

ENVIRONMENTAL LEARNING CENTER



Executive Summary

The Science and Math Institute (SAMi) is a Tacoma public high school located within Point Defiance Park. Since its founding in 2009, SAMi has created a powerful community of learners that partners with the conservation and education mission of Metro Parks Tacoma and Point Defiance Zoo and Aquarium (PDZA). Amenities in the park include the Zoo and Aquarium, rose and rhododendron gardens, beaches, miles of trails and most notably, a stand of old growth forest. The Park is SAMi's "lens for learning;" the park itself is the primary learning environment. The new Environmental Learning Center (ELC) is the first permanent facility designed around SAMi's approach to education. Serving only one third of the school's 450 students in the new ELC, SAMi also utilizes 14 portables and several community buildings located throughout the Park and Zoo.

Students explore and gather artifacts in the forest, Zoo and waterfront ecosystems, and bring them back to the Center to analyze, interpret and demonstrate so that upon return to nature they see it with new eyes. Students and teachers engage with community partners through citizen scientist workshops, interpretive exhibits, as well as advance the research and educational mission of the Park and Zoo. Designed to put student and partner work on display to the public, the new ELC is a community asset that supports greater understanding and appreciation of nature's ecological systems and our relationship to them.

The facility is designed to connect learning to its unique surroundings. The ELC takes advantage of a unique adjacency between the Zoo environs and the extensive forest trail system. Entry from the south is on a boardwalk to minimize disruption to the hillside vegetation, and on the north side an accessible bridge connects learning settings directly to the forest trails. The ELC is a collection of diverse workshop settings for a variety

of learning modalities: discourse, design, experimentation and fabrication. Small group contemplative-learning "eddies" between the workshops spill into a ubiquitous collaborative space that connects interior learning settings to each other and to the outdoors. Visual connections to the outdoors are afforded through the eddies and by floating the sheltering roof to provide views to the surrounding forest.

Designed for LEED Silver certification, the ELC encourages sustainable living by cultivating a relationship with nature. The ELC provides visual and physical connections to nature and abundant daylight throughout. The scale, fenestration and material choices for the Center were inspired by biophilic principles and the experience of solid and void of the trees in the forest.

The planning process engaged SAMi students, teachers, zoo educators, curatorial staff, community partners and local artists who affirmed that connection to nature is an essential characteristic of SAMi and that the conservation mission, and education, is strengthened through partnerships. Participants offered directives like "not pristine", "semi-permeable membranes" and "invite creativity and experimentation" that became essential drivers in the design of the new ELC.

Scope of Work and Budget

Number of Students: 450

Total Gross Square Feet: 31,429 s.f.

Site + Building Construction Cost: \$12,810,000

Predicted EUI: 25.3

Construction: July 2016 - October 2017



School and Community Engagement

The Science and Math Institute (SAMi) is a public high school within Tacoma Public Schools, formed in partnership with Metro Parks Tacoma and Point Defiance Zoo and Aquarium (PDZA). SAMi encourages a creative path of learning for every student that emphasizes human understanding and expression, seeking to educate the whole student through the values of Community, Empathy, Thinking and Balance.

Community: First and foremost, SAMi is a learning community. Careful planning and design of school culture has helped us rely on the strengths of each staff and student. Students enter the school with the expectation to develop his/her leadership potential within and beyond school.

Empathy: SAMi students seek to continually put themselves in someone else's shoes and seek new ways of approaching a problem. Every member of our community has unique perspectives, strengths and struggles, and students strive to adapt their approach to see the world from their point of view.

Thinking: SAMi students challenge themselves to dive deep into any idea, seeking a strong understanding as opposed to merely reciting facts. They believe in putting complex problems in the hands of inspired young people, setting the bar higher and higher beyond what even they assume they can achieve.

Balance: SAMi seeks both left-brained and right-brained thinkers, creativity alongside analysis. Seeking both macro and micro, they study the species and the ecosystem, the inflection of one note and the whole orchestra. They find balance in perspective and their school seeks to always show both sides of a picture.

AVAILABLE ASSETS

SAMi is located in Point Defiance Park, a 700-acre urban park surrounded on three sides by the waters of Puget Sound. Amenities in the park include the Zoo, Rose and Rhododendron Gardens, beaches, trails and most notably, a stand of old growth forest. Currently operating from a base of 14 portables on the edge of the park, SAMi also utilizes, on an ad-hoc basis,

a number of community buildings located throughout the Park and Zoo. Recognizing the timetabling challenges faced by this arrangement and seeking to strengthen already close bonds with the school, PDZA offered the opportunity to develop a site in an underutilized corner of the Zoo.

VALUE OF THE PROCESS AND PROJECT TO THE COMMUNITY AT LARGE

Since its founding in 2009, SAMi has created a powerful community of learners that contributes to the public educational mission of the Park and the Zoo. The school is strengthened when students and teachers can engage with community partners through citizen scientist workshops, interpretive exhibits, research with educational partners in the region, as well as advance the research and educational mission of the Park and Zoo. Sharing the space with Zoo staff and volunteers on a daily basis immediately expands the learning community for SAMi students beyond that of a typical high school. The new facility is a public asset that supports greater understanding and appreciation of nature's ecological systems and our relationship to them.

PLANNING PROCESS

At the beginning of predesign inquiry we sought to understand the relationship of students' experience of SAMi within the realm of Point Defiance Park. A SAMi student, who was interning in the design firm's office, led a workshop with fellow students to solicit thoughts on collaborative learning settings to inform the design. We asked them to share their most memorable educational experience during their time in the school. What were they doing and where did it occur?

Students placed a numbered dot on the map where this experience occurred and they gave us a description of the experience. The results of the exercise, as seen on the following page, demonstrated that the most memorable learning occurs outside of the classroom and that connection to nature is an essential element of SAMi.



Dots Mark the Memories



“Hiking to the point with Miss Brulett the first week of school and for the first time feeling like a real SAMi student.”

“The rhododendron garden was the most serene classroom I’ve ever had. We used our surroundings as inspiration, and were able to talk to park visitors about our school. I felt very connected to our surroundings there.”

“At the trails by the zoo parking lot. We were taking notes for biology and it was quiet, good for focus, and accessible to nature.”

“Ground zero - my alien invasion mini term with Jacob Johnson, our students pulled invasive species. They taught me what to look for. Outside is where our students are experts, and they are able to make this a learning community in the truest sense of the word.”

“This spot is dear to my heart, a large collection of trees near the mid forest classroom, we climbed and clamored with those trees.”

