

# Nature as a Path to Place

**Blakely Elementary School**

- **Rich Franko FAIA— Mithun**
- **Séamus Kelly AIA— Mithun**

**A4LE Learning SCAPES 2022**

Blakely Elementary School, the 2021 A4LE MacConnell award winner, is a 400 student K-4 replacement school for the Bainbridge Island School district that grew out of a community vision for a school unique to their site and community. A vision evolved of a seamlessly integrated landscape of shared collaborative learning experiences that amplify strong student achievement and empower their ever-innovating teaching culture through the transformation of the school's relationship with the surrounding mixed coniferous forest.

The educational benefits of daylight and improved educational environments has been well documented. But as we raise the bar, what are the next levels of higher performing schools where children can connect to nature and bring biophilic geometries and indoor – outdoor design elements into learning environments?

An engaged co-creating process with teachers was essential for the design process of the circulation framework and the relationship of classrooms to shared learning. Through workshops with teachers and staff, a design parti emerged that celebrated the rising topography of the site, centered learning communities within a framework for collaboration, created a quilt of indoor and outdoor experiences and connected sustainable performance with environmental education curriculum.

Multiple sustainability strategies include all electric systems, geothermal wells, over 20,000 plants and extensive stormwater infrastructure for filtration and retention. Biophilic design strategies from natural design geometries, structural 'whole trees' and connections to exterior landscapes are core to the project design.

1. *Learning Objectives:* Presentation will present **detailed strategies for optimizing educational spaces for learning and community inclusion.**
2. Sustainability strategies for **energy, natural ventilation, ground source geothermal and reduced embodied carbon** will be reviewed.
3. Landscape integration for **biodiversity, stormwater treatment and retention** will be presented.
4. **Technical integration of Structural 'Whole Tree' columns.**





**“There are three teachers  
of children: adults, other  
children, and their physical  
environment.”**

– Loris Malaguzzi

**The environment is  
The Third Teacher.**

Disciplines—

**Architecture**

**Interior Design**

**Landscape Architecture**

**Planning**

**Urban Design**

Discipline—

**Integrated Design**

# Path to Place—

**Site and Ecosystem**

**Community Engagement**

**Choreography of Experience**

**Bioclimatic Response**

**Tectonics of place**



PUGET SOUND

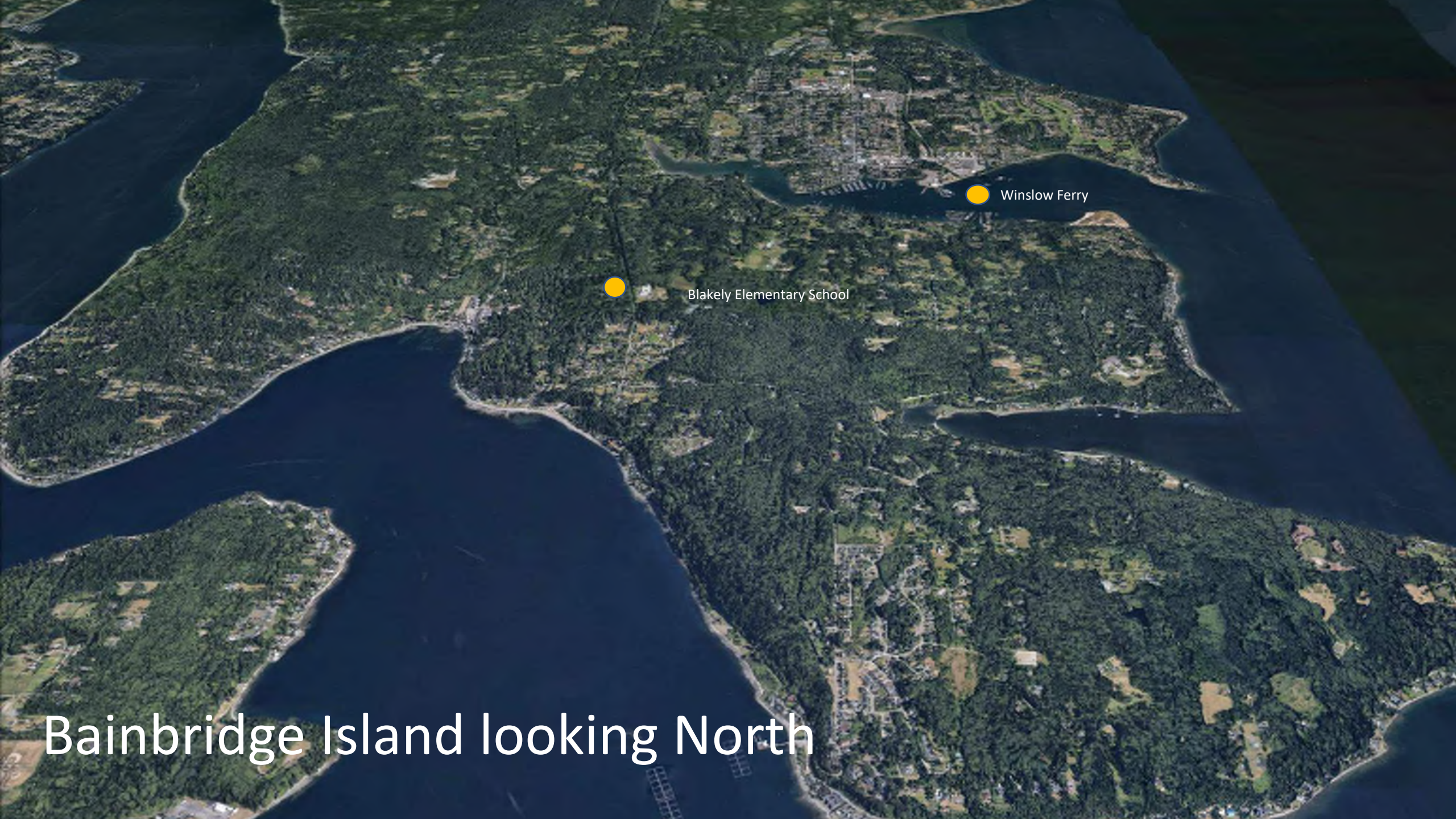
BAINBRIDGE ISLAND

● CAPTAIN JOHNSTON BLAKELY ELEMENTARY  
SCHOOL

BREMERTON, WA

SEATTLE, WA





Blakely Elementary School



Winslow Ferry

Bainbridge Island looking North

ELEMENTARY

SCHOOL



AKER HILL ROAD

NE BLAKELY AVE

SCHOOL

PLAYFIELDS

PORTABLES

COVERED  
PLAY

Itasca Hill

ISLAND





This is the third Rolling Bay School located on "School Hill." It was eventually abandoned in 1929 and demolished in 1941.



**Community Engagement—**





A Kiss Goodbye



**SPECTRUMS**  
OTHER LAYOUTS

**SUSTAINABILITY Should Be:**

- EXPRESSES AS TEACHING TOOL
- INTEGRATED QUIETLY
- RESIDENTIAL SYSTEMS FOCUS
- TECHNOLOGY FOCUSED
- ENGAGING + DYNAMIC
- BUILDING + SPECIFIC MESSAGES

**SPECTRUMS**  
OTHER LAYOUTS

**SPECTRUMS**  
OTHER LAYOUTS

**OUTDOOR SPACES Should Be:**

- SOFTSCAPE
- NATURAL
- CONTEMPLATIVE
- INTERWOVEN WITH BUILDING
- HARDSCAPE
- ARTIFICIAL
- ACTIVE
- DISTINCT PROGRAM SPACES

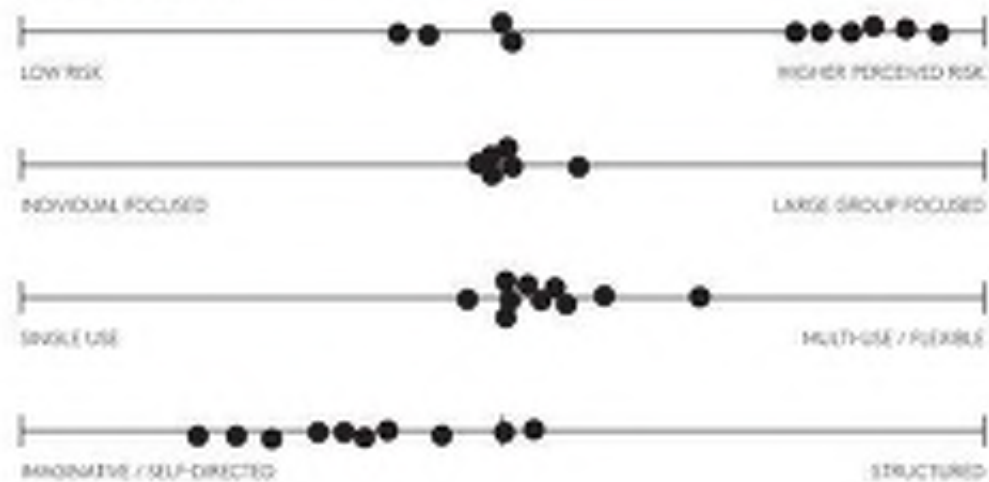
**SPECTRUMS**  
OTHER LAYOUTS



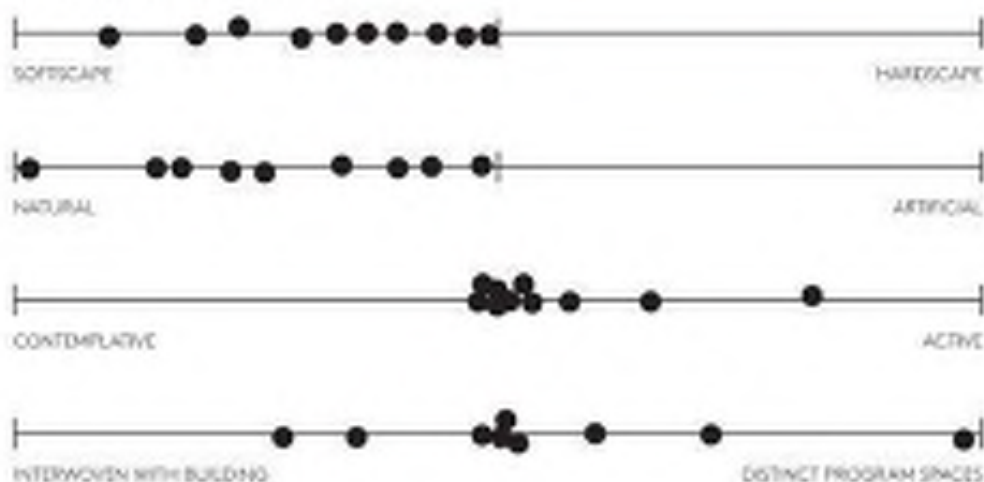




**PLAY SHOULD BE:**



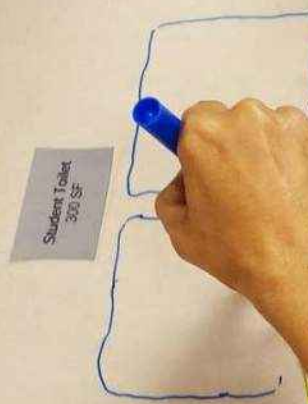
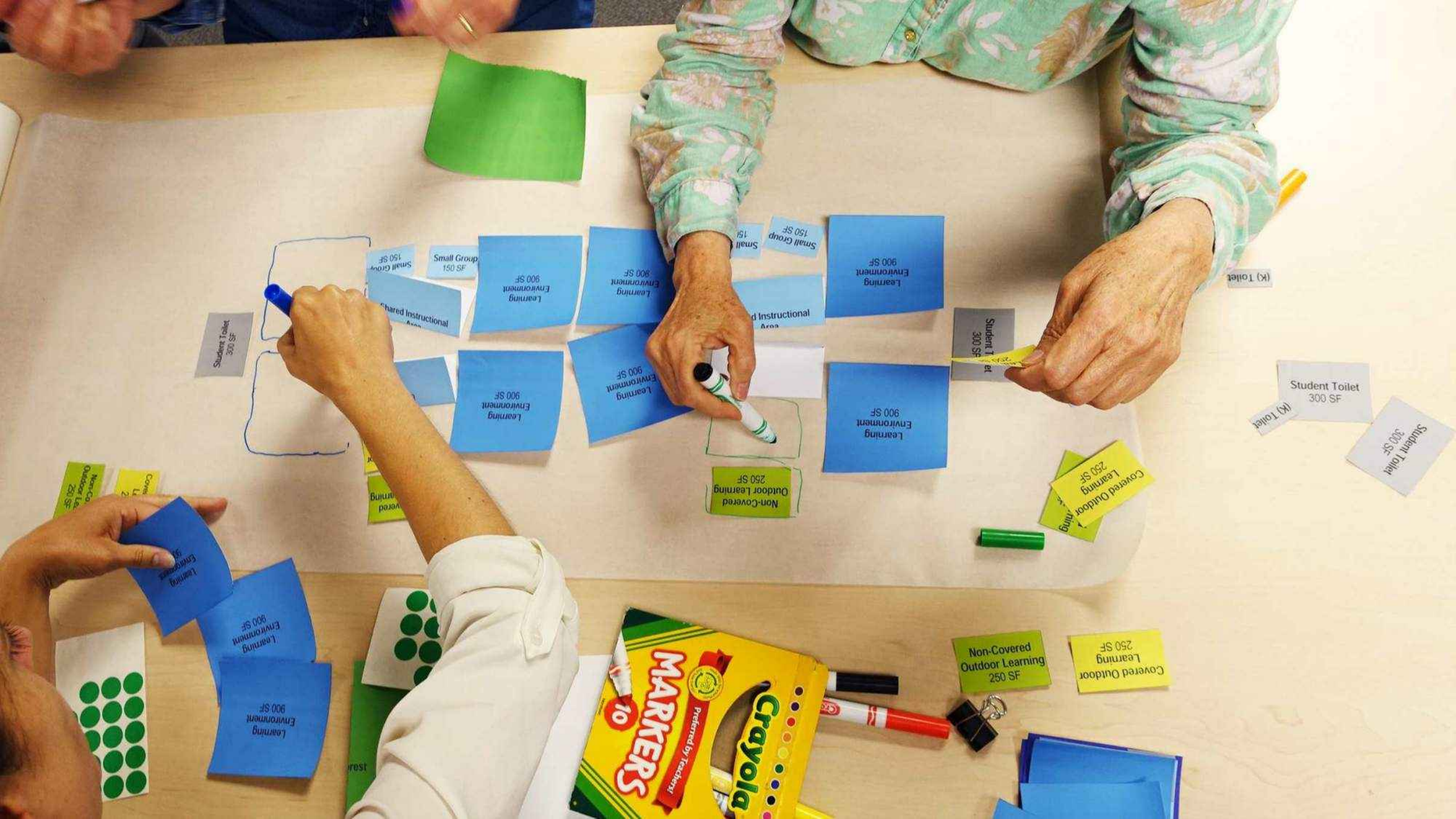
**OUTDOOR SPACES SHOULD BE:**











