PATHFINDER
KINDERGARTEN CENTER

MUKILTEO SCHOOL DISTRICT | EVERETT, WASHINGTON

Pathfinder Kindergarten Center:

A journey to an unprecedented facility

Following a state-mandated shift to all-day kindergarten, Mukilteo School District faced an imminent need for instructional space across the district. In lieu of adding kindergarten classrooms to multiple elementary schools, the leadership identified an opportunity to create a centralized resource by constructing a kindergarten-only school to serve approximately 600 students.

The students would be bussed in from across the district, however, within the district's boundaries, there is a sharp divide between the rich and the poor. Navigating these distinct socioeconomic and community differences while designing a school that accommodated for, yet unified, proved to be a challenging feat.

Initially, the district desired that the design of the new facility would allow for later conversion into a traditional K-5 school. After exploring this idea further, it was decided that this mindset would limit the age-specific design which could better serve the specific needs of a kindergarten student.

The final result creates spaces to support early learning, while maximizing the synergy provided by age-specific students. In an effort to maximize learning, the school program was redefined to reduce time lost to transitions. Teachers and specialists push into the classrooms, allowing the students to stay in their respective pods. Larger programs that require more space (e.g. dining and project areas) are broken down into smaller spaces and dispersed into the pods. In addition, the indoor environmental quality (temperature, air quality, daylighting, and acoustics) required diligent attention given its significant effect on learning. Experiential connections to nature and outdoor learning are established through secure adjacent play areas, daylight, operable windows, and building features.

REDUCE TRANSITIONS -
By reducing transitions, we increase the time for learning

MANAGE SCALE -
By breaking down the typical scale of the large school, learners feel a sense of ownership and belonging

COLLABORATIVE ENVIRONMENT -
Re-think community connections and allow opportunities for parent involvement

DO WHAT IS BEST FOR LEARNING -
Transform from an operations-centric model to a student-centric one

INDOOR ENVIRONMENTAL QUALITY -
Daylighting and indoor air quality enrich the learning process

PUSH-IN MODEL -
Learning comes to the learner. Specialized instruction is delivered to core learning environments

MOVE TO LEARN -
Research shows strong correlations between physical movement and increased brain function

SAFE & SECURE -
the facility has layers of security, including increased visual connections

What would it look like if we designed schools specifically for **kindergartners?**

This was the central question that the district and design team sought to answer in the design of Pathfinder Kindergarten Center.

Serving 600 kindergarten students in one facility has its unique challenges. How can educators manage this many young learners in one place? Designing for a single age cohort required the design team to "forget" their preconceptions about traditional elementary school design. There was a fundamental need to challenge everything. Hence, the team embarked on a robust planning process in attempt to reshape existing paradigms.

Project **Scope**

OWNER:
MUKILTEO SCHOOL DISTRICT

LOCATION:
EVERETT, WASH.

OCCUPANCY DATE:
SEPTEMBER 2017

GRADE:
K

STUDENT CAPACITY:
600 STUDENTS

BUILDING AREA:
65,000 SF

SF/STUDENT:
108 SF/STUDENT

SITE AREA:
9.25 ACRES (KINDERGARTEN ONLY)

CONSTRUCTION COST:

- BUDGET: **$24,900,000**
- BID: **$24,483,000**
- FINAL COST: **$25,850,515**

BUILDING CONSTRUCTION COST/SF:
$397.70/SF

Community Engagement

As the team met with staff, students, and community members during the early stages of the design, the intent was to foster dialogue, and idea generation, ensuring each voice was heard.

Building upon the District's Guiding Principles and Mission, to

> ***help prepare our community's children to be successful, contributing members of the community,***

the facility's design focused on five key points:

- **Creating Connections**
- **Building a Community**
- **Personalized Edcuational Opportunities**
- **Focusing on Learning**
- **School Identity**

CHALLENGES

The design of Pathfinder Kindergarten Center began with the identification of three significant challenges: to house full-day kindergarten up to 600 students in one building, share a tight site with the existing Fairmount Elementary School, and fulfill an unprecedented in program – as the f**irst kindergarten-only school in the district.** These challenges were then translated into a series of guiding principles which became invaluable during the design process.

