

A&E

Perspectives



IN EDMONDS, A PARK RUNS THROUGH IT

As educators seek to bolster student wellbeing, a Puget Sound area school offers insight for intentional design.

The proposed design for replacing Oak Heights Elementary School in Edmonds School District sprung from two important early conversations with its design review committee.

The first discussion centered around the lack of parks in this area of Lynnwood in unincorporated Snohomish County. The second occurred while discussing the value that outdoor learning and outdoor connections bring to students and staff, when the school's Principal Jessie Asp astutely noted that "nature is nurturing."

BY LORETTA SACHS
INTEGRUS
ARCHITECTURE

Using Asp's words as a catalyst, the design concept develops a park-like setting and locates the new school within the "park." The concept prioritizes creating places for student



Oak Heights Elementary School follows the theme that nature is nurturing.

IMAGE COURTESY OF INTEGRUS ARCHITECTURE

and staff interactions with each other and with the surrounding environment, the emotional and academic benefits from providing fluid indoor-outdoor connections, and publicly facing the outdoor play area so that it is an

easily known community asset. The design is based on the foundational principle that engaging with nature is restorative, as well as an understanding of the physical and psychological benefits of natural connections to

create feelings of wellbeing and sustain students' ability to learn.

LEARNING GROWS ON TREES

The positive effects of designing schools within a green and

natural environment are well researched and documented. Across the U.S., hundreds of elementary schools (with most in urban locations) have observed

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ENGINEERING GETS SPECIALIZED IN RESPONSE TO INCREASING COMPLEXITY

The complexity of building designs required a movement away from the architect/master builder model.

Engineering is an exciting field that is constantly evolving with new discoveries and advances in building technology and application. Along with the entire field evolving, each specialty, such as civil engineering and structural engineering, continues to advance as we discover new and better ways to build safe and efficient structures while meeting the current demands placed on modern buildings, such as overall carbon content and energy efficiency.



BY DREW MCEACHERN
AHBL



Swift Water Elementary School in Gig Harbor is one of AHBL's recent structural engineering projects.

PHOTO FROM AHBL

ENGINEERING SPECIALIZATION

In the relatively recent past, the complexity of building design required a movement away from the architect/master builder model to an arrangement of several team members that focused their efforts on a specific aspect of building design and construction. Structural engineering was initially performed as part of the scope of the civil engineer. The increasing complexity of building

structural design led to further specialization, with structural engineering eventually being considered a separate sub-discipline of civil engineering.

In the early 20th century, civil engineers began a push to regulate structural engineering due to the construction of more complex buildings as well as the result of damaging earthquakes. The legislation intended to ensure qualified people were involved in the design of modern buildings that were becoming increasingly taller and larger.

The perceived risk of structural failure for these larger buildings created a desire to protect public

health, safety, and welfare. In Washington state, most building structures can still be designed by a licensed civil engineer. For decades, Washington has also maintained a "title act" whereby only a licensed structural engineer may use the title of structural engineer. Relatively

recently, Washington state has also passed a "practice act" that requires licensed structural engineers to design structures defined as "significant structures." The Revised Code of Washington identifies building types that meet the requirements of "significant structures,"

which include hospitals, fire, and police stations, buildings over 100 feet in height, and similar structures.

The ongoing evolution of engineer licensing and regulation in Washington state highlights the

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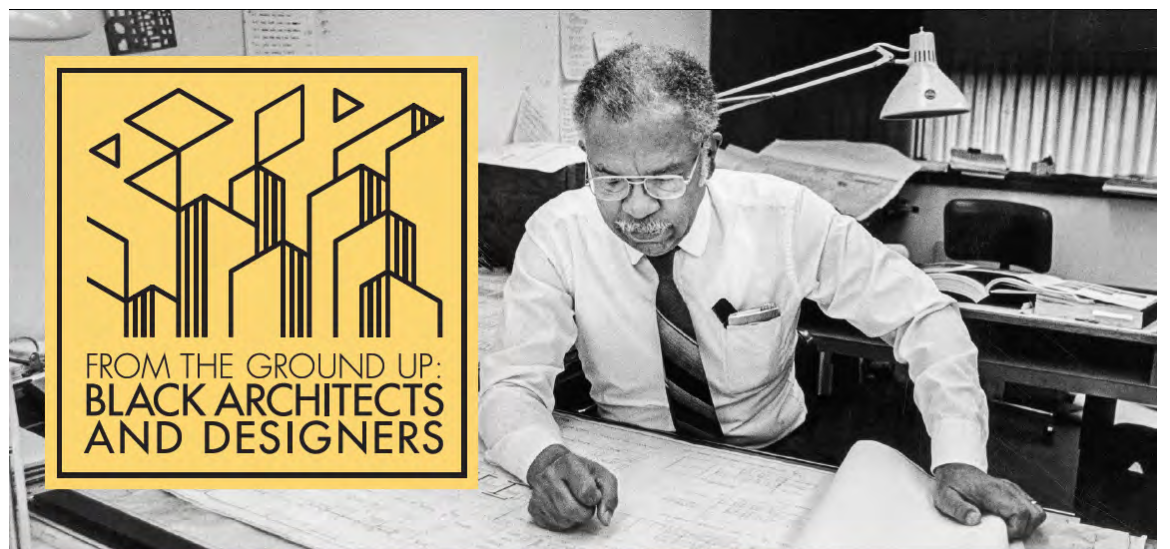
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ON THE COVER

Find out how lighting was designed to run through Glover Middle School on page 9. PHOTO COURTESY OF NAC ENGINEERING

2023 A&E PERSPECTIVES TEAM

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EQUITABLE DEVELOPMENT: NICE TO HAVE OR ESSENTIAL BEST PRACTICE?

To remain relevant and strategic, companies must make environmental, social and governance an essential best practice as a business framework.

Nearly every conversation on business strategy, planning, and development, echoes a focus on diversity, equity, and inclusion (DEI) issues. Now more than ever, companies



BY JAN MASON
MACKENZIE

are recognizing that data and research underpin the business case for not only evaluating their organizational policies and procedures with DEI

but that it is imperative to business practice to foster and shape all aspects of an organization's responsibility and role in society. This subject matter is nothing new to design firms. As champions of the public's health, safety, and welfare, protecting people and the planet is fundamen-

tal to those involved in architecture and engineering design disciplines. Inclusive, trauma-informed, and critical race design approaches are existing methodologies already practiced in specific project types.

However, with the crescendo of Black Lives Matter and the Me Too movements, companies ask themselves, "How equitable are our projects? Were diverse community voices heard in the process, thus eliminating disparity, particularly racial disparities? Am I attracting a diverse talent pool?"

In 2022, several publications were released that explored variations of the subject matter. Racial equity in commercial real estate, equitable economic development, and environmental, social, and governance (ESG) are some of the numerous social concerns researched and published. A recurring fundamental question arises, "What exactly is

equitable development?"

The nonprofit Urban Land Institute Northwest chapter held a discussion in Seattle based on its piece "10 Principles for Embedding Racial Equity in Real Estate Development," published in 2022. In addition to amazing speakers, industry professionals in commercial real estate, A&E design, and students from University of Washington's Runstad Department of Real Estate, gathered to hear short talks and learn about Seattle's history of redlining and its impact on racial inequities in real estate. Conversations like these are happening nationally as individuals seek to discover ways to embed racial equity in their day-to-day work.

An explanation produced by the U.S. Environmental Protection Agency in its website section on Environmental Justice describes equitable development this way, "Equitable development is driven by priorities and values as well

as clear expectations that the outcomes from development need to be responsive to underserved populations and vulnerable groups, in addition to using innovative design strategies and sustainable policies."

