2015 Exhibition of School Planning and Architecture

UChicago Child Development Center – Stony Island

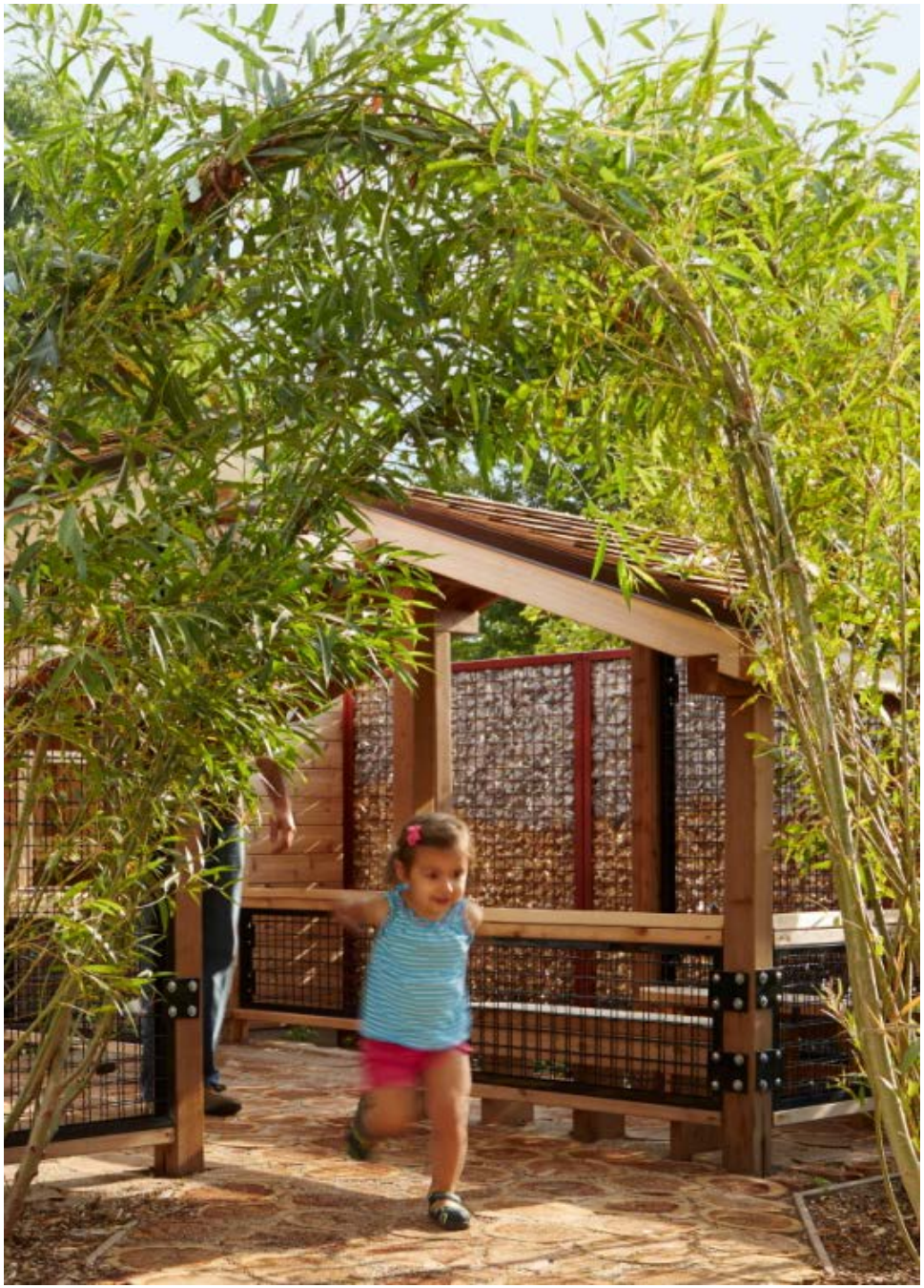
Category: New Construction
Chicago, IL

Overview

A Natural Place to Begin Life Long Learning

When faced with the question "How do you design a day care for the children of future Nobel laureates?", one approach seemed promising. Instead of creating another place dominated by primary colors and synthetic play equipment, children could be offered an opportunity to discover natural phenomena in the natural world. Discovering first principles first-hand surrounded by minimally processed natural materials.

Consequently, the design emphasizes the natural landscape over the built-one, centered around two playscapes with a footprint larger than the building itself. The playscapes conceptually graft onto the historic Frederick Law Olmstead landscape located across the street in Jackson Park.



Inspired by an Adjacent Historic Landscape

The UChicago Childcare Development Center - Stony Island integrates the natural environment with its' architecture and child-centered curriculum.

Community Environment

The 13,300 square foot facility is more “look-within-me” than “look-at-me.” Rather than competing with the size or glamour of the adjacent University buildings, the focus of the center remains on the child’s perspective and outdoor play.

Fostering Community

At the facility's emotional center, formed by the overlap of the two classroom wings, families check-in by using a touch-screen monitor and connect with care providers.

From this central location, children get a preview of their day: Full-height windows reveal the east play court as the natural bark siding extends inside.

Building Human Capital

The purpose of the building is to build human capital and community. First, it provides the University with an exceptional child care option for competitively recruited faculty, staff and the surrounding community. Secondly, it promotes social connections among new University parents who often work in different academic disciplines.

