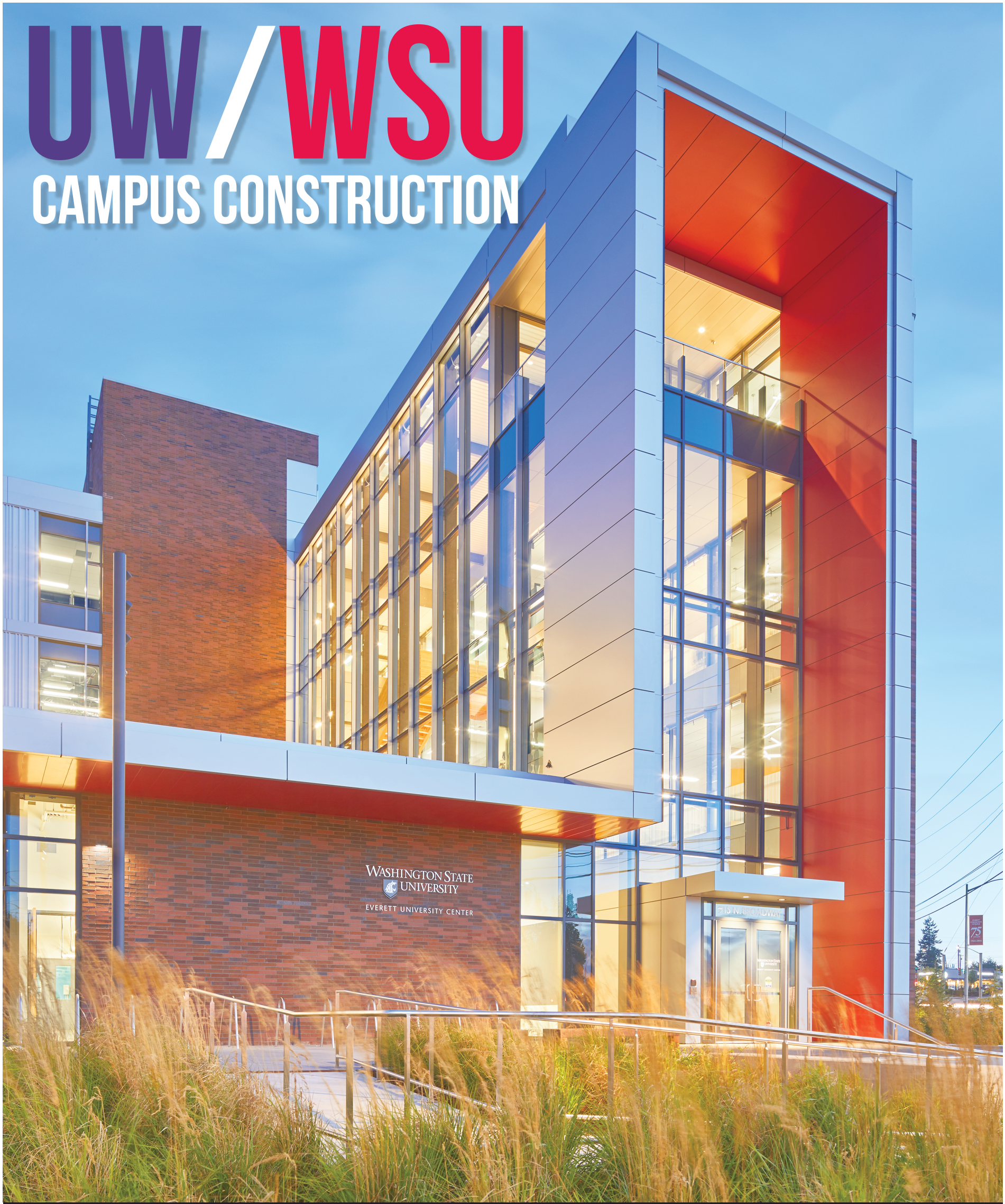
UW/WSU

CAMPUS CONSTRUCTION

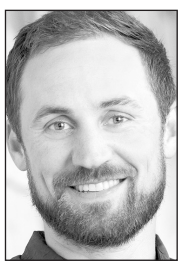


November 16, 2017 • Seattle Daily Journal of Commerce

DESIGNERS USE A PROTOTYPE TO KEEP UW DORM PROJECT ON BUDGET

They built a full-scale model of the exterior to test materials, adjust their designs and avoid delays.

The University of Washington's North Campus housing project extends the campus fabric by creating a new network of student residential buildings and intimate, memorable outdoor spaces.



BY DAVID FEASTER
KIERANTIMBERLAKE

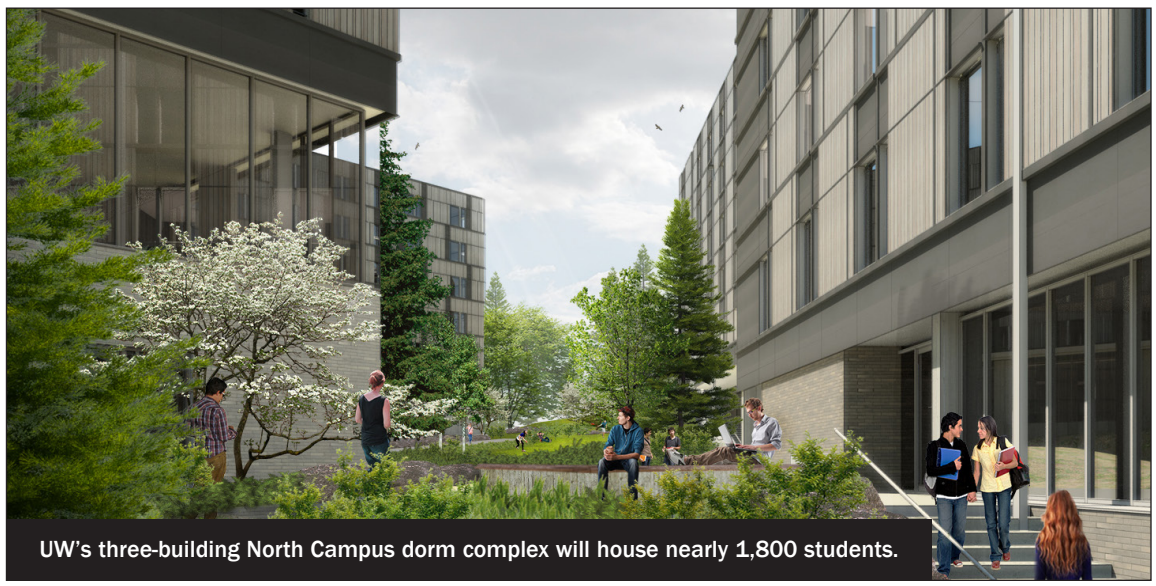
Scheduled to open in 2018, the three buildings that make up the project's first phase will provide nearly 1,800 student beds and a host of residential community amenities. Prior to designing these buildings, KieranTimberlake had worked on UW's extended North Campus master plan and thus already had a sound understanding of the buildings' massing strategy.

But with a combined facade area of over 215,000 square feet, the project's success hinged on developing engaging facades that maintained visual interest across a large scale. Physical prototyping consequently became an essential part of the design's evolution as we began thinking of how to artfully compose and carefully detail these buildings while remaining within the university's budget.

Mixing materials

Our research into successful housing precedents on UW's West Campus pointed our team to the five-over-two building typology that's omnipresent across Seattle.

We began our design process with this building type in mind, envisioning designs that provided visual interest and broke down the project's large scale. During our early concept iteration, we kept coming back to the idea of a multi-material facade: Cladding the buildings' lower floors in brick and concrete would keep them well-grounded and help them relate to the surrounding existing campus buildings, while cladding the upper wood-framed floors in cedar would make the facade more engaging and allow each level to reflect its construction typology.



UW's three-building North Campus dorm complex will house nearly 1,800 students.

IMAGES PROVIDED BY KIERANTIMBERLAKE

Driven by the idea of a multi-material exterior and inspired by patterning found in historic Pacific Northwest basketry, we realized that a layered rain screen would be a cost-effective way to add depth to the facade.

This notion intrigued us because, much like the basketry patterns, a rain screen facade could key in on the idea that ornament need not be additive, but instead could be a product of the buildings' construction methodology and assembly. Additionally, a rain screen facade system would hold up well over time and would protect the building envelope within Seattle's climate.

The site's microclimate and cedar's natural properties meant the rain screen boards demanded daylight and ventilation in order to prevent unsightly staining and keep the boards resistant to the moss, lichen and other biogrowth that thrives in Seattle's wet climate. As a result, we knew our facade design should avoid shaded overhangs directly over the cedar and maintain enough

