

# Innovative Learning Environments: Design Awards Meets Research Evidence

Kelly Martinez, Assoc. AIA  
2012 AIA Education Research Scholar

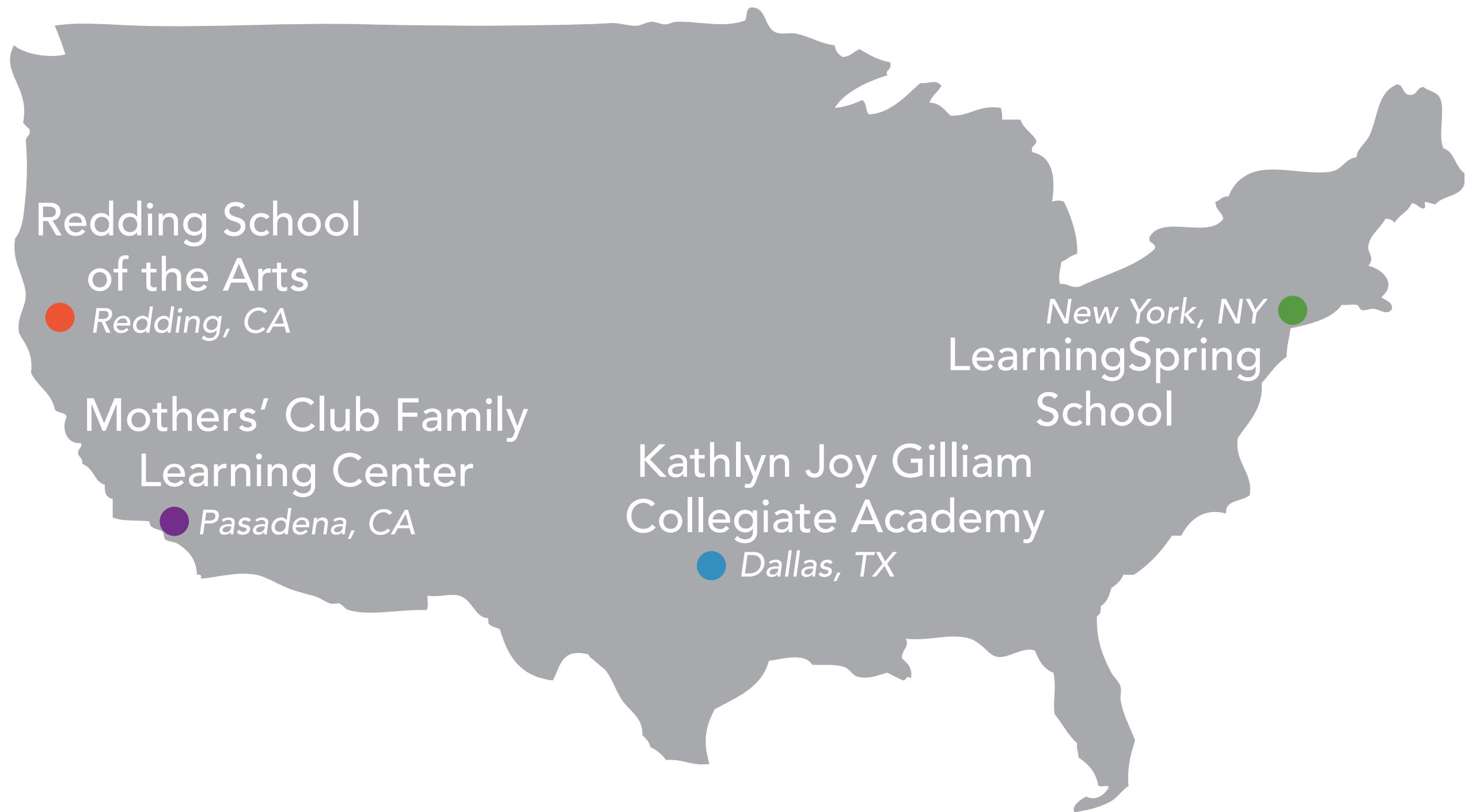


**THE AMERICAN INSTITUTE  
OF ARCHITECTS**  
Committee on Architecture for Education



A special thank you  
to the project mentors,  
Caroline Lobo, PhD, AIA and  
Butch Reifert, FAIA





Redding School  
of the Arts

● *Redding, CA*

Mothers' Club Family  
Learning Center

● *Pasadena, CA*

Kathlyn Joy Gilliam  
Collegiate Academy

● *Dallas, TX*

New York, NY  
LearningSpring  
School





birth

kindergarten

6th grade

9th grade

12th grade

adults

Mothers' Club

LearningSpring School

Gilliam Collegiate Academy

Mothers' Club

Redding School of the Arts





Mothers' Club Family Learning Center  
Pasadena, California  
Harley Ellis Devereaux





LearningSpring School  
New York, New York  
Platt Byard Dovell White Architects





Redding School of the Arts  
Redding, California  
Trilogy Architecture





Kathlyn Joy Gilliam Collegiate Academy  
Dallas, Texas  
SHW Group



## Research Questions

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- Does the finished school fulfill the design submittal expectations?
- Does the design exhibit a full understanding of the design challenges?
- How successful was the design in creating an empathetic approach to support the user needs?
- How does the school design address different learning styles?
- How do the lessons learned from design, planning, user satisfaction, and pedagogy inform future projects?



Year Opened  
October 2007

Building Size  
10,000 square feet

Project Cost  
\$6,500,000

Site Context  
Urban

Building Levels  
1

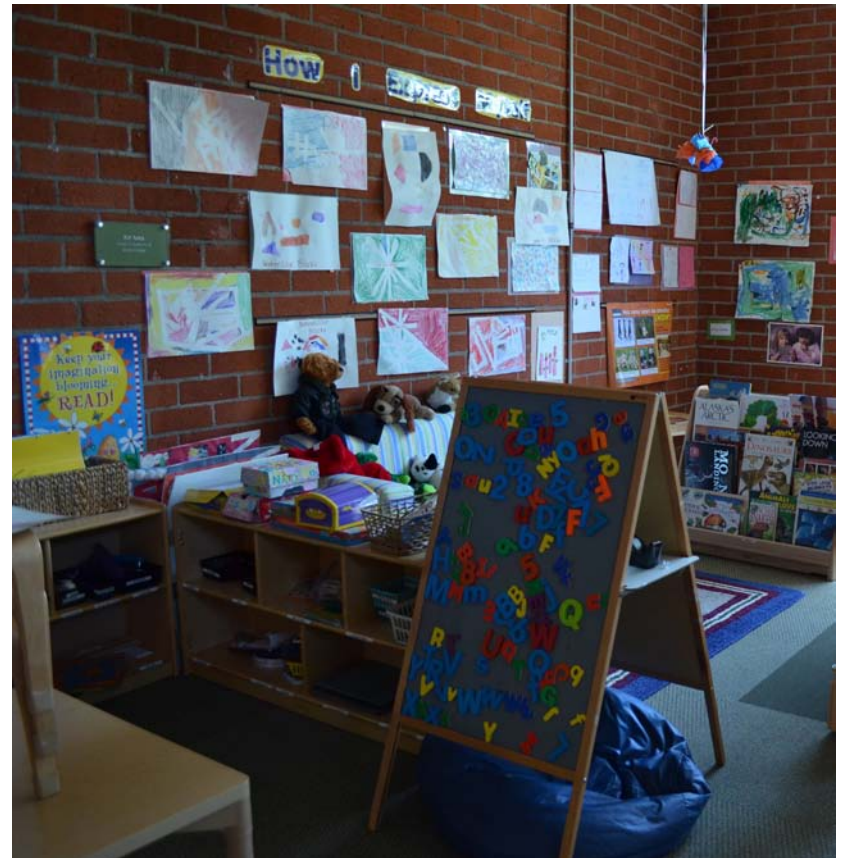
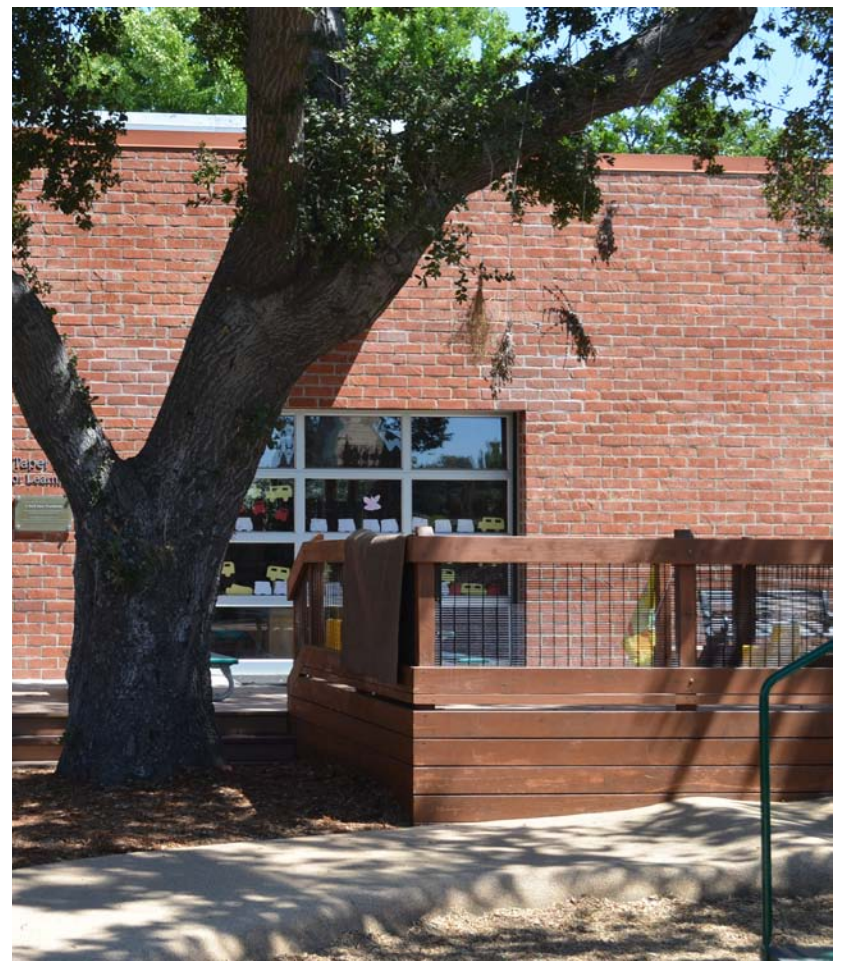
Ages  
Birth - 5 and Adults

Enrollment  
120 children, 110 adults

Number of Staff  
22

Mothers' Club Family Learning Center  
Pasadena, California  
Harley Ellis Devereaux









**Challenge 1:** "Create an Integrated Indoor/Outdoor Educational Environment: A play atrium, porch and walled garden were carved out of a windowless factory and parking lot. Sliding, Folding and Overhead glass doors create flexibility and seamless connections between inside and outside age-specific learning spaces."





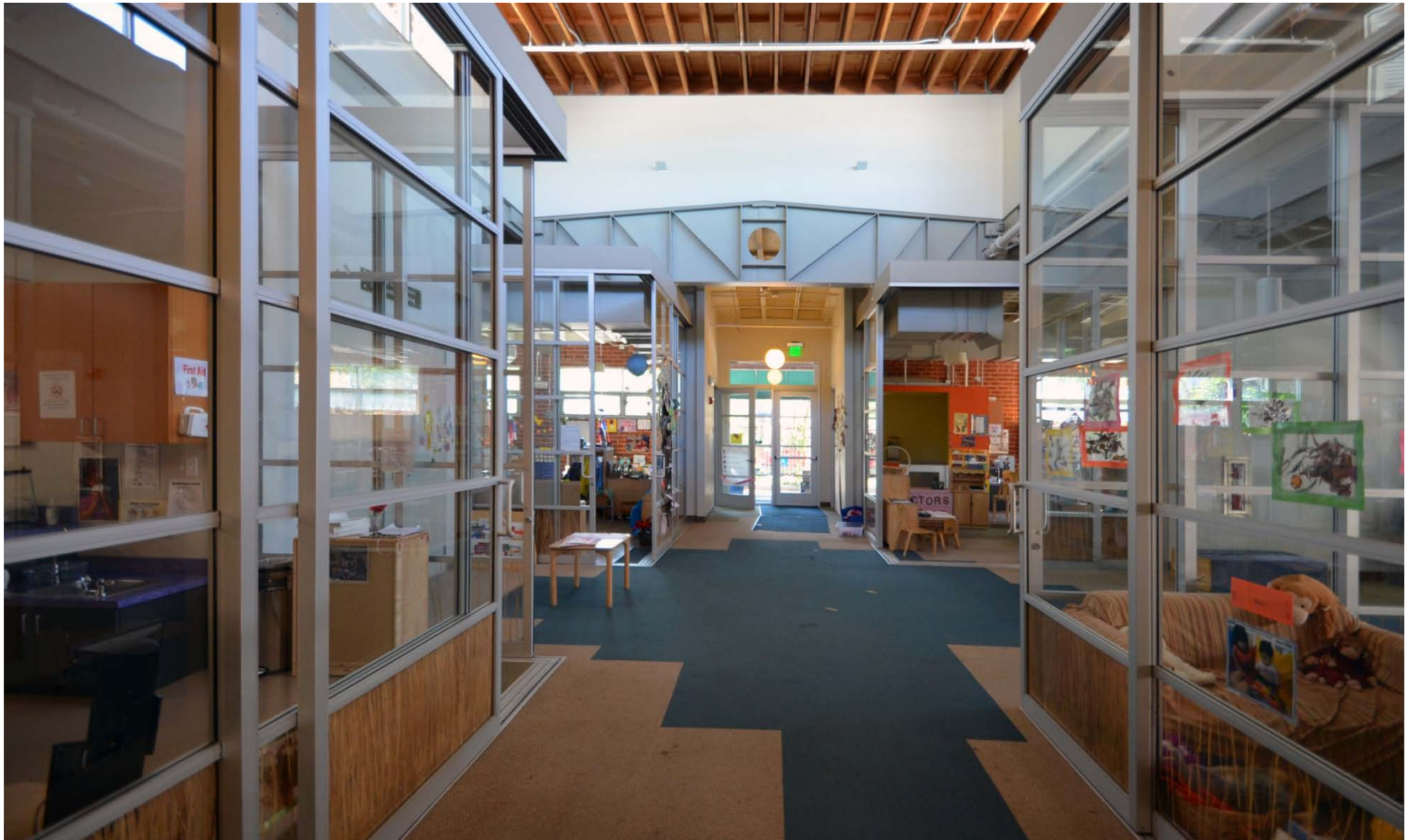
**Challenge 2:** "A Seamless Learning Setting for Children and Adults: An informal, domestic character and an open, flexible plan allow adults and children to co-exist within the single volume of the factory. An open kitchen and flexible play atrium form a natural intersection between the parallel education programs."





**Challenge 3:** "Integrating Sustainability in the Core Curriculum: The building has been programmed to maximize hands-on learning for children and parents alike. Flexible classrooms and work areas are provided for both. Here, topics like recycling materials and using biodegradable cleansers are demonstrated."





**Feature 1:** “Central Play Atrium: Central to the classrooms is a top-lit play area. The corners of the classrooms intersect it with sliding glass doors. When the doors are open, a larger shared activity zone is created. When the doors are closed, it’s a comfortable observation area for visitors, parents and staff.”





**Feature 2:** "Outdoor Learning Garden: Large glazed overhead doors connect classrooms and outdoor play areas seamlessly. Incorporating a heritage oak tree, the outdoor classroom is subdivided for different age groups and includes art walls, hands-on gardens, sand and water play, trike paths, and climbing areas."





**Feature 3:** “Sustainable Components: The building is the first Gold LEED Certified CDC and has been designed to provide visible reminders of sustainable principals. For example the photovoltaic array is deliberately folded down the south façade as a playful, visual display of how alternative energy is saved.”