12

31

6 25

13

44 42 48 36 47 52

46

74

266

32

73

265

NEW LOCATION

18

14

29 33 50

26 28 35

37 45 43

27

49

34 38

41

39

4 40

30

FORMER LOCATION

2

1

3

51

Educational Specifications/Visioning Process



TEACHER WORKSHOPS

We gathered educators at strategic points in the planning and design process to capture the essence of the SAMi experience, characteristics of the new learning environment, and explore aspects of the natural environment should we emulate in the new building. From these workshops we gained an understanding of the importance of both visual and physical connections to the learning environment in the zoo, forest and waterfront. The concepts of “semi-permeable membrane” and a “bridge to the woods” were conceived in these workshops.



SCHOOL AND ZOO LEADERS

Regular meetings of SAMi and Point Defiance Zoo and Aquarium leaders strengthened the partnerships that were formed in the conception of the school. It was important to explore aspects of the zoo and park mission, projects and activities that could be supported by the new facility. There is a strong belief by the school that considering themselves a community amenity makes them a better school.



JOINT BOARD SESSIONS

Concurrent with the School District’s capital program, the Park District had a new Community Center project of its own. The land for the new Environmental Learning Center was on Zoo property, the Park’s new Community Center was on school property. Funding for the Environmental Learning Center was provided by the School District. To ensure a design that represented the aspirations of each institution, the boards of each institution met to review goals, vision and logistics. The result was a Center that both parties had a sense of ownership and pride.



PARK AND COMMUNITY INPUT

Point Defiance Park is a beloved community institution, with more than a century of memories, spanning generations. Changes within the park are made very carefully, with extensive community input. The new Environmental Learning Center was no exception to this process. Multiple community meetings were held in the context of the Park District’s planning and design exercises. The chosen site was the only viable option, given the natural resources that are so rare for an urban park. This process ensured that the new ELC will be an essential part of Point Defiance Park’s future.



DOTS MARK THE MEMORIES

The first exercise with students was to survey their experiences of the Science and Math Institute in the context of Point Defiance Park. Students were asked to place a dot on an aerial map of the park and describe that memory. From this exercise, it was made very clear at the beginning of the planning and design process that the most impactful experiences happen outside of the classroom. The new building would need to play a supporting role to the memorable learning that occurred out in nature, making that learning more meaningful.

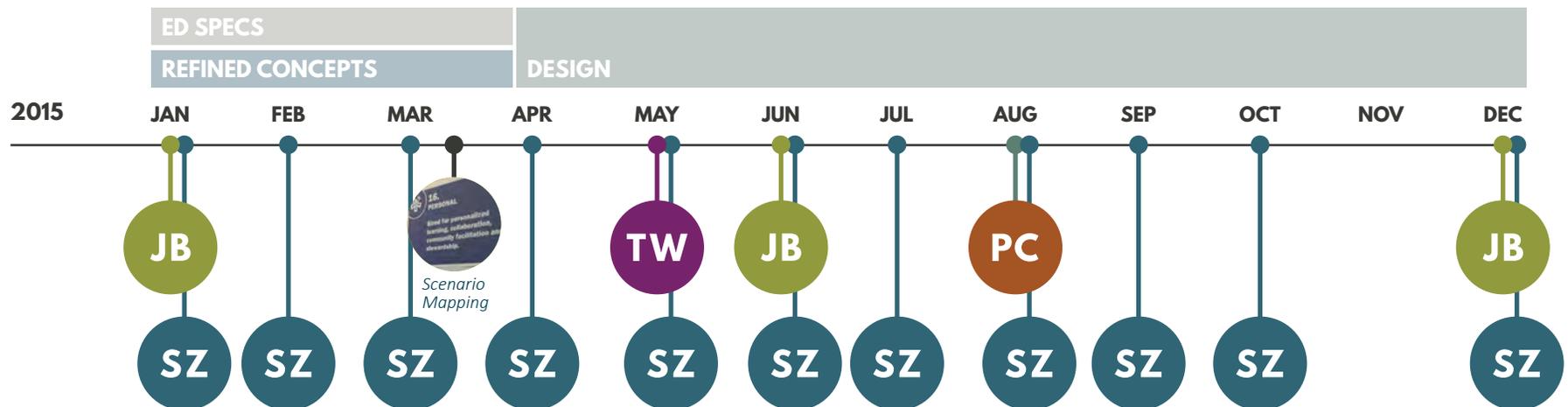
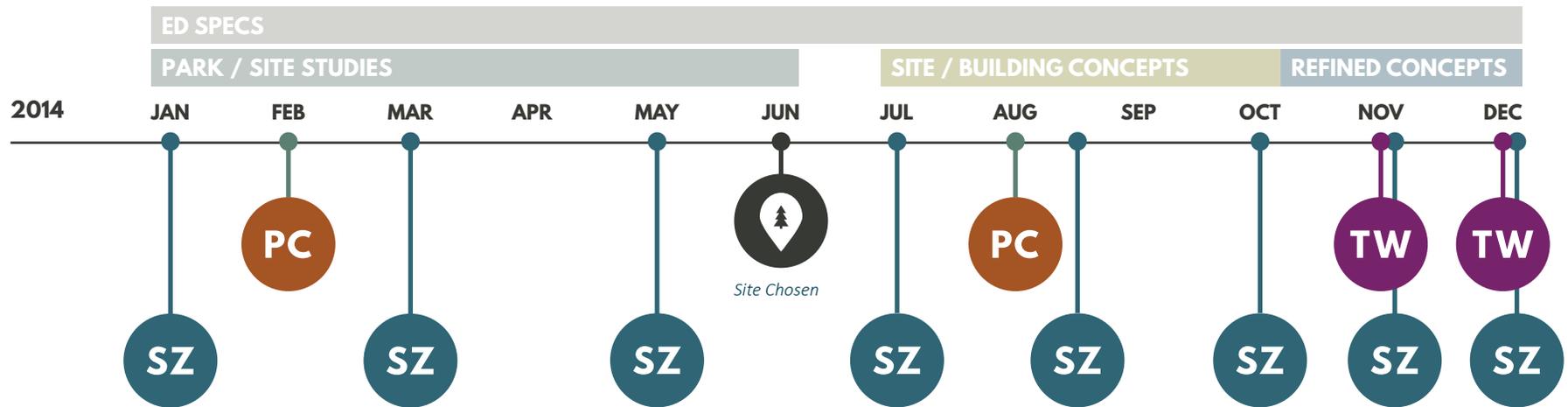
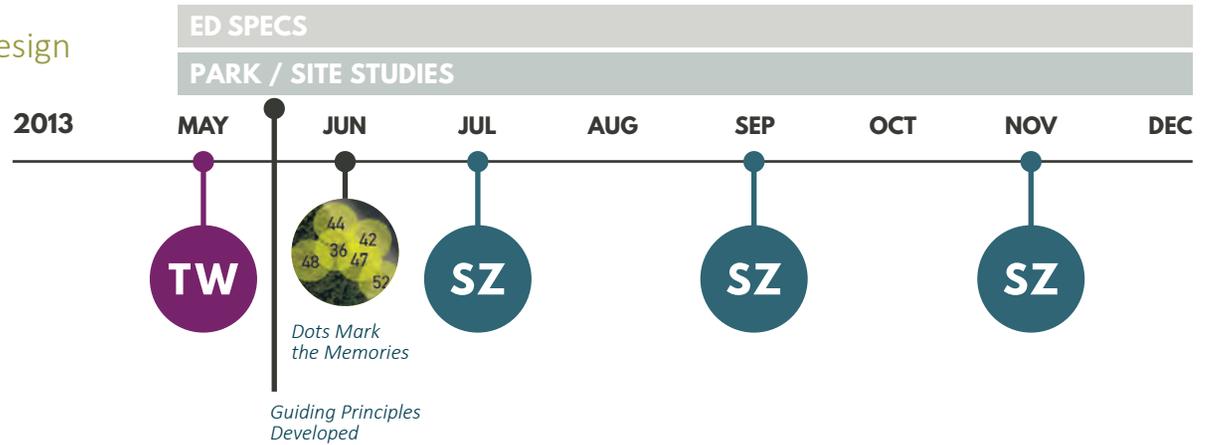