While a generous lobby overlooking the east playcourt serves as the building's emotional center and main social hub, other spaces such as a semiprivate room for nursing mothers and wide corridors lined with benches support impromptu interactions. Lastly, the building seeks to build human capital with the enlighted education of young children, teaching them the value of the natural world.

Discreet Security

Instead of appearing as an impenetrable fortress, the center offers up natural textures and scale in a way that keeps security in the background and wondering and learning in the foreground.

A rich ensemble of minimally processed natural materials engages the public along the sidewalk. Vines climb a gabion fence, filled with three different Midwestern stones in waving layers. Huge boulders, extracted from glacial till, march toward the central entry. Tree bark siding slides below a visible green roof, which folds it way over the eastern wing.

Learning Environment

If children learn what they live, they will not only learn from nature, but they will learn to value it. Additionally, the curriculum of the center is fully integrated with this mission.

Encourage Learning

This project insists that nature, play, and learning should be seamless - during all four seasons. Children's experience here should impart a curiousity for a lifetime of learning, coaxed by a rich range of natural textures, materials, shapes, sizes, events, and challenges.

Natural phenomena, typically concealed within buildings, are left in plain view. Sisal rope clad "splash tanks", located below each roof scupper, allow children to witness rainwater cascading. Wind, so prominent close to the lake, is evidenced in the rustling of the green roof, the swaying branches, and the droplets blowing from the rain chain.

Perhaps, when combined with its supporting curriculum, this facility could have an exponential impact on the sustainability movement by exposing the wonder and primacy of the natural world to its newest citizens.

1. Raised garden boxes

2. Green roof

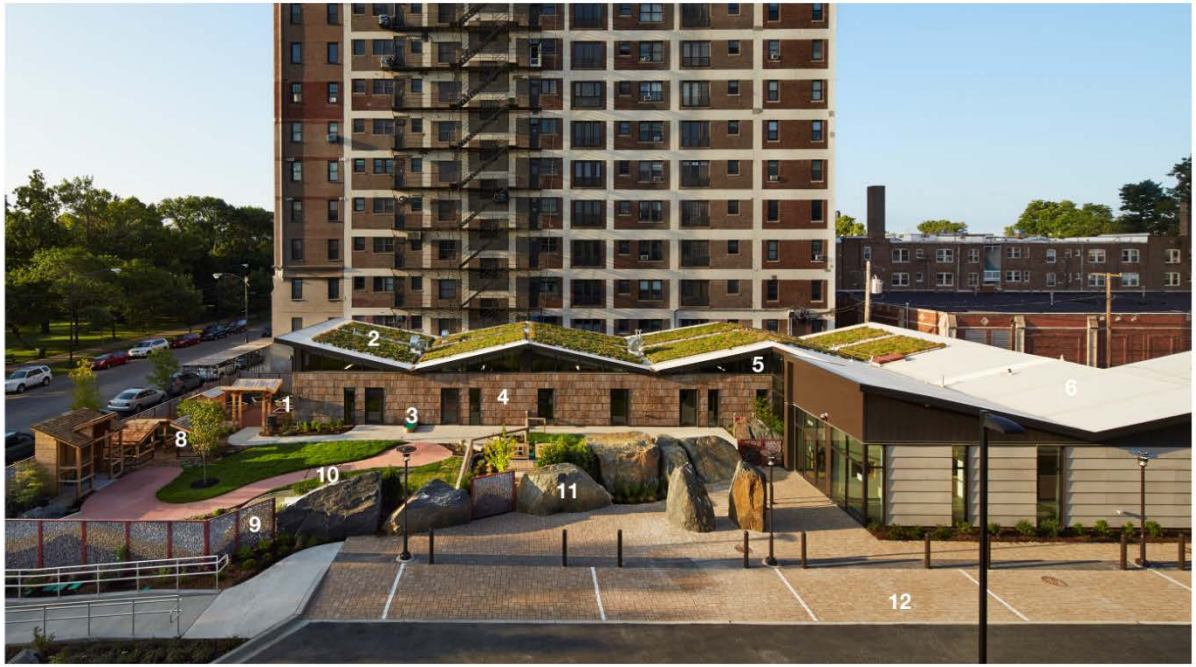
3. Splash tanks below valleys

4. Bark siding

5. Clerestory

6. Solar reflective roof

7



7. Sand play

8. Tree cookies floored willow tunnel

9. Gabion fence

10. Musical chimes

11. Glacial boulders

12. Permeable pavers/vehicle drop off

Age Appropriate Challenges

The new Z-shaped structure, with two play courts directly adjacent to classroom wings, offers an intentionally designed world of discovery for children. The eastern wing and court provide spaces for infants and toddlers, while the west wing and court are dedicated to older children.

Each age group has a dedicated indoor area with a door to an age-appropriate natural outdoor play area within the court. Low fences subdivide areas of the court allowing younger children to readily observe older children while ensuring the exclusivity of their own environment.

