



2023 Polished Apple Award

Clyde Hill Elementary School

Bellevue School District

Clyde Hill, WA

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01 EXECUTIVE SUMMARY

Clyde Hill Elementary School is a forward-thinking, high-performing, and aspirational project that seamlessly blends innovative educational design strategies with the inspiring natural beauty of the Pacific Northwest.

Originally built in a “California style” in 1952, the school’s design proved to be inadequate for the changing needs of its students and teachers. Over time, several additions resulted in a confusing and inefficient layout of disconnected buildings and segregated

outdoor spaces for play. These design flaws were exacerbated by fluctuating student populations, which led to overcrowding in some areas and underutilized spaces in others. As a result, the school struggled to provide a cohesive and adaptable learning environment that reflected their current students.

When it came time to replace Clyde Hill Elementary School, our design team worked closely with the community, teachers, and the district to create a school that met everyone’s needs. The

community expressed a desire for inclusive spaces that would bring people together. Teachers requested a cohesive school to accommodate fluctuating student populations and allow for autonomous learning clusters are well integrated with the rest of the school. The district expected a high-performing 21st century school. Above all, everyone wanted a school that celebrated the Pacific Northwest’s beautiful natural environment and fostered a strong connection to the unique surrounding landscape.

GOALS

- Adaptability
- Center of community
- Site connections
- Environmental stewardship

OUTCOMES

- Flexible classrooms and adaptable spaces
- Site paths, gathering spaces, ‘front porch’
- Biophilic, outdoor learning and abundant views
- High performing building, net-zero ready



The main entry of the school is a welcoming front porch inviting families to linger and cultivate relationships. Transparency, warm materials, and seat walls create places to gather and informally play.



02 SCOPE & BUDGET

The replacement of Clyde Hill Elementary School served to consolidate a disjointed school to create community spaces for students and for families within school and neighborhood which merges with its local ecology and provides connections to the outdoors for its students, while constructing a school with reduced energy consumption.

Owner: Bellevue School District

Location: Clyde Hill, WA

Building Area: 90,984 SF

Site Area: 10.7 acres

Student Capacity: 660

Grades Served: PreK - 5

Project Delivery:
Design/Bid/Build

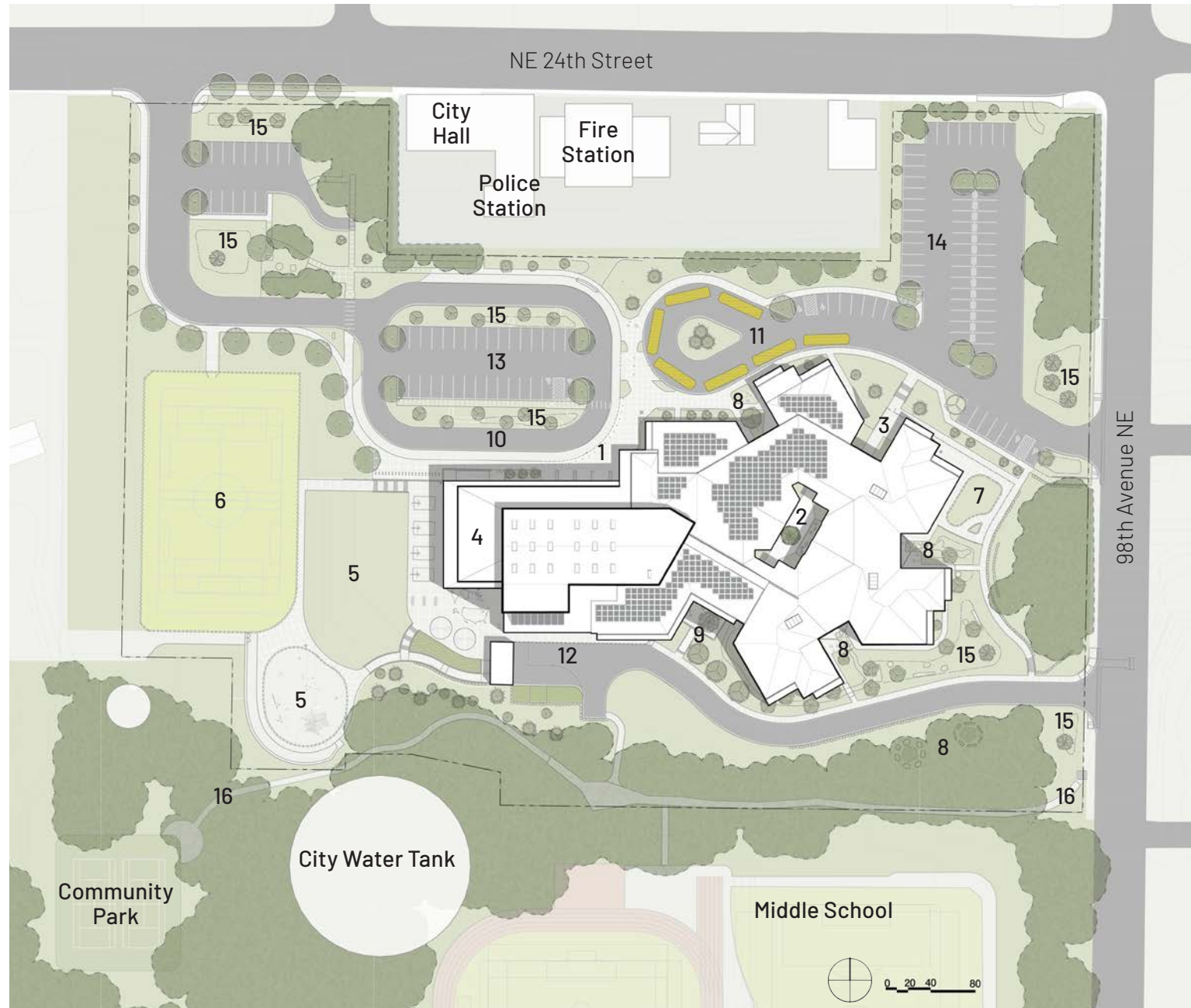
Construction Schedule:
June 2018 - August 2019

Occupancy Date:
September 2019

Final Construction Cost:
\$50.2M

Construction: Concrete & Steel,
Type II-B, with partial heavy timber
roof framing

EUI: 11 kBtu/sf



- 1 Main Entry / "Front Porch"
- 2 Central Courtyard
- 3 Early Learning Entry
- 4 Covered Play Area

- 5 Playground
- 6 Playfield
- 7 Early Learning Play
- 8 Outdoor Learning

- 9 Library Plaza
- 10 Auto Drop-off
- 11 Bus Drop-off
- 12 Service Access

- 13 Visitor Parking
- 14 Staff Parking
- 15 Bio-swales
- 16 Community Trail

03 SCHOOL & COMMUNITY ENGAGEMENT

The district and the design team hand-in-hand with the school's design advisory team (DAT), comprised of teachers, parents, and administrative staff, formulated and fine-tuned a design that reflects the Clyde Hill culture and the community. Multiple meetings with the DAT reviewed, tailored, and confirmed the education specifications, identified project goals and frameworks, and tested a wide range of building and site organizations to arrive at a preferred solution. Student engagement exercises were held to develop a sense of how the students see themselves within their school and experience their day.