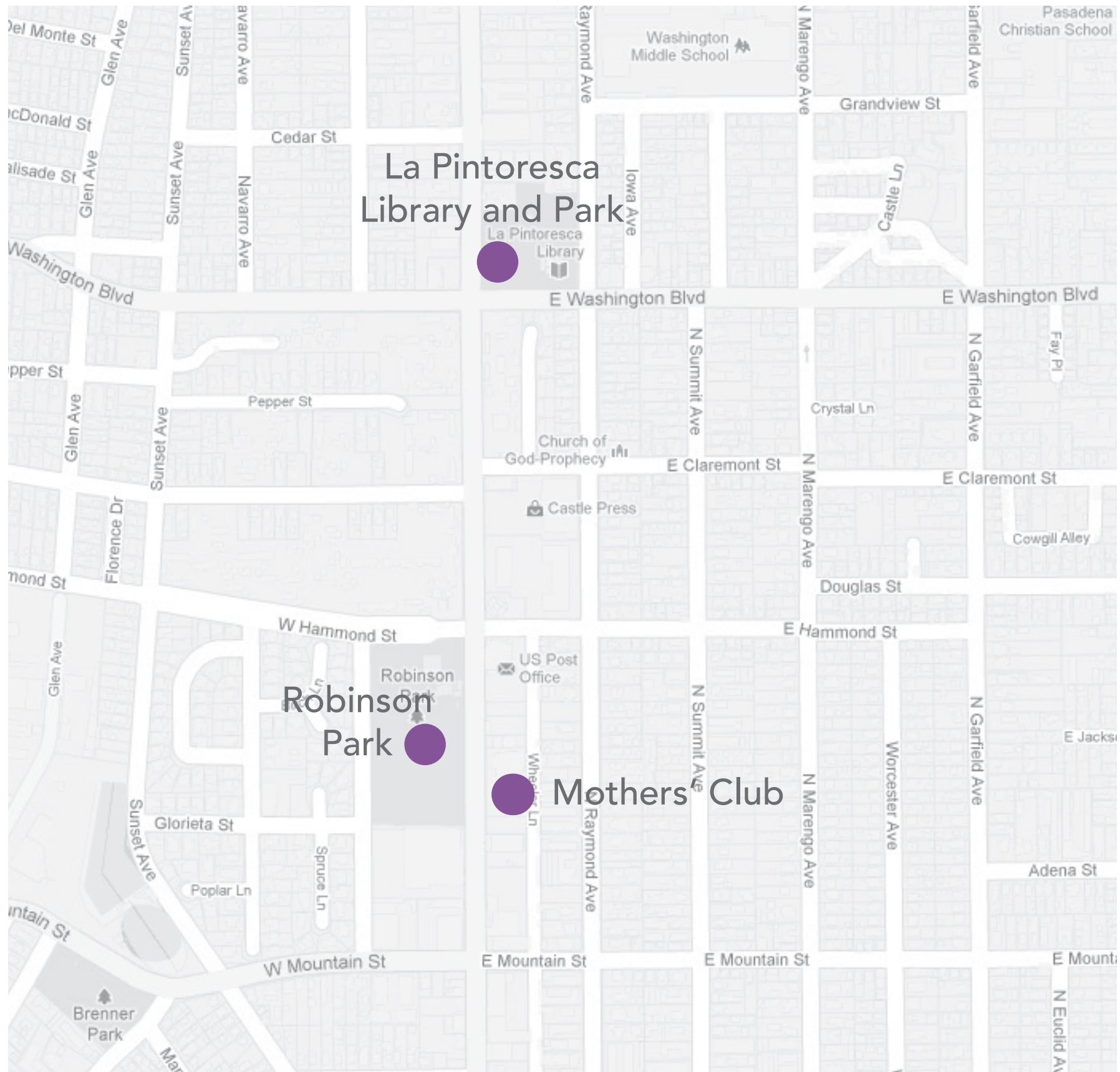




*Image Source: Harley Ellis Devereaux*

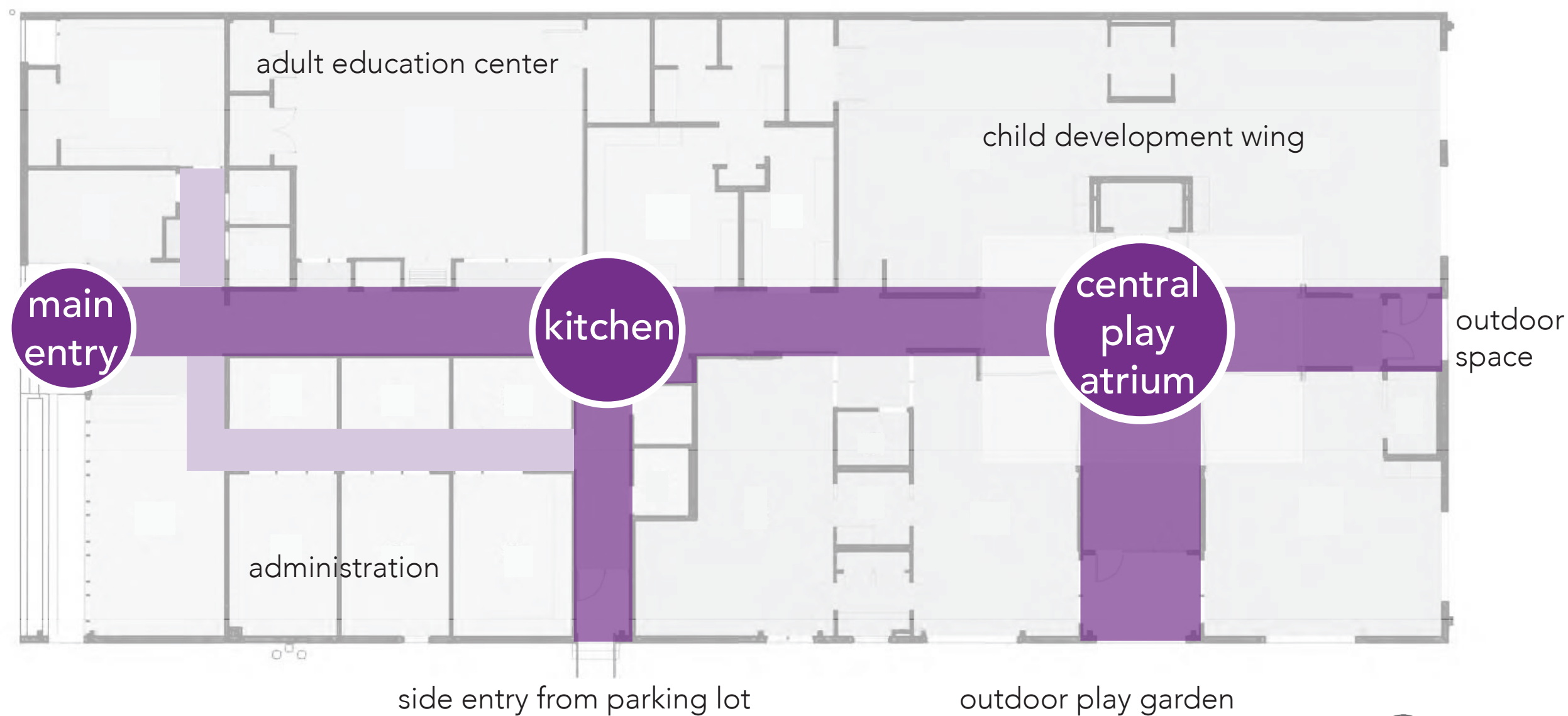
## Site and Context





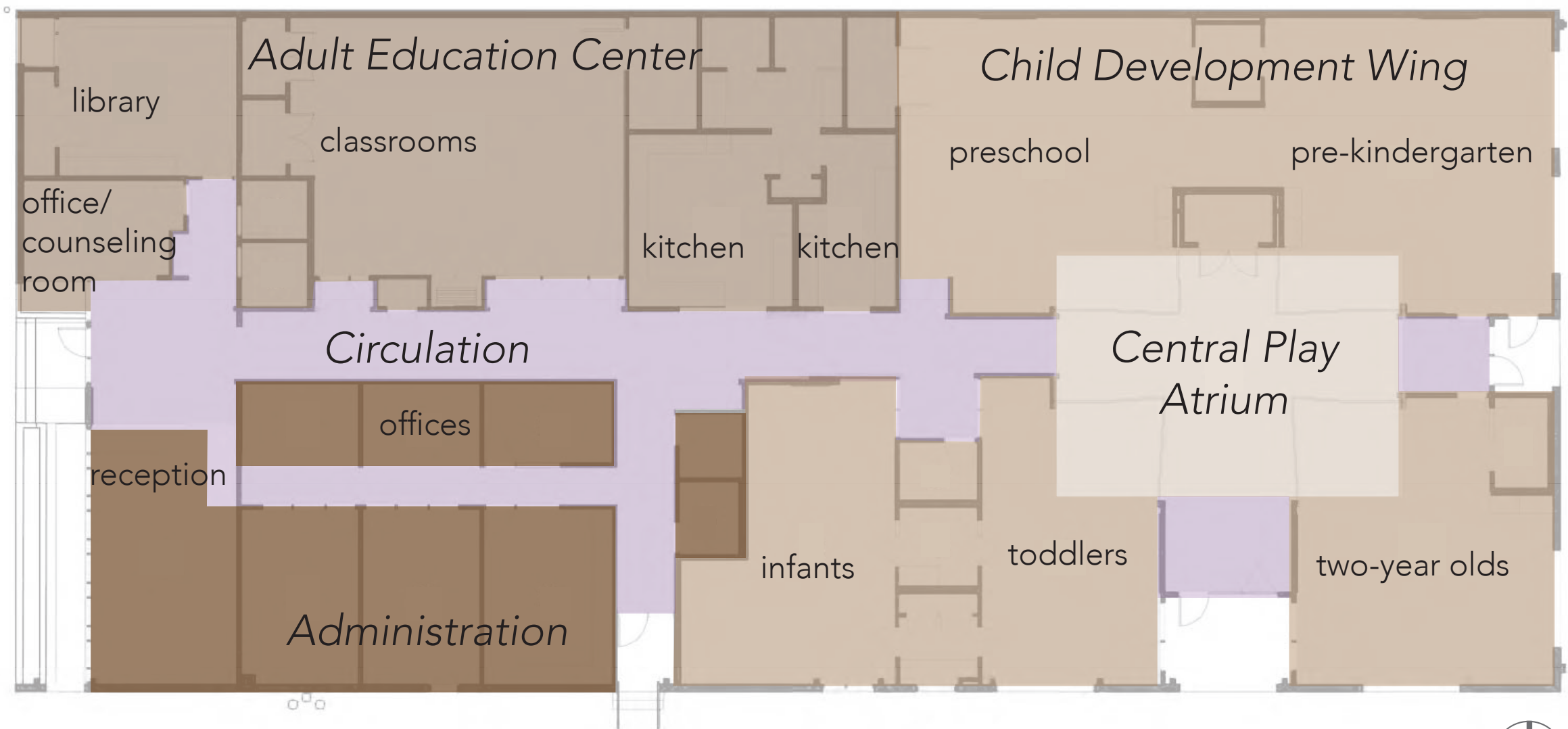
Map Source: Google Maps

## Site and Context



Floor Plan Source: Harley Ellis Devereaux

## Building Organization



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## Building Organization





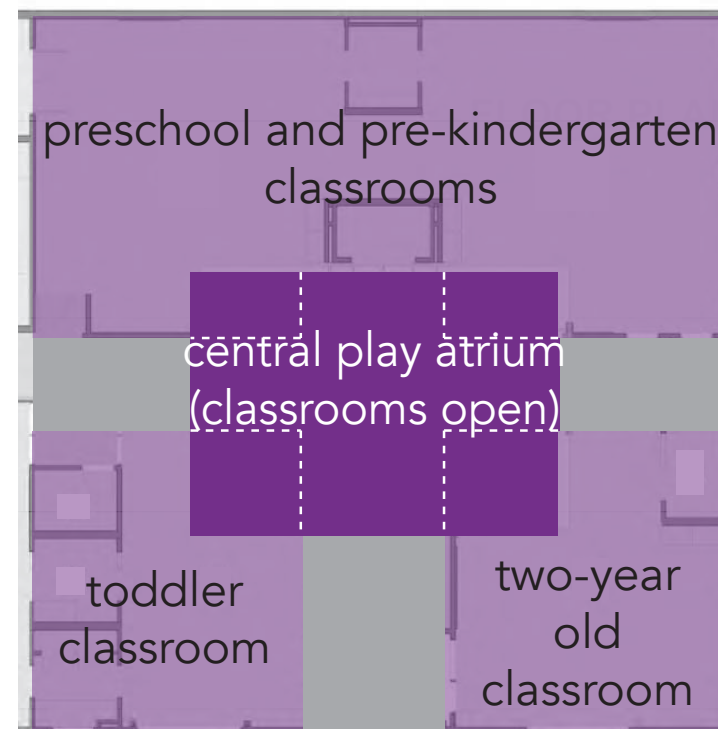
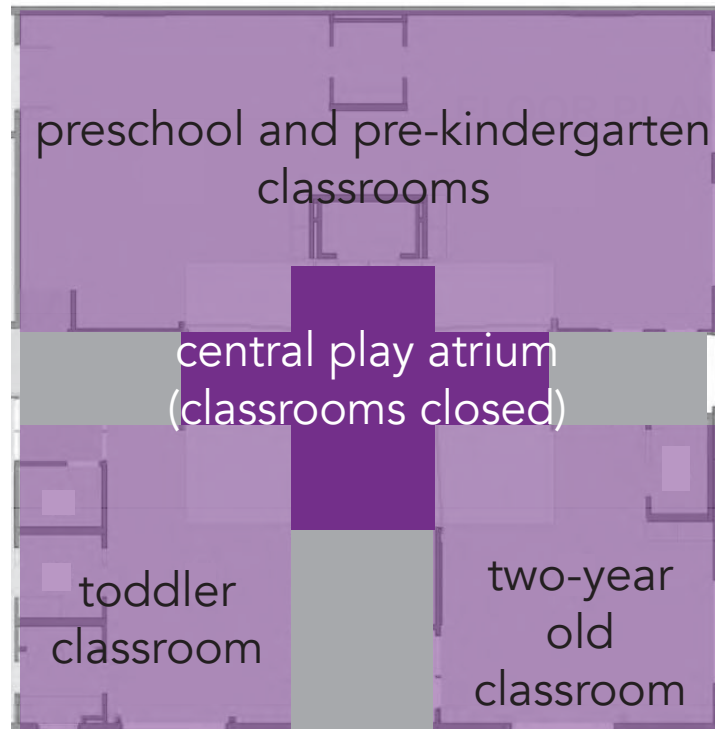
Learning Spaces