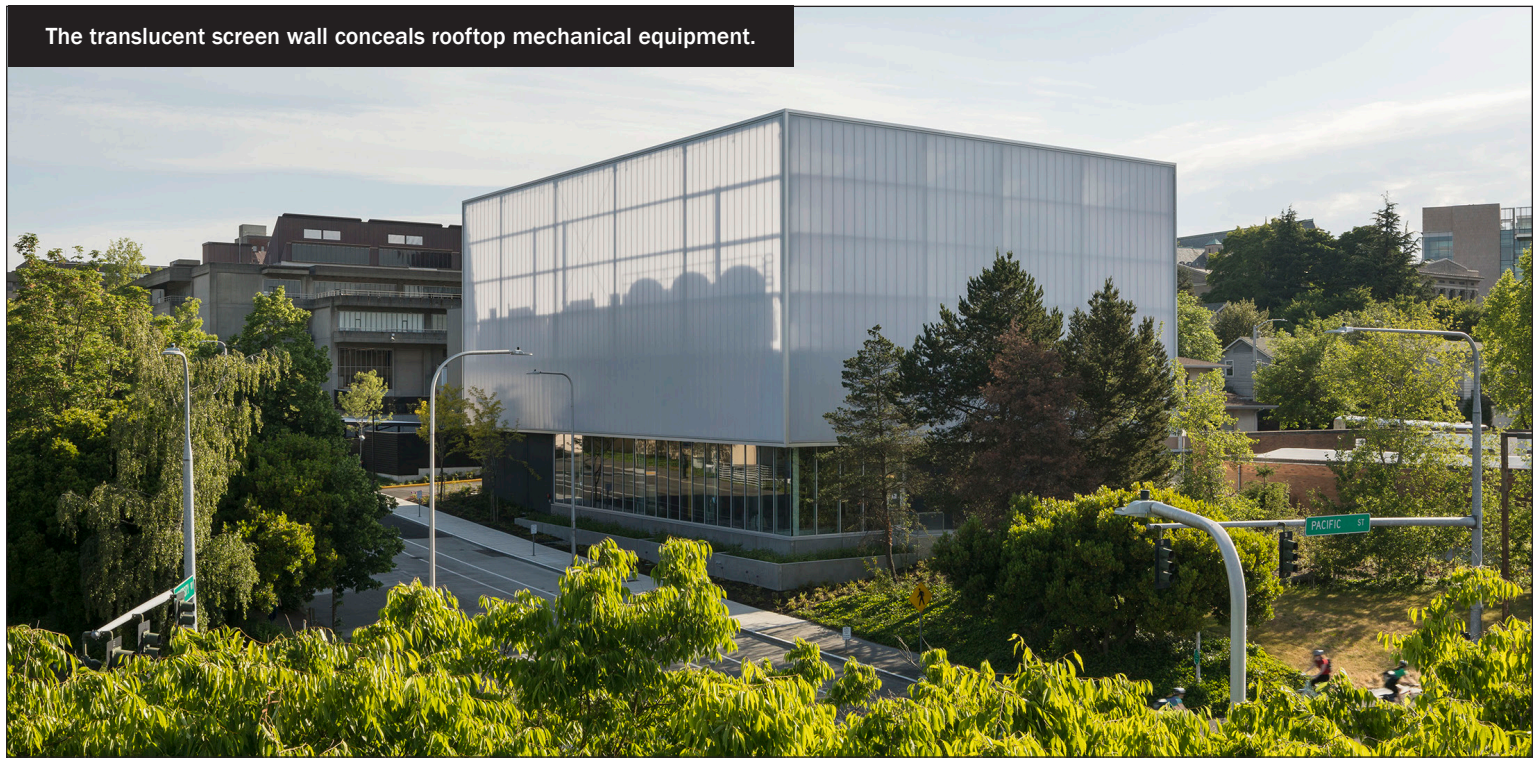
PROTOTYPE — PAGE 7

Prototypes can reveal construction and assembly challenges before the project breaks ground.

UW'S UTILITY PLANT IS MEANT TO BE SEEN

It provides chilled water and backup power for the growing campus. But what people will notice is the 47-foot-tall screen wall that lights up at night.

BY KATIE POPOLOW & ANTON DEKOM
THE MILLER HULL PARTNERSHIP



The translucent screen wall conceals rooftop mechanical equipment.

PHOTOS BY LARA SWIMMER

Industrial-scale infrastructure is truly fascinating but rarely accessible to the public.

As central utility plants and other large-scale infrastructure projects are becoming a more integral part of the campuses and communities they serve, there is an opportunity — and we believe a responsibility — to make these facilities a much more visible, active and engaging part of the urban fabric.

We call this process of architecturally celebrating once-hidden infrastructure "making the invisible visible," and the recently completed West Campus Utility Plant at the University of Washington is an example of how a multidisciplinary team can not only meet the technical requirements of an infrastructure project but also advance design and sustainability to create a welcoming and engaging architectural beacon.

The project was delivered on schedule and on budget while also achieving important "firsts" for the UW: It was the first project delivered under a progressive design-build contract structure, and it was the first project to receive Envision certification.

Adding capacity

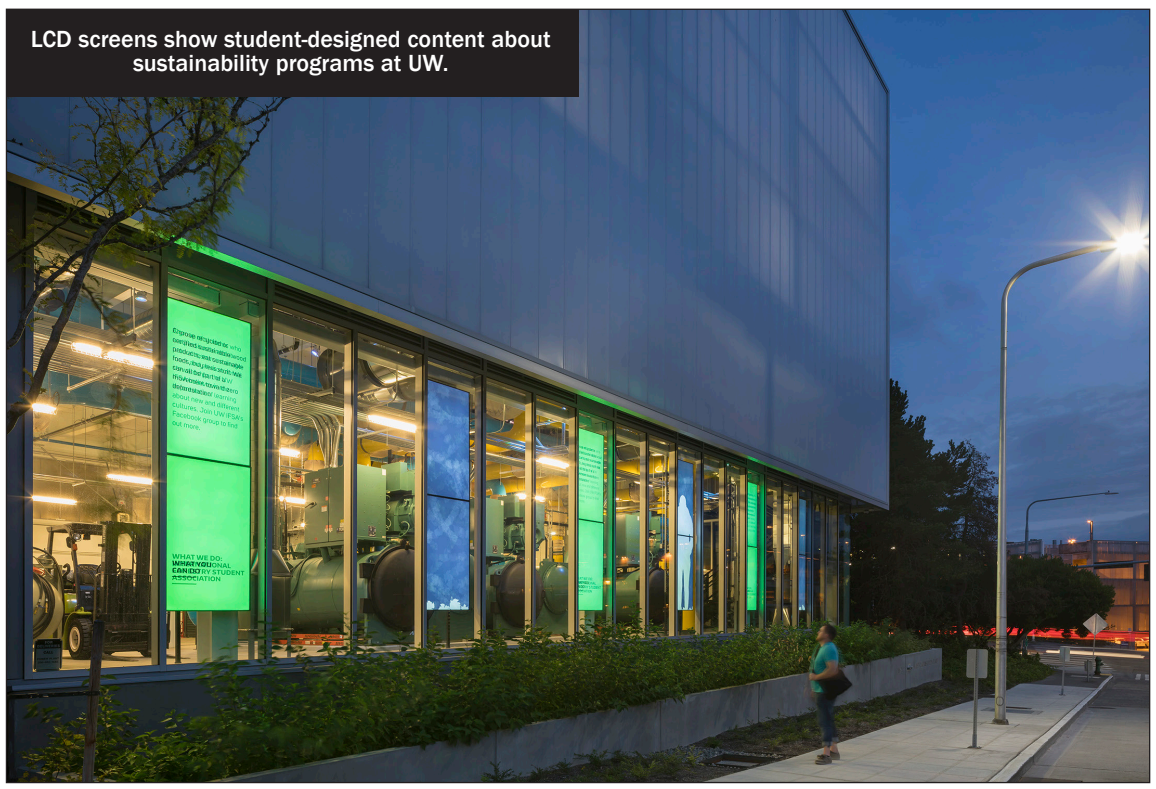
Prior to the construction of the new utility plant, the UW's existing, century-old Central Utility Plant had reached full capacity and was unable to expand.

South Campus and West Campus were both growing rapidly, and the new 2018 UW Campus Master Plan proposed over 4 million square feet of new development in those areas. The new plant needed to enable the UW to support this targeted growth for the next 100 years.

The plant was designed to provide two essential utilities: chilled water and emergency power. A multidisciplinary project team of contractors (Mortenson Construction, McKinstry, Cochran Electrical), engineers (Arup, KPFF), and architects (Miller Hull, GGN) took on the challenge of maximizing day-one utility capacity while also providing enough shell space to accommodate future equipment build-out.

One innovation the team implemented involved locating emergency power generators on the roof of the building rather than at the ground level, effectively freeing up valuable space inside for additional chilled-water equipment. This design decision allowed the team to provide 4,500 tons of initial chilled-water capacity and space for 10,500 tons of total chilled-water capacity, far exceeding requirements of the UW's request for proposals. Those capacities translate to about 1.8 million square feet of

UTILITY PLANT — PAGE 7



LCD screens show student-designed content about sustainability programs at UW.

INSIDE

ON THE COVER

Washington State University opened the four-story, 95,000-square-foot University Center in Everett this year to serve STEM students. Read more about it on page 6. PHOTO BY BENJAMIN BENSCHNEIDER

DJC TEAM

SECTION EDITOR: JON SILVER • SECTION DESIGN: JEFFREY MILLER
WEB DESIGN: LISA LANNIGAN • ADVERTISING: MATT BROWN

WSU: TOP 10 CAPITAL PROJECTS

Washington State University's top three projects reflect its far-flung presence across the state: Each is on a different campus. The top three are academic buildings, but the rest of the list is quite varied. It includes a student center, cultural center, art museum and several renovations.

The projects below are ranked by budget. All are in planning or construction, or were completed in the last year. Completion dates refer to the end of construction or beginning of occupancy. The information is from WSU Facilities Services.