SCENARIO MAPPING

In the concept phase, the design team engaged school, zoo and community stakeholders in exercises that depicted the daily life of the place they wanted to create. Through scenarios that depicted activities inspired by the guiding principles, the team learned about the desired characteristics of spaces that they wished for, and the experiences that the building could foster. The rich collection of scenarios gave the design team knowledge that the degree of transparency, abundant daylight and views, communal and quiet spaces, and connections to forest and zoo were essential to make the place everyone imagined come to life.

Enriching Partnerships through Ed Specs & Design

-  TEACHER WORKSHOPS
-  SCHOOL AND ZOO LEADERS
-  JOINT BOARD SESSIONS
-  PARK AND COMMUNITY INPUT
-  DOTS MARK THE MEMORIES
-  SCENARIO MAPPING



Guiding Principles

INSIDE : OUTSIDE

Teaching + learning INSIDE the building supports teaching + learning OUTSIDE the building.

THINKING : DIVE DEEP

We challenge ourselves to dive deep into any idea: putting complex problems in the hands of inspired young people.

COLLABORATIVE

The built environment will support a professional learning community where collaboration is encouraged, through team planning areas and transparency for the promotion of best practices.

INSPIRATIONAL

The built environment will be inspirational with colors, natural daylighting, artificial lighting, finishes and branding with areas for student work to be displayed and presented.

COMMUNITY : SUCCESS

Every member of our community enters our schools with the expectation to develop their own leadership potential, holding themselves accountable not just for their own success, but also for the success of their peers.

BALANCE : CREATIVITY + ANALYSIS

We seek both left-brained and right-brained thinkers, creativity alongside analysis.

THE PARK IS THE SCHOOL

The park is our LENS for learning.

DIVERSE

Support a learning model that is interdisciplinary, experiential and intergenerational.

EMPATHY : APPROACH

Our schools are intentionally scheduled with courses that approach the same problem from a number of different angles.

BALANCE : CONVERGENCE

Education is not one mind, but rather a convergence of many minds creating a balanced opinion and perspective.

COMMUNITY ASSET

The built environment will become a community asset, maximized to promote use by our partners and the community at large.

CUSTOMIZABLE

The facility will be flexible, agile and customizable to allow for a wide variety of teaching and learning opportunities – both in terms of daily use and facility convertibility.

NATURE : NURTURE

Bring the surrounding natural learning environment INTO the new learning environment.

EMPATHY : VIEWPOINT

Every member of our community has unique perspectives, strengths and struggles, and we strive to adapt our approach to see the world from their point of view.

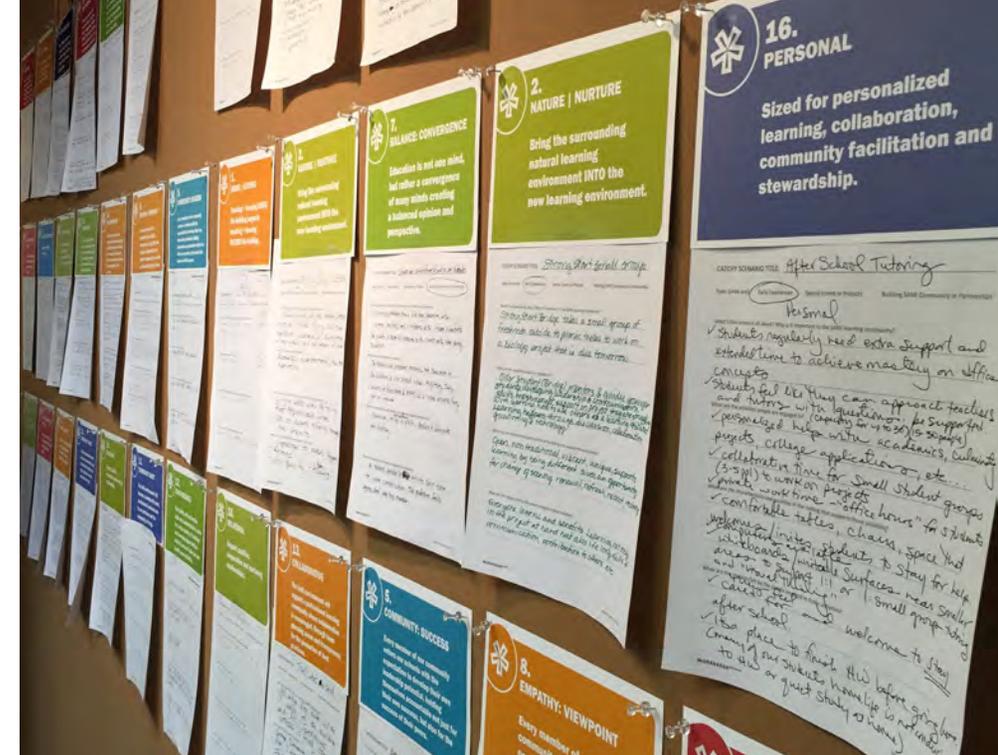
RELATIONAL

Support positive, cooperative and nurturing relationships.

PERSONAL

Sized for personalized learning, collaboration, community facilitation and stewardship.





Scenario Mapping

In the course of early design inquiry, 16 statements were crafted to represent strong Guiding Principles of school design, partnerships and the values of SAMi. To understand the place-making implications and bring life to these value statements, “scenario mapping” workshops were conducted; engaging students, teachers, Zoo educators, curatorial staff, community partners and local artists. Over 100 scenarios described daily life, special events and particular activities that strengthen each student’s personal sense of community as well as broader perspectives of the Tacoma community at large.