Student Toilet  
300 SF

Shared Instructional Area  
900 SF

Small Group  
150 SF

Learning Environment  
900 SF

Learning Environment  
900 SF

Small Group  
150 SF

Learning Environment  
900 SF

Shared Instructional Area

Learning Environment  
900 SF

Learning Environment  
900 SF

Learning Environment  
900 SF

Student Toilet  
300 SF

Non-Covered  
Outdoor Learning  
250 SF

Covered Outdoor  
Learning  
250 SF

(K) Toilet

Student Toilet  
300 SF  
(K) Toilet

Student Toilet  
300 SF

Non-Covered  
Outdoor Learning  
250 SF

Covered  
Outdoor Learning  
250 SF

Learning Environment  
900 SF

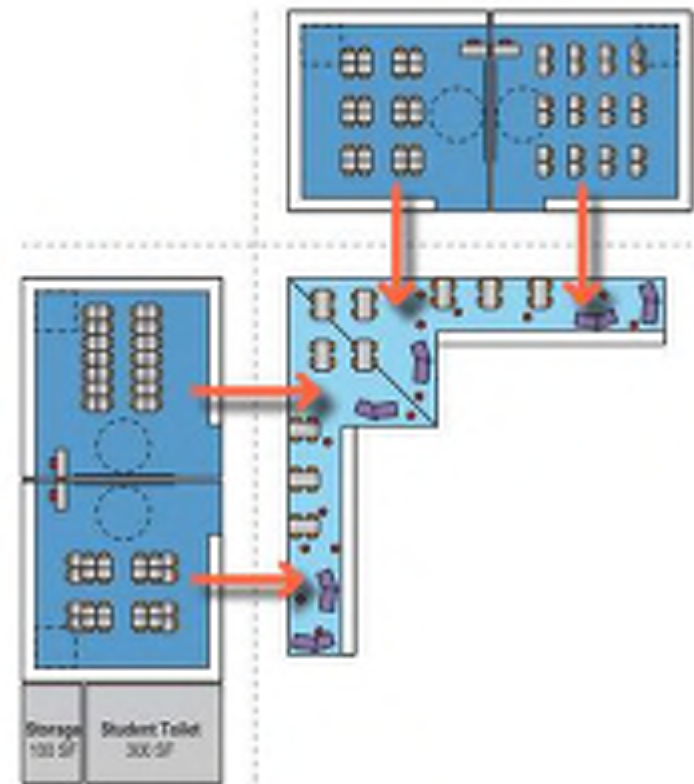
Learning Environment  
900 SF

Learning Environment  
900 SF

Non-Covered  
Outdoor Learning  
250 SF

Covered Outdoor  
Learning  
250 SF

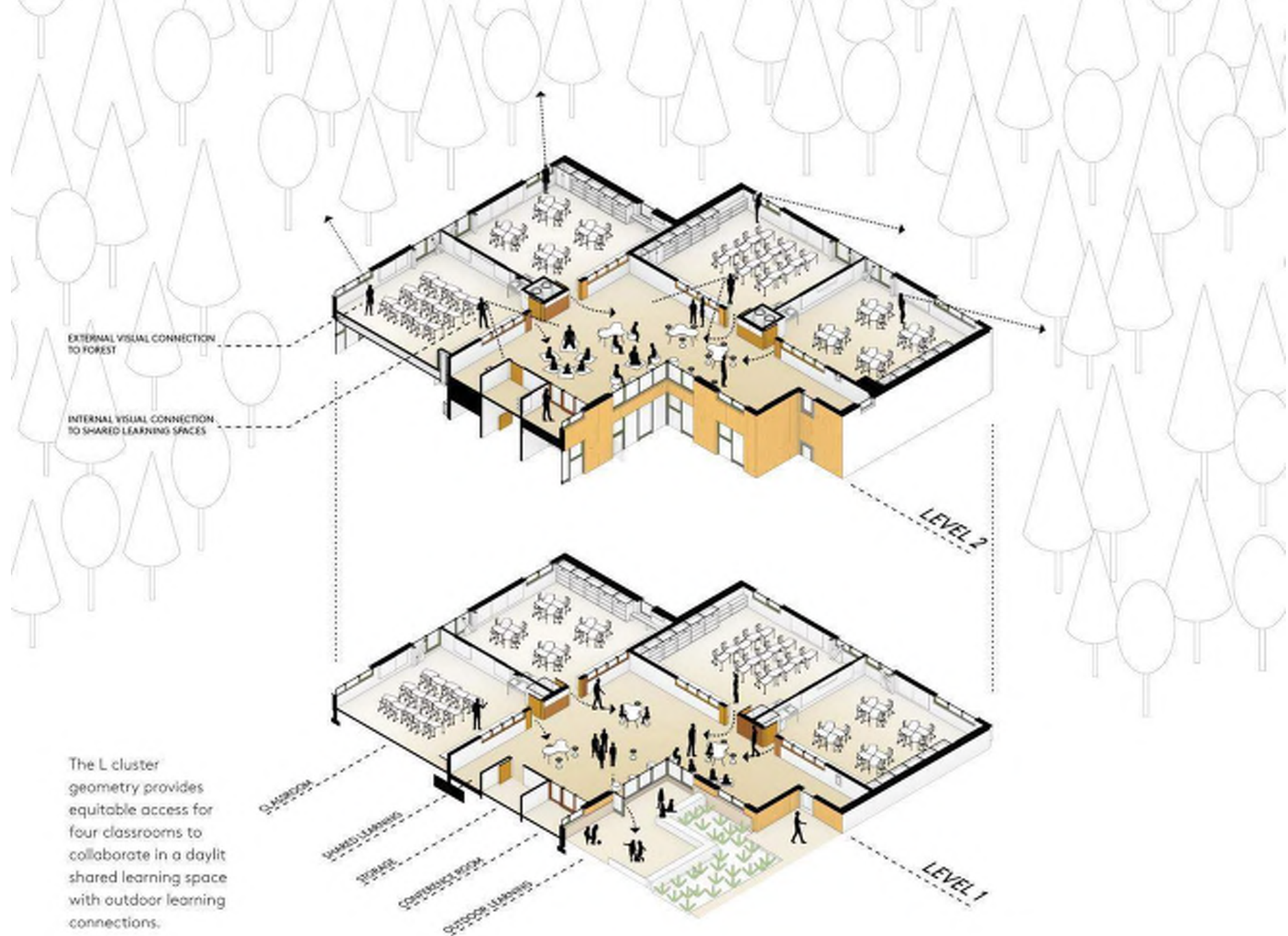




#### CONSIDERATIONS

- GENERALLY, REALLY LIKE THE 'U' SHAPED ARRANGEMENT
- LIKE THAT THE SHARED LEARNING IS STRETCHED OUT, SO THAT EACH CLASS HAS DIRECT ACCESS
- LIKE HAVING ONE SLIGHTLY LARGER PORTION OF THE SHARED LEARNING
- NO SMALL GROUP BREAKOUT SPACES - COULD BE PROBLEMATIC
- LIKE POTENTIAL INTEGRATION OF LANDSCAPE
- POTENTIAL FOR OPERABLE PARTITIONS BETWEEN CLASSROOMS

'L' – Flip Chart Diagram



The L cluster geometry provides equitable access for four classrooms to collaborate in a daylit shared learning space with outdoor learning connections.



