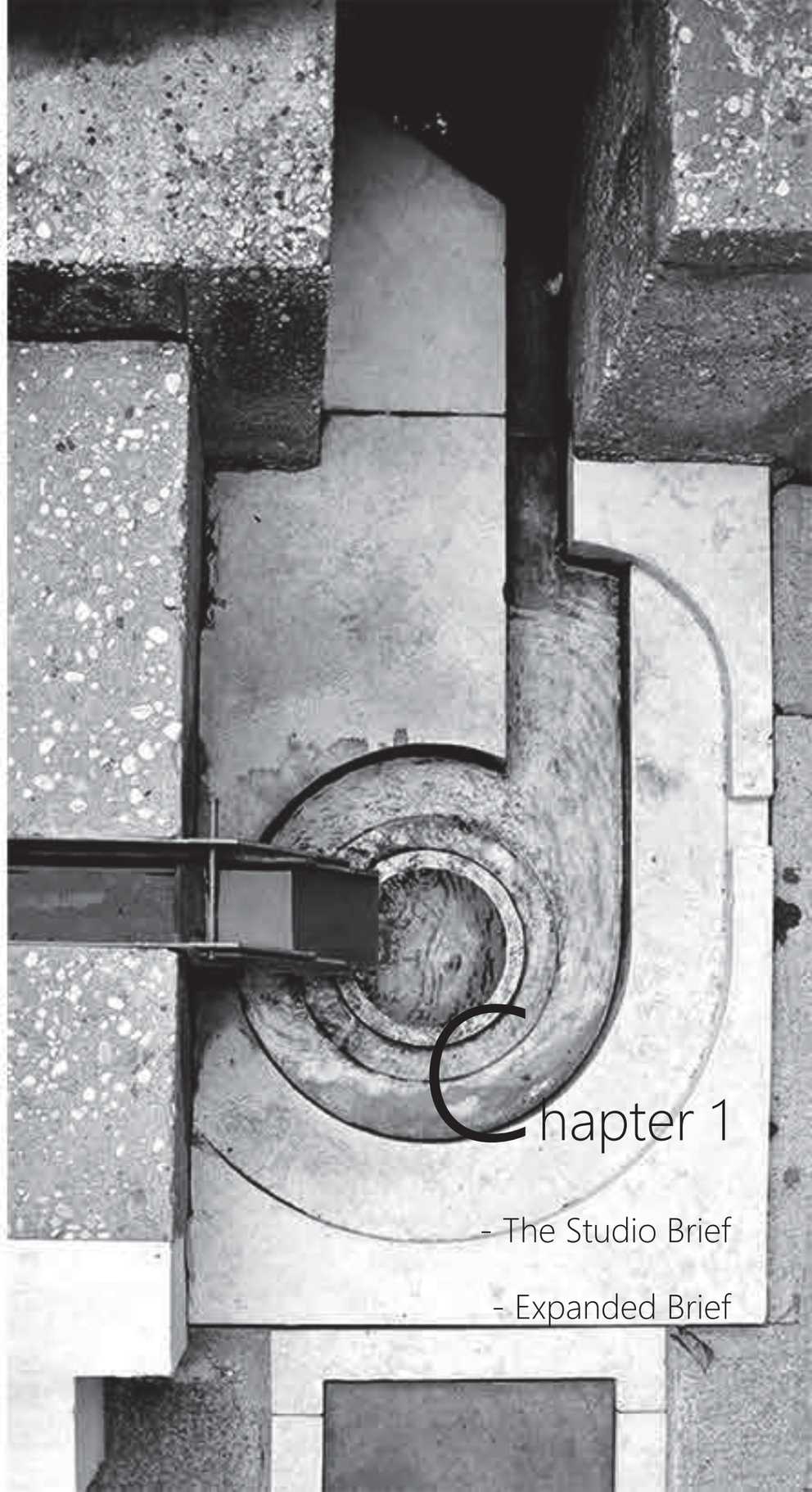
ARC305 Small and Medium Scale Buildings BEng
Architecture Level 3, 2014-2015

Architecture Portfolio

Between Water and Land:
Wetlands Research and Interpretation Centre

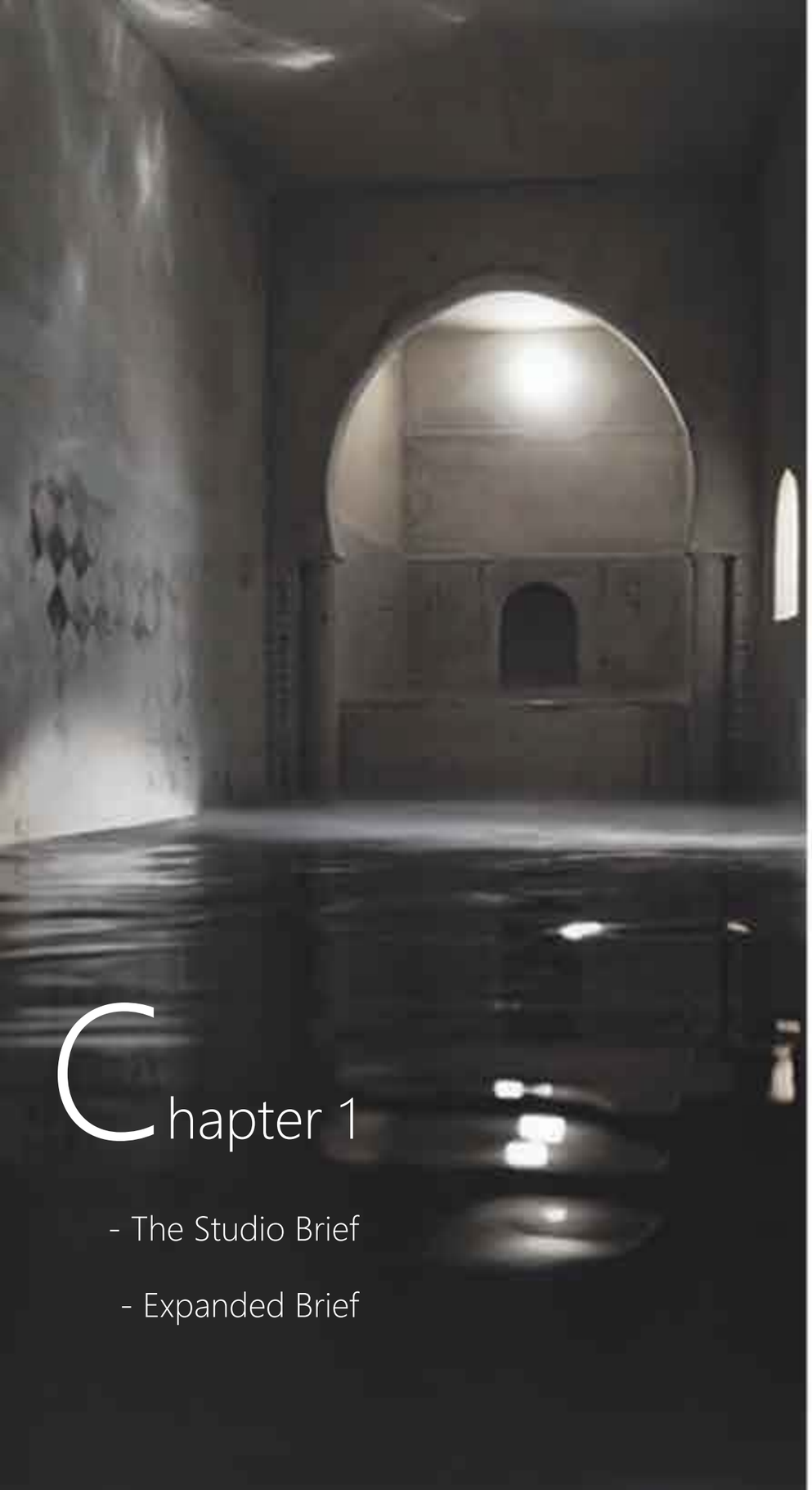
Pan Jialin
1100258
Anuradha Chatterjee



Chapter 1

- The Studio Brief

- Expanded Brief



Chapter 1

- The Studio Brief

- Expanded Brief

The Studio Brief

The aim of the brief is to design a Wetlands Research and Interpretation Centre, which will have spaces for Research and Teaching, Information Storage and Exchange, and Communal Use. The brief expects students to develop a clear stance on how the building can foster education, curiosity, awareness, through architectural legibility + circulation; incite emotional responses to the mythical and poetic qualities and perceptions of wetlands and water; and propose ways in which their building touches the ground or extends into the surroundings through a careful consideration of wetland ecology and construction methods. The design moves must be evidence based and driven by a demonstrable study and synthesis/application of 'deep' study of precedents. The building would be instrumental in connecting research (expert knowledge) and experience and education (democratization of knowledge). The project demands a clear and unambiguous solution to the functional programme, but it also expects an appropriate level of abstraction and translation of the context (wetlands/water) in architectural atmosphere through the manipulation of light and materials.

It is not enough to fulfil the brief only. The theoretical position in this brief can be informed by a number of things,pertaining to awareness and experience of ecology and landscape:

-First, students can think of how the design of the building can foster education, curiosity, awareness, through architectural legibility + circulation (as journey or encounter) across the various spaces as well as the various activities made possible within/by the building and its function.

-Second, the wetlands are not only beneficial and utilitarian, but also evoke an emotional response of openness, mystery, and fear. Hence, students can start to think of qualities of water poetic, aesthetic and philosophical connotations of stillness, murkiness, dampness, fluidity, overflow, mystery, fear, and so on. Water and aquatic life is not merely the subject of research but it must also inform the experience of the researchers, and regular and casual visitors. Water nurtures and threatens. It protects but it also corrodes. It connects yet separates. It is surface and depth. Transparent and opaque. It is one and it is both. Think of Venice as the perfect example where water exists ina sympathetic yet paradoxical relationship with architecture.

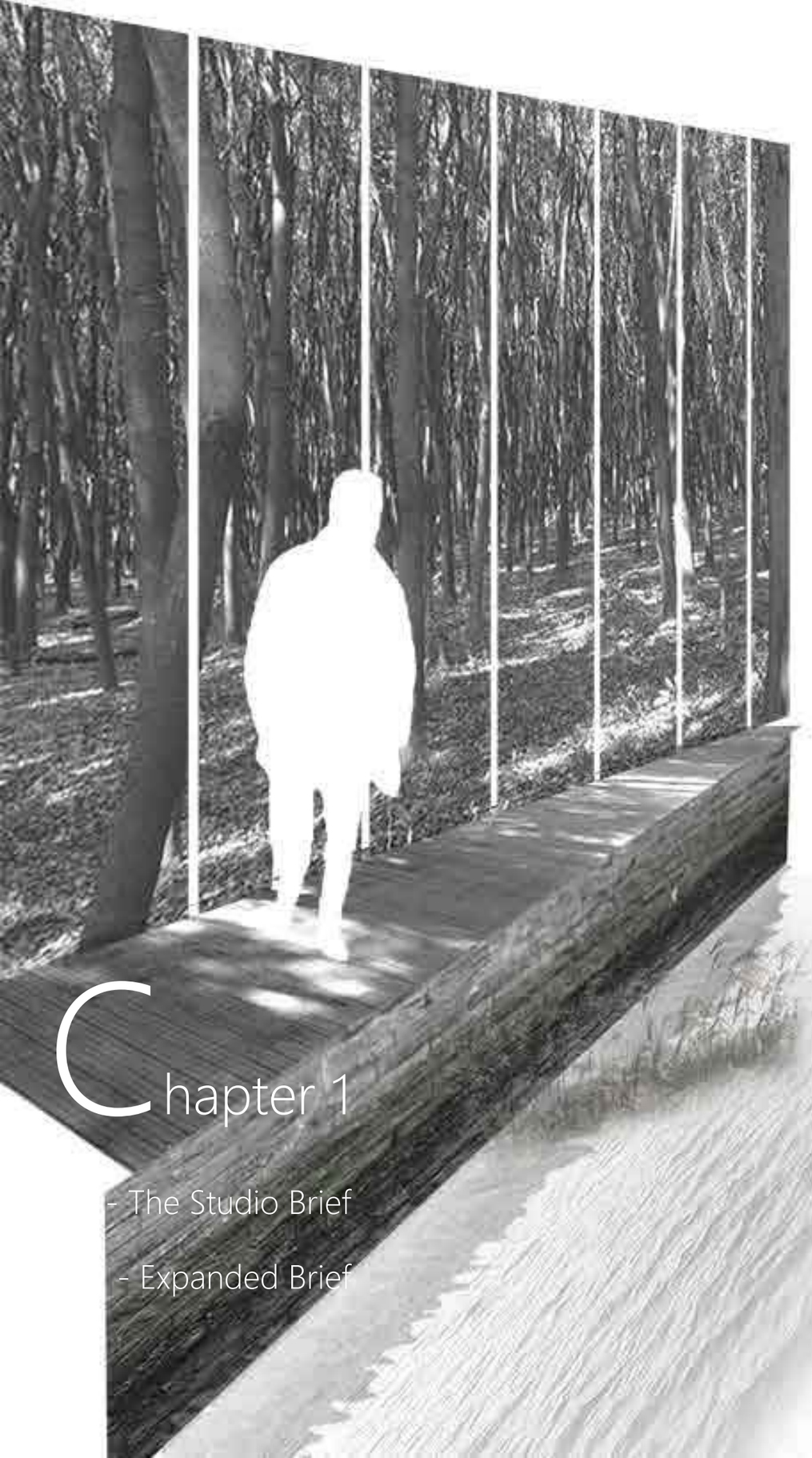
-Third, students can think of how and to what extent the building touches the ground and extends into the surroundings, and whether the articulation of connection and/or disconnection can be articulated to inform the experience and understanding of the wetlands.

-Research Center (8 resident researchers and 12 postgraduate students)

1. Teaching laboratory: (capacity : one professor and 12 postgraduate students) (Area: 34sqm)
   //One experiment desk for showing the process of operation, and one computer with projector.
   //Twelve fixed writing desks for students.
2. Work shop : (capacity: nine invited researchers)(Area: 34sqm)
   //Three type experiment desks with writing tables in three researching rooms.
   //Two preparing tables near the entrance can be shared by three experiment rooms.
   //The three researching rooms: geographical experiment, biological experiment, ecological experiment. While these researching rooms only can be used by invited researching teams..
3. Geographical laboratory: (capacity: 2 resident professors and one assistant)(Area: 18sqm)
   //One experiment desk with writing table, in addition, the writing table can be use as preparing table.
   // There is a platform in the middle of room to put geographical model or real nature materials.
   // Movable chairs.
   // A cabinet near the entrance to keep researchers' private things.
4. Biological laboratory: (capacity: 2resident professors and one assistant)(Area:18sqm)
   // One experiment desk with writing table.
   // Movable chairs.
   // A cabinet near the entrance.
   // There also has a platform for some plants near the windows. and a machine to record the growing process.
   // A cage near the experiment desk to provide researching material.
5. Ecological laboratory: (capacity: 2 resident professors and one assistant)(Area: 18sqm)
   // Some equipments are same as biological laboratory, such as experiment desk ,chairs and cabinet.
   // Because the laboratory room is floating on the river, it easy to do the researches of submerged plants and wetland circulatory water system. Thus, there is a small pool in the middle of the room.
6. Storages: (four types.)(Area: 11sqm for each storage.)
   // Four storages are storing the researching materials for geographical experiment, biological experiment, ecological experiment and experiment equipment.
   // Storages are next to the staircase and have no window to protect the materials.
7. Offices on the ground floor (Capacity: totally, 12people.)(Area: 24sqm & 21sqm)
   //Assistants' office:(24sqm and can contain 8people)
   eight desks with eight computers + 0.6meters gap between two rows of office tables, and each row has two tables + one printer near the entrance
   // Professors' office (21sqm for 4 people)
   Four office desks with computers
   There is one bookshelf next to the each table.
   Moreover, partitions separate for independent office areas.
8. Offices on the 2nd floor (Capacity: 2people for each one office)(Area: 14sqm)
   // These two offices are both for the resident professors.
   // Two office desks and bookshelves for each one office.
9. Toilet
10. Seminar room: (Capacity: 20, the whole staff of researching center)(Area:50sqm)
   // moveable tables and chairs
   // water fountain near the entrance.
   // The door of seminar room has two meters wide, and models or some research achievement can be easy to enter in.

Chapter 1

- The Studio Brief
- Expanded Brief



Chapter 1

- The Studio Brief

- Expanded Brief

-Accommodation(maximal capacity: 8 families, 16 people)

The accommodation is divided into two parts, and each part has for families to share one kitchen. Two entrance connect two sharing kitchens. It means that when people access in, there is a buffering area to some mailboxes or something else. And people enter into the sharing kitchen, and four private rooms are both facing to this kitchen. Additionally, a door connect two kitchens but could always be closed.

There are three types of residential room.

1. Room for a family (Capacity: 3 to 4 people)(Area: 38sqm)
   //one big bedroom and a smaller one+an independent bathroom and a living room.
2. Rooms for couple. (Capacity: 2 people)(Area: 17sqm)
   //one bedroom+an independent bathroom and a living room.
3. Room for single. (Capacity: 1 to 2 people)(Area: 15sqm)

-Library (Capacity: 2staff) (Area: 310sqm)

1. Reception area
   //Only has two tables with computers for borrowing and returning books, next to the entrance.
2. Office: (Capacity: 2 people)(Area: 7sqm)
   // Two office tables and one printer
   //Cabinets near the tables.
3. Archive: (Area: 40sqm)
   //Archive has 6sqm meters buffer area to divide from high frequent circulation area.
   //Next to the office for easy management.
   // have no window, while have good ventilation system on the celling.
4. Reading Area: (Area: 153sqm)
   // ten bookshelves in the middle of reading area.
   // some journals and CDs near the computer lab.
   //fixed tables and chairs along window and wall, moreover, some movable chairs surround the book-shelves.
5. Computer Laboratory: (Capacity: 12 computers)(Area:37sqm)
   //12 tables, chairs and computers.
   //Cabinets next to the entrance.
   // A reception table next to the entrance to manage the equipment of computer laboratory.
6. Toilet.

-Restaurant & Cafe (Staff: 4people) (Area: 90sqm)
1. Counter (Capacity: 1 staff)(Area: 3sqm)
// next to the entrance.
// a reception table with cash register.
// sell food and coffee. When people enter into restaurant, they have to order food or drinks in this area and then they can choose have meal in the restaurant or take it away.
2. Kitchen (Capacity: 2 staff)(Area:12sqm)
//behind the counter, only staff can access in.
//connect with storage.
//also has a door connect with service space to allow that some tableware after used can be brought in.
3. Service space (Capacity : 25)
// three rows of fixed table and chairs.
// a area can collect tableware.
4. A special service space(VIP room)(Capacity: 6people)(Area: 10sqm)
//movable table and chairs
// for some important dinners
5. Toilet.

-Interpretation Center
1. Gallery:
// Painting display corridor.(Area:30sqm)
This area connected with the main entrance of Gallery can show some painting related to wetland. People can realize the main topic of this gallery with their movement.
// Reception Center (Area: 100sqm)
Elevators, staircase with a door to show staff only, a office for helping visitors.
When tour guide leads people enter into Gallery, this is the space for introducing some basic information by guide.
// preface hall (Area: 60sqm)
Toilet
Some multimedia projectors to interpret basic information about wetland and stimulate the curiosity of visitors, resulting in a further visit.
// Chinese wetland introduction(Area:182sqm)
Firstly, the situation about Chinese wetland environment will be displayed by models
Secondly, the relationship between wetland and human could be presented by posters and case analysis.
Finally, some characteristics of YangCheng wetland.
//Research achievement display
How to save the wetland and what the efforts made by research center.
Offices for advisory service and shop.
2. Second Floor
// Office for staff (Capacity: 5) (Area:18sqm)
//Storage for gallery.
// Lecture room (Conference center)(Area: 65sqm)Capacity: 55)
For some public or academic presentation by guest lecturers.

Chapter 1

- The Studio Brief

- Expanded Brief

Chapter 2

- Non typological Case Study
- Typological Case Study
- Site Analysis
- Wetland Research
-Construction Method in Wetland

Non typological Case Study

-Thermal Baths in Vals
By Peter Zumthor

Vals

Thermal Baths

-Contextual Responding

Around the premise of keeping original topography and physiognomy, this building wants to simultaneously provid necessary privacy and viewing point to the users.
Internal narrow corridor facing to huge open hole of structure leads
people from massif to wide area.
With expanding of space size, people' s sight can be through the construction to produce a directly conversation with nature.

Chapter 2

- Non typological Case Study
- Typological Case Study
- Site Analysis
- Wetland Research

nstruction Method in Wetland

Chapter 2

- Non typological Case Study
- Typological Case Study
- Site Analysis
- Wetland Research
-Construction Method in Wetland

Site Analysis

-Water Transition

-March.2009

-May.2010

-November.2010

-September.2011

-December.2013

-November.2011

Water Transition for Proposed Site

I foucs on the water level changing. Bule area in these six photos from 2009 to 2014 stands lake created by underground water, and this particular phenomenon is one of wetland characteristics. In other words, environment of this project is flexible. In further design, I would think about how to use this flexible element and what method can make architecture match to various water level.

Section A-A1

Section B-B1

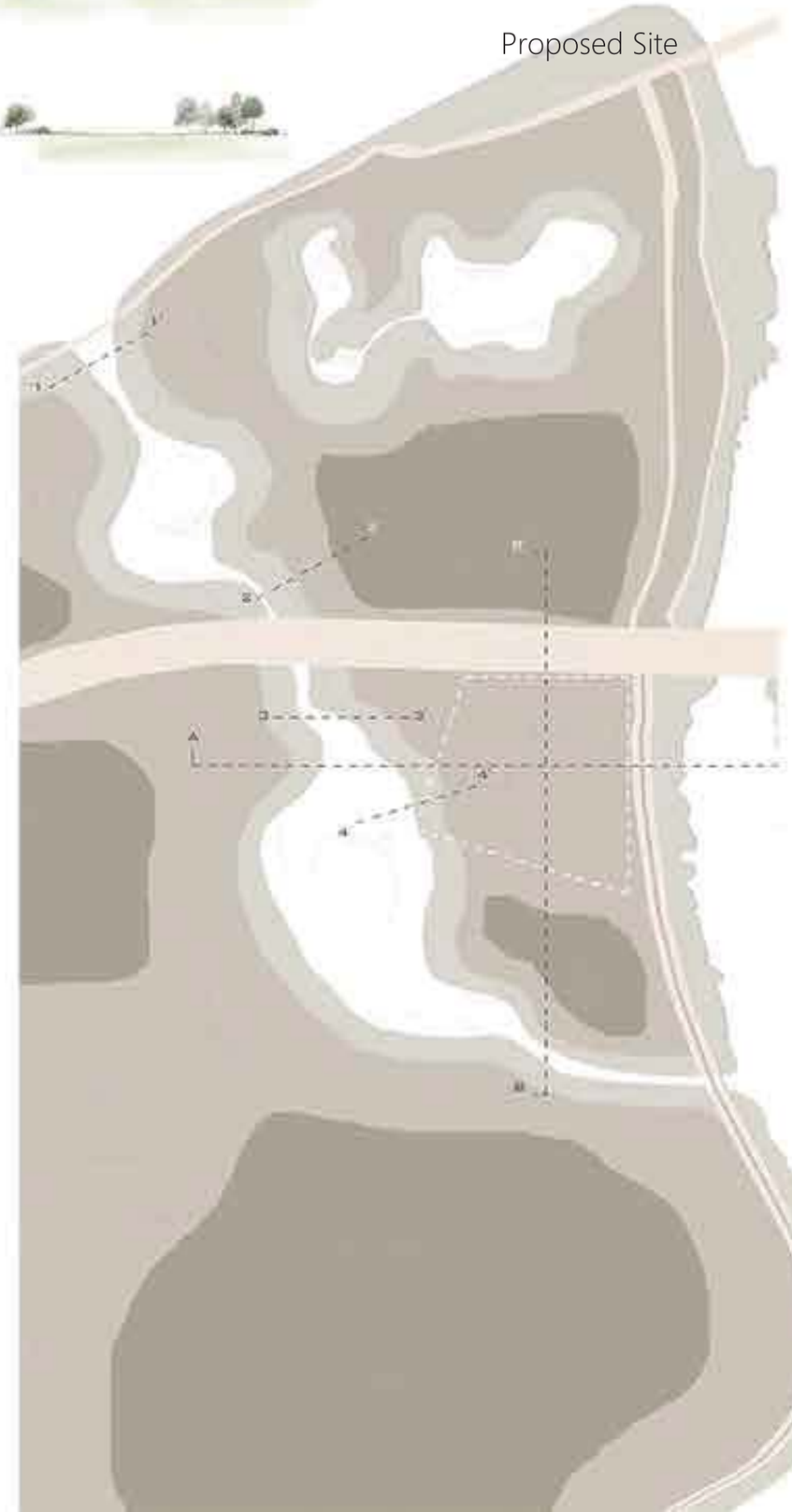
Fragement Section 1-1'

Fragement Section 2-2'

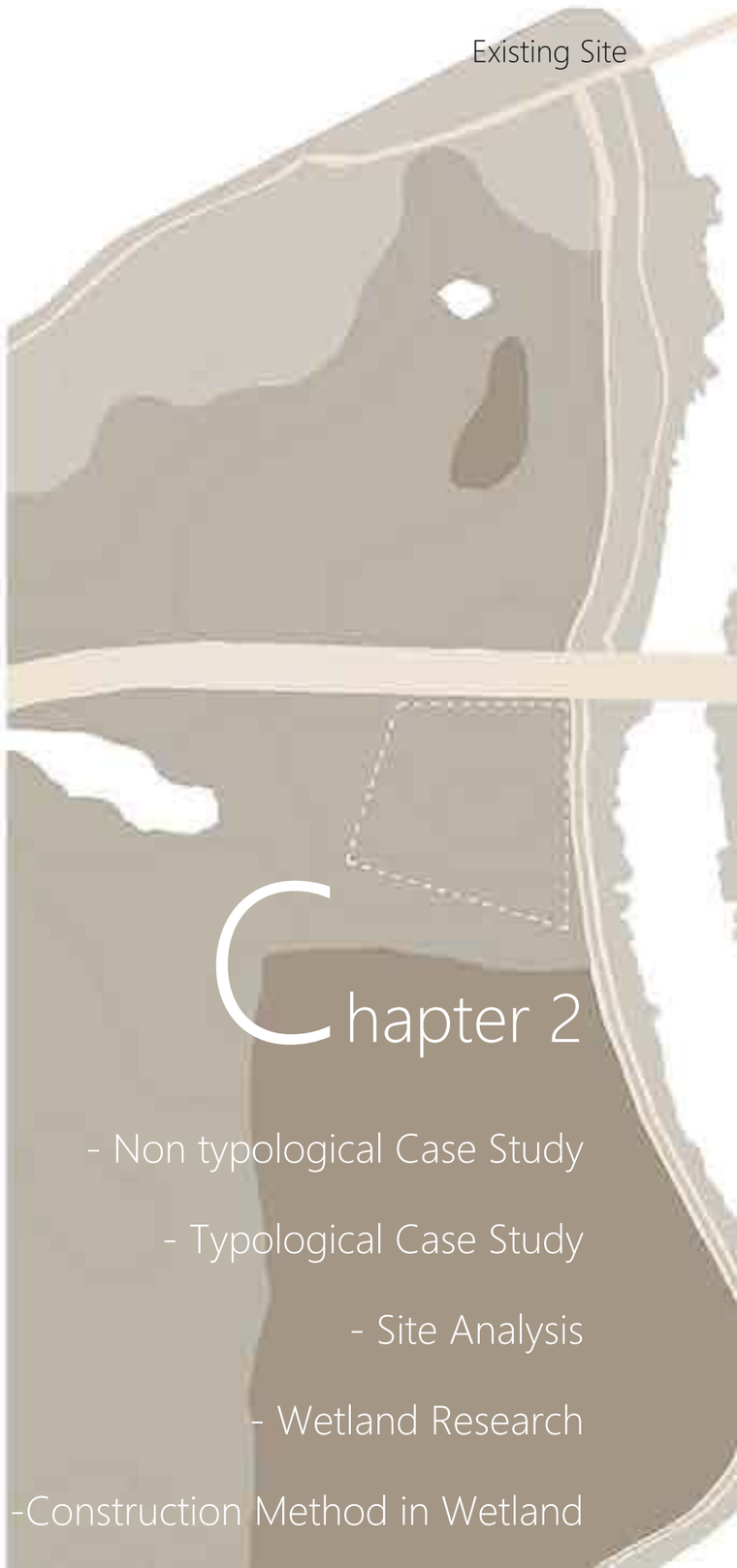
Fragement Section 3-3'

Fragement Section 4-4'

Proposed Site



Existing Site



Chapter 2

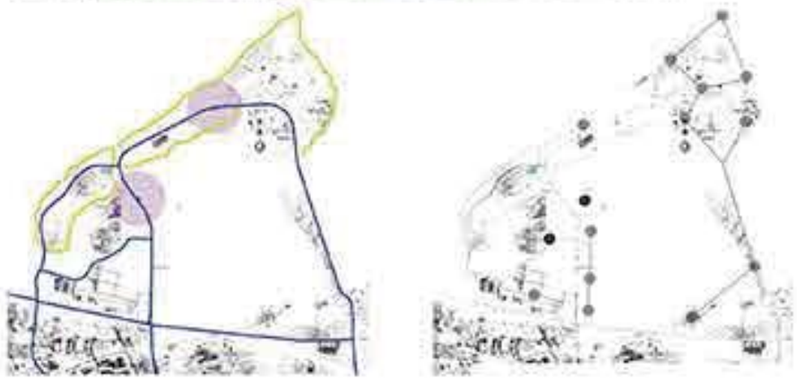
- Non typological Case Study
- Typological Case Study
- Site Analysis
- Wetland Research
-Construction Method in Wetland

Chapter 2

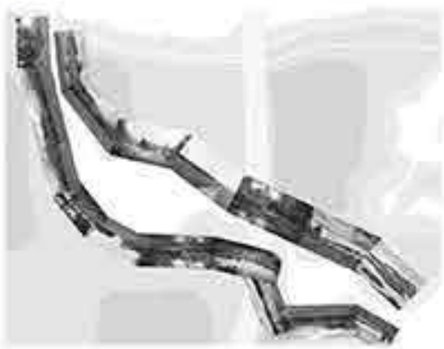
- Non typological Case Study
- Typological Case Study
- Site Analysis
- Wetland Research
-Construction Method in Wetland

Site Analysis

Master Plan of Peninsula



Transportation



Montage

Wetland Research
-Summary
From *Wetland Restoration and Creation*
By Mary E. Kentula

-Wetland has a large number or Benefits: water-quality improvement, flood attenuatin, esthetics and recreational opportunities, however, as the population has expanded across the Nation during the past few centuries, wetland have been drained and altered to accommodate human needs.

-Purpose of restoration and creation: maintain the benefits of wetlands and heir surrrounding eco-systems, meanwhile, accommodate te human need for development.

-Wetland restoration: recover a degraded or destoryed wetland.
Wetland creation: the construction of a wetland that never was a wetland.
Creation is more different than Restoration.

-A constructed wetland is created for he purpose of treating wastewater, stormwater, acid mine drainage, or agricultural runoff.
-A enhanced wetland is an existing weland that has been altered to improve a particular function, usually at the expensive of other functions.

-Compered to the existing wetland destoryed by construction, the exchanged function of wetland should have relative merits.
-more important than replacement function?
-increase wildlife diversity?
-loss of habitat of any endangered species?

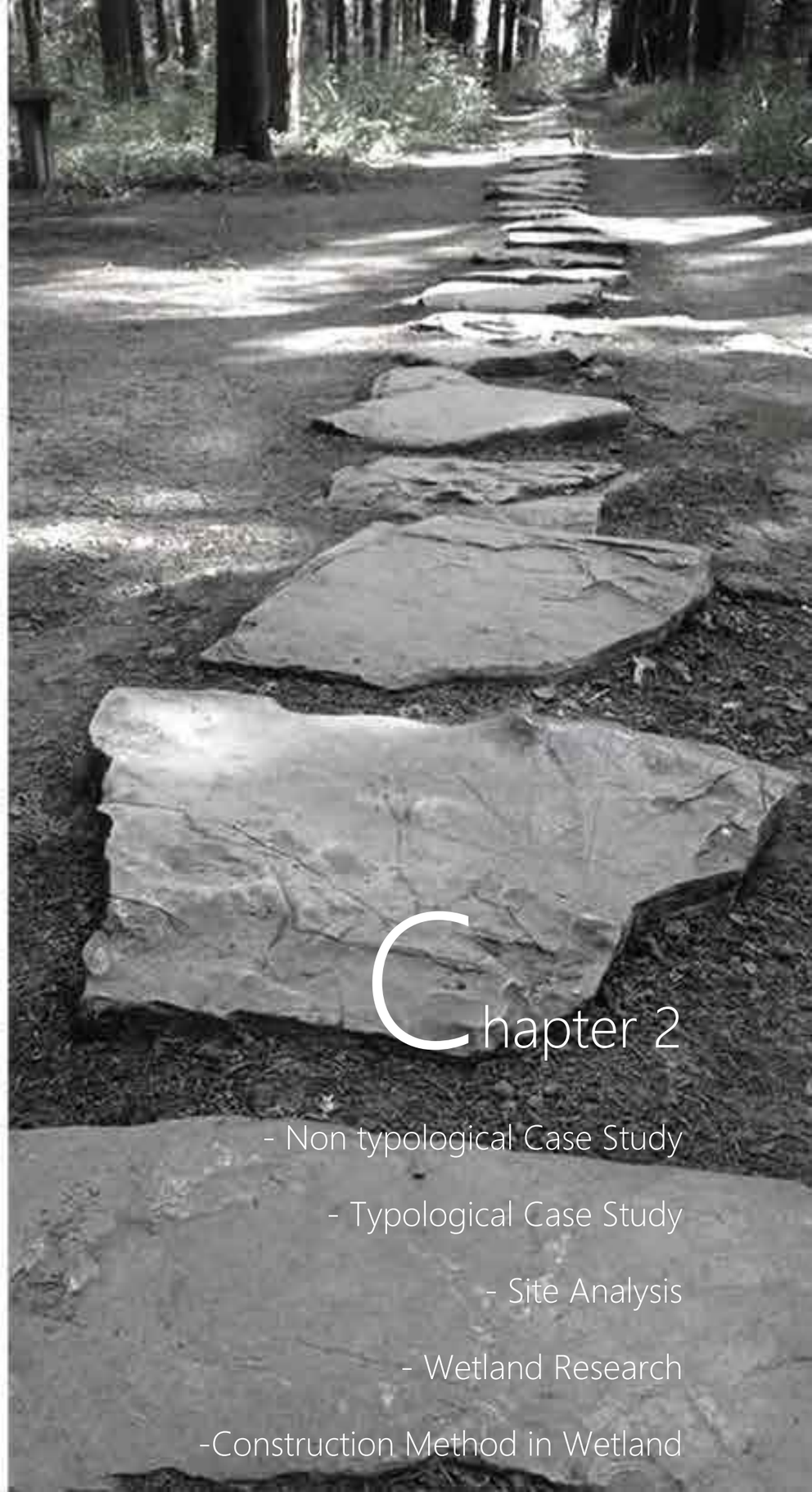
-Designing for success
Wetland project design are site-selection criteria, hydrologic analysis, water source and quality, sub-strate augmentation, plant materials selection and buffer zone placement.

-Site selection:
Require wetland to be restored and created to compensate for nearby wetland losses.
Existing wetland has similar land uses can be used as model for what might be expected of the proj-ect wetland.(restore the riverbank wetland can improve the downstream quality of water.)

-Suggest the selection of "Low maintenance" vengetation. The species that are adaptable to a broader range of water depth, Select herbaceous species that rapidly stabilize the substrate, aviod selecting the significant areas of the site.)

- The buffer zone is the area between wetland and surroundings.
Undeveloped, vegetated band around the wetland.
A fence or barrier障碍物
A lake or basin

-In general, restoration is likely to be more successful than creation.



Chapter 2

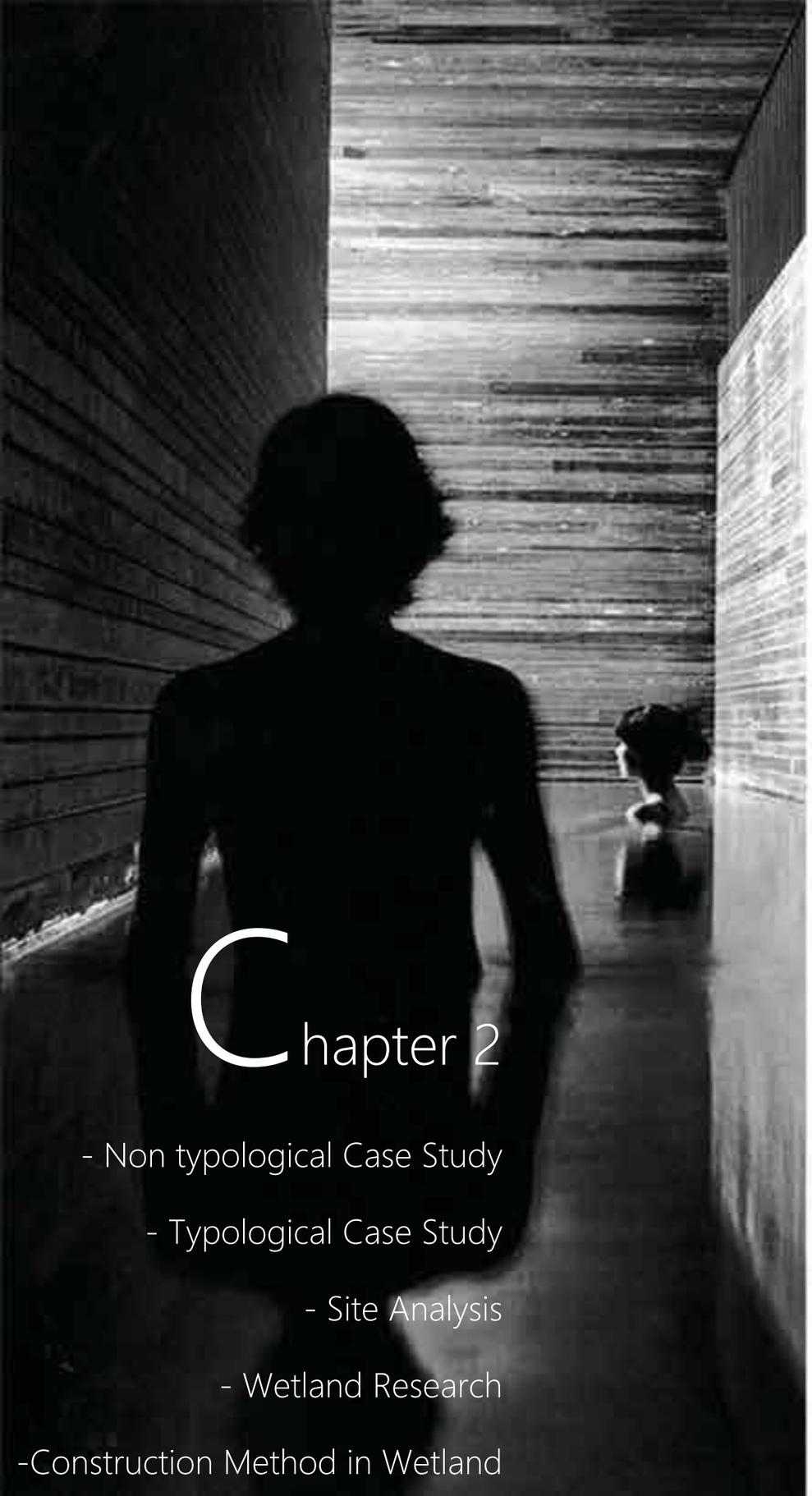
- Non typological Case Study

- Typological Case Study

- Site Analysis

- Wetland Research

-Construction Method in Wetland

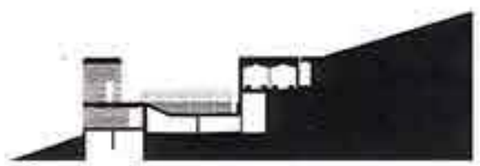


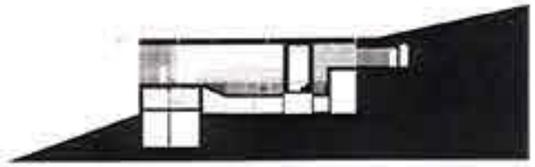
Chapter 2

- Non typological Case Study
- Typological Case Study
- Site Analysis
- Wetland Research
-Construction Method in Wetland

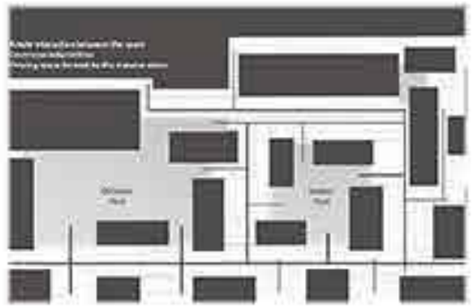
Non typological Case Study

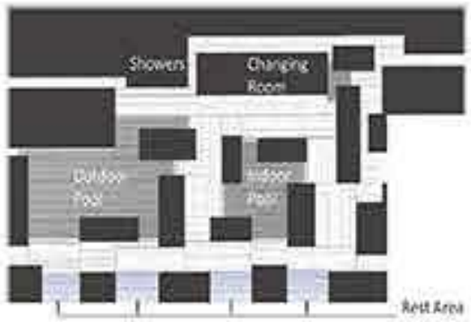
Section





Main and Secondary Circulation
Functional Grouping





Humidity
Temperature

-Parti

The site of thermal bath lies an hour away from Chur by car, out of the eastern flank of the basin-shaped valley of Vals, dotted with shepherd huts and enlivened by the sound of cowbells. The thermal bath is an independent structure setting into the slopping, like almost invisible. Through the formation of setting deep into the mountain, this building is establishing a special relationship with landscape, that is, blending in site nature. And this semi-open type could make the bathing place have a sufficient contact
with environment.

Chapter 2

- Non typological Case Study
- Typological Case Study
- Site Analysis
- Wetland Research
-Construction Method in Wetland

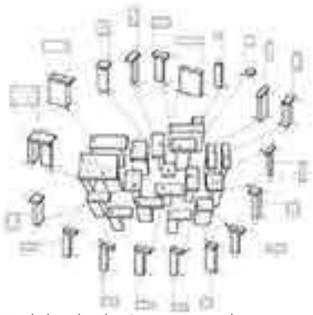
Non typological Case Study
-Structure

1. Load-bearing element

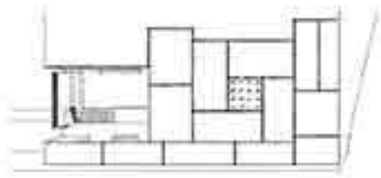
2. Reinforcement

3.Casting and cladding

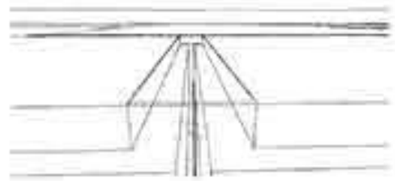
4.One structure unit



19 Table-link Structural units



Units forming a Jigsaw pattern



Striped glass panel for connection and skylight

-Material

Materials Palette

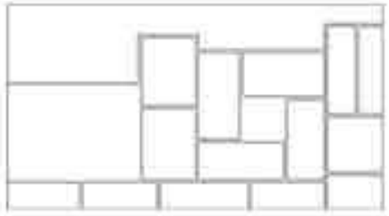
Stone Strata & Porous Stone:
The total thickness of 3 different stone layers is certain for achieving same height of facade

Stone with nature texture as consruction material has a silent communication with peaceful context to build a serious, elegant and mysterious atmosphere.
Stone is tough and massive, however, water is soft and spotless.
These two things constitute the characteristics of context, and comparison of darkness and brightness.

