Re Imagining *Spaces for* ***Tomorrow's*** *Thinkers*

OES

+

Hacker Architects

Learning Objectives

1. Understand how spatial requirements for active- or inquiry-based learning differ from traditional teaching spaces.

2. Understand how non-classroom spaces can foster informal learning between teacher-teacher, teacher-student and student-student.

3. Describe the academic and developmental benefits active - and inquiry-based learning offer students.

4. Describe the energy efficiency features that allowed the project to be considered "net zero ready" and participate in the "Path to Net Zero" program.

Health, Safety, and Welfare

1. *Understanding how the change in teaching methodology to active- and inquiry-based learning improves learning outcomes. Students focus their energy on critical thinking and collaborative problem solving, two skills that will be increasingly important as technology continues to replace a larger portion of our workforce. By creating spaces that support a pedagogy which improves students' emotional development, the architecture contributes to improving a key aspect of students' mental health and social well-being.*

2. *Understanding the attributes which inspire or inhibit active learning pedagogies in building design and the attributes which build community, a key ingredient in a successful school.*

3. *Understanding the balanced combination of energy efficiency, daylighting, and natural building materials which can create a net zero ready healthy building for learning and teaching.*

4. *Preparing teachers to take full advantage of opportunities demonstrated by the architecture and with resilient communal spaces to foster a resilient community of learners in a world where culture and education are changing at an unprecedented rate.*

Introduction to OES

Applying New Pedagogy

New Building Facilities and Resiliency

Lessons

Introduction to OES

Oregon Episcopal School

We are a

PK-12

Coed

Independent

College Prep

Episcopal

School

Purpose

Our Mission

Prepare for Lifelong Learning

Inspiring Intellectual, Physical, Social, Emotional, Artistic, and Spiritual Growth

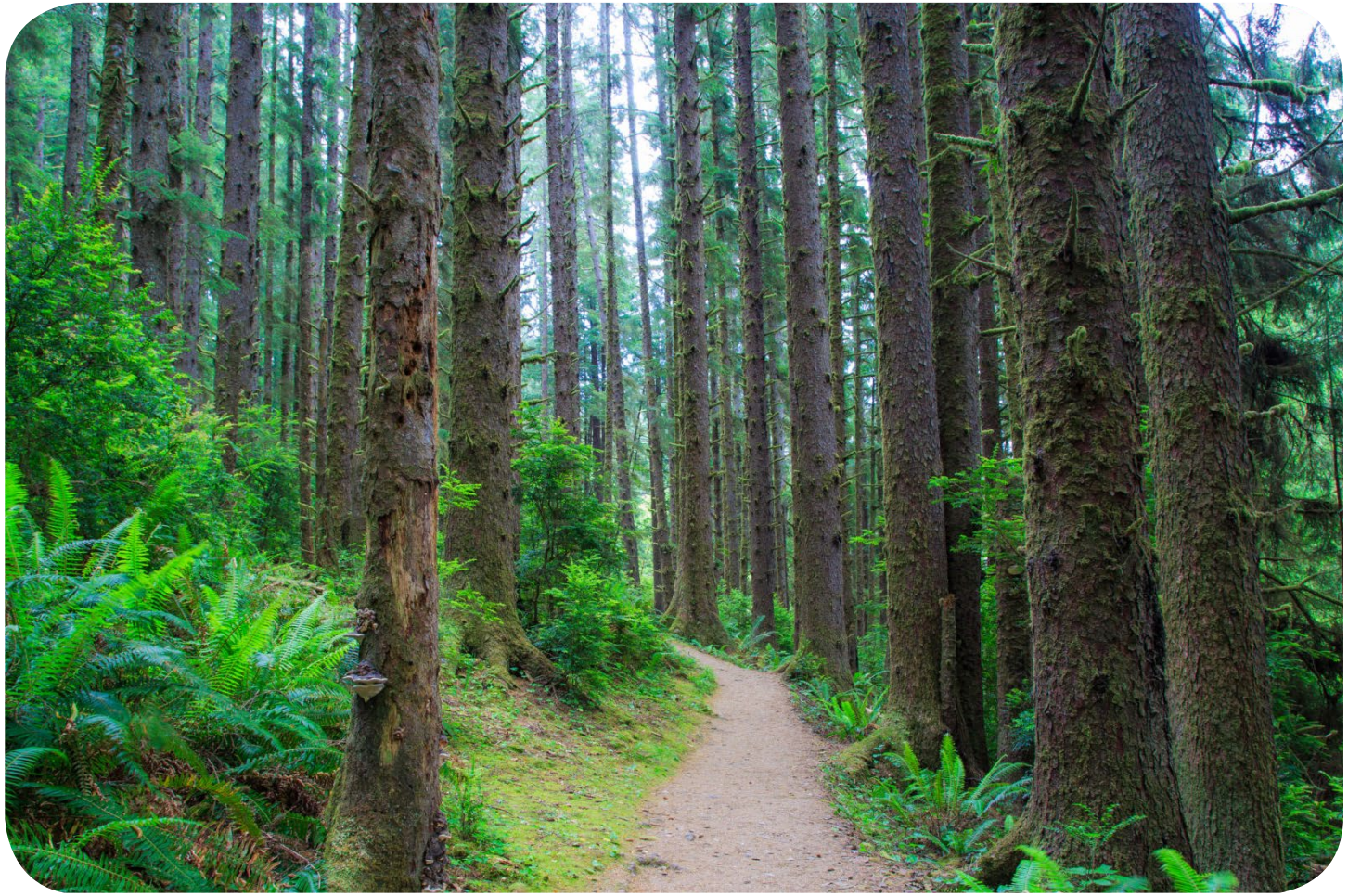
Realize Power for Good

Citizens of Local and World Communities

Identity

Our Oregon Home

Nurturing intrinsic curiosity about complex environments and diverse people



Identity

Our Episcopal Tradition

Rhythm of Gathering and Reflection

Inclusion and Respect

Service and Social Justice

Commitment Beyond Oneself

Identity

Our School Philosophy

Open and Rigorous Inquiry

Questions with Exploration and Discovery

Theories with Scrutiny

Self with Subject

Tomorrow's *Thinkers*

need to be . . .

Skilled Inquirers

Tomorrow's *Thinkers*

need to be . . .

Skilled Inquirers

Creative Problem Solvers

Tomorrow's *Thinkers need to be . . .*

Skilled Inquirers

Creative Problem Solvers

Culturally Competent

Tomorrow's *Thinkers need to be . . .*

Skilled Inquirers

Creative Problem Solvers

Culturally Competent

Stewards of their Environments

Tomorrow's *Thinkers need to be . . .*

Skilled Inquirers

Creative Problem Solvers

Culturally Competent

Stewards of their Environments

Contributors to their Community

*Teaching these **Values** through. . .*

Evolving Approaches to Teaching and Learning

*Teaching these **Values** through. . .*

Evolving Approaches to Teaching and Learning

Engaging in an Inquiry Cycle

*Teaching these **Values** through. . .*

Evolving Approaches to Teaching and Learning

Engaging in an Inquiry Cycle

Exploration
Creation
Connection
Commitment

*Teaching these **Values** through. . .*

Evolving Approaches to Teaching and Learning

Engaging in an Inquiry Cycle

Connecting Self to Subject - Intrinsic Motivation

*Teaching these **Values** through. . .*

Evolving Approaches to Teaching and Learning

Engaging in an Inquiry Cycle

Connecting Self to Subject - Intrinsic Motivation

Moving Students through Curiosity, Interest, Discipline

*Teaching these **Values** through. . .*

Evolving Approaches to Teaching and Learning

Engaging in an Inquiry Cycle

Connecting Self to Subject - Intrinsic Motivation

Moving Students through Curiosity, Interest, Discipline

Opportunities for Individual, Small Group, and Large Group Learning

*Teaching these **Values** through. . .*

Evolving Approaches to Teaching and Learning

Engaging in an Inquiry Cycle

Connecting Self to Subject - Intrinsic Motivation

Moving Students through Curiosity, Interest, Discipline

Opportunities for Individual, Small Group, and Large Group Learning

In Depth Project-Based Learning

*Develop Essential **Competencies** by . . .*

Becoming Skilled Collaborators

*Develop Essential **Competencies** by . . .*

Becoming Skilled Collaborators

Being Courageous, Empathetic Learners

*Develop Essential **Competencies** by . . .*

Becoming Skilled Collaborators

Being Courageous, Empathetic Learners

*Develop Essential **Competencies** by . . .*

Becoming Skilled Collaborators

Being Courageous, Empathetic Learners

Responding Constructively to Set-Backs

*Develop Essential **Competencies** by . . .*

Becoming Skilled Collaborators

Being Courageous, Empathetic Learners

Responding Constructively to Set-Backs

Cultivating Curiosity and Creativity

*Develop Essential **Competencies** by . . .*

Becoming Skilled Collaborators

Being Courageous, Empathetic Learners

Responding Constructively to Set-Backs

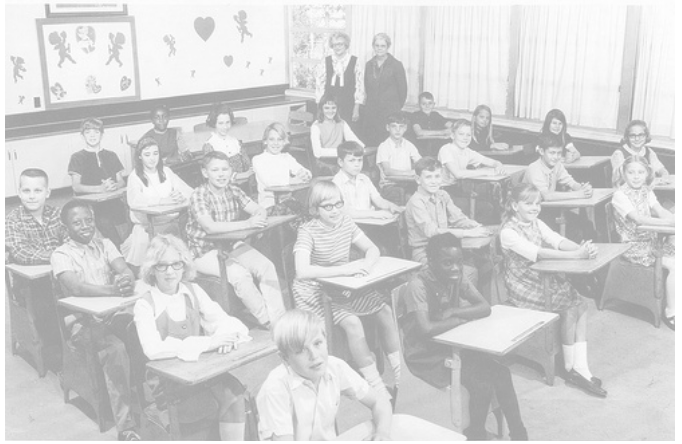
Cultivating Curiosity and Creativity

Imagining, Designing, and Applying Solutions

Applying New Pedagogy

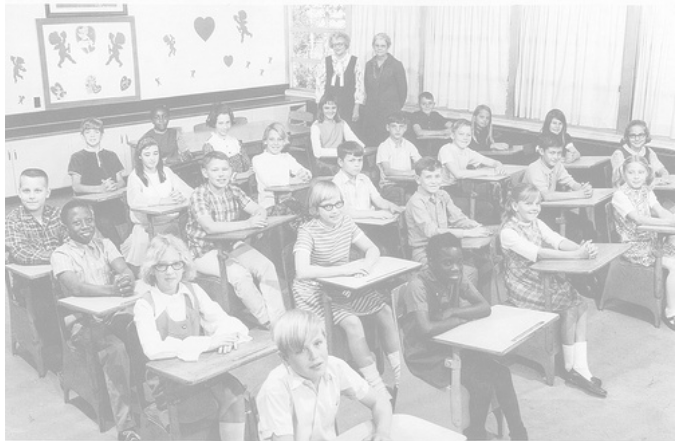


Classrooms...



Classrooms...

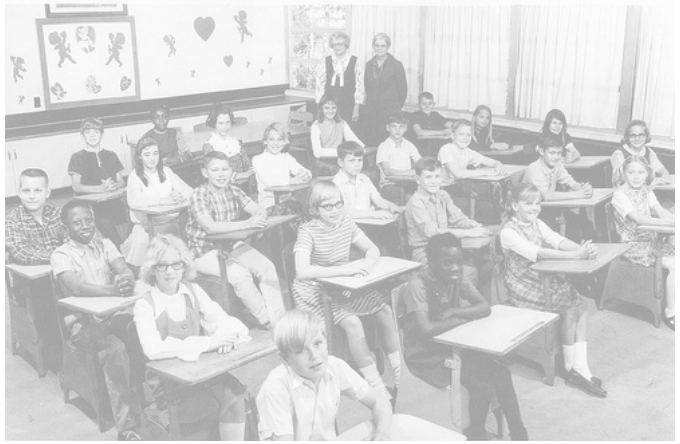
...are **changing**



Classrooms...

