

# THE SELECTION OF DESIGN

2006-2009  
Lee, Po-Shen



■ Put The World In A Frame  
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# RECLUSE HOME

$$u_{nl}(r) = \frac{1}{r} \cdot$$

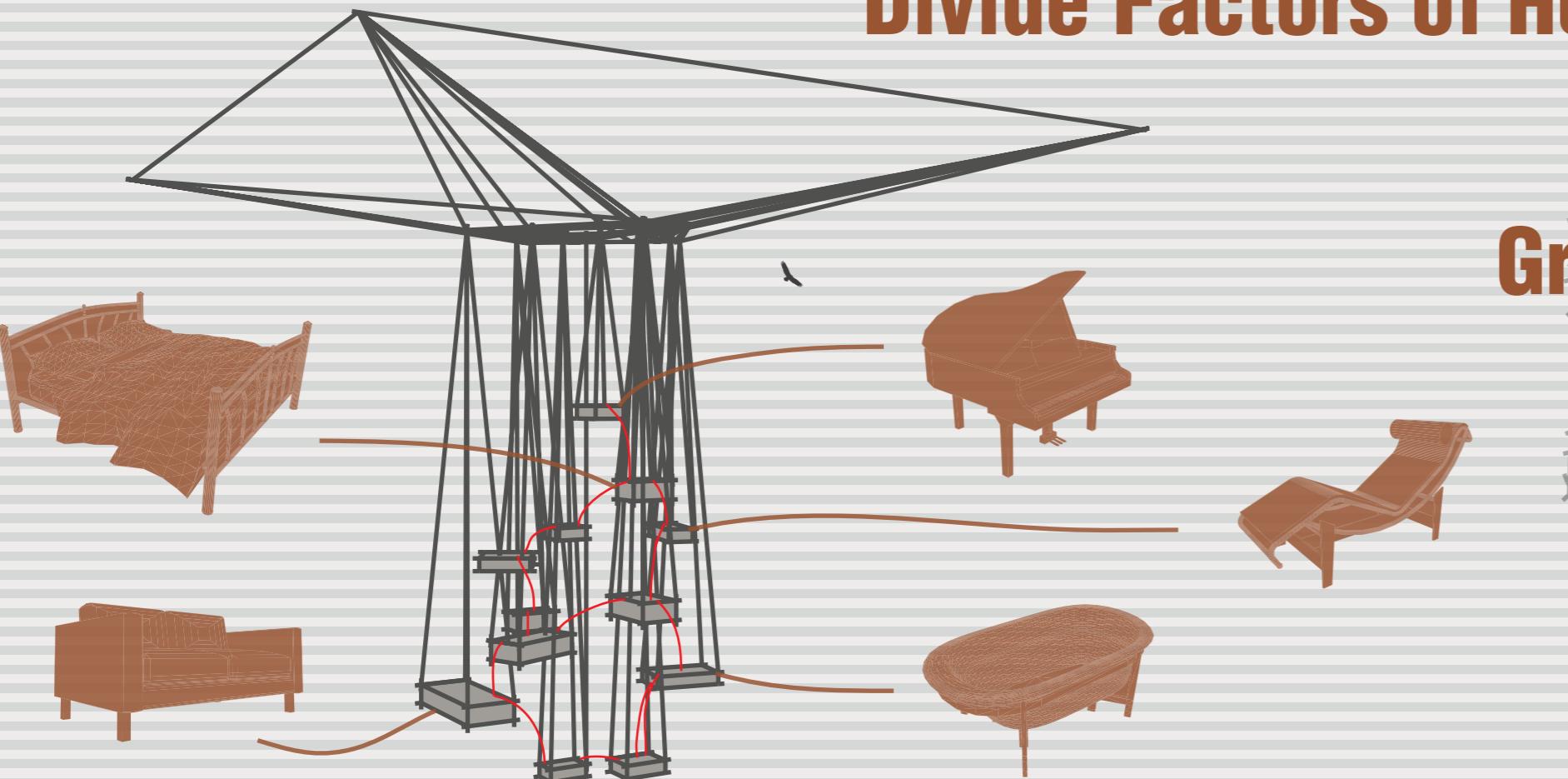
$$u_{nl}(r) = \frac{1}{r} \cdot$$

$$\Psi_{nlm}(r, \theta, \varphi) = \frac{u_{nl}(r)}{r} Y_{lm}(\theta, \varphi)$$

$$\Psi_{100} = \frac{1}{\sqrt{\pi}} \left(\frac{1}{a_0}\right)^{3/2} e^{-r/a_0}, a_0 = \frac{4pi\epsilon_0 h^2}{m_0 e^2}$$



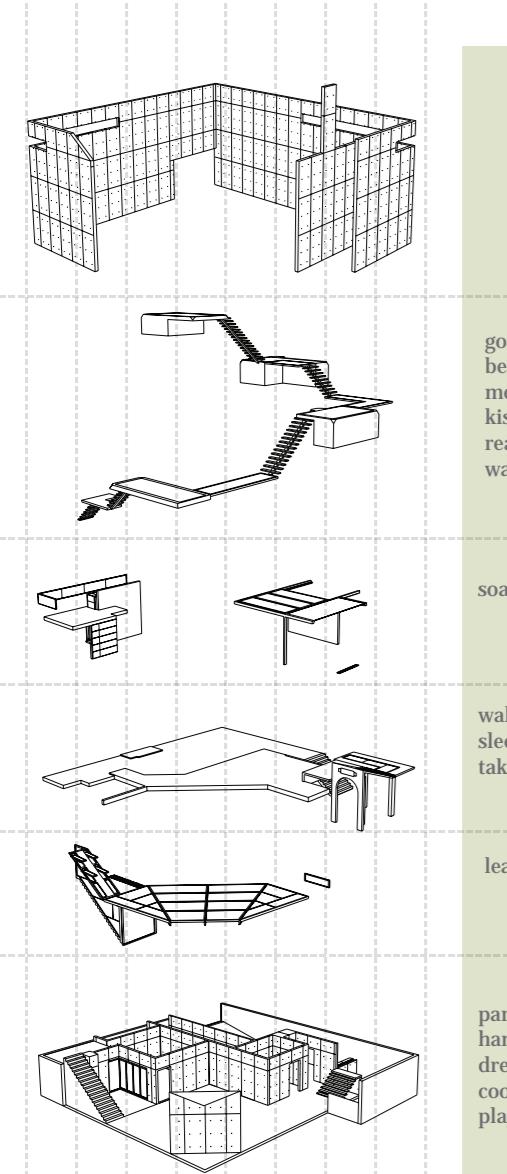
# Divide Factors of Home



# Grow Trees and Shrubs in Vertical

Spaces are no longer continuous.  
Sky is no longer outside windows.  
Plants are no longer growing from the ground.  
People are no longer fettered by city stuff.  
This is **TRANSITION**.  
This is **EMANCIPATION**.





# Living like a recluse in a metropolitan

main wall

going up to the sky  
being surrounded by plants  
meditating on grass  
kissing ivies  
reading an interesting story by a tree  
washing hair by the breeze

suspended level

soaking in a bathtub outside

second level

walking into a wonderland  
sleeping under the starry sky  
taking a shower under the shade of trees

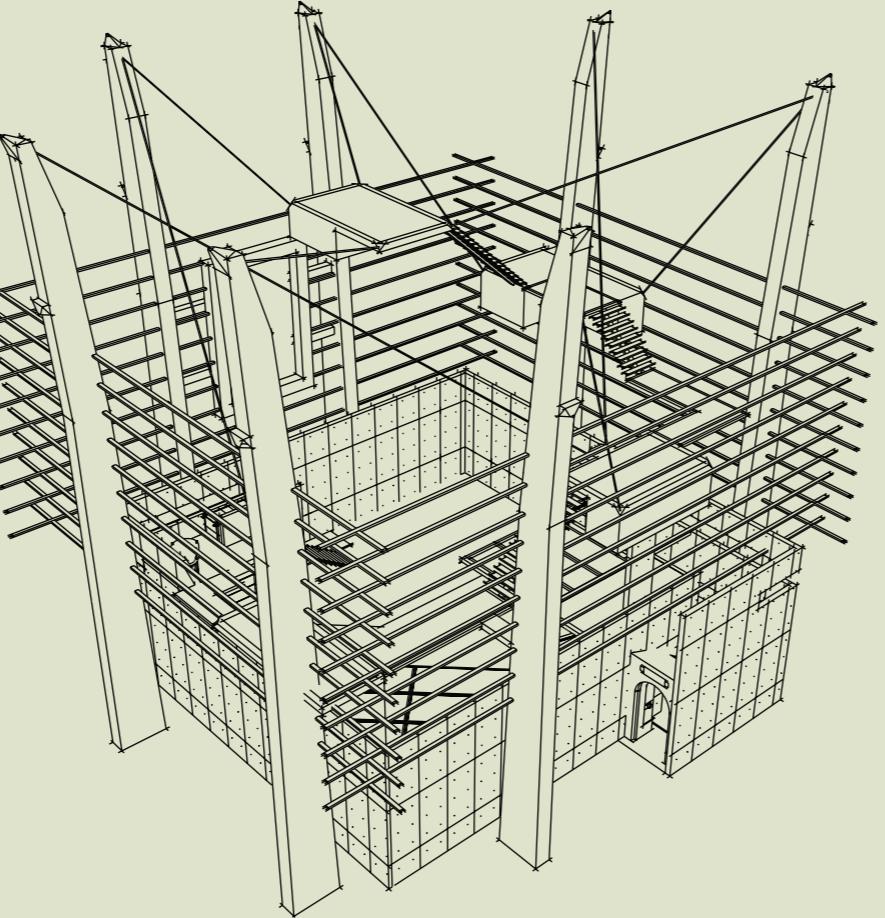
first level

leading sunlight into interior

skylight frames

parking an electric motor  
hanging laundry on a tree  
dressing favorite clothes  
cooking tasty meals  
playing piano under sunshine

ground level



RECLUSE HOME

RECLUSE HOME

[Chen] Noise

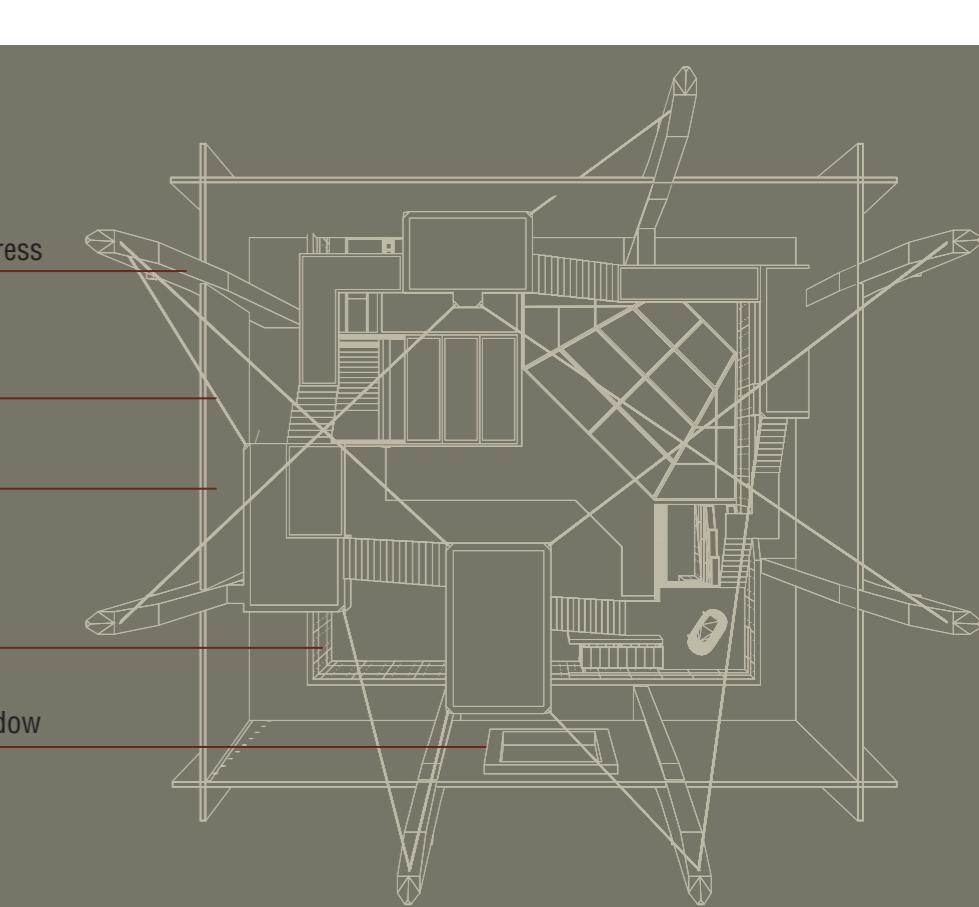
Concrete Buttress

Steel Rope

Ivy Holder

Concrete Wall

Concrete Window



"Chen" and "Shau" in Chinese mean dust and noise respectively. While the two put together, in metaphor, it represents busy metropolitan. After the industrial revolution, people have moved to big cities and settled down, resulting in a high population density. Skyscrapers, edifices, and tall buildings are spring up, and this makes green belt and skyline dwindled. In Taipei, urban regeneration of old communities creates a new stage for architects. The old apartment and houses in these communities are now rebuilt and replaced by higher ones. Thus in this design, I would like to create a special residence in old community right near urban area with edifices. A clear sky, a small forest, and a private exterior with no fetters are all possible in the Chen Shau. The previous concept, suspending skill, is also practical. A Chinese idiom presents a very important concept: Once holding a calm spirit, you are a real recluse even though living in the city. Therefore, the main purpose of this design is to make residents have both physical and mental peace, by living in a distinctive place and forming new habits.