1 Plant Sciences Building
This 90,000-square-foot research lab will be the fourth of six planned buildings in the Research and Educational Complex.
Budget: $66 million
Location: Pullman
Architect: LMN Architects
General contractor: Skanska USA Building
Completion: June 2019

2 WSU North Puget Sound at Everett
The four-story, 95,000-square-foot classroom and lab building houses the WSU Everett University Center. Read more on page 6.
Budget: $64.6 million
Location: Everett
Architect: SRG Partnership
General contractor: Hoffman Construction Co.
Completed: May 2017

3 Tri-Cities Academic Building
A new building to serve science, technology, engineering and mathematics programs. The budget is currently on hold.
Budget: $60 million
Location: Richland
Architect/general contractor: TBD
Completion: 2021

4 The Spark
An 83,300-square-foot digital classroom building with 12 high-tech classrooms, a 250-seat learning hall and an event space.
Budget: $55 million
Location: Pullman
Architect: ZGF Architects
General contractor: Clark Construction
Completed: June 2017

5 Wilmer-Davis Hall renovation
A project to renovate an 80-year-old women's residential complex and dining facility.
Budget: $46 million
Location: Pullman
Architect/general contractor: TBD
Completion: TBD

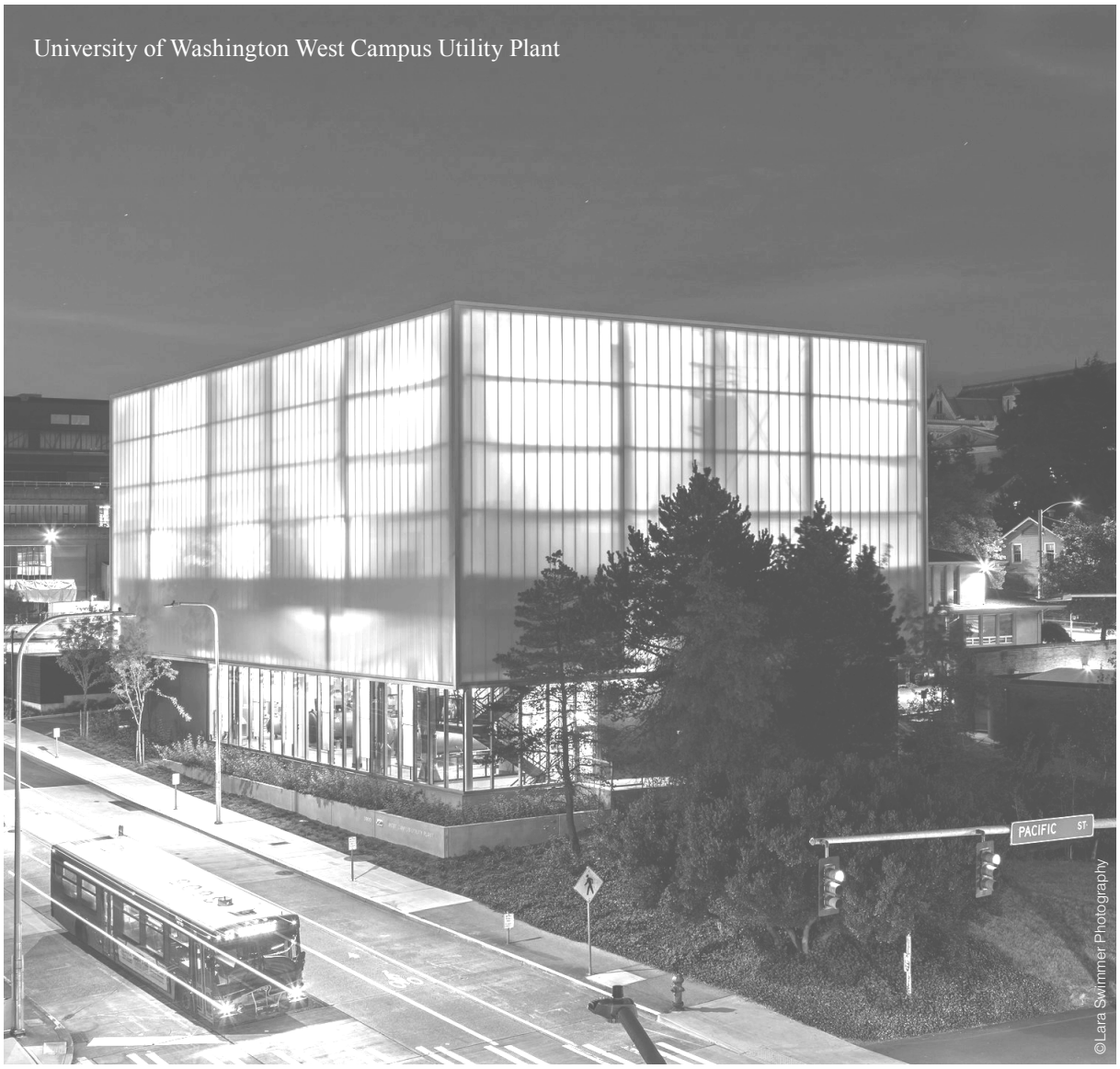
6 Global Animal Health phase 2
A 65,000-square-foot project to house WSU's disease surveillance lab. The building will connect to the Paul G. Allen School for Global Animal Health, which opened in 2012.
Budget: $40 million
Location: Pullman
Architect: Perkins+Will
General contractor: Skanska USA Building
Completion: June 2019

7 Troy Hall renovation
This 1920s brick building was renovated to house chemistry and environmental sciences programs. Read more on page 12.
Budget: $32.3 million
Location: Pullman
Architect: Perkins+Will
General contractor: Lydig Construction
Completed: May 2017

8 Chinook Student Center renovation
The 88,000-square-foot space houses a restaurant, study and recreation spaces, a fitness center and an outdoor courtyard.
Budget: $32 million
Location: Pullman
Architect: GGLO
General contractor: Absher Construction
Completed: May 2017

9 Elson Floyd Cultural Center
This 16,000-square-foot cultural center has a performance space, gallery, meditation pavilion and "knowledge rooms" for learning about the state's largest underrepresented populations.
Budget: $16 million
Location: Pullman
Architect: GGLO
General contractor: Absher Construction
Completed: July 2017

10 Jordan Schnitzer Museum of Art
The project will expand and renovate the former public safety building to house a 16,000-square-foot art museum. Read more on page 13.
Budget: $15 million
Location: Pullman
Architect: Olson Kundig
General contractor: Hoffman Construction Co.
Opening: Spring 2018



University of Washington West Campus Utility Plant

UW: TOP 10 CAPITAL PROJECTS

Most of the University of Washington's biggest projects are research buildings, but it's a student housing complex that tops the list.

A trio of North Campus residence halls are set to open next year at a cost of $253 million. Other projects include a new Burke Museum and a second-phase build-out of the Montlake Tower hospital building.

The projects are ranked by budget. All are in planning or construction, or have been completed in the last year. The information came from the UW News office and UW Capital Planning and Development records.

1 North Campus student housing phase 4a

Replaces McCarty Hall with three new buildings containing a total of nearly 1,800 student beds. Read more on page 2.

Budget: $253 million
Location: Seattle
Architect: KieranTimberlake
General contractor: W.G. Clark Construction
Construction finish: July 2018

2 Population Health Building

A 300,000-square-foot office and classroom building to house the UW's new Population Health Initiative.

Budget: $230 million
Location: Seattle
Architect: Miller Hull Partnership
General contractor: Lease Crutcher Lewis
Construction finish: March 2020

3 UWMC expansion phase 2

A build-out of shelled spaces in UW Medical Center's new Montlake Tower. Another 125,000 square feet in Pacific and Cascade towers are being renovated.

Budget: $198.3 million
Location: Seattle
Architect: NBBJ
General contractor: Mortenson
Construction finish: February 2018

4 Life Sciences Complex

This 186,700-square-foot biology research building includes an 18,000-square-foot greenhouse. Read more on page 10.

Budget: $171.5 million
Location: Seattle
Architect: Perkins+Will
General contractor: Skanska USA
Construction finish: July 2018

5 School of Medicine South Lake Union 3.2

A 165,000 square-foot building integrating research labs and offices with outpatient clinic space.

Budget: $145 million
Location: South Lake Union
Architect: Perkins+Will
General contractor: Sellen Construction
Construction finish: November 2018

6 Animal Research and Care Facility

A two-story, 83,000-square-foot underground building that connects to the Foege Building and Hitchcock Hall. The building provides flexible housing for large and small animals.

Budget: $142 million
Location: Seattle
Architect: ZGF Architects, Flad Architects
General contractor: Skanska USA
Construction finish: May 2017

7 Bill & Melinda Gates Center for Computer Science & Engineering

This 135,000-square-foot expansion of the Paul G. Allen Center for Computer Science & Engineering will provide more space for students, faculty and staff. Read more on page 11.

Budget: $105.5 million
Location: Seattle
Architect: LMN Architects
General contractor: Mortenson
Construction finish: December 2018

8 North Campus student housing phase 4b

The second part of the North Campus housing expansion includes a new residence hall with 361 beds. Upgrades to Denny Field and the demolition of Haggett Hall will proceed later, depending on funding.

Budget: $86.2 million
Location: Seattle
Architect: KieranTimberlake
General contractor: W.G. Clark Construction
Construction finish (housing only): August 2020

9 NanoEngineering and Sciences Building

A six-story, 78,000-square-foot research building connecting to the existing Molecular Engineering & Sciences Building.

