



Pray for rain!

reconnecting living with its ecology

Introduction

Context

Problem Research

Intervention Research

Research Conclusion

Objective

Design

Water System

Building elements

Working and living activities

Development strategy

Conclusion

Introduction

Context

Problem Research

Intervention Research

Research Conclusion

Objective

Design

Water System

Building elements

Working and living activities

Development strategy

Conclusion

INTRODUCTION

Context

rain movie

INTRODUCTION

Context



Figure 4. Location of Cigondewah in Indonesia (Own illu.)

INTRODUCTION

Context

Since 1980,
international demand
for cheap textile

labor-intensive
fashion

migration occurs in
Cigondewah

Need of new
dwellings



INTRODUCTION

Context

Strong **fashion**
identity

Peri-urban



INTRODUCTION

Context



Work-live
environment

Peri-urban

Introduction

Context

Problem Research

Intervention Research

Research Conclusion

Objective

Design
Water System

Building elements

Working and living activities

Development strategy

Conclusion

INTRODUCTION

Problem statement



INTRODUCTION
Problem statement

Polluted river



INTRODUCTION
Problem statement

Polluted ricefields



INTRODUCTION

Problem statement

Polluted ground water

Bleaching, coloring, printing, cooking, dressing, and finishing

The chemical waste substances are mixed with water are color pigments, heavy metal (Pb, Cd, As, Cr, Cu, Zn), and halogenated hydrocarbons

Damage the urinary system (kidney), blood system (anemia), and respiration system (lungs diseases) and can induce bone fragility

(Kementrian Lingkungan Hidup, 2005)



INTRODUCTION
Problem statement

**Bad infrastructure
Groundwater
extraction**



INTRODUCTION
Problem statement

**Rainwater run off
Flooding**



INTRODUCTION
Problem statement

How could all of this happen?

