Entering and Revealing of Architecture

A Kindergarten at Windmill Hill Park

by Zhao Yang Kong
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Thesis submitted to the faculty of the Virginia Polytechnic Institute and State University, in partial fulfillment of the requirements for the degree of Master of Architecture in Architecture

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Abstract

This thesis topic is focused on the experience of entering and revealing architecture. An entrance is not solely about the physical form of a door, rather it is the beginning of a building: a conversation between public and private, light and dark, safety and danger. The entrance is also a threshold for smell, texture, sound, light, and color. It is the preface of a poem that will lead you to fall in love with the rhythm of the building. It is where beauty begins and never ends.

The building program for a kindergarten was conducive to thinking about architecture in an honest way, just as children are honest. The project site is at Windmill Park in Alexandria, Virginia. The site overlooks the Potomac River at its eastern edge. The kindergarten has three classrooms, with three, four and five years old children, offices, a library, a playhall, meeting space, exhibitions and a bell tower.

Now, let us enter into the life of the building.
This project was awarded the 2012 AIA Blue Ridge Merit Award and would not have been successful without the help of many people.

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Most importantly, to my family, with all your love and support. To my Mom, sorry I insisted on being an architect instead of a dentist. To my father, for your approval on all my decisions. To my older sister, for all your life suggestions.
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At the beginning of my thesis, I tried to identify how I would design this building. Oftentimes I would get confused and I soon realized that I did not know how it would be designed. Then I asked myself, “What is the way to go about designing architecture?” Then I drifted back to my memories of my 2011 summer in China.

When I traveled with my friend in west part of China last year, I spent one month in a beautiful town. We would watch the sunrise at the top of a hill; we climbed the sand dunes and watched the Yueya Spring; and we explored the historical secrets in Dunhuang grottoes. At sunset, we would lie on the grass and watch cows drink water from the stream as chimney smoke came from what was cooking in the yurt. After reminiscing on these moments, I realized that it was not necessary for me to find an immediate answer to the building design, because architecture is not limited to mathematics or a symbol. Rather, I discovered that what we enjoy most about architecture are the beautiful moments that we experience in a space. People, light, material, structure, color, temperature, - all these elements create the life of the building and guide us the beauty in building design.

“When you have all the answers about a building before you start building it, your answer are not true. The building gives you answers as it grows and becomes itself.”

Louis I. Kahn
The Stories of Entrance

The story of entrance began with Janus, the god of beginnings and transitions in ancient Roman religion and mythology. The entrance could be the beginning of magic, secrets, or a surprise. It could be a way to explore the stories in architecture.
**Entrance to Religion**

Janus is the Roman god of doors. He is often depicted as having two faces. Because of his hospitality to Cronus the Titan (Saturn), it is said that Janus was granted the power to both peer into the past and to see the future.

'a. The Roman door-god, Janus, on a coin

'b. Janus with two and three faces, 14th Century

**Arch of Janus**

The Arch of Janus was built in the early 4th century, using spolia, possibly in honour of Constantine I or Constantius II. The name is derived from the structure’s four-fronted, four-arched configuration; relating this to the four-faced version of Janus (Janus Quadrifrons), as well as to actual Janus-related structures mentioned in historic descriptions of ancient Rome.

**Drawings of Janus Quadrifrons from 1569**
Alice in wonderland has a beautiful beginning of the story, Alice follows a rabbit and falls down a rabbit hole suddenly, which is a long way to a curious hall with many locked doors of all sizes. She finds a small key to a small door which she can not go through, then she drinks a bottle of water to become smaller, and through the door, she sees an attractive garden. It is another world.
The Examples of Entrance

Entrance is not just an opening to a building, it is a beginning experience in the building. It is where the story of the building starts. The shape, material, structure, thickness of the door and the door handle, give us first impression to the building. The examples here show different experience when we enter different buildings.
Bruder Klaus Field Chapel, Munich, Peter Zumthor

When you visit bruder klaus field chapel, you walk on the path in golden wheat field. The wind blow to your face, a little yellow tone building, made of concrete. The entrance is a triangle shape, made from metal. It catches people's eyes, but at the mean time, it is harmony with the whole building and environment.