The scenarios described the activities, attributes and essential qualities of the SAMi learning environment and a place to engage with community. Examples include:

- *Not pristine, allow it to be messy, creative freedom*
- *A place to invite the community to engage*
- *Learning settings should feel like workshops*
- *Secure school materials to open all spaces for community*
- *Performances, presentations, symposiums, science fairs*
- *Intimate relaxing settings, social “connection” places*
- *Include artifacts of the Zoo in this place*
- *Transparency between workshops & out to nature*

EDUCATIONAL ENVIRONMENT

A photograph of two individuals walking away from the camera on a forest path. They are wearing dark, hooded jackets. The person in the foreground has a red circular logo on their back, and the person behind them has a green circular logo. The forest is lush with green foliage, moss-covered rocks, and tree trunks.

"The Park is our lens for learning."

Educational Environment

EDUCATIONAL VISION AND GOALS OF THE SCHOOL

Deepening the Community Partnerships that Formed the School

SAMi is a new kind of public school, formed in 2009 by Tacoma Public Schools through a unique partnership with Metro Parks and Point Defiance Park, Zoo and Aquarium (PDZA) to utilize and conserve the diverse ecosystems and zoology located in Point Defiance Park. The Environmental Learning Center provides contiguous workspaces for SAMi teachers and PDZA research/community outreach staff to develop curricula and create opportunities to engage students in research initiatives. PDZA volunteers and coordinators have a home in the Center, adjacent to collaborative and workshop learning settings. The conservation mission, and education, is strengthened through these partnerships.

SAMi offers students an innovative and rigorous education that is focused on science and math. The curriculum is integrated; courses are advanced and often mixed age. The school uses its unique setting – Point Defiance Park – to enhance the learning experience.

The ELC is a collection of diverse workshop settings for a variety of learning modalities: discourse, design, experimentation, and fabrication.

Welcoming Environment

Beyond the impressive academic offerings, students say SAMi's unique school community plays an equally important role in their experience.

The school fosters close relationships through small mentor groups pairing teachers with students. Teachers work individually with students to help set goals, find internships, maintain grades and stay on track to graduate.

"The mentor groups form a family," said Liz Minks, a member of SAMi's leadership team.

SUPPORTING A VARIETY OF LEARNING & TEACHING STYLES

SAMi Embraces Both Left and Right Brained Thinkers

In the learning culture at SAMi, contemplative retreat is recognized in parity with formal group based instruction. In programmatic terms we employ an analogous reference to flow within a river course to describe the spaces formed between workshops and at the edge of the collaborative space. These "eddies" therefore are workshops in their own right, workshops for personal exploration and reflection. Furniture and light fittings within the eddies are intended to support activities of a more contemplative nature.

Recessing the eddies from the workshops, both in plan and section, further strengthens the holistic conceptual intention of a building that functions to support a "loose gathering."

Experience-Based Learning

SAMi supports a culture of inquiry and staff acknowledge that in order for students to realize their full potential they must be encouraged to take risks. A workshop aesthetic with exposed systems and palette of robust materials invite the students to actively engage with their environment. Internal walls are sheeted with plywood, providing an expansive, inviting surface for students to display their work in two and three dimensions, and tinker with interactive, exploratory exercises. Local artists and scientists are also be invited to create or exhibit original work; engaging students, teachers and the community at large.

Immersion learning launches SAMi students across the 700-acre park.

In outdoor education, teacher Lauren Anderson leads freshmen on a pop-quiz walk through the woods. Every time she stops at a tree, students must identify the species' scientific and common names.

In English class, juniors traverse the aquarium on a literary sketch scavenger hunt. At a fish tank window, students write a descriptive passage focusing on visual imagery. Stop two requires describing what it feels like to touch sting rays at the petting station.

Neuroscience and ornithology classes rank at the top of Ben Breatin's favorite class list, especially after he dissected a quail brain in class. "It didn't smell very friendly though," he said.

For Alana, sketching clouded leopards, sloths, owls and tarantulas in her Animal Life Drawing class sparks career ideas – she's currently weighing scientific illustrator or biologist.

SAMi students complete internships and intensive mini-terms that allow them to dive deep into subjects such as robotics or modern architecture. Students may also take courses at SAMi's counterpart, the School of the Arts.

ADAPTABLE AND FLEXIBLE ENVIRONMENT

Embody the Communal and Experiential Essence of the SAMi Learning Culture

Small group contemplative-learning "eddies" between the workshops spill into a ubiquitous collaborative space that connects interior learning settings to each other and to the outdoors. Teachers requested walls between interior spaces and to the outdoors be designed as "semi-permeable membranes" with visual and physical connections everywhere. Through the high degree of transparency and diversity of settings, the building itself provides the experience of belonging to an agile community of learners, the essence of SAMi.

Zoo Staff and Volunteers are dispersed across both levels of the learning environment embedding them with the daily cycle of school life providing both groups the opportunity to engage and interact with each other on levels deeper than structured curriculum-based activities. On a wider community scale, the doors to the entire school are opened in welcoming diverse groups.



THE ENVIRONMENT SUPPORTS THE CURRICULUM

Enhance Learning in Nature

Point Defiance Park is SAMI's "lens for learning." The park itself is the primary learning environment. Students explore and gather artifacts in the forest, Zoo and waterfront ecosystems, and bring them back to the Environmental Learning Center to analyze, interpret and demonstrate so that upon return to nature they see it with new eyes. From the interior, ubiquitous visual connections to nature are a constant reminder that the most engaging "classroom" is really outdoors. Core learning settings are designed as workshops, connected internally by a collaborative space that leads directly to the forest trails and the zoo.

PHYSICAL ENVIRONMENT

A photograph of a group of people gathered on a dirt path in a dense, mossy forest. The path is covered in fallen leaves and a large log lies across it. The forest is filled with tall trees and lush green ferns and moss. The scene is captured from a low angle, looking down the path towards the group.

"A Loose Gathering, Grounded Under a Sheltering Canopy."

Physical Environment

INSPIRED BY NATURE

A Loose Gathering, Grounded Under a Sheltering Canopy

The design team drew their inspiration from an experience with a group of students, clad in raincoats and boots, gathered around an instructor deep within the forest of Point Defiance Park, a scene that captures the essence of the SAMi learning culture.

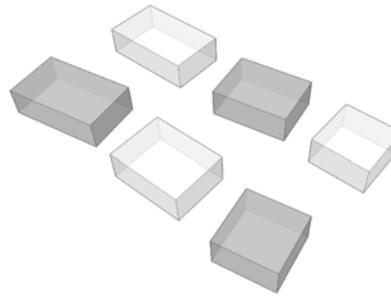
The colors, textures and scales of nature in this scene illustrate the beauty and diversity of the setting.

Conceived as “a loose gathering, grounded under a sheltering canopy,” the ELC design reflects SAMi’s intimate relationship with nature.

