The Revelation of Nature

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Department of Architecture
Advisor: Kuowei Chiu

The Revelation of Nature

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私立東海大學建築系碩士班
建築碩士學位論文

自然的混響

研究生：譚佳琪

經審查及口試合格特此證明

論文考試委員會

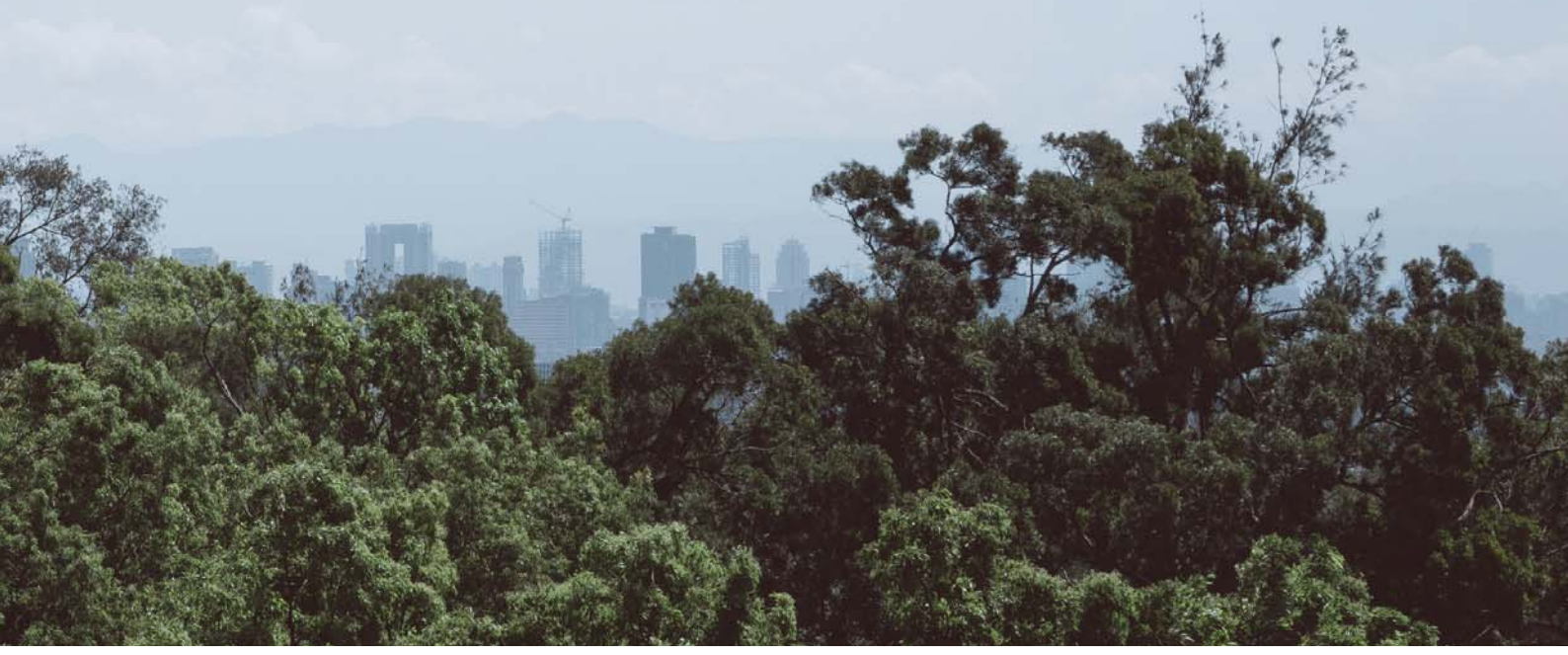
指導教授：邱國維

系 主 任 ：邱浩修

中 華 民 國 1 0 5 年 6 月

Acknowledgements

I would love to thank my supervisor , Prof. Simon Shu for his incisive advice and support in my postgraduate study; K.C. Chiu and Lain Satrustegui for valuable criticisms on my work.



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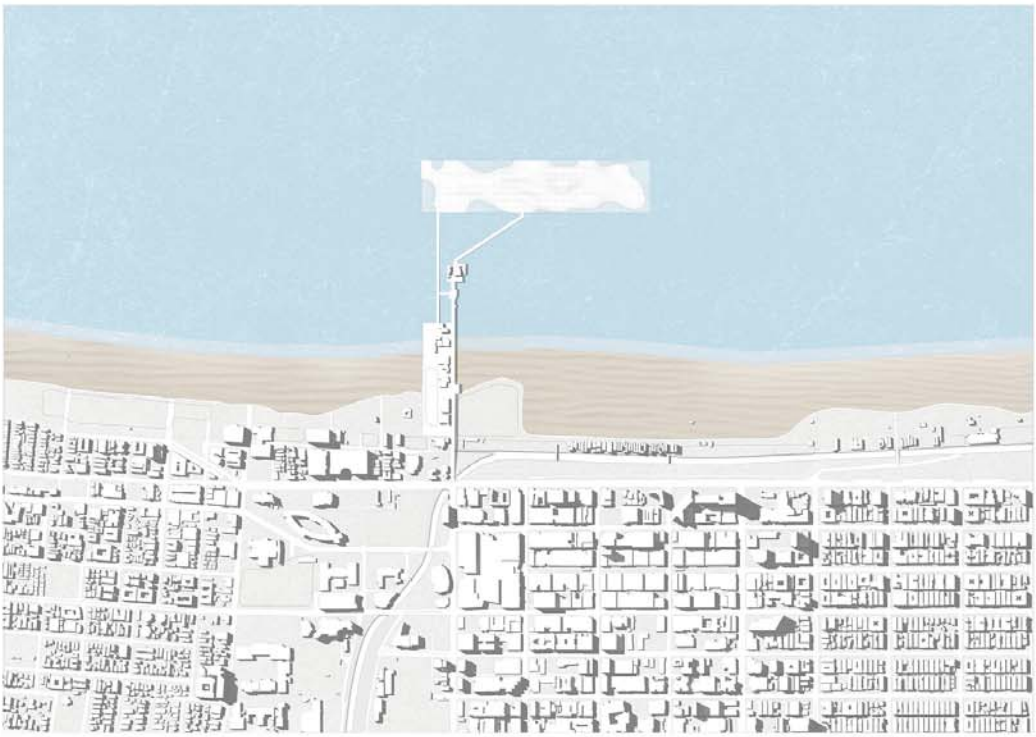
Individual Work
Instructor: Kuowei Chiu
Spring 2016

The Revelation of Nature
Land Art Generator Plan

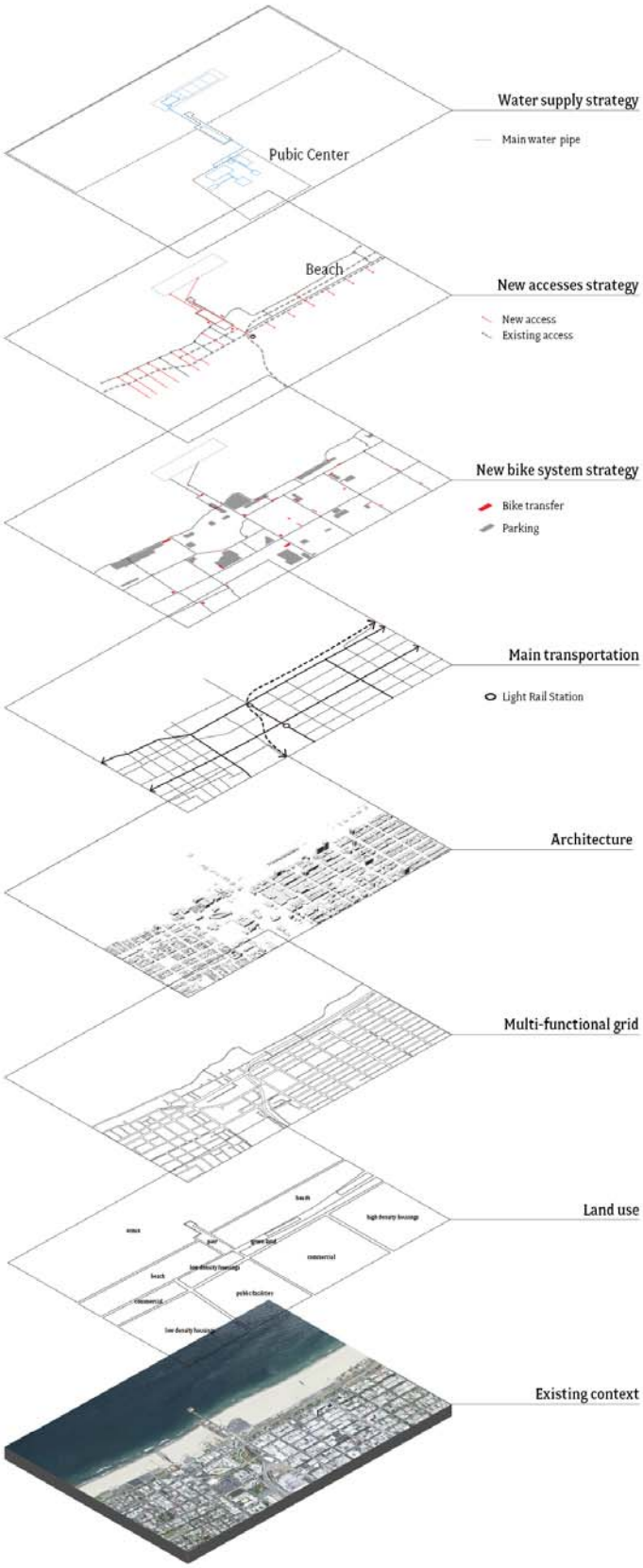
Santa Monica California is a resort town in western Los Angeles City. There is a long-term existing problem, water shortage so that the govenment has a plan called Land Art Generater Plan to generate clean energy and fresh water for communities.

The proposal site is on the sea out of Santa Monica Pier. The design is based on the exploration and research of urban problems with the usage of biomimicry. It is a new kind of design method which mimics the natural state and natural biological function to obtain effective design strategies and a highly sustainable way to capture large amounts of sea water vapor and generate clean energy for urban public facilities. At the same time, it could become a part of nature, and provide artistic public spaces for communities, which will promote the coexistence of human and nature.

