NORTHWOOD ELEMENTARY SCHOOL

Education is an evocative word, yet currently, schools are formalized spatial structures, designed to give instruction that prioritizes competition over cooperation – while expecting objective responses that leave little room for personal reflection. Fragmented disciplines are further segregated and standardized by the built environment, devaluing both the connections and relationships between spaces.

Northwood Elementary is located on Mercer Island, positioned directly between the cities of Seattle and Bellevue. The community had not built a new school since the 1950s. The project occupies the corner of a large, multi-use campus, adjacent to one of the last remaining stands of Madrona trees on the island, on a steeply sloped site at the head of a major geological outlet to Lake Washington.

The design is an eco-system of flexible and fluidly connected spaces that promote active learning. Engaged on a hillside with a protected entry on the upper floor, the program layers learning around a central courtyard that opens to the Madrona grove and a Boys & Girls Club. Learning spaces ring the courtyard: classrooms on two levels to the north respond to the quiet residential context, community spaces spin outward to engage site partners to the south, while administration and outreach programs flank either end at points of entry.

Continuity and flexibility are paramount to the ability-based learning program. L-shaped classrooms are clustered in pairs to maximize ownership and function as resource-rich learning and small group spaces. By nesting pairs of classrooms with shared learning spaces along a continuum, it breaks down scale and maintains a strong relationship to the larger school community. In addition, new typologies of learning are formed.

An outdoor "Exploratory Lab" leverages the contours of the site to create a sheltered space between the built and natural environments. An indoor "Discovery Lab" leverages two previously underutilized community spaces – the library and the cafeteria – to form a new hybrid; equally maker-space, quiet-dining and home for expert in-residence programs.

Sustainability is approached with equal innovation and Next Generation Science Standards integration, with many physical connections as curricular:

- **100 kW rooftop solar panels**
- **Weather stations and energy modeling kiosks visibly integrate with Next Generation Science standards**
- **Waterways and naturalized treatment allow hands-on experimentation for instruction and play**
- **Planted green roofs, balanced daylighting, displacement ventilation, radiant flooring and high performance envelope create human comfort and the beauty necessary for psychological space**
- **Durable roofing and cladding assure the investment will be protected for generations to come**

SCOPE OF WORK AND BUDGET

OWNER
Mercer Island School District

SITE AREA
9 acres of a 43 acre campus

BUILDING AREA
77,000 SF

GRADES HOUSED
K-5

STUDENT CAPACITY
550

SQUARE FEET PER PUPIL
140 SF

OCCUPANCY DATE
31 August 2016

FINAL CONSTRUCTION COST
$34,434,060

BUILDING CONSTRUCTION COST PER SQUARE FOOT
$344 (BUILDING ONLY)

Northwood Elementary is located on Mercer Island, positioned directly between the cities of Seattle and Bellevue. This is the first school the community has built since the 1950s.

COMMUNITY ENGAGEMENT

In this highly educated, but fiscally conservative and primarily retired area, community-wide participation was sought in a speculative discussion on the future of education, which occurred before design began. To ensure all voices were heard, the team led a year-long community inquiry and hosted a multitude of evening meetings, coffee-klatch discussions, informal and formal survey processes, visioning sessions, prioritization and goal setting. Educators, administrators, parents and students from all three existing elementary schools came together to collectively form the backbone of the community-led planning process and provided continuity throughout design.

CHALLENGES

Known as a "bedroom community," the 6.3 square mile island has no zoning code for institutional buildings. One of the design team's challenges was to create a building that's scale and material palette related to the island's residential community context. The use of contextually sensitive, durable materials assured the community their investment will be protected for generations to come.

In addition, the new school was being located on a complex, multi-partner site with a wide variety of constituents, attempting to build a new educational paradigm where program and building provide a personalized, ability-based experience for a district in the midst of redistricting.

COMMUNITY ASSETS

The planning and design of the new school focused on creating a facility that would leverage and strengthen the existing programs and infrastructure of its site partners.