Chapter 2

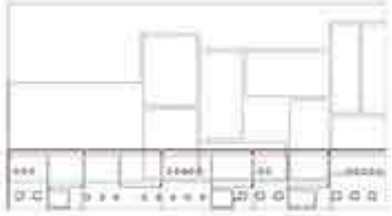
- Non typological Case Study
- Typological Case Study
- Site Analysis
- Wetland Research
-Construction Method in Wetland

Non typological Case Study -Diagram

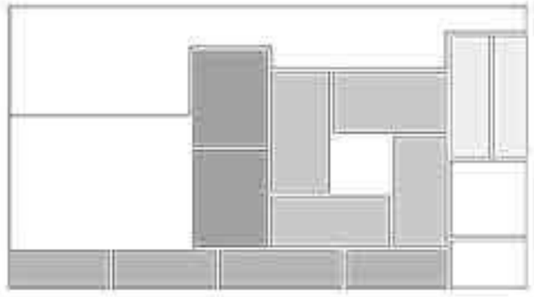


Plan

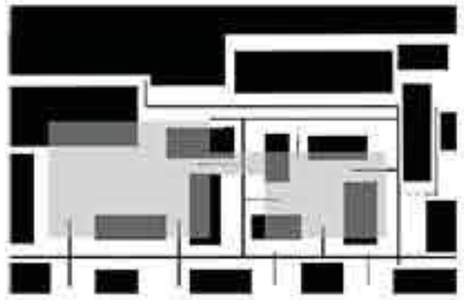
Elevation



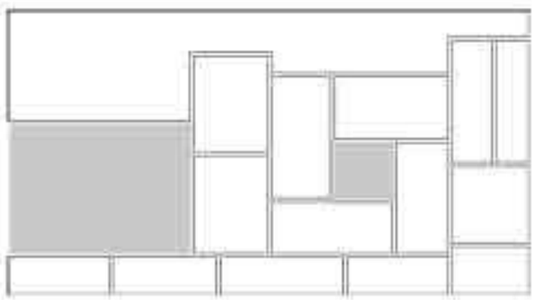
Plan and Evelation



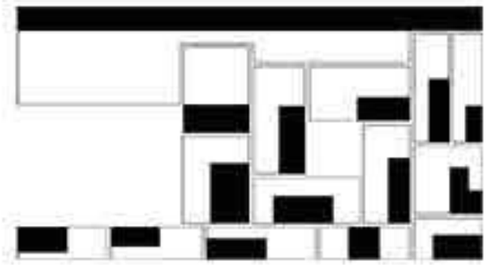
Repeatitive to unique



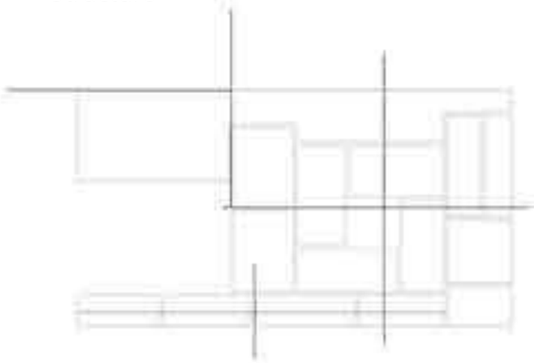
Flowing and circulation



Natural Light

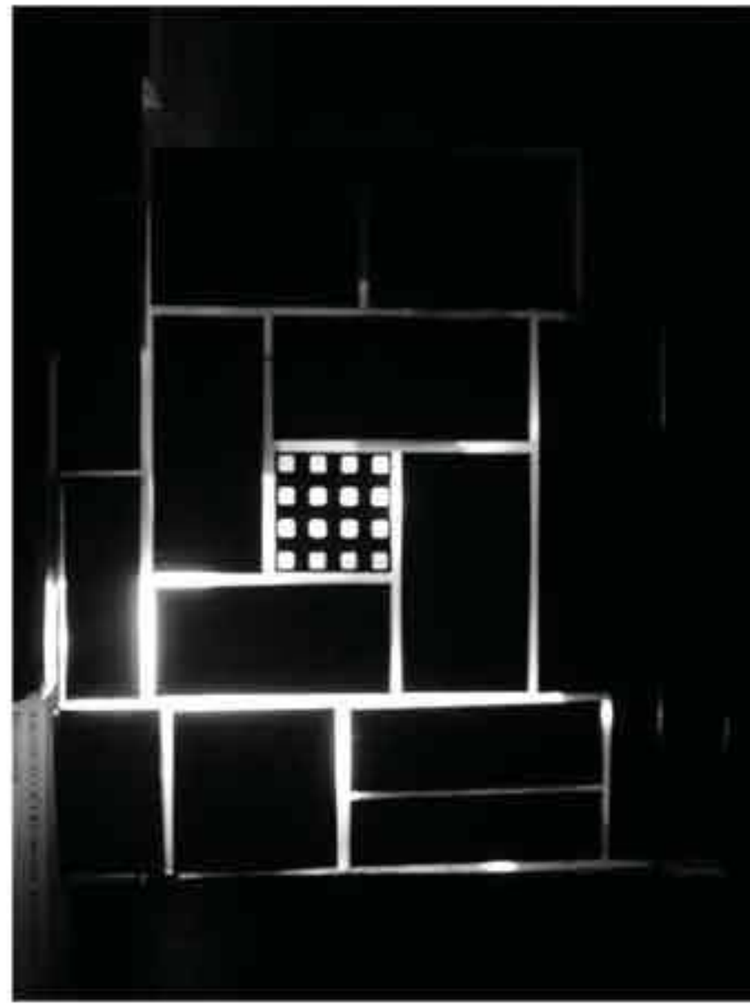


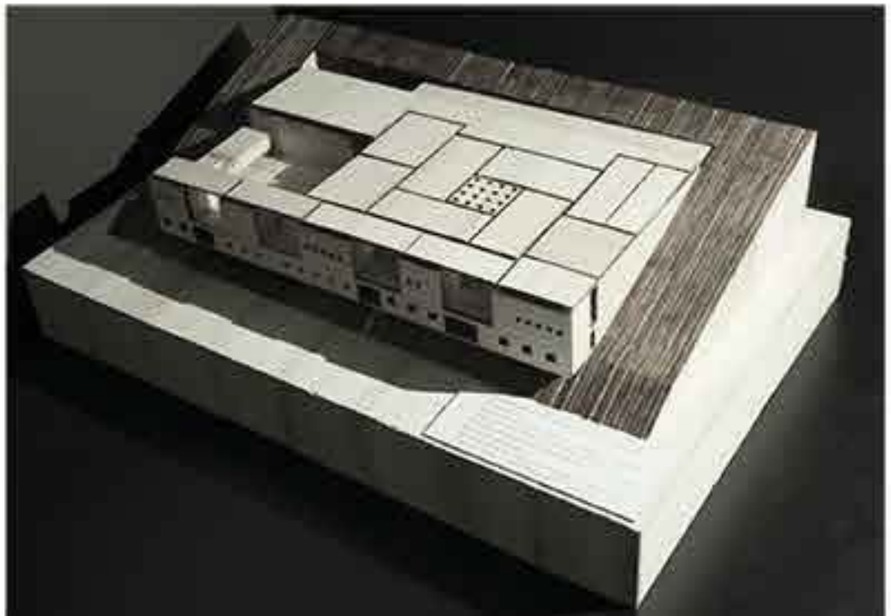
Structure

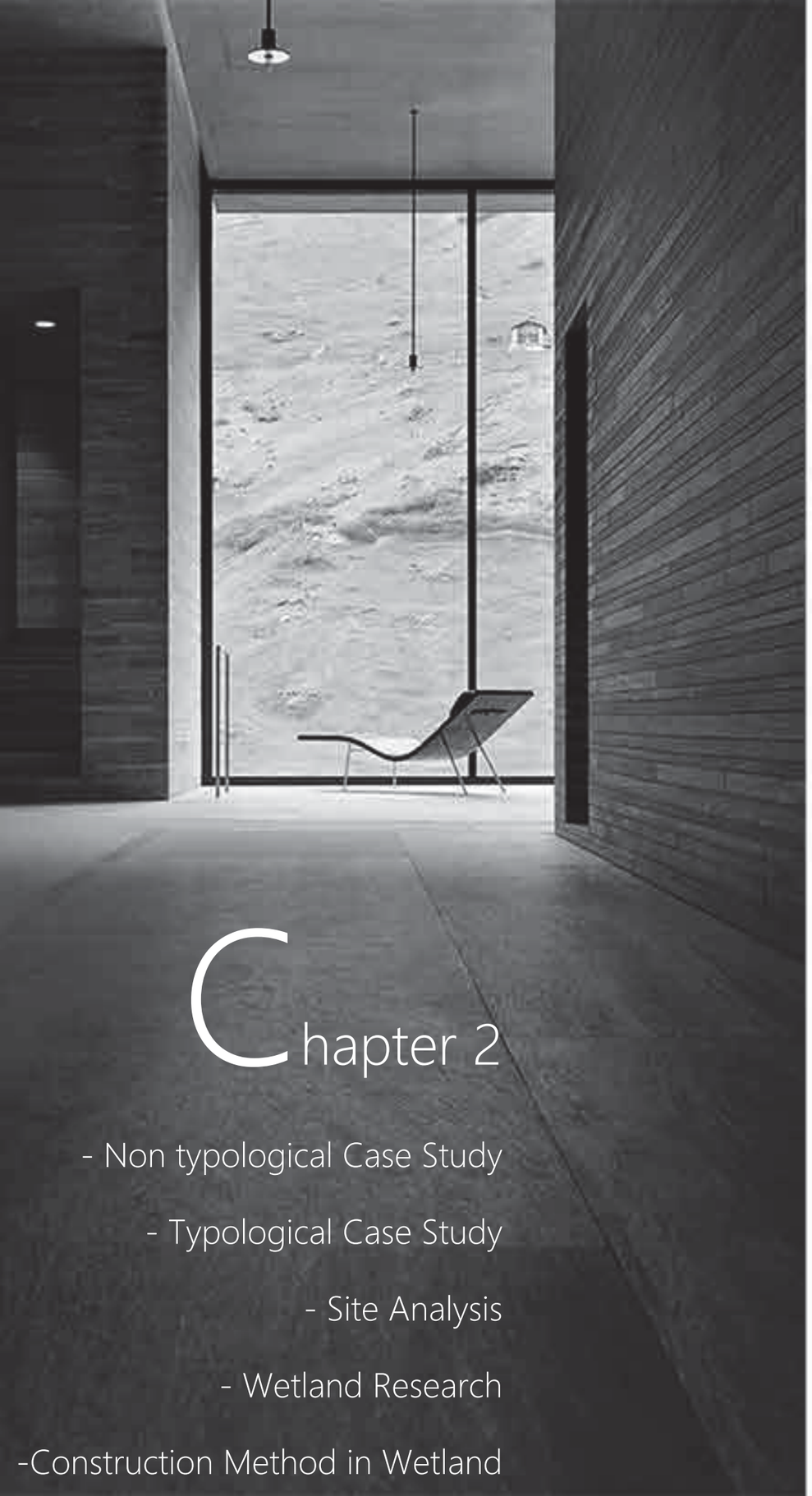


Symmetry and Balance

Non typological Case Study
-Model Photos







Chapter 2

- Non typological Case Study
- Typological Case Study
- Site Analysis
- Wetland Research
-Construction Method in Wetland

Non typological Case Study
-Test
Some notes of Atmosphere by Peter Zumthor

This book aims to translate the concept of atmosphere by nine questions and three annotations primarily considered by Zumthor and his studio.
Actually, every theme in this book seems to be an element of translation of Atmosphere, such as sounds of space, temperature of surrounding, internal and external tension and levels of intimacy.

Quality architecture to me is when a building manages to move me.

How does architect create the emotion to move experiencers? And how the people perceive atmosphere? Virtual concept or variation of space? As Zumthor said in Atmophere,

We perceive atmosphere through our emotional sensibility — a form of perception that works incredibly quickly……Not every situation grants us time to make up our minds on whether or not we like something…

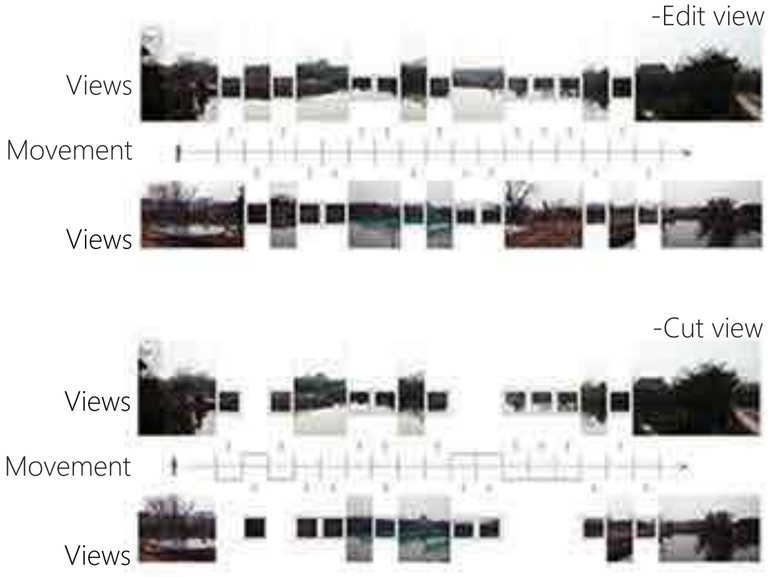
During the design process, most part would be rational. The value of the design is rational, and the thinking of solution is rational. However, what architect wants to present needs to be emotional, moving. It is a feeling of whole things. So architect could not require public to comprehend the meaning of architecture. The reason is that real aesthetics is directly, intense.
Based on these theories that Zumther said, I have to say that there still have some mood different to admiration of Thermal baths in Vals by Peter Zumther. There is no doubt that it is a great architecture. However, thermal baths in Vals gives me an excessively feeling of damp, sunless and fearing. Maybe I will change my mind after real visiting.

Typological Case Study

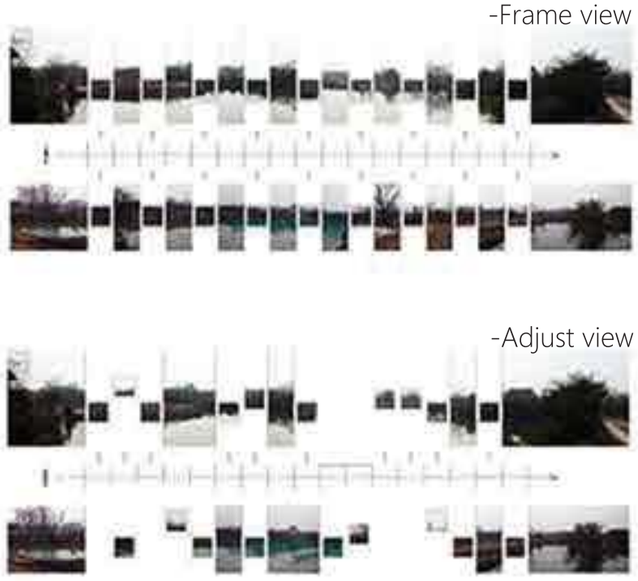
-Xixi Wetland Art Village
By Wang Weiren

-View Reframing

-Edit view



-Frame view

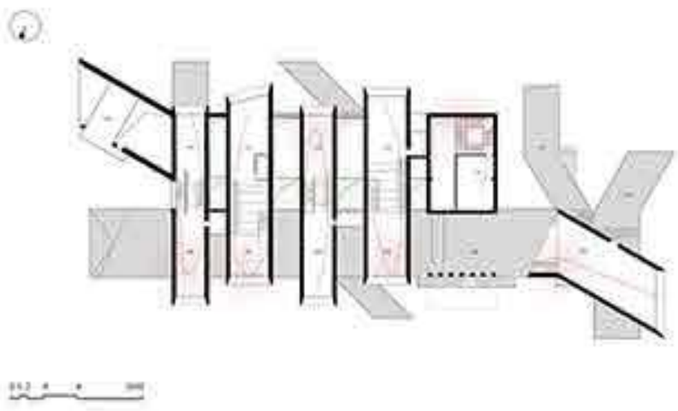


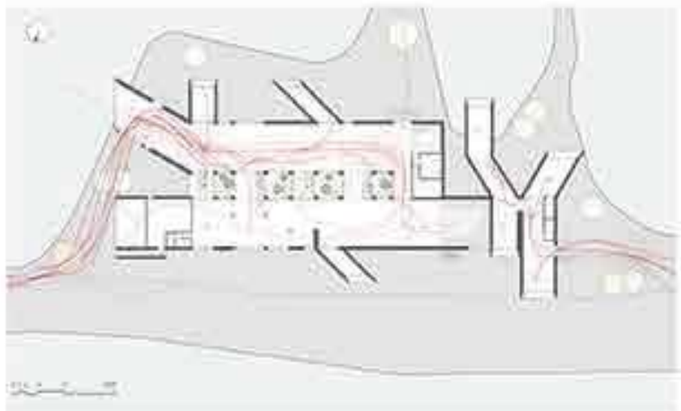
-Cut view

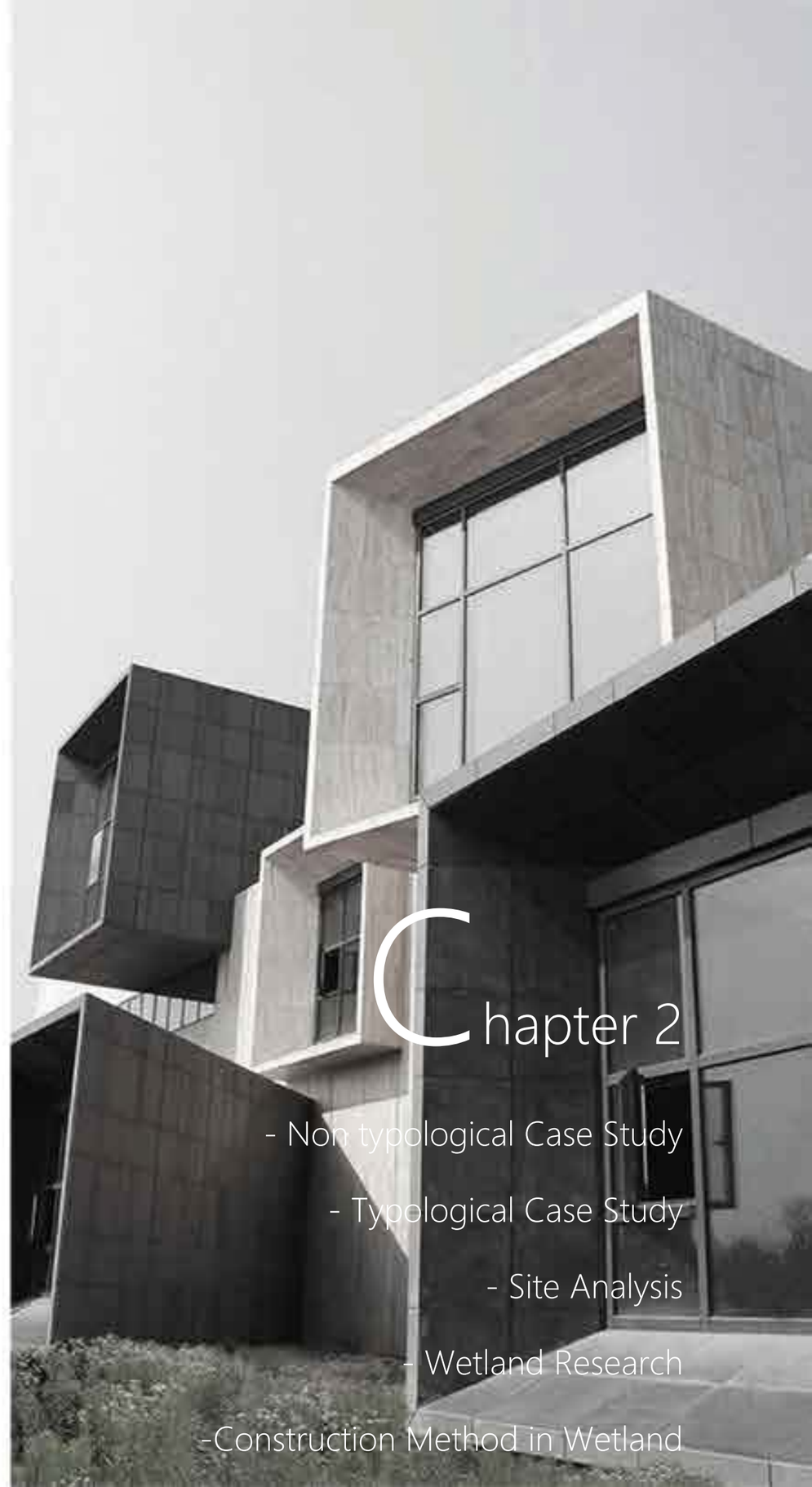
-Adjust view

Through the composition of a series of architectural viewing instruments each designed for different positions and viewing angles, the project intends to reverse the process of mo[ve]vie[w] and reframe our scenic experiences, exploring new conditions for our perceptions toward landscape, or mountain and water.

-Circulation -Pubilc & Private

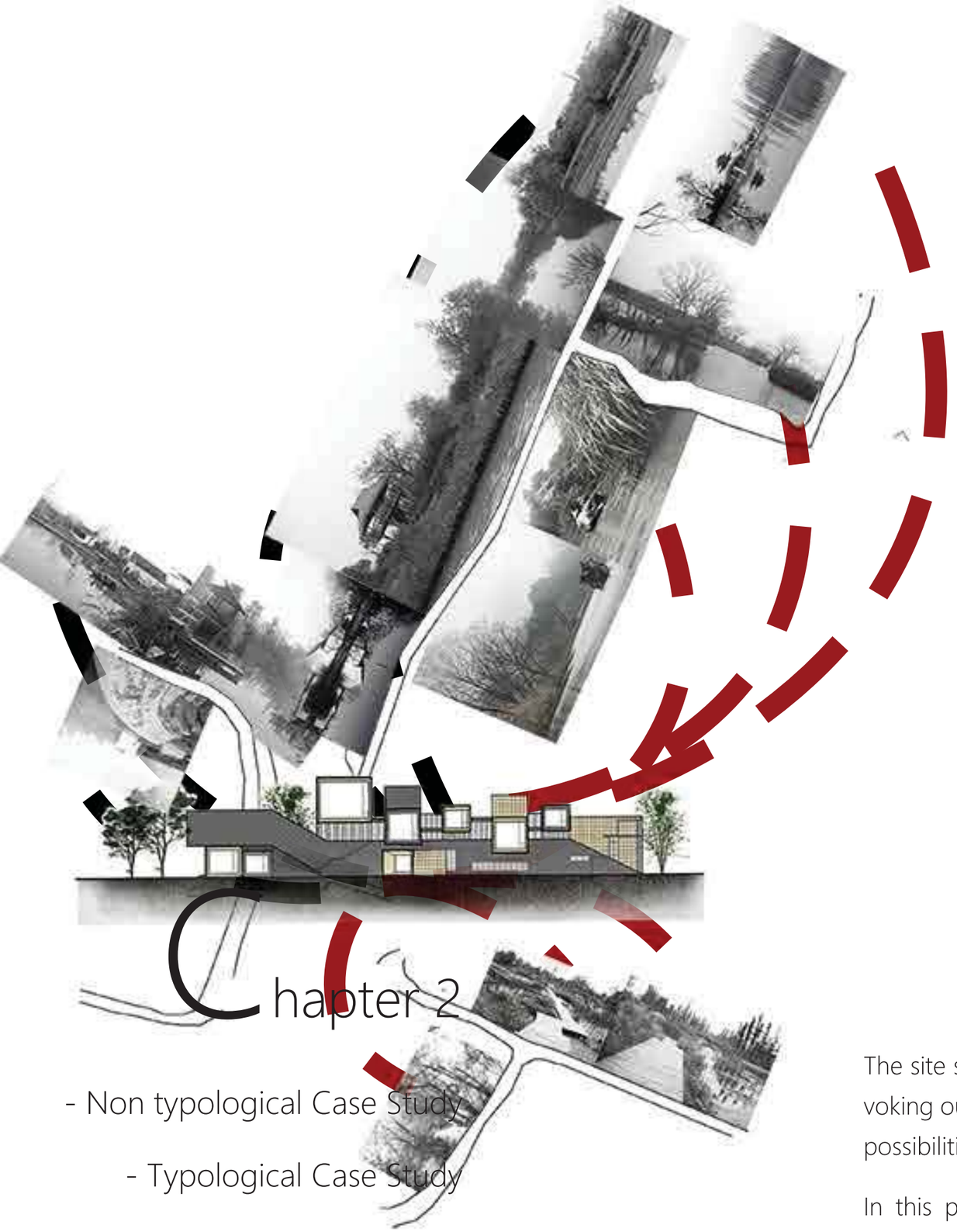






Chapter 2

- Non typological Case Study
- Typological Case Study
- Site Analysis
- Wetland Research
-Construction Method in Wetland



Chapter 2

- Non typological Case Study

- Typological Case Study

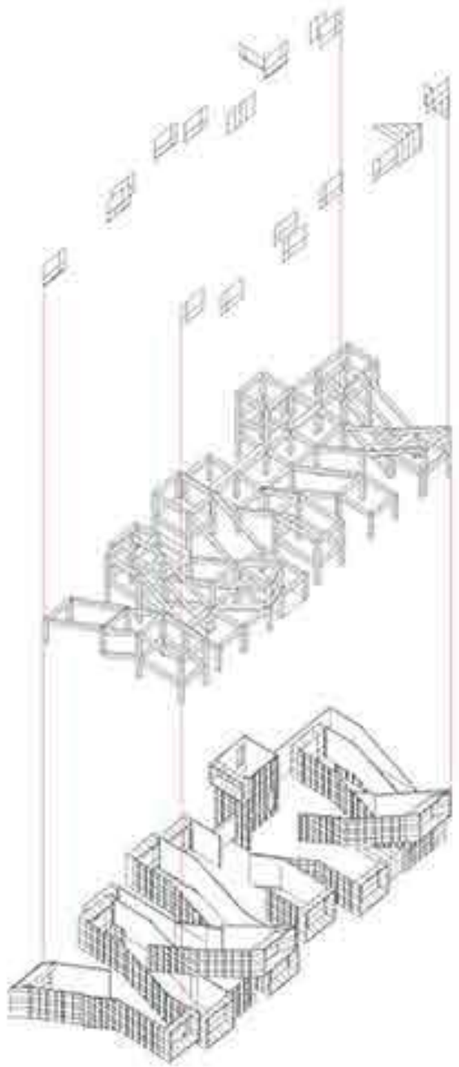
- Site Analysis

- Wetland Research

-Construction Method in Wetland

-Viewing Instruments

Typological Case Study
-Structure



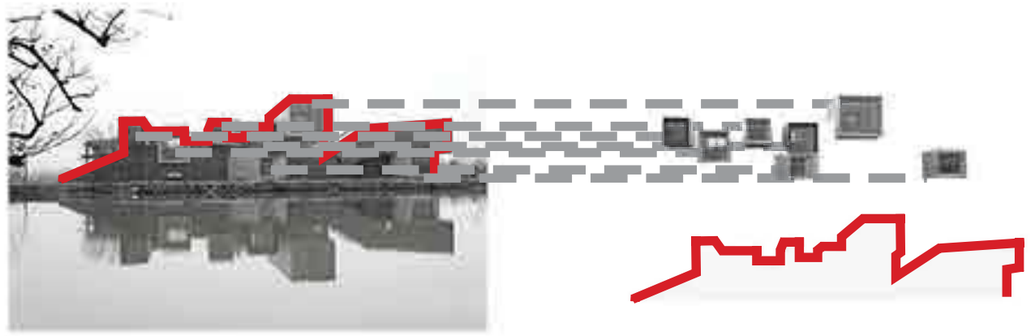
The site sits on three narrow strips of land opens to water views both in their front and back, provoking our sense toward mountain, water, sky and the field. Different situation of land form lead to possibilities of shaping various linear landscape experiences.

In this project, singular work in cantilevering, reinforced concrete, box construction, architect wanted to create a syncopated, rthymic composition of exceptional sophistication. Experiencers can explore the possibilities of relationship between time, space and landscape.

Typological Case Study

-Xixi Wetland Art Village
By Wang Weiren

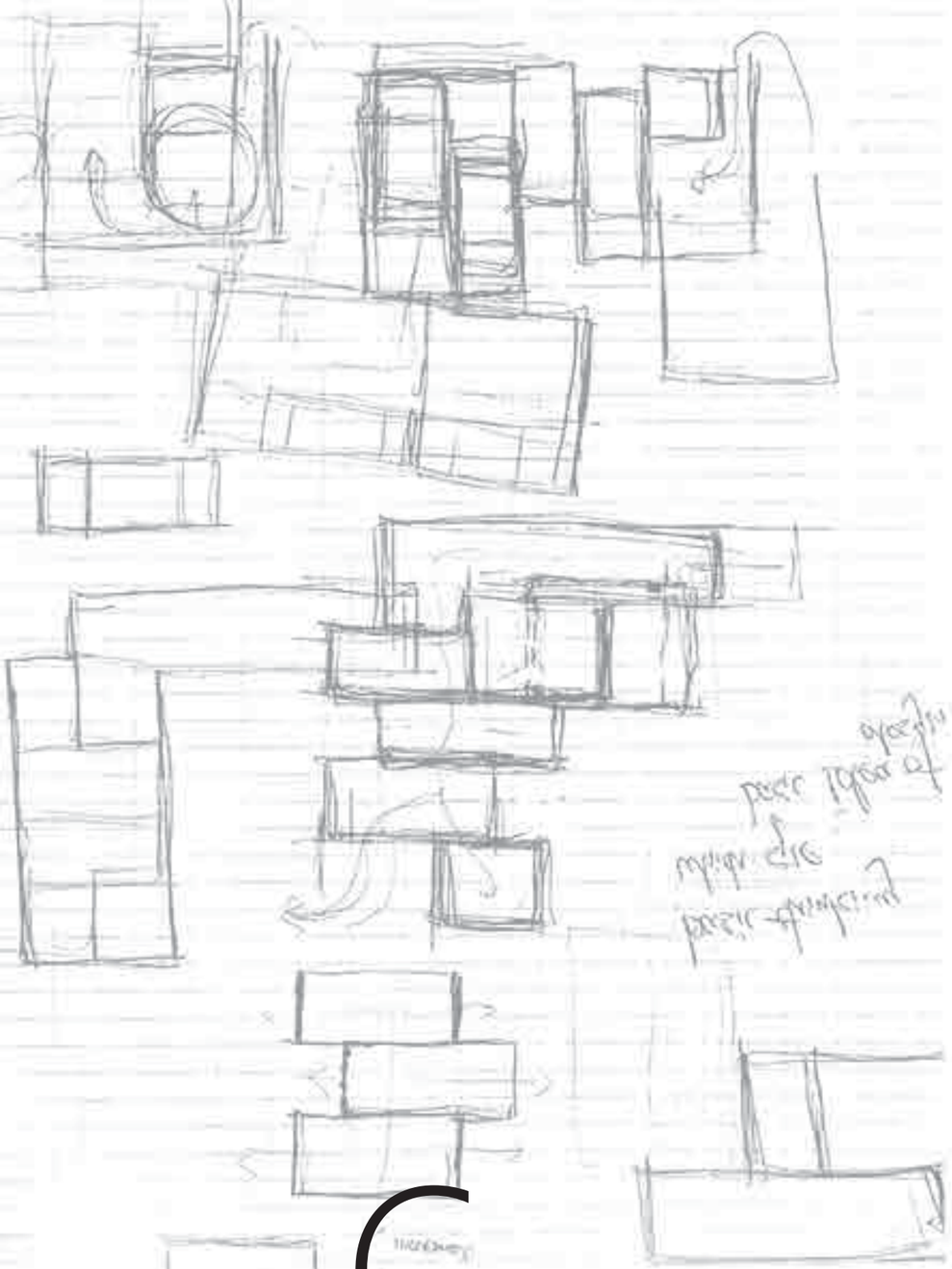
-Massing- Lightness & heaviness



Though reframing the orginal landscape in this site, new function and spaces are added at the same time, such as chamber, courtyard and so on.
Time = changing, Movie watching / static view
Place = changing, Moving and watching / reframing

Chapter 2

- Non typological Case Study
- Typological Case Study
- Site Analysis
- Wetland Research
-Construction Method in Wetland

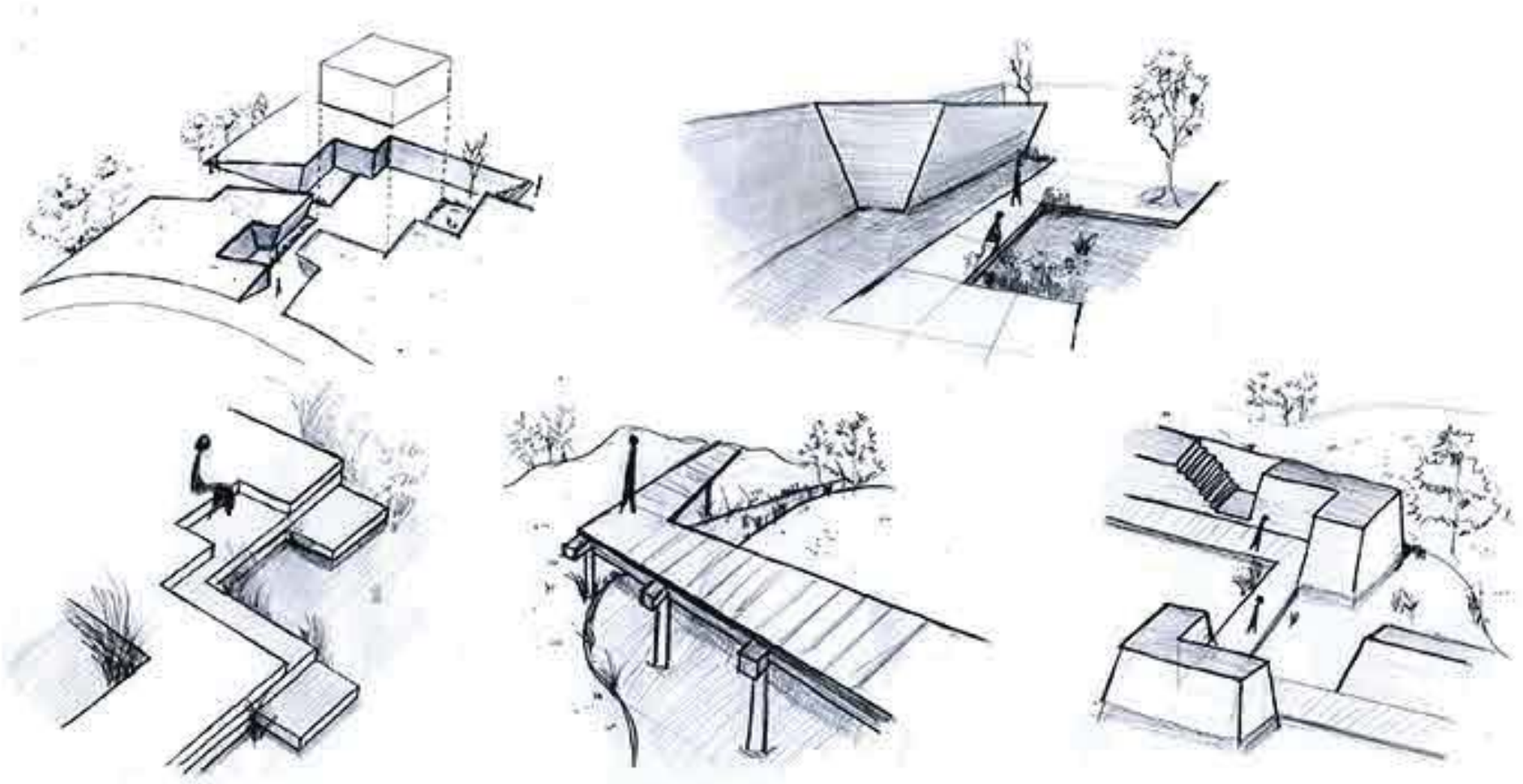


Chapter 3

- 1:50 Atmospheric Sections
-1:500 Models & Footprint
- 1:200 Plans & Sections & Elevations
-1:50 Model & Plan & 3D
- 1:20 Tectonic Strategies

-Making architecture is not arithmetic; it requires a diverse range of activities and encounters that bring together our world and our experiences in unexpected ways.

-Shift + simultaneous scales rather than progression



-Outside

Water cannot only be the element of landscape, but also be a part of building, a indivisible part(From case study-Thermal Baths in Vals).

Three different relationship between water, architecture and people:

-Architecture integrated into water, and people follow water level.

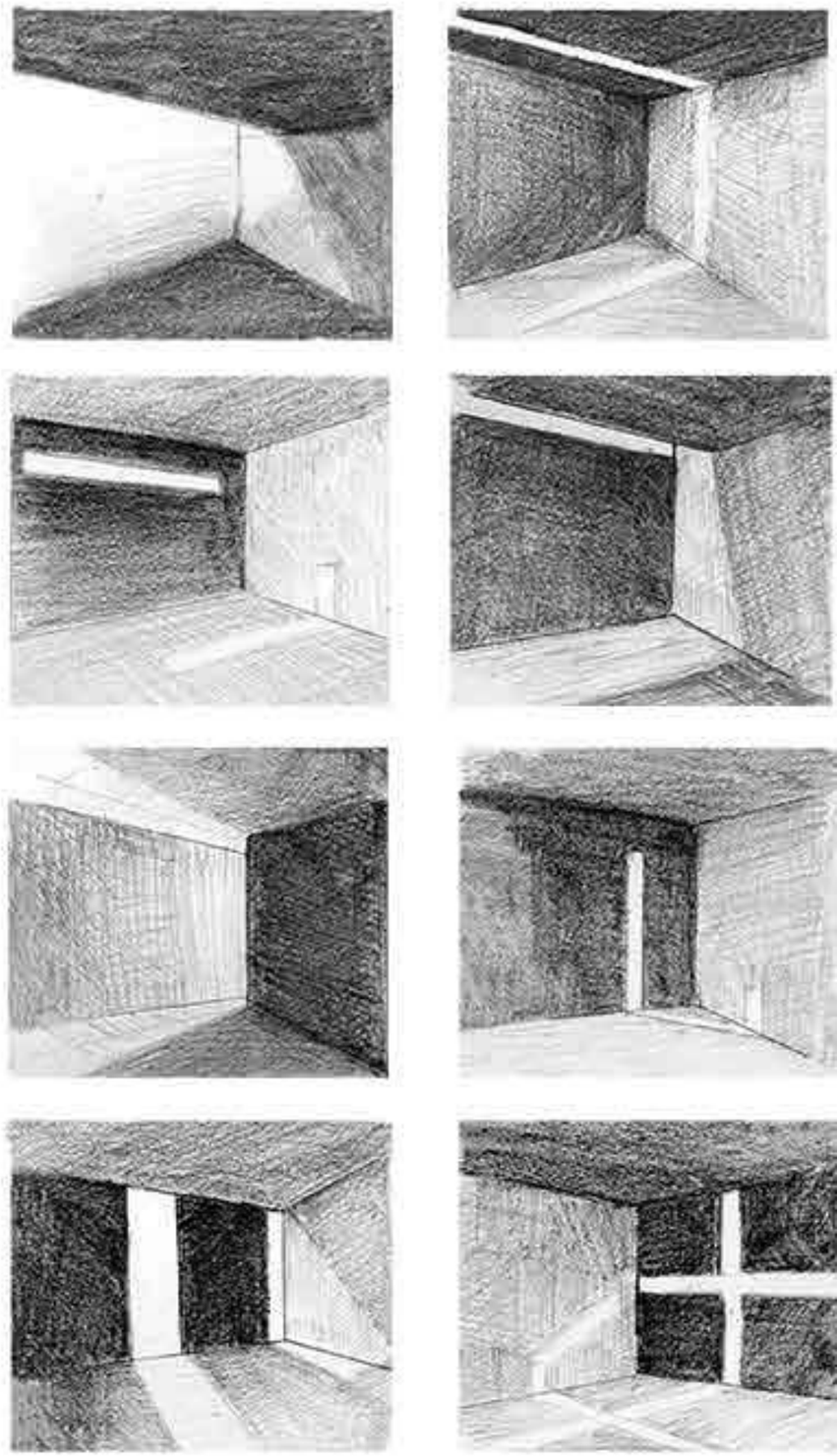
-Water as a background element. The concrete wall can show the transition of water level. (The timber board might be rafting on the water.)

-Keep adequate distance from water.

The experiencers can find and touch wetland by themselves.

My design concept I : Intermediary Architecture between Water and Land

Designing from the outside in, as well as inside out...Since the inside is different from the outside, the wall –the point of change –becomes an architectural event. Architecture occurs at the meeting of interior and exterior forces of use and space....



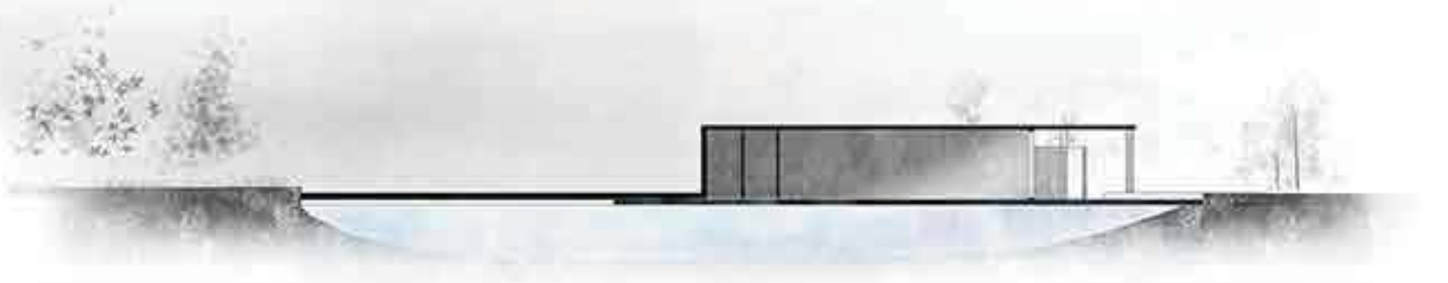
-Inside

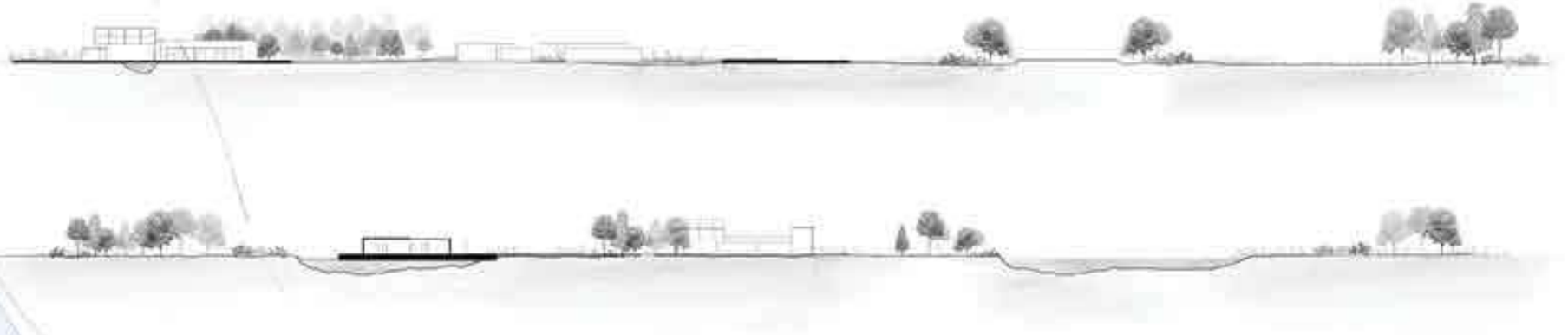
Exploring the possibilities when light enter and create slicent, simple atmosphere.

Natural light separate architecture into a serise of continuous or noncontinuous volumes. In other words, a big mass can be disolved into small mass by natural light, water, people movement and so on.

Chapter 3

1:200
-Plan & Model



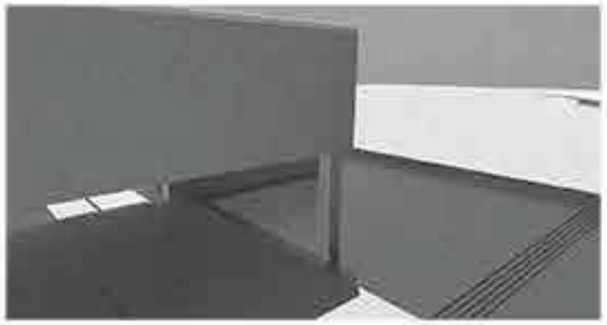


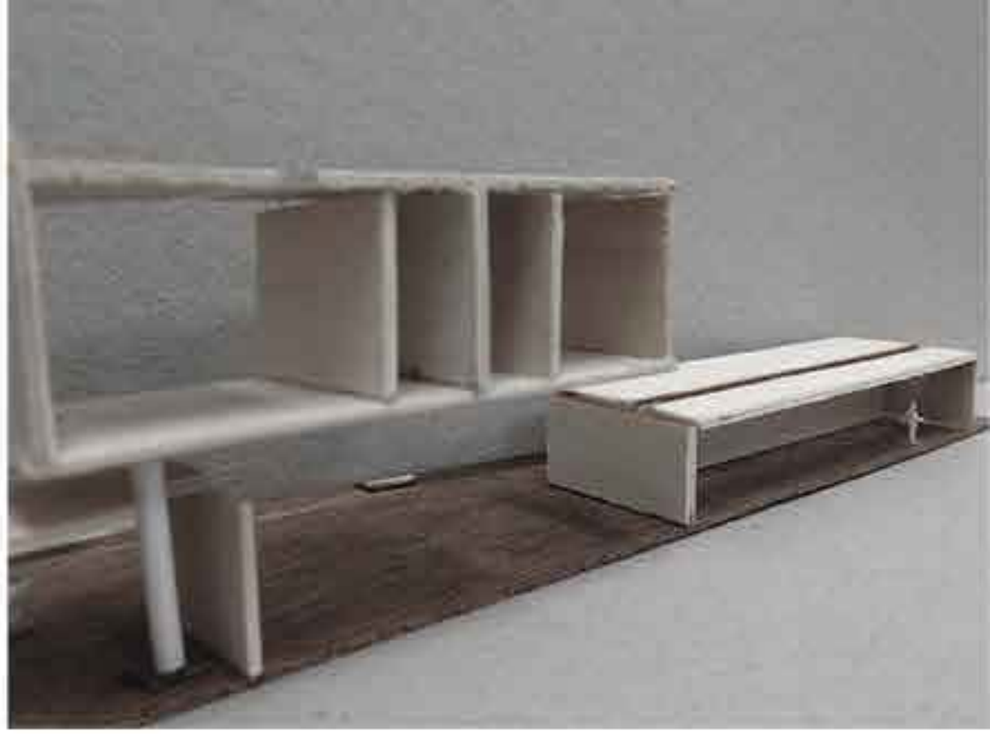
Chapter 3

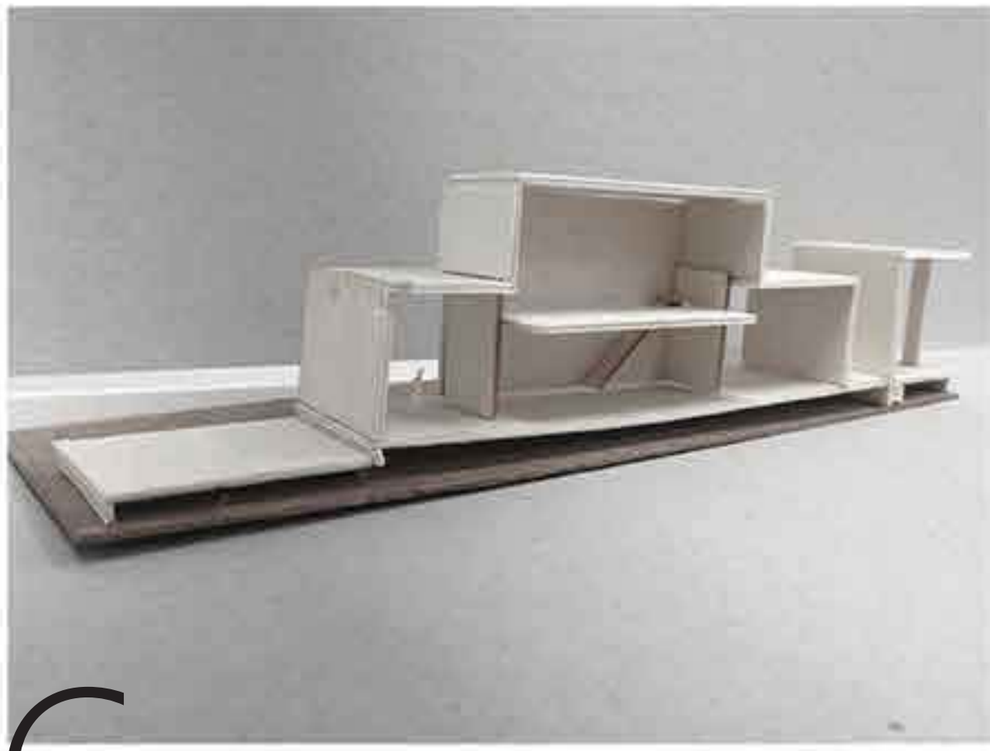
2nd Design

After the first experiment, design concept is practicable. In the further design process, the main idea would not be changed. However, academic area and interpretation centre form two cluster of functional group. I need to consider to make this project more practicable, so the expanded brief should be thought. Basing on this expanded brief, some minimal layout can be changed to match to this brief written by myself.
Therefore, design concept is fixed, however, circulation, accessibility and room layout should be discussed and considered.