OVERCOMING BARRIERS

To address these challenges, the design advisory committee was asked to define pedagogical ideals specific to kindergarteners that might inform spatial requirements. It was agreed upon that the best way to deal with the large student body was to have teachers move around the school to the students instead of having students move from space to space as they would normally do in a traditional K-5 school. Student movement would be limited to each pod, and large program spaces (e.g. dining and music) were broken down into four smaller spaces and installed in each pod. This programmatic direction led to the consolidation of all teaching offices into a centralized Staff Collaboratorium, where teachers can gather and exchange ideas instead of being isolated across the school.

STAKEHOLDER ENGAGEMENT

The design team led several empathetic exercises with the stakeholders to genuinely connect with the specific needs of a kindergarten student that would be representative of any community in the district. This included a series of workshops, day in the life activities, observational analyses, research, surveys, and local school tours.

DESIGN PROCESS TIMELINE

Fostering a sense of **Community & Identity**

Kindergarten can be an exciting time for some, but nerve-wracking for others. Pathfinder Kindergarten Center seeks to ease that transition into a daily school rhythm. The building's organization breaks down the massive scale of the facility into smaller pods and further promotes a sense of comfort, identity, and community within each learning suite.

*...I think that the design really lends itself to a **family-kind of community,** and I think it has huge impact.*

- EDUCATOR

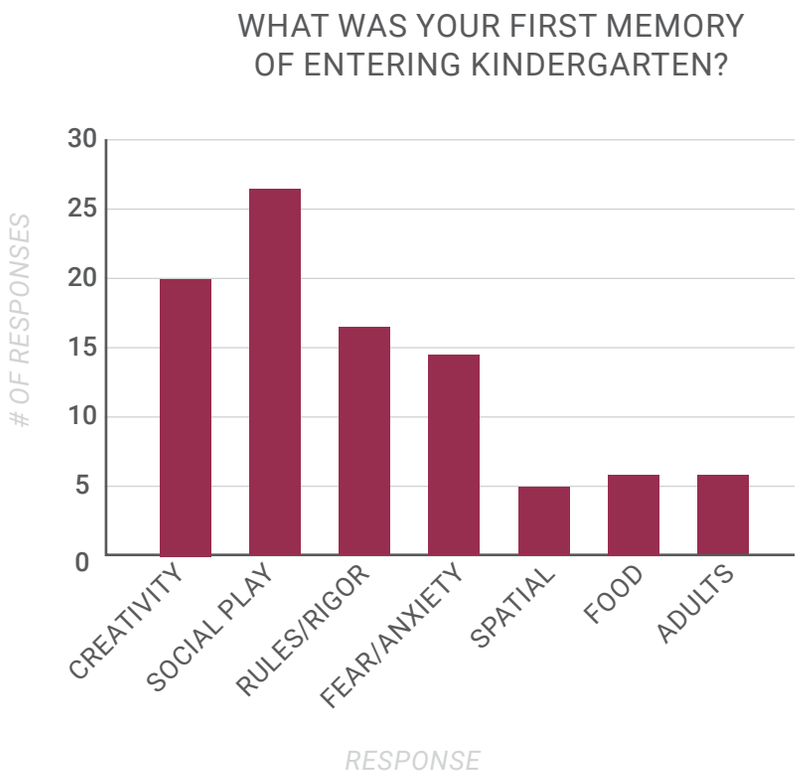
Kindergarteners' Needs: **Unraveled**

The first step in designing a single-cohort facility requires a comprehensive understanding of the unique needs of the early learner. The design team conducted a series of investigations to more deeply understand these needs, including observing and identifying the habits of existing kindergarten classes. The observations highlighted three key findings:

- **Transitions take time** (students needing special instruction are pulled out, losing valuable learning time)
- **Rigor** (do's & don'ts are heavily enforced)
- **Creativity is stifled** (art and creativity are stifled by the framework of the day)

Furthermore, we surveyed adults asking about their key recollections of kindergarten. Their responses were categorized, finding a high percentage of responses focused on play and creativity, but surprisingly, equally as many were related to fear, anxiety, and rules. **By asking this simple question, the team began to really consider how we could alleviate some of this childhood anxiety.**

Photos taken during our pre-design observations at an existing kindergarten classroom.