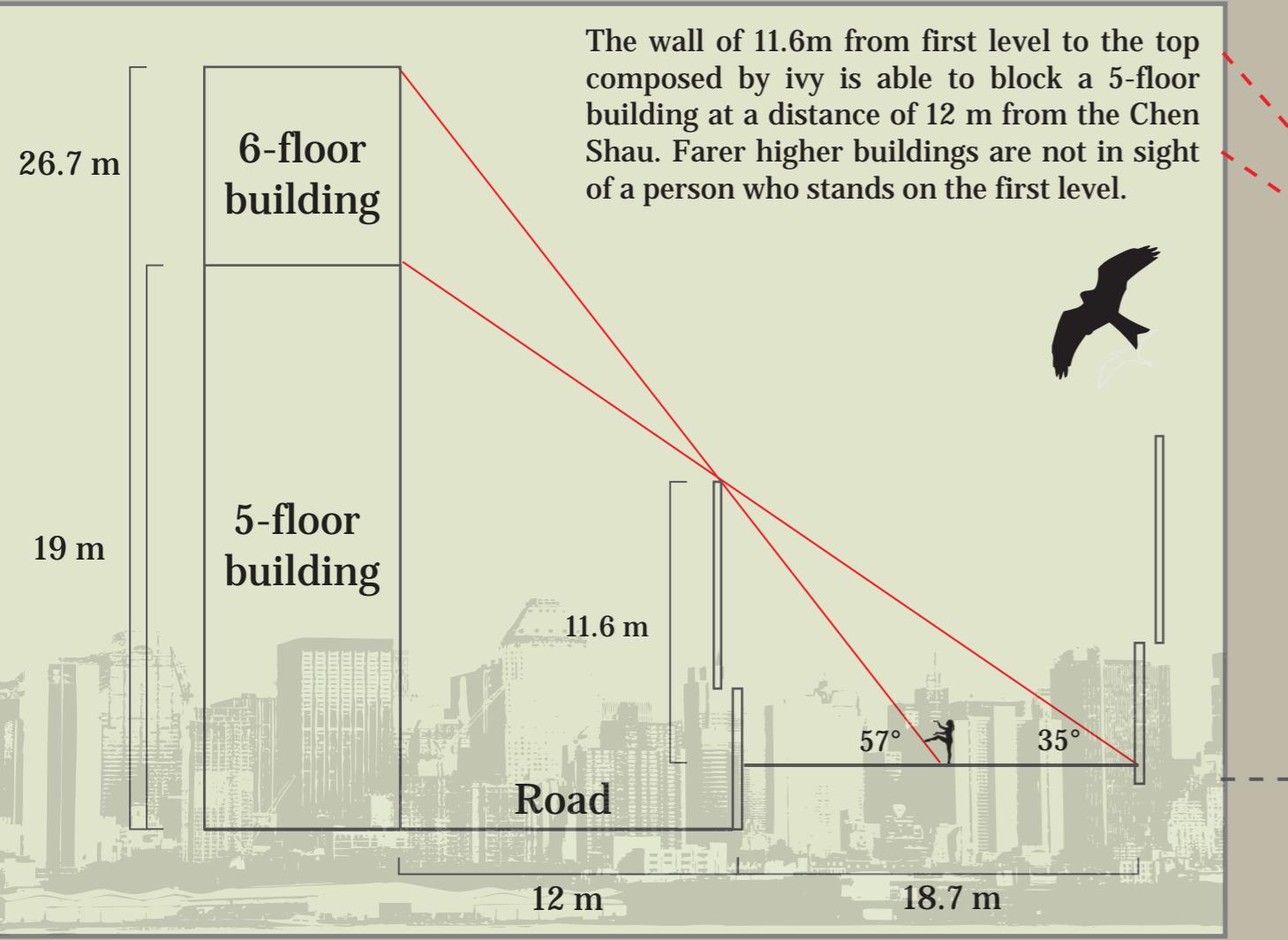
# Raise Your Head

## ► HOW DO WE GET RID OF THE BUSY DAY

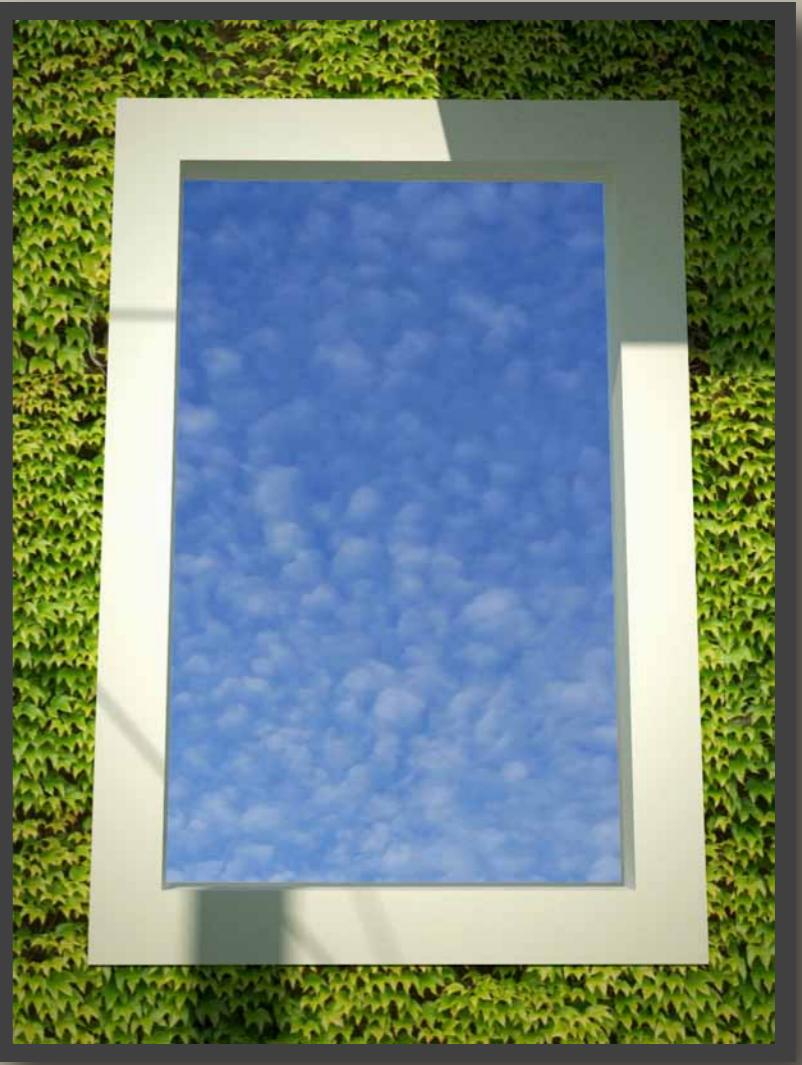
Based on the previous concept, spaces are divided into independent islands suspending in mid air. The concept is to separate people from the secular world to achieve isolation. Home activities are going to take place outside in three dimensions. People need not turn the lights off while sleeping, close doors while showering, draw curtains while dressing just because they feel themselves in the wild.

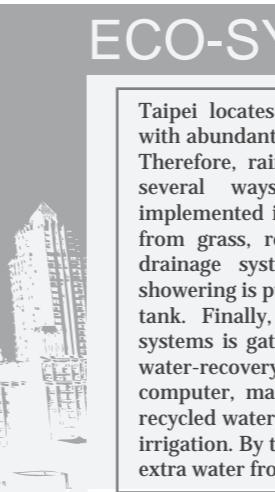


## ► Gaze At the Bird



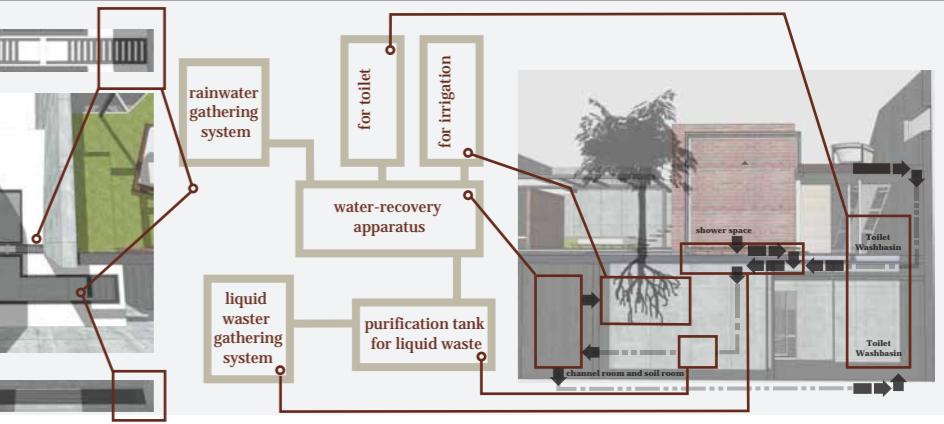
The wall of 11.6m from first level to the top composed by ivy is able to block a 5-floor building at a distance of 12 m from the Chen Shau. Farer higher buildings are not in sight of a person who stands on the first level.





## ECO-SYSTEM OF AUQA-CYCLE

Taipei locates in the subtropical zone with abundant precipitation per annum. Therefore, rainwater could be used in several ways. Water recycling is implemented in this subject. Rainwater from grass, roof and floor flows into drainage system. Waste water from showering is purified once flowing to the tank. Finally, Water from these two systems is gathered in a reservoir. The water-recovery apparatus, controlled by computer, manages the distribution of recycled water for toilet flushing and for irrigation. By this design, plants need no extra water from waterworks.

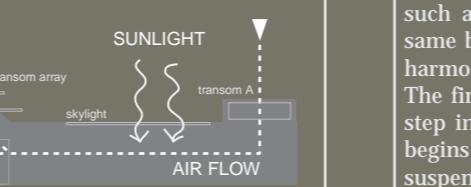


Chaotic & Busy & Noisy

Peace & Leisure & Tranquil



A passive air conditioner planned by the utilization of convection is adopted. The air flow goes from the transom A, through the indoor living room, and then passes through the transom array above the stairs. During daytime, the sunlight transmits through the skylight and then heats up the air inside. The warm air moves upward and goes out from the transom array, which is higher than transom A. Besides, when window C opens, part of the air flow can escape from it directly.



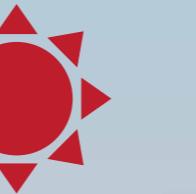
This design gives the householders a totally tranquil living space, and animals such as birds and squirrels also get the same benefit. This place makes them live harmoniously together, like a big family. The first transition happens when people step into the gate. The second transition begins when people goes up to the suspended green islands.



# SMART MUG



17 Response Mug  
Product Design

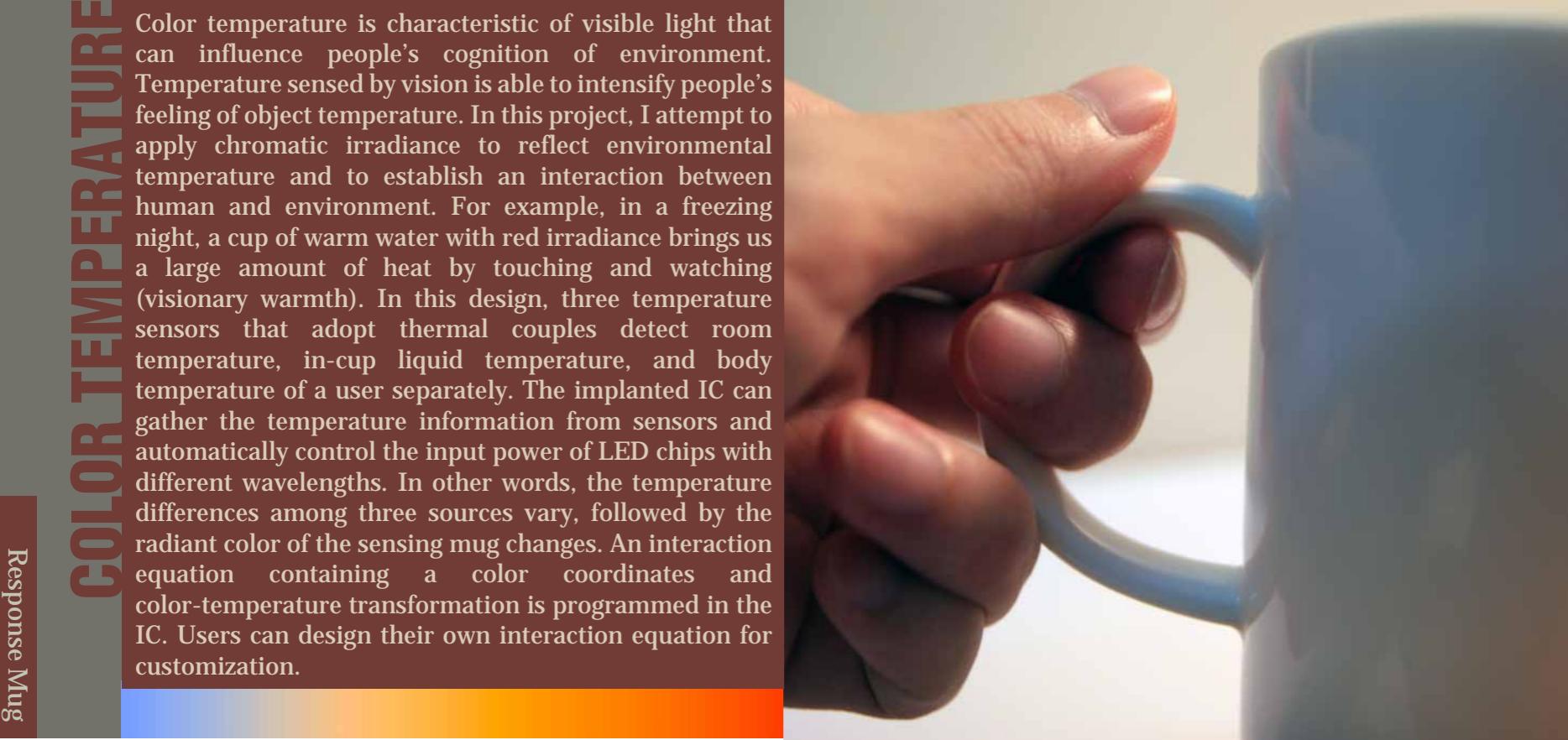


DRINK THE SOLAR POWER

ДРИК ТНЕ СОЛАР ПОУОР

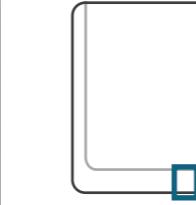
Response Mug  
Product Design

# THE RESPONSIVE MUG



Color temperature is characteristic of visible light that can influence people's cognition of environment. Temperature sensed by vision is able to intensify people's feeling of object temperature. In this project, I attempt to apply chromatic irradiance to reflect environmental temperature and to establish an interaction between human and environment. For example, in a freezing night, a cup of warm water with red irradiance brings us a large amount of heat by touching and watching (visionary warmth). In this design, three temperature sensors that adopt thermal couples detect room temperature, in-cup liquid temperature, and body temperature of a user separately. The implanted IC can gather the temperature information from sensors and automatically control the input power of LED chips with different wavelengths. In other words, the temperature differences among three sources vary, followed by the radiant color of the sensing mug changes. An interaction equation containing a color coordinates and color-temperature transformation is programmed in the IC. Users can design their own interaction equation for customization.

## SENSORS



- A body temperature & touch
- B room temperature
- C liquid temperature

## ACTIVATION

### Mode I | Temp. C - Temp. B | $> 1^{\circ}\text{C}$

When the drink that is higher or lower than room temperature pours in the mug, mode I is activated. The mug begins to radiate and the light color follows the transformation equations. This mode will continue until liquid temperature is similar to room temperature. This mode can be applied to an automatically turn-off light at night.

### Mode II Touch sensor has responses

When a person holds the handle, mode II is activated. The light color in this mode responses room temperature based on color temperature coordinates. This mode is thermometer mode or flashlight mode.

