



## Hazel Wolf: E-STEM K-8 School

### A HARBINGER OF CHANGE:

- PROGRAMMATIC** ▶ A unique E-STEM K-8 program
- EDUCATIONAL** ▶ A case study for outdoor learning.
- URBAN** ▶ A large school on a very tight site.

As a pioneer in Environmental STEM (E-STEM) education, this urban school needed a new facility that would maximize sites for environmental learning and incite genuine engagement. Established with the intent to empower creative, critical thinkers and promote environmental stewardship, Hazel Wolf K-8 boasts academically rigorous programs that emphasize environmental science.



# Hazel Wolf K-8 E-STEM School

## PLANNING PROJECT FRAMEWORK:

- › A pioneering program
- › A mighty challenge
- › An incredible “can-do” steering committee

### SCOPE:

83,000 SF new K-8 school

680 students

3.2 acre site

### BUDGET:

Construction budget: \$25,800,000

Construction cost: \$27,617,000



## A Program Like No Other

# At Hazel Wolf, all learning is focused through an environmental lens.

### ACCESSIBLE FOR ALL AGES

6-8

- › Water testing for pollutants
- › Soil filtration tests
- › Sit Spots: creative writing/poetry
- › Native plant cataloguing and web design
- › QR code plant tags



3-5

- › History of native cultures
- › Jellyfish sculptures
- › Earthquake/structures analysis
- › Species population statistics



K-2

- › Soils and geology
- › Fallen leaf scavenger hunt
- › Sit Spots: observing and sketching



Research has established a clear relationship between planned learning and informal learning, and between play and socializing. Nature is an excellent trigger of students' curiosity. Teachers at Hazel Wolf have witnessed numerous occasions where students are inspired by outdoor lessons to pursue self-directed learning, with the potential to develop both lifelong learning skills and a concern for our environment.

Teachers at Hazel Wolf developed a variety of environmental learning activities, such as nature observation at various "sit spots" on their site. Throughout the planning process, the design team worked closely with science teachers to design the site to accommodate their activities.

# A Program Like No Other

ACCESSIBLE ACROSS ALL SUBJECTS

INTERDISCIPLINARY

art

- › Jellyfish sculptures
- › Sit Spots: observing and sketching

science

- › Water testing for pollutants
- › Soil filtration tests
- › Native plant cataloguing
- › Sit Spots: nature observation

reading/  
writing

- › Sit Spots: creative writing/poetry
- › Web design

math

- › Earthquake/structures analysis
- › Species population statistics

tech

- › Web design
- › QR code plant tags

history

- › History of native cultures
- › Soils and geology



Finding Urban Nature (FUN): The Washington Audubon Society partnered with Hazel Wolf for a series of activities meant to make students more observant of the natural diversity around their urban school. They brought taxidermy birds for the students to observe and hold. Seeing the detail up close in the classroom made the students more astute observers of the different bird species and their behaviors when they see them outdoors.



# A Mighty Physical Challenge



## PREVIOUS SITE

At this pioneering E-STEM K-8 school, learning is focused through an environmental lens. This was easily accomplished at their previous location, where there was ready access to excellent outdoor learning opportunities including an urban stream and a large city-developed wetland for flood control. Teachers often took students on field trips to the nearby Meadowbrook Field and Pond.

## NEW SITE

By comparison, their new site is much smaller, more urban, and lacking these natural amenities. In short, a challenging site.

The new school facility needed to maximize use of the small triangular site to support an educational program that made regular use of the outdoors and nature in its curriculum.

“Now forget about the site size and amenities (like the creek) that you had. Your new site doesn’t have any of that.”

— message to school steering committee and school community representatives

# An Incredible “Can-Do” Committee

- › Focused determination
- › Embracing the challenge
- › Open mindedness

The school assembled an excellent steering committee (of visionaries) with a “can do” attitude. The committee quickly embraced the challenge and engaged themselves in highly constructive dialogues. Clear goals were established about maximizing the site for environmental learning and enhancing students’ connections to the outdoors and from space to space. The goal was to design spaces across the whole site and throughout the compact 3-story building to display students’ engagement in interesting projects, fostering their excitement through seeing learning in action, and to support the environmental focus of the school.