*An unofficial poll of our staff resulted in 75+ responses

Learning Models: **Reimagined**

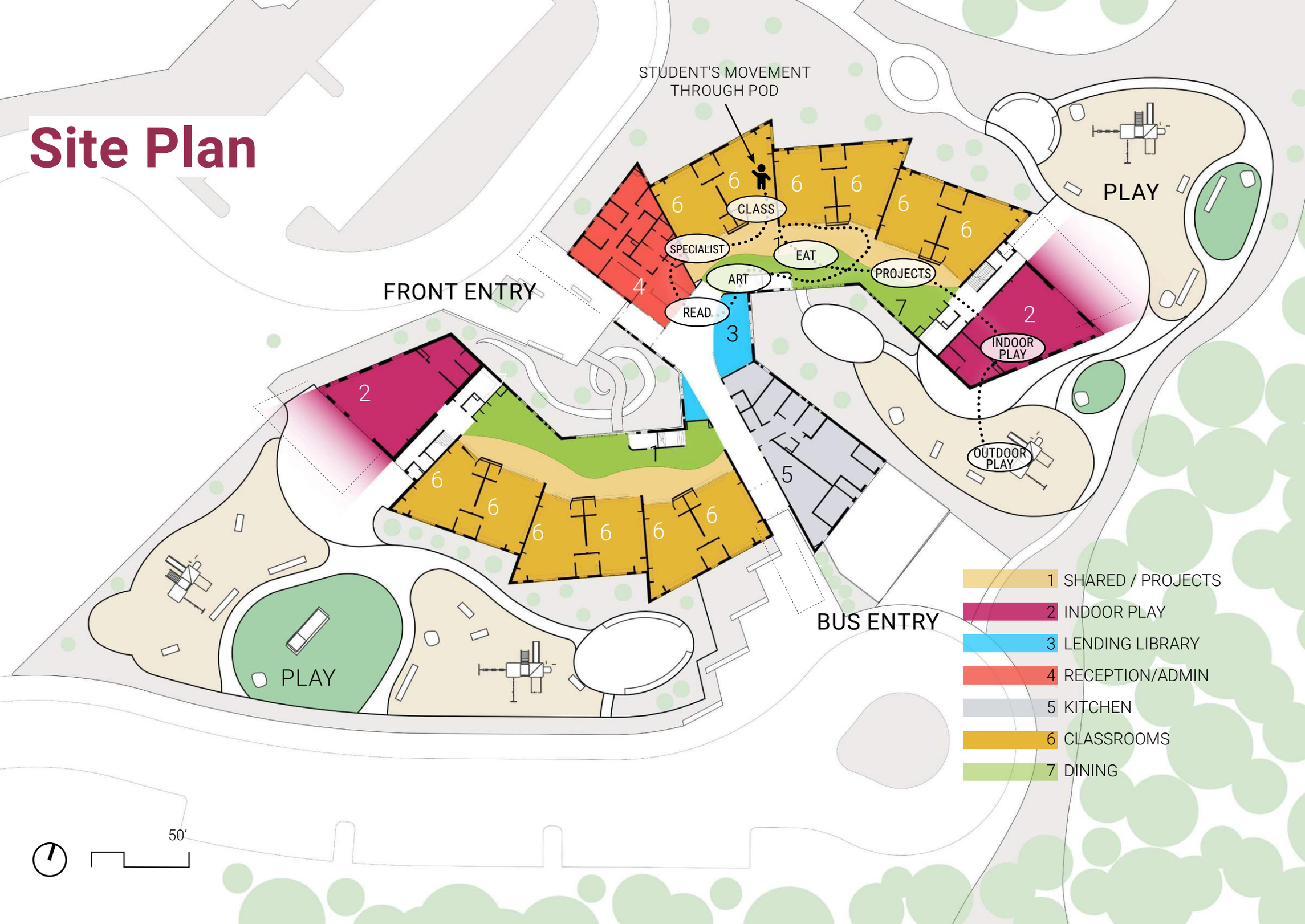
To reduce transition time, the design team introduced two concepts: **push-in specialists** and **decentralization of services.** Forming smaller communities within the school, each pod includes essential components allowing students to remain in their pod for all their daily needs.