District programs that were previously hosted in the Boys and Girls Club were able to migrate to the new elementary school. The enlarged Northwood gymnasium allows both the high school and community teams to practice there after school. The playgrounds, located along the school's southern edges are oriented towards the center of campus and encourage shared use.

The program layers learning around a central courtyard that opens to an existing Madrona grove and a neighboring community center. Learning spaces ring the courtyard: classrooms on two levels to the north respond to the quiet residential context, while community spaces spin outward and engage site partners to the south.

STAKEHOLDERS

Students
Staff
District
Families
Curriculum Development
Developmental Needs Program
Three Existing Elementary Schools
High School
Alternative High School
Boys & Girls Club
Community Pool
Neighborhood
City

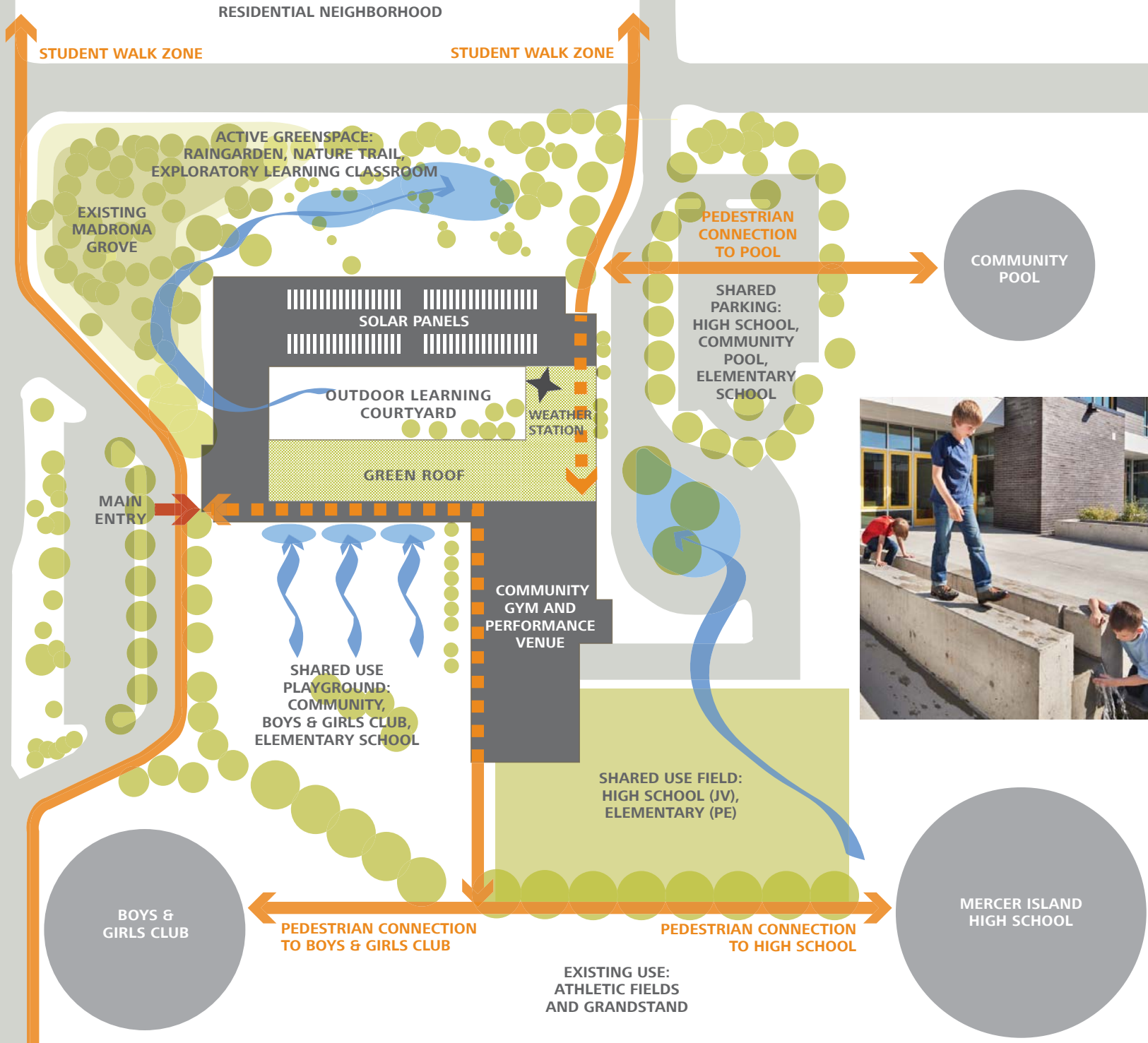
MERCER ISLAND, WASHINGTON

POPULATION
23,450

AVERAGE AGE
45 years

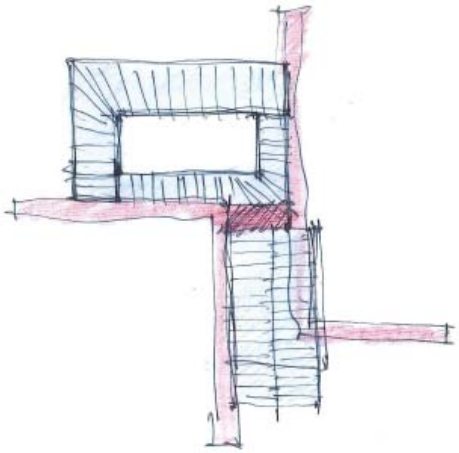
PERCENTAGE OF RESIDENTS WITH A BACHELOR OR GRADUATE DEGREE
77%

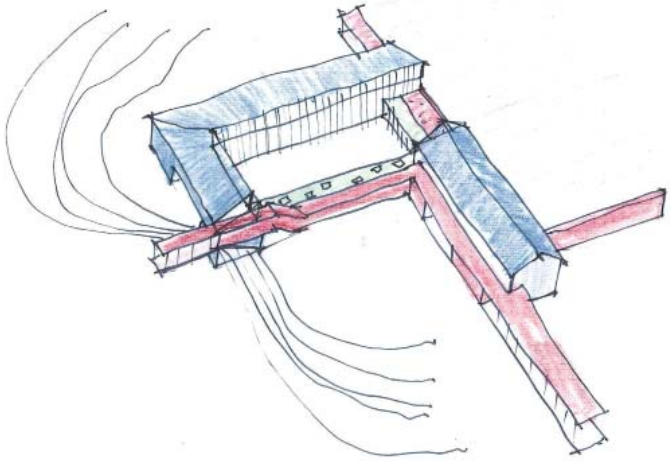
AVERAGE HOUSEHOLD INCOME
$172,400

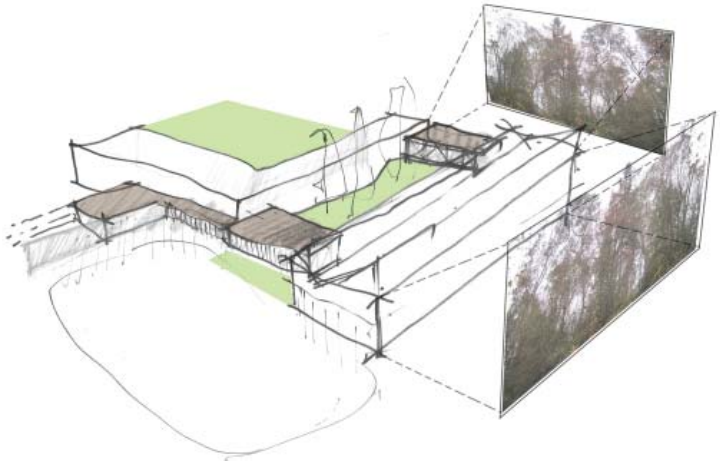


The site design creates connections between disparate site-partners, houses academic programs in new spatial typologies, and merges sustainable practices with sustainability education.