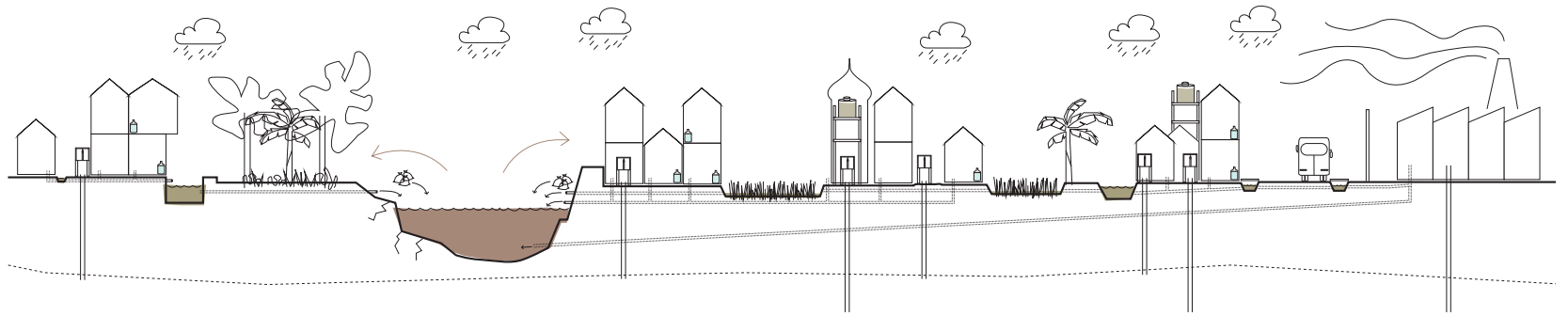
INTRODUCTION

Problem statement

Kampung Naga



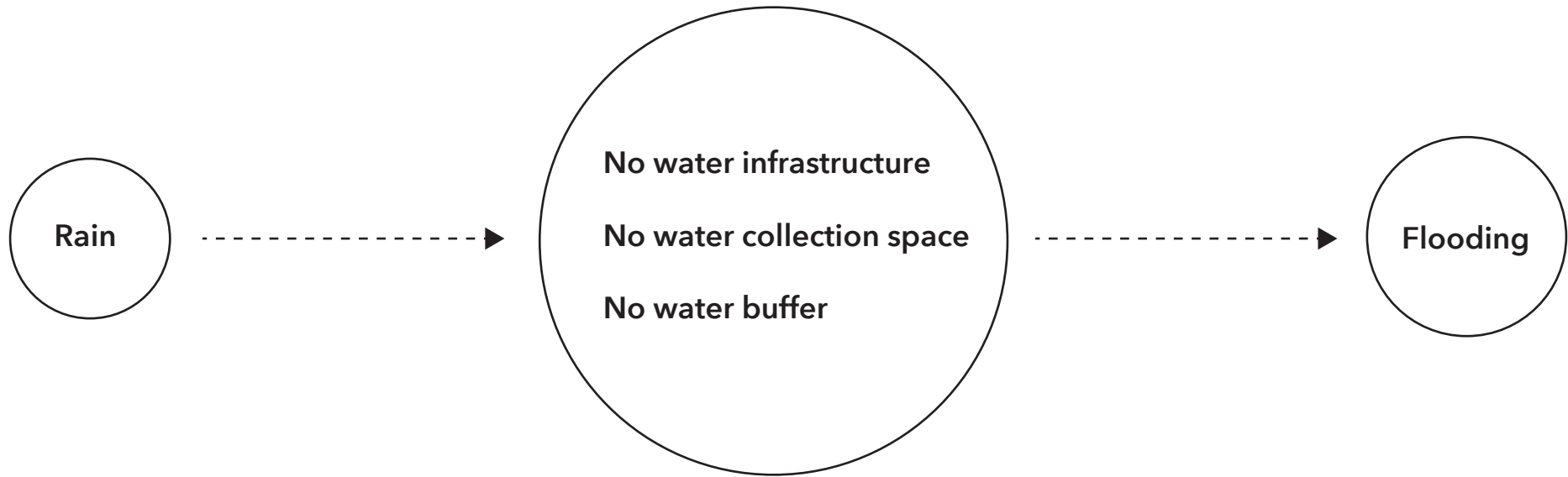
Kampung Cigondewah



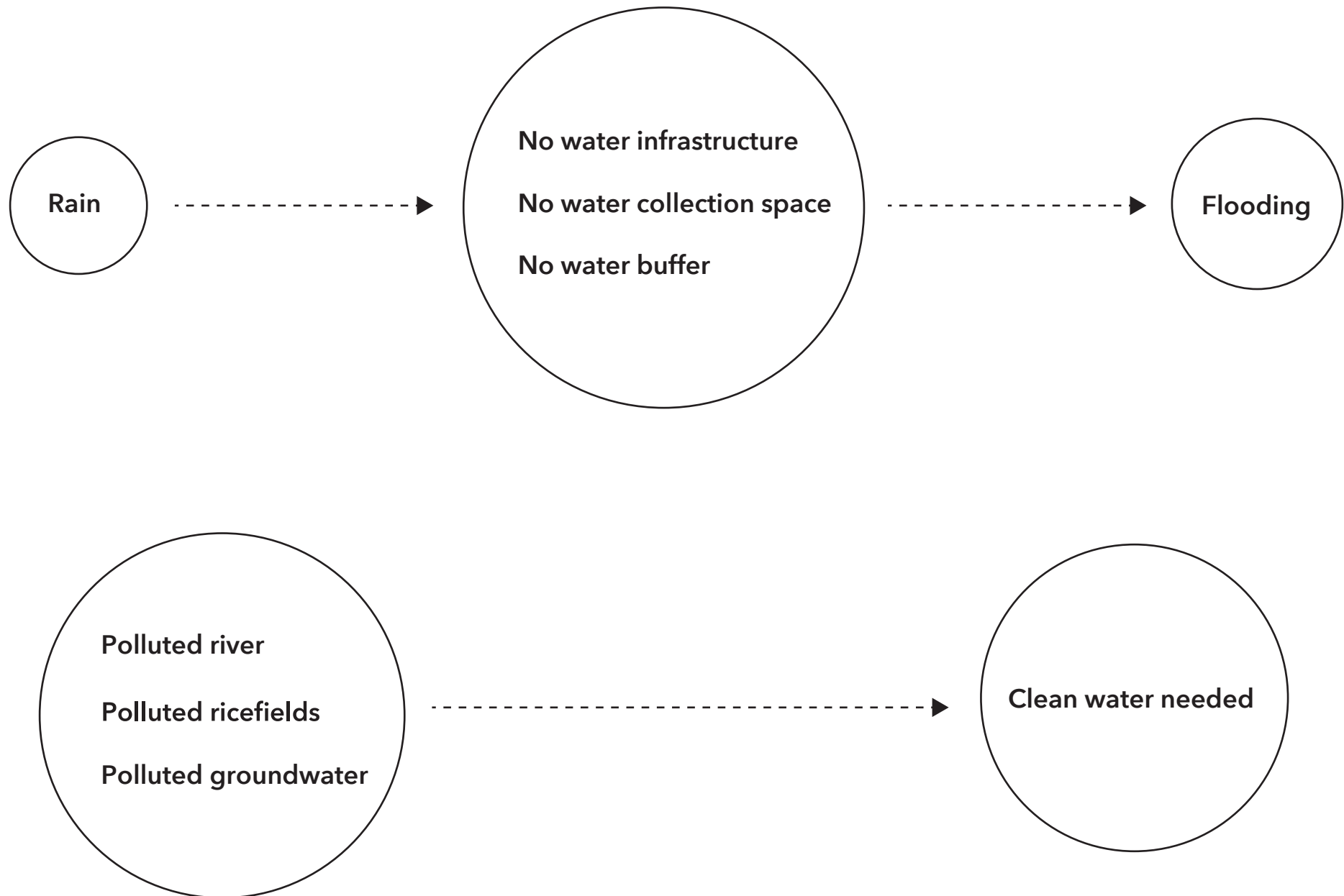
Kampung Tamansari



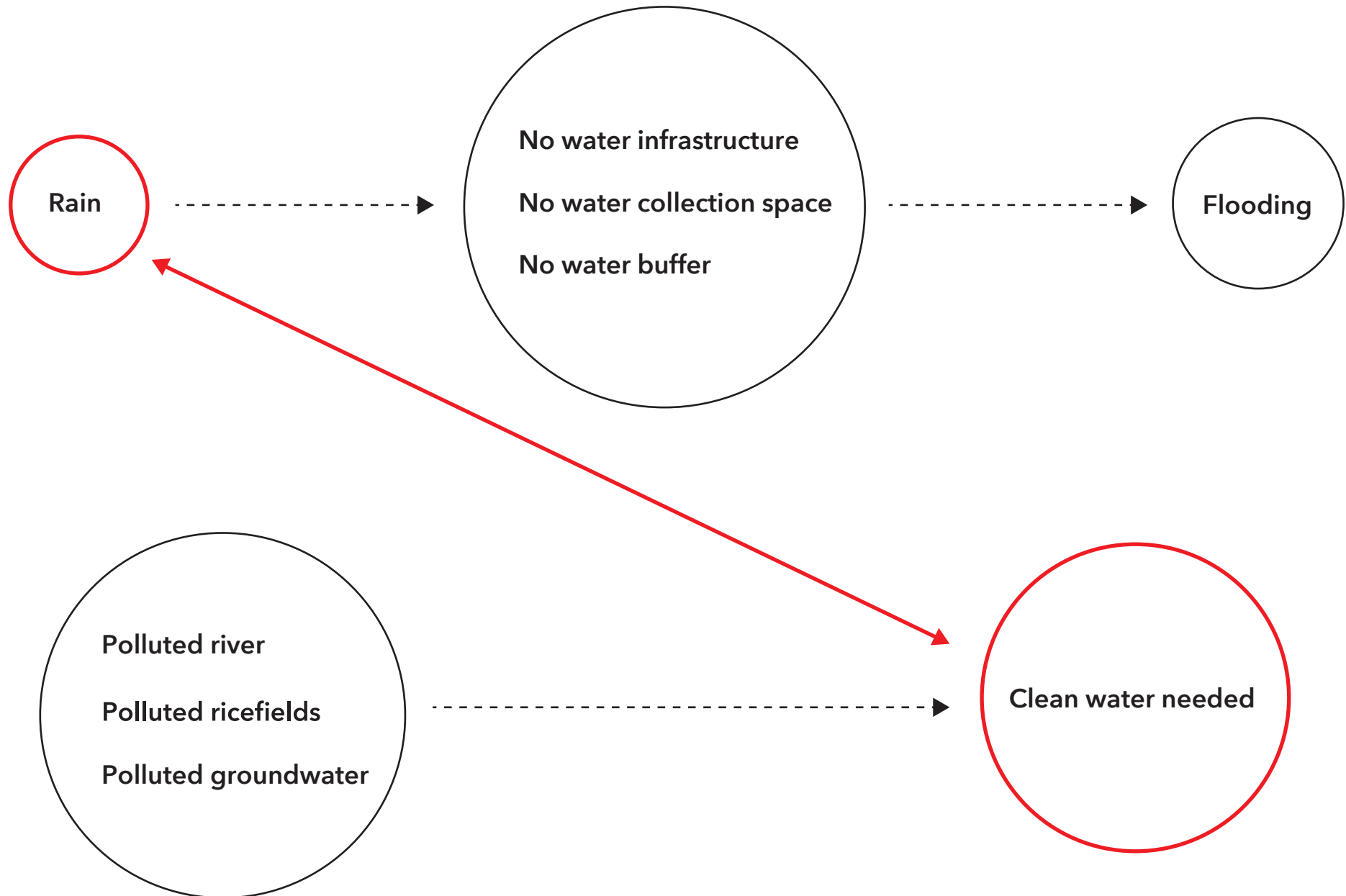
INTRODUCTION
Problem statement



INTRODUCTION
Problem statement



INTRODUCTION
Problem statement



Introduction

Context

Problem Research

Intervention Research

Research Conclusion

Objective

Design

Water System

Building elements

Working and living activities

Development strategy

Conclusion

INTRODUCTION

Intervention



Workers

1500 people x Rp. 223.200/person/year

Is Rp 334.800.000 (**22.490 euros**) per year

With water usage of **175680 hL**



Villagers

742 families : 2968 people x Rp. 330.000/person/year

Is Rp. 979.440.000 (**65.792 euros**) per year

With water usage of **890400 hL**



Total

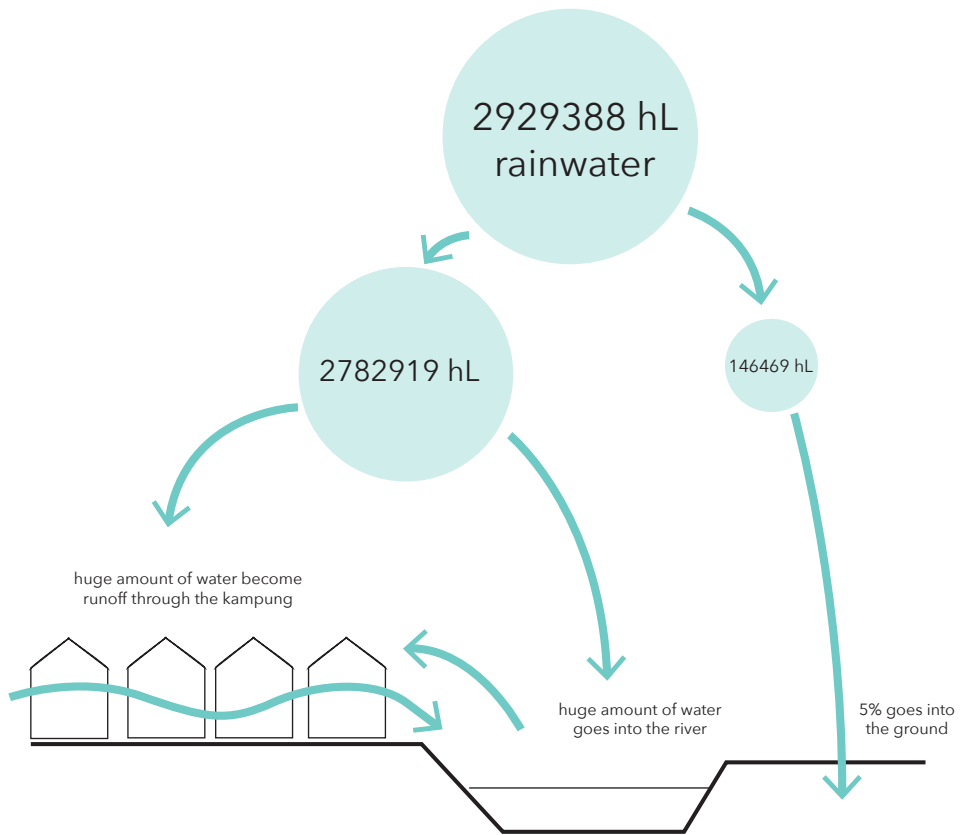
Water usage for Cigondewah per year is **1066080 hL**

With an expense of **Rp. 1.314.240.000 (88.282 euros)** per year

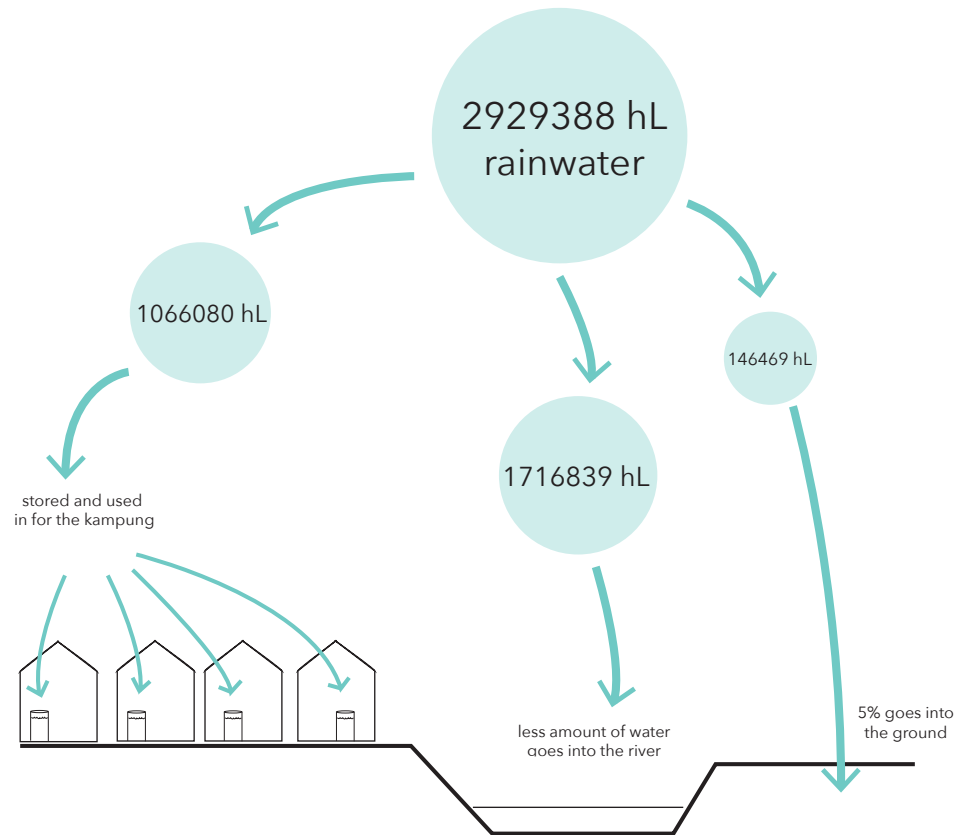
INTRODUCTION

Intervention

Current situation - 2017



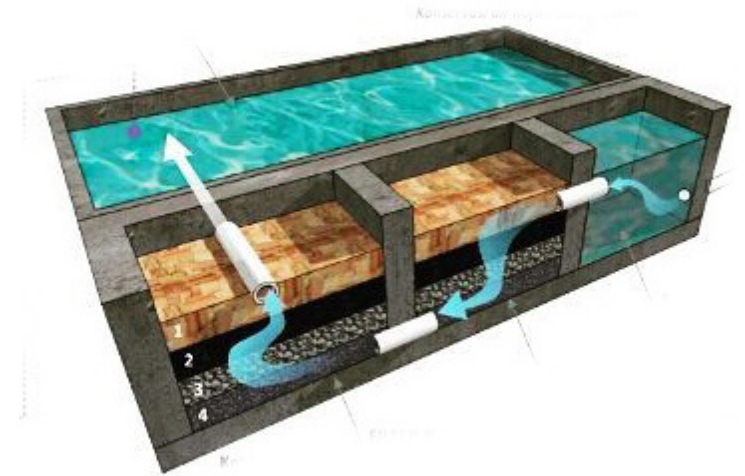
Future situation - 2027 (replacing all water resources with rainwater)