Design Supporting Pedagogy

The playcourts offer shapes, textures and experiences to engage. Rainwater cascades from the roof into splash tanks. A squash house, a live willow tunnel, a trike path, and sand and water zones encourage exploration. Different surfaces invite children to crawl, roll, ride, climb and walk--to experience their bodies moving in nature. Each play court includes a working garden where children learn about growing and harvesting food, nutrition, and sustainability. Chimes, fashioned from bamboo and copper, await a thump. The outdoor spaces are used daily throughout all four seasons.

The playcourts set the stage for green education, encouraging children to become caretakers of the earth and support Bright Horizons' “Why Garden” curriculum. Children learn about the cycle of life through gardening, what it takes to nurture a plant, seasonal changes experienced through nature, as well as how healthy foods nourish the body.

Enriching the children with tenets of sustainability and conservation and creating responsible citizens of tomorrow.

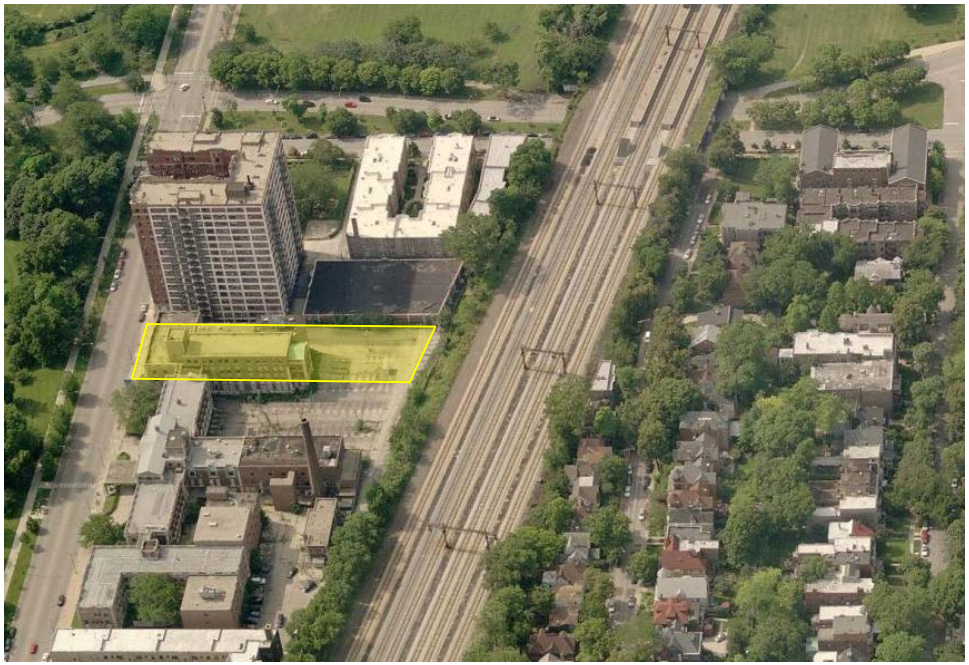
Physical Environment

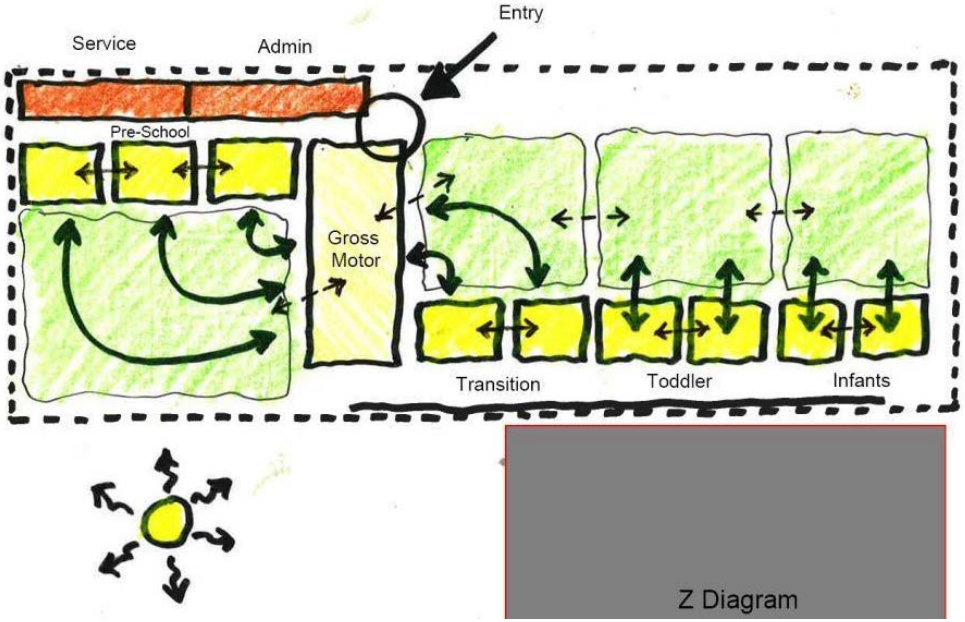
The site previously hosted a hospital and was almost completely impervious – paved or roofed – sending its runoff to the City's combined sewers. Over 60% of the site was converted into landscape or green roof. Of the new paving on the site over 80% is pervious, allowing for immediate recharging of the aquifer through the ancient beach below.