Learning Spaces



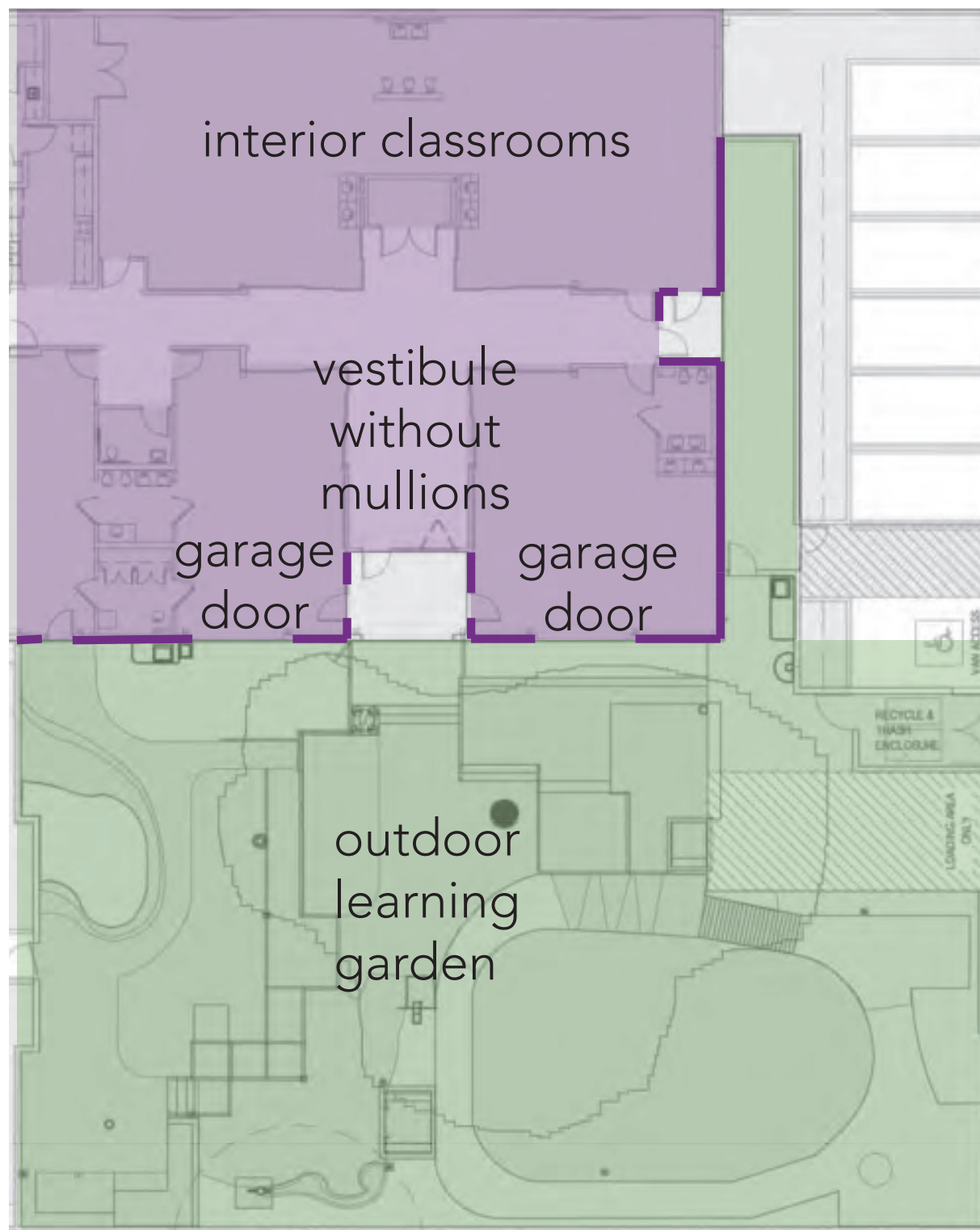


*Floor Plan Source: Harley Ellis Devereaux*



## Specialized Learning Spaces

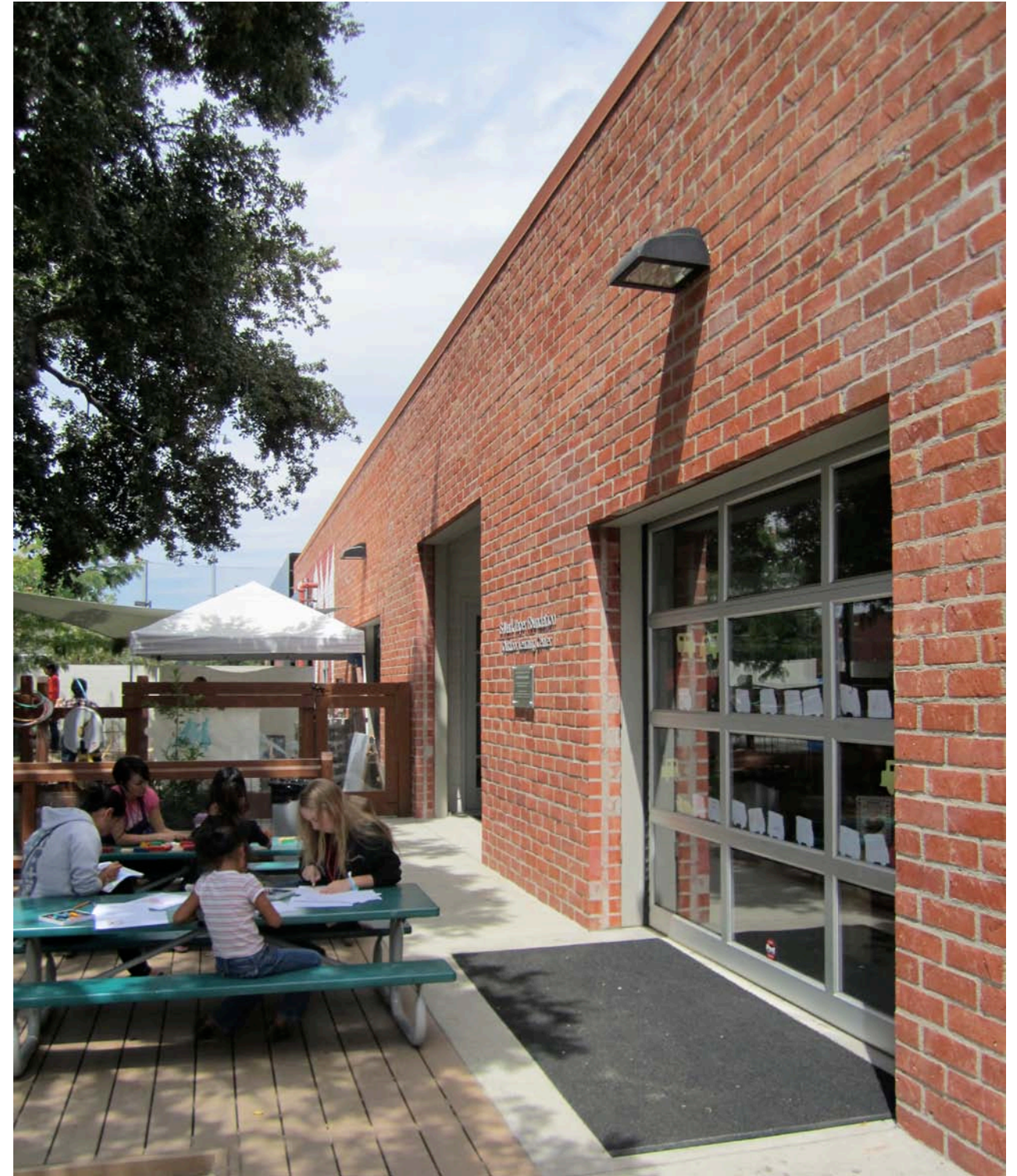
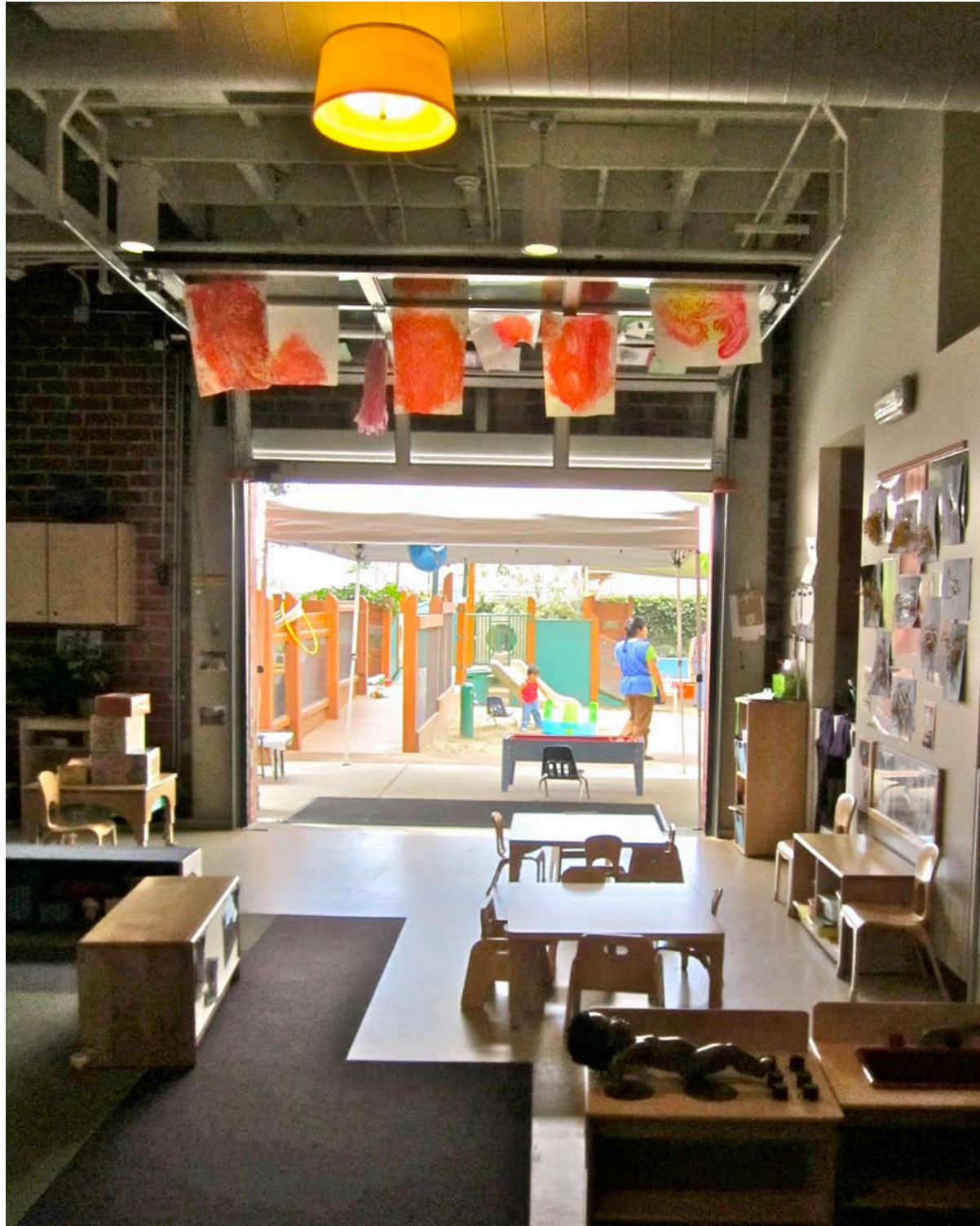




*Plan Source: Harley Ellis Devereaux*

## Outdoor Learning





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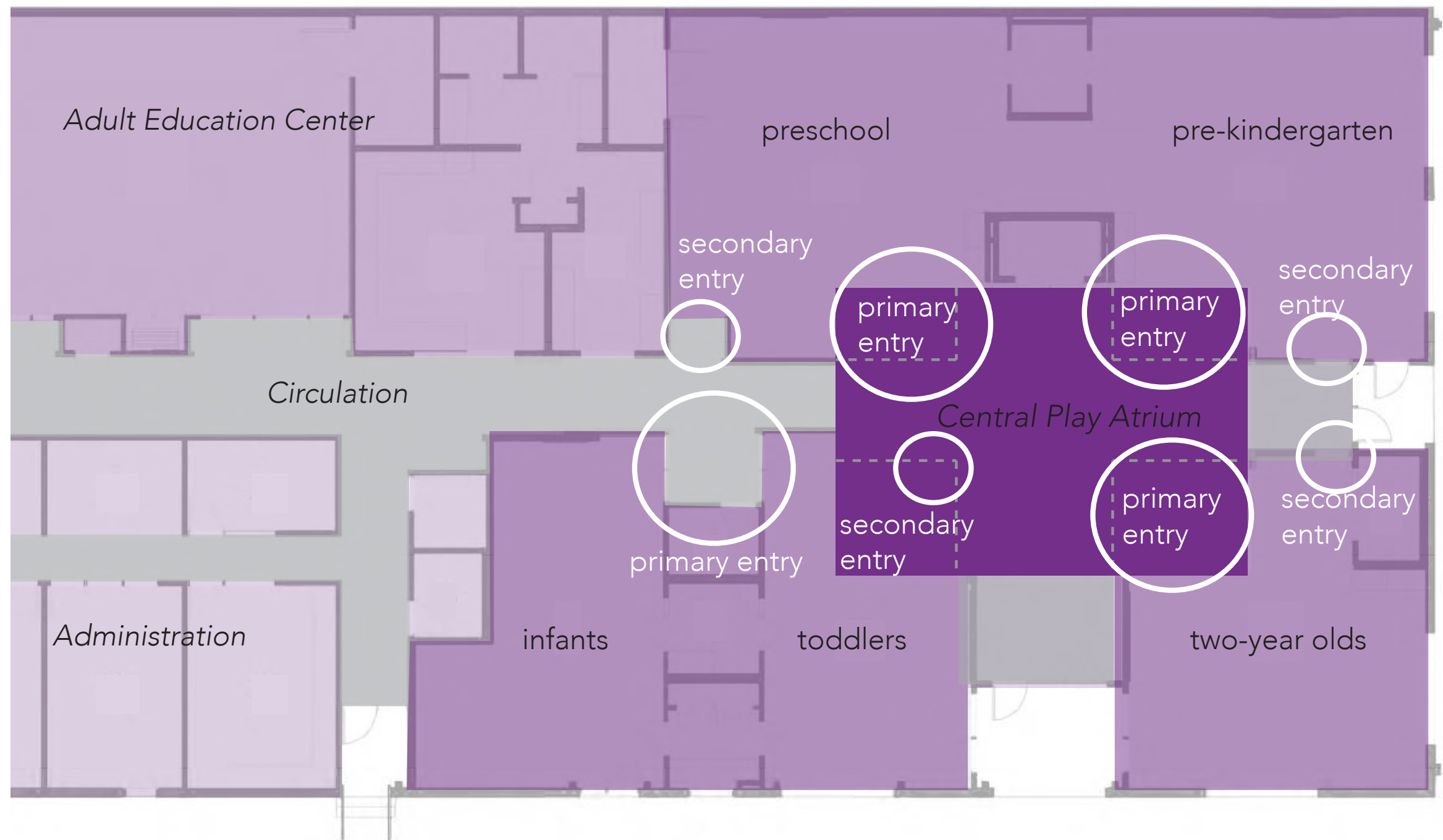
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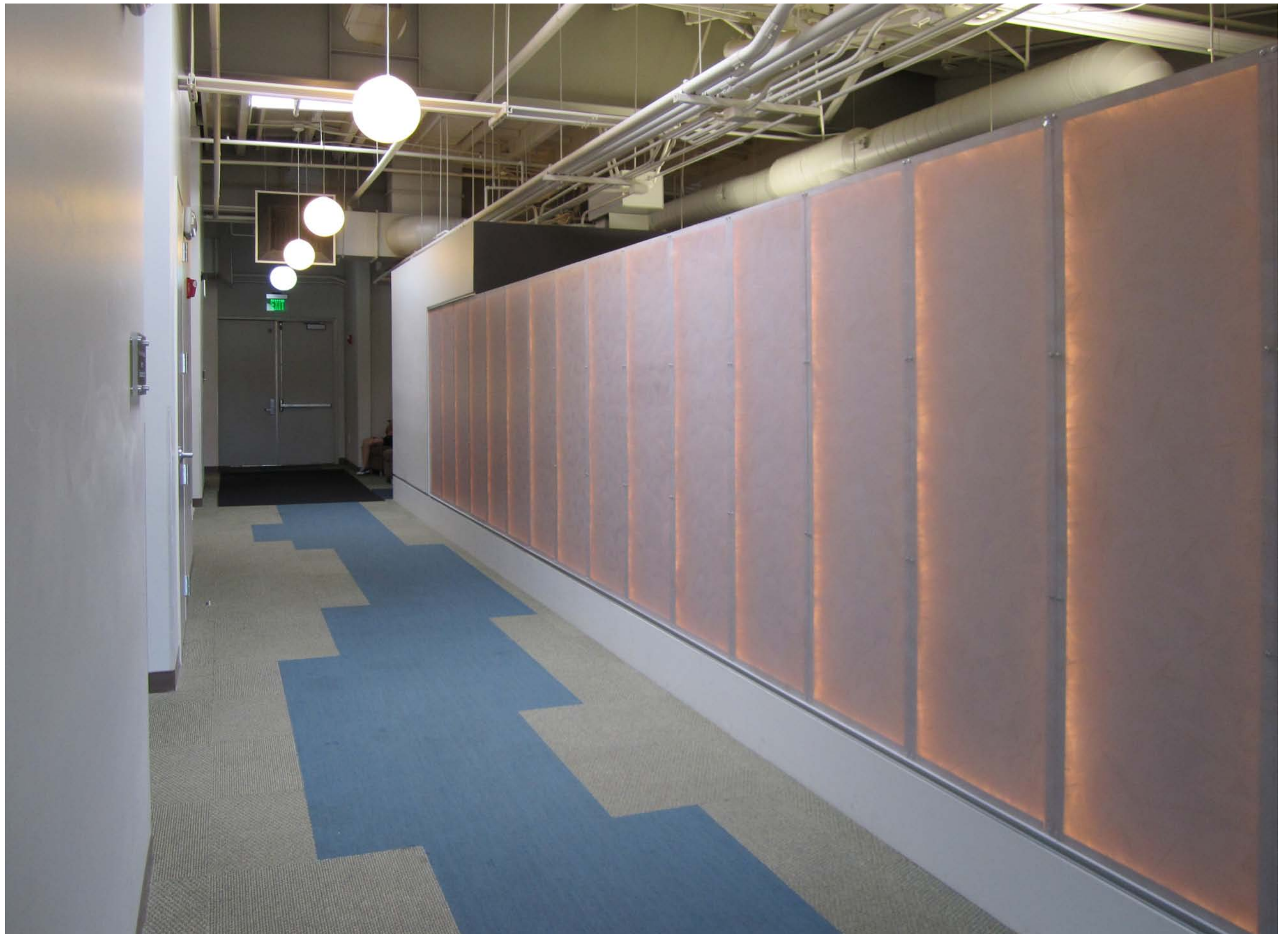
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Year Opened  
Summer 2010