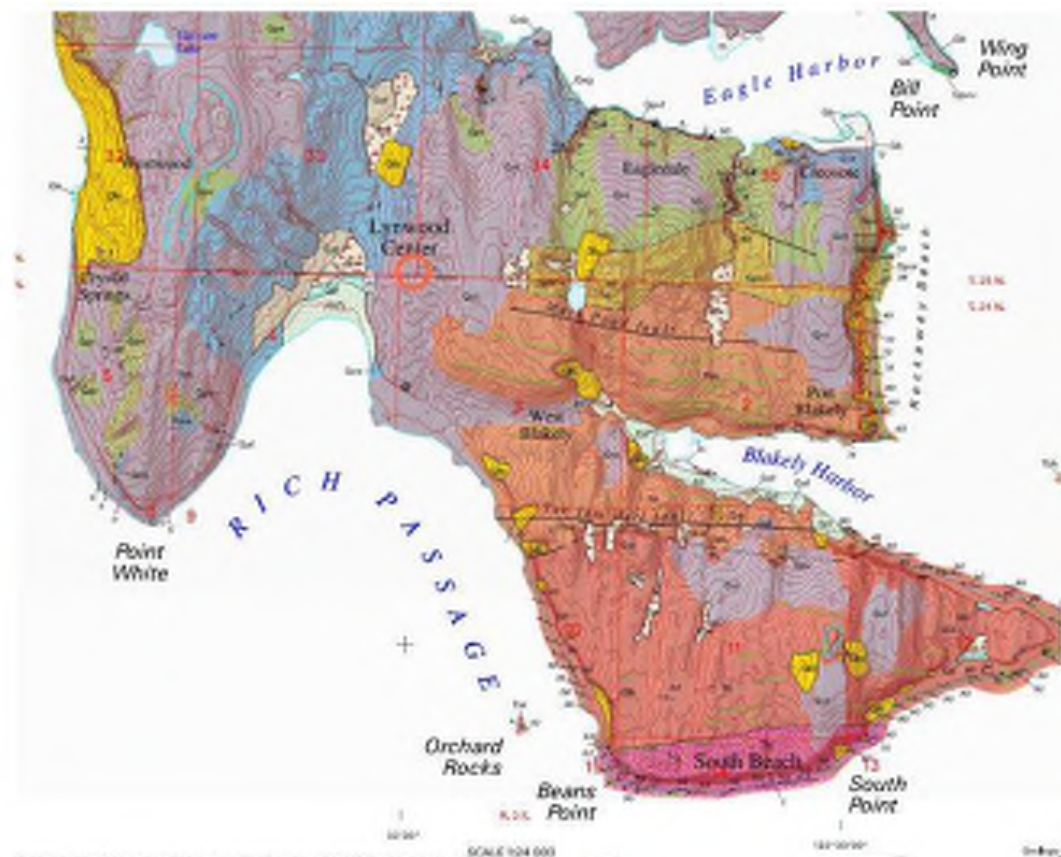
**Site and Ecosystem—**



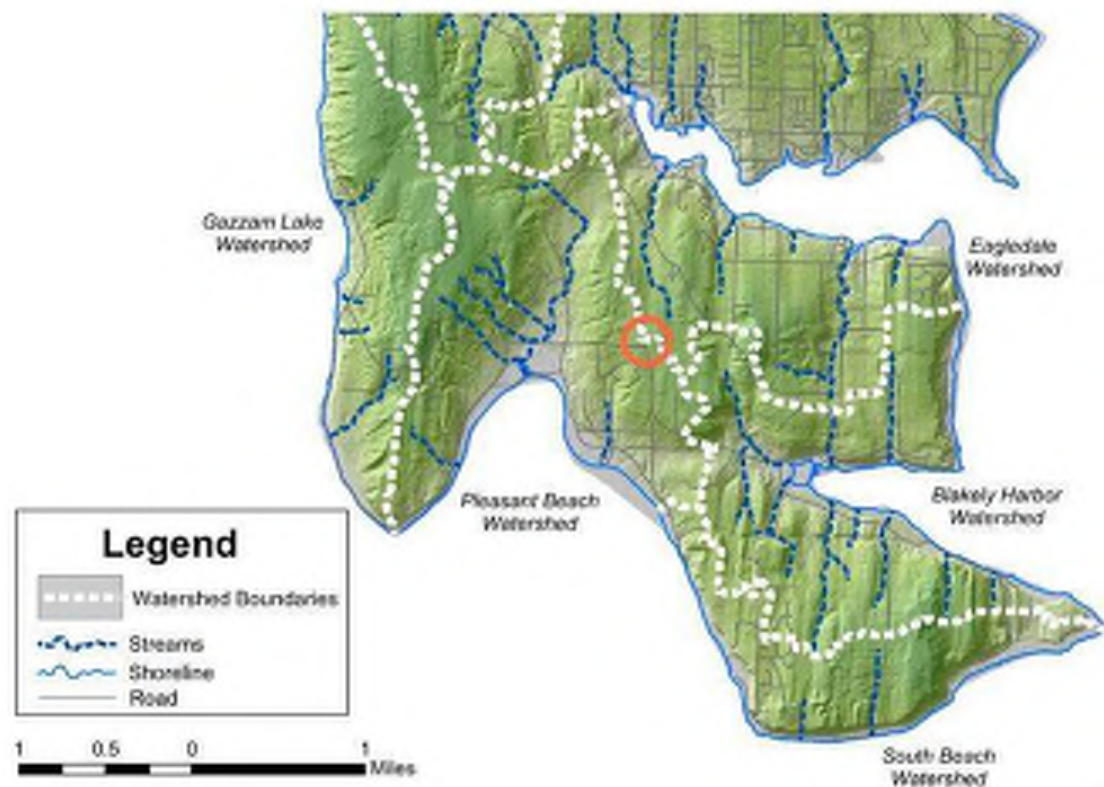
Fort Ward  
Park

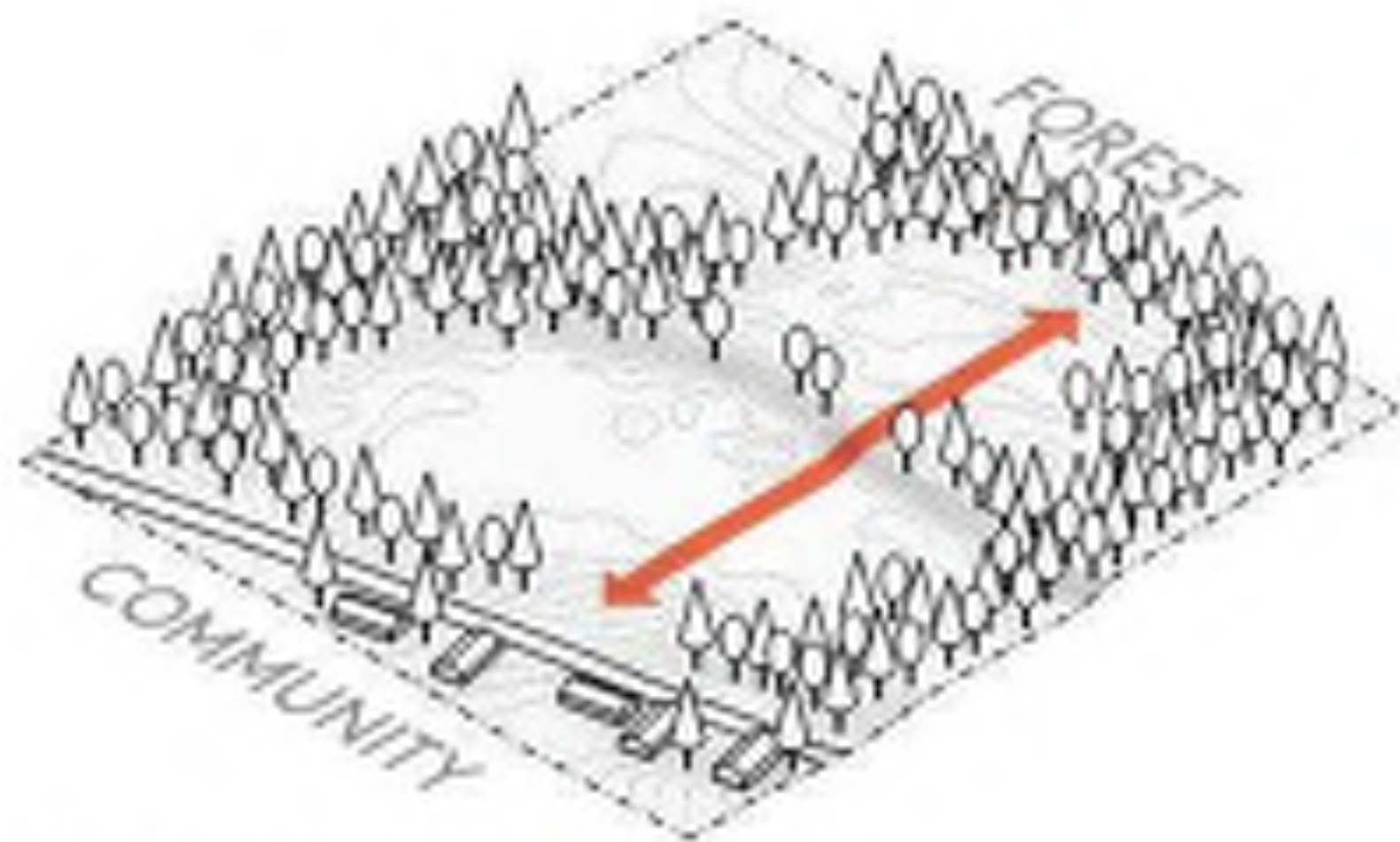
Island Wood

Capt. Johnston Bleakly  
Elementary School

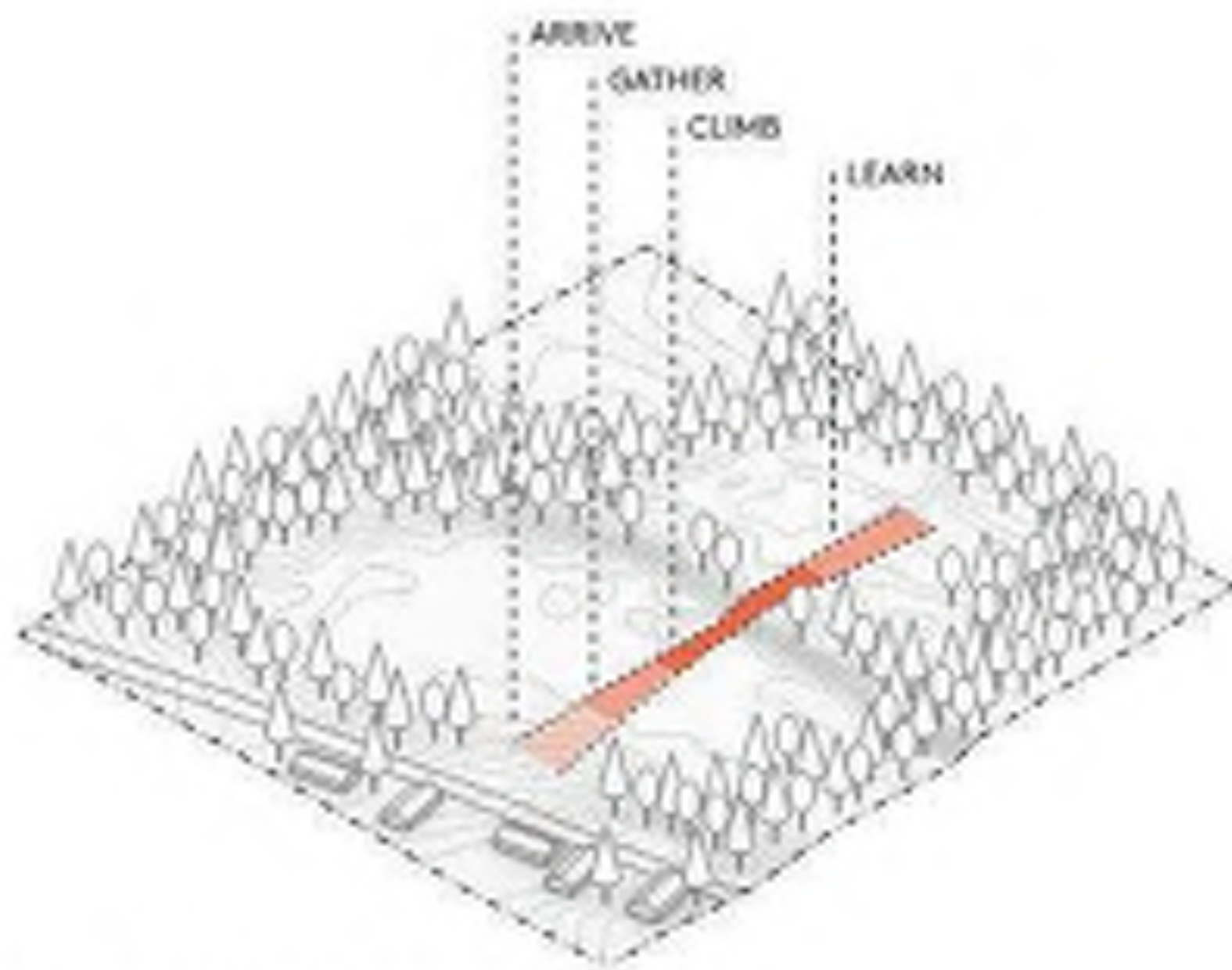


Source: <http://www.cibola-bridge.com/us/96/GIS/Mapping/Map/Scale>

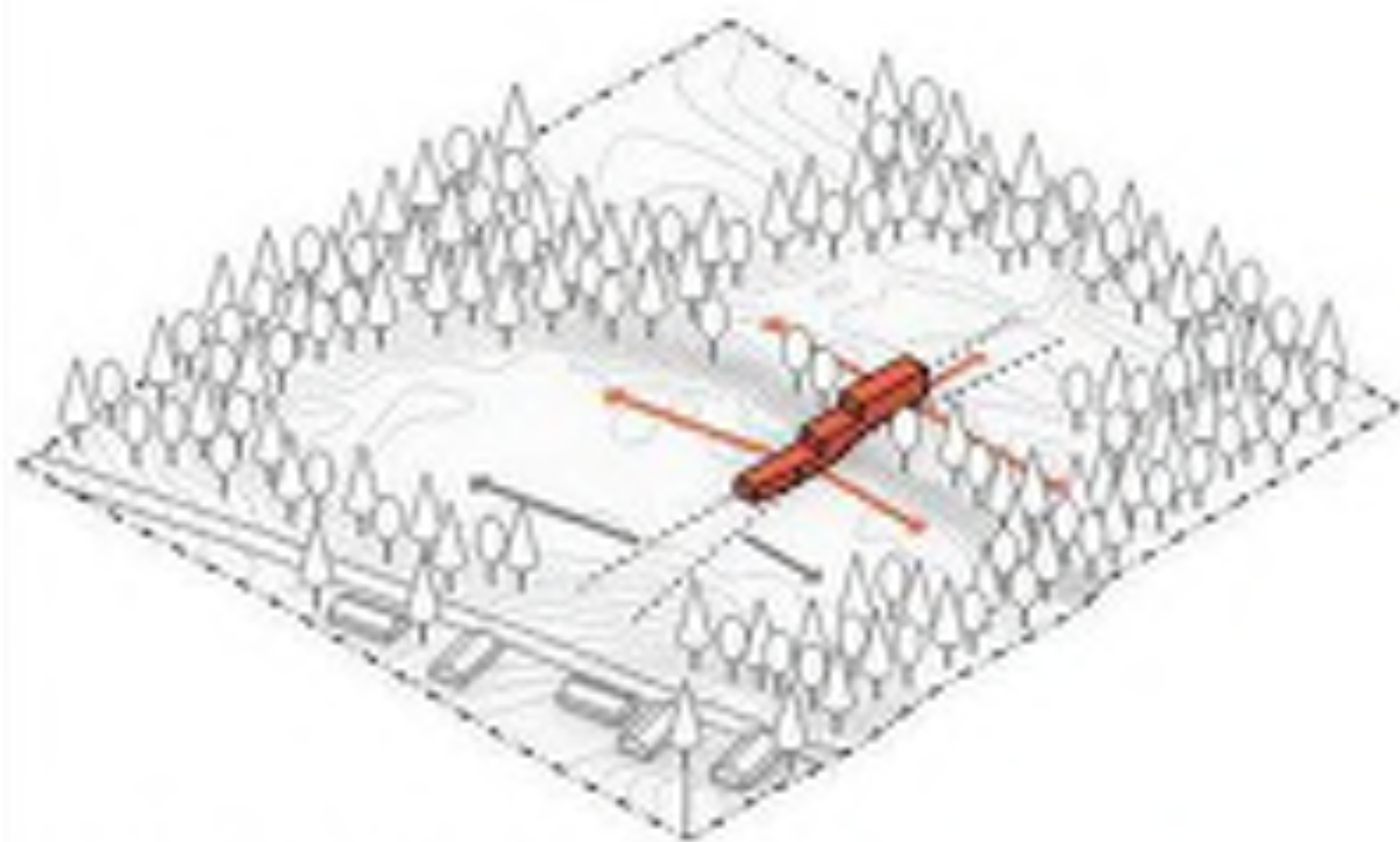




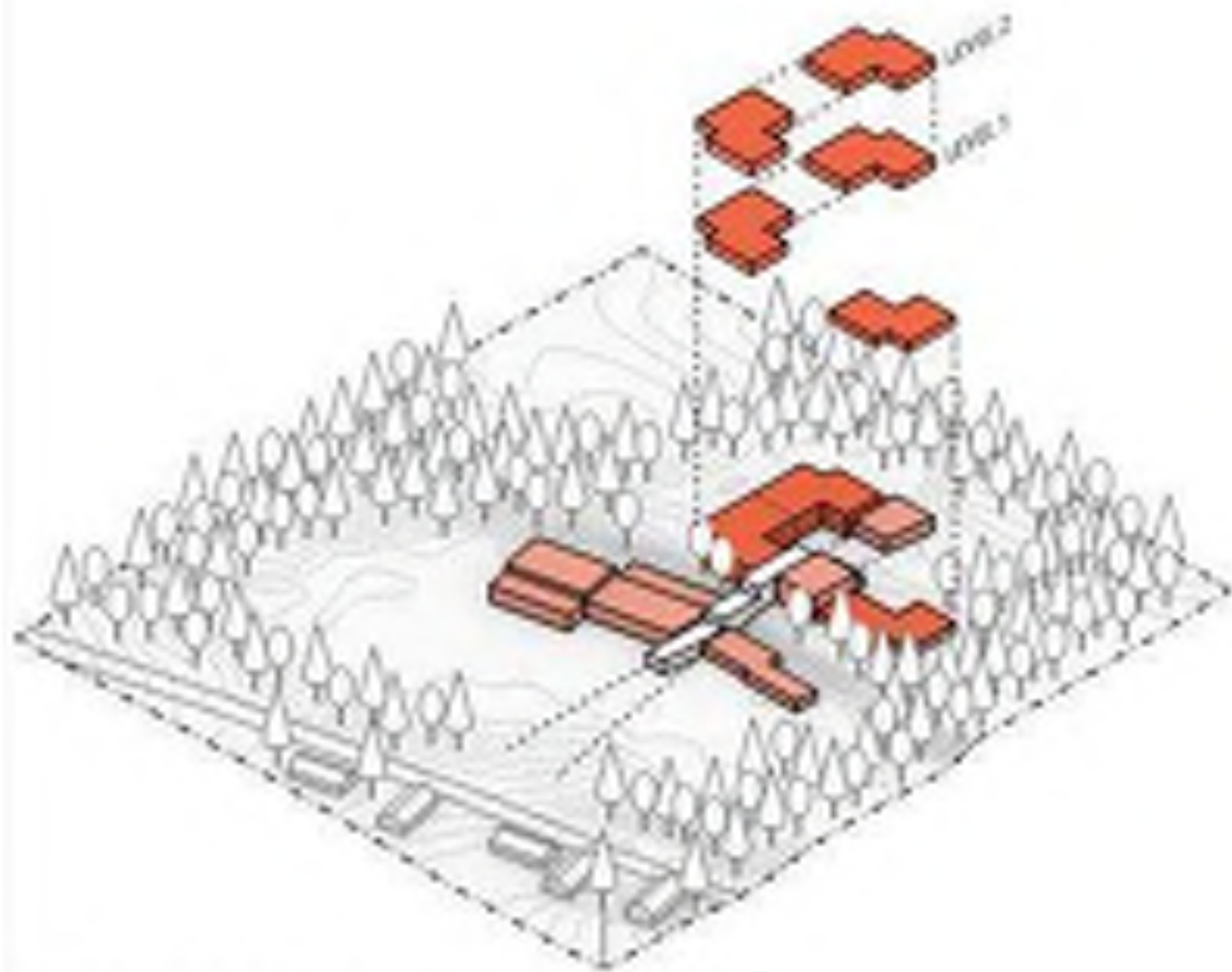
CONNECTOR



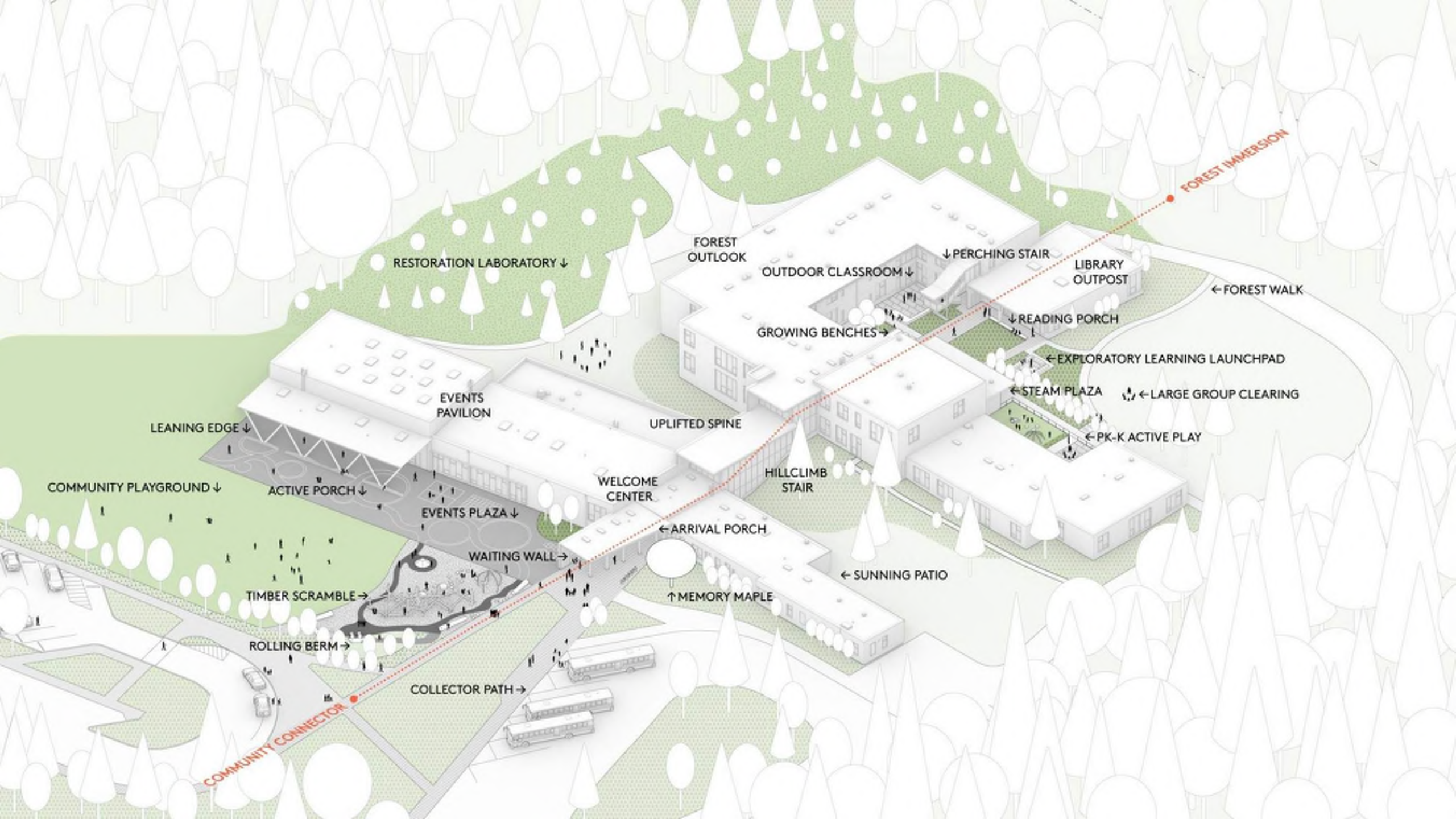
CIRCULATION SPINE



PROGRAMMATIC WINGS



SHARED LEARNING CLUSTERS



RESTORATION LABORATORY ↓

FOREST OUTLOOK

OUTDOOR CLASSROOM ↓

↓ PERCHING STAIR

LIBRARY OUTPOST

← FOREST WALK

GROWING BENCHES →

↓ READING PORCH

← EXPLORATORY LEARNING LAUNCHPAD

← STEAM PLAZA

← LARGE GROUP CLEARING

← PK-K ACTIVE PLAY

LEARNING EDGE ↓

EVENTS PAVILION

UPLIFTED SPINE

WELCOME CENTER

HILLCLIMB STAIR

← SUNNING PATIO

