



2021 Polished Apple Award

# Clyde Hill Elementary School

Bellevue School District  
Clyde Hill, WA



# 01 EXECUTIVE SUMMARY

**Clyde Hill Elementary School is an exploration in spatial organization which simultaneously provides program flexibility and adaptability along with integration into its unique natural surroundings.**

Originally built in the “California style” in 1952, the school had become, after several additions, a jumble of disconnected buildings with segregated outdoor spaces for play. Fluctuating

student populations highlighted the difficulties the school was experiencing.

The District had been systematically addressing the needs of its fleet of older schools, and when the time came for Clyde Hill Elementary School (CHES) to be replaced, our design team listened to the many groups voicing their needs and desires. The community/families expressed that they wanted spaces

that included them. The teachers said that they needed a cohesive school which could manage fluctuating student populations and had learning clusters that were simultaneously autonomous while well integrated with the rest of the school. The District expected a high-performing 21st century school, and everyone said that they wanted connections to the wonderful natural environment of this Pacific Northwest site.

## 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 not only to consolidate a disjointed school but to create community spaces for students and for families within a school and site which merges with its local natural environment and provides connections to the outdoors for its students, while constructing a new learning facility which will have reduced energy consumption and longevity in its lifespan.

**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 :**

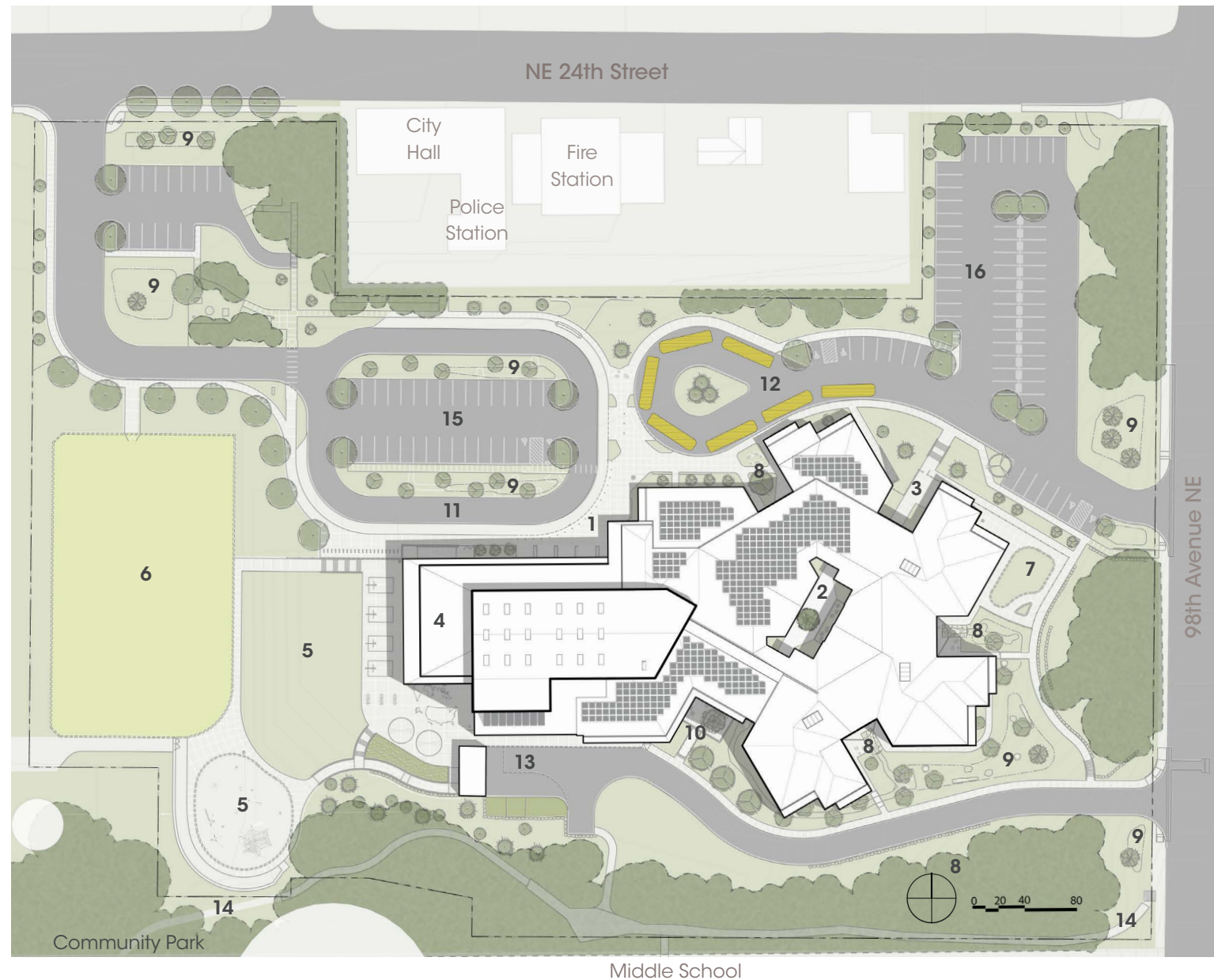
September 2019

**Final Construction Cost :**

\$50.2M

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

**Predicted EUI :** 10 pEUI



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

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

- 9 Bio-swales
- 10 Library Plaza
- 11 Auto Drop-off
- 12 Bus Drop-off

- 13 Service
- 14 Community Trail
- 15 Visitor Parking
- 16 Staff Parking



## 03 SCHOOL & COMMUNITY ENGAGEMENT

The district and the design team worked hand-in-hand with the school's Design Advisory Team (DAT), comprised of teachers, parents, and administrative staff, to formulate and fine-tune a design that reflects this community and school's culture. Multiple meetings with the DAT tailored and confirmed program areas for the education specifications, identified project goals and frameworks, and tested a wide range of building and site organizations before arriving at a preferred solution. Student engagement exercises were held to listen to how the students see their school and their learning experiences.

