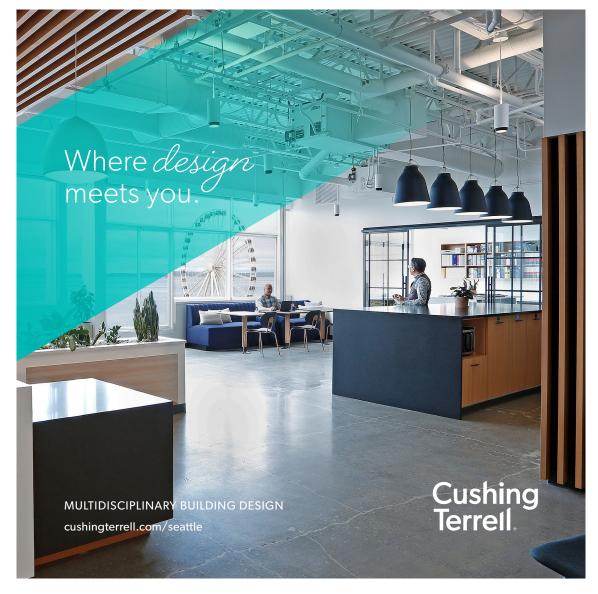
Architects and designers are excited to engage in new projects and see how this

amendment will be of use since rectifying the high rate of homelessness in Seattle is a top priority for all who live here. As with any new regulations, challenges and questions may require creative solutions and patience, all contributing to a more

seamless process going forward. Utilizing the resources available, continuing to conduct community outreach, and maintaining an open dialogue with developers and city officials will create a collaborative environment geared toward changing the

housing landscape for the better.

David Kelley is the co-director of the housing studio and a senior principal in Ankrom Moisan's Seattle office, specializing in multifamily housing design across the West.



### DESTINATION

CONTINUED FROM PAGE 2

work, meet and exercise. Allgender restrooms on every floor foster inclusivity, and offer easily accessible hand washing zones throughout the building.

Community-building amenities are on every floor, starting with a shared work lounge adjacent to the elevator lobby. This lounge offers tenants an opportunity to connect, collaborate or work away from their desks with views that overlook the surrounding preserve.

Overall, the design seeks to encourage social engagement and connection to nature, creating a unique work experience centered on well-being.

# EMBRACING THE FUTURE WORKPLACE

The commercial office market will rebound, but it will never be the same. Tenant demands and worker needs have changed the factors that define a successful office development. A silver lining is that the future model will be healthier, more productive, community-driven and responsive to the needs of the planet.

The redesign of this typical entitled spec office project is a case study that proves the potential embedded within existing commercial building stock. As developers begin to reimagine properties to adapt to the future demands of the workplace, this project can provide inspiration through its inventive redesign that altogether fosters tenant community, increases amenities, connects to the natural environment, prioritizes wellness, delivers equitable facilities, and permits flexibility for the ever-changing needs of the modern workplace.

Craig Curtis is a partner and director of emerging building technologies at Mithun, where he leads interdisciplinary teams incorporating mass timber and modular construction for workplace, institutional and mixed-use projects. Elizabeth Gordon is a partner in Mithun's Seattle office specializing in workplace design. Alyssa Olson is a senior associate and landscape architect in Mithun's San Francisco office, specializing in site design for workplaces, multifamily housing and civic infrastructure.

# DESIGNING LIBRARY SPACES FOR THE CHILDREN OF TODAY

Combining understanding of early literacy with parametric modeling capabilities allows for several unique installations for the children's area of the Edmonds Library.



PHOTO COURTESY OF SNO-ISLE LIBRARIES

Since Andrew Carnegie reimagined public libraries and helped develop nearly 1,700



BY JACK CHAFFIN JOHNSTON ARCHITECTS

of them in the late 19th early and 20th centuries, how people use and interact in the spaces has changed immensely. Here in Seattle, we can visit the Columbia City Carn-

egie Library, which opened in 1915, and compare it to the current Capitol Hill branch, which opened in 2003, to see the remarkable transformation of community libraries that occurred in less than a century — and is still well underway.