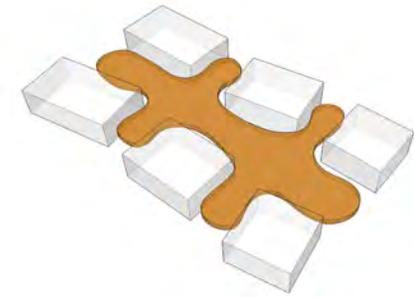
It is also a direct response to the hillside topography and the immediacy of the adjacent forest. Workshop boxes are intentionally pulled apart to maximize visual and physical connections with the outdoors.

This is a building of component parts expressed at varying scales. The clear form of the box defines the individual workshop settings while the spaces between workshops contribute to presenting a legible organizational strategy. Overlapping orthogonal grids organize the workshops in “a loose gathering” and allow the building to respond sensitively in scale and form to the immediate context while setting up a dynamic relationship between spaces internally grounded under the “sheltering canopy” of the sloping roof.

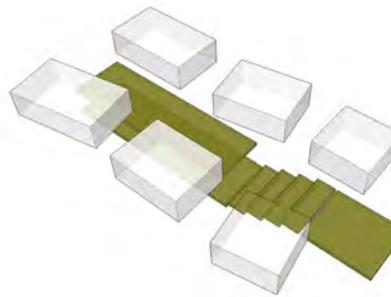
The new 31,429 s.f. Environmental Learning Center includes eight formal learning settings for SAMi and community use, communal space for collaborative and interpretive activities, planning/work space for SAMi and Zoo educators, coordination/work space for Zoo staff and volunteers and a setting for a nature-oriented early learning program.



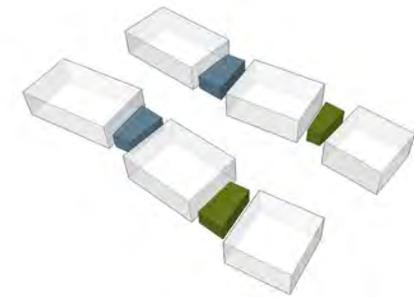
01. workshops



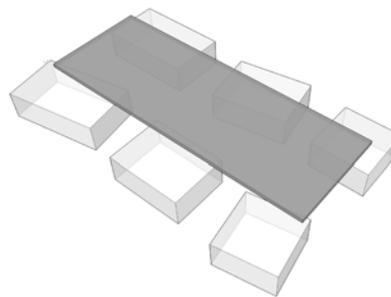
04. communal



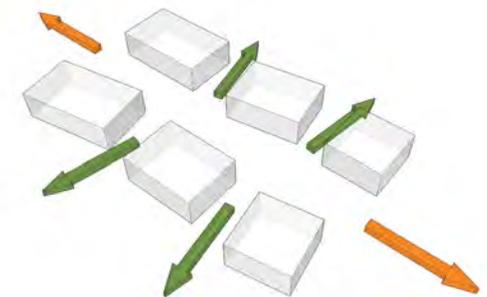
02. topography



05. eddies



03. canopy



06. connection

PHYSICAL ATTRIBUTES OF THE ENVIRONMENT

Connection to Context

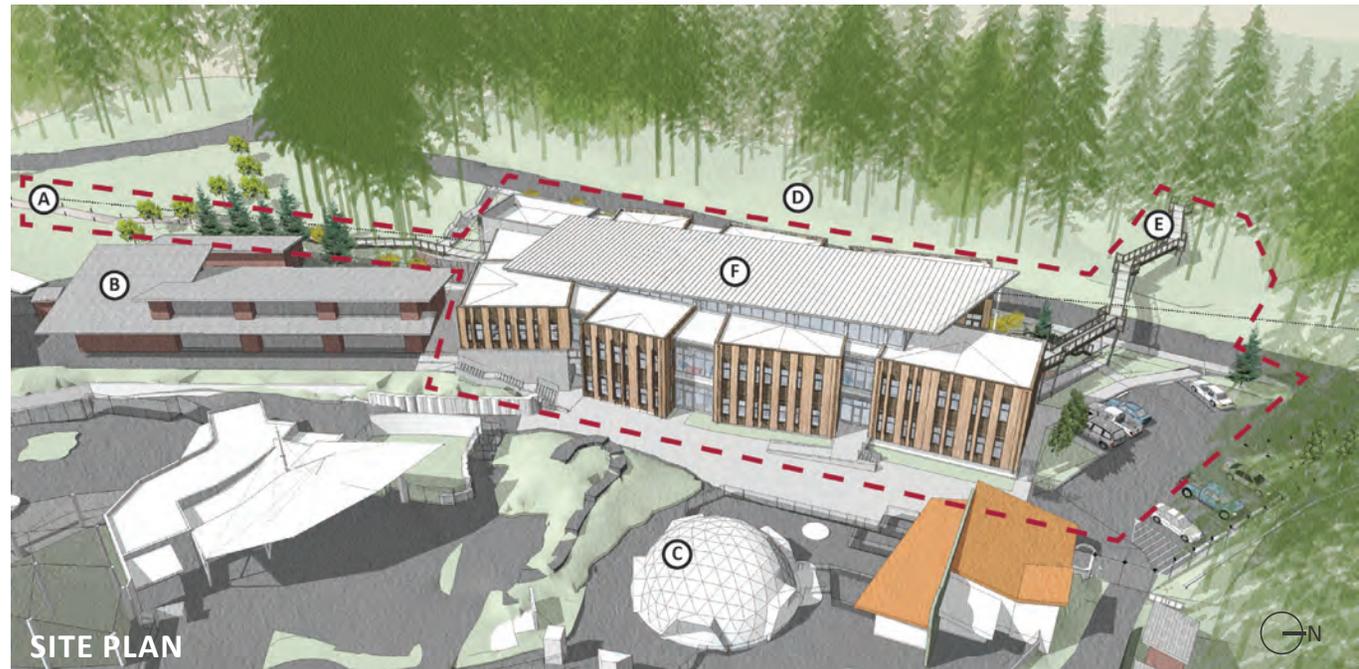
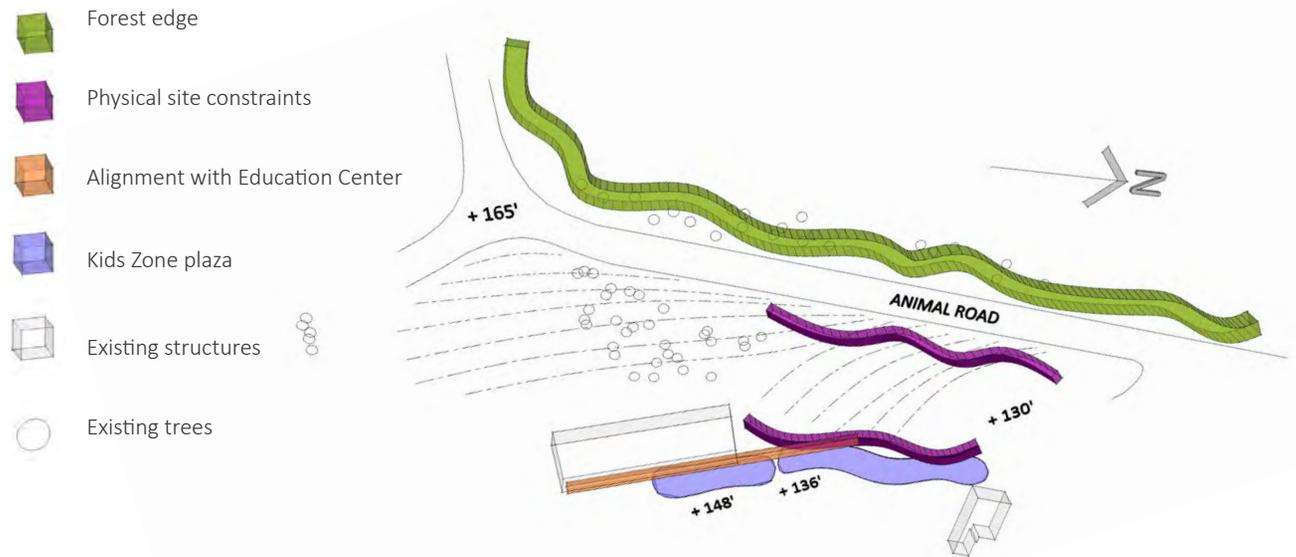
The immediate site covers an area of approximately 40,000 sq. ft. and is defined along the western boundary by Animal Road and the forest beyond, the eastern edge by an active Zoo attraction and to the north by a service road for the Zoo. The southern edge is less well defined but extends along the rear of an existing Education Center and is bounded by vehicle and pedestrian access routes to the zoo. Grades slope down from the west to the east and from south to north with an average fall across the site, south to north, of approximately 20 feet. A number of mature trees, which had been incorporated into the Zoo's former rope walk course, remained on the site.