The three most prominent challenges discovered through community discussions:

#1: Grade-level based learning clusters to accommodate student population fluctuations

Kindergarten students don't always arrive in tidy 4-classroom groupings each year. Extensive study by the design team led to a radial learning cluster organization with "swing" classrooms at pivot points to connect with alternating clusters as needed. The swing classroom, combined with generous bi-directional stairs between stacked clusters, allows learning clusters to expand horizontally or vertically to accommodate multiple classroom combinations. The learning cluster system is able to fluctuate from 3 to 5 classrooms per grade. Open, "X-shaped" stair provide access between the stacked clusters, while its wood screen filters movement and defines shared learning areas.

#2: An adaptable library which can support daily curriculum, after school programs, & community use

Seizing on the opportunity to be a center of differentiated learning, the library is physically connected to the technical STEM lab. In addition to the school's book collection, the library boasts spaces for group and independent reading, classroom-type instruction, computer stations, and access to an outdoor reading plaza. The STEM lab is a maker space classroom with overhead power reels, sinks for experimentation, and access to an outdoor testing plaza. The spaces are joined by a door and a folding, glass partition which allows the spaces to flow together as programs evolve and change. Off the school's "main street," the library is located near the main entry for convenient community use and after school programs.

#3: A compact school meeting strict zoning while accommodating growth

Rapid student population growth necessitated a multi-story building design, however, the City of Clyde Hill's zoning code has a strict 25-foot height limit above the City's "original grade." Through extensive exploration, the design team turned the constraint into a design feature that supports the school community and ensures the building fits the residential scale of Clyde Hill. The split-level design works with the site's natural slope, minimizing excavation, and combined with the radial organization, means that the school's resources are never more than half the school or half a flight of stairs away for anyone.

The design team learns about student experiences and perspectives during the student engagement workshop. The Design Advisory Team works with the architects and designers, talking about the school's needs, aspirations, and goals and how those will be met.



- 8 Design Advisory Team (DAT) Meetings
- 4 Schools Toured with DAT
- 9 Design Executive Meetings
- 1 Student Engagement Workshop
- 3 All Staff Updates



GUIDING PRINCIPLES

- Student-Centered
- Welcoming & Inspiring
- Safe & Secure
- Adaptability & Flexibility
- Infrastructure to Support
- Problem-based & STEM Learning
- Community Use
- Natural Site Connections
- High-Performing Building

Outdoor learning spaces extend learning beyond the building and connect students and staff to the natural environment, expanding opportunities and improving well-being.



The new Clyde Hill Elementary School project was a success in part due to its initial assets: the commitment of the district, the support of the citizens to pass the 2014 educational bond, the dedication of the Design Advisory Team, and the natural environment of the site.

Commitment of District

The District has seen the modernization of their facilities as an opportunity to be the best stewards of their constituents' resources through embracing an ongoing process of improving building efficiencies. All of this means that they worked to communicate the importance of great schools with the communities which the schools serve, promoting the value of supporting the schools, leading to the passing of a bond to finance education projects such as CHES.

2014 Bond & the support of citizens

The district's \$450 million bond was passed by 72% of voters in 2014. Money generated through the bond went toward building several schools including CHES. The support of the voters in the importance of educational facilities was key to the creation of the new Clyde Hill Elementary School.

Design Advisory Team

Multiple meetings with the Design Advisory Team (DAT) reviewed, confirmed, and tailored the education specifications, identified goals and frameworks, and tested a wide range of building and site organizations. Due to the DAT's energy, and dedication to the school and its students, the design team was able to develop a design solution which created this unique school.



The combined library and technical STEM lab function as a central space for reading, researching, and problem-based learning exploration.

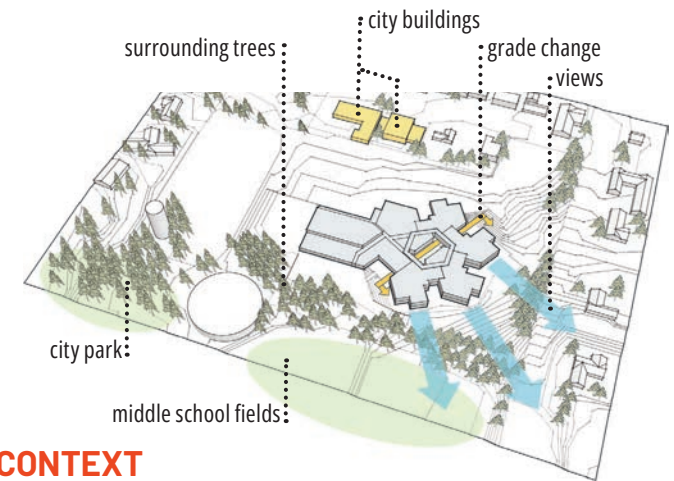
Mature trees on site

The character of the City of Clyde Hill is defined by the presence of mature evergreen trees. Zoning regulations are in place to protect trees and limit the scale of buildings that would diminish the presence of the trees or impede views. The CHES landscape is a laboratory for student learning, revealing the interdependence of sunlight, water, insects, birds, plants, trees, and, ultimately, salmon, which is a key species of the Pacific Northwest.

Clyde Hill Elementary School sits on the Clyde Hill ridge, a part of a series of schools and civic buildings surrounded by evergreens and a residential neighborhood with dramatic views of the skylines of Bellevue and Seattle and the Cascade Mountains.

