

HIGHLINE HIGH SCHOOL

Highline Public Schools | Burien, WA



EXECUTIVE SUMMARY

A Modern School Celebrating its History

Three powerful concepts shaped the new Highline High School – community engagement, project-based learning, and contextual place-based design.

Both the vision and the outcomes of the new school stemmed from discussions with the community. Public input launched the project through a district-wide examination of facility needs and bond strategies. A community-based Visioning Workshop set overarching goals along with learning objectives and strategies to accomplish the goals. Finally, the school-based Design Review Committee outlined Guiding Principles that ultimately led to the design of the school. At each step, careful listening, earnest communication, and synthesized responses were used to gather community input and develop a school that focuses on the needs and aspirations of Highline students and their families.

The District Strategic Plan includes the following promise: EVERY STUDENT in Highline Public Schools is known by name, strength and need and graduates prepared for the future they choose. Highline is a school that celebrates learning by doing. Project-based learning studios are distributed throughout the campus to provide both hands-on and traditional academic learning paths for every student. The school is organized into small-scale clusters, or learning communities, to enhance safety, collaboration, and rigor focused on the goal of student achievement.

The layout of the school grew from a comprehensive response to place. A central spine housing the commons and library doubles as the main circulation path that unites the disparate program elements of the school. The grand two-story hub, clad in wood and bathed in warm light, embraces students and community alike. The angled space (focused on views to Mt Rainier) connects the neo-classical civic entry on the north to the more informal southeast entry opening onto a vibrant student plaza. A west facing courtyard, accessible off the commons and several of the learning communities, compliments the assemblage with a more learning focused outdoor space.

The Highline building and site take design cues from community lessons in resilience. Organized as parallel east-west bars connected by an angled spine, the structure receives excellent daylighting while creating a variety of outdoor spaces that enhance community presence and use. Following impassioned public input, the design team explored preserving the original northernmost building and its historically significant north façade. Unfortunately, neither retention of the building nor the façade was seismically or financially feasible. In response to community advocacy, the north wing of the new school was designed to recall

Highline is a school that celebrates learning by doing. Project-based learning studios are distributed throughout the campus to provide both hands-on and traditional academic learning paths for every student.

the character of the much beloved original school. The new design reinterpreted the massing, masonry cladding, and rhythmic fenestration while incorporating a salvaged neo-classical entry portal to present a modern, yet historically resonant, primary entrance elevation to the community. From the historically contextual north wing, the building transitions to a more modern and sustainable character with efficient two- and three-story massing coupled with metal rain-screen cladding and delightful, yet functional, fenestration. The site planning effectively accommodates the complex circulation demands of a high school while creating distinct courtyards and plazas for student use. Visible stormwater systems and native plantings tell a story of stewardship.

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



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

Highline Public Schools serve 17,700 K-12 students at 35 schools from the communities of Burien, Des Moines, Normandy Park, Seatac, and White Center. Highline High School, one of four comprehensive high schools in the district, is the oldest secondary school, opening in 1924. Economically, 70.4% of Highline High School students are eligible for free and reduced lunch reflecting the medium to low-income working-class communities feeding the school. The school welcomes students from widely diverse backgrounds with roughly 83.5% minority representation. The demographic breakdown of students includes: Hispanic – 48.2%, Asian – 17.2%, White – 16.5%, African American – 7.7%, Two or more races – 6.2%, Pacific Islander – 3%, and Native American – .3%.

Stakeholder challenges for the replacement school were numerous:

- + Families in the attendance boundaries were committed to improving the graduation rate (77%) and shaping the curriculum to better meet learning needs and career opportunities for their children.
- + The local parks department wanted to coordinate numerous shared uses.
- + District-wide uses of the site included a performing arts center and a stadium. The widely used facilities required careful consideration of schedule, parking, traffic, and security requirements.
- + Major acoustic attenuation of almost constant noise from SeaTac International Airport just east of the high school site was a significant design and construction challenge.

- + The old school was much beloved by the community, graduates, and historic preservation advocates and there was considerable interest in preserving the historic north façade of the structure.
- + Last, Highline Public Schools had struggled passing improvement bonds. Older schools were showing the results of heavy use and too much deferred maintenance. Building public involvement and awareness was critical for moving forward.

Through an engaged and open planning process, the district turned its greatest challenge into an asset. In September 2015, Highline Public Schools convened the Capital Facilities Advisory Committee (CFAC) to develop recommendations for a long-term capital facilities plan. CFAC convened a wide range of community members (supporters and critics alike - ranging from parents, community activists, and business owners to local politicians and school board representatives) along with the design team to study facility needs and educational goals in order to develop a plan to meet the district's growth projections over a 20 year timeline. For over a year CFAC members met monthly and worked through a consensus driven process to unite voters who hadn't approved a school bond in over 10 years. The committee's work culminated in a successful bond measure on the November 2016 ballot for \$299 million. Included in the bond was the replacement of Highline High School.



EDUCATIONAL ENVIRONMENT

Student-Focused Project-Based Learning

The planning for the new Highline High School began with a three-day Educational Visioning Workshop. The 40-member Visioning Team comprised of students, teachers, administrators, parents, community members, municipal government representatives, business representatives, project managers, and the architectural team. Led by Frank Locker, an internationally renowned facility planner, the Visioning Team engaged in numerous exercises exploring teaching and learning, community partnerships, and best practices in 21st century education with the goal of shaping a vision for student success in school and beyond. Through the visioning process a Project-Based Learning (PBL) curriculum model emerged to address school and community goals as well as the district's 2018-2023 Strategic Plan. A focus on 21st century learning led to an adjacency diagram of the ideal learning environment for the new Highline High School.

Following the broad visioning process, two committees worked in parallel to develop detailed educational specifications and ongoing design guidance. Ongoing guidance and development of site-specific goals was provided by the Design Review Committee (DRC). The committee was comprised of students, teachers, administrators, parents, community members, managers, and architects. Through a series of twelve meetings the design team, working closely with the DRC, developed Guiding Principles along with a conceptual design. The Guiding Principles were founded on the five primary outcomes of the strategic plan: School Culture, Growth and Mastery, Digital and Media Literacy, Bilingual and Biliterate, and High School Graduation. The DRC reviewed the strategic plan goals and expanded them to address site specific challenges and priorities. The resulting Guiding Principles were subsequently used to both generate and evaluate the emerging school design.

GUIDING PRINCIPLES

FUNCTIONAL SPACES

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

STUDENT SPACES

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

ACHIEVEMENT

Develop spaces that support student engagement in authentic and rigorous learning that feeds their passions and prepares them for their futures.