INTRODUCTION

Intervention

Filtering the water



Introduction

Context

Problem Research

Intervention Research

Research Conclusion

Objective

Design
Water System

Building elements

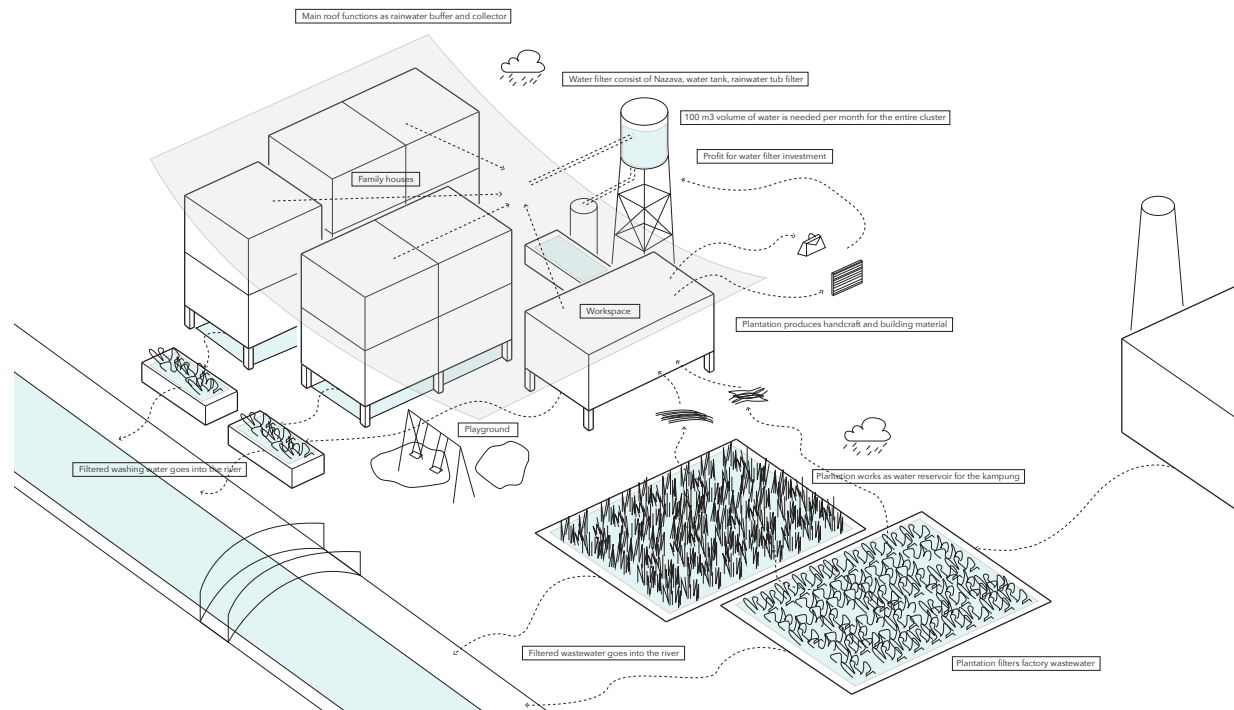
Working and living activities

Development strategy

Conclusion

INTRODUCTION

Research conclusion



The water system has to be able to:

- buffer the rainwater
- filter the rainwater,
- collect the rainwater,
- transport the rainwater,
- keep the water balance in the nature

Introduction

Context

Problem Research

Intervention Research

Research Conclusion

Objective

Design

Water System

Building elements

Working and living activities

Development strategy

Conclusion

INTRODUCTION

Objective

The objective of this project is to meet **the need of the dwellings** and use this as a tool to provide a solution to deal with the **water challenges**.