This push-in instructional model resulted in a lack of dedicated space for specialists who require working space as a team. This limitation, coupled with the kindergarten focus, created an opportunity to create a robust collaboration and professional development space that we called the **collaboratorium** (as seen here).

This is incredible. I've never sat next to a spec teacher. We were always in our own little island, and would never talk.

- SPECIALIST

Site Plan

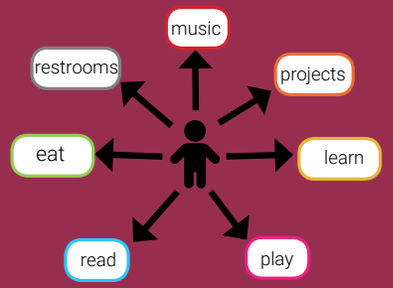

STUDENT'S MOVEMENT THROUGH POD
FRONT ENTRY
CLASS
SPECIALIST
EAT
ART
PROJECTS
READ
INDOOR PLAY
OUTDOOR PLAY
PLAY
PLAY
BUS ENTRY
1 SHARED / PROJECTS
2 INDOOR PLAY
3 LENDING LIBRARY
4 RECEPTION/ADMIN
5 KITCHEN
6 CLASSROOMS
7 DINING
50'

Learning Time: **Recaptured**

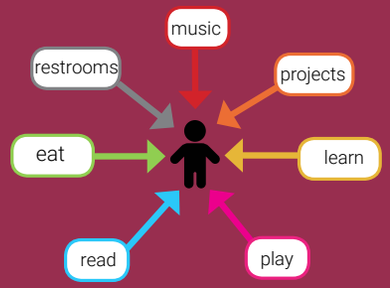
As a result of moving away from an operation-centric model and towards a student-centric one, transition time was drastically diminished. Larger programs, like dining and specialist areas are broken down into smaller breakout spaces and dispersed throughout pods. Teachers and specialists push into classrooms, allowing students to stay in their respective classrooms and utilize the breakout spaces throughout their pods.

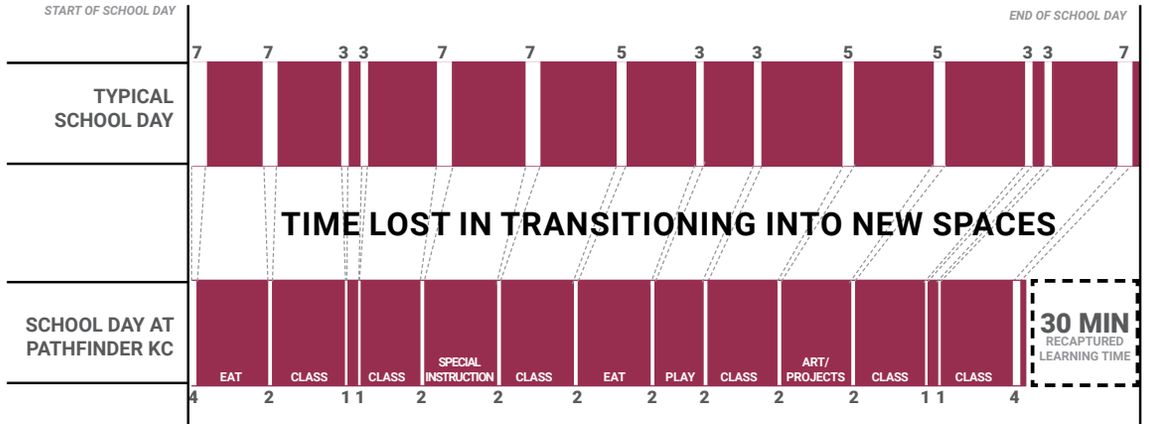
We estimated this child-centric approach would reduce daily transition time for students up to 30 minutes for a six-hour day. When extrapolated across a full school year, that results in 90 hours, or 15 full days of learning recaptured.