COLLABORATION

Empower students and faculty to work collaboratively. Provide a variety of spaces and resources to solve problems successfully.

COMMUNITY

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

WELCOMING

Convey the school's mission within the community through the building design.

SUSTAINABLE

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

SAFETY

Provide a safe environment that is visibly accessible and inclusive. Organize the building to impart a sense of ownership for students, staff, and community.

OUTDOOR SPACE

Incorporate an inviting outdoor environment that provides spaces for collaboration and performance. Include a variety of materials, scales, textures, and prospects.



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.

EDUCATIONAL ENVIRONMENT

Following the articulation of Guiding Principles, the Programming Committee convened to shape specific criteria for the various functional requirements of the new school. The committee included teachers, administrators, managers, and architects. The educational specifications summarized learning and support spaces, allowable areas, and teaching stations. It also focused on learning activities, future trends, critical adjacencies, and the numerous systems needed to support learning including technology, lighting, acoustics, storage, materiality, security, equipment, classroom specialties, maintenance and furniture.

The overall design concept responded to the Guiding Principles and the Educational Specifications. The commons was placed at the heart of the school connected to a library/media center at the second floor via a grand learning stair. These linked central spaces are surrounded by eight clustered learning communities, a performing arts suite, a physical education complex, administrative support areas, and service areas.

The student commons fosters a strong sense of belonging, a place to showcase student work, and a secure heart of the campus for students and community alike. Distinct, welcoming entries give access to the commons. From the north, a new ceremonial portal recalls the terra cotta detailing of the historic school façade and welcomes student drop-off and pick-up as well as visitors. To the west a large, protected courtyard provides access to the core of the school from the parking areas beyond. The courtyard also supports outdoor dining, gardening, and learning activities. Another outdoor gathering area at the southeast corner of the school opens to the bus drop-off and student parking lots. The plaza also serves as a busy activity zone (basketball, mini-soccer, 'hanging out with friends') as well as a gathering space for events at the adjacent district stadium.

The eight learning communities, ranging over three stacked floors, integrate academics, inclusive education, and CTE programs giving each cluster a project-based learning focus accommodating a wide variety of teaching and learning styles. The combination of classrooms, science labs, and studios/shops supported by teacher collaboration areas, seminar rooms, and a dispersed student mini-commons, provides flexible and adaptable spaces at multiple scales throughout the building. The clustered spaces and their pliable environmental systems support more personalized and collaborative learning, opportunities to change curricular approaches (academies, departments, school-within-a-school, etc.), and the long term adaptability of the building to accommodate natural evolutions in teaching and learning. The cross-disciplinary learning opportunities embedded in the PBL clusters enhance authentic, rigorous learning preparing students for future work. For example, one of the learning communities hosts a robust ceramics program. Students with a passion for pottery can simultaneously learn about the chemistry of glazing, the development of ceramics through the centuries, or biographies of revered Native American ceramicists.