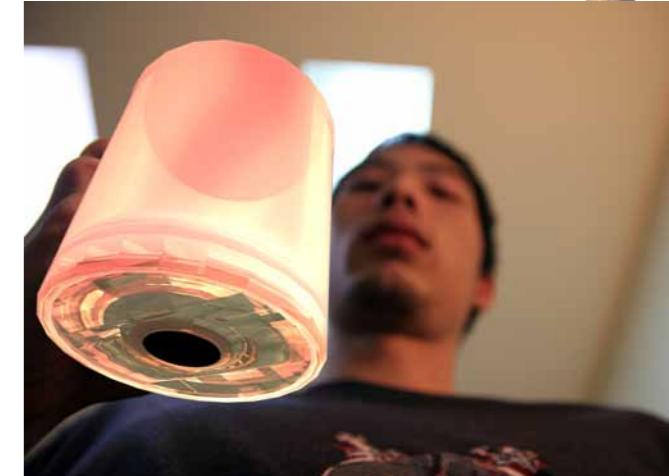
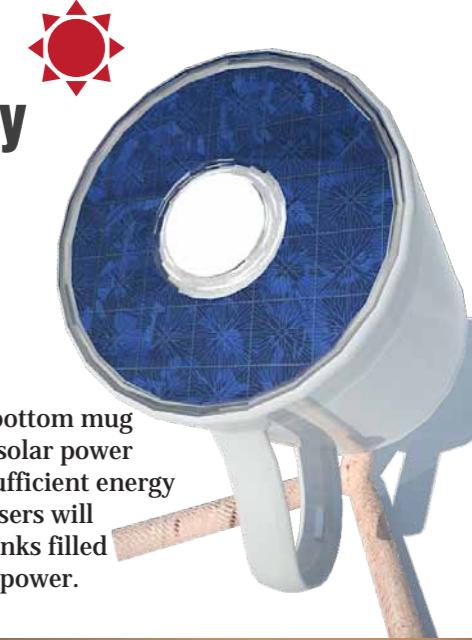
### Mode III Touch sensor has responses & | Temp. C - Temp. A | $< 1^{\circ}\text{C}$

When a person touches both sensor A and B for a while, mode III is activated. Mode III is permanent lighting mode. It can be interrupted by one more response of the touch sensor.

# INTERACTION

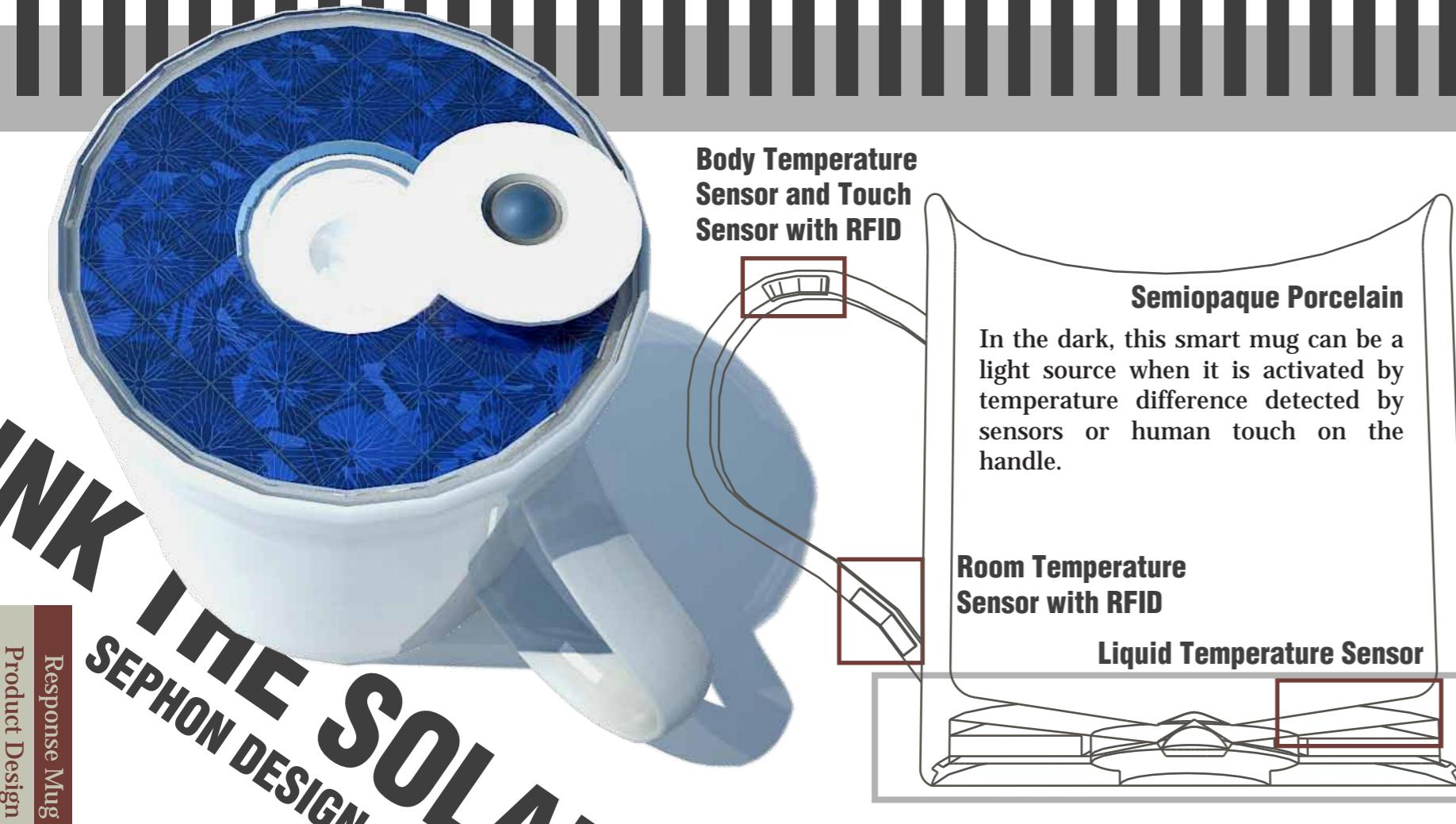


Energy  
From  
The  
Sun



# INK INK SEPHON DESIGN SOLA

Response Mug  
Product Design



# MEDIA SYSTEM

## RGB LED Array



## Fixer



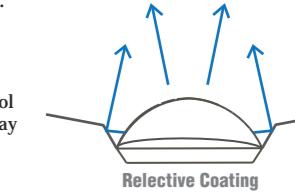
## Rubber Supporter



## Light Source Module



The light source module consists of a rubber supporter with metal thin film reflector coating on the inner inclined plane and a RGB LED array packaged by epoxy. This module is installed on a fixer, which contains circuits to connect the circuit implanted in the supporter and the control IC. The light source module is replaceable. When the LED is out of order, the component can be uninstalled and replaced by a brand new one. The rubber supporter is impermeable so that the whole system is safe when washing the cup.



## Control IC



## Rechargeable Battery



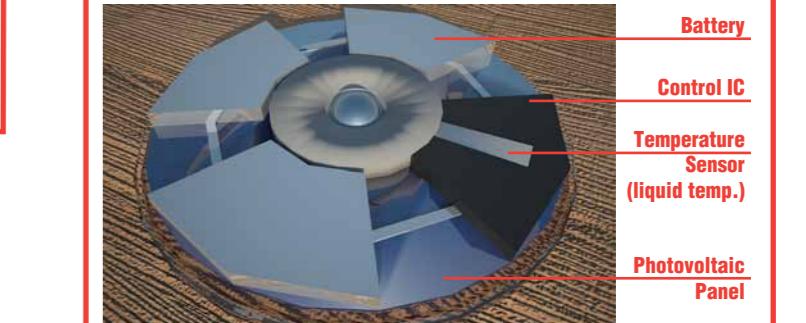
## Photovoltaic Panel



## Translucent Cover



## Solar Cell Module



Response Mug  
Product Design

# RIPPLE CHAPEL

$$\mathbf{F}_{12} = -G \frac{m_1 m_2}{r_{21}^2} \hat{\mathbf{r}}_{12}$$

$$\mathbf{a}_1 = G \frac{m_2}{r_{21}^2} \hat{\mathbf{r}}_{12}$$

# FAITH

Ripple Chapel  
Soul Design

Photography  
September 2008

HOLY FATHER, DO YOU REALLY HEAR MY WORDS?



# This is a design about an angel with arches.

## We need **faith**.

When talking about faith, we think of Christ.

When talking about Christ, we think of Annunciation from the **angel**.

## We need **blessing**.

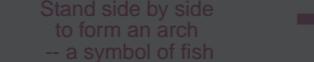
When talking about blessing, we think of a church.  
When talking about church, we think of **arches**.



**E**  
MERGENCE  
A chapel appears

**R**  
ARRANGEMENT  
Shape a construction

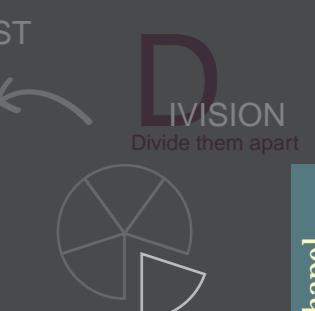
**I**  
NTERSECTION  
Stand side by side  
to form an arch  
-- a symbol of fish



**T**  
WIST  
Soften

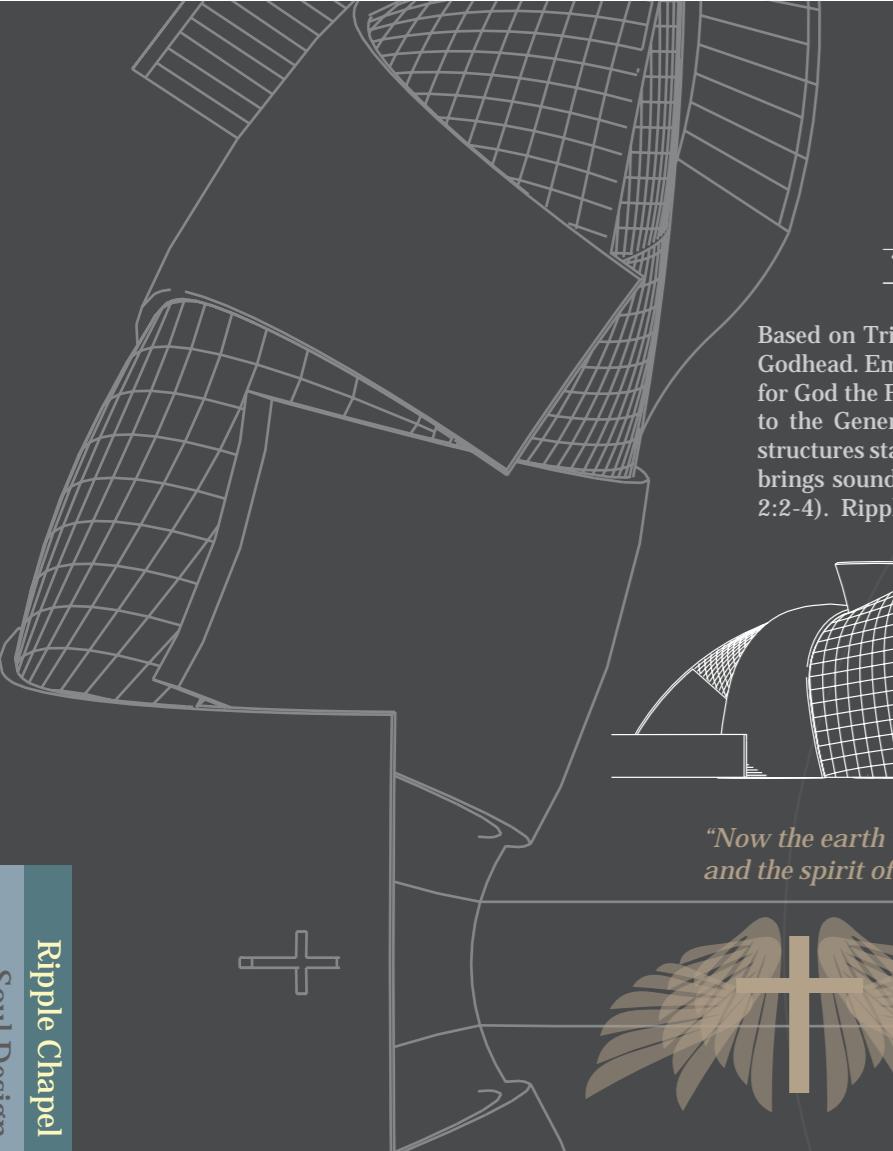


**D**  
IVISION  
Divide them apart



**L**  
OAF  
Five loaves carried by Jesus

Ripple Chapel  
Soul Design



# RIPPLE chapel

Based on Trinity, the unity of Father, Son, and Holy Spirit are like three persons in one Godhead. Emblems of Trinity form the chapel, sunlight through the crucifix on the roof top for God the Father; lake water for Holy Spirit and a white cross for God of Son. According to the Genensis, a big cross heaves over the waters. The whole chapel with five arch structures stands by a lake is like an angel with snow-white wings float on water. The angel brings sound from heaven. "A sound from heaven like the rush of a mighty wind" (Acts 2:2-4). Ripples that appear from winds and water can bring away people's sins. The modern formation of the Ripple Chapel was developed from the original doctrine but was different from the original church - with gloomy interior. The main concept of this design is "openness". Ripple chapel is irradiated. The open church symbolizes that god is available for everyone and every creature.

*"Now the earth was formless and empty, darkness was over the surface of the deep, and the spirit of god was hovering over the waters."*  
Genesis 1:2

The chapel project is for a village with population of about 12,000. The village was surrounded by mountains, and conifer forest covers the most part of the land. Harmony between the modern chapel and the environment is crucial to the landscape. The surrounding mountains are high enough, which make this modern and protrudent structure not odd but conspicuous. The chapel will provide residents a new place to worship. Also, it will be a beautiful stage for wedding.



**OPEN**  
Mind  
**OPEN**  
Soul  
**OPEN**  
Body  
**Open mind for faith**   **Open church for people**

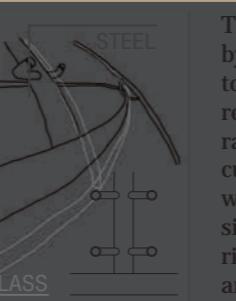
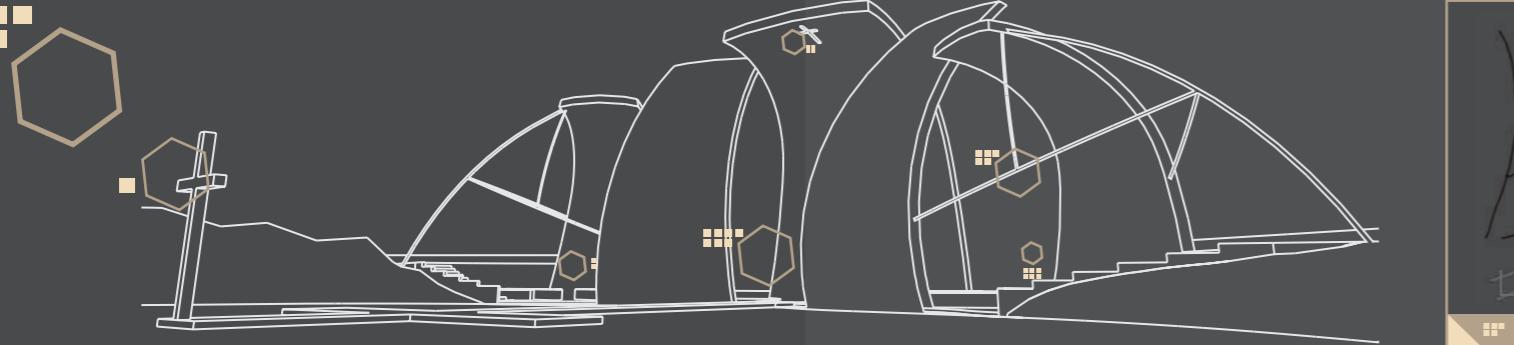


Conventional churches are always dark inside.