Budget: $87.8 million
Location: Seattle
Architect: ZGF Architects
General contractor: Hoffman Construction Co.
Construction finish: July 2017

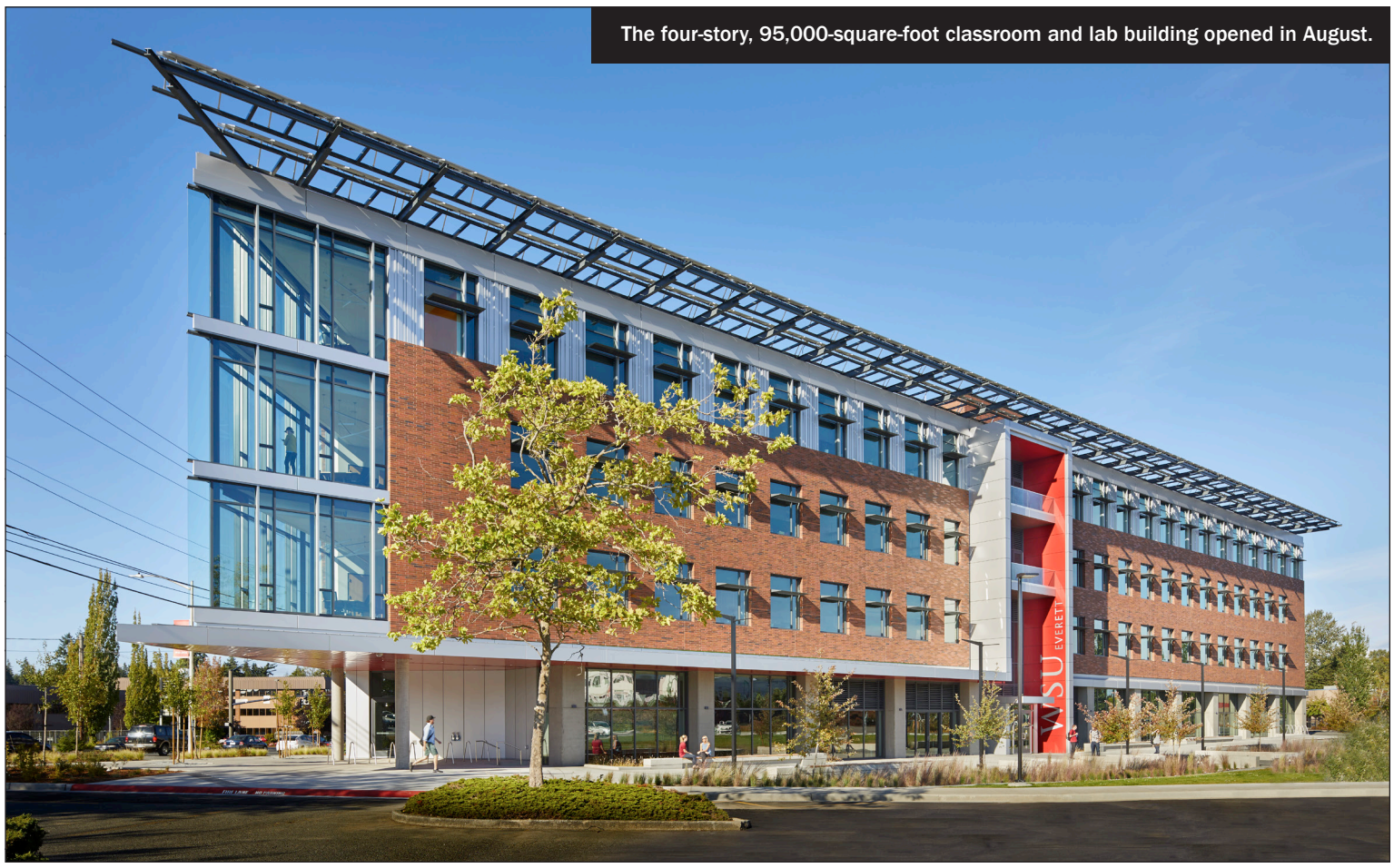
10 New Burke Museum

A three-story, 110,000-square-foot replacement for the Burke Museum.

Budget: $79.6 million
Location: Seattle
Architect: Olson Kundig
General contractor: Skanska USA
Construction finish: December 2019

WSU BRANCH IN EVERETT WILL PREPARE STUDENTS FOR STEM CAREERS

The $65 million University Center is the first building on a new campus where students can earn four-year degrees in fields such as software engineering and data analytics.



The four-story, 95,000-square-foot classroom and lab building opened in August.

PHOTOS BY BENJAMIN BENSCHNEIDER

Despite employing thousands of engineers and technicians, Everett has never been home to a four-year engineering program.

So in 2014 Washington State University struck an agreement with Everett Community College to share space and offer a small number of engineering degrees to students who completed prerequisites at EvCC. But demand for the degrees outstripped the limited seats, and many students continued to face the choice of moving away for their dream degree or changing their plans.

BY MARK GARDNER, TIM RICHEY AND ERIN GOCKE
SPECIAL TO THE JOURNAL

Now that's all changed. WSU opened in August a new permanent home in Everett at the WSU Everett University Center. It's the first step towards the goal of dramatically expanding access to higher education in the north Puget Sound region.

The 95,000-square-foot building, designed and built by SRG Partnership, McKinstry and Hoffman Construction Co., will graduate hundreds of students trained in cutting-edge STEM programs, including mechanical and electrical engineering, software engineering and data analytics. (STEM refers to science, technology, engineering and math.)

The educational spaces in the building reflect this mission. The labs are built to encourage exploration, with dozens of pieces of equipment students can use to fabricate, model and tinker. The building's sustainable features set a high bar for all future developments on the site.

Four-story atrium

The moment you catch sight of WSU Everett, you sense that great ideas will be hatched here. The building's striking facade and open windows are a gateway for the community to join in on the university's mission.

The Innovation Forum is the heart of the building: a four-story atrium linking major entry points and providing access to the full range of activities within. The ground floor houses student services, a tiered lecture hall, a media-rich classroom and mechanical engineering labs.

Through large overhead doors, the forum is connected to the

The University Center building sought to set a high bar for energy performance, and will serve as a baseline for future campus development.

The thermal envelope far exceeds the state energy code standards, and a low-energy, variable refrigerant flow system conditions the classroom and faculty wings. The central Innovation Forum incorporates mechanically operable windows and louvers, providing fresh air ventilation and natural cooling.

During winter months, heat energy is harvested from the building's data center and reused in the forum's hydronic radiant floor. A 75-kilowatt array of photovoltaic panels at the roof is dramatically exposed as the building's cornice, cantilevering beyond the south façade.

Below the Capstone Studio is a 20,000-gallon cistern that captures rainwater for use in all the toilets and urinals from September to June, diverting the surplus to landscape irrigation.

The University Center is anticipating securing LEED gold certification in early 2018.

Seminar rooms are available to students for small-group work.

Setting a precedent

With the University Center being the first building of the new campus, one of the toughest challenges the design-build team faced was to create a facility that would serve the long-range vision of the campus yet stand on its own.

Recognizing that the new building would establish expectations for future development, the own-

STEM CAREERS — PAGE 7

PROTOTYPE

CONTINUED FROM PAGE 2

space between individual boards to allow for sufficient airflow.

The design also needed to incorporate flashings that would keep water from sitting on any cut ends while allowing for movement within the wood-framed floors.

The rain screen met all of these needs for most of the building's exterior, although there were some areas where a predominantly metal facade made more sense.

Constructing prototypes

Despite the abundance of technology readily at our fingertips during the design process, there is something to be said for setting the computer aside and physically testing and iterating ideas.

Of the architectural work we do in our firm, we find that prototyping early in the design process — typically early in the design development phase — allows us to better understand a design's particular nuances.

There is an important distinction between "prototyping" and using "mockups": Mockups tend to be written into specifications and are intended to be contractor-led projects that vet installation and technique as part of, and usually just prior, to construction. In contrast, our goal in prototyping is to reveal real-world construction and assembly challenges that might otherwise go unnoticed until a project's construction.

By prototyping in the design development phase, our team can make observations with enough time for our reactions and adjustments to inform a design's evolution, and without the undue consequences of change orders, schedule implications or other unexpected construction-phase issues.

For the University of Washington, our team of architects built facade prototypes in-house and reviewed them with the university team at our Philadelphia studio, rather than on campus. After our design concept had taken shape but before all of its details had been sorted out, we hosted our client contingent, their consultants, and the project's general contractor and construction manager for a day of meetings.

Rather than present the conventional design slides and models, this meeting was held in our workshop with a 1:1 scale prototype of the conceived facade as the centerpiece. This prototype allowed us to readily engage all project stakeholders in aesthetic discussions and decisions such as cedar board size, reveal joint spacing, accent color selections and metal fin depth. Equally important, however, was that the prototype allowed us to have these aesthetic discussions in parallel with technical discussions relating to flashing dimensions, gauge, slope and detailing.

As a result of such a hands-on meeting, all parties came away from the design process feeling confident that the finalized North Campus housing facade design is successful and cost-effective.

On our part, we know that the design is better for having naturally engaged in this type of study early in the design process. The benefits inherent in this type of early engagement make us excited for the future of the industry, which continues to move toward integrated project delivery and design-build delivery models.

We have seen this trend developing firsthand as more and more of our clients express interest in pursuing alternative design models, and our experiences with the opportunities these processes provide make us optimistic for future. We should all welcome the chance to front-load construction and assembly detail prototyping within the design process, and should also look to involve more builders, subcontractors, trade partners and all those who will actually be constructing our designs in the field.

David Feaster is an architect and associate with KieranTimberlake.

UTILITY PLANT

CONTINUED FROM PAGE 3

new development now and 4.2 million square feet in the future.

A campus gateway

The design of the plant balances sensitivity to the adjacent campus fabric with a desire to mark an entry to the UW with a singular and celebrated moment.

When approaching campus from the southwest, the building prominently signals a transition from the woodland character of the nearby Burke-Gilman Trail to the more architectural character of central campus academic buildings. The plant's most prominent feature, its 47-foot-tall polycarbonate screen wall, draws attention to itself while acting as a backdrop to changing natural foliage and the surrounding buildings, with their material palette of brick and stone.

The screen wall's primary function is to shroud the rooftop equipment acoustically, reducing low-frequency noise generated by cooling tower fans. However, the translucent nature of the polycarbonate still allows the industrial infrastructure behind to manifest itself on the exterior of the building in the form of a playful and ever-changing dance of shadows.

At night, the screen is illuminated by a series of LED fixtures, continuing the dynamic interplay of light and shadow that is the screen wall's hallmark during the daytime. This design element became known as the "magnet," attracting regional curiosity and drawing visitors to the building to witness a spectacle of modern infrastructure.

Interpretive displays

The interpretive component of the project consists of two primary elements: the polycarbonate screen wall, which draws people to the plant, and a series of LCD screens at the pedestrian level that display curated content related to the university's commitment to sustainability.