Just as our society's adoption of technology has quickened in the digital age, so has the evolution of the public library and what it provides:





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Architecture



Landscape Architecture



Interior Design

human engagement, access to technology, a welcoming gathering place, and much more.

In Johnston Architects' 33-year history, we have designed nearly 40 library projects, and what has evolved most in recent decades is the design of children's spaces.

### IMAGINATIVE PLAY INSPIRES LEARNING

Sno-Isle Libraries and the city of Edmonds recognized an opportunity to broaden the Edmonds Library's role in its community after the 17,000-square-foot facility was flooded by 60,000 gallons of water due to a burst water main.

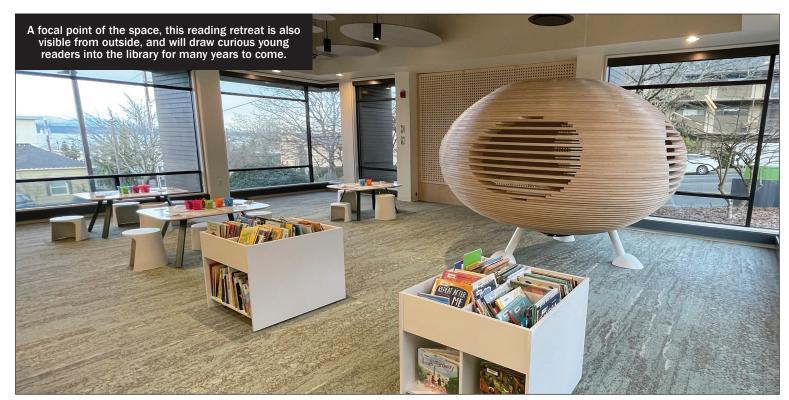
Mona Johnston Zellers, a partner at JA, was an early childhood educator before she became an architect and brings that expertise to each of our library designs. Combining her understanding of early literacy with our firm's parametric modeling capabilities and installation experience, we created several unique installations for the children's area of the renovated Edmonds Library.

The most tactile of these resembles a pebble, egg, bird's nest or a flying saucer, depending on who you ask. Designed to spark imaginative play, the installation uses one-inch thick Baltic Birch plywood in layers to create the form. JA developed the design and pro-vided the digital fabrication files for construction. The files were optimized to limit the material waste, and 48 four feet by eight feet plywood sheets were used in its creation. Haskett Works fabricated, assembled, and installed the project in the library. The final product is about nine feet around and about seven feet tall. It sits on a partially hidden steel structure to ensure the safety of its little inhabitants.

When the Sno-Isle Libraries reopened the Edmonds Library on Jan. 13, this active play element was continually occupied by children of all ages, from crawling babies to tweens, and a few adults as well. When the library is less crowded, it can serve as a reading nook for caregivers and children, or a safe space for little ones to let out some energy before they sit down for story time. A focal point of the space, this reading retreat is also visible from outside, and will draw curious young readers into the library for many years to come.

### DIGITAL AND ANALOG MERGE

We considered ways to spark a love of learning in



young readers while also teaching them simplified concepts of circuitry, cause and effect, and programming through collaborative play.

We designed and constructed a floor-to-ceiling installation with 3,220 holes lit by individual LED lights, similar to a giant Lite-Brite toy. JA design technologist and associate Shane Leaman designed custom circuit boards to connect the 1,088 magnetic sensors behind the board, which sense when acrylic pegs embedded with a small magnet are inserted into the lower holes. When these pegs are inserted into the wall, the program responds using those LED lights in a myriad of ways.

Using a popular and simple gaming engine, Leaman created a number of games that engage this unique kind of input. Examples include programs in which players place pegs to pop bubbles descending on the screen, create a fireworks show, or create a pixel garden. The LED installation can be updated with new games at any time.