Metropolitan Structual Plan



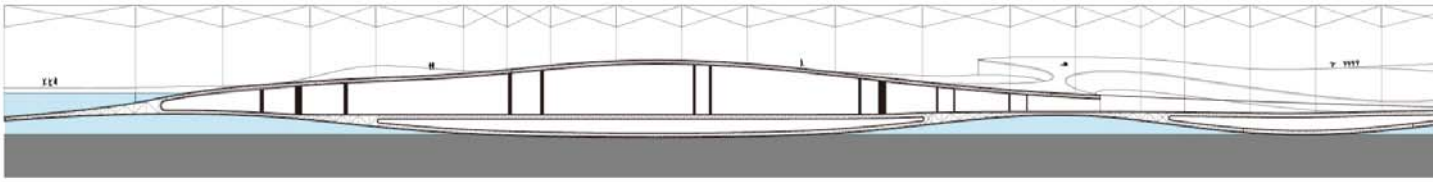
Masterplan 1:25000

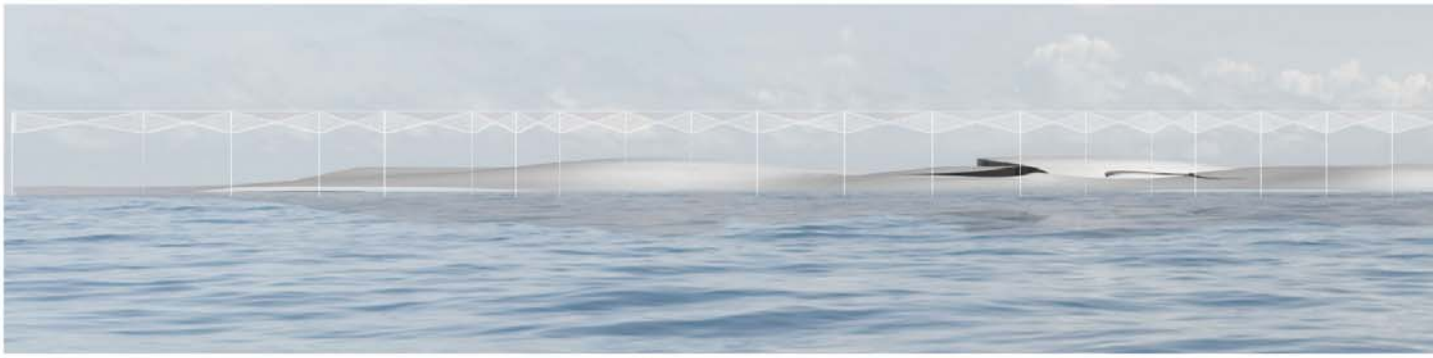


Urban Research

Horizon

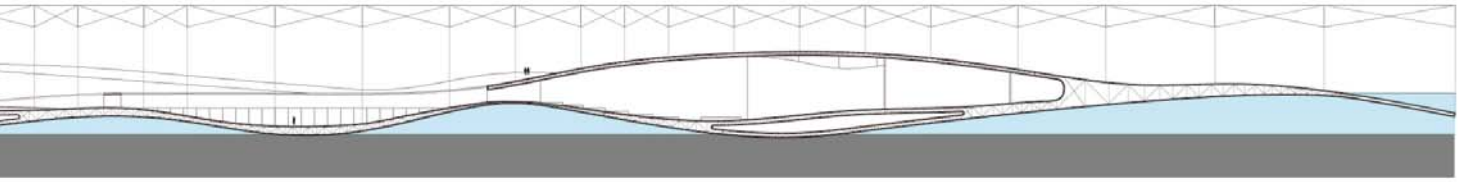
Wave



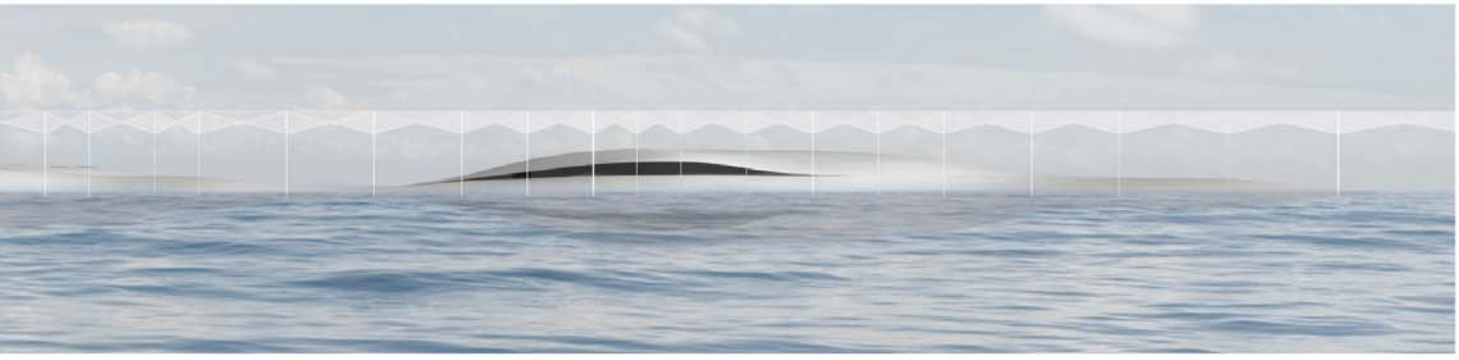


Wind

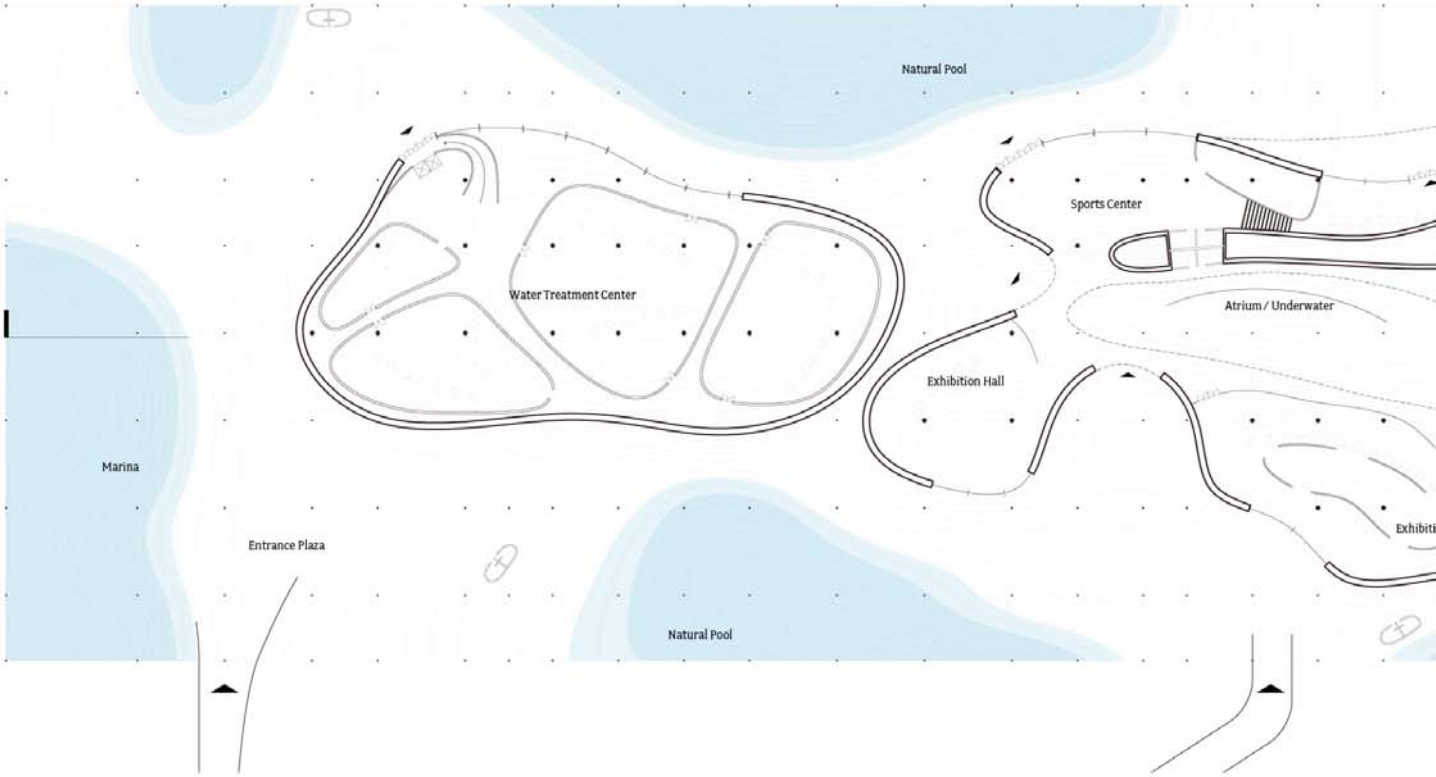
Cloud

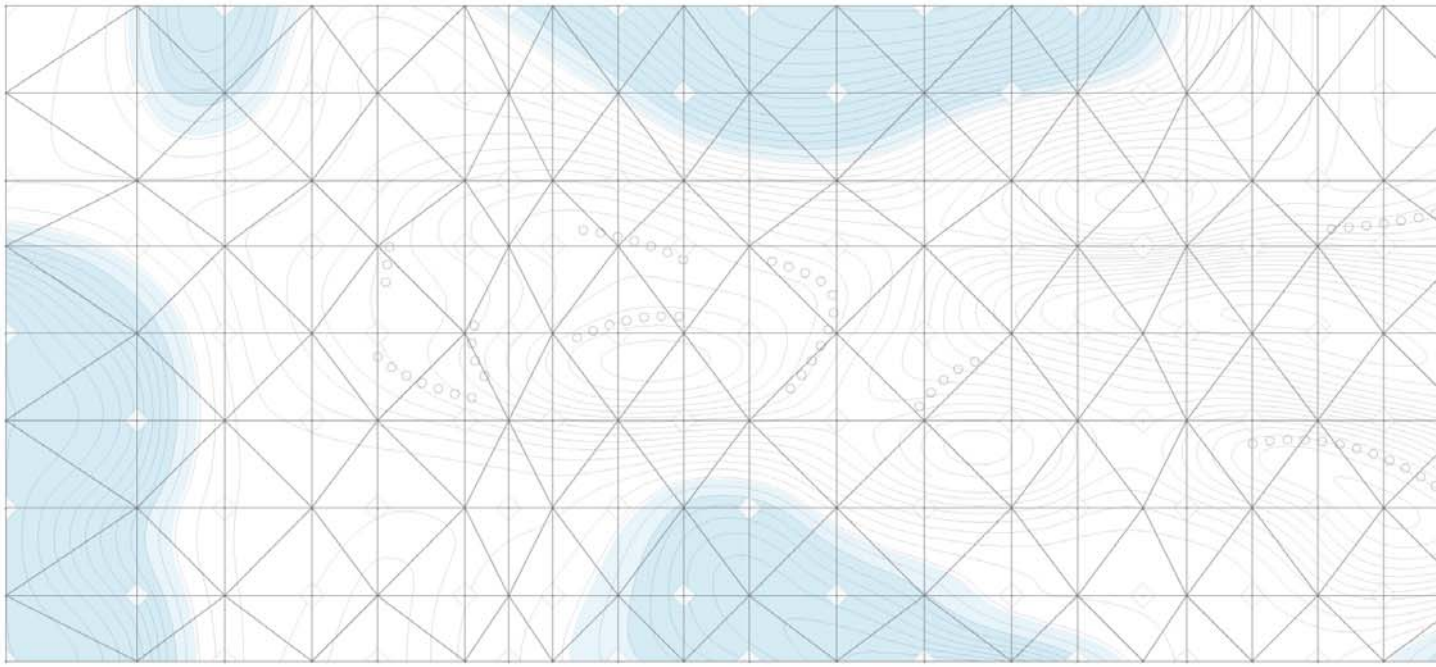


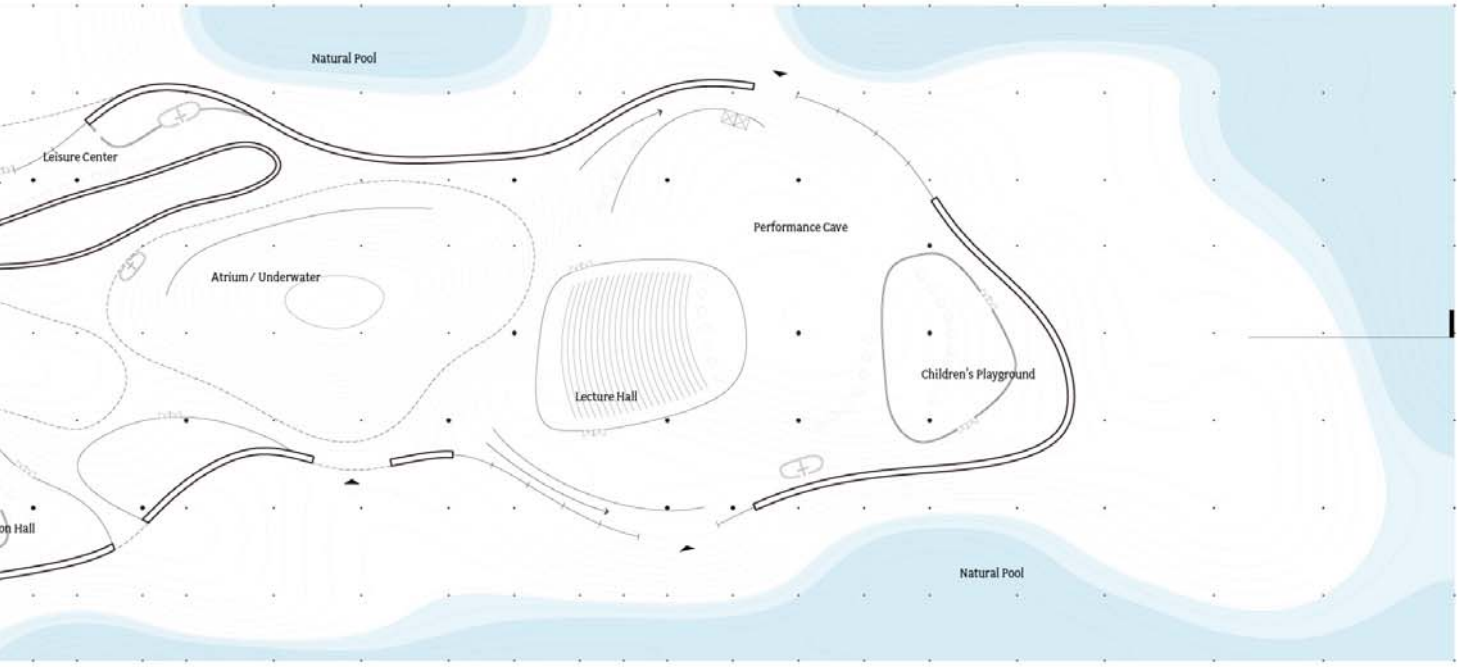
Section 1:2000



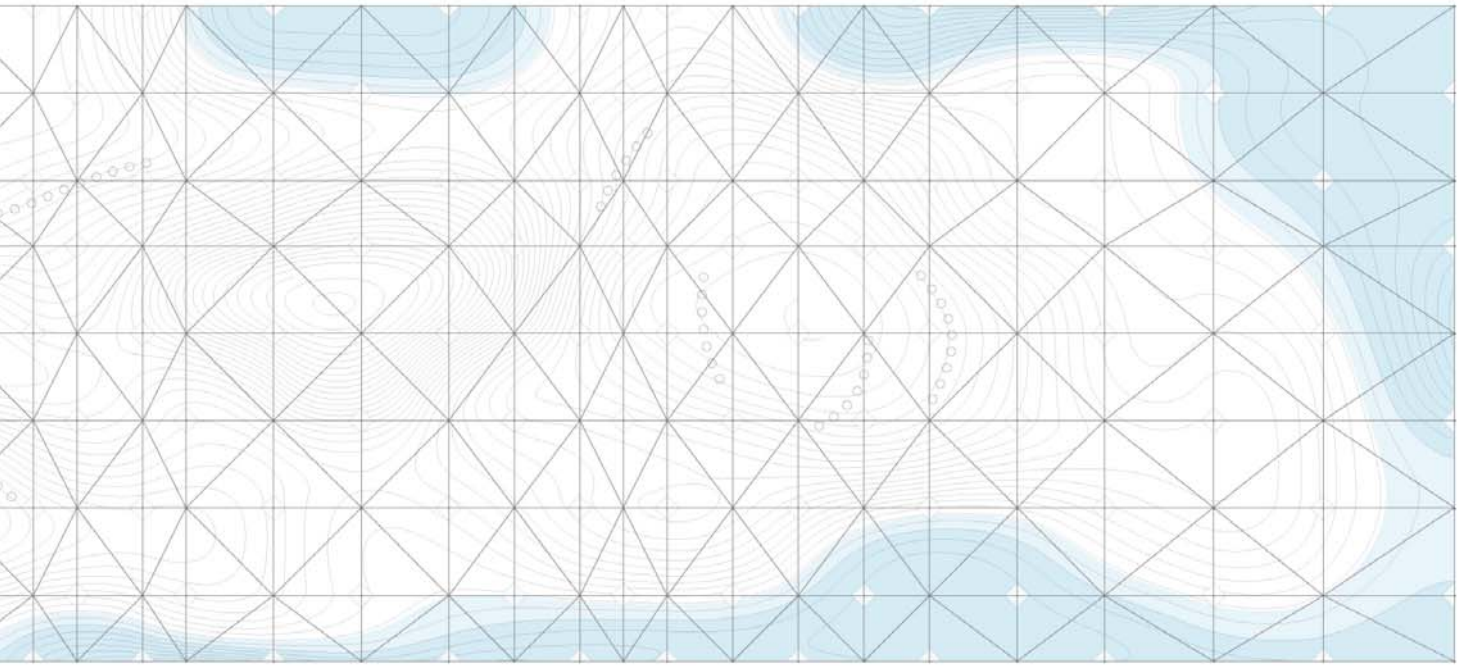
Elevation 1:2000


Natural Pool
Sports Center
Water Treatment Center
Atrium / Underwater
Exhibition Hall
Marina
Entrance Plaza
Natural Pool