Building Size  
34,000 square feet

Project Cost  
\$48,700,000

Site Context  
Urban

Building Levels  
8 + Cellar

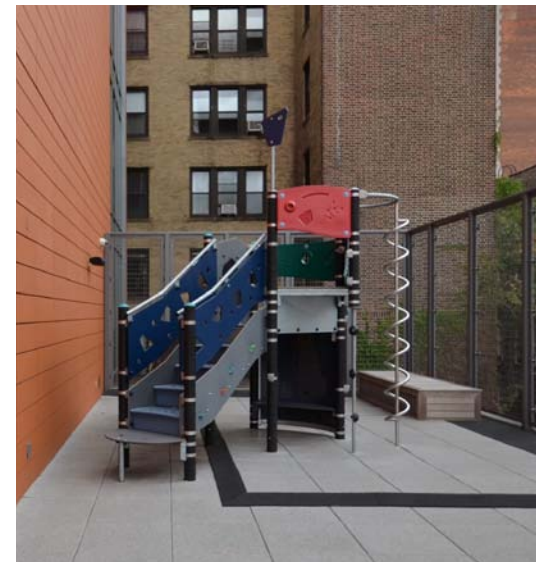
Grade Levels  
K-8

Enrollment  
98 students (108 maximum)

Number of Staff  
70 full time, 3 part time

LearningSpring School  
New York, New York  
Platt Byard Dovell White Architects









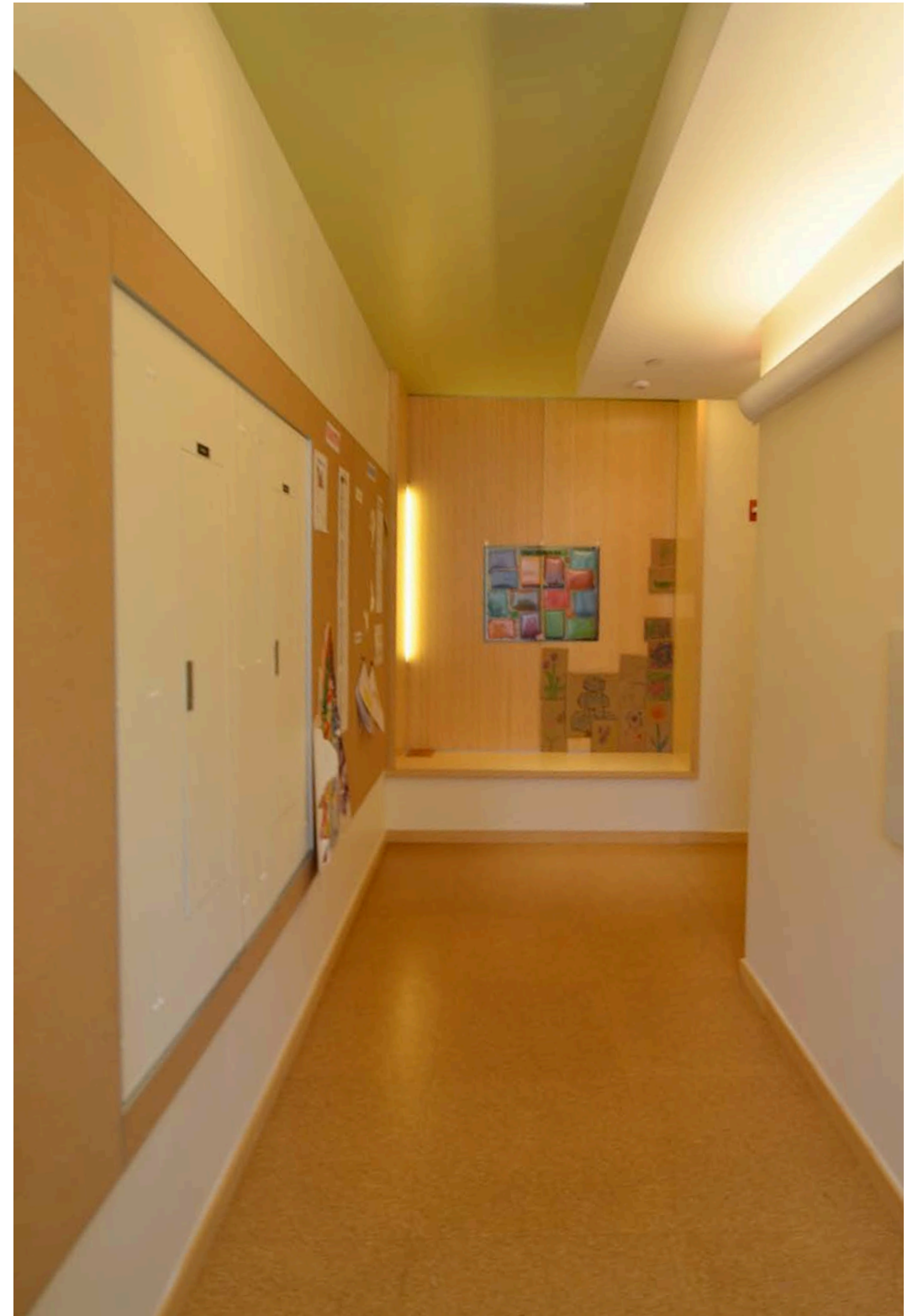
**Challenge 1:** "The school exclusively serves children diagnosed on the autism spectrum. Its highly specialized curriculum is geared to address the academic, emotional, social, and physical needs of its students and their families. The architectural solutions throughout have been tailored to address these needs."





**Challenge 2:** "Small classrooms for 8 students and 3 teachers are paired in suites, sharing resource areas, quiet study areas and toilets. The upper and lower schools are separated by two floors of shared special instruction rooms."





**Challenge 3:** "To promote opportunity for informal socialization, circulation areas are provided with numerous seating alcoves and are finished throughout as an extension of the classrooms with cork floors, bamboo case work and fabric wall coverings."





**Feature 1:** “The school is pursuing gold certification via the LEED for Schools rating system. Key features include exterior mounted solar shades on the south and east facades, natural daylight in over 96% of regularly occupied rooms, and enhanced acoustical isolation between classrooms as well as the exterior.”





**Feature 2:** "Small floor plates limit the number of students per floor, creating intimate learning zones where students do not feel overwhelmed. A limited color palette and warm, natural materials help create a calm learning environment. Quiet rooms are available throughout when students need a sensory break."





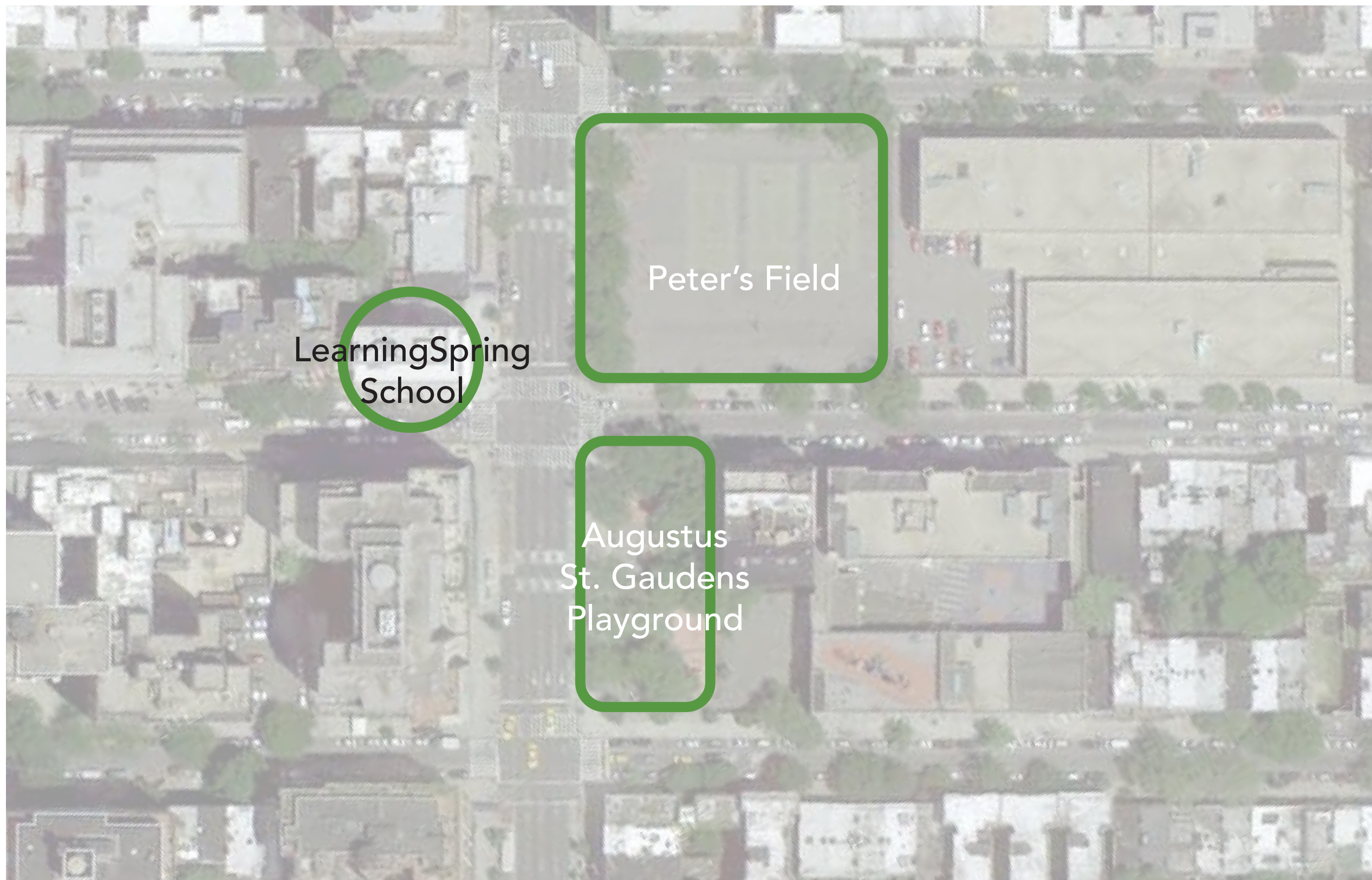
**Feature 3:** "Specialized classrooms include occupational therapy, drama, culinary arts, life skills, relationship development intervention, and an acoustically isolated music room. Ample storage minimizes clutter. Colors, textures, and patterns of finishes were selected to limit distractions to students."





Site and Context

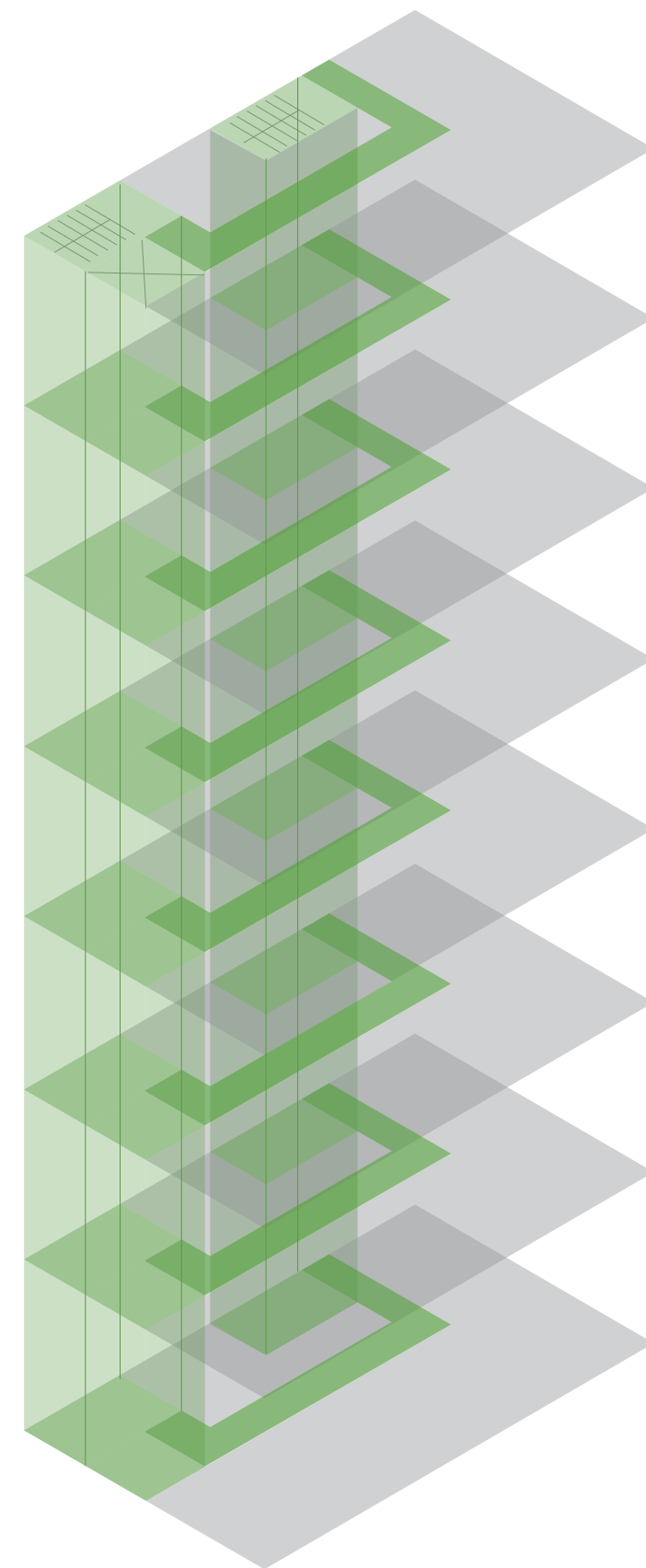
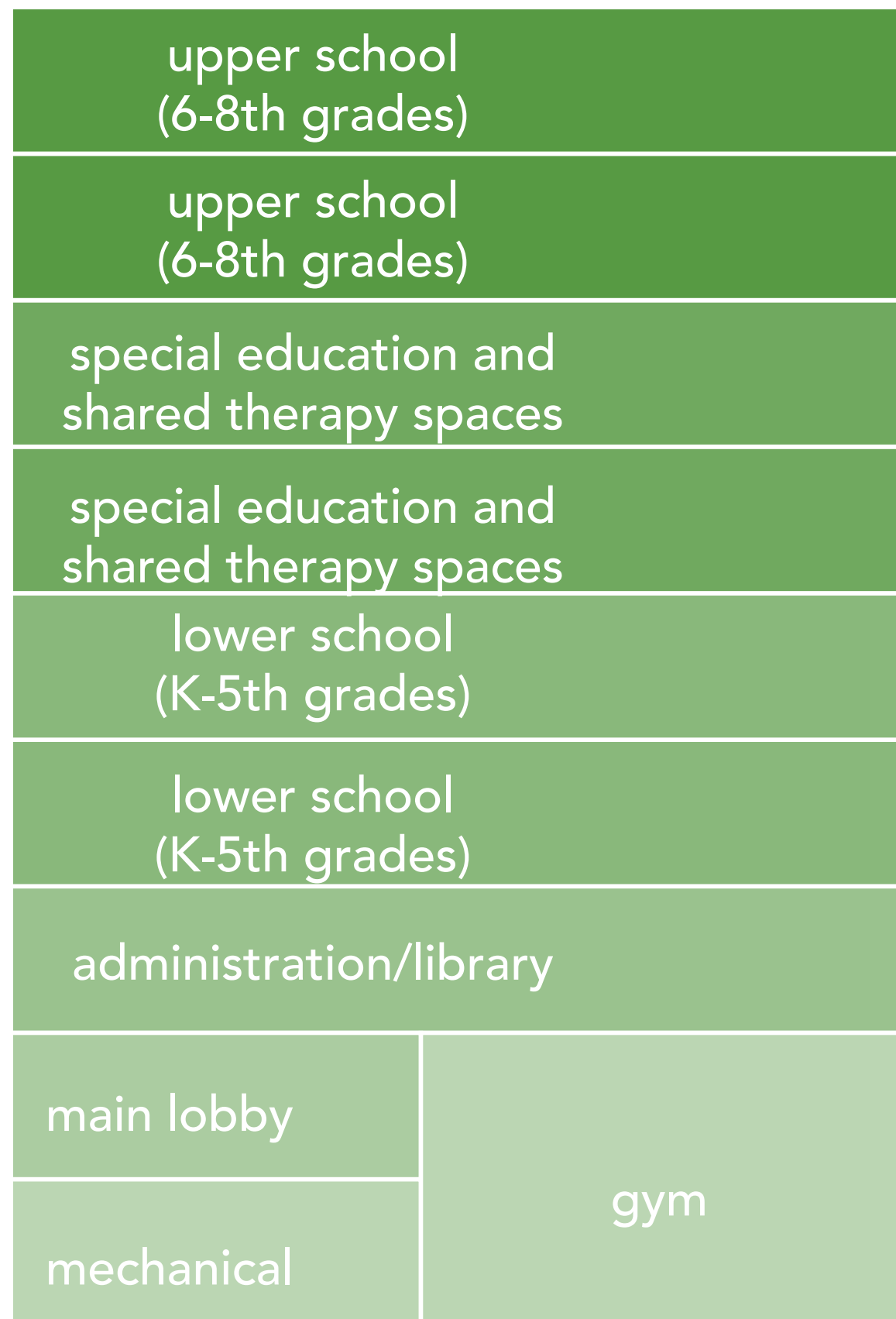