School tours with steering committee discussed different approaches.



Committee meeting: steering committee members were constructive and active participants in option discussions.





# An Incredible “Can-Do” Committee

## › Visionary input from parents, community, and students

The steering committee consisted of approximately 20 members, including teachers, principal, District staff, multiple parents and community members, and students. The architect led the committee through a series of activities designed to probe deep into what was important and test their willingness to innovate. Exercises such as the “block” design exercise created a sense of co-authorship in the design and enhanced collaboration and buy-in to the final solution. Students on the planning committee gave excellent input and fantastic contributions from the wider community members of varying professional backgrounds was absolutely necessary given the tight, oddly shaped site.

To achieve these goals, it was paramount that all options were explored and no stone left unturned. The architect showed multiple rounds of options requiring the committee to stretch their boundaries and expectations. The open-mindedness of the steering committee toward unconventional solutions was characteristic of the high quality of dialogue in the meetings.

## › Wide community support

The new facility needed a zoning variance in order to be built on this site, which required a vote from the surrounding community. The design team met with the extended community group to present the issues and explain the need for a code variance. The extended community approved the variance with 100% in favor and no opposing votes.

## › Wide school community enthusiasm

Originally, the living wall at the main entry was excluded from the base bid because of budget constraints. Recognizing how valuable this feature would be to their school and students, the PTA and community decided to fund the living wall project themselves and include it in the base bid for the project.

“Block” design exercises with the committee



Sketches of explored options from committee presentation meetings





The school focus on the Environmental STEM program is very obvious from the main entry, where a living wall welcomes students and visitors on a daily basis. It is a teaching station in school's curriculum, a reminder to all about the school mission, and the learning opportunity for the community and parents while they wait to pick up their children. It sends a daily message about the environment to the students and the community.



# SITE: AUTONOMY AND DIALOGUE AT THE IN-BETWEEN CONDITION

## ► Immediate Site and Context Benefits

Urban sustainability is increasingly manifested in creative land use. The project maximizes a small, odd shape site for the large school use in the mixed zoning areas.

## ► Broader Meaning for the Typology - Harbinger of Potential Atypical Future Land Use:

Zoning regulations have recently started to loosen up in US cities creating conditions where different project uses and typologies intersect in a new way. It is very important to find more beneficial purposes for these types of "leftover" sites at the confluences of mixing typologies.



Figure ground + program + zoning



Context required an interaction between the new school and the varying scales of adjacent massing. Internal programming arranged around the central courtyard establishes massing dynamics within the site capable of a dialogue with adjacent buildings.



PINEHURST WAY ELEVATION

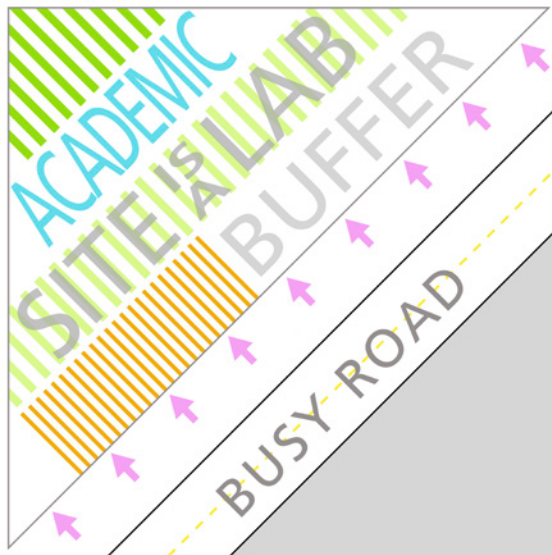




Public / community functions serve as a buffer to the arterial street



# Indoor Outdoor Lab: Maximizing the Site



Site concept

The challenge of a triangular site was resolved through layering in relationship to the Pinehurst arterial.