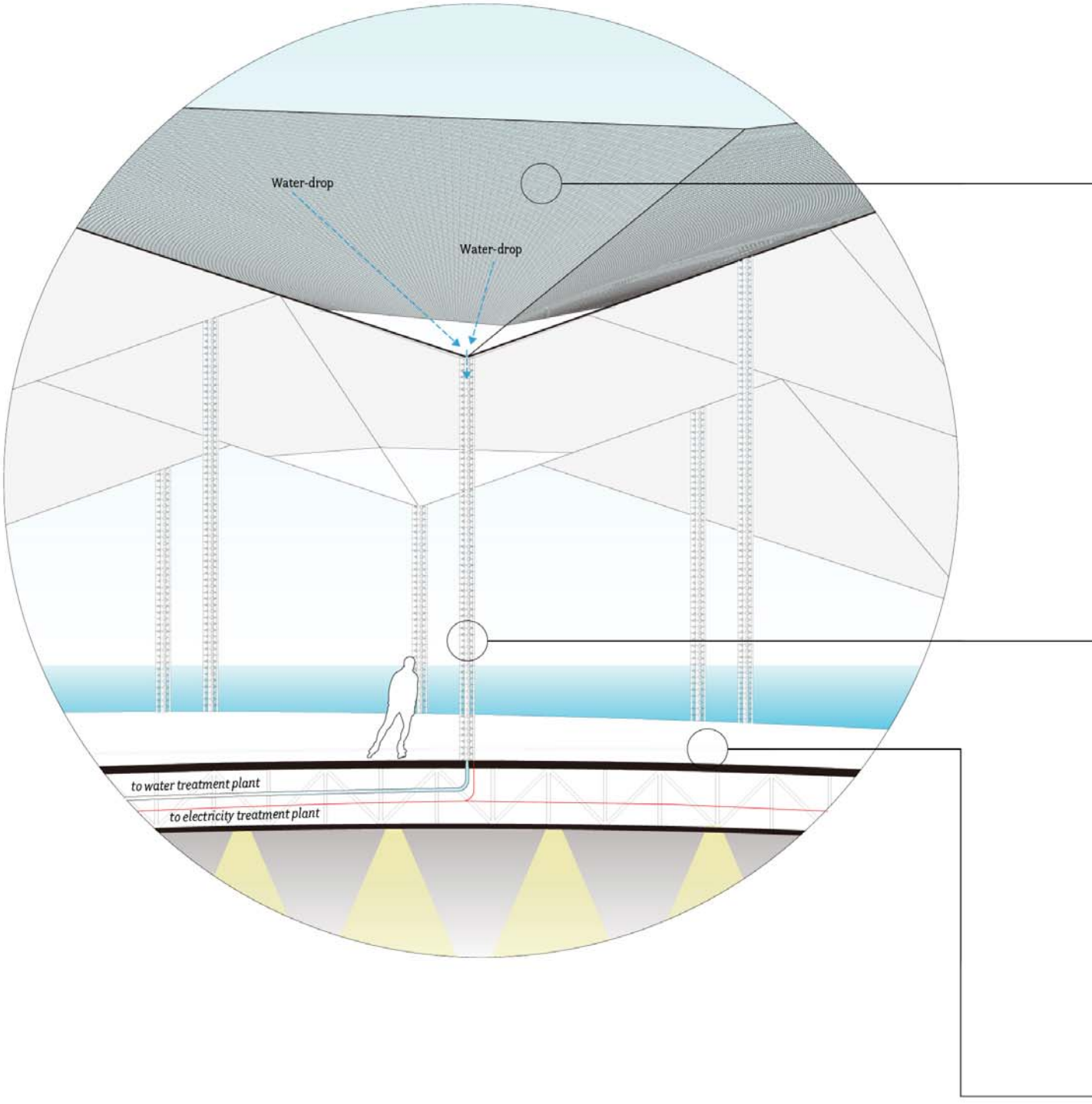




1F Plan 1:2000



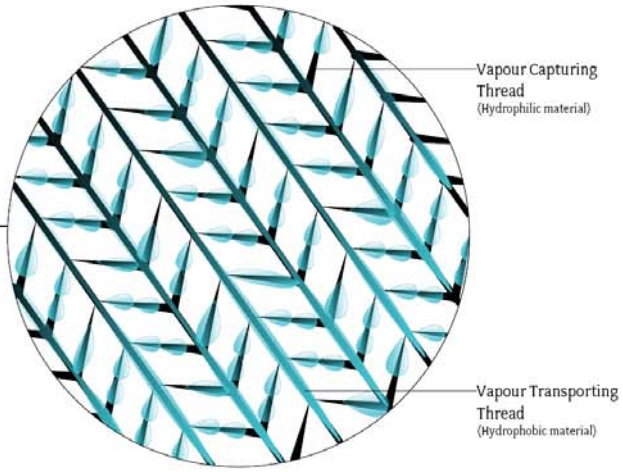
Roof Plan 1:2000



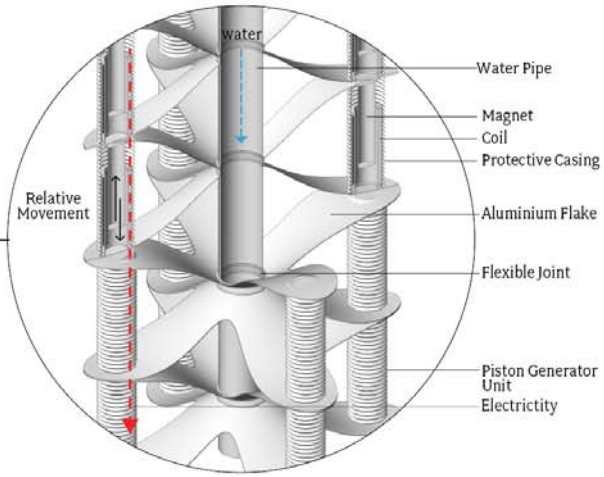
Vapour Capturing Process

The biomimicry mesh roof captures a large amount of sea vapour in various conditions of weather and leads vapour to the water pipe entrance which is the lowest place of the roof unit. Then the central water pipe of a flexible column transports fresh water to structural layer. In the meanwhile, piston generators between column units generate