Policies and practices are how companies manifest their equitable priorities and values to cement their commitment to protecting the environment and implementing practices that reflect clean energy, green technology, and efforts to move towards carbon-positive operations. In particular, publicly traded companies openly discuss these practices in their annual reports that reflect on outcomes beyond their financial conditions. They tell their own equitable development story with the realization that to remain relevant and strategic, companies must move environmental, social and governance from "nice to have" to essential best practice as a

business framework that considers and prioritizes people, clients, the planet, and community.

According to the International Economic Development Council, "Equitable Economic Development promotes economic well-being and improves the quality of life in communities by creating and retaining jobs, enhancing wealth, and providing a stable tax base. Equitable economic development is achieved when every member of a community is able to share in and benefit from economic growth."

As place makers, professionals in A&E play a crucial role in improving the quality of life in the communities they design. Whether the design challenge is a community park, a redeveloped retail center, a college campus, or a master plan for a key economic center for business and commerce, the linkages to equitable economic improvements are ameliorated.

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More than ever, our projects are seeing participation by people in communities most impacted by development. Communities want a more inclusive and equitable development or redevelopment project with engagement and an opportunity to share their voice. Methods that offer this feedback loop during a project's early stages help shape decisions and determine if an equity lens has been integrated. Projects like Rassekh Park, Silverton Civic Center, and Lynnwood Community Recovery Center are just a few notable projects at Mackenzie where engagement went beyond simply public notices. Community advisory boards arose, and continue to be one of the means to provide opportunities for often marginalized community members to be heard and centered.

Places and spaces have a tremendous opportunity to enhance the health and wellbeing of those who live and work in neighborhoods, cities, and states. Achieving equitable and inclusive growth and development is a high priority of government, business and community leaders, and at every turn. Equitable development includes pathways to build a healthy workforce, fostering upward wealth mobility, and creating more resilient communities with equal access to opportunities.

As the finish line comes into view



Silverton Civic Center in Oregon was designed with community input.

RENDERING BY MACKENZIE

of any project, the hope is that they reveal transformative impacts, like living wage job creation, investment in local infrastructure, support for community-based organizations, and increased civic and neighborhood pride. As illustrated above, there are varying definitions of equitable design. Situations and desired outcomes necessitate a

tailored and unique approach to each development scenario. It depends on the context and yet, when equity is absent, unintended consequences often damage residents, visitors, commuters, and the community.

As the business of design continues to mature, clients, employees, the community, and

the government are challenging the project framework when it comes to determining inclusive and equitable design. It goes beyond the statistics of how diverse and inclusive the project team members are and what percentage of the fee was paid to minority, women and disadvantaged business enterprises.

It includes determining if diversity influences values, ideas, and perspectives and whether multiple perspectives, identities, and cultures are represented.

Jan Mason is an associate principal at Mackenzie and serves as the director of communications and equitable design.



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EDMONDS

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predictable and measurable improvements in student learning relative to the amount of “green cover” (specifically tree cover) surrounding the school. The restorative effect of nature on learning is referred to as the nature-academic performance relationship. It is explained by looking at nature’s effect on both cognitive functioning and emotional functioning with benefits gained through even short exposures to nature, such as by looking through a window or during a brief walk between school lessons.

Nature benefits cognitive functioning by allowing students to recover from mental fatigue and allowing their attention to rest. Explained by attention restoration theory (ART), interesting stimuli that attracts us, like nature, engages our involuntary/automatic attention that does not require mental resources. It relieves us from voluntary/directed attention, which requires effort to pay attention and remain focused. A student remaining in sustained, directed attention eventually experiences fatigue, as well as possible negative emotions like irritability that

can accompany feeling mentally depleted.

Nature benefits emotional functioning by allowing students to recover from physiological stress. Explained by stress reduction theory (SRT), nature can reduce a student’s blood pressure and stress hormones and refuel the energy used from responding to stress, restoring a feeling of wellbeing.

LEARNING IN A PARK

The design of Oak Heights began with creating three primary outdoor zones for students’ physical, academic, and emotional engagement. From east to west, students move from an active zone to a reflective zone through a middle transition zone. The eastern active zone is defined by its social and energetic play area; the middle transition zone is interactive, facilitating movement between the active and reflective zones; and the western reflective zone is quieter and more natural, connecting the new school to its beloved “forest” at the southwest corner of the site.

The school building is con-

ceived as a series of three separate “bar-shaped” buildings situated in the landscape with space between them to allow the park-like site to run around and through it. Each building stretches lengthwise east to west to optimize daylight through solar orientation. The buildings are subtly angled, both relative to each other and internally, to create dynamic exterior courtyards and interior environments. The three buildings are connected via a central north-south circulation spine, alternating between interior space and exterior covered walkways. The covered walkway connections integrate brief, restorative moments in nature for everyone throughout the school day.

The southernmost building houses the public and community functions of the school. This “public building” presents itself as a welcoming community center and serves as a buffer and filter to the more secure classroom and outdoor zones north of it. It contains the main administration, library, music programs, dining commons, and gymnasium. The central and northern “classroom buildings” contain

the core academic learning environments surrounded by natural outdoor courtyards. Each ground level classroom connects to its own covered outdoor learning patio set within the “park” running between and around the buildings. An enclosed skybridge connects the second floor classroom levels across the central academic courtyard.

LEARNING AND HEALING

The nature of learning is fundamentally social, beginning at infancy through our “socially gated” brains and facilitated through interactions and relationships with the people around us. As we grow older, learning continues to be rooted in social engagement, situated in place with students learning in community with one another. A student’s sense of wellbeing is a known critical component to their ability to learn. Today’s schools must be designed not only as program spaces to receive lessons and content, but also as places that foster, sustain, and restore students’ sense of wholeness and wellbeing. To feel whole is to feel complete, to claim your integrity, to retain your dignity, and to experience a sense of belonging.

The two classroom buildings at Oak Heights are designed to support feelings of community and belonging while also maintaining student dignity. Each building is designed around three identifiable learning communities with each containing five classrooms, one or two smaller flex rooms, a central flex learning area, and support spaces including inclusive toilet rooms. The three learning communities are arranged in a split-level design with the one-story eastern com-

munity meeting near mid-level the two-story arrangement of the two western learning communities. This split-level approach has many benefits, including minimizing the separation often felt between staff and communities within a two-story school by only needing to move a half-story up or down from the mid-level. This maximizes the number of classrooms at ground level with direct connection to learning outside, and creates a potential fourth learning community where the split level comes together along the central spine.

The flex rooms and surrounding sculpted flex areas within and around each learning community create places to support student wellbeing through intervention and healing-centered engagement. Developed by Dr. Shawn Ginwright, healing-centered engagement aims to holistically restore a student’s sense of wellbeing by focusing on fostering, restoring, and sustaining wellbeing through loving action and promoting feelings of student agency and dignity. The strategically used color palette of blue, green, and violet at Oak Heights creates comfortable and identifiable places nearby for students to reset with the caring adults around them. Healing is experienced collectively. Designed as an environment for healing, inside, outside, and throughout, Oak Heights affords all students the ability to feel whole as individuals and as a community while nurturing cognitive and emotional wellbeing for successful learning experiences.

Loretta Sachs is an associate principal and architect at Integrus Architecture.



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SPECIALIZED

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increased specialization within this field as design requirements for buildings continue to increase in complexity.

Other specialized engineering fields that have evolved into their discipline from their roots in civil engineering include: transportation; geotechnical; environmental; and water resource.