Introduction

Context

Problem Research

Intervention Research

Research Conclusion

Objective

Design

Water System

Building elements

Working and living activities

Development strategy

Conclusion

DESIGN

Water System



Dirty

Clean

Holy

DESIGN

Water System

Calculation

Water need

Factory workers, handcraft workers, families

Drinking, washing, flushing, cleaning

Water supply

Annual rainfall

Roof surface

Rain is gain

rainfoundation.org

Water reservoir

1248 m³/year

104 m³/month

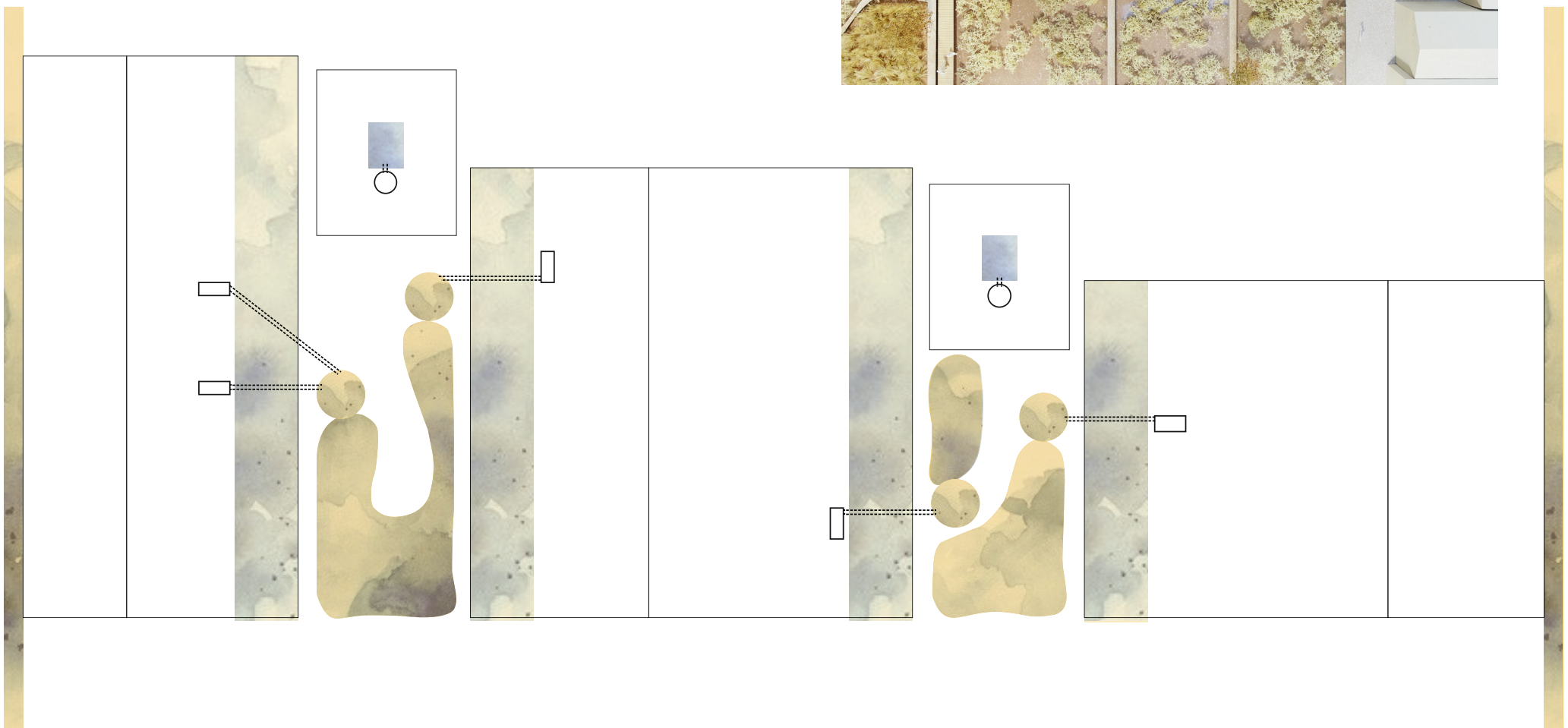
104000 l/month

Water reservoir : 15m x 2m x 2m

Water reserve for one month

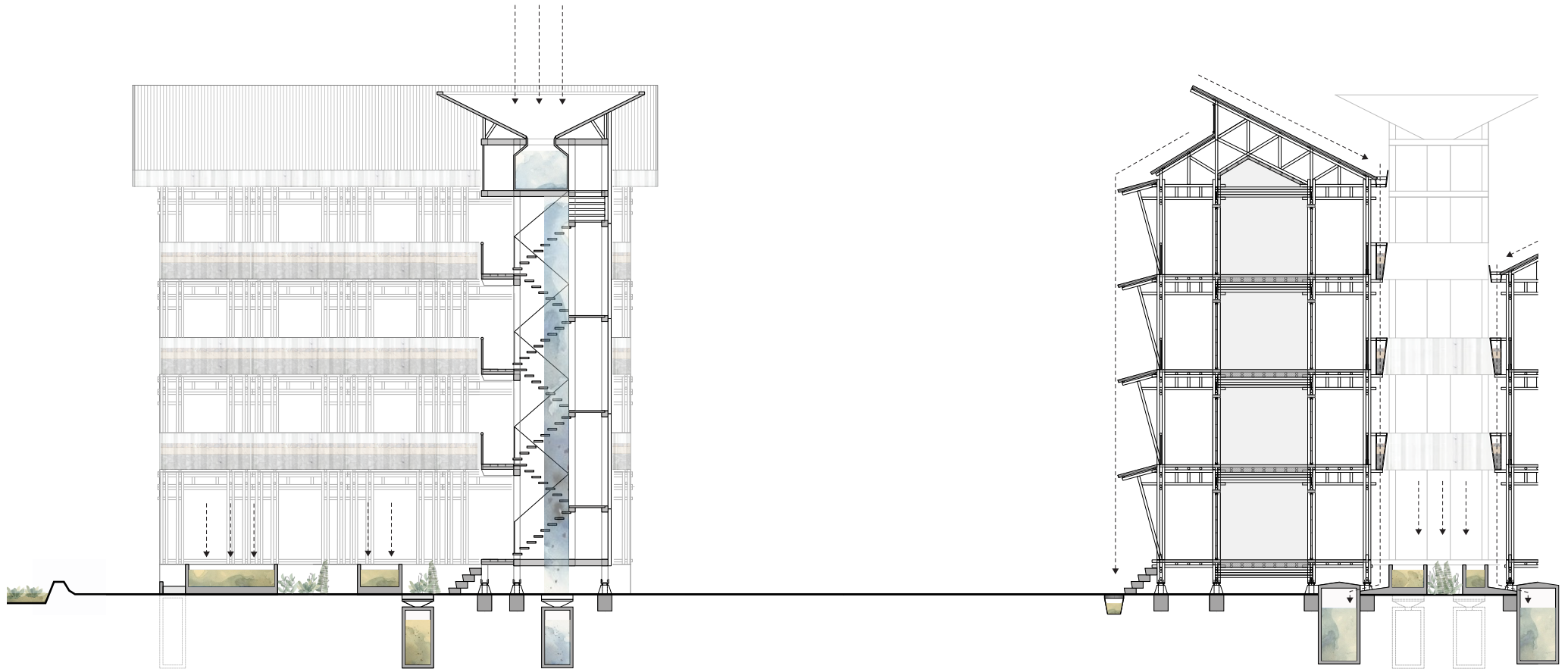
DESIGN
Water System

Elements:
Water tower
Balustrades
Patio
Street side



DESIGN

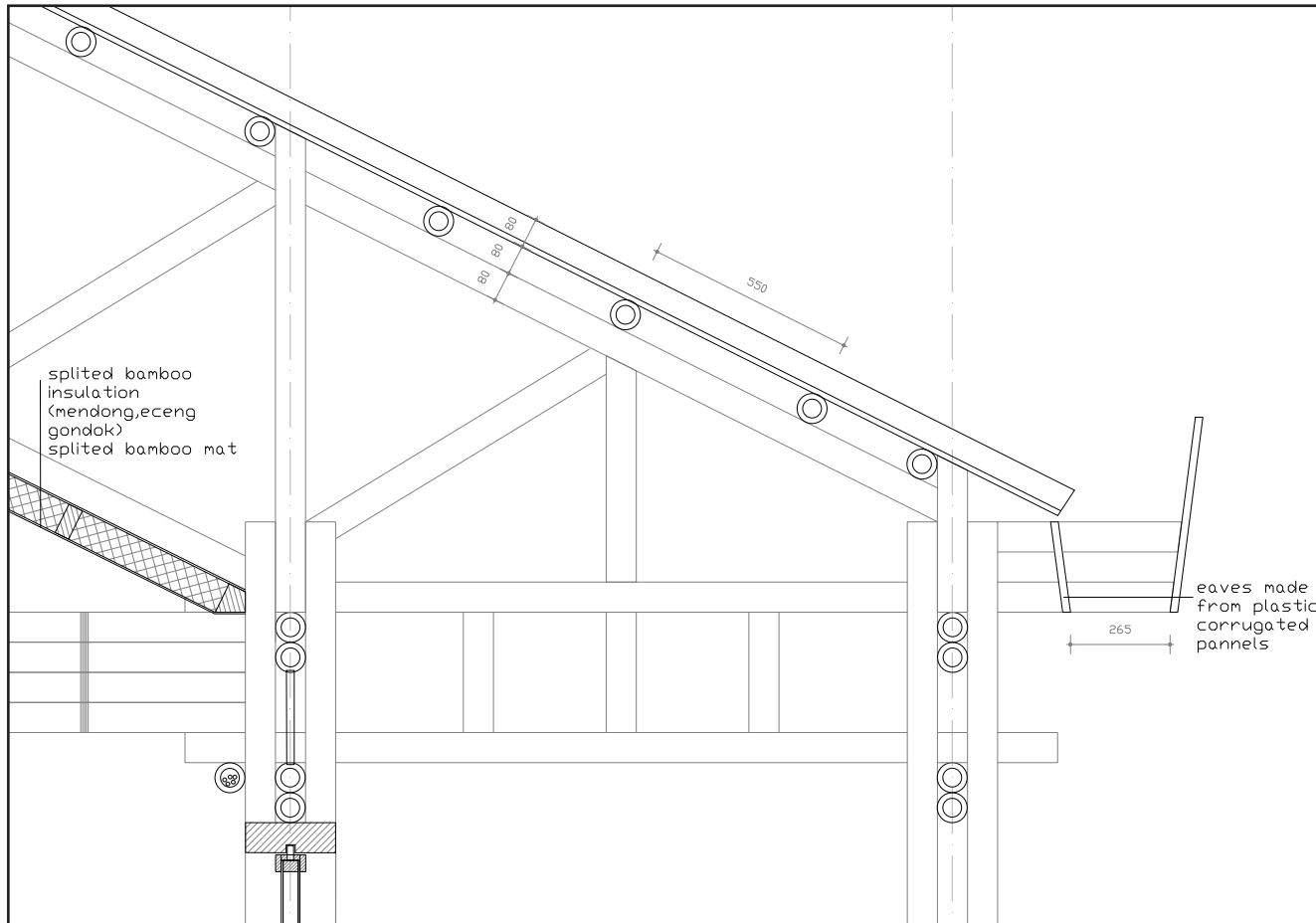
Water System



Holy: drink Clean: wash Dirty: flush

DESIGN

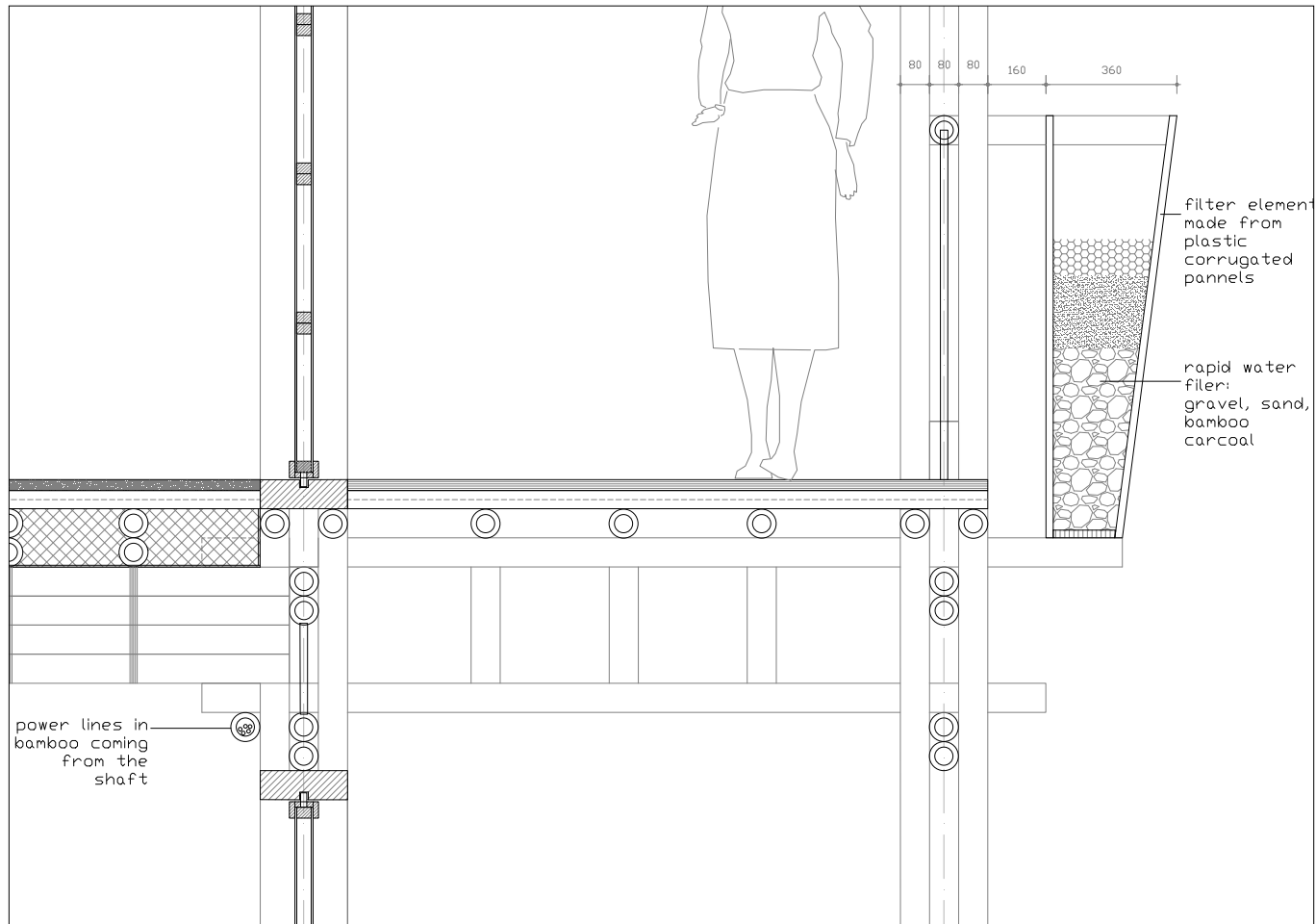
Water System



Process and use - Roof edge detail

DESIGN