COMMUNITY PLAYGROUND ↓

ACTIVE PORCH ↓

EVENTS PLAZA ↓

← ARRIVAL PORCH

WAITING WALL →

↑ MEMORY MAPLE

TIMBER SCRAMBLE →

ROLLING BERM →




COLLECTOR PATH →

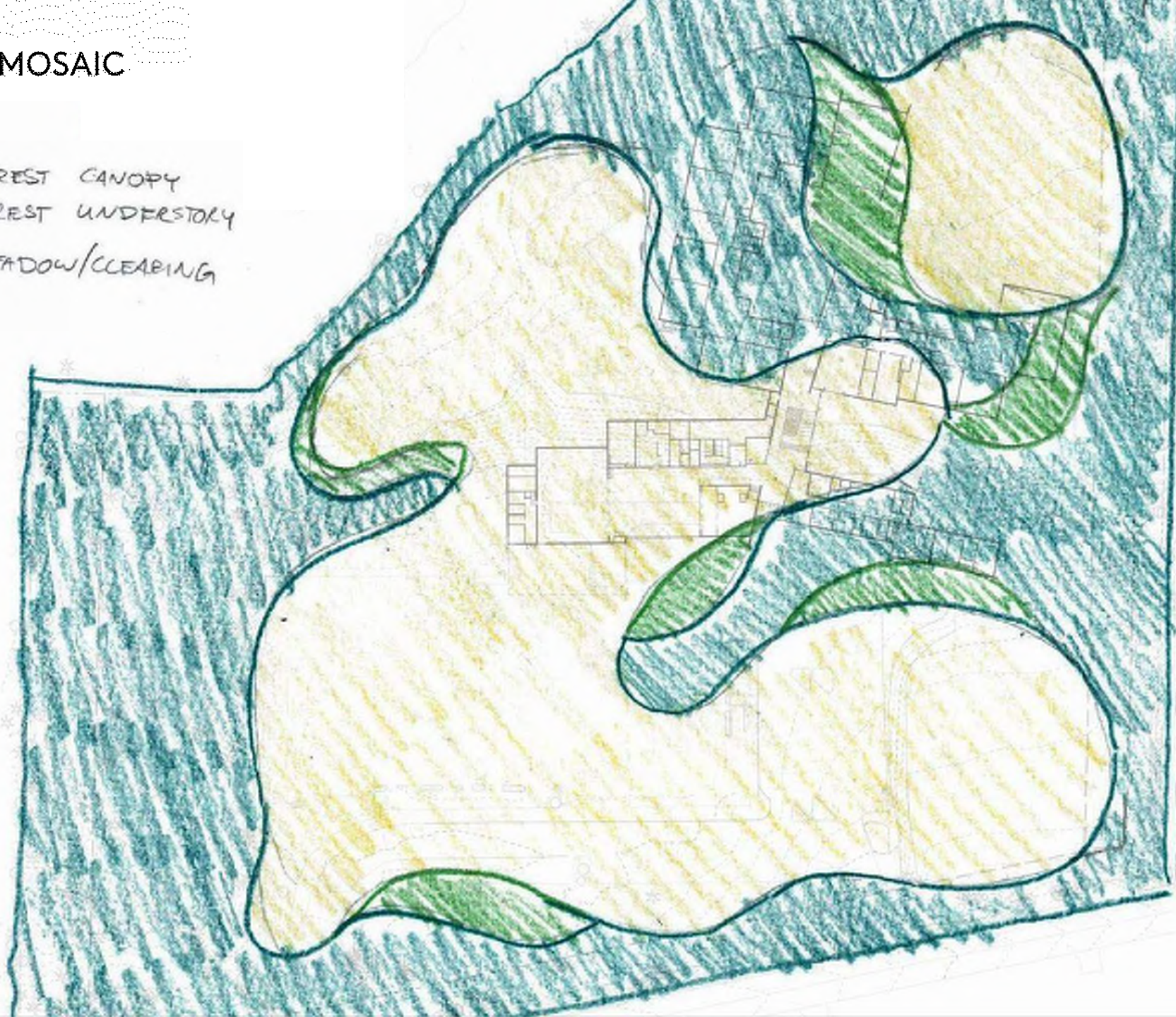
COMMUNITY CONNECTOR

FOREST IMMERSION



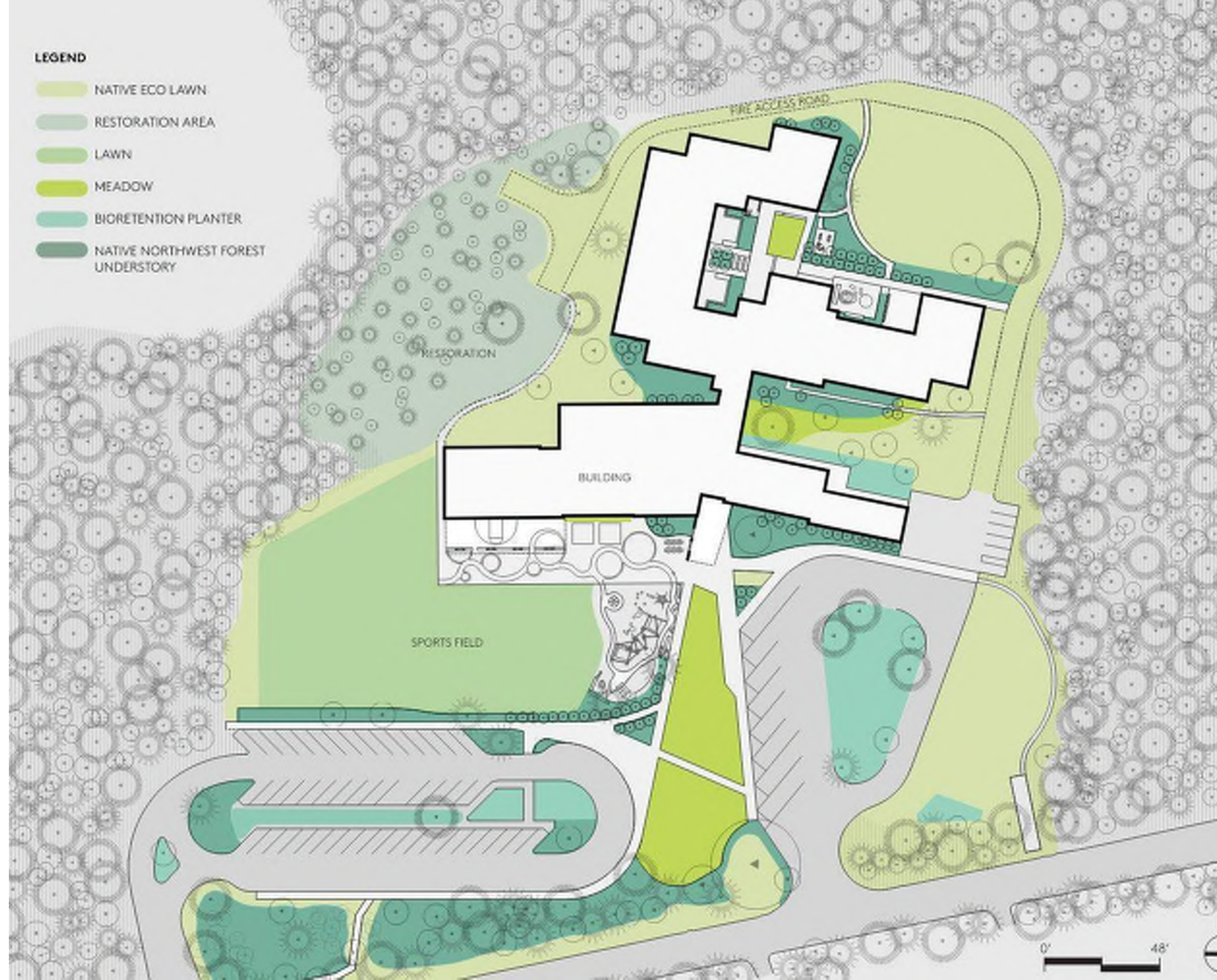
# ISLAND MOSAIC

-  FOREST CANOPY
-  FOREST UNDERSTORY
-  MEADOW/CLEARING



LEGEND

- NATIVE ECO LAWN
- RESTORATION AREA
- LAWN
- MEADOW
- BIORETENTION PLANTER
- NATIVE NORTHWEST FOREST UNDERSTORY



## BLAKELY PLANT GUIDE

### UPLIFT MEADOW



*Carex testacea* /  
Orange Sedge



*Panicum virginicum* /  
Steevy Menz / Switchgrass



*Deschampsia cespitosa* /  
Tufted Hairgrass



*Pennisetum elaeagnoides* /  
Fountain Grass 'Moundo'



*Miscanthus sinensis* /  
Maidengrass



*Juncus patens* /  
Scrubbing Rush

- 20,000 native and drought tolerant shrubs, perennials and grasses
- 300 Native Trees