Traditionally, while an architect determines the overall building layout and function, the structural engineer is entrusted with the safety of the building occupants and the public. They evaluate structural demands on the building systems by calculating the loads and stresses due to self-weight, occupant loading as well as snow, wind, and earthquake forces. They also help determine the materials that will best meet the project requirements when considering other factors such as building size, occupancy/use, cost, and location. The most common options for building materials include steel, concrete, masonry, and wood.

Structural engineers utilize building codes that are constantly evolving. The building

codes consist of a national building code (IBC or ASCE 7) that is adopted by Washington state and local jurisdictions, as well as material-specific codes (ACI for concrete, AISC for steel, ACI/TMS for masonry, AWC for wood and others). The considerable volume of structural guidelines and requirements has resulted in a need for specialization of some engineering practitioners.

This specialization allows for increased efficiency of structural engineering as well as engineering solutions that benefit from the increased proficiency and expertise of the practitioner. In many cases, the engineer may work directly with a specialty contractor rather than the project design team. Examples of areas of specialization in structural engineering include:

- Conventional wood trusses, plywood web joists, open web steel joists, and similar building components.
- Manufactured metal buildings primarily used for shops and similar commercial building.
- Exterior curtain walls and interior non-structural partition walls.
- Steel stairs, catwalks, and

mechanical platforms.

- Buckling restrained braces and similar proprietary elements of the lateral force resisting system.
- Long span structures or high-rise structures.
- Wind or seismic engineering for significant structures.
- Structural peer reviews for significant structures.

In addition to the specialization of structural engineers, the deliverables produced by project teams have become more complex. As structural drawings have evolved from the original hand-drafted plans and details to CAD drawings to 3D building models, the industry has seen drafters and technicians who also focus on a specific type of software. We anticipate that additional specialization will occur as the technology involved in our industry evolves.

EVOLUTION OF TECHNOLOGY

The field of engineering continues to evolve and adapt to changes in our environment, building codes, lessons learned from build-

ing failures as well as the adaptation of increased technology in the field. The latest innovation in technology that is starting to affect how we work includes:

- Artificial intelligence in engineering and construction — schedule management, project planning, and data collection to refine quality control. AI programs can provide automation for low-value tasks, freeing up engineers to perform higher-value tasks.

• Digital twin — a CAD model provides visualizing pieces of a larger puzzle in 3D, allowing for instant design modification before manufacturing. A digital twin goes beyond that capability; adding information about failures, stresses, maintenance schedules, and other data, and then combining it with the speed of communications technology, and you get something else beyond a CAD model: you get a digital twin.

• Augmented and virtual reality — visualizing high volumes of complex data. Because engineers can work with high volumes of data with complex characteristics, they can use VR

to create immersive representations of data they can view and interact with easily.

• Drone photography — safer access to sites and structures, by avoiding hazards such as working at heights, or working over water, or along steep slopes; faster and cost-effective data acquisition, especially over large sites and for repeated surveys; easy integration with LiDAR data and input to GIS and CAD software.

At AHBL, our structural engineers are constantly working to improve their familiarity with the latest technology as well as our understanding of building code requirements (most Washington jurisdictions will be updating to the newest code as of July 1). Maintaining a culture of life-long learning allows us to implement the latest thinking in the field of structural engineering and use these resources for the benefit of our clients and projects while ensuring public safety is maintained.

Drew McEachern is an AHBL principal.

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AT GLOVER MIDDLE SCHOOL, THE LIGHTING RUNS THROUGH IT

The school's site inspired its architecture.

Nestled just north of downtown Spokane, the new Glover Middle School sits where the urban turf begins to disperse into open nature. Visitors to the local Riverside State Park can explore a wide river lined with evergreen trees and climb on boulders that have been carved over centuries.



BY JULIE ALLEN
NAC ENGINEERING

This site inspired the school's architecture. A large, open space cuts through its center, in which a faceted ceiling

flows and connects to learning neighborhoods. The lighting reinforces this experience, like a river running through a large central canyon as it branches out and gathers in eddies and glides past boulders.

The design concept links learning neighborhoods, including classrooms, to this main, central learning commons,



The new Glover Middle School sits where the urban turf begins to disperse into open nature.

PHOTO COURTESY OF NAC ENGINEERING

which is directly adjacent to specialized resources and support services. Counselors, administrators, and support staff are located here, at the

heart of the school, to invite student engagement as part of their daily routines. The learning commons also opens to the library, making it a visual

hub for the school. The lighting design reinforces all these connections and helps to create calming, inspiring environments that support student

success — socially, emotionally and academically.

Each classroom is zoned to

GLOVER — PAGE 10

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GLOVER

CONTINUED FROM PAGE 9



Surface-mounted lights with forward-throw optics reinforce the faceted angles of the river ceiling in the main connecting canyon.

PHOTOS COURTESY OF NAC ENGINEERING

give instructors control over brightness in many different presentation and teaching scenarios. Lighting controls further meet local codes and provide daylight-responsive dimming. The lighting power density actually conserves an extra 30% beyond the code-determined allowances.

Special classrooms and intervention areas include dynamic color temperature systems as another tool for providing an ideal learning environment. A teacher can shift the color temperature in these spaces from 2,700 degrees Kelvin to 6,500 degrees Kelvin. The lower color temperatures on the spectrum (red) help create a calming, relaxing environment. The higher end of this range (blue) inspires energy and focus. Preset switches in each classroom give instructors the ability to choose five separate preprogrammed points along the spectrum. From there, the controls allow for adjustability along the entire spectrum. This feature, along with full dimming capabilities, means that the lighting environment in each classroom can be tailored to the students' needs.

Visual comfort needs were also addressed throughout the school. While providing lighting levels required by the Health Department, these bright, wel-

coming spaces were balanced with indirect lighting and casting light through diffuse materials.

Glover's lighting design takes maintainability in account, as well, with consideration for district staff who are already

stretched thin in their responsibilities. Where lights are in high ceilings, their remote drivers are located in easy-to-reach

lower ceiling areas.

Julie Allen is an associate at NAC Engineering.



An integral part of community events and sports, several entrances give the community full use of the school's facilities.



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ENGINEERING SOLUTIONS, AS WATERS RISE

Adapting to sea level rise requires nature-based solutions.



BY RACHEL JOHNSON,
ANDREA MACLENNAN AND JORDYN WHITE
HERRERA

In late December 2022, coastal communities across the Salish Sea experienced devastating flooding from exceptionally high tides, referred to as king tides. These tides coincided with a storm surge, resulting in record-breaking high-water levels throughout Puget Sound and beyond. The influx of water to low-lying areas damaged infrastructure and homes, disrupting daily life across the region. High tide flooding provides a glimpse into future conditions in the Northwest.

As sea levels continue to rise, water levels will reach higher and extend farther inland, causing more frequent, widespread flooding and coastal erosion. As



Herrera team evaluating hard armoring at McNeil Island.

IMAGE COURTESY OF HERRERA

a result, some areas will become permanently inundated, leaving significant changes to Puget Sound beaches and bluffs.

While a future with rising waters remains an immense challenge, it is also an opportunity to adapt in ways that achieve multiple

benefits. Coastal nature-based solutions are one such example. Nature-based solutions are natural or engineered systems that mimic natural processes, and are designed to reduce flooding, erosion, and runoff. Along the coast, nature-based solutions, such as living shorelines, support wildlife habitat, water quality, and recreation.

At Herrera, our multidisciplinary team of scientists and engineers are at the forefront of helping coastal communities be more resilient to rising waters through proactive planning and innovative coastal adaptation approaches that integrate nature-based solutions.