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

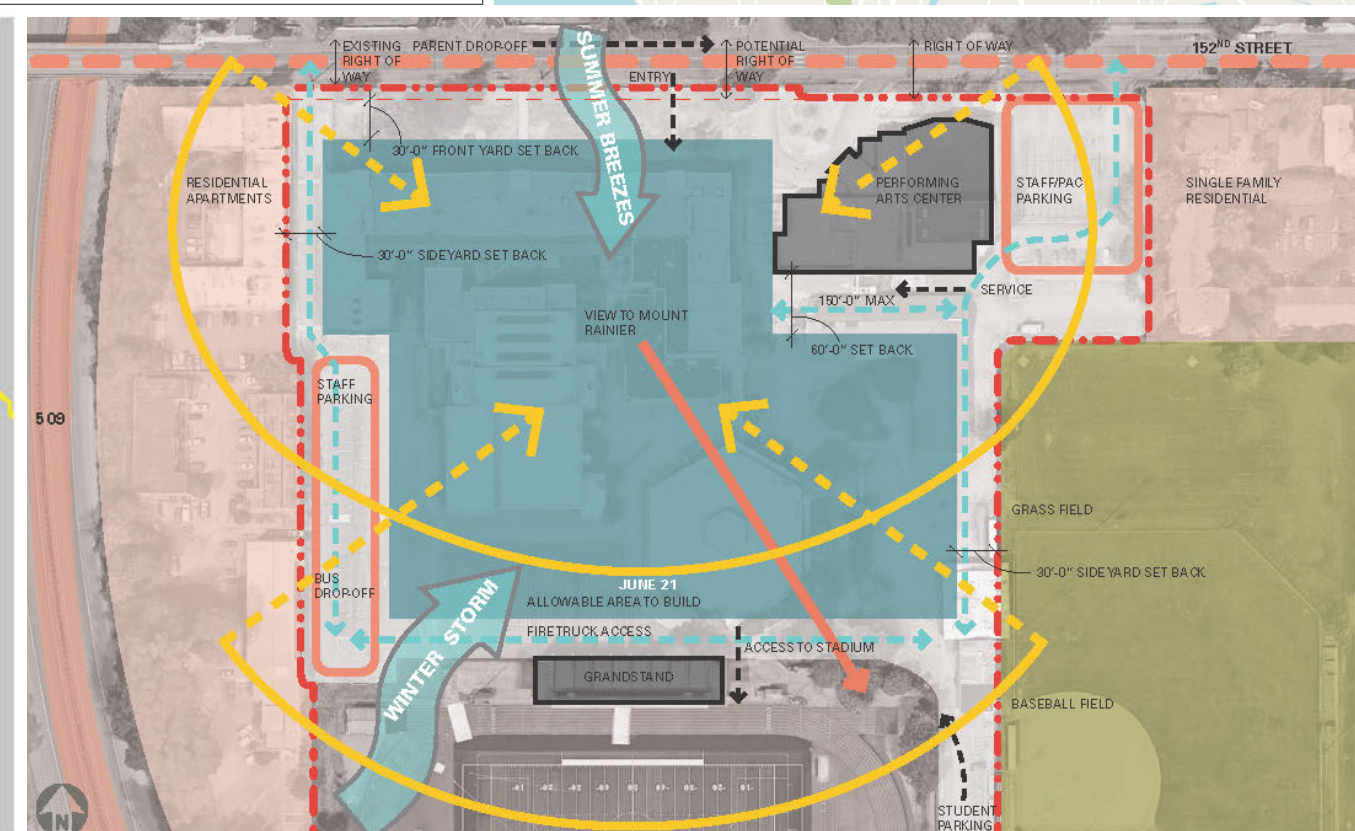
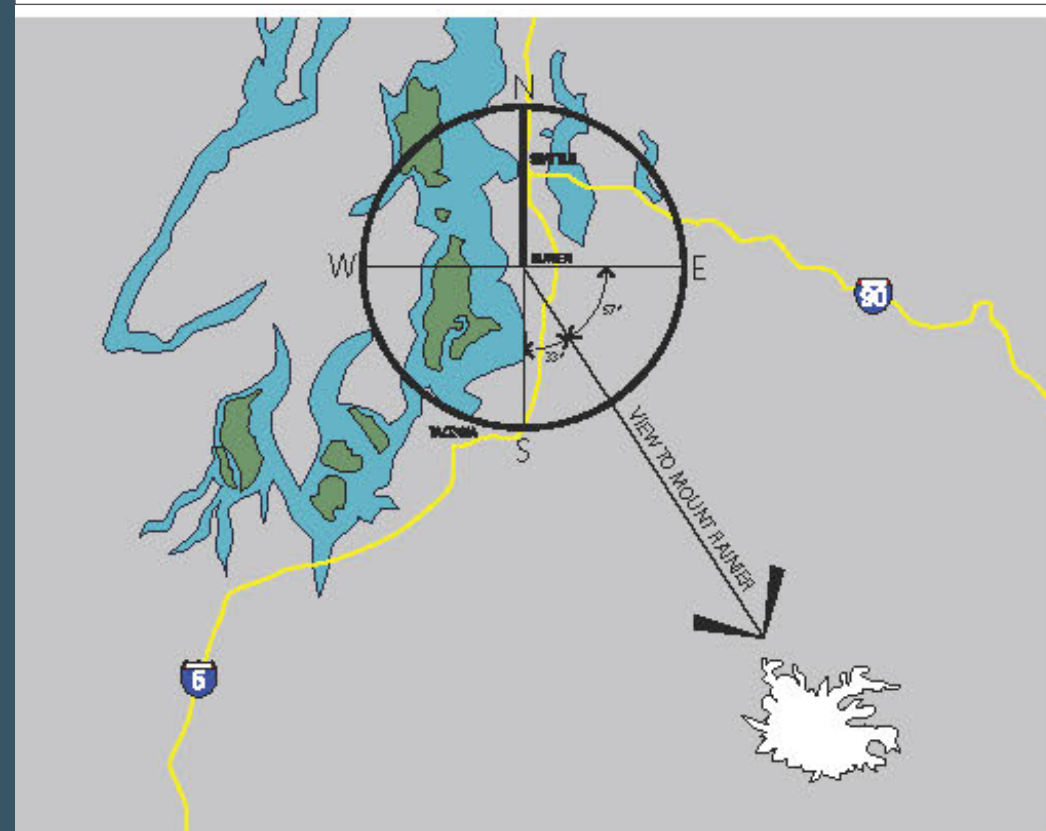
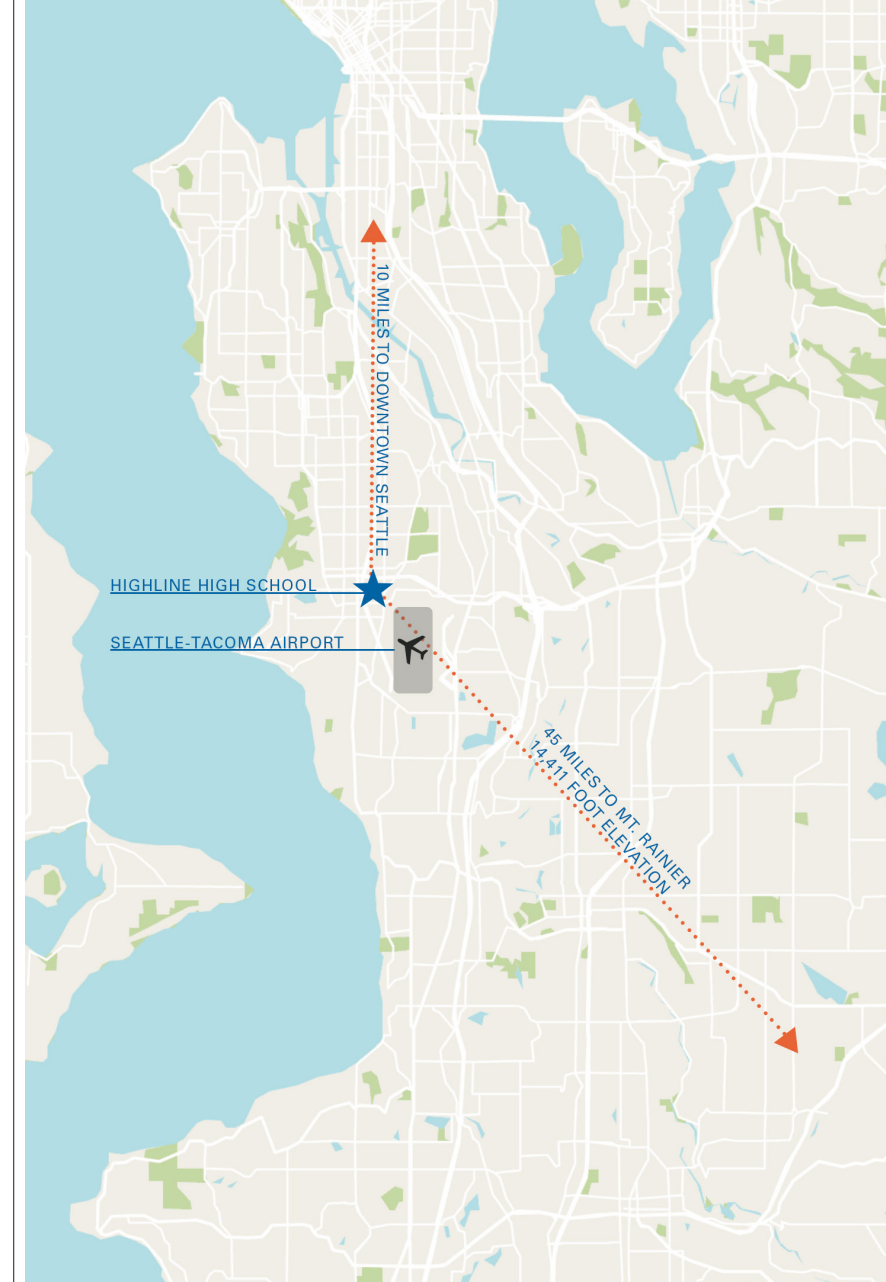
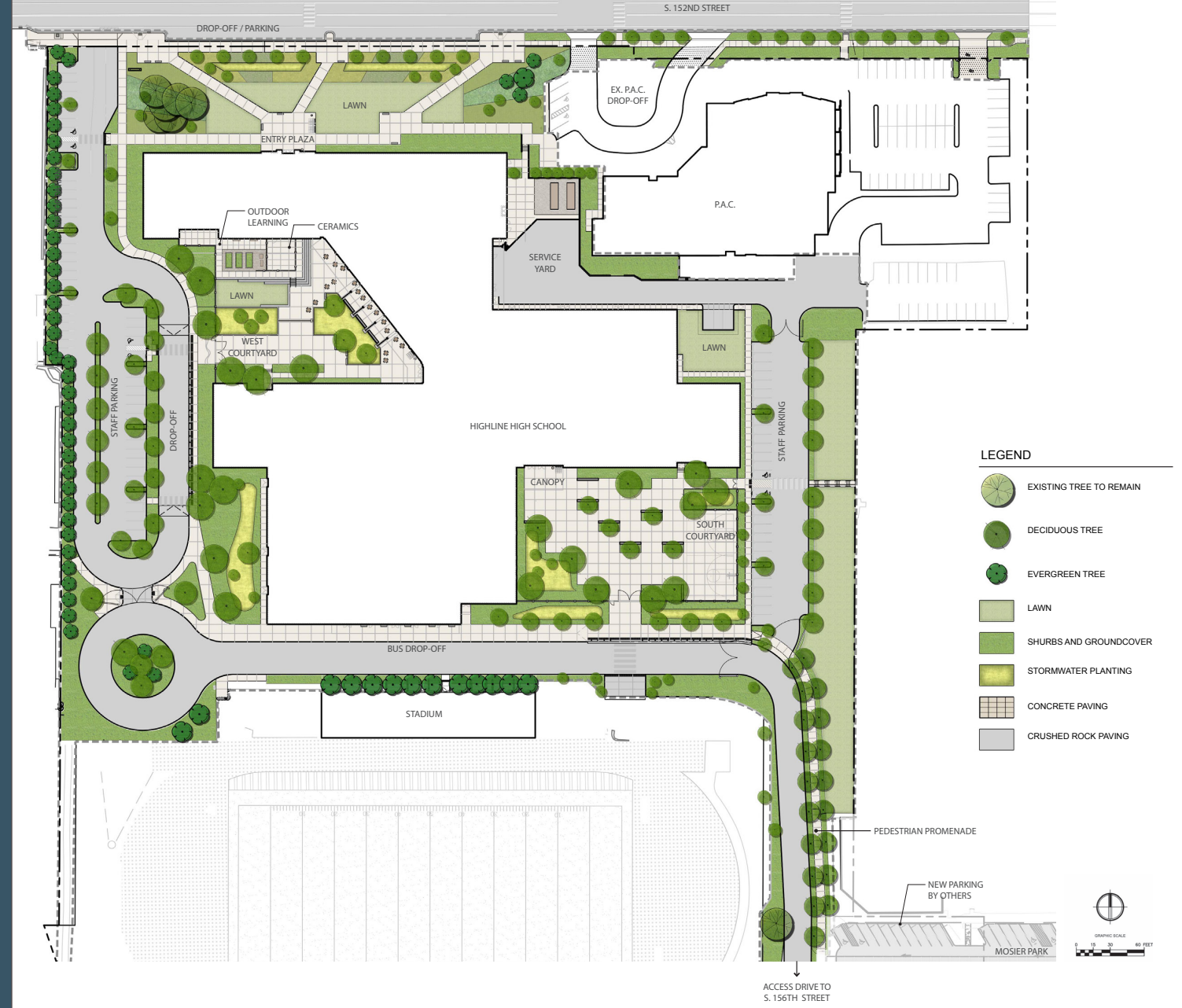