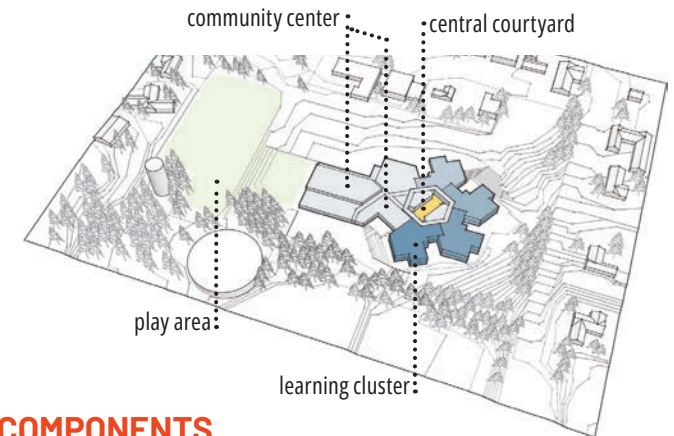
Shared community play and activity spaces

In order to promote a network of walking and bicycling paths in a community that predominantly travels by car, the CHES design includes paths that merge the site to the adjacent Clyde Hill Park and Chinook Middle School and provides numerous bike racks near the entry. The site was designed as a community connector, rather than a boundary.



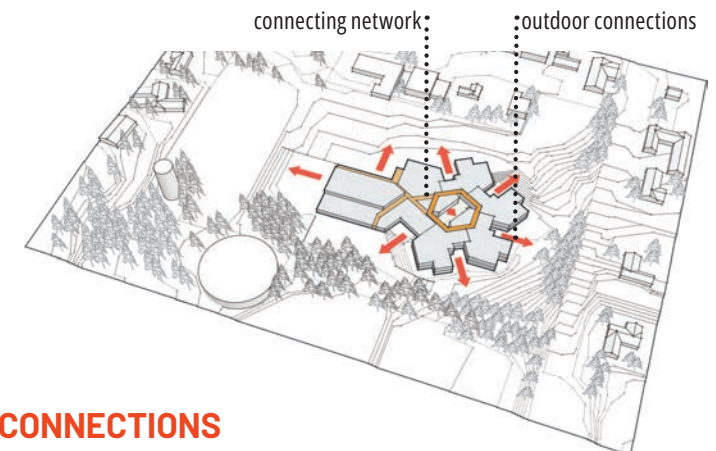
CONTEXT

Position building to accommodate slope & engage landscape



COMPONENTS

Array clusters to achieve adaptable, interconnected learning environments



CONNECTIONS

Provide clear movement through school & establish outdoor connections





Arriving into each learning cluster, students are engaged both with the landscape and learning spaces ahead. Unique environmental graphics give each cluster its own identity and help with wayfinding.

04 EDUCATIONAL ENVIRONMENT

The new Clyde Hill Elementary School is 90,984 square feet with 28 early learning, primary, and intermediate teaching stations, with spaces for special instruction including science and technology, art, music, and special education.

At the onset of this project, the goals set out for the design team included: all students have access to high-quality learning and support spaces including science, technology, math and engineering classrooms, as well as extracurricular activities, all of which prepare students for successful futures; strong connections to the surrounding natural environment; and adaptable spaces capable of accommodating enrollment fluctuations and program changes

The site-specific needs were balanced with current district standards and educational specifications to create a facility to support students from pre-school through fifth grade and their families for many years.

Primary objectives include providing a safe and welcoming environment, a clearly articulated building and site organization that is easily navigable, design of site and indoor areas to support use by the community and respect the City of Clyde Hill's "Tree City" status, and flexible instructional spaces that easily adapt to varying curriculum elements taught throughout the day and evolve over time.

The compact, radial design of the facility, with its "swing" classrooms, folding walls, abundant windows, biophilic design, and outdoor learning areas, provides solutions to these educational goals.

Safe & Welcoming

The school's main entrance, with its extensive wall of windows provides views to the Commons/Gymnasium/Stage to visually welcome students and community members. The administrative team is located at the main entry,

giving clear supervision of site access points for both auto and bus drop-off and pick-up. The building entry opens to the large multipurpose commons "living room" across a daylit corridor. The entry and community functions are highly visible and define the school entry. The spaces

around the entry function as a community center to allow for extended use of the facility after school hours. The prominent use of wood creates delight and instantly relates the building and its occupants to the surrounding natural environment.



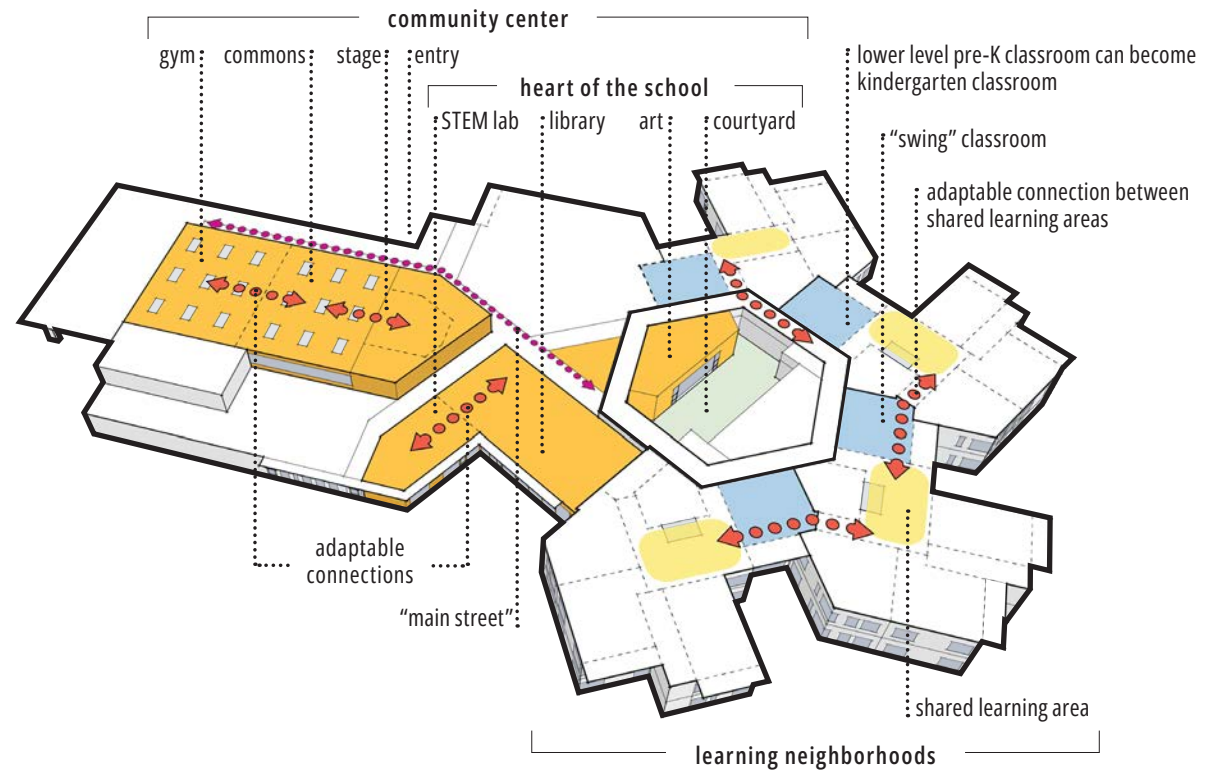
The community center-like commons and gymnasium open up to the "main street" and entry "front porch" creating a welcoming front door to the community.