**The three most prominent challenges discovered through the community discussions were:**

### #1: Grade-level based learning clusters accommodating 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, allowing classroom cluster groups to vary in size. 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 open, "X-shaped" stair provides access between stacked clusters, while its wood screen filters movement and defines shared learning areas. The repeating learning cluster system is able to fluctuate from 3 to 5 classrooms per grade.

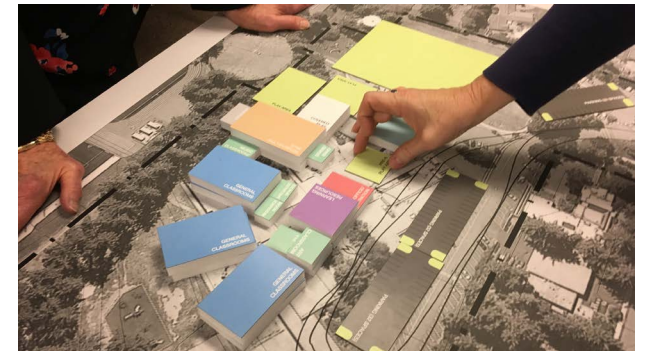
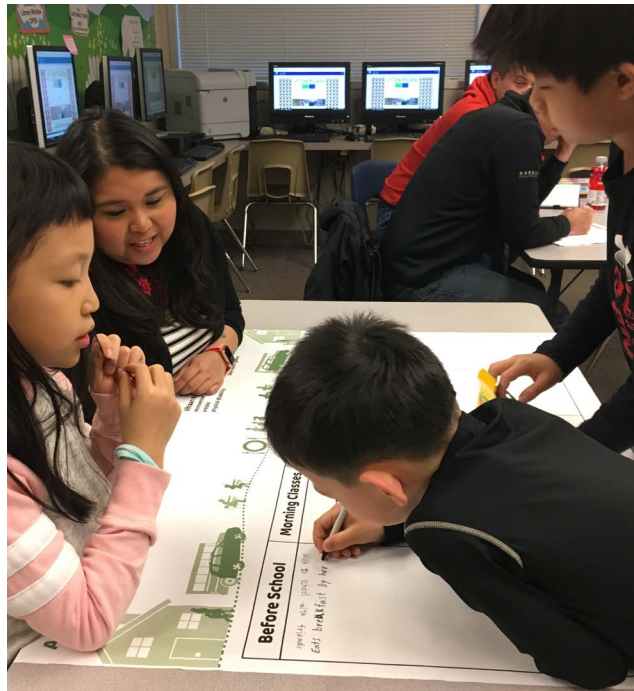
### #2: An adaptable library which can support daily curriculum, afterschool programs, & community use

An elementary library is the center of research and knowledge acquisition. The school's library is physically connected to the 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 makerspace classroom with overhead power reels, sinks for experimentation, and access to

an outdoor testing plaza. The spaces are joined by a door and a large, folding glass partition which allows the spaces to flow together as programs evolve and change. Connected to the school's "main street," the library is located near the main entry for convenient community use and afterschool programs.

### #3: A compact school accommodating growth while meeting strict building height restrictions

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.



Design Advisory Team works with architects and designers, talking about needs, desires, and goals. The design team learns about student experiences and perspectives.

- 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 open, "X-shaped" stair provides access between stacked clusters.



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



**The new Clyde Hill Elementary School project was a success in large 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 Clyde Hill Elementary School.

**2014 Bond and 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 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.

**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.

**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.



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.





The stacked learning clusters rotate out from a central, hexagonal hallway, helping break down the overall mass of the two-story school to fit within the mostly residential neighborhood. The brick and siding colors, textures, and rhythm were chosen to evoke the character of the surrounding trees.



## 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. As the DAT and design team explored site opportunities, educational best practices, and development needs for the elementary school students, the program for the facility was developed and refined.

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 extended 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 can evolve over time.**

