A Library of Life

EXPLORE THE POSSIBILITY OF DIFFERENT ATMOSPHERE FOR READING SPACE

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indirect light  movement  privacy level
This project concerns mainly the relationship between social interaction and atmosphere. The aim of this project is to create a comprehensive and intimate place for rebuilding the interaction between people using indirect light.

The main progress of this project lies on the logic of organization. All the testing and generating start from a simple logic and become more and more complex as the logic multiples. Every step of processing is setted as much as possible under control.

The examination of the relationship between indirect light and intimacy becomes prototype. Overall there are two aspects of the examination, changes within one single space and layers of spaces. Then the formation part is mainly about the organization of space using the results from prototype phase.

The design method and process are tightly attached to the toolbox. Two digital tools mainly used in this project are Rhino and Grasshopper, with all the peremites for testing and shape generating coming from the logic of organization, which means the formal analysis and research. Thus the digital program could be based on a logical foundation.

The result of this project is not a completed design, but a structural space with all the potentials remained to be explored. Results from the first phase are systematic but not full-scaled. Yet the method and design process are completed and will be used for further exploration.
In the article, Borges claimed three pairs of concept:

**Geometry & Infinity**
Every hexagon forms a chamber with particular character. All the hexagon chambers are connected, together composing a boundless world.

**Isolated & Unified**
Inside the chamber, generates the feeling of enclosure. Yet experience of similar themes gives the feeling of a whole.

**Clarity & Ambiguous**
Form cooperating with character locate the observer. Yet through the movement, the maze provides a possibility to get lost.

Borges, Jorge Luis. "The library of Babel."
Chapter 1

Background
Second-hand Bookstore

Limited reading space, crowded book-shelves create a puzzle-like movement.
Library

Organized book-shelves, intimate reading space inside a larger open space.
Twenty libraries including university libraries are picked up as samples for this survey. The public facilities included are museums, theaters, and churches. For museum, apart from the bookstore of their own, 1/4 are within 500m distance from the nearest library. For theater and church, the percentage nearly reach 50%.
The Need From Inside

Topic Revalent
Functional attached
Samiliar atmosphere
Chapter 2
Context & Site
How to organize the route between different sides?

How to approach an inviting and interaction encouraging atmosphere?

Site condition
Thermal Vals, Switzerland
Peter Zumthor, 1996

- Pack up the private function to all the units
- Change density of the units to create a transition from artificial side to natural side
- Create courtyards by units that become a more public area
Route Organization

- Possible routes divide the site into several zones
- Privacy Gradient ranging from main road to pathways
- More publicity around the crossings

- Privacy Gradient with routes
1. Get possible movement and people flow within this area, then naturally the site is divided into 11 zones.

2. Use grasshopper to generate a new zoning plan in which all zones are nearly equal size, while mostly preserving the routes.

3. Transfer the edges of zones from straight lines to curves, in order to get more open space around crossings, give a less impression of direction.

4. The zone that covers the largest amount of routes is setted as open courtyard. The zone at the northeast corner of the site is given back to the street.
Principle for generalizing the plan form is to maintain the origin routes of the site while creating more average areas that fit the public-private level of the site.
- Shadow darkness gradient from 15th of every month around a year

- Shadow darkness gradient from around daytime on 15th December
a. Area: 484m²
   Meditation space
   Book Type:
   [100] Philosophy & Psychology
   [200] Religion

b. Area: 270m²
   Group Room
   Book Type:
   [300] Social Science
   [400] Language

c. Area: 586m²
   Gallery
   Book Type:
   [700] Art & Recreation

d. Area: 356m²
   Theater
   Book Type:
   [800] Literature
   [900] History & Geography

e. Area: 280m²
   Media Center
   Book Type:
   [800] General Work, Computer Science

f. Area: 247m²
   Focusing study room
   Book Type:
   [500] Pure Science
   [600] Technology
Chapter 3

Experiment 1. Corner Unit

GRID

LIGHT

600/1200/2400

MODULE
Rotating | Wall

Rotating Outside:
Smaller divided>>Brighter/Blurring edge
- The first corner provides the largest amount of light, so the forth corner is the brightest
- The inside area of the first corner is the darkest