WATERFRONT PROPERTIES

Amid Washington state's vast 2,500 miles of shoreline are over 55,000 parcels of state, residential, and commercial property. As rising seas continue to increase flooding and erosion hazards for shoreline property owners, learning how to adapt remains difficult. The Shore Friendly program of the Northwest Straits Foundation (NWSF) helps these residents by providing outreach, technical assistance, and education — improving stewardship of private shorelines while maintaining coastal ecosystem processes. For over a decade, Herrera coastal geomorphologist Andrea MacLennan has provided technical assistance to the region's Shore Friendly programs, conducting free virtual and in-person educational workshops and site assessments for shoreline

landowners in Whatcom, Skagit, Island, Jefferson, Snohomish, San Juan and Clallam counties.

Site reviews include interpreting geologic conditions, reviewing geomorphic data, and collaborating on recommendations for property owners that will build resilience and nearshore ecosystem health. When determining actions for protecting waterfront properties, the Shore Friendly program embraces the conservation of natural processes and implementation of "soft" methods and nature-based solutions, using natural materials that accommodate water, reduce erosion, and mimic natural shoreline characteristics. Taking a nature-based, restorative approach in place of "hard" methods, such as building shoreline armoring and bulkheads, lessens the impact on beaches and habitats while providing effective protection for years to come.

Our team has decades of experience with soft shore protection and armor removal projects across Puget Sound to assist shoreline property owners with the creation and implementation of "living shorelines" that will help keep properties and communities resilient in the face of future conditions.

NATURALIZING BEACHES

As seen through the approach of the Shore Friendly program, preserving natural shoreline functions with nature-based solutions minimizes negative impacts on critical aquatic species while adapting to sea level



rise. Naturalizing beaches for improved recreation, habitat enhancement, and sea level rise resilience remains a unique specialty of Herrera. Our coastal engineers Jonathan Waggoner and Jeff Parsons are designing and overseeing implementation of nature-based solutions throughout Puget Sound, recently working with the Department of Natural Resources and the Washington Department of Fish and Wildlife (WDFW) on a series of nearshore restoration projects.

Since 2020, Herrera has worked alongside DNR and WDFW to support restoration of ecosystem processes and habitats on McNeil Island. DNR and WDFW continue to preserve the unique ecology and shoreline geology of the island and restore impacts that remain from the island's history as a federal prison and state corrections center.

Herrera's current work on McNeil is focused on naturalizing more than a mile of shoreline on Still Harbor, located along the northeast corner of the island. Currently, the Herrera team's work includes an armor removal feasibility assessment, groin and armor removal restoration designs, wetland and habitat assessments, sea level rise modeling, and stream mouth restoration designs. By replacing filled and hardened "armored" shores with restored, softened (nourished) beaches and ample native marine riparian vegetation, McNeil Island's shorelines will be better able to naturally adapt to sea level rise while expanding forage fish spawning habitat, otherwise compromised by shoreline armor.

Such projects highlight multiple, long-lasting benefits of nature-based coastal restoration that can improve conditions for human, wildlife, and ecosystem processes.

INDIGENOUS KNOWLEDGE

Sea level rise will not impact all areas in the same way. In addition to physical and landscape characteristics of a region, one must consider the history, values, and population when developing adaptation approaches to rising waters. Herrera seeks out opportunities to engage with communities while providing technical services, from the Salish Sea to northern Alaska. Recently, Herrera worked closely with local Nations' Knowledge Keepers and cultural advisors, in the city of Vancouver, B.C.'s Sea2City Design Challenge, to co-create innovative approaches to sea level rise adaptation. The project sought to craft and hone long-term visions and near-term actions to adapt to sea level rise while accommodating urban development and fostering ecological revitalization in False Creek over the coming century.

Herrera's team, co-led by Mithun and One Architecture,

Rendering of Blue Green Corridor for Sea2City Design Challenge to manage and reduce upland rainwater impacts while protecting against sea level rise.



IMAGE COURTESY OF PLOMP FOR MITHUN

learned from Tsleil-Waututh, Musqueam Indian Band, and Squamish Knowledge Keepers and cultural advisors about the value of experiential, immersive storytelling, and the connections that Indigenous peoples had and have with land and water around the Salish Sea.

Using this knowledge, the team developed adaptation pathways that integrated nature-based solutions to sea level rise, mitigated upland stormwater flooding with green infrastructure, and restored ecosystem processes while creating a vision where Musqueam, Squamish, and Tsleil-Waututh peoples see themselves, their values, knowledge, and culture represented.

After all, people are at the heart of the challenges and solutions related to sea level rise. Our current and future greenhouse gas emissions will determine how quickly sea levels may rise. The actions we take now to plan and prepare for inevitable higher water levels, and related impacts, will determine how resilient our communities will be in the face of these changes.

At Herrera, we are continuing to work with stakeholders and communities across the region to utilize nature-based solutions, assess risks, educate, develop adaptation strategies, restore coastal habitats, and create and implement plans. We see the value of forward-looking actions and integrated planning and are excited about the possibilities of a more resilient future.

Rachel Johnson is an engineer

at Herrera who specializes in sea level rise planning, stormwater management, and climate change adaptation. Andrea

MacLennan is a senior coastal geomorphologist/ecologist at Herrera with over 20 years of consulting experience. Jordyn

White is a marketing specialist at Herrera with a background in technical writing, digital marketing, and public relations.

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REVITALIZING DOWNTOWNS WITH OFFICE-TO-RESIDENTIAL CONVERSION

Owners are looking to understand the broader value of their assets in rapidly shifting markets.

In major cities nationwide, conversations around how office-to-residential conversions might be key to solving some of the major issues impacting our cities have reached a fevered pitch. In the wake of the COVID-19 pandemic, cities still face a shortage of housing that meets the needs of an increasing portion of their citizenry, while vacancy rates in downtown office buildings steadily climb. The correlation between the need and the supply could not be clearer.

BY CASE CREAL
GENSLER SEATTLE

For the past two years, Gensler has been engaged with building owners and jurisdictions to study this phenomenon. Owners are looking to understand the broader value of their assets in rapidly shifting markets, and jurisdictions are seeking to solve a housing crisis and reanimate downtowns hollowed out by the pandemic. Given the amount of change affecting our cities,

both owners and jurisdictions want quick answers.

CONVERSION VIABILITY

In 2021, Gensler developed a conversion calculator that rapidly assesses the suitability of commercial buildings for conversion to multifamily residential using criteria common to all buildings and information that is readily accessible. Rather than undertake an extensive design process, which could stretch for months, the tool delivers valuable feedback in weeks, providing owners with an alternate to traditional building repositioning upgrades. Further preliminary steps include test fits, yield studies, and ROM pricing with general contractor partners. To date, we have studied over 650 office buildings in cities throughout North America and are engaged with jurisdictions to examine the impact of conversions and how they might be accelerated.

While residential conversions can be used as a means for rebalancing a real estate portfolio, it requires proper valuation of the asset under consideration. Still, the value of buildings with office occupancy continues to



Before and after: Gensler's Franklin Tower office-to-residential project in Philadelphia.

PHOTO BY ROBERT DEITCHLER

remain too high for conversions to pencil in most situations. Should vacancy rates continue to rise or remain at current levels for a prolonged period and should the cost of construction plateau, building owners may reassess recent conclusions around conversion.

FLIGHT TO QUALITY

During the decade-long rebound from the Great Recession, vacancy rates across all classes of office buildings continued to tighten and lease rates increased even as a significant amount of new Class A office product was brought to the local market. As post-pandemic return-to-office rates have plateaued in the low-40% range, large tenants have exited leases, consolidating into fewer and newer buildings as part of a "flight to quality." Even as the volume of visitors to the region continues to climb toward pre-pandemic levels, the challenges within the retail and food and beverage segments of the market continue to affect the vibrancy of our downtowns. To fully recover, city cores need more people working and living there. Since the pandemic, our downtowns are moving away from mono-use commercial cores

toward 15- to 20-minute cities characterized by a mix of uses. People want to live closer to the schools, work, shopping, and entertainment they frequent.