PHYSICAL ENVIRONMENT

Located approximately 1/2 mile from the Seattle-Tacoma International Airport and Burien Town Square, the new Highline High School resides in an area known for its parks, Puget Sound waterfront, Lake Burien, and spectacular views of Mount Rainier. Immediate neighbors include Moshier Park (providing athletic and recreational activities) and numerous multi-family housing projects. The high school shares the site with a district-wide performing arts center and stadium.

The orientation of the building was designed to take advantage of numerous environmental connections. Views of Mount Rainier shifted the central axis to the southeast; learning communities are oriented along east-west bars to take advantage of daylighting opportunities; the north façade recalls the historic presence of the school along S. 152nd St; a protected interior student courtyard embraces the warmth of the afternoon sun; connections to the adjacent stadium activate the student plaza to the southeast; the performing arts center and the competition gymnasium reinforce the primary student entry to the south; and co-located maintenance services are grouped along the east side of the campus away from public view. From the upper floors, students can watch planes take-off and land at the airport or look out on the landscaped fields of Moshier Park.

Critical adjacencies also shaped the school. Noise mitigation was a priority given the proximity of the airport to the east and a freeway just west of the campus. Coordination with Burien Parks & Recreation led to shared spaces for after-school programs, (including meeting, storage, and office spaces), new tennis courts (used by Highline students and open to the community), and parking improvements at the adjacent community center to ensure access for parks, school, performing arts, and stadium users.



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

Retaining Historic Significance

Originally constructed between 1923 and 1928, old Highline High School's presence became a beacon within the community acknowledging the importance of education. The district recognized the historic significance of the original school and was committed to either retaining the historic north façade or recalling its significance in the design of the new school. Following extensive evaluation of original construction, soil conditions, seismic stabilization strategies, shoring and piling methodologies, and costs, the decision was made to demolish the historic façade, salvage the primary historic terra cotta and brick portal, and rebuild the neo-classical entry to honor the heritage of the original school. In addition to the adaptive re-use of architectural elements, the design/construction team was able to salvage and relocate the historic stained glass "Pirate Window" in the entry vestibule – a nod to the school's mascot.