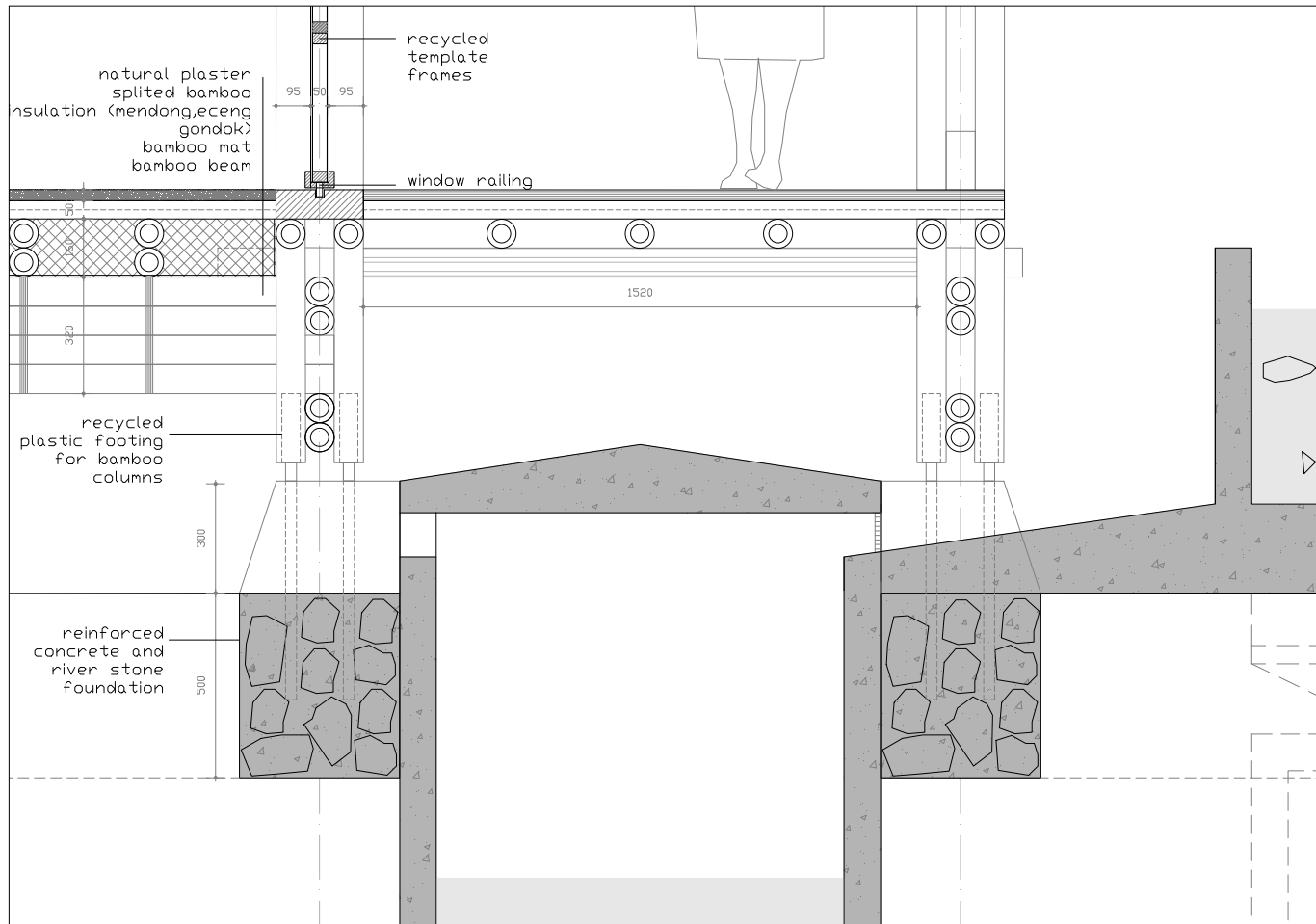
Water System



Process and use - Filter balustrade detail

DESIGN

Water System



Process and use - Water reservoir foundation detail

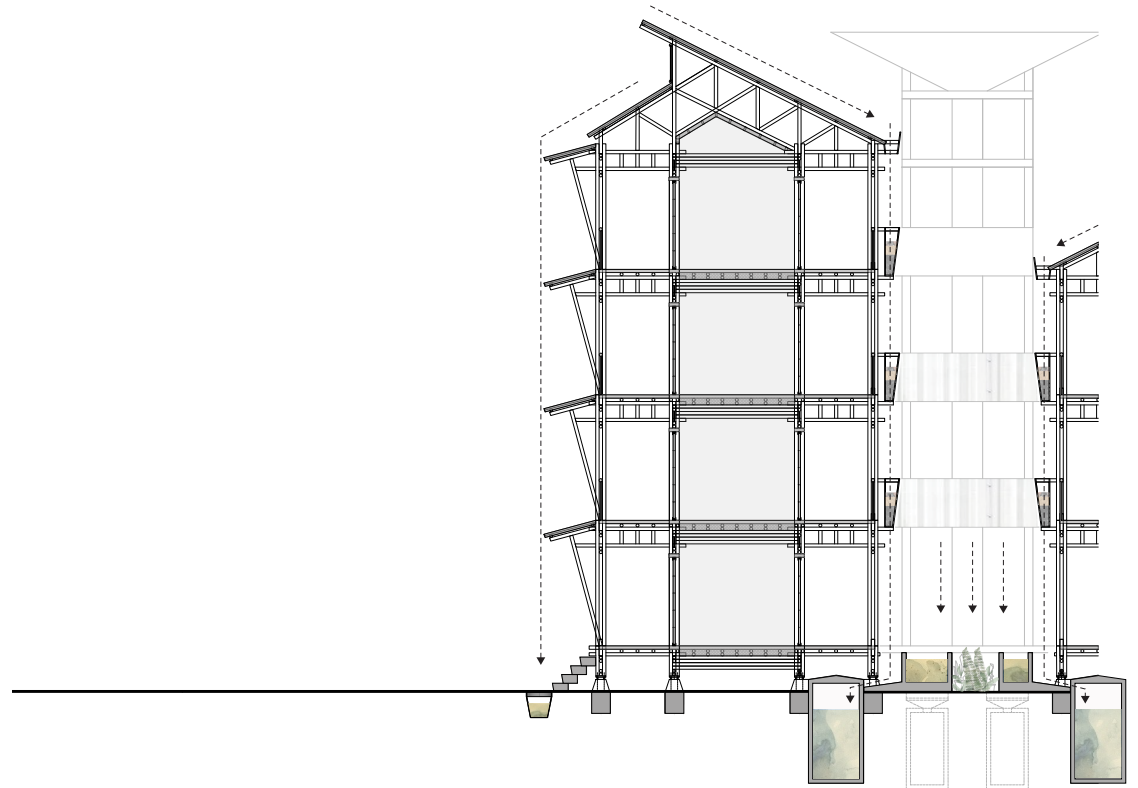
DESIGN
Water System



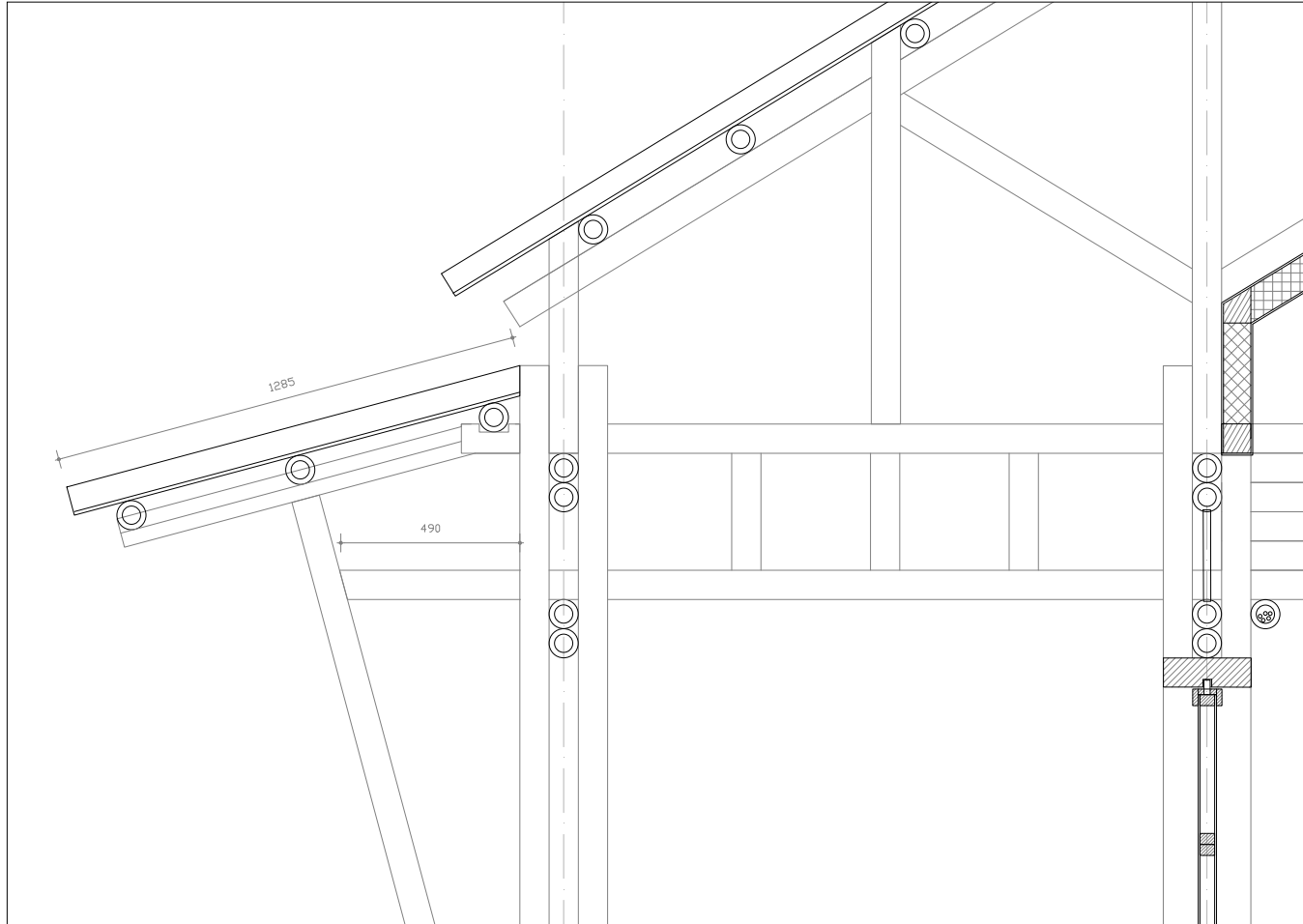


DESIGN

Water System



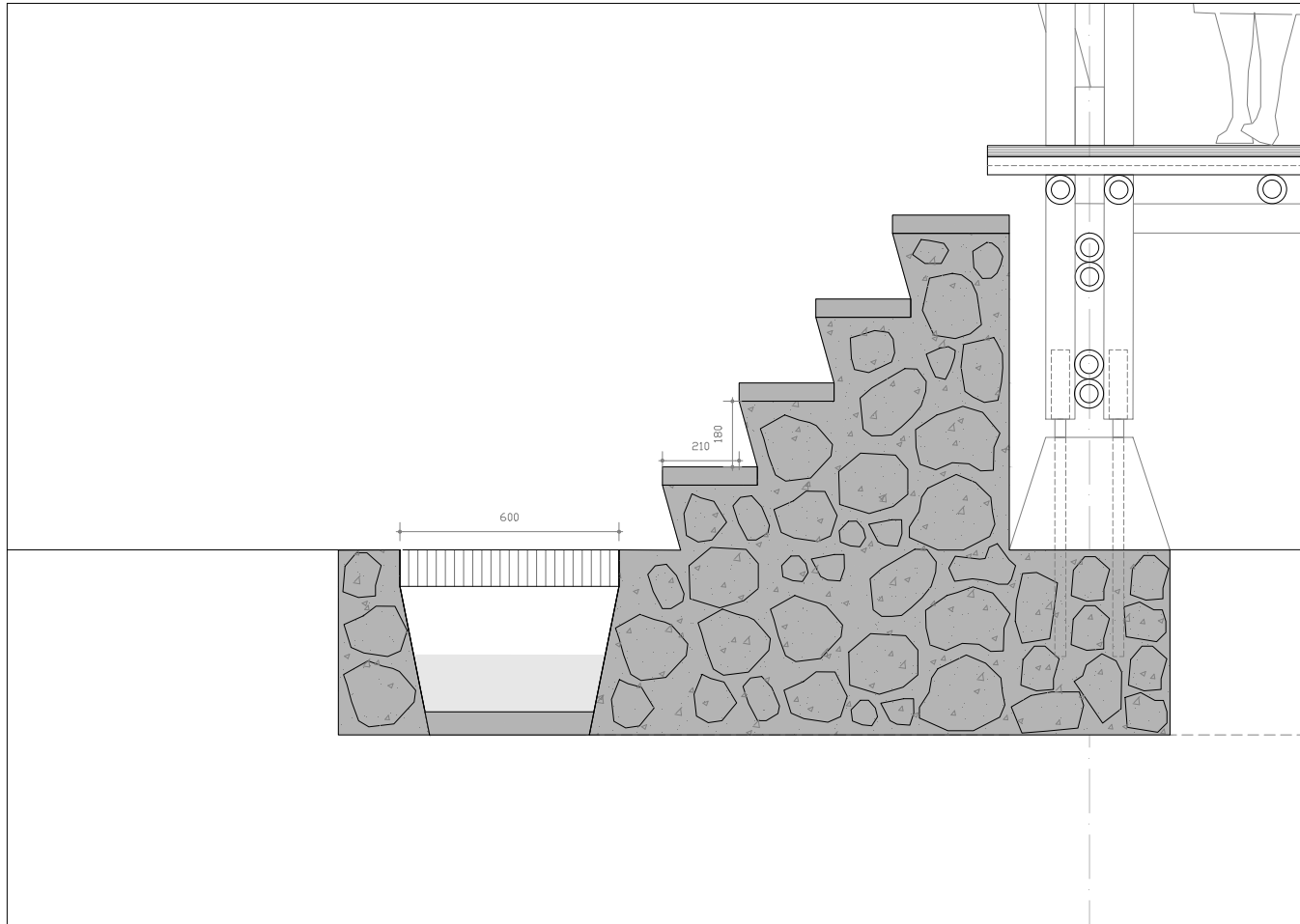
DESIGN
Water System



Going back to the nature - Roof edge detail

DESIGN

Water System



Roof surface : 49,5 m²
Annual rainfall 2300 mm

49,5 m² x 2300 mm : 113850 L

Going back to the nature - Water gutter detail

Introduction

Context

Problem Research

Intervention Research

Research Conclusion

Objective

Design

Water System

Building elements

Working and living activities

Development strategy

Conclusion

DESIGN

Building elements

The objective of this project is to meet **the need of the dwellings** and use this as a platform to provide a solution to deal with the **water challenges**.