SITE & FIRST FLOOR PLAN

- CLASSROOMS / SPECIAL ED
- SCIENCE ROOMS
- LIBRARY
- ART ROOM
- OUTDOOR LEARNING
- LEARNING COMMONS



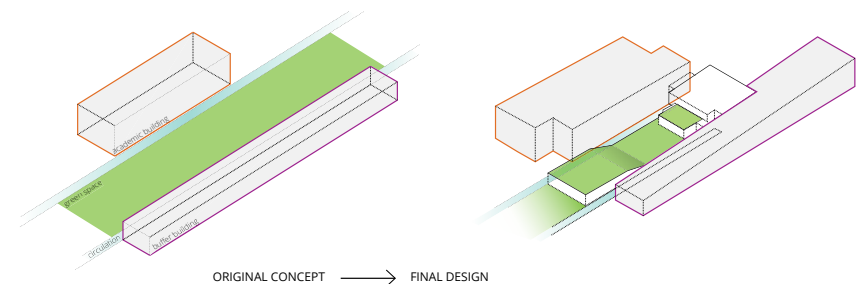


The school serves as a contextual counterpoint and a main urban form generator at the same time.

## Indoor Outdoor Lab: Maximizing the Site

The project evolves its typology by spatially blending traditionally separate parts of the school program where the site and the building intertwine conceptually and physically. This type of interaction, taking place on an unusually sized and shaped site, becomes a quintessential example of urban sustainability. Hazel Wolf K-8 presents a model for similar programs in urban areas across the West Coast and beyond.

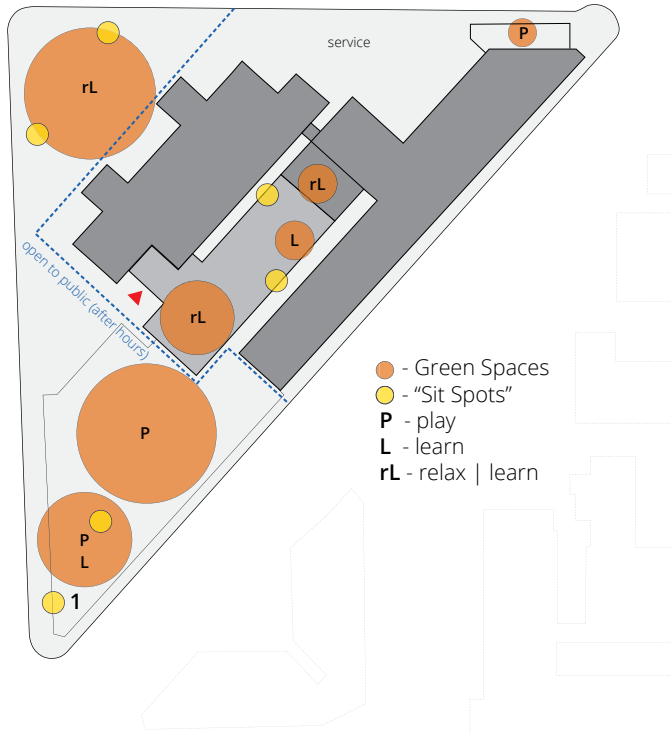
Maximizing use of the site for environmental learning was a critical design generator. The site is conceived as a lab with a variety of indoor/outdoor learning areas. The central courtyard has several teaching areas focused on planting and storm water management, including a constructed wetland where students take water and biological samples to study and monitor their environment.



The courtyard extends up and over the administration area and art room, creating more spaces for outdoor learning



# Indoor Outdoor Lab: Maximizing the Site





# Site as Outdoor Lab: Botanical Garden



## “SIT SPOTS”

Outdoor areas across the whole site are designed to provide ample formal and informal learning opportunities for the whole class, small groups or individuals, as well as to inspire socializing and play.

Campfire area under the saved tree can serve the whole class and informal gathering. Walking paths in the botanical garden provide natural stimulus.