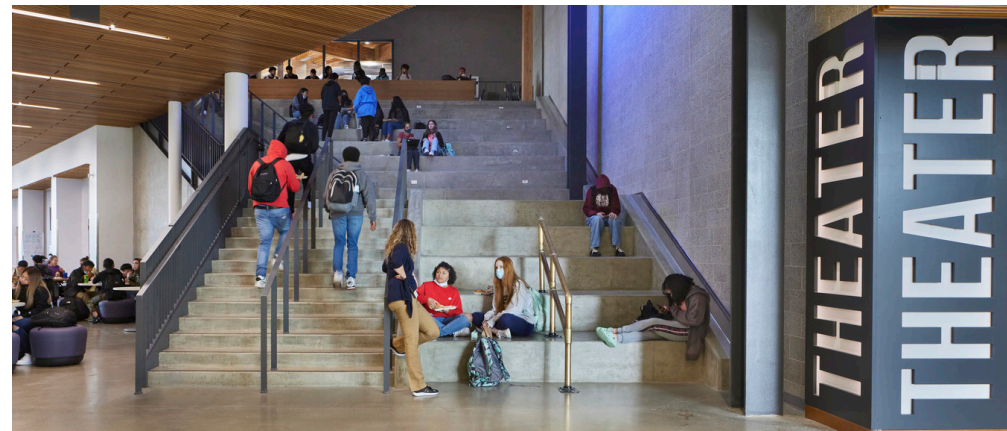
Additional elements salvaged included a portion of the original gymnasium floor with the school's Pirate mascot. This is now proudly displayed on the wall of the new gymnasium. Terra Cotta busts depicting key historic figures from the north entry wall were salvaged but have not found a new home for display 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.



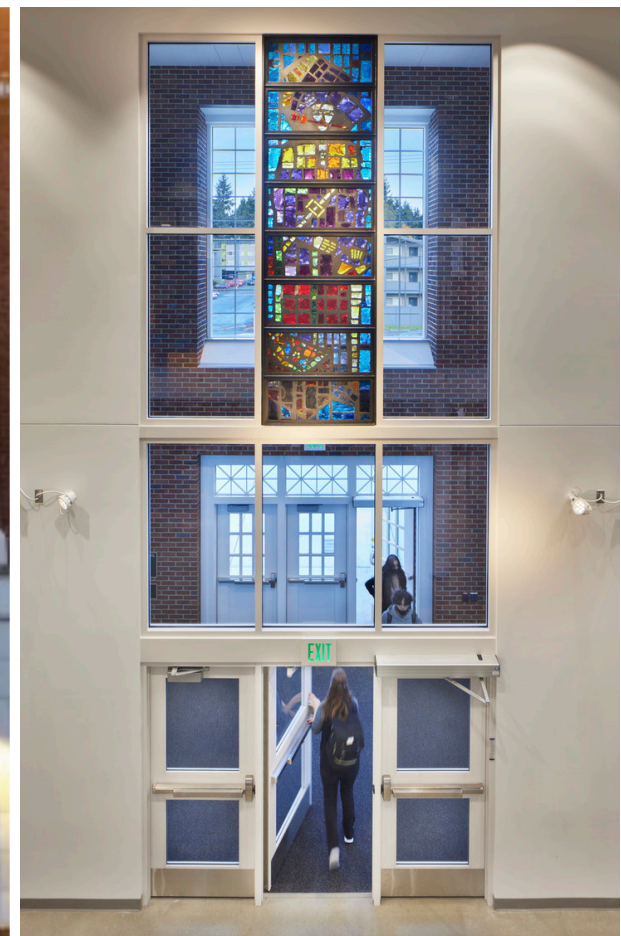
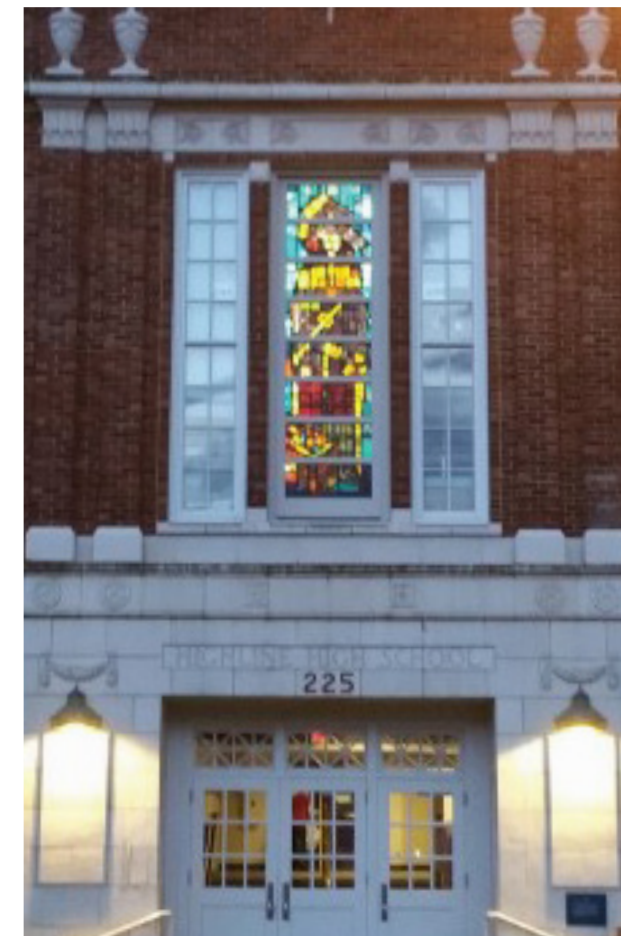
The replacement school retains the look of the original building. Terra cotta was salvaged from the original school and used for the new entry. The original brick was intended to be salvaged but it was discovered they contained asbestos.



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.