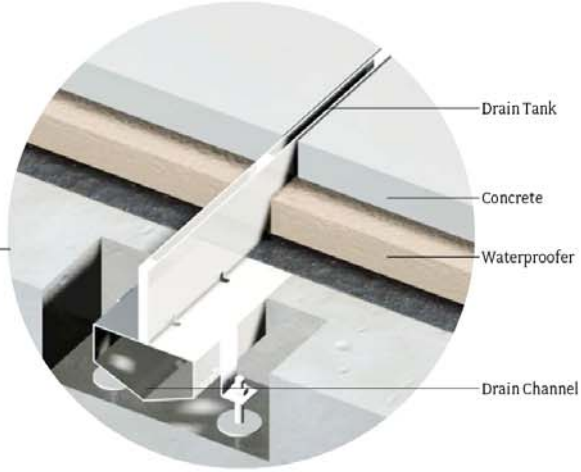
Vapour Capturing Mesh Geometry



Flexible Column Details



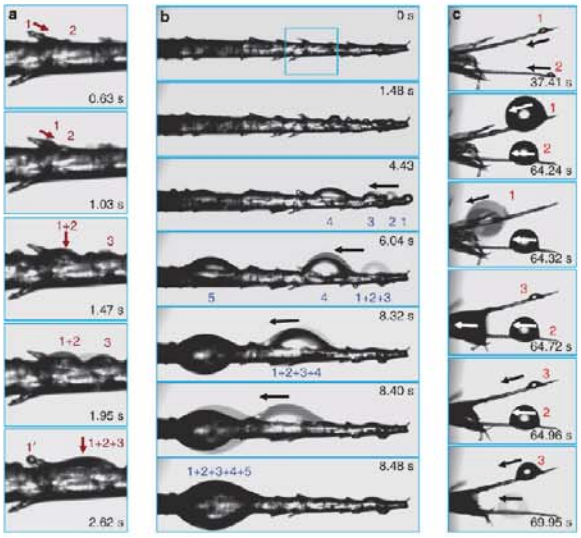
Water Collection Details of Ground



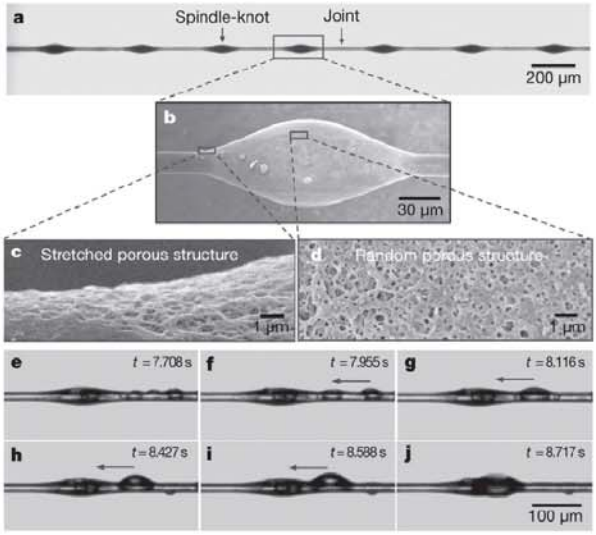
Vapour Capturer

Cactus | Lichen | Tillandsia | Spider Web

Micrograph Of Water Capturing And Transporting Process

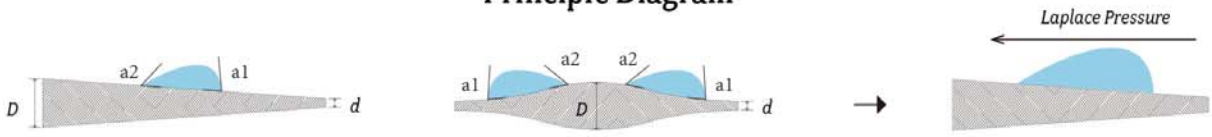


Cactus Pricks

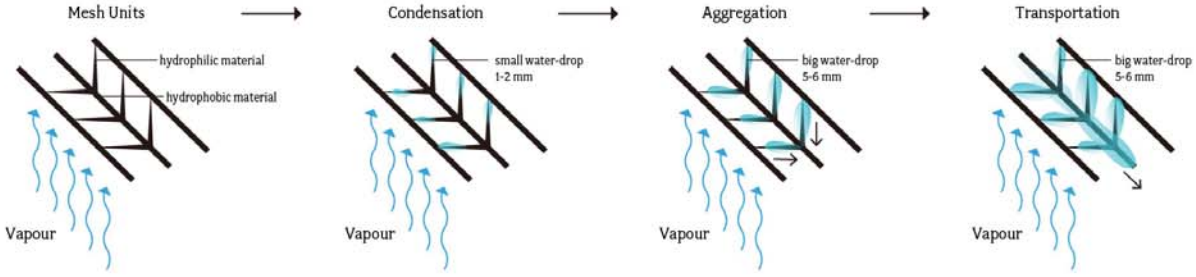


Spider Silk

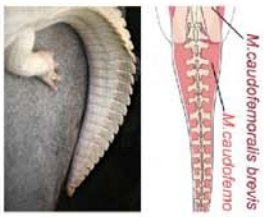
Principle Diagram



Vapour Capturer Mesh Design

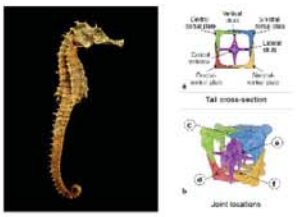


Flexible Structure & Generator



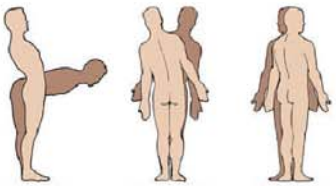
Crocodile Tail

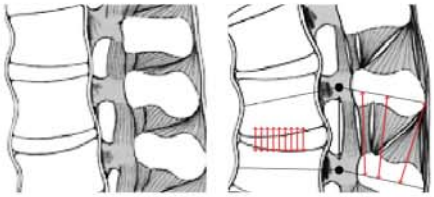
Human Spine



Seahorse Tail

Flexible Spine And The Strcture



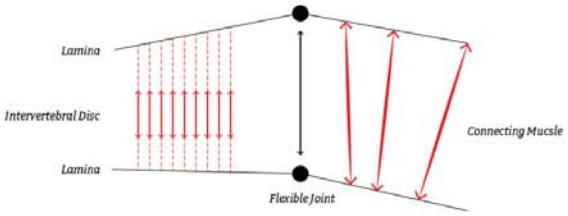


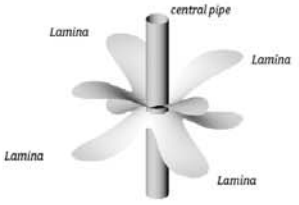
Compress Stretch

Combined Action By Muscle and Bone

Vertebrae Units Structure

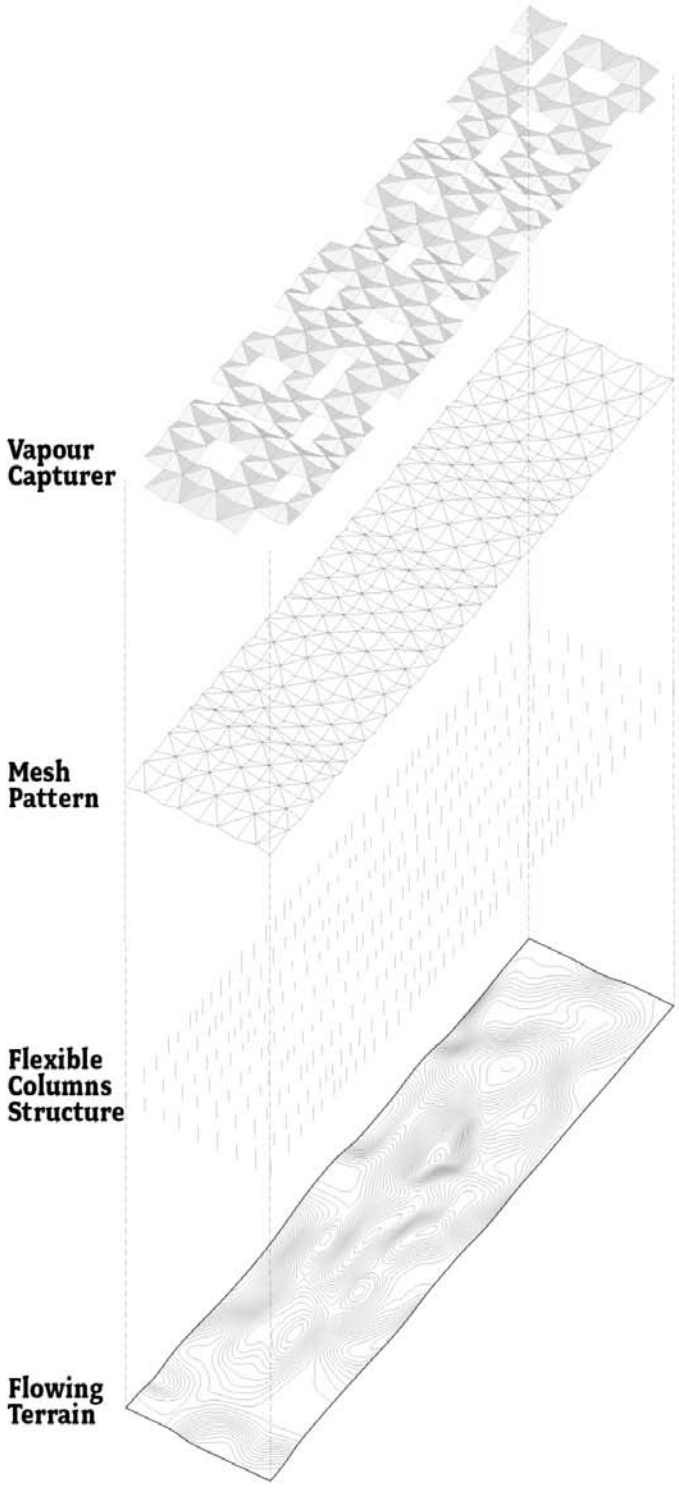
Structure Abstraction



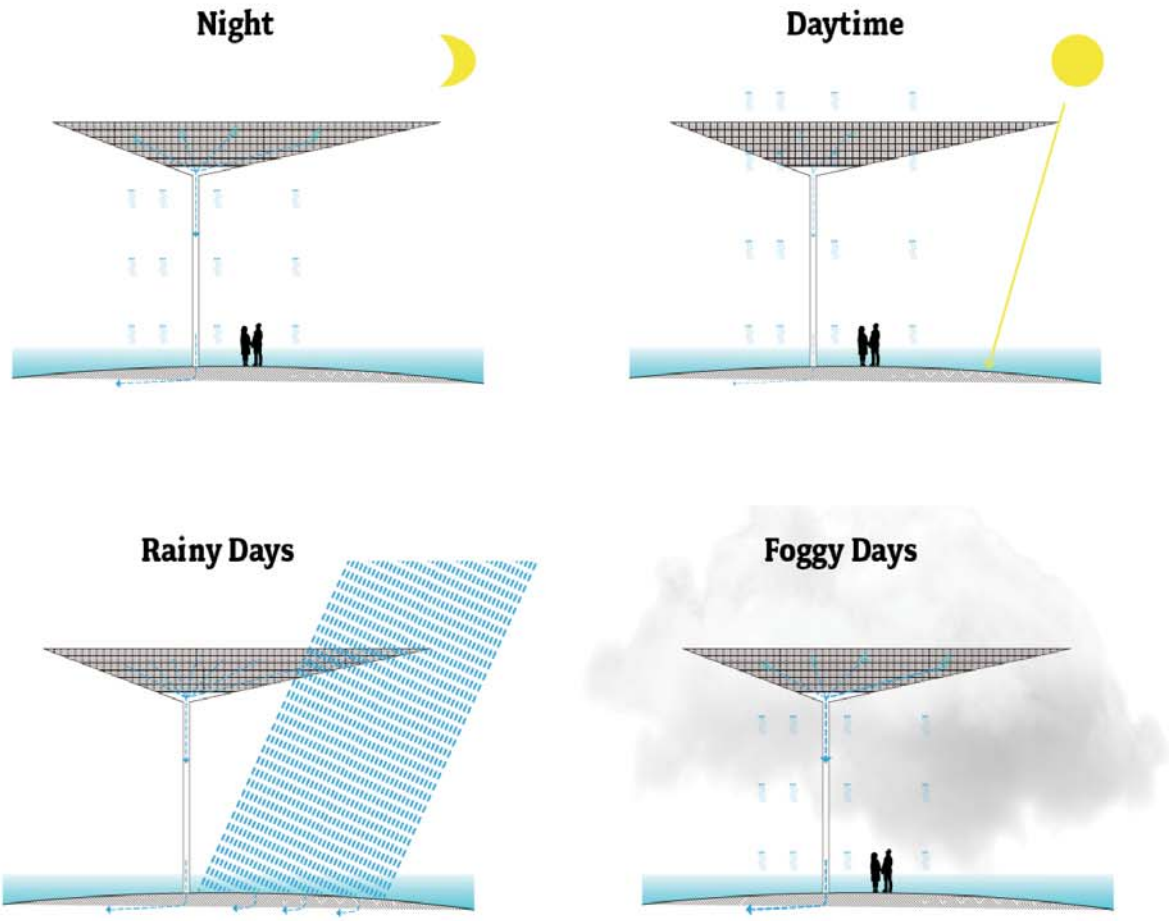


Flexible Structure Design

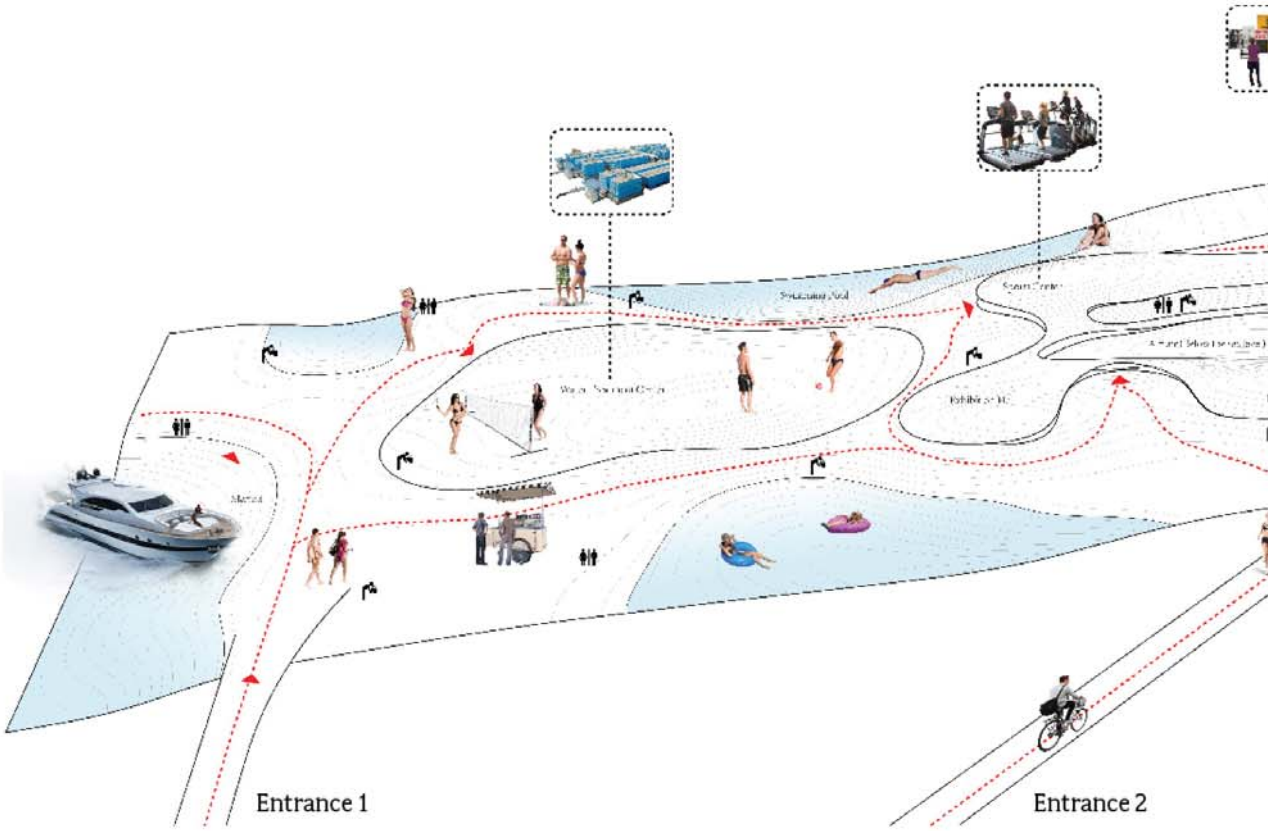
Column Units → Water Pipe → Piston Generator → Units Grow



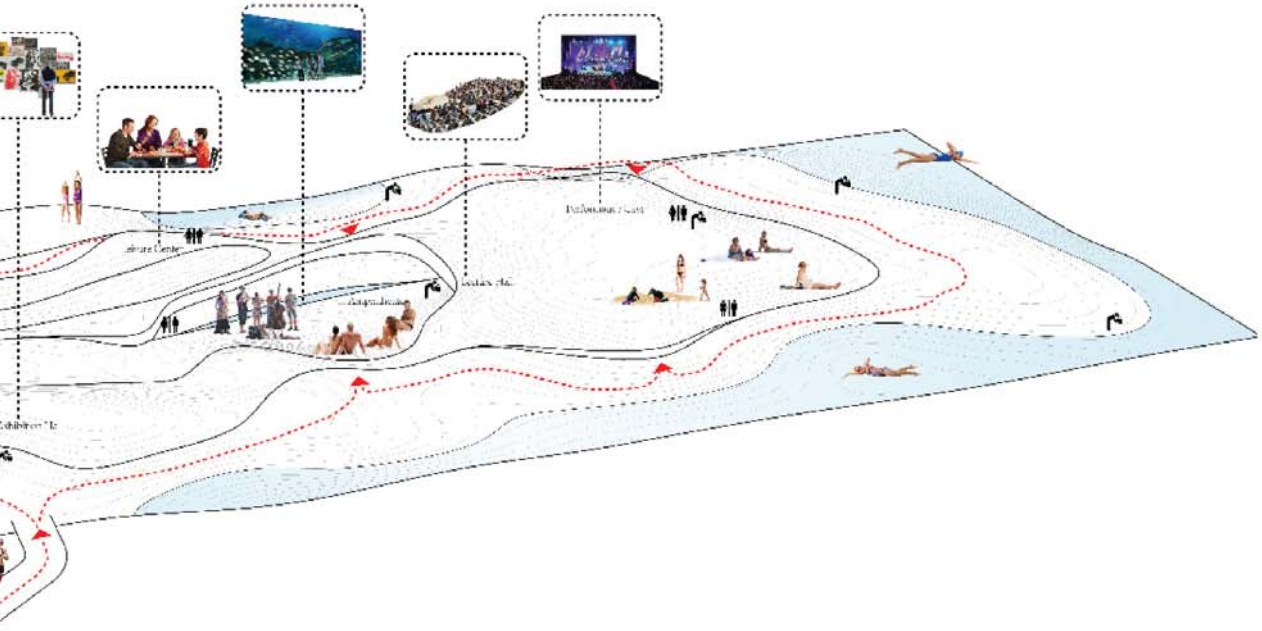
Exploded Axonometric Drawing



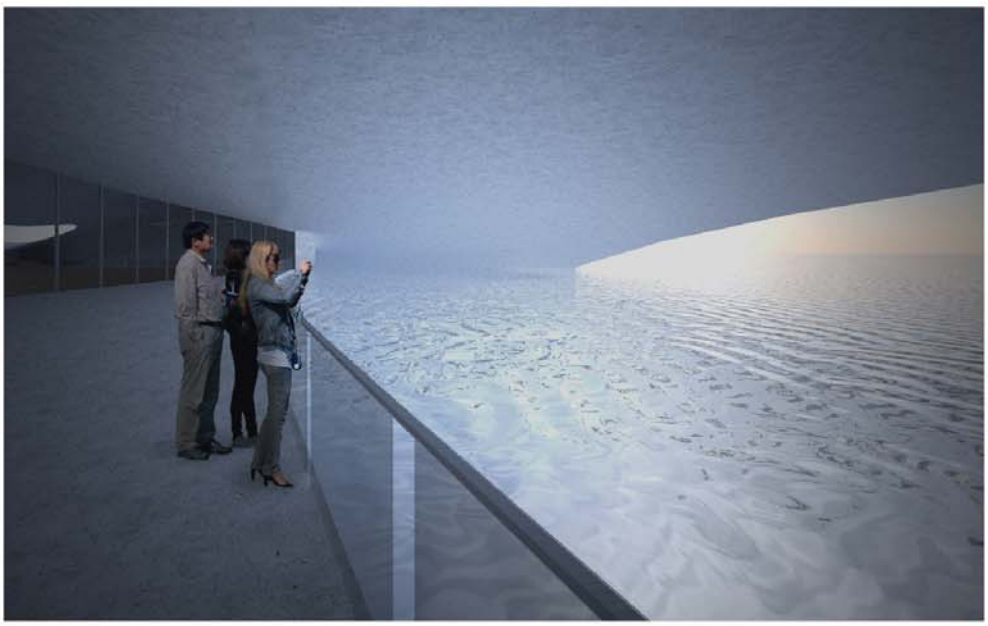
Vapour Capturing Process in Various Conditions