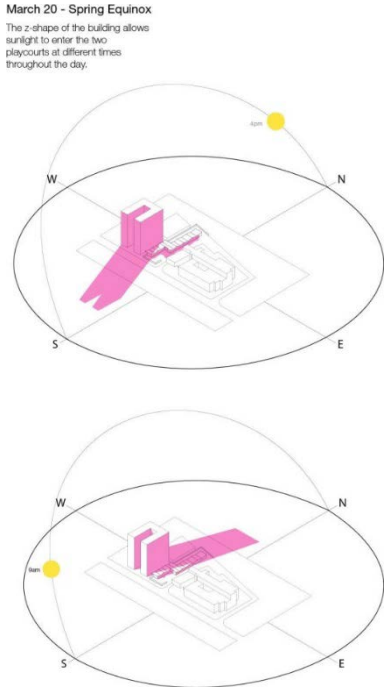
Strategic Infill

The building, with a z-shaped footprint, responds to the narrow infill site, optimizing sun exposure and leveraging direct connections between the interior and exterior.

The siting of the eastern wing, situated within the shadow of the adjacent 19-story residential tower, preserves as much sun for its playcourt as possible. Conversely, the wing west of the tower is located so that its playcourt can enjoy a generous exposure to the southern sun. The folding roof ripples over both wings, allowing natural light into the classrooms below.

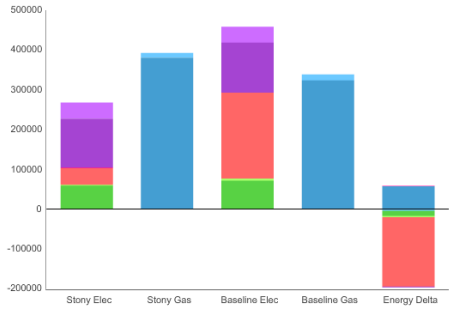






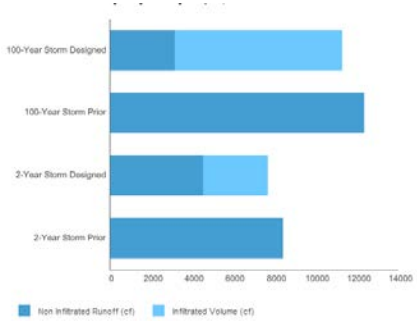
ENERGY SAVINGS

Comparison of the Energy Usage of UChicago's Stony Island Child Development Center with that of an ASHRAE 90.1-2007 High Performance Analog. The majority of increased energy savings accrues from the intelligent operation of the building's ventilation fans.



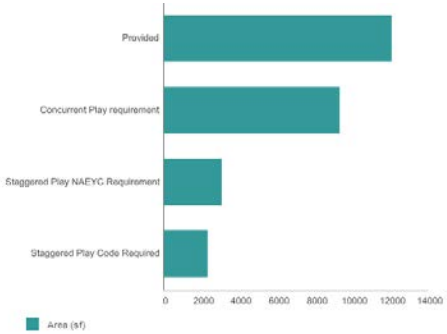
STORMWATER

Impact of rain water falling on the site before and after the construction for both 2-year and 100-year storm events. By reducing both rain water runoff and allowing on-site ground water recharging, a site that formerly discharged 100% of its runoff to the City's sewers will now only discharge storm water for 11% of the storms occurring during an average two-year period.



EXTERIOR PLAYSCAPES

The amount of secure exterior playspace provided at the UChicago Stony Island Development Center exceeds code minimums and NAEYC standards for both staggered and concurrent use of the play courts. The two playscapes have a footprint larger than the building itself.



Long Life, Loose Fit

Unencumbered open plan tandem classrooms are leveraged for long-term flexibility and adaptability. Common classroom-related support functions including teacher workstations, diaper changing, children lavatories and toilets are placed in a shared zone between pairs of classrooms. The open sharing arrangement allows teachers to supervise the other classroom when needed.

The main ceiling of the classroom is the underside of the folding roof above. The acoustical deck surface provides sound absorption,serves as a reflector for the linear pendant uplights in the ceiling and facilitates reflected light from clerestories.

Shallow classroom depths and single loaded corridors enabled views to the outside from every classroom and from the primary circulation. Direct indoor/outdoor access is provided by a door to every classroom. Coat closets, which are usually located near the interior classroom entry doors, are instead located near the play court door to address their frequent use.

Minimally Processed Materials

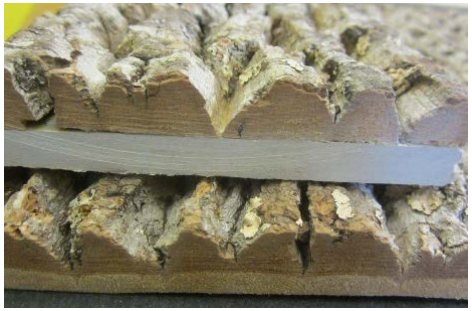
Material selection prioritized minimally processed natural materials and landscape, in addition to overall sustainability. Materials constructed by nature either from the atmosphere (trees, plants, wood) or from the earth (boulders, rocks, sand) dominate. Boulders, some weighing as much as 90,000 pounds, were imported from the glacial till of central Wisconsin to create boundaries, pathways, and age-appropriate climbing opportunities.

Waving lifts of three different Midwestern stones fill gabion fences that encircle the east playcourt, ensuring visual privacy from the public sidewalk. Natural bark siding, harvested from Yellow Poplar trees in North Carolina, clad the eastern wing.