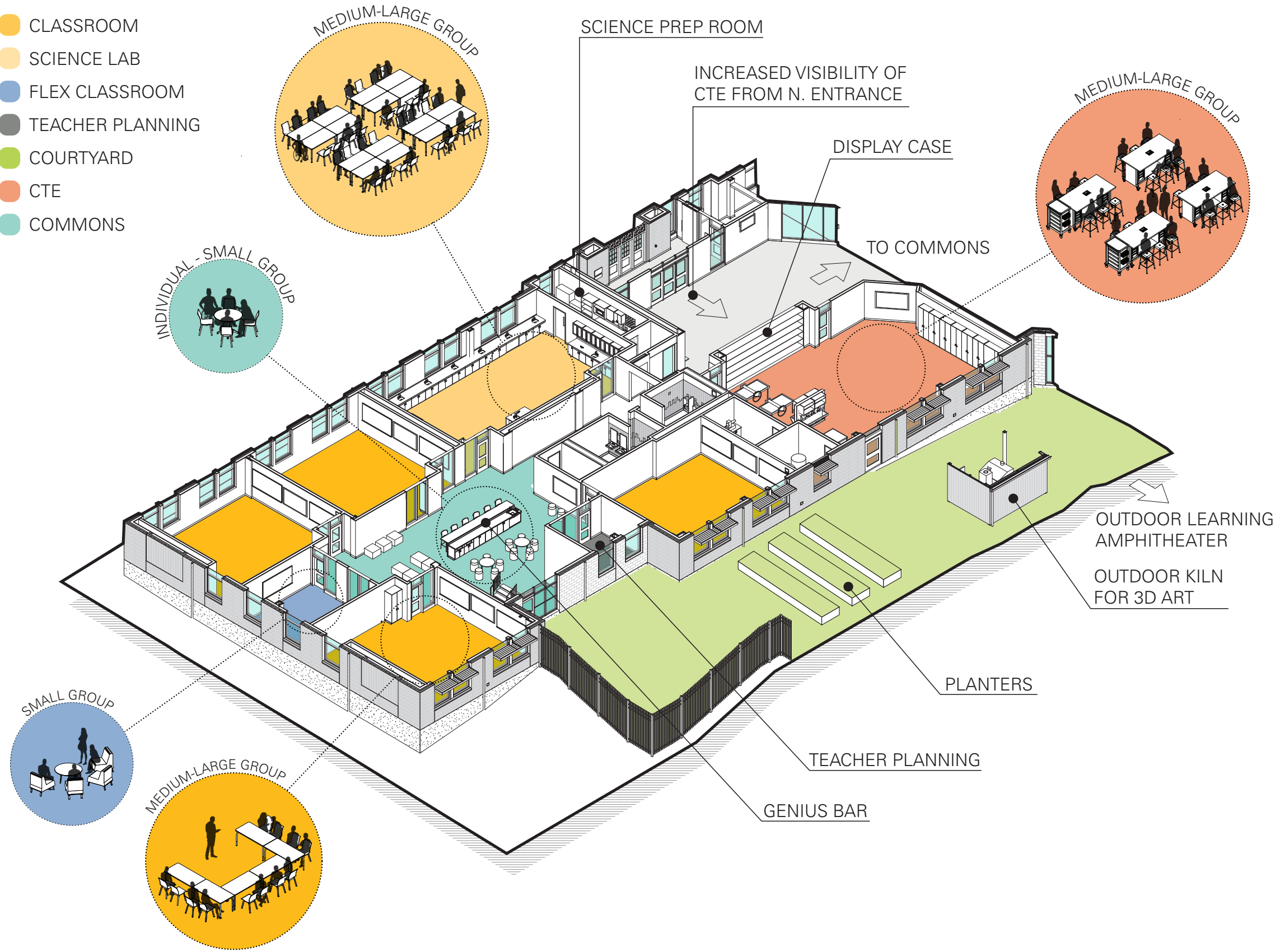
Inspiration and Motivation

Numerous aspects of the design help students stay focused and feel a part of a vibrant school community. From basic organizational diagrams to materials and finishes, student agency was of paramount importance. Examples of motivational and inspirational elements of the design were wide ranging.

- + To foster inclusion and belonging, the design focused on creating a variety of small and large student gathering spaces. For example, while the central commons accommodates large gatherings during lunchtime 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. These offer students multiple and varied choices in which to observe or engage to the degree they are comfortable.
- + Learning communities are organized in two parallel bars with an east-west orientation. Generous fenestration provides spaces with ample daylight, fresh air flow, and views to the adjacent park, neighboring airport, and distant mountains.
- + Each learning community is organized around a distributed student commons that features a "genius bar," moveable furniture, tackable wall surfaces, digital display screens, and whiteboards for students to work, collaborate, participate in small-group presentations, and display their 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 relative to traditional academics. The Design Review Committee coined the phrase, "Romancing the Trades," and used it as inspiration for strategically distributing the CTE spaces in highly visible locations throughout the school. The deep integration of PBL signals the value of all learning, whether a student is college bound or heading into the trades after graduation.

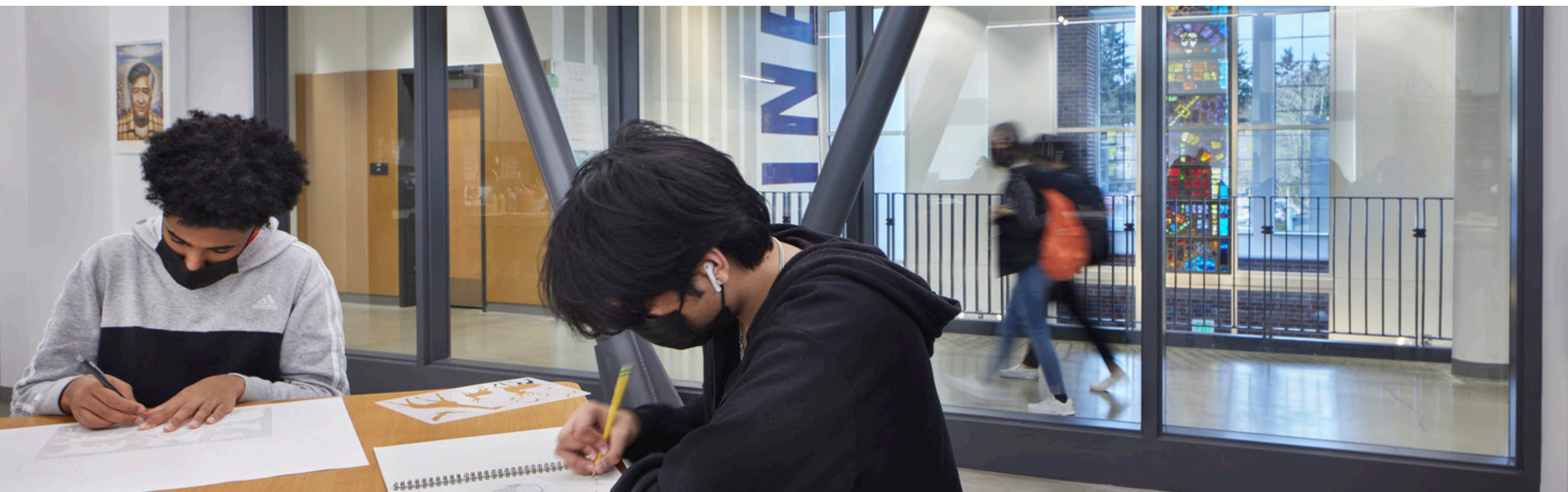
LEARNING COMMUNITY

- CLASSROOM
- SCIENCE LAB
- FLEX CLASSROOM
- TEACHER PLANNING
- COURTYARD
- CTE
- COMMONS



Romancing the Trades

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



+ CTE spaces are also displayed on the building exterior. The woodshop faces north adjacent to the main entry rather than being relegated to the back of the school. The ceramic studio commands a prominent location in the student courtyard, and performing arts dominates the southeast corner of the school utilizing the student plaza as an outdoor performance venue. In each case, the celebration and display of student work is used to inspire and motivate.