Natural Swimming Pool Rendering



Activities Diagram



Sports Center Cave Rendering

Supplementary Design

Experimental Design Studio

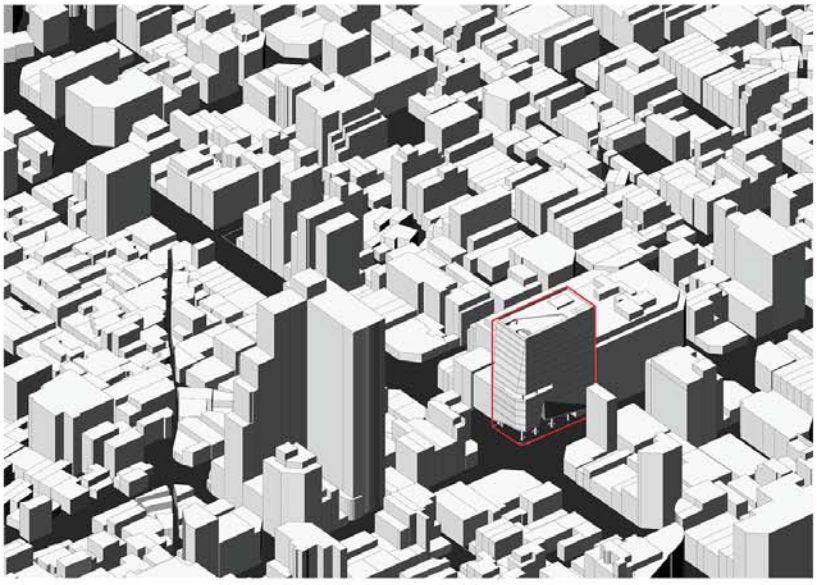
Individual Work
Instructor: Simon Shu
Fall 2015

01. Double-Faced Existence
An In-Between Funcky Town for Spiritual Balance

Most of Asian metropolitans' new city centers have gradually lost their own identity and have relied on expansive heroic landmark architecture and grand urban development schemes, it is the right moment to look at the important issue of whether it is adequate to transfer the western ideology of heroic grand scheme for urban development into the Asian township context. It is clear that small and minor intervention strategies for most Asian townships would be the proper way for needs of future and sustainable development due to the considerations of strengthening vernacular identity (such as food culture, ritual activities, festival events, etc.) as well as constraints of financial support from central and/or local authority. On the other hand, how one can tease out a proper analytical model to scrutinize the existing physical environment to work out the most effective microscopic intervention scheme for Asian township development has become the most critical issue in Asia's urban design practice. Thus, this design studio proposes to examine the feasibility of the "Urban Parametric Diagnosis and Acupunctural Microscope Intervention (UPDAMI)" conceptual framework for the Asian township development issue mentioned above.

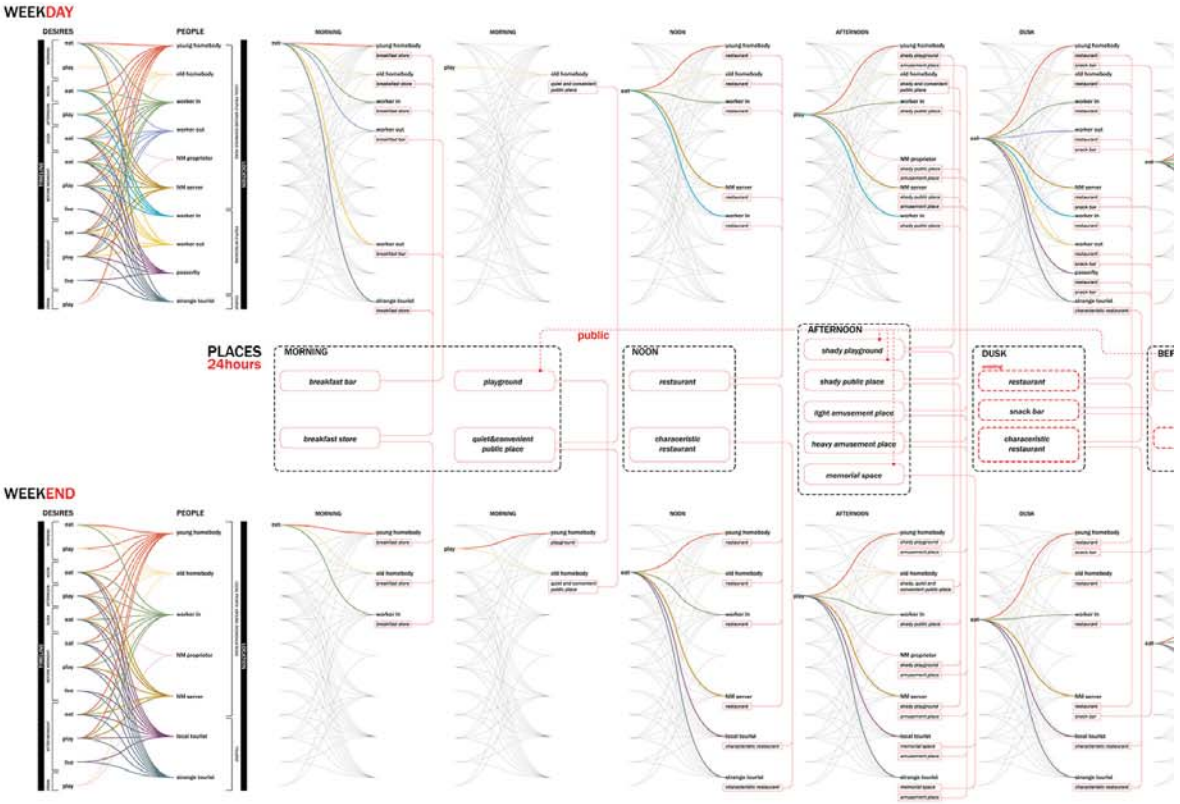
Taichung downtown was the most booming commercial region in Taichung even in whole Taiwan, but it failed to keep pace with rapid development in recent two decades due to old building , pubilc and private facilities, transportation, trade mode and so on.However, with a long history there are many historical interests and memory including historical block form, delicious traditional food , street atmosphere and so on so that it is not too terrible to renew it totally. The problem is how to protect these treasures and look for a new way to be more alive.

Zhonghua Road was one of the most booming area in downtown even in whole Taichung and known for the night market and amusement places. Unfortunately, it becomes no longer crowded with the decay of whole downtown. However, amusement places and delicious food become the regional features and are still alive with the consumers' protection because of their desire. Therefore, there is a way that taking advantage of cunsumers' desires to continue protecting these reginal features even developed into a new funky town on the night market.



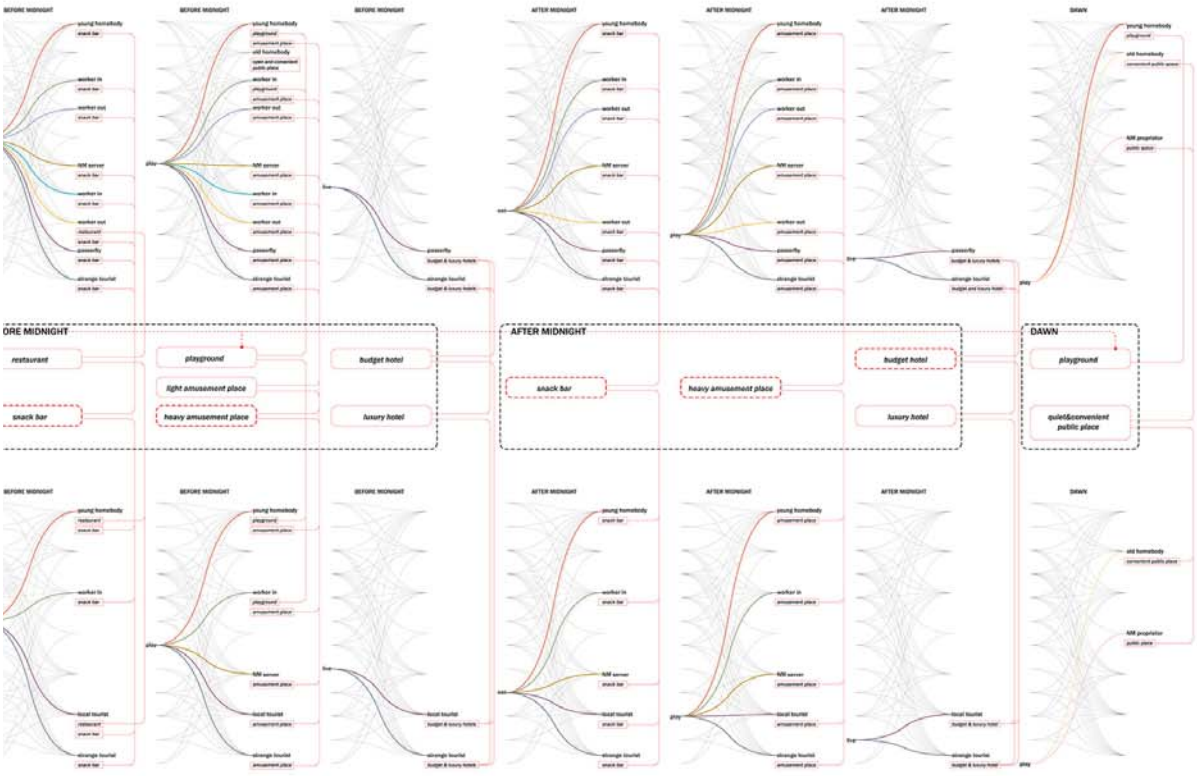
Funky Town in Urban Texture

It is a typical urban fabric in Taiwan with intensive road net and privatization of land which leads to fragmentation of the region, small scale public spaces, extremely various architectural styles with a lot of building extensions.



Different Scenes in Zhonghua Road

In the daytime, it is an ordinary road as many others in central district with few passersby and activities. But it turns to be a lively night market along with the fall of the night. However it is not as prosperous as 20 years ago.



Activities Analysis of Zhonghua Road

Comparing to the current conditions and activities, various kinds of people perform in different ways and have different kinds of requirements of places in different times, potential requirements of places and people performances come out.

5 Elements From Ganji Game

With the intervention of 5 elements, the inherent way to do the site research for renovation of old core region can be destroyed and we can build a new relationship between thinking elements and urban elements to dig out the deeper urban content for creating new possibilities of develepment.

1. Gatekeeper

somebody guarding

Local

create the place

guard things they have obstinately and reject change

2. Jinn

something charming

Zhonghua Road Night Market

day and night, different time, different phenomenon

attract people to enjoy themselves

3. Moat

protection

Diner

local around road / Taichunger / tourist
protect Zhonghua Road Night Market from missing

4. Simurgh

something eternal

ID (primitive desires)

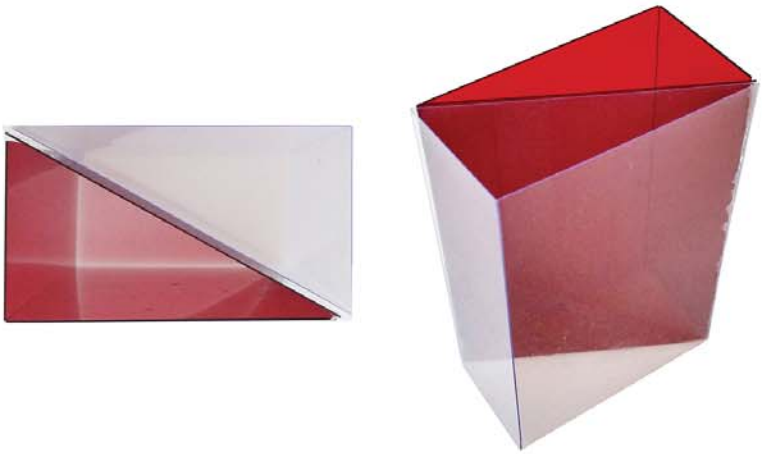
eating / living / playing
original personality existing forever

5. Caravanseri

a resting place for travellers to recover from the tired journey

Soul Station

It is a place where people can express and control their desires to keep themselves in Ego. It is also a container where events with desire and morality occur in the meantime. People behind the dark interface can express his Id and in the bright space can learn to reach Super-ego. In the double-space building people can face their real identification as a double-faced existence and control the spirit balance .



Design Concept

A suitable mass is cut into two parts by a dark interface changing the transparency according to the light. Each part contains various programs with different properties and the communication between two parts occurs through the interface to help to keep the balance of spirit.

Translucent red glass

When both sides are bright, the glass is in a trasparent state.

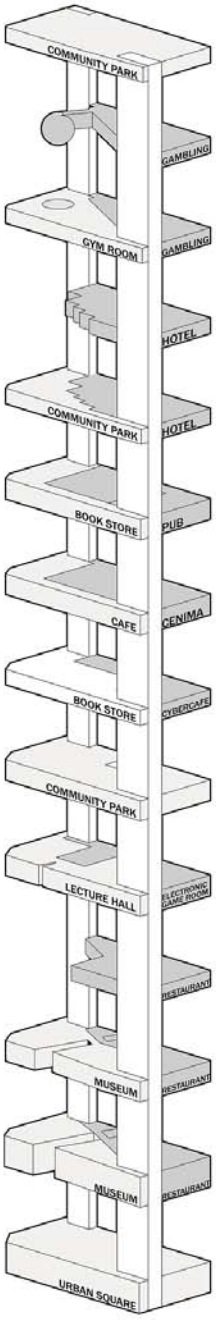
When outside is brighter than inside, the glass is in a translucent state.

When outside is much brighter than inside, the glass is in a non-translucent state.

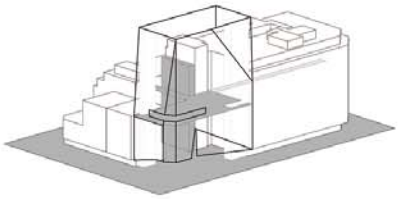
When inside is much brighter than outide, the glass returns to a transparent state.

Main Entrance Perspective

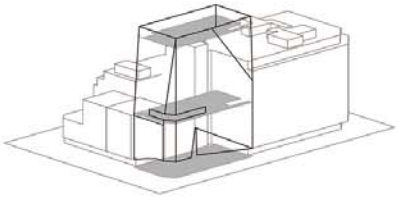
Entrance design expresses the public property of the building and opens the closed community to create the urban plaza for the region with scarce public resources. The abridged mass responds to the small scale urban form and the high transparent facade reveals public activities to show the architectual public property.