DESIGN
Building elements



DESIGN
Building elements



DESIGN
Building elements



DESIGN
Building elements



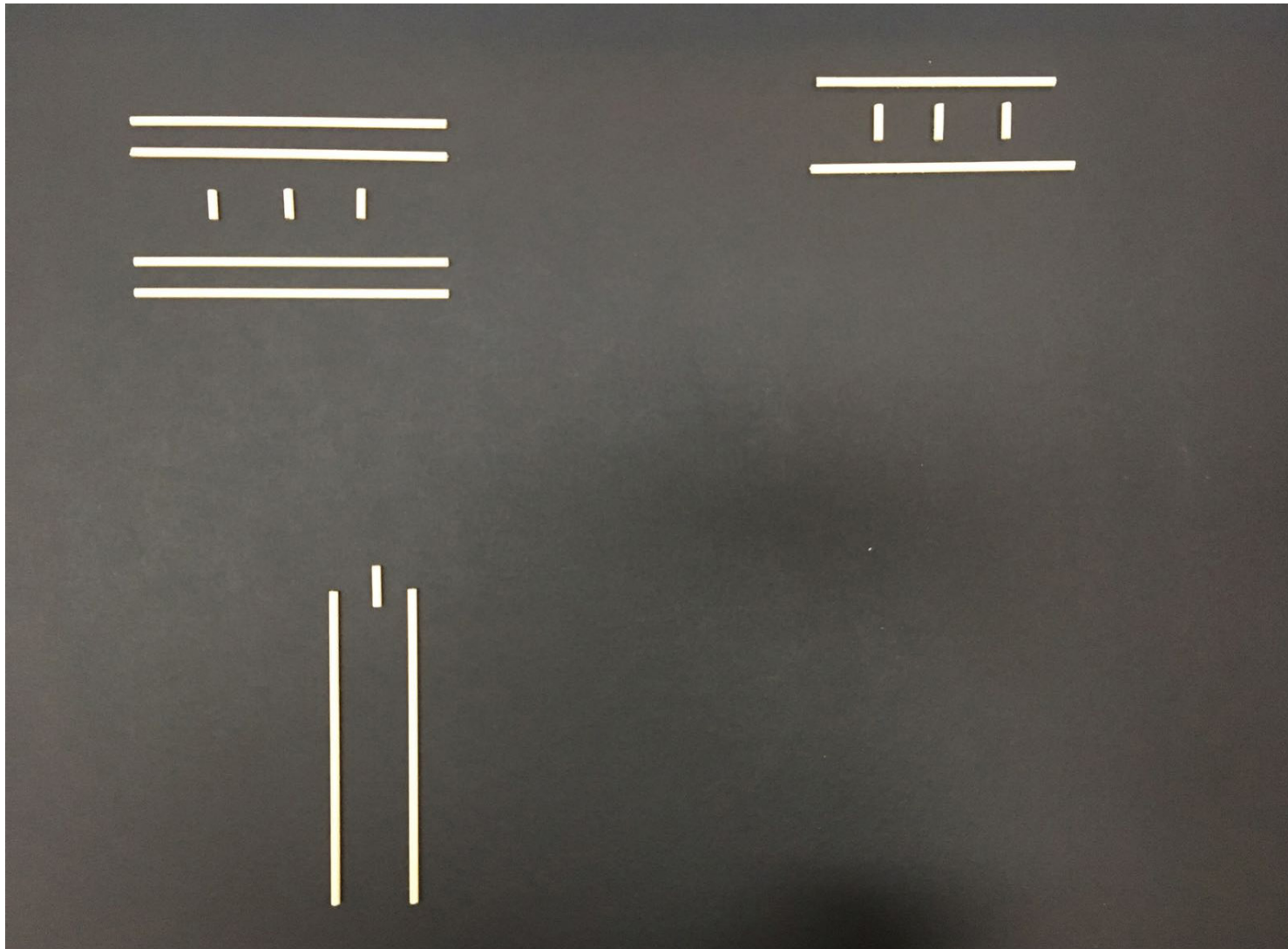
Element

Bamboo

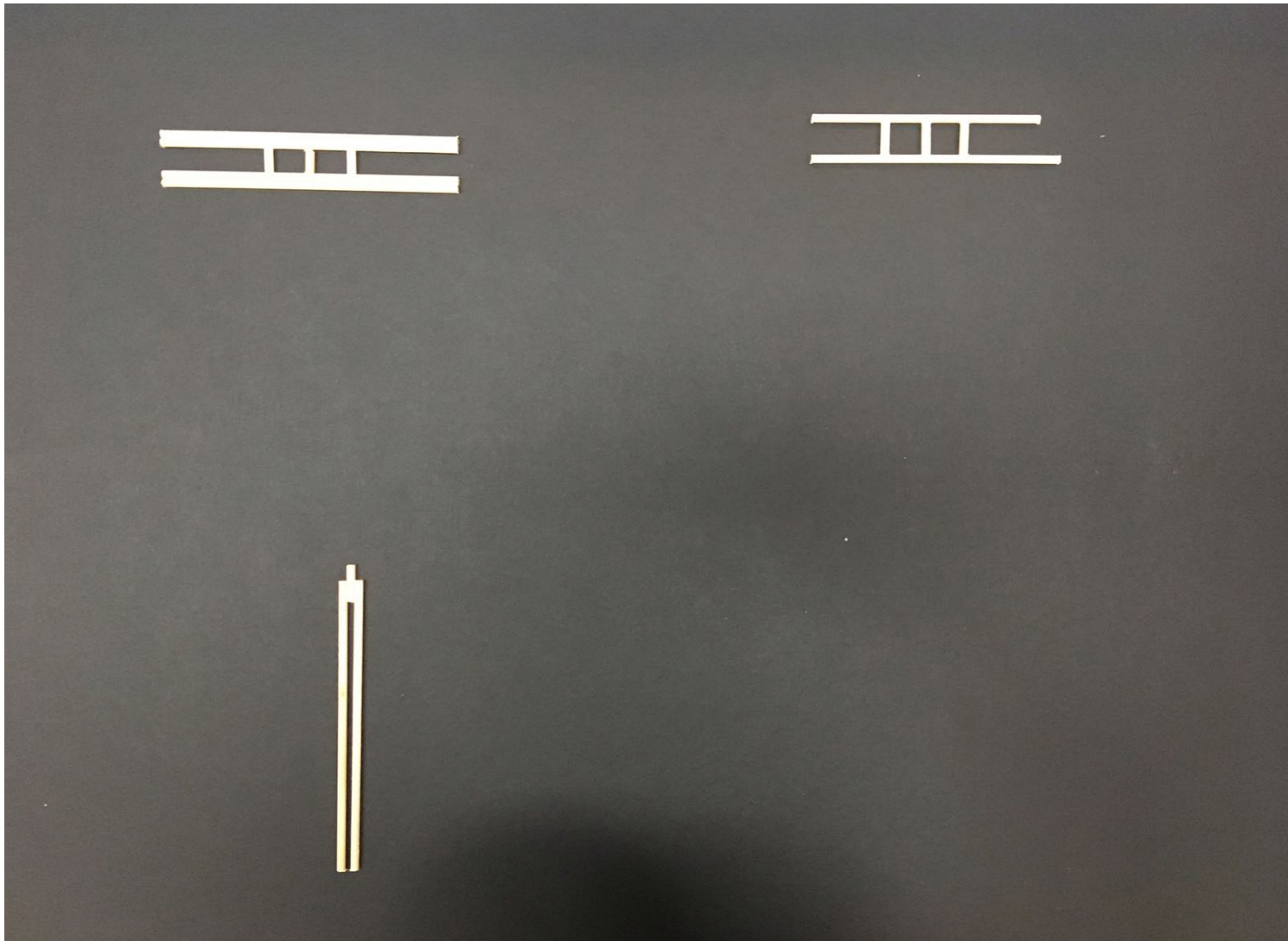
3m x 1,5m x 2,8m

Open spaces and alleys in
the kampung

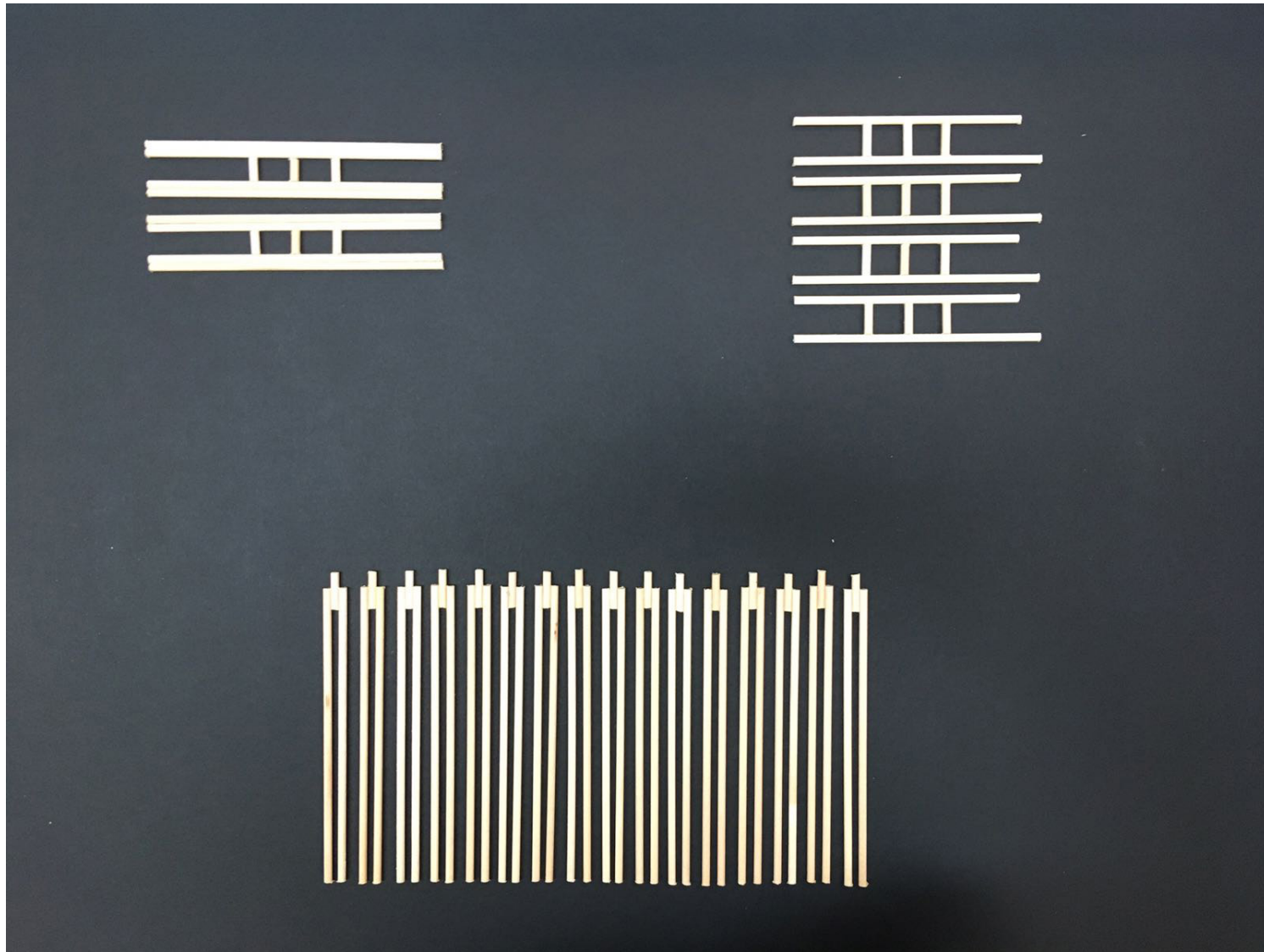
DESIGN
Building elements



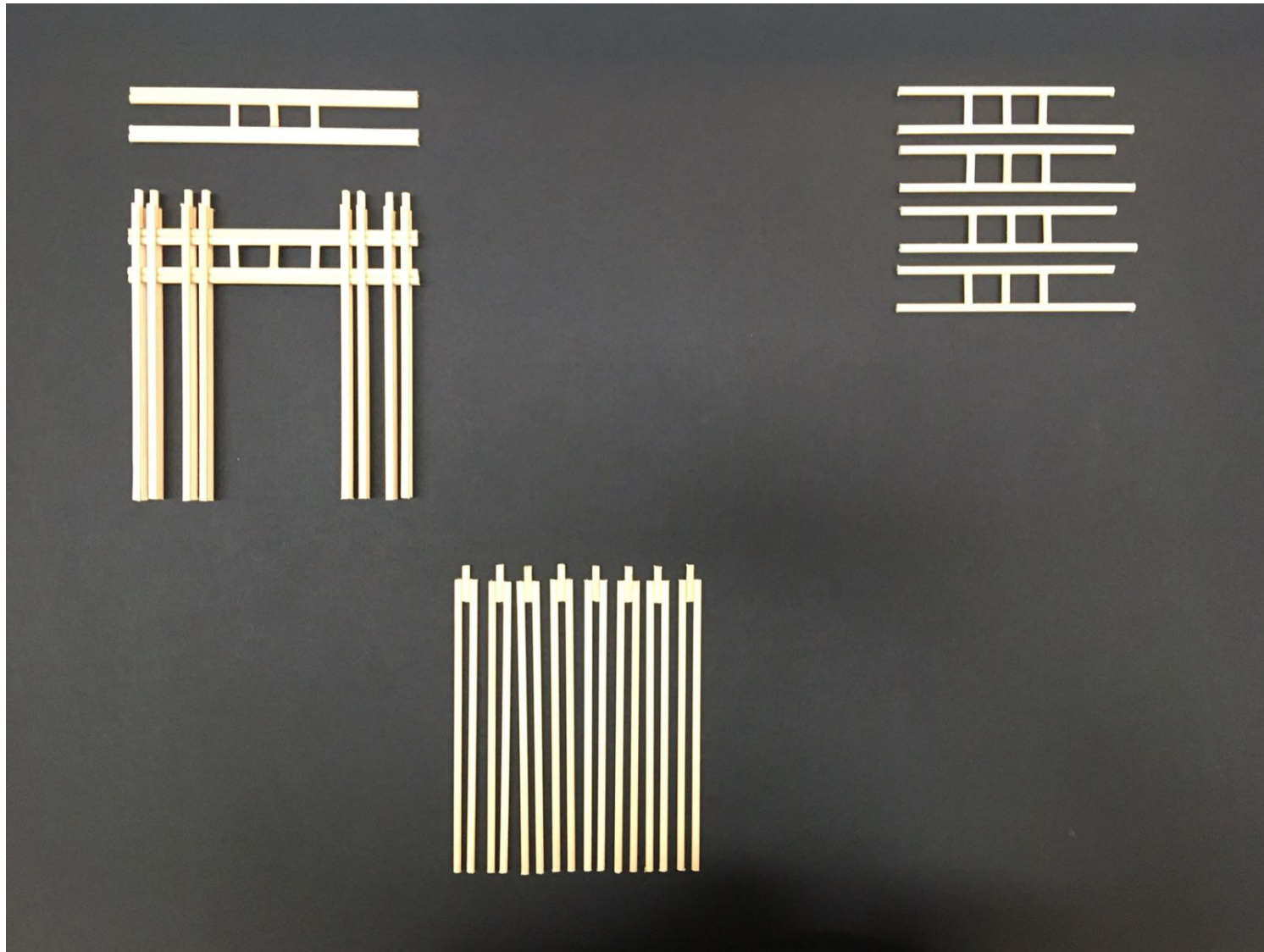