The flight to quality represents a lesson for our civic and corporate leaders. What can we do as a community to revitalize our cities? As the data indicates, younger office workers are attracted to companies that are engaged in their communities and provide amenitized workplaces. Post-pandemic return-to-office patterns demonstrate how these two go hand-in-hand. As we emerged from the pandemic, companies worked to entice employees back with amenity-rich offices, a focus on well-being, and work environments and experiences that cannot be replicated at home. Yet this has not fully succeeded.

While it is essential to continue to meet the evolving needs of employees, of equal importance are the engaging amenities outside of our workplaces, whether it's living close to work or having easy access to a variety of experiences and services in our downtown neighborhoods. Findings from Gensler's 2022 City Pulse Survey indicate that Seattleites consider the five most important features of a great downtown/central business dis-

trict to be: 1) restaurants/cafes/bars; 2) parks/green spaces/other outdoor social spaces; 3) theaters/performing spaces/other entertainment venues; 4) public transit; and 5) shopping districts. Increasing the resident population of our downtown is one step toward this.

POLICY BARRIERS

Increasing the percentage of residential space downtown could indeed help revitalize our city centers, but there are still barriers within Seattle codes and policies that hinder owners and developers from pursuing office-to-residential conversions. In its current form, the land use code does not anticipate large-scale conversions of existing buildings from one use to another.

Modifications to the code, including allowing larger, existing tower floor plates to have residential uses, would streamline the process. The specter of a Substantial-Alteration designation within Seattle's existing building code represents one of the more significant impediments to most developers' renovation plans given the expenses for required seismic and energy code upgrades. A full-building

CONVERSION — PAGE 16

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STRUCTURES AND SUSTAINABILITY: PURSUING NET-ZERO CARBON EMISSIONS

The AEC community continues to work toward embodied carbon reductions and sustainability in our built environments.

The impact of a building's construction and operations on carbon emissions has been well established by the AEC community. "Buildings, in fact, contribute 40% of the CO2 emissions worldwide," according to the Carbon Leadership Forum. Much of the emphasis has been



BY CHRIS JESERITZ
PCS STRUCTURAL SYSTEMS

on reducing the operational energy consumed by a building during occupancy. As buildings become more energy efficient and achieve net-zero energy consumption, interest is shifting

to tackle the environmental impact of a building's structure, exterior envelope and interior finishes. With the amount of building construction anticipated to occur over the next several decades, and the understanding of their associated environmental impacts, it is paramount that the AEC community continues to actively work toward embodied carbon reductions and sustainability in our built environments.

LESSONS LEARNED

In 2019, SEI launched the SEI Structural Engineers 2050 Commitment Program. The program enlists coalition partners who commit to work to educate, engage and report the environmental impacts of the built environment and its associated embodied carbon. Each SE 2050 coalition partner develops an internal embodied carbon action plan (ECAP), a document that outlines how each firm proposes to reach the commitment program's goals. The ECAP is critically important, serving not only as a roadmap, but helping to develop a culture that will engage sustainable solutions.

In addition, the ECAP provides a framework for integrating lessons learned as the firm works toward its goals. PCS identified three areas in its ECAP to address education, reporting, reduction strategies, and advo-



PCS completed life cycle assessments for two tower additions at the Swedish First Hill Campus.

IMAGES COURTESY OF PERKINS & WILL

cacy: materials sourcing, client communication, and life-cycle assessment (LCA).

MATERIALS SOURCING

Concrete, for example, provides structural engineers with multiple strategies that reduce the embodied carbon of our mixes, and typically they don't add cost to the client. Some of the tactics PCS has explored include Type 1L cement, mixes using large quantities of supplementary cement materials (SCMs) and utilizing performance-based concrete specifications.

Recent supply chain and production issues have created a challenge to obtaining regionally sourced Type 1L cement and SCMs. We're beginning to see our Type 1L cement shipped from Taiwan. We've learned, however, that using mixes with Type 1L and SCMs — even when shipped from overseas — typically results in better embodied carbon reduction than not using Type 1L or SCMs at all.

We've been working closely with different concrete suppliers on alternative SCMs and strategies that help achieve our embodied carbon reduction goals for concrete: Working with suppliers to maximize the water-to-cement ratio in concrete through performance-based concrete specifications also is



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EMISSIONS

CONTINUED FROM PAGE 15

effective for reducing embodied carbon in the mixes.

CARBON REDUCTION

Embodied carbon reduction advocacy provides opportunities to add value for clients. Sustainable building programs such as the Leadership in Energy and Environmental Design are beginning to include points and design guidelines that measure, quantify, and reduce a building's embodied carbon. As structural engineers, we bring new tools and strategies to quantify and identify a project's

high embodied carbon areas and offer clients and owners solutions to mitigate the associated embodied carbon and meet their sustainability goals.

To help clients make informed and sustainable decisions from the beginning of the project, PCS created "PCS Sustainability Design Considerations," a document listing carbon reduction strategies that can be implemented for several structural systems and materials. The information provides practical guidelines and builds awareness about the impact of early structural decisions to sustain-

ability.

In fact, considering and measuring a structural system's embodied carbon as early as possible in the design process opens more reduction strategies to the design team. By selecting the appropriate structural system early in the design phase, meaningful reduction strategies can be used as the project progresses through the design phases into the construction phase.

Depending on the owner and design team, certain sustainability strategies may naturally align, and an efficiently

laid out structural system can match their programming space requirements. When presenting structural system options on any project, we can include the embodied carbon intensity, which helps build embodied carbon literacy. We've found that often clients will include embodied carbon reduction in their decision process when presented with the information. Even if the client doesn't use the information, the embodied carbon intensity number sparks conversation.

LIFE-CYCLE ASSESSMENT

The life-cycle assessment examines a building's environmental impacts within its lifespan. Performing an LCA is complex, but it is easily learned. Some of the challenge comes when using a structural building information model, which has the capacity to generate a large — or minimal — amount of detailed information. The assessment requires an understanding about what elements are in the building model and

which need to be included in the assessment.

We learned that engineers who were more knowledgeable about the structural system than about the LCA process tended to complete an LCA more efficiently than engineers who knew the LCA process but were unfamiliar with the project. To help make learning LCA software more accessible, we created a guide with tips and tricks that walks engineers through the LCA process and assigns parameters for different structural materials.

Structural engineers have an important role in the pursuit of net-zero by 2050. Some suggest it's an unachievable goal. We think not trying is the untenable choice, and within the framework of an embodied carbon action plan, we set achievable goals and bring the very best of our skills to innovative solutions in the AEC industry. We'll take the lessons learned ... and push toward the goal to achieve net zero embodied carbon by 2050.

Chris Jeseritz is a project manager at PCS Structural Solutions.



CONVERSION

CONTINUED FROM PAGE 15

office-to-residential conversion would invariably trigger substantial alterations under the current interpretation of the code.

With these potential obstacles in place, how can developers, architects, and city leaders work together to mitigate the current policy barriers? Defining a reasonable path that safeguards future residents while treating conversions more akin to a tenant improvement would help keep costs in line with what a more affordable housing market can support.

The Puget Sound area continues to attract residents from all parts of the world to its cities. As we invest in the sustained growth of the region through mass transit, education, and social program spending, the availability and affordability of housing remains a primary focus. Office-to-residential conversions represent one additional tool in that effort — one that specifically impacts the future success of our downtowns. As with all other tools utilized in this great endeavor, this one deserves our attention.