This content was developed based on the belief that facts inform, but powerful stories resonate. Taking advantage of the collective wisdom within the UW community, the project team engaged students and faculty in the UW's visual communication design program to create the initial interpretive content.

The students' design features animated figures and human silhouettes that move from one screen to the next, catching the attention of passersby. The six bands of monitors progress through a 10-minute content cycle that raises awareness of sustainable programs on campus as well as information on how to get involved. The monitors are reprogrammable, allowing the university to continue to curate their unique approach to sustainability.

Design-build delivery

The progressive design-build delivery method was selected based on the belief that it would offer greater opportunity for UW involvement throughout the project, resulting in a facility superior to what could be achieved by traditional delivery methods.

Progressive design-build allowed a large and diverse group UW stakeholders to participate with the design-build team throughout the project. Engineering needs and solutions, driven by years of campus-systems experience from the facilities representatives, were balanced with the architectural and planning goals of the university architect. Budget and scope were continually monitored by the Capital Projects Office.

This was the UW's first time using progressive design-build on a new building, and it is now their preferred delivery method for major capital projects.

The plant is also the first Envision-certified project at the UW (it earned a gold award), and the first Envision-certified higher-education building in the United States. Envision is an independent, third-party rating system created to evaluate, grade and give recognition to infrastructure projects that contribute to a sustainable future.

The LEED green-building rating system only applies to occupied buildings, and therefore was not applicable to this project. However, the purpose of Envision is similar to that of LEED: to foster a necessary and dramatic improvement in the performance and resiliency of physical infrastructure across the full economic, social and environmental dimensions of sustainability.

The West Campus Utility Plant's success has been recognized for design and delivery excellence, recently receiving honor awards from the American Institute of Architects Washington Council and AIA Seattle, and a Design-Build Institute of America national award of merit.

Katie Popolow is a principal at The Miller Hull Partnership with over 27 years of architectural experience on a wide variety of project types. Anton Dekom, a project architect at Miller Hull, has coordinated with a host of consultants and contractors on numerous sustainable infrastructure projects.

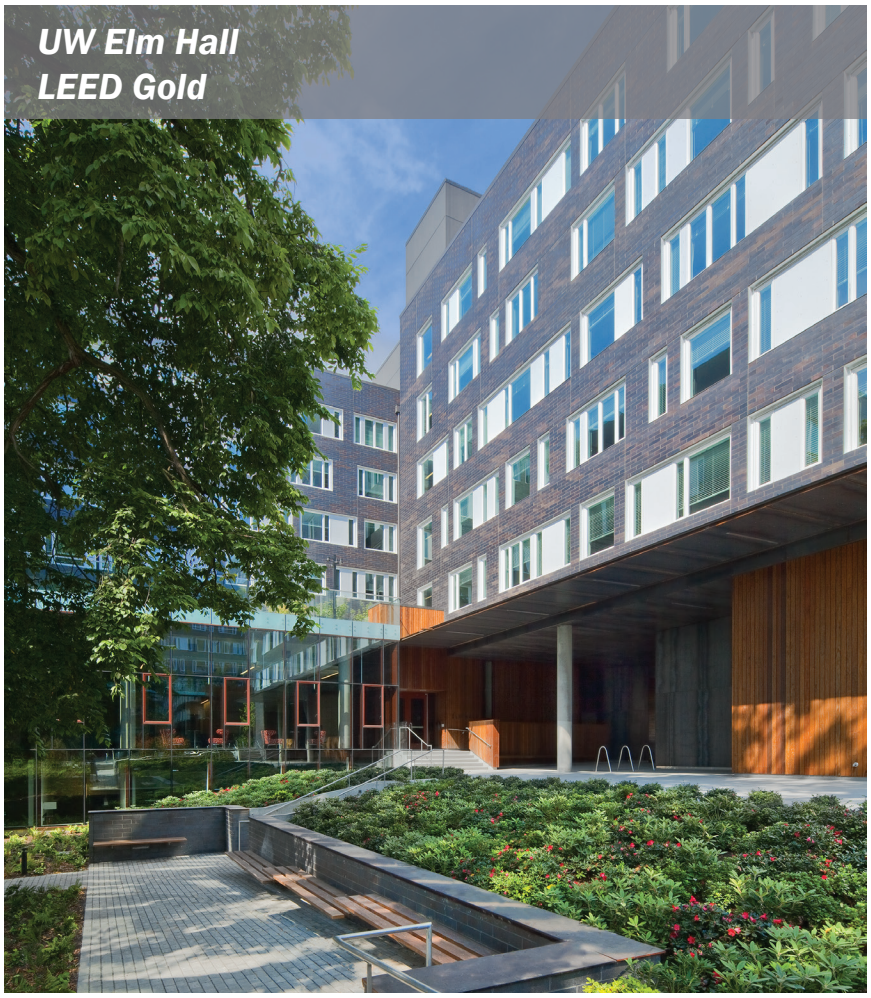
STEM CAREERS

CONTINUED FROM PAGE 6

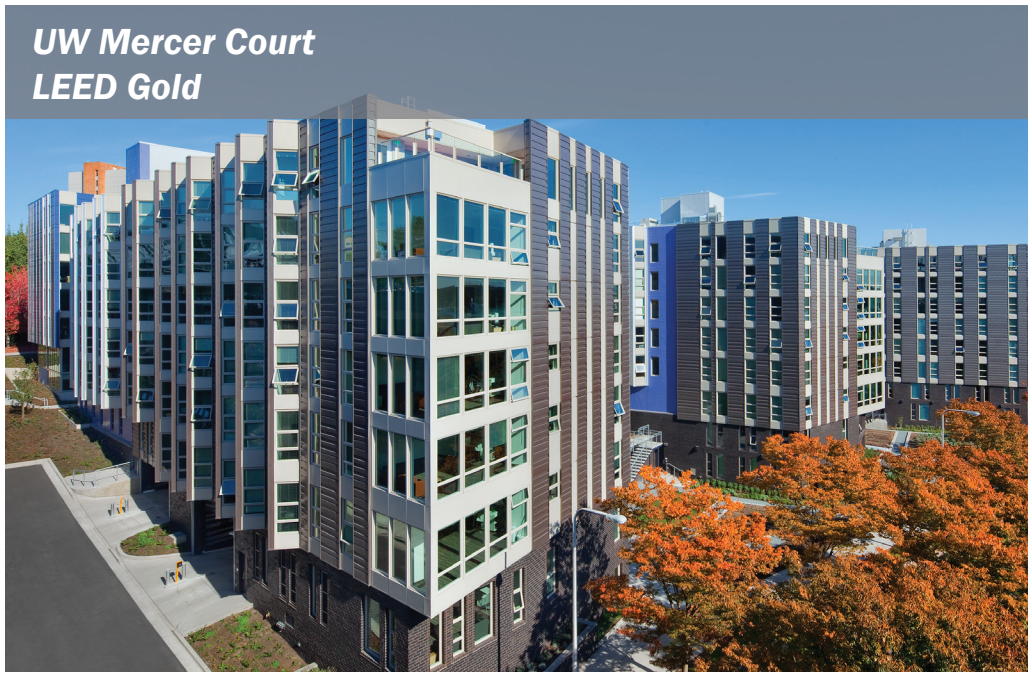
ers required a high-performance facility with timeless character. The design of this building references the character of WSU's home campus in Pullman while at the same time establishing its own unique identity and setting a precedent for future university development in the north Puget Sound region.

Most important, the new WSU Everett University Center opens doors for hundreds of local students who are eager for the opportunity to become the next generation of engineers, scientists and computer programmers.

Mark Gardner is an engineering manager at McKinstry and the lead engineer on the WSU Everett project. Tim Richey is a senior associate at SRG Partnership and the lead designer on the WSU Everett project. Erin Gocke is a project manager with Hoffman Construction and the lead project manager on the WSU Everett project.



UW Elm Hall
LEED Gold



UW Mercer Court
LEED Gold

Your trusted partner in delivering the best in student housing

UW North Campus IV(4a)
LEED Gold planned

UW Maple & Terry Halls
LEED Gold

9 DOUGLAS FIRS WILL BE INSTALLED AS ART IN NEW LIFE SCIENCES COMPLEX

A UW biology professor invited the school to harvest the trees from his property on the Olympic Peninsula. The reassembled trees will line the outside of the elevator core.

The University of Washington's 210,000-square-foot Life Sciences Complex is on track to open next fall after a decade in the making.

BY LEW GUERRETTE
SKANSKA USA

Located on the south side of campus near Pacific Street, the seven-level structure (including two below ground) will serve over 1,500 biology students and faculty, offering undergraduate teaching labs and open, modular classrooms designed to adapt for collaboration and research needs.

Skanska USA started work on the project in spring 2016, and is now entering its fourth phase of construction: the interior build-out. Skanska crews, subcontractors and the design team from Perkins+Will are working to bring the university's vision for the complex to life, including features that use natural materials and capture the spirit of the Pacific Northwest.