While the installation itself is digital, the interactions are more analog and the "screen" of individual lights appears like a pixel animation. When no one is interacting with the peg wall, it is programmed to rotate through a mix of colorful and dynamic displays, beckoning library patrons to the children's area to see what all the fun is about.

As public libraries continue to evolve to meet the changing needs of their communities, library design must also evolve to incorporate technology in equitable ways and expand learning opportunities for children, strength-

ening early literacy through unique elements in the built environment. Ensuring these experiences are available to kids with differing mobilities, interests, cognitive needs and learning styles is vital to providing inclusive library experiences for all patrons. Inspiring a love of reading and learning among the library's youngest patrons

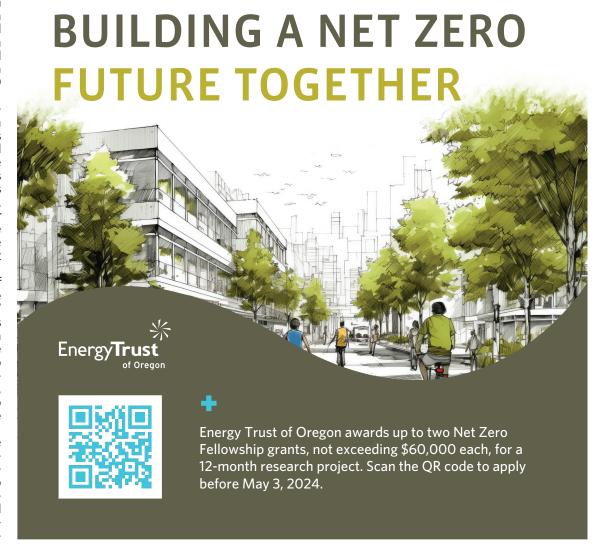
ensures the continued success and relevance of libraries in the future.

While Andrew Carnegie likely never imagined children crawling inside a reading "nest" in a public library, or playing spelling games on an oversized computer screen, we like to believe he would have maintained an open mind to new research

PHOTO COURTESY OF JOHNSTON ARCHITECTS

in early literacy and recognized the value of engaging future readers in play to enhance learning. And who knows, perhaps he would have enjoyed playing in the library, too.

Jack Chaffin is a partner at Johnston Architects in Seattle, where he leads JA's innovation lab.





RENDERINGS AND DIAGRAM BY CAST ARCHITECTURE

# AN UNCERTAIN FORECAST FOR MIDDLE HOUSING

Cities and states are making room for ADUs, townhouses, cottage clusters and other denser housing on residential lots, but not yet fast enough to meet housing demand.

Washingtonians Many struggle with housing, and it isn't just homelessness and high rent. Finding a home you can afford, not being able to buy or relocate for opportunity, struggling to stay in your neighborhood as your family situation changes or as the economic pressure of gentrification and displacement



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commonplace features of a city that can't keep up with housing demand. Housing

are

push up pric-

these

costs have BY MATT HUTCHINS doubled across the ARCHITECTURE state in the

last decade, making the lack of attainable housing for low and middle-income people a pervasive problem.

Among the most promising strategies to open more doors for new homes is 'middle housing', a catchall for the mix of housing

types between the scale of detached single-family houses and large apartment buildings. They are typically townhouses, small multiplexes, accessory dwelling units, and cottage clusters. They fit on most residentially zoned lots, but split the land cost across more units, making each unit relatively less expensive. And although they tend to be similar in bulk to larger houses, many places have thrown up walls to keep out this kind of new building.

### CITIES MAKE SPACE FOR MIDDLE HOUSING

The movement to create space in detached singlefamily house neighborhoods for denser housing types is catching fire nationwide. Portland, Sacramento, Charlotte, and Austin are planning for two to six units per parcel. Minneapolis rezoned to allow three units in 2019 but subsequently has had to put the new rules on ice until concerns by several environmental groups are studied.

Spokane is leading the way in Washington State with its Building Opportunity for Housing program.