NORTH







Program and contextuality come together as an interplay of scaled modulation and materiality. L-shaped classrooms nest and rotate internally to provide increased collaboration and independence in learning that is differentiated by the age of the learner, resulting in a playful façade that fits into the context of the residential neighborhood without losing a strong, civic presence.

EDUCATIONAL ENVIRONMENT

The Mercer Island School District is committed to addressing educational challenges of the future while embracing community values of integrity, commitment, collaboration and excellence in all aspects of the student experience.

In support of this vision, Northwood Elementary provides the missing link between facility design and academic program. The design provides a variety of differentiated, personalized learning environments; finds the tie between curriculum; sustainability and facility design; and leverages on-site partnerships to strengthen the Island community.

ADAPTABLE AND FLEXIBLE

Continuity and flexibility are paramount to Northwood's ability-based learning program. As a result, the design is an ecosystem of flexible and fluidly connected spaces that promote active learning. L-shaped classrooms, clustered in pairs, maximize ownership and function of resource-rich shared learning and small group spaces. By nesting learning spaces along a continuum, the design allows each shared learning configuration to vary; offering six different arrangements that facilitate inter-class and inter-disciplinary crossover, so that age appropriate opportunities for independence in learning and new typologies of learning can be formed. To further support programmatic flexibility, the design treats technology as a ubiquitous tool rather than an event through seamless spatial integration with the educational experience.

DISCOVERY LAB

An indoor Discovery Lab leverages two previously underutilized community spaces – the library and the cafeteria – to form a new hybrid; equally maker-space, quiet-dining and home for expert in-residence programs.

EXPLORATORY LAB

An outdoor Exploratory Lab leverages the contours of the site to create a sheltered space between the built and natural environments. Co-located with the indoor Art/Science Lab and supported by exterior teaching material, manipulative storage and a water table, the covered exterior space allows Next Generation Science and art learning to occur regardless of inclement weather.

SUSTAINABILITY ON DISPLAY

Sustainable practices are as equally innovative as integrated into the building and site design. Technologies including rooftop solar panels, weather stations, energy modeling, and energy kiosks are visible and accessible to the users, while waterways and naturalized water treatment allow hands-on experimentation for instruction and play. The project's design features were designed to be an integral teaching tool for the Next Generation Science Standards.

Planted green roofs, balanced daylighting, displacement ventilation, radiant flooring, and a high performance envelope create human comfort and the beauty necessary for psychological space.

Brick, glass-reinforced cement board siding, aluminum plate wall panels, standing seam metal roof, and stainless steel guardrails create a low maintenance envelope that allows the district to dedicate operational resources elsewhere. The green roof – in combination with the rain gardens – passively manages on-site storm water.

ON-SITE PARTNERSHIPS

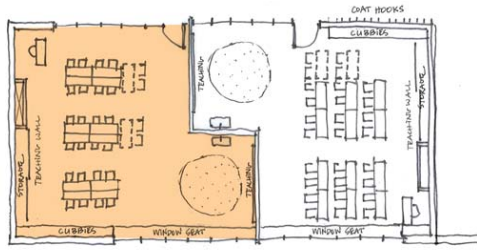
Northwood is sited on a campus shared by other public buildings: a community swimming pool, the high school, a Boys & Girls Club, and the school district administration offices. As such, the project was designed to support shared, collaborative programming for island residents of all ages. Spaces such as the dining commons, library, Discovery Lab, and gym are able to be open after-hours and are equipped with classroom technology to support extended learning and community programs.

The Discovery Lab leverages two previously underutilized community spaces – the library and the cafeteria – to form a new hybrid; equally maker-space, quiet-dining and home for expert in-residence programs.


