HIGHLINE HIGH SCHOOL

Highline Public Schools | Burien, WA

EXECUTIVE SUMMARY

A Modern School Celebrating its History

Highline High School, Highline Public Schools' flagship high school, opened in 1924 and served the cities of Burien, Des Moines, and White Center. At the time, Highline was the only high school in the area. The district valued the historic significance of the civic structure as the first secondary learning institution in the community, and was committed to retaining the look of the original building in the replacement school design.

One of the primary initial goals for the Highline High School modernization was to preserve the north wall of the 1924 original main classroom building if it were financially and structurally feasible. However, after evaluating the construction of the wall and the soil conditions, the design and construction team concluded that it was not financially feasible to shore up the original north wall and keep it intact, while constructing a new building behind. The project team recommended instead to honor the look of the original building by recreating the main entry of the facade reusing salvaged historic terra cotta elements to reflect the civic importance of this building.

The replacement Highline High School design concept consists of two large classroom blocks connected by a central commons area with shared student spaces. This basic diagram builds upon the heritage of the school as the first secondary learning institution in the Highline community. The main circulation path leads from the formal civic north entry to the more informal south entry through a grand two-story commons space, a metaphor for the journey from Freshman to Senior as the students move through their high school experience. This path also provides direct access to key program elements such as student services, community room, food service, and the library reflecting the transitions that students will make during their time at Highline.

The district-led visioning process included, high school and district staff, community members, and the design team. The guiding principles developed included, welcoming, student-centered, community-focused, and safe outdoor learning spaces. By placing the commons at the heart of the school, a central gathering place for student and community events was created. An entry off a new secure west courtyard, along with a student and staff entry at a southeast secure courtyard provide a limited but dispersed set of campus entry points for student safety and security.

The layout of educational spaces is based on the concept of learning communities or pods. General classrooms, seminar rooms, teacher planning area, small classrooms, and dedicated science labs are clustered around a small learning commons. Career and Technical Education (CTE) programs are distributed adjacent to each of the learning pods. As part of the design theme of "Romancing the Trades" (a term coined by the Design Review Committe members) the CTE spaces are placed strategically to provide visibility from the building exterior and the commons. These highly visible locations also promote the display of student work.

The main circulation path leads from the formal civic north entry to the more informal south entry through a grand two-story commons space, a metaphor for the journey from Freshman to Senior as the students move through their high school experience.

Large courtyards for outdoor learning, rain gardens for storm water management, and site amenities that support community use — including adjacent district athletic and arts facilities — ensures that the new Highline High School integrates seamlessly into the heart of the Highline community.

The north wall is adorned with salvaged historic terra cotta elements.

Mass Timber

Glulam timber beams line the spine of the school creating a warm wooded two story commons.

SCOPE OF WORK AND BUDGET

Owner: Highline Public Schools

Location: Burien, WA

Grade: 9-12

Student Capacity: 1,500

Building Size: 230,000 sf

Site Area: 842,000 sf

Completion: September 2021

Construction Budget: $108,000,000

Final Construction Cost: $117,000,000

The north entry is adorned with the Highline name and a custom timeline creating a sense of school pride as users enter the building's main entrance.

SCHOOL & COMMUNITY ENGAGEMENT

A Community-Centered Approach

In September 2015, Highline Public Schools convened the Capital Facilities Advisory Committee (CFAC) to develop recommendations for a long-term capital facilities plan. CFAC met monthly for a year to study facility needs, review data, and develop a plan designed to meet the needs of students over the next 20 years. The committee's work culminated in a bond measure on the November 2016 ballot for $299 million. This was the first bond approved by voters in 10 years.

Included in the 2016 bond was the replacement of Highline High School. Understanding that Highline Public Schools is set within a community that is passionate about their public schools, the design team wanted to ensure that the community was deeply involved in the design.

The design process began with a three-day Educational Visioning workshop comprised of teachers, administrators, students, parents, school committee members, municipal representative, business representatives, the owner's project manager, and the project architect. The 40-member Visioning Team engaged in exercises such as "Defining Student Success in Life". The focus on Learning in the 21st Century led to a diagram of the ideal learning environment for the new Highline High School.

A Design Review Committee (DRC) which comprised of high school and district staff, and community members was assembled to provide guidance throughout the design process. Working closely with the DRC in a series of ten meetings, the design team created guiding principles, design concepts, and project goals that became the checklist for the evaluation of design proposals as the design progressed. Through a plus/delta exercise, a preferred concept design was selected for further refinement from three initial options. Finally, the guiding principles were used to evaluate the preferred concept and gain approval from the DRC to move forward into the schematic design phase. The guiding principles developed included: functional spaces, achievement, community, welcoming, collaboration, sustainable, outdoor space, and safety.

In addition to preserving the legacy of Highline High School, the stakeholders wanted the school to have a park-like feel that would create connections to the adjacent stadium and playfields, while creating safe, secure access for students. Coordination with Burien Parks & Recreation led to shared spaces for the Parks' before and after school programs, including a meeting space, storage, and office space. New tennis courts at the nearby Sunnydale Elementary site were developed and are used by Highline students and open to

the community. In addition, the Moshier Park Community Center parking lot was improved to provide better access from the parking lot to Highline Memorial Stadium and the new High School. The school's new theater is located near the south student entrance and adjacent to the learning stairs. This creates the opportunity for easy community access and pre-performance gathering in the commons.

Once it was determined that it would not be financially feasible to retain the original 1920's facades, the design team was challenged to overcome community resistance. By identifying the elements that were of the highest value to the DRC, the design evolved to include salvaged terra cotta detail elements within the new main entrance facade that nearly replicates the original school entrance. Additional historic elements were retained prior to demolition and added throughout the new school. This nod to the school's history and valued civic appeal has been well received by stakeholders.

Throughout the community engagement process, the design team was able to build trust by carefully navigating unexpected shifts in design to build consensus. By building community support the entitlements process went smoothly – with the Hearing Examiner and City of Burien staff recognizing that the team was inclusive and responsive throughout the design process.