...are ***changing***

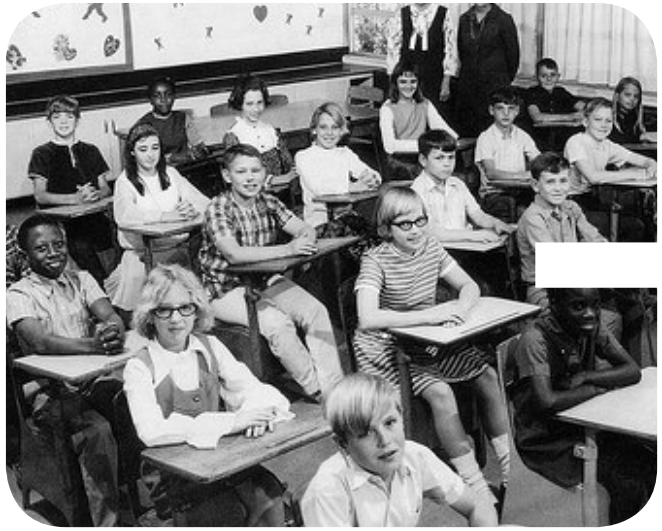


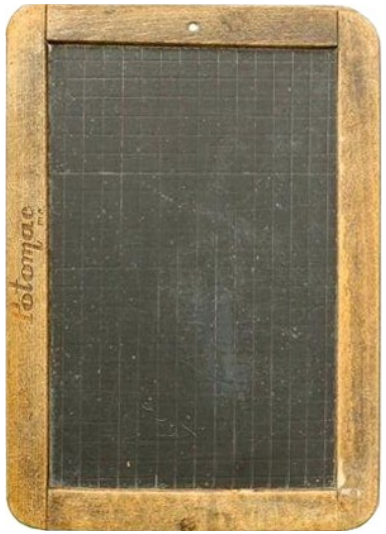


Classrooms...

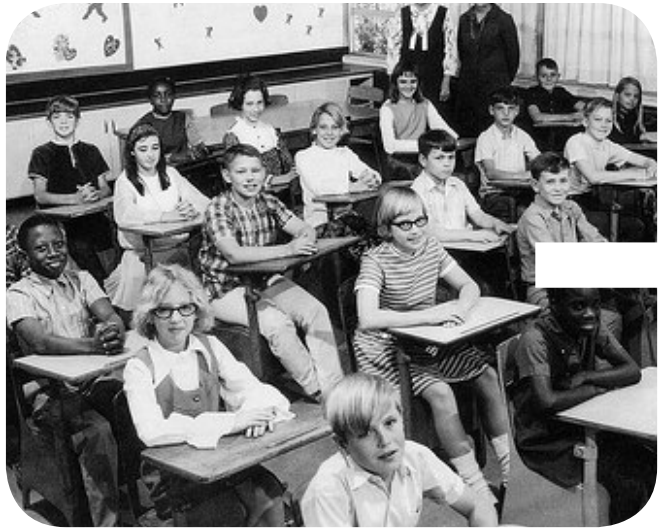


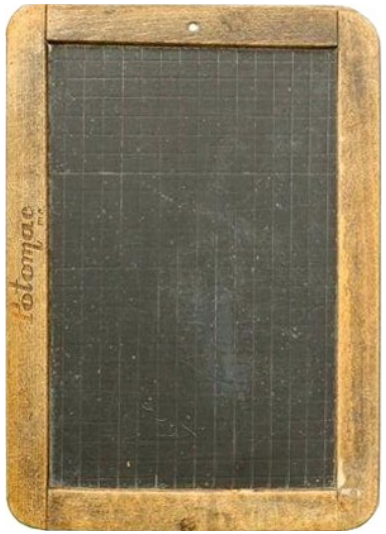
...are ***changing***





Learning tools





*Learning tools are **changing***

*The **Classroom** as a(n). . .*

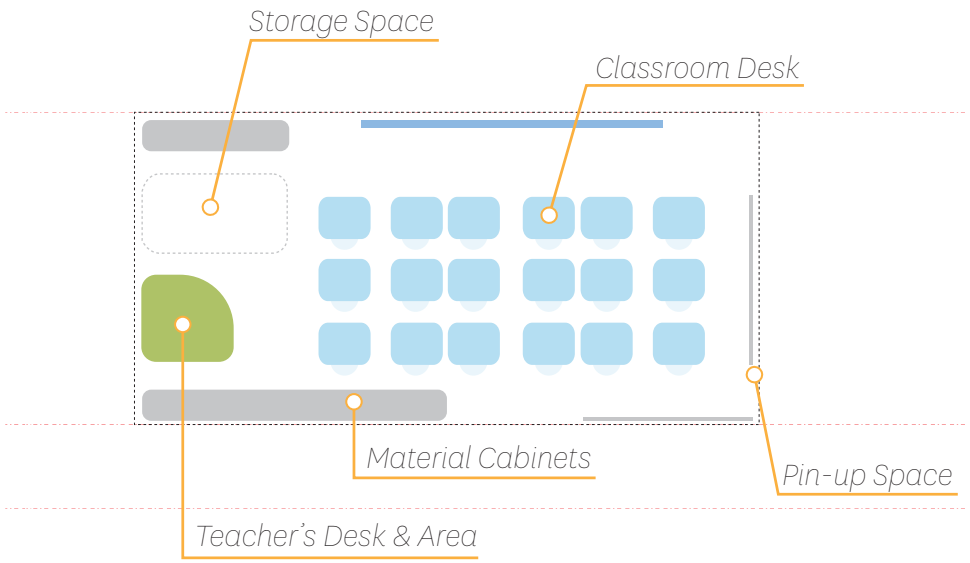
*The **Classroom** as a(n). . .*

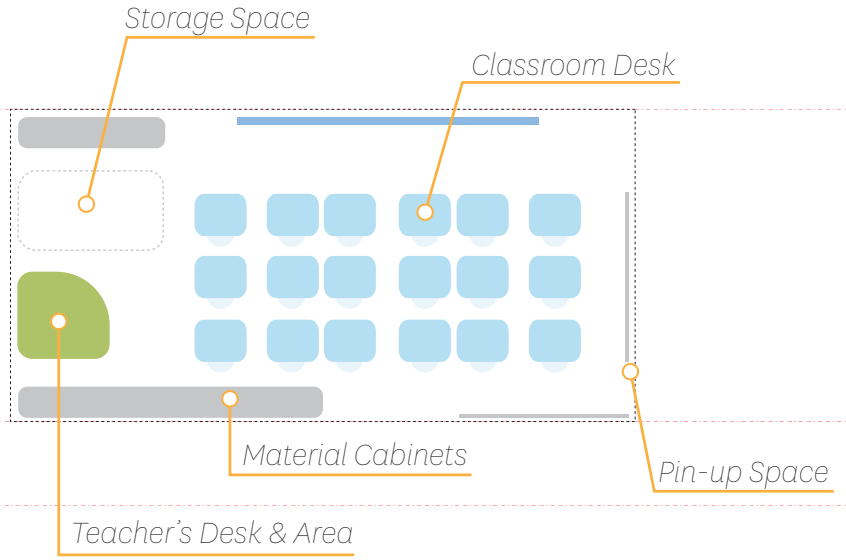
Art Studio

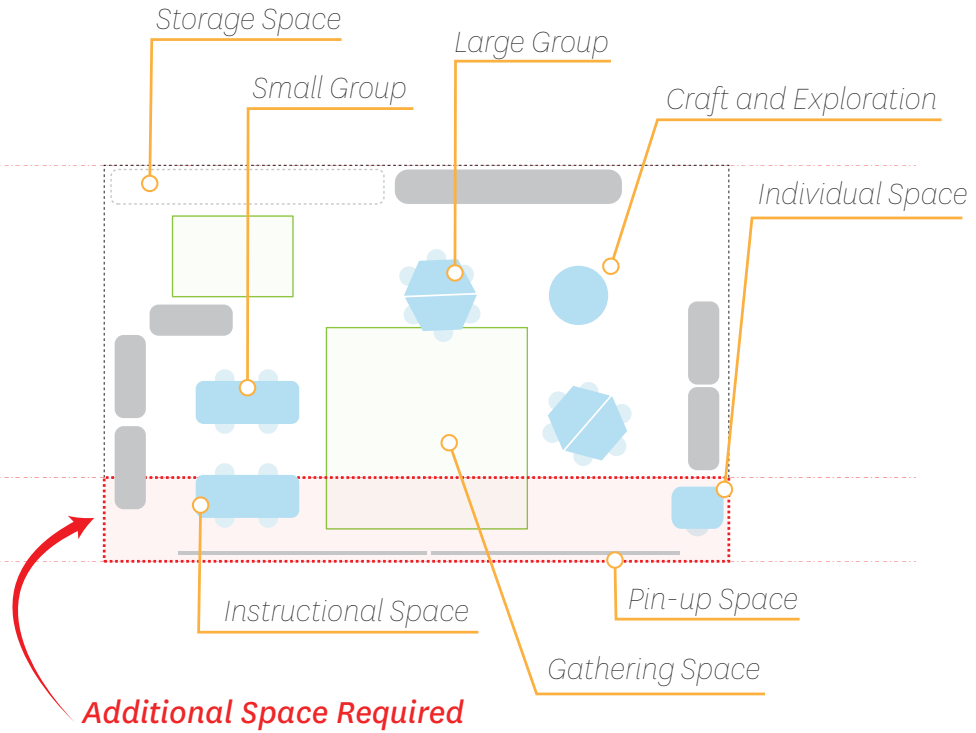
Science Lab

World Language Room

Inquiry Center


Storage Space
Classroom Desk
Material Cabinets
Pin-up Space
Teacher's Desk & Area


Storage Space
Classroom Desk
Material Cabinets
Pin-up Space
Teacher's Desk & Area


Storage Space
Large Group
Small Group
Craft and Exploration
Individual Space
Instructional Space
Pin-up Space
Gathering Space
Additional Space Required