OPERATIONS-CENTRIC



STUDENT-CENTRIC





PATHFINDER KINDERGARTEN CENTER WAS DESIGNED FOR A

48% REDUCTION IN TRANSITION TIME,

WHICH COULD CREATE

3 ADDITIONAL WEEKS OF LEARNING

Flexible **Intimacy**

Maximizing flexibility for an unprecedented density of kindergarten students, dining spaces are distributed between pods, making eating a more intimate activity, and also allowing for advanced adult supervision.

Responsive

Learning Spaces

Diversity in learning spaces accommodates for future pedagogical change and allows for a plurality in learning styles. Breakout spaces allow specialists to work with students directly outside their classrooms.

Minimizing the building’s **Visual Mass**

Every piece of the school environment is designed specifically to the size of a kindergartener. It was important to limit the building’s footprint and scale to make the environment more approachable for kindergarten students. Wayfinding used throughout identifies the different pods and further breaks down the building into a smaller scale.

Biophilic Design

The emphasis on connection to nature and outdoor learning is enhanced through adjacent play areas, daylight and operable windows that provide experiential connections for these young learners. Given the significant effect on learning, indoor environmental quality received diligent attention, including details such as temperature, air quality, daylighting, and acoustics.

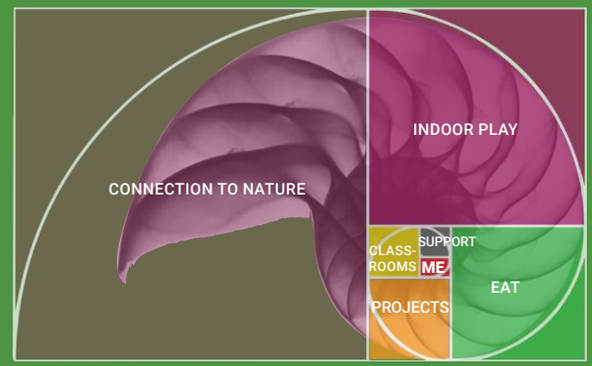
The environmental murals and visual graphics throughout the facility evoke a playful element and inspires students to explore.

FINAL INTERIOR COLOR PALETTE

Drawing from **Natural Forms**

Designing a school exclusively suited to the needs of kingergarteners should place students at the heart of the school. Due to its inherent presence in the human and natural world, **The Golden Section** was utilized as an organizing element of the building based around a nautilus-shaped parti. The origin point for the building stems from a space sized for an individual kindergartner, focused on supporting the individual student, and providing critical adjacencies and connection to nature. From here, the individual spaces aggregate proportionally to form larger shared group spaces for collaborative learning, while framed views to the exterior allow opportunities for exploration and observation.

The color palette was carefully chosen to incorporate natural, organic, and soft materials found in nature.



The building's organization is informed by the Golden Section and a nautilus-shaped parti.

Promoting Health & Wellbeing:
Daylighting & Thermal Comfort

Pathfinder Kindergarten Center is modeled to meet or exceed building standards by a variety of methods including: geothermal heating and cooling, high-efficiency windows, passive solar design, operable windows, highly efficient building materials for the wall and roof structure (continuous rigid insulation at walls, SIPS panels at roof assembly), as well as radiant slab heating.

The radiant floors, heated by a geothermal pump, accommodate for extensive and comfortable learning on the floor.

Promoting Health & Wellbeing:

Movement & Play

Closely connected creative spaces support full-day kindergarten curriculum and inspires the “learning-through play” nature of this age group.