Highline High School Demographics

Grades 9-12

White: 16.5%

Hispanic: 48.2%

Asian: 17.2%

African American: 7.7%

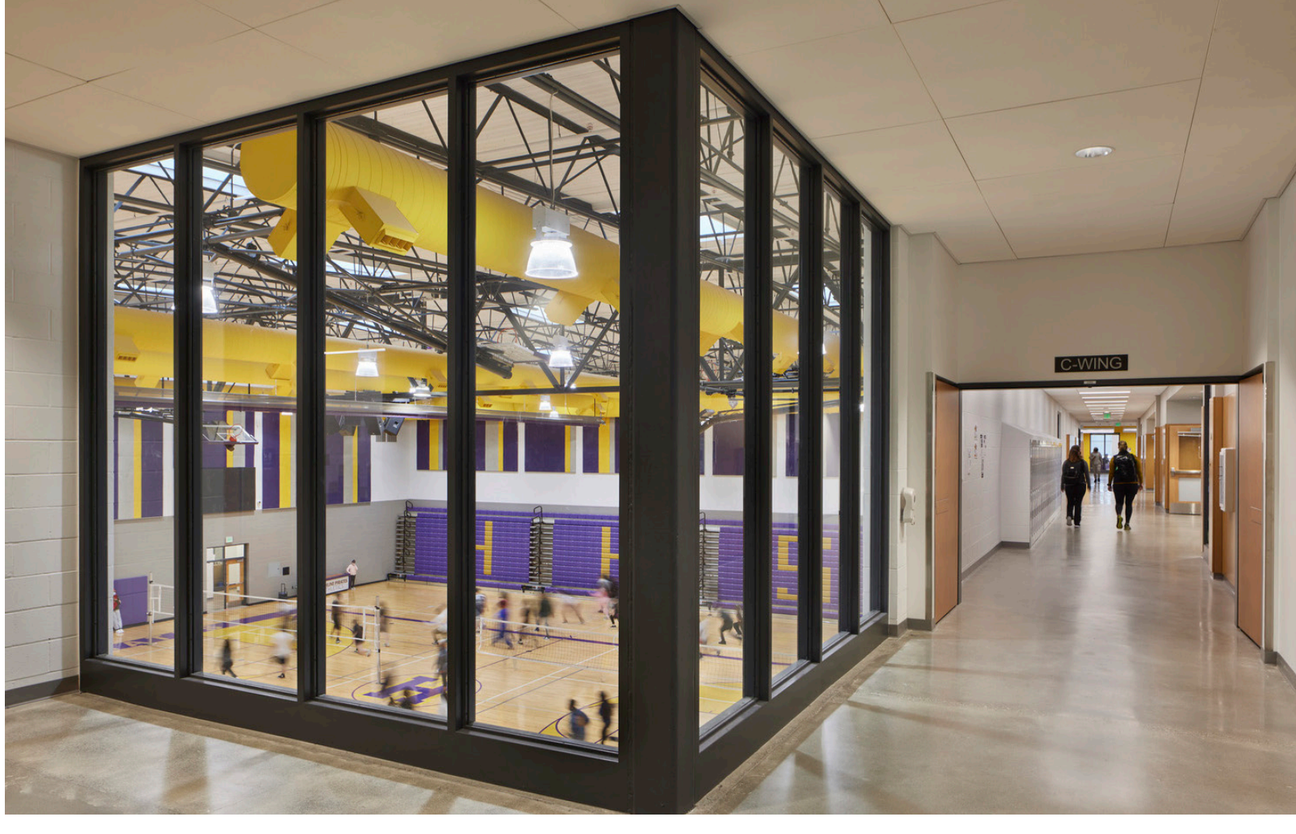
Two or more races: 6.2%

Pacific Islander: 3.8%

American Indian:0.3%

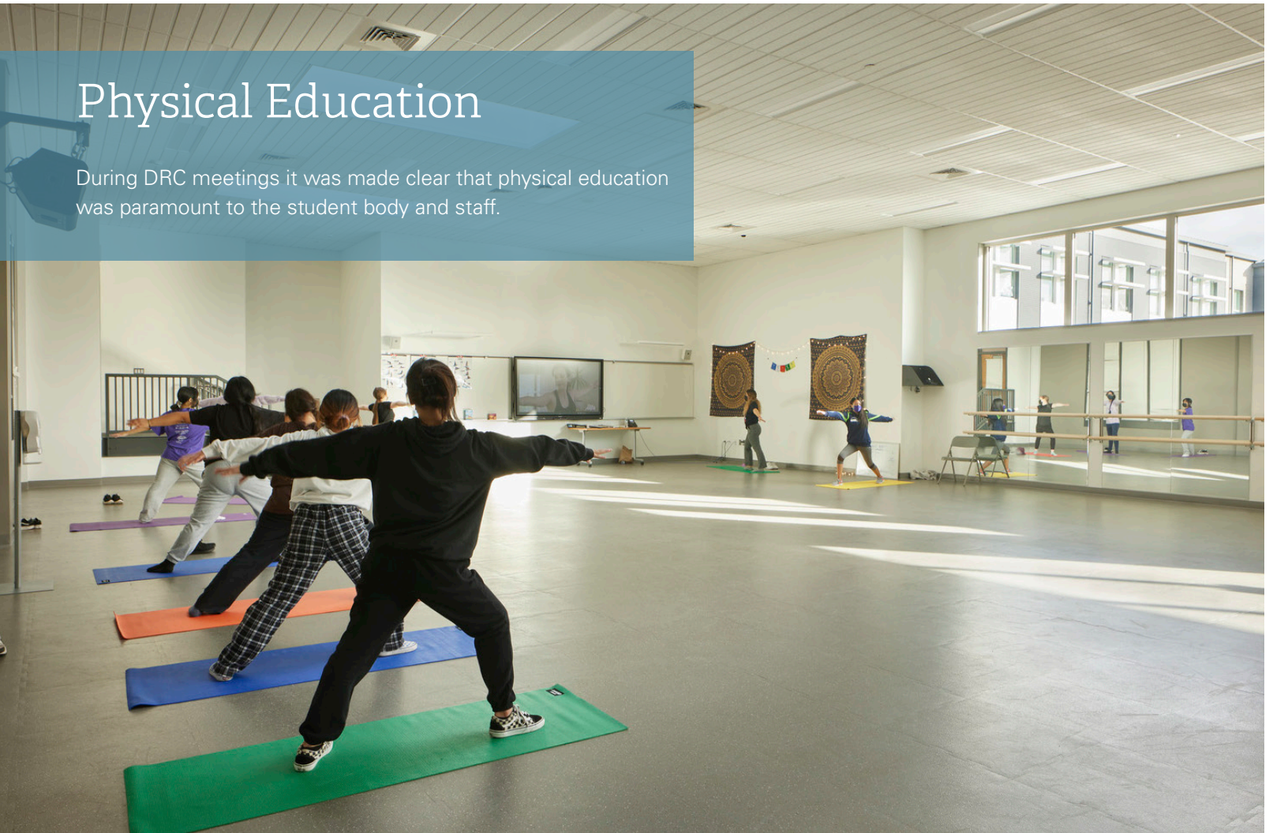
Free/discounted lunch recipients: 70.4%

Students have an impromptu study session in a hallway breakout space.