Connection to

Nature

Visual

Connection

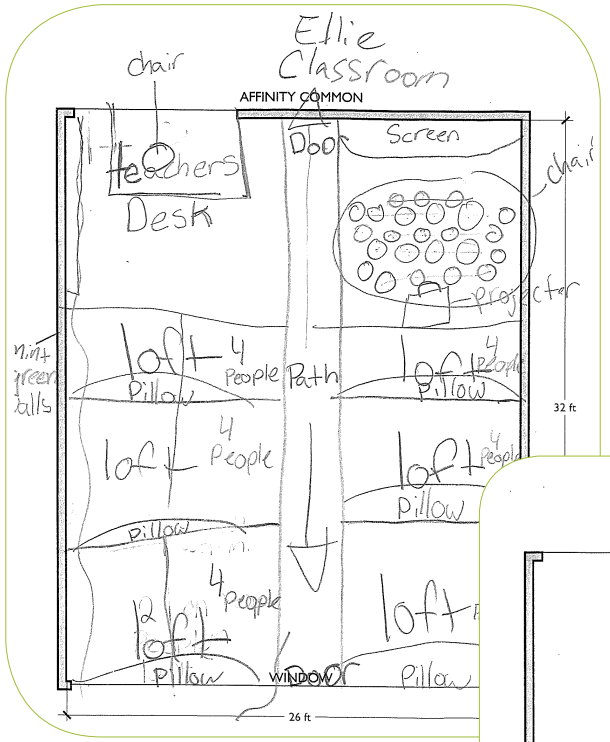
Acoustic

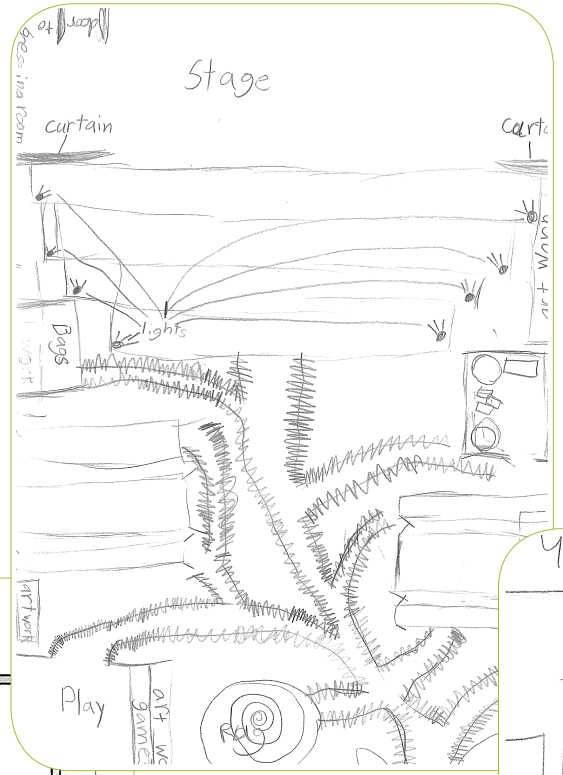
Separation

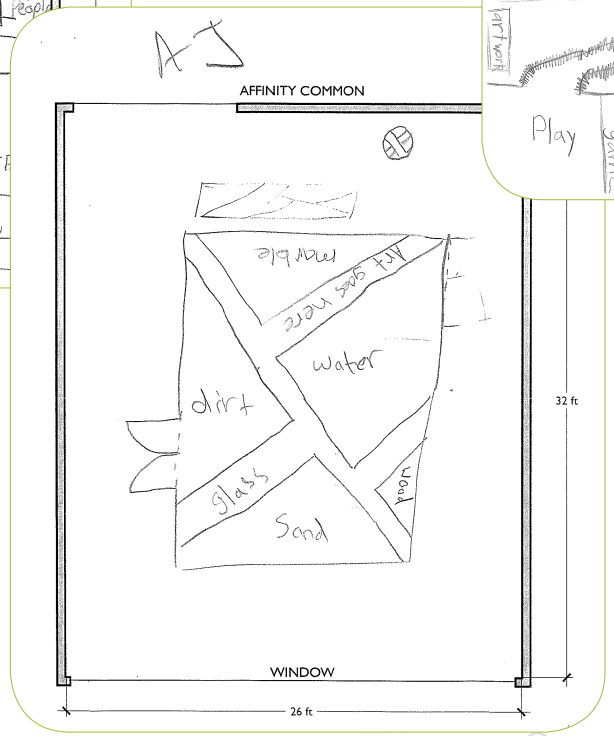
All Spaces as *Learning* Spaces

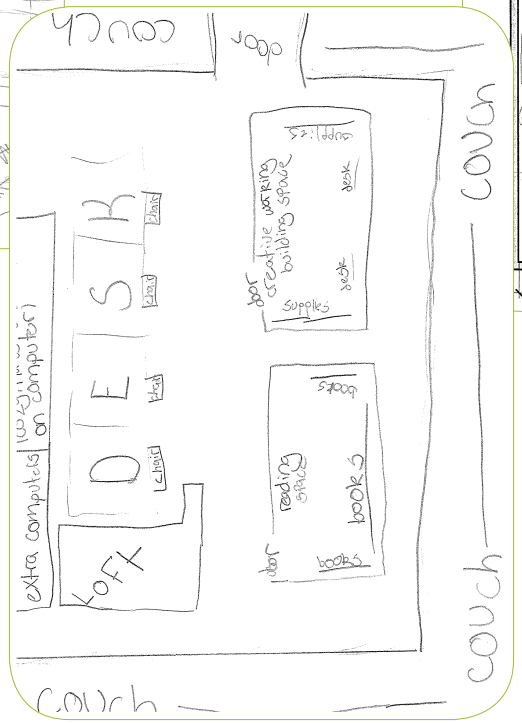
New Building

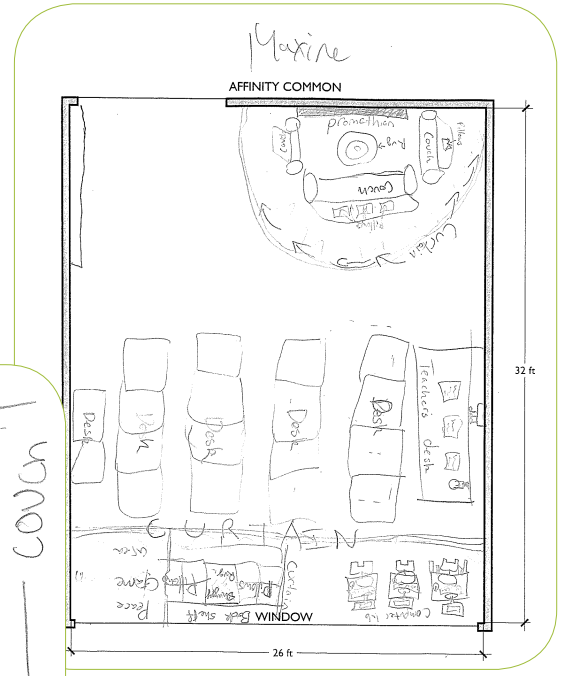
Ideal Classrooms







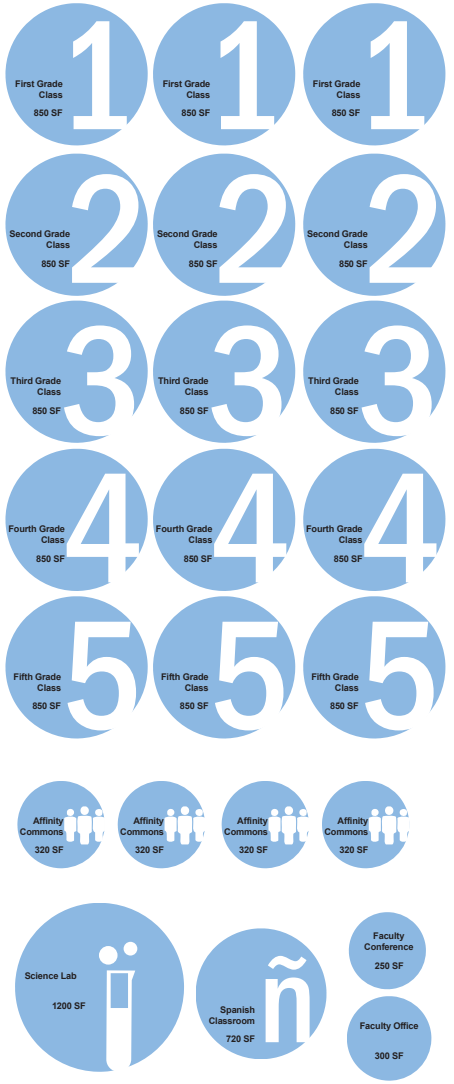




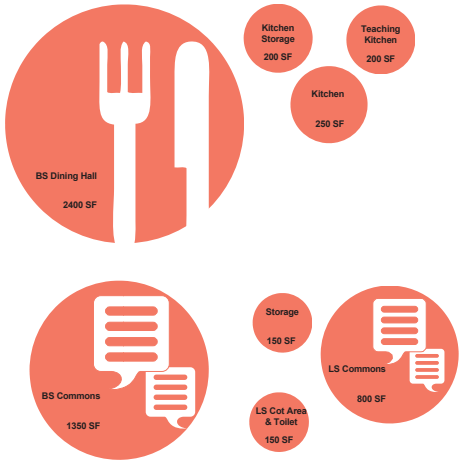
Curriculum Driving Design

BEGINNING SCHOOL

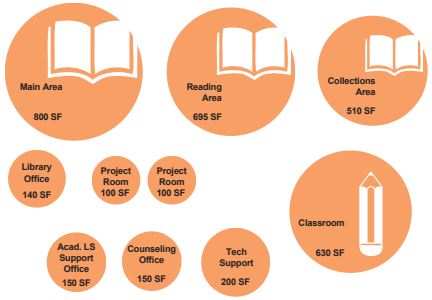
LOWER SCHOOL



STUDENT SERVICES



LIBRARY/ACAD. SUPPORT/ TECH

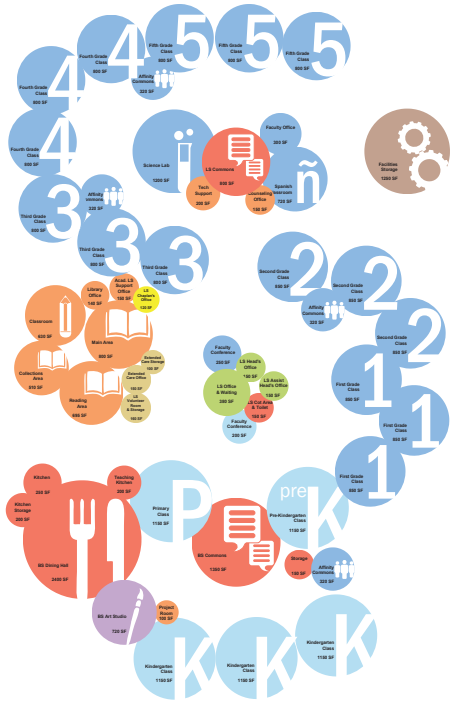


ARTS

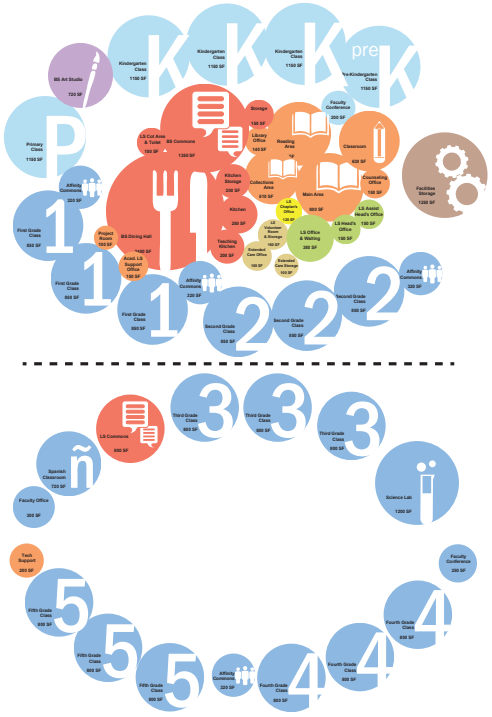
FACILITIES SUPPORT

ADMINISTRATIVE

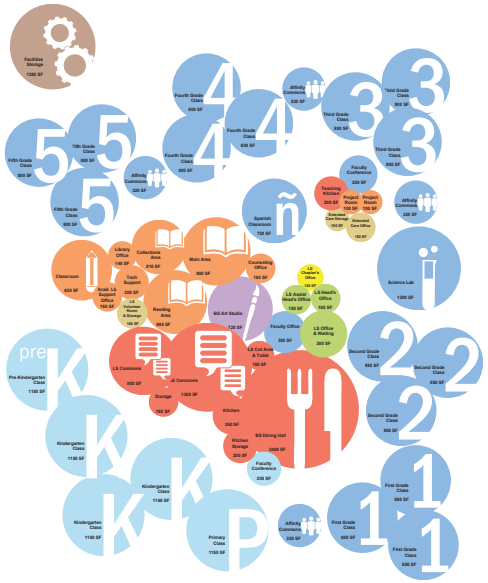
SPECIAL PROGRAMS



Pre-K - Kindergarten

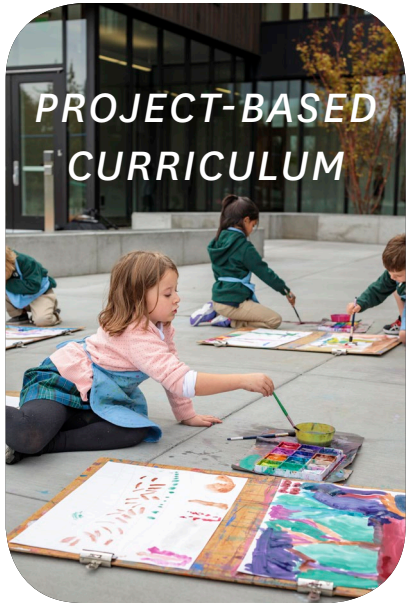


1-2 Grade

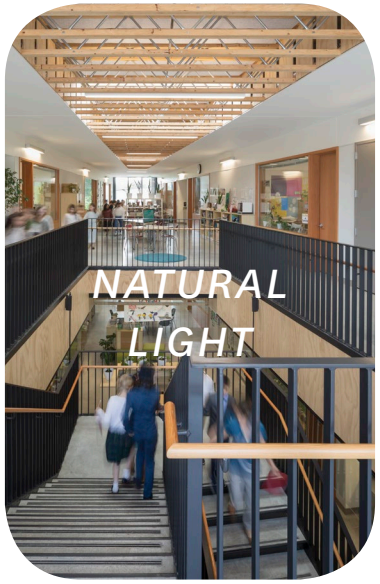