## Site as Outdoor Lab: “Off-the-Cuff” Teaching

Part of the success of the “indoor/outdoor laboratory” model can be attributed to how close the classrooms are to the major outdoor teaching spaces on the site. The 3-story classroom building has the Botanical Garden on the North side and the Nature Cycle Courtyard on the South side. It is a longer trip from any classroom to the cafeteria than it is from the classrooms to either of these outdoor learning environments. That means that there is no cost in valuable time to take a class outdoors for a planned activity. In fact, because the classrooms look out at the outdoor learning spaces, some teachers remarked that they engage in “off-the-cuff teaching”. If the teachers look out their window and see something outdoors that would serve as an object lesson for a topic discussed in class, then the teachers will take their class outside for a demonstration.







## Site as Outdoor Lab: Central Courtyard

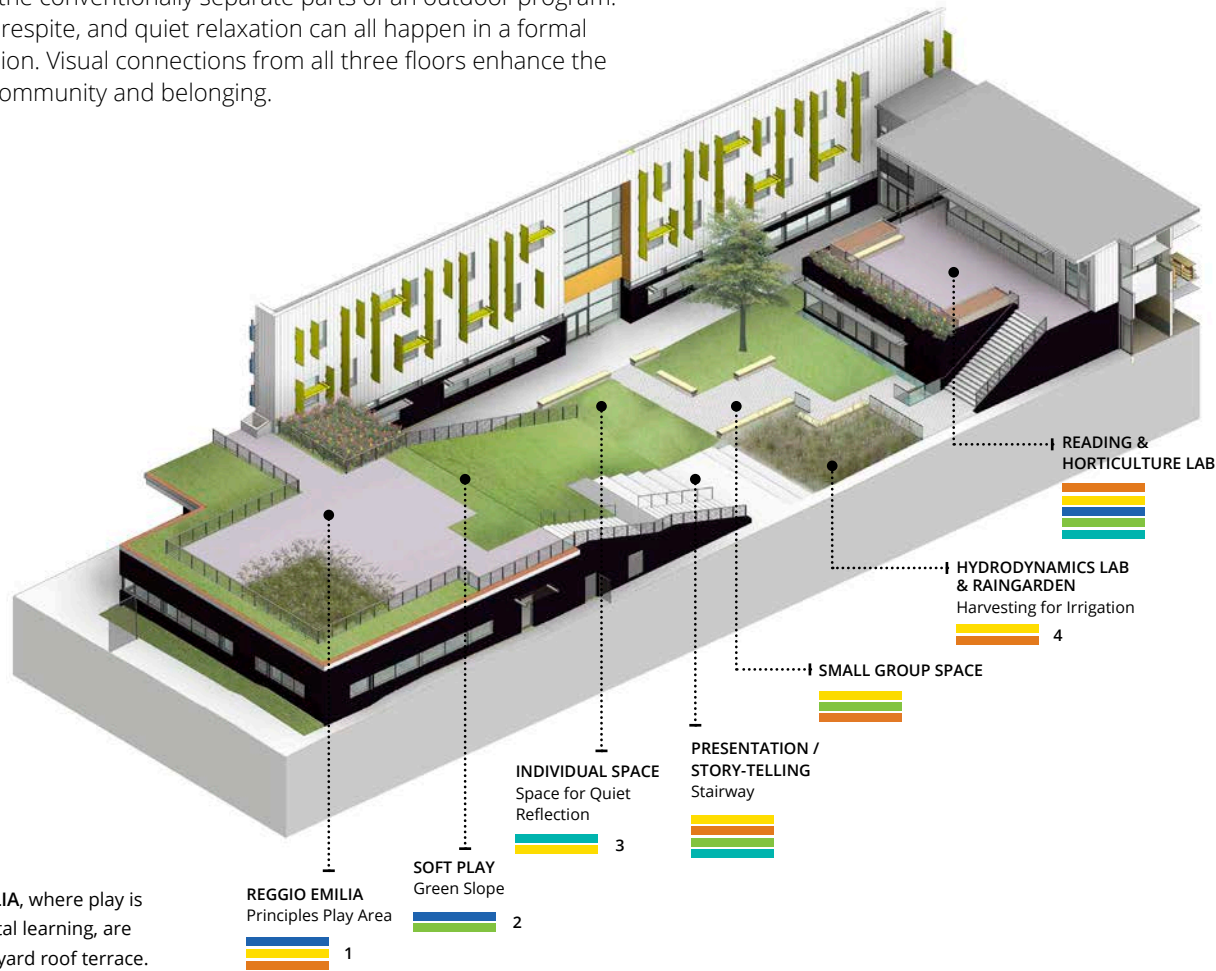
The courtyard is designed to foster student and community engagement across the whole space. Bounded by public/communal spaces serving as a buffer on the street side, and a three-story academic building on the north side, the courtyard flows up and over the administration offices to the south. Students can see other students in action at a variety of places in the courtyard, extending their motivation to be engaged in similar activities.