FITTING WITHIN THE LARGER CONTEXT OF THE COMMUNITY

Physical Context

The ELC is sited within the Park at a unique adjacency between the zoo environs and the extensive forest trail system. The building creates a new learning environment that invites engagement with these surrounding features. Workshop forms are grounded on the sloping site; placed apart from each other to create internal collaborative space and eddies that provide visual connections to nature in all directions under a sheltering roof. Entry from the south is on a boardwalk to minimize disruption to the hillside vegetation, and on the north side an accessible bridge connects learning settings directly to the forest trails.

The workshops are distinct forms in plan and elevation. The treatment of the "skin" of the workshop "boxes" is designed to emulate the solid and void one experiences looking through the forest between trees. This approach fosters transparency inside and out; helping the building to integrate into its surroundings.



- (A) BOARDWALK TO ELC ENTRY
- (B) EXISTING ZOO EDUCATION CENTER
- (C) EXISTING ZOO KID'S ZONE

- (D) EXISTING FOREST
- (E) BRIDGE TO FOREST TRAILS
- (F) NEW ENVIRONMENTAL LEARNING CENTER/SAMI

PROJECT BOUNDARY



Collaborative Space and Eddies

In the learning culture at SAMi, contemplative retreat is recognized in parity with small group collaboration as well as formal large group instruction. The design provides a diversity of settings to support all of these aspects of learning. The collaborative space affords space for learning activities in the workshops to “spill out” for work in small groups, demonstrations or large experiments. The collaborative space connects the two floors with an open stair for presentations or informal social engagement. Eddies between workshops provide intimate settings for individuals or small groups to brainstorm, exhibit or study.

Spaces and Surfaces that Invite Innovation

One of the primary design directives was to make the place “not pristine,” so that creativity and experimentation would be encouraged. Workshops support a variety of learning modalities such as discourse, design, experimentation and fabrication. Plywood walls, concrete floors, open structure and mobile furniture create an agile “platform” for projects to be developed, tested and refined. Project pegs/panels for brainstorming and display invite collaboration, demonstration and contribution to the learning culture. Everywhere the work of students is on display, for the edification and critique of their peers as well as the community at large.

Connections

Visual and physical connections drove the architecture of the Environmental Learning Center. On the north-south axis, the building extends beyond its immediate footprint to create connections between the zoo and forest. A boardwalk connects the Zoo entry to the south, and a bridge connects to the forest trail system to the north. The building accesses to the Zoo directly upstairs and downstairs, forming a new secure perimeter to the Zoo. Visual connections to the outdoors are afforded by pulling apart the workshop forms to see through eddies and by floating the sheltering roof to provide views to the surrounding forest.



At Home in Its Context

At the scale of the workshops, the component parts of the building are evident in the modular approach to enclosure. A strong vertical emphasis acknowledges the immediacy of the forest as backdrop and the introduction of differing panel widths speaks to the variety found in nature. Wood siding is the primary external material and offers a clear association and transition from living forest to man-made structure. This natural 'skin' is meant to age gracefully bearing the mark of exposure to the elements.

Sustainable Design

SAMi was established to create a learning community in partnership with Metro Parks and PDZA that furthers understanding, conservation and living with nature. The new Environmental Learning Center is representative of that shared mission in its siting, resource conservation and biophilic design.

The site takes advantage of existing utilities, parking and other public resources adjacent to an existing education center and zoo entry. PDZA research and volunteer functions previously housed in portable structures on the site are incorporated into the new Center.

Energy and resource conservation are important aspects of the design of the Environmental Learning Center. It is designed for LEED Silver certification with a projected EUI of 25.3.

Biophilic design encourages sustainable living by raising awareness and cultivating a relationship with nature. The ELC provides visual and physical connections to nature and abundant daylight throughout. The scale, fenestration and material choices for the ELC were inspired by the solid and void of the trees in the forest: Separation of "solid" workshop boxes create the eddy "voids." Narrower apertures on the east façade reduce exposure to morning sun. Wider western apertures expand views shaded by the forest. Vertical cedar siding varies in width to further emulate the forest environment. The roof - the "sheltering canopy" - is raised to let an abundance of daylight in to the interior spaces.