3-5 Grade


A DISCOVERY-BASED PEDAGOGY

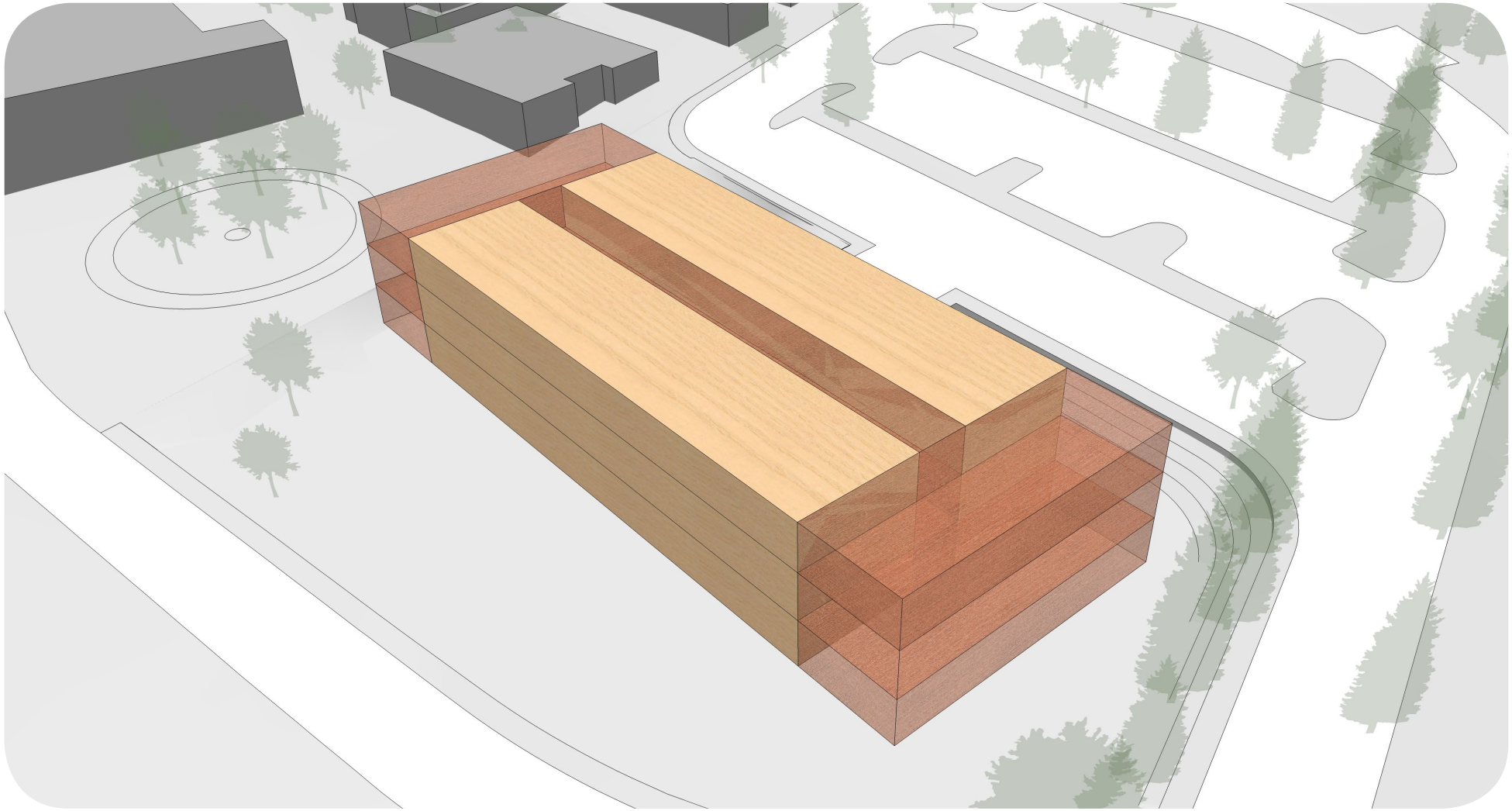

PROJECT-BASED
CURRICULUM


FLEXIBLE
LEARNING SPACES

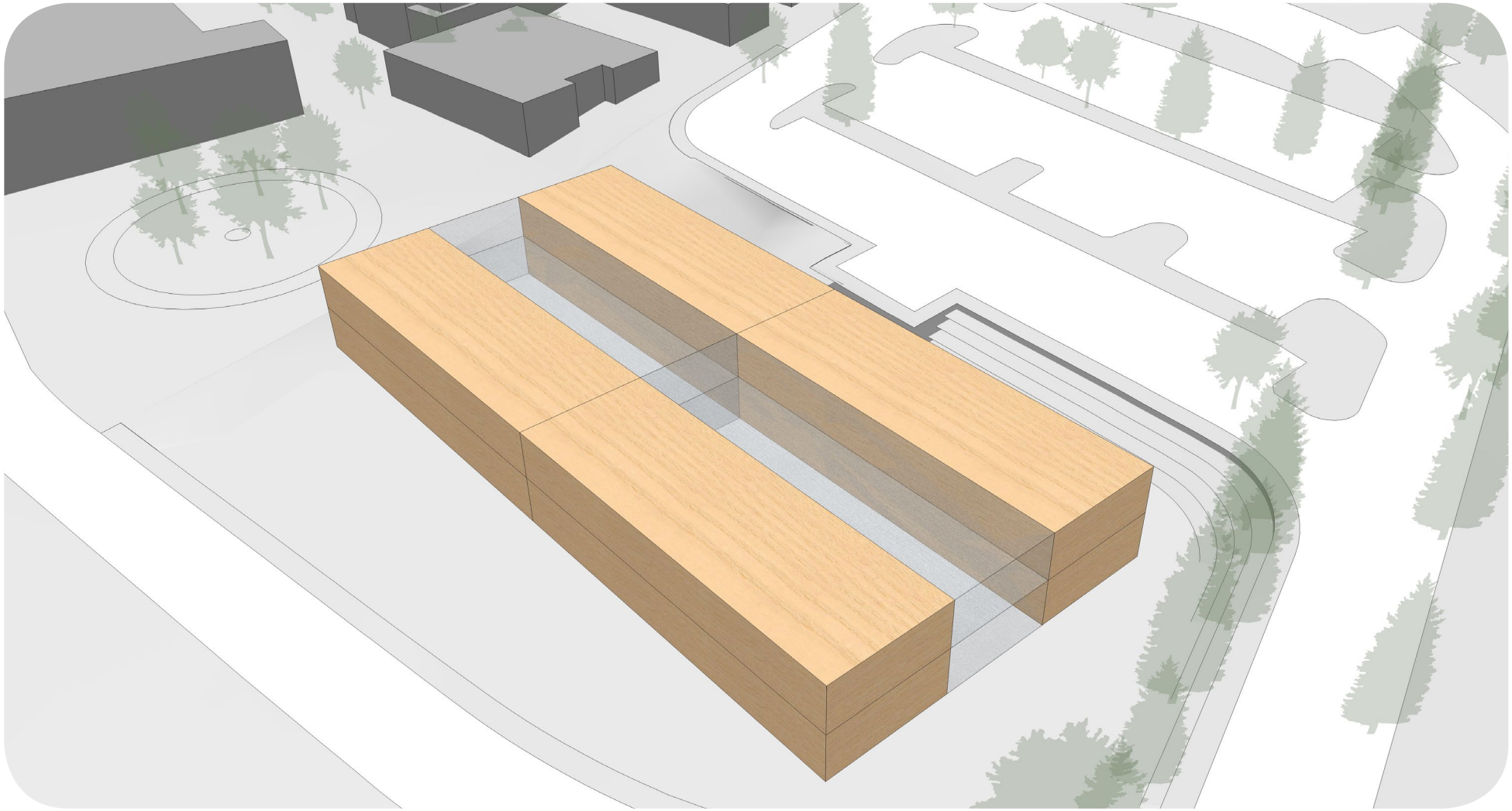

NATURAL
LIGHT


DISPLAY OF
STUDENT WORK

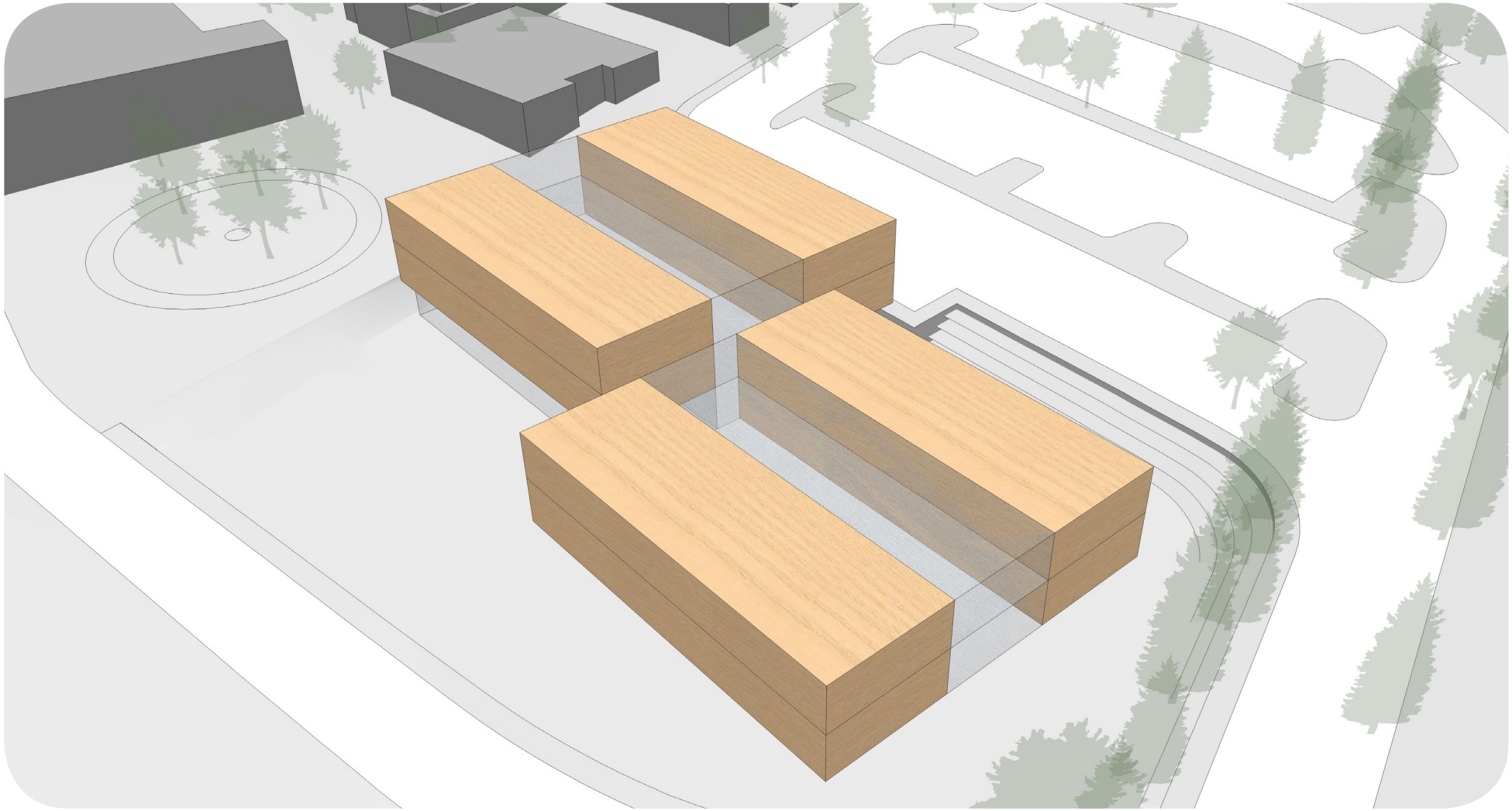

ACCESS TO OUTDOORS



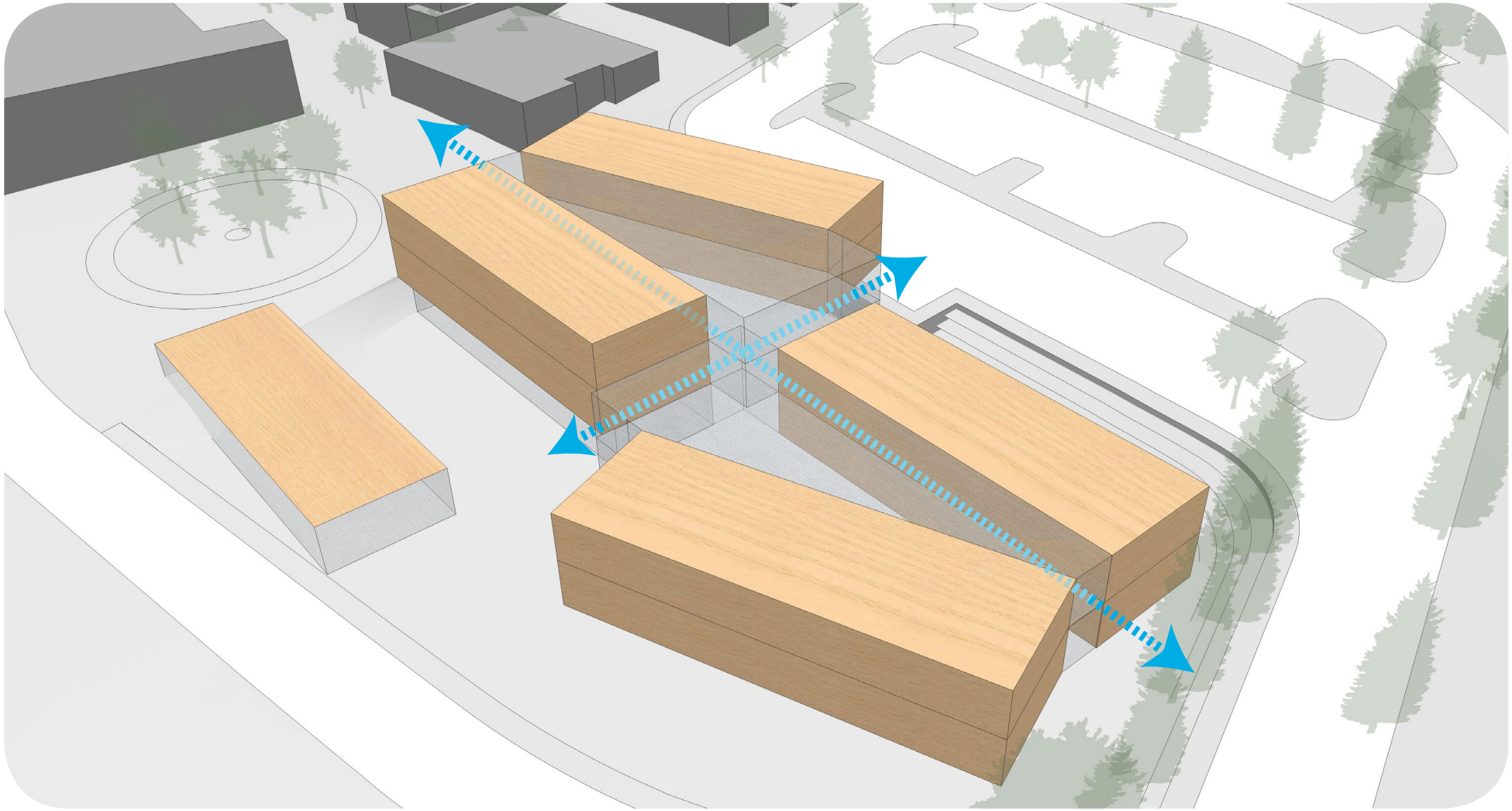
Typical Arrangements



Central Social Hub

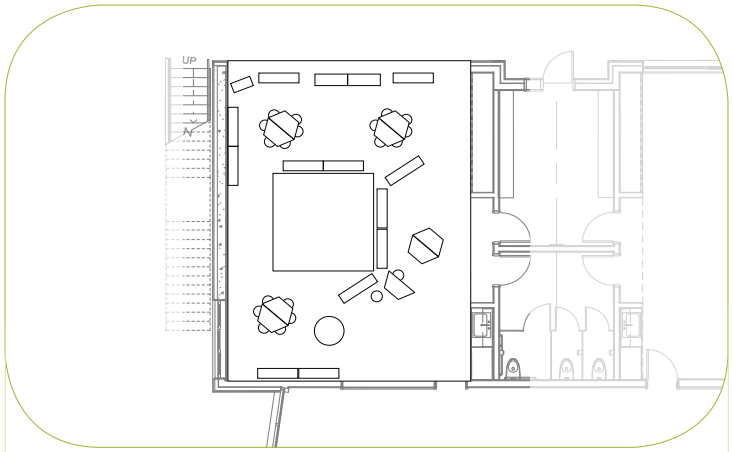


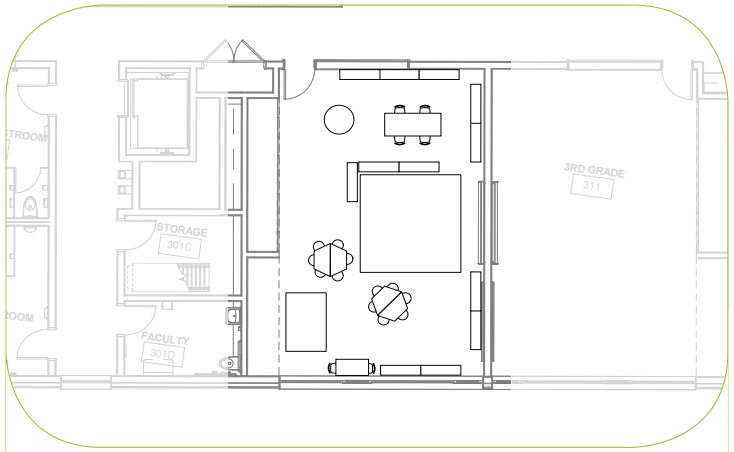
Shift Block up Slope

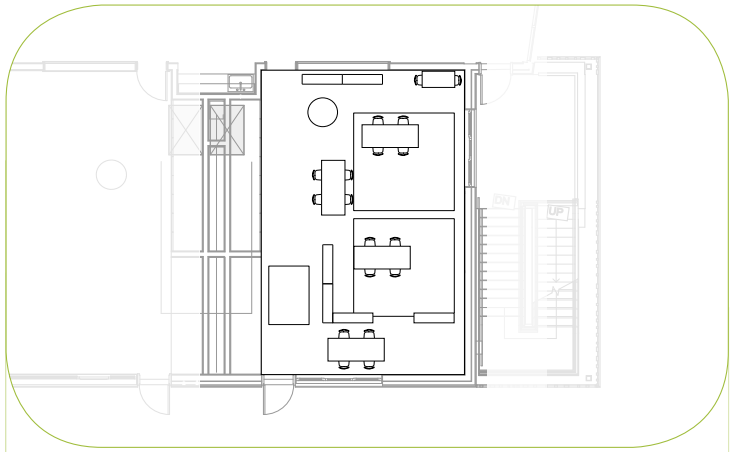


Open up Views

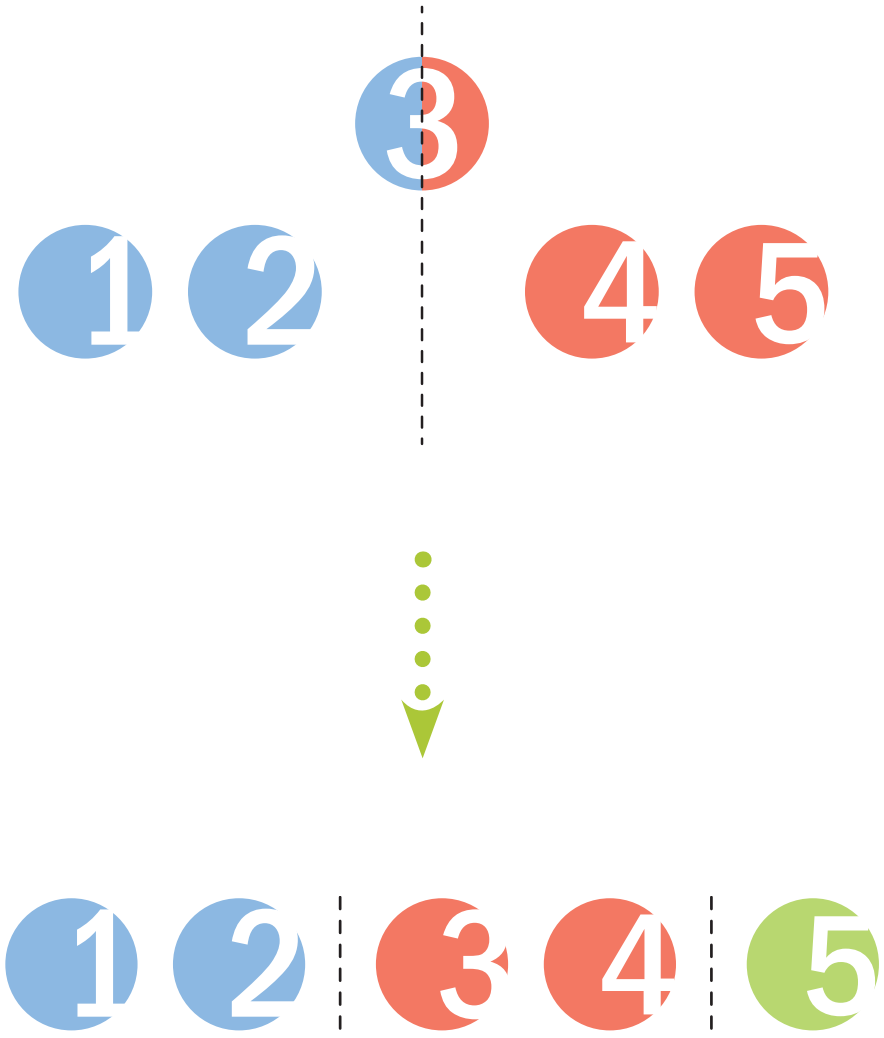
Classroom ***Flexibility***







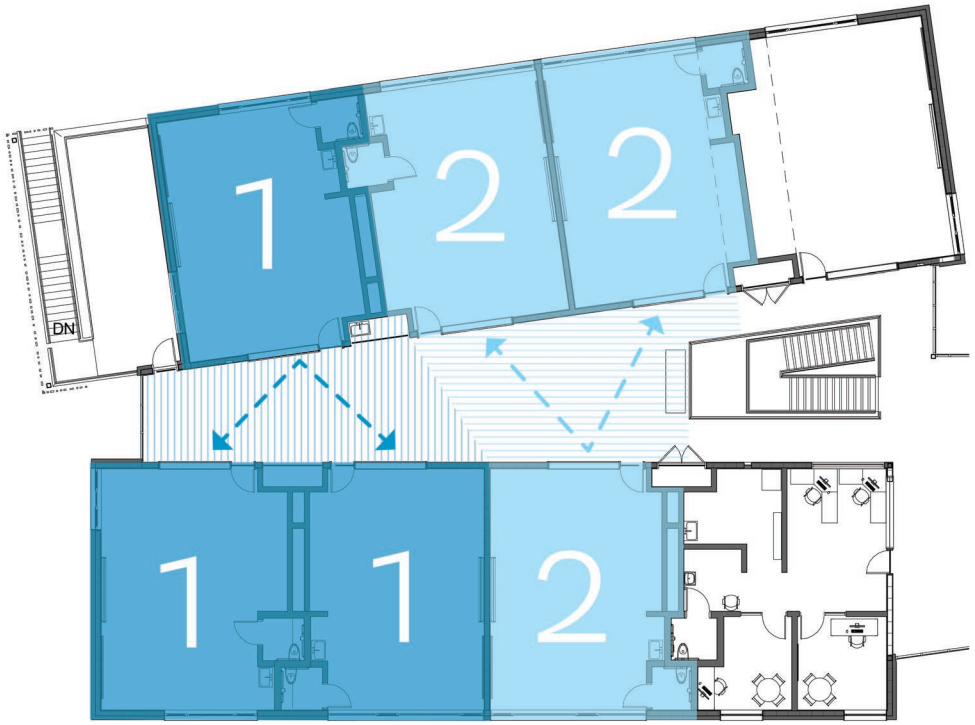
Affinity Commons



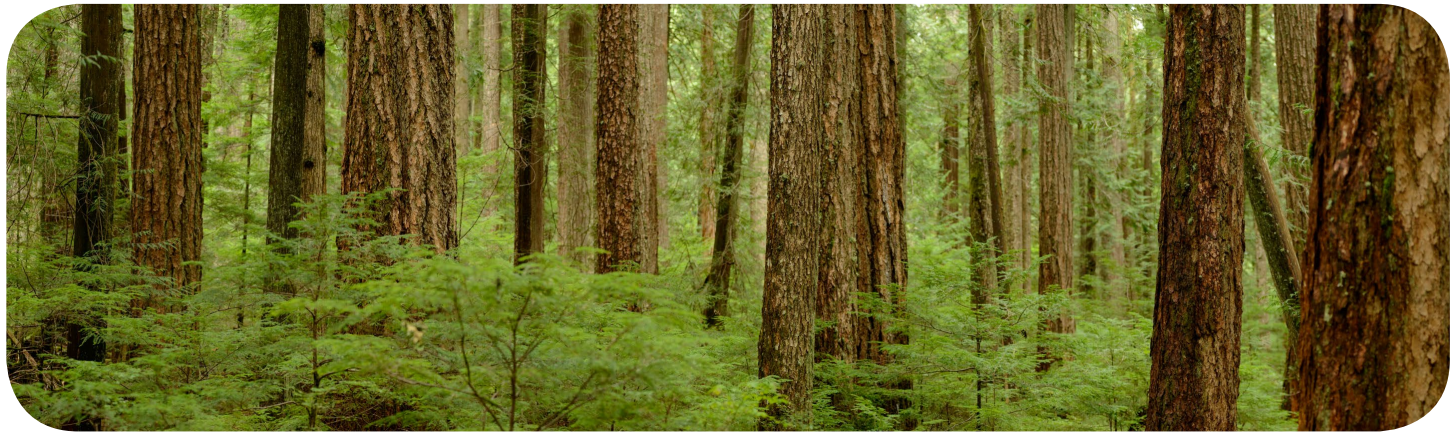
*number represents grade level

Affinity Commons

Affinity Commons



Connecting to Nature . . .



through ***Architecture***