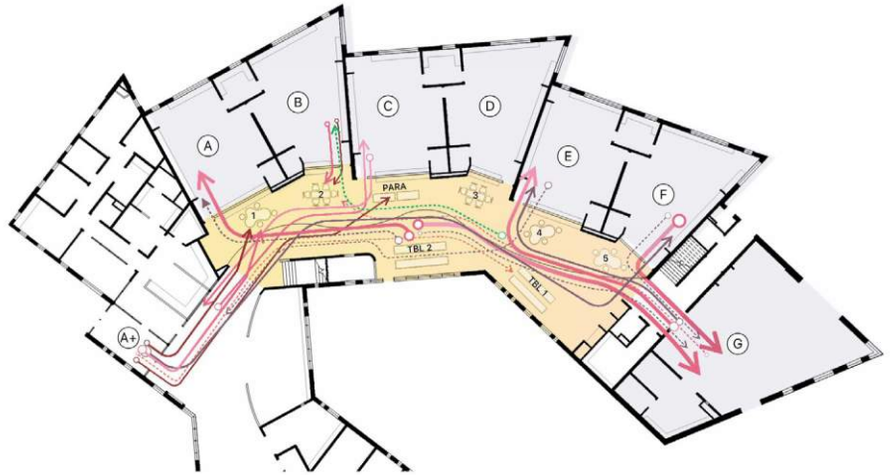
Post-Occupancy Study

A year after occupation, the design team and a third-party researcher conducted a post-occupancy study to identify the design effectiveness in reducing timely transitions in a typical school day between activities and spaces. The goal was to test the idea of a modern-day 21st century kindergarten school and how to improve its efficiency for future use.

This user research included three elements: interviews (to empathize with what users think and say), behavioral observations (to study the users' action and why they do what they do), and photographic traces (to identify how the spaces are being used).

Initial findings of the study support the design hypothesis that transitions can be decreased through this model to provide more time in the learning environment.

TOTAL MOVEMENT AT CATERPILLAR

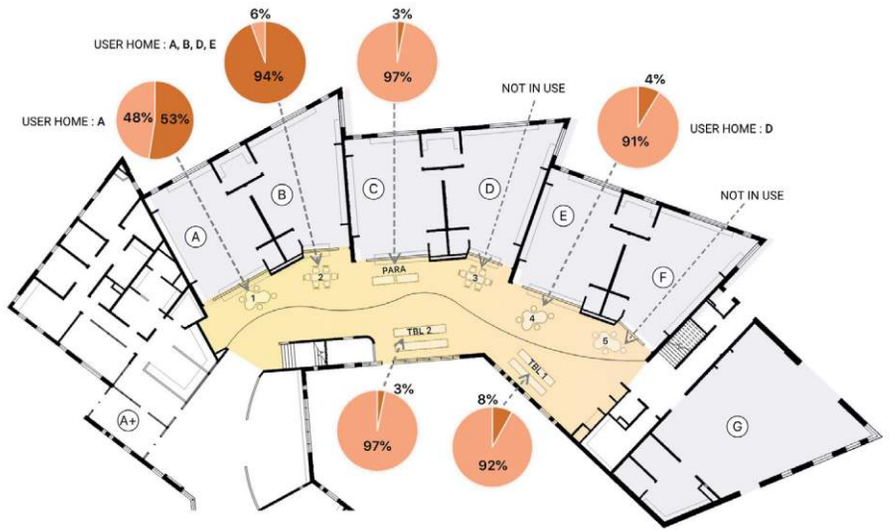


Time of Observation 9:30am - 10:55am **Location** Typical Pod at Caterpillar

TYPE OF USERS — Student — Instructor — Teacher — Food Service — Visitor

NUMBER OF USERS — >20 Users — 15-20 Users — 5-10 Users — 2-5 Users — 1 User

% UTILIZATION OF EACH POD SPACE



Time of Observation 9:30am - 12:10am

Location Typical Pod at Caterpillar

	Start (T1)	Stop (T2)	Diff (T2-T1)
Shift 1	9:30	10:55	1:25
Shift 2	10:55	12:10	1:15
Total time of observation			**2:40**
Total time spent at Pod location 1			**1:24**
% Time Pod location is in Use			**53%**
% Time Pod location is NOT in use			**48%**

Pod Location in Use — Pod Location NOT in Use

A Consistent Consensus

The early findings of our post-occupation study demonstrate the impact and importance that switching to a student-centric model has on an early learner's development.

…there's that constant collaboration going on…whereas, in a traditional classroom you're in a room with yourself and the students and then with the support staff, they're usually in their own offices…With this, we're all together, and we're sharing.

-EDUCATOR

All of us that have been teaching have never seen kindergarteners go as far academically as they have here.

-EDUCATOR