Map Source: Google Maps

## Site and Context



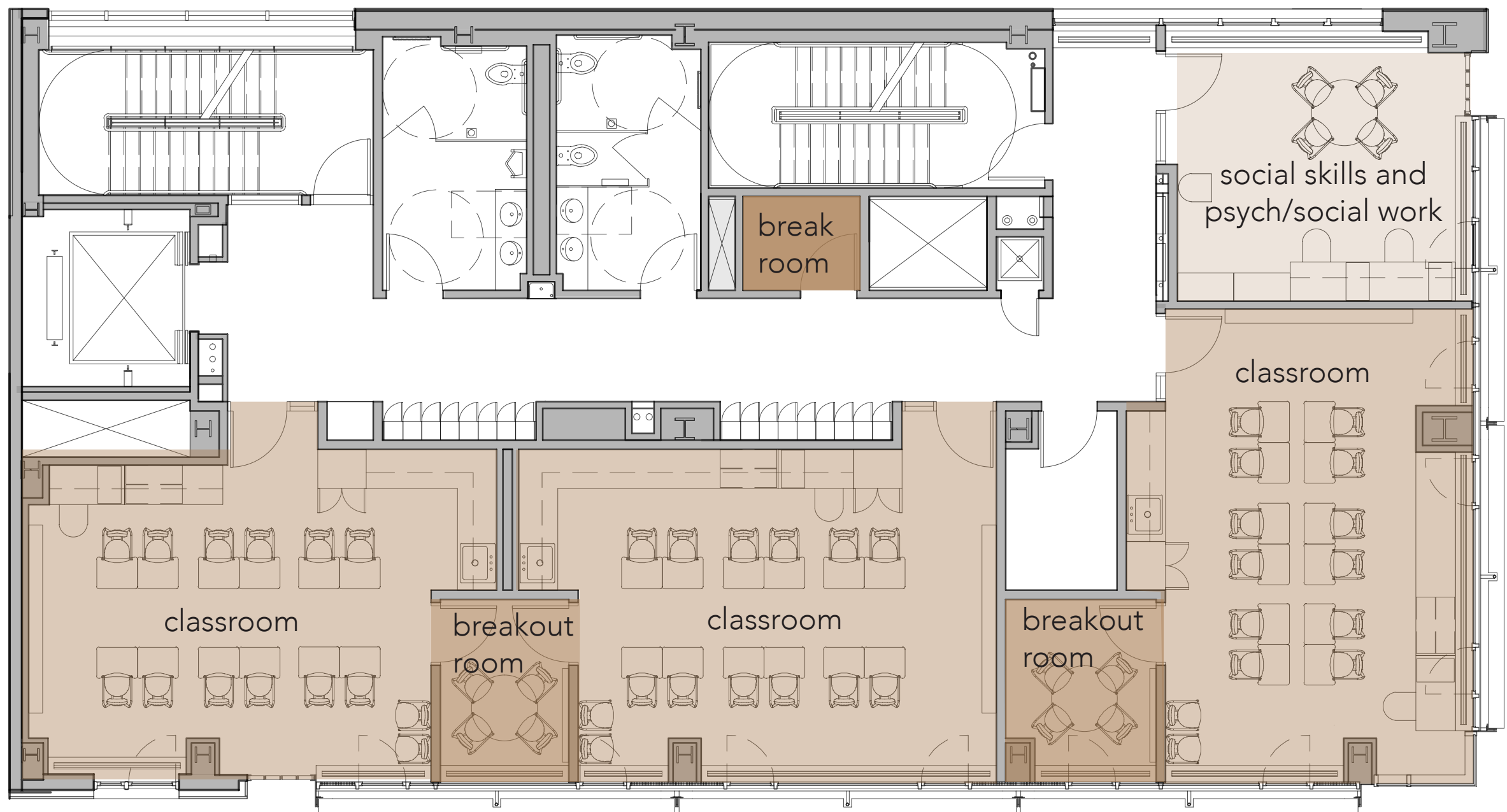


Building Organization









Levels 7 and 8 Floor Plan Diagram  
 Floor Plan Source: Platt Byard Dovell White Architects

# Building Organization





Learning Spaces





Specialized Learning Spaces





Outdoor Learning





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Year Opened  
August 2011

Building Size  
77,000 square feet

Project Cost  
\$32,000,000

Site Context  
Suburban

Building Levels  
2

Grade Levels  
K-8

Enrollment  
540 students

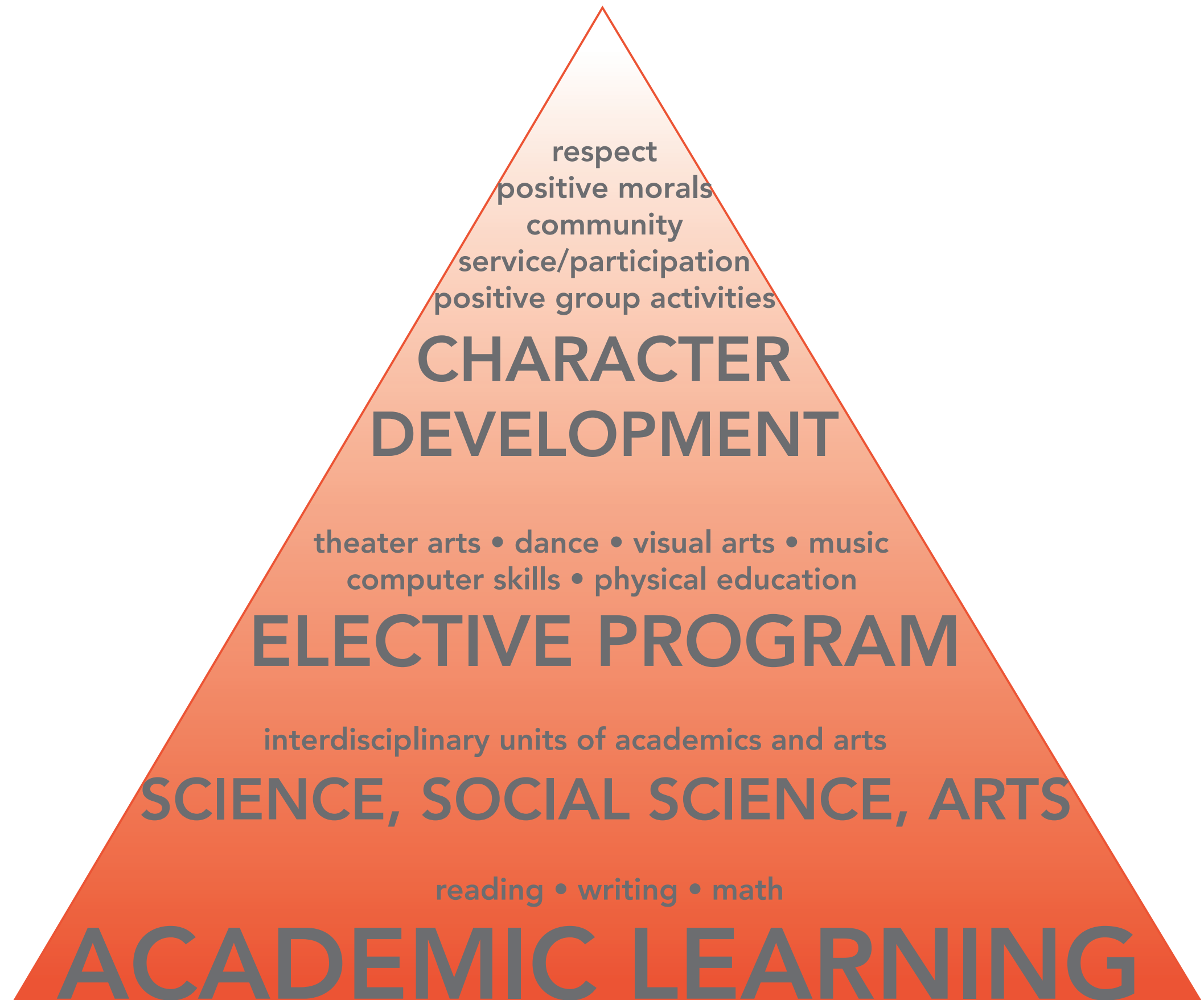
Number of Teachers  
27

Redding School of the Arts  
Redding, California  
Trilogy Architecture









*Diagram based on text from Redding School of the Arts*





**Challenge 1:** "50% of learning space located outdoors in a marginal climate 1) Outdoor theater at center of school 2) Semi-conditioned galleries 3) Translucent canopy for daylight AND protection 4) Operable garage doors to open interior space to nice weather."





**Challenge 2:** "Classroom as an extended learning environment, with 1) Visual & physical connection to outdoor space with windows and adjacent protected outdoor study space 2) Varied and flexible interior space, and 3) Technology wall with projection/sound and traditional whiteboard for different teaching styles."





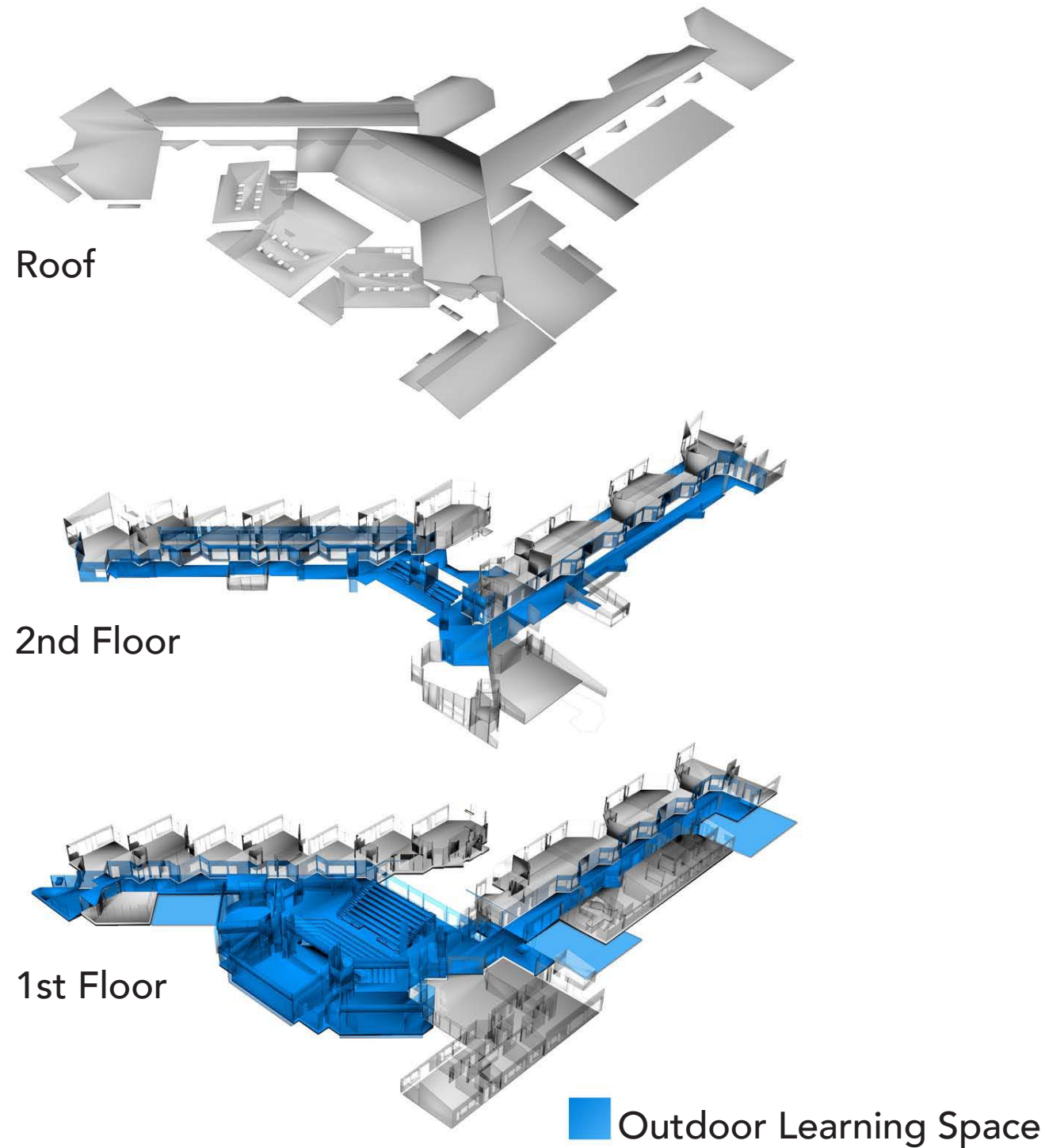
**Challenge 3:** "Building and site as a tool for teaching green, with 1) Transparency into interior building workings 2) Minimal removal of existing mature trees 3) Exposed interior structure 4) Internet-based "dashboard" showing real time energy use 5) Interpretive signage for building elements."





**Feature 1:** "A centrally located outdoor theater with music classroom walls that double as stages opening up to the audience by way of large bi-fold hangar doors, with 1) Large overhangs for excellent acoustical performance 2) Connection to circulation galleries for common informal social use."





Source: Trilogy Architecture

**Feature 2:** "Semi-conditioned space. Design of 50% of the learning space is located outdoors even though the climate is considered marginal for outdoor use, with  
1) Summer cooling through evaporative cooling fabric ductwork 2) Winter radiant heating timed to occupant use 3) Significant energy savings."





**Feature 3:** “Juxtaposition of traditional building materials such as rammed earth walls and 120 year old recycled redwood against the framework of concrete, steel and glass, with 1) The use of color to accent material contrast and provide wayfinding.”