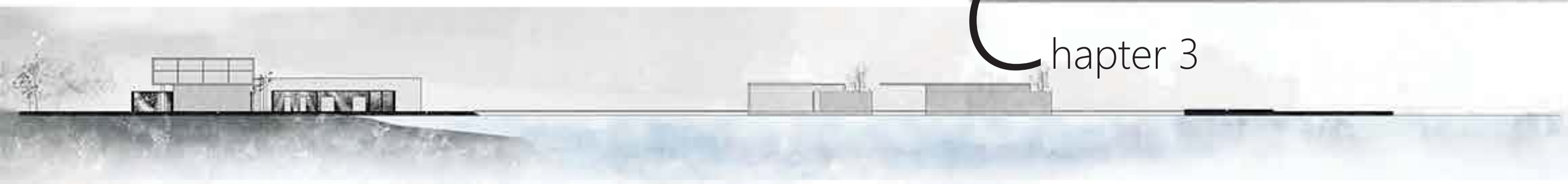
1:200
-Plan & Model

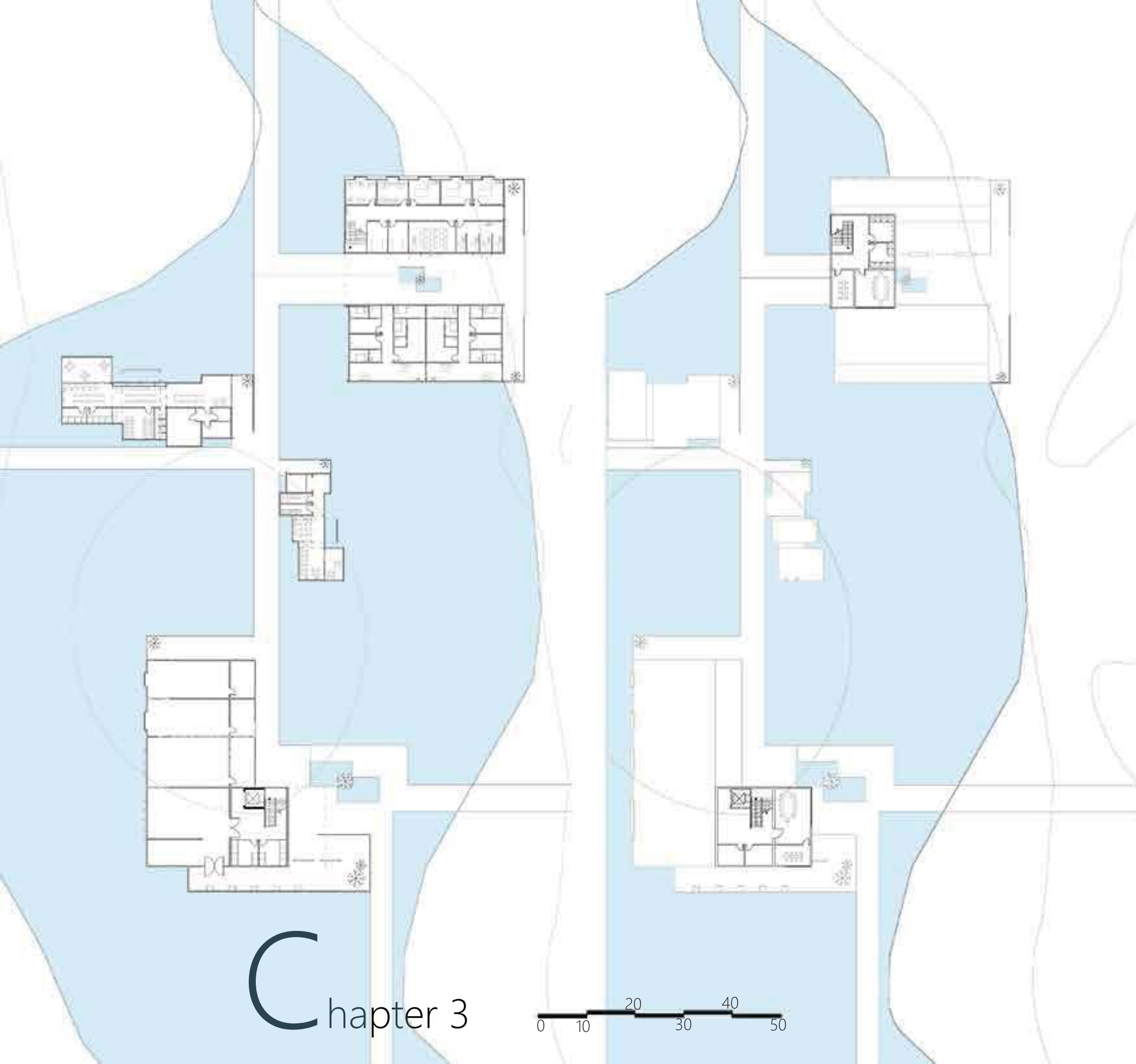






Chapter 3





Chapter 3

1:200
-Plan & Model

Final design

This is final design for the final crit.

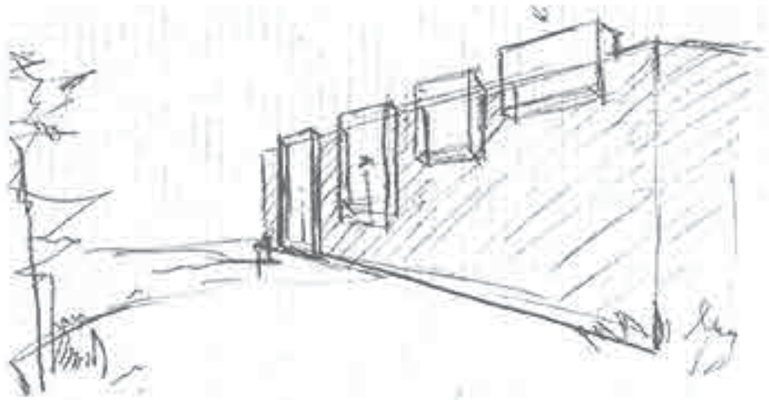
-Programme Level: This project decided to divide into two parts at the first step, in order to separate different using frequency. Two function group can independent work, but have interaction above water. In my opinion, two function spaces. restau rant and library, can be the suitable spaces which can provide place for visitors and researchers to exchange their idea. People move to the middle of lake with purpose, but have unexpected experience. I think it can make this movement meaningful. Academic using and public using are separated, but still connect with each other by people movement.

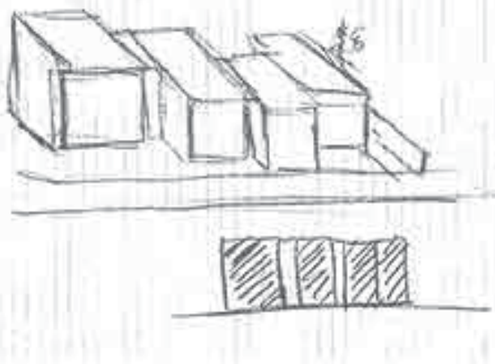
1:200
-Plan & Model

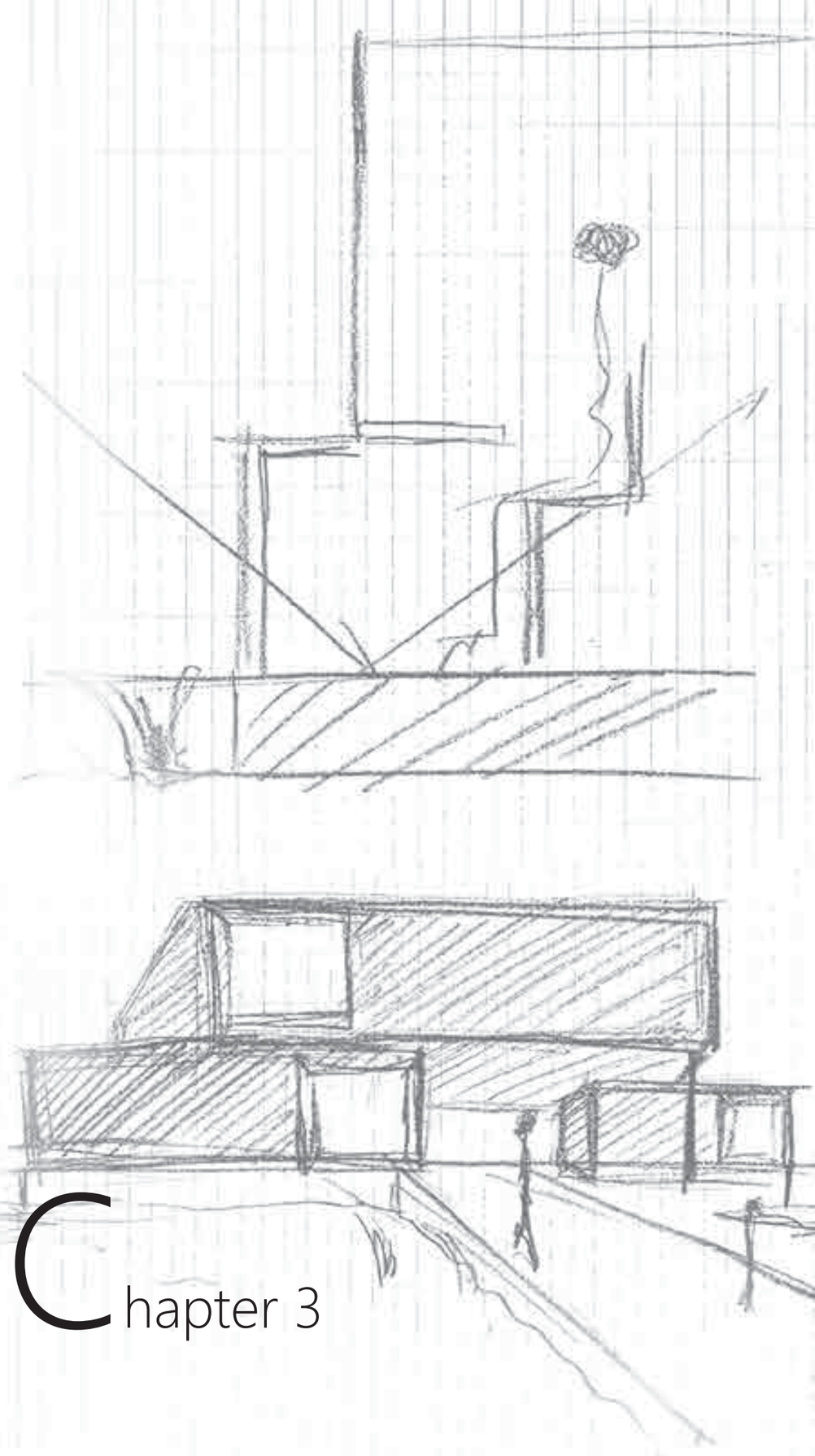
Final Design

-Material: The main structure of this project is steel structure with concrete slab, and this concrete slab has timber texture. Before the concrete dry completely, timber pattern will put on. Moreover the steel column go continuous and inserts into river bed to support the board walk and board platform.
There are three reasons to support these structure. Steel frame structure is much lighter than concrete load-bearing wall system. Secondly, steel structure with waterproof layer seem to be more durable than complete timber structure. Thirdly, for the interior wall, there are many skylights on the roof. It is difficult to put service above ceiling. However, the service can be put into some of steel frame structure without bracing.
For the interior material, timber and marble floor are used for functional area and circulation space.

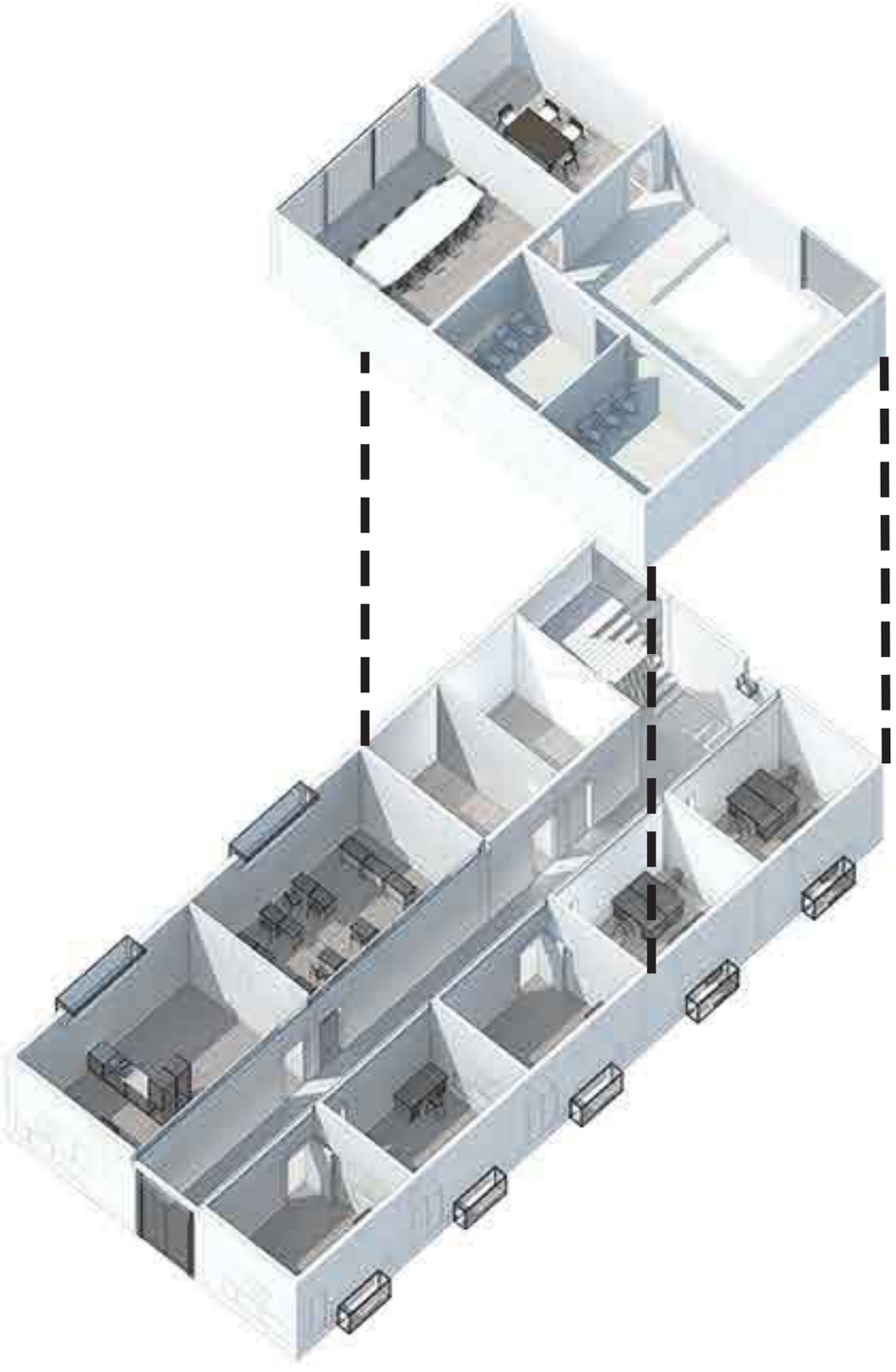
-View: In this project, there are two main view expression method, direct and indirect.
Because the whole architecture is divided into two parts and there is a board walk connect them, the outdoor space can provide direct way to observe wetland.
Compared to exterior space, indirect expression is presented for the interior space. In my opinion, the sample, traditional opening type cannot bring different atmosphere to experiencers. What user see inside might be the same as outside. Thus, in my design, for the interior area, people could not see water or wetland very clearly, but can perceive where they are. As sketch on the left presented, in library, people could see water if they sit down to read, and they also can perceive the existing of water, because of natural light reflected by water.

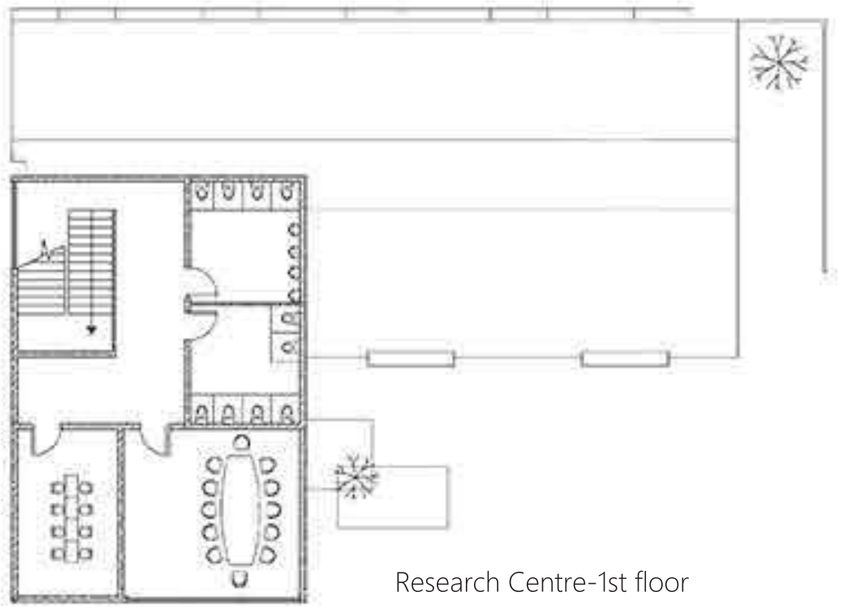




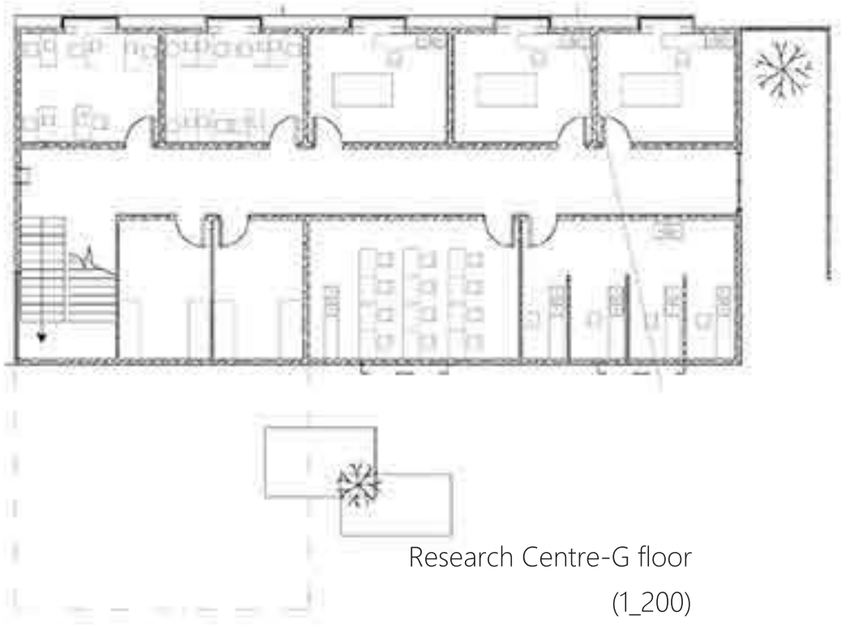


Chapter 3





Research Centre-1st floor
(1_200)



Research Centre-G floor
(1_200)

Chapter 3

1:200
-Plan & Model
-Research Centre

8 resident researchers and 12 postgraduate students.

//Teching laboratory

One experiment desk for showing the process of operation, and one computer with projector.

Twelve fixed writing desks for students.

//Work shop:

Three types experiment desks with writing tables.

Two preparing tables near the entrance can be shared by three experiments rooms.

The three researching rooms: geographical experiment, biological experiment, ecological experiment. While this researching workshop only can be used by invited researching teams.

//Geographical laboratory:

One experiment desk with writing table.

A platform in the middle of room to put geographical model or real nature materials.

Cabinets.

//Biological laboratory:

A platform for some plants near the windows, and a machine to record the growing process.

//Ecological laboratory

This laboratory can be used to do the researches of submerged plants and wetland circulatory water system.

//Storage

For equipments and materials

//Offices

Researchers and assistants'

the Second Floor

//Seminar rooms

//Conference centre

1:200
-Plan & Model

Accommodation-

The accommodation is divided into two parts, and each part has four families to share one kitchen. The pubilc areas can show the continous views.

There are three types of residential rooms.

//Room for a family:

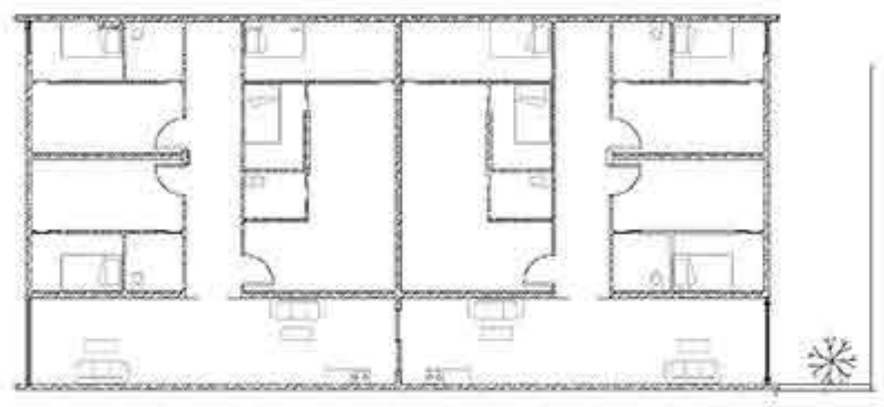
One big bedroom and a smaller one.

An independent bath room and a living room.

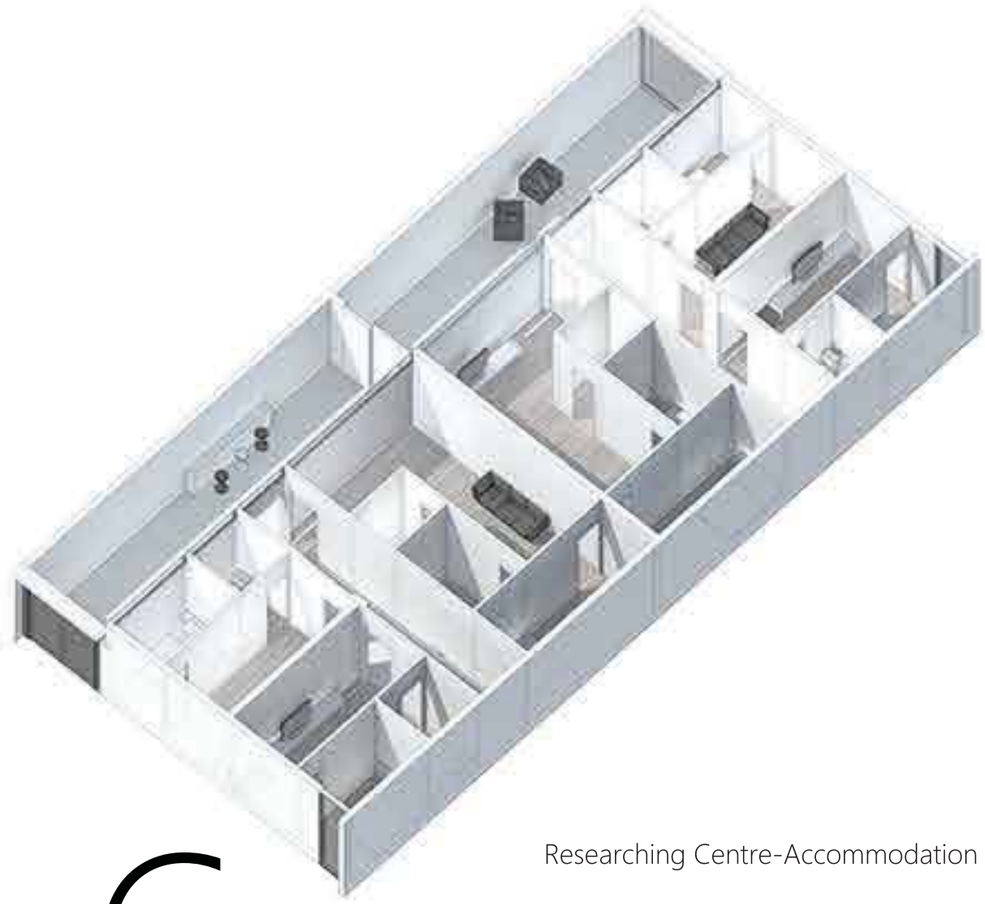
//Room for couple:

One bedroom.

Independent bathroom and a living room.



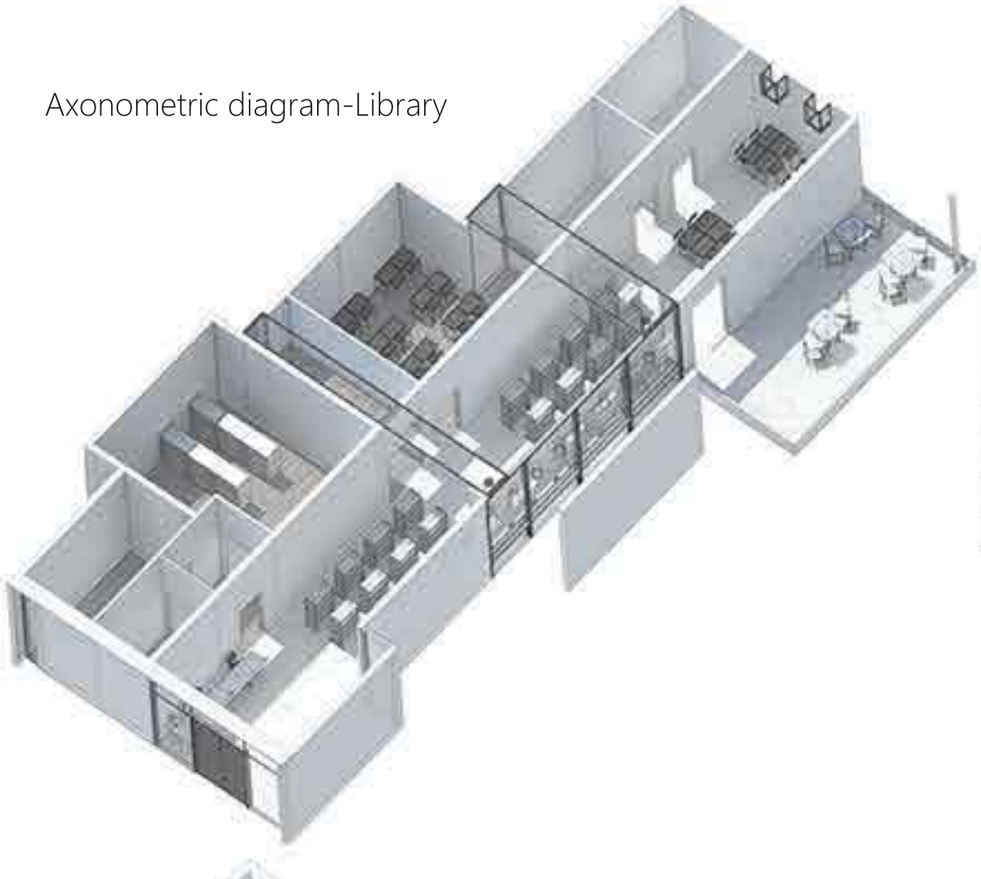
Researching Centre-Accommodation
Plan (1_200)



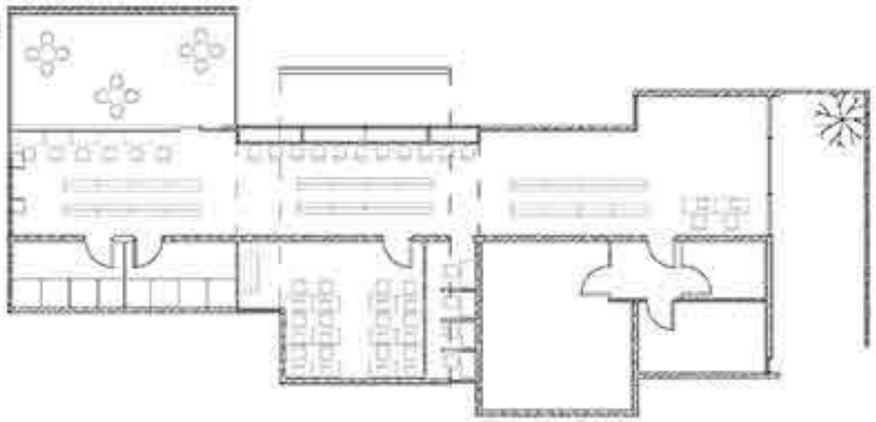
Researching Centre-Accommodation

Chapter 3

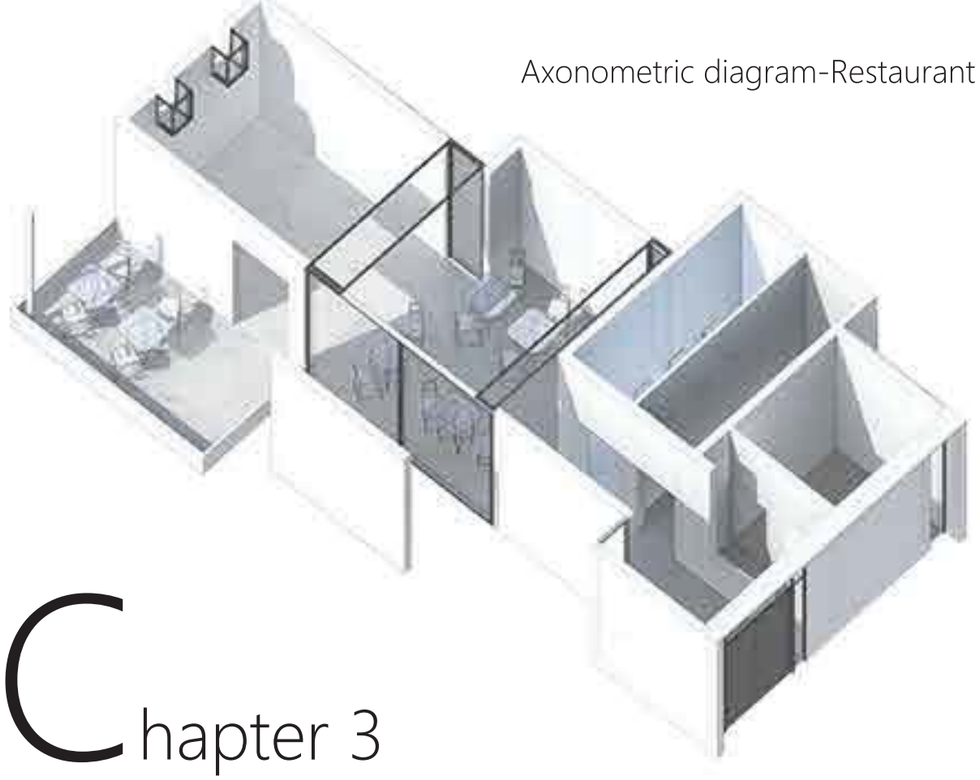
Axonometric diagram-Library



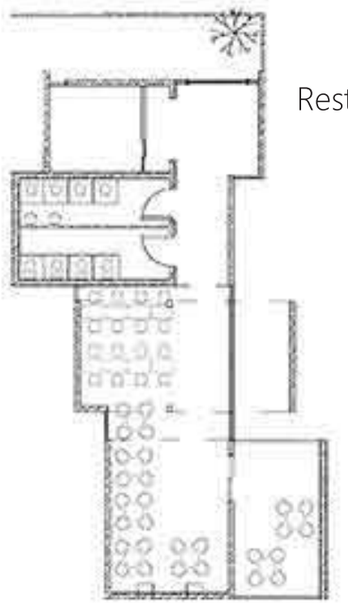
Library-Plan
(1:200)



Axonometric diagram-Restaurant



Restaurant-Plan
(1:200)



Chapter 3

1:200
-Plan & Model
-Restaurant & Cafe

//Counter :
Next to the entrance.
A reception table with cash register.
//Kitchen :
Behind the counter, only for staff.
Conncet with storage.
Conncet with service space.
//Service space :
Three rows of fixed table and chairs.
An area can collect tableware.
//A special service space
Movable table and chairs.

-Library

//Reception area:
Two tables with computers for borrowing and returning.
//Office & Archive
Archive with 6sqm buffer area to seperate from circulation area.
Next to the office for easy management.
//Reading Area:
Bookshelves in the middle of reading area.
Some journals and CDs near the computer lab.
//Computer lab.
Cabinets next to the entrance.

-Gallery:

Painting display corridor(This area connected with the main entrance of Gallery can show some painting related to wetland.

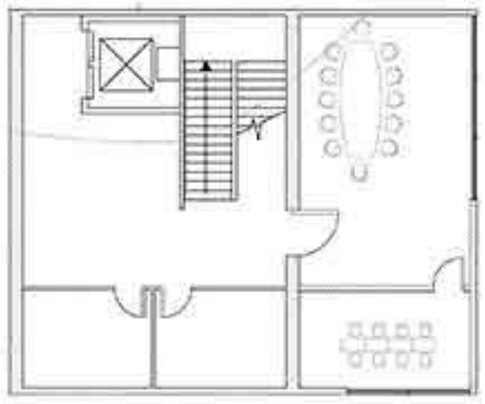
Recepting Centre (Elevators, staircase only for staff, cloak room. When tour guide leads people enter into Gallery, this is the space for introducing.)

Preface hall (Some multimedia projectors to interpret basic information about wetland, such as the relationship between wetland and human.)

Chinese wetland introduction (presenting some characteristics of YangCheng Wetland and some research achivement. A small experiment room for visitors.)

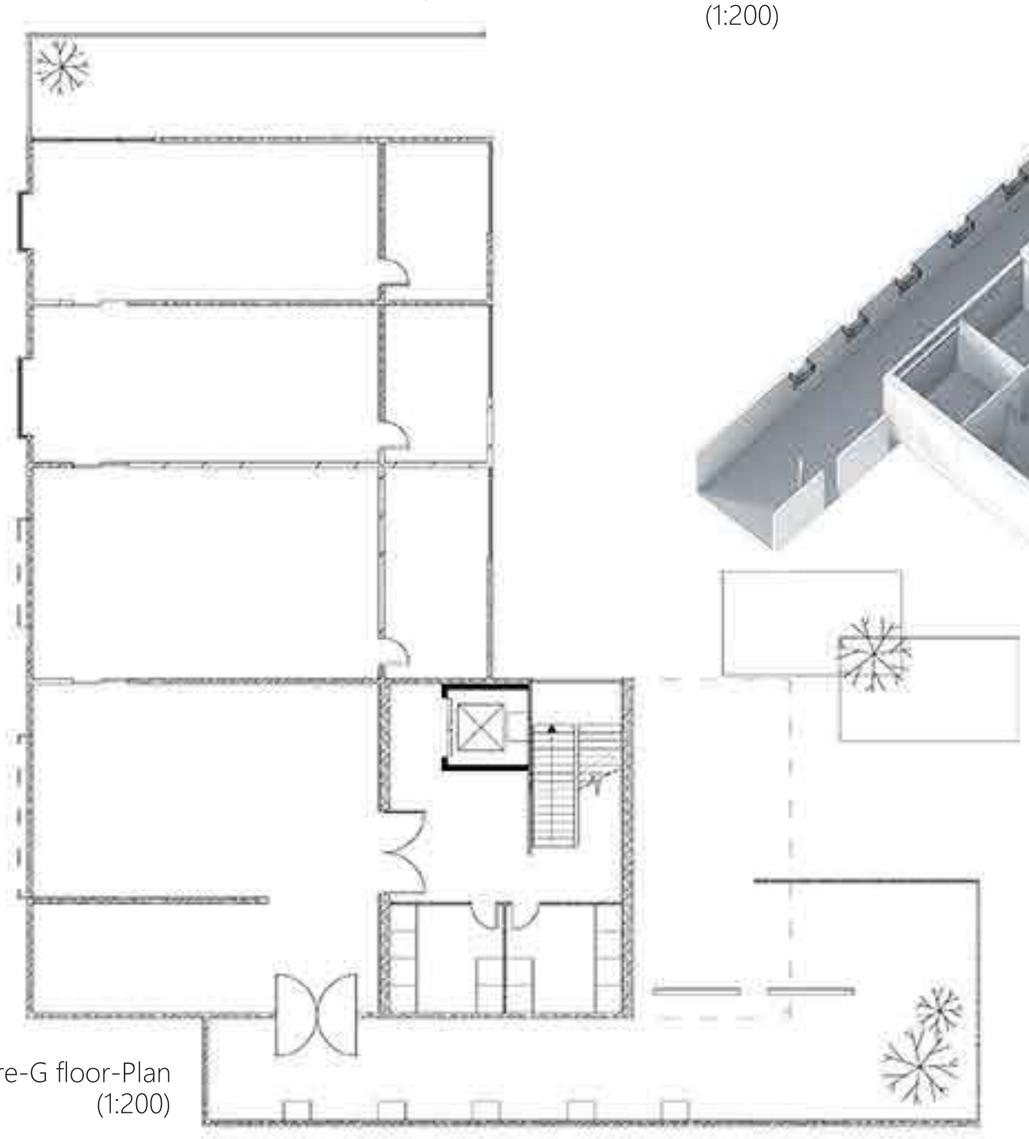
//the Second floor

Conference Centre & Lecture Room (For some public pr academic presentation by guest lecturers.

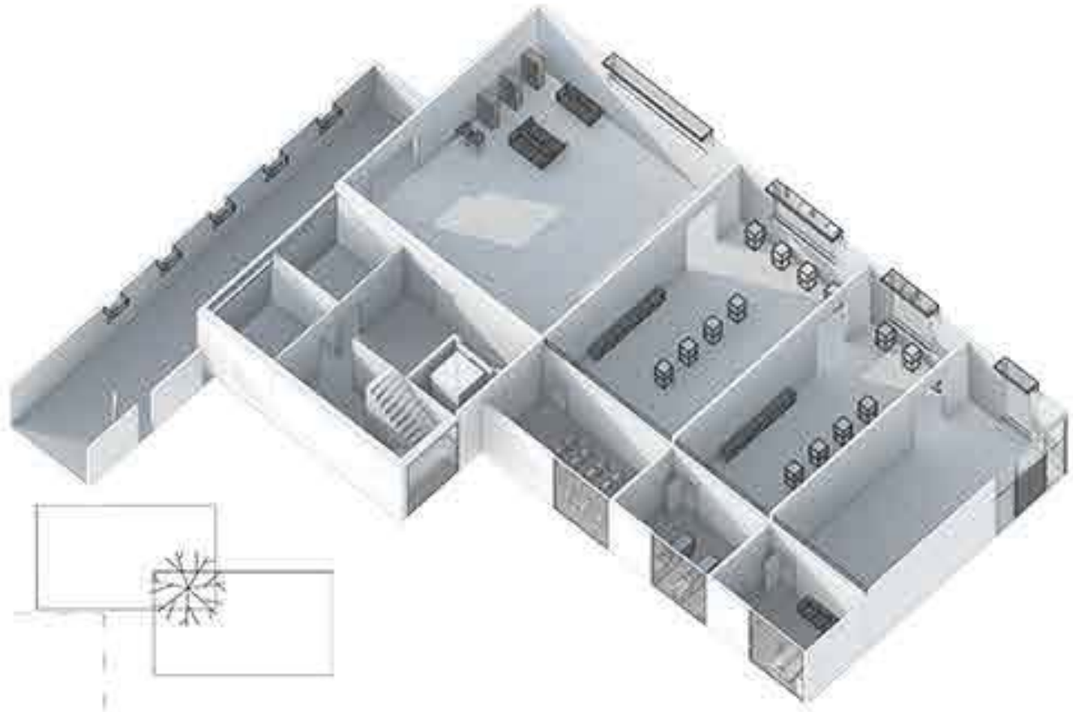


Interpretation Centre-1st floor-Plan
(1:200)

Axonometric Diagram-Interpretation Centre-2nd floor



Interpretation Centre-G floor-Plan
(1:200)



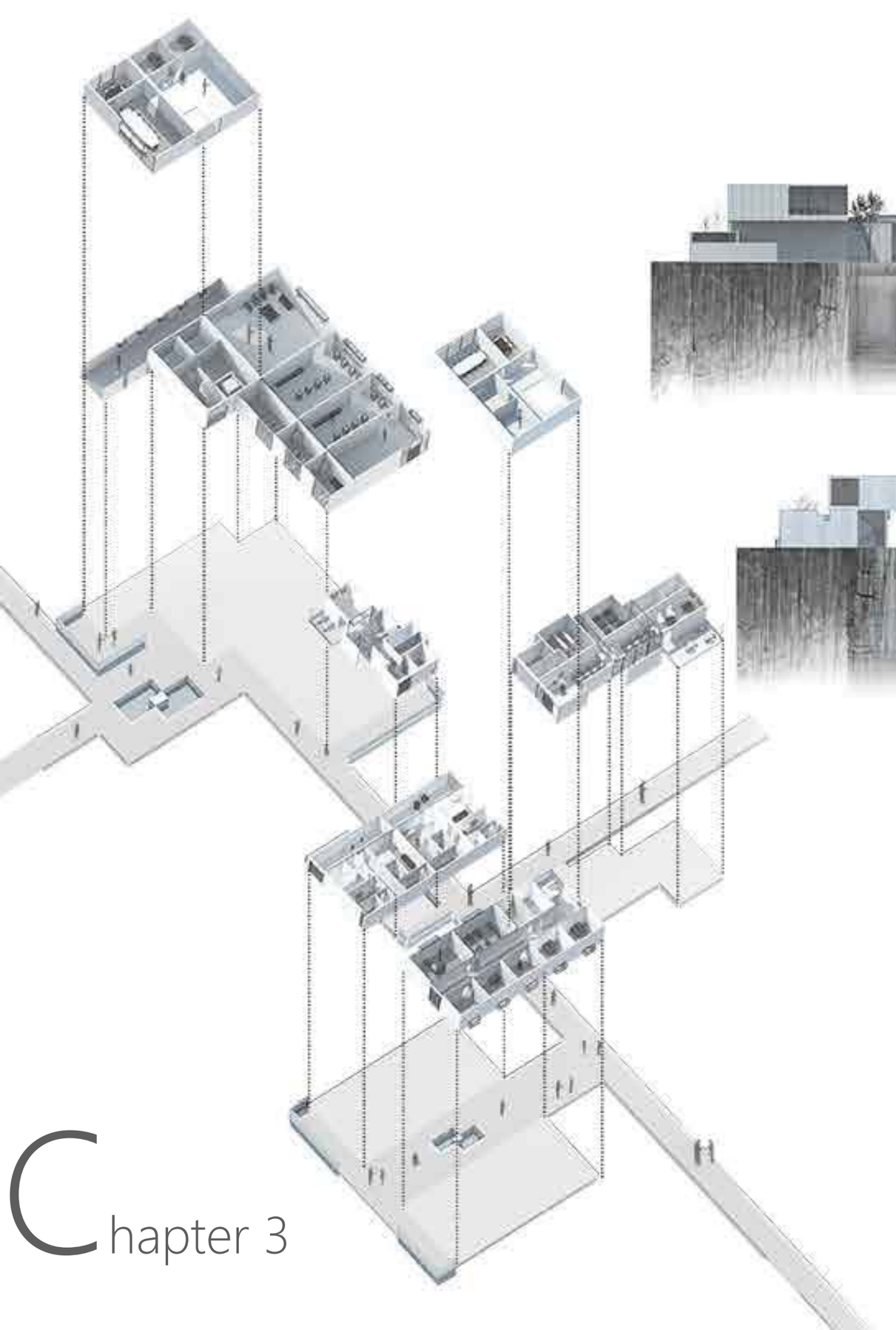
Axonometric Diagram-Interpretation Centre-G floor

Chapter 3

1:200
-Plan & Model
-Elevations

EAST

WEST



Chapter 3

Design Concept:

-Function Division
-Direct & Indirect Expression
-Three different relationship between water, people and architecture / Architecture as Intermediary between water and people
-Cube Dissolution / Geometric Transformation

The final design still keep these concept continuous, however, some layout changes make this project more reasonable.

Firstly, the accessible path is changed to connect with main road and main entrance is above water. It means that water is a sign for this building.

Secondly, some function of laboratories be refined to include three types, Geographical laboratory, Biological laboratory, Ecological laboratory.

Thirdly, construction method and material are more suitable with environment.