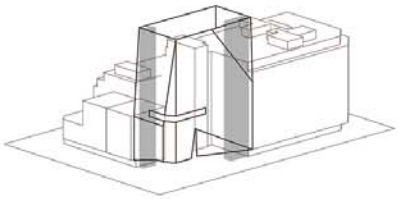
Programs



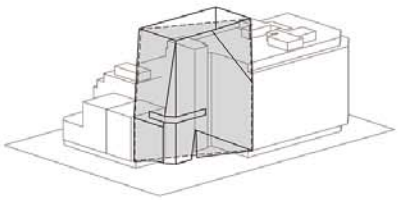
Connection with The Community



Various High Squares

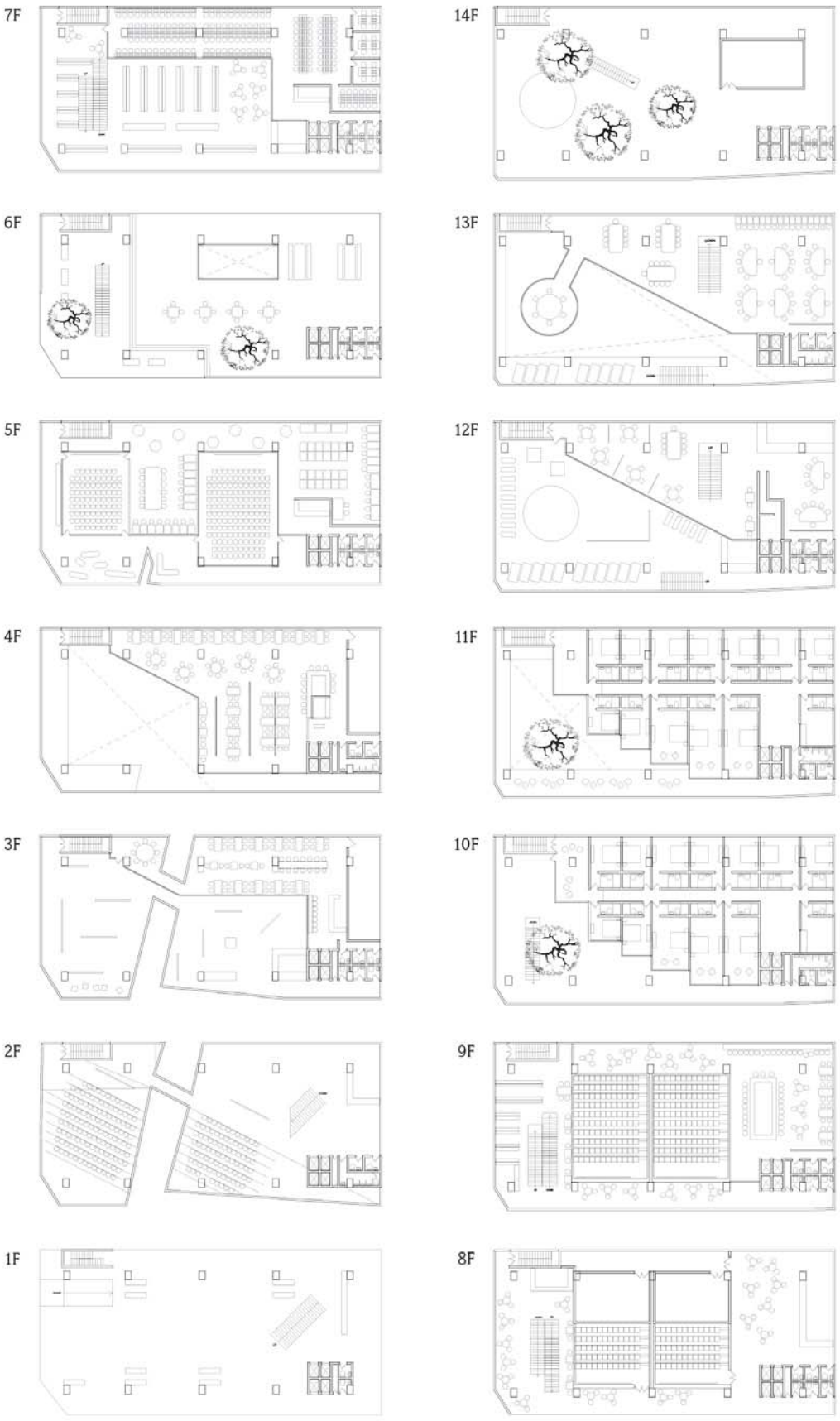


Vertical Transportation

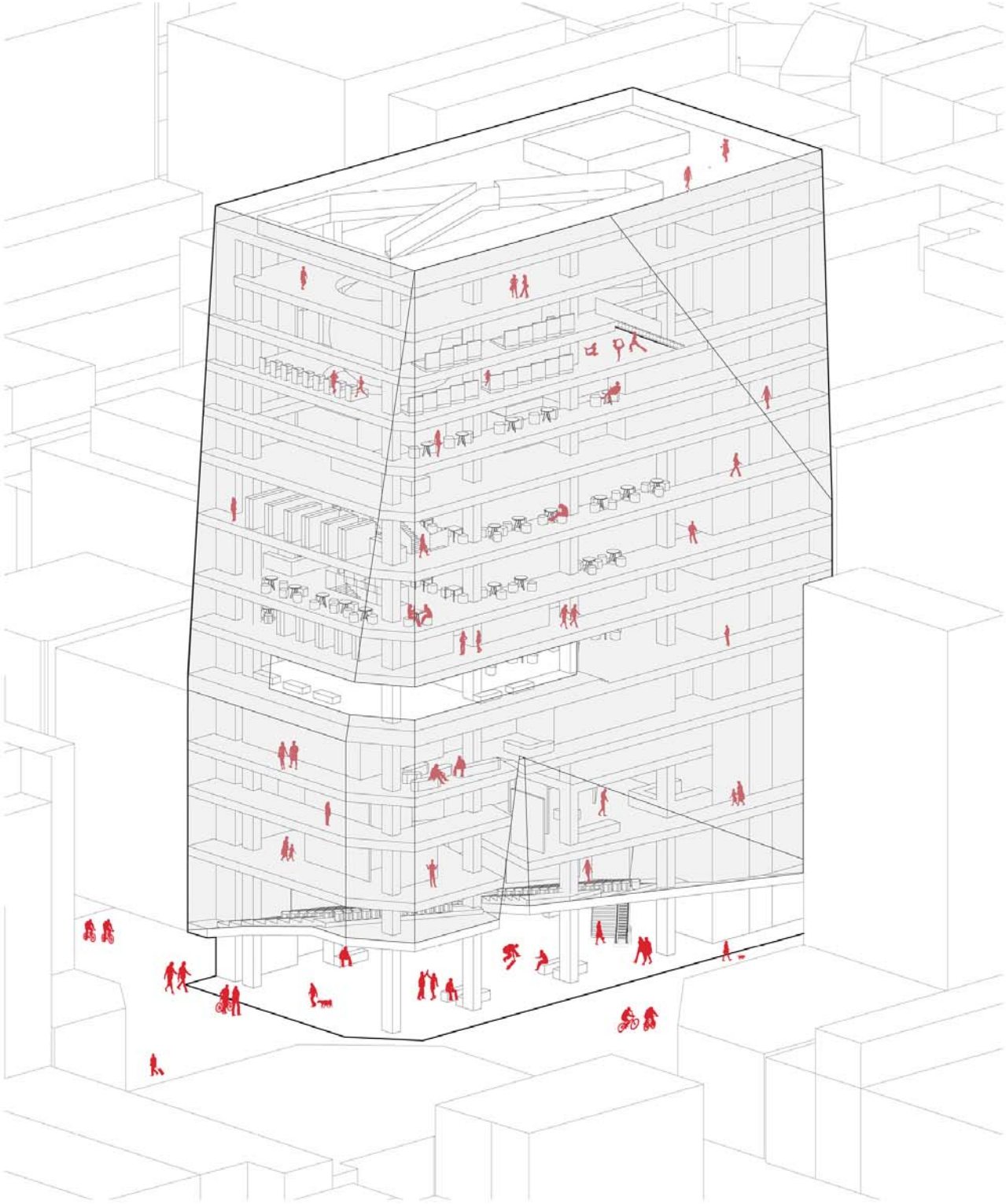


Interface Between Two Parts

The building consists of different programs which grows vertically according to the properties and developing requirements of Zhonghua Road. Between visible and invisible programs there are different space relationship due to tangible and intangible performances