Connecting to Nature . . .

through ***Views***

Connecting to Nature . . .

through ***Pedagogy***

Facilities & Resiliency

Commitment

*to our **children***

Commitment

*to our **children***

*to our **environment***

HEALTHY BUILDING MATERIALS
Natural, long life-cycle building materials create healthy learning spaces that don't emit toxic chemicals and ensure the building endures a long lifetime

NATURAL VENTILATION
Operable windows and roof ventilation shafts improve occupant comfort and reduce mechanical cooling

WATERWORKS
Water remediation as a teaching tool

DAYLIGHT & VIEWS
All spaces have access to natural light and views out to nature

WETLAND REMEDIATION
Zone north of loop road to be revitalized back into a natural wetland and teaching grounds

MAXIMIZED OPEN SPACE
Building minimized to optimize open space

THERMAL ENVELOPE
High performance envelope lowers dependency on energy to heat/cool building

RENEWABLE ENERGY
Roof designed for future energy-producing photovoltaic panels

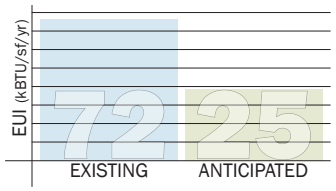
REDUCE LIGHT POLLUTION
Lowered light levels reduce impact to surroundings

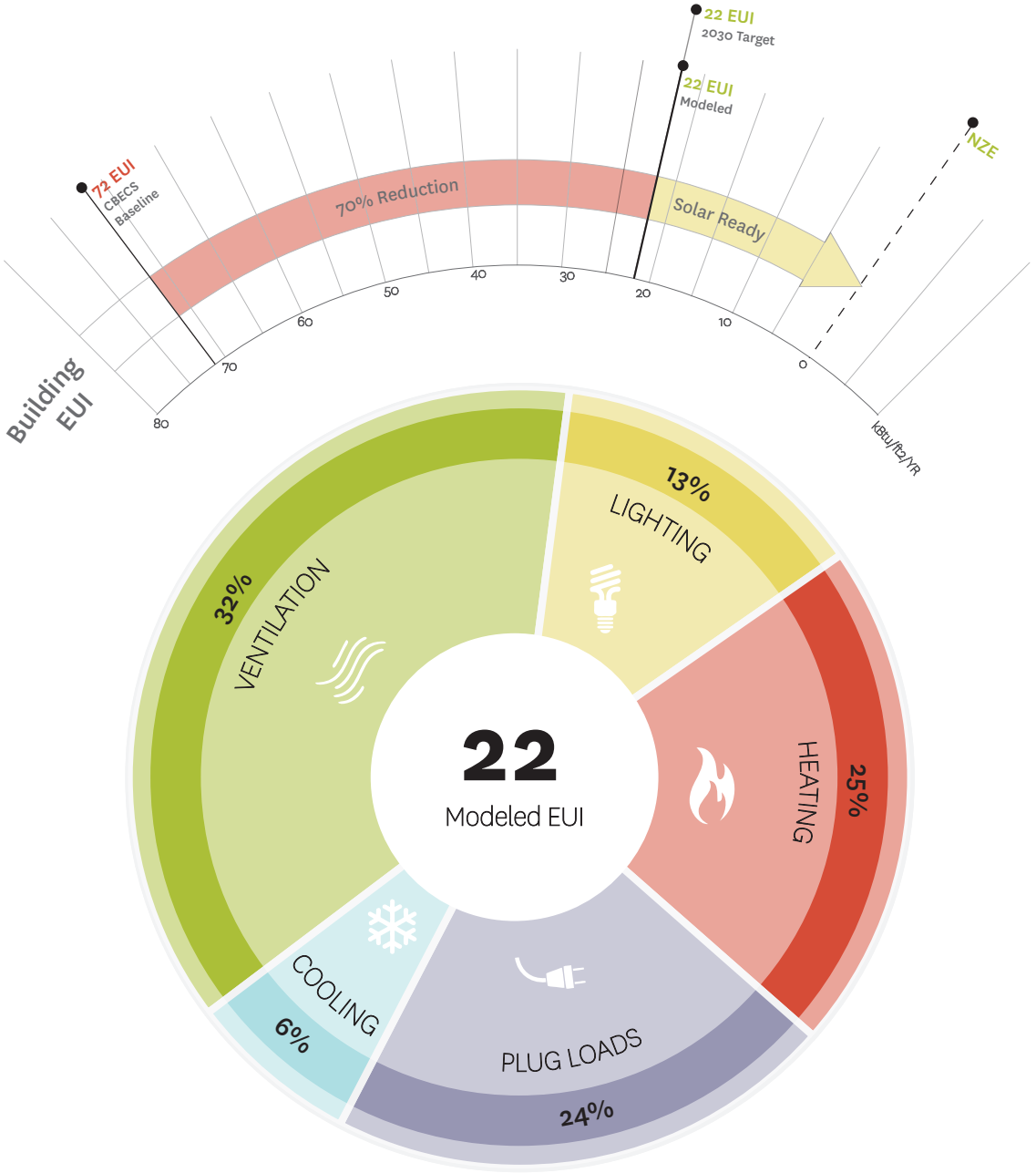
STORMWATER MANAGEMENT
All rainwater run-off from parking lot travels through runnels and treated in sub-surface treatment facility

NATURAL PLAYSCAPE
Low-intensive landscaping and natural materials have low impact on environment

BUILDING ORIENTATION
Minimized windows on East and West facades to control glare and heat gain

ENERGY USE INTENSITY





Sustainability Summary

2030 Compliant

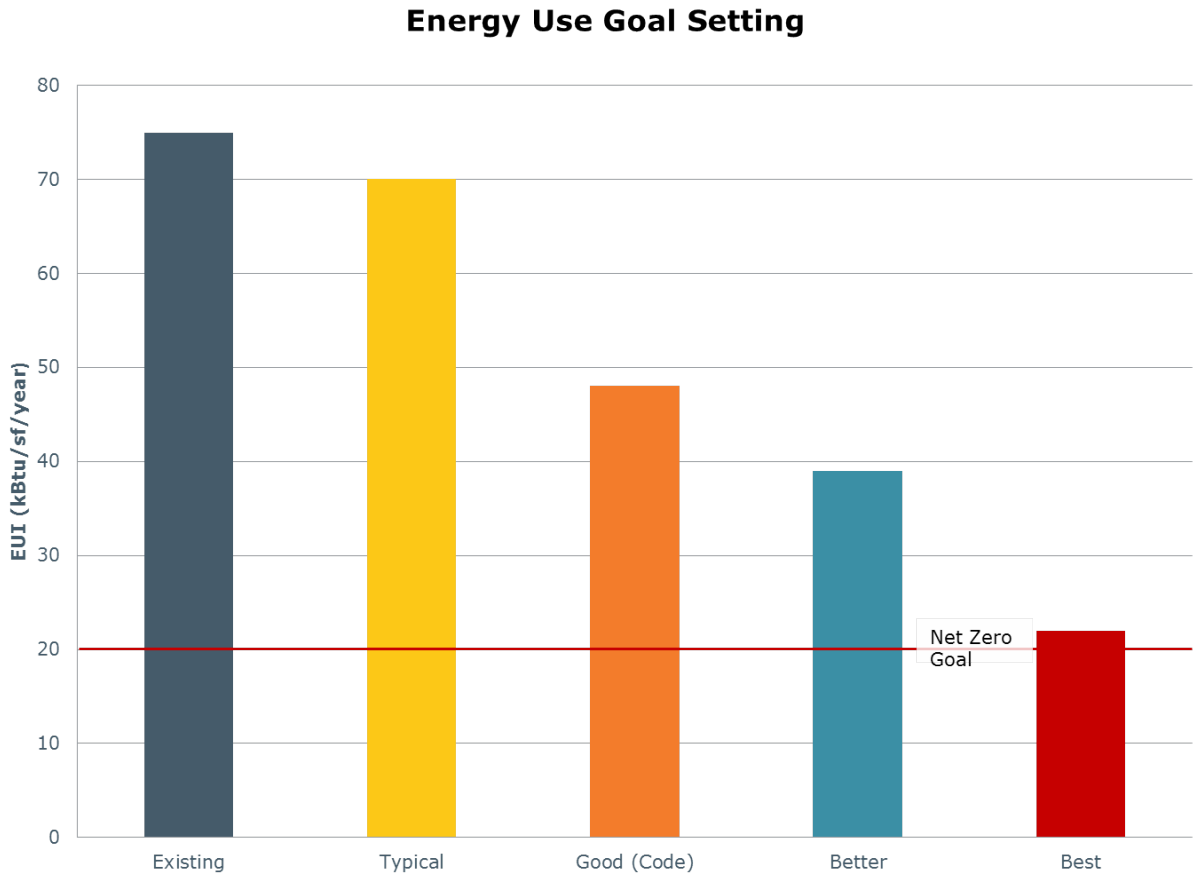
Net Zero Energy (NZE) Ready

Path to **Net Zero**

*Creating **resilient** and **sustainable** learning environment for our children*