A tree installation

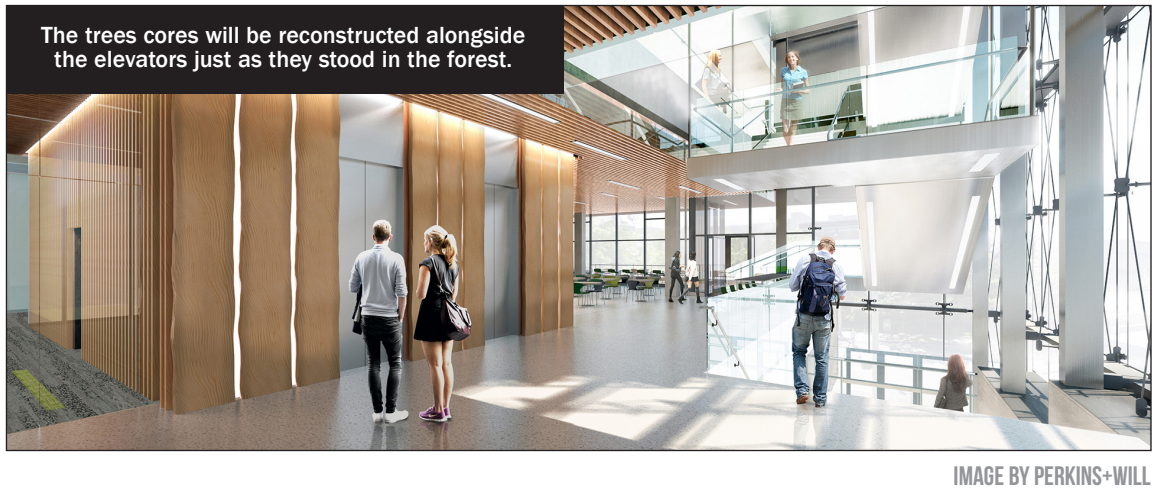
Wood is often the hallmark of regionally inspired interiors. However, Skanska, the design team and the university had a new idea for the harvested timber destined for this project.

"One of the biology professors, Dr. Scott Freeman, offered to donate trees from his property for use in the construction of the building," said Kirk Brewer, a Skanska senior project manager.

"Since the elevator shaft runs the full height of the building, the team saw an interesting opportunity to include a lifelike tree installation to add to the unique look and purpose of the building."

Freeman and his wife, Susan, led the design and construction team to Quilcene, a small Hood Canal-area community at the foot the Olympic Mountains. While

DOUGLAS FIRS — PAGE 15



The trees cores will be reconstructed alongside the elevators just as they stood in the forest.

IMAGE BY PERKINS+WILL

COMPUTER SCIENCE BUILDING AIMS TO BE A HOME AWAY FROM HOME

Classrooms, offices and work spaces are mixed together to spark conversations and create a sense of community among UW students and faculty.

The center will have a coffee shop and a roof-level event space for conferences.

IMAGE BY LMN ARCHITECTS

High-tech industries evolved with a culture founded in the garage startup company. Traditionally housed in warehouse-style workplaces, the minimalist environment so often associated with technology is now being countered by a very different kind of experience.

BY TEENA VIDERIKSEN
LMN ARCHITECTS

The University of Washington's new Bill & Melinda Gates Center for Computer Science & Engineering — designed by LMN Architects and set to open at the end of 2018 — will offer students and faculty materially rich, socially connected spaces that encourage spontaneous intellectual interaction.

Warm environment

The UW's Allen School for Computer Science competes with the highest tier of computer science and engineering schools in the world, garnering a top-10 national ranking. As the number one source of UW startups, graduates of the College of Engineering represent more than half of all UW graduate startups.

Designed to be a major attraction in a highly competitive marketplace, the new building will become a home away from home for students, researchers and faculty — a warm, welcoming and comfortable environment where the long hours spent on site each day are also an opportunity to cultivate community.

Adding capacity

The new 135,000-square-foot building will join the Paul G. Allen Center, also designed by LMN Architects, in the heart of the campus, nearly doubling the school's capacity to accommodate an ever-increasing demand for the UW's most popular major.

Located across Stevens way from the Allen Center, the building will house graduate-level research facilities, faculty offices and a 3,000-square-foot robotics laboratory. It will also house a wet lab, a 250-seat auditorium, an undergraduate commons, and a flexible event venue for workshops, recruitment fairs and other community-oriented events.

Designed to maximize opportunities for the spontaneous exchange of ideas among students, researchers and faculty, a variety of program elements, including classrooms, offices and workroom spaces, are deliberately mixed across five floors to accelerate innovation and cross-pollinate the unexpected.

Inclusive design

Design for inclusivity is central to the experience of the new building. At a time when equity is being questioned in many forms — gender, culture, race, religion — the University of Washington is recognized for having the highest percentage of women enrolled in engineering programs of any academic institution in the United States.

The new building demonstrates a commitment to continuing this tradition by removing the physical barriers to interaction. Rather than organizing the building along strict programmatic lines, it is designed to become a mixing chamber with universal appeal for a diverse and inclusive program.

Through its architectural craft and inviting material palette, the new building is also designed to attract and retain the most qualified students and faculty.

Natural, warm-tone interiors define a character and sense of place that support an open, intellectually and socially dynamic culture. Generous common areas are organized holistically as a series of interconnected, flexible spaces that function in many different combinations, from small groups to large gatherings, and encompass the full spectrum of informal activities, regular programs and special events.

Community appeal

The approach to inclusivity reaches beyond the building's doors and into the development of a broadly appealing, mixed-use district within the University of Washington's main campus.

The design will improve major pedestrian connections and become a common court space, shared with adjacent mechanical and civil engineering buildings. A new coffee shop facing Stevens Way will activate the building's west edge and become a destination for the broader community.

The building's unique, two-sided curving form responds to the topography and flow of the campus circulation. A layered facade features terra-cotta panels floating in front of a sleek, black metal and glass underlayment, with strategically placed structural elements to enhance sun shading. The material and formal composition is a contemporary reimagination of the Allen Center's timeless brick and metal facade, echoing the department's celebrated past.

Above it all, a new roof-level event center takes advantage of sweeping views to Lake Washington and the Cascade Mountains, providing a signature experience for a flexible range of conferences and functions.

Whether inside or outside, the new Bill & Melinda Gates Center for Computer Science & Engineering is focused on creating a supportive community and an environment where people and ideas can come together, a place where the future of computer science will be written.

Teena Videriksen is a principal and director of business development with LMN Architects, responsible for business development activities across all sectors of the firm's work.

BILL & MELINDA GATES CENTER FOR COMPUTER SCIENCE & ENGINEERING

Owner:
University of Washington

Architect/interiors:
LMN Architects

GC/CM:
Mortenson

Structural engineer:
Magnusson Klemencic Associates

Mechanical/plumbing engineer:
Affiliated Engineers NW

Electrical/acoustical/AV consultant:
Stantec

Landscape architect:
Olin

TROY HALL REHAB SHOWS WHY UNIVERSITIES LIKE DESIGN-BUILD

The $27 million project took 30 percent less time to finish than it would have with a traditional delivery model.

The south entrance was moved to the ground level to address a problem identified by the design-build team.

PHOTO BY BENJAMIN BENSCHNEIDER

BY ANTHONY GIANOPOULOS & TONY CORIGLIANO
SPECIAL TO THE JOURNAL

Over the past two years there's been a quick shift in the way projects are delivered at colleges and universities across Washington state. The shift is to a model that is better suited to accommodate today's fast-tracked, cost-constrained market conditions.

In the next five years the state's two largest schools of higher education will together make available millions of square feet of new and/or renovated space. The successful delivery of this magnitude of physical space is of vital concern to owners, with factors at play like ever-shifting capital improvement budgets and super-consolidated timelines. The need to "do more, quicker, with less" is ever more present.

Both the University of Washington and Washington State University have embraced design-build as their exclusive project delivery method for major capital projects, replacing the traditional general contractor/construction manager or design-bid-build models that had been in place for decades.

Design-build expedites design and construction while providing a level of seamlessness for the client via a single team and a single contract.

WSU's Troy Hall is one of the state's first higher-education projects to partially preserve, adaptively reuse and expand a historic building through design-build.

Led by the team of the Seattle office of Perkins+Will and Spokane-based Lydig Construction, the project transformed an early 20th-century creamery into a 50,000-square-foot, four-story, modern academic science facility — and it did so in less time and with less cost than a traditional GC/CM model.

Shorter timelines

From pre-design to delivery, Troy Hall was achieved in 27 months, or approximately 30 percent less time than through a traditional delivery model. This was possible in large part because design-build gives everyone a seat at the table through each phase of the project — designer, contractor and client alike.

From programming and design to construction completion, overlaps between phases shorten the overall timeline of a project. For example, using the foundation from the new addition as reinforcement for the historic facades from the original building shaved three months and thousands of dollars off the project alone.

Team problem-solving

WSU set out to preserve as much of the original building's historic character as possible while also expanding space for the current and future needs of the school.

Historically renovating a building can be complicated and costly, but design-build helps curb these issues because it's inherently collaborative. It relies on the design-builder, designers and trade partners to work together as a team to solve issues as they arise.

With Troy Hall, the relocated south entrance was the result of a creative solution by the designer, contractor and subcontractor, who all identified a problem and worked together to effectively address it.

The relocation of the terra-cotta entrance to the ground level brought the south entrance to the pedestrian level of the campus. The coordination of the entire team included making molds of existing intricate terra-cotta details for the re-creation of pieces damaged by the relocation.

A budget cut

Because the designer and contractor were in close collaboration throughout the duration of the project, it was delivered on budget despite funding cuts that took the project from $30 million to $27 million two months after the project was awarded.

Suffice to say, the funding cuts presented some challenges that resulted in balancing the needs of the program with the needs of the design. Ultimately, the completed product fit well within the

TROY HALL — PAGE 15

WSU ART MUSEUM A CRIMSON 'JEWEL BOX' IN THE HEART OF CAMPUS

The 16,000-square-foot structure is an expanded former public safety building.

BY STEVEN RAINVILLE & LAUREN GALLOW
OLSON KUNDIG

The reflective facade has a shifting color pattern when viewed up close.

IMAGE BY OLSON KUNDIG

The new Jordan Schnitzer Museum of Art at Washington State University will be more than a place to view and experience art. The design, by Jim Olson of Olson Kundig, and prominent campus location aim to increase access to the arts for the entire Inland Northwest region.

Standing as a beacon for the arts, the new museum invites WSU students and staff, school-age children from across the region, campus visitors and the community at large to experience the vitality of art at WSU. In location and design, the building brings art to the forefront of university life.

"The museum is a jewel box, and inside are treasures from creative minds," Olson said.