1:200
-Plan & Model
-Sections(1:400)

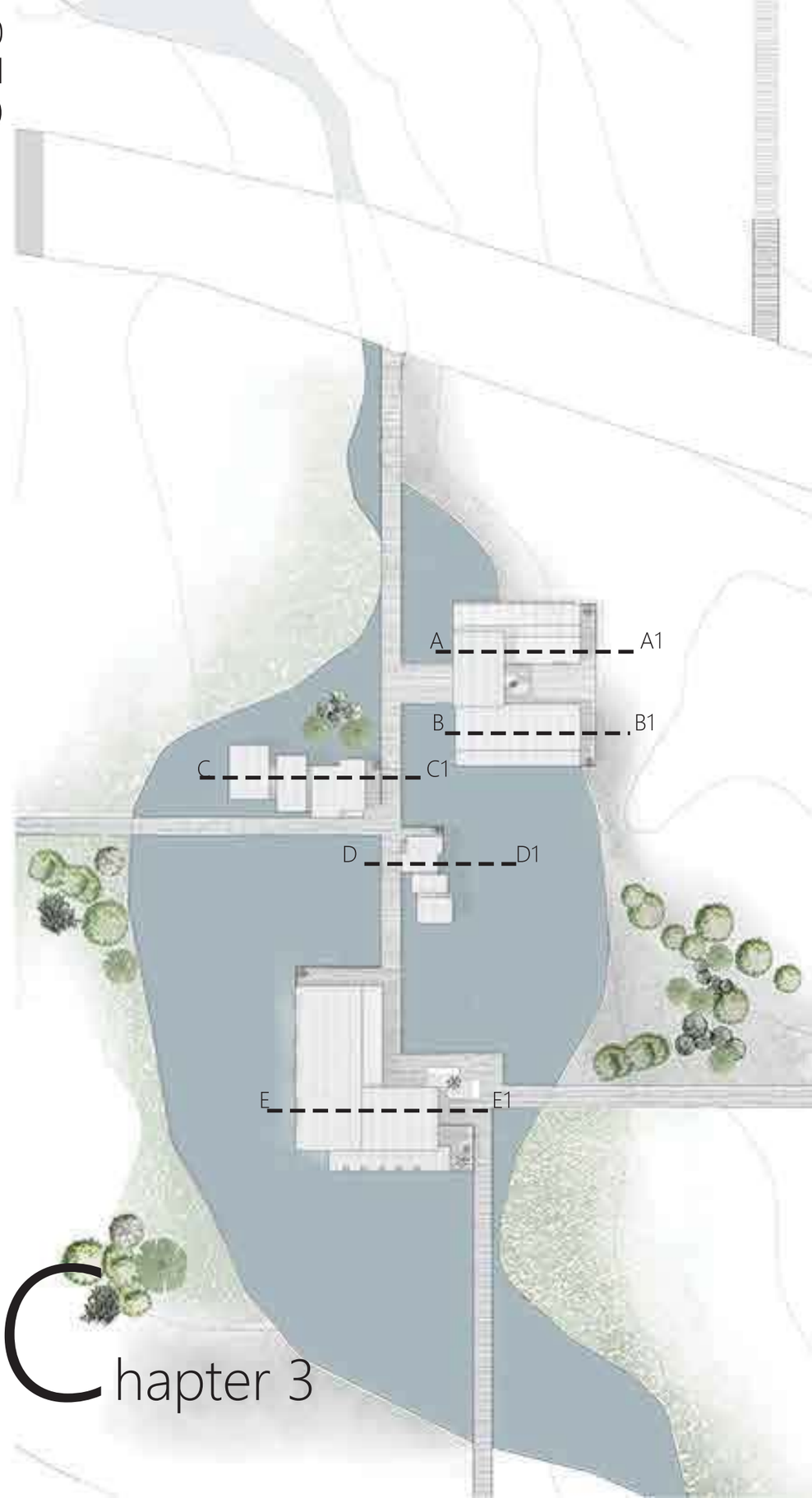
SectionA-A1

SectionB-B1

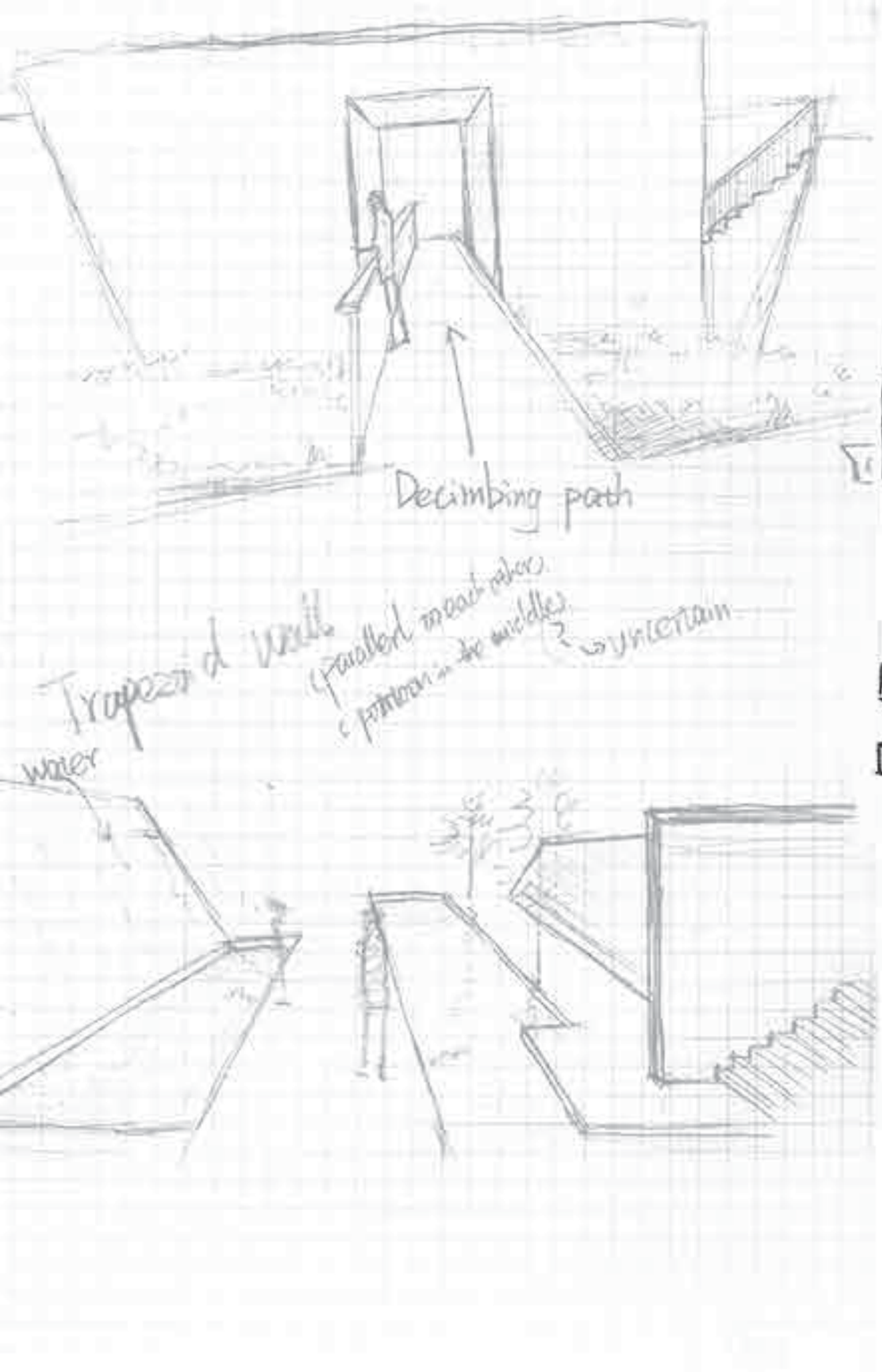
SectionC-C1

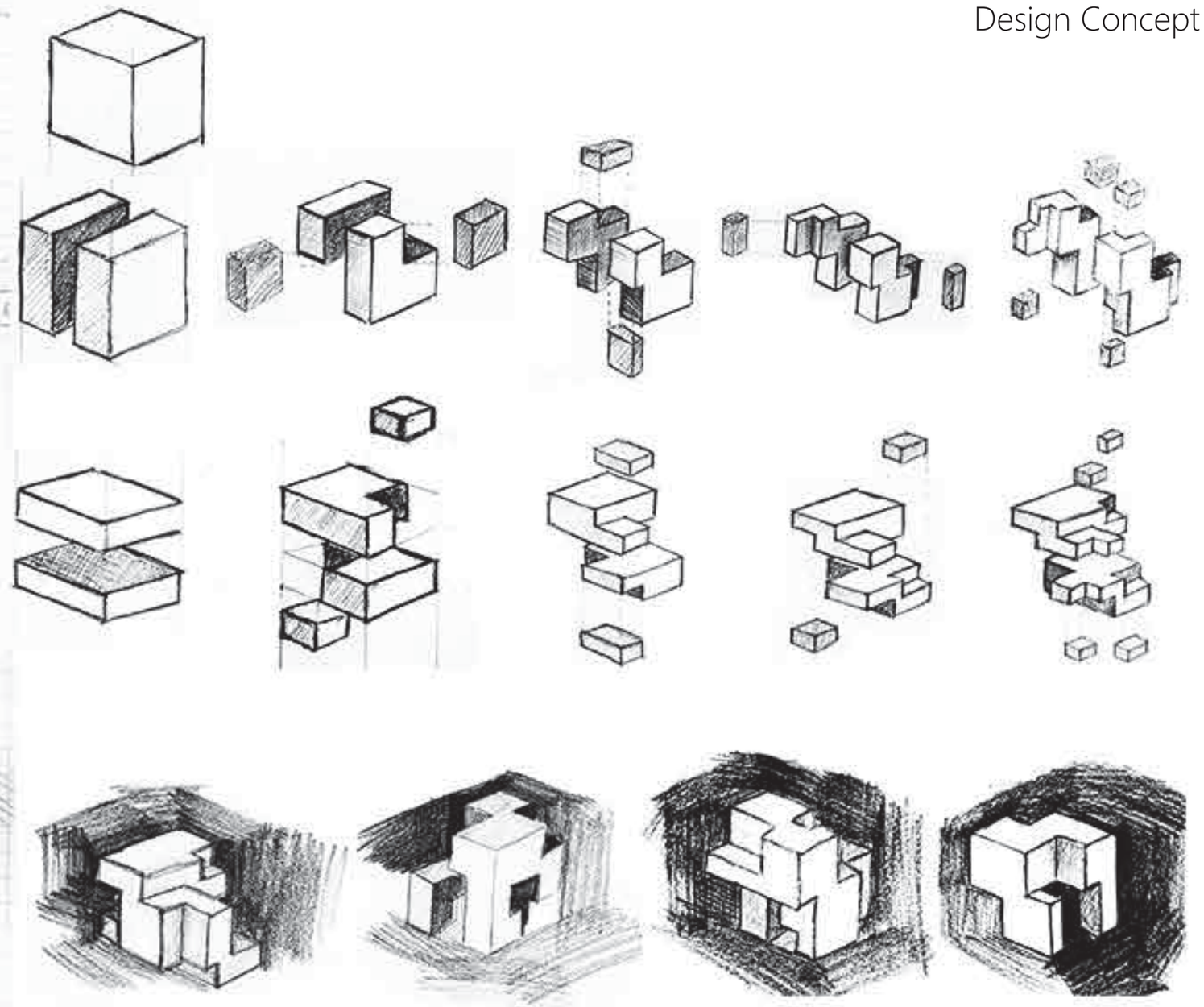
SectionD-D1

SectionE-E1



Chapter 3





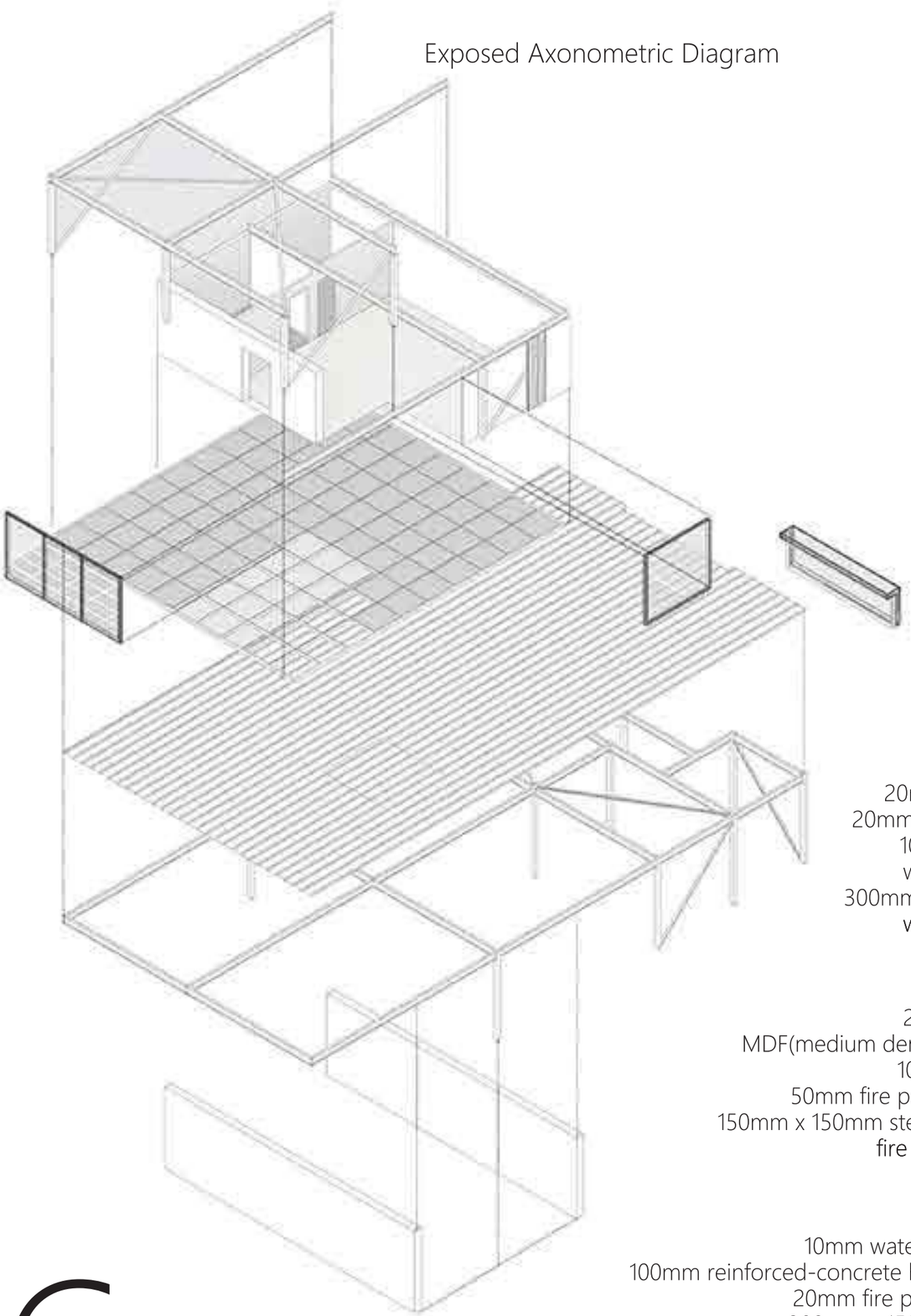
The pretentious irreversibility of architecture is disgusting.
By Kengo Kuma, Defeated architecture

Chapter 3

This project wants to be located in trees and hidden in water, and the big volume of building can be dissolved by subjective and objective elements, such as natural light, water flowing, and people movement. Thus, architecture can blend into landscape to achieve vanishing atmoshpere.

My Design Concept II : Geometric Transformation

Exposed Axonometric Diagram



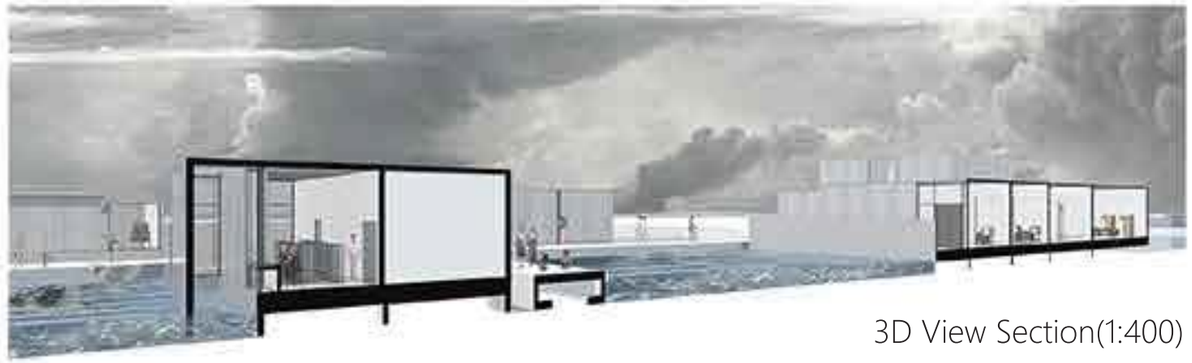
3.
20mm pine planks
20mm timber battens
100mminsulation
waterproof layer
300mm x 150mm steel
waterproof layer
40mmconcrete

2.
20mm rendering
MDF(medium density fiberboard)
100mm insulation
50mm fire prevention board
150mm x 150mm steel cube column
fire protection layer
40mm concrete

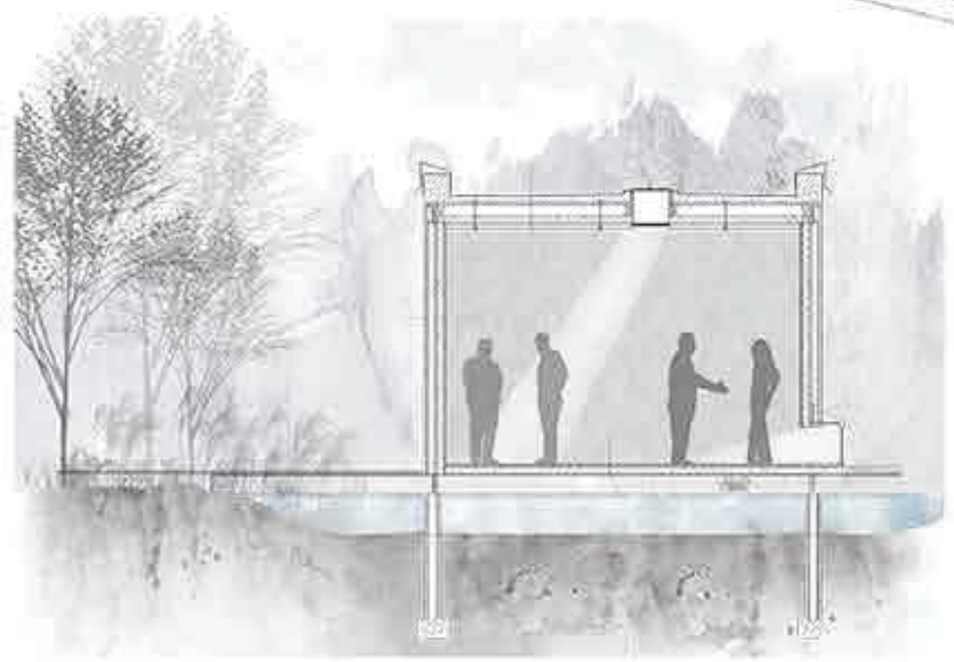
1.
10mm water proofing paint
100mm reinforced-concrete hollow-core slab
20mm fire prevention board
300mm x 150mm steel beam
100mm insulation
30mm vapour barrier
20mm black steel sheet
20mm timber slab

Chapter 3

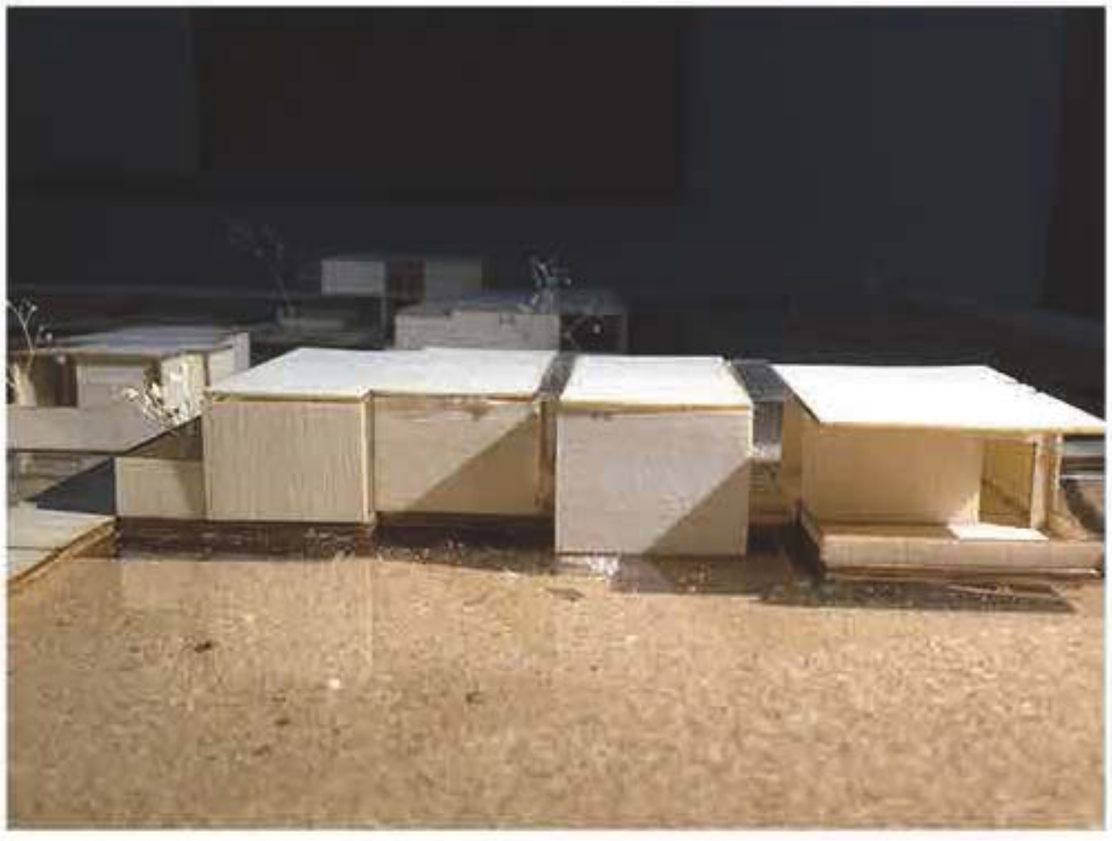
1:200
-Plan & Model
-Sections & Construction Method



3D View Section(1:400)

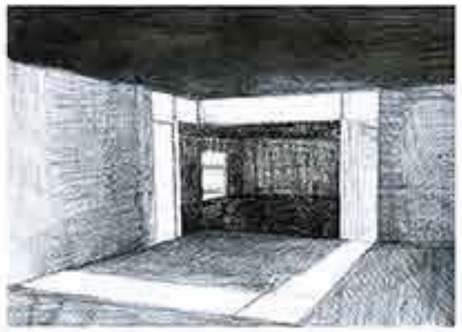


Construction Detail (1:100)

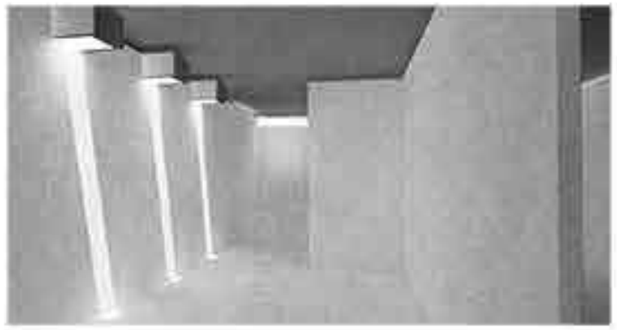


Chapter 3

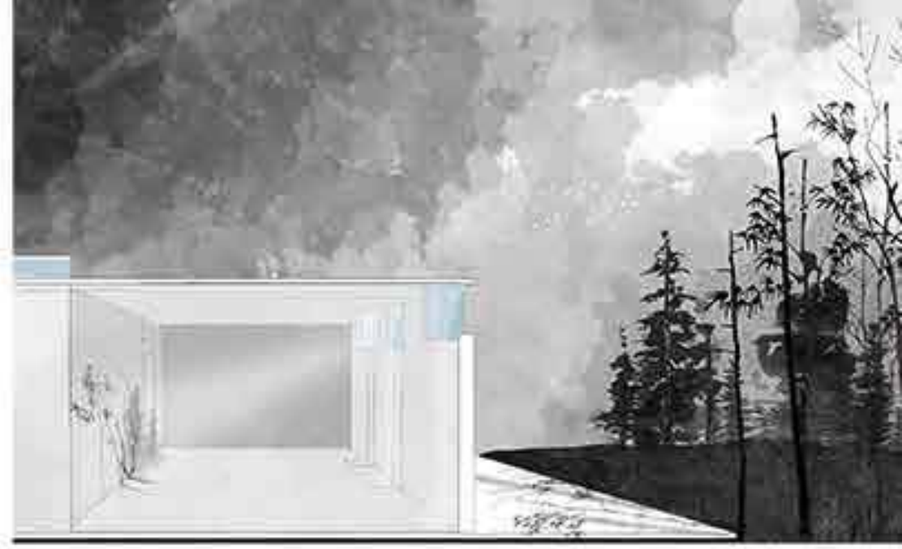
-Atmospheric Sections

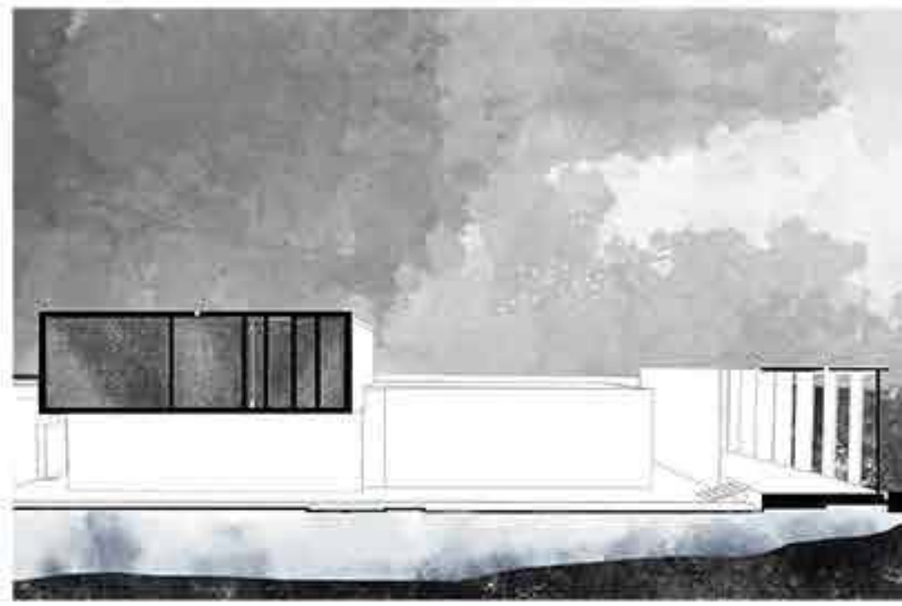


-Preliminary Ideas:

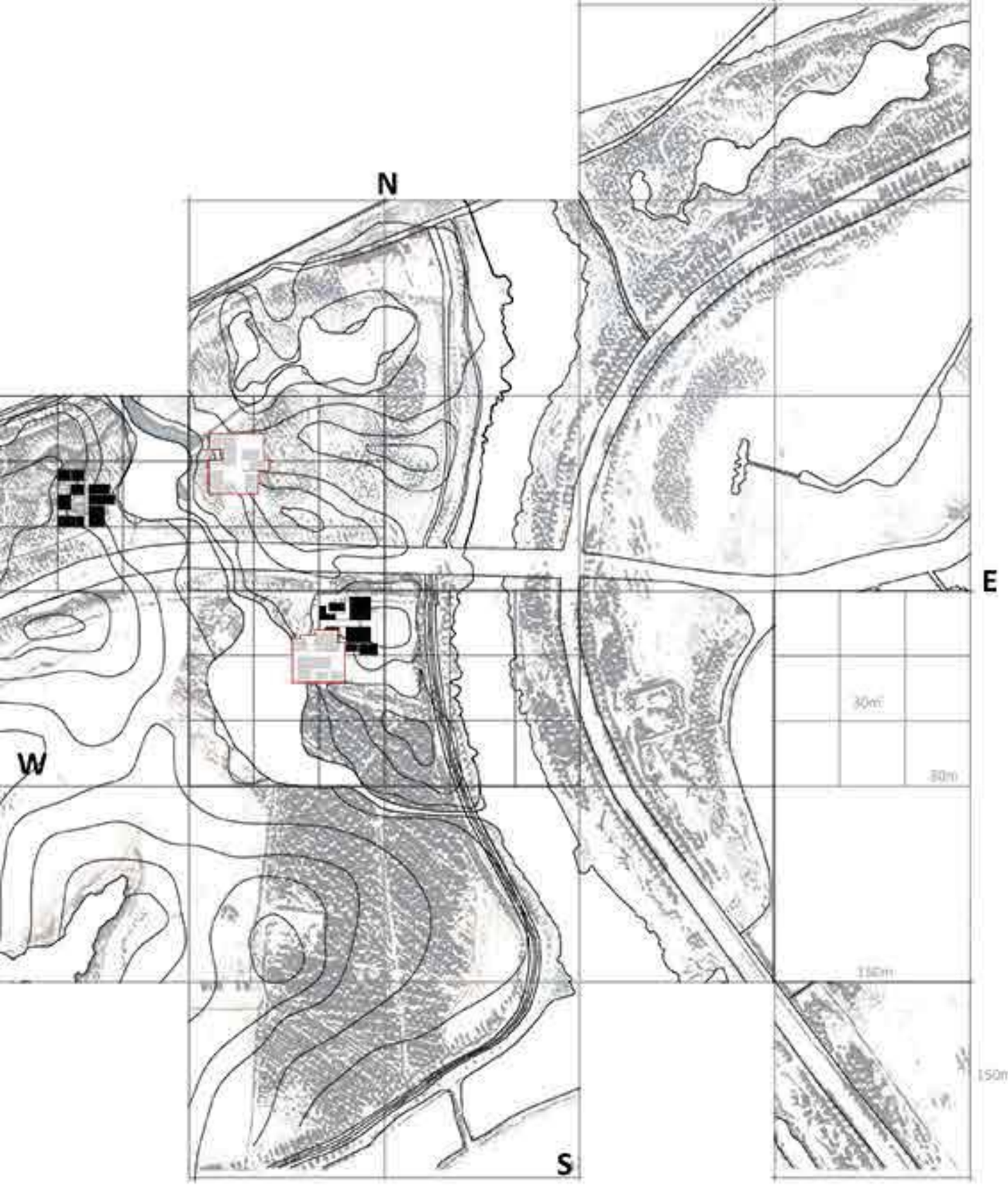


Compared to direct observation in outdoor, I want to create indirect way for interior space. It means that people could not see water or wetland very direct, but can perceive where they are, like occupying nature.
So I explore different opening types. I do not want to create traditional opening types, like breaking a complete and pure wall. I use gap between different volume of building.
Three different opening types:
-Skylight on the top;
-Glass cube on the top; (this window can let shadow of tree access in.
-Glass cube in the bottom; (people can see the light reflected by water)
My design concept III : Indirect Expression



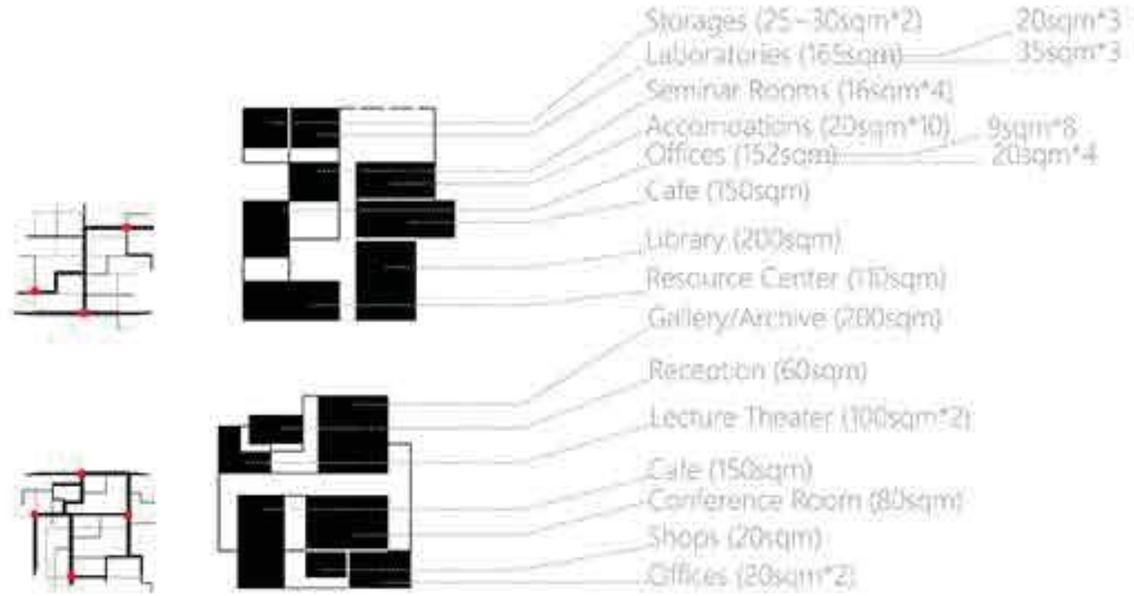


Chapter 3



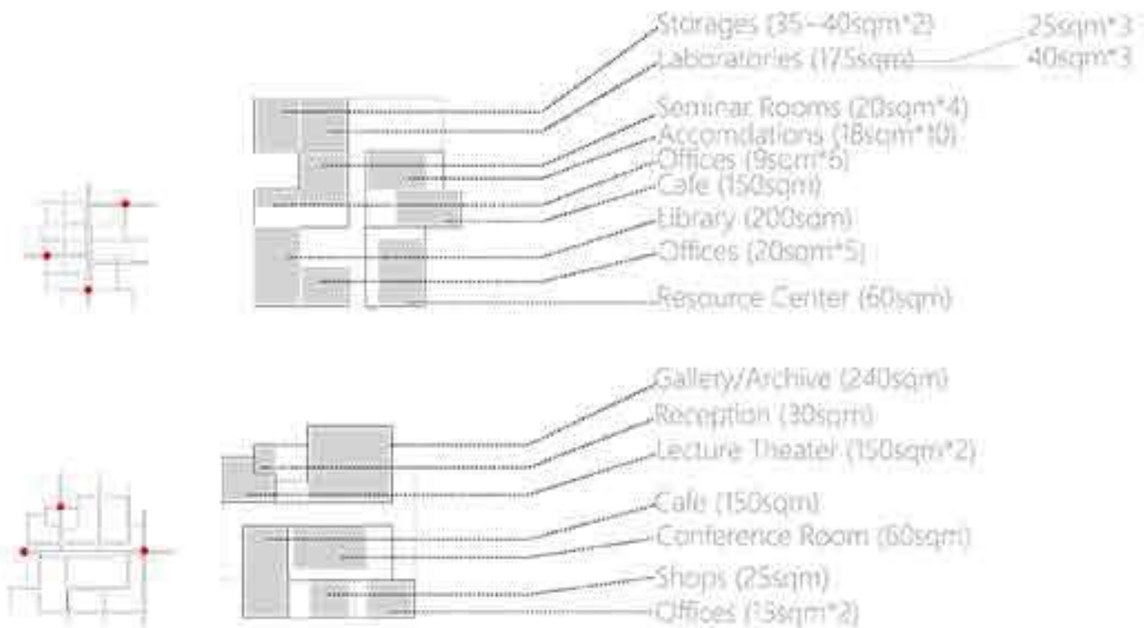
Chapter 3

Testing Siting Options 2



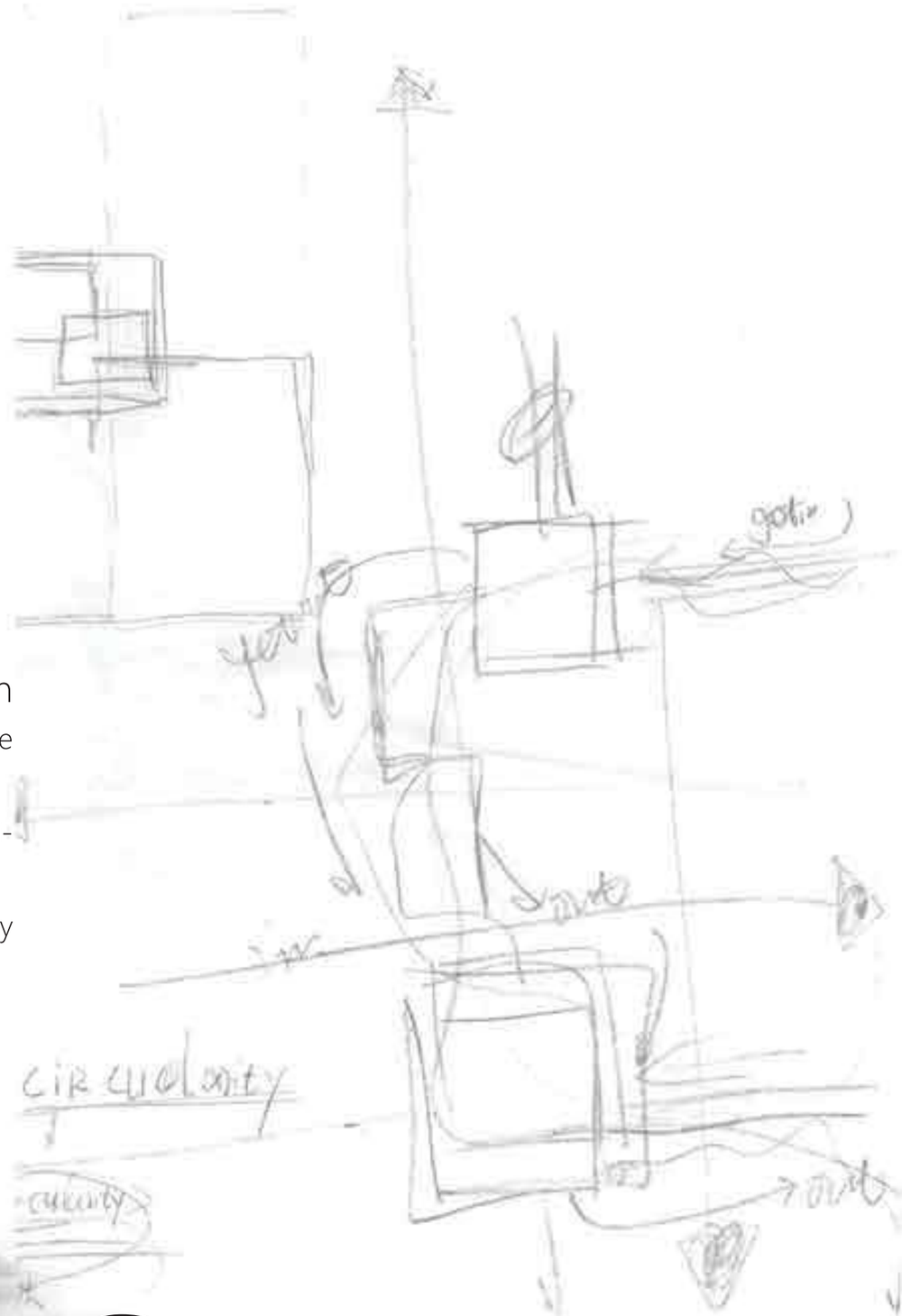
Option1

Problems: - Far away from the other building group
- Large construction area
- Less presenting of wetland.



Option 2

Problems: - Far away from the lake
- Constructed on the wetland
- Less researching area



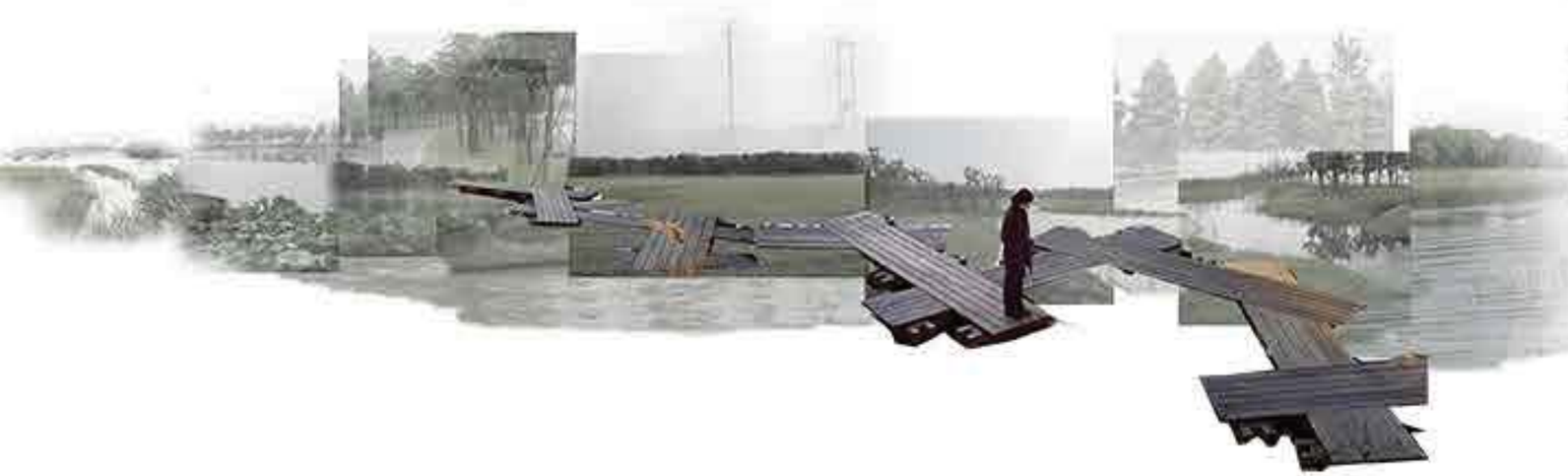
Function Divison

Researching Centre probably is used more frequently, thus this area should be close to orignal road to have convenient transportation.

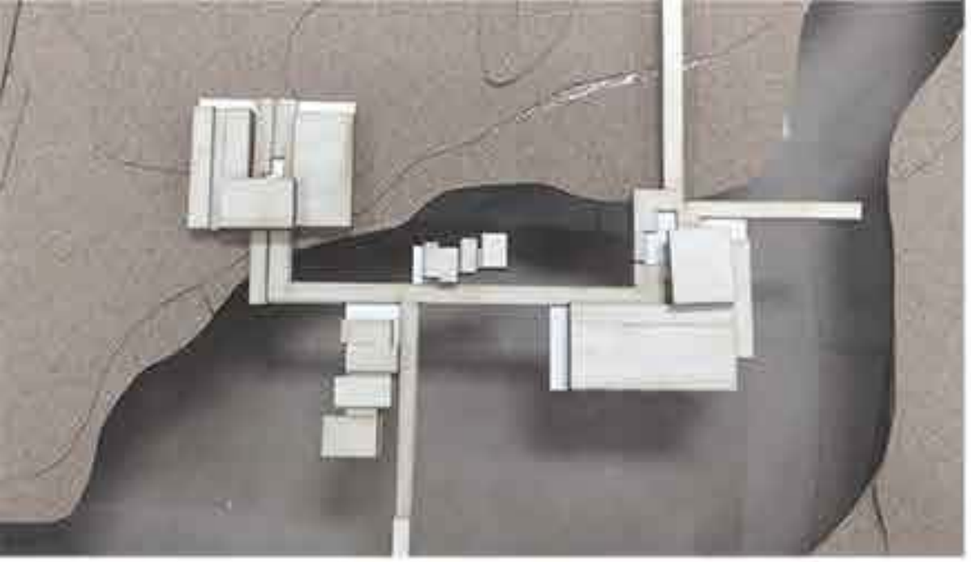
Interpretation Centre needs people to cross river or wetland to access in. People can explore surround environment by themselves.

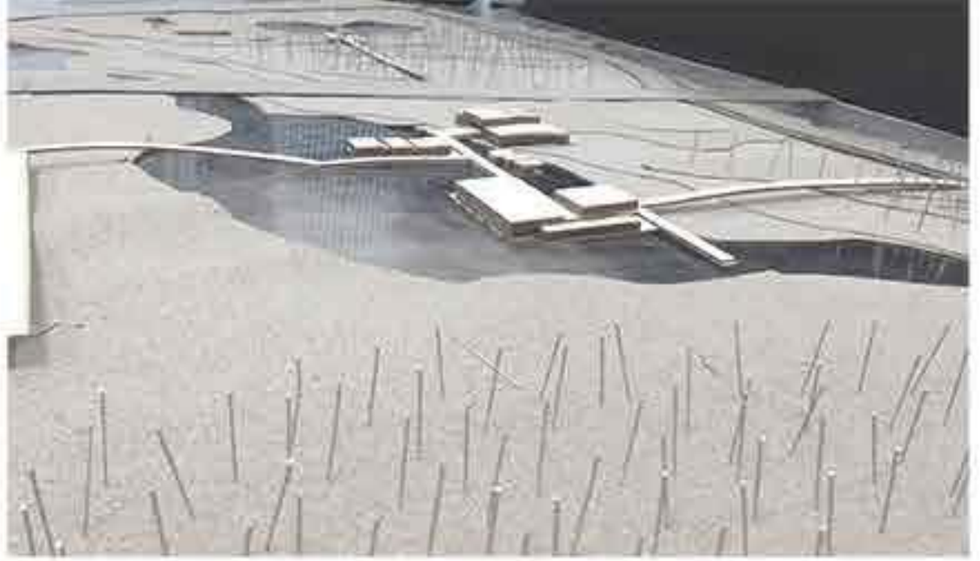
If I divide building into two main function area, the outdoor space between these area can provide direct way to observe wetland. It can have a comparsion with indirect expression for interior space.

My design concept IV: Function Divison



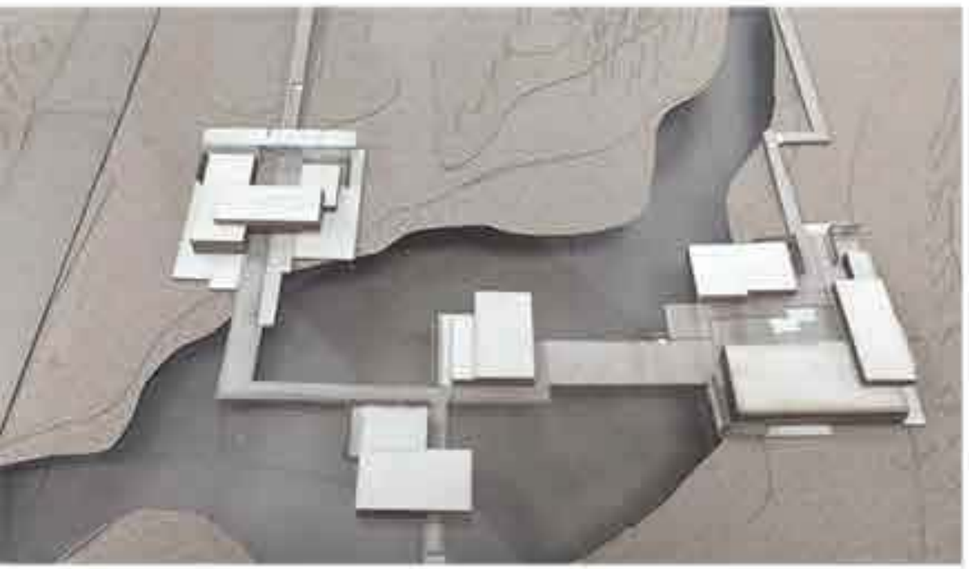
Chapter 3





1:500 Models

The final model foir Crit3

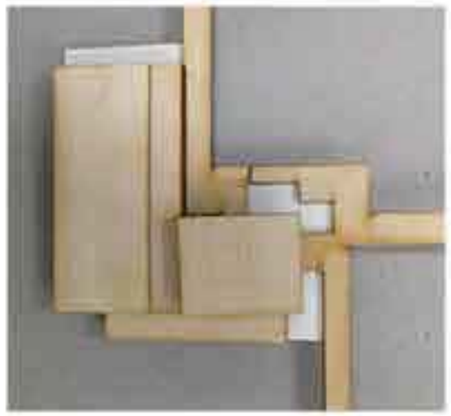


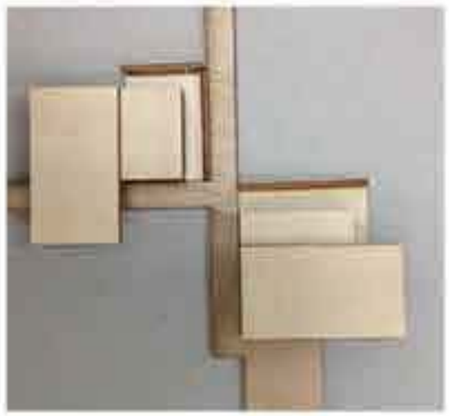
The model for Crit2

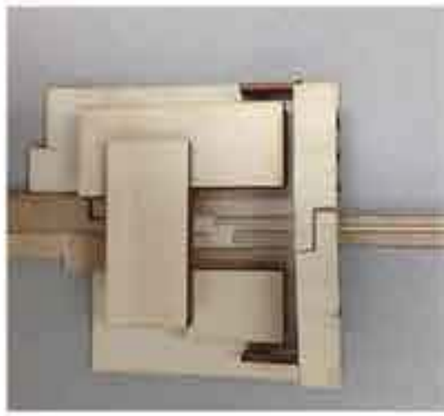
Chapter 3

The first model for Crit1

3rd







2nd

1:500 Model Development

-After making the 1st 1:500 model: What will happen between two functional group, researching centre and interpretation centre? Is there any method can improve interaction between two centre? People need reasons to go across wetland and river. Moreover, what about security of this building? 24-hour opening? The board walk provide service to private users or publics? The accessibility needs more consideration.