Adaptable Spaces

Several design features allow the school to adapt from day to day or year to year, whether it is fluctuating student grade-level populations or changing curriculum requirements.

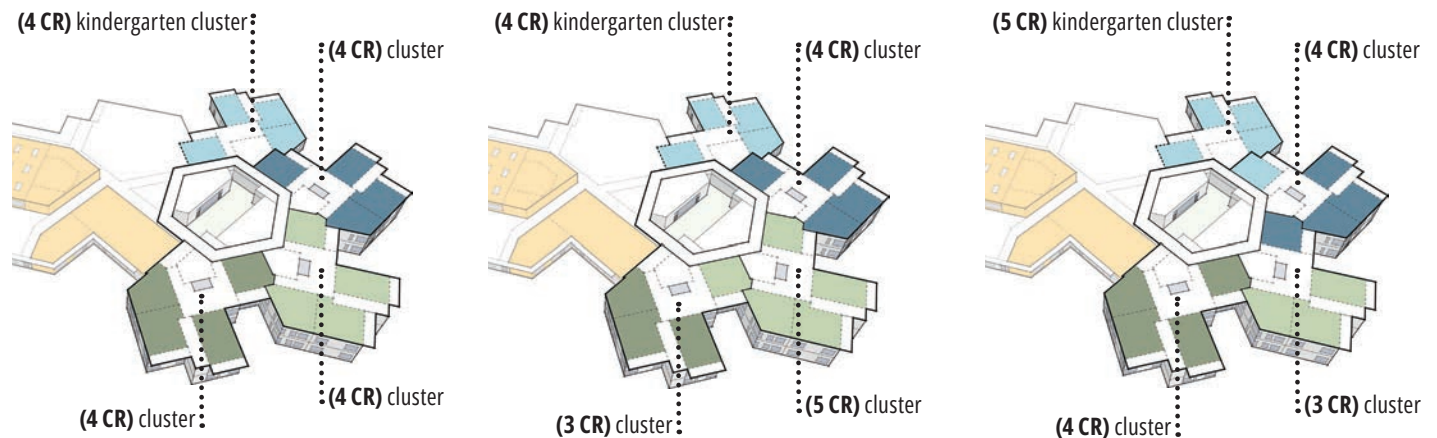
The building's radial organization was developed to create 'swing' classrooms at stacked learning cluster pivot points, allowing them to connect with alternating clusters. This accommodates different classroom groupings, both horizontally and vertically, depending on enrollment. The learning clusters are a split level from the heart of the school and set on a hexagonal hallway. Each cluster having its own stairs for vertical flexibility and access to outdoor learning as well as a shared learning area available for breakout groups, individual work, and multiple classroom shared moments.

The design of the commons and gym transforms the district's standard approach into an open 'community center' at the school's front door, a welcoming "living room" for students and families. In lieu of separate enclosed spaces, the dining commons is always open to the "main street" and connects to the gym area through an operable partition, which when opened creates a high-school sized sports court for large student gatherings or community use. Additionally, one of the music classrooms is joined to the commons with an operable wall allowing it to double as a stage. This large group space, connected directly to outdoor play, supports movement, nourishment, and socialization for students and extended community use. The school 'main street' is anchored at the other end by the library, STEM, and Art rooms.