This design pursues a concept of openness



■ AN ANGEL WITH SPREADING WINGS LANDING ON THE LAKE



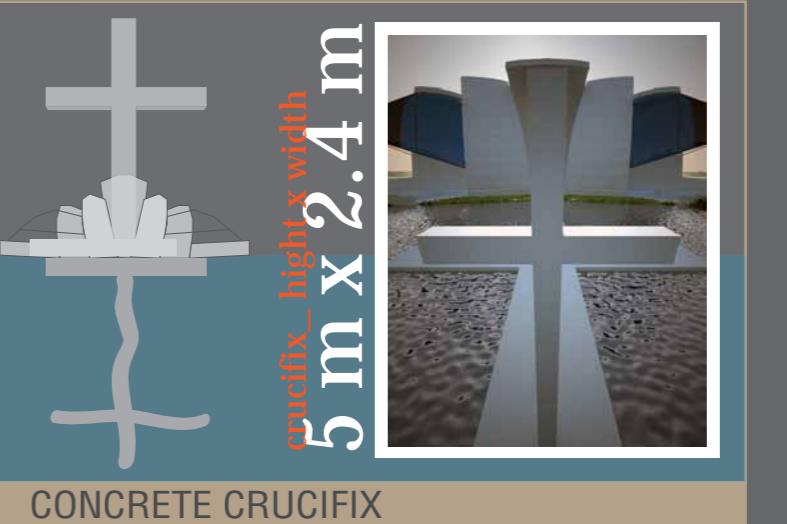
■ CONSTRUCTION OF STEEL BAR AND GLASS



■ CRUCIFIX ON WATER

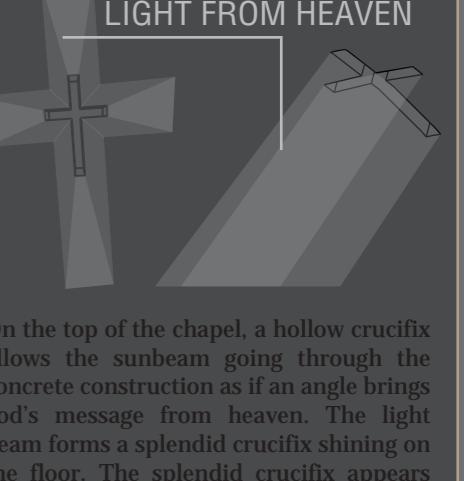


■ NORTHWEST SIDE



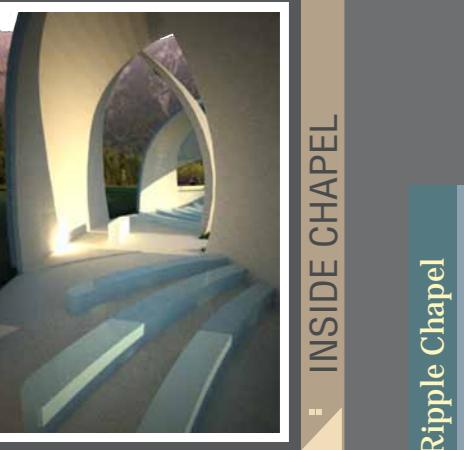
crucifix\_height x width  
5 m X 2.4 m

■ CONCRETE CRUCIFIX



On the top of the chapel, a hollow crucifix allows the sunbeam going through the concrete constructions as if an angel brings god's message from heaven. The light beam forms a splendid crucifix shining on the floor. The splendid crucifix appears when the sun is in the west. Besides, it can be applied in the solarium.

■ SPLENDID CRUCIFIX



■ INSIDE CHAPEL

# INTELLIGENT BOOKMARK

# READING ADDICT

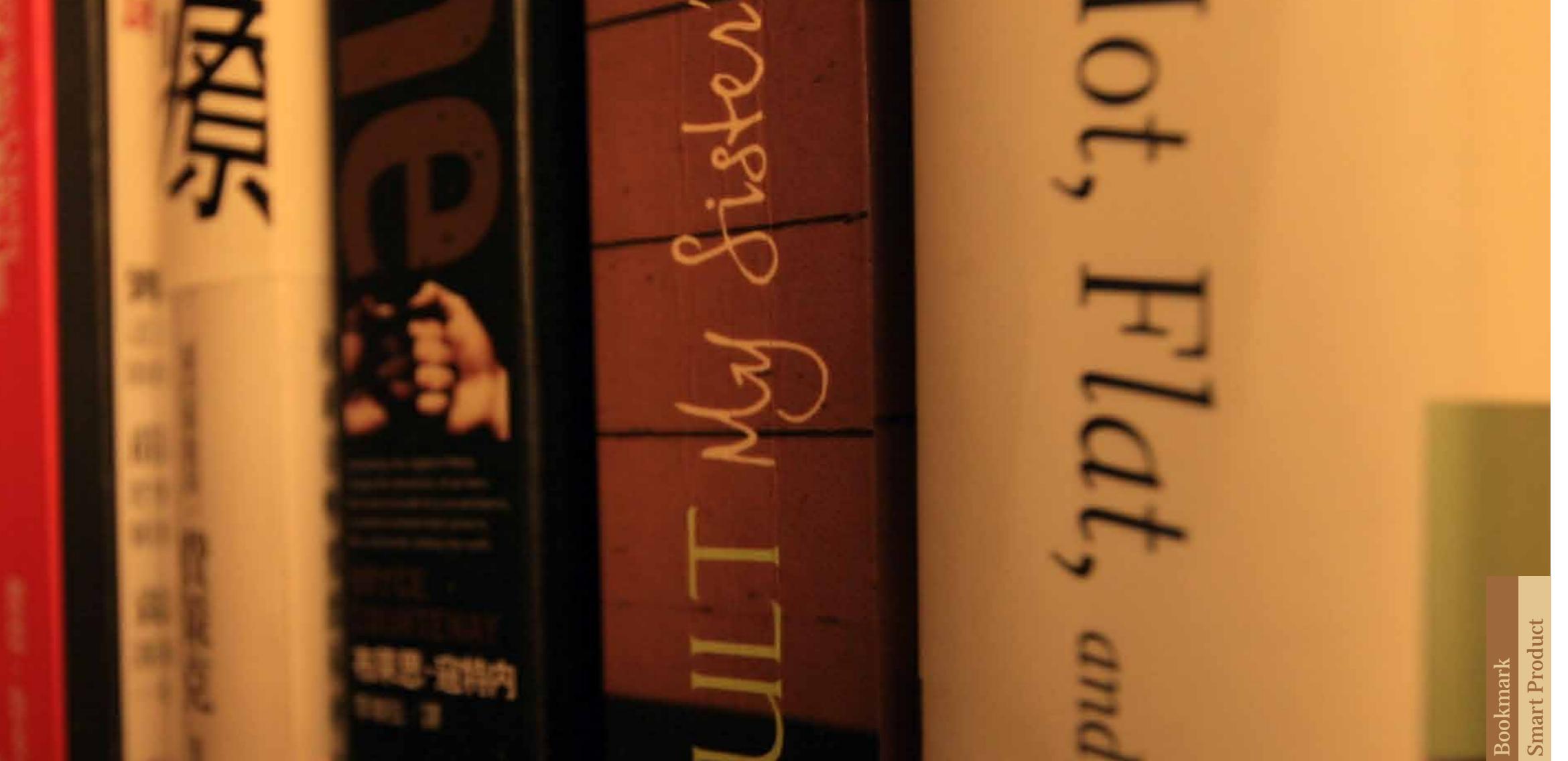
## Smart Bookmark



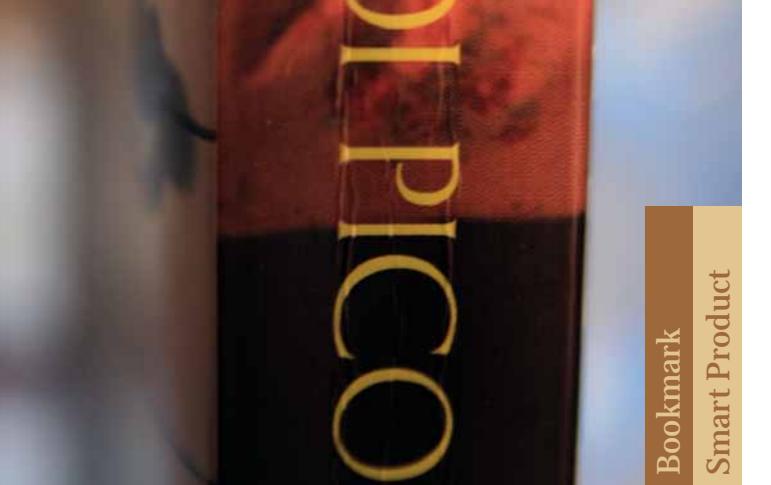
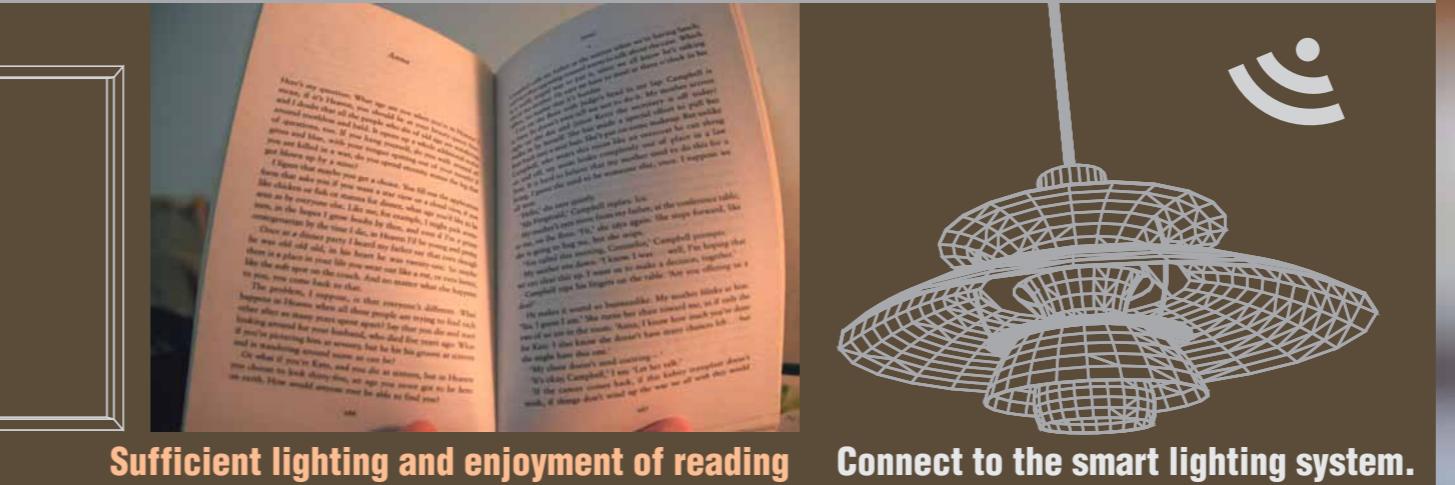
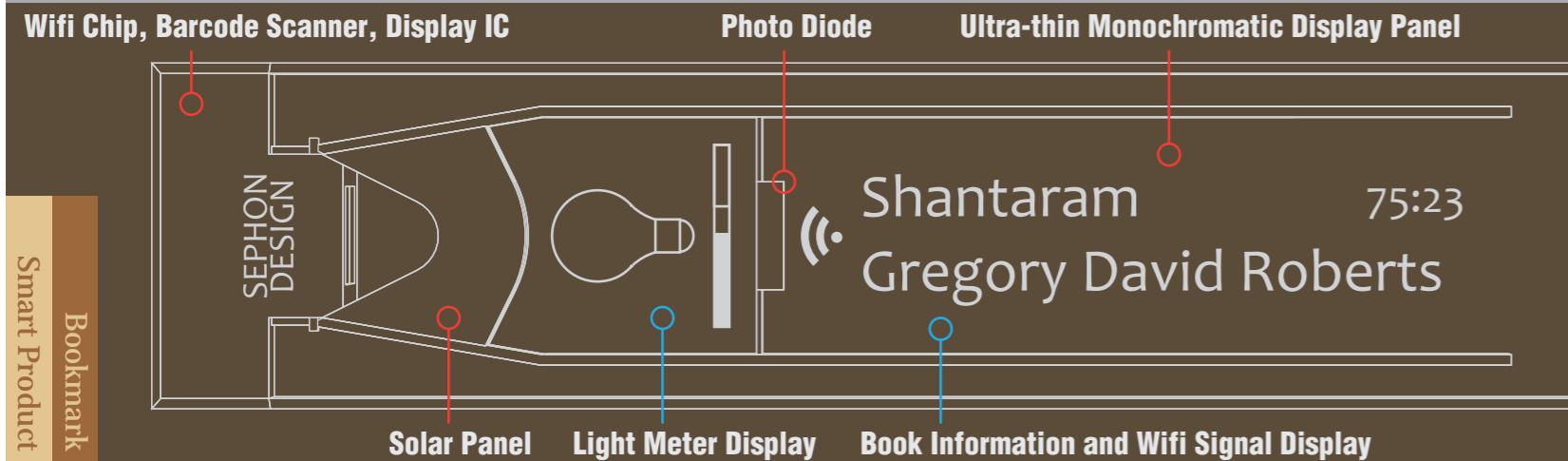
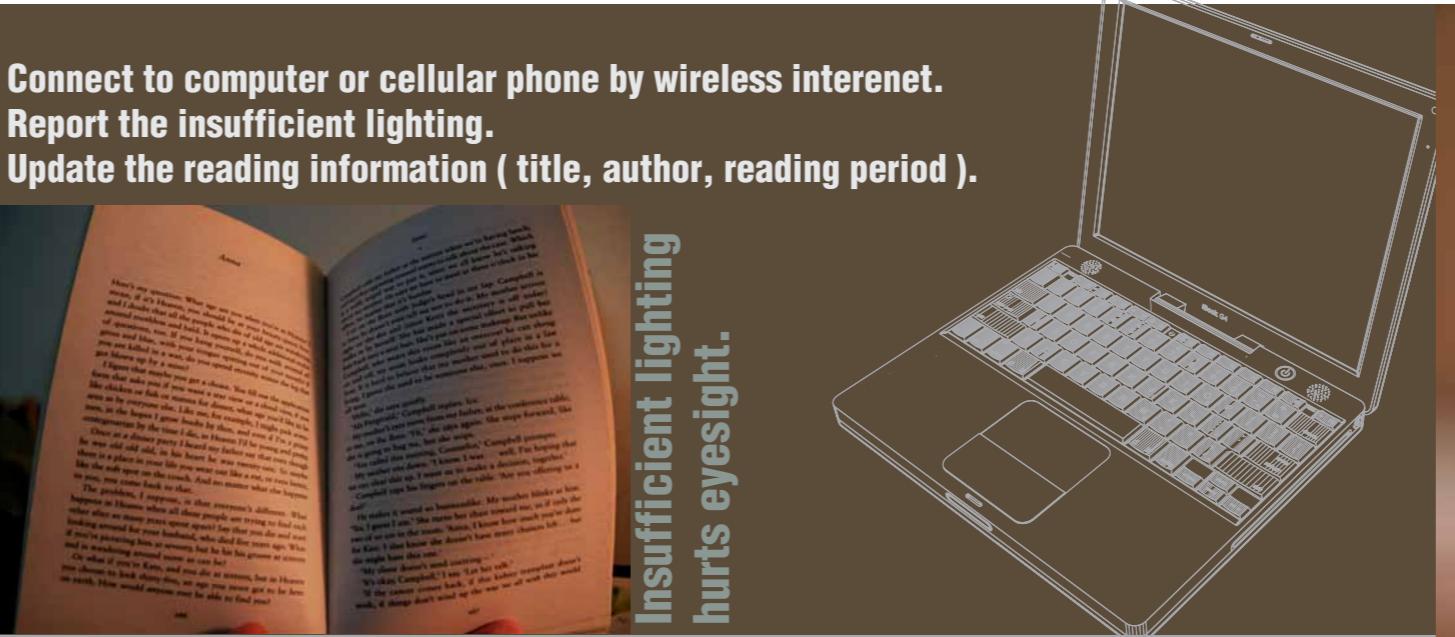
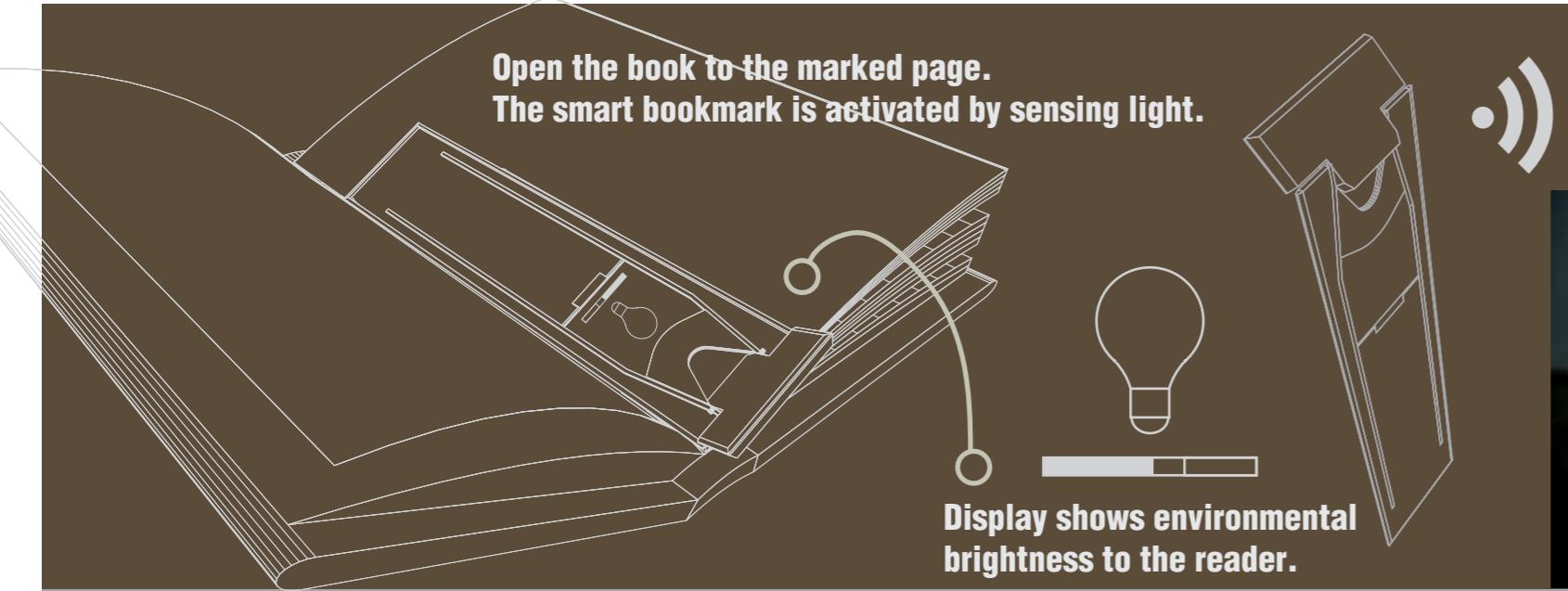
7 5 3 2 1 3 9 2 5 9 1 7