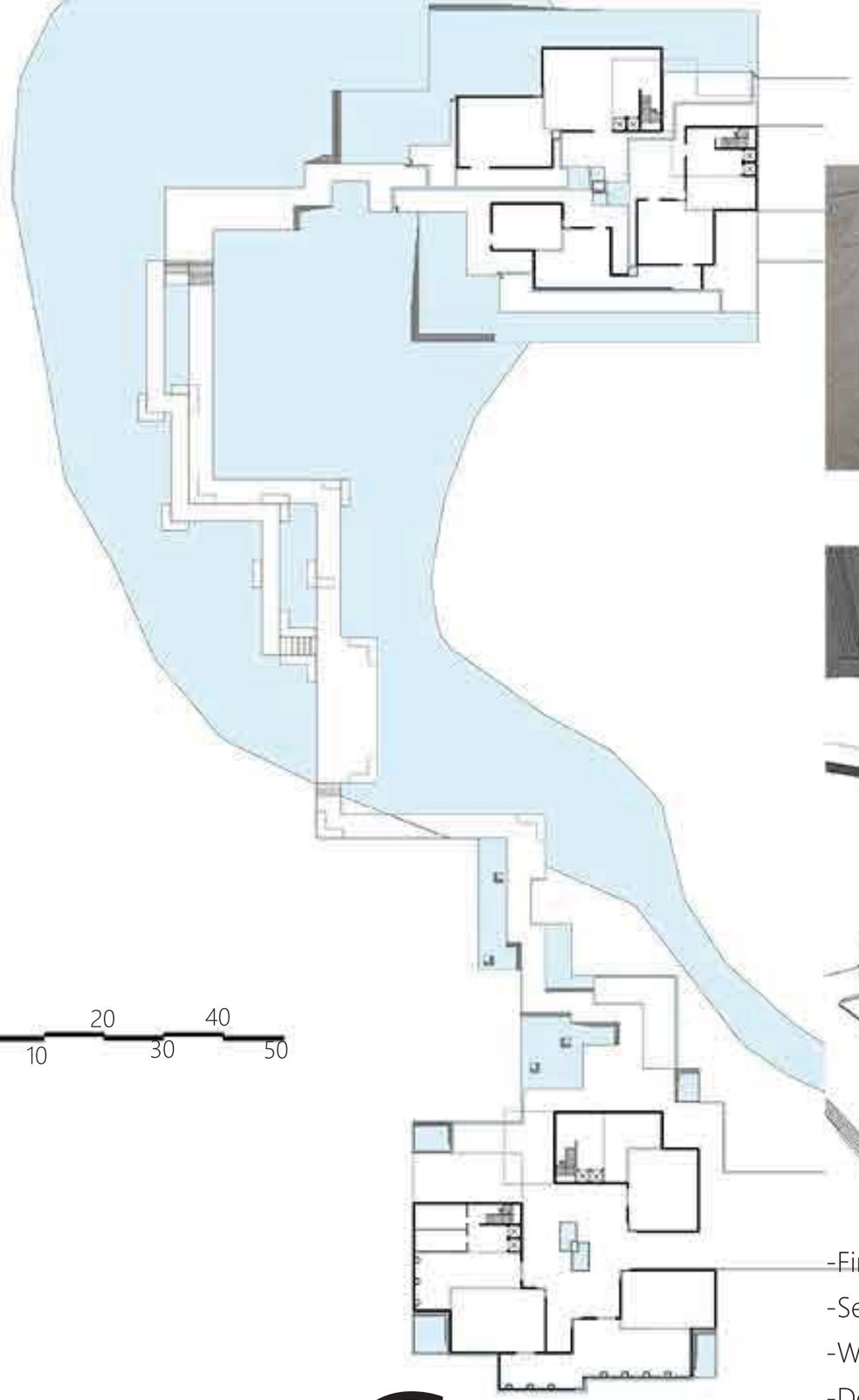
-After making the 2nd 1:500 model: People movement and flowing water simultaneously form two circularities. Moreover, in order to create more interaction above water, library and restaurant, these two functional area used by whole users would be designed above water. Similairly, people have reason to cross wetland and water and explore environment by themselves.
However, there is not a logic to have two circularities. Why do the accessible roads have to connect with bike path? Reconsider to accessibility.

-After making the 3rd 1:500 model: Dirtectly connect with the main load. And the main accessible road is above water. It means that, people donot need to take a long way around, in order to cross the water and wetland. People can dirtectly oberve environment in a natural way.

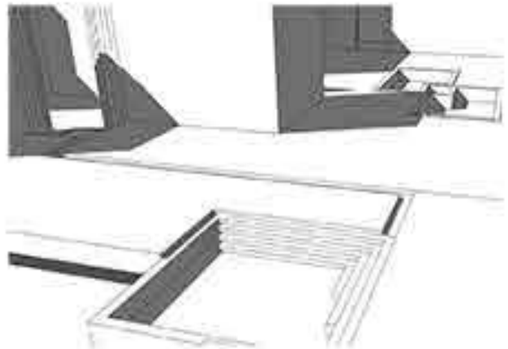
1st

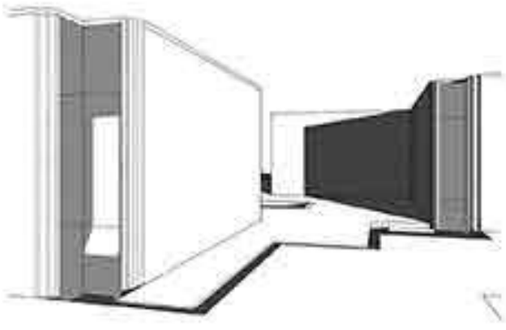
Chapter 3

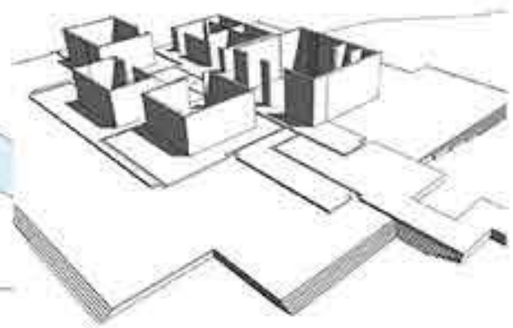
1:200
-Plan & Model

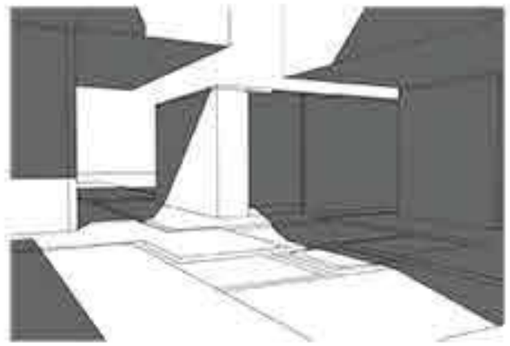


Model









3D Simulation Model

-Firstly, the 2nd floor needs more thinking.
-Secondly, accessibility should be rethought.
-Water canal and board walk seem to be confused on the plan.
-Develop this plan.

Chapter 3

Chapter 3

1:200
-Plan & Model

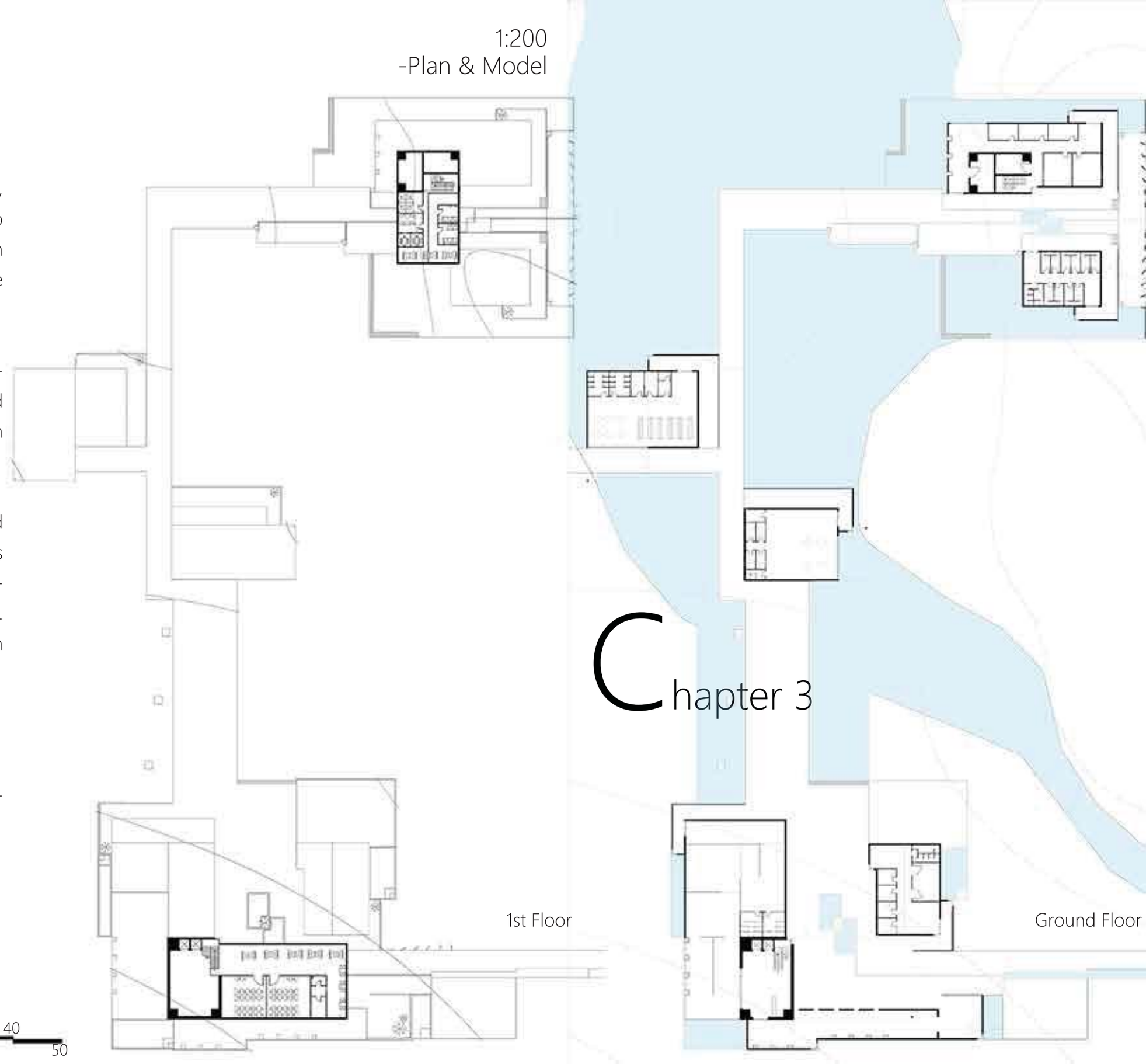
Compared to preliminary design, the 2nd step have complete two floor plans and cleary present each function. However, there still have some problems.

-Firstly, the circulation of each functional area needs to be clean, and have same logic. For example, each circulation could be L or S shape.

-Secondly, accommodation should be rethought. Because reseachers working in this centre might be professor or undergraduate students. They probably have family with them.

-Total area needs to reduce.

-Accessibility needs more consideration



Chapter 4

-Crit 1 posters
-Crit 2 posters
-Crit 3 posters

Chapter 4
-Crit 1 posters
-Group precedent study poster

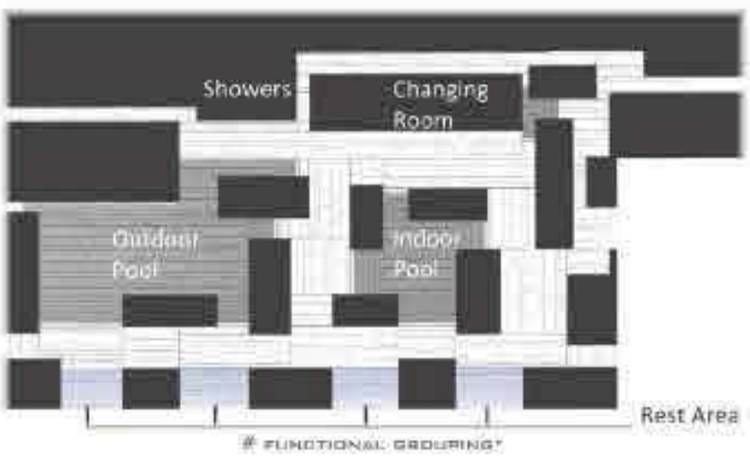
ARC305: Small and Medium Scale Buildings: Wetlands Research and Interpretation Centre

AN INDEPENDENT STRUCTURE SETTING INTO THE SLOPPING. SPECIAL RELATIONSHIP WITH LANDSCAPE! BLENDING IN SITE NATURE.!

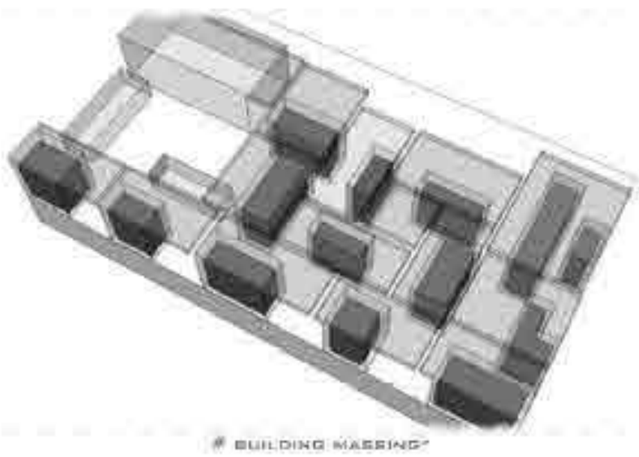
AROUND THE PREMISE OF KEEPING ORIGINAL TOPOGRAPHY AND PHYSIOGNOMY, THIS BUILDING WANTS TO SIMULTANEOUSLY PROVID NECESSARY PRIVACY AND VIEWING POINT TO THE USERS. WITH EXPANDING OF SPACE SIZE, PEOPLE'S SIGHT CAN BE THROUGH THE CONSTRUCTION TO PRODUCE A DIRECTLY CONVERSATION WITH NATURE.!

SEMI-OPEN TYPE COULD MAKE THE BATHING PLACE HAVE A SUFFICIENT CONTACT WITH ENVIRONMENT.!

CONTEXTUAL RESPONDING

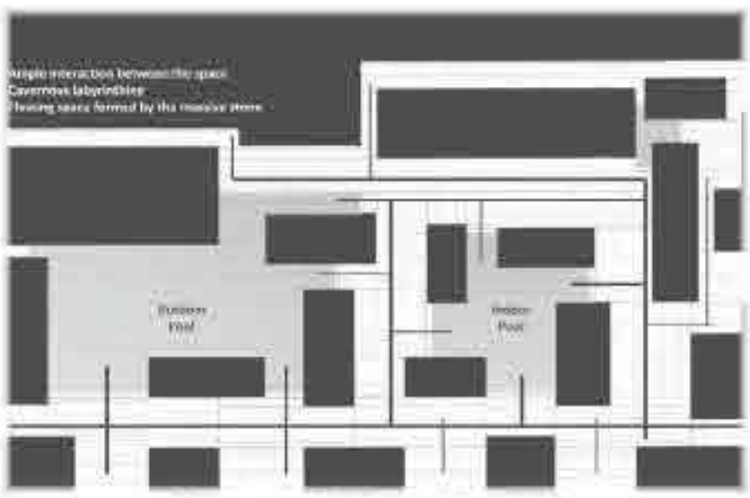


FUNCTIONAL GROUPING!

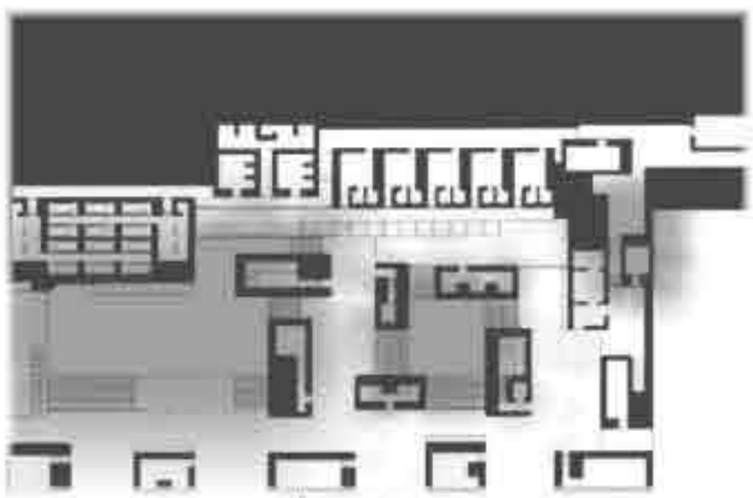


BUILDING MASSING!

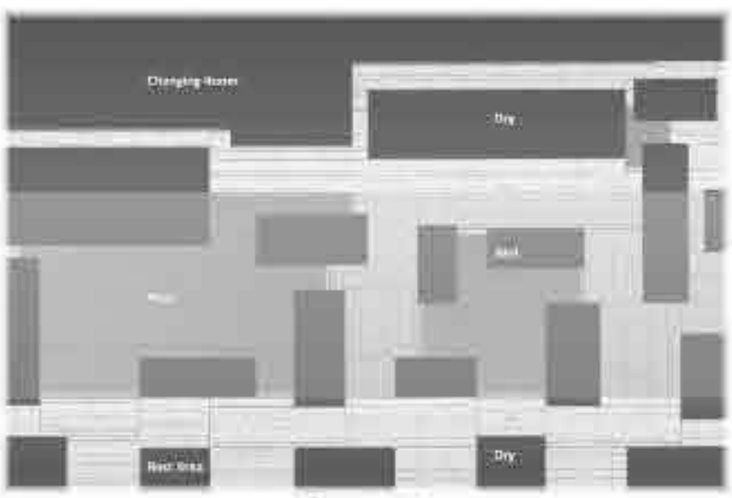
LIGHTING AND ATMOSPHERE!



MAIN AND SECONDARY CIRCULATION!



TEMPERATURE!



HUMIDITY!

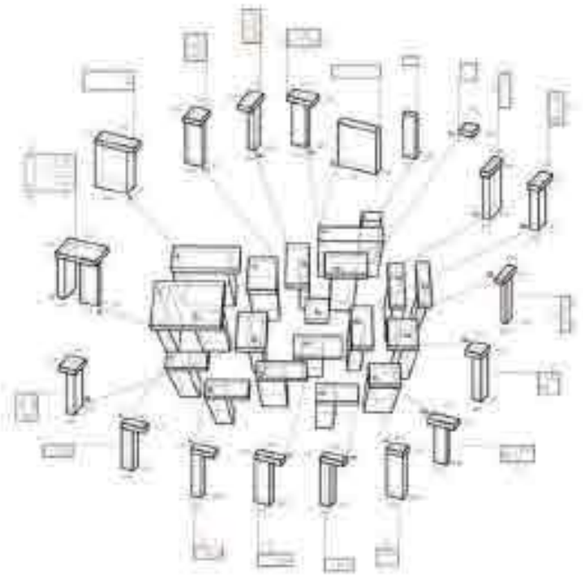
PART!

#1 LOAD-BEARING ELEMENT

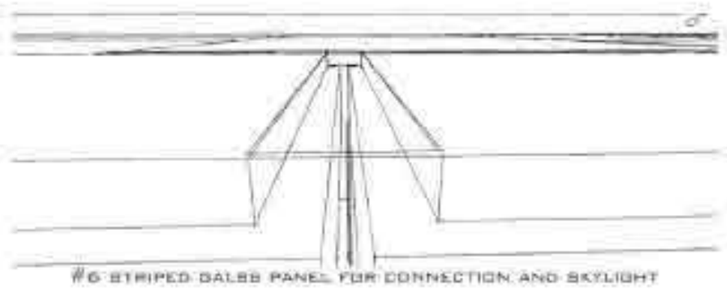
#2 REINFORCEMENT

#3 CASTING AND CLADDING

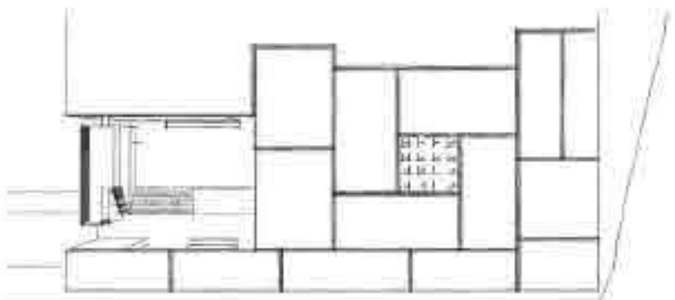
#4 ONE STRUCTURE UNIT



#5 19 TABLE-LIKE STRUCTURAL UNITS!

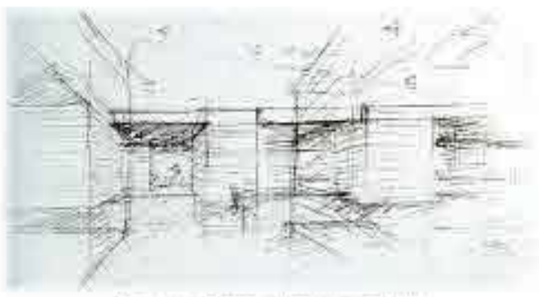


#6 STRIPED GALSS PANEL FOR CONNECTION AND SKYLIGHT

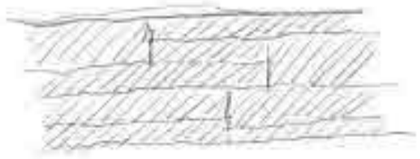


#7 19 UNITS FORMING A JIGSAW PUZZLE PATTERN

STRUCTURE



#1 CONCEPT! POROUS STONE!



#2 MATERIAL! STONE STRATA

#3 THE TOTAL THICKNESS OF 3 DIFFERENT STONE LAYERS IS CERTAIN FOR ACHIEVING SAME HEIGHT OF FACADE

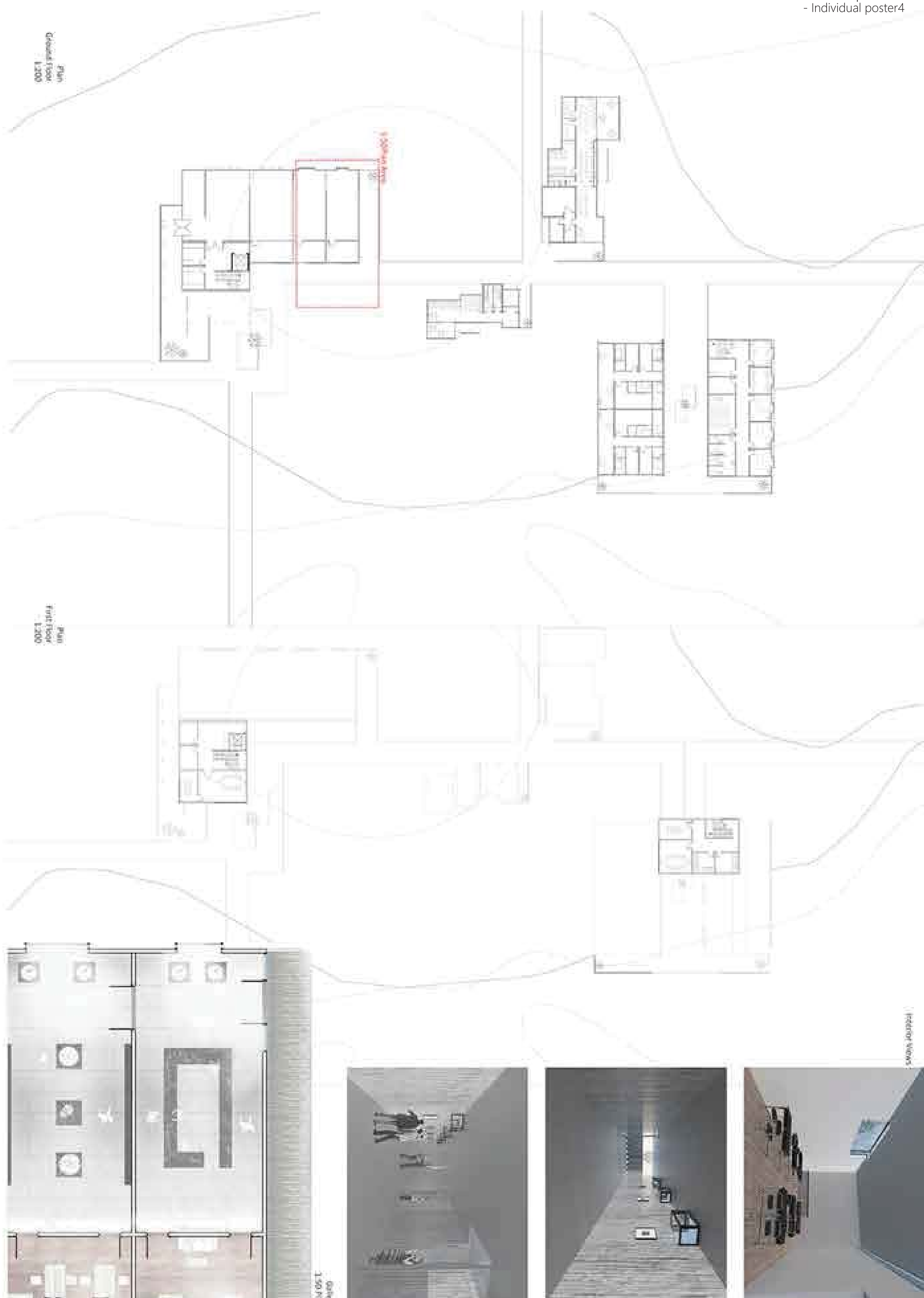
MATERIALS

REFERENCES!
!MATERIALS OF 'CONTEXTUAL RESPONDING' ARE CITED FROM HTTP://WWW.ARCHITECTURAL-REVIEW.COM/HOME/INNOVATORS/PRIMAL-THERAPY-THERMAL-BATHS-BY-PETER-ZUMTHOR-VALS-SWITZERLAND/8616979.ARTICLE
!MATERIALS OF 'PART!' ARE CITED FROM HTTP://KIKILINZI.DIANDIAN.COM/POST/2011-12-14/11356992
AND HTTP://WENKU.BAIDU.COM/LINK?URL=YLE8Y5K_VDWVO4J8ZCWDOZ9J25DQPFZG_XXC4TEUGN97WFQWDIHY_QENSHZ95AIIDCGSJNO4U3SDTZDVHKYMG_FSUSAPTPQQKMSQPWBPJMSQQ-PF-TO=PC99.DISCUSSION
!MATERIALS OF 'STRUCTURE' ARE CITED FROM HTTP://SEBON.TUMBLR.COM/POST/47305110403/ALEGHSML-COLUMN-DIAGRAM-OF-PETER-ZUMTHORS-VALS
!MATERIALS OF 'MATERIALS' ARE CITED FROM HTTPS://WWW.PINTEREST.COM/EXPLORE/PETER-ZUNTHOR/

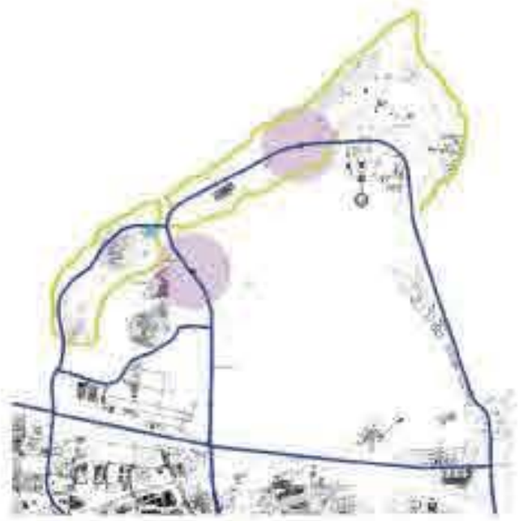
Chapter 4

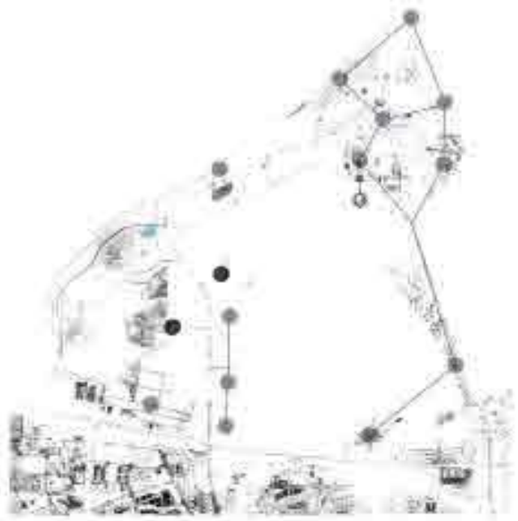
-Crit 3 posters

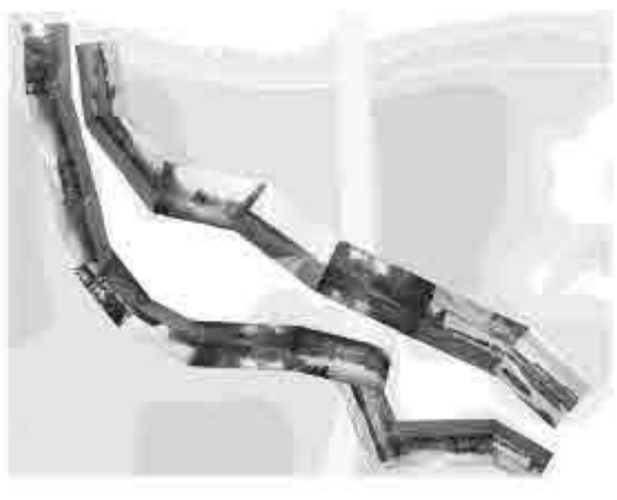
- Individual poster4

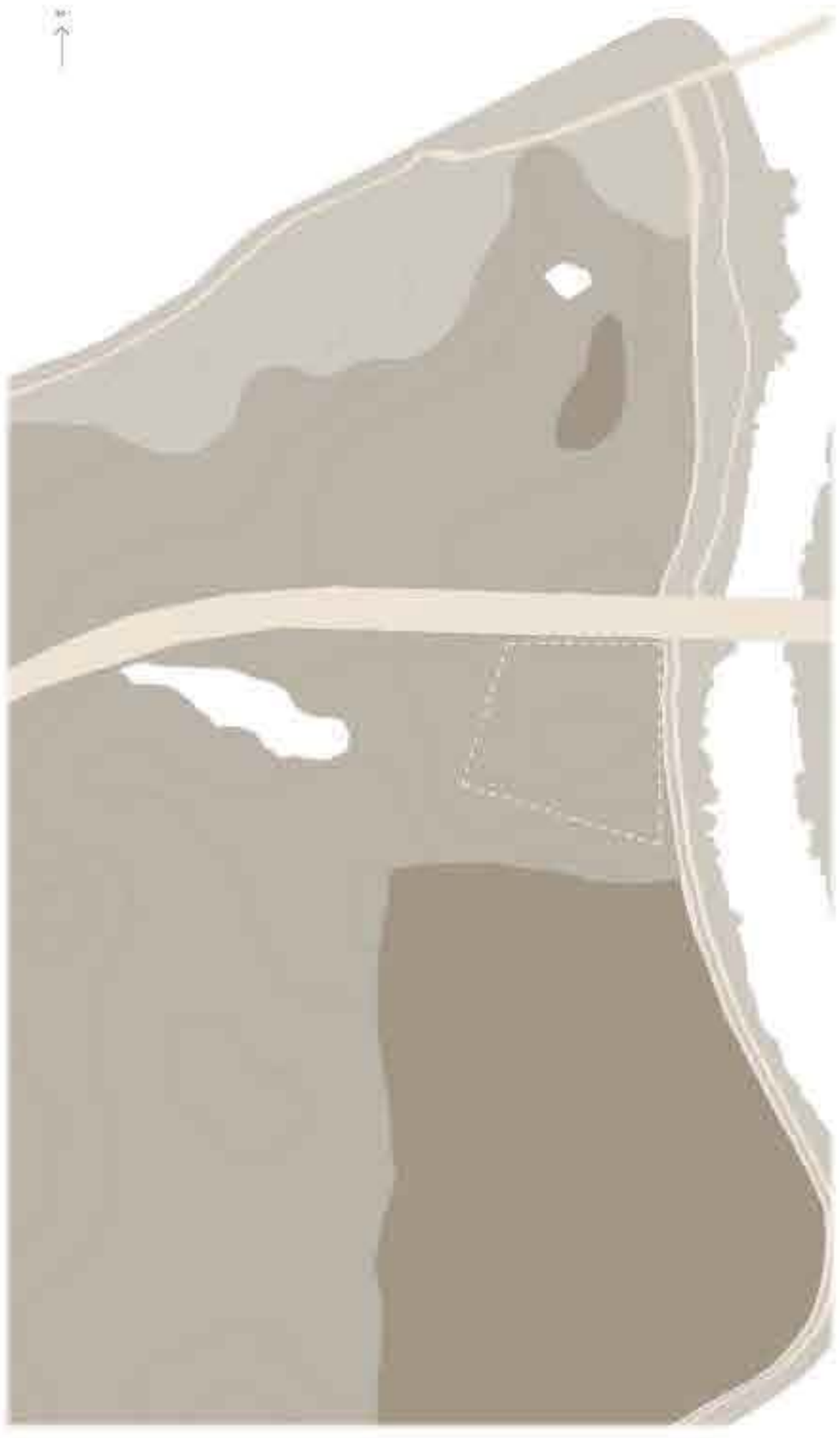


Chapter 4
-Crit 1 posters
-Group site analysis poster



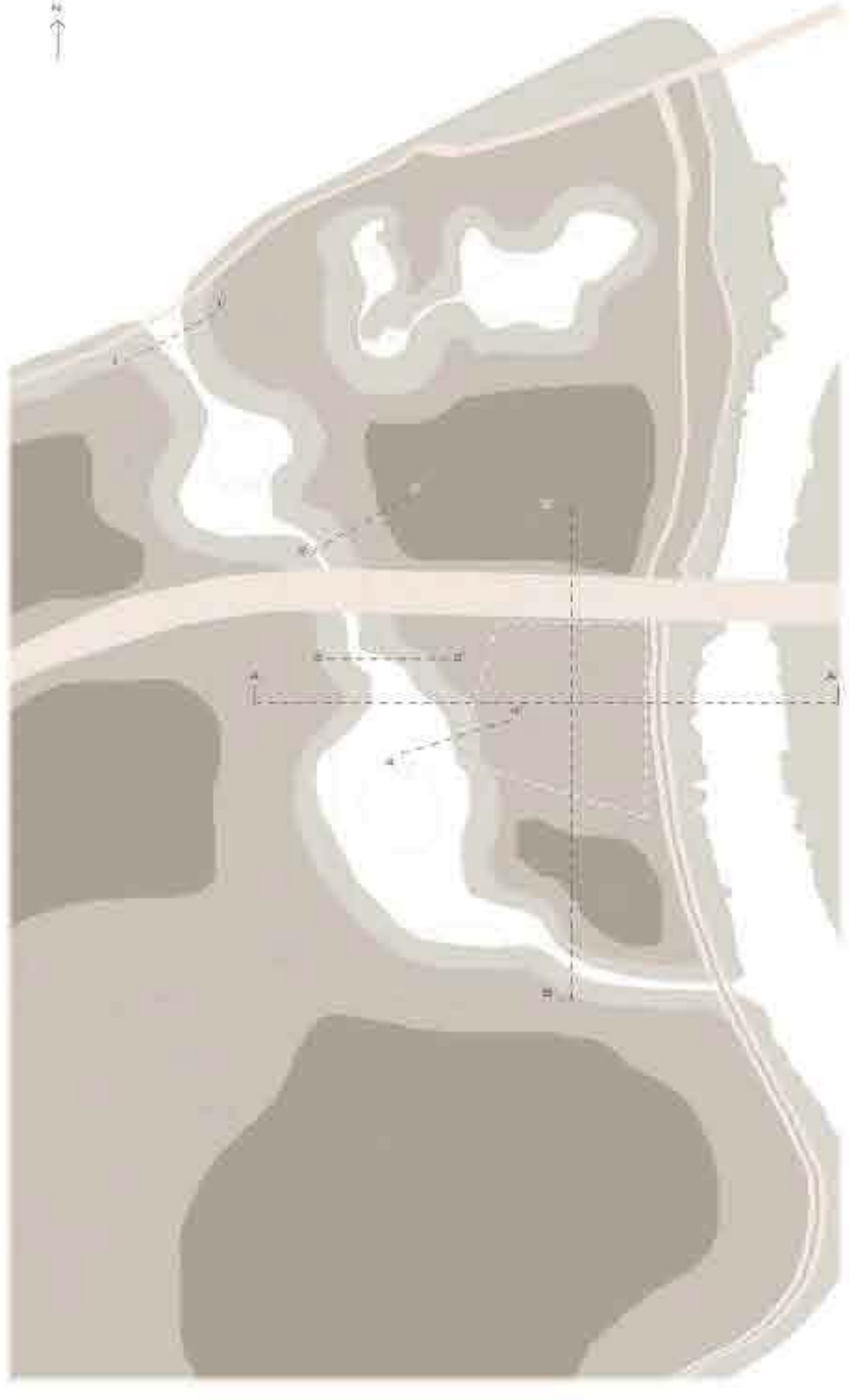






Existing Site Plan (1:1500)

Woodland Herbage/Shrub Helophyte Road/Lane



Proposed Site Plan (1:1500)

Woodland Herbage/Shrub Helophyte Road/Lane

SECTION A-A' (1:700)

SECTION B-B' (1:700)

Fragement Section 1-1' (1:300)

Fragement Section 3-3' (1:300)

Fragement Section 2-2' (1:300)

Fragement Section 4-4' (1:300)

Chapter 4
-Crit 1 posters
- Individual poster1

Tutor: Anu
ID:1100258
Name: Pan Jiain

Case Study

Marine and Freshwater Resourse institute

//Ambience

- Built on a formar **landfill** site adjacent to a **protected wetland**.

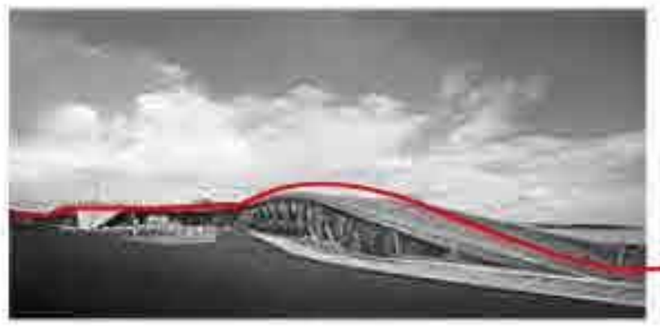
- The site of institute acts as a **buffer zone** to provide extra **protection** to the unique ecology of Swan Bay in the event of an on-site spill

//Material Strategy

- **Wood**: The timber cladding could **insulate** cold wind and **warm** the interiors in winter.

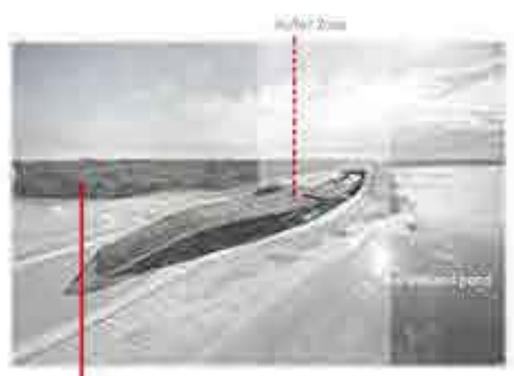
- **Concrete**: The concrete structure is exposed on the inside, **absorbing** heat in summer, in order to create a comfortable internal environment.

//Construction



- Turf-roofed structure **follows** the curve of the site and **interacts** with the surrounding wetlands, dunes and bay.

- Precious rainwater is **reused** to **irrigate** the grass roof of the building, as well as more critical tasks, such as **fire supply**.



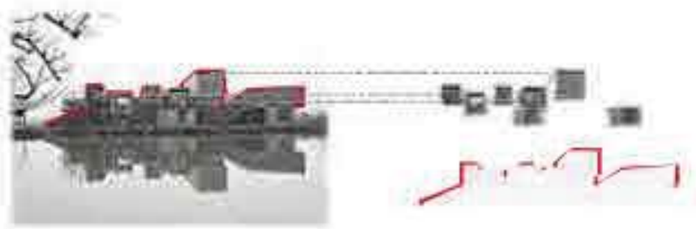
Sustainable functions

- The second wetland pond is unique in design. Rather than having a direct outlet to the bay, the **passively** treated **run-off** soaks into the ground and the sand filters and **removes sediments** before the water gradually diffuses into the bay. This natural diffusion is gentler on the Swan Bay environment.

- The first pond is lined with clay and acts as a **buffer zone**.

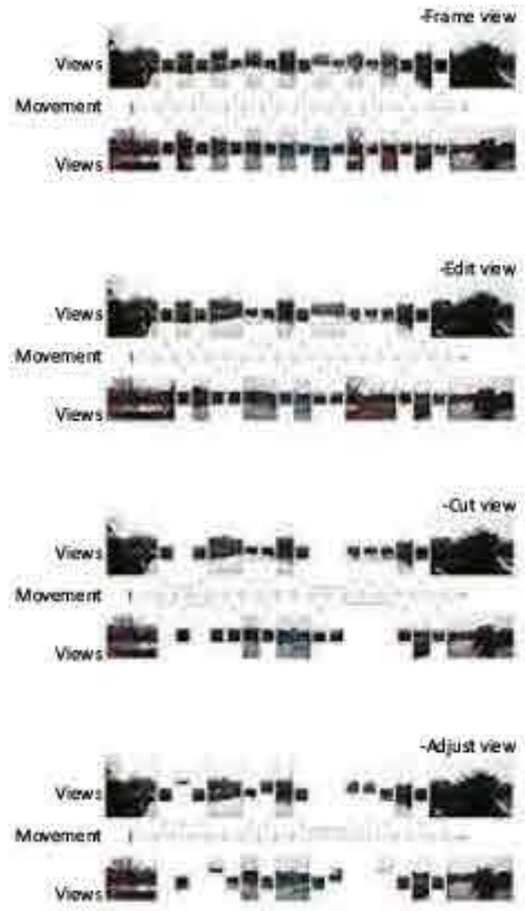
http://www.arup.com/Projects/DP20Marine_and_Freshwater_Resources_Institute/Details.aspx

//Massing- Lightness & heaviness

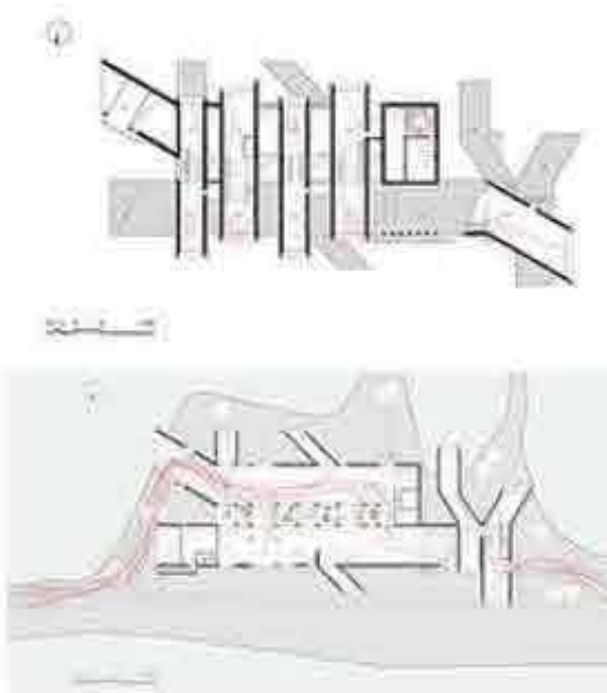


//Structure

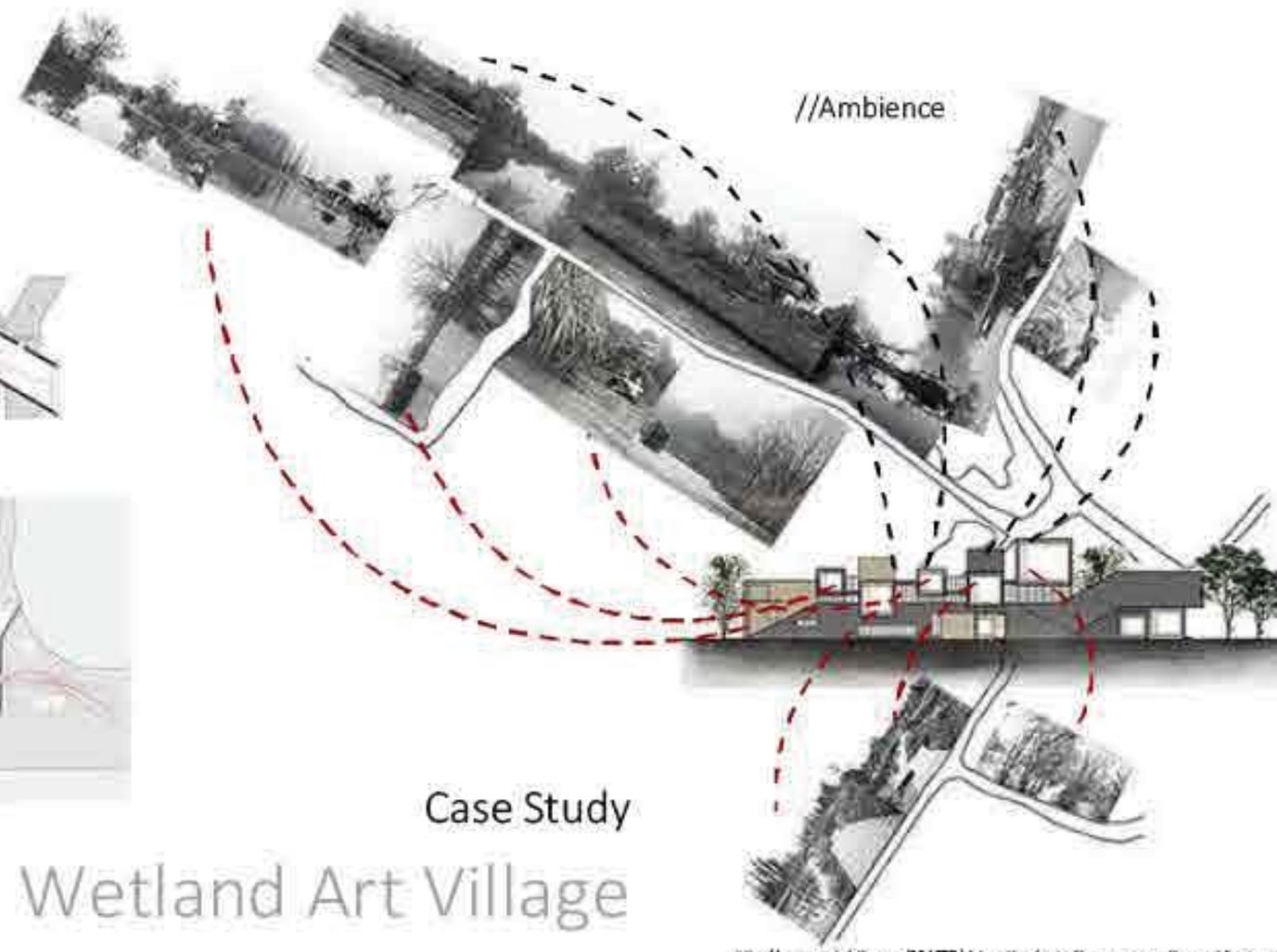
//View Reframing



//Circulation -Pubilc & Private



//Ambience

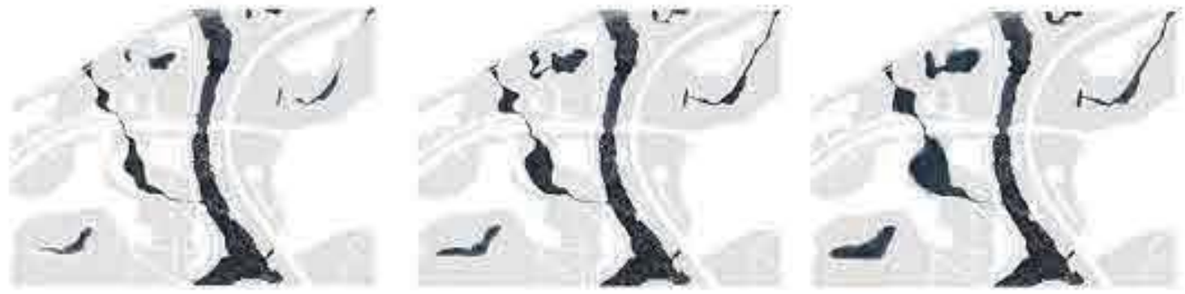


Case Study

Xixi Wetland Art Village

http://www.archdaily.com/334577/xixi-wetland-art-village-wang-weijen-architecture/

Chapter 4
-Crit 1 posters
- Individual poster2



Brief:

This project wants to design a still, damp, fluid and overflowing academic institution with some communal uses in the Yangcheng Wetland.