Physical Education

During DRC meetings it was made clear that physical education was paramount to the student body and staff.



EDUCATIONAL ENVIRONMENT

Student-Focused Project-Based Learning

The process to determine the learning pedagogy and develop the Education Specifications for Highline began with a three-day visioning workshop with Frank Locker, an expert in educational facilities planning. The 40-member Visioning Team was comprised of teachers, administrators, students, parents, school committee members, a municipal representative, business representatives, District Capital Planning and Construction staff, the owner's project manager, and the architectural team. These sessions brought together stakeholders in a conversation and series of charrettes that took a deep dive into educational pedagogies and how the design of the school could support teaching and learning as we progress through the 21st century. From this visioning process, it was determined that Project-Based Learning was most suited to the school and its mission. Stakeholders shied away from more traditional plans with double-loaded classroom corridors and grade-centric layouts.

> We expect all students to challenge themselves academically, creatively, physically, socially, and to take responsibility for their actions. We will provide a safe, enriching, academic environment; assess each student's needs; and help students achieve their maximum potential.
>
> Highline High School Mission Statement

The result was a vision for the new High School that was consistent with the 2018-2023 Strategic Plan Goals: School Culture, Growth and Mastery, Digital and Media Literacy, Bilingual and Biliterate, and High School Graduation.

With the Project-Based Learning pedagogy established, the Design Review Committee (DRC), comprised of high school and district staff, along with community members, was created to provide input and guidance to the design team as the concept design was developed. Working closely with the DRC, the design team created "Statements for Success" that were developed into the Guiding Principles. These were used to evaluate design concepts and provide measurable goals that become the checklist for the DRC and the district to evaluate the design throughout the process. The guiding principles that supported a learner-centered environment included:

FUNCTIONAL SPACES

Creating spaces that provide flexible and adaptable facilities that support changing educational needs while inspiring creative problem-solving.

STUDENT SPACES

A variety of spaces that foster a sense of belonging and provide multiple means of showcasing student work.

ACHIEVEMENT

A school that provides a variety of spaces for students to engage in authentic and rigorous learning that feeds their passions and prepares them for their futures.

COMMUNITY

Creating community connections that honor the unique culture, history, and traditions of the Highline Community.

A secure entry off the west courtyard leads into the heart of the school - the commons.

WELCOMING
A building design that incorporates and conveys the school's mission to the community.

SUSTAINABLE
A school that is a teaching lab where students become stewards of the environment by interacting with the building and the landscape.

SAFETY
The design will provide a safe environment that is accessible and inclusive through visibility, which is organized in a way that imparts a sense of ownership in students, staff, and community.

OUTDOOR SPACE
The design will incorporate an inviting outdoor environment that gives students spaces for collaboration and performance, having a variety of materials, scales, textures, and prospects.

COLLABORATION
The collaborative space will empower the faculty and students to have the diversity and resources to solve problems successfully.

The final design responded to the Educational Vision and the Educational Specifications by placing the commons at the heart of the school, providing a central gathering place for students and community events. A central ceremonial entry on the north, a student and public entry off the west courtyard, and an active student and staff entry on the southeast with a large outdoor space provide a limited number but a good variety of campus entry points for student safety and security. The overall design concept is based on a series of learning clusters which integrate academics, inclusive education, and CTE programs. This also allows flexibility and adaptability in building systems and learning spaces to accommodate natural evolutions in the educational delivery model.

Unlike learning communities that are often grade-based, at Highline, students and subjects are dispersed throughout the building. Each learning cluster features four classrooms, up to two science labs, one CTE classroom, one teacher collaborative planning space, one student seminar space, and a central learning commons. This design of dispersed subjects supports Project-Based Learning and allows students and teachers to collaborate on a variety of subjects to support their projects. For example, the science teacher works with the ceramics teacher to teach about the chemical reactions that occur while glazing ceramics. This teaching model creates the opportunity for impromptu and cross disciplinary learning which encourages exploration and individual study.

The new Highline High School successfully integrates the DRC Guiding Principles in a manner that propels the school into the 21st Century as a national model for secondary education with small learning communities.

Top: A learning commons within a learning community encourages collaboration or individual study. Bottom: Students arrive for school at the south secure entry through the courtyard.