### LOWLAND FOREST



*Tsuga heterophylla* /  
Western Hemlock



*Pseudotsuga menziesii* /  
Douglas Fir



*Acer circinatum* /  
Vine Maple



*Thuja plicata* /  
Western Red Cedar



*Gaultheria shallon* /  
Salal



*Mahonia* sp. /  
Oregon Grape



*Rosa nutkana* /  
Nootka Rose



*Symphoricarpos* sp. /  
Snowberry



*Polystichum munitum* /  
Western Sword Fern



*Cornus sericea* /  
Yellowtwig Dogwood



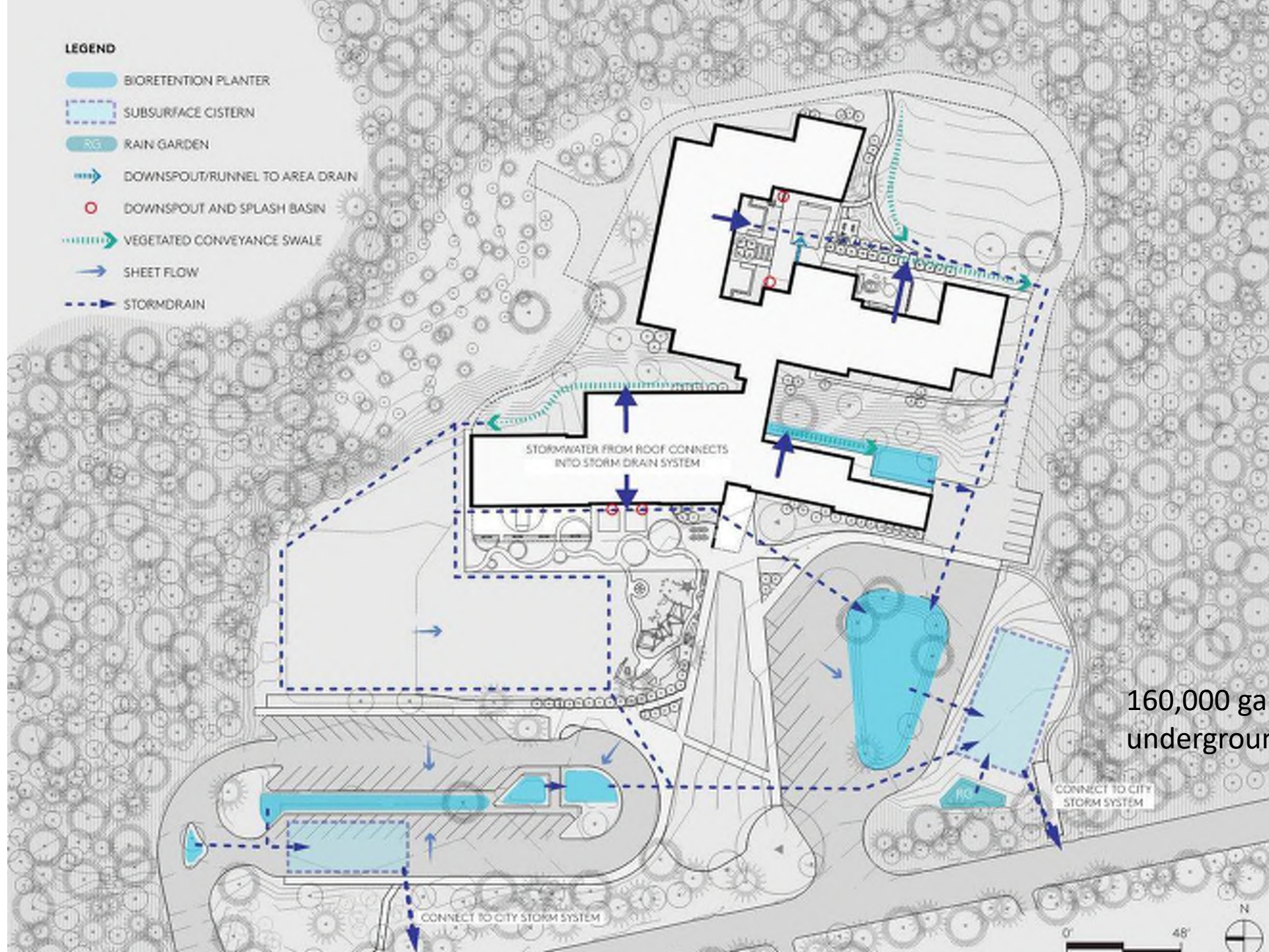
*Cornus sanguinea* /  
Bloodtwig Dogwood



*Physocarpus opulifolius* /  
Nisibori 'Diablo'

**LEGEND**

- BIORETENTION PLANTER
- SUBSURFACE CISTERN
- RAIN GARDEN
- DOWNSPOUT/RUNNEL TO AREA DRAIN
- DOWNSPOUT AND SPLASH BASIN
- VEGETATED CONVEYANCE SWALE
- SHEET FLOW
- STORMDRAIN



160,000 gallon  
underground cistern







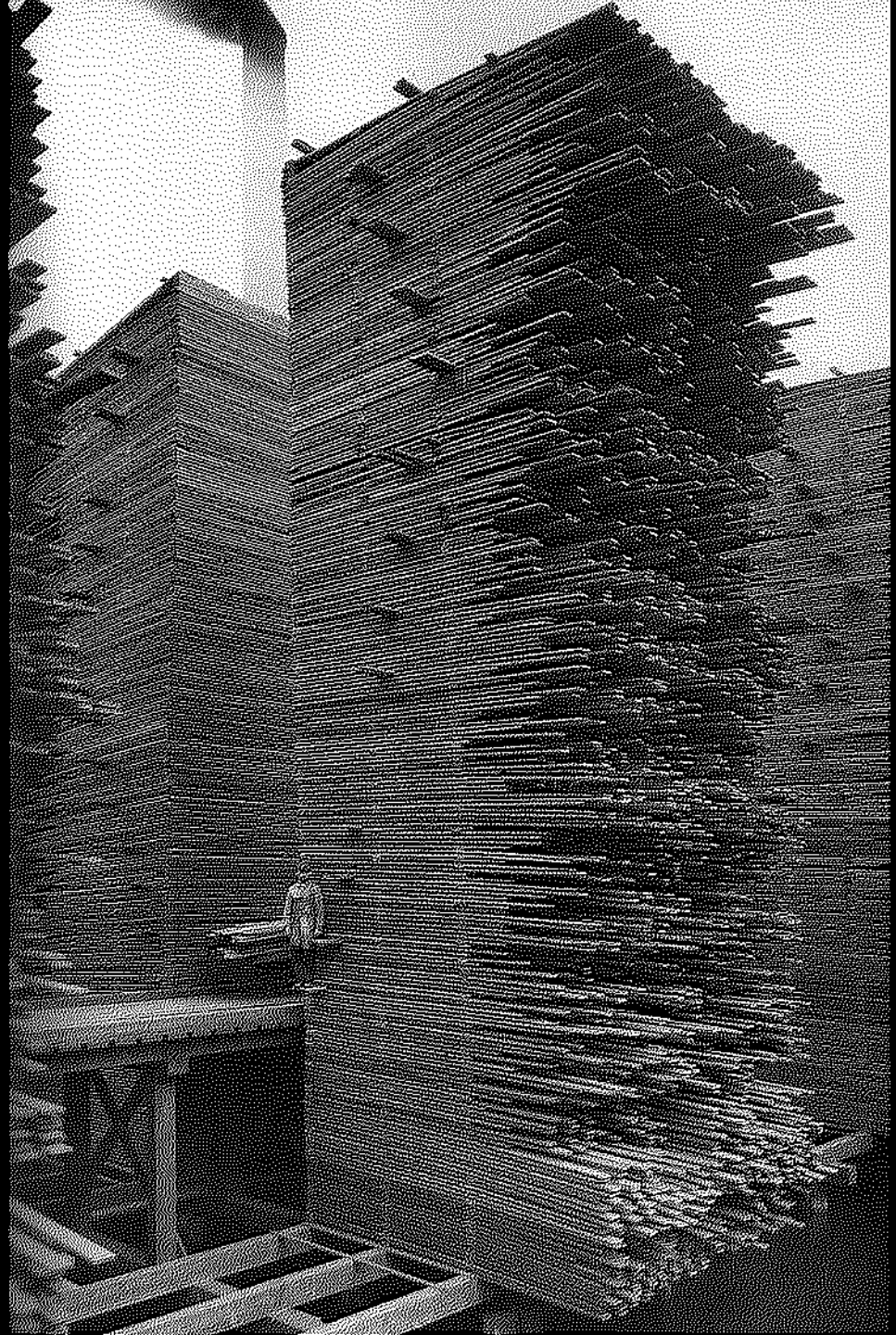


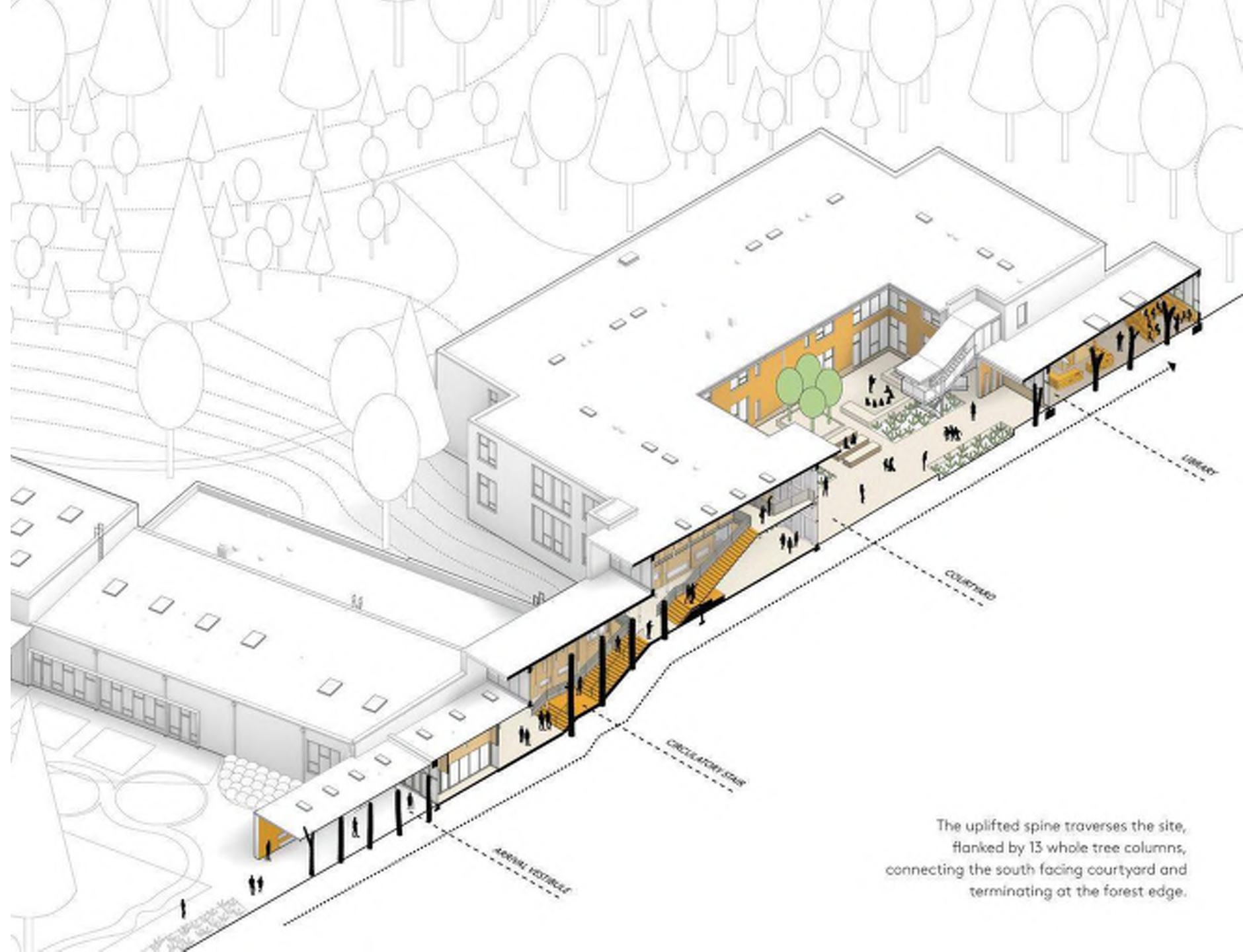




How do you find place ?  
What is nature on an urban site?  
What questions to ask?

**Tectonics of Place—**

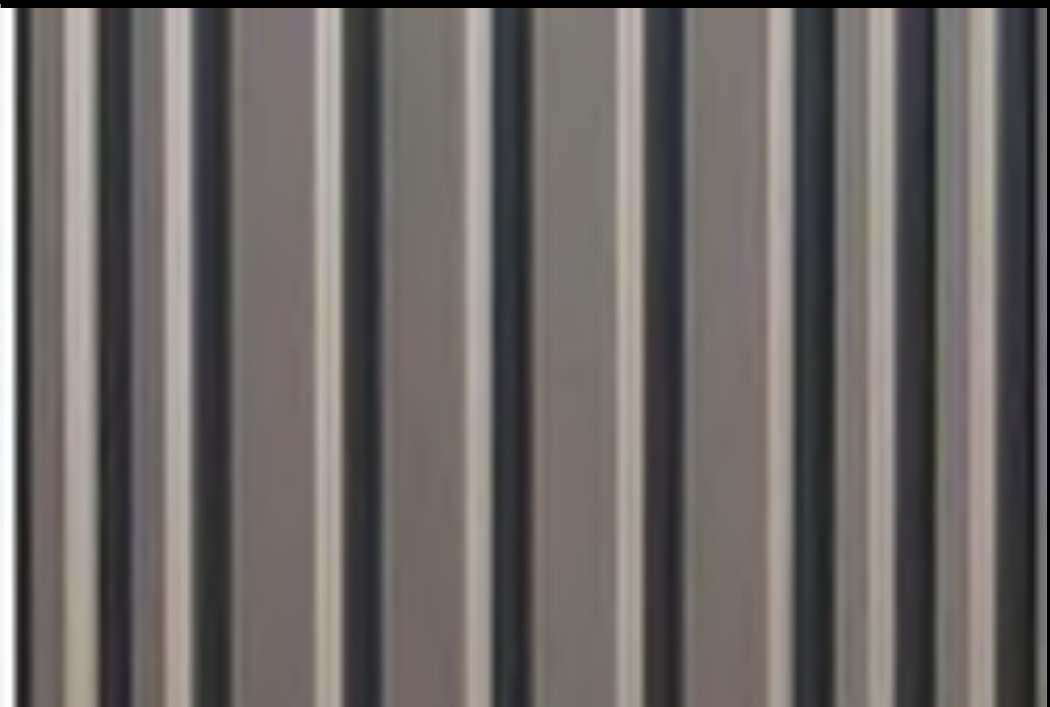
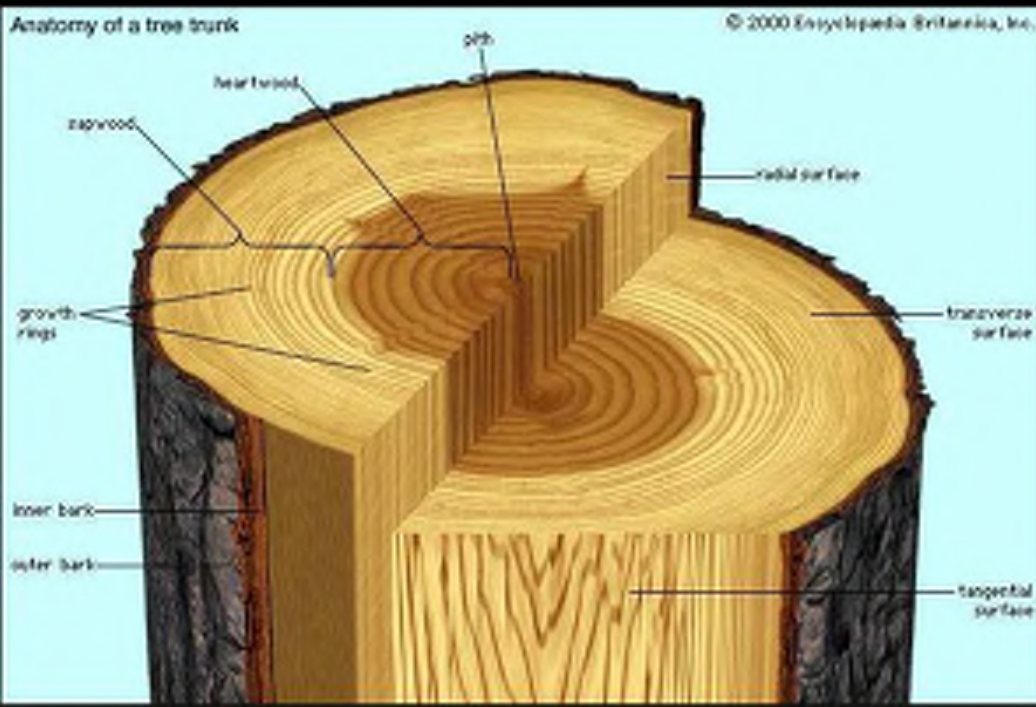




The uplifted spine traverses the site, flanked by 13 whole tree columns, connecting the south facing courtyard and terminating at the forest edge.