In 2022, Spokane declared that it would allow four or six units per parcel in residential zoning and it has led to a wave of alternative housing types such as the upcoming Spokane Six stacked flats. The Spokane Six features six two-bedroom/two-bath family-sized units, two of which will be made affordable using the Multifamily Tax Exemption. The project will replace a detached single-family house and recalls the small multiplexes that once were the building blocks of cities before single-family houses became the zoning para-

### MOVEMENT AT THE STATE LEVEL

It isn't just cities addressing the housing crisis. States are taking up the mantle. California's SB9 and ADU reform are generating about 20% of all of the new units there. In 2019, Oregon's HB 2001 allowed 2-4 units in urban areas. Last year, Washington joined them with HB 1110, which directs cities and towns to provide zoning for four to six units per parcel or abide by an alternate model ordinance.

The middle housing model ordinance starts with a target of 1,400-square-foot new units, and reverse engineers the Floor Area Ratio (FAR) and lot coverage. It doesn't discriminate between the different housing typologies, and is thus well-positioned to produce townhouses as well as small multiplexes. Prescriptive aesthetic design standards, such as building articulation, are not mandated, but will be the purview of local planners.

This session, legislators are looking at the Housing Accountability Act, HB 2113, which would create a statelevel review of local comprehensive plans to make sure their housing policies match targets, a Transit Oriented Development bill, HB 2160, and HB1245 which would allow

lot splitting — a key strategy for leveraging urban lots.

### **KNOCKING DOWN BARRIERS** AND BUILDING WALLS

Barriers are falling for Accessory Dwelling Units (ADUs). Since Seattle passed the landmark 2019 reform, the appetite for ADUs as starter houses, townhomes and multi-generational housing has been growing. The zoning change effectively created a back door for infill development.

Last year, nearly a thousand ADUs were completed across all zones, or about 7% of the total number of new units. Three-unit townhouse projects, where two homes are nominally ADUs, are springing up for sale as condominiums. Under HB 1337. jurisdictions will have to plan for two ADUs, both of which could be detached, creating de facto cottage clusters of starter homes.

While these are positive moves, middle housing still faces an uphill battle. In Seattle, the pipeline for new low-rise townhouses has essentially dried up, with only 260 new units filing applications in 2023. Many small developers have pivoted from low-rise zoning to Neighborhood Residential/ADUs to bypass the Mandatory Housing Affordability (MHA) fee or left the market.

In those terms, the upzone component of MHA hasn't worked — and the success of ADUs is masking the shortfall. MHA's proposition to trade additional development capacity for affordable housing funding doesn't have enough incentive to offset the cost for builders who have the choice to work elsewhere. It effectively doubles the soft cost paid out by the developer before groundbreaking. MHA has a 5-year track record, and it is time to re-calibrate the program's effectiveness based on the pattern of development it is producing.

## GROWING PAINS IN IMPLEMENTATION

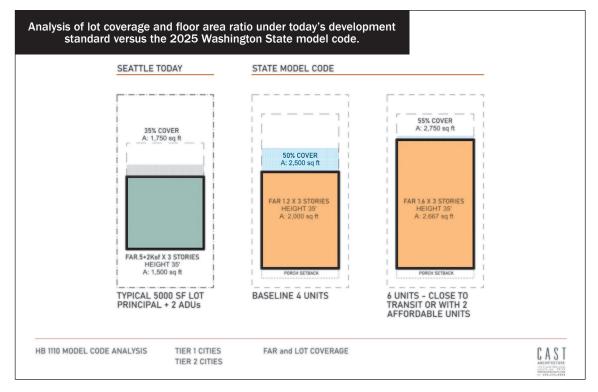
The Seattle Comprehensive Plan, a long-range framework that guides bigpicture decisions about transportation, housing, and capital investments, has been in the works for several years, but the draft has been delayed since last April. Granted, integrating new requirements for Middle Housing (HB1110), Accessory Dwellings (HB1337), Climate Action (HB 1181) and Transit Oriented Development has slowed the process, but without clarity about what will happen to land use around Urban Villages and in Neighborhood Residential (NR) zones, some developers are waiting on the sidelines until the outline of an updated growth strategy is unveiled. The possibility



of MHA expanding into NR zones could be a wet blanket for infill developers looking to leverage ADUs or middle housing under HB 1110.