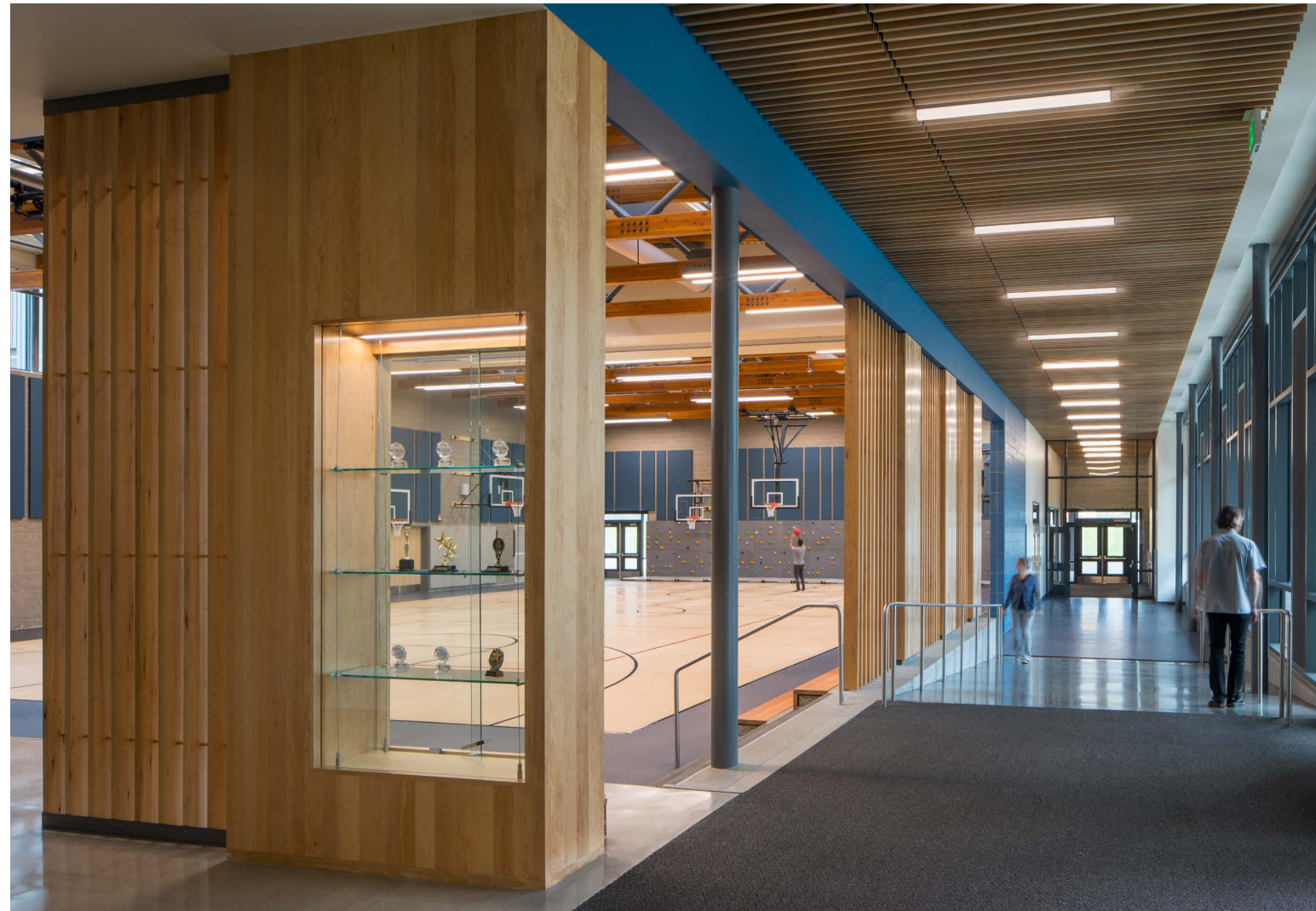
The compact, radial design of the facility, with its "swing" classrooms, folding walls, abundant windows and biophilic design, and outdoor learning areas, provides solutions to these educational goals.

### **Safe and Welcoming**

The school's main entrance, with its extensive wall of windows, providing views to the

Commons/Gymnasium/Stage, is visually welcoming and provides clear wayfinding. 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 prominent upon entering the building. 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."



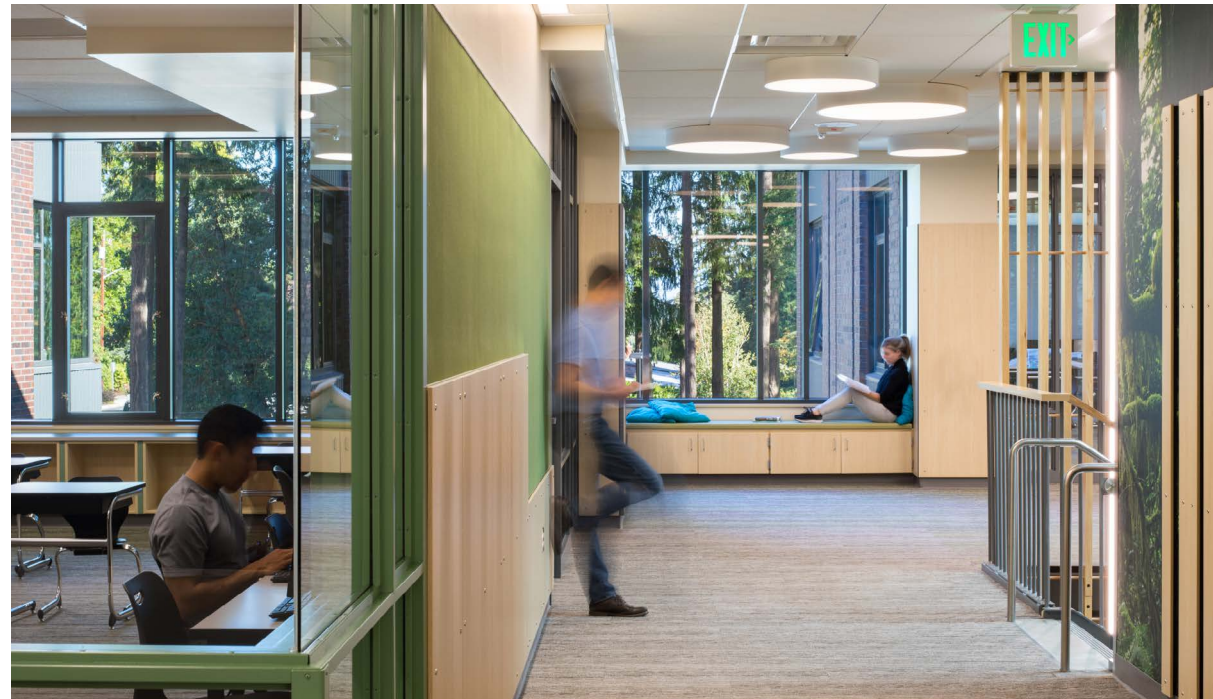


Shared areas connect to outdoor learning courtyards and the natural environment. Rain gardens improve ecologies and provide learning opportunities.