# COURTYARD PROGRAM: PLAY LEARN SOCIALIZE TEACH RELAX

## BROADER MEANING FOR THE TYPOLOGY

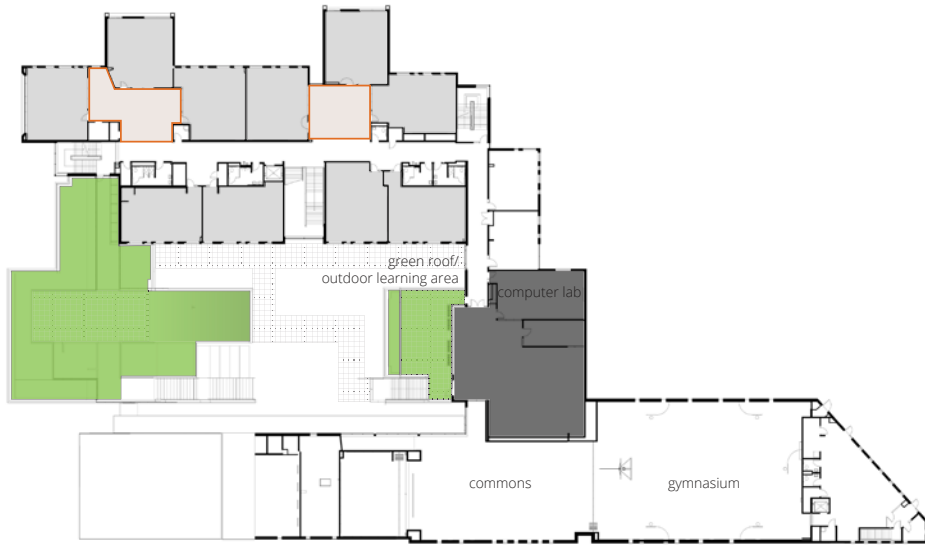
The courtyard mixes the conventionally separate parts of an outdoor program. Play, learn, individual respite, and quiet relaxation can all happen in a formal or serendipitous fashion. Visual connections from all three floors enhance the sense of the school community and belonging.



Principles of REGGIO EMILIA, where play is blended with environmental learning, are incorporated on the courtyard roof terrace.







LEVEL 2



LEVEL 3



LEVEL 1



Shared spaces support and accommodate project based learning throughout the building, including science group experiments.