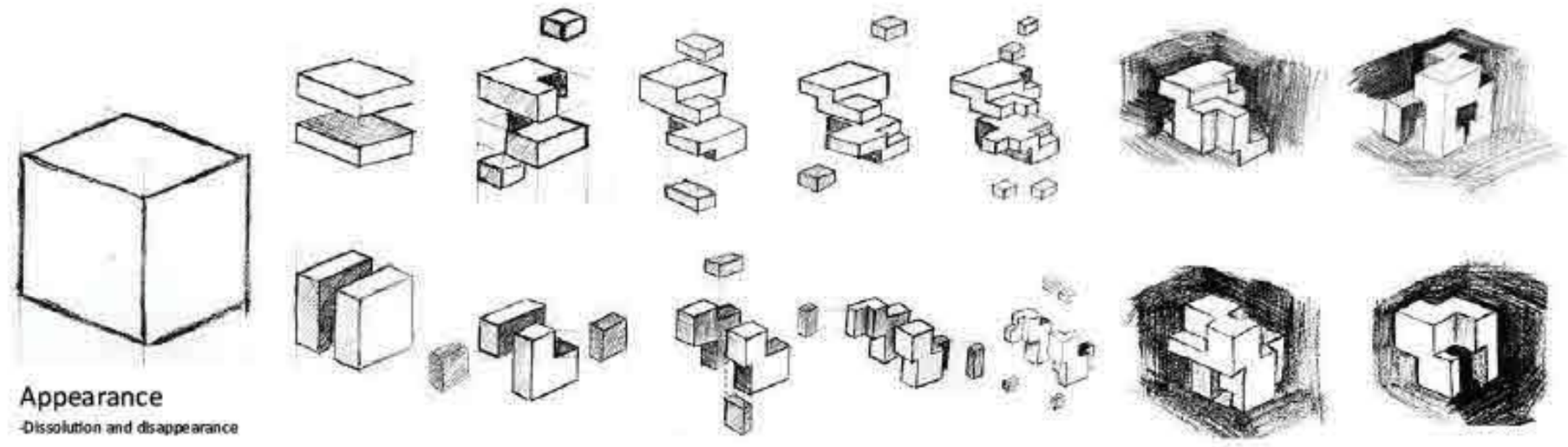
-Aims: Two communities, group A is for researching and group B is for interpretation.

-Concept: **Vanishing Architecture**. (The idal from *Defeated Architecture* referred by *Kengo Kuma*.

-Transition: A long boardwalk connecting two communities passes through the wetland, grassland and forest.

Water Transition

-Yangcheng Wetland has slow water change linking to seasonal rainfall variations.

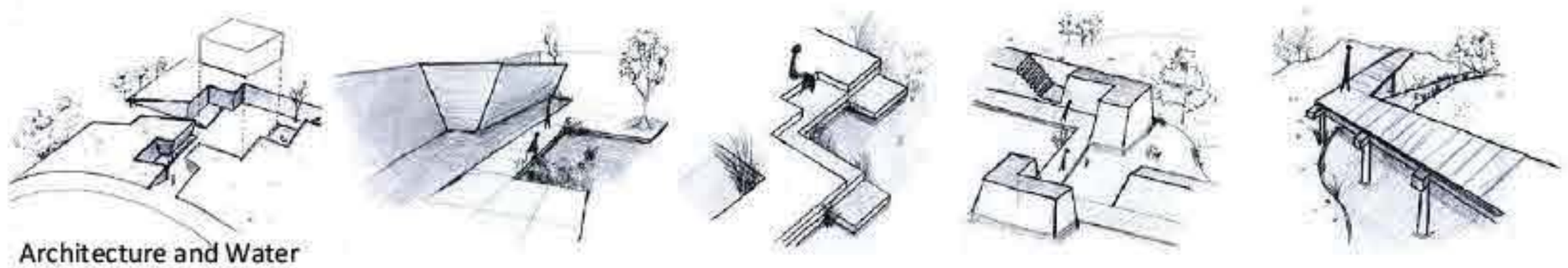


Appearance

-Dissolution and disappearance

Atmosphere

-Exploring the possibilities of light.



Architecture and Water

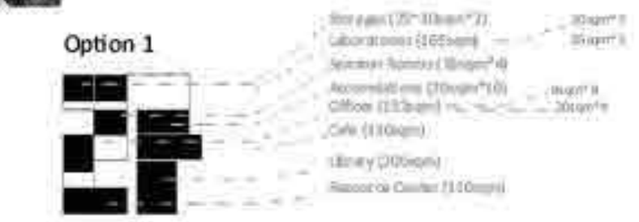
-Expressing a particular ambiguity of wetland by creating three different relationship between architecture and water.

-Different shape of concrete walls can illustrate the change in water change

Intermeditary Architecture between Water and Land:

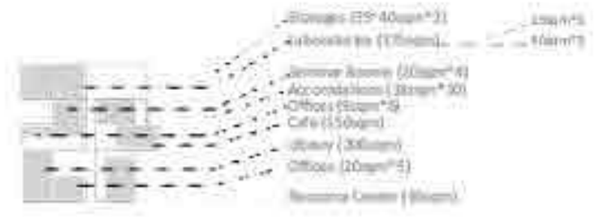
Wetland Research and Inter pretation Centre

Option 1

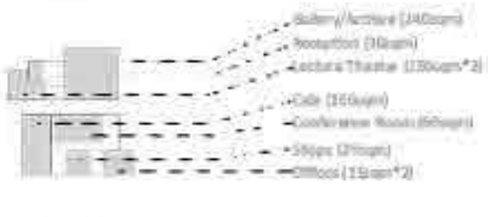


Problems:
-Far away from the other building group
-Large construction area
-Less presenting of wetland

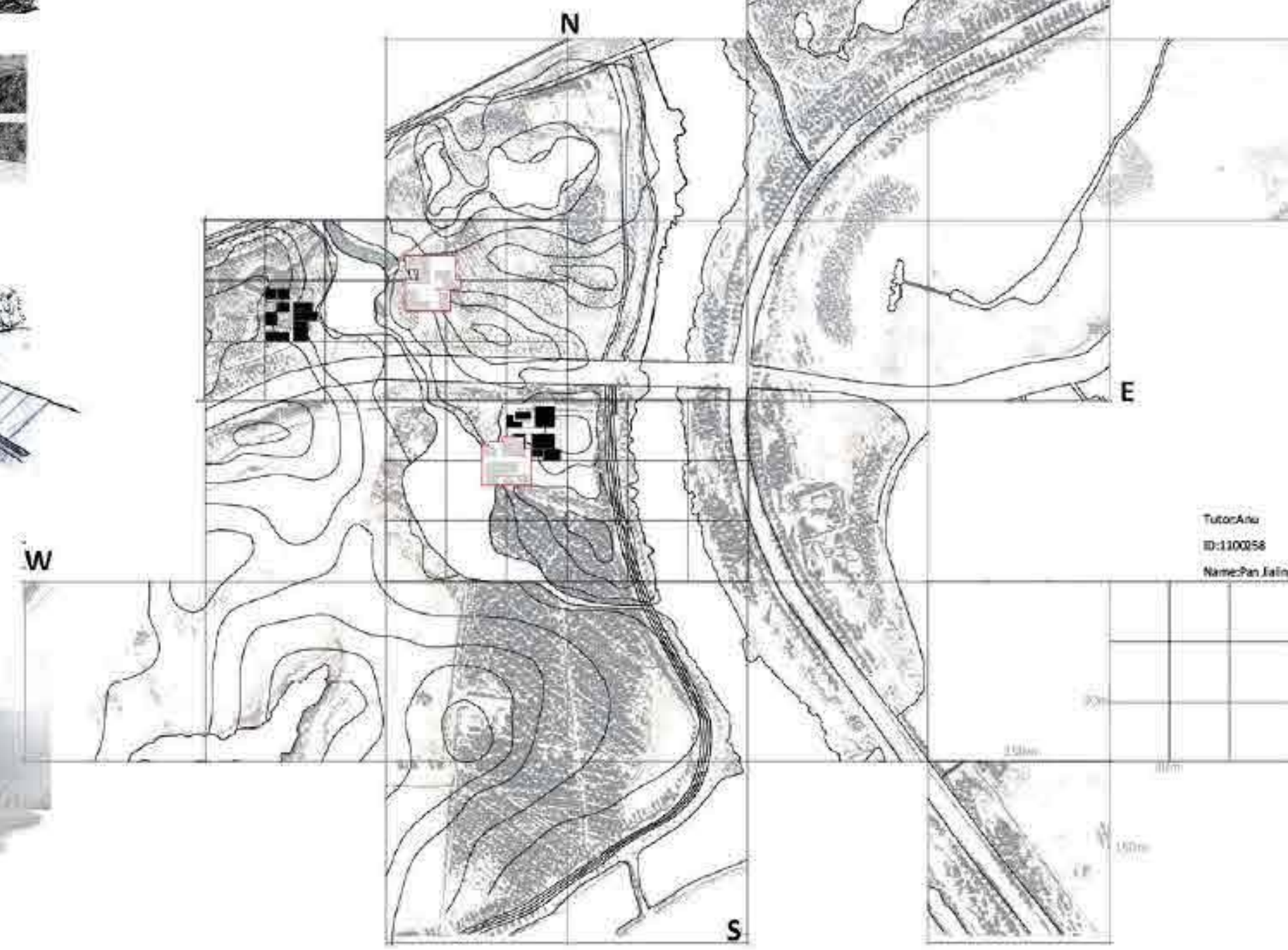
Benefits:
-Water transition showed by boardwalk.
-Connecting with bikepath and road.



Problems:
-Far away from the lake
-Constructed on the wetland.
-Less researching area



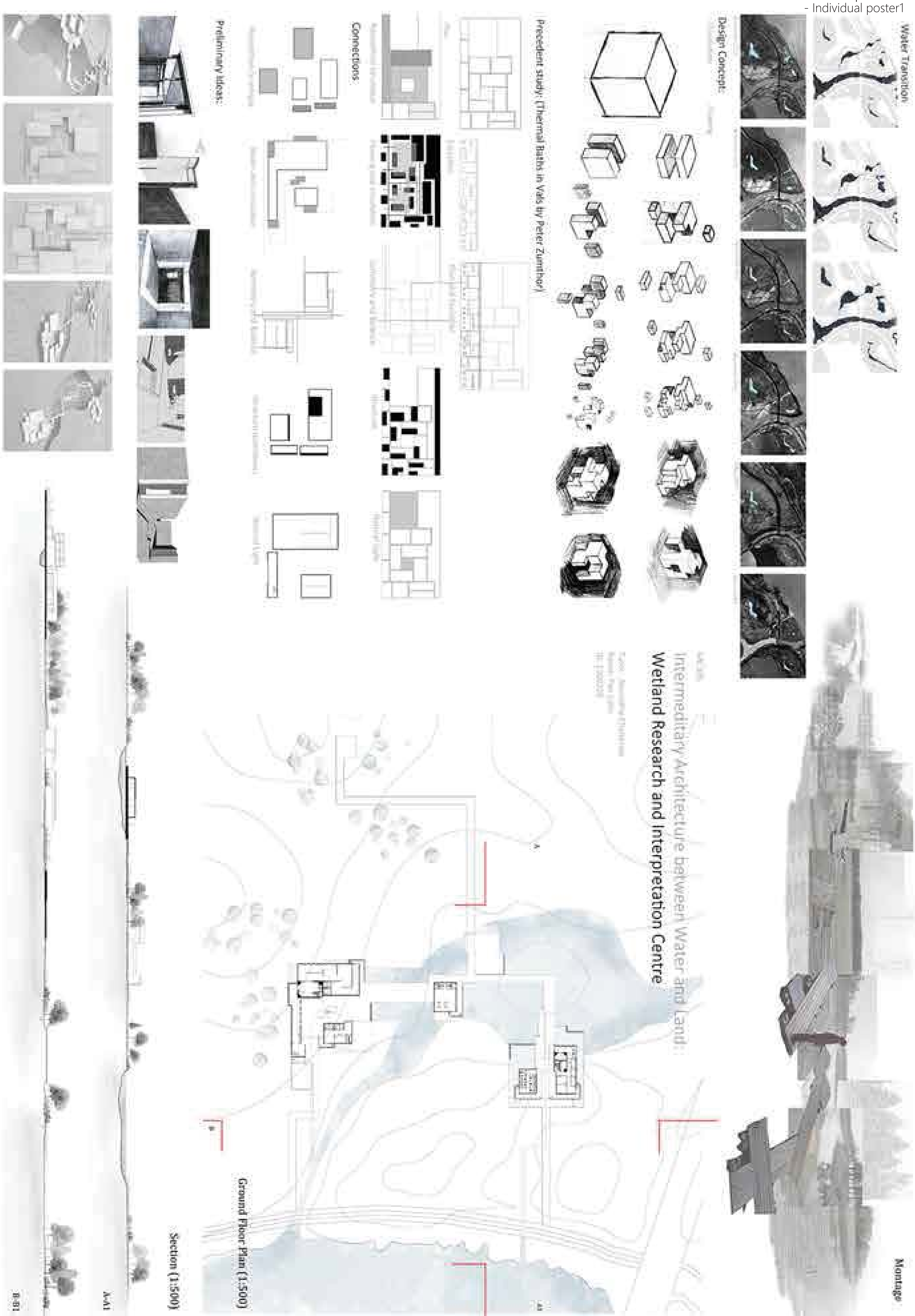
Benefits:
-Eassy acessibility
-More experience of wetland



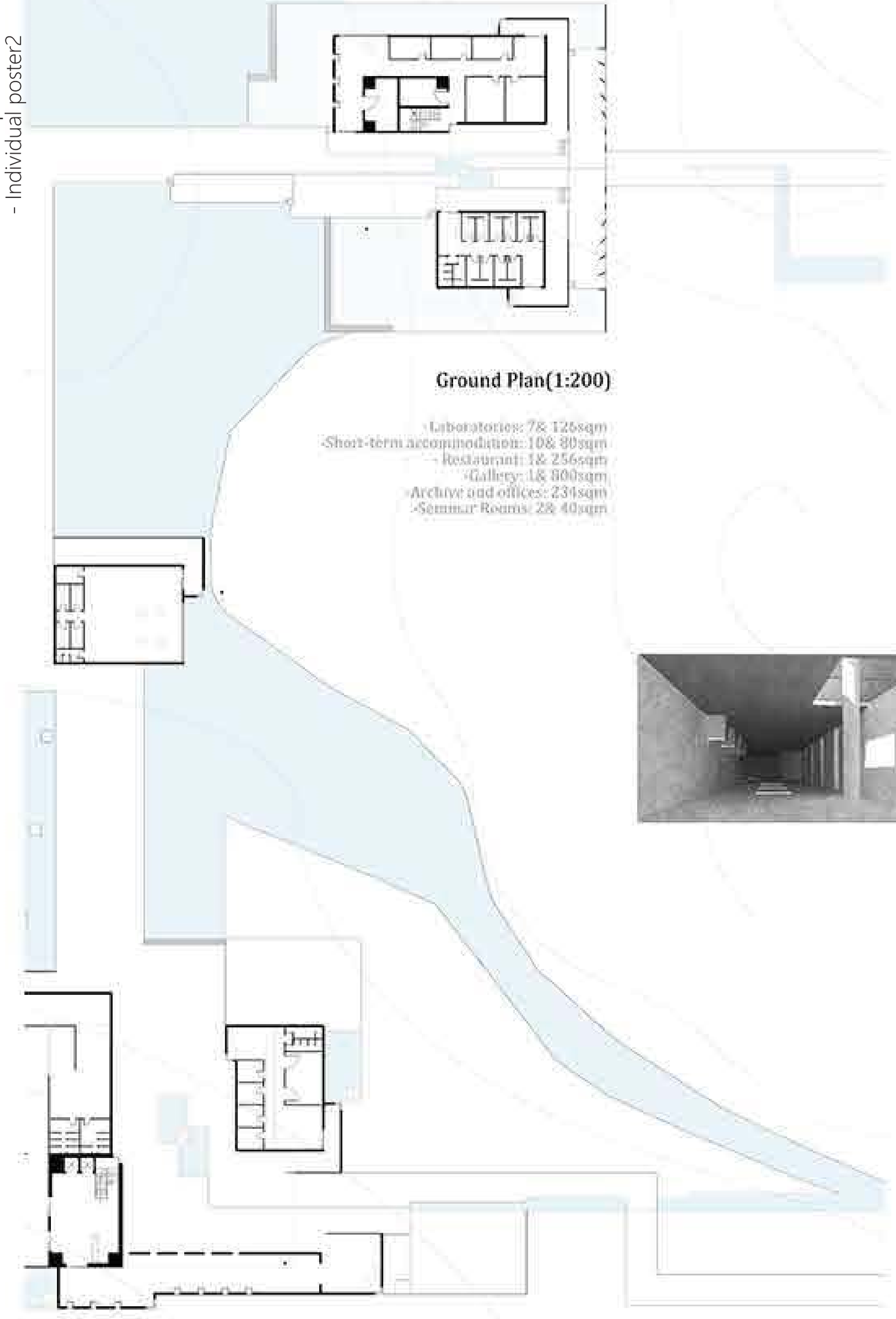
Chapter 4

-Crit 2 posters

- Individual poster1

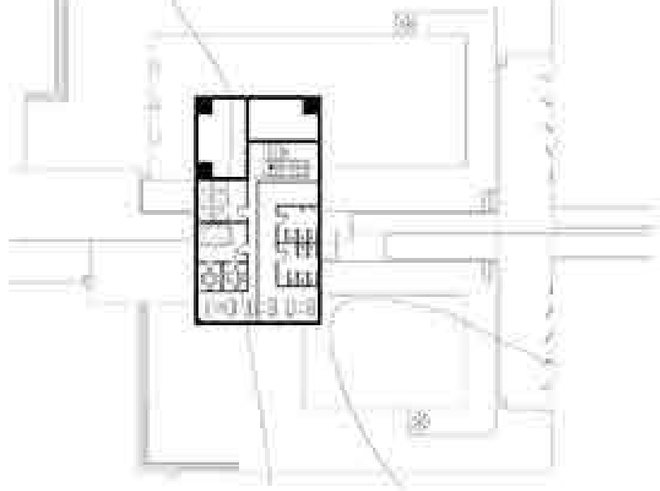


Chapter 4
-Crit 2 posters
- Individual poster2



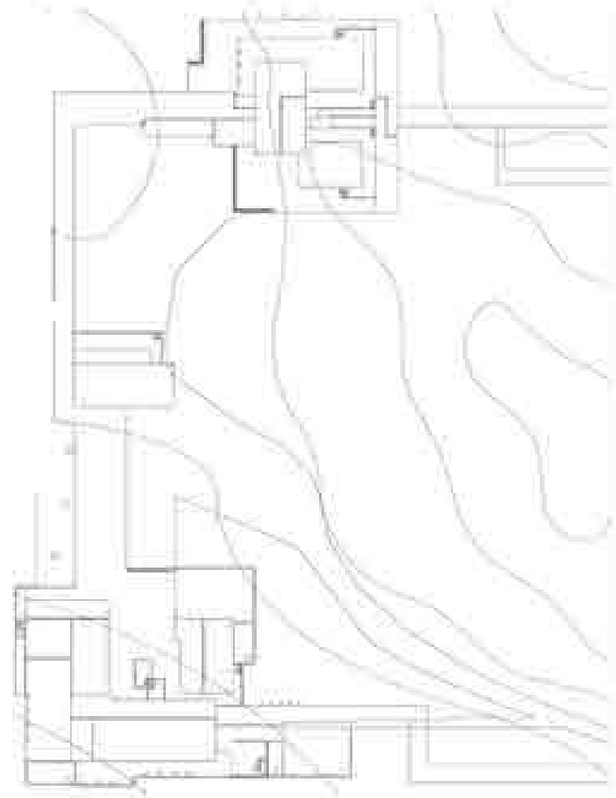
Ground Plan(1:200)

-Laboratories: 7& 126sqm
-Short-term accommodation: 10& 80sqm
- Restaurant: 1& 256sqm
-Gallery: 1& 800sqm
-Archive and offices: 231sqm
-Seminar Rooms: 2& 40sqm



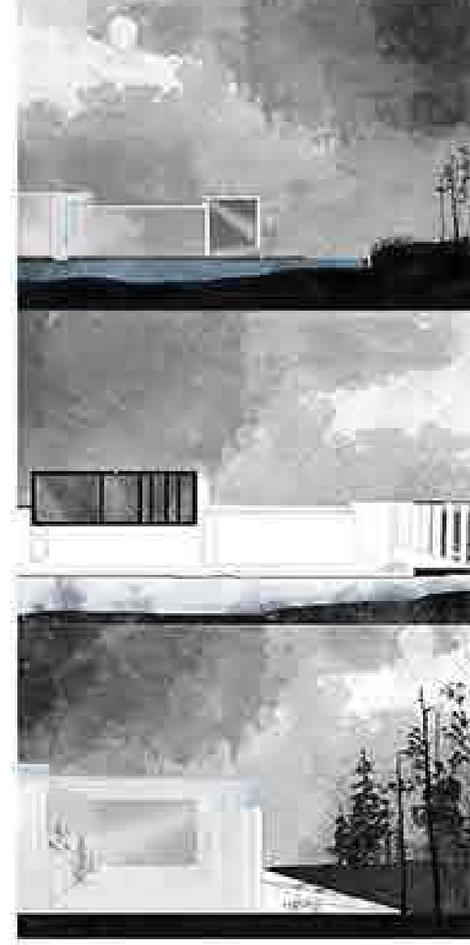
2ND Plan (1:200)

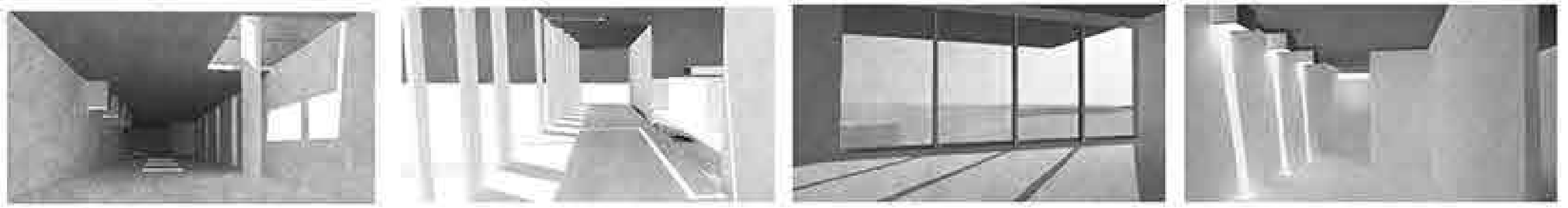
-Offices and Library: 275sqm
-Lecture Centre: 320sqm
-Cafe: 80sqm
-Conference Room: 60sqm



Roof Plan

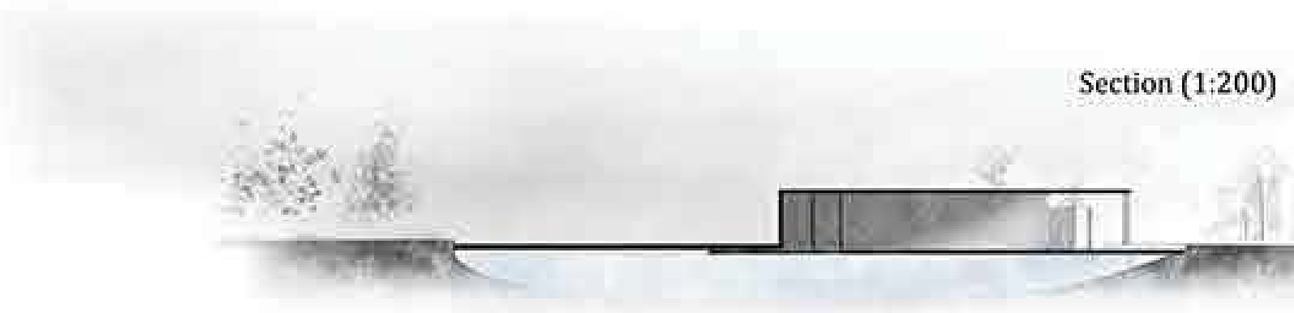
Total Area: 2300sqm



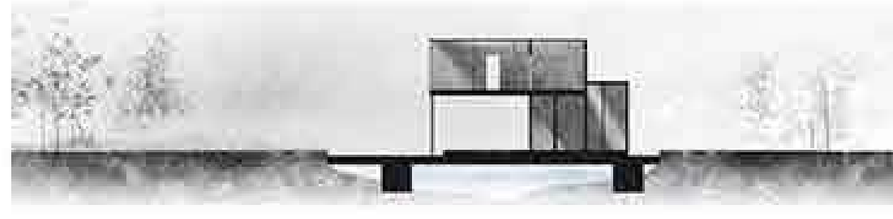


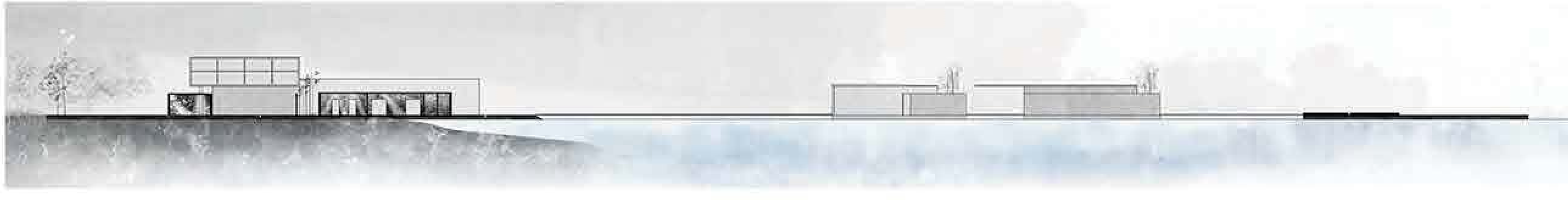
Atmosphere

-Indirect -Filtering -Edited -Circularity



Section (1:200)





Chapter 4
-Crit 3 posters
- Individual poster1

Interpretation Centre-

//Gallery:
Painting display corridor(This area connected with the main entrance of Gallery can show some painting related to wetland.
Receiving Centre (Elevators, staircase only for staff, cloak room. When tour guide leads people enter into Gallery, this is the space for introducing.)
Preface hall (Some multimedia projectors to interpret basic information about wetland, such as the relationship between wetland and human.)
Chinese wetland introduction (Presenting some characteristics of YangCheng Wetland and some research achievement. A small experiment room for visitors.)

//The Second floor
Conference Centre & Lecture Room (For some public or academic presentation by guest lecturers.

Restaurant & Café- Library-

Restaurant & Café
//Counter :
Next to the entrance
A reception table with cash register
//Kitchen :
Behind the counter, only for staff.
Connect with storage
Connect with service space
//Service space :
Three rows of fixed table and chairs.
An area can collect tableware.
//A special service space
Movable table and chairs.

Library:
//Reception area
Two tables with computers for borrowing and returning.
//Office & Archive
Archive with bays buffer area to seperate from circulation area.
Next to the office for easy management.
//Reading Area
Bookshelves in the middle of reading area.
Some journals and CDs near the computer lab.
//Computer lab
Cabinets next to the entrance

Accommodation- Research Centre-

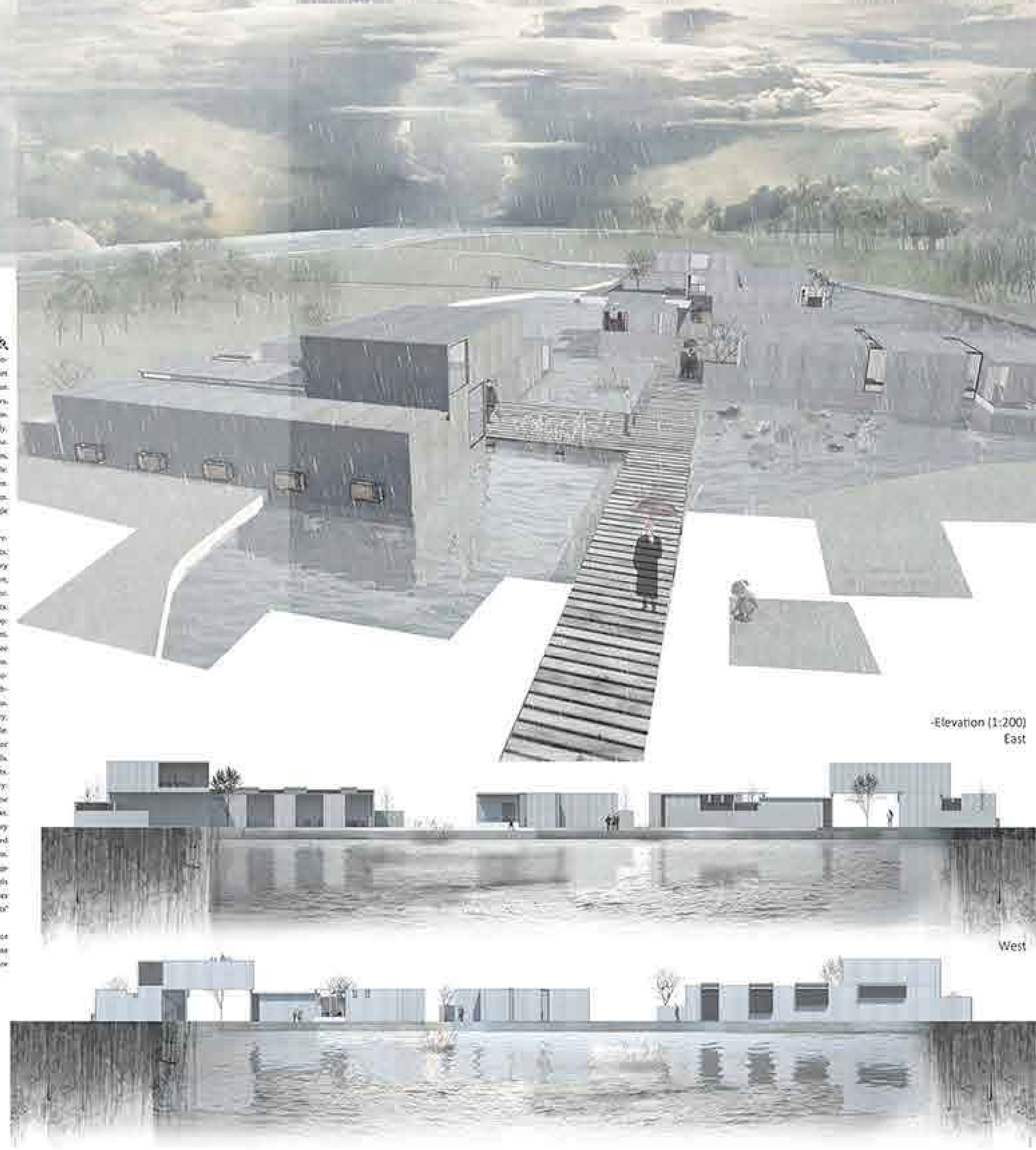
Accommodation-
The accommodation is divided into two parts, and each part has four families to share one kitchen. The public areas can show the continous views.
There are three types of residential rooms.
//Room for a family.
One big bedroom and a smaller one.
An independent bath room and a living room.
//Room for couple.
One bedroom.
Independent bathroom and a living room.
//Room for single

Research Centre-
8 resident researchers and 12 postgraduate students.
//Teching laboratory
One experiment desk for showing the process of operation, and one computer with projector.
Twelve fixed writing desks for students.
//Work shop:
Three types experiment desks with writing tables.
Two preparing tables near the entrance can be shared by three experiments rooms.
The three researching rooms -geographical experiment, biological experiment, ecological experiment. While this researching workshop only can be used by invited researching teams.
//Geographical laboratory:
One experiment desk with writing table.
A platform in the middle of room to put geographical models or real nature materials.
Cabinets.
//Biological laboratory:
A platform for some plants near the windows, and a machine to record the growing process.
//Ecological laboratory
This laboratory can be used to do the researches of submerged plants and wetland circulatory water system.
//Storage
Tire equipments and materials
//Offices
Researchers and assistants"

the Second Floor
//Seminar rooms
//Conference centre

-Extended brief:

Function Hierarchy



-Elevation (1:200)
East

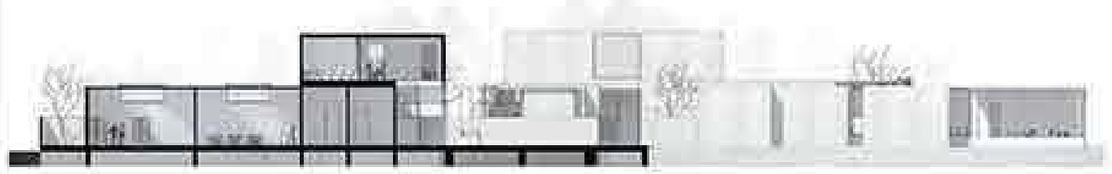
West

ARC305

Intermediary Architecture between Water and Land:
Wetland Research and Interpretation Centre

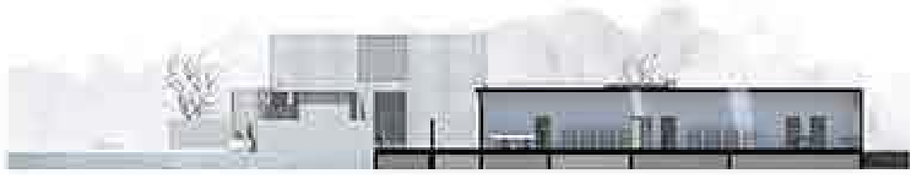
Tutor: Anuradha Chatterjee
Name: Pan Jialin
ID: 3100258

Chapter 4
-Crit 3 posters
- Individual poster2

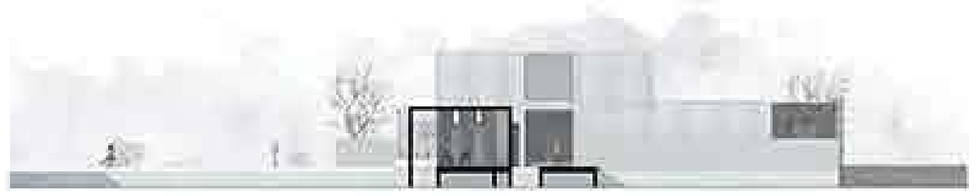


Section A-A1

Section B-B1

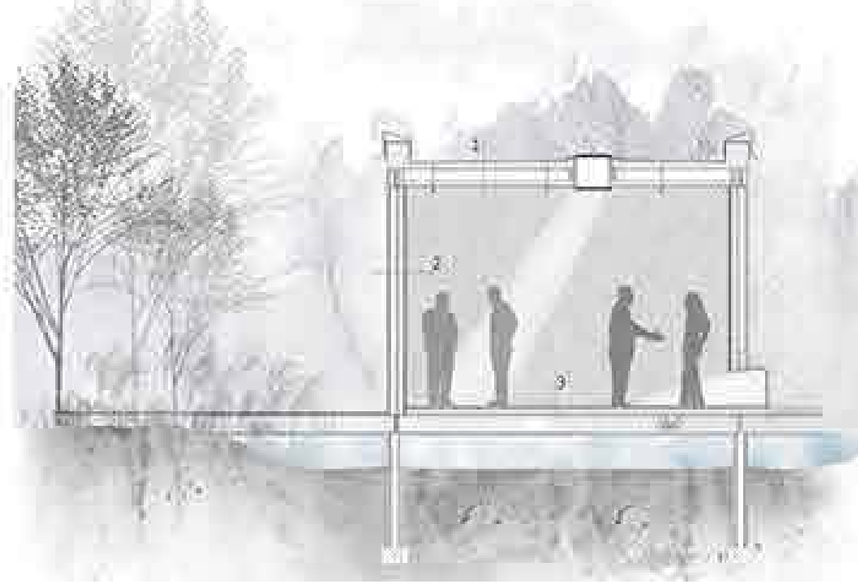


Section C-C1



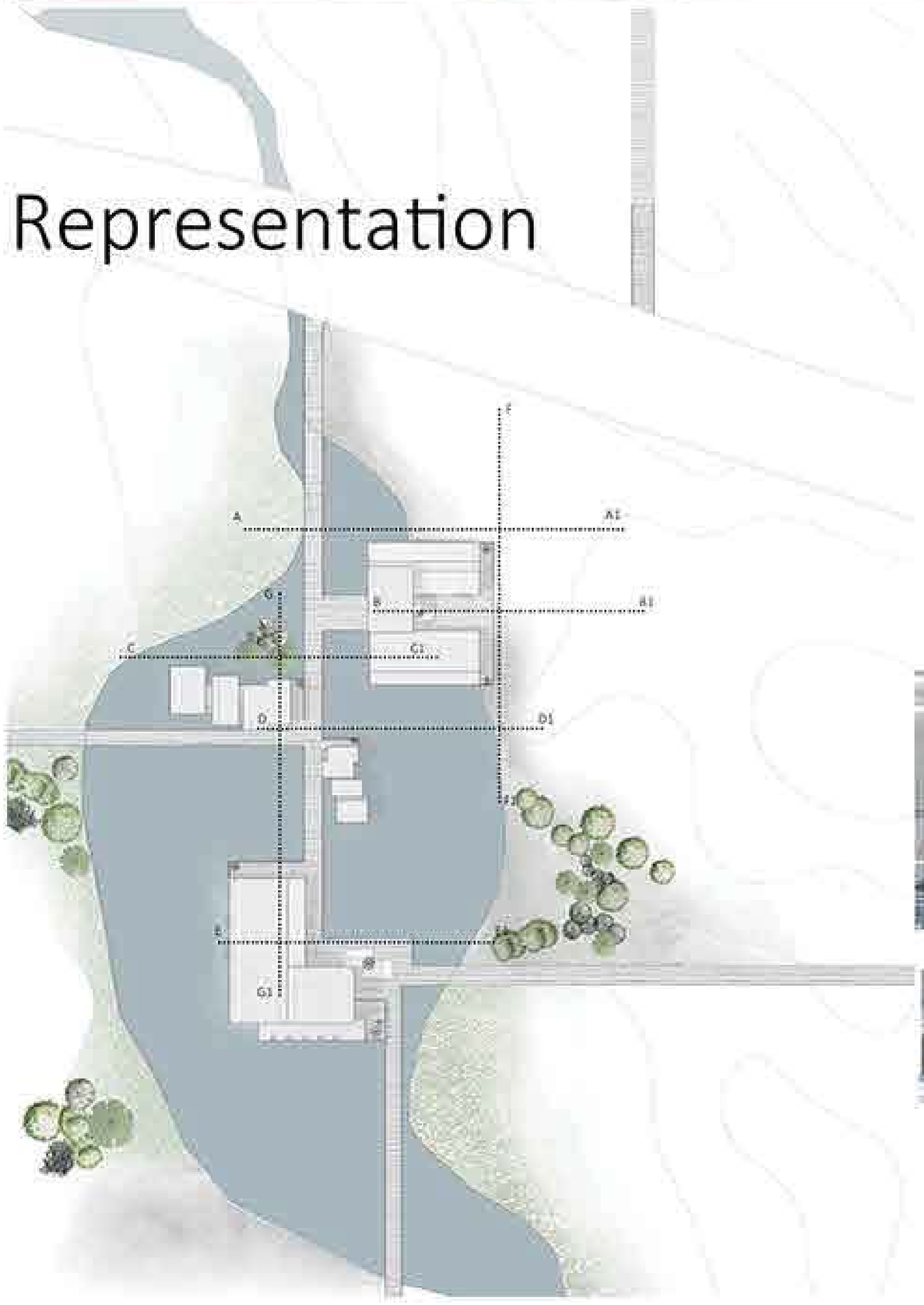
Section D-D1

Section E-E1

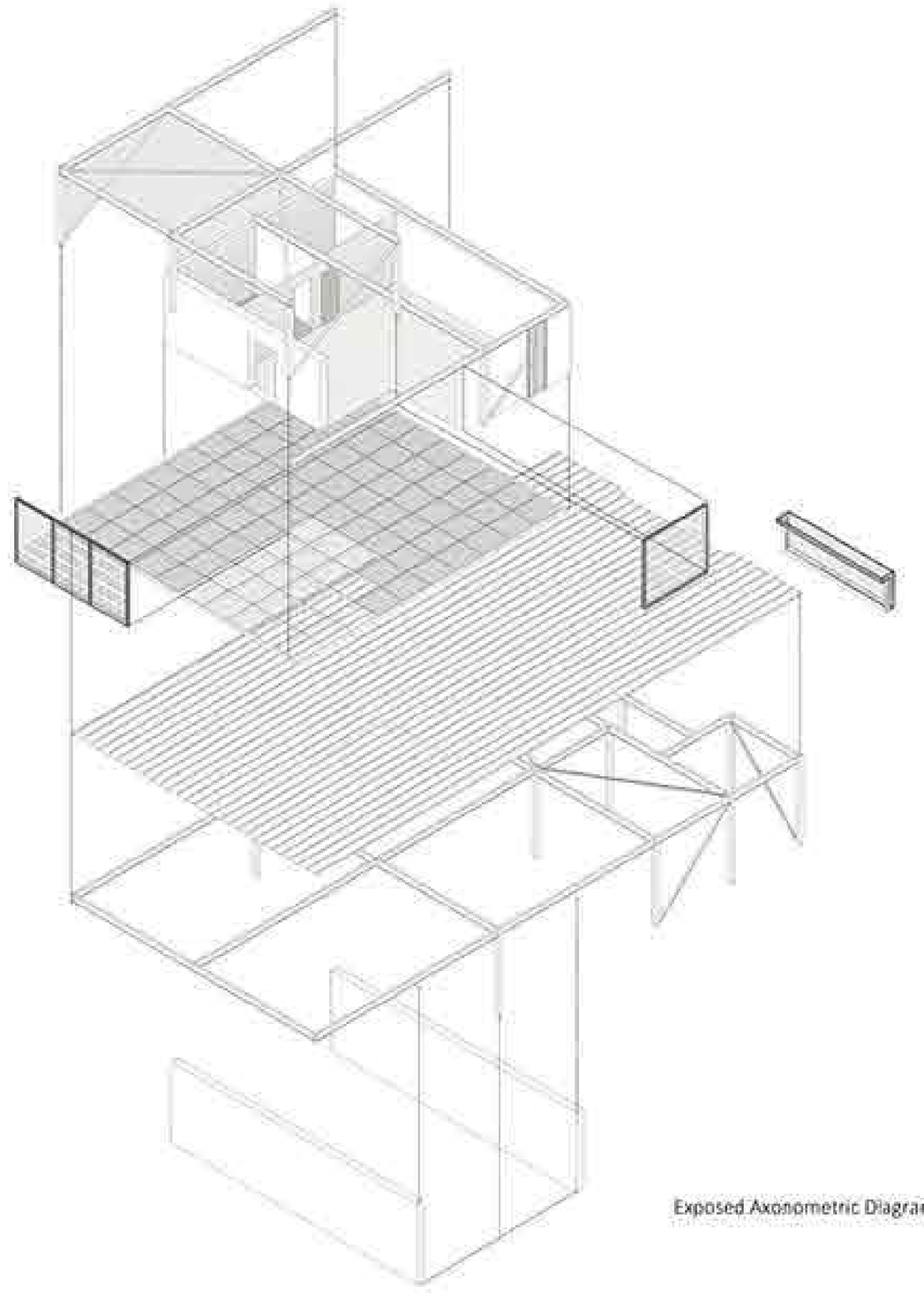


3.	2.	1.
20mm pine planks	20mm rendering	10mm water proofing paint
20mm timber battens	MDF(medium density fiberboard)	100mm reinforced-concrete hollow core slab
100mminsulation	100mm insulation	20mm fire prevention board
waterproof layer	50mm fire prevention board	300mm x 150mm steel beam
300mm x 150mm steel	150mm x 150mm steel cube column	100mm insulation
waterproof layer	fire protection layer	30mm vapour barrier
40mmconcrete	40mm concrete	20mm black steel sheet
		20mm timber slab