## Connections to Nature

The Clyde Hill Elementary School 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 connections, from the main entry “porch” on the north to the library/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 STEM lab share an outdoor plaza, and the art classroom opens onto the central courtyard. Classrooms have strong visual connections to the surrounding landscape, and the ground floor shared learning areas have exits to outdoor learning courtyards with sculpted, interactive raingardens.

**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 color evoke tree bark while the reveals reference the verticality of tree trunks, dissolving the building mass into the trees. Warm-toned phenolic-resin panels with wood grain blend with the landscape. Inside, wood slat ceilings, wall panels, and detailing reference nature. 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 benefits it yields.



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

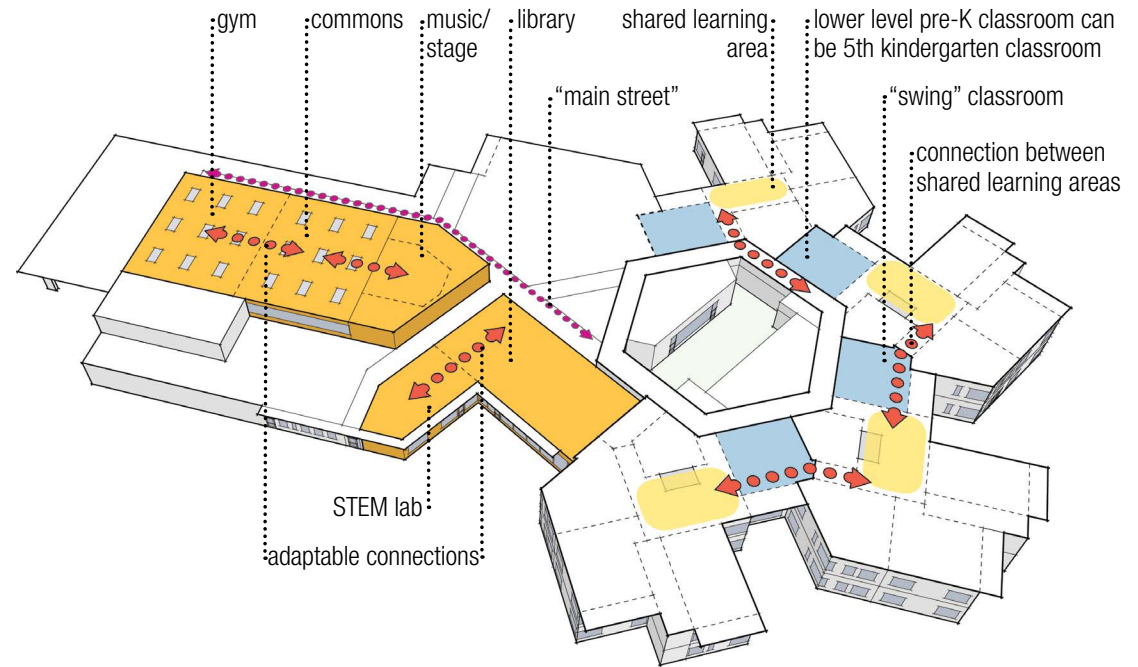


## Adaptable Spaces

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

**The building's radial organization was developed to create "swing" classrooms at stacked learning cluster pivot points, allowing them to associate with alternating clusters.** This accommodates different classroom groupings, both horizontally and vertically, depending on enrollment. The learning clusters are 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 asset" 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 can be connected 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. It is near the library, STEM, and Art resources along the school's "main street."