The door is not very high. When you go into the door, you feel a little tense on the head. And the inside space becomes smaller to the top. Light come from the roof, go into the room through a curved path. It is full of magic, silent, and religious feeling.
Luis Barragan’s design, Cuadra San Cristóbal house, is a residential house with horses. People riding the horse, walk through the opening on the wall, enter the courtyard and go into the fountain, where the water falls down from colorful wall. Sometimes you even forget how you enter the courtyard, because it is a such relax way to pass through the opening on the wall. The water catch your attention and your horse, to lead both of you enjoy the view in courtyard. The water, the sky, the wall, the people and the horse, compose one moment in the life. It is serenity.
Thinking of the Project

The idea, design a kindergarten came to my mind one day. I read an article online. The author recalled his beautiful memory about reek park trails in Washington DC when he was a child. And he said that now there are less and less children in the park. This inspires me to design a kindergarten. Children always like to play outside, have fun with trees, flowers, mud, stone, water or everything. All of these involve architectural elements. It is a chance to explore the relationship between human’s activities and architecture. Designing a kindergarten is a media to think about building in a natural way with children’s feeling, to touch, to see, to smell and to play.
Location of the Site

The map shows location of kindergaten and preschool in this area. Most of kindergaten here are two floors, the material is brick. Each school has outdoor playground. The site is in windmill hill park, Alexandria, Virginia.

It is a trapezoid shaped ground that sloped up 16 feet from east to west, with a slope to the west part of the park. The site is around by residential houses in north, south and west sides. To the east of the park, is the potomac river.
Memory on the Site

The elements on the site tell us the story happening there. We across the tunnel, walk on the wood plank path, go into the park, and see the basketball playground. Go on the slope, sit on the stone retaining wall and look around, green trees are around us. It is a quiet, and beautiful area.
**Start of the Project**

The project started with the stone curve wall on the site. The kindergarten is located on the slope side in the park, leave other part of park to the public. A curve wall followed the stone wall and located on the slope.

Then three classrooms attach to the curve space. A watch tower is near the corner of the street, connected with the classrooms with the curve wall, as a sign to the entrance area.

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**Challenge of the Project 1**

When the curve wall become a curve space sit on the back of the slope, then another curve in front of it separate the three classrooms and one office to the circulation space.

One challenge of this project, was the roof of the building. Model A shows the building without any roof. How to design the roof on the space between two curve walls? Is it a solid roof like model B, or with windows like model C?

Finally I decided to make a transparent glass roof like model D, with vertical structure which can be functioned efficiently.
Another important thought of the project is, what happen in the wall. When we think about a wall, it should not just be a black line on the paper. It is formed by material, concrete, wood, stone or others. When the thickness of the wall extends, there will be more characteristic on the wall than just a fense.

The window on the thick wall can be used by children as the space they play. They can plant flowers, breed goldfish there. Also, doorway can be hide in the wall. Now people go into the wall, walk on the stairs inside or open the door inside, then enter to another space. They experience material and temperature of the wall instead of just passing it.
Experience of the Project

The experience begin with the location of the project, let us go to visit.
Location of the kindergarten

The site is located in windmill hill park, near potomac river in Alexandria. The residential buildings are around the park. From west to east, there is a sloped hill, which the difference is 16 feet.

I thought the kindergarten will locate to the hill side. There are two floors, using the height of the slope, with one floor above it. So the kindergarten will not block the view from the west residential buildings to the park.
Entrance area

From west to east, I designed a sloped garden with five flight steps in the south edge of the site, as a park entrance connecting the park below and the street level on the hill. The garden serves as a space for public to have a rest and plant trees.