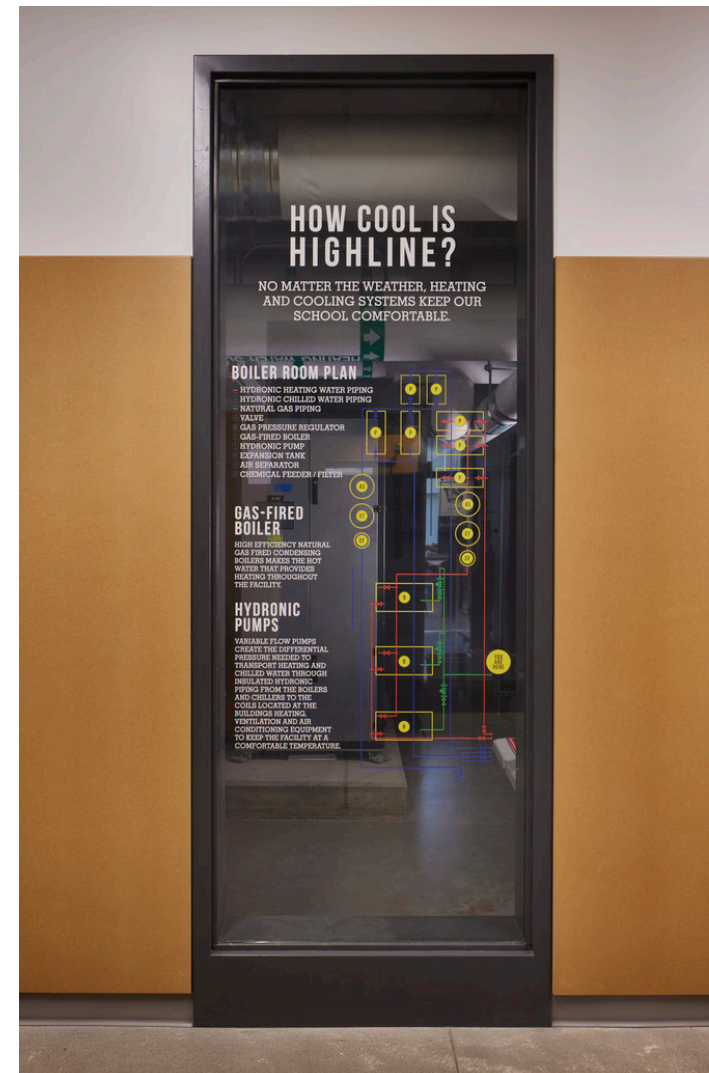
+ To further support interest in the CTE curriculum, relites are placed in the wall of the boiler room with explanatory graphics so that students can see the mechanical equipment and begin to understand how their school operates. Exposed structural systems in the commons, theater and gyms provide a window into the timeless, "How is it built?" question that inspires future contractors, architects, and engineers.

+ Biophilic materials, finishes, and detailing invite students to explore natural systems and help ease anxieties. The central commons and library with exposed glue-laminated beams, wood ceiling, generous daylight, rich textures, bold graphics, and gracious connection to a plant-filled courtyard helps students find the social/emotional balance so critical to rigorous learning.

+ The colorful experiential graphics throughout the school were inspired by a 'Market Place' theme. As visitors navigate the school, they are greeted by the rich hues and patterns one might see in a food or craft market. Earthy tones found in the graphics, paint, carpet, wall panels, casework, and tile recall the natural dyes one might find in handwoven textiles, mounds of spices, or displays of fruits and vegetables.



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 variation across the bands mimic a piece thread weaving in and out of the tall loom bands.



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



The nautical theme is displayed throughout the school.

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

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

PHYSICAL ENVIRONMENT

- + Yellow and purple school colors are integrated throughout to instill Highline Pirate pride. The gym is adorned with remnants of the historic maple flooring illustrating the pirate mascot.
- + The rich diversity of students attending Highline was recognized and honored. A welcome wall behind the main office reception desk greets students and families in over 25 languages. Room signage throughout the building celebrates four primary languages spoken in the homes of students (English, Spanish, Somali, and Vietnamese) as well as braille. Inclusive spaces for all learners were distributed throughout the campus. Special needs students could gain access to all areas and programs within the school to share in the general instruction or be assisted with specific learning aptitudes.
- + Each of the large gathering spaces at Highline – the commons/library, gym, and theater – provide an exceptional experience for the students.
 - » The commons/library forms the central spine of the school over two levels. As large gathering spaces, cozy collaboration nooks, and primary circulation routes, the multi-valent spine unites the school. Together the spaces embody a marketplace of people, experiences, and ideas. The vibrancy of social connections, comradery of sharing a meal, and thrill of discovering new learning draw students to the warm, light-filled, wood clad environment.
 - » The gym provides the largest gathering space in the school. Full of light, energy, and color.... the mighty Pirates rule!
- + The theater offers a different gathering experience. The dark interior is highlighted with a bold concrete proscenium and warm wood paneling. The magic of students exploring drama, music, or dance takes center stage.





The [design] team did an excellent job engaging staff, students and community from the initial visioning sessions to individual programming meetings to ensure all voices were heard. The result is a beautiful facility designed to serve our community for many generations to come.

Diana Garcia
Director of Ed Specs and Transition Planning
Highline Public Schools



Students have an impromptu study session in a breakout space.

RESULTS OF THE PROJECT

The goals and objectives of the project were summarized in the Guiding Principles and the design responded to each of them. **Functional spaces** formed the core of the learning communities. The clustered spaces were shaped to support both the 'opening day' curricular model and to adapt to future changes in educational methodologies. Providing a variety of spaces at a range of scales to support differentiated learning was at the heart of long-range flexibility. Additionally, the functional aspects of the design included durability, and ease of maintenance.

Fostering a personalized and collaborative learning environment was a fundamental component of the design. **Student spaces** encouraging a strong sense of belonging and pride in the work they accomplished shaped the project-based learning clusters as well as the central spine. Indoor/outdoor connections and activated circulation areas supported ideas that 'learning happens everywhere' and social/emotional well-being is integral to deep engagement.

Building on student passions to encourage **achievement** was the impetus behind the embrace of PBL and distribution of career and technical learning throughout the school. Providing students with opportunities to discover authentic

learning pathways that prepared them for future careers resulted in integrating classrooms, labs, and studios into small-scaled clusters, and showcasing student work throughout the school.