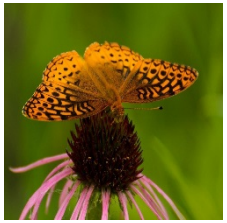
A green roof, with shade tolerant plantings, is located over the folding roof of the east wing, in view of the residential tower neighbors to the south. The playcourts are entirely planted around winding tricycle paths, and punctuated with sand play areas, ornamental trees, and flowering and fruiting plants.

Except for the lawn areas, over 78 percent of the plantings are straight natives, native cultivars, or drought tolerant. Almost all of the remaining plants are ornamental edibles or flowering plants or vines intended to incite wonder.

The project is LEED-NC 2009 Gold certified.



Common Name	Notes	Flower	Olfactory	Edible	Visual	Attracts Nature
Green Mountain Sugar Maple	bright fall foiliage				X	
Eastern Redbud	pink flowers	X			X	
Constellation Dogwood	white flowers	X			X	
Autumn Gold Gingko (male)	leaves turn bright yellow in fall- will grow large				X	
Apple	unclear whether this is crabapple or edible apple	X			X	
Fruitless Weeping Mulberry	visually stimulating				X	
Schubert Chokecherry	attracts birds & butterflies-pink flower	X			X	X
Shumard Oak	beautiful fall color -will grow to be a large tree				X	
Black Chokecherry	non edible seeds	X			X	
Bonanza Gold Japanese Barberry	yellow leaf color which turns in the fall.					
Bluebeard	blue flowers, attracts butterflies	X	X		X	X
Thornless "Orange Storm: Quince	bold orange flowers	X			X	
Royal Purple Smoke Bush	yellow flowers followed by pink/purplish puffs	X	tactile		X	
Dwarf Winged Burning Bush	red leaf color				X	



Planning Process

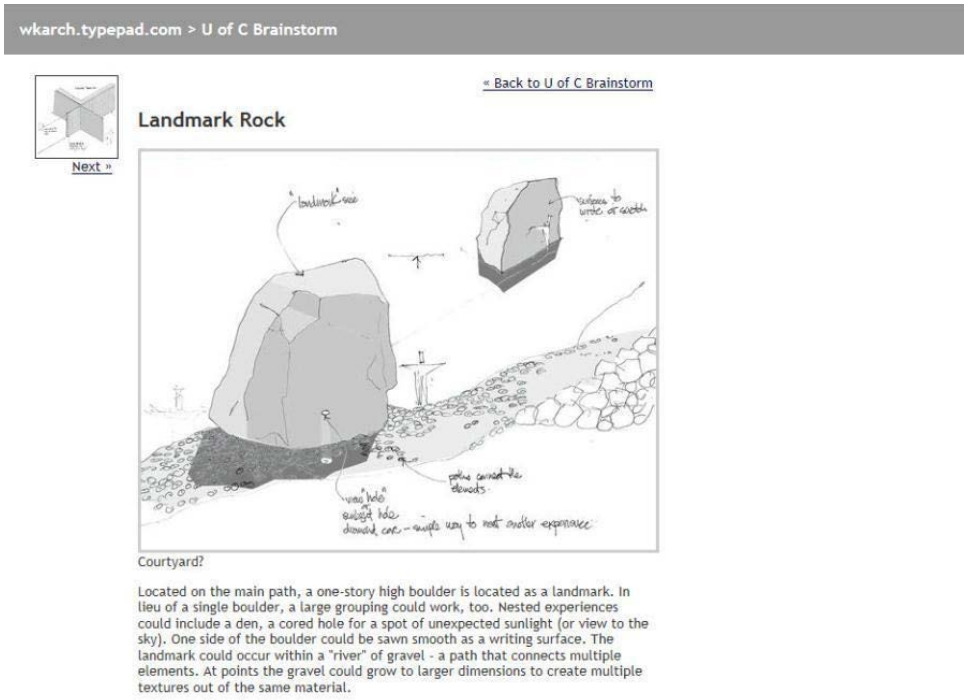
Consensus was built during an innovative programming process that used an online blog to broadly solicit and share comments, images, and ideas.