EnergyTrust of Oregon

Setting Targets



Path to **Net Zero**

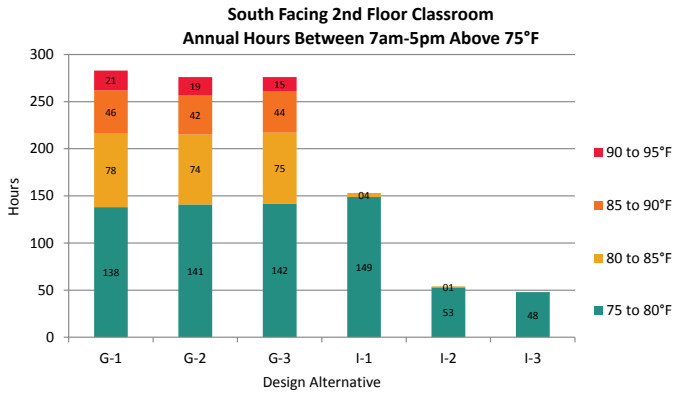
*Creating **resilient** and **sustainable** learning environment for our children*

EnergyTrust of Oregon

Studying Energy & Design Alternatives

Table 4. Phase 2: Passive Cooling Scenarios	
Alternative	Description
G-1	Natural ventilation during operating hours, **no external shading**, night flush with DOAS, **no exposed mass (carpeted floor)**, and fan assisted ventilation shafts
G-2	Natural ventilation during operating hours, **3.5' external shading**, night flush with DOAS, **carpeted floor**, and fan assisted ventilation shafts
G-3	Natural ventilation during operating hours, **no external shading**, night flush with DOAS, **exposed concrete floor (2.5")**, and fan assisted ventilation shafts
I-1	Natural ventilation during operating hours, **no external shading**, night flush with DOAS, **carpeted floor**, fan assisted ventilation shafts, and **60°F ventilation air**
I-2	Natural ventilation during operating hours, **3.5' external shading**, night flush with DOAS, **carpeted floor**, fan assisted ventilation shafts, and **60°F ventilation air**
I-3	Natural ventilation during operating hours, **no external shading**, night flush with DOAS, **exposed concrete floor (2.5")**, fan assisted ventilation shafts, and **60°F ventilation air**

Table 4: Summary of Phase 2 Design Alternates for OES Lower School Classrooms



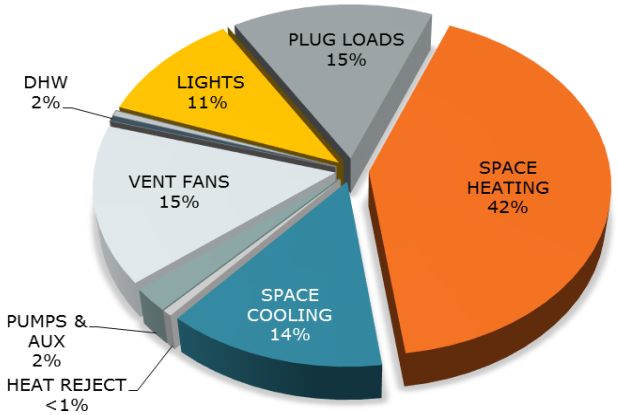
Path to **Net Zero**

*Creating **resilient** and **sustainable** learning environment for our children*