Powerful **collaboration** typically occurs while working on projects and/or in smaller groups. This resulted in PBL studios and shops coupled with a variety of smaller spaces being scattered throughout the school. Seminar rooms, distributed student commons complete with genius bars, nooks, and movable furniture all contribute to providing flexible spaces within the learning communities. School-wide the commons, media center, and outdoor gathering spaces all support various scales of teamwork to enhance planned or serendipitous collaboration. Teacher and administrative planning areas are provided throughout the school to insure adults model collaboration.

Community influence shaped Highline High School from start to finish. Without clear communication and transparency, public funds for the new school would not have been available. Without embracing project-based learning and pride in career and technical pathways as well as academic learning, the school would have ignored the

socio-economic core of the community. Without embracing student heritage, the project would have missed the rich diversity that informed graphics and signage. Without recognizing historic significance, the design would have lost the deep cultural continuity that builds pride of place.

The design of the new Highline High School signals **welcome** to all. From the formal neoclassical entry to the north, the robust student plaza to the south, or the protected courtyard entry to the west, Highline welcomes all comers - young or old, questioning or confident, new immigrant or long-time resident. Massing, materiality, and layout of the building present a range of visages that welcome the diverse community.

Sustainability and wellness goals were integral to the design. From basic siting and massing to material selection and detailing, the design team embraced durability, longevity, and efficiency strategies. Highline took a 'place-based' design approach in terms of siting, materiality, and landscaping.

Safety is embraced throughout the project. Secure entry vestibules supervised by adjacent administrative spaces

welcome students and community. Clear sightlines occur throughout the facility, CEPTED principles shaped the site design, and small learning communities maximize opportunities for students to be known well.

Numerous **outdoor spaces** support the social and academic mission of the school. The formal front yard honors the historic presence of the school within the community. The west courtyard supports gathering, dining, and project-based learning while the southeast plaza enhances the energetic vibe of adolescents. Site circulation is zoned to support the numerous secondary school use patterns ranging from safe pedestrian movement; bicycle access and storage; uncongested bus access; daily vehicular arrival, departure, and parking; service deliveries; emergency access; and event parking. Visible storm water collection and storage systems model responsible sustainable management practices and landscaping was selected to enhance native, drought tolerant ecosystems.

SUSTAINABILITY AND WELLNESS

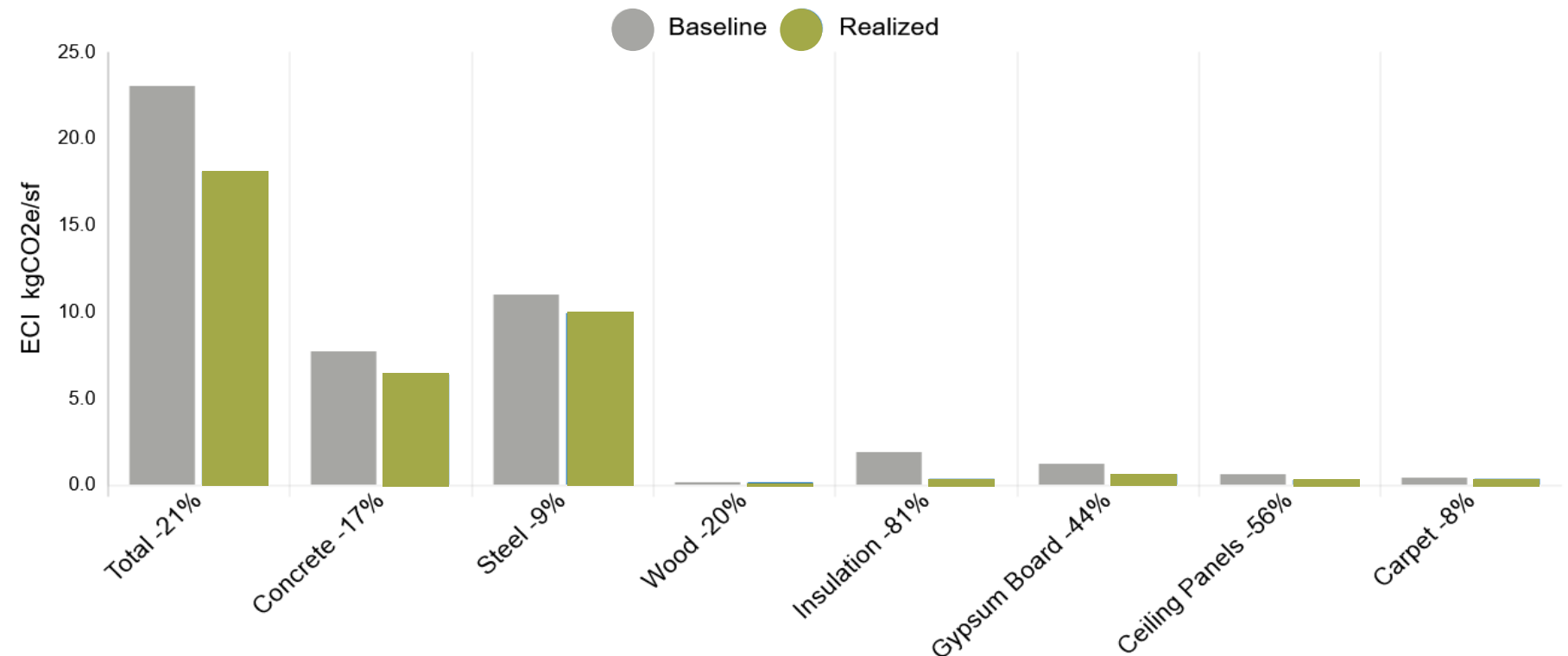
The new Highline High School addressed sustainability from three perspectives - current requirements, future opportunities, and student learning.

- + The building exceeded Washington Sustainable School Protocols (WSSP) standards – the equivalent to LEED Silver requirements.
- + The stacked two- and three-story floor plates minimized the building footprint and volume allowing for greater envelope efficiency.
- + Rainscreen technologies were utilized in both the brick veneer and metal cladding systems to maximize durability, longevity, and efficiency.
- + 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 stormwater is treated on site with 100% infiltration to recharge existing aquifers, feature stormwater as a teaching tool, and protect salmon and other wildlife dependent on safe discharge methodologies. Raingardens coupled with native and drought tolerant plantings are featured throughout the site. Exterior irrigation water use was 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.
- + The solar ready roof design anticipated future collectors. A recently awarded grant to install solar collectors brought the future-ready idea to fruition within a year of construction.

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)





Mass Timber and Sustainability

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