Representation



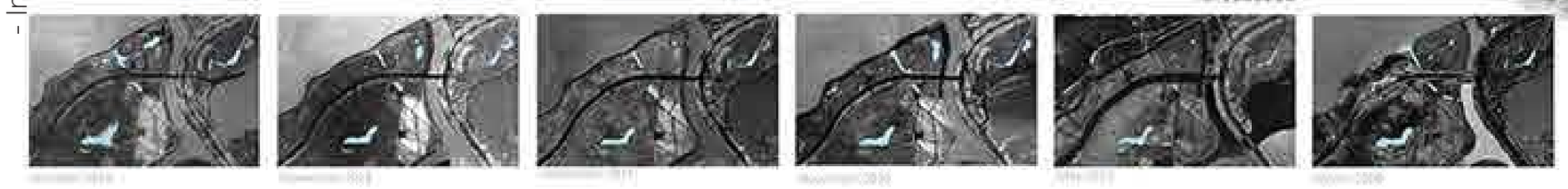
Section G-G1



Exposed Axonometric Diagram

Chapter 4
-Crit 3 posters
- Individual poster3

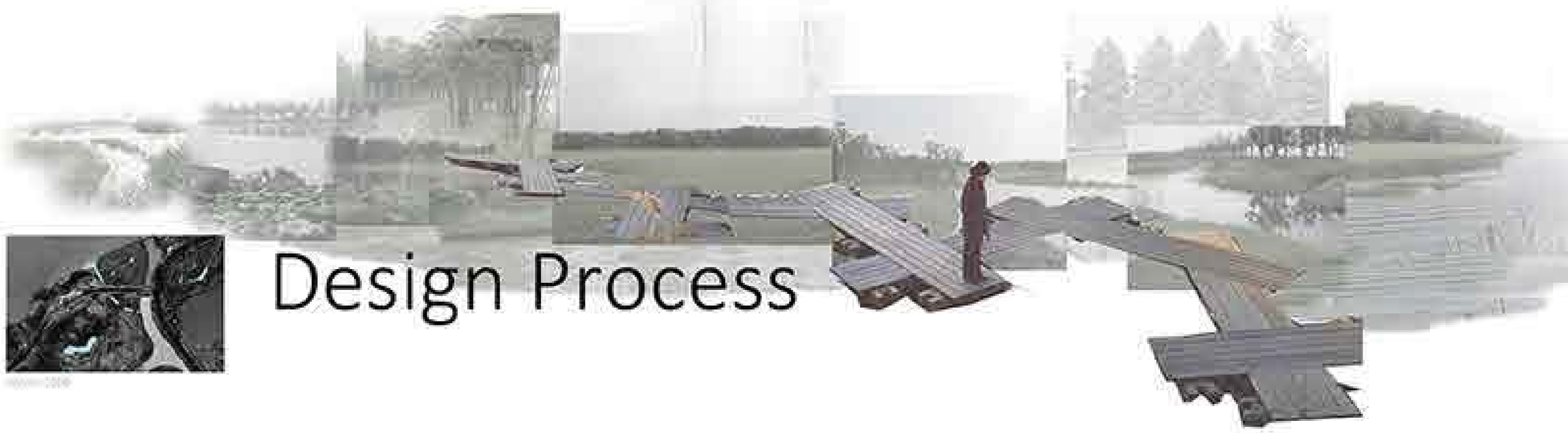
Water Transition



Tutor: Anuradha Chatterjee

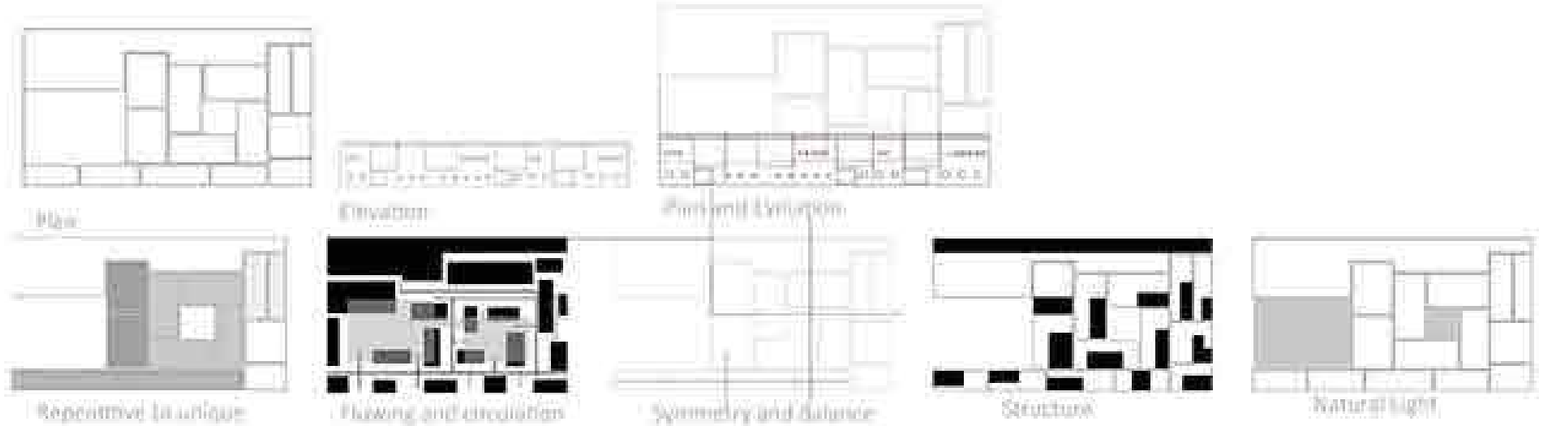
Name: Pan Jialin

ID: 1100258

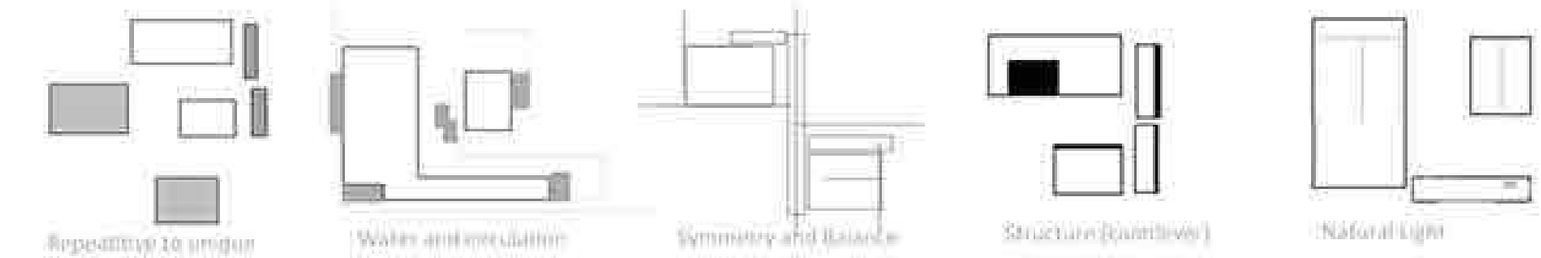


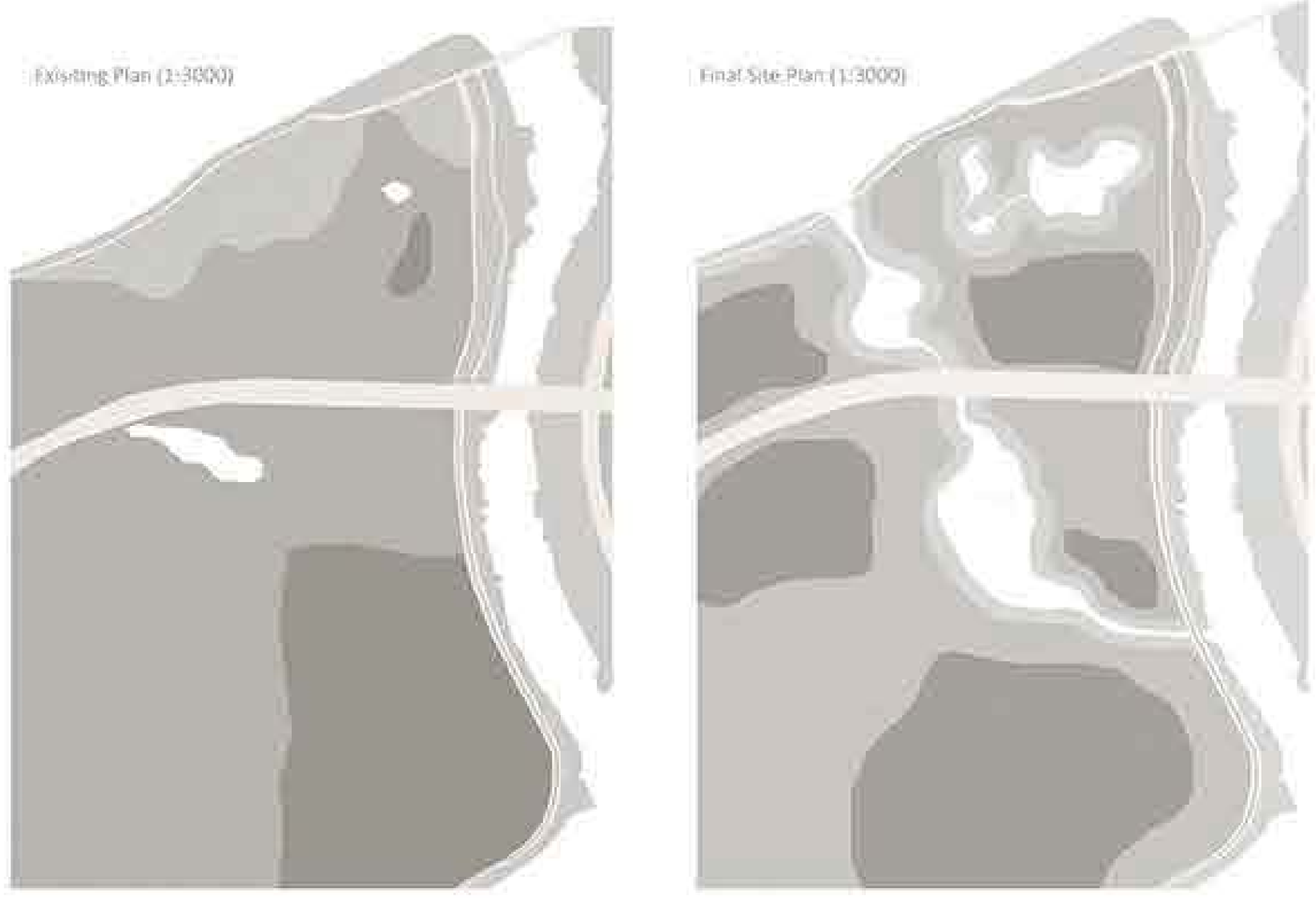
Design Process

Precedent study: (Thermal Baths in Vals by Peter Zumthor)

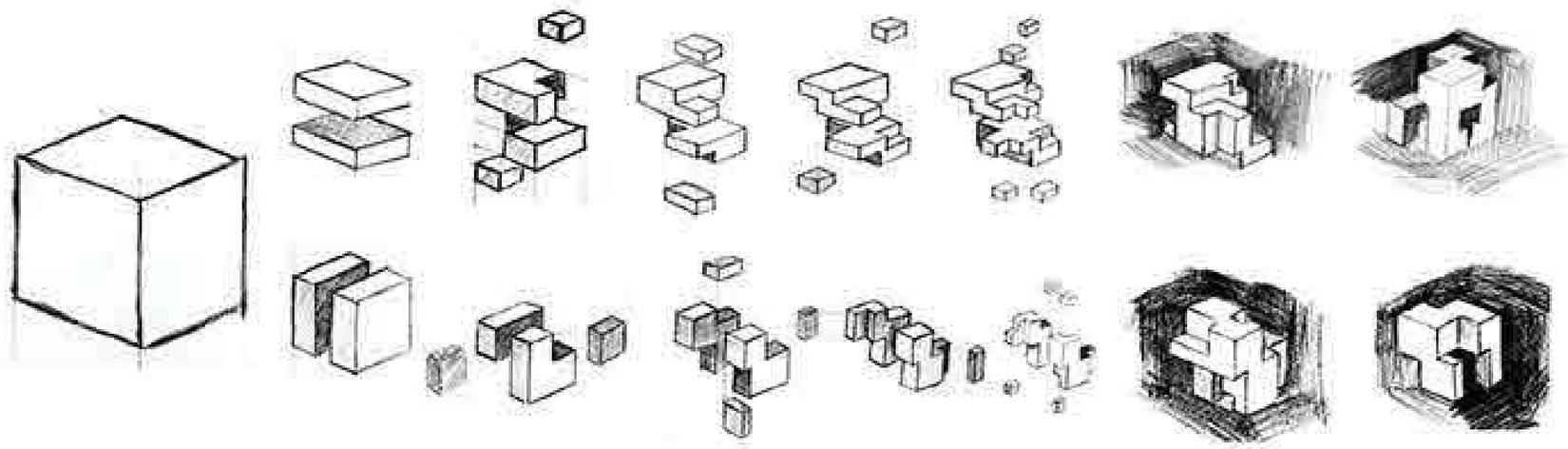


Connections



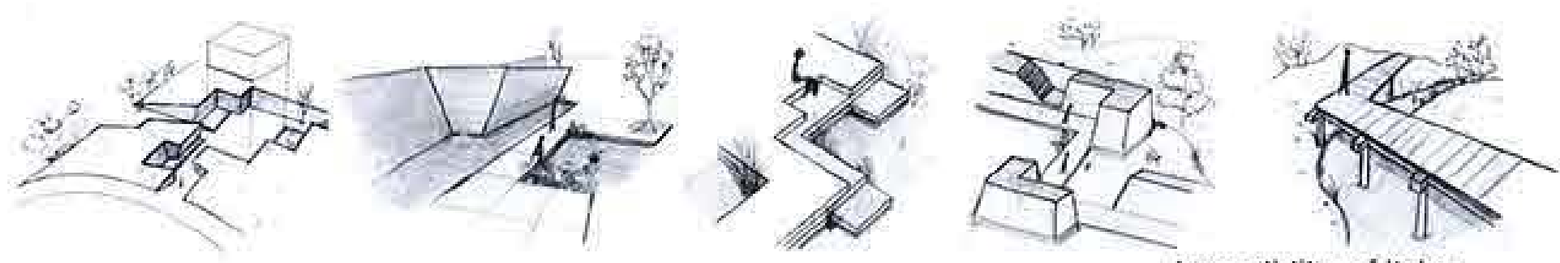


Design Concept:
- Dissolution -Flowing

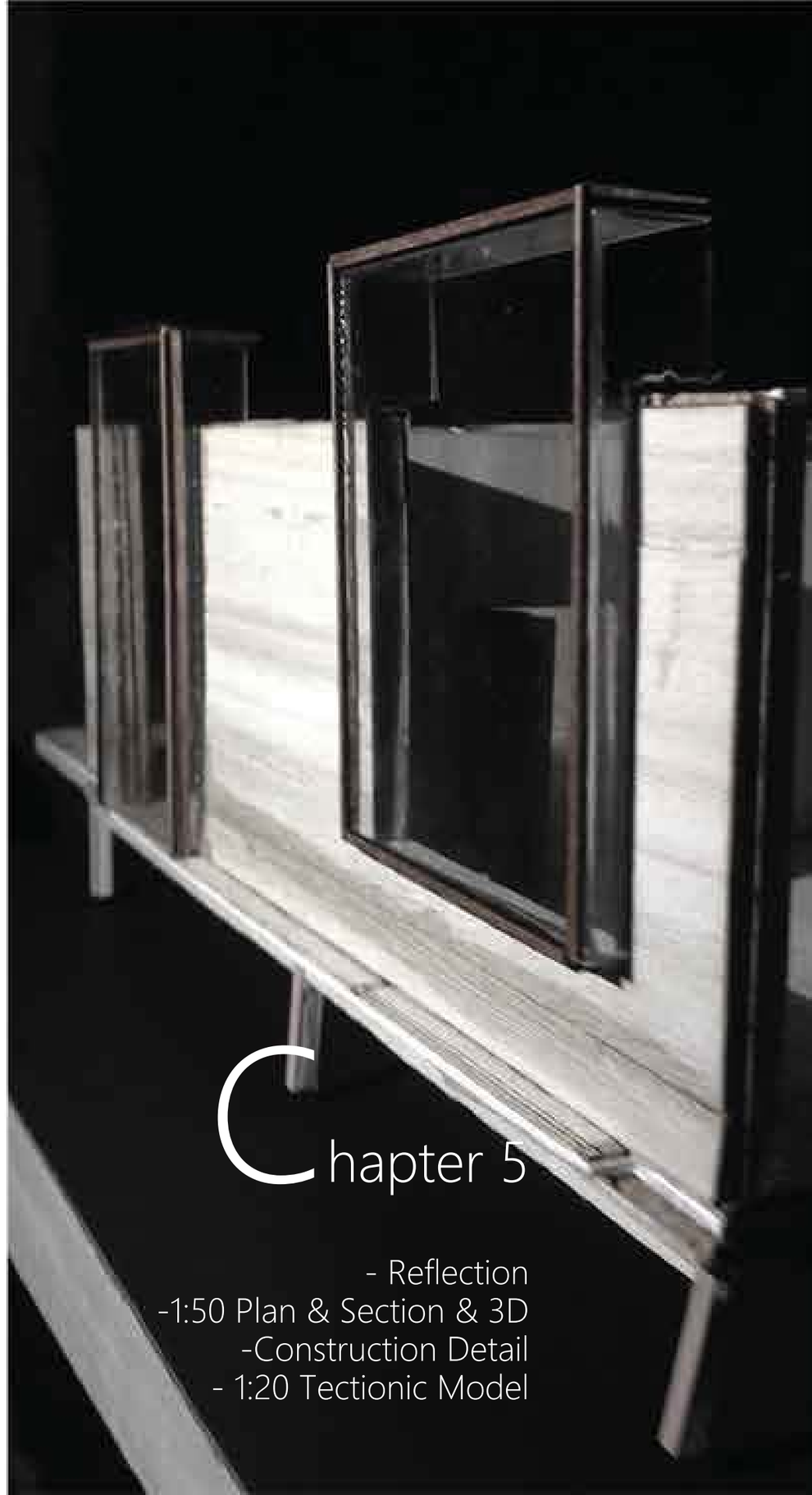


Atmosphere:
- Light -Volume

Interaction with natrue:



Accessibility of light:
- Direct -Indirect



Chapter 5

- Reflection
-1:50 Plan & Section & 3D
-Construction Detail
- 1:20 Tectionic Model

Chapter 5

- Reflection
-1:50 Plan & Section & 3D
-Construction Detail
- 1:20 Tectionic Model

-Reflection

In the final presentation, I started from precedent studies and some researches I did before design process. From thermal baths, typological case studies, I realized that water can be a element of building. This precedent brought a new thinking about relationship between architecture, people and water. On the contrary, I got less help from non typological case study, Xixi wetland art village.

Then some reflections were summarized to produce my design concepts. All the design concepts had already been presented in my final design. Overall, there are four design concepts:

-Function Division

-Direct & Indirect Expression

-Three different relationship between water, people and architecture / Architecture as Intermediary between water and people

-Cube Dissolution / Geometric Transformation

They interacted, supported or developed with each other, and finally they both presented in this project. What I explore during the process is people experience. How do they perceive nature? What should people achieve when they go through architecture? Is there any fragments which can build a bridge between experiencers and designers? I always tried to find some consequences during design process.

Through exploration, I achieved some valuable thing. I started to think about what atmosphere would be created by architecture and received by people. Moreover, I attempted to start to design from inward looking to outward looking, and combined these two parts. And this working across scales led me to consider in three - dimensional way.

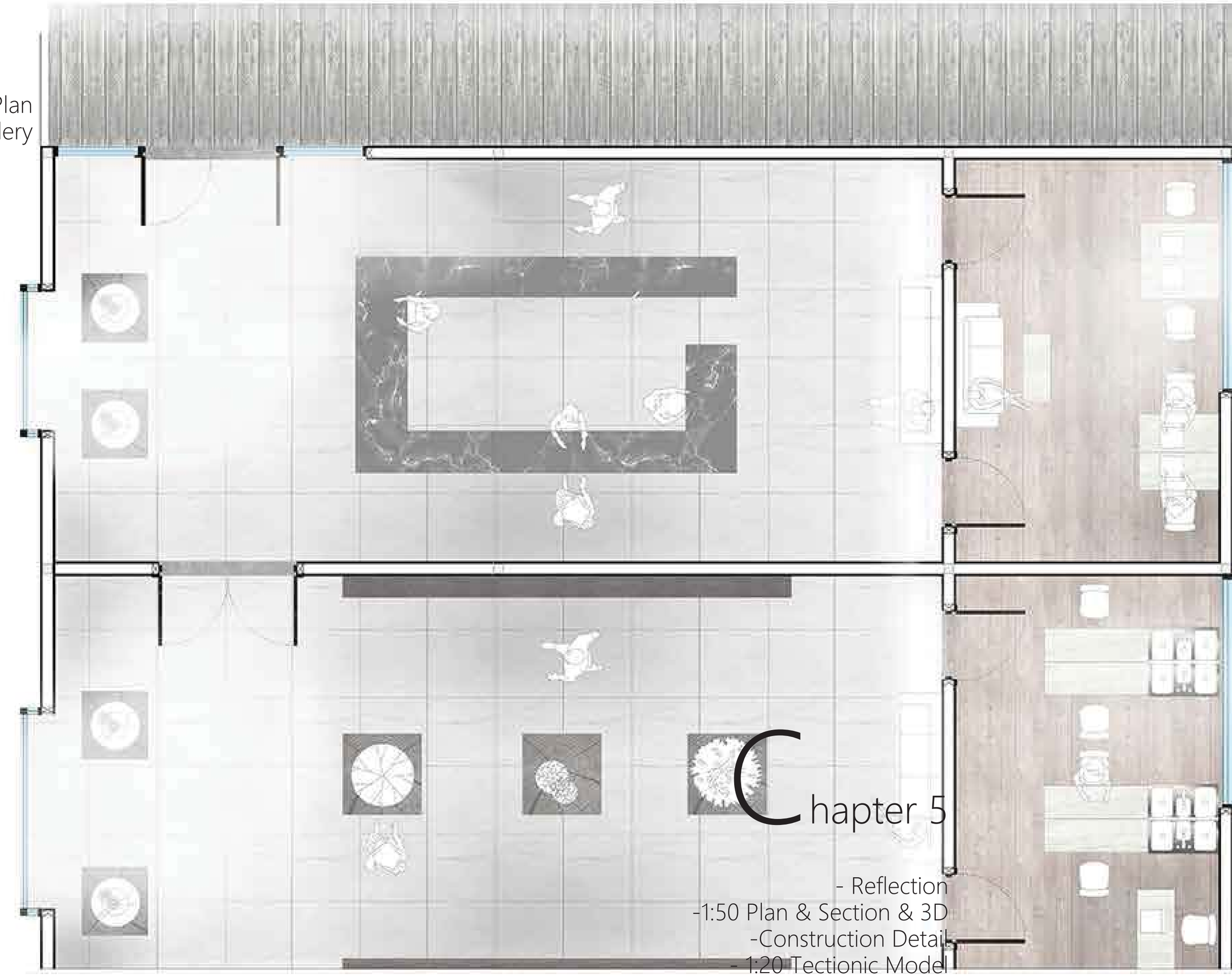
However, there are some problem that I realized after getting feedback from tutors.

To start with, I focused on water transition, and I was interested in water level changing, and I also mentioned and introduced in my final presentation. However, I did not clearly show in roof plan. Where is the changing area? And which part is buffer zone between land and water? Is there any design method to make use of this phenomenon? These three questions need to improve in further development. Similarly, landscape design was not showed in final poster. Although our group had already design this existing site to fully present characteristics of wetland, the proposed site is a master plan. This project needs a particular landscape design to fit architecture.

The second issue is about structure, although there was a exposed construction axonometric diagram, some construction issues were not clearly presented in final presentation. More axonometric or 3D diagrams can help.

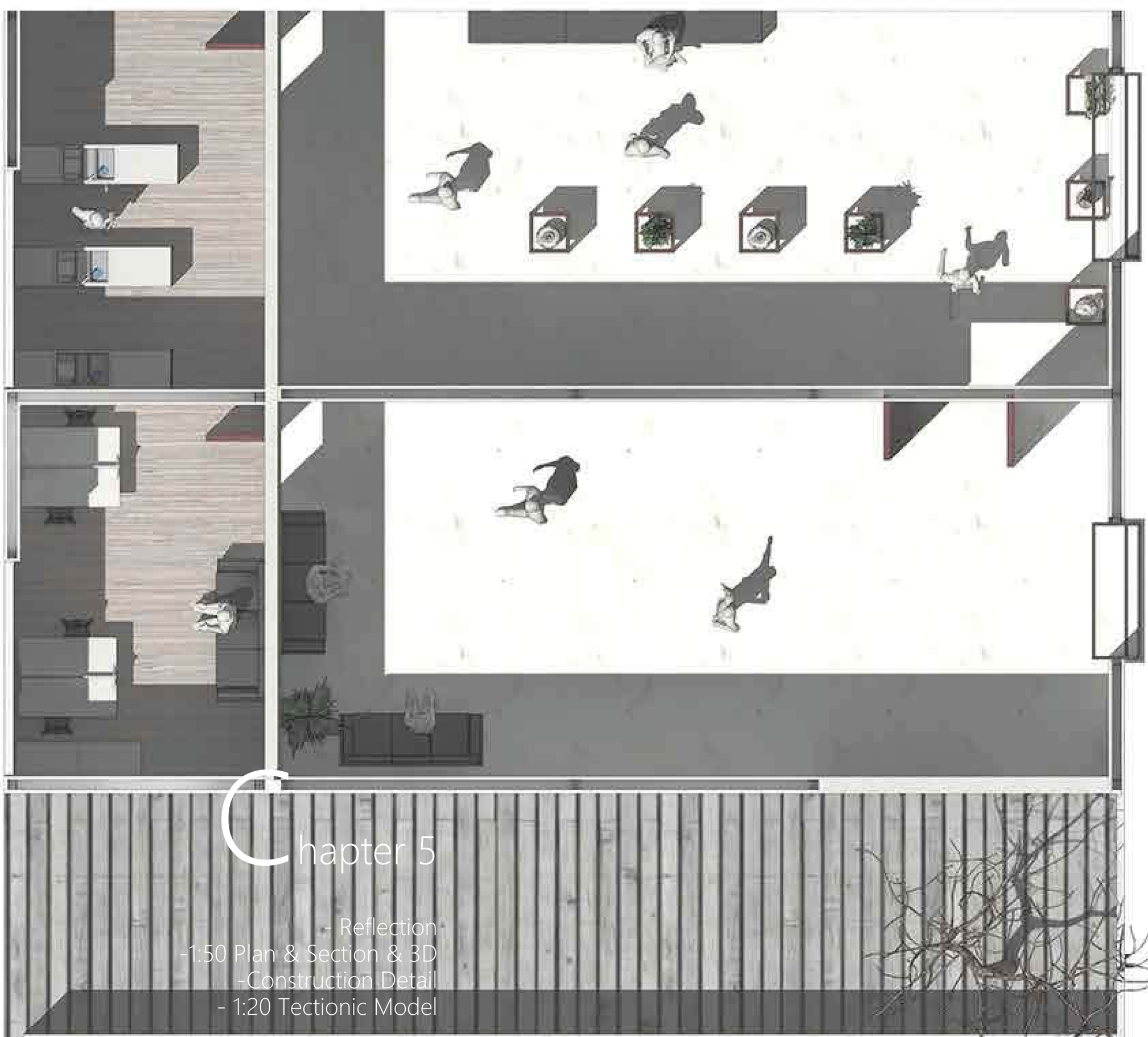
The final problem is about 1:50 plan. This scale, 1:50, is much closer to human body. As a result, this plan should be not only presented by plan, but also present interior layout by section and 3D views.

Original 1:50 Plan
Gallery



Chapter 5

- Reflection
-1:50 Plan & Section & 3D
-Construction Detail
- 1:20 Tectionic Model



New 1:50 Plan
Gallery

Chapter 5

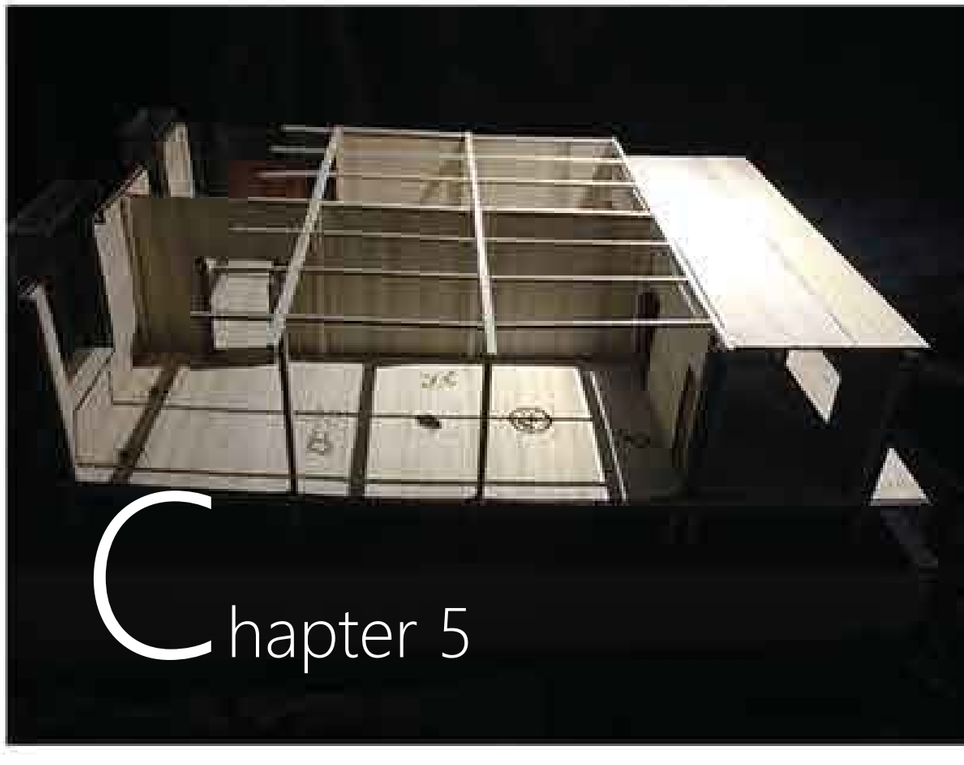
- Reflection
-1:50 Plan & Section & 3D
-Construction Detail
- 1:20 Tectionic Model

New 1:50 Plan in 3D
Gallery

Chapter 5

- Reflection
-1:50 Plan & Section & 3D
-Construction Detail
- 1:20 Tectionic Model

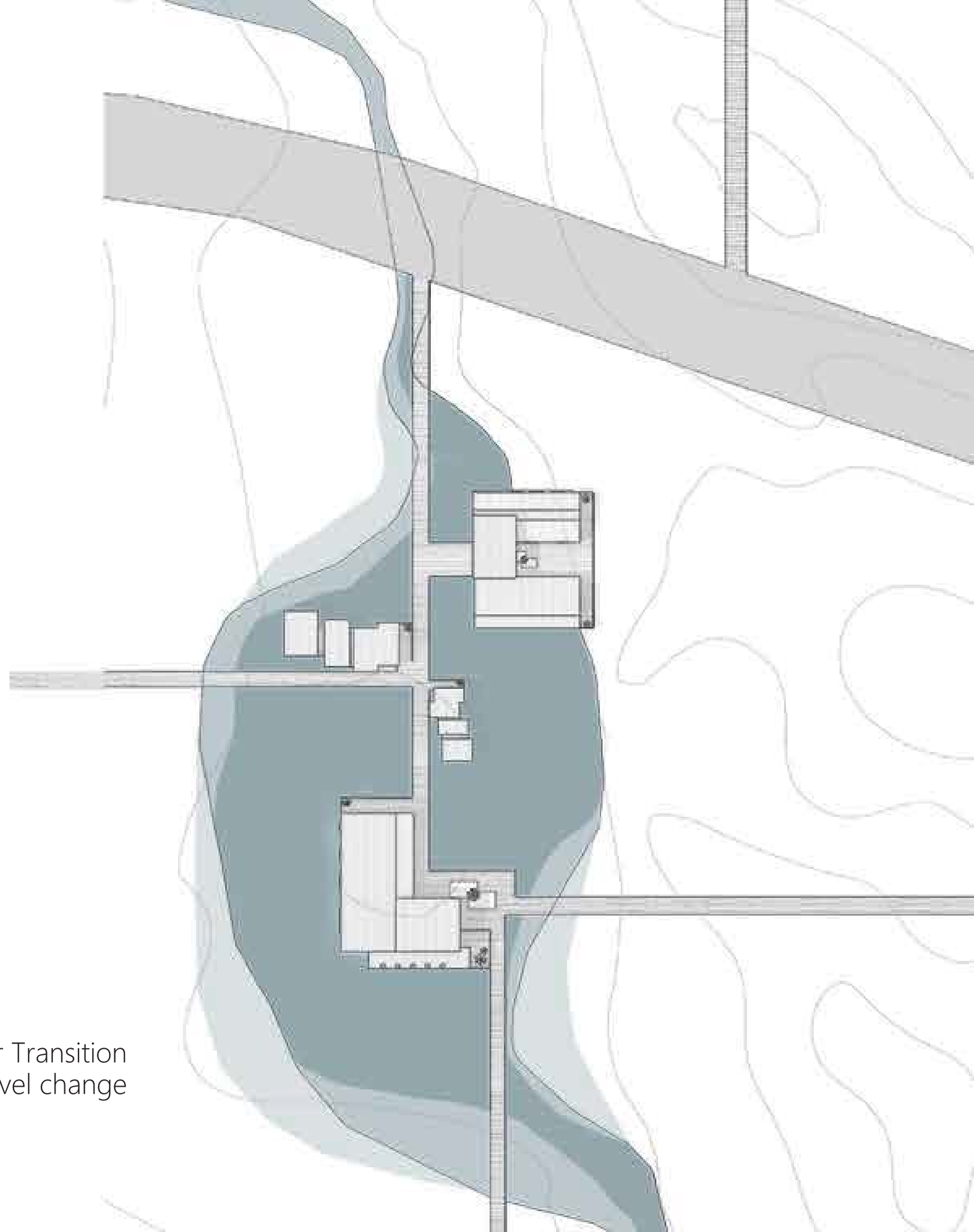
1_50 Models



Chapter 5

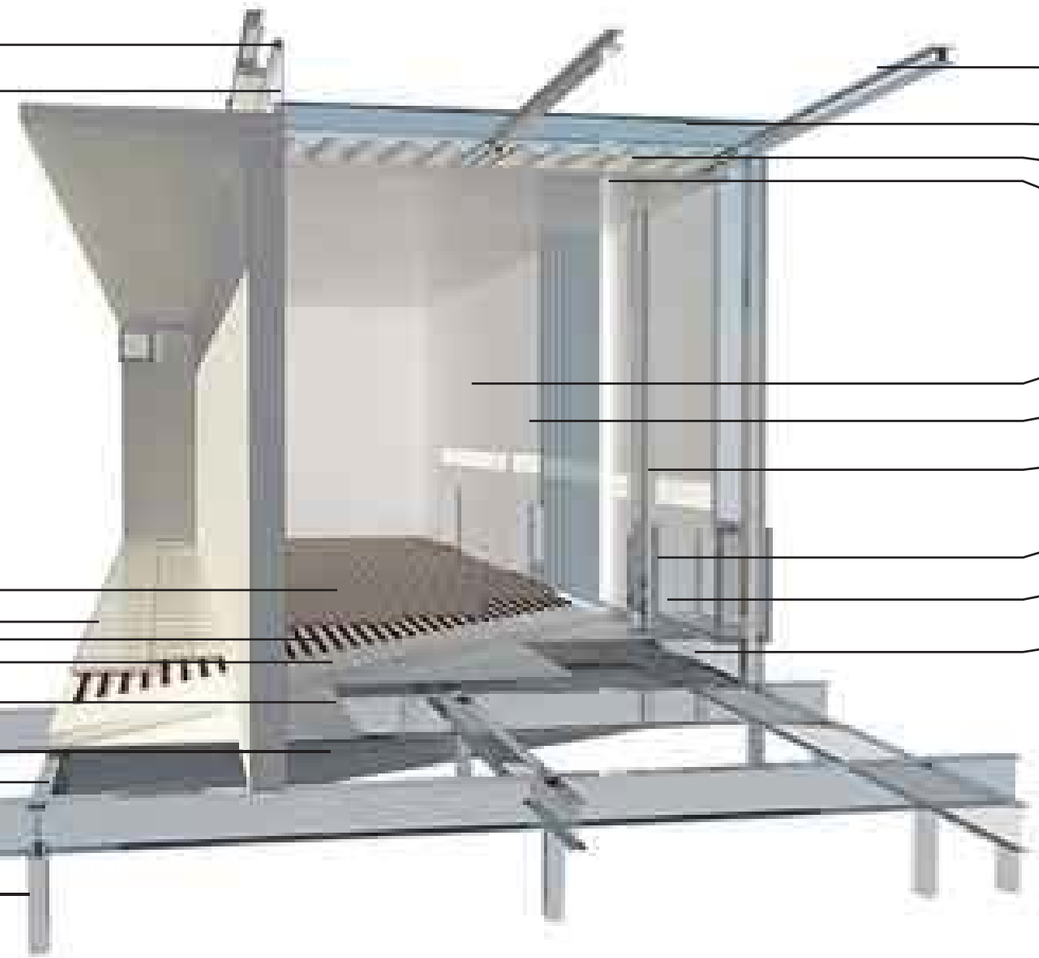
Chapter 5

- Reflection
-1:50 Plan & Section & 3D
-Construction Detail
- 1:20 Tectionic Model