"Art broadens our perspective, our frame of reference — we hope this building will do that, too."

Located in the heart of WSU's Pullman campus, across from Martin Stadium and the student union, the new museum's crimson facade of mirrored glass panels reflects and weaves the building into the campus as much as it announces the presence of art.

The museum is being built by Hoffman Construction Co., with an expected completion date of spring 2018.

The project continues Olson Kundig's longstanding relationship with WSU. In 2014, Olson Kundig partnered with Sellen Construction to design and build the Brelsford WSU Visitor Center, and the firm's architectural staff frequently teach and serve as guest critics for the School of Design and Construction.

For Olson, founding owner of Olson Kundig, this project continues a lifelong commitment to the arts in the Pacific Northwest.

A central location

Prior to this expansion, the museum was limited in the scale and type of exhibits it could house in its previous location.

Beyond merely increasing its square footage, the museum sought to use this expansion to establish a more visible physical presence, giving art a stronger voice in the campus culture and the surrounding region.

The new location is in WSU's former public safety building. The design adds 2,500 square feet of gallery space to this existing structure, using it as a tabletop for an expanded footprint totaling 16,000 square feet. The design gives new life to this familiar campus building, nodding to its former identity with large open bays that mimic the original entry modules.

With this increased footprint and central campus location, art takes a prominent place on the WSU campus and gives art a powerful voice in students' lives. It will introduce and reinforce the legacy and value of art for students while they are at WSU and long after they graduate.

Beacon for the arts

Olson's initial design concept for the museum was for it to have a monolithic, highly reflective facade that would grab attention from afar.

The result is a reflective crimson box that announces itself as a new beacon for the arts, holding its own next to the major campus buildings surrounding it. At the same time, Olson envisioned the reflective nature of the facade as a means of weaving the building into its context.

The challenge was to find a system to realize Olson's design aspirations for the facade. Working closely with Hoffman Construction, the design team settled on a European facade system distributed by Hunter Douglas that consists of a mirrored back panel with a colored interlayer fronted by a glass outer layer.

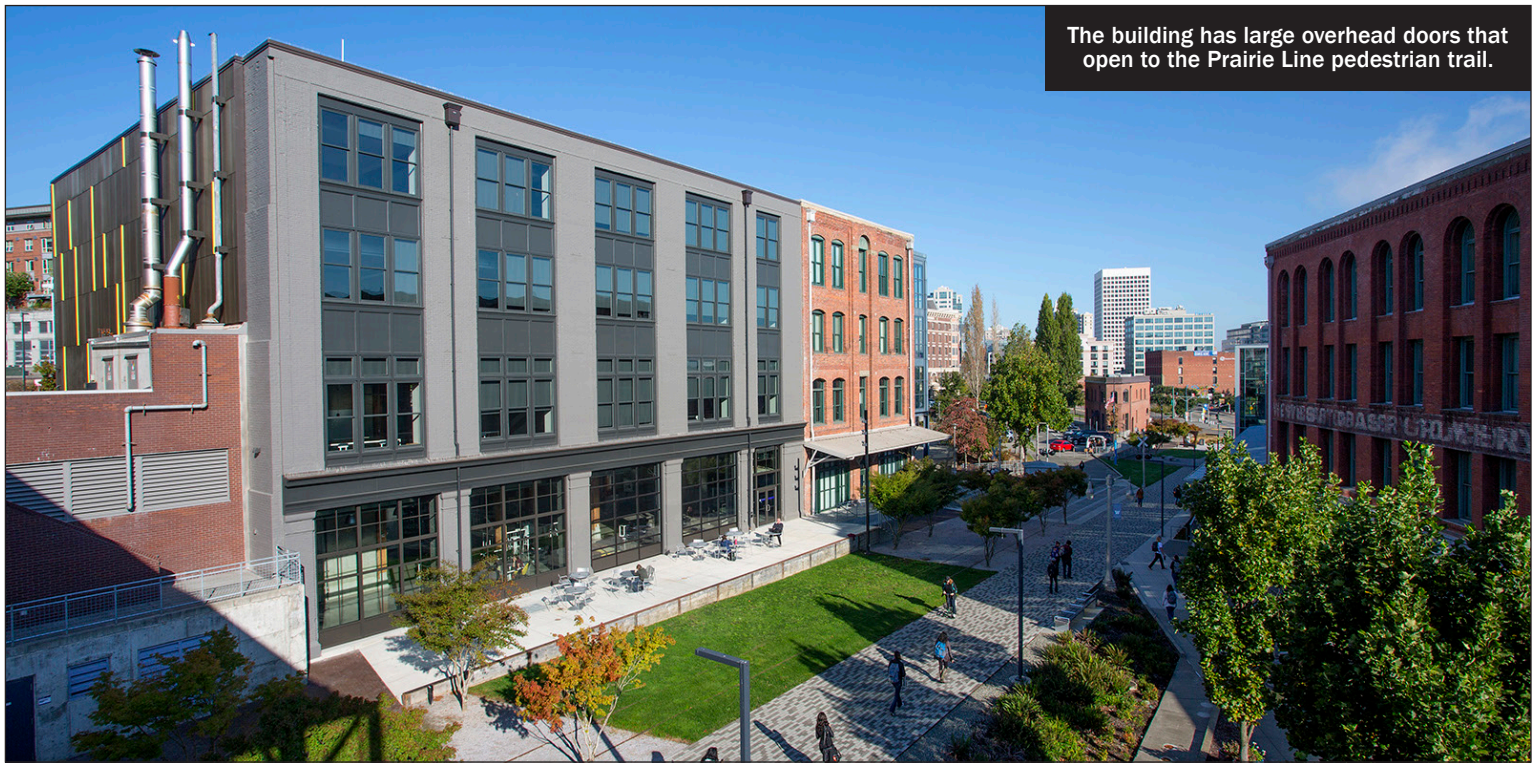
Low-iron glass is being used to minimize color distortion. Weather-deflecting rain screens are installed behind the mirrored

JEWEL BOX — PAGE 15

TACOMA PAPER & STATIONERY CHANNELS UWT'S URBAN VIBE

After a renovation, the former warehouse – now home to the Urban Solutions Center – has been opened up to let in daylight and connect with the surrounding campus.

BY ELIZABETH MOGGIO & WES NEELEY
SPECIAL TO THE JOURNAL



The building has large overhead doors that open to the Prairie Line pedestrian trail.

PHOTOS BY CAVENPHOTO LTD

The last remaining undeveloped warehouse on the University of Washington's Tacoma campus has found a new purpose: providing classroom, studio and lab space for programs in urban studies, engineering and biomedical sciences.

The four-story, 40,000-square-foot Tacoma Paper & Stationery building was built in 1904. It has been home to biscuits and candy, paper and stationery, and an Old Spaghetti Factory.

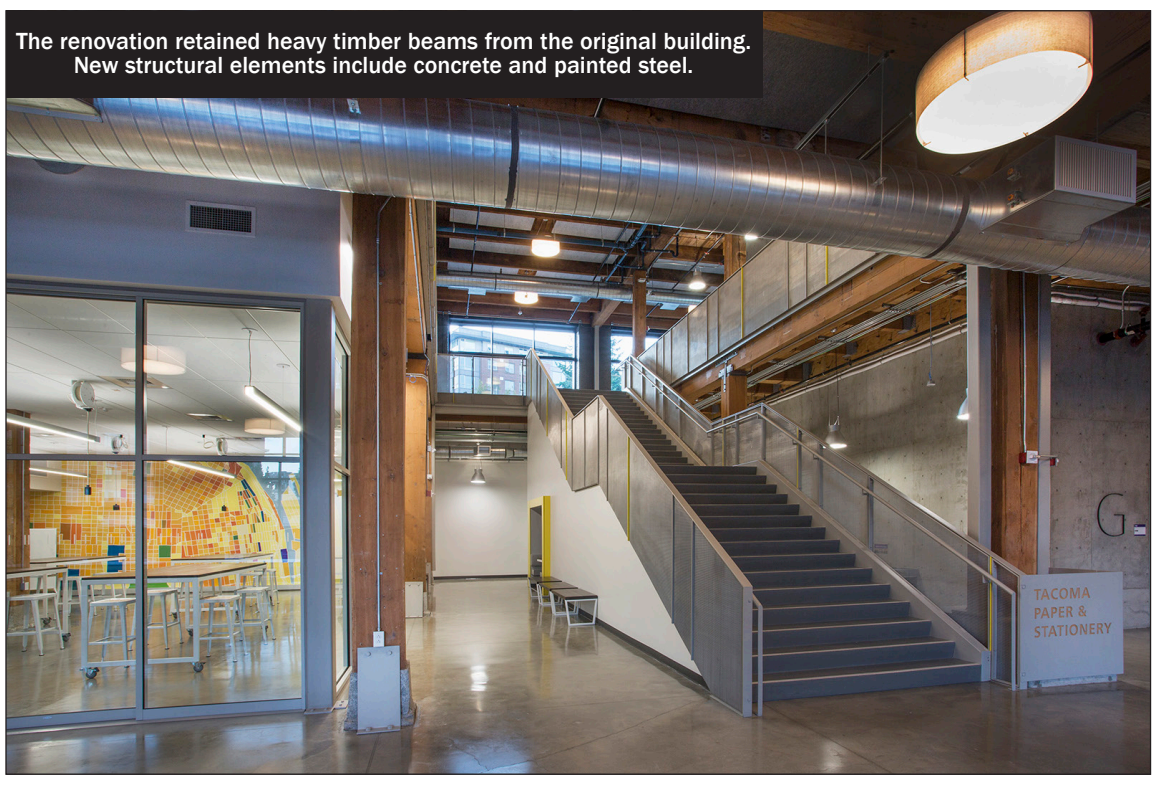
Now it's home to UWT's Urban Solutions Center. Its latest transformation connects past to present, and brings new life and purpose to a structure with more to give.

Physical environments have the power to encourage transformative teaching and learning. Just as this unique building challenges the assumptions of what a factory could be, the new design challenges assumptions of what educational spaces should be.

The building represents UWT as an urban campus inextricably linked to local institutions and community. It creates an active, meaningful and vibrant connection through the building to campus, and allows a beautiful, historic building to be an inspiring backdrop for learning and community engagement.

The design maximizes flexibility to serve the evolving interdisciplinary programs, fosters student-centric learning and interaction, and creates a dynamic, transparent community space to connect the growing campus.

Ambitious adaptive reuse projects such as this one require a collaborative team to work their way through unforeseen conditions and creatively obtain the vision of the new program and purpose. A key relationship within the team was between the structural lead, PCS Structural Solutions, and the designer, The Miller Hull Partnership, who worked together to achieve design intent despite the building's structural challenges.



The renovation retained heavy timber beams from the original building. New structural elements include concrete and painted steel.

Indoor-outdoor connection

To achieve a dynamic, transparent space, we needed to strategically locate large openings in the existing floor and exterior walls. By creating a large opening in the first level (on Jefferson Street) and a communicating stair to the ground level (on Prairie Line Trail), it became possible to visually connect both entrances and increase interaction and connection of programs within the building.

The first-level space meets student and faculty needs for the newly developed urban design program. Classrooms, studios and meeting rooms on this level are a catalyst for open and engaged citizenry, and reinforce the core of the UWT mission as an urban-serving institution.

The ground level embraces the history of the building with its direct connection to the pedestrian Prairie Line Trail. The trail marks the historic Pacific Railroad spur, which held a significant role for the building. Food and paper products were loaded off and on freight cars through large openings.

Now large overhead doors open up the building onto the trail, creating a direct indoor-outdoor connection with the building's large, informal learning and gathering space and open maker space. This is a vibrant focal point for faculty and student interactions, and generates an inspiring and welcoming meeting place for the campus.

TACOMA PAPER & STATIONERY

Owner: University of Washington Tacoma
Architect: Miller Hull Partnership
GC/CM: Mortenson
Structural engineer: PCS Structural Solutions
Electrical/mechanical engineer: Glumac
Civil engineer: AHBL
Landscape architect: Bruce Dees & Associates
Acoustical consultant: BRC Acoustics
Historic preservation: Bola Architecture + Planning
Graphics/wayfinding: Mayer Reed
Cost estimation: JMB Consulting Group

More natural light

The windows on the upper levels of the building were already revolutionary for their time, providing large bands of natural light to the factory areas on those levels.

Most heritage buildings on campus or in the city of Tacoma

URBAN VIBE — PAGE 15

URBAN VIBE

CONTINUED FROM PAGE 14

have punched window openings. However, this unique construction system has the windows grouped into vertical bays between the masonry piers.

With great respect for this original expression, Miller Hull and PCS developed a system of fire-resistant wood construction to support giant Milgard fiberglass windows, bringing an enormous amount of light to the labs and classrooms.

Solid interior partitions are oriented east-west while interior walls in the north-south direction are glazed to maintain views across the deep floor plate and allow for the infiltration of light into the building.

Open environment

To support the introduction of classroom occupancies and biomedical labs, the building needed to be reinforced with a redundant steel structure and new concrete, four-story shear walls. In addition, to support the proposed active learning classrooms, massive wood columns were removed at two levels to create an open, flexible environment.

Due to contaminated soils beneath the structure, the foundation design had to be carefully planned. With the help of GeoEngineers and Mortenson Construction, Miller Hull and PCS developed a system of micropile foundations and above-slab footings for the foundation design to minimize the export of contaminated soils.

With careful analysis, the micropile design did not penetrate the confining layer between the shallow and deep aquifers. The project was able to remove and replace damaged portions of the existing concrete slab on grade without disrupting contaminated soils and triggering a full remediation of the soils.

Most of the foundations ringed the perimeter of the building, however the location of the above-slab foundation at a key column in the center of the building interfered with the connecting stair design. Instead of adjusting the locations of the large foundation, the design team used the above-grade foundation to anchor the guardrail of the stair and install graphic signage that welcomes users of the building.

Raw, earthy palette

The project's success came from "listening" to the building.

The building was built for massive storage and weight, giving the team the ability to leverage heavier structural solutions. This allowed the opportunity to maintain, revitalize and showcase heavy timber beams, and add new structural elements of painted steel and concrete in a similar raw, earthy palette.

The concrete shear walls are kept to the edges, and blend with the brick walls maintained and reinforced with steel joints.

Unlike many of the buildings on campus, the team painted the existing interior brick to highlight the texture of the various types of masonry used. New elements like classroom partitions and gathering spaces are in tones of gray, white and bright yellow, with a layer of environmental graphics that displays the history of the building and reinforces ties with the city of Tacoma and the system of railroads that put Tacoma on the map.

The Tacoma Paper & Stationery building celebrates PCS and Miller Hull's long history of collaboration and adaptive reuse on the UWT campus, starting in 2004.

Elizabeth Moggio is an associate at The Miller Hull Partnership and design project manager for the Tacoma Paper & Stationery building. Wes Neeley is an associate at PCS Structural Solutions and structural project manager for the UWT project.

JEWEL BOX

CONTINUED FROM PAGE 13

panels.

While appearing rather solid and uniform from afar, the reflective crimson cube rewards viewers upon closer inspection, much like the artworks housed within. Up close, a shifting pattern of color emerges and changes depending upon perspective and distance.

The unique facade encourages people to look at the building and see themselves and the world around them in a new way.

As Olson described it, "When students see themselves reflected in this building, they'll see their lives through the lens of art."

Transparency and security

A key design challenge was balancing the museum's dual needs for transparency and security.

The main volume is enveloped by the crimson facade, which provides an appropriate enclosure for the museum's permanent collection. These galleries needed to meet the preservation standards of the American Alliance of Museums, a national organization through which the museum is currently seeking accreditation.

By contrast, the museum's large glazed entrance bays allow passersby views of the temporary exhibits inside. This transparency establishes the building as an invitation — one that welcomes students, faculty, visitors, and members of the regional community to enter and explore the museum.

Jordan D. Schnitzer, the building's namesake, was a major contributor to the project. His $5 million donation was vital in galvanizing support and bringing the new museum to completion.

"The new JSMOA is integral to the educational mission of WSU," said Anna-Maria Shannon, interim director of the museum.

"We offer engagement with local, national and international art and artists for WSU and the surrounding communities, all while creating partnerships across campus to integrate the visual arts into every aspect of the university's mission. The museum fosters an environment that demonstrates the transformational power of the arts."

At its essence, the building achieves museum standards for the exhibition and display of art, while maintaining an unpretentious, welcoming character. It is a prominent yet approachable new campus icon that completes the circle of a whole university at WSU.

Steven Rainville is a principal at Olson Kundig. Lauren Gallow is a marketing coordinator at Olson Kundig.

DOUGLAS FIRS

CONTINUED FROM PAGE 10

it's nationally known for its oysters, Quilcene is also home to Olympic National Forest lands full of Douglas firs. Timber and wood-product professionals from around the globe are familiar with this Northwest tree, second in height only to the redwood.

When selecting timber for use in building design, height is not typically a factor because the trees are cut into things like beams and planks. However, for the elevator feature, the Skanska team hand-selected nine Douglas firs they could envision reconstructed inside the new Life Sciences Complex. Each tree stood at least 150 feet tall.

The selected trees were harvested, then labeled for future assembly. In October, the cores were milled to project specifications.

Skanska plans to install the trees early next year, assembled from top to bottom as they stood in the forest.

How?

The labels placed at harvest allow the project team to line up individual pieces along the height of the elevator shaft. The core of each tree is then placed inside the building's elevator lobby facade. The outer shells, which would otherwise be thrown away, will line the adjacent sides of the elevator core to depict the sides of each tree in the forest.

"This was great teamwork, but it really speaks to customer commitment," Kirk said.

"There is no shortage of places that can source this wood. Instead, though, we've created something with someone who will work in the building, and help the staff connect with their new facility and feel a sense of ownership."

Preserving cedars

In addition to the elevator feature, subcontractor Creoworks will use harvested alder trees to make furniture and other interior elements throughout the building.

Skanska also took measures to preserve the eight massive Deodar cedar trees standing on the north side of the project. Crews constructed a "bridge" from Stevens Way onto the jobsite, rerouting construction traffic and dodging compression of the trees' roots. The bridge protected the trees from damage throughout construction of the building, and allowed Skanska to integrate the ancient giants into the building's final design and end use.

The building will look as if it has been there for years — just like the wall of Deodars standing along its northern edge.

The new complex will also include a world-class greenhouse next to the Burke-Gilman Trail, planned to house over 3,000 plants species.

Skanska plans to wrap up construction in July 2018, just a few months prior to fall quarter.

Lew Guerrette is a project executive for Skanska USA with over 25 years of experience coordinating and delivering preconstruction and construction services.

TROY HALL

CONTINUED FROM PAGE 12

overall concept of the building without sacrificing the design aesthetic.

With design-build, everyone comes to the table willing to work together for the best interest of the project. It's refreshing to see people coming together to create unique and innovative decisions. Everyone has skin in the game. It makes a difference both to the delivery of a project and in the overall process of developing it.

As a testament to its success, this past October the American Institute of Architects Washington Council awarded the 2017 civic design award of citation to Troy Hall. The annual awards program "celebrates the best examples of what can be realized when architects and civic clients work together to achieve quality design."

Anthony Gianopoulos is a principal with Perkins+Will's Seattle office, and Tony Corigliano is a senior project manager with Lydig Construction's Spokane office.

ABSHER + GGLO DESIGN

REVITALIZING THE PAST
RE-IMAGINING THE FUTURE