Fiction
Falling Up
Once I Ate a Pie
FARMER'S DOG

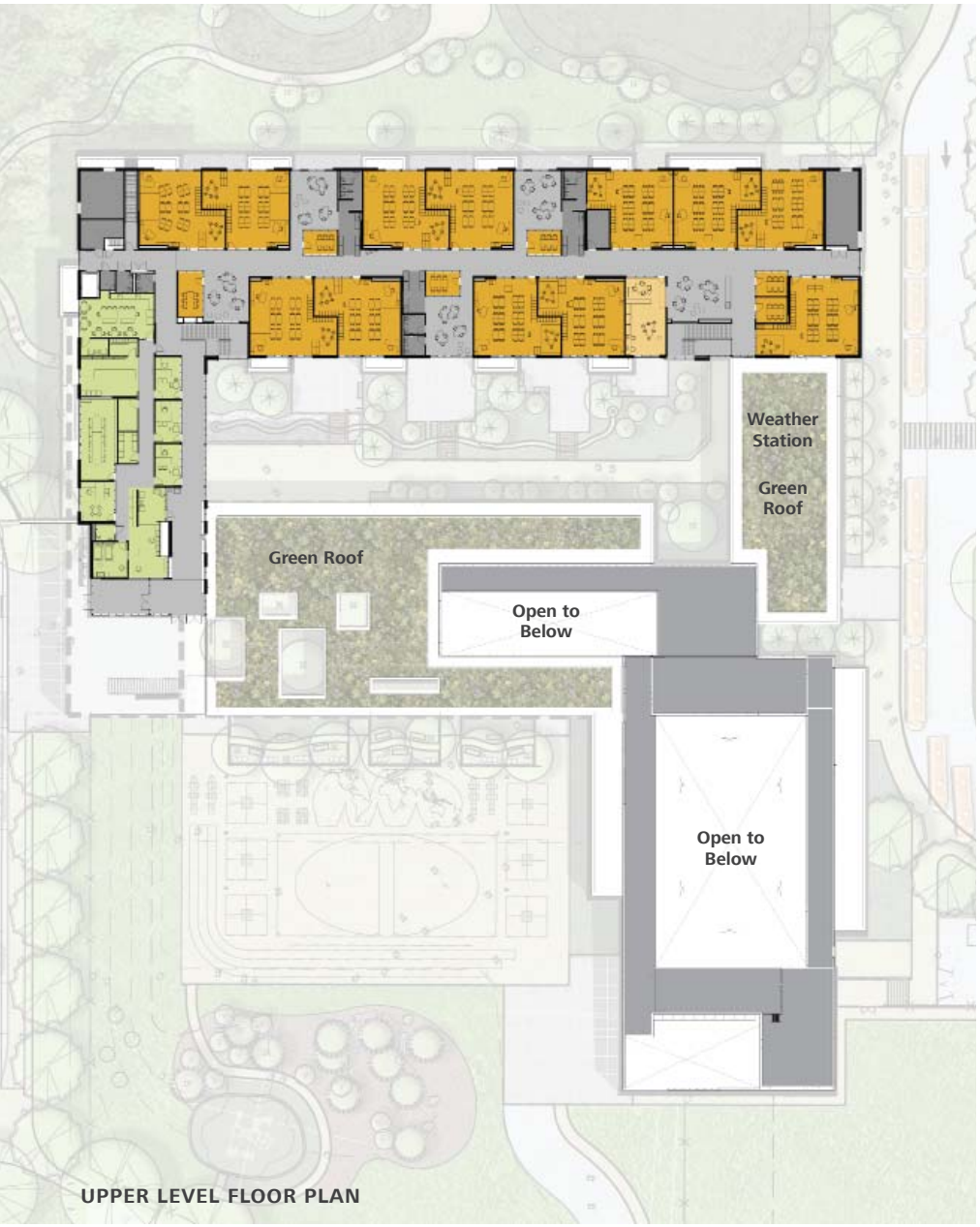

EXIT

L-shaped learning spaces are pivotal to meeting the district's vision for facilities that offer personalized learning environments that are responsive to students' strengths, needs, learning styles, interests, passions and affinities.