Career Technical Education

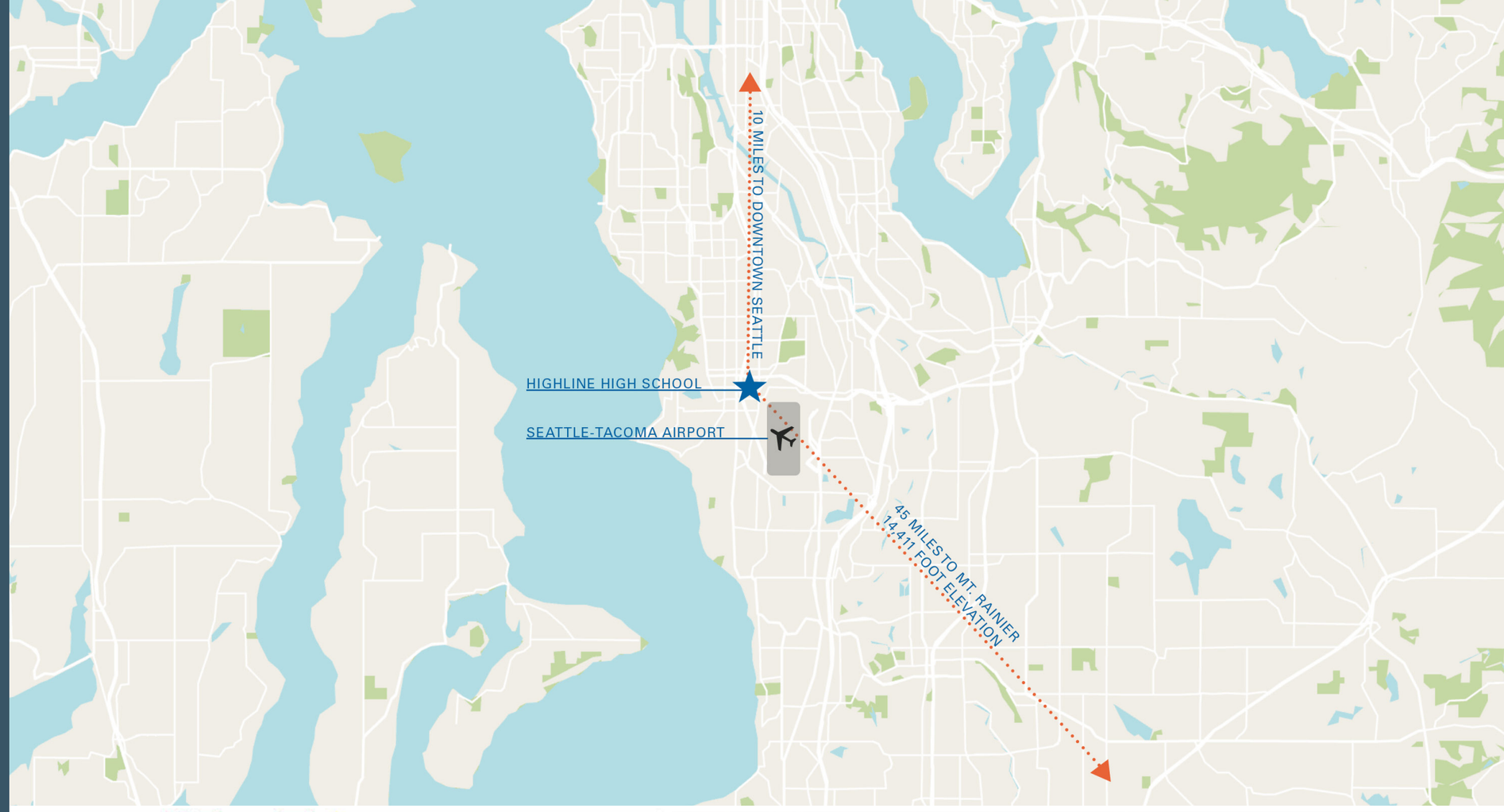
In the new wood shop at Highline students learn about woodworking and construction.

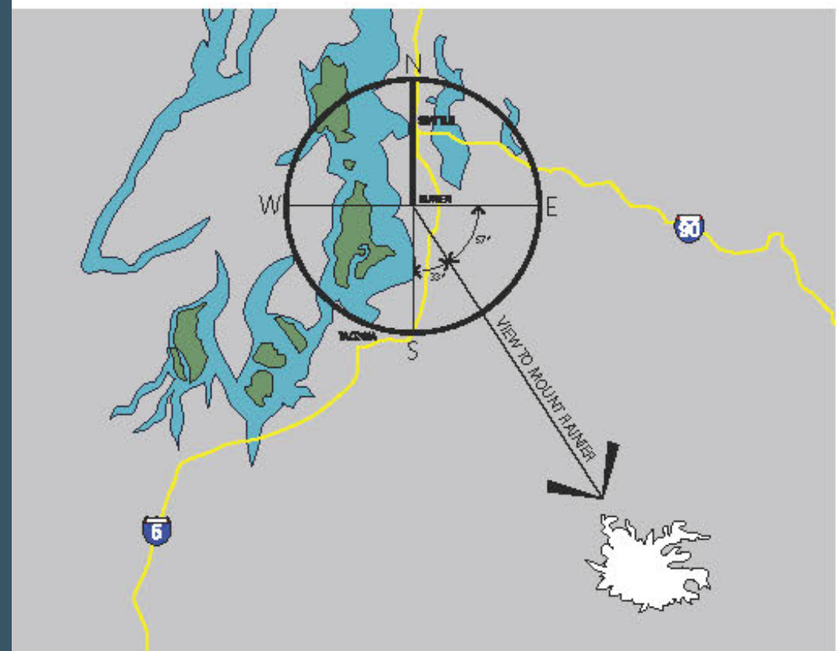
PHYSICAL ENVIRONMENT

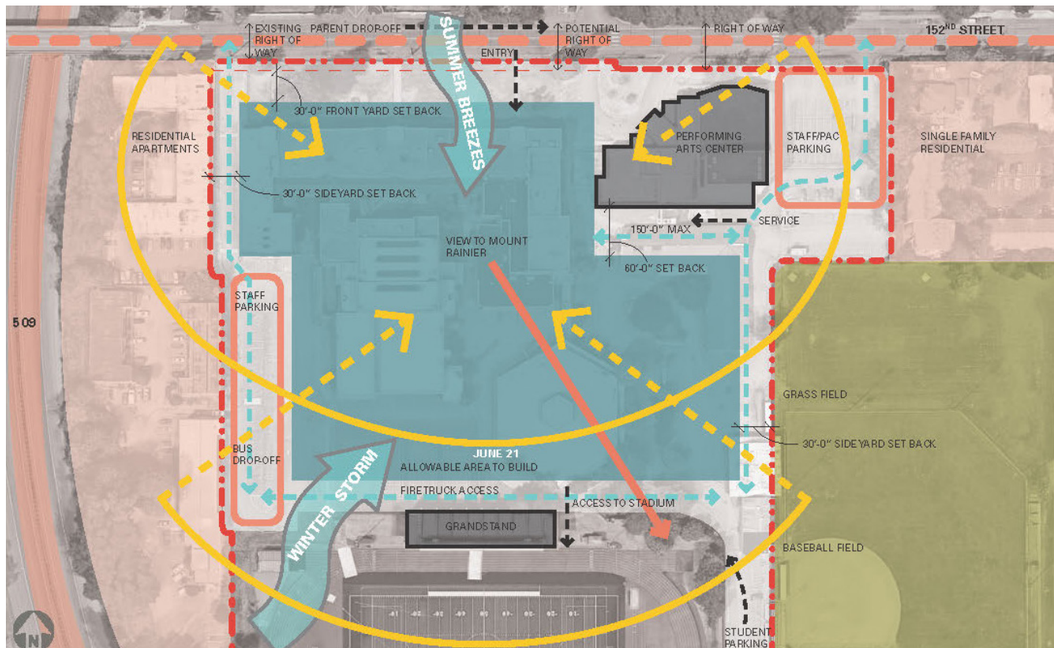
Located in Burien, Washington, approximately 3.5 miles from the Seattle-Tacoma airport, the new Highline High School resides in a community known for its multitude of parks, Puget Sound waterfront, Lake Burien, and views of Mount Rainier on a clear day. The school's adjacency to Mosier Park provided an opportunity to support athletics and recreation activities.