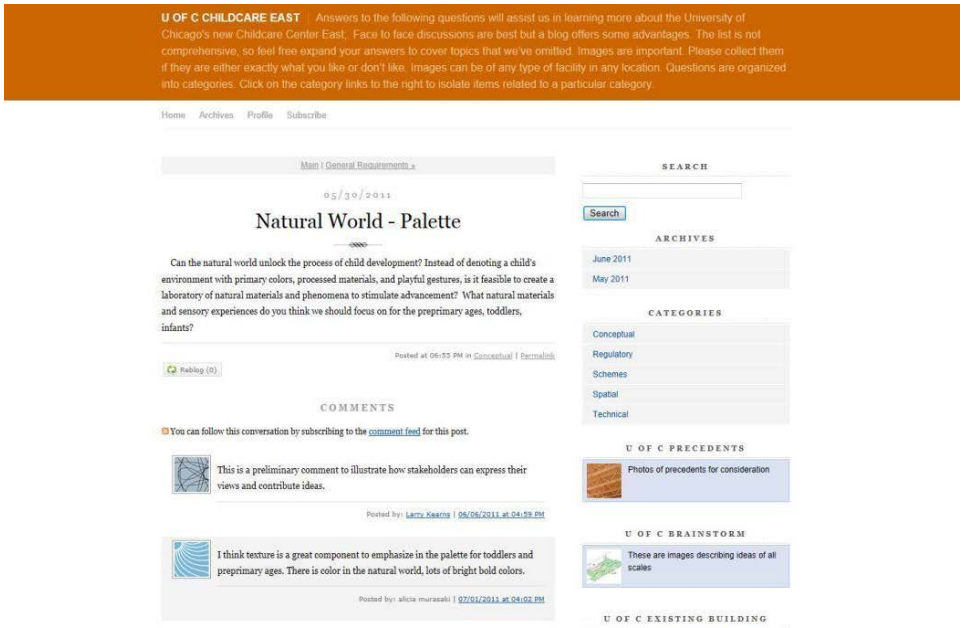
Tools for Collaboration

Photographs, sketches, and written ideas were exchanged between the team and the extensive University community.

Other tools that were used to ensure and to meet the aggressive construction schedule:

- Programming Blog
- BIM (Building Information Modeling)
- Submittal Exchange
- WebEx
- Mock Ups