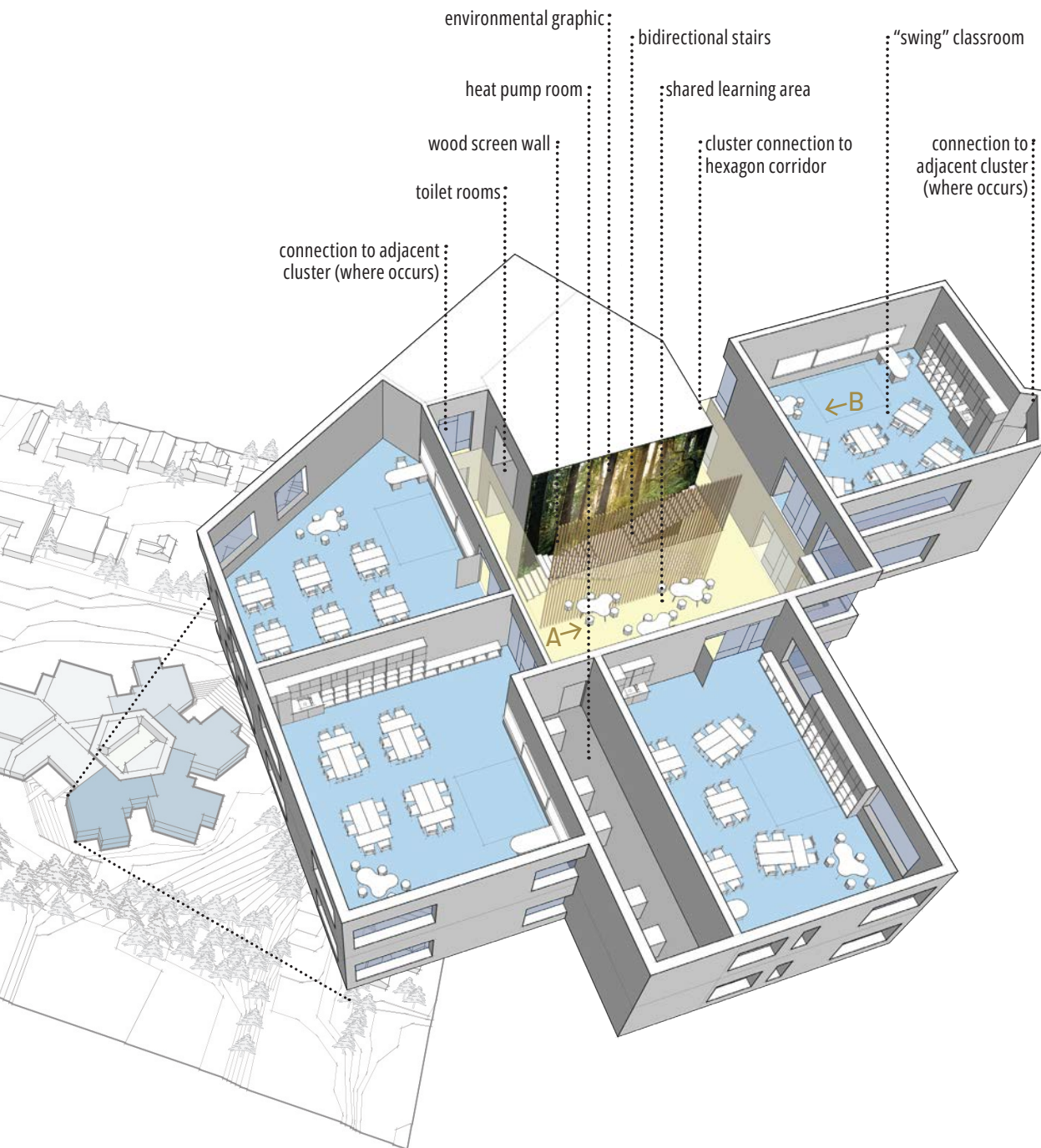


Situated along the school's "main street," the community components of the commons/gym and the library/STEM lab are adjoined with operable partitions, allowing the student or community use to flex and adapt by the hour or day.

A key design driver was the ability for the school to accommodate fluctuations in student enrollment. The cluster design and building organization facilitate multiple classroom groupings across continually fluctuating grade bands.



VARIETY OF CLUSTER CONFIGURATIONS



The innovative learning clusters comprise classrooms interconnected to shared learning spaces, designed to foster active movement and social interaction through the use of bi-directional stairs. The incorporation of wood screens, regional environmental graphics, and expansive windows offering breathtaking views of the surrounding landscape bring the beauty of nature indoors, creating a space that enhances occupant well-being and encourages a connection to the environment.

LEARNING NEIGHBORHOOD



The technical STEM lab is a large maker space with large tables, sinks, outdoor access for messy projects, and technology tools, along with immediate access to research in the library. The large movable glass partition opens to connect the space directly with the library for flexibility and changes in program.

Adaptable for Discovery

The role of the school library continues to evolve, the DAT asked that the new CHES library be designed to meet current and future needs. The design team located the library next to the STEM lab and connected the two spaces with a door and large, folding glass partition, allowing the spaces to be merge.

Connecting the library to the technical STEM lab expands the programmatic functions of the library to include a large maker space and allows it to adapt daily and over time.

As a information center, the library and technical STEM lab are both wired for extensive digital resources, and the STEM lab has access to an outdoor testing plaza, overhead power reels, and sinks to support problem based learning.

At the heart of the school and connected to an outdoor plaza, the library bridges between the community and academic zones. Placing the library and technical STEM lab, as well as the art classroom, at the center of the school emphasizes the value the school places on knowledge, creativity, and discovery.

CHES has been designed to provide a variety of outdoor learning opportunities, from the STEM lab testing plaza to the learning cluster rain gardens and beyond. Each area allows for a variety of discovery and learning styles by extending learning outside to engage with the stand of mature trees native plants, the water cycle and community beyond.



The library has spaces for large and small groups, individual reading, access to the technical STEM lab, and an outdoor plaza.

Connections to Nature

The CHES building organization capitalizes on the inspiring site and fosters a strong sense of place by creating many outdoor connections. The building frames a series of outdoor spaces, from the main entry “porch” on the north to the library/technical STEM lab plaza on the south, to the outdoor learning cluster courtyards on the east, and the play area on the west. The generous entry canopy connects the commons to the exterior “front porch”. The building’s form extends into the covered play roof, connecting the gym and commons to outside play areas. The library and tech lab share an outdoor plaza, and the art classroom opens onto the central courtyard. Classrooms have strong visual connections to the surrounding landscape and natural daylight. The ground floor shared learning areas have direct access to outdoor learning courtyards with sculpted, interactive rain gardens.

Both indoors and out, the school facility integrates with its natural environment through its exterior expression, interior materials, and plentiful views. The brick’s texture and colors evoke tree bark while the reveals reference the verticality of tree trunks, dissolving the building mass into the trees. Inside, wood slat ceilings, wall panels, and detailing reference natural materials and patterns. Forum seating risers were milled from trees logged on-site. Carpet mimics lichen-covered forest floors. Experiential graphic design elements in the learning clusters reflects the natural environment of the region. Biophilic design principles, inside and out, further the occupants’ connection with the surrounding natural environment and the inherent educational potential present for all to engage.



Shared areas connect to outdoor learning courtyards and the natural environment. Rain gardens improve ecologies and provide learning opportunities.



Wood screens filter light and views from the commons to the school's "front porch." Tiered wood seating was created from trees selectively harvested from the site.



The library and technical STEM lab are connected to an outdoor classroom and to the site beyond with a bridge over a rain garden.



05 PHYSICAL ENVIRONMENT

Clyde Hill is small city of 3,400 residents, located between Bellevue and Seattle. Clyde Hill's proximity to the area's international technology, engineering, and financial corporations has increased its growth dramatically in the past decade and diversified its population. Although the Clyde Hill neighborhood is primarily white, over half of the school's population identify as Asian, demonstrating the global nature of the region and its position on the Pacific Rim as a highly desirable place to live, work, and learn.

The 10.7 acre site is one of several school and municipal sites located on the ridge of Clyde Hill in an otherwise residential neighborhood dominated by tall evergreens and dramatic views. Immediately north of Clyde Hill Elementary School is Clyde Hill City Hall and Police Station and Bellevue Fire Station #5. The District's Chinook Middle School lies directly to the south, through a stand of trees with school athletic fields, tennis courts, and a city playground between the two schools.

Key organizational factors for the site include safety, consolidating play areas, staying within the city's height limit, and strong indoor-outdoor connections.

The design created safe and secure circulation with separate drop-off areas for the students arriving by foot, car, and bus, along with a separate building services drive. Clear pedestrian pathways and the shifting of long vehicle queuing areas onto the site to prevent backups on to the streets greatly improved neighborhood pedestrian and bike safety. The previously fractured and sprawling playground areas were transformed into one highly supervisable play area, which also acts to prevent neighbors from using the site as a park during the school day. The play area connects directly to the "front porch" and school entry, creating a welcoming gathering area for parents, fostering community at the beginning and end of the school day. As the school is nestled into the site, pathways around the building encourage walking to the site, and there are bike racks for 40 bikes.

The centrally situated building takes advantage of the sloping site by locating the two-story learning clusters at an existing break in topography, creating a split-level school with the two levels of classrooms only a half-story from the entry level.