Case Creal is a design manager, studio director, and modular design and construction expert out of the Gensler Seattle office. He has built his 20-plus-year career on helping owners, contractors and consultants find solutions to issues of speed, quality, constructability and resilience.

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EMPLOYEE OWNERSHIP FOR ALL: AN ALTERNATIVE TO THE ESOP

BHC created a locally owned and managed consulting engineering firm.

When you think about an employee-owned firm in the AEC industry, you might picture an employee stock ownership plan (ESOP). But that is not the only way. With creativity and careful planning, you can create another business model that affords ownership opportunities to all employees.



BY JON DAVIES
BHC CONSULTANTS

Enter the founders of BHC Consultants — Gary Bourne, Martin Harper and Craig Chambers — who, in 2006, were inspired to create a locally owned and managed consulting engineering firm after the company that they had been working for was acquired by an international conglomerate. At the time, plenty of new firms were entering the scene, but being locally owned meant something different to Bourne, Harper and Chambers. They believed that ownership should be easily attainable for any employee of the firm, not just those at the most senior level or with long tenures.

The firm was set up as a limited liability company and — after being with the company for about one year — any employee may buy ownership units, up to a maximum of 15%. This truly means ANY employee — from the senior project manager to business services, and marketing and administration to the CAD technician and the first-year engineer just out of college. The 15% maximum ownership stake means that no single person ever has a majority share of the company. This important factor means that decisions are made in the best interest of each and every employee and client. By prioritizing people over profits and creating an environment of empowerment for our staff, BHC Consultants has seen a consistent 10% year-over-year growth since the founding of the firm.

RECRUITMENT AND RETENTION

In this ultra-competitive job market, BHC's unique ownership structure has contributed to positive effects on recruitment and retention. Project engineer Madison McCrosky joined BHC in 2021, and ownership was a major factor in her decision.

"The ability to become an own-



Staff meetings are used to share updates, build comradery and have fun together.

PHOTO COURTESY OF BHC CONSULTANTS

er after one year of employment is one of the many reasons that I chose to come work for BHC. I especially like that ownership is offered to all employees, regardless of whether you are an engineer or not. We are all working towards a common goal of providing great service to clients, and I believe everyone should be able to share in the benefits of employee ownership."

Of our 84 employees, 55% have opted to become owners and it has led to longer tenure with the firm. According to the Bureau of Labor Statistics, the median tenure for employees in professional and business services is 3.7 years. At BHC, the median tenure of staff who are owners is seven years compared with five years for those who have not opted to become an owner. Twenty-nine percent of employees have been at BHC over 10 years, including 12% since the firm's inception in 2006. Voluntary turnover is also very low, with just 3.7% in the last year as many other firms in the region were experiencing much higher turnover coupled with the tight labor market to fill open positions.

"We hire to retire from BHC. We support the professional development and growth of our staff through continuing education and the opportunity to work on a variety of project assignments,"

EMPLOYEE OWNERSHIP — PAGE 23



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Bay Bowl apartments is located on the Bremerton waterfront, with two distinct buildings linked by an elevated bridge connector.

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NEW FORM OF TEAM WORK NEEDED FOR MULTIFAMILY PROJECTS

It's time to design differently: a revolutionary, team-based approach merges in multifamily design.

While building information modeling software is changing the way building design is communicated and documented, the design and construction process itself has not fundamentally shifted to meet the promise of the technology as applied to private multifamily development. A different approach to design teamwork is necessary to move the industry forward.



BY MEGAN MCKAY
JOHNSTON
ARCHITECTS

Johnston Architects was

approached by MBG Co. to lead the design for its 187-unit Bay Bowl apartments in Bremerton. The project itself is complex, located on the waterfront and consisting of two distinct buildings linked by an elevated bridge connector. The owner brought a strong mandate to collaboratively develop a singular, highly detailed design model with a team-based methodology. This alternative approach, in line with a process honed from large public projects and applied more practically to market-rate multifamily development, is dubbed 22nd Century Design and Construction (22 CDC). It made possible the complete design for Bay Bowl and is resulting in tangible time and cost savings.

The traditional architectural process documents design intent and is not a “complete” design — that is, not detailed to fabrication level. In this old model, the consultant team works together, but sequentially, beginning with the architect and working through the engineering chain. Several co-linear design models are developed by each specialist. The resulting design intent is documented in 2D drawings conveyed to a separate construction team to be brought to physical life. The contractor applies a heavy contingency to cover the unknowns and the subcontractors produce their own fabrication-level drawings and models.

As each distinct discipline works on their “portion” of the project, they may identify new issues that require cycling back through the team and revisiting the design repeatedly. Coordination issues emerge during the construction process, threatening to erode the design concept

and owner's budget. It is a time-worn process plagued by incomplete communication, difficult coordination, time and material inefficiency, and loss of information in each step of translation. Such inefficiencies add up to a significant cost of time, money, uncertainty, and environmental impact.

The 22 CDC design process deployed for Bay Bowl solves for the myriad issues of a traditional design methodology. A singular design team was assembled with a commitment to open communication and the creation of one collective, highly detailed BIM design model. From the early design phase, the entire team met frequently (at least weekly) to make decisions, provide continual feedback, and closely coordinate on fundamental elements such as whether the framing system would be wood or metal. The signature design element of Bay Bowl — the central amenity bridge spanning between the two buildings

— was shaped by the collective team weighing the merits of several structural options to arrive at the right customized solution. Initially, a seismic joint was expected at the bridge condition, but the structural team (GPLA Inc.) worked magic to engineer a rigid frame that simplified the mechanical and fire services and architectural expression all at once. To reduce earthwork costs, the geotechnical engineer kept abreast of changes to the footprint and utility design, and weighed in on ways to eliminate shoring on the project.

The 22 CDC process is decisive since the whole team makes decisions together and considers them from all angles from the start. There are no second-guesses, late opinions, or backtracking. Every member of the team models in BIM — and critically, structural and MEPF teams model to a Level of Design (LOD) 400 fabrication level. The individual models are (concurrently) aggregated into one singular