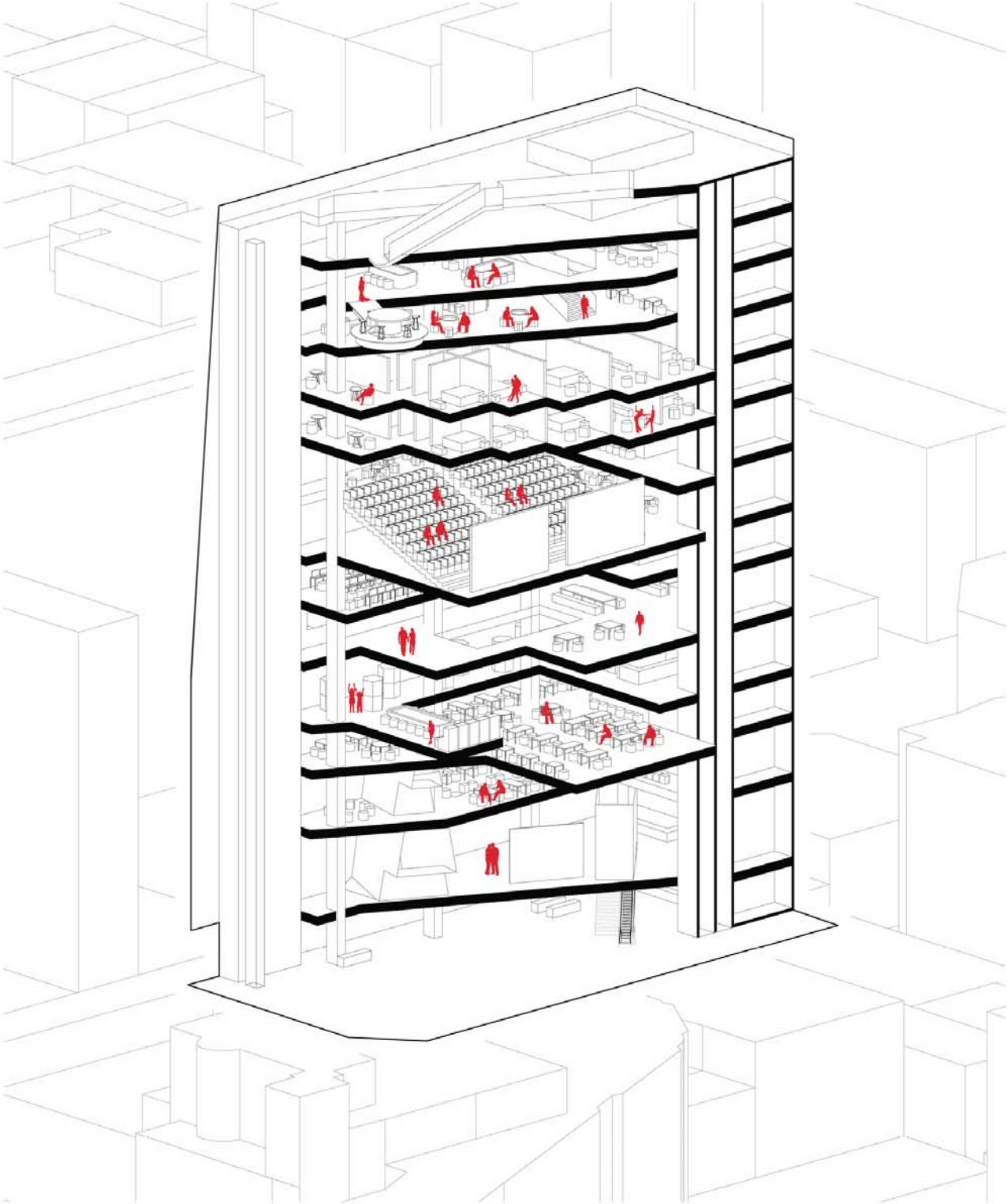


Floor Plans 1F-14F



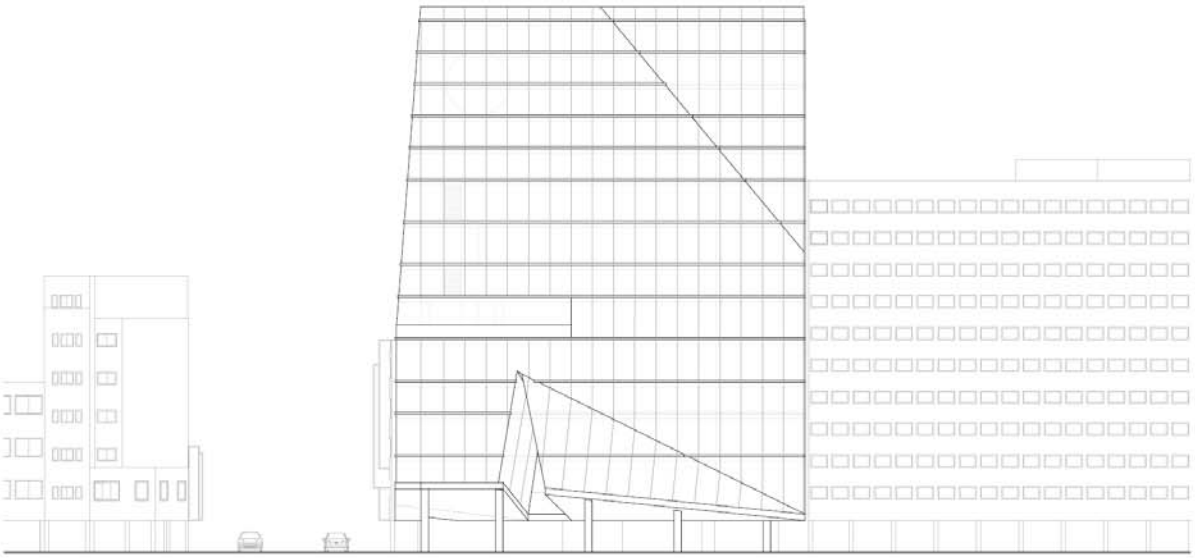
Axonometric Drawing of The Birdview

Transparent facade expressing transparent activities and morality



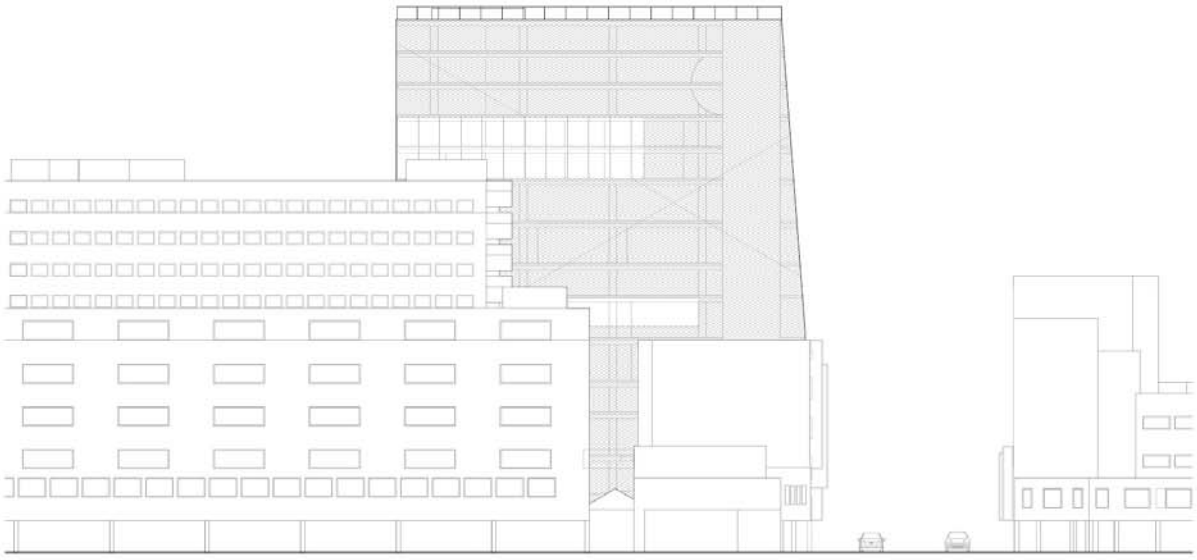
Axonometric Drawing of The Secton

Activities behind the dark interface expressing translucent activities and desires



Front Elevation

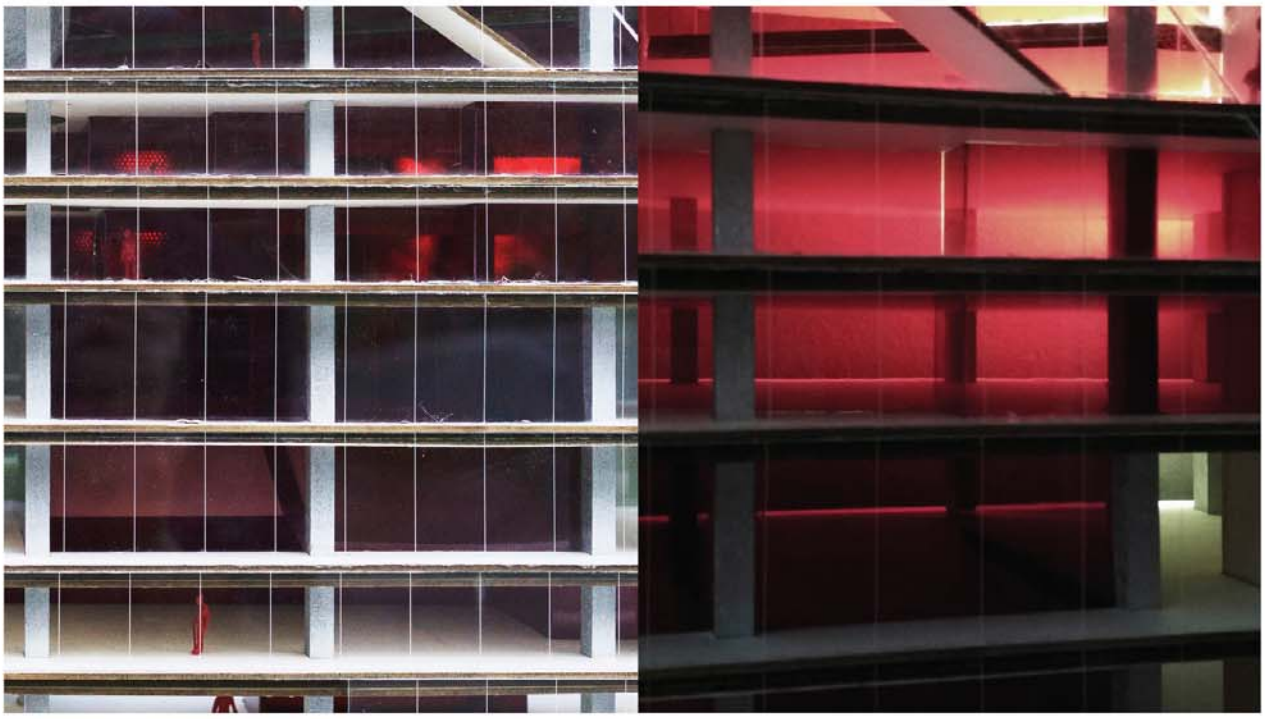
Transparent Material Facade Revealing Public Activities



Back Elevation

Translucent Material Facade Hiding Private Activities

Transparent Glass Reveals Different Characteristics of Reflection in Different Angle of Views

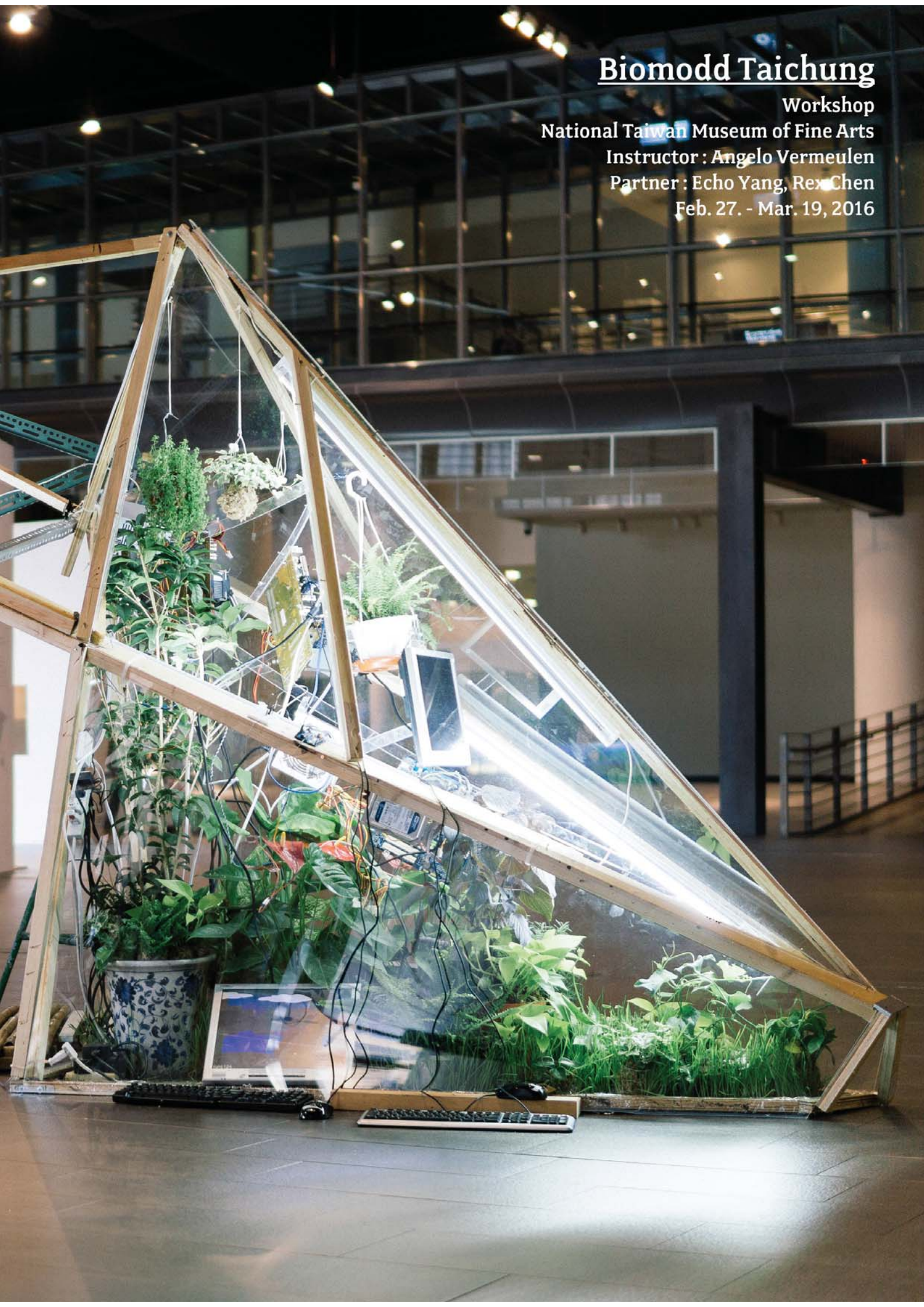


The Dark Interface Creating Different Transparent Effects in Different Light Environments from Daytime to Night

Sky Courtyard

Auditorium

Entrance Square



Biomodd Taichung

Workshop
National Taiwan Museum of Fine Arts
Instructor : Angelo Vermeulen
Partner : Echo Yang, Rex Chen
Feb. 27. - Mar. 19, 2016

02. The Symbiotic Future
The Workshop of Biomodd Taichung

Biomodd is a multifaceted socially engaged art installation that finds meaningful relationships between biology, computers and people. On the most basic level, Biomodd creates symbiotic relationships between plants and computers, and ignites conversations among the community around them.

The Biomodd Program was invited and exhibited in Taiwan National Art Museum. The program started in 2007. The artists define their work as an interdisciplinary installation. In the composition of the device, the artists try to place the visual art, ecology, community construction and the elements of computer games in a large object during the process of art work, in the meanwhile, they attempt to find the connections between these different elements and a conceiving of symbiosis and coexist.

Biomodd Program focused on the participation of audience in its process. After the artists arrived at the local companies, gallery and universities, they formed an interdisciplinary team with the audience who would like to participate in and had different background of subjects. The group members may be the artists, art researchers,software engineers, hardware engineers, biologists,botanists and so on. After the artists communicated with the members about their concepts, the team became to use the abandoned electronic components from the local places, reassembled and wrote program language. They created a small self-sufficient ecosystem for plants and small creatures: the abandoned components can be activated and provide the lighting for the plants, while the machine which was continuously working needs cooling through the water form the fish tank and algae.In the process of creating a ecological and electronic installation, the artists and the team members with various cultural background show different logic thinking and art presentation.

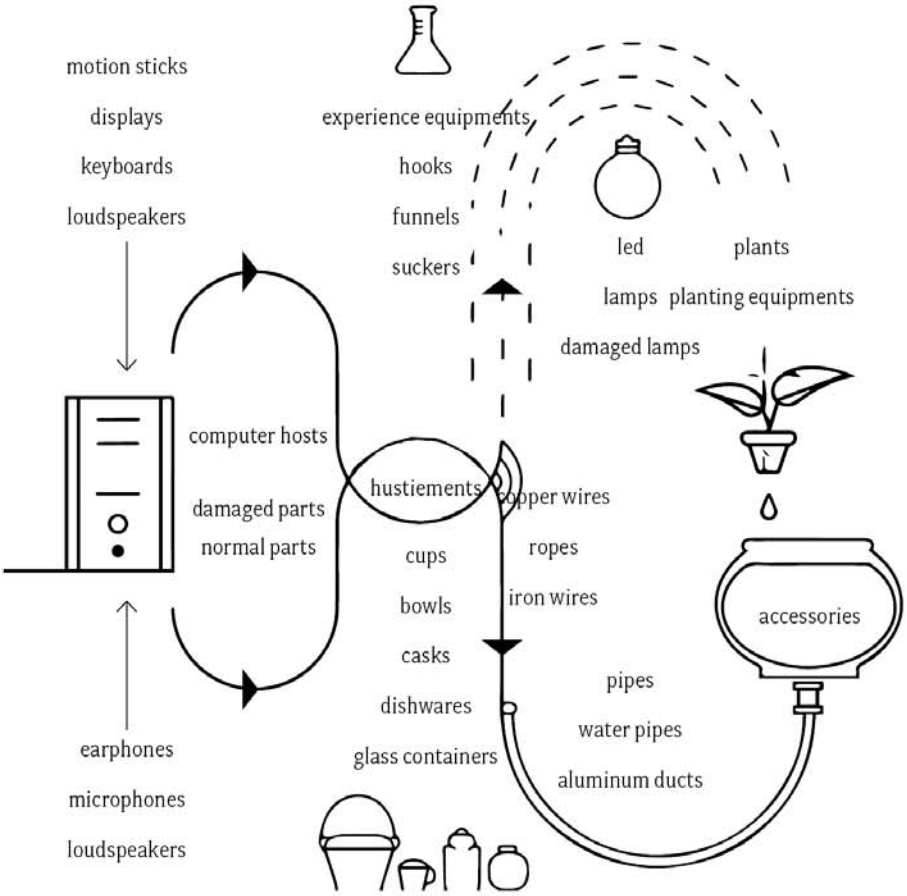
Team Members

Our team consists of volunteers in different areas and most of us are students mayoring in architecture, fine art, industral design, computor sciense, biology and so on.

Initiator : Angelo Vermeulen

He (born 1971) is a Belgian visual artist. His multidisciplinary oeuvre crosses over the boundaries of biology, technology and community. Vermeulen won the Witteveen+Bos Art+Technology Award in 2012.