UPPER FLOOR

- | | |
|--------------------|--------------------------------------|
| (A) DISCOURSE | (E) COMMUNAL SPACE |
| (B) CREATE | (F) EDDIES |
| (C) EXPERIMENT | (G) CONNECTION TO PARK TRAILS |
| (D) ZOO VOLUNTEERS | (H) STUDENT/PUBLIC ENTRANCE FROM ZOO |



LOWER FLOOR

- | | |
|---------------------------------------|---------------------|
| (I) FABRICATION | (L) SAMI STAFF |
| (J) DESIGN | (M) ZOO STAFF |
| (K) NATURE-ORIENTED
EARLY LEARNING | (N) CONFERENCE ROOM |
| | (O) OFFICE |



RESULTS



GENERAL FEEDBACK

- A personal legend is... personal !!!
- Not knowing your PL is OK, not being one is not
- Diversify your word choice
 - ↳ Avoid "things", "stuff", any generic non-specific terms
 - ↳ Avoid "big, small, etc."
 - ↳ Check your needs!
- DETAILS! Go into anecdotes & is the best
- "I think"

Circled Words

- misspelling
- word choice is low or vague
- repeated repeated word
- confusing order of words

Dot Under Text

- grammar error
- missing/incorrect punctuation (period, apostrophe, comma, colon, semicolon, hyphen, etc.)
- incorrect capitalization
- incorrect citation (of The Alchemist)
- - watch your verb tenses

"SAMI has become much, much more sociable because of the new building. It's a really cool thing to see."

Results of the Process and Project

ACHIEVING GOALS AND OBJECTIVES

Take Your Tools with You

At SAMi we define the relation between objects and a user as an affordance. Agility and utility are fundamental criteria for anything we place within this environment and their ability to adapt to the needs of the user under different circumstances are critical to the success of the space and the activities it supports. Alternative methods of learning are encouraged. Less emphasis is placed on the traditional approach of student's attention directed towards an instructor standing at the front of a classroom imparting information, and more on encouraging students themselves to become that focus through active engagement in the search for knowledge and understanding. In order to support that approach we have striven to provide an environment where learning can occur in any situation and the tools or resources to facilitate that are on hand wherever that may be.

Project walls of plywood panels form the wall surfaces throughout the workshops and collaborative space allowing users to install larger objects and displays. Acknowledging that such activities may potentially compromise the acoustic integrity of construction that separates spaces, a system of fixing the panels has been developed, allowing for easy replacement as required.

Community Resource

PDZA staff and volunteers share the space with SAMi and operate from a base within the workshop settings. This proximity enhances an existing relationship and fosters a deeper understanding of each other's values providing each group with a unique opportunity to learn in a culture of diverse activities.

While the students use the facility during school hours, it becomes a joint use space for Zoo staff and the public in the evenings and on the weekends. For example, Metro Parks Tacoma and PDZA utilize the Environmental Learning Center



as a base for Citizen Science program which invites the public to participate in events such as Explore the Shore, Spot the Swallows and a 24-hour BioBlitz where the public joins with Zoo volunteers and Naturalists to range throughout the park and identify specific forms of life as they seek to catalogue how many different living organisms make their home in the park.

Educational Results

The facility elevates the partnerships between SAMi, PDZA and Metro Parks Tacoma. Students are connecting with the school's partners and the surrounding resources. The facility provides a home base for students to range out and learn through exploration.

"We're central in the park so it's very helpful. We're not too far from the main headquarters for the Metro Parks in the Park. Then also, we're right next to the zoo so we have a very good relationship. The Zoo actually has some office spaces in the ELC so we're able to walk by and build a strong relationship."

All the nooks are very helpful. They give you small little areas to get out of the classroom and go work with your group."

- Zion Welton, Senior, SAMi

"There are windows all around us and so since you can look directly out and see the trees, it still feels like you're part of the forest. The ELC is within walking distance from a lot of places where SAMi kids go, like the portables you can walk to, down to the marina you can walk to, you can walk to the pagoda and it's right next to the zoo. It doesn't take away from the park feeling at all, it just adds to it."

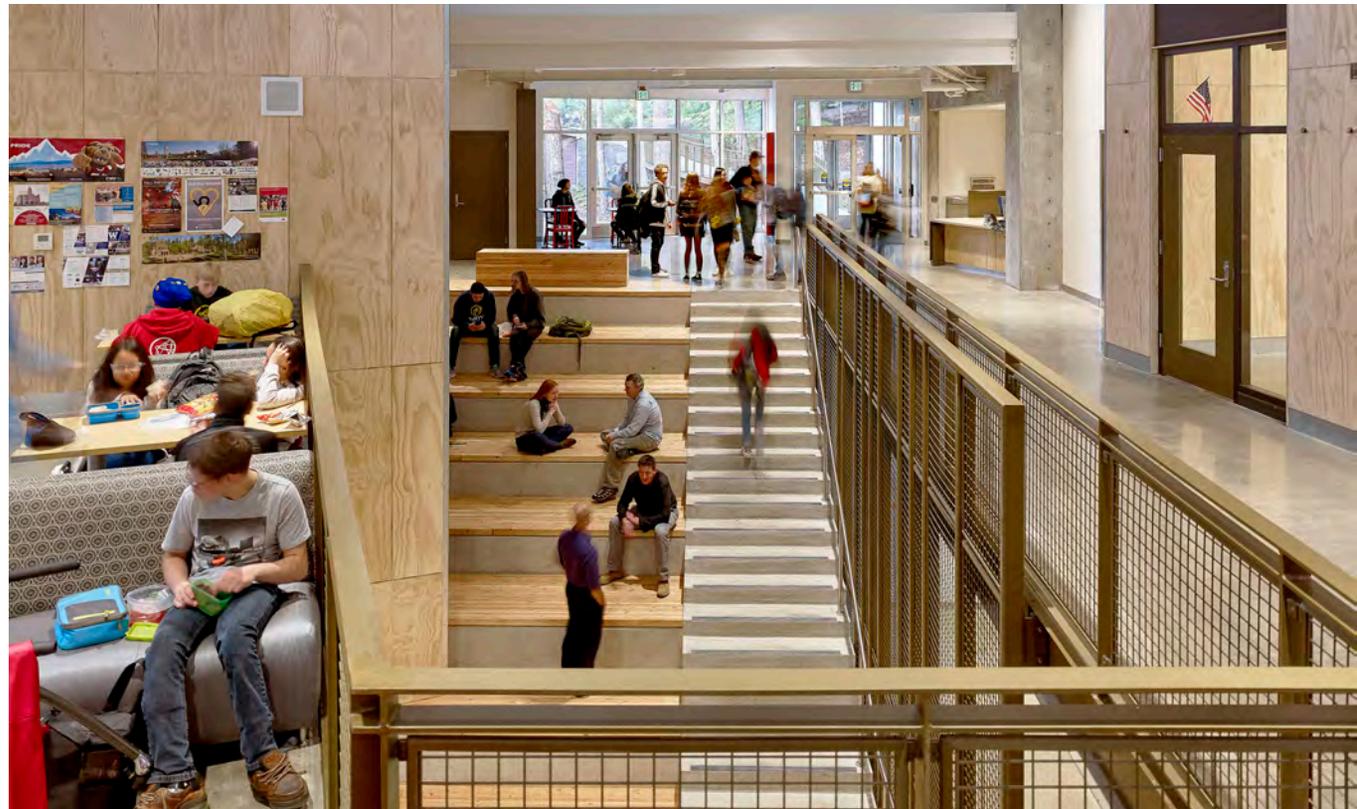
SAMi has become much, much more sociable because of the new building. It's a really cool thing to see."