BLAKELY  
ELEMENTARY  
SCHOOL

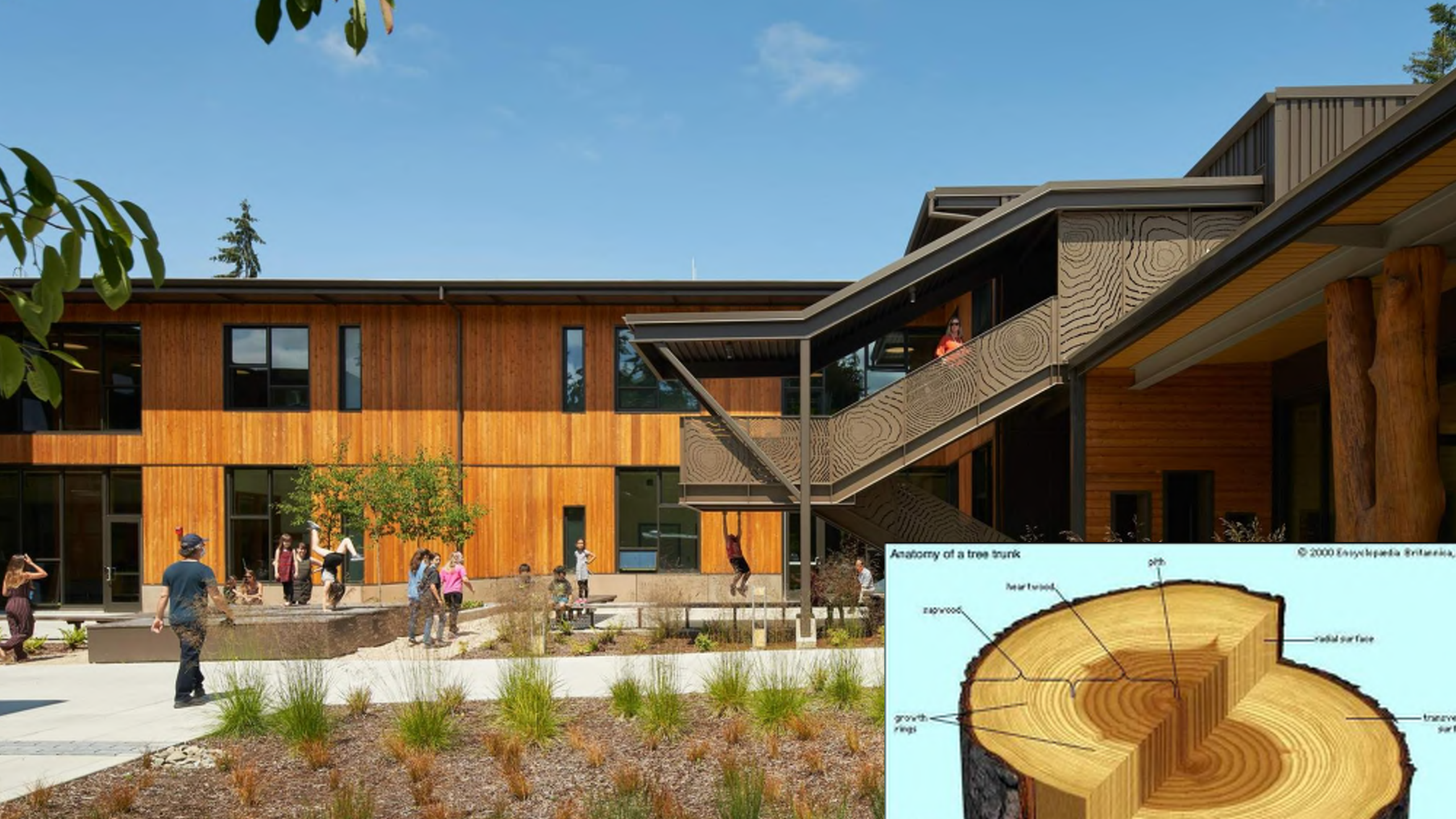




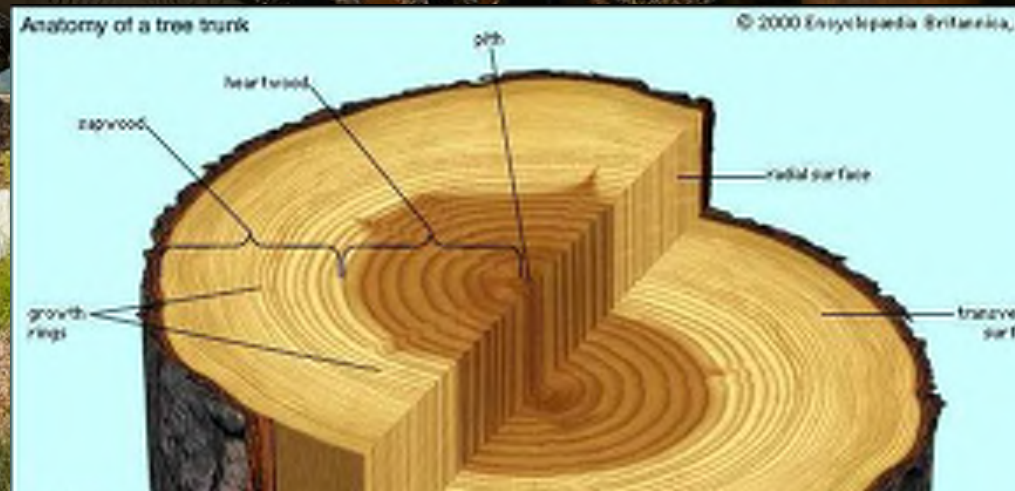








Anatomy of a tree trunk





4704

CAPTAIN JARDEN  
BLAKELY  
ELEMENTARY  
SCHOOL

470

# Bainbridge group rallies to save Japanese maple tree at Blakely Elementary



**Nathan Pilling**

Kitsap

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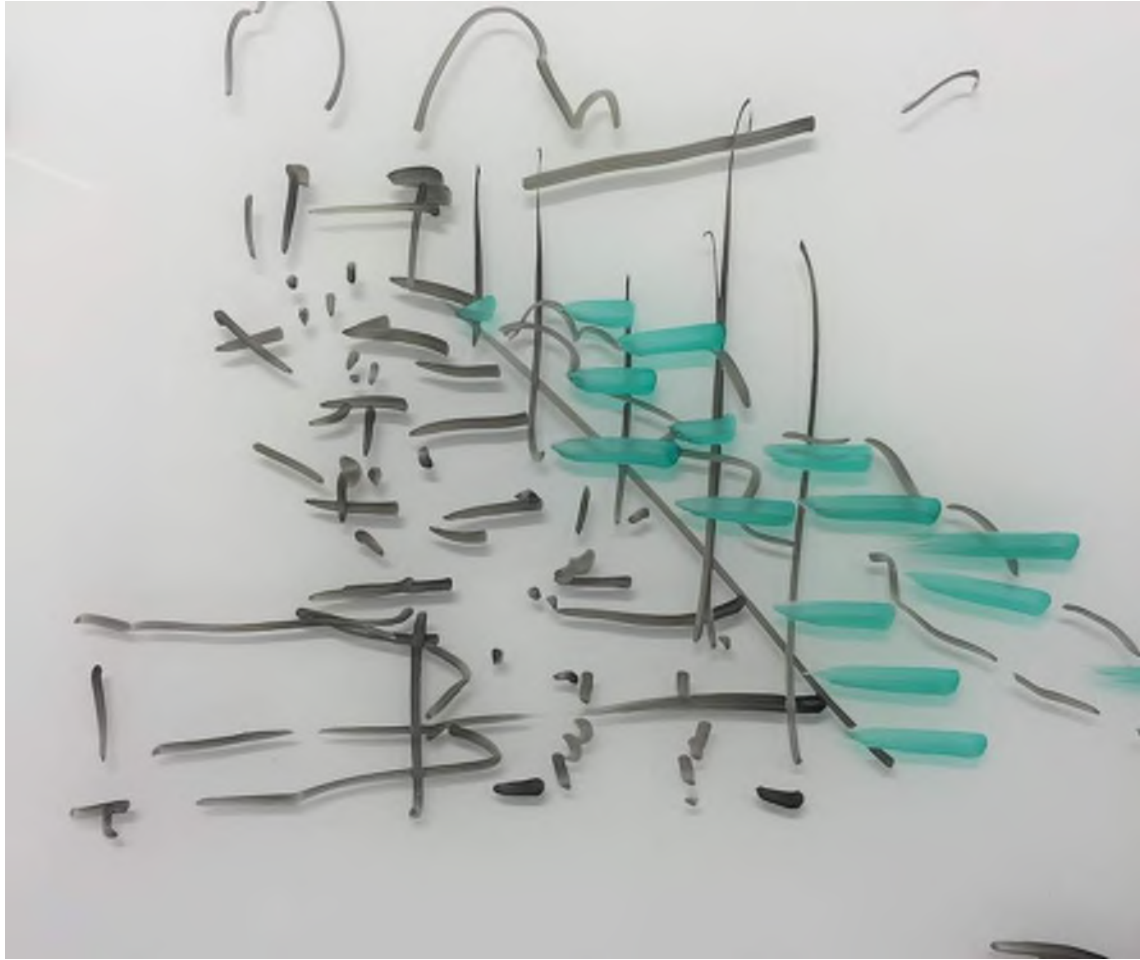
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**Bainbridge group rallies to save Blakely Elementary tree**

Tree was planted outside the Bainbridge school in 1967. *Nathan Pilling, Kitsap Sun*





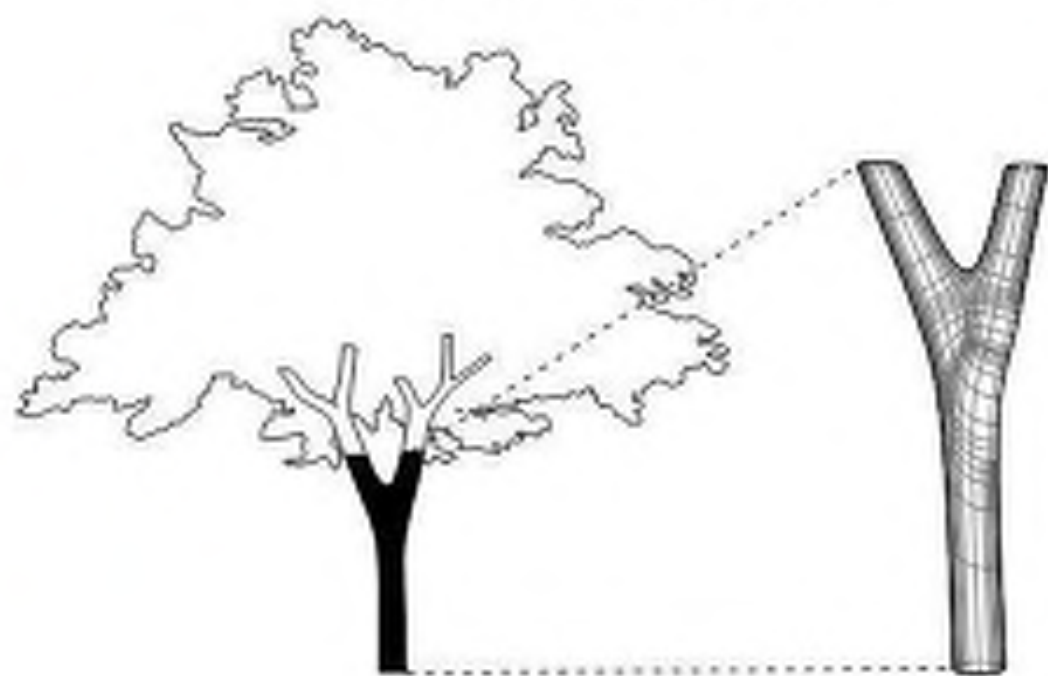








#### TREE SELECTION AND EXTRACTION



#### STRUCTURAL LOADING



#### Whole-tree Structure

24 white oak trees were scouted and laser scanned in the forest. The selected trees were felled, cleaned, and graded to be used throughout the interior and exterior of the project as load bearing wood columns connected with steel plates to slab and steel beams.