When people go into the kindergarten from the street level, they first pass through the opening on the wall. A bridge in the wall is above their head. To the north, is the doorway to the kindergarten, to the south is the watch tower, and to the east is the garden.

When people go down the steps, they cross the bleachers. They can stay there and watch the basketball game, or they can pass it by the front path. The stage for basketball serves as a space to cheer the game.
Hall of the kindergarten

To the north of the entrance area, it is the door way to kindergarten. People go into the hall first, which is the second floor of the kindergarten. They see three parallel bridges between curve walls, skylight come from the transparent roof.

People can go down the main stair on the wall, go to the ground floor. Or they can go into the thick curve wall in the back, where the library hide in it.

On the bridge, children read books from the library, or watch sky though the glass roof on the top. To the other side of the bridge is the second floor part of each classroom, where serves as handwork room for the class.
Bridge to the bell tower

From the entrance hall, people can take the elevator to the third floor, where is the bridge to the bell tower. The bridge structure is a concrete part from the curve wall. When children cross the bridge, they can have a view outside and feel the air, wind, rain and light outside.
Going to the library

From the entrance hall, people can also go down a little ramp to the library inside. The light comes from the skylight and windows on the curve walls.
Experience in the library

In the library, children can choose books from the bookshelves, which are embedded in the walls. It is one way to make use the thickness of the wall.
Windows in the library

The window in the library designed as an angle face to the south, so the view from outside cannot go into the kindergarten directly. When children get books from the library, they can sit down near the window, light come though from the south, have a little private space.

![View through the window in the library](image1)

![Elevation of the window](image2)

![Second floor plan of the window](image3)
Studio room

Each classroom has a studio room space on the second floor. It functioned as handwork studio. Children can walk on the stairs beside the wall to reach here. Or they can come from the library side, cross the bridge to the studio room.

Light come though the floor-to-ceiling window to the studio room. With the thickness of the wall, it creates a inside balcony here more than just a window. Children can have a seat beside the window and enjoy the view to the park.
Meeting room

Go to the end of the library, there is a meeting room for the children. It opens to the outside. The temperature changes here. Skylight comes from the balcony, people enjoy seasons here.

When the space between two curve walls become narrow, they meet together in the end and become one wall. The stair to the lower level hides inside these walls, light comes from the top, and goes smoothly down along the triangle edge of the wall, which also functions as the structure to hold the roof. It is a secret and magic space.
The ramp and the pool

Go out from the meeting room on the second floor, there is a ramp access to the playground. The ramp hold by the structure on the wall, which stands in the pool. The wall for the last classroom change to a two layers walls, a stair to the meeting room hide inside these two walls. It is a celebrating piece of music.

With green color copper on the top the curve wall, when it rains, water comes from the top of the wall, falls down to the pool. It is a beautiful moment in the life.
Classroom

The classrooms locate on the first floor, and have access to the outside. For each classroom, there is one play court outside. The doorway to the classroom is hide inside the wall. The wall change from thin to thick. It makes use the thickness of the wall and create an entrance space as the picture shows.
The bell tower and the theater

The bell tower as a separate part of the kindergarten is a gift to the children. The parents, teacher and the children can have meeting on the upper level of the tower, light come through the roof window. Go to the balcony of the tower, people can ring the bell on the wall.

Under the tower is a theater in the kindergarten. It is in the earth, and get access from the stairs on the edge. It gets dark in the end, as a movie theater for the children.
Presentation of the Project

The final presentation of the project include site plan, floor plans, elevations, sections, renderings and details. Also there is a hand model to show the kindergarten and its environment.
a. Movie theater
b. Storage
c. Mechanical room
d. Lobby
e. Playhall
f. Kitchen
g. Classroom
h. Teacher’s office
i. Service room
j. Exhibition room
k. Play court
a. Entrance plaza
b. Entrance hall
c. Parent's room
d. Changing
e. Principle's office
f. Studio room
g. Bridge
h. Library
i. Meeting room
j. Balcony

Entrance Floor Plan
Perspective View from the park side
Quote
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