We are at a point when middle housing is maturing from idea to implementation, but we haven't seen the paradigm shift yet on the street. Expect growing pains over the next two to five years as new development standards begin to produce more housing in different housing types in neighborhoods across the state. Hopefully, it will be accepted at scale soon enough to have an impact on Washington's rising cost of housing.

Matt Hutchins is a cofounder of CAST architecture, serves on the Seattle Planning Commission, and is president-elect of AIA Seattle.



### **ENCLOSURE DESIGN**

**CONTINUED FROM PAGE 9** 

through wall and roof system components.

#### THINKING BEYOND EFFICIENCY

Selection and installation of a robust air barrier and appropriately accomplishing its interface with adjoining components and the system's thermal insulation materials will directly improve a building's efficiency. In other words, an optimal building envelope creates energy efficiency, and energy efficiency results in a smaller carbon footprint,

making the building envelope a critical part of the resilient and sustainable design conversation.

#### **PUTTING IT ALL INTO PRACTICE**

There's no one-size-fits-all solution, only an array of critical elements and components to consider such as client needs and the surrounding environment. Think of it as an if-then formula: If there are many points of entry, then there needs to be a closer examination of air tightness. If the building has

an indoor pool, then there should be a focus on moisture diffusion.

Last year, the Cushing Terrell design team completed a clinic located in Bozeman, Mont., a region prone to large temperature swings and rainy and snowy conditions throughout the year. Knowing these environmental factors and the need to keep the interior safe and dry, the team opted for a roof drainage layout that uses tapered insulation to internal roof drains. To rigorously control moisture in a medical build-

ing where small atmospheric changes matter, we opted for a 10-mil polyethylene vapor barrier taped and sealed air tight behind the interior wall finishes. Within the wall, we installed fiberglass batt insulation in the stud cavity with a self-adhered air and moisture barrier placed over the entirety of the exterior sheathing.

These and our other building enclosure choices were also made with cost in mind: Both the up-front cost of the materials themselves and reducing potential expenses in the

future (i.e., to avoid repairs and keep energy bills down).

By choosing appropriate and high-performance solutions for each of the building's enclosure components — in a way that was responsive to its unique needs — we delivered a structure that will withstand the test of time by sealing the external environment out and protecting what's located within. It's not a trend, it's just responsive design.

Brady Gauer is a roofing envelope specialist at Cushing Terrell.

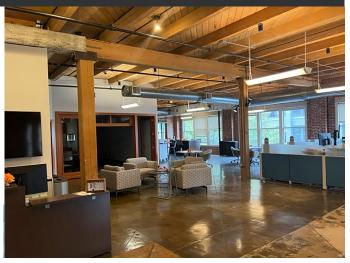
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### **INEQUALITY**

**CONTINUED FROM PAGE 12** 

from jurisdictions to attain affordable housing. Special consideration will be given to investments in low- and moderate-income housing.

### **UNDERSTANDING PEOPLE. SYSTEMS** AND COMMUNITY DESIGN

One of the most important parts of this process was engagement. community Engagement with the Shoreline community was achieved through four distinct efforts: community-based organization interviews, focus groups, a virtual public meeting, and an online survey. The process required a significant amount of time and concerted effort, and we wanted to make sure it received the attention it deserved.

As one of the planners who worked on the proposal from start to finish, I can admit this project pushed us all in new ways. While I have experience with a number of other housing action plans, it was my first time addressing issues such as raciallydisproportionate cost burden, housing accessibility, and areas of displacement risk. Identifying current and

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potential future barriers in the community that could impact affordable housing, such as new infrastructure, transportation and education access, and expiration of affordable housing covenants, was also a new challenge. I viewed those challenges as opportunities for strategic planning, and our team definitely expanded our skills, comfort zones, and knowledge of Shoreline's community history and culture through our research.