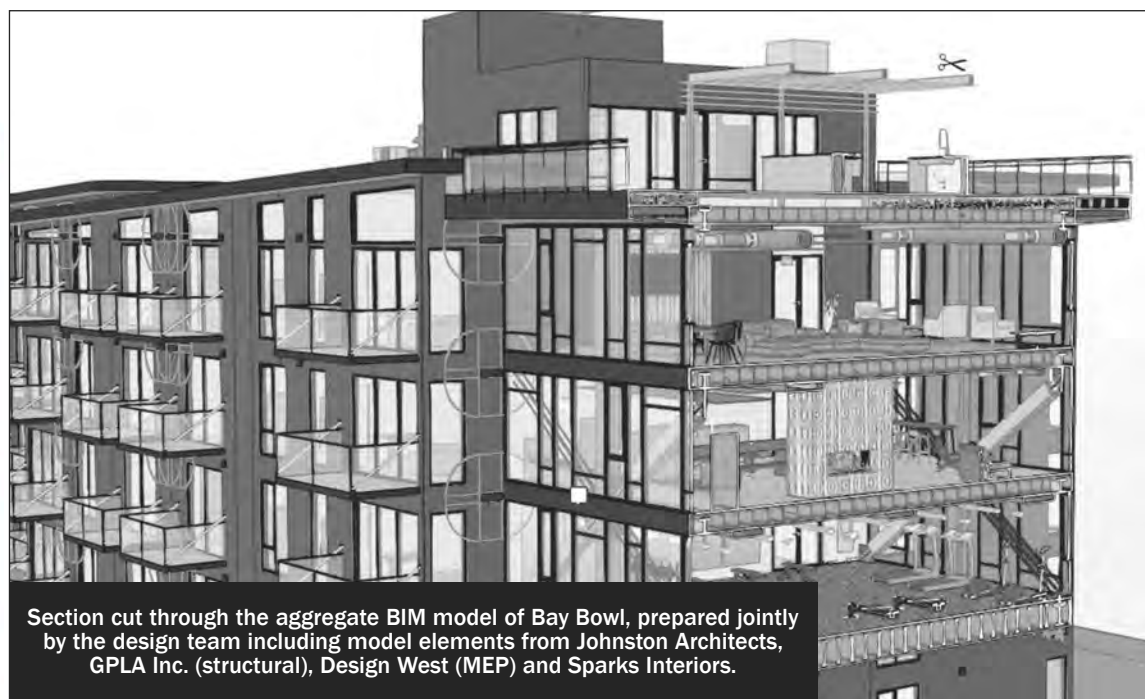


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Section cut through the aggregate BIM model of Bay Bowl, prepared jointly by the design team including model elements from Johnston Architects, GPLA Inc. (structural), Design West (MEP) and Sparks Interiors.

model that exists in the cloud in real-time. The team works simultaneously, not sequentially, to develop the aggregate model and coordination issues are discovered and solved during design when changes cost much less. The resulting single model is as close to an as-built as possible, even before the start of construction, and carries the project through construction and into facility management beyond.

When the single design model is developed to such a high level of accuracy, complete material take-offs can be harvested before construction begins. Competitive bids can be leveled and contingencies greatly reduced. Delegated design scopes can be completed much earlier. The material acquisition sequence is freed to respond to market conditions and exact quantities can be purchased to minimize waste — a fundamentally simple way to reduce environmental impact and cost in one stroke. Furthermore, construction work can proceed simultaneously rather than in sequence to save time because accurate prefabrication becomes possible. Enhanced coordination leads to issue resolution during design and a “complete” design is provided to the construction team, resulting in a significant



Exposed structural steel elements modeled to fabrication level by GPLA Inc. (structural) visible through floor-to-ceiling storefront elements designed by Johnston Architects.

reduction in change orders and work stoppages.

At Bay Bowl, the construction schedule may realize a 30% time savings and 20% cost savings, leading to very real fiscal and risk-reduction benefits for the developer.

Applying the enhanced accuracy and coordination of complex public project delivery methods to private, market-rate multifamily and mixed-use projects is transforming the way Johnston Architects

designs housing projects. The 22 CDC design process is faster, more accurate, and more predictable through its early and continuous team communication and collaborative single aggregated BIM-based design model. But the methodology holds more promise than the process itself. It allows the design team to work as one, protecting truly special elements of the design concept from erosion via engineering realities, like supplying build-

ing MEPF services around structural obstacles.

At Bay Bowl, the design team is collectively ensuring the floor-to-ceiling glass in the amenity areas, lobby, and apartment units is clear of obstructions, maintained pure by clashes detected early, trades coordinated, and details worked out before a single nail is driven. Accurately executing on a design vision from concept to complete physical building requires a rigorous, complete, predictive and

team-based process that is nothing short of revolutionary.

Megan McKay joined Johnston Architects in 2006 and was promoted to partner at the women-owned firm in 2017. She has been instrumental in the design and project leadership of award-winning mixed-use developments with an emphasis on multifamily projects that encourage community engagement and enhance urban environments.

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SO YOU WANT TO BE A ROCK STAR (MARKETER)

Top tips your marketing team wants you to know about pursuits.

In the world of architecture, engineering and construction marketing and business development, responding to requests for proposals and requests for qualifications are a way of life to win the next project. Whether



BY MELISSA RICHEY
MIDDLE OF SIX
MARKETING
CONSULTANTS

your firm pursues projects in the public sector — for municipalities, school districts, the state or the federal government — or the private sector for commercial work, preparing proposals and statements of qualifications is a requirement for your firm to compete in the market.

At most AEC firms, the marketing department is responsible for leading proposal production. This vital work is essential to winning projects, so it behooves company leadership and project pursuit teams to give their marketing teams the tools, resources,

and capacity to do it well. What do your marketing teams want you to know about their role in this work and how you can help make the process run smoothly? Read on to find out.

1 We care about winning just as much as you do. While marketers will not work on the project if you win, we still care just as much as the project team about winning! Responding to an RFP or RFQ is a significant time commitment and an essential function of our job so producing a high-quality, responsive and, ideally, winning proposal is important to us.

2 We need you to have skin in the game. Proposal development is a team effort. The marketing team may have capacity, but they can't do it alone. The project manager and other proposed project team members need to have the availability to write content, review qualifications and advise on client hot buttons. If the pursuit's project team is out on vacation, busy on a major project deadline or in

Middle of Six's Grace Takehara and Melissa Richey brainstorming a graphic for a proposal.



PHOTO COURTESY OF EFFIE GURMEZA

back-to-back meetings for the entire pursuit period, consider making this a "no go."

3 Meet your deadlines. The world of proposals and SOQs is ruled by deadlines. If the deadline to submit to the client is missed, the opportunity is dead. That's why the interim milestones that your marketing team sets are an essential part of the proposal production process. Marketers are skilled at building out schedules that allow your team to produce high-quality, responsive proposals with time for quality control. If those interim milestones are missed, then the carefully designed schedule is at risk and the quality of the final proposal will suffer.

4 Honor work/life balance. What happens when deadlines are missed? Your diligent marketing professionals may turn to evening and weekend work to make the final due date. Because remember — we care too! This should be the exception, not the rule — ideally never — and definitely not the expectation. Presuming that your marketing professionals should sacrifice their personal time to meet unrealistic timelines is a recipe for burnout and turnover.

5 Graphics take time. Graphics are an excellent way to reduce the amount of text in your proposal and make the content easier for the selection panel to review. Developing a custom graphic — be that an infographic, a complex schedule or a detailed site logistics plan — takes time and content. This means graphics should be planned at the first kick-off meeting and the pursuit

team should prioritize getting the content to the marketing and graphics team to allow ample time for development, review and refinement.

6 Allow time for quality control. Allowing time for a fresh set of eyes to review interim drafts and the final proposal before submission is an essential function to produce the best response possible. That's part of why meeting milestones is so critical. When content comes in late or the team's review of the draft proposal is delayed, the time for quality control is compressed — or worse, eliminated — and the final deliverable suffers.

Proposal development in the AEC industry is high stakes, fast-paced and deadline-driven. Whether your firm has a sole, rock star marketer or an entire department of amazing marketing professionals, these people serve an essential function to bring in projects to fuel your company. Treat your marketing teams well by honoring these tips and they will reward you with dedication, creativity and winning pursuits.

Melissa Richey is a principal marketing strategist at Middle of Six, a marketing consultancy dedicated to the AEC industry. She has developed hundreds of proposals and statements of qualification over her 20-year AEC career.

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NATURAL DIRECTION IS A NEW PATH IN ARCHITECTURE

Incorporating nature is an increasing part of the architect's job.

It's a foundational rule of architecture: design buildings that work within their surroundings. More and more, this requires us to incorporate natural elements. In cities where density is dialing up, we're increasingly adding natural counterpoints (roof gardens, woonerfs) to breathe fresh air into projects. Conversely, where mass transit is making wilderness-adjacent suburbs more accessible, a project's existing natural surroundings need to be thoughtfully integrated into the design.