The orientation of the building was designed to take advantage of views of Mount Rainier; provide connections to the adjacent stadium and field; and watch the take-off and landing of planes at SeaTac Airport. Noise mitigation was a priority given the proximity to the Airport and Highway 509 just west of the campus. Coordination with Burien Parks & Recreation led to shared spaces for the Parks before and after school programs and new tennis courts at the Sunnydale Elementary site on the adjacent block are used by Highline students and the community. In addition, the Moshier Park Community Center parking lot was improved to provide better access from the parking lot to Highline Memorial Stadium.

Surrounding elements were used as inspiration in the design of the new Highline High School.







Retaining Historic Significance

Constructed between 1923 and 1928, Highline High School's presence became a beacon to the importance of education in the community for the next century. The district valued the historic significance of Highline High School to their community and remained committed to retaining the look of the original building in the replacement school design.

After contractors evaluated the construction of the 1920's north wall and the soil conditions, they concluded that it was not financially feasible to shore up the original north wall and keep it intact. The north wall of Highline was constructed of brick veneer (one brick thick) on a series of structural back-up materials, include wood framing, concrete, and solid brick masonry. Due to the variety and age of the structural backing systems, the cost to reinforce the wall with pilings and install a new foundation was determined to be prohibitive.

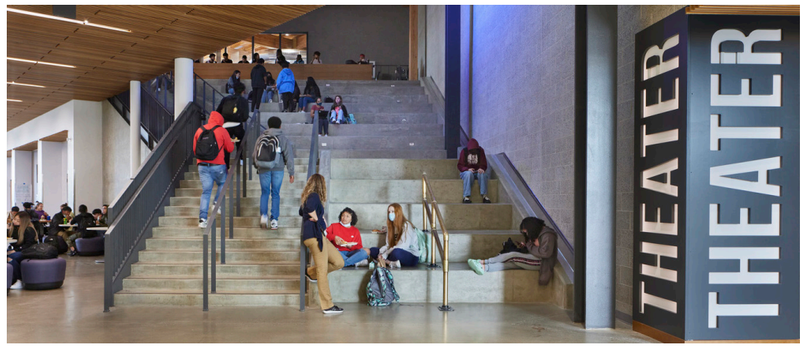
The project team recommended that, instead of attempting to keep the wall intact, the new school would honor the look of the original building by recreating key portions of the facade, using salvaged materials as much as possible.

Key parts of the façade such as the terra cotta ornament were retained and reinstalled to reflect the historical look of the original building. The new north façade incorporates a terra cotta entry salvaged from the original building and features a salvaged and restored stained glass "Pirate Window" in the entry vestibule – a nod to the school's mascot.

Additional elements salvaged included a portion of the original gymnasium floor with the school's Pirate mascot. This is now proudly displayed on the wall of the new gymnasium. Terra Cotta busts depicting key historic figures from the north entry wall were salvaged but have not found a new home for display to date. A handrail installed at the base of the new learning stair is from the original building interior entrance stair.

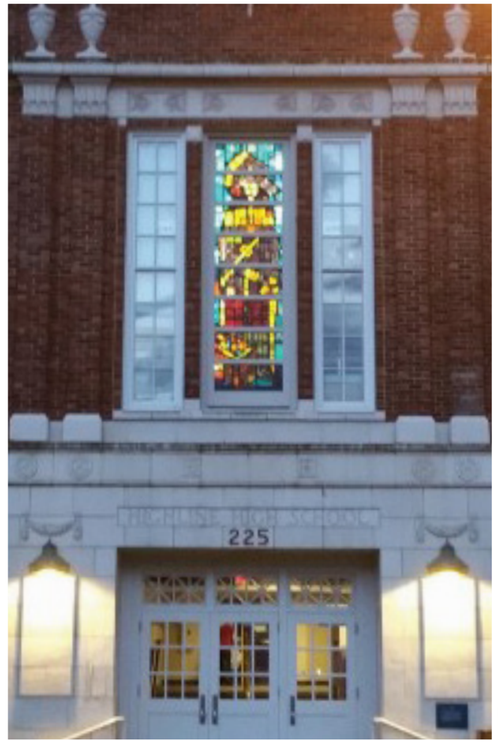
The original Highline High School entry prior to demolition.

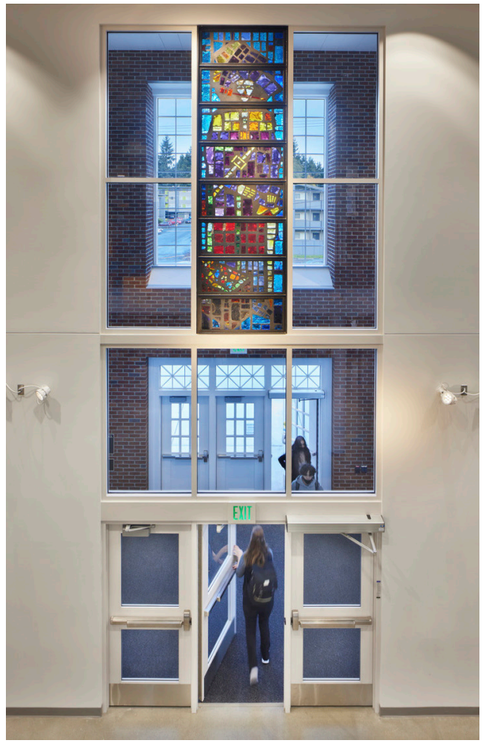
The replacement school retains the look of the original building. Terra cotta was salvaged from the original school and used for the new entry. The original brick was intended to be salvaged but it was discovered they contained asbestos.



A brass handrail was salvaged from the original school and used at the learning stairs.

The Pirate mascot from the original gymnasium floor was retained and now hangs on the wall of the new gymnasium.