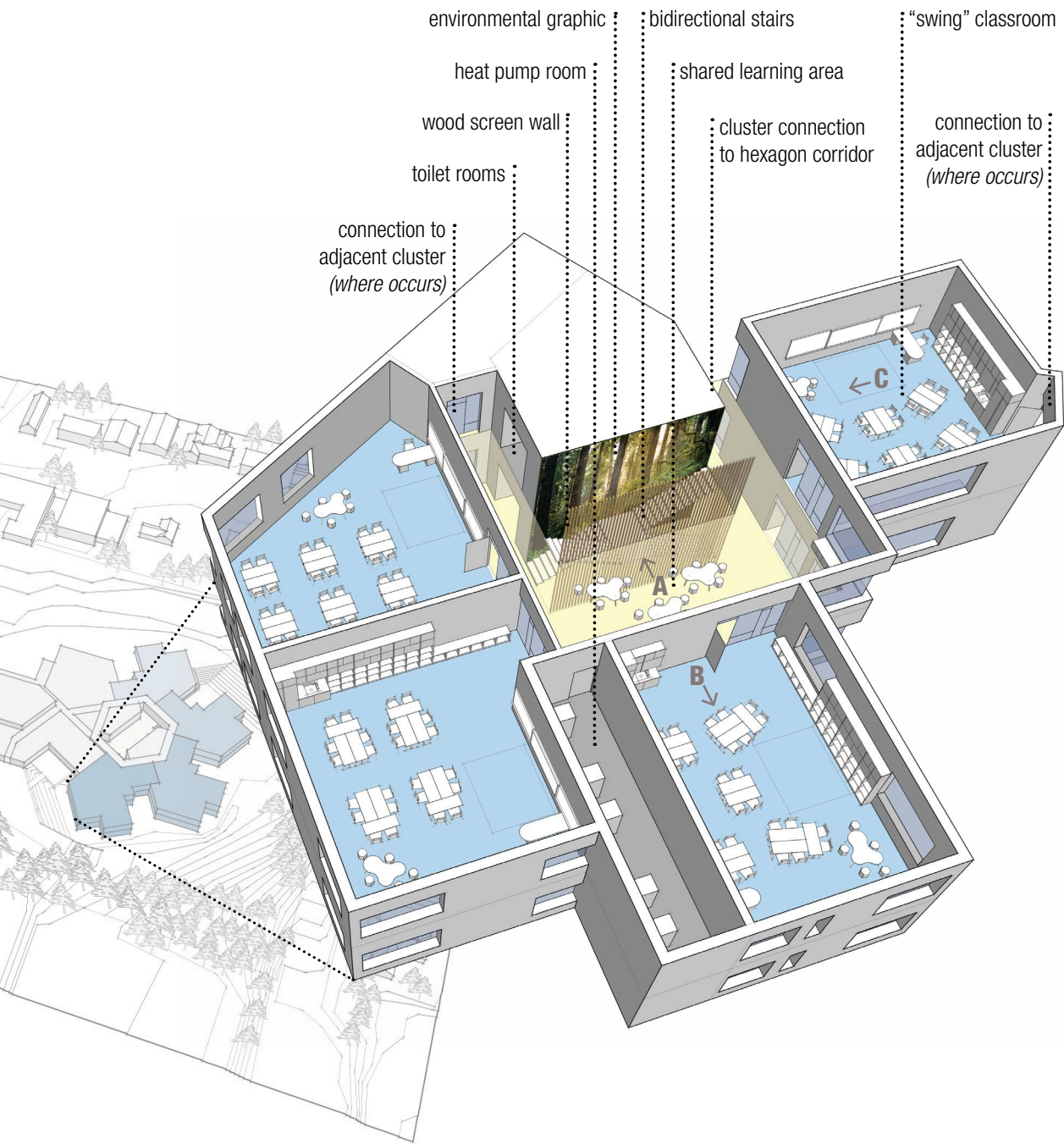


ABOVE: The building's radial organization creates "swing" classrooms that can relate to and be accessed from multiple clusters. Adaptable connections allow program flexibility and the school to evolve over time.

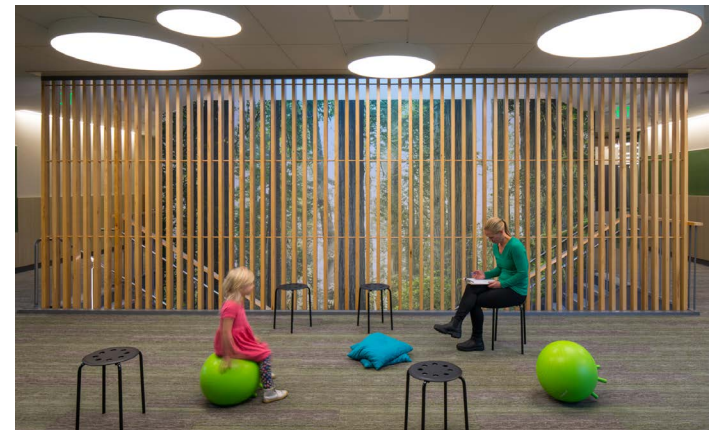
BELOW: The "living room" commons is open to the "main street" and connects to the "front porch" and the stage. The commons and gym can be connected to become a large sports court or gathering space.







The radial organization of the building was developed as a series of learning clusters arrayed around a central courtyard. The clusters are composed of classrooms connected to a shared learning area, featuring a generous, bidirectional stair facilitating easy vertical connections.



**A** Wood screens and unique environmental graphics define learning clusters' shared areas and bring natural references inside.



**B** The design of the classroom clusters allows most classrooms to have windows on two sides, maximizing daylight and providing passive energy savings.



**C** Strong visual connections link classrooms to shared learning areas and each other. Windows are placed to balance daylight and frame views to the surrounding landscape, especially in the "swing" classroom above.





The STEM lab is a large makerspace 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.

### **Adaptable for Discovery**

Understanding that the role of the school library continues to evolve, the Design Advisory Team asked that the new school 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 merge.

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

As a research center, the library and STEM lab are both wired for extensive computing resources, and the STEM lab has access to an outdoor testing plaza, overhead power reels, and sinks to support problem based learning. The library is located near the main entry for convenient community use.

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 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.

Clyde Hill Elementary School has been designed to provide a variety of outdoor learning opportunities, from the STEM lab testing plaza to the learning cluster raingardens and beyond. Each area allows for a variety of learning and teaching styles, and the school's site, with its stands of mature trees and native plants, extends the outdoor classroom to its borders.



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



## 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. In contrast to the city's demographics, over half of the school's population identify as Asian, demonstrating the growing 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, connecting to the natural environment, and staying within the city's height limit.**

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 shifting the long vehicle queuing areas onto the site prevents backups on the city's streets and improves neighborhood safety. The previously fractured playground areas were transformed into one highly supervisable play area, which also acts a clear edge 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



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

in topography, creating a split-level school with the two levels of classrooms only a half-story from the entry.

**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. Arrayed along 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 keeps 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.