The art and science rooms are connected to both the ecological and social aspects of the outdoor learning courtyard and Exploratory Lab.

I’m not sure where to put the gym photo in the rhythm of images!



UPPER LEVEL FLOOR PLAN

LOWER LEVEL FLOOR PLAN

- Administration
- Classroom
- Special Instruction
- Library
- Music / Art
- Computer Lab
- Gymnasium
- Commons
- Kitchen
- Circulation
- Support

NORTH

0 15' 30' 60'

PHYSICAL ENVIRONMENT

Northwood Elementary occupies the corner of a large, multi-use campus, adjacent to one of the last remaining groves of ecologically-rich Madrona trees on the island, and nestles into a steeply sloped site at the head of a major geological outlet to Lake Washington. The design is an eco-system of flexible and fluidly connected spaces that promote active learning and support the Next Generation Science Standards.

ENVIRONMENT AS TEACHER

The covered, outdoor Exploratory Lab, suited to the Pacific Northwest's rainy climate, leverages the contours of the site to create a sheltered space between the built and natural environments. It is the bridge between the learning courtyard and an outdoor nature trail through the grove of Madrona trees.

CAMPUS CONTEXT

The campus plan informed the distribution of programs with the private learning and administration spaces providing a human-scaled, public face along street frontages, while the more active social spaces turn inward to be shared amenities for adjacent site partners. Balanced between these two civic edges, an internal courtyard creates a more privatized outdoor learning space for the elementary community.

Administration and outreach programs flank the courtyard on the east and west edges of the site as two points of entry that are linked by a cohesive sequence of porches, interior lobbies and exterior covered spaces. This clearly articulated path knits the building together along the northern edge of the playground, creating a welcoming place for the school community and the public-at-large to gather. The playgrounds, located along the school's southern edges, are oriented towards the center of the campus and thus encourage shared use.


Welcome to Northwood Elementary

NORTHWOOD ELEMENTARY SCHOOL // MERCER ISLAND, WASHINGTON

"This building is a fitting tribute to the dedication, the wisdom and the spirit of this Island community and what they hold dear in their hearts, and that is education. It is education that enables our children to thrive, to grow, to learn and to create. I'm incredibly proud as your superintendent to open these doors and show the world what we have created."

Dr. Gary Plano, Superintendent, Mercer Island School District

"It is like the Google building of elementary schools. It is astonishing how beautiful it is. Roof-top gardens, huge windows, and amazing use of light and space... I am mind blown."

Mercer Island resident quoted in local newspaper, June 20, 2016

"...I am in LOVE. It is absolutely everything I could've imagined and much, much more. I talked to three teachers I know personally who are at the new school, and they are so excited about the possibilities. I can't wait to see what will be unleashed by the collaboration between the supportive building and the gifted educators and eager students. I've already planned a trip back in the fall to see it all in ACTION."

Janet Frohnmayer, Board Member, Mercer Island School District

"This is the project that nearly brought us to tears, and it made me question what kind of school environment I provide for my kids. This transcends the program type of a schools building. Schools are complicated, complex, very difficult. There are many different spatial types in this school, and the architects have managed to weave them together in a way that doesn't feel like a potpourri of different room types. It actually flows amazingly well. And it's just a demonstration of a very sophisticated, and a very nuanced understanding of the way which kids need to learn, and play, in open-ended, but also safe ways."

Mimi Hoang AIA, Principal, nARCHITECTS

"...the flow is a great example of what seemed to be a collaboration with a client really needing to create programmatic juxtapositions, because normally it would be almost impossible to put a cafeteria next to a library. You wouldn't think it would work. But the way that they very deftly handled both the acoustical sort of layers, in some cases just in the materiality, they were able to keep it open. This is, right here, a good example of that."

Anne Dyson, Professor, School of Architecture, Rensselaer Polytechnic Institute