Rotating Inside:
Smaller divided>>Brighter/Blurring edge
- The first corner provides the largest amount of light, so the first corner is the brightest
- The inside area of the forth corner is the darkest
Rotating | Ceiling

Rotating Outside:
Smaller divided >> Brighter/Blurring edge

- The first corner provides the largest amount of light, so the forth corner is the brightest
- The inside area of the first corner is the darkest

Rotating Inside:
Smaller divided >> Brighter/Blurring edge

- The first corner provides the largest amount of light, so the first corner is the brightest
- The inside area of the forth corner is the darkest
Panning | Wall

Panning Outside
Small divided >> Darker/Blurring edge

- The first corner provides the largest amount of light, so the forth corner is the brightest
- The inside area of the first corner is the darkest

Panning Inside
Small divided >> Darker/Blurring edge

- The first corner provides the largest amount of light, so the first corner is the brightest
- The inside area of the forth corner is the darkest
Panning | Ceiling

Panning Outside
Smaller divided>>Darker/Blurring edge

- The first corner provides the largest amount of light, so the forth corner is the brightest
- The inside area of the first corner is the darkest

Panning Inside
Smaller divided>>Brighter/Blurring edge

- The first corner provides the largest amount of light, so the first corner is the brightest
- The inside area of the forth corner is the darkest
With all the result above, we could choose the combination that is needed
Chapter 4

Experiment 2. Layer of Space
Reference

House N, Japan
Sou Fujimoto, 2008
• Transparency means a simultaneous perception of different locations.
• interpenetrate without optical destruction of each other
• Indicating, hidden, interpenetrating space
Test of shell system

- SCALE I, 2400mm
  - Set on each line facing different directions

- SCALE II, 4800mm
  - Set on every two lines facing different directions
  - Overlapping and maximum spatial diversity

- SCALE I, 7200mm
  - Set on every three lines facing different directions
  - Overlapping and maximum spatial diversity
- Pathway
- Light from inside to outside enables the interaction
- Public area setted around private area
- The shadow from layers falls on the ground, arising conciousity about the layers
- The privacy level
- The more shells overlap, the more the privacy level will be
Chapter 5

Experiment 3. Zone & Boundary
Boundary
Wall structure deal with the curvilinear boundary

· **Type 1**
The fans rotate along the direction of curve, intensity of light controls the range of angles.

· **Type 2**
The fans pan along the shape of curve, direction of light controls the direction of fans.

· **Type 3**
The fans are perpendicular to each other, setted along the curve, intensity and direction of light control the direction of fans.
- Type 1
  Divided into larger fragments, the perception of the space will be private corners.

- Type 2
  Divided into smaller fragments, the perception of the space will be the larger public zone.

Different divided unit of roof and wall structure
Organization 1

- Larger area divided into larger pieces
- Smaller area divided more fragmentally
- Fans turn to bookshelves
Organization 2

- Larger area divided into larger pieces
- Smaller area divided more fragmentally
- Walls turn to bookshelves
Organization 3

- Larger area divided more fragmentally
- Smaller area divided into larger pieces
- Walls turn to bookshelves
Organization 4

- Larger area divided into larger pieces
- Smaller area divided more fragmentally
- Fans turns to bookshelves
View of first level
limited view, filled by bookshelf structure, guided by the direction of structure

View of second level
recognize the contract of structure, more openness

View of third level
recognize the plan form, guided by route
Chapter 6
Design Result
The Circulation

The Guiding Walls

Forth Layer
- Creating the tranquil light

Third Layer
- Defining the boundary of zone
- Setting another layer

Second Layer
- Defining the boundary of zone

First Layer
- Creating the private space
a. Area: 484m²
Mediation space
Book Type:
[100] Philosophy & Psychology
[200] Religion

b. Area: 270m²
Group Room
Book Type:
[300] Social Science
[400] Language

c. Area: 586m²
Gallery
Book Type:
[700] Art & Recreation

d. Area: 356m²
Theater
Book Type:
[800] Literature
[900] History & Geography

e. Area: 280m²
Media Center
Book Type:
[800] General Work, Computer Science

f. Area: 247m²
Focusing study room
Book Type:
[500] Pure Science
[600] Technology
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