DESIGN
Building elements



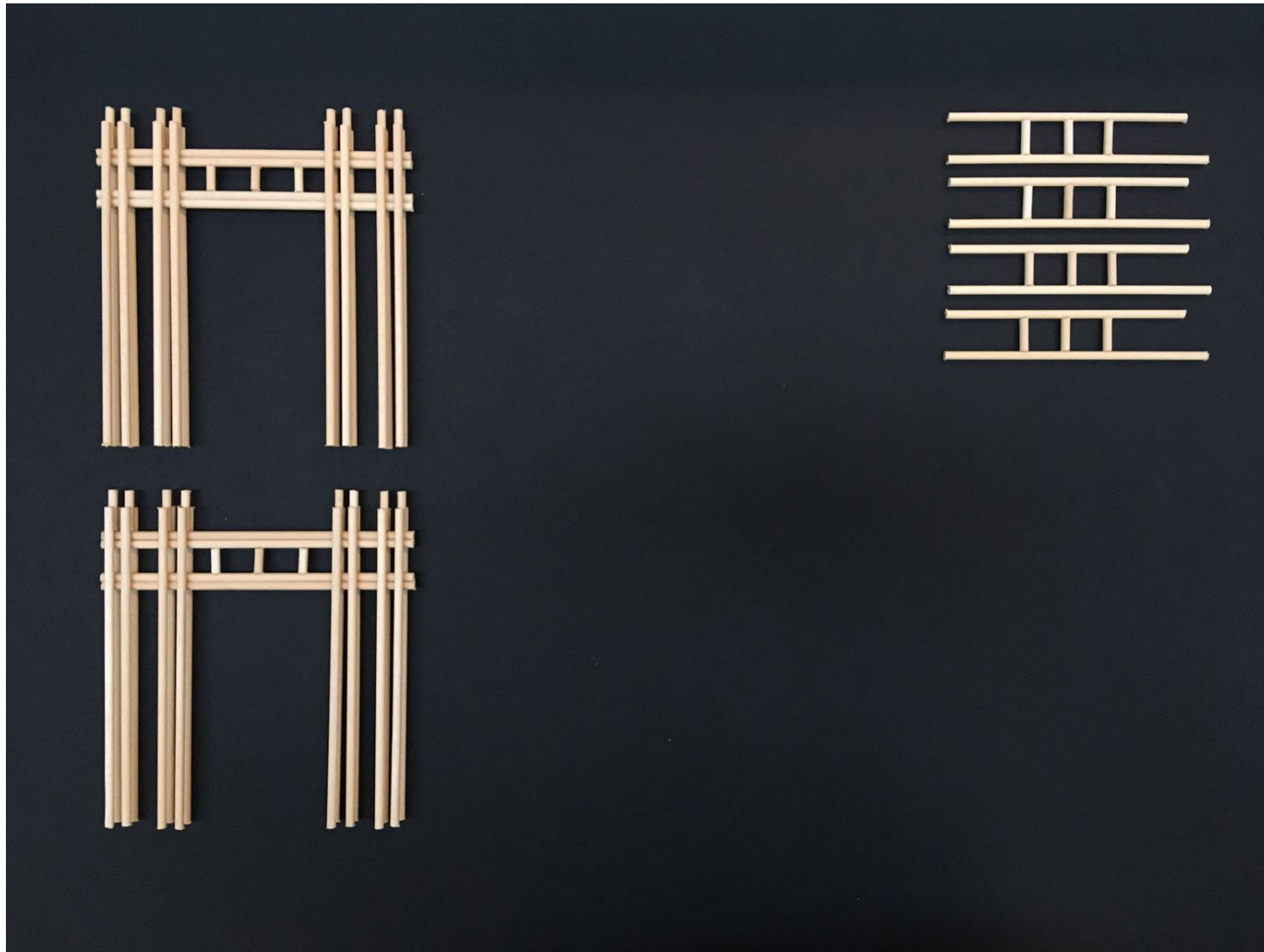
DESIGN
Building elements



DESIGN
Building elements



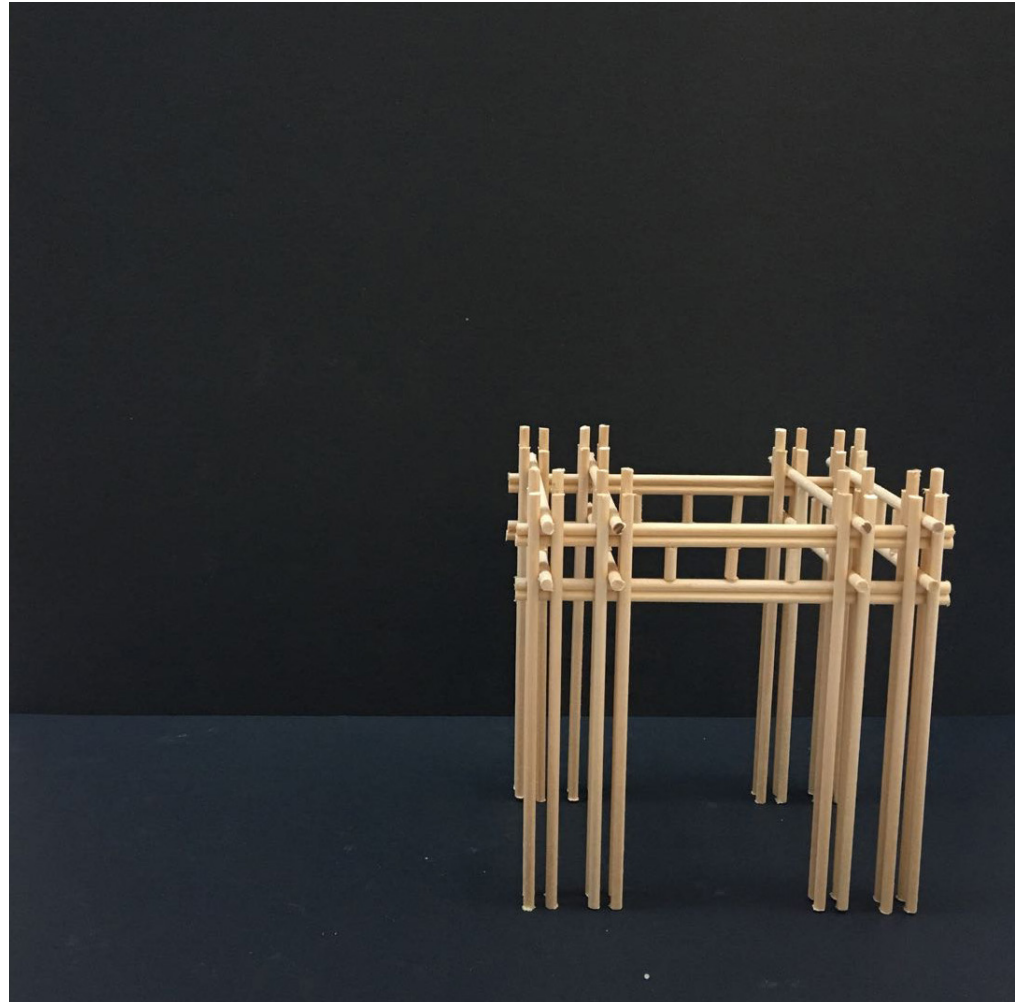
DESIGN
Building elements



DESIGN
Building elements

Portal construction

stabel en stiff in
every direction



DESIGN
Building elements

Horizontal connection
2 points