The building form allows for extensive daylight and connections, visual and physical, to outdoor learning areas and the surrounding natural environment.

The new, compact school with a biophilic design strategy has abundant daylight and views of nature, many outdoor learning areas, community spaces inside and out, and adaptable classroom clusters with "swing" classrooms and shared learning spaces; all within a high-performing building.

Entering the building and past the secure administration area, the community has access along the school's "main street" to the library as well as the commons/gym and music stage for performances, events, and meetings.

Just beyond the heart of the school (art, STEM, library) are the classroom learning clusters. Set on a hexagonal, split-level hallway, each cluster has its own stairs for vertical flexibility and access to outdoor learning. No classroom is more than half the length of the school away from the heart of the school resources.

The radial organization extending from the hexagonal hallway allows for the three two-story clusters to be situated at a break in the site topography where the slope increases more dramatically, falling nearly a full story. The organization allows the cluster masses to fan out, breaking down the building scale so it

dissolves into the trees and fits within the residential scale of the neighborhood. The split-level approach takes advantage of the site's natural topography and helped to keep the building under the city's strict 25-foot height limit. The clusters extend like fingers into the landscape, allowing for better views and connections to the outdoors. The shape of the clusters allows the majority of the classrooms to have windows on two sides, creating learning environments which benefit from abundant natural light.

The design advisory team asked that the new school be cohesive, especially in consideration of the former school which had multiple detached buildings. The radial organization was designed to keep any one cluster from being the "last" one in a series, which can be isolating.

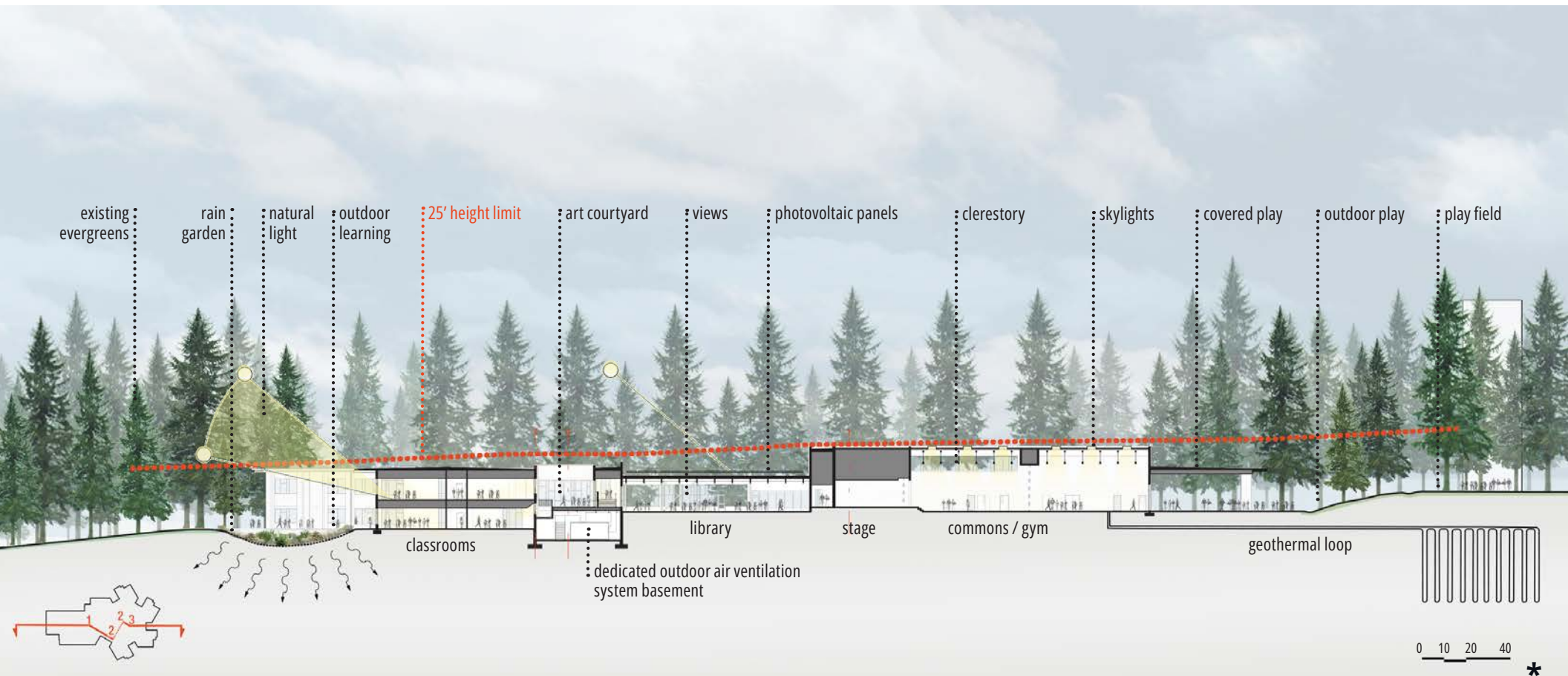
Learning clusters were designed to be distinct neighborhoods within the school while also being able to adapt to grade level fluctuations. Defined by colors and large murals of the Pacific Northwest, each learning cluster creates a "home space" for students.