Operational Principles Learning Process



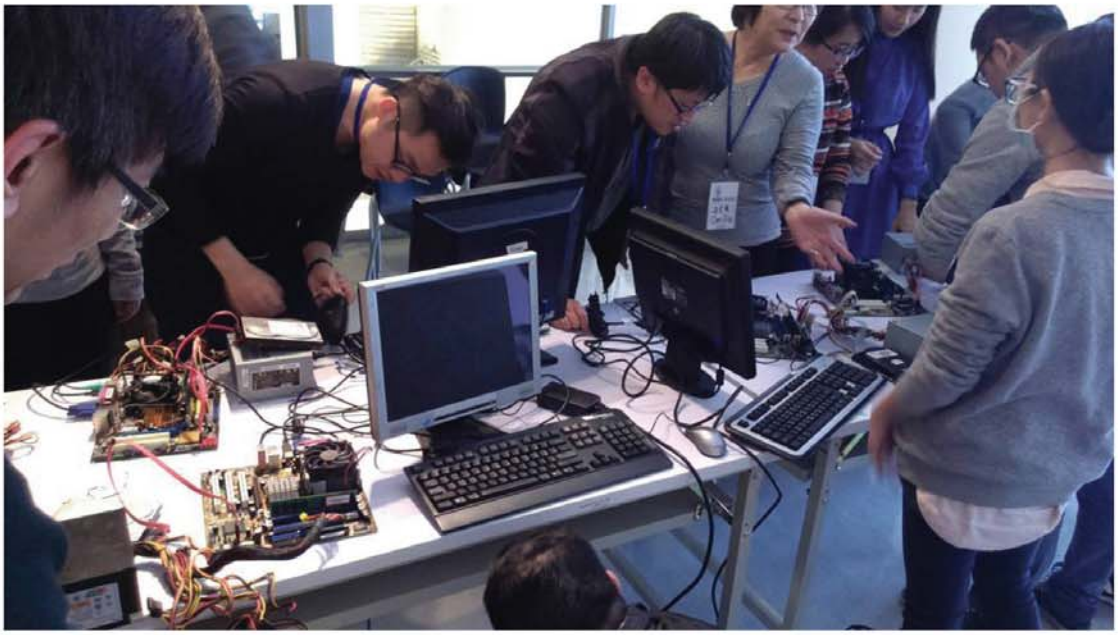
Operational Principles and Necessary Materials

Basic Materials : Abandoned Computers

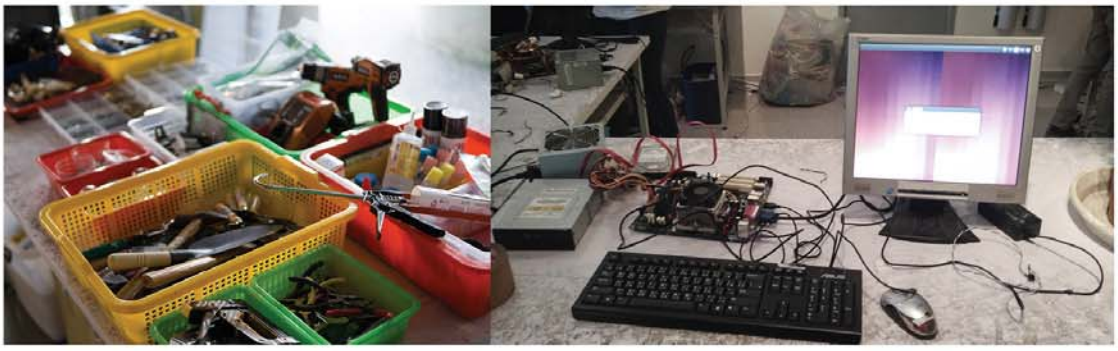
Basic Materials : Abandoned Daily Supplies

Basic Materials : Local Plants

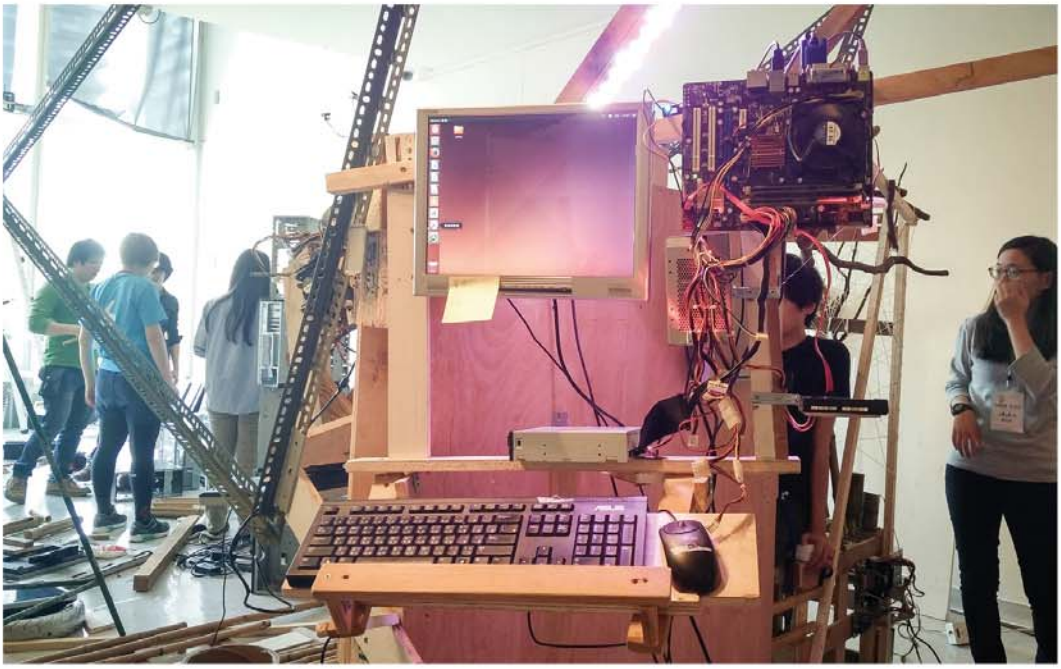
Dismembered Computers



Reassembling Process



Tools and My "New" Computer



Design and Assemble Process

Design and Assemble Process

Amusement Areas Generating Heat for Suppling Energy to Whole System

Fish and Vegetable Co-Existing Part of System

Machines and Plants Co-Exsiting

Top View

Lighthouse Sea Hotel Competition

Individual Work
Instructor: Lain Satrustegui
Spring 2016

03. Art As The Beacon of Life
Lighthouse Sea Hotel Competition

Lighthouse hotel is located in the seacoast of Murro di Porco, Italy, which is a fantastic place with a long history and invaluable landscape significance. It has a great potential to be an art hotel for artists and tourists.

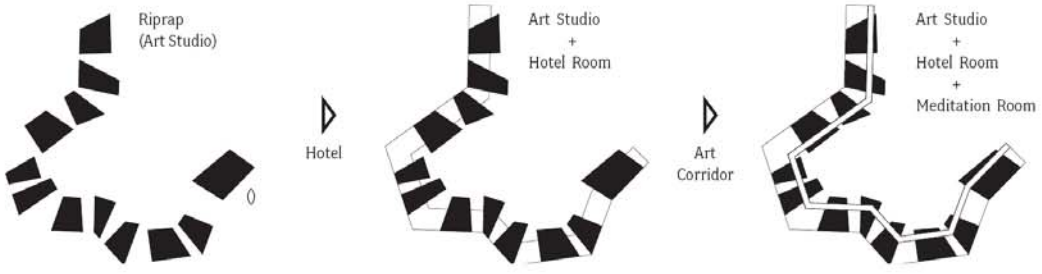
By considering site conditions, we propose that the hotel should be integrated into the wild landscape to the greatest extent, therefore, we are inspirited by the rocks on site as our concept.

The ripraps, which will be art studios, are scattered randomly around the lighthouse and connected with each other via an art gallery. In the meanwhile, the art gallery separates the art studio into two parts, one is living and work space and the other is meditation room. When walking on the art corridor, you can see the lighthouse at each interval between two ripraps, which gives a unique experience with the wild landscape. In the other side, each room has a good view facing the sea, which may give great inspirations to the artists.

Site Plan

Site Plan

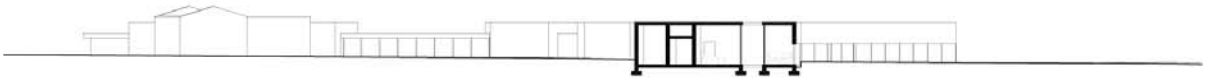
Plan 1F



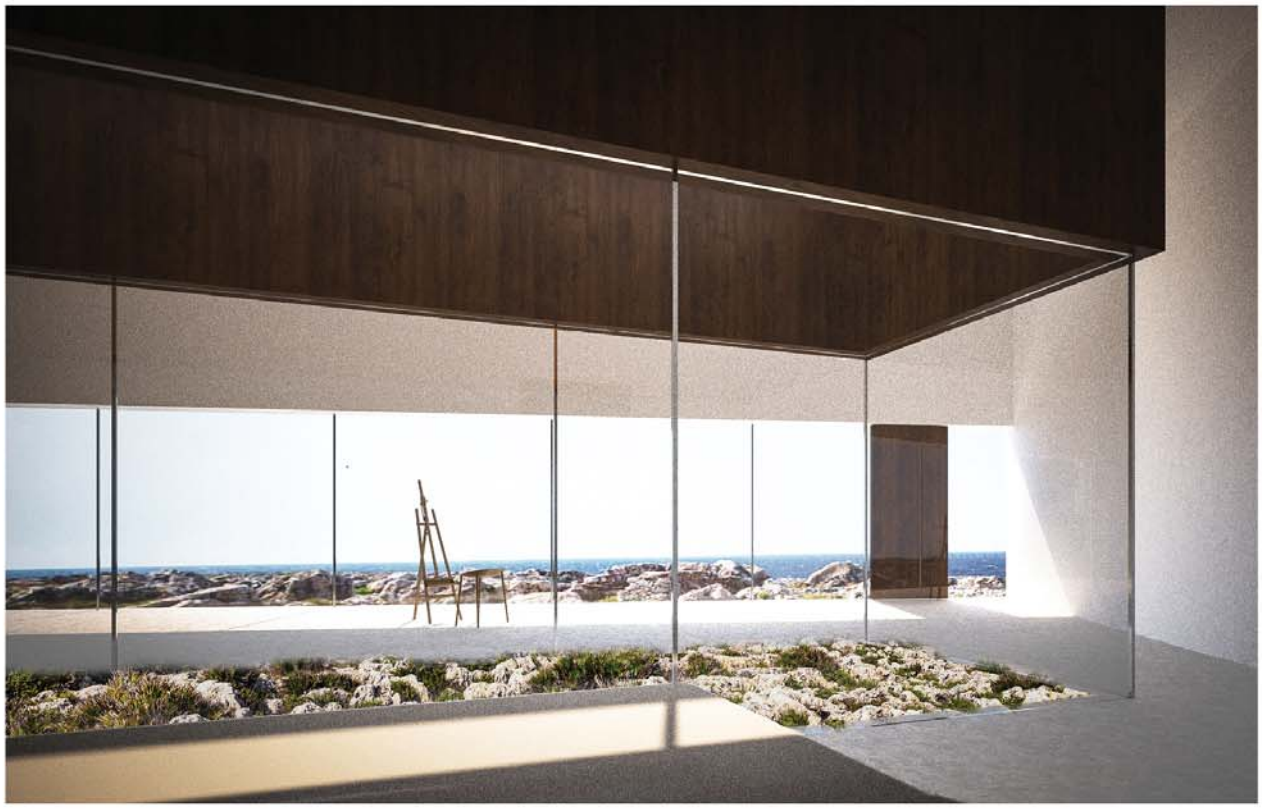
Design Concept

South Elevation

Atrium Rendering



Typical Room Unit Section



Typical Room Unit Rendering

Bibliography

Transparency, Colin Rowe / Robert Slutzky

Delirious New York, Rem Koolhaas

The Architecture Of The City, Aldo Rossi

Invisible Cities, Italo Calvino

Living In Place, Huang Sheng-Yuan

Project Japan, Rem Koolhaas / Hans Ulrich Obrist

Informal, Cecil Balmond

Another Scale Of Architecture, Junya Ishigami

How Small? How Vast? How Architecture Grows, Junya Ishigami

Studio Mumbai, Various

El Croquis 155, Sanaa

Nothing is transmissible but thought.

Le Corbusier

Tan Jiaqi

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Education

Tunghai University, Taiwan 2015 - 2016
Master of Architecture

Zhejiang University, China 2009 - 2014
Bachelor of Engineering in Urban Planning

Experience

Naturalbuild Shanghai
Junior Architect Mar.2015 - Aug.2015
Project: 88 Moganshan Renovation, Hangzhou, China

ISOZAKI + HuQian Partners Shanghai
Junior Architect Dec.2014- Feb.2015
Project: Beijing People Theater Renovation, Beijing, China
MBO Master Planning, Shanghai, China

M.A.O. Masters Architectural Office Shanghai
Architecture Intern Jul.2014 - Nov.2014
Project: Tian'an High-rise Design, Shenzhen, Guangdong, China
Anji Film and Televison Industry Park, Huzhou, Zhejiang, China

MAD Architects Beijing
Architecture Intern Feb.2014 - Jul.2014
Projects: Nanjing Zendai Thumb Plaza, Nanjing, Jiangsu, China
Li Zijian Art Museum, Changsha, Hunan, China
Lucas Cultual Art Museum, Chicago, US

Skills

3D: *Rhinoceros, Grasshopper, Sketchup, Maxwell, V-ray*
Graphic: *Photoshop, Illustrator, Indesign, Lightroom*
Other: *Autocad, photography, model making*

Awards

Second Place Winner, *The Biomimicry Global Design Challenge, 2016*
The 3rd Prize, *Social Comprehensive Practice Research in National Professional Steering Committee, 2013*
Honor Award, *The 13th Structural Design Competition of Zhejiang University, 2012*

Language

Mandarin, English