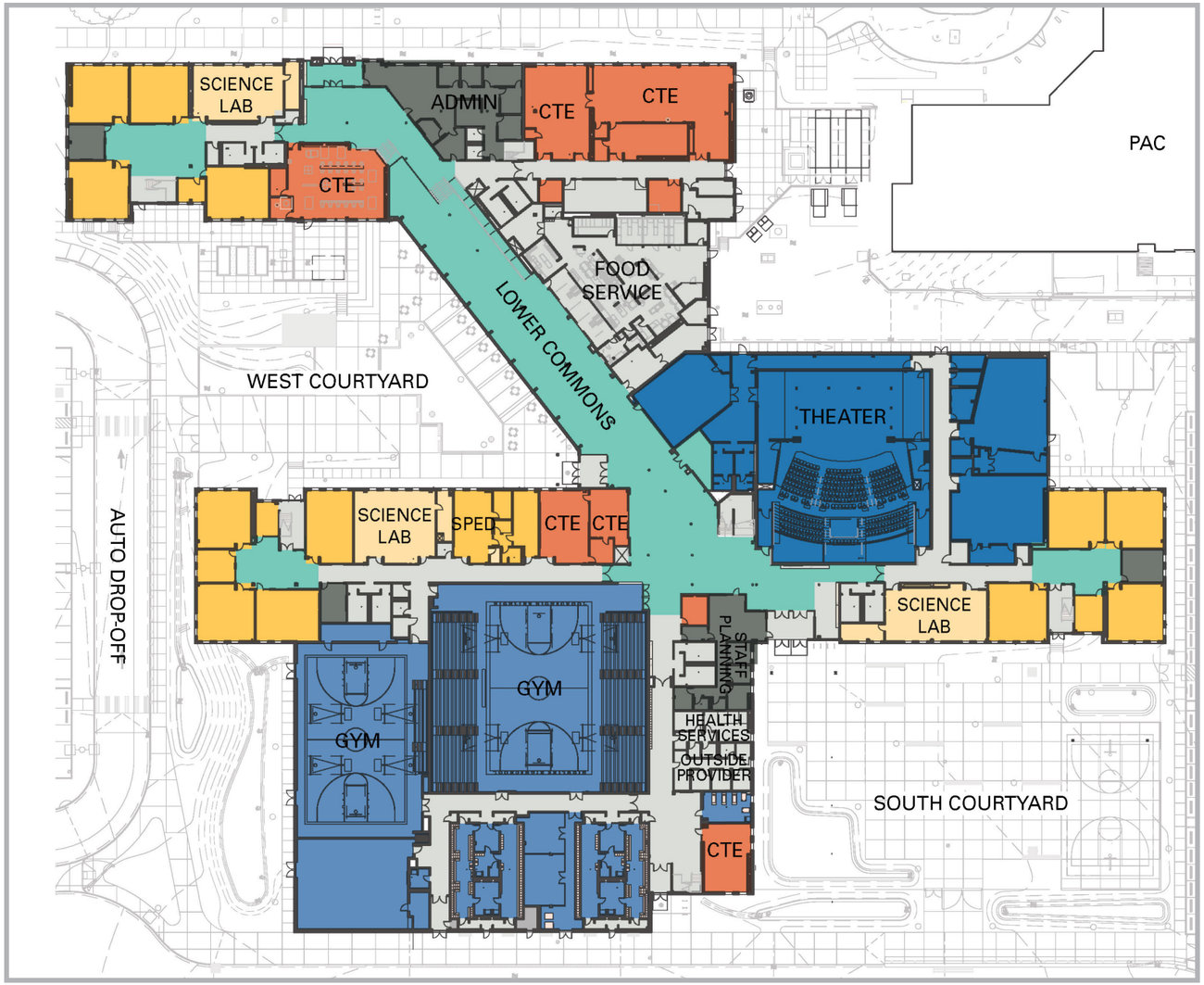
The stained-glass Pirate window was originally visible at the north entry. The Pirate was salvaged and placed within the secure vestibule of the replacement school.

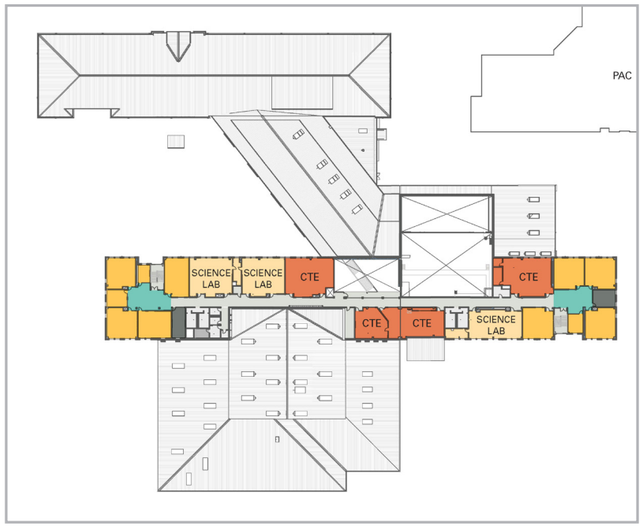
Building Layout

The new school is designed as two parallel bars of learning communities with the primary public entrance into the north bar, and the main student entry into the south bar – adjacent to the bus drop, stadium, and the athletic fields. Connecting these two bars is a linear commons with student centered program elements such as food service, the library, and theater. The learning community bars are configured to create two secure outdoor areas, a west facing courtyard adjacent to the commons that serves the main student drop zone for parents, and a larger southeast facing plaza adjacent to the bus drop zone, athletic facilities and the neighboring Highline stadium. The central linear commons is located at the heart of the school, providing ample space for student and community gatherings and as the lobby space for performing arts and athletic events.

To foster inclusion and belonging the design focused on creating a variety of small and large student gathering spaces. For example, while the centrally located commons creates a space for large gatherings during lunchtimes on the ground floor, the second floor features bar and high-top seating, booth seating, coves with flexible furniture for small groups, and a learning stair with myriad seating options. This provides students with multiple and various opportunities to observe or engage to whatever degree they are comfortable.