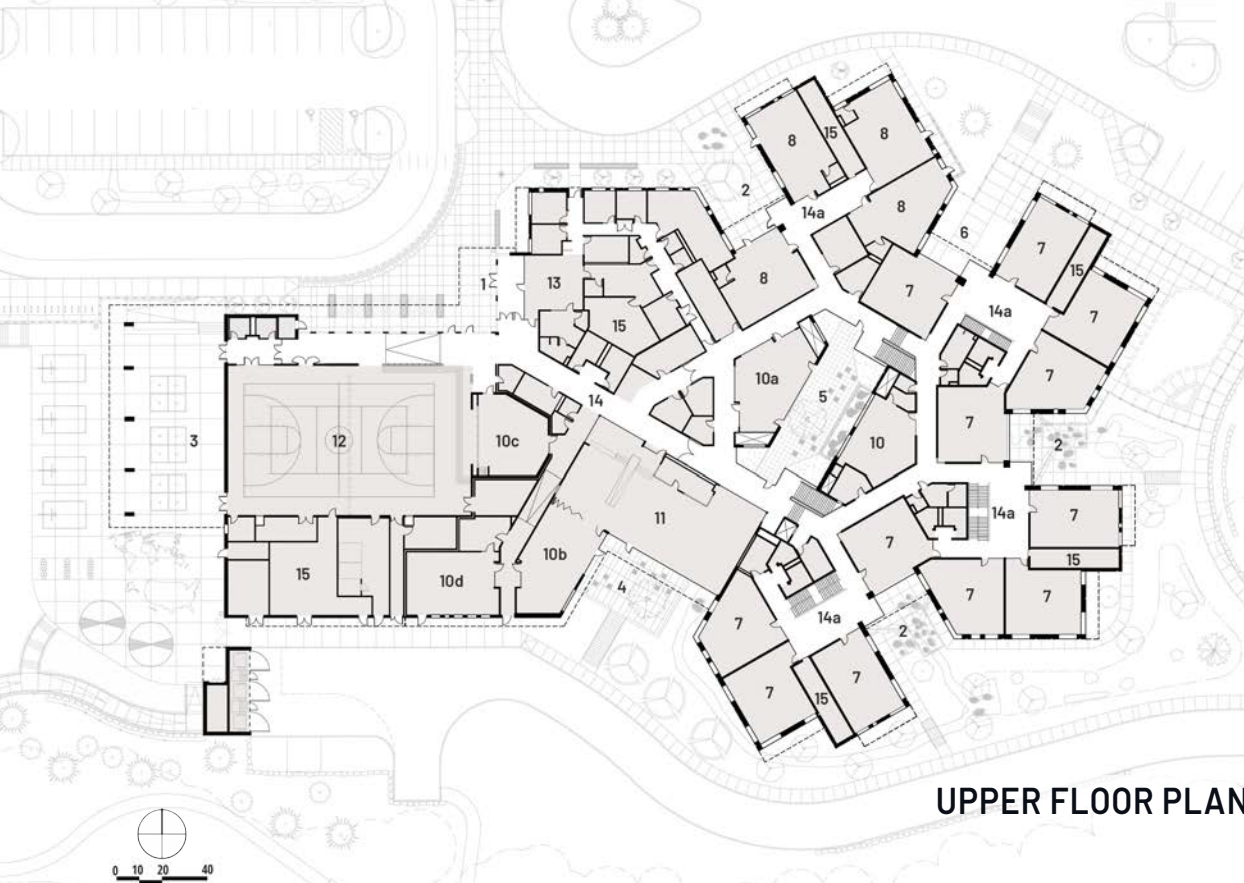
Classrooms have large glass relites linking them to shared learning areas and to each other through strong visual connections. This fosters a stronger sense of community and ownership within the cluster.

Ground level learning clusters have direct access to outdoor learning areas, and all sides of the building have direct connections to the outdoors, whether a learning plaza outside the library and technical STEM lab or outdoor play immediately accessible from the gym and commons.

Reduce environmental impact on physical environment.

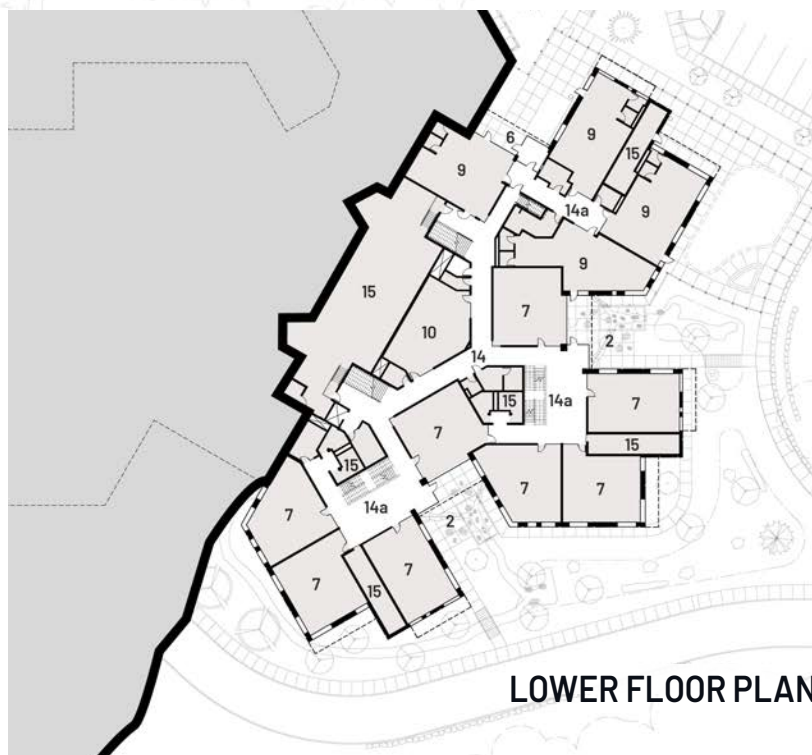
Each new school in the District is intended to have a lowered environmental footprint, lessening the operations and maintenance needs for generations. The sustainable strategies integrated into CHES include geothermal loop, efficient heat pumps, extensive photovoltaics, occupancy and daylight sensors, high performance envelope, building zoning to support community use – while limiting access and services needed throughout, encouraging pedestrian and bicycle access, functional landscaping that manages stormwater and minimizing landscape care, low-flow toilets and sinks, high quality daylighting, and highly visible systems and signage that allow the building to be a teaching tool for its occupants as they more fully understand the impact of their learning environment on the world around them.