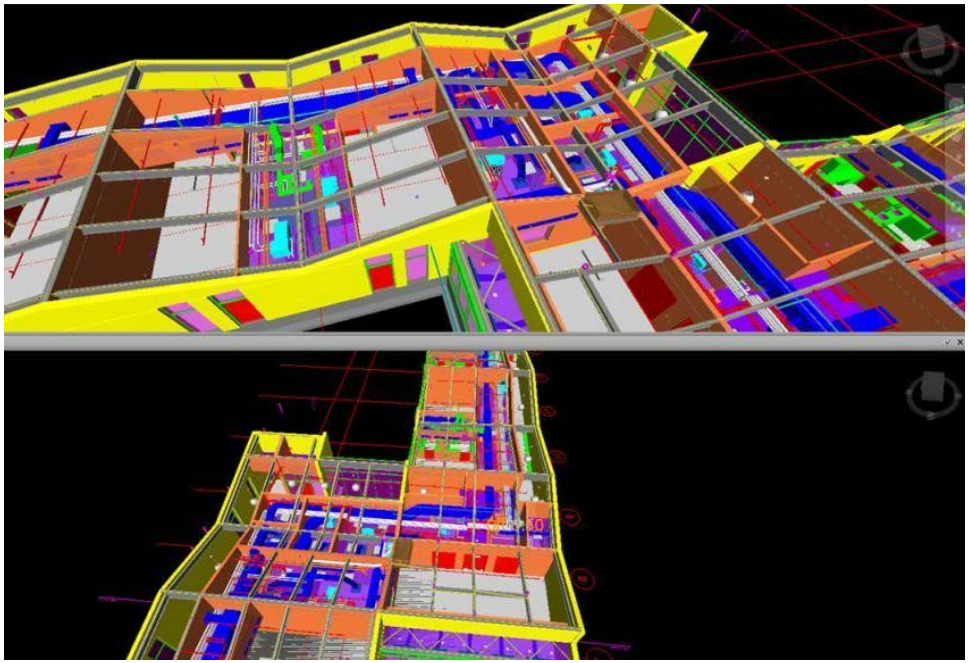


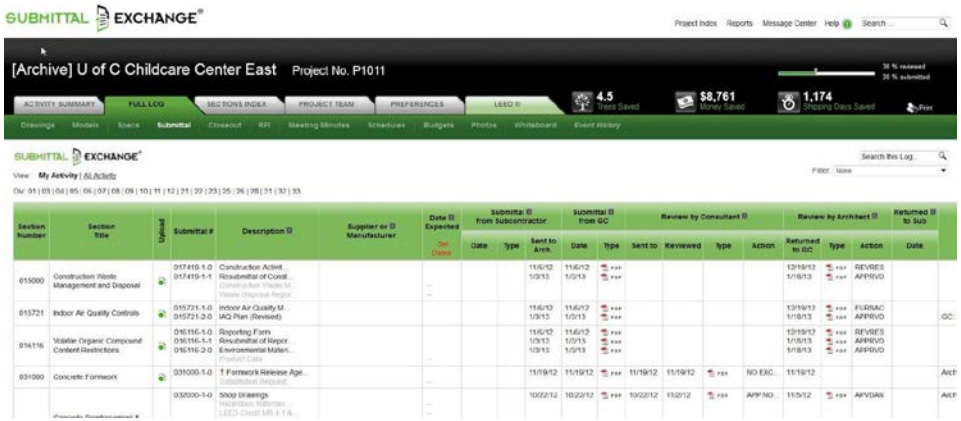


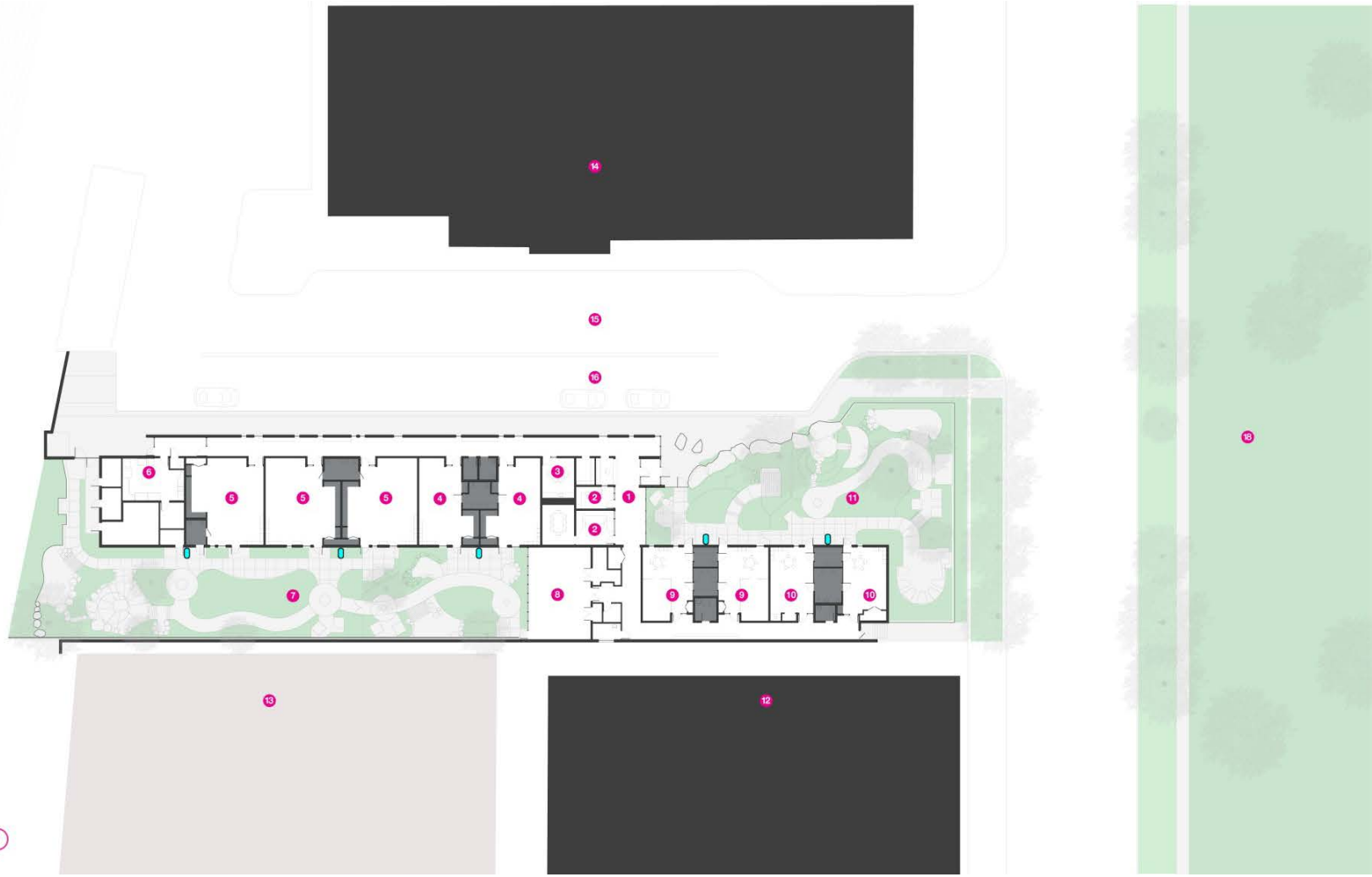
Tools for Collaboration

This project wasn't originally planned to utilize BIM (Building Information Modeling) coordination. The superintendent saw an opportunity when he realized the architects had done a 3D model for their drawings for the subs to do their coordination drawings in BIM. The architects ended up making this a BIM project at no additional cost to the owner. Utilizing BIM really made the coordination between contractor and architect much easier.

Some of the components of the project that made BIM invaluable were the tight plenum spaces, the zig zag roof- there are no ceilings in the classrooms, so everything had to fit in the hall space, which was really tight. Utilizing BIM helped the project schedule and the entire MEP installation process go much smoother than if we hadn't utilized it. The process identified issues, clashes, reworking of ductwork, piping, etc so that coordination didn't have to be done in the field.