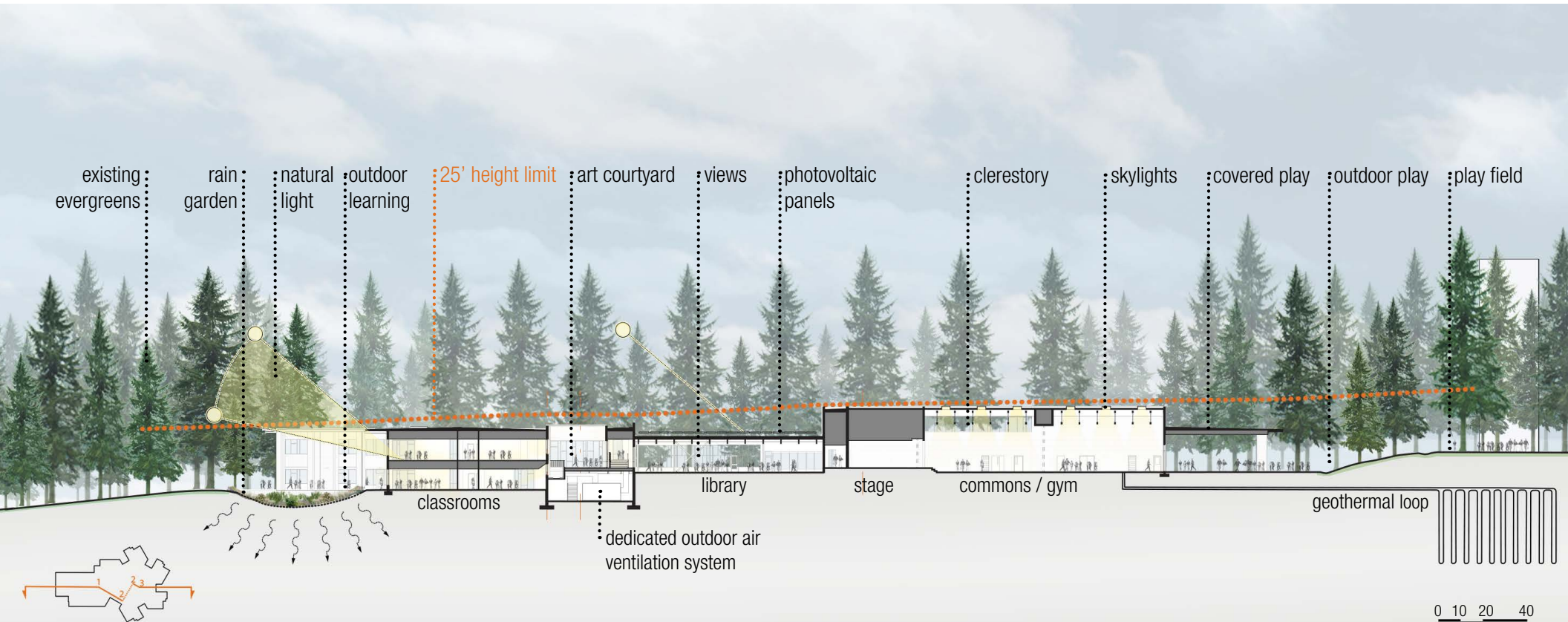
The Design Advisory Team asked that the new school be cohesive, especially in consideration of the former school which had multiple detached buildings. The radial organization was designed to keep any one cluster from being the "last" one in a series, which can feel isolating.

**Learning clusters were designed to be distinct neighborhoods within the cohesive 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" for students.**

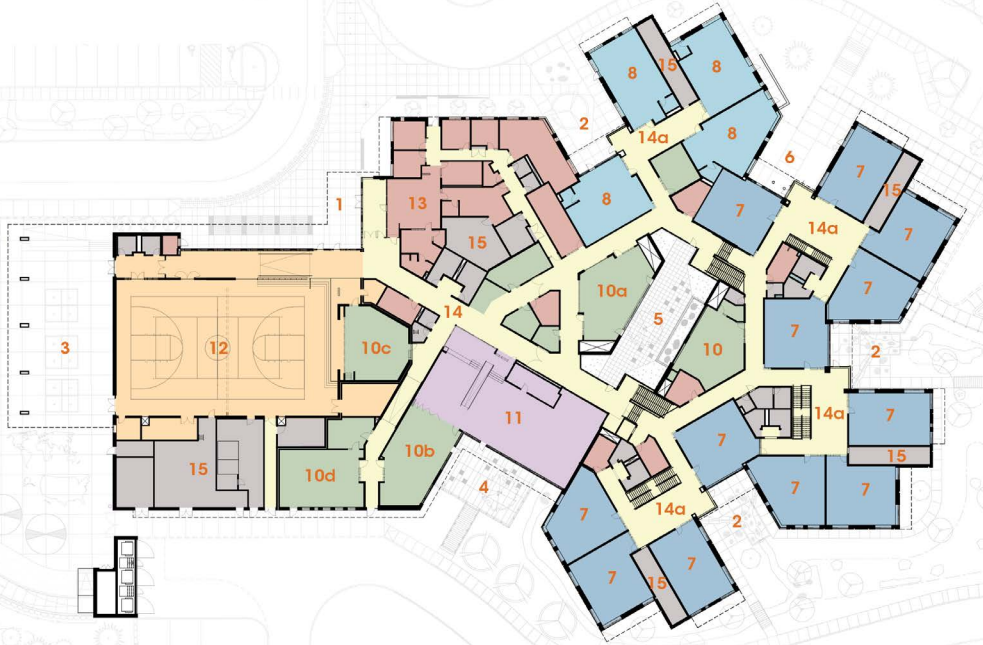
Classrooms have large glass relites linking them to shared learning areas and to each other through strong visual connections. This fosters a strong sense of community and ownership within the cluster.

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 STEM lab or outdoor play immediately accessible from the gym and commons.