Water Transition
Water level change

Construction

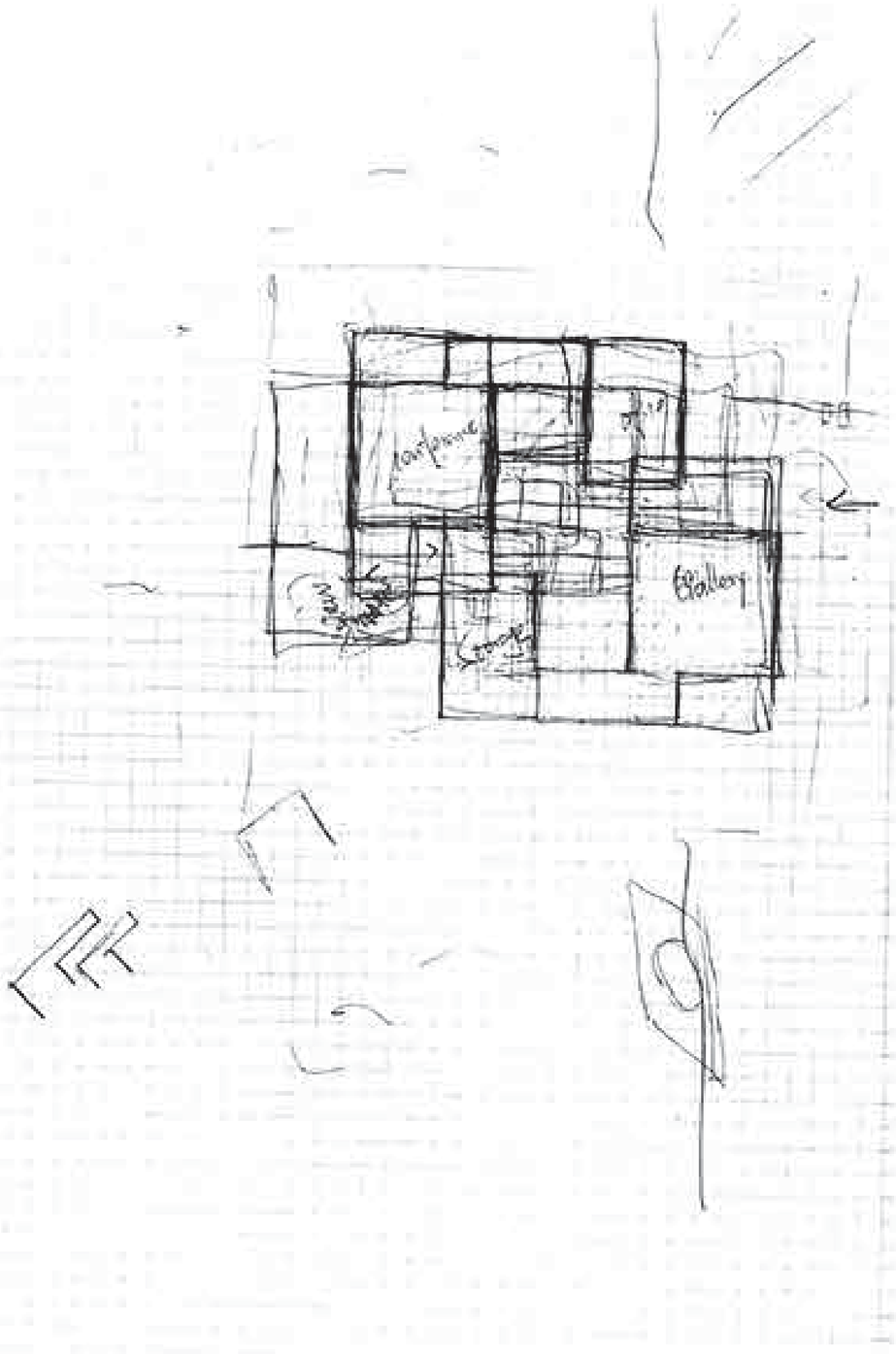


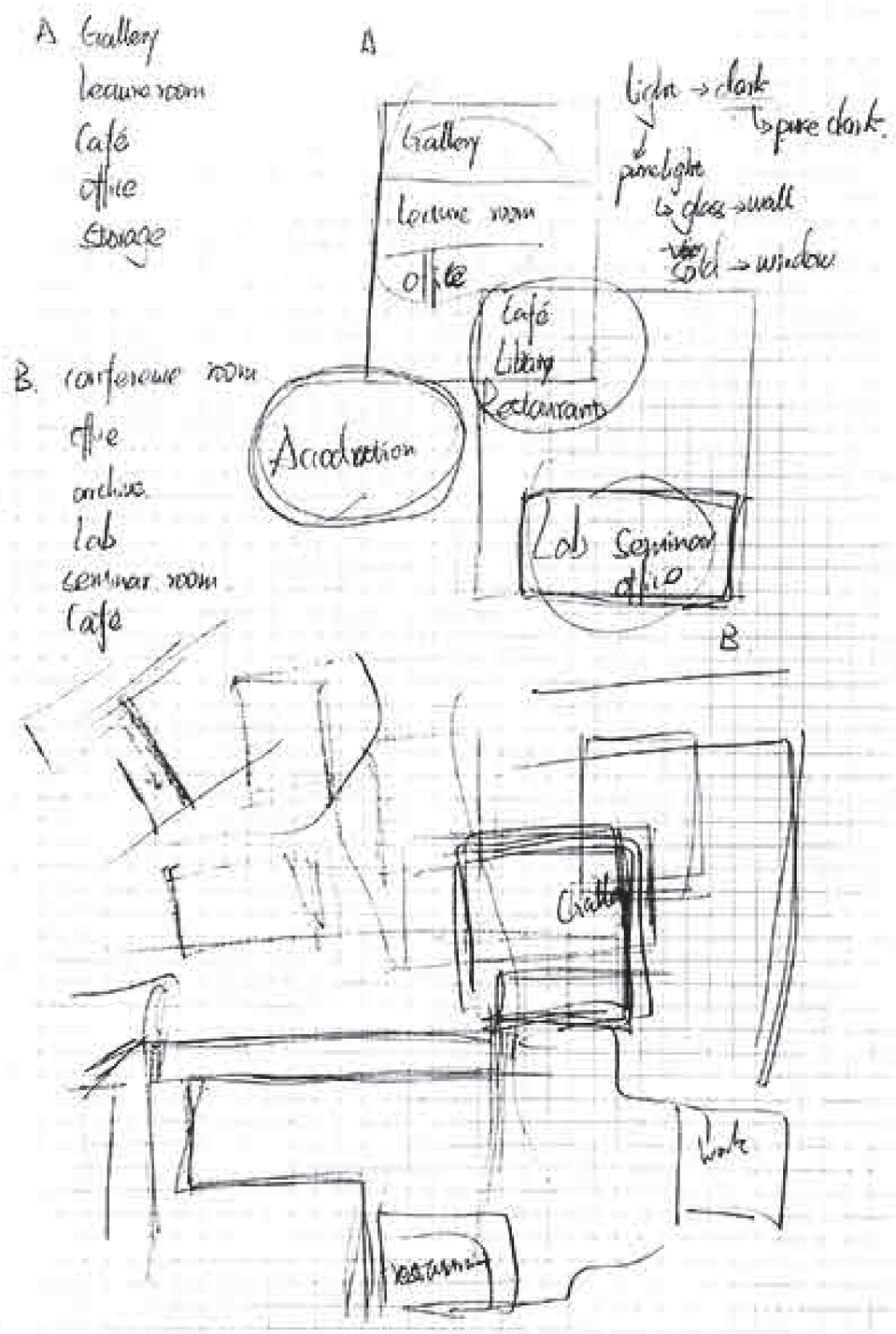
Chapter 5

Chapter 5

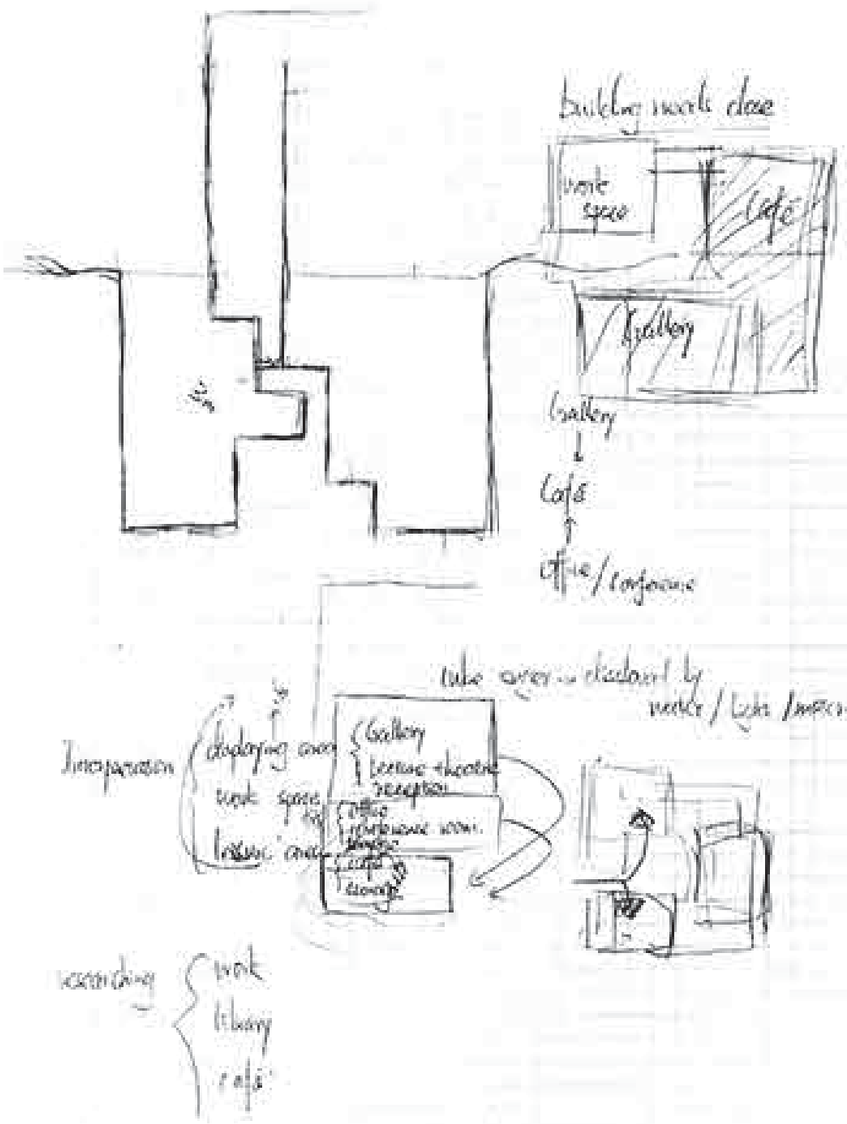
-Tectonic Model

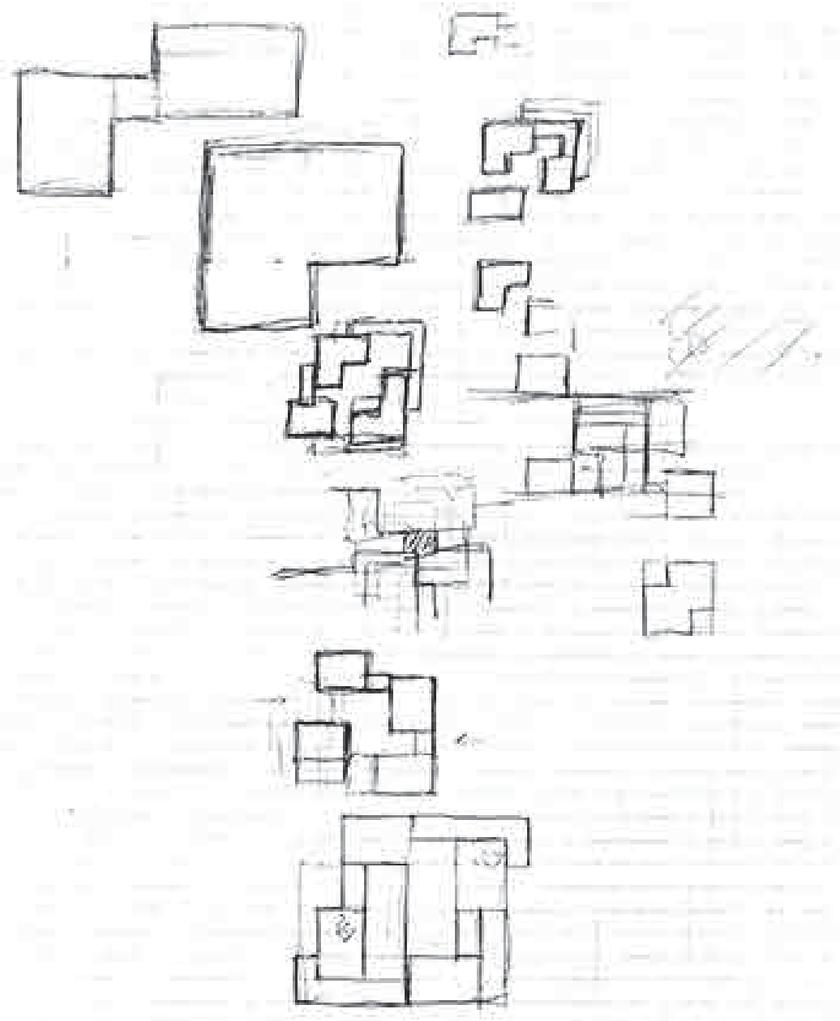
Appendix
-Sketches



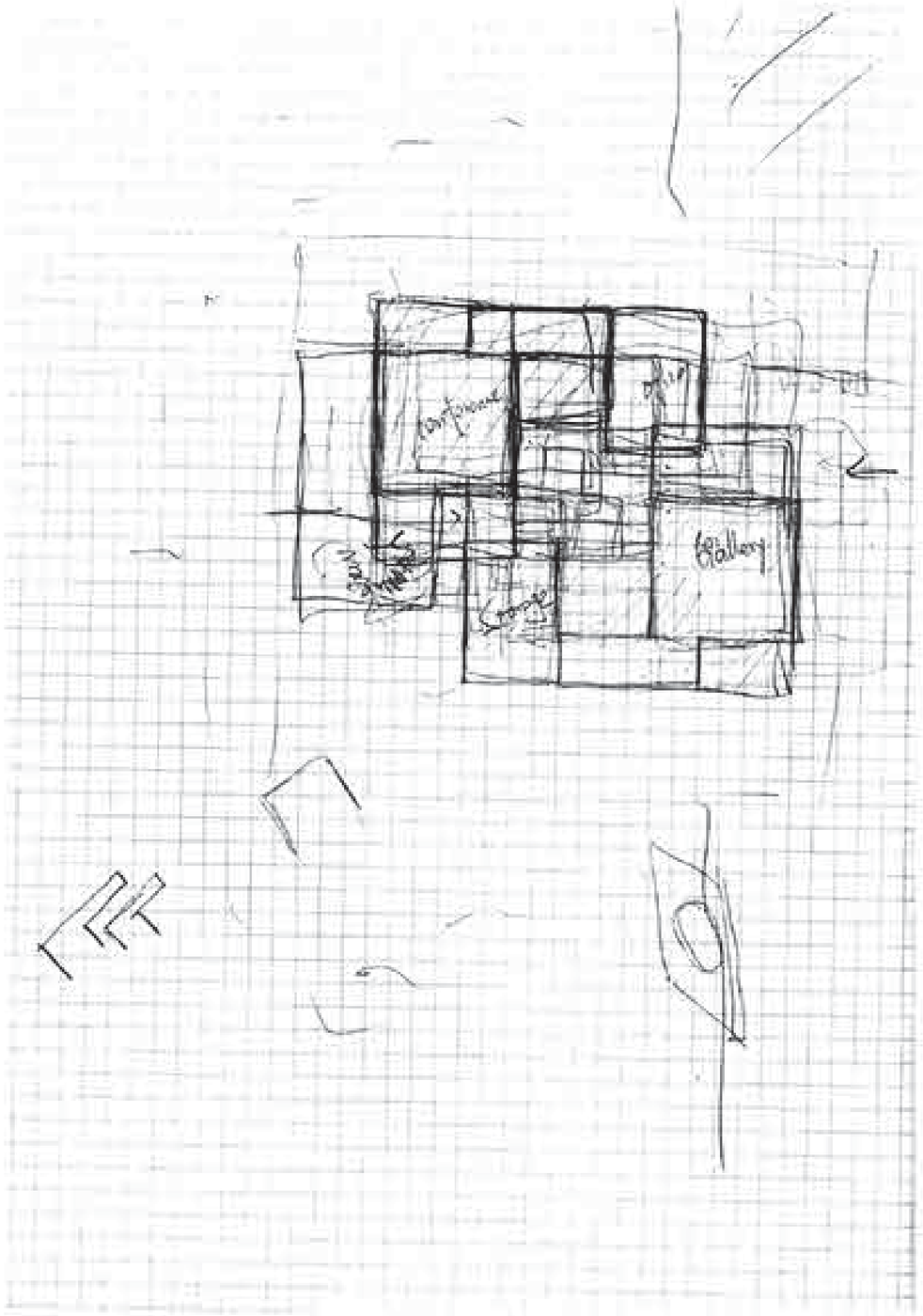


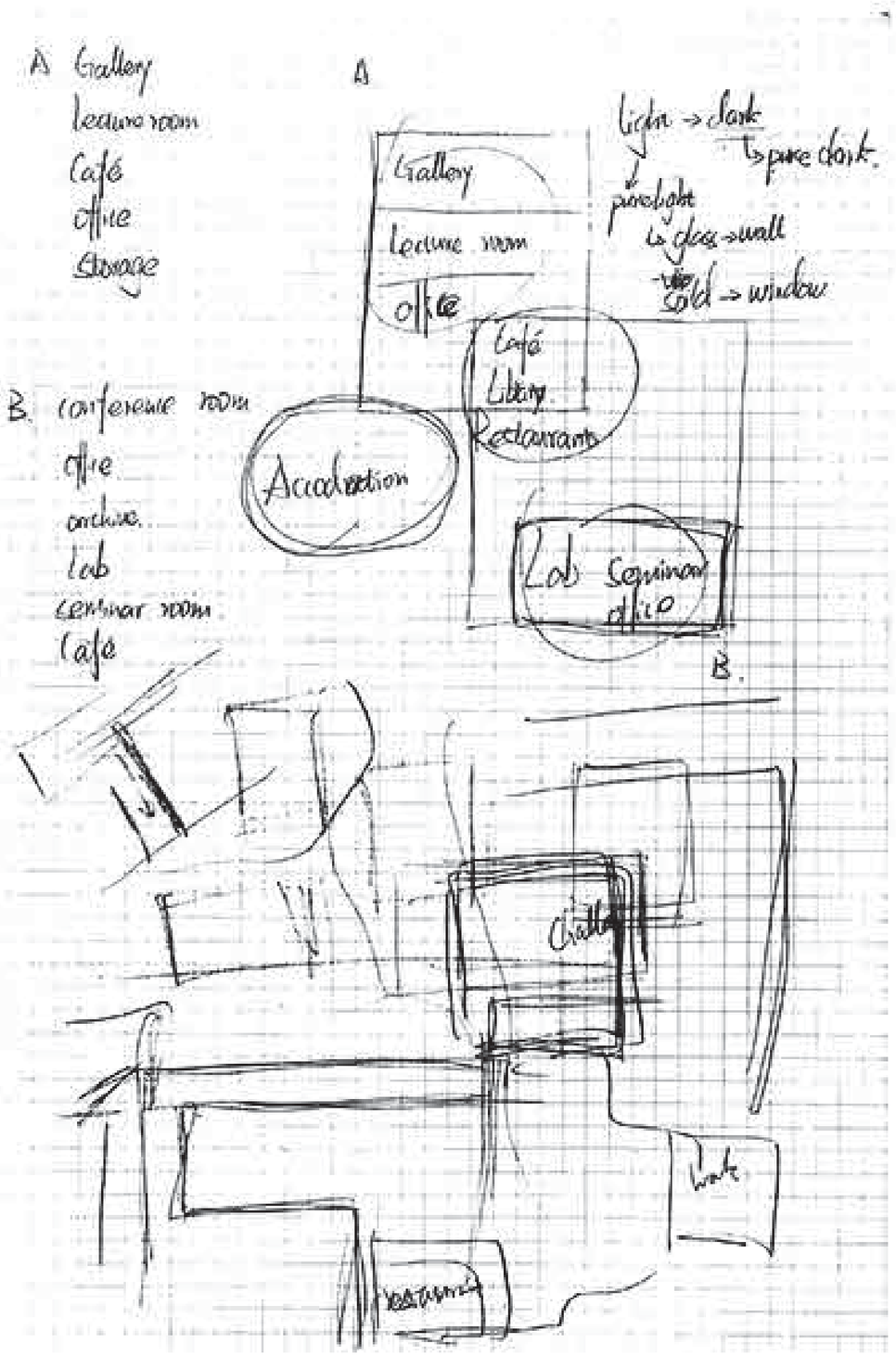
Appendix
-Sketches



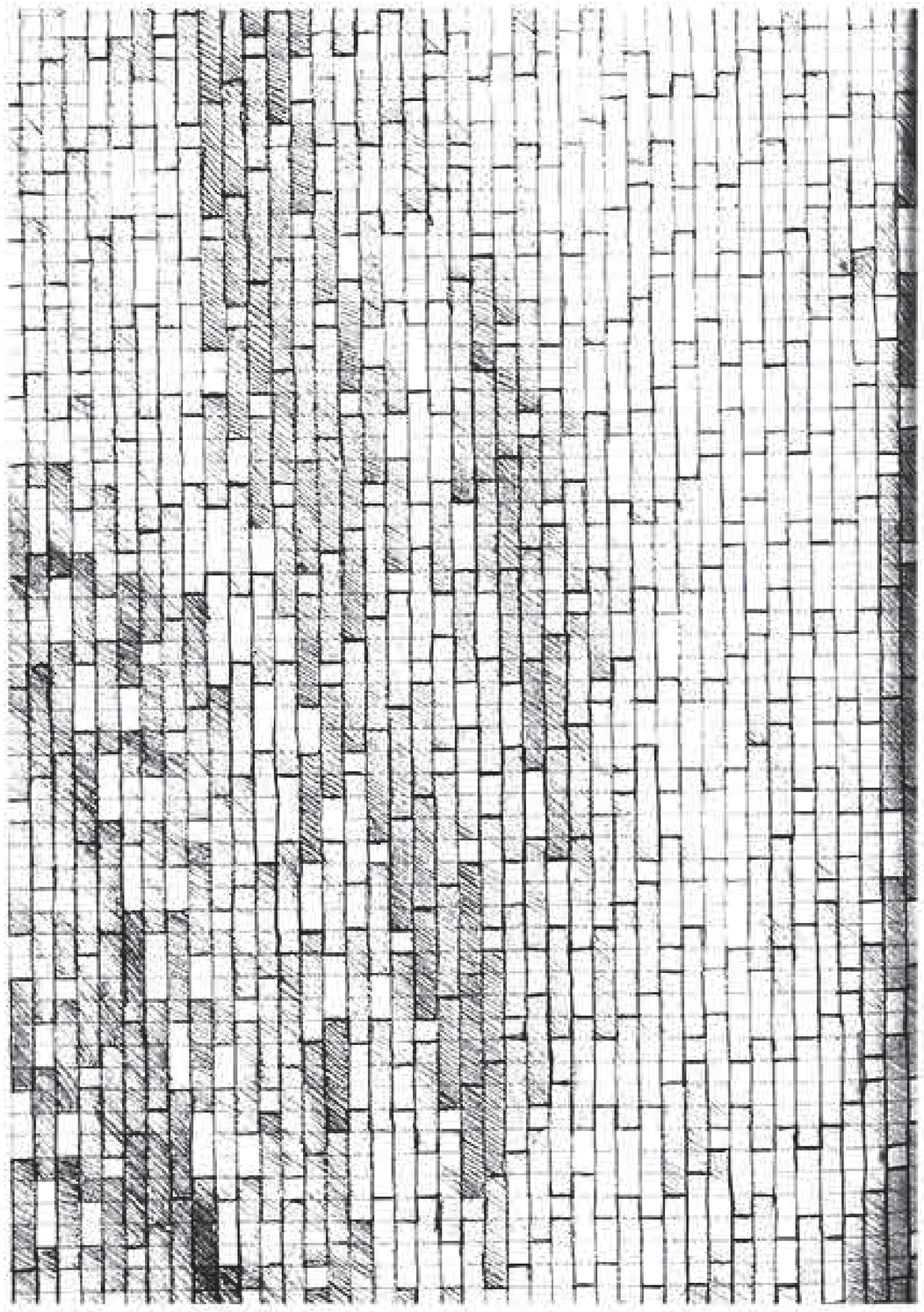


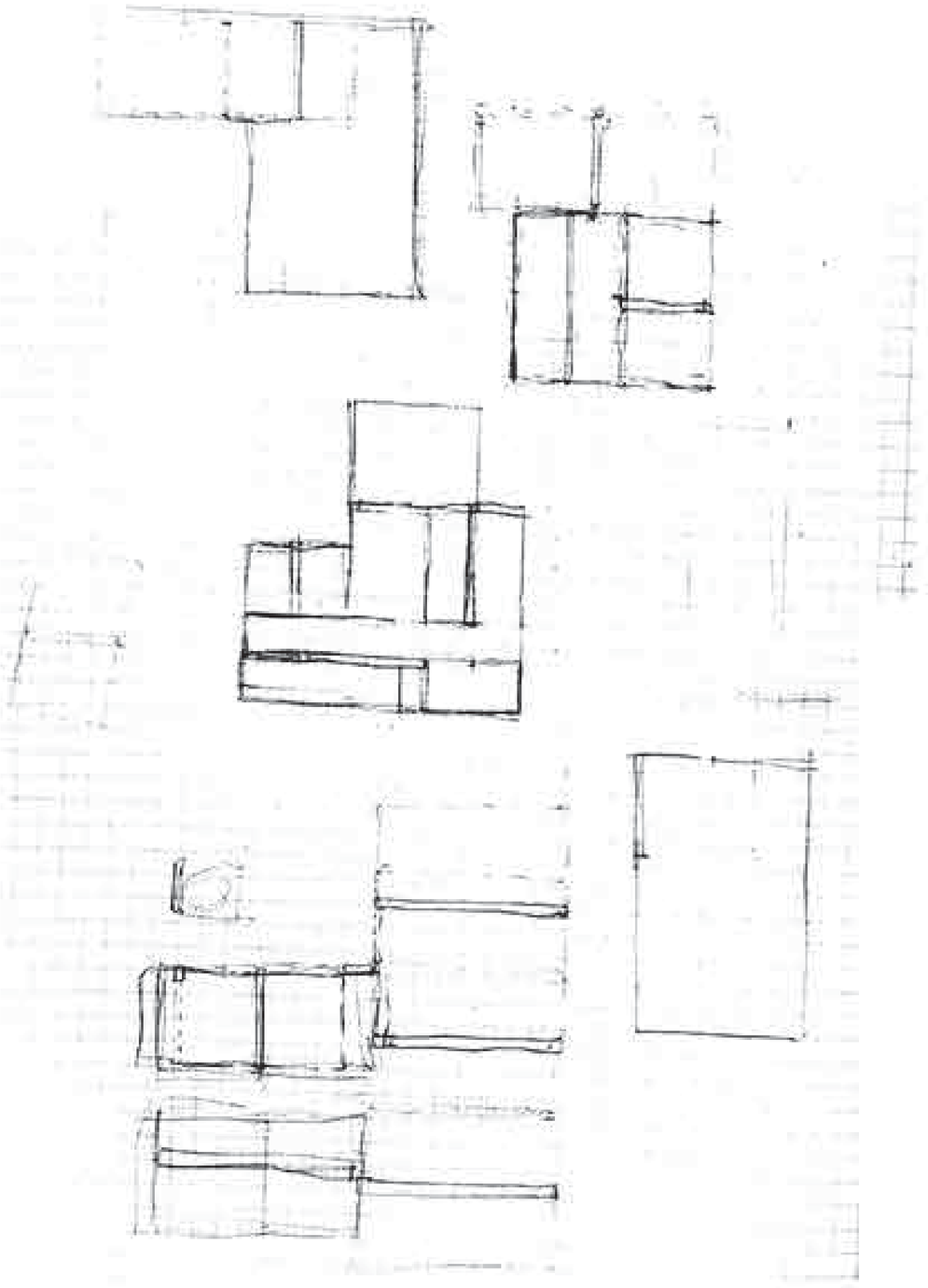
Appendix
-Sketches



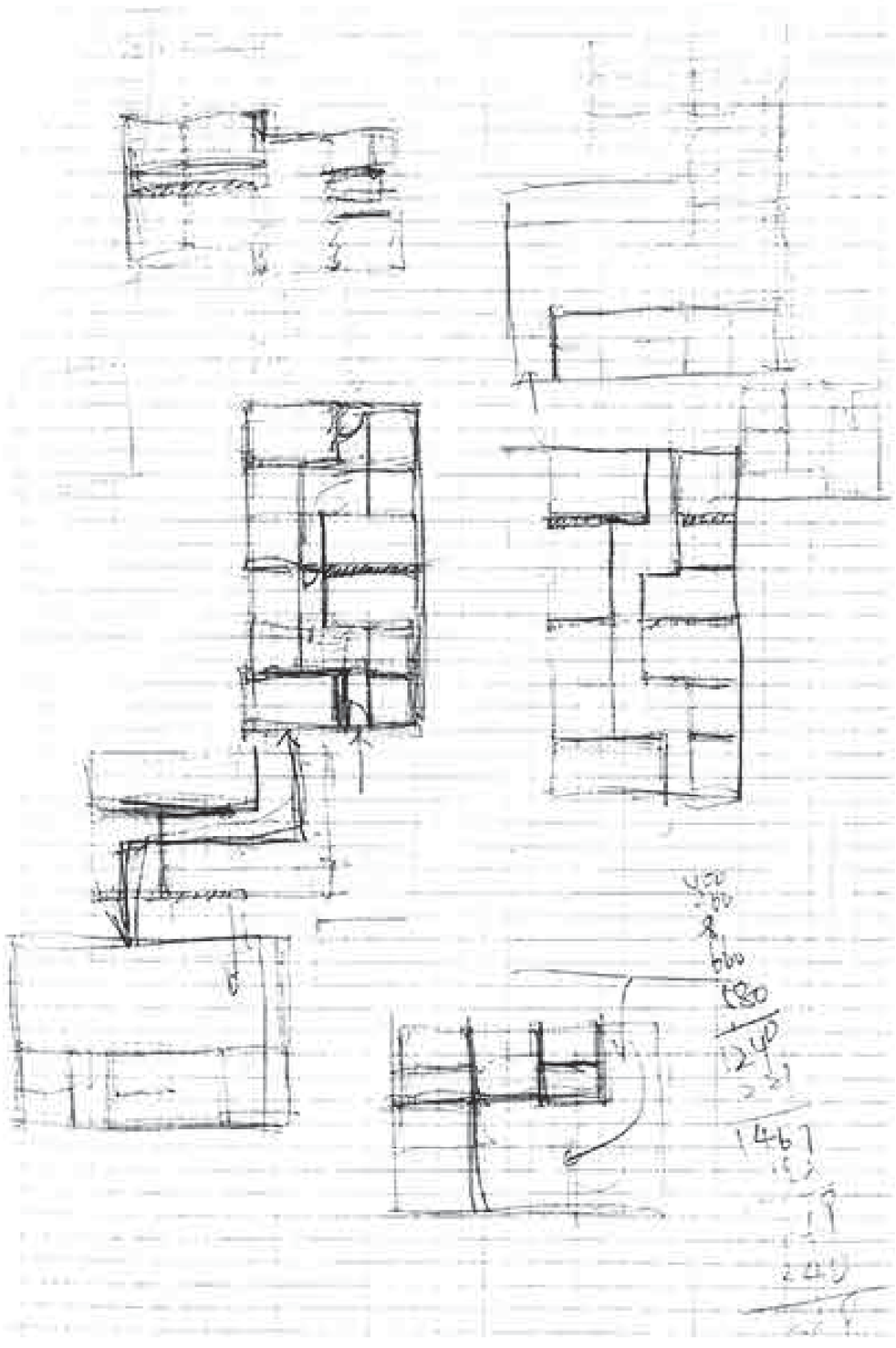


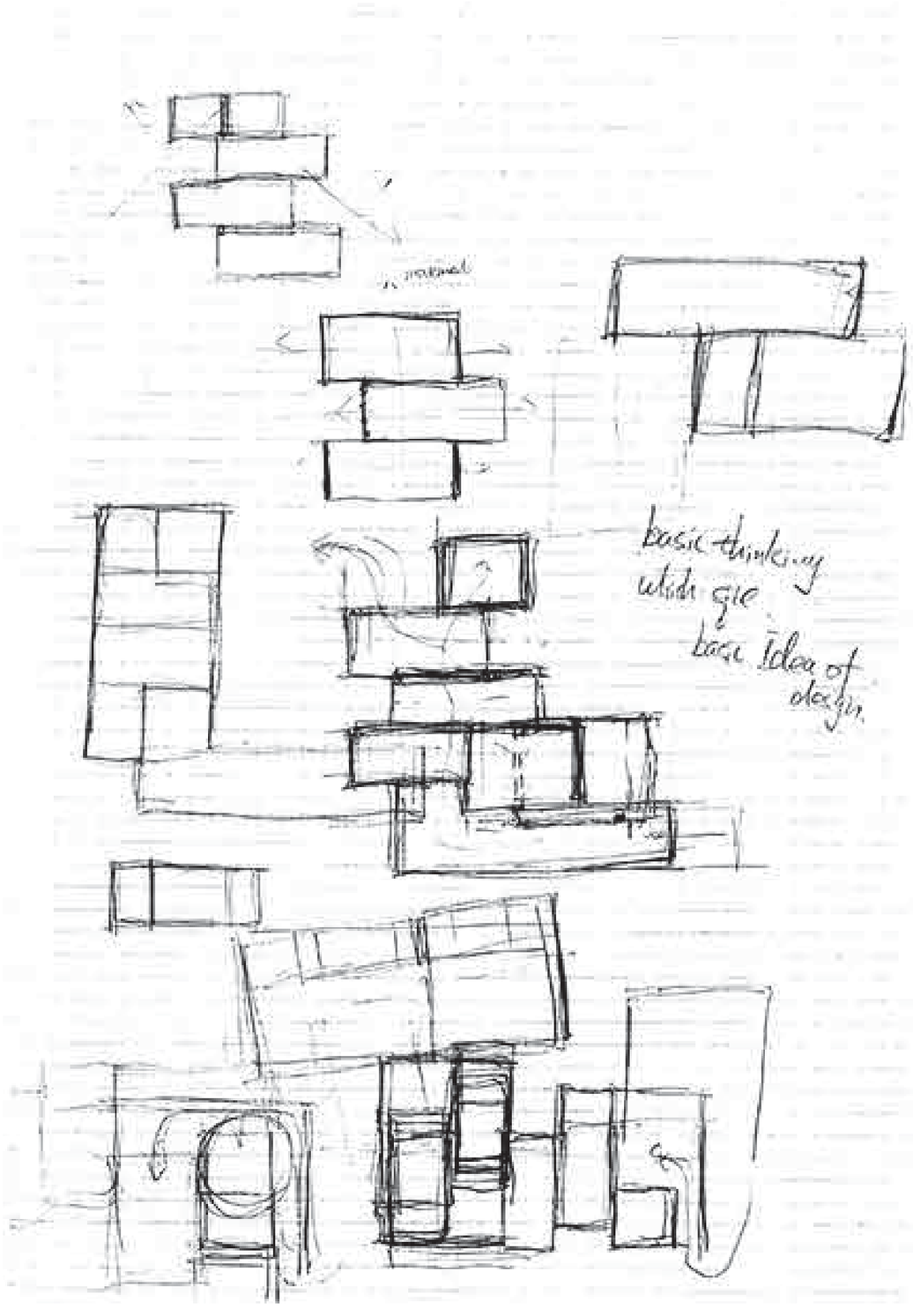
Appendix
-Sketches



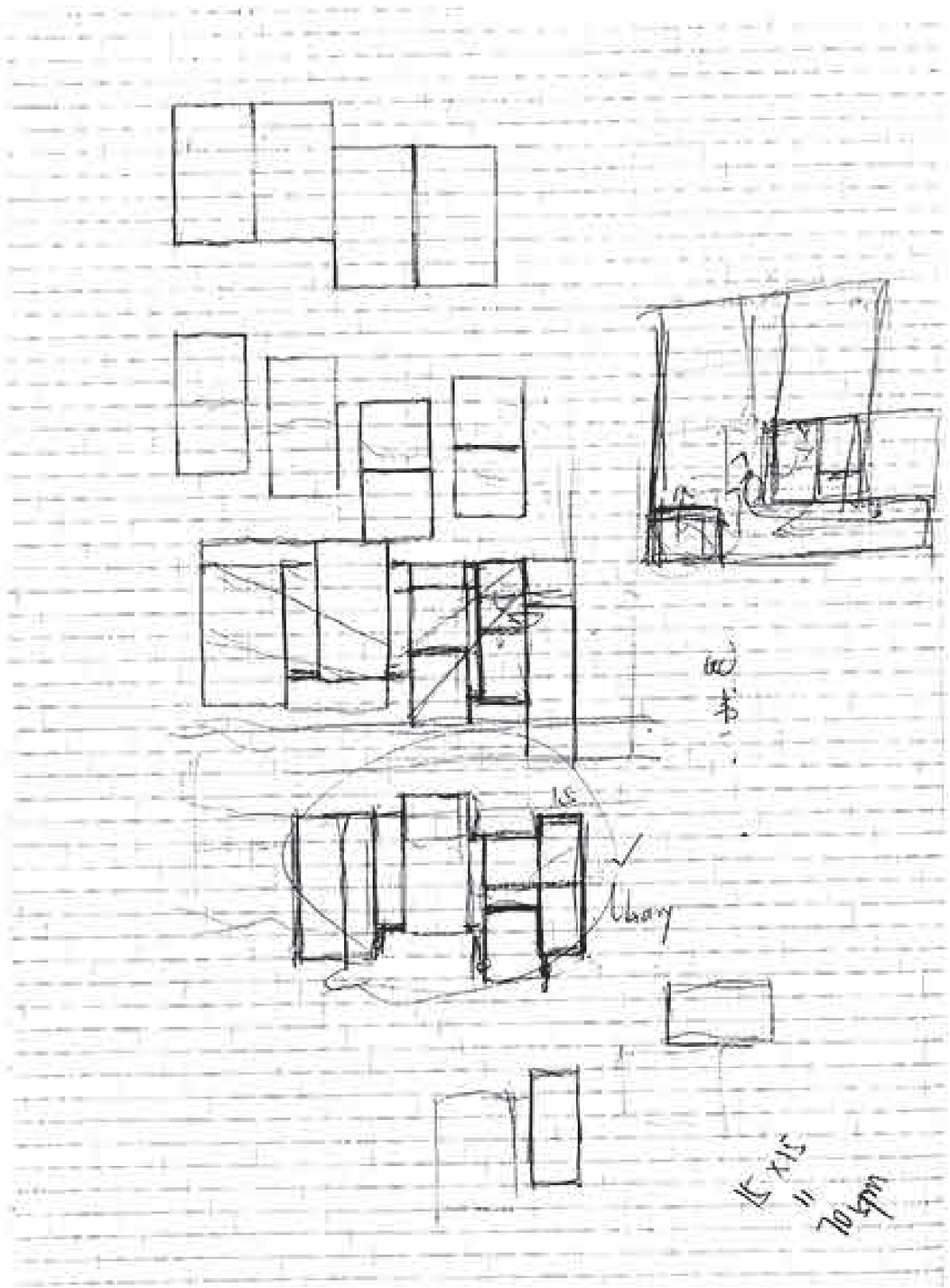


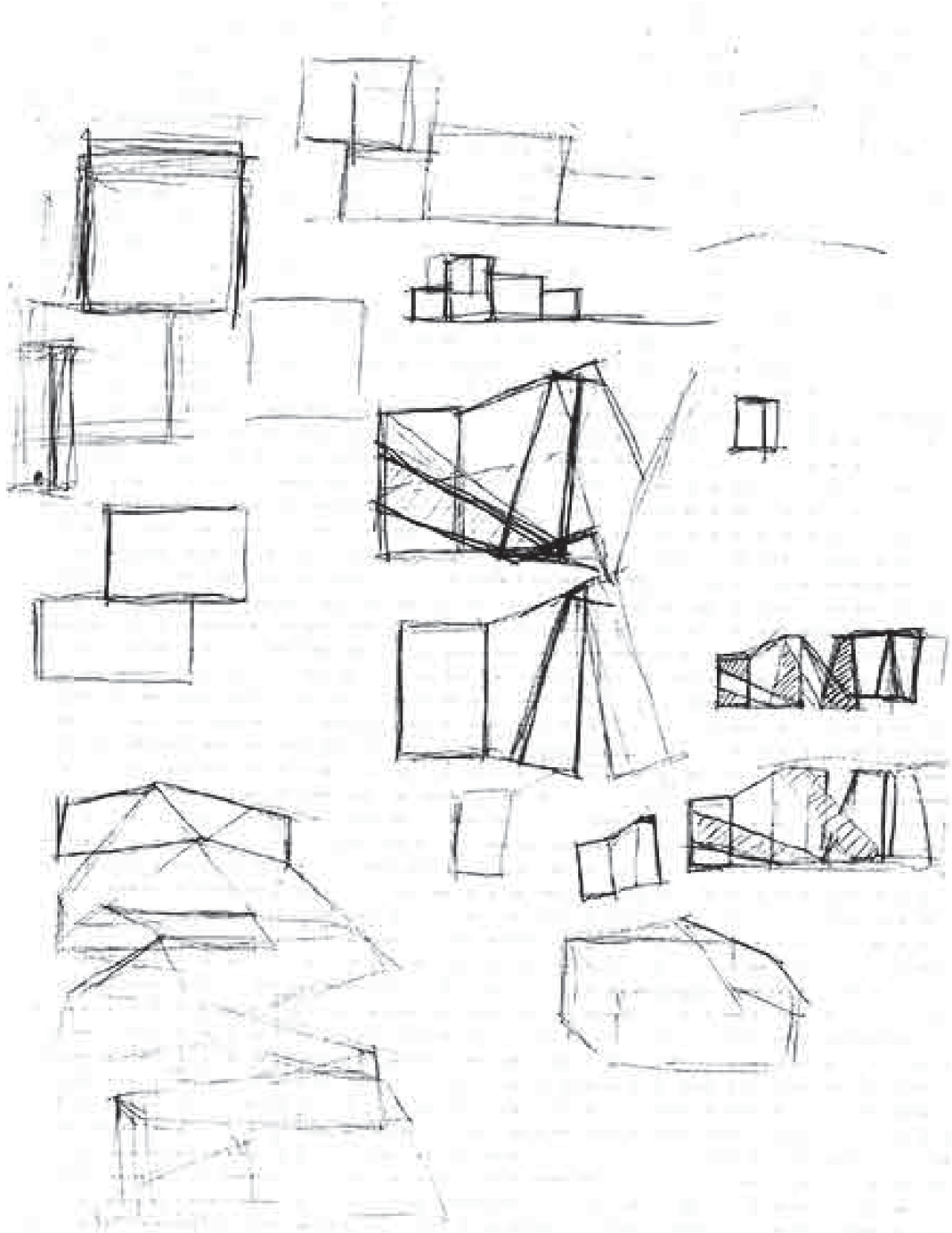
Appendix
-Sketches



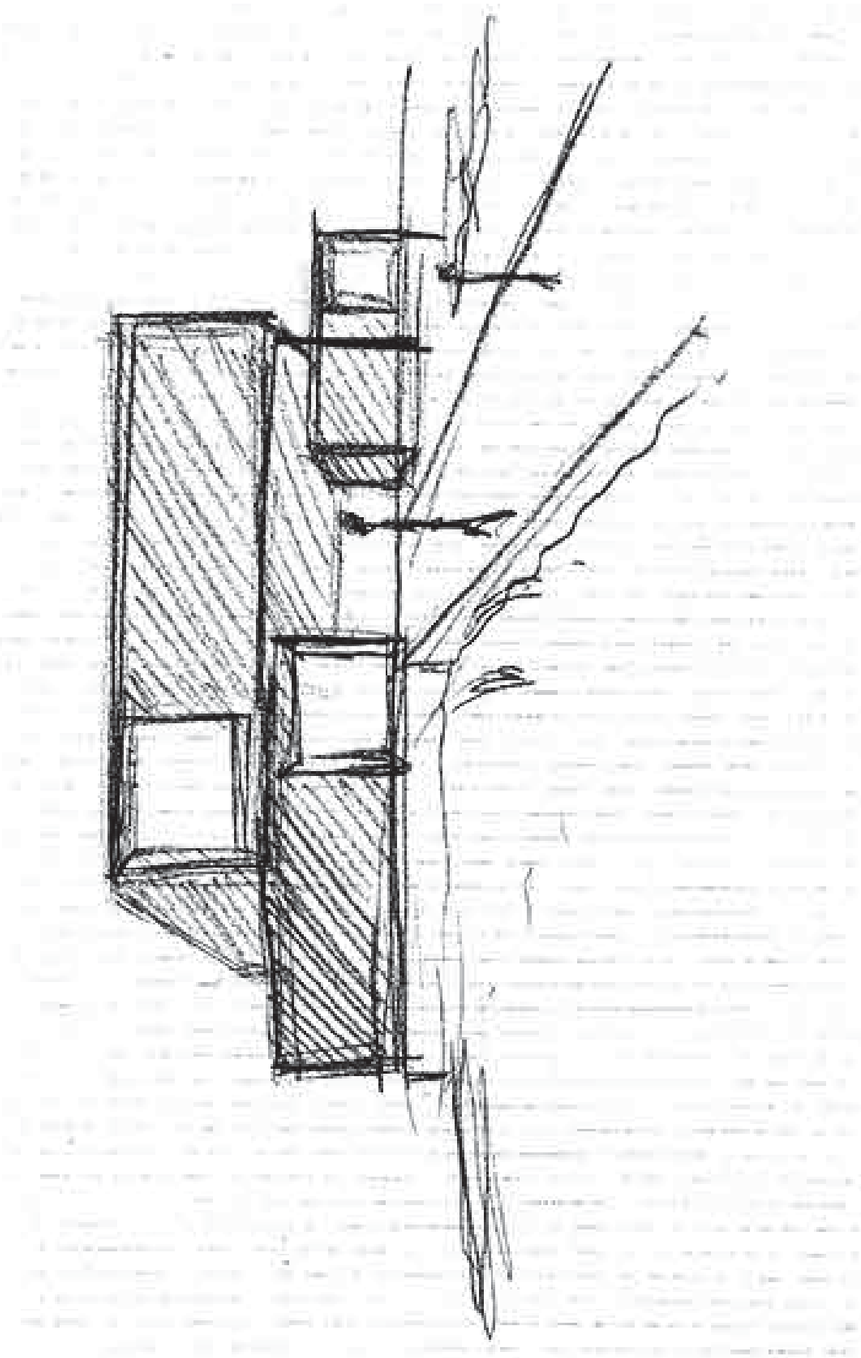


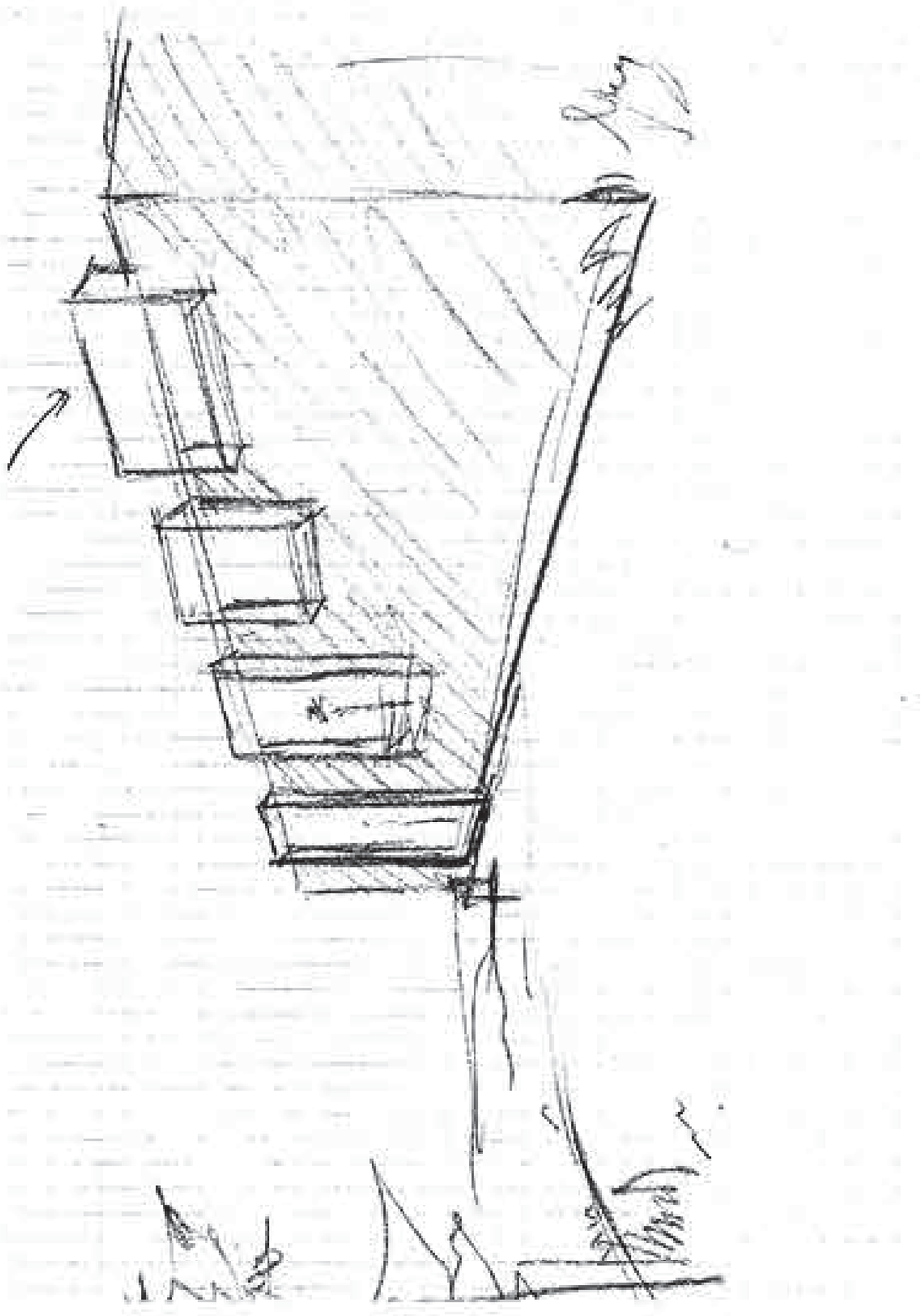
Appendix
-Sketches



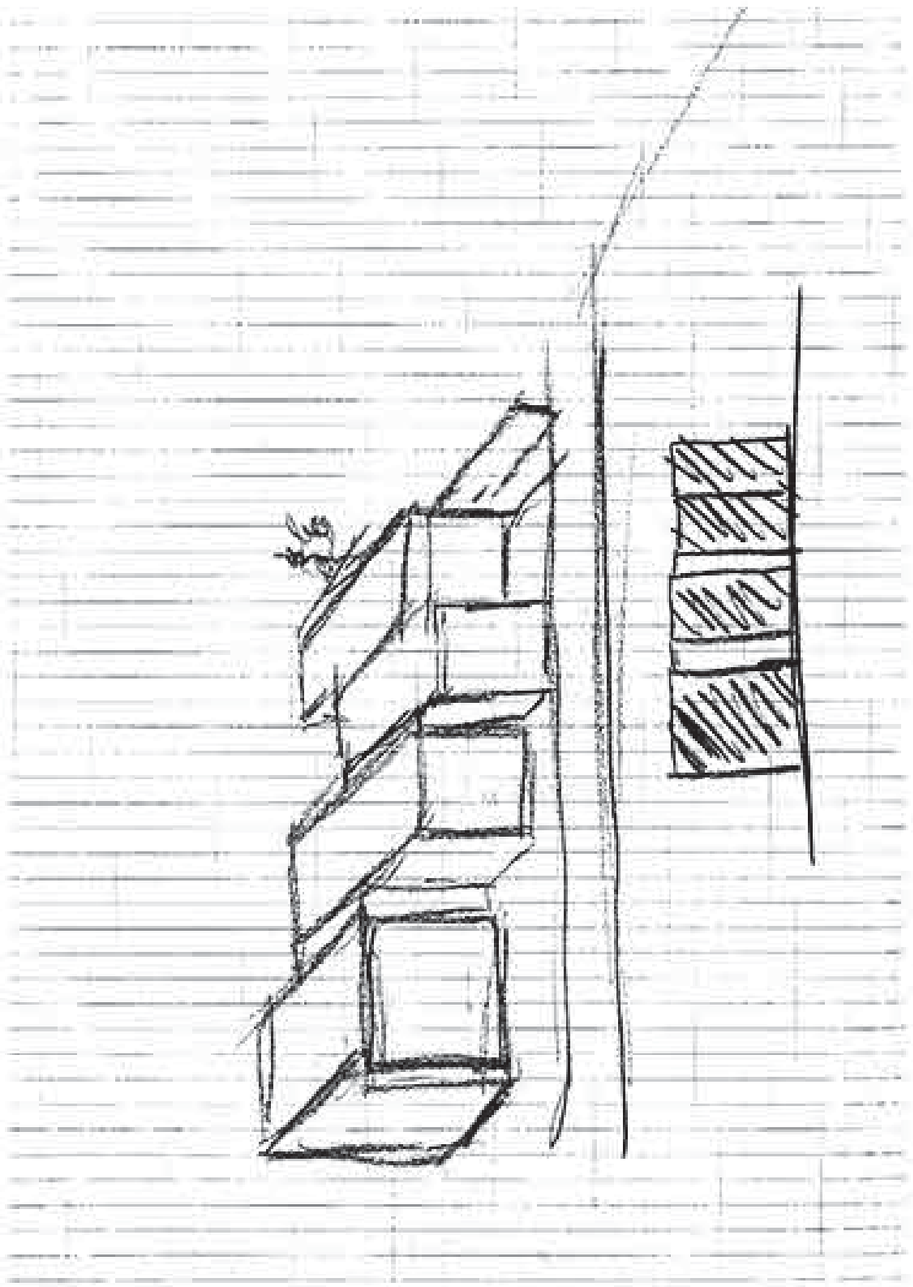


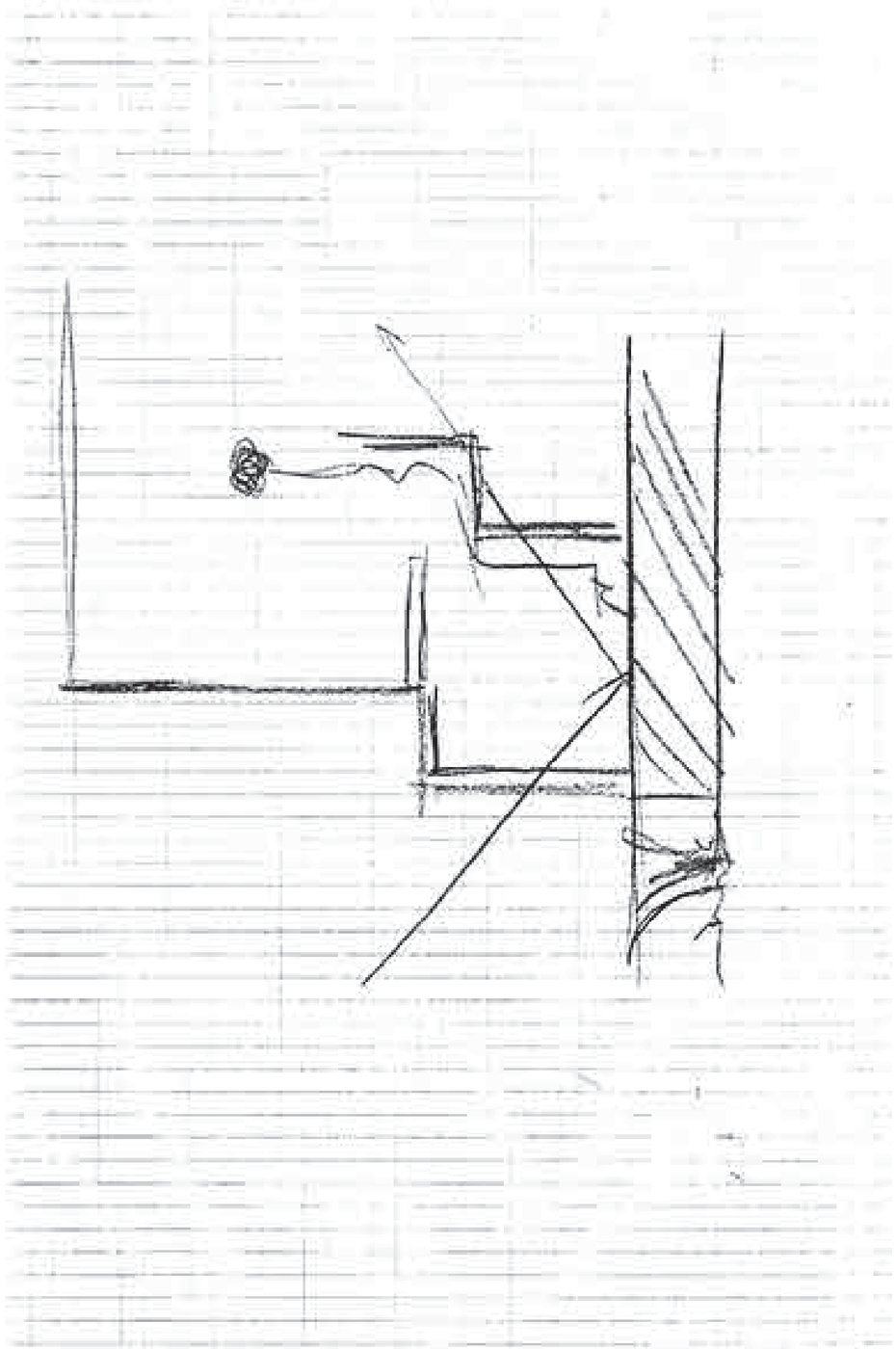
Appendix
-Sketches





Appendix
-Sketches





Appendix
-Sketches