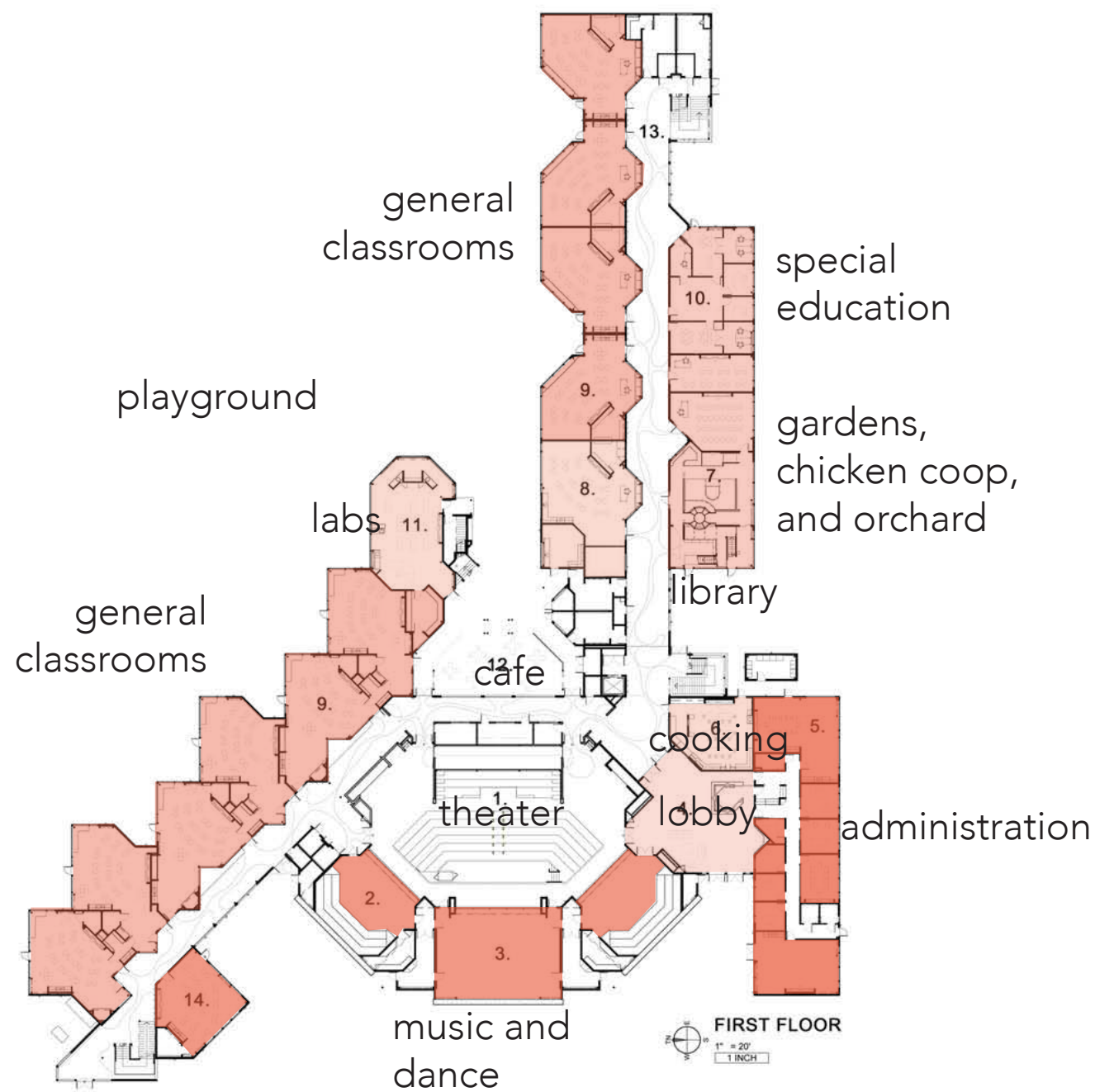




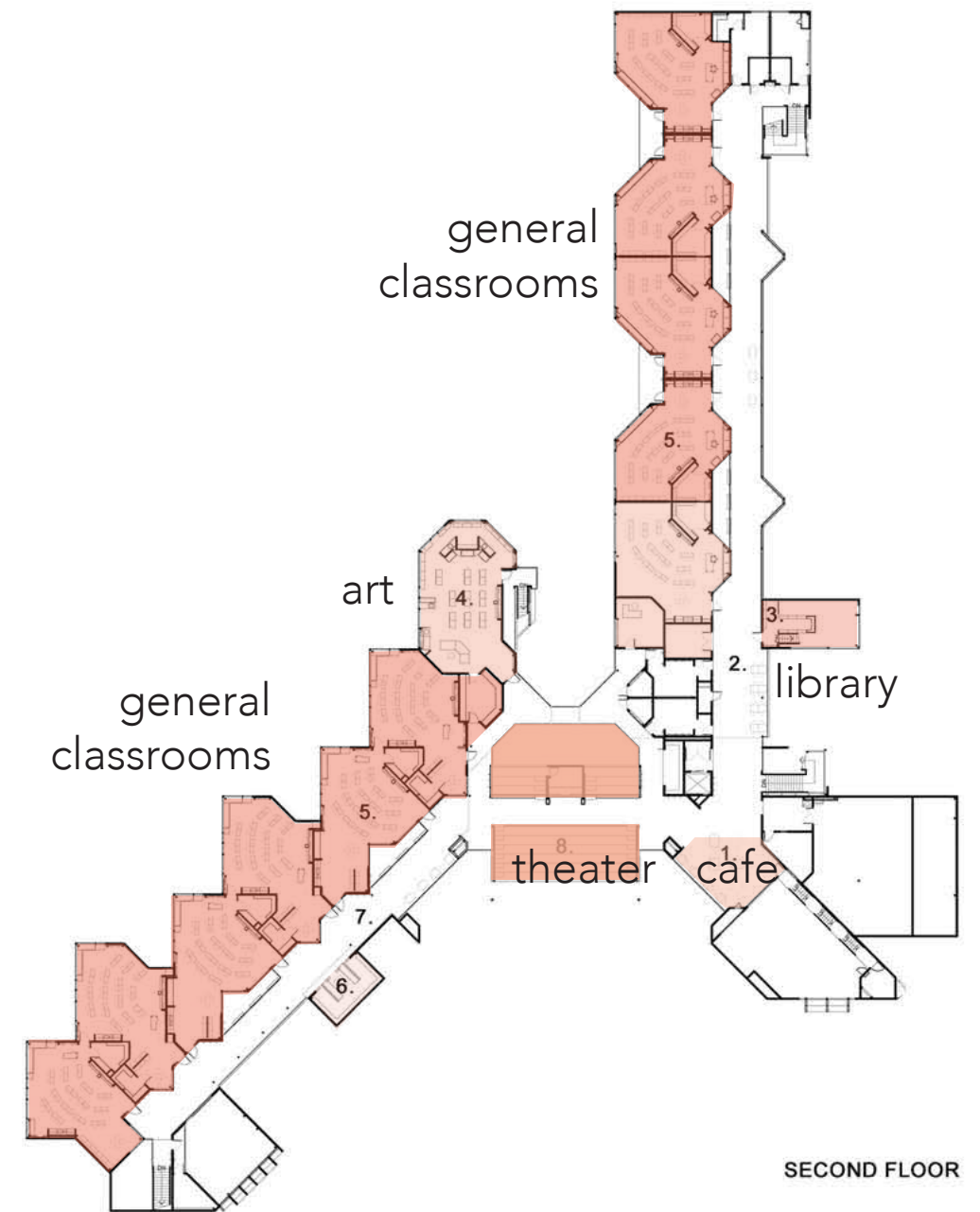
Source: Trilogy Architecture

## Site and Context





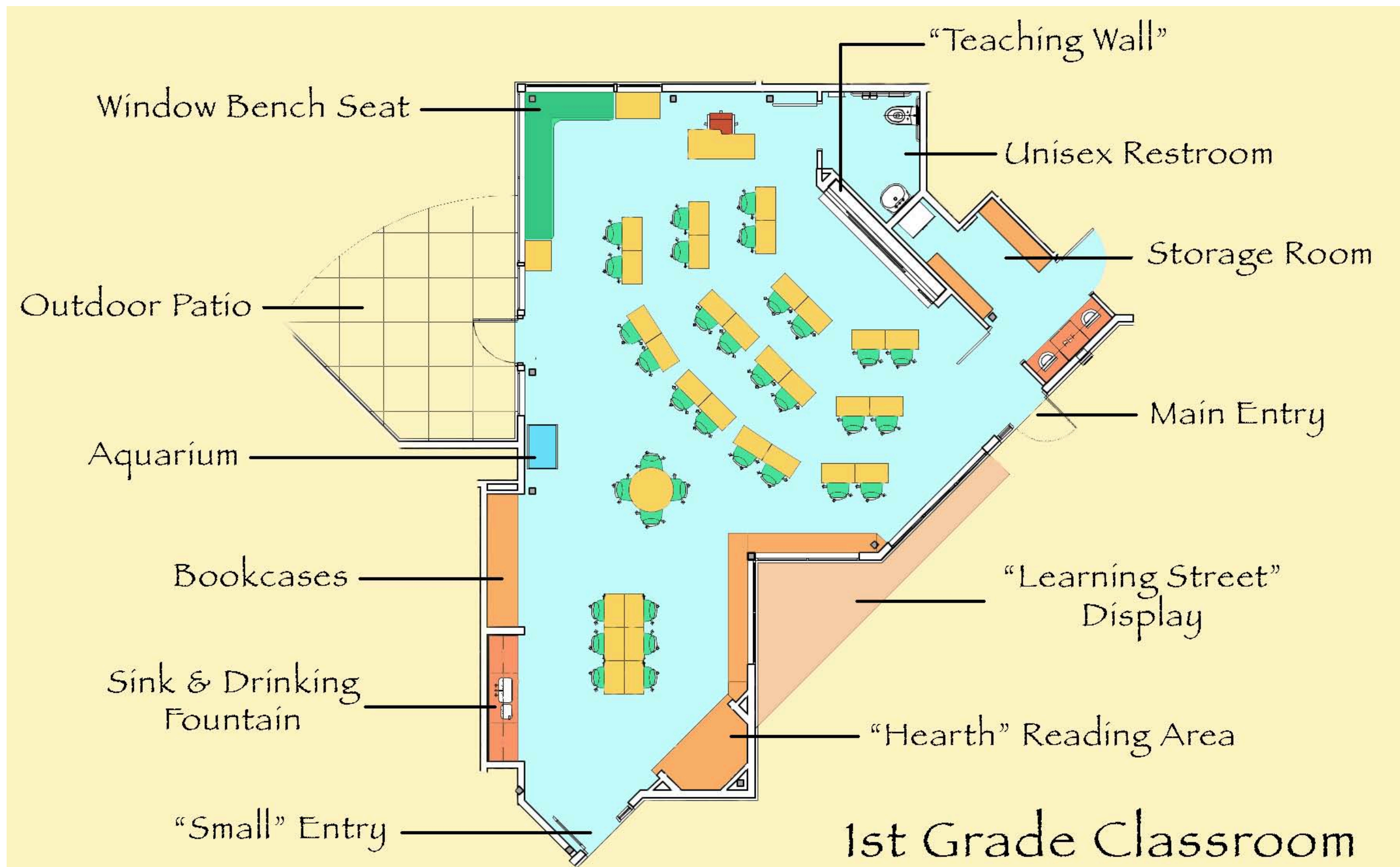
Floor Plan Source: Trilogy Architecture



Floor Plan Source: Trilogy Architecture

# Building Organization





Floor Plan Source: Trilogy Architecture

## Learning Spaces





Learning Spaces





Specialized Learning Spaces





Outdoor Learning





Outdoor Learning





Outdoor Learning





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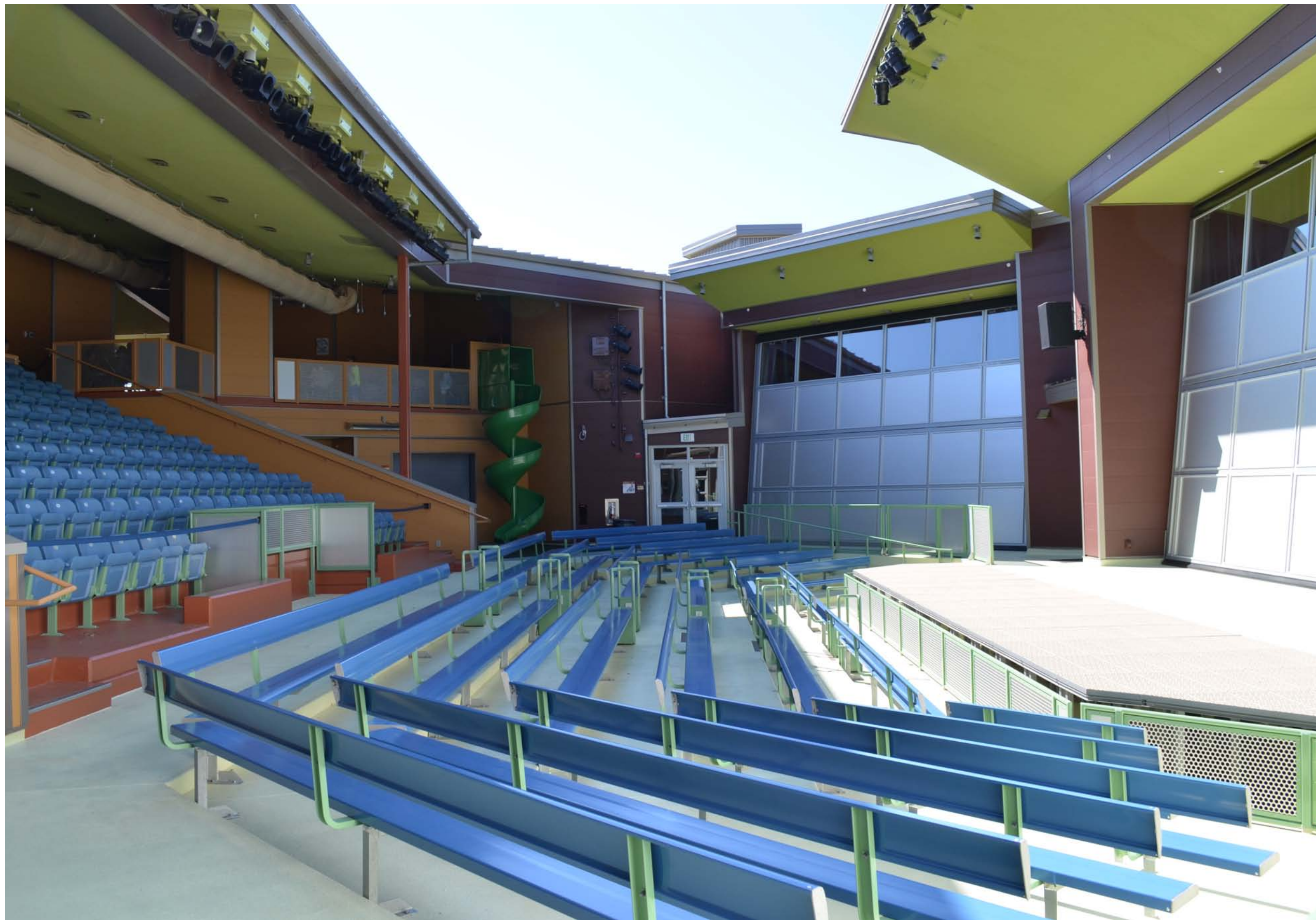
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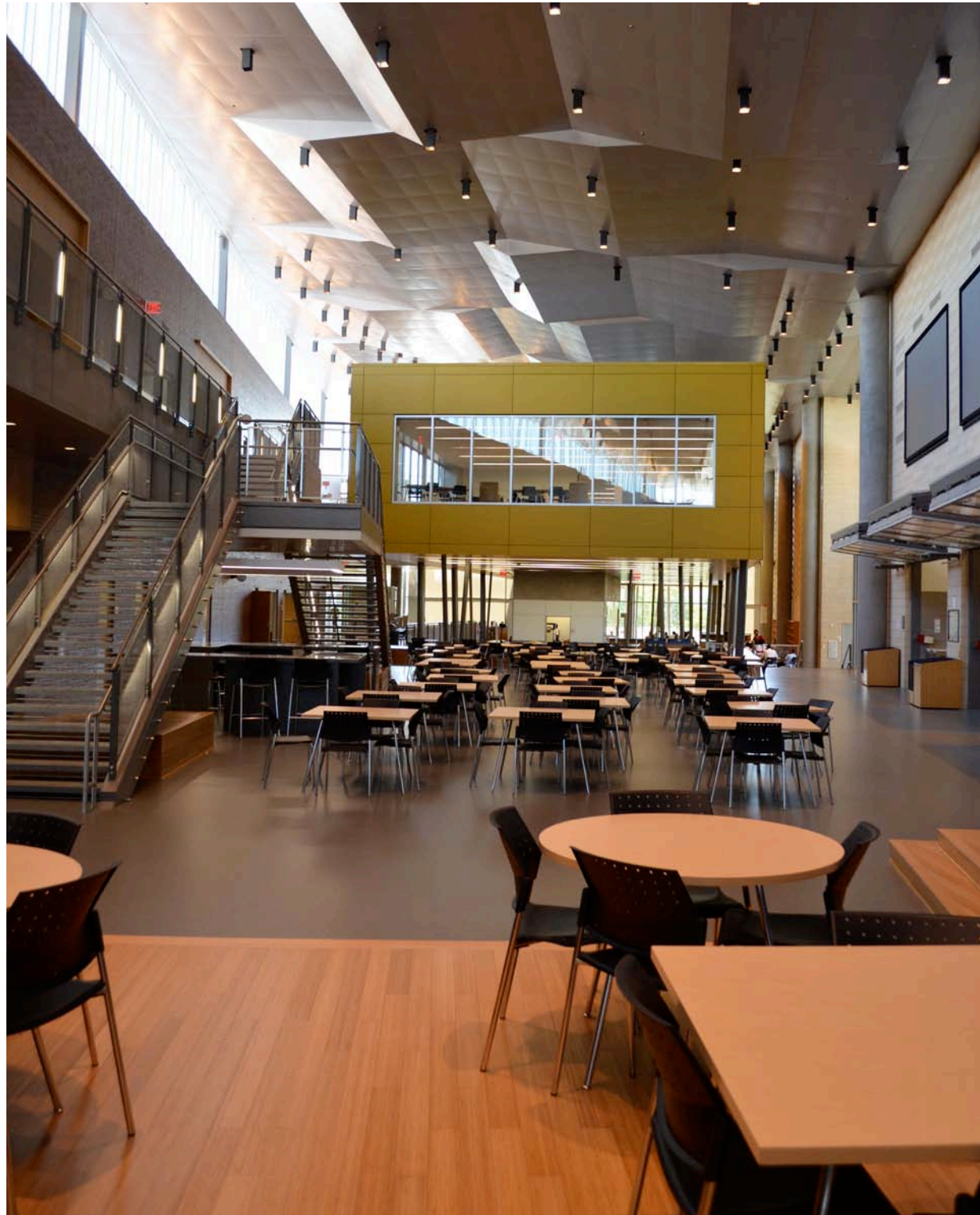