DESIGN
Building elements

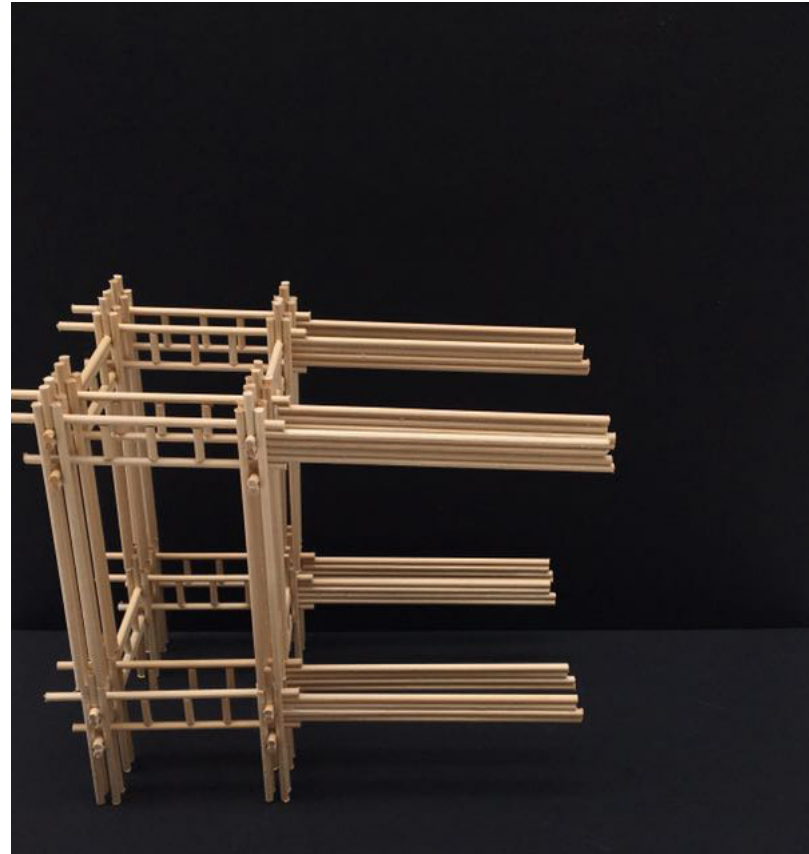
Vertical connection
8 points



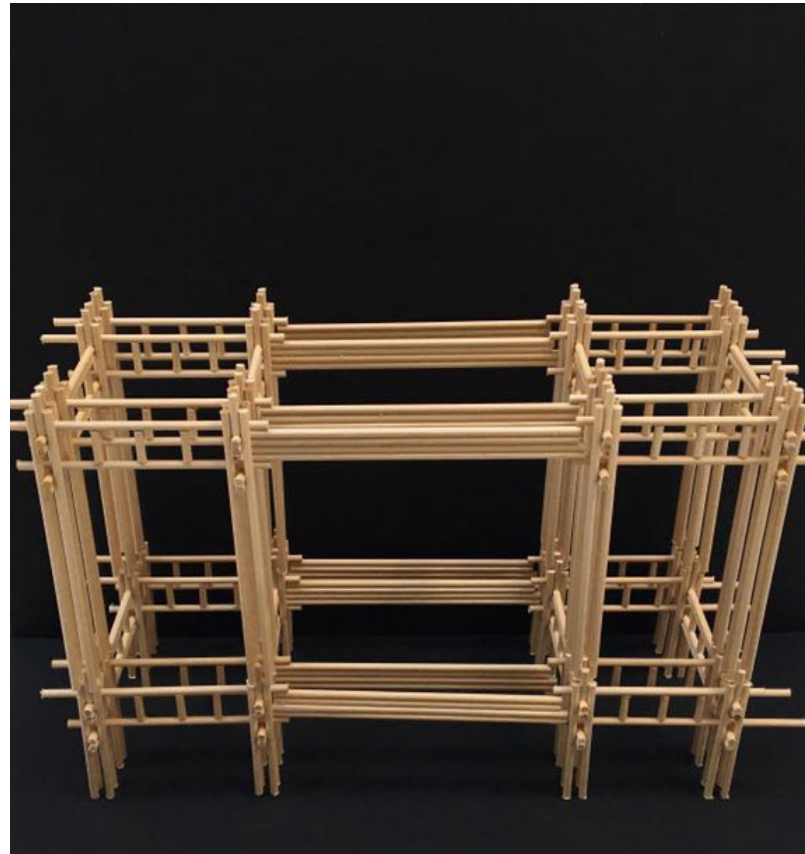
DESIGN
Building elements



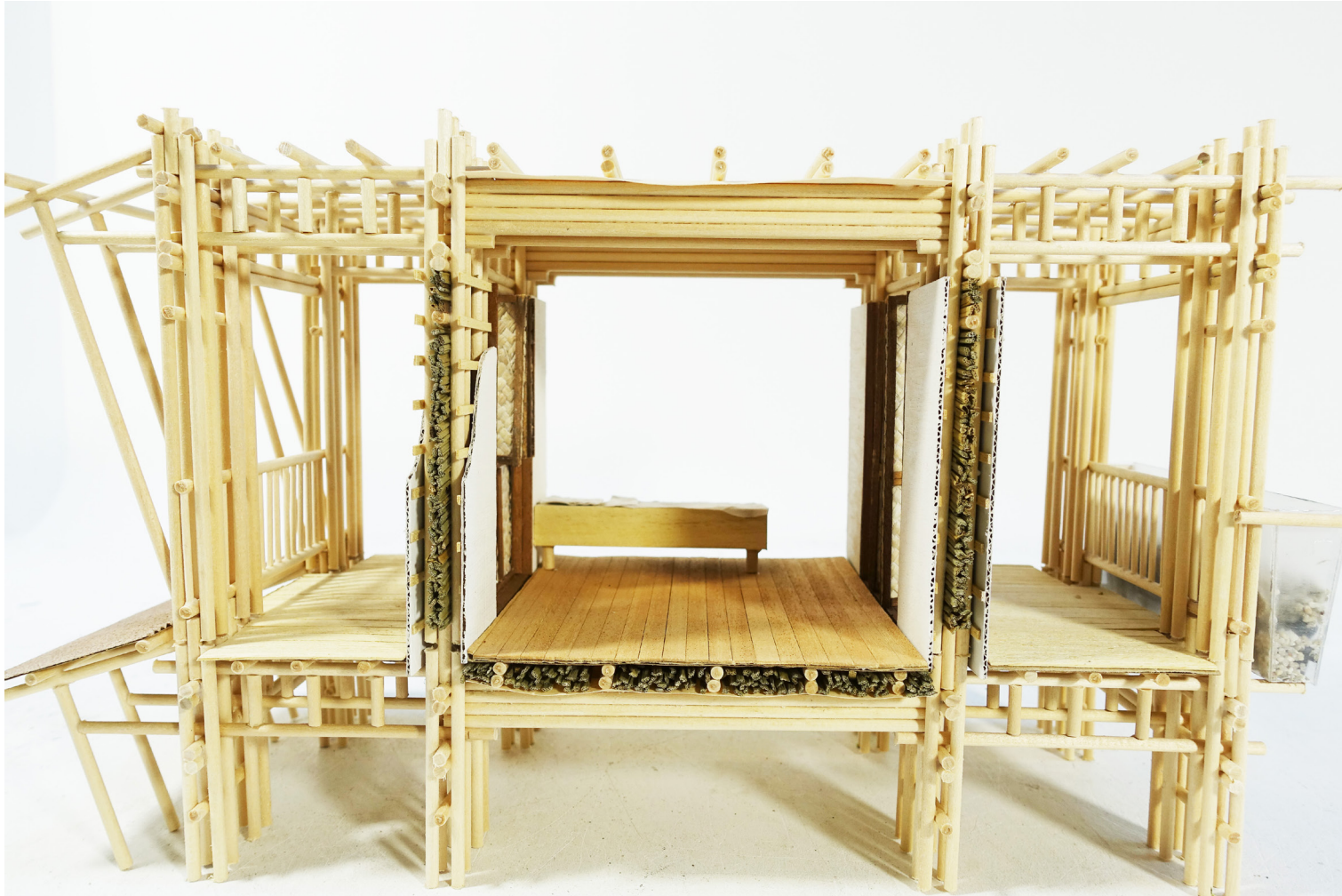
DESIGN
Building elements



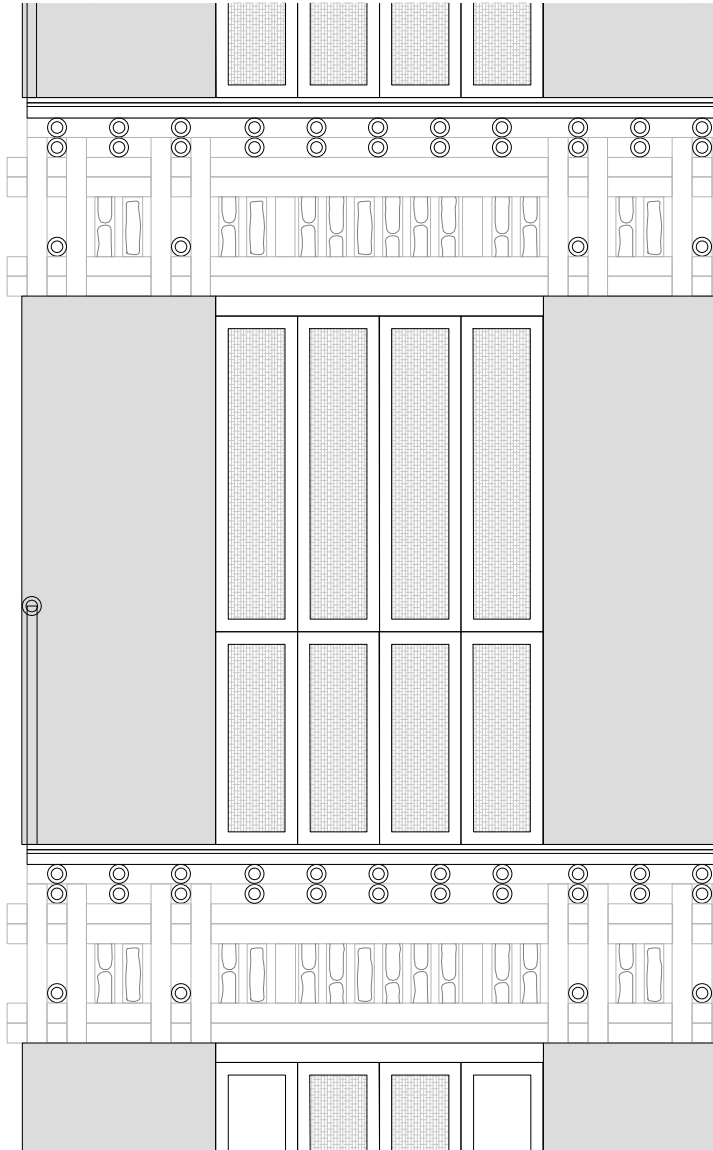
DESIGN
Building elements



DESIGN
Building elements



DESIGN
Building elements