Each new facility in the District is one with a lowered environmental footprint, lessening the operations and maintenance needs for generations. The sustainable strategies integrated into Clyde Hill Elementary School include a geothermal HVAC system, efficient heat pumps, extensive photovoltaics, occupancy and daylight sensors, a 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, 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

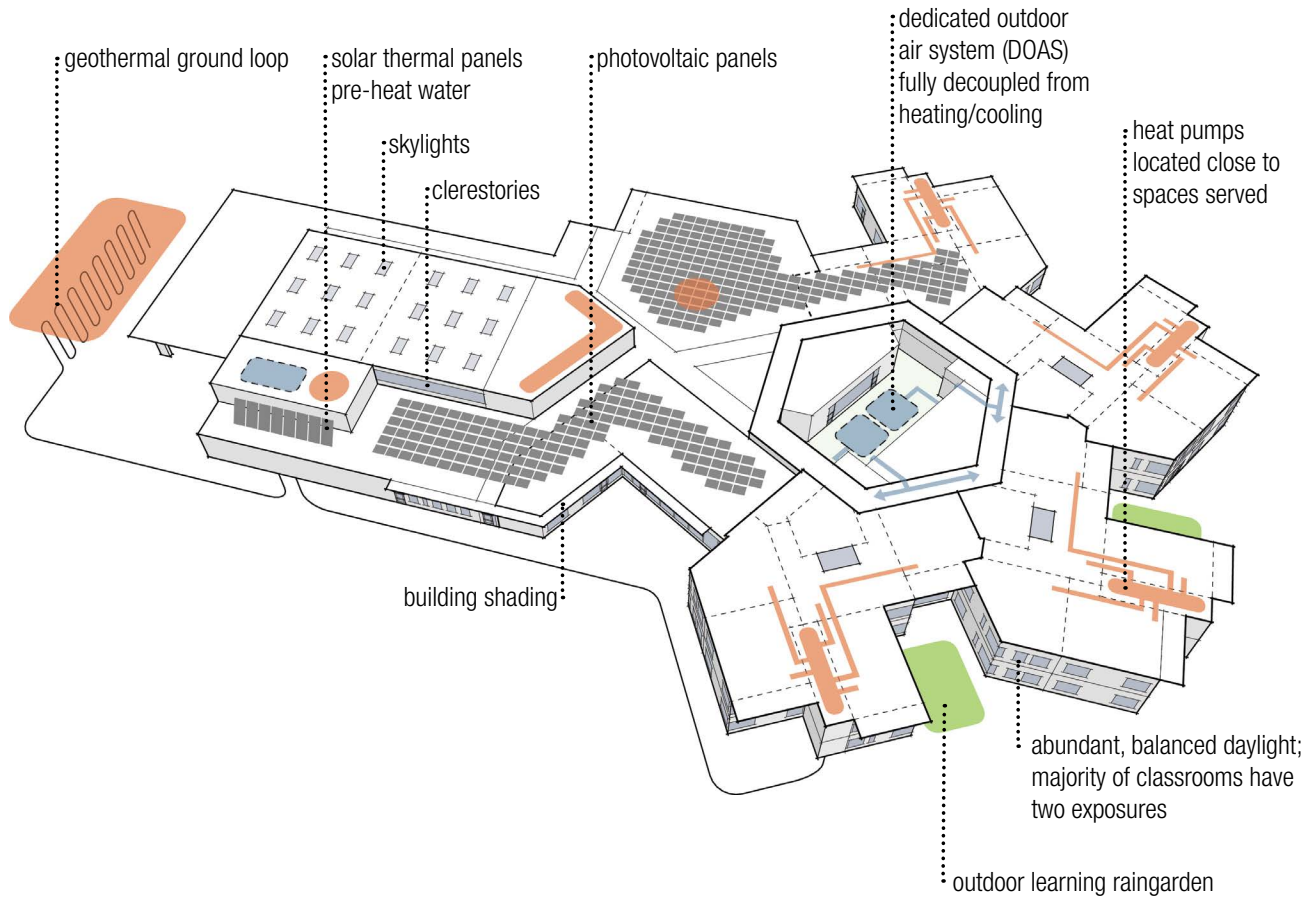


LOWER FLOOR PLAN



The stage in the commons/gymnasium is surrounded by the rhythmic patterning of wood, windows, and panels, echoing the feeling of the wooded site, bringing nature into the school.





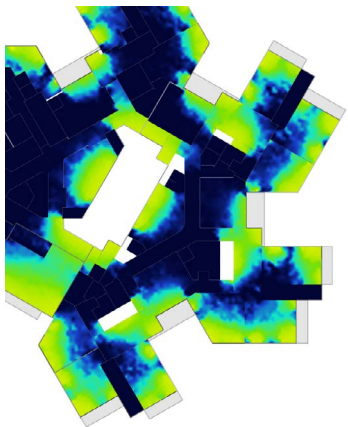
## Environmental Stewardship

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 predicted EUI of 10 and is net-zero ready.**

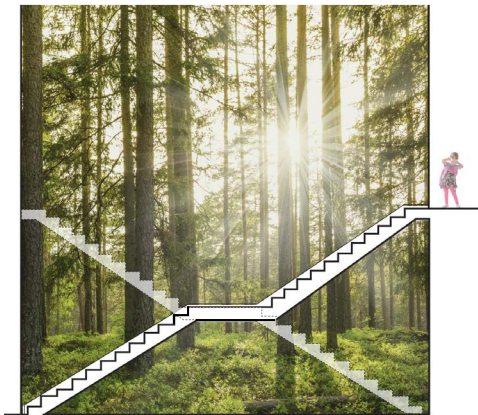
Clyde Hill Elementary School has a learning culture based on informed stewardship of place, resources, and ecosystems. In pursuit of supporting this culture, **the design team sought a solution that suggests an affinity between architecture and place**, accomplished through a set of biophilic associations 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.