# Site and Building Spacescapes: Support for Interdisciplinary and Project Based Learning

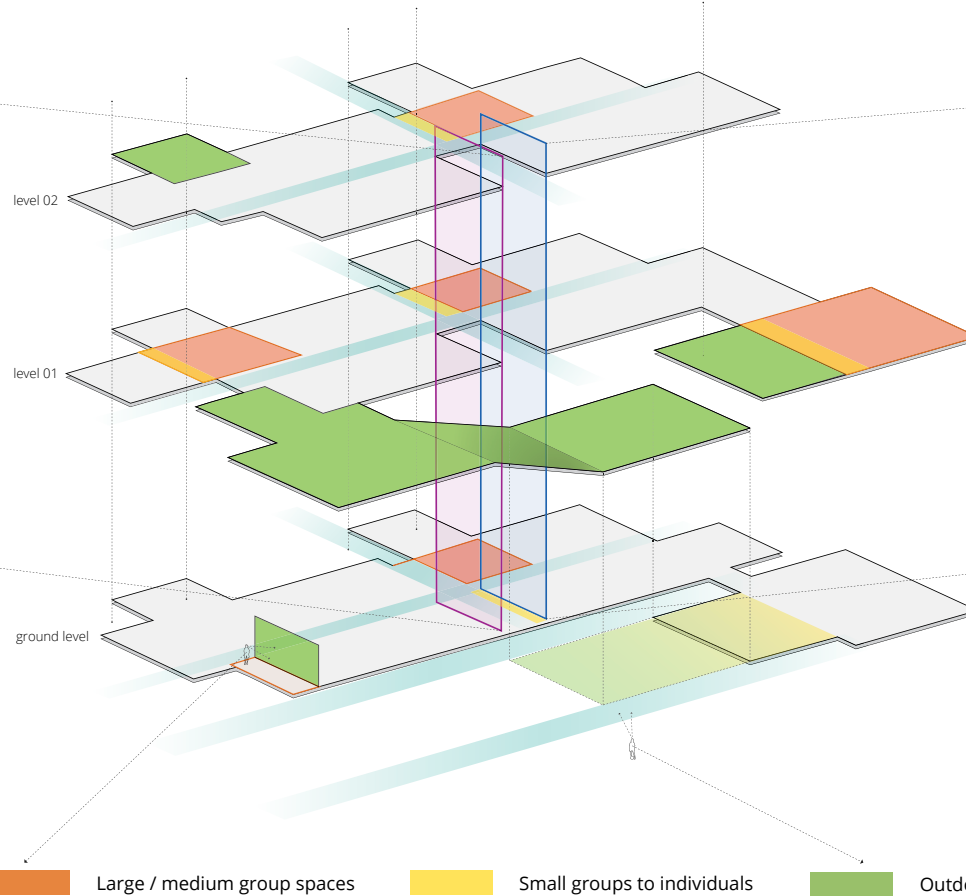
## E-STEM CURRICULUM: LEARNING THROUGH THE EXPLORATION OF EARTH SYSTEMS

EARTH SYSTEMS CIRCULATION WALL



**EARTH WALL:** On one wall of the circulation core, a graphic of earth's layers provides students with information about the size and location of each layer.

The living wall at the main entry presents the school's mission to the entire community and is an active teaching tool for the student science projects.



Large / medium group spaces
  Small groups to individuals
  Outdoor spaces

SEISMIC CALCULATION CIRCULATION WALL



**SEISMIC WALL:** On the opposite side, the wall that contains seismic bracing displays equations to help students learn about seismic activity.

The courtyard provides several opportunities for environmental learning as well as areas for relaxation and play.



The green slope presents an opportunity to take advantage of the play/learn benefits of movement as related to increased student concentration. Additionally, teachers have learned that its very visible location allows them to send anxious students there for a few runs to reduce their stress level and improve focus. The choice of durable material means the benefits of this feature are usable all year long, even in Seattle's frequently inclement weather.







## Indoor Spacescapes: Fabric of Shared and Informal Spaces

Like the site, the building was programmed and designed to accommodate a variety of interior spaces of different scales and characters, suitable to a multitude of project based learning experiments that are part of the E-STEM curriculum. A very strong transparency throughout provides strong visual connections between classrooms, shared spaces and found spaces.





“Found” spaces allow additional small group activities or individual respite and focus.

## Indoor Spacescapes: Central Stairway

The three-story vertical circulation space provides learning moments with each trip the students make. On one side of the stairs, an image on the wall shows a section of the earth's crust with Mohorovicic discontinuity illustrating vertical earth strata. The other side of the stair has an exposed seismic brace frame with the structural calculations printed on the wall — a manifestation of the knowledge needed to make buildings resist earthquakes, another possible teaching opportunity. This area also has potential for formal and informal learning and socializing activities due to the design scaling of the stairs and the integrated seating/study areas.

“Meet me at the math wall.”