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Year Opened  
August 2011

Building Size  
111,000 square feet

Project Cost  
\$23,519,576

Site Context  
Suburban/Urban

Building Levels  
2

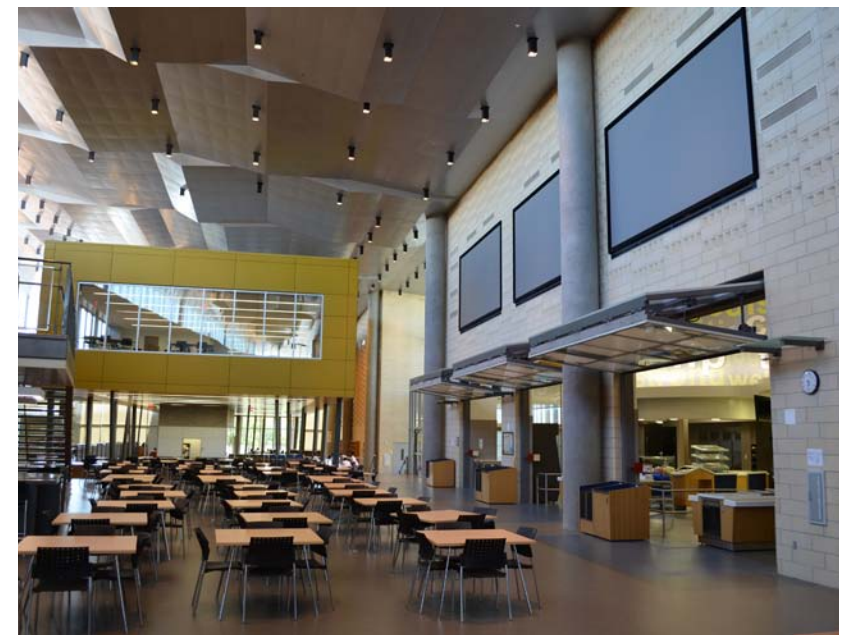
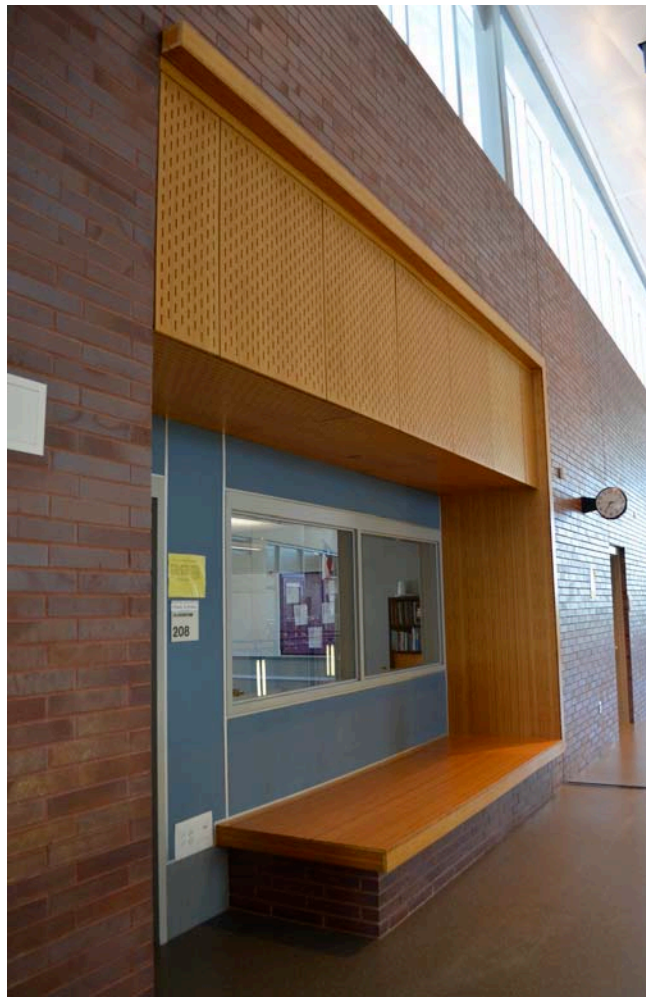
Grade Levels  
9-12

Enrollment  
400 students

Number of Teachers  
19 Teachers/9 College Professors

Kathlyn Joy Gilliam Collegiate Academy  
Dallas, Texas  
SHW Group









**Challenge 1:** "The school is specifically tailored to students who are underrepresented in higher education by providing opportunity and support for college success. The architecture emulates the collegiate experience as a means to introduce students to the rigors of higher education."





**Challenge 2:** "Students learn to manage and utilize unstructured time imperative to college success. Spaces for collaboration outside of the classroom, spaces for learning during unstructured time, and preparing students for the 21 century skills drove the design of the common spaces."





**Challenge 3:** "The architecture responds to creating a student centric learning environment that supports small learning communities. Student teacher interaction, peer interaction, and active community involvement to encourage formal and informal learning."





**Feature 1:** “The commons is treated as plaza between collegiate buildings that accommodates a number of functions. It supports individual and collaborative learning, also supports daily functions of dining, reading, and gathering. The main commons transitions from noisy public space to quite private space.”





**Feature 2:** “The professors and advisors are housed in the ‘perch’ to encourage vertical teaming and easy access at student’s unstructured time. The perch engages the nature preserve on the outside and the commons on the inside. Location provides direct access to 9-10 grades and sought access to 11-12 grades.”





**Feature 3:** "Transparency of function enhances passive supervision and encourages college like behavior among students. Flexibility of the space support varied learning and teaching styles. Environments created to support intramural activities."

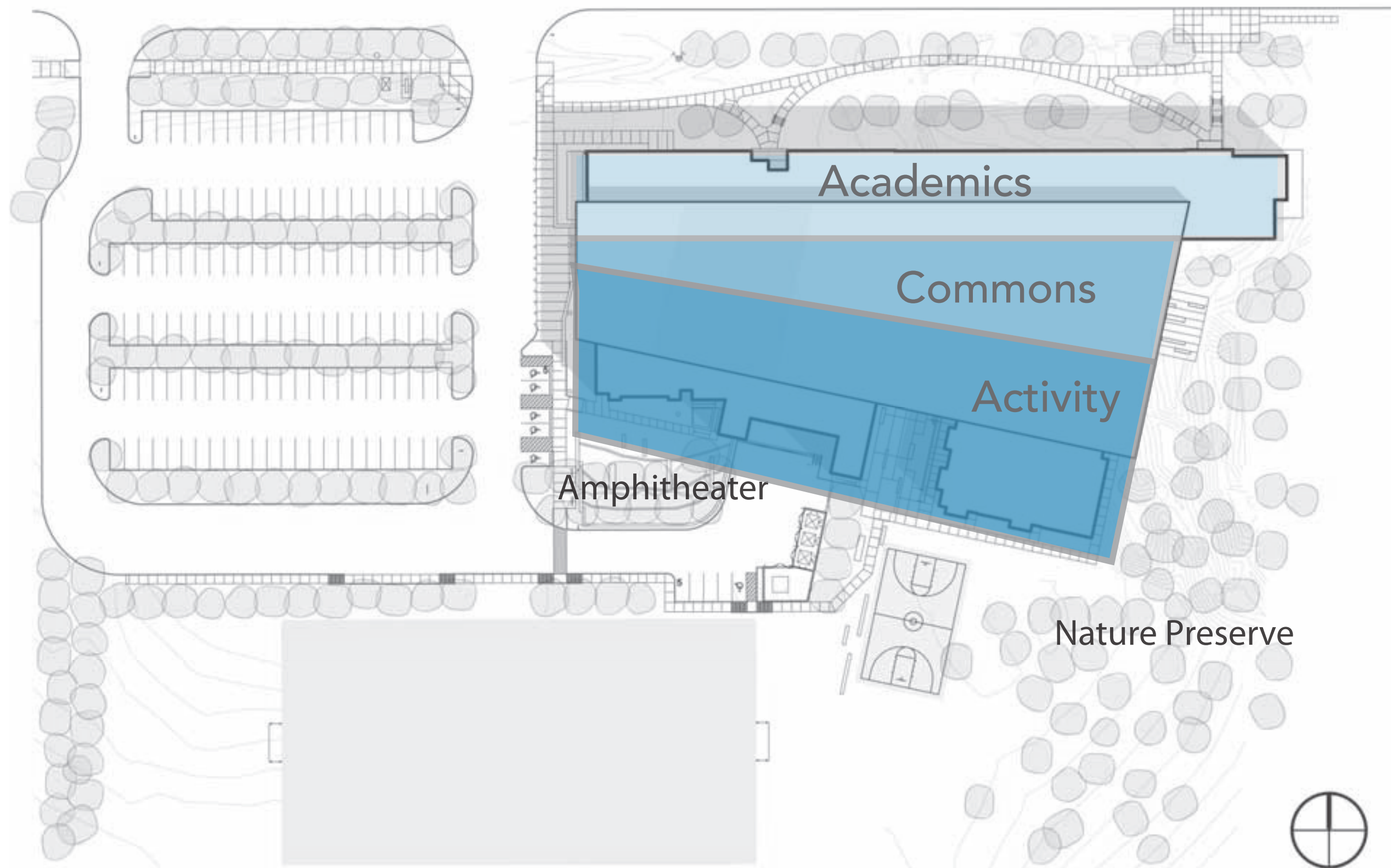












Site Plan Source: SHW Group

## School Organization





1. *Instruction*
2. *Student Collaboration Space*
3. *Dining*
4. *Auditorium*
5. *Teacher Collaboration Space*
6. *Gym*
7. *Media Center*
8. *Building Support*
9. *Administration*

*First Floor Plan, Source: SHW Group*

# School Organization





Second Floor Plan, Source: SHW Group

## School Organization





Learning Spaces





Extended Learning Spaces





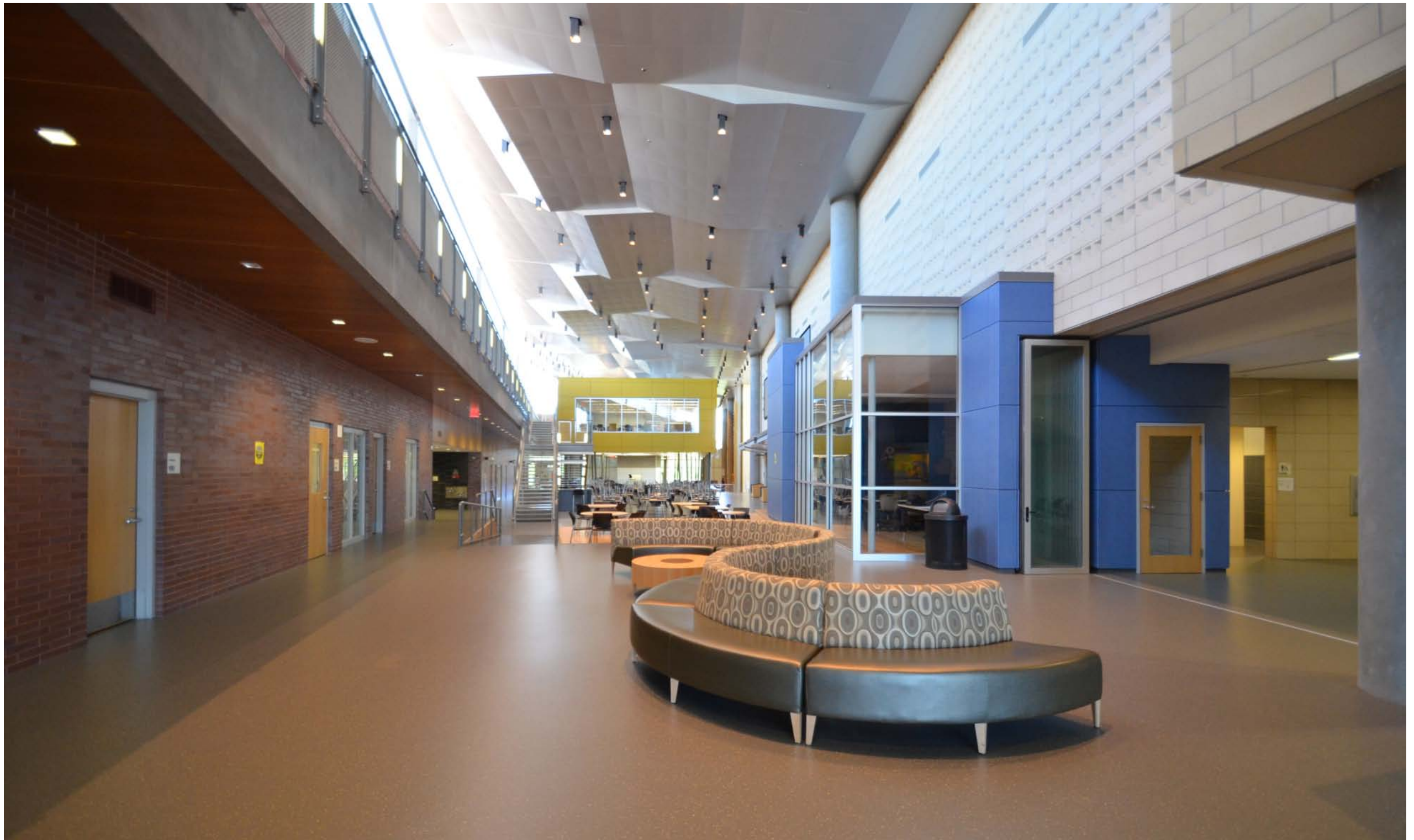
Extended Learning Spaces





Outdoor Learning





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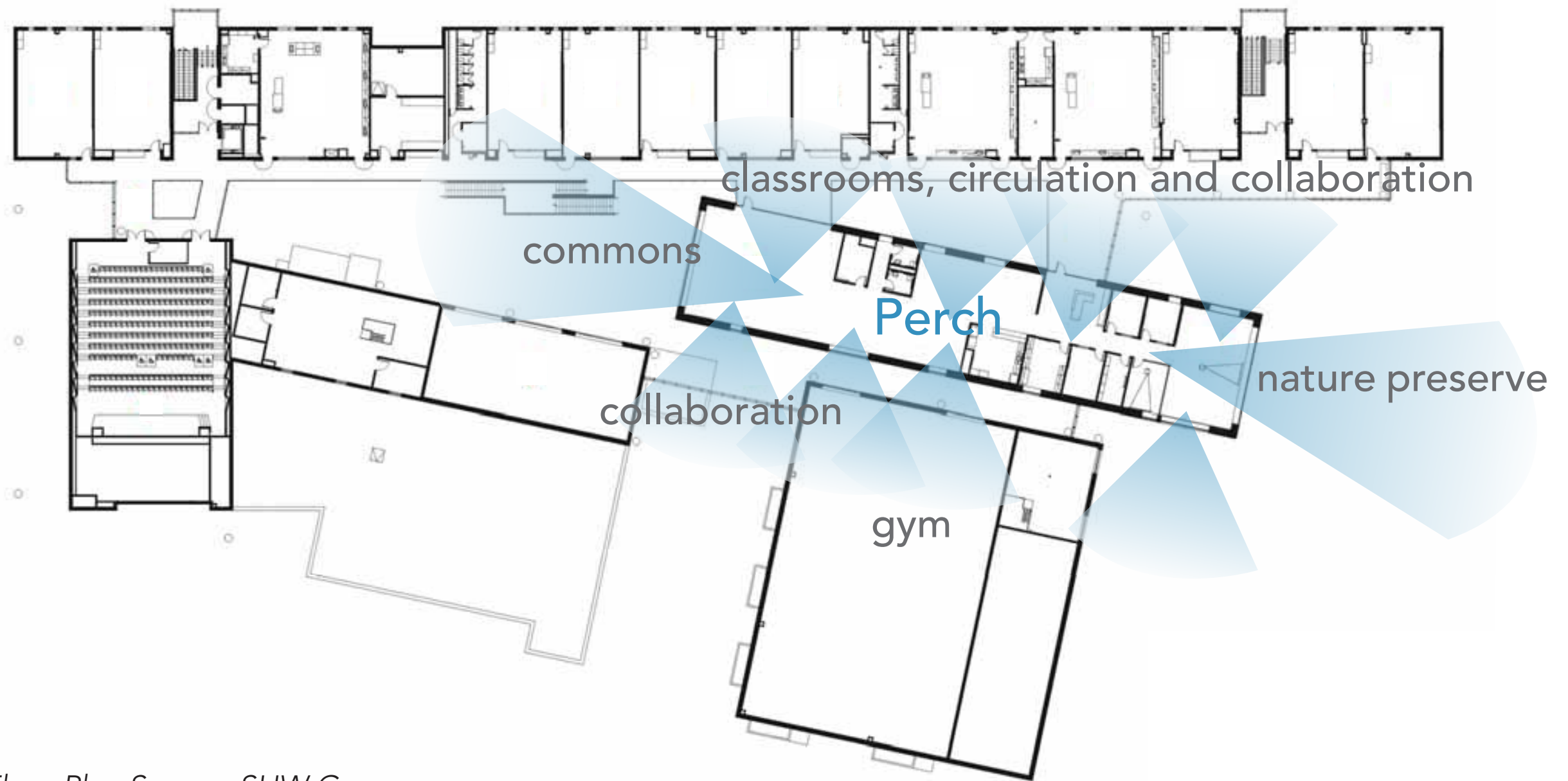
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*Floor Plan Source: SHW Group*