BY MICHELLE
KINSCH
TISCARENO
ASSOCIATES

At Tiscareno Associates, a Seattle architecture firm specializing in mixed-use and TOD, we are seeing this phenomenon

ividly play out at the Spark, a five-story, 224-unit mixed-use apartment development near the coming light rail station in suburban Redmond.

There, owner MainStreet Property Group prioritized eclectic design, community connection, and sustainability — values we share and are always gratified to encounter. But the transitional industrial-park environment around the site offered no context or sense of place for inspiration. The city of Redmond's generous open-space requirements added another layer of challenge.

An existing parking strip filled with mature trees and proximity to Marymoor Park sparked inspiration. "What if we create an urban forest?" the president of MainStreet Property Group mused one day. We already knew that the long site would require us to break the project into smaller masses to establish a more pedestrian scale. Creating two buildings — now called the Gateway and the Avenue — would allow us to run public open space right through the middle of the project, bringing to the suburbs an urban level of pedestrian focus and letting the openness and greenery of nature both fulfill open-space requirements and dial up quality-of-life for residents.

We made this urban forest the Spark's signature, designing a landscape with densely planted trees flowing into the street frontage and directing pedestrians toward the nearby community center and Marymoor Park. So integral is the urban forest to the project's overall



The Spark is a five-story, 224-unit mixed-use apartment development near the upcoming light rail station in suburban Redmond.

IMAGE COURTESY OF TISCARENO ASSOCIATES

design, the design review board asked the landscape architect to show the trees' maturity levels at installation, five years out, and 10 years out. To mimic the natural forest, the plan includes a planted understory along with trees of varying ages, allowing the forest to look mature while the trees thrive and grow at their own pace.

Within the trees, our landscape architect Site Workshop added three outdoor areas that invite gathering. The Clearing provides varied open spaces with safe, comfortable sightlines for people to sit or meet for yoga. The Ring is a central open space in the trees between the Gateway and Avenue buildings with a fire pit and stepped seating. It creates a gathering area and softens the grade transition between the buildings. From each building, exterior stairs enable residents to emerge from the buildings into this treed landscape, while overhead a second-story pedestrian bridge links the buildings, allowing users bird's-eye-view connections with the forest.

This degree of focused attention on outdoor built environments is not new. Biophilic design emerged in the latter decades of the 20th century as an approach to architecture that seeks to connect building occupants more closely to nature, through the creation of habitats that contribute to human



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NATURAL DIRECTION — PAGE 22

NATURAL DIRECTION

CONTINUED FROM PAGE 21

health and productivity. At least a decade's worth of data reveals that natural connections measurably enhance human productivity, creativity, and wellbeing. Indeed, the third area in the forest, the Scramble, consists of a series of interactive natural elements — like boulders that can be climbed — to bring users closer to their environment. A water runnel, oversized stepping stones, and small seating nooks show up here.

What is new, however, is the increased emphasis on outdoor environments that the pandemic brought. At Tiscareno we are learning that projects which want to meaningfully promote community must include outdoor gathering areas. In addition to the Spark's wooded clearings, we sought to build ground-level programming that creates intentional transitions from inside to outside. Along the Avenue Building, we designed a raised "front porch" called the Forest Dock to front the Spark's ground floor restaurant/retail spaces: a long, deep deck to provide the outdoor seating the whole world learned to value over the last three years. The Gateway's ground floor spaces open out to patio seating adjacent to the urban forest.

For a project so integrated with nature, it followed naturally that building aesthetics should also convey the message. To gently echo the landscape, we designed a roofline on the Gateway building that rises and falls in harmony with the roof on the Avenue building, creating a continuation of line across the urban forest that subtly evokes hills on a horizon. We used metal mir-

ror-finished panels between the buildings that reflect and expand the urban forest. Prismatic metal cladding on each building changes its appearance depending on weather, time of day, position of viewer, and more: a responsiveness to the natural world that enables the building to mimic nature itself.

Of course, no amount of inte-

gration with nature means a thing if a building isn't built sustainably, so efficient systems and carbon offsets will enable the Spark to achieve LEED Platinum, net-zero energy, and Fitwel (a standard for the human experience of health and wellbeing) certifications. Solar panels will line the roof. As a transit-oriented development, the Spark will

feature more than usual bike storage, fewer than usual car parking spaces, and an orientation that creates natural walking routes from the buildings to the light rail station.

As density packs urban cores and mass transit extends the city's reach to more communities, nature will exert itself more and more in our built environ-

ments. This integration of built and natural environments is a growing edge within our firm and within our industry, but we have little doubt that in time, developments like the Spark will become a new normal.

Michelle Kinsch is a principal at Tiscareno Associates.



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EMPLOYEE OWNERSHIP

CONTINUED FROM PAGE 17

explains president emeritus Ron Dorn.

MANAGEMENT STRUCTURE

The company is overseen by a seven-person board of directors that enables timely, local decision-making. The board includes the permanent positions of president, executive vice president and business operations manager, and four managers who are elected by the employee-owners to serve staggered three-year terms so that there is always fresh input on the board. In fact, any employee of the firm can be voted into a board management position; ownership in the company is not a prerequisite.

As the company has grown over the years, BHC recognized that the board of directors needed additional resources to support informed decision-making. This was accomplished through the creation of five committees that include strategic planning, governance and nominating, finance, risk management and compensation. The committees research their respective topic areas and make recommendations to the board for the final decision.

Because BHC was created in reaction to an acquisition that removed local ownership and management, it was important to the founders that the firm not be easily “acquirable.” The operating agreement was crafted to require a 60% super majority of the voting shares to approve an acquisition. That ethos of independence has continued to be important as the firm enters its fourth presidency, with the ownership group united in the belief that this operating principle creates certainty for the future of the firm and the clients served.

“After being with BHC for almost two years, I decided to become an owner of the company. Every day I get the opportunity to work with optimistic, driven and passionate folks who make BHC a positive workplace. Our collaborative culture and emphasis on building relationships with our clients and with one another are key determinants in driving the success of the company. As an owner, I feel more empowered in my work as I know that my efforts, together with everyone else’s, lead to meaningful solutions for our clients and ultimately our communities,” said staff engineer

Kevin Garcia.

In January, then-president Ron Dorn announced his planned retirement. As president emeritus, Dorn will work full time until mid-year, and then part time through the end of the year. He fostered a culture that was open and welcoming, providing steady leadership that was critical to the success and growth of BHC. With Dorn’s retirement, Jim Gross was elected president of the company, and Cameron Ochiltree was elected executive vice president and director of engineering.

Gross’ career includes 33

years as a consulting engineer, working on drinking water and wastewater projects from planning through design and construction. Ochiltree’s background includes over 26 years in consulting engineering with an emphasis in water and wastewater treatment facility design and construction. “BHC is a very successful company built on a strong foundation. Together with Cameron, our goals are to continue that success and honor the BHC culture, while maintaining a high level of service to clients and providing for continued growth of the firm,” said Gross.

CLIENT BENEFITS

BHC believes that clients benefit from a company culture and local ownership that is deliberately cultivated. For over 17 years, our structure has led to steady and sustainable growth, which has allowed us to hire exceptional talent who are supported and valued. With thoughtful planning and strategy during the formation of the company, BHC has created a stable, talented workforce with low turnover and high morale.

“Because we are intentional and united in our vision for the

firm, we don’t see uncertainty in our future,” explained Gross. “With the company stability we have created, we can focus on working on the projects we’re passionate about with clients we’re aligned with, including water districts, sewer districts and municipalities, while providing the high-quality service they need and deserve.”

Jon Davies is the director of client services for BHC Consultants, a member of the board of directors and an employee-owner.

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