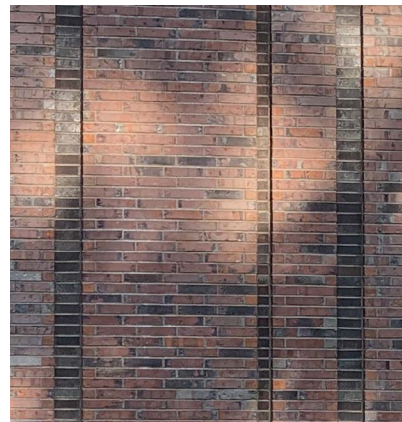
**The presence of nature defines the character of the school and invites student awareness and engagement with the natural world. The underlying goal being one that inspires and delights the students and staff on a daily basis, making school an enjoyable and productive place to learn and work.**



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.

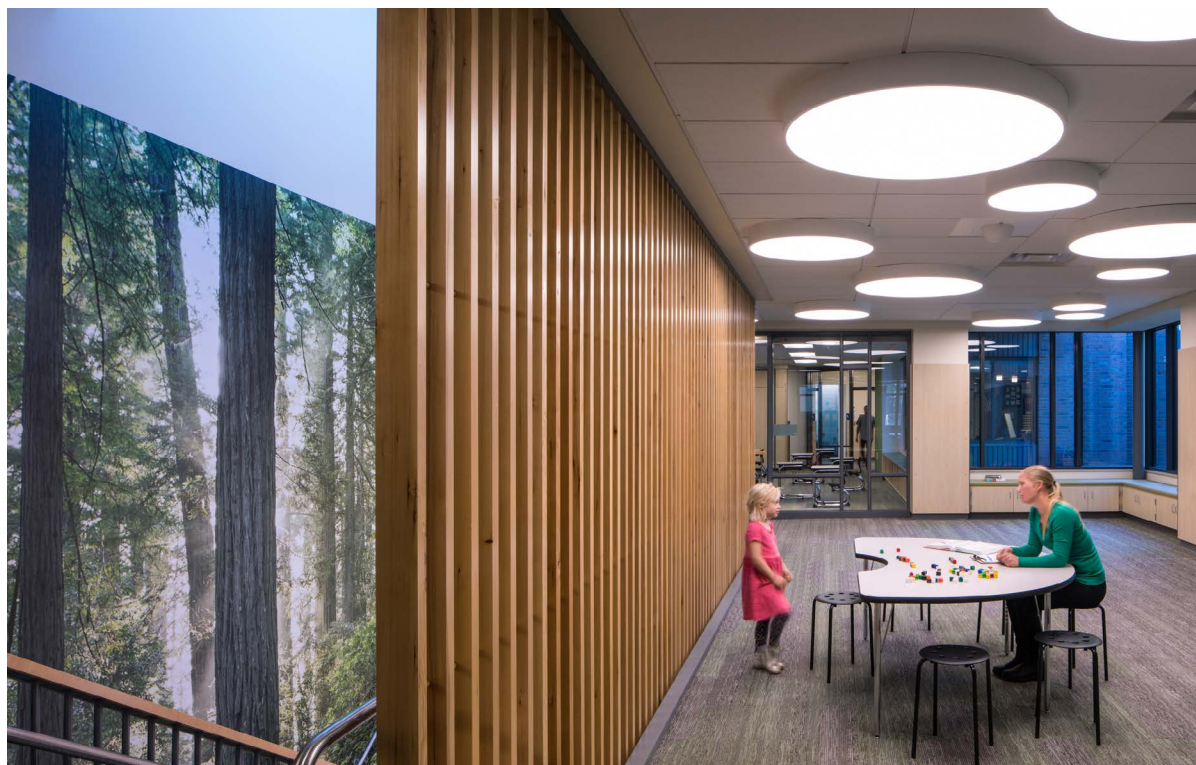




Wood screens filter light and views from the commons to the school's "front porch." Tiered wood seating was created from trees selectively harvested from the site.



Library and STEM lab are connected to an outdoor classroom/testing plaza and to the site beyond with a bridge over a rain garden.



Daylight, views, wood screens, murals of the natural environment, and subtle "lichen-like" carpet patterning organize the shared learning areas and connect students and staff to nature every day, strengthening their well-being and bringing them joy.



## 06 RESULTS OF THE PROCESS & PROJECT

**The new Clyde Hill Elementary School welcomed its students in the fall of 2019 and had six months of in-person classes before the world-wide pandemic affected Washington state schools, resulting in its use being suspended for thirteen months. Yet in its initial six months, the design of the facility was extremely well received by its community. Key features include responsiveness to fluctuating enrollments, the compact facility design, learning clusters connecting small groups of teachers and students to create a “home” for students within a large educational environment. The “swing” classroom design, allowing classroom clusters to fluctuate from 3 classrooms per grade to 5, has been effective in its first year of operation, particularly as enrollment was lower in its first year.**

The adaptable design allowed for the building to successfully support the school’s reopening in the Spring of 2021. The learning clusters’ ground floor shared learning areas with their direct connections to the outdoor learning areas were able to adapt and be used as distributed entry points to help maintain physical distancing and minimize potential viral exposure. The learning clusters’ shared areas were able to be utilized as classrooms to increase student capacity while maintaining capacity and distancing protocols. The open dining commons, imagined as the school’s “living room” close to the main entry, is a new model for the District. Being open, the layout makes it easier for the school to

utilize the space and creates an open flow, greatly diminishing concerns for air quality and physical distancing they would have in the typical model. The dedicated outside air system, decoupled from heating and cooling, was able to provide additional fresh air to

improve indoor air quality without affecting the rest of the mechanical system.

The District prides itself on developing compelling, enduring, and sustainable schools that support learning and discovery, while being good stewards of resources.

**The myriad of sustainable strategies integrated into the Clyde Hill Elementary School project have already demonstrated that the school is highly efficient and will make a dramatic impact on lowering the operational needs for this site into the future.**



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.





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.