UPPER FLOOR PLAN

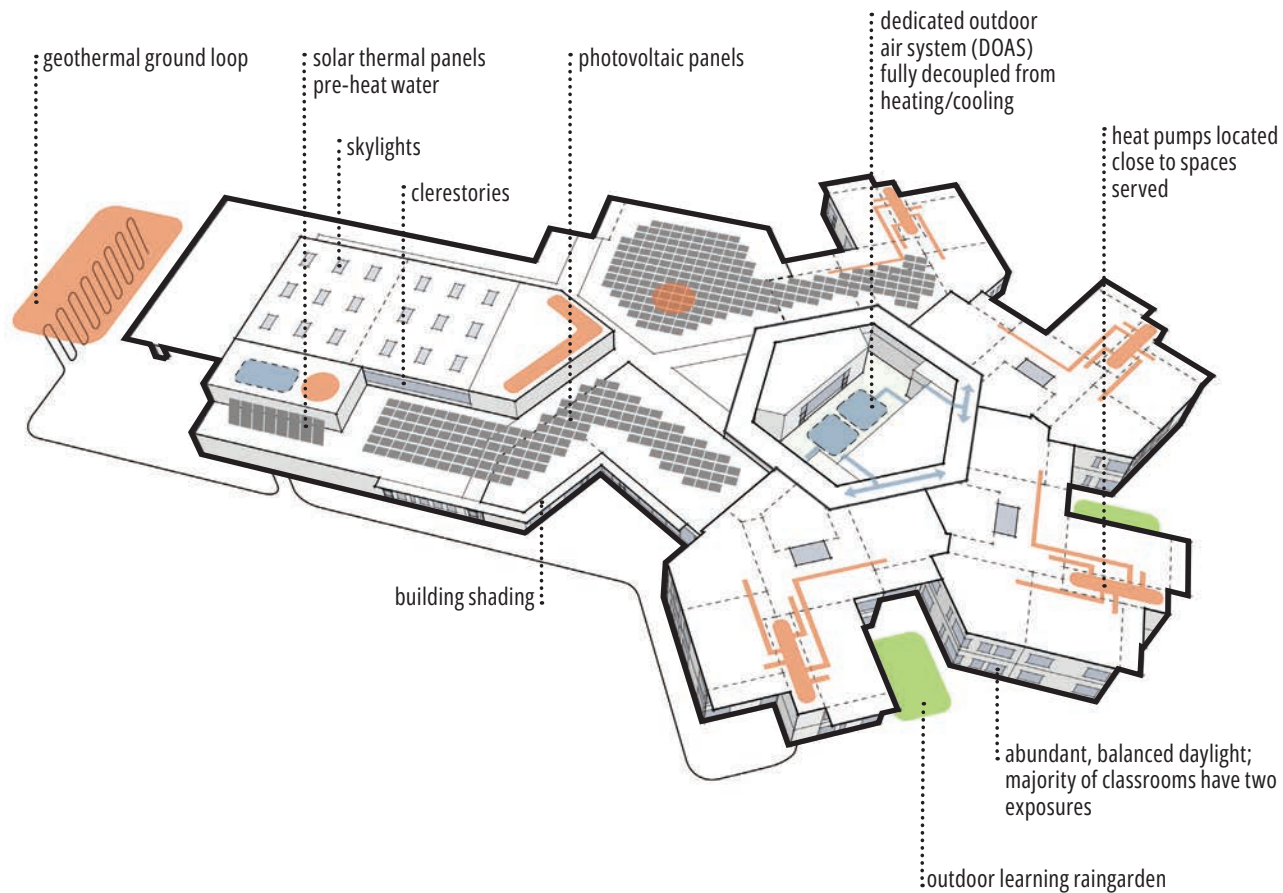
- 1 Main Entry / "Front Porch"
- 2 Outdoor Learning
- 3 Covered Play
- 4 Library/STEM Plaza
- 5 Courtyard
- 6 Early Learning Entry
- 7 General Classroom
- 8 Kindergarten Classroom
- 9 Early Learning
- 10 Special Use Classroom
- 10a Art Classroom
- 10b STEM Lab
- 10c Stage
- 10d Music Classroom
- 11 Library
- 12 Commons / Gym
- 13 Administration
- 14 Circulation
- 14a Shared Learning Area
- 15 Support



LOWER FLOOR PLAN



Bi-directional Cluster Stairs



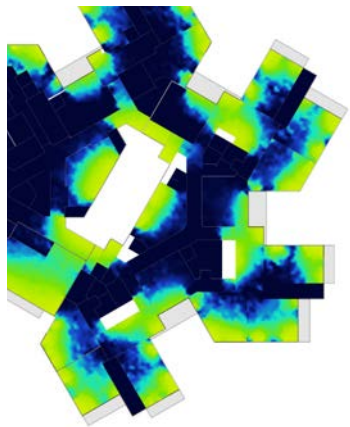
Environmental Stewardship

The District community prioritizes building performance and environmental stewardship. The design of the school responds with a set of robust features that reduce long-term operating costs and carbon emissions over the building's life. Featuring a net metered 99-kilowatt photovoltaic array and another 50-kilowatt photovoltaic array connected to an on-site battery back-up system, the school has a EUI of 11 and is net-zero ready.

Clyde Hill Elementary School has a learning culture based on informed stewardship of place, resources, and ecosystems. In pursuit of supporting this culture, the design team sought a solution that suggests an affinity between architecture and place, accomplished through a set of biophilic associations of space, light, and material, which working together, recall the spatial and material experience of the forest.

The defining experience is one of natural light, material texture, and spatial experience. The shifting orientation of the plan invites light from all directions, permeating the interior much as light permeates the forest canopy. The combination of screens and variable plan geometry define, connect, and dissolve space, recalling the layered space of the forest landscape. Views through and beyond connect interior and exterior environments, blurring physical and virtual boundaries. Material biophilia is achieved with brick and wood elements that recall the materiality of the forest. Screens become trees. Benches recall logs. Joists and mullions are branches. Brick is earth. Patterns become bark.

The presence of nature defines the character of the school and invites student awareness and engagement with the natural world. The underlying goal being one that inspires and delights the students and staff on a daily basis, making school an enjoyable and productive place to learn and work.



Learning cluster daylight study demonstrates effective natural light in the classrooms.



Biophilic environmental graphics enhance sense of place and wayfinding throughout the school.



Brick color and texture evokes the bark patterns, relief, and verticality of the community trees.

06 RESULTS OF THE PROCESS & PROJECT

The new Clyde Hill Elementary School opened its doors to students in fall 2019, and the past four years have been marked by dynamic impacts that have caused significant fluctuations in attendance, enrollment, and participation across the school district. However, the adaptability and flexibility that were critical characteristics of the school's design

have proven to be effective in meeting these challenges. The "swing" classroom design, which allows classroom clusters to fluctuate from three classrooms per grade to five, has been notably successful in the first years of operation.

The District takes pride in developing compelling, enduring, and sustainable schools that support learning and discovery while being

good stewards of resources. The CHES project incorporates comprehensive sustainable strategies that have demonstrated its high efficiency, which will make a significant impact in lowering the operational needs of the school in the future, as demonstrated by the ultra low EUI.

One of the most successful project results is the discovery supported through the design of differentiated learning environments and

meaningful access to the natural environment. The learning clusters' ground floor shared learning areas with their direct connections to outdoor learning areas provide important points of entry to expansive learning opportunities. These expansive site opportunities successfully couple with the central heart of the school, which centers students' daily experience on integrated Art, Making, Technology, Information, and Performance, thus modeling and providing access to the integrated and diverse world through which they learn.



The Clyde Hill site is defined by towering evergreens and sloping topography. The building was designed to blend harmoniously with the trees and take advantage of the slope, integrating with the site and surrounding neighborhood.



Classrooms average 55% SDA and 16% ASE. The windows and mullion patterns in the "swing" classroom frame views and mimic this enduring vertical rhythm of the woods.