MONR1-BLOC-UY-27

Job Name 2  
Job Name 3  
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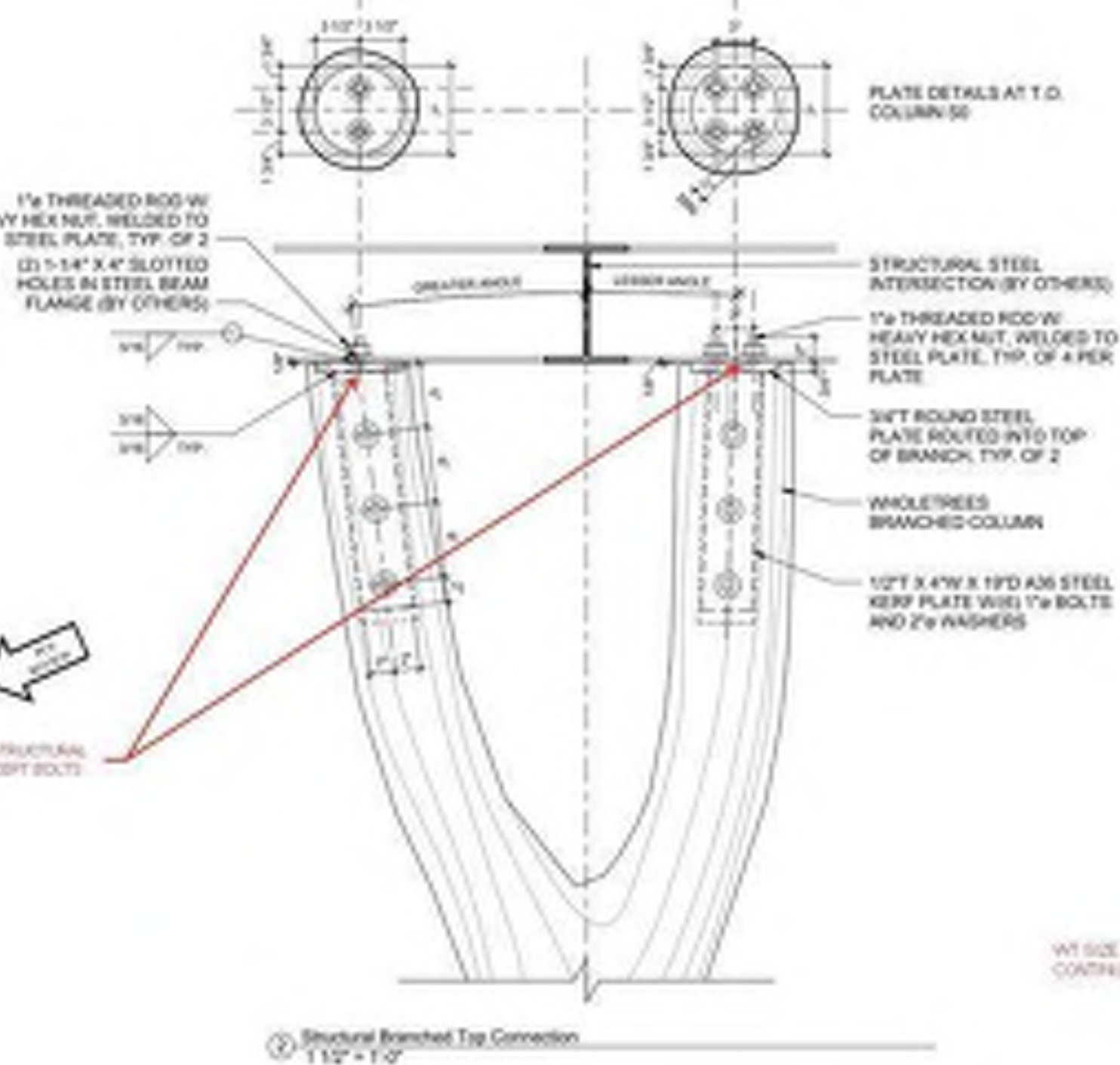
88%   



## Mechanical Properties

Rated Bearing Capacity  
Species *Quercus rubra*  
Natl *(Q. rubra)*  
No *(2001/001)*

KKK  
KKKK  
KKKKKK  
KKK













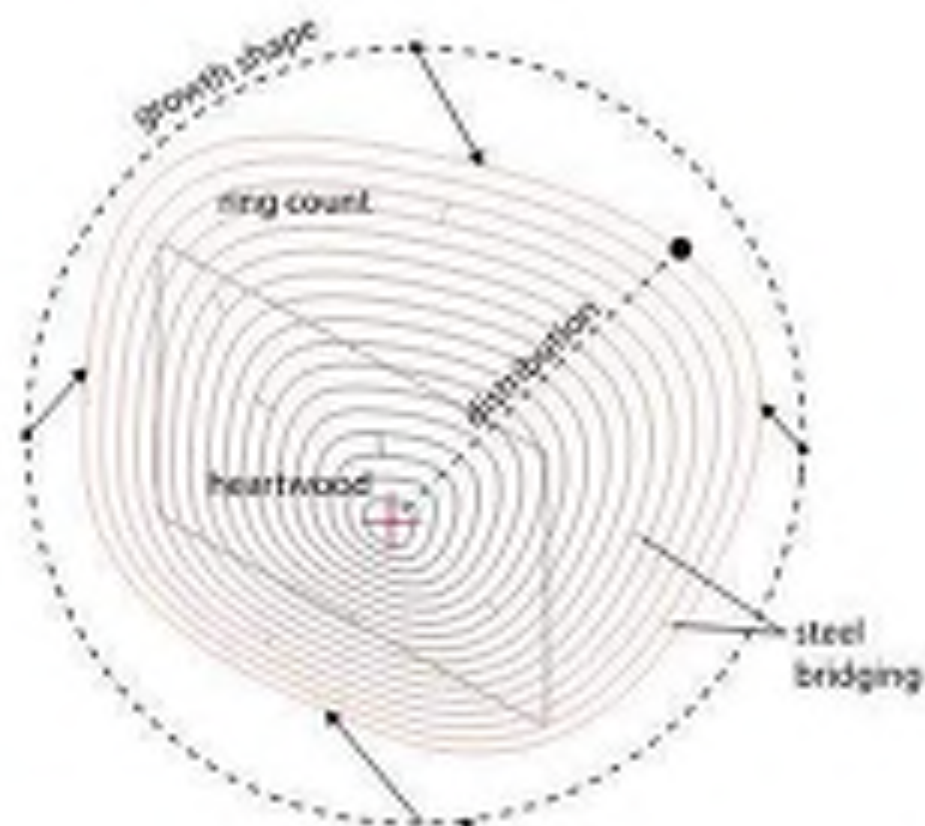




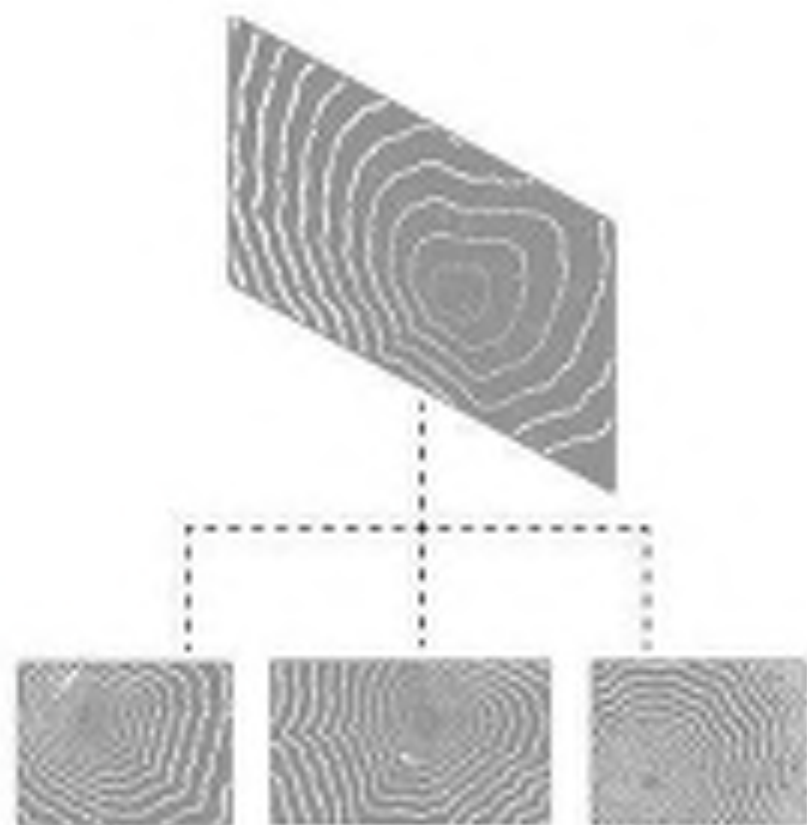
## PATTERN INSPIRATION



## PARAMETRIC DEFINITION VARIABLES



## CUSTOM PATTERN CREATION



### Tree As Pattern

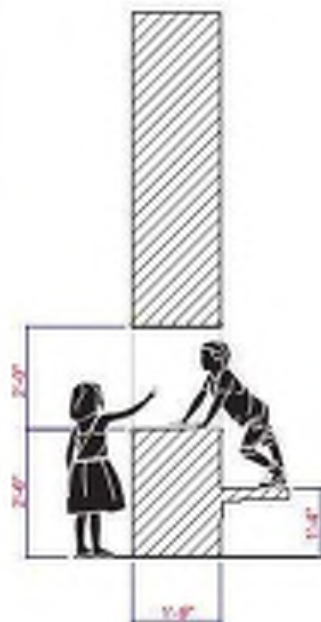
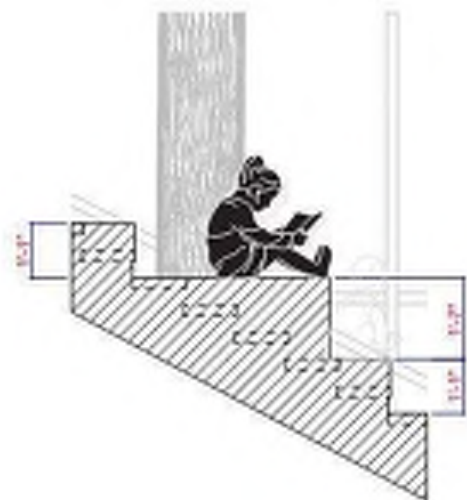
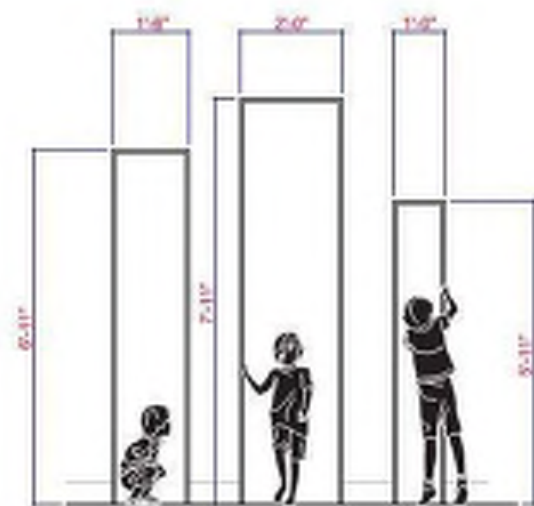
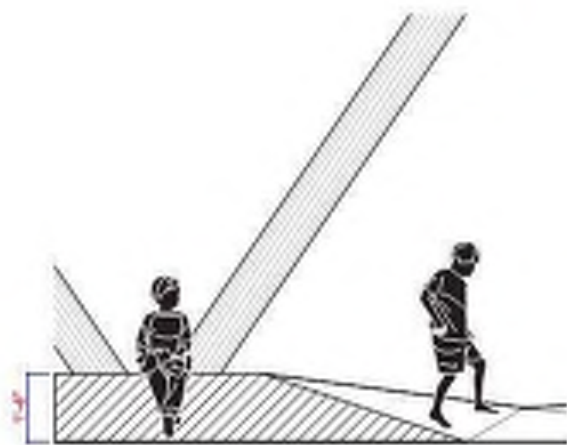
Using timber growth rings as inspiration, a computer script was developed to laser cut a custom pattern into 32 steel guardrail panels. The script used several control parameters including: 'growth ring' size, count, and shape to precisely generate the custom patterns.





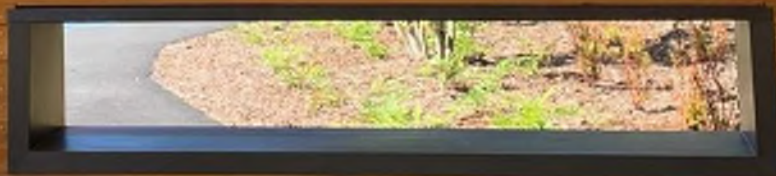


**Choreography of Experiences—**





CAPTAIN JOHNSTON  
BLAKELY  
ELEMENTARY  
SCHOOL











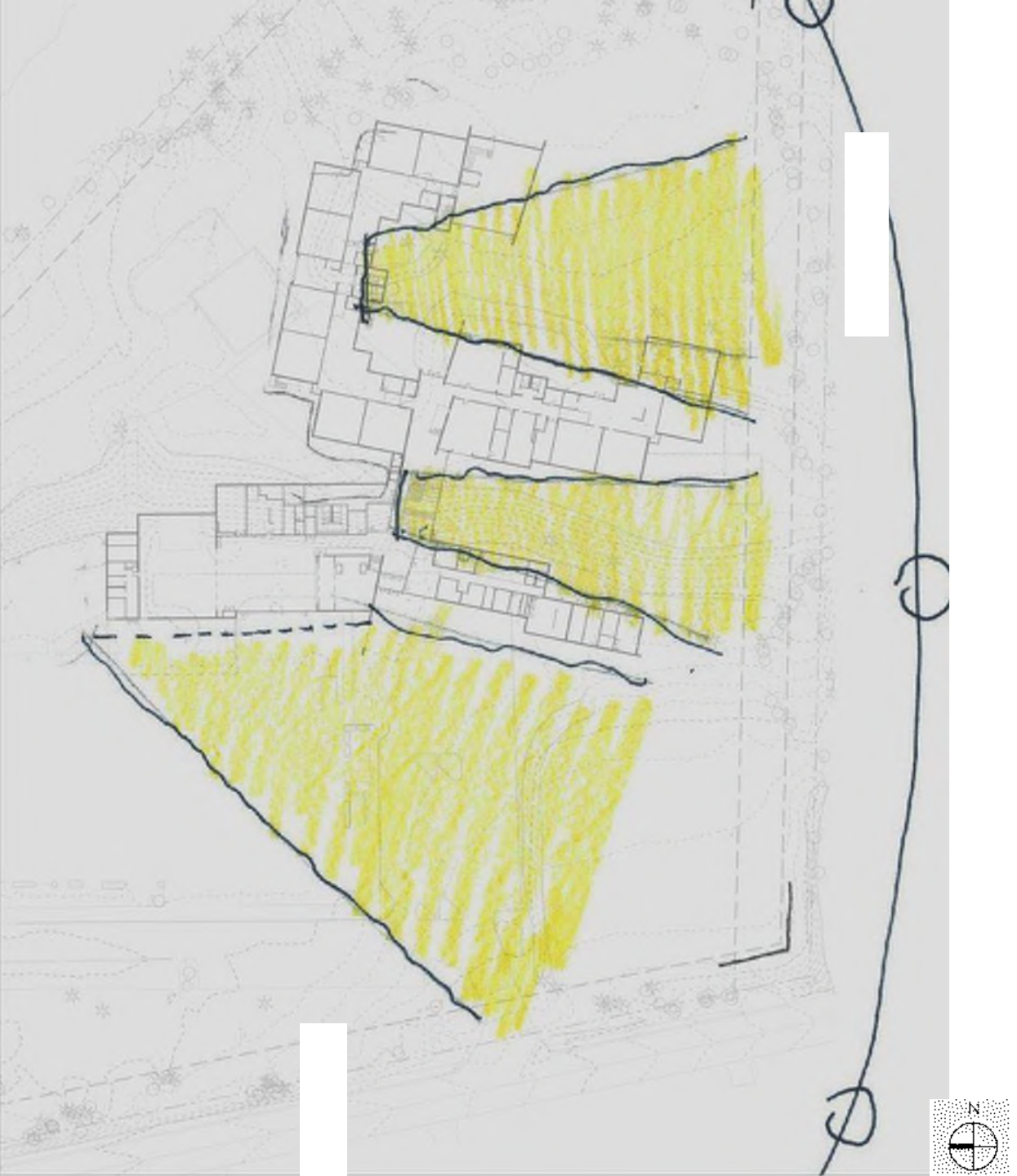




**BioClimatic Response—**



# SOLAR ACCESS





Learning Courtyard connects to shared learning areas and creates multiple opportunities for outdoor education.