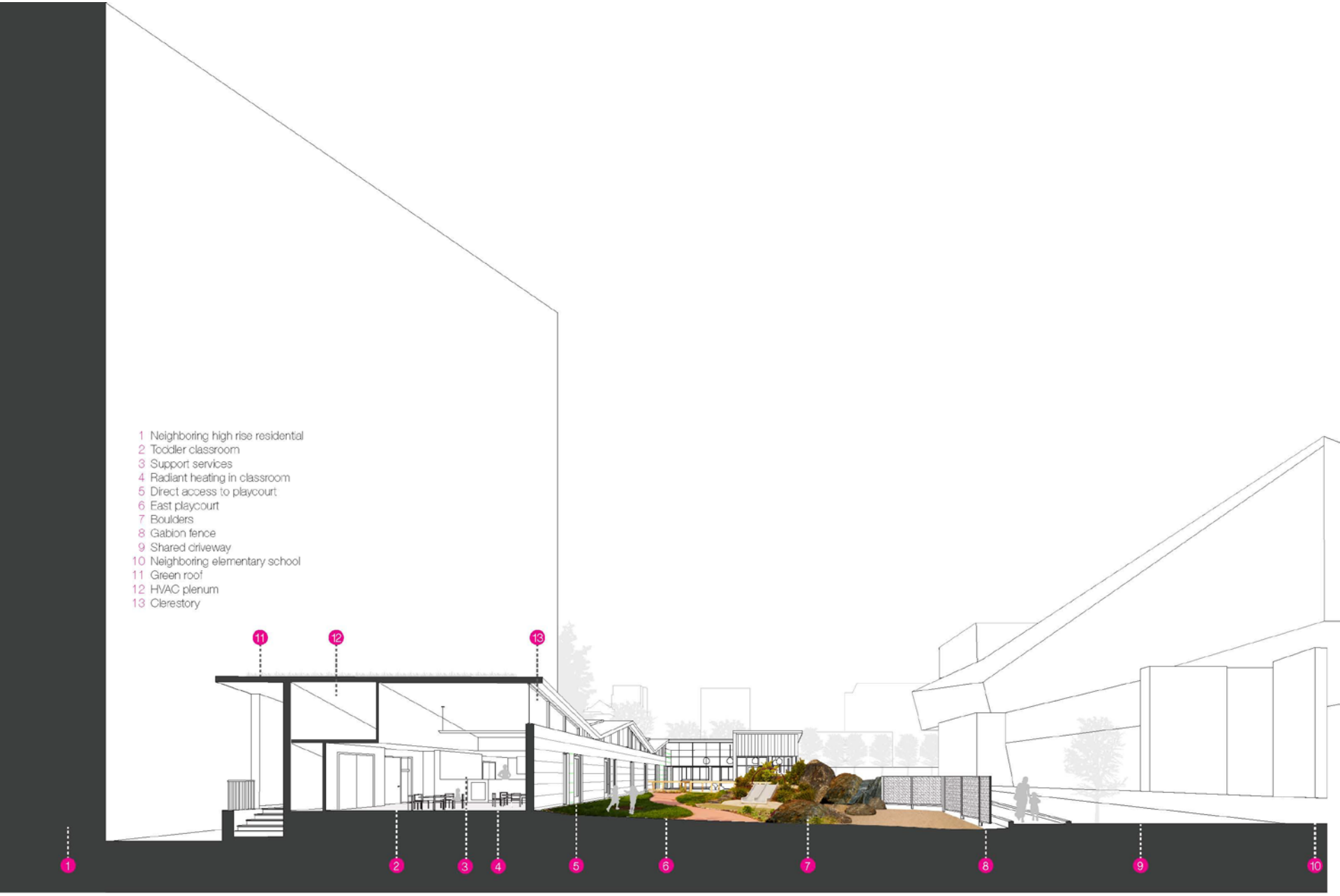






First Floor Plan

1 Entry/Waiting Area
2 Staff office
3 Staff lounge
4 Transition classroom
5 Preschool classroom
6 Food prep
7 West playcourt
8 Gross motor room
9 Infant classroom
10 Toddler classroom
11 East playcourt
■ Support services
12 Neighboring high rise residential
13 Neighboring garage
14 Neighboring elementary school
15 Shared driveway
16 Drop off area
17 Metra rail line
18 Historic Jackson Park


1 Neighboring high rise residential
2 Toddler classroom
3 Support services
4 Radiant heating in classroom
5 Direct access to playcourt
6 East playcourt
7 Boulders
8 Gabion fence
9 Shared driveway
10 Neighboring elementary school
11 Green roof
12 HVAC plenum
13 Clerestory

Exhibition of School Planning and Architecture Project Data

Submitting Firm :	Wheeler Kearns Architects
Project Role	Architects
Project Contact	Larry Kearns
Title	Principal
Address	343 S. Dearborn St, Suite 200
City, State or Province, Country	Chicago, IL 60604
Phone	312-939-7787

Joint Partner Firm:	N/A
Project Role	
Project Contact	
Title	
Address	
City, State or Province, Country	
Phone	

Other Firm:	MIG, Inc.
Project Role	Landscape Architect
Project Contact	Todd Hara
Title	Sr. Landscape Architect
Address	800 Hearst Ave
City, State or Province, Country	Berkeley, CA 94710
Phone	510.845.7549

Construction Firm:	Leopardo Companies, Inc
Project Role	General Contractor
Project Contact	Christopher Hogan
Title	Site Superintendent
Address	5200 Prairie Stone Parkway
City, State or Province, Country	Hoffman Estates, IL 60192
Phone	847.783.3000

Exhibition of School Planning and Architecture
Project Details

Project Name	UChicago Child Development Center – Stony Island
City	Chicago
State	IL
District Name	n/a
Supt/President	n/a
Occupancy Date	September 2013
Grades Housed	Infants to Preschool
Capacity(Students)	124 students
Site Size (acres)	0.81 acres (35,283 sqft)
Gross Area (sq. ft.)	13,300 sqft
Per Occupant(pupil)	107.26 sqft
gross/net please indicate	
Design and Build?	No
If yes, Total Cost:	
Includes:	
If no,	
Site Development:	$275,000
Building Construction:	$5,655,000
Fixed Equipment:	$205,364
Other:	
Total:	$6,135,364