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LearningSpring School



Redding School of the Arts

Mothers' Club Family Learning Center	LearningSpring School	Redding School of the Arts	Gilliam Collegiate Academy
adults: 2 flexible classrooms; children: large flexible rooms with areas for play, instruction, and dining	standard classroom layout; small learning zones; minimal distractions	classroom is a morphed "L" shape; allows primary learning area and breakout space for flexible use; color	standard classroom

# Comparative Analysis: Learning Spaces





LearningSpring School

Redding School of the Arts

Gilliam Collegiate Academy

Mothers' Club Family Learning Center	LearningSpring School	Redding School of the Arts	Gilliam Collegiate Academy
kitchens; central play atrium	hallway seating alcoves	galleries for collaboration and dining; balconies; breakout spaces in circulation	collaborative learning areas; circulation seating; commons

# Comparative Analysis: Extended Learning Spaces





LearningSpring School



Gilliam Collegiate Academy

Mothers' Club Family Learning Center	LearningSpring School	Redding School of the Arts	Gilliam Collegiate Academy
library; counseling room	occupational therapy; relationship development intervention; music; culinary arts; drama; life skills; art; science; computer lab	music; dance; science; art; special education	lecture hall/ amphitheater; GO Center; perch

# Comparative Analysis: Specialized Learning Spaces





Mothers' Club



Redding School of the Arts

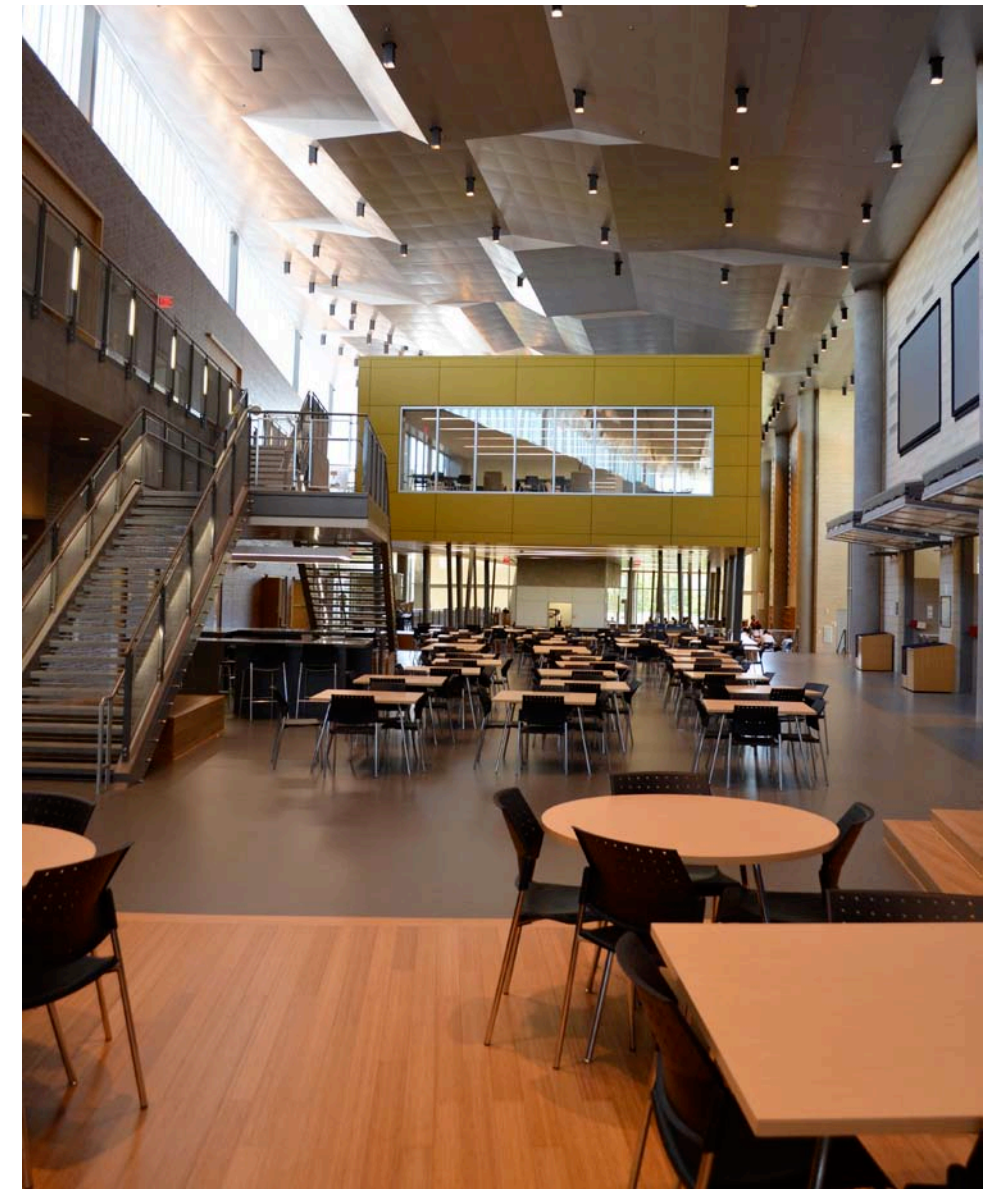
Mothers' Club Family Learning Center	LearningSpring School	Redding School of the Arts	Gilliam Collegiate Academy
outdoor learning garden; nearby community parks	rooftop terrace; courtyard; nearby community parks	courtyards; playground; gardens; orchard; chickens	courtyards; athletic fields; amphitheater

# Comparative Analysis: Outdoor Learning





Mothers' Club



Gilliam Collegiate Academy

Mothers' Club Family Learning Center	LearningSpring School	Redding School of the Arts	Gilliam Collegiate Academy
central play atrium into the outdoor learning garden	library; gym; cafeteria	outdoor theater	commons

## Comparative Analysis: Multipurpose/Large Group Spaces





Mothers' Club



LearningSpring School



Redding School of the Arts

Mothers' Club Family Learning Center	LearningSpring School	Redding School of the Arts	Gilliam Collegiate Academy
flexible; child-sized; sofas	flexible; chairs allow for movement; specific furniture for specialized learning areas	flexible; desks and chairs; stools; outdoor furniture; cafeteria tables	flexible; mix-and-match tables and chairs; cushioned seats; high tables

# Comparative Analysis: Furniture





Redding School of the Arts



Gilliam Collegiate Academy

Mothers' Club Family Learning Center	LearningSpring School	Redding School of the Arts	Gilliam Collegiate Academy
flexible space; building as teaching tool	technology	flexible and collaborative space; building as teaching tool	flexible and collaborative space; building as teaching tool

# Comparative Analysis: 21st Century Learning Environment





Mothers' Club



LearningSpring School

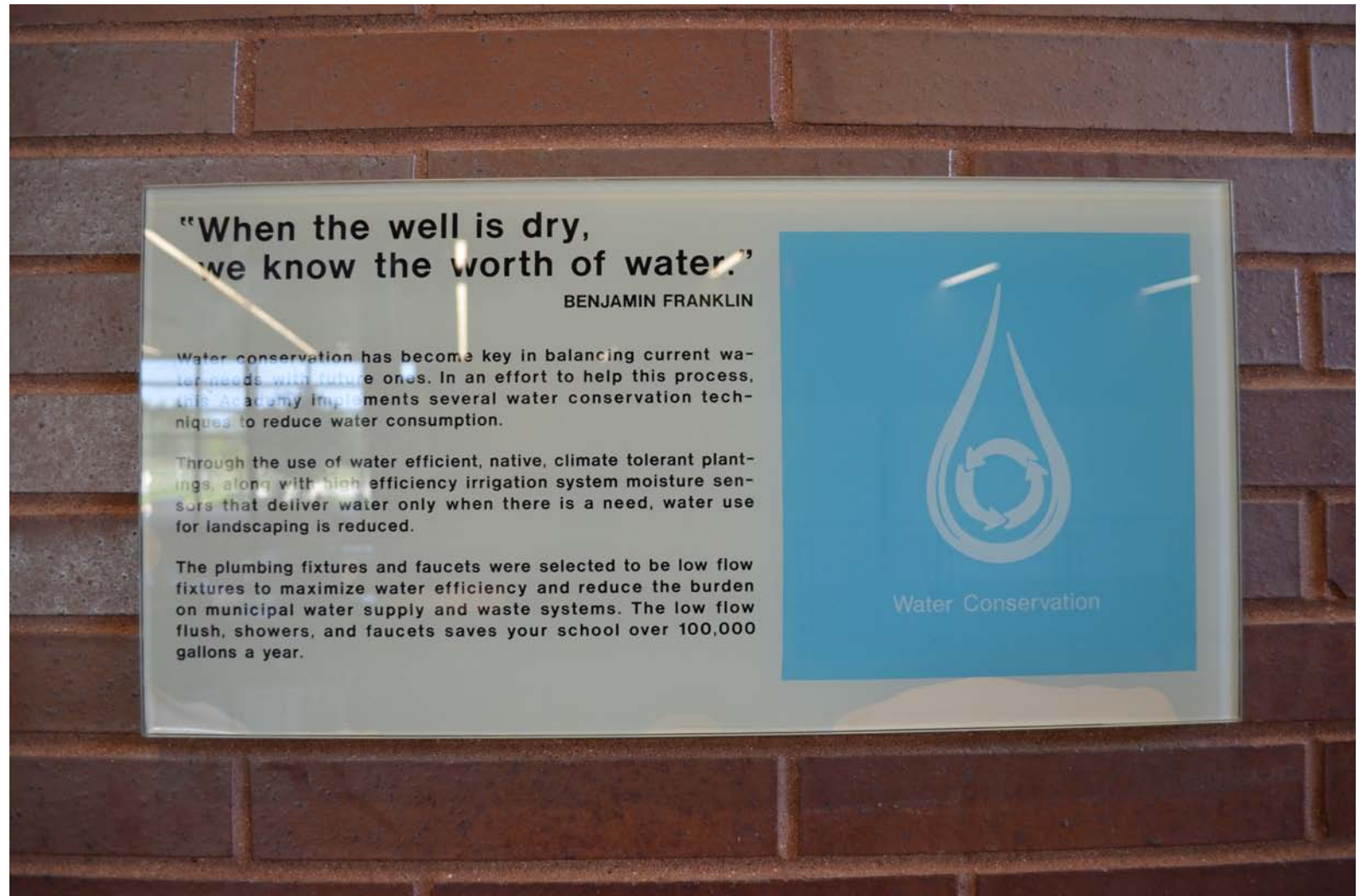
Mothers' Club Family Learning Center	LearningSpring School	Redding School of the Arts	Gilliam Collegiate Academy
building renovation; alternative energy; efficient systems; natural daylight	exterior shading system; natural daylight in 96% of regularly occupied spaces; acoustics	alternative energy; outdoor learning spaces; natural light; acoustics	minimal site disruption; natural daylight; acoustics;

Comparative Analysis: Sustainable Features





Redding School of the Arts



Gilliam Collegiate Academy

Mothers' Club Family Learning Center	LearningSpring School	Redding School of the Arts	Gilliam Collegiate Academy
solar panel display; integrate sustainability into curriculum	easy navigation; minimal distractions and environments for learning	Tools for Teaching Green handbook; building dashboard; interpretive signage throughout school	signage throughout building

## Comparative Analysis: Building As a Teaching Tool





LearningSpring School

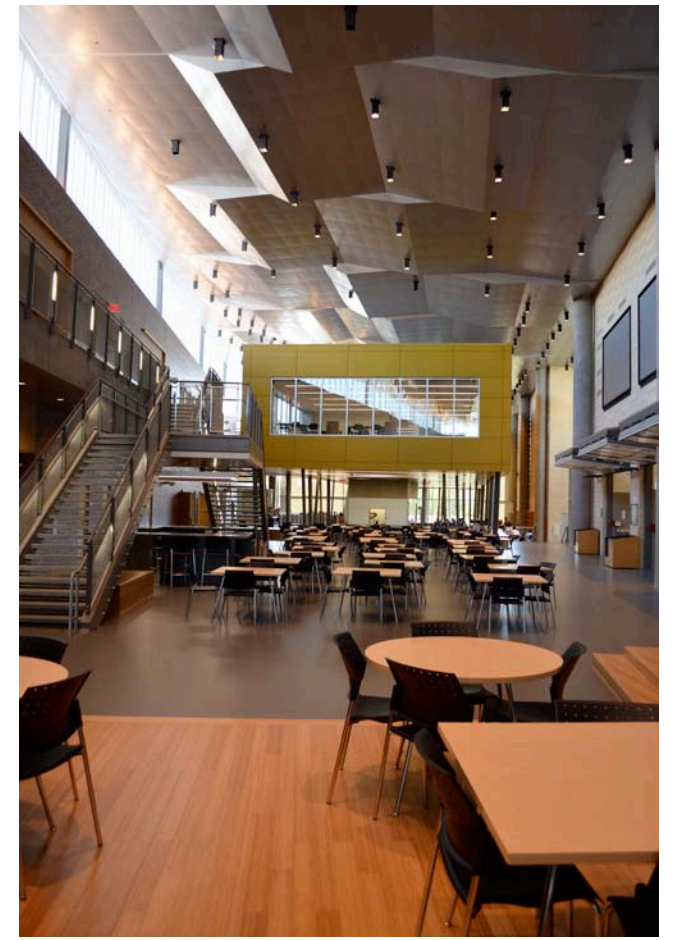


Redding School of the Arts

Mothers' Club Family Learning Center	LearningSpring School	Redding School of the Arts	Gilliam Collegiate Academy
building systems minimize energy use; computer access in library as resource for adults	smartboards in classrooms and library; media center in library; HD video and sound recording in hallways, stairways and classrooms for educational observation	wireless access in learning spaces; student laptop access; smart projectors and whiteboards; classrooms with sound studio capabilities	wireless access; smart projectors and whiteboards; 3 screens in commons

# Comparative Analysis: Technology





Thank you to the American Institute of Architects Committee on Architecture (CAE) Advisory Group for supporting this research.

A special thank you to Caroline Lobo, PhD, AIA; Susan Parrish, and Butch Reifert, FAIA for their mentorship in this project.

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