Smart Product  
Bookmark



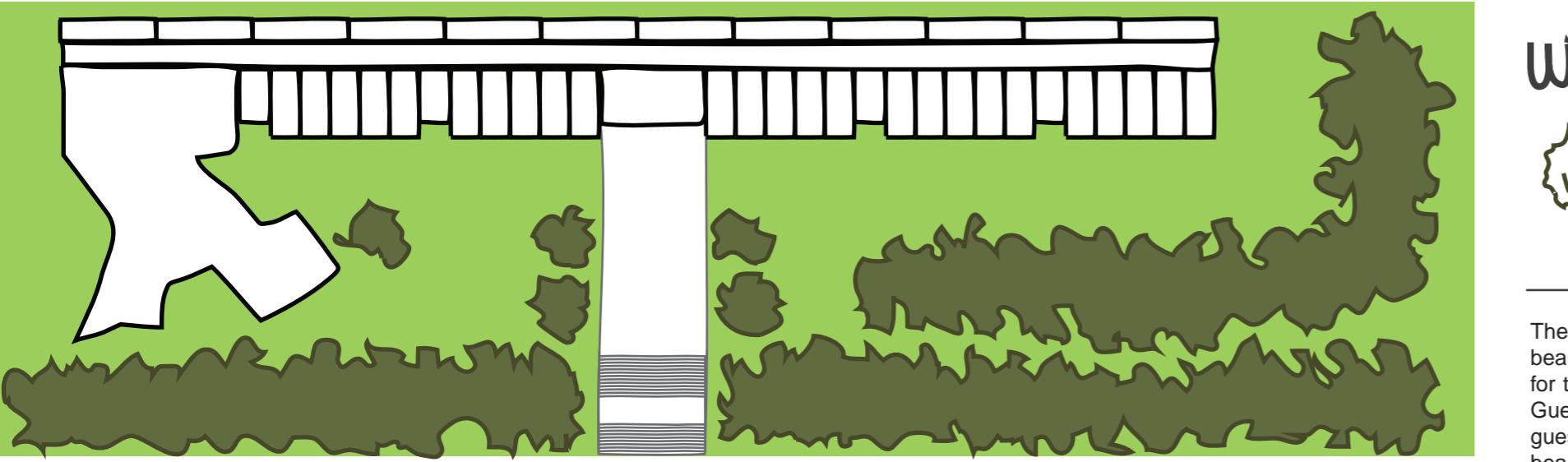
Bookmark  
Smart Product



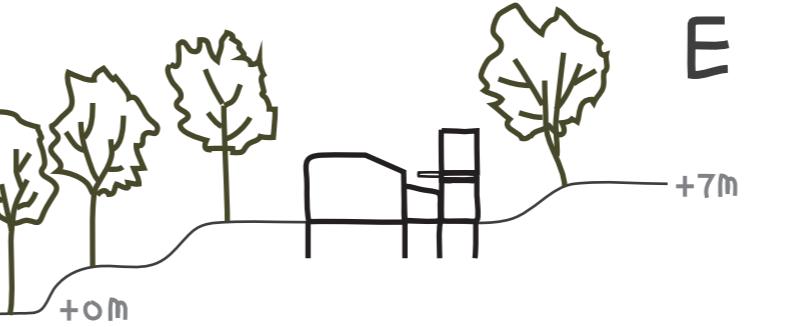
# PINE WAVE

$$\frac{\partial^2 u}{\partial t^2} = c(u)^2 \nabla^2 u$$





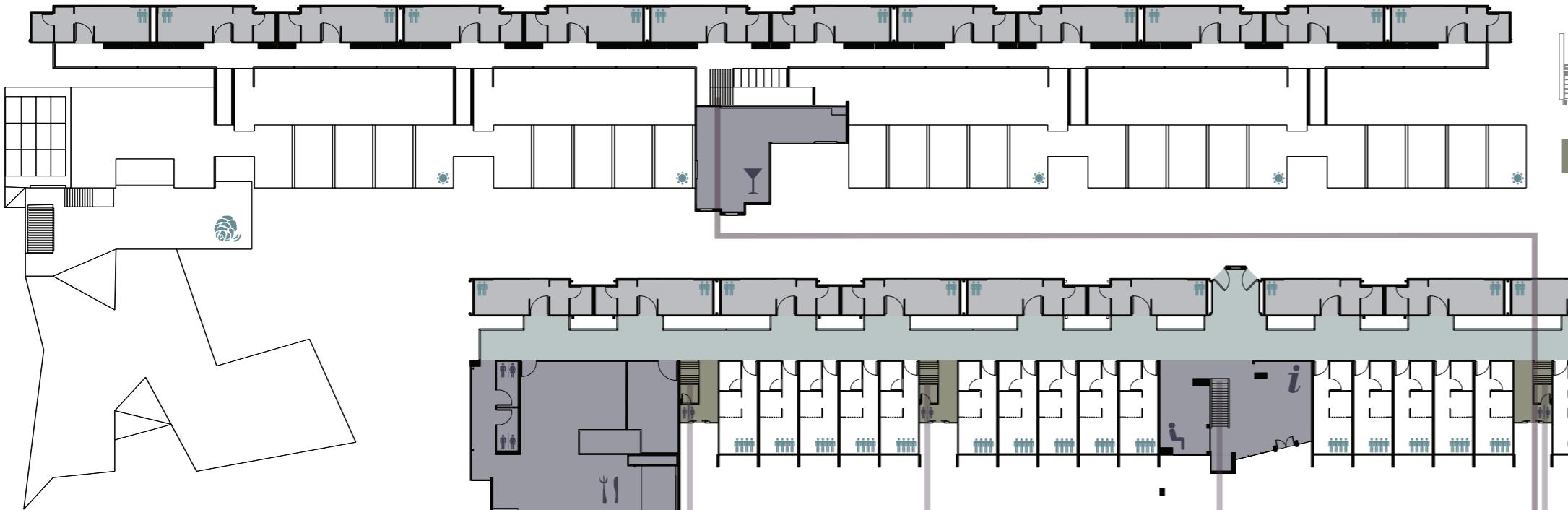
The Pine Wave Guesthouse in National Central University (NCU) for international students and invited guests is planned to be a practical project. The plant represents the spirit of NCU is pine. Pines are almost everywhere on campus. When winds blow over the pines, the acicular leaves tremble, and the sound is like waves strike against the coast. Therefore for students in NCU, walking on the "pine wave" on campus is like walking along the beach. Within these years, Chinese becomes a popular language because of China's rising. The number of international students in pursuit of language programs is surging, and the old guesthouse becomes the dorm for international students. However, it is outmoded and requires considerable expense on repair. National Central University is seeking internationalization and globalization, thus a new, environmental-friendly and advanced guesthouse for international students and scholars is necessary. Being an alumnus of NCU for 6 years, I am inspired and of great interests to build this ideal guesthouse. In this project, environmental issue is a main concern: water, air, and electricity are planned. Pine Wave Guesthouse is an architecture design with green concepts.



The old guesthouse locates on a slope and is surrounded by a beautiful pine forest and meadow. The meadow is always a hot spot for taking marriage pictures and drama scenes. The new Pine Wave Guesthouse will replace the old one on the original site. In the new guesthouse, many large windows will be used for enjoyment of the beautiful scenery. Apart from international guests, its restaurant, bar, and outdoor platform provides students and faculties a new place for parties, performances, and activities. This will also be the best place on campus for students to stay outside, read books, enjoy sunshine and listen to wave sound.

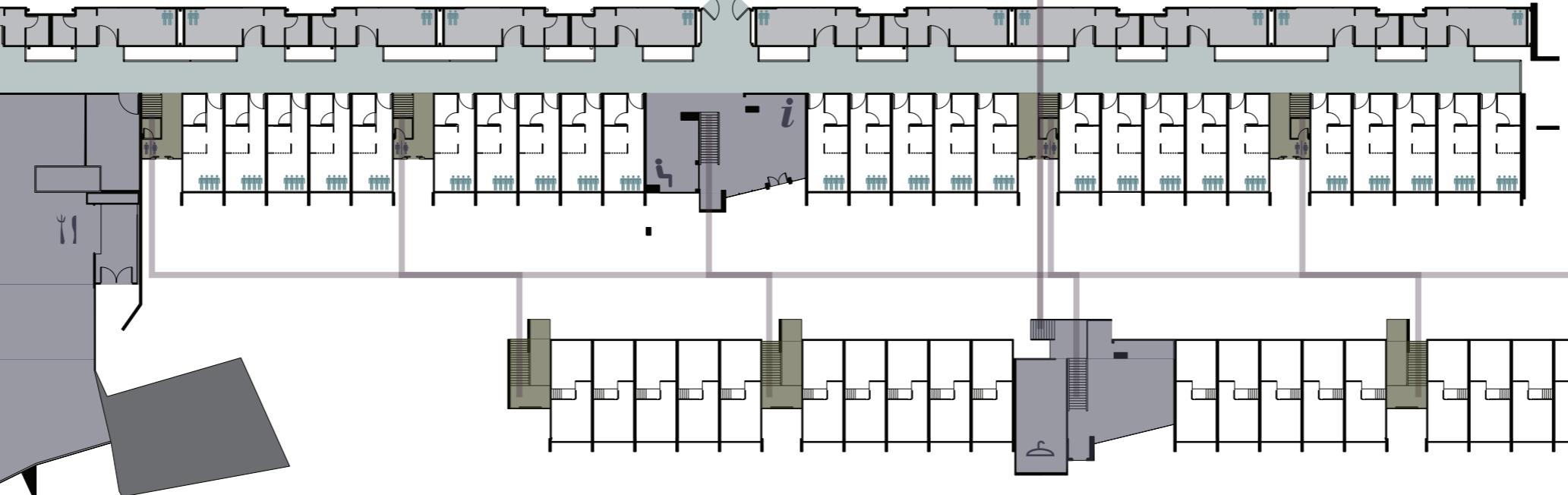
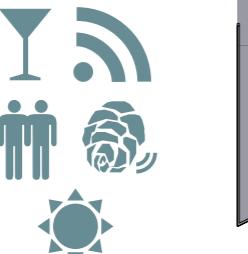