Our discoveries led us to a simple goal: to draft a report that reflected the true needs of the community, as opposed to the perceived needs. It was imperative for diverse voices from the community to be involved throughout this process, so we made sure to initiate and maintain engagement with the public

As we concluded our research into the history of the city, our team created a snapshot of current city statistics including differences between income, rental versus homeowner households, and where people are living, to develop a map of who resides in various neighborhoods, and understand why households by racial group may live there.

Based on the information collected, our team developed a Displacement Risk Analysis which identified where displacement was likely to occur by assessing Shoreline's socioeconomic patterns, redevelopment attractors, physical dis-placement risks, and future vulnerability factors. Residential "displacements" are instances where a household is forced or pressured to move by factors outside of their direct control.

Within the Displacement Risk Analysis, we reviewed data from the jurisdictional level down to the neighborhood level, investigating where households are statically more likely to be forced to move. For example, we found trends connecting the upcoming light rail stations to future housing instability, and the increased displacement risk near those stations. Upzoning is expected upon construction of the light rail stations, and increases in average home values or rental prices of nearby neighborhoods may be produced as a result. Considerations for rezoning and inclusionary zoning to create and preserve affordable units in the area were explored. To reduce displacement risk among vulnerable groups, these types of analyses and strategic planning solutions are important for planners to consider throughout research efforts.

Our findings can now be found on Shoreline's website, as well as the Washington Department of Commerce's website, as examples for other jurisdictions.

### HOUSING EQUITY BENEFITS ALL LEVELS OF DEVELOPMENT

We learned two major lessons from this experience. One was that budgeting for community engagement is a must. To produce a document that will serve specific needs identified by the community, outreach has to happen from the earliest phase all the way through the end.

The second lesson was to look at examples of similar work that has been done in similar jurisdictions, and reach out for clarity on how to formulate ideas and recommendations for your own project. Many localities are going through these new regulatory requirements for the first time, and therefore likely do not have a racial equity expert on hand. Seeking guidance from the state and working together with other jurisdictions to understand their effective policies was paramount. As planners, we had to ensure that the document was written in a way that everyone could learn and understand, and propose recommended policies and actions that were feasible and effective in meeting Shoreline's specific housing

Just a few months after submitting the drafted proposal, I attended the American Planning Association's conference in Spokane and was pleasantly surprised to discover employees of Shoreline presenting Atwell's data analysis to the audience. I was honored to see our findings presented so publicly, and proud to know that our work could have a major impact on the city's housing for generations to come.

This was a very fulfilling moment for me professionally and personally, because we all live in a community. We are all impacted by policies that affect the housing available and affordable to us. The more educated we are on the regulatory systems and stakeholders responsible for housing cost and development, the better we can contribute to educated discussions with jurisdictions, developers, and landlords when creating plans that can impact — and equitably benefit — everyone.

Amanda Hunt is a planner for Atwell in the real estate and land development sector, primarily performing long-range planning tasks for municipalities including housing action plans and comprehensive plan updates.

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### HEALTH

**CONTINUED FROM PAGE 13** 

scientist Ray Oldenburg, promotes designing spaces for casual interaction outside of work and the immediate family. In these places, we develop community and friendships.

The social networks that support day-to-day health become even more important in an emergency or crisis. People are likely to check up on a friend if they don't show up for a regular card game, book club, or other gathering. In times of trouble, we look out for those we know who may be vulnerable. Studies of excess deaths during heat waves show that people with close social ties are less likely to perish, while

those without strong com-

munity connections are vulnerable.

These three simple approaches are powerful tools with proven results. Many decisions, such as the use of natural materials and high-quality gathering spaces, can have two or three benefits at once. If we value human health and well-being, we can't afford to ignore these simple and effective design strategies.

Jeff Reibman is a senior principal and equity partner at Weber Thompson, leading the firm's affordable housing and senior housing practice, as well as mixed use, midrise teams.

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