— student talking on the phone





## Indoor Spacescape: Wider Community Engagement







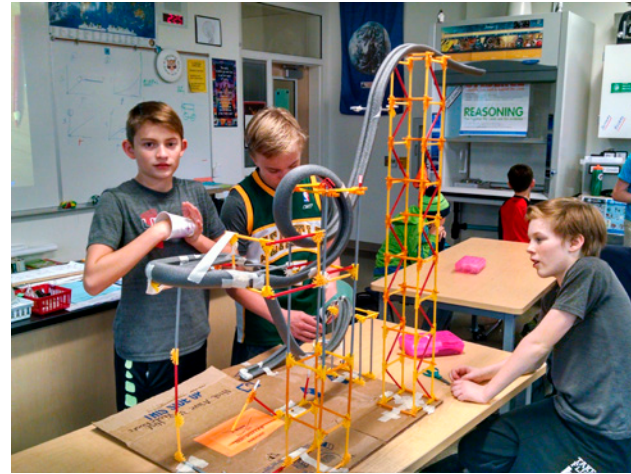
## Indoor Spacescape

### TRANSPARENCY, SPACE DEPTH AND SENSE OF CONNECTIVITY

Significant interior transparency allows daylighting to infuse the interior making a strong sense of connection for the users. An overall sense of spatial connectivity is emphasized throughout the building.



# Observed Feedback



## ENTHUSIASM FOR SCIENCE

“When we were planning for the school, I thought that we would need to make many compromises. It looks now like we did not make any compromises.”

— steering committee parent



# Informal Feedback

"Innovative building to meet the needs of today's students, tomorrow's leaders."

"It is a beautiful building that makes the most of a small footprint."

"This school is the smartest, most environmentally (oriented) school building I've ever seen! It's a pleasure to spend time in this building."

"Fantastic use of a tight space and great innovation shown in the use of the building as a teaching tool. Way to go!"

"This is what 21st century education should look like."

"This school is practicing what it preaches as a school focused on E-STEM education by integrating environmentally savvy practices into its own building."

Comments from voters for the Daily Journal of Commerce, Building of the Year competition.



"I attended the open house/orientation for Hazel Wolf K-12 last night. My son is lucky enough to be spending the next year there before moving on to high school.

What a fantastic project! There is great variety in the spaces — they bleed into each other, overlap and are full of surprises. The exterior spaces are integrated in a wonderful way that will make them very usable. It's a project that will only get better with time as the landscaping matures and the users figure out the best ways to leverage the flex spaces."

— parent of Hazel Wolf student



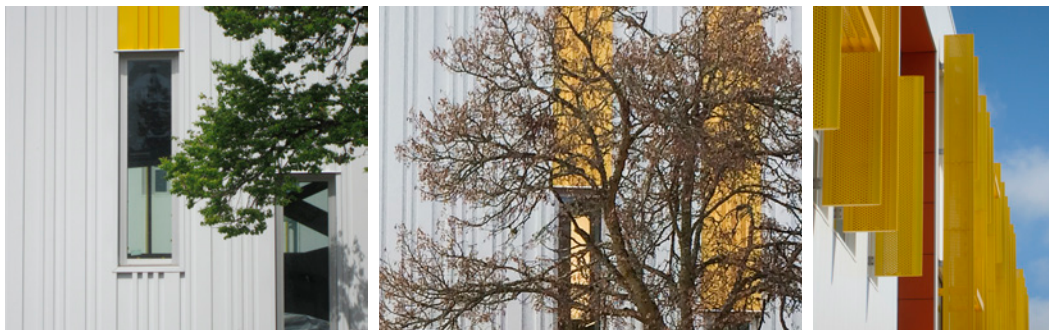


WINTER

LATE SUMMER

## Nature and architecture at any season

Building as a canvas for textures and colors



“Love the composition of the simple forms and the vibrant colors. Driving by this place on a cloudy day makes me feel happy for the students that get to go here.”

Voter comment for the Daily Journal of Commerce, Building of the Year competition.





## Nature and architecture at any time of day

Building as a canvas for light









“I know when I was a kid we used to throw the football out of a first-floor window. We never went to a play-space; the play space began immediately. **Play was inspired, not organized.**”

— Louis Kahn