松  
[sōng]  
Pine  
[tān]  
Wave  
館  
[guǎn]  
Guesthouse



## SECOND FLOOR

Bar  
Exterior Platform  
Double Room  
Exterior Sward



## FIRST FLOOR



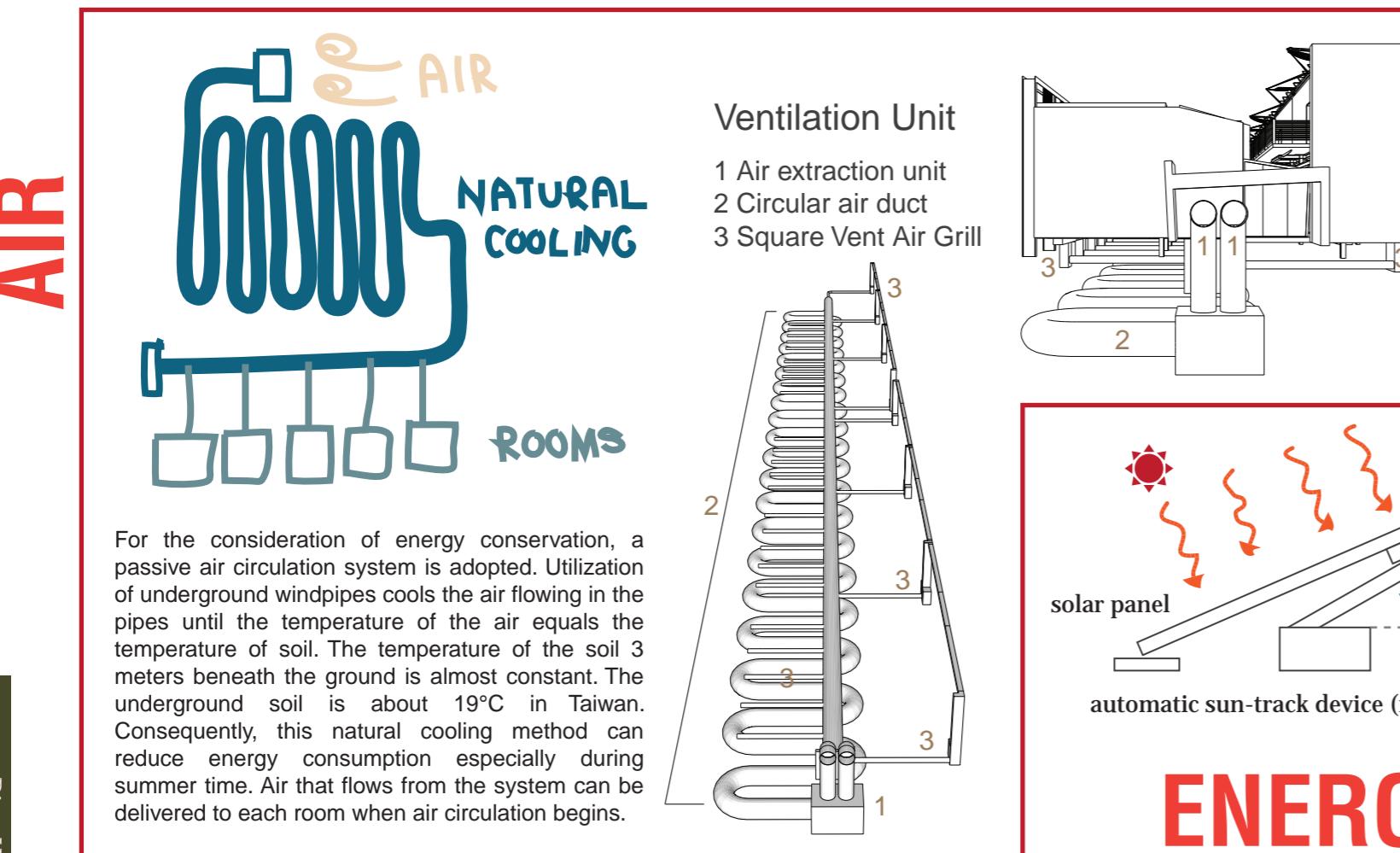
Four Bed Room  
Double Room  
Restaurant  
Living Room  
Laundry  
Counter



松濤會館

National Central University  
Pine Wave Guesthouse

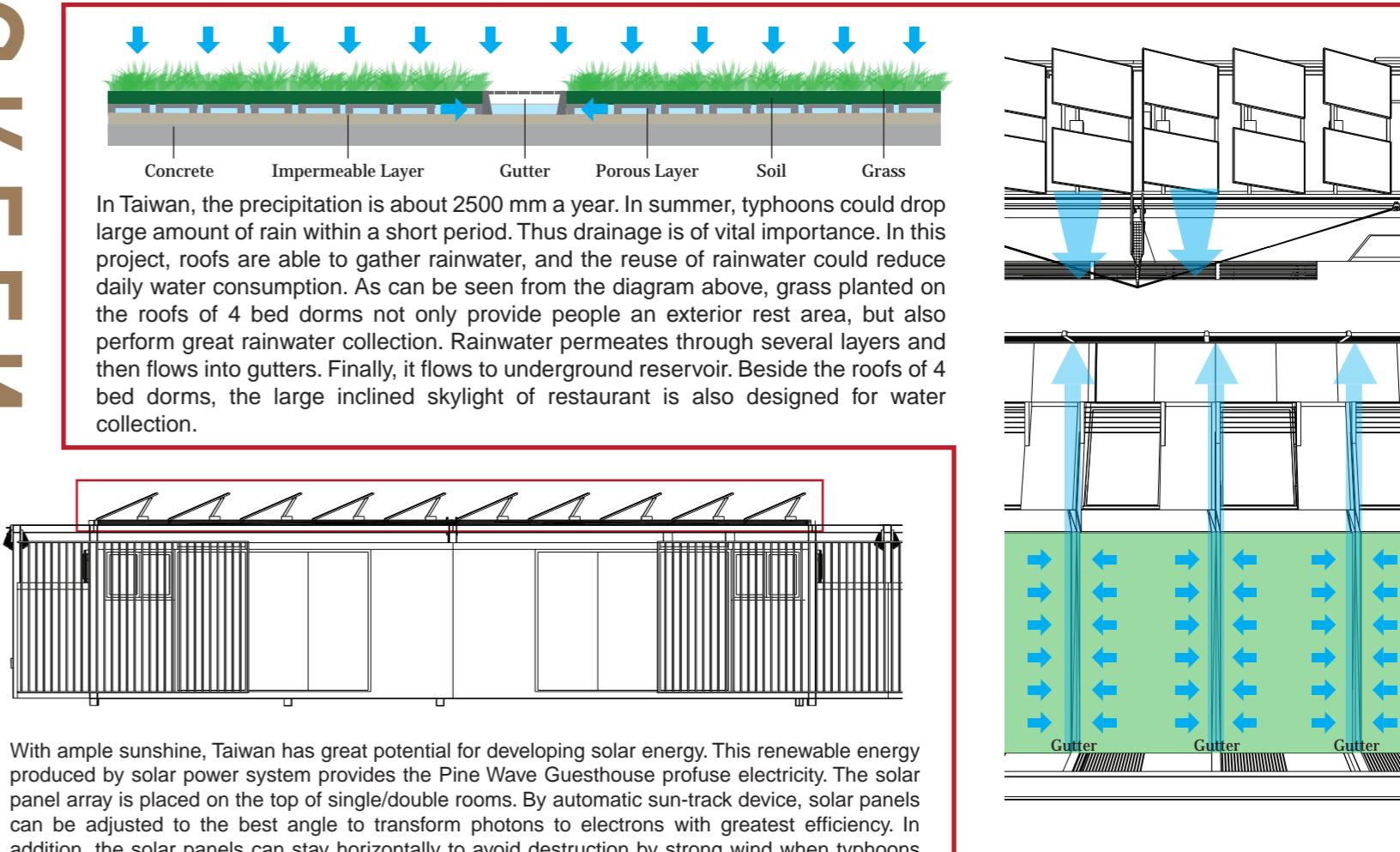
# AIR



# ENERGY

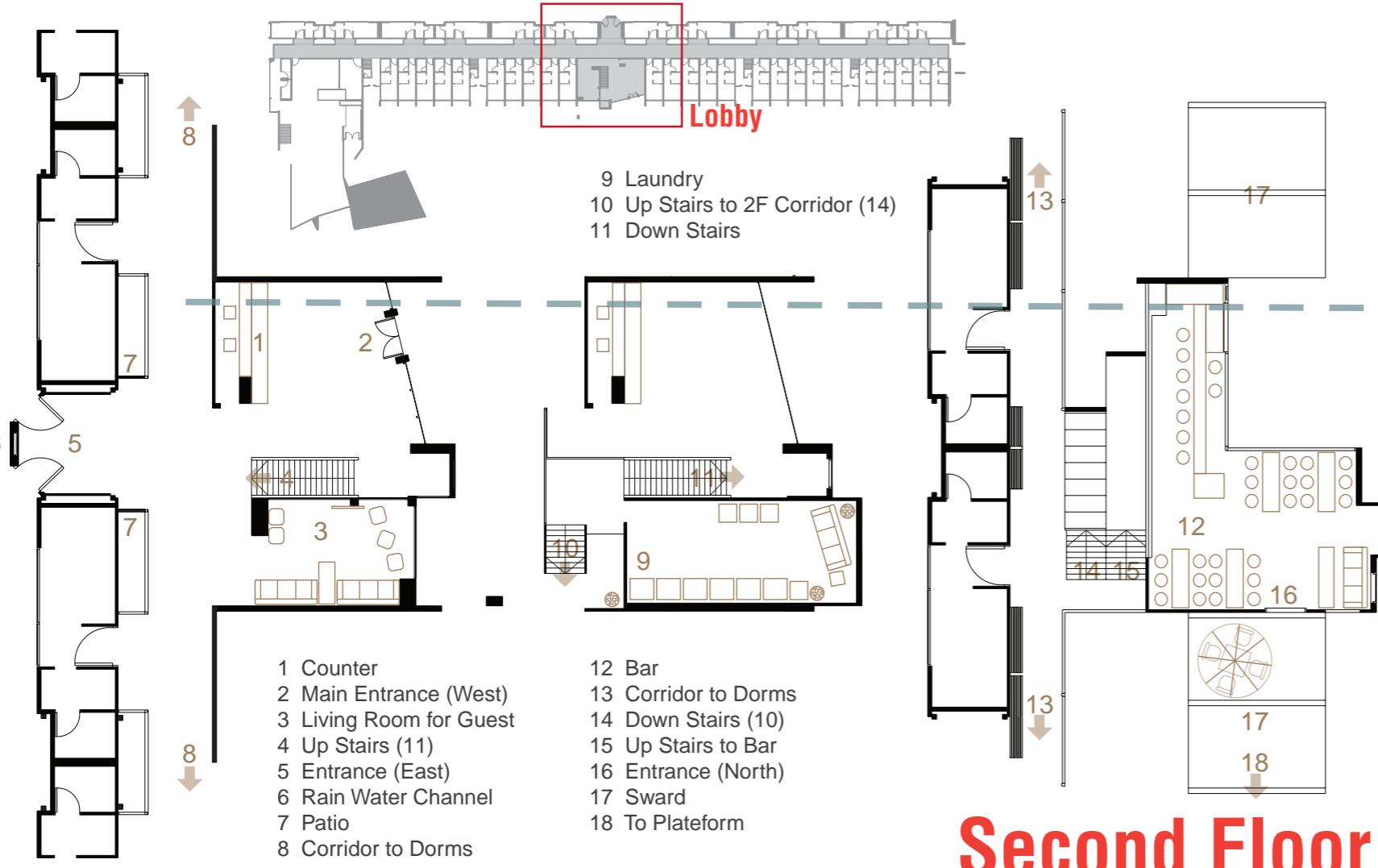


# WATER

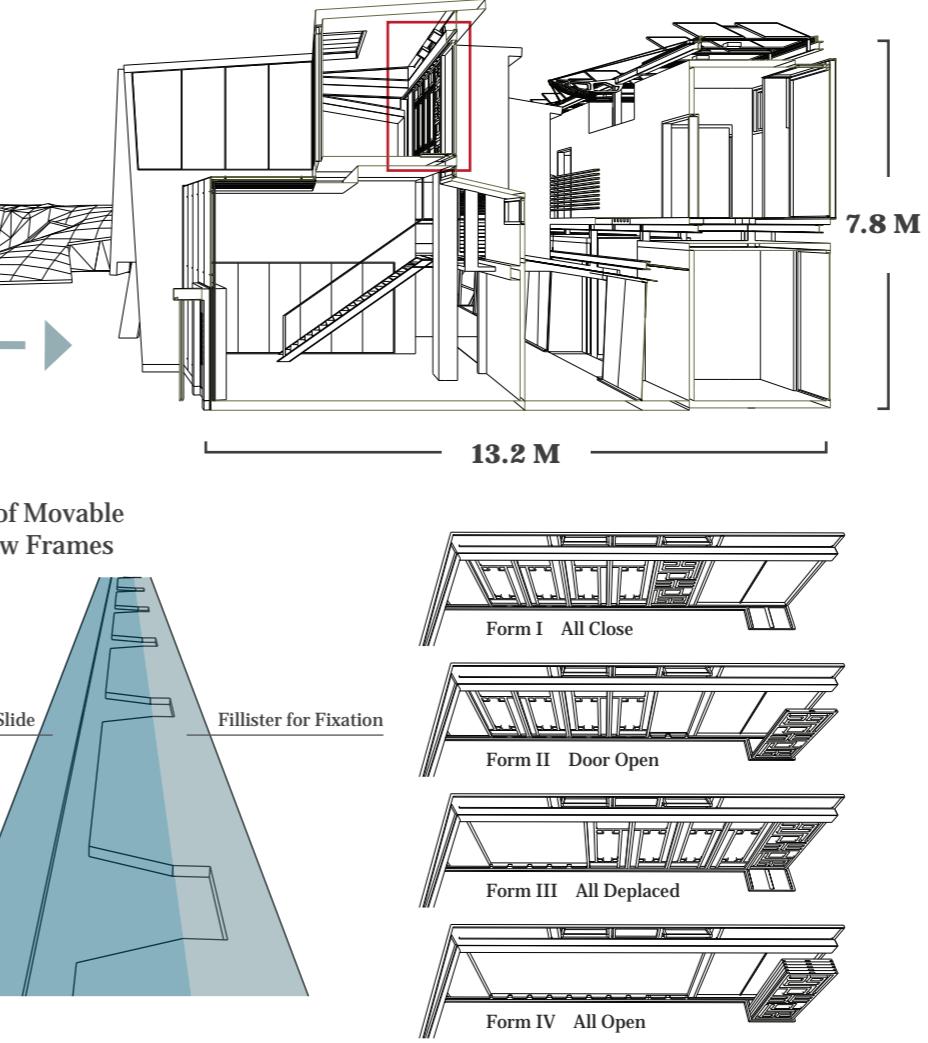


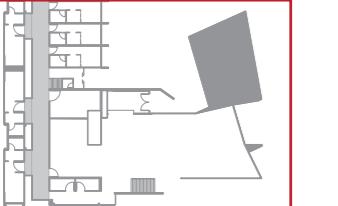
# WATER

# First Floor



# Second Floor





## First Floor



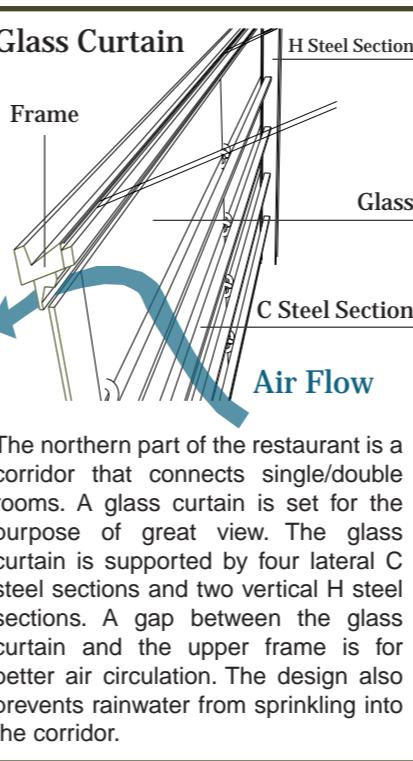
- 1 Restaurant
- 2 Kitchen
- 3 Storeroom
- 4 Corridor to Dorms
- 5 Toilet
- 6 Patio
- 7 Up Stairs to Plateform (16)
- 8 Up Stairs 2F Corridor