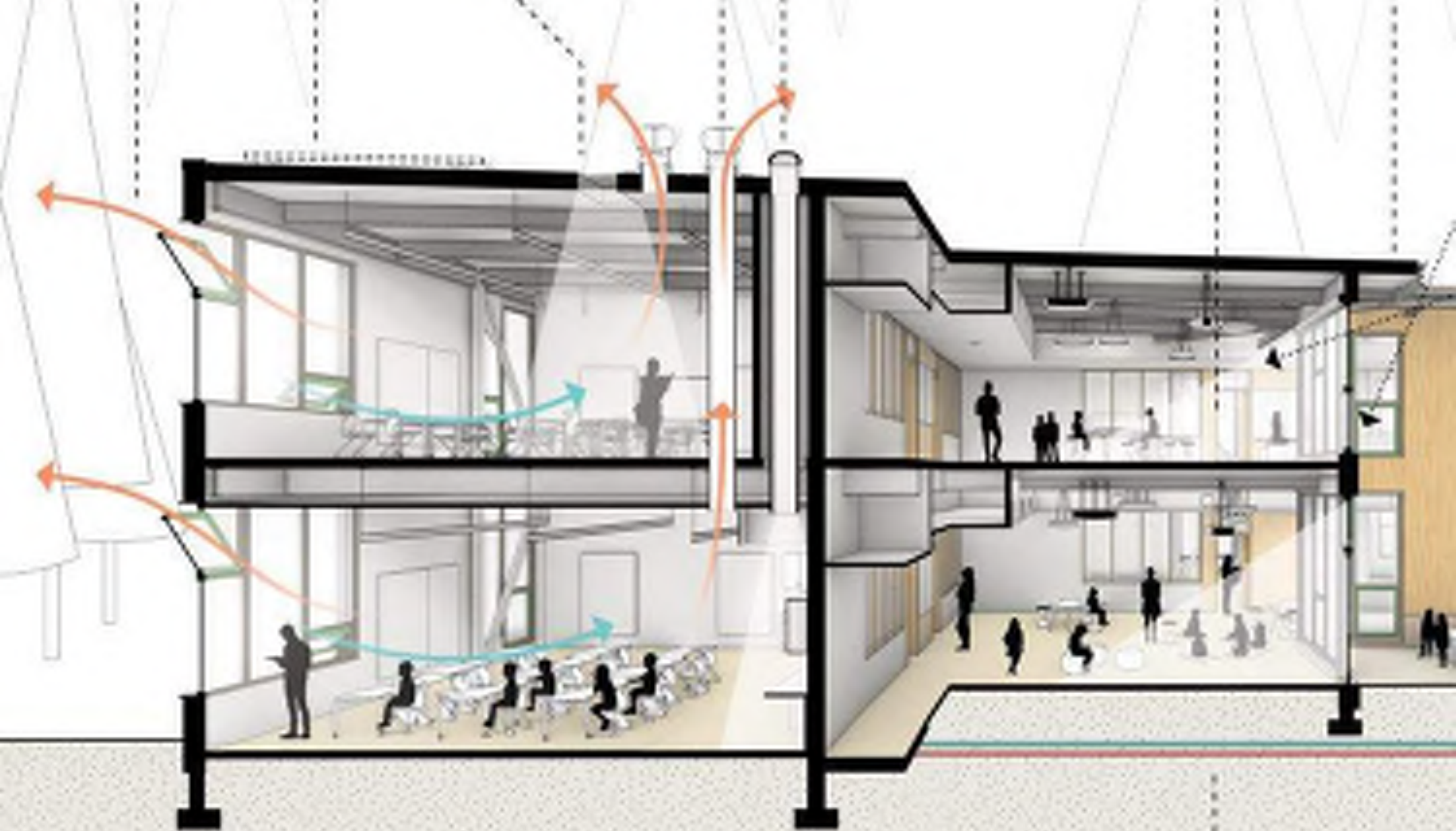






TOGETHER WE ARE UNITED  
FOR KINDNESS  
INCLUSION ACCEPTANCE



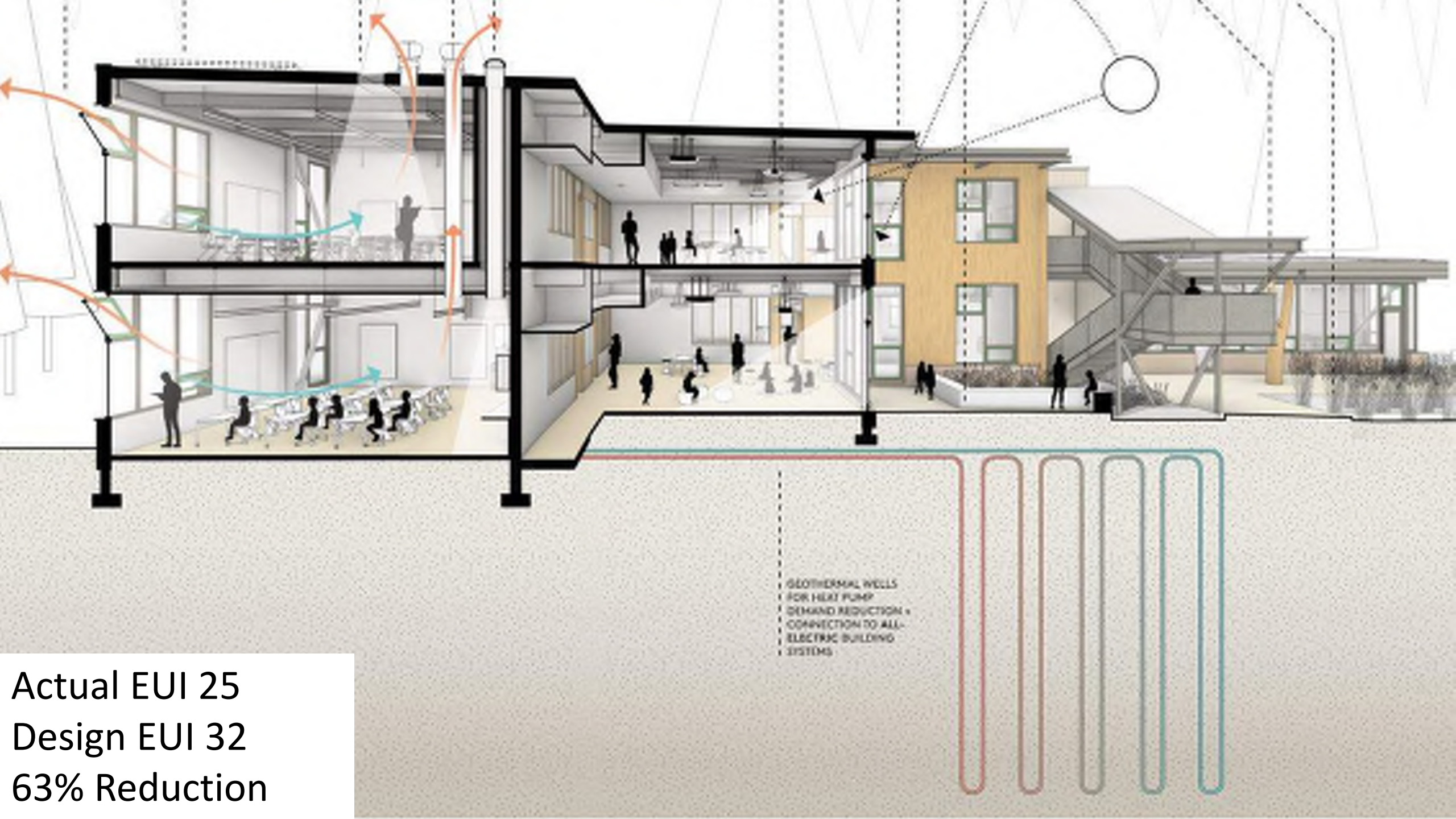






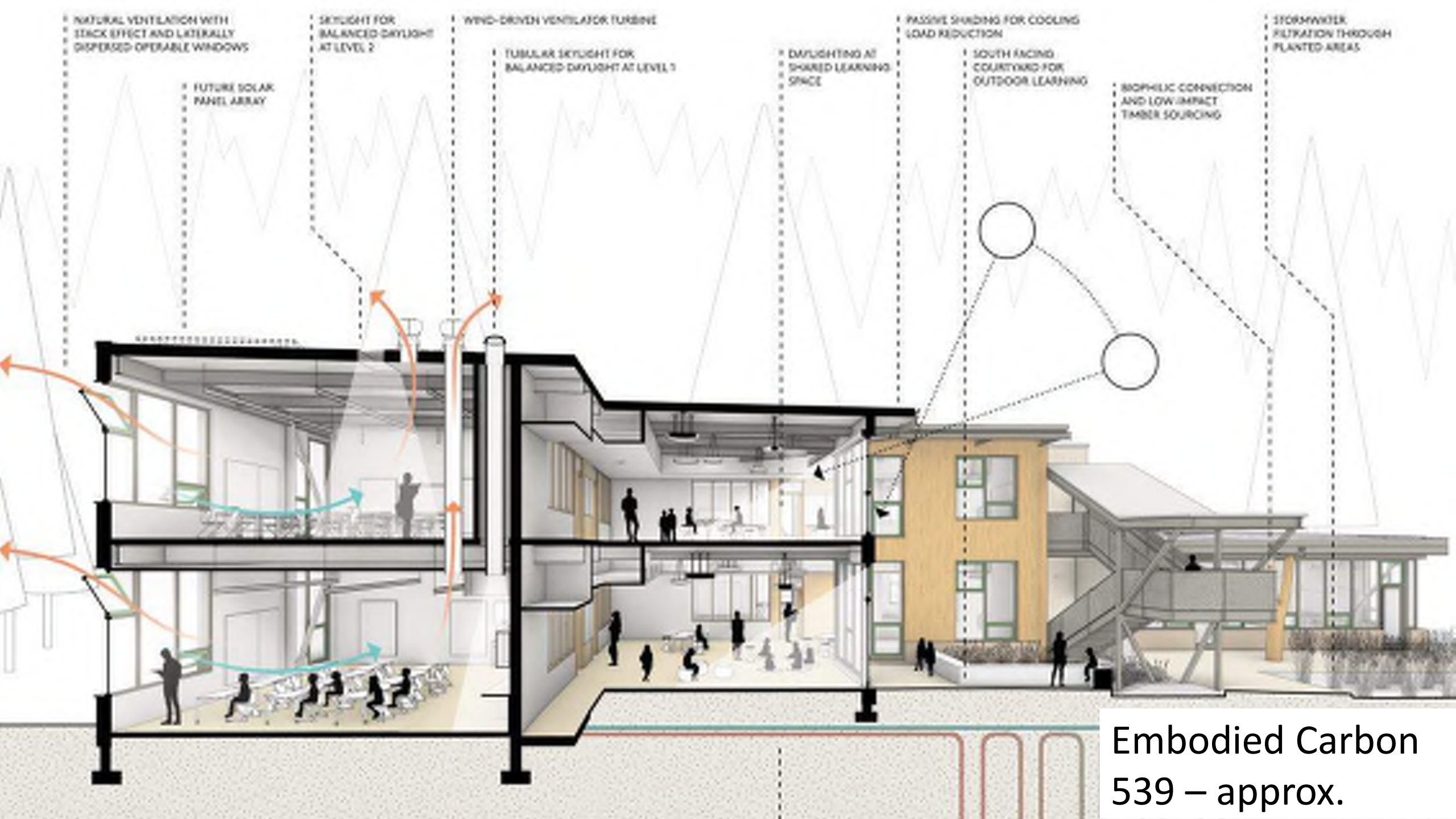






GEOTHERMAL WELLS  
FOR HEAT PUMP  
DEMAND REDUCTION +  
CONNECTION TO ALL-  
ELECTRIC BUILDING  
SYSTEMS

Actual EUI 25  
Design EUI 32  
63% Reduction



Embodied Carbon  
539 – approx.

**Place for Community—**





First and First and First and Second grades three  
And around the bend is the Library

There are many, many students in the trunk of the tree

And we're learning a lot in the trunk of the tree

And we're gathering strength from the roots of the tree

Chorus

We've reached the top, top

Let's go, let's go, let's go, let's go





## Nature as a Path to Place – Blakely Elementary School

- Rich Franko FAIA— Mithun
- Séamus Kelly AIA— Mithun

**A4LE Learning SCAPES 2022**

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