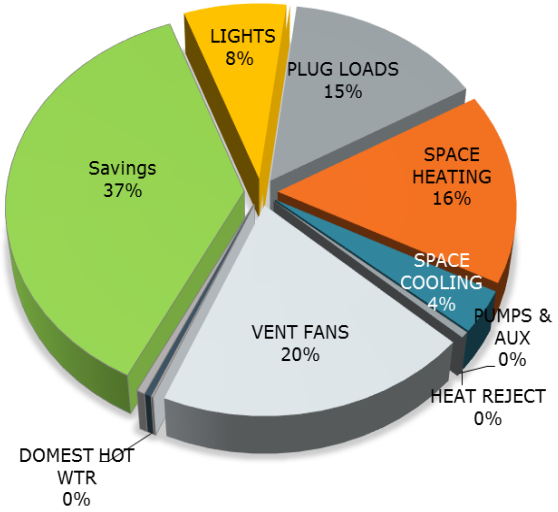
EnergyTrust of Oregon

Conducting Energy Analysis

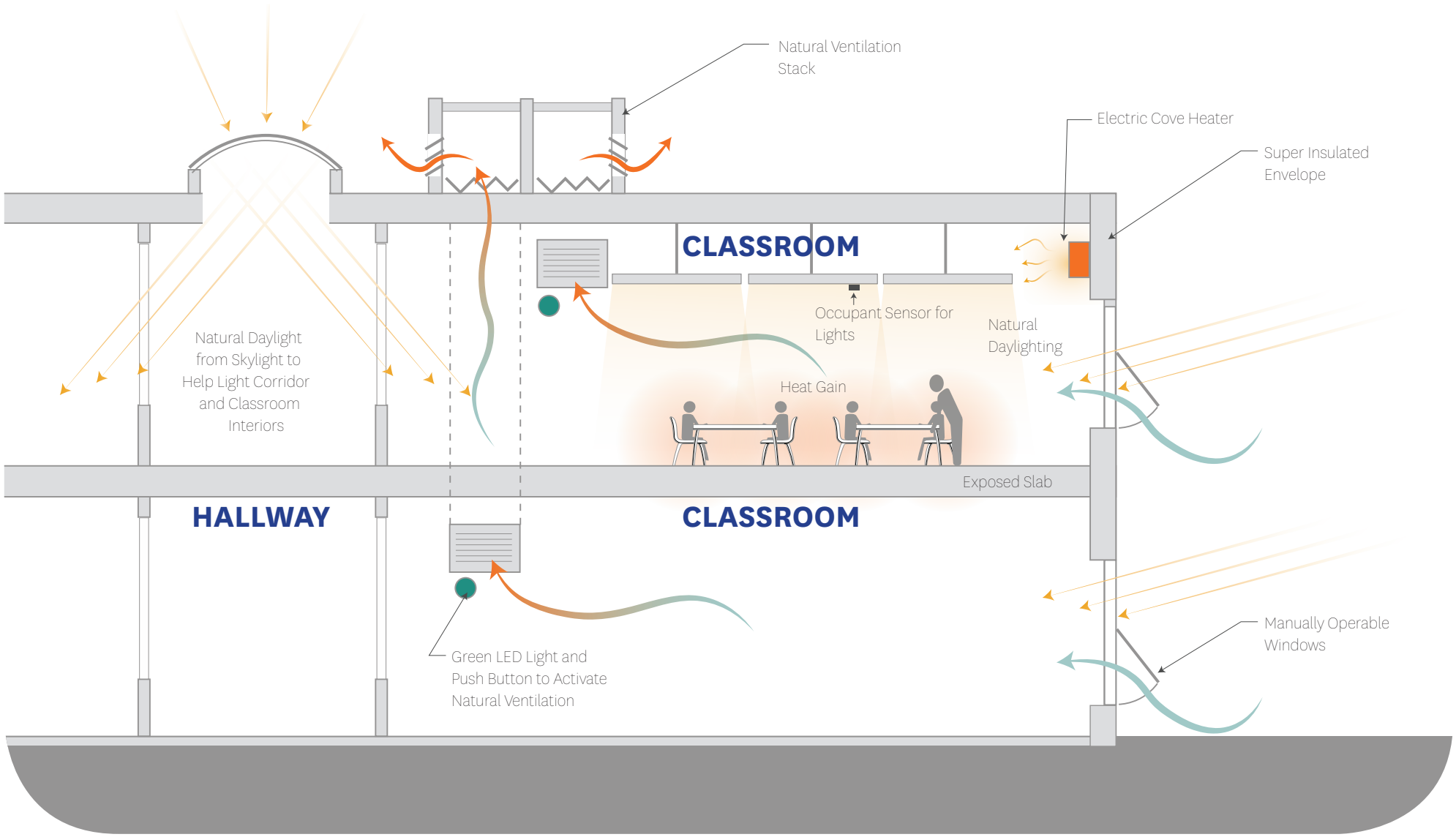
Baseline Energy End-Use Breakdown



Proposed Energy End-Use Breakdown

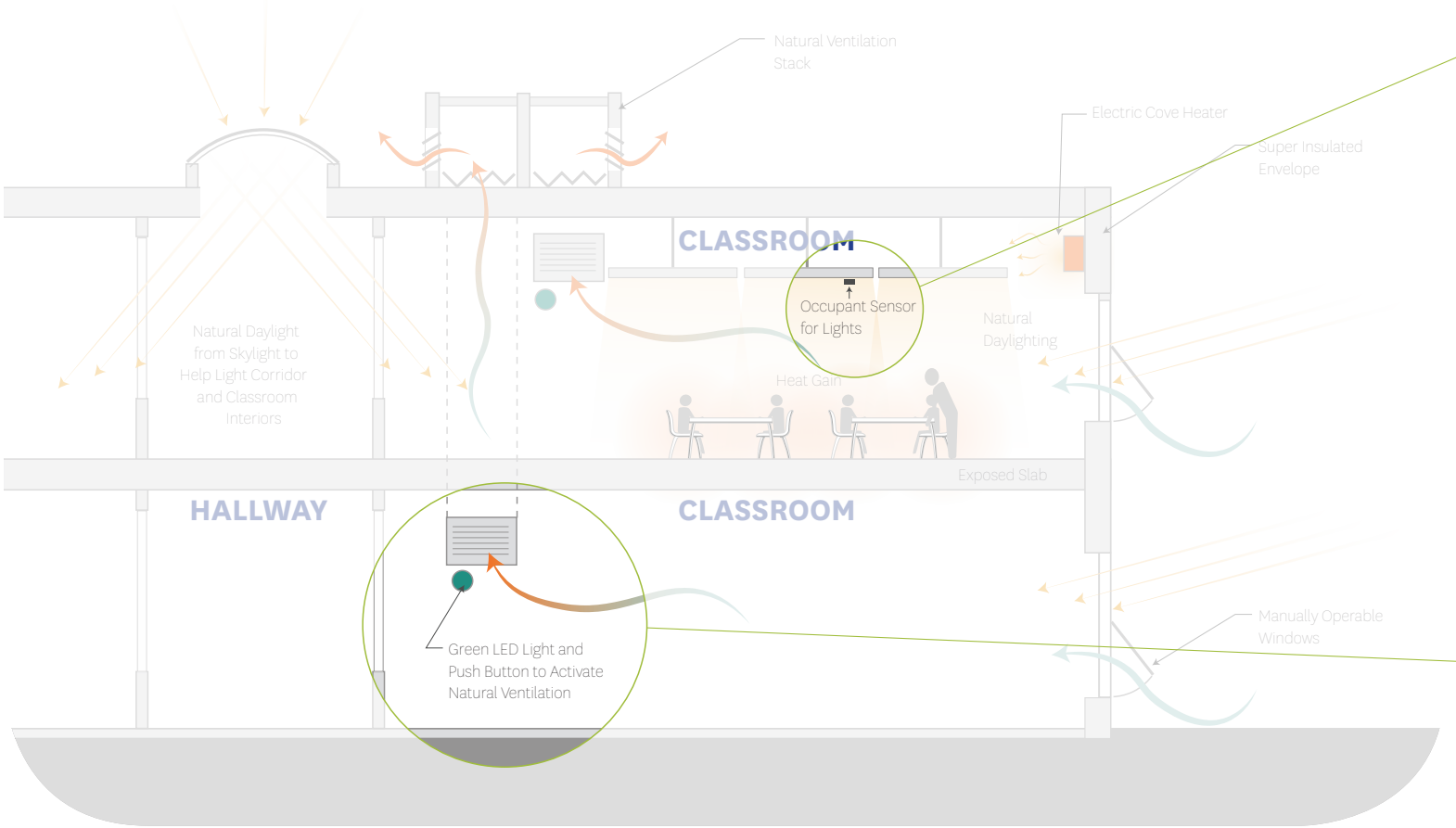


Passive Strategies



*Building as a **Learning** Tool*

Active Environment Control

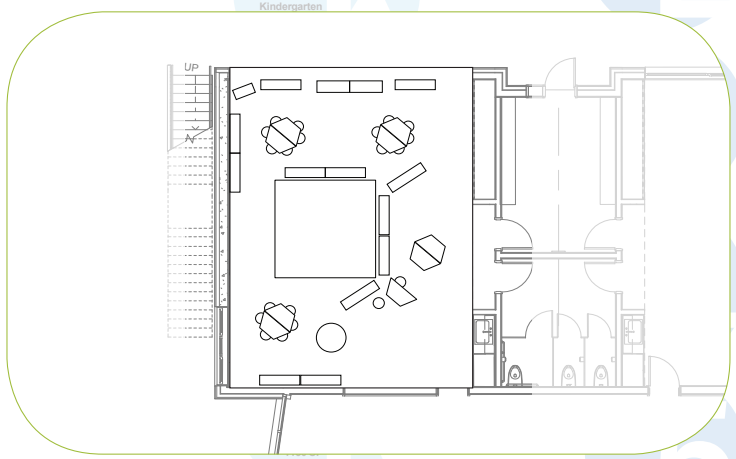


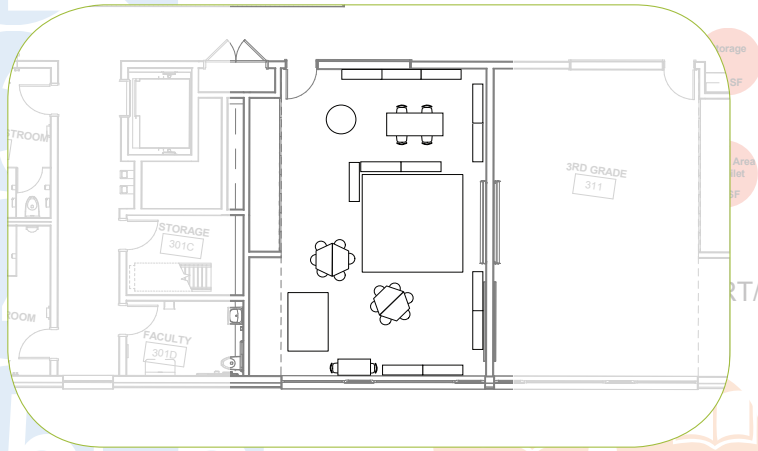
*Building as a **Learning** Tool*

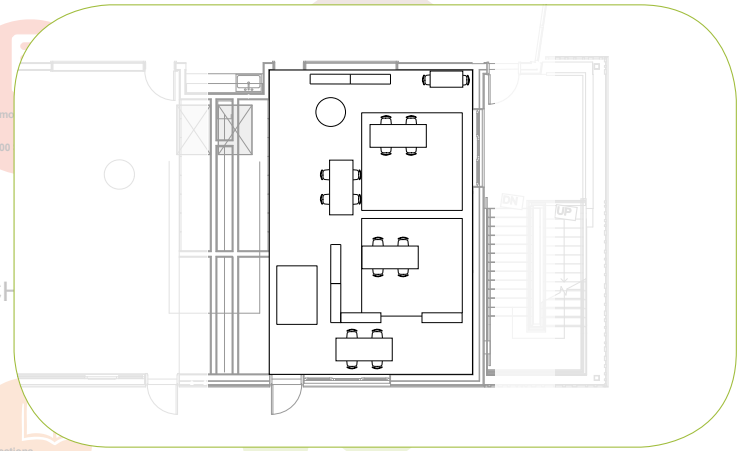
Stormwater Garden

Lessons

Lessons **Learned**

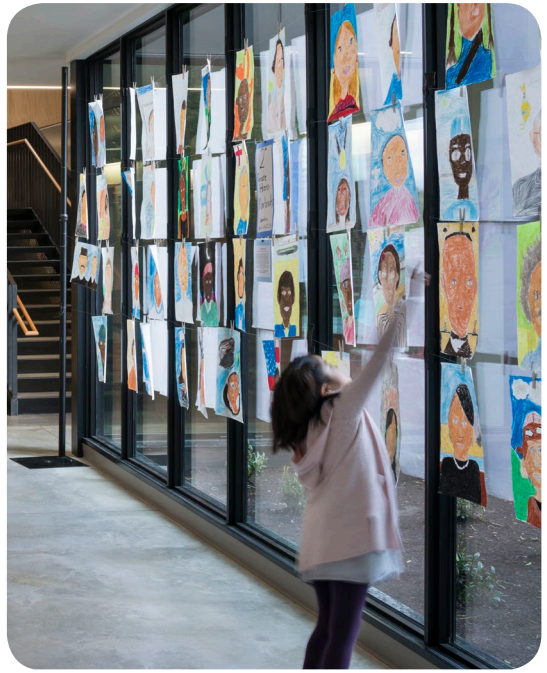






Designing for Future **Flexibility**

Lessons ***Learned***



Identifying Key ***Values***

Lessons **Learned**

Sustainability *through Human* ***Adaptability***

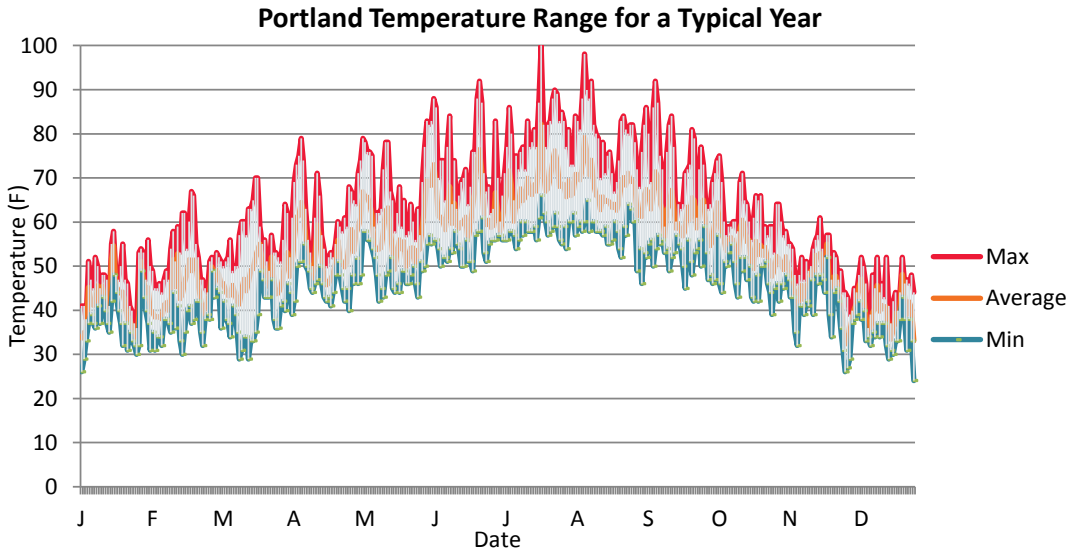
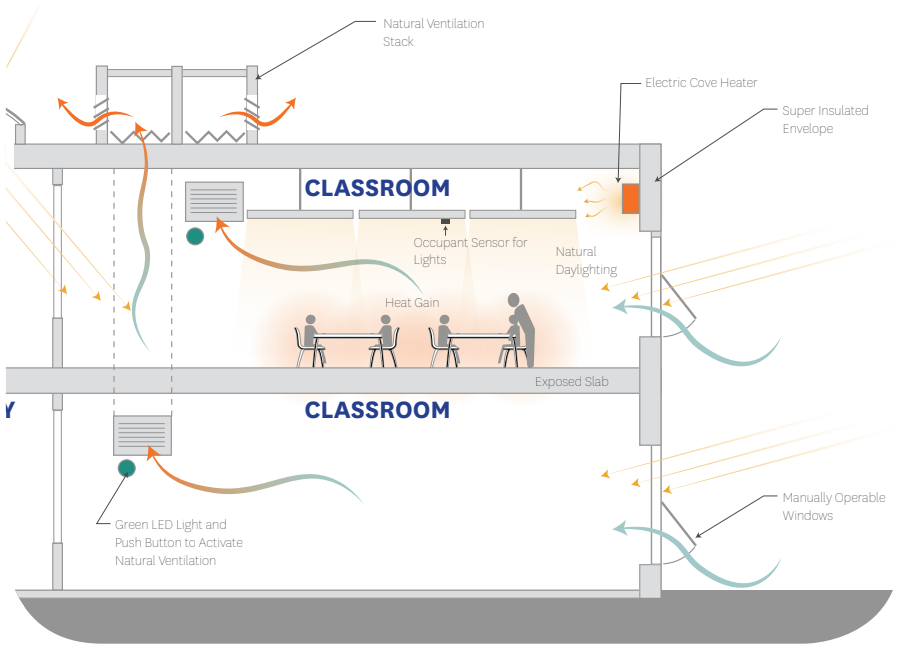


Figure 3: Typical High and Low Daily Temperatures Observed in Portland, OR

Tolerating *a Greater Heat Range*



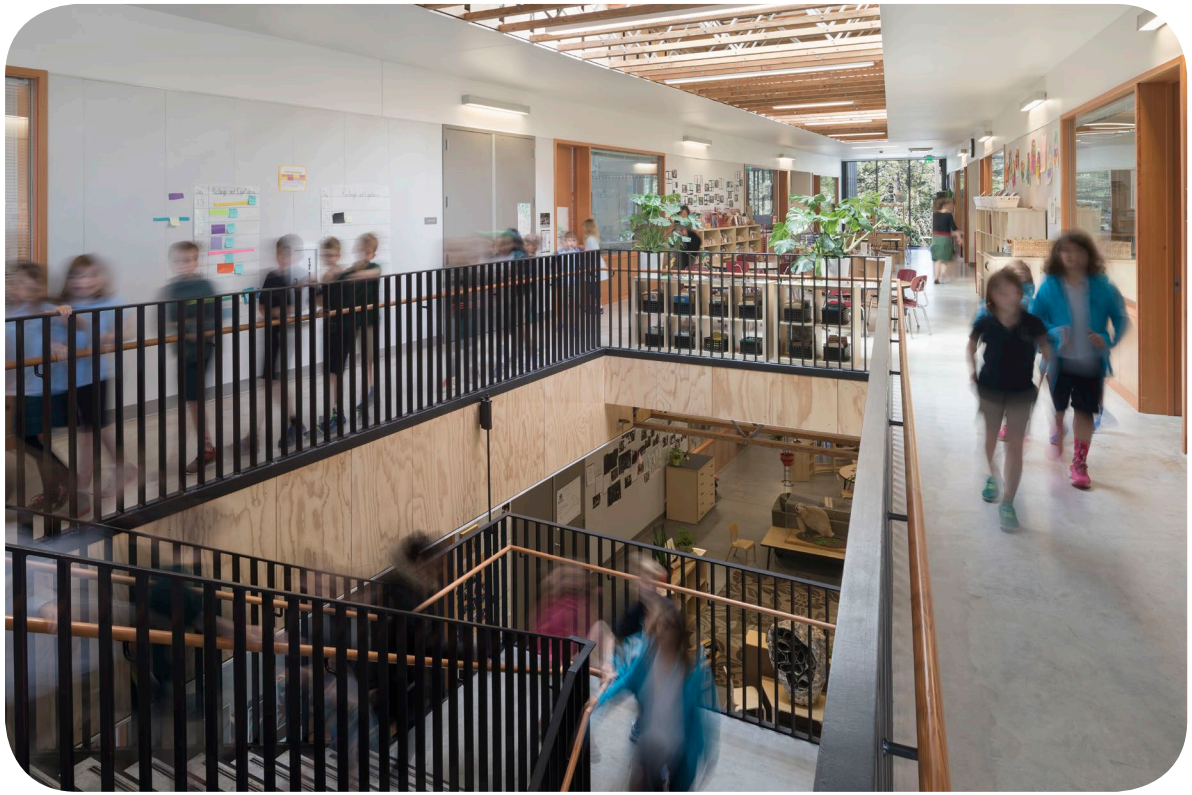
Active *Temperature* ***Control*** *&* ***Tolerance***

Lessons **Learned**

Visual **Connection**

Acoustic **Separation**

Lessons **Learned**



Acoustic **Comfort**

Lessons ***Learned***

Making ***Students'*** *Learning* ***Visible***

Lessons ***Learned***

Making ***Teachers'*** *Learning* ***Visible***

Thank you!

questions?

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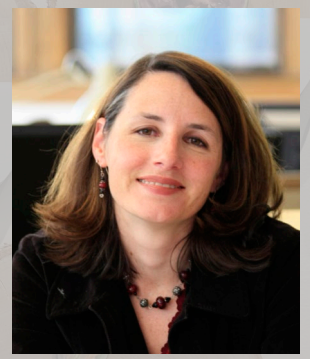

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