## Restaurant



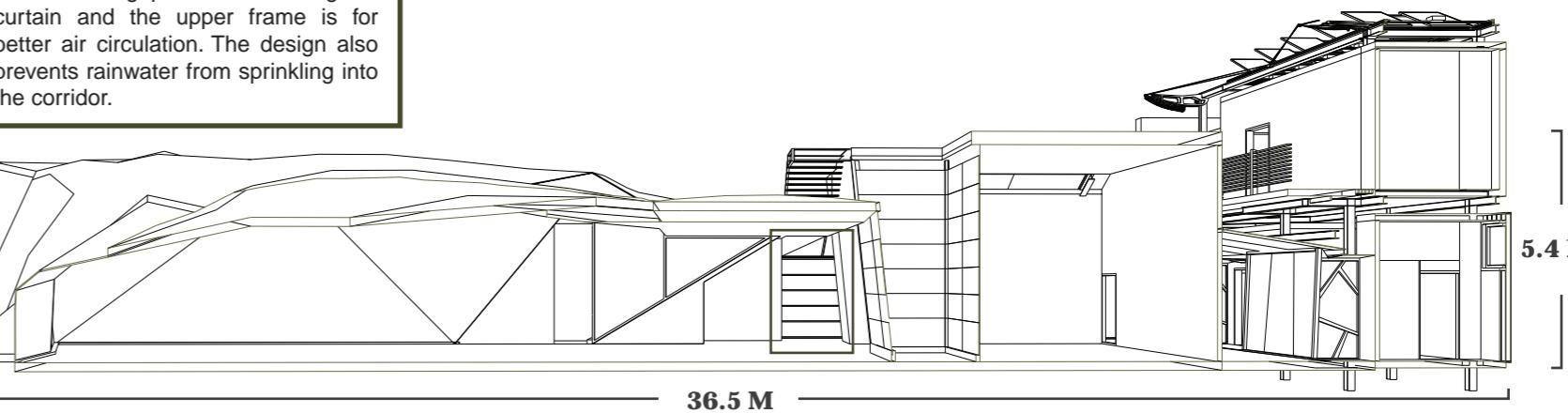
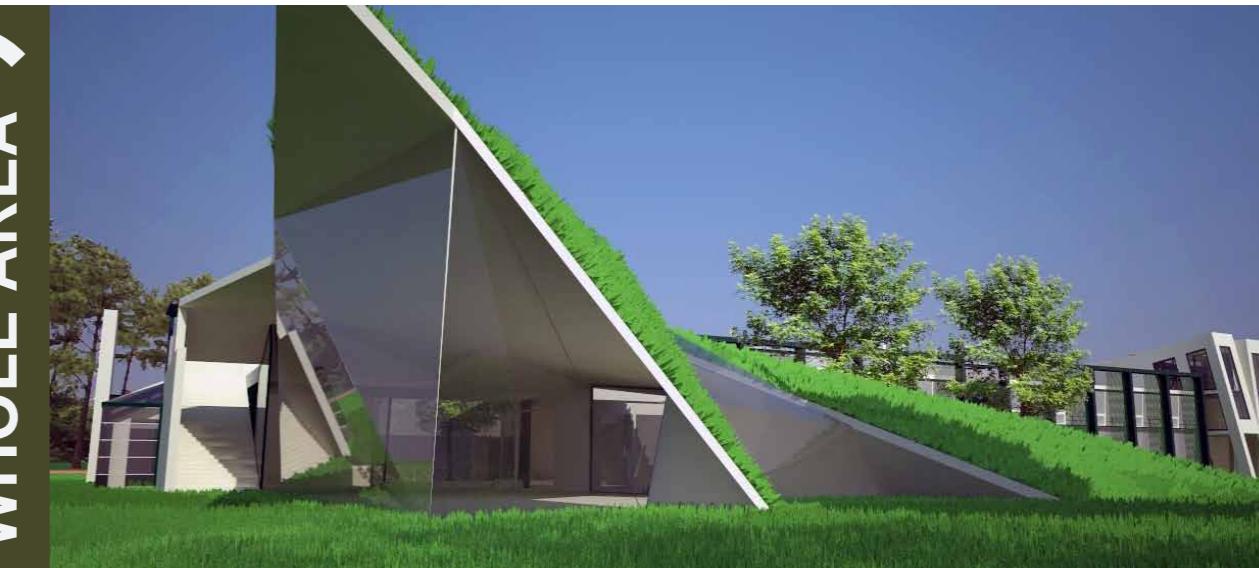
## Second Floor

- 9 Main Entrance (West)
- 10 Entrance (North)
- 11 Corridor to Lobby
- 12 Plateform
- 13 Sward
- 14 Skylight
- 15 Skylight
- 16 Down Stairs to Restaurant (7)
- 17 Down to 1F Corridor
- 18 Corridor to Bar
- 19 To Bar



**Glass Curtain**  
The northern part of the restaurant is a corridor that connects single/double rooms. A glass curtain is set for the purpose of great view. The glass curtain is supported by four lateral C steel sections and two vertical H steel sections. A gap between the glass curtain and the upper frame is for better air circulation. The design also prevents rainwater from sprinkling into the corridor.

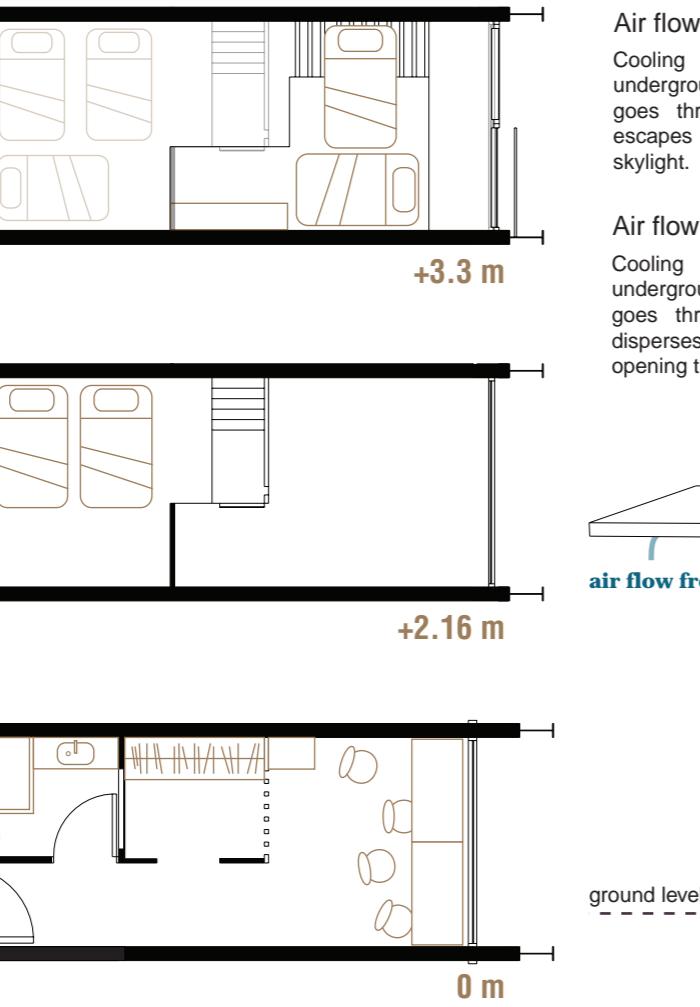
## WIFI COVERS WHOLE AREA



## Four bed Dorm



## Section 1



ground level

## Air flow circulation A

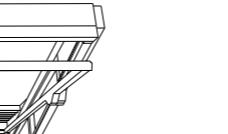
Cooling air of average 19°C from underground air circulation system goes through the room and then escapes outside from the opening skylight.

## Air flow circulation B

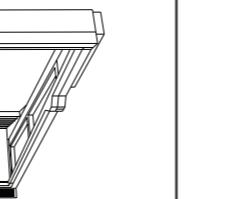
Cooling air of average 19°C from underground air circulation system goes through the room and then disperses via ventilator without opening the skylight.

## air flow from the passive air-cycle system

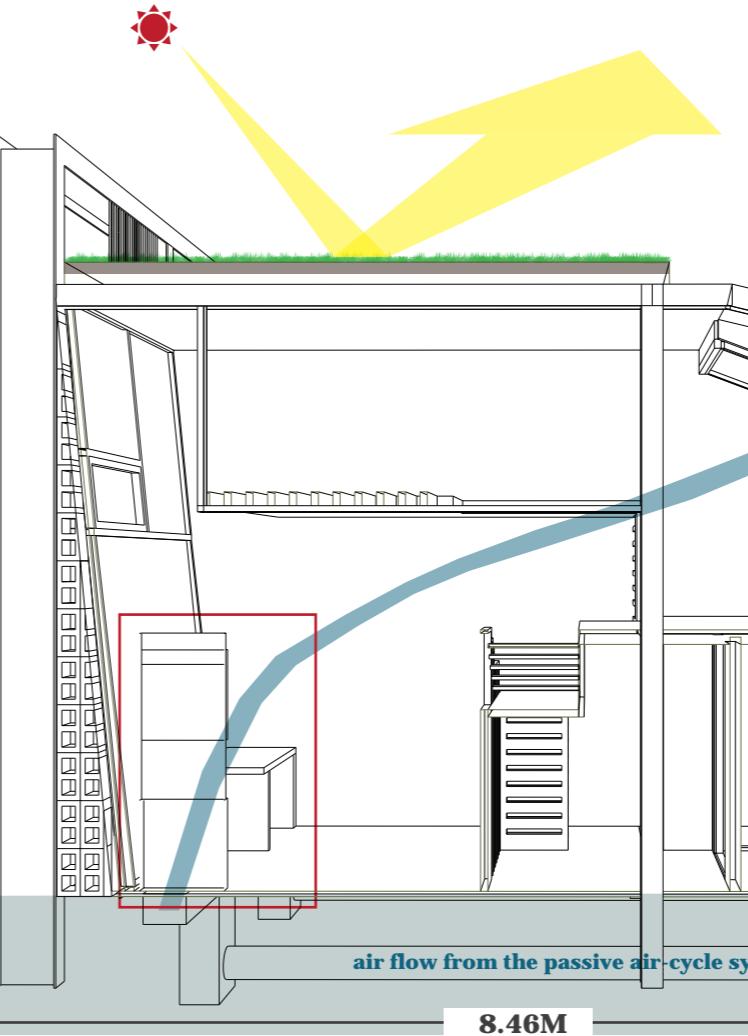
## air flow from the passive air-cycle system



The skylight is open



The skylight is close



The top surface of the structure is swarded. The lawn forms a layer to reflect and to absorb the power of the sun. This biological heat insulation is able to reduce interior temperature in summer. Taiwan locates in the subtropical zone. Average temperature in north Taiwan is 29°C and the highest temperature can achieve 39°C.



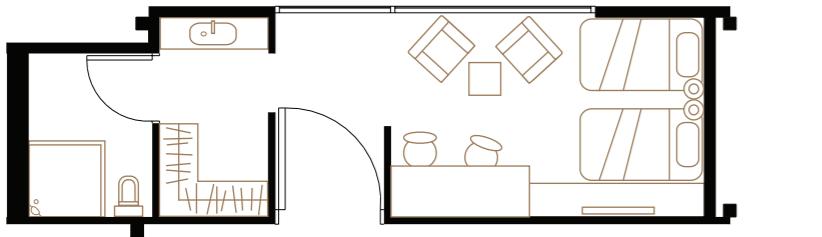
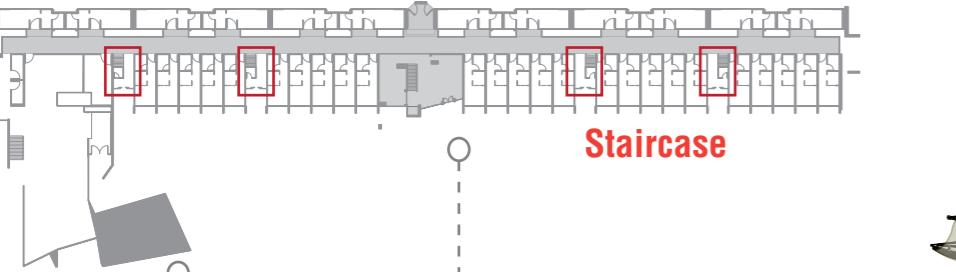
COMPLEXITY

GRADATION

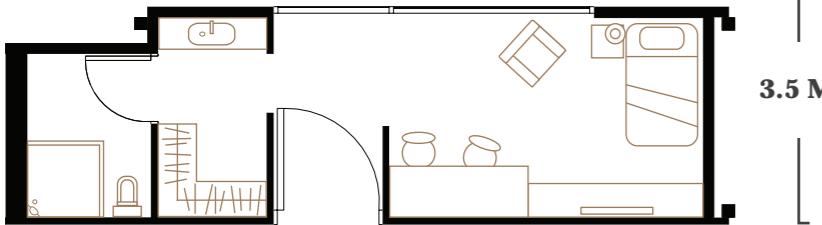
REGULARITY

The two desks are movable in order to get the good view and make the most of its function. The desk can be erected while not in use.