- Greg Smith, Sophomore, SAMi

"The big steps are like a seating area. The presenter stood at the bottom of the stairs and the students could sit and watch the presenter, so it is a really versatile space."

The ELC Commons is a really cool space because it is really open and accessible to everyone."

- Huyen-Tram Nguyen, Sophomore, SAMi





Formal learning settings are defined as workshops to reflect the labor and energy students at SAMi apply to the process of learning. An industrial aesthetic of exposed systems and robust materials will invite students to actively engage with their environment and seek knowledge through exploration, making and risk taking.



SAMi culture is built on collaborative, project-based learning. These activities occur in groups of varying sizes and are accommodated by the design with one large central space and smaller eddy spaces at the perimeter. Both of these types of collaborative space function to support the more formal workshop settings. With this diversity of settings the building also seeks to offer an accessible and welcoming base for SAMi's community partners.



The eddies are the spaces between workshops where students can brainstorm ideas, critique their work or have a contemplative setting for reflection. They also provide a close visual connection to the learning environment outdoors. Plywood walls and a portable display system integrated throughout the building invite collaborative as well as individual project-oriented learning.

Lightweight boards are used as writing surfaces that can be taken anywhere within the building and hung on the purpose-made project pegs to allow activities and discussions to take place wherever a group may gather. Boards can be used on their own in an intimate eddy setting or stacked together in the collaborative space for large group presentations.



Workshop walls that front the collaborative space are porous, providing a visual and physical connection between workshops and collaborative space. This transparency and connectivity is balanced with a need to allow a diversity of activities to coexist in harmony and so the level of openness can be adjusted by the users to suit particular needs.



The heart of the Environmental Learning Center is the collaborative space, connecting the workshops and the two floors. The space engages the hillside to create a setting that brings the whole school together. Transparency between interior spaces and to the outdoors is essential to the learning environment.



Nature and the environment are ever-present. On the north end of the building an external deck at the upper workshop level connects the students directly with the forest trails and provides safe passage across Animal Road. The deck is both a base camp for exploration and an external workshop catering specifically to forest-based activities. Experiment workshops enjoy direct access to the external deck and each is provided with a mud room to allow staff and students to prepare for and clean off from forest excursions.

ED SPECS NUMERIC PROGRAM

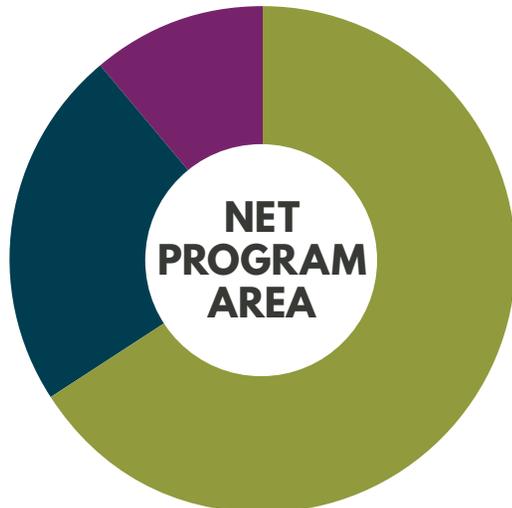


ELC Numeric Program

HIGH DEGREE OF COMMUNAL SPACE

Students and teachers expressed a strong sense of community when they talked about SAMi, and wanted to invite Zoo and Metro Parks partners deeper into the learning community formed by the school. The dual goals of 1) treating every space as shared learning space, and 2) providing space for partner activities adjacent to workshops and teacher planning gave the Environmental Learning Center an innovative approach. The allocation of space in the planning and design of the ELC reflected these values.

It is unique for a building this size to have two thirds of the area allocation devoted to learning settings. Area typically dedicated to hallways is incorporated with the large Communal Space in the center and eddies along the perimeter. To ensure that these allocations of space were utilized as intended, the design includes a high degree of transparency and roll up doors to make the whole facility more agile. "Floating" the roof and bringing daylight in makes the Communal Space the most inviting place to be.



SPACE FOR COMMUNITY PARTNERS

Nearly one quarter of the area allocation in the building is dedicated to engaging community partners with the school. The Zoo has workspace and offices for their Research and Community Outreach staffs downstairs, adjacent to SAMi teacher's planning space. There is a shared kitchenette located between them to foster collaboration. This simple adjacency leads to new opportunities for teachers to expand their expertise and for students to be engaged in the mission of the Zoo. Upstairs, volunteer coordinators and workspace for community volunteers are located adjacent to the Communal Space. Providing space for the community in the school offers richer learning opportunities for students.

The workshops themselves are designed to be open for community use. By creating dedicated, secure storage areas within each workshop for student projects and school-based resources, the workshops can be open for a variety of groups to use the entire building.

66%

EDUCATIONAL SPACES

23%

TEACHER/ZOO PARTNER SPACES

11%

SUPPORT SPACES

EDUCATIONAL SPACES	AREA
Discourse Workshop (includes 60sf of storage)	875
Discourse Workshop (includes 60sf of storage)	875
Design Workshop (includes 60sf of storage)	1,175
Design Workshop (includes 60sf of storage)	1,175
Experiment Workshop	1,150
Prep Storage & Mud Room	280
Experiment Workshop	1,150
Prep Storage & Mud Room	280
Digital Design Workshop	1,150
Material Storage	230
Fabricate Workshop	1,050
Prototyping	230
Shared Activity Area - Upstairs	3,500
Eddies (4 @ 260sf)	1,040
Shared Activity Area - Downstairs	990
Early Learning	1,160
EL- Toilet Rooms/Storage	180
Subtotal	16,490
TEACHER/ZOO PARTNER SPACES	AREA
PDZA	
Curator Offices (2 @ 215sf)	430
PDZA Staff Open Office	1,460
Volunteer Coordinator Offices (4@160sf)	640
Volunteers Workspace	650
SAMi	
SAMi Staff Office & Storage	1,500
Shared	
Work Room / Kitchenette	470
Conference Rooms (3 @ 175sf)	525
Subtotal	5,675
SUPPORT SPACES	AREA
Reception	80
Catering Prep	220
Custodial / Storage / Recycling	300
Toilet Rooms (4 @ 200)	800
Staff Toilet / Shower	100
Auditorium	300
Storage Underneath	150
Elevator & Machine Room	150
Mechanical / Electrical Rooms	600
MDF / IDF	215
Subtotal	2,835
TOTALS	TOTAL AREA
Total Number of Teaching Stations	
Total Net Program Area	25,000
Circulation (stairs, elevator, vestibules and corridors)	2,816
Walls and Shafts	2,113
TOTAL GROSS AREA	29,929