ADMIN / STAFF PLANNING
CIRCULATION / SUPPORT
CLASSROOM
SCIENCE LAB
SPECIALTY / CTE
COMMONS
PERFORMING ARTS
PHYSICAL EDUCATION





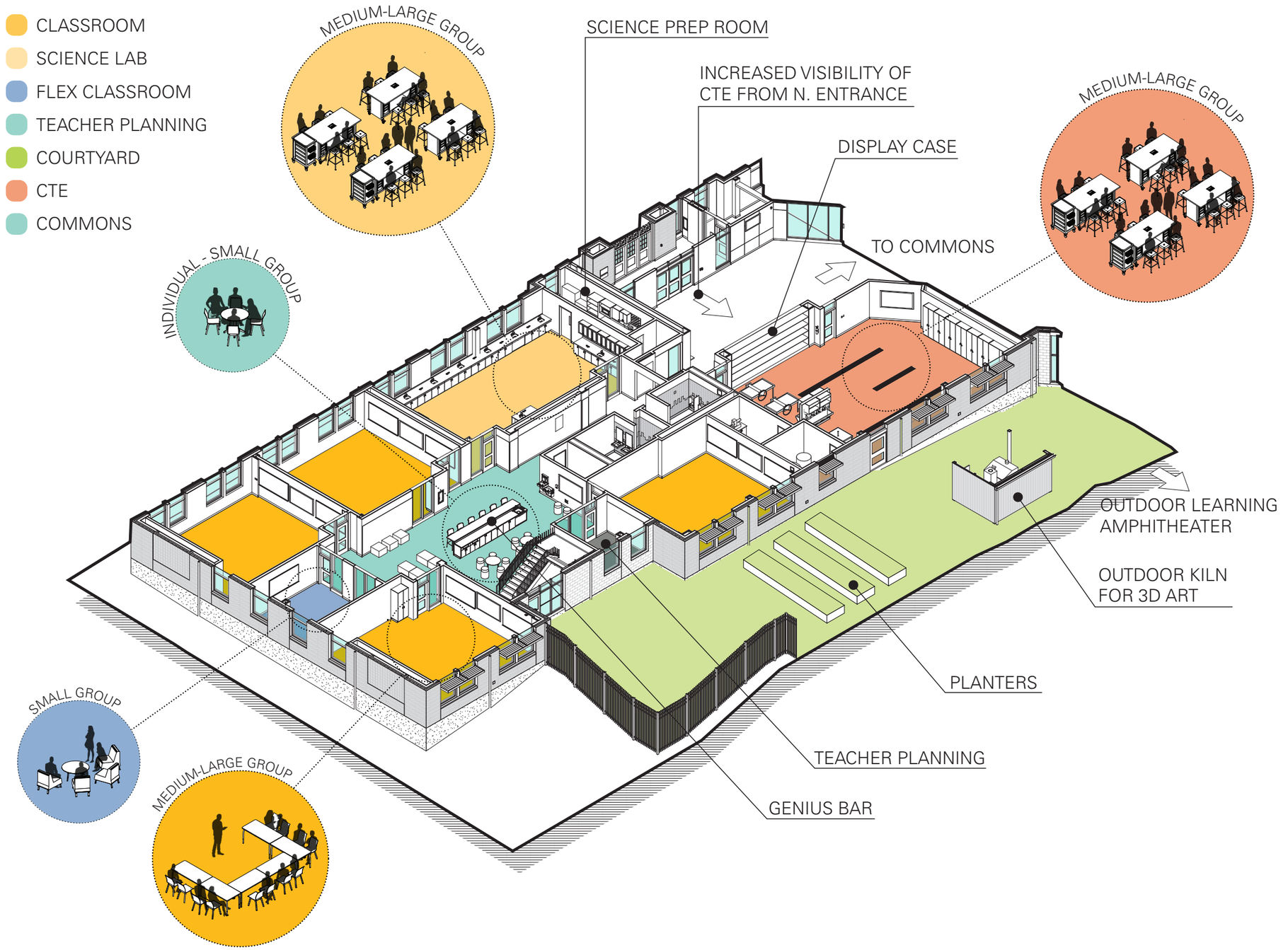
Performing Arts

The new theater celebrates the long history of Highline thespians and is adorned with custom wood paneling that supports a variety of performing arts.

Learning Communities

The floorplan is expressed as a series of learning communities or pods to reflect the educational vision and goals of the school. General classrooms, seminar rooms, a teacher planning area, small classrooms, and dedicated science labs are clustered around a small learning commons. Each small learning commons features a “genius bar” and moveable furnishings, tackable wall surfaces, display screens and whiteboards for students to work, collaborate and present in small groups. Teachers and students in adjacent classrooms have the option to spill out into these spaces for additional teaching and learning opportunities. Within individual classrooms, ample daylighting and technology support varied and flexible seating layouts that encourage adaptable pedagogies and approaches to teaching and learning.

Perhaps most notable about the design of the learning communities at Highline, is the equal billing that Career and Technical Education (CTE) is given to traditional academics. The Design Review Committee coined the phrase “Romancing the Trades” and used it as the jumping off point with the design team as we strategically distributed the CTE spaces throughout the learning communities. These spaces are also put on display from the building exterior, the main public entrance, and the commons, and feature opportunities to showcase student work. To further support interest in the CTE curriculum, relites are placed in the wall of the boiler room with explanatory graphics so that students can see the mechanical equipment and begin to understand and identify portions of that equipment. The open ceiling and visible glu-laminated structure and wood ceiling of the commons also offers a glimpse into the “how is it built” side of architecture and engineering – two professions that are highly reliant on CTE career fields. The organization of the school by dispersed subjects allows cross-disciplinary learning to occur, supporting curiosity and showcasing the interconnection between traditional academic subjects and CTE.



Romancing the Trades

CTE classrooms in Learning Communities are highly visible to inspire passersby as they view ongoing classes.

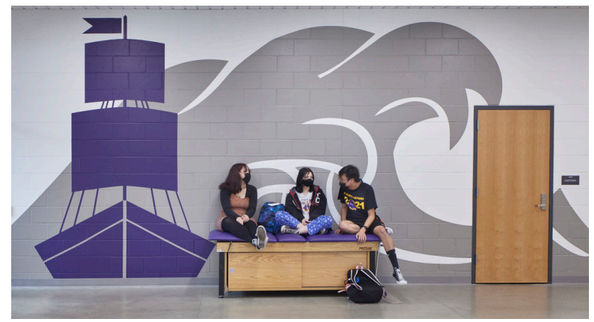
Community-Inspired Branding

The interior and experiential graphic design concepts were inspired by the DRC who suggested a multi-cultural Market Place theme. As visitors navigate the school they are greeted by the colors and patterns one might see in a market. Earthy tones found in the graphics, paint, carpet, wall panels, casework, and tile mimic the natural dyes one might find in custom fabrics or mounds of spices. The yellow and purple school colors are integrated throughout to instill a sense of Highline Pirate pride.

Experiential graphics at the north entry, outside the gymnasium, and the Pirate's Cove student store were inspired by a loom. A timeline or color varietion across the bands mimic a piece thread weaving in and out of the tall loom bands.

The boiler rooms provide an educational opportunity by featuring graphics that identify equipment beyond the window.

The reception desk welcome students, staff, and visitors in a variety of languages.



The nautical theme is displayed throughout the school.

Sustainability

The new Highline High School maximized sustainability opportunities where available. The commons structural system utilizes timber framing with glue-laminated columns and beams; wood decking, and purlins for a biophilic approach to structure that reduces embodied carbon. Indoor air quality is a key element of the design with ducted HVAC returns to avoid dust and microbial growth associated with plenum returns; 4" MERV 13 filters are provided at air handling units; and each classroom has individual controls. The project uses energy efficient Active Chilled Beams as the HVAC system for classroom and office spaces. The system delivers 100% outside air, keeping carbon dioxide and indoor pollutant levels to a minimum. Exhaust air is run through a flat plate heat recovery unit to minimize energy loss.

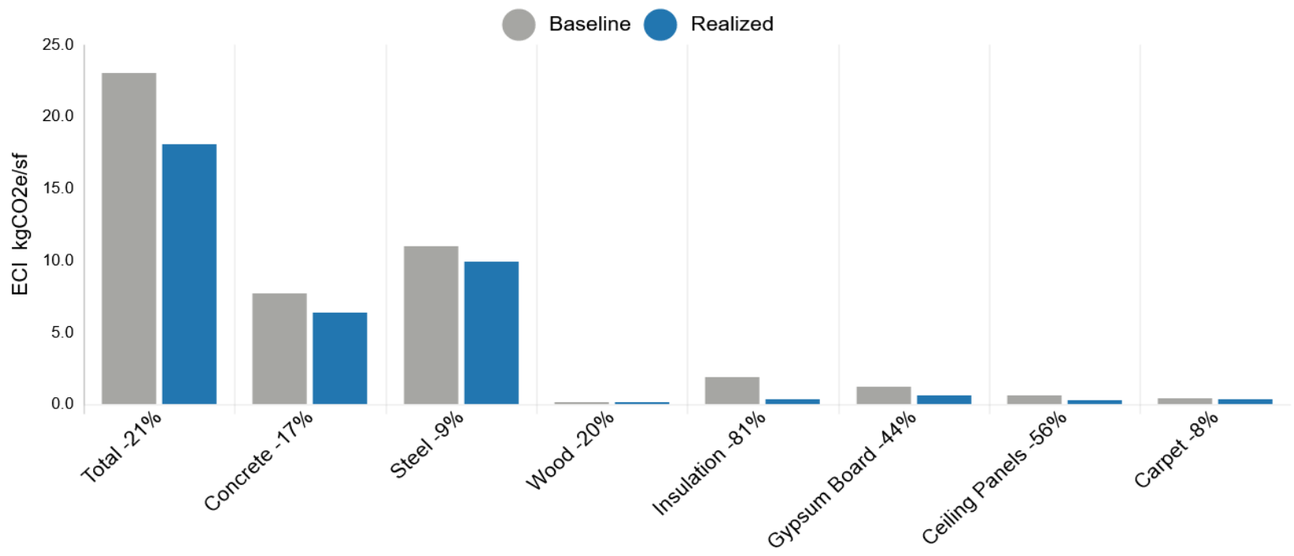
Sustainable materials were used and confirmed by requiring Environmentally Preferable Products and Health Product Disclosures (HPD's). Special attention was paid to selecting materials with low emissions of volatile organic compounds (VOC's). The project also includes reused artifacts from the demolished historic building.

The building and landscape treat stormwater on site and reveal the connections to clean water and protecting salmon and other wildlife. Stormwater gardens are featured in the main landscaped areas. Native and drought tolerant plantings are featured throughout the site. Exterior irrigation water use reduced by 50% below baseline.

The building and site design take advantage of daylight and solar access. Daylighting was modeled and analyzed extensively during design. The classrooms, commons, gym, art and CTE spaces were all studied to bring in optimal daylight.

Top: The west courtyard faces the commons and is surrounded by stormwater gardens. Native and drought tolerant plants are featured throughout the site.

Embodied Carbon Intensity (kgCO2e/sf)



The commons features timber framing with glue-laminated columns and beams; wood decking, and purlins for a biophilic approach to structure that reduces embodied carbon

ENERGY PERFORMANCE
is 20.2% better than 2015 Energy Code baseline. 55% less than the 2030 Challenge baseline.

TIMBER
The commons structural system utilizes timber framing with glu-laminated columns and beams; wood decking, and purlins that reduces embodied carbon.

PV
The building is Photo-voltaic (PV) ready with roof structure, conduit and panel space for inverters provided. 100KW of PV is now being installed.

POTABLE WATER REDUCTION
Potable water use is reduced by 37% beyond the baseline by using low flow fixtures.

WSSP
The project is targeting 66 credits in the 2015 WSSP Version 2 checklist. Exceeds minimum of 45 points.

RESULTS OF THE PROJECT

As a nearly 100-year-old school, Highline's history has a strong school culture that is reflected in the passion with which alumni and students talk about their school. From the onset of the design process, it was clear that the school building itself held as much importance to the community as the teaching and learning that happened within. To many, replacing the old façade with a new, non-congruent design would have been akin to tearing apart the Highline school community itself. Although the original was not able to be safely restored, using the proportions of the north façade and re-purposing the terra cotta elements gave the community the 20th century beacon that it remembered while creating a design fit for a 21st century education.

For the student body at Highline, equity, diversity, inclusion, and justice begin with the district, faculty, and staff and their commitment to their students. Highline's tangible support of CTE as a career allows for students who may otherwise feel marginalized by traditional academics to feel supported. The new building serves as the vessel for the CTE and project-based learning model. Whether it be a math or science class, or a woodworking or robotics class, it is given equal billing throughout the building. This invites students to try skills they may not been otherwise exposed to – skills that translate to becoming valuable members of the greater Highline community.

This community connection was a critical factor in the design of the new school and became the jumping point for design conversations. Students were a part of the design process – providing input into what they loved about their school and about spaces that would benefit them. This helped to instill pride of ownership in the new building and create spaces that all students would feel welcome.

> "It's gorgeous. And that's an understatement. We've been flooded with positive early reactions from staff, students, community and alumni to the beautiful rebuild of a school with nearly 100 years of history, delivered on time and within budget."
>
> – Scott Logan
> *District Chief of Operations, Highline Public Schools*

Top: The library design carefully aligned with windows to the second floor commons and adjacent windows to the outside. Daylight and views of the commons timber create biophilic ties. Bottom: Student transition to class among the timber.