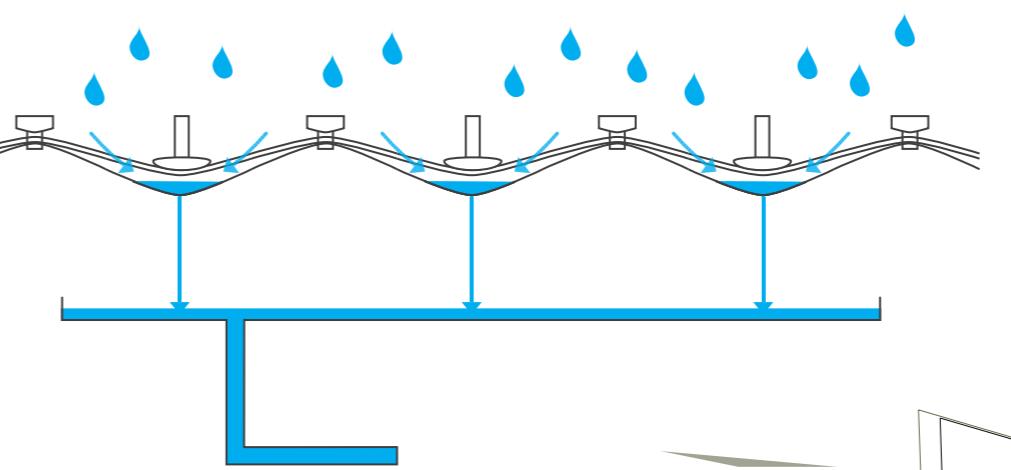
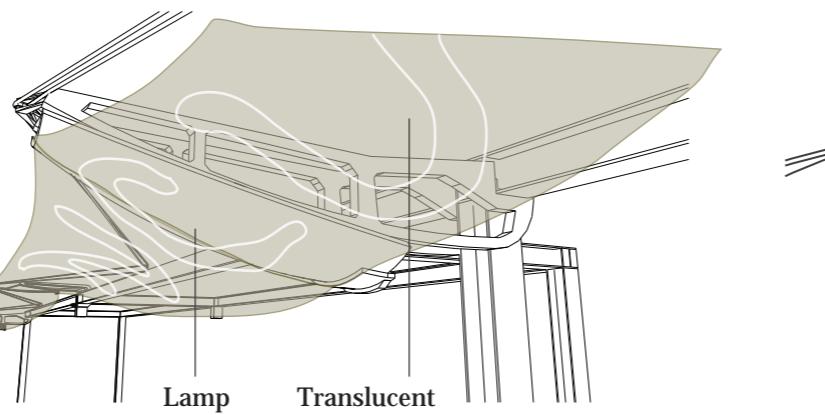
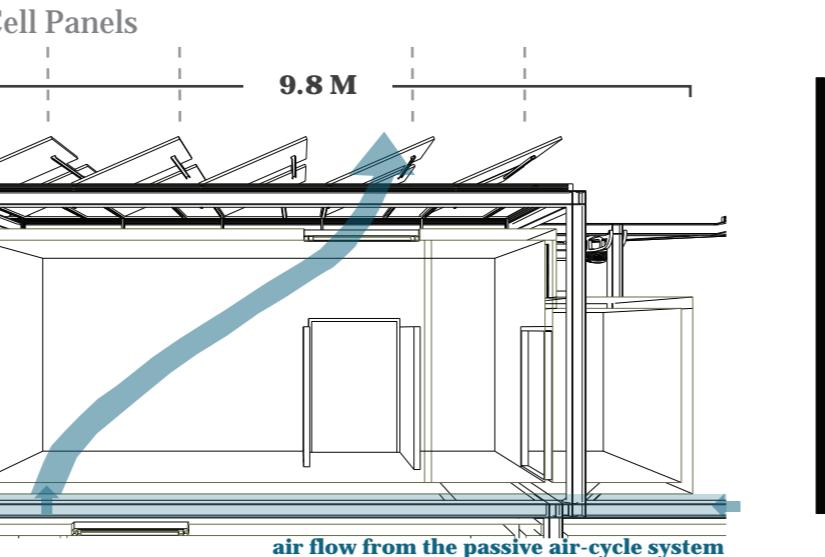
### Single / Double Room



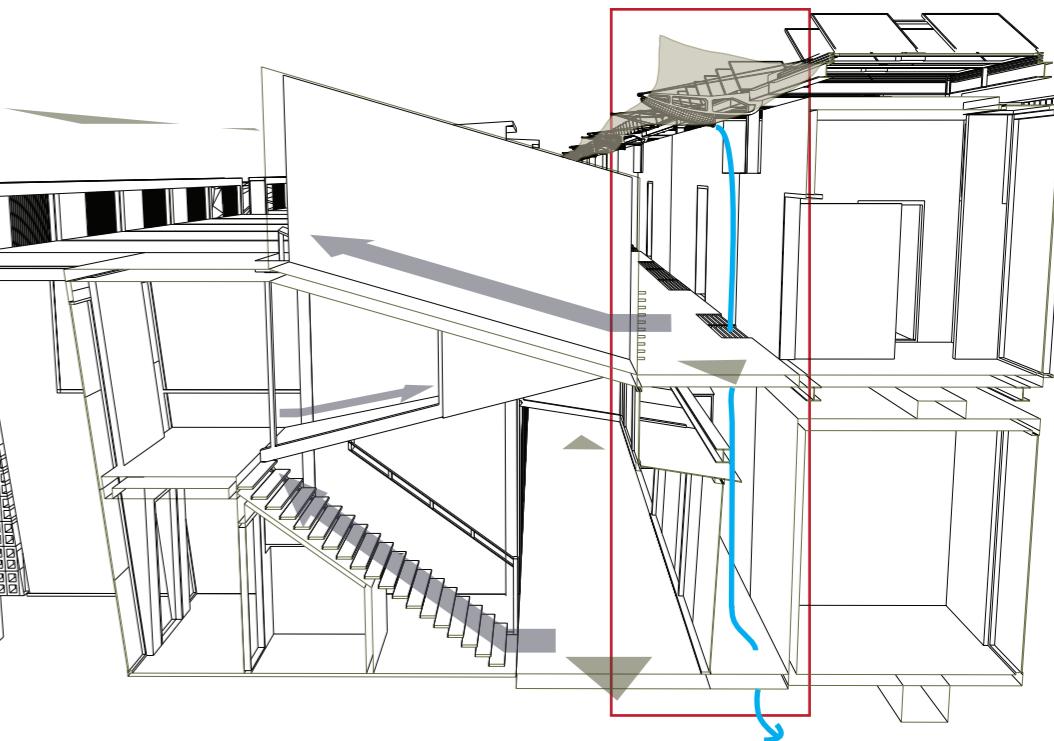
### Double Room



### Single Room

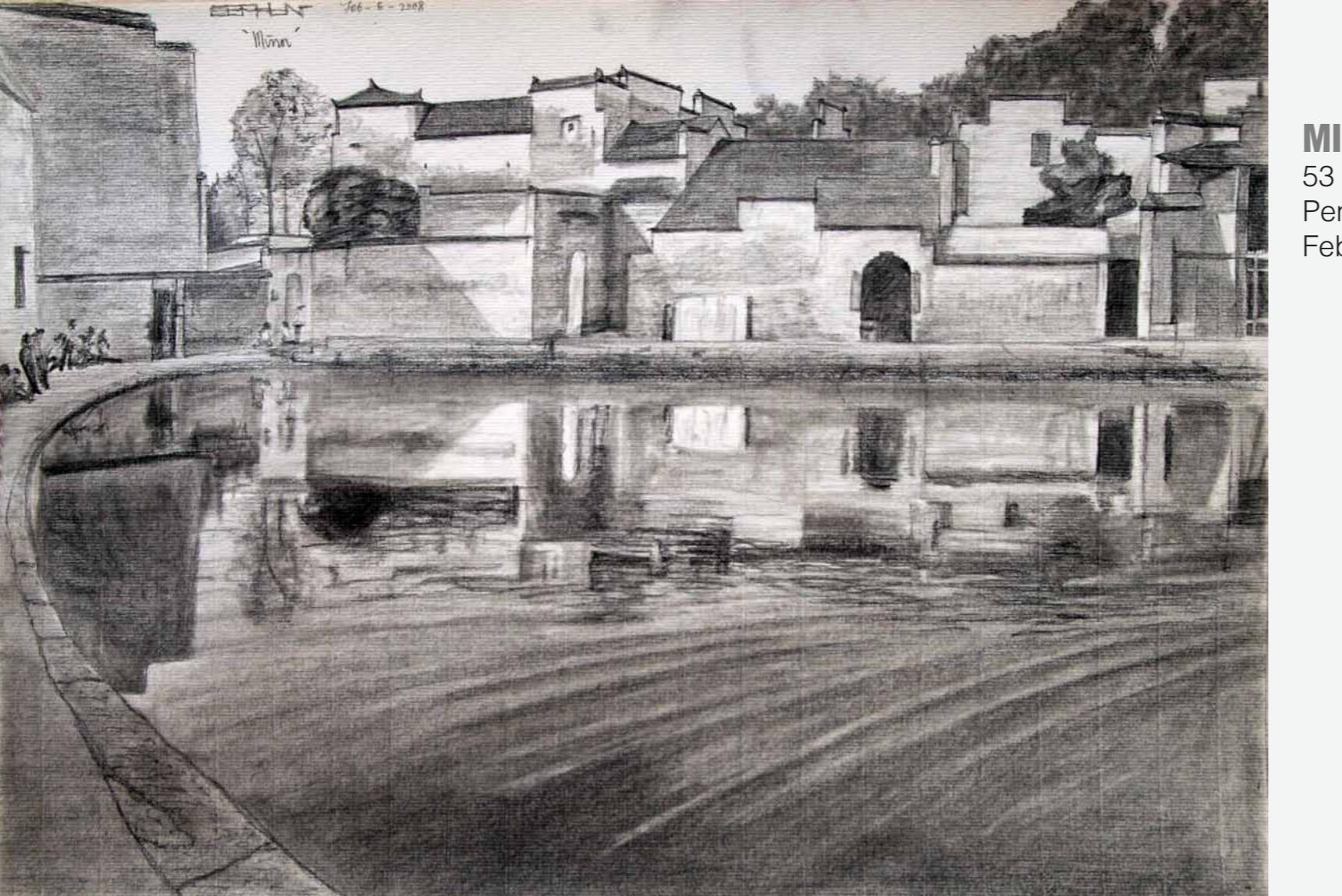


This design combines steel structures and lamps. Large translucent canvases are suspended under the lamps for aesthetic and functional considerations. The curved canvases is to palliate hard lines performed by concrete and steel structures. In addition, they also become covers when it is raining. Rainwater flows along the canvases and drops concentratedly from the nardirs to be easier gathered.



### Staircase

ART WORKS



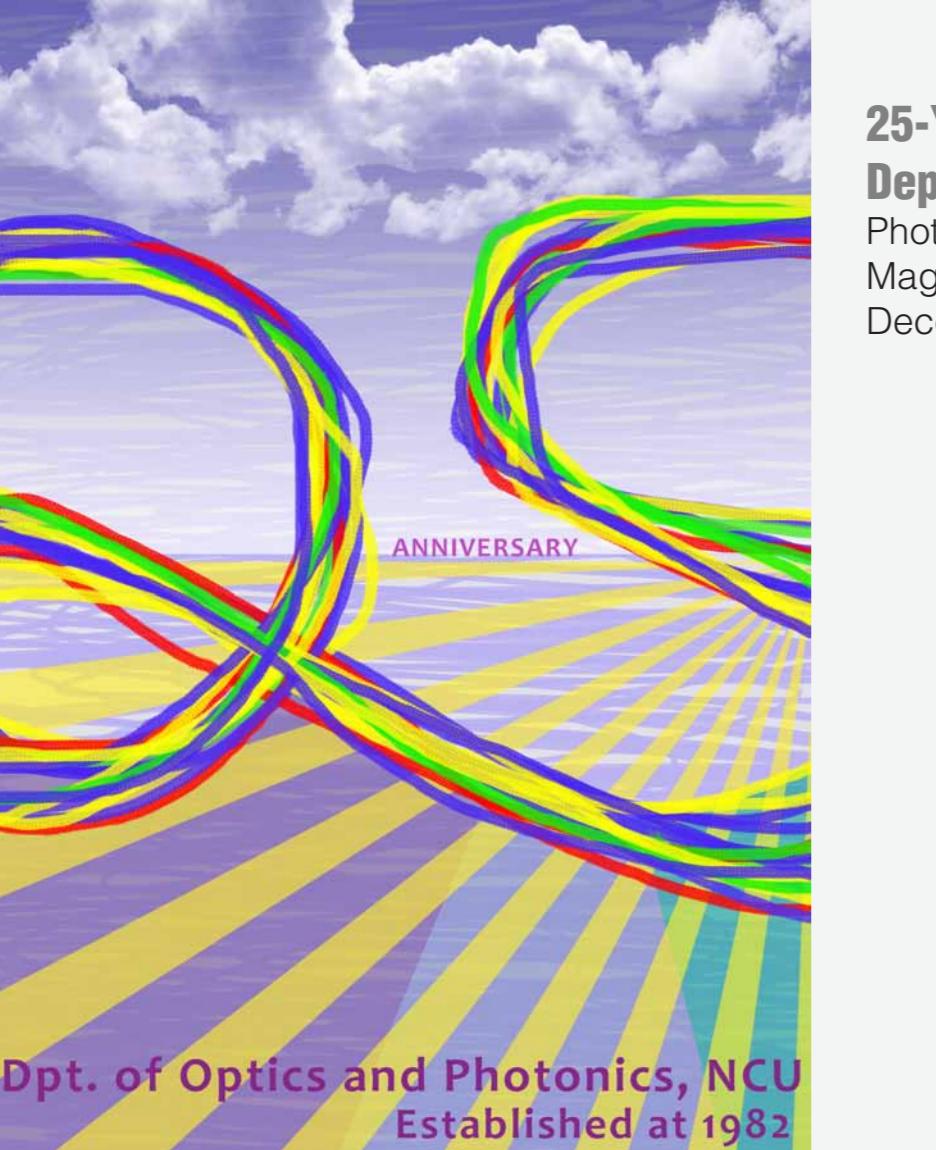
## MIRROR

53 cm x 38 cm  
Pencil Sketch  
February 2008

## HEIRLOOM

27 cm x 22 cm  
Pencil Sketch  
July 2006





## 25-YEAR ANNIVERSARY, Dept. of Optics and Photonics

Photoshop  
Magazine Cover  
December 2007



## WAYHOME

53 cm x 38 cm  
Pencil Sketch  
June 2007



## UNLOCK YOUR MIND

31 cm x 20 cm

Charcoal Sketch

February 2009

**GLEAM**  
ODF'08 PAPER DISK COVER  
Coral Painter  
May 2008



■ New Ideas and More Details on The Personal Website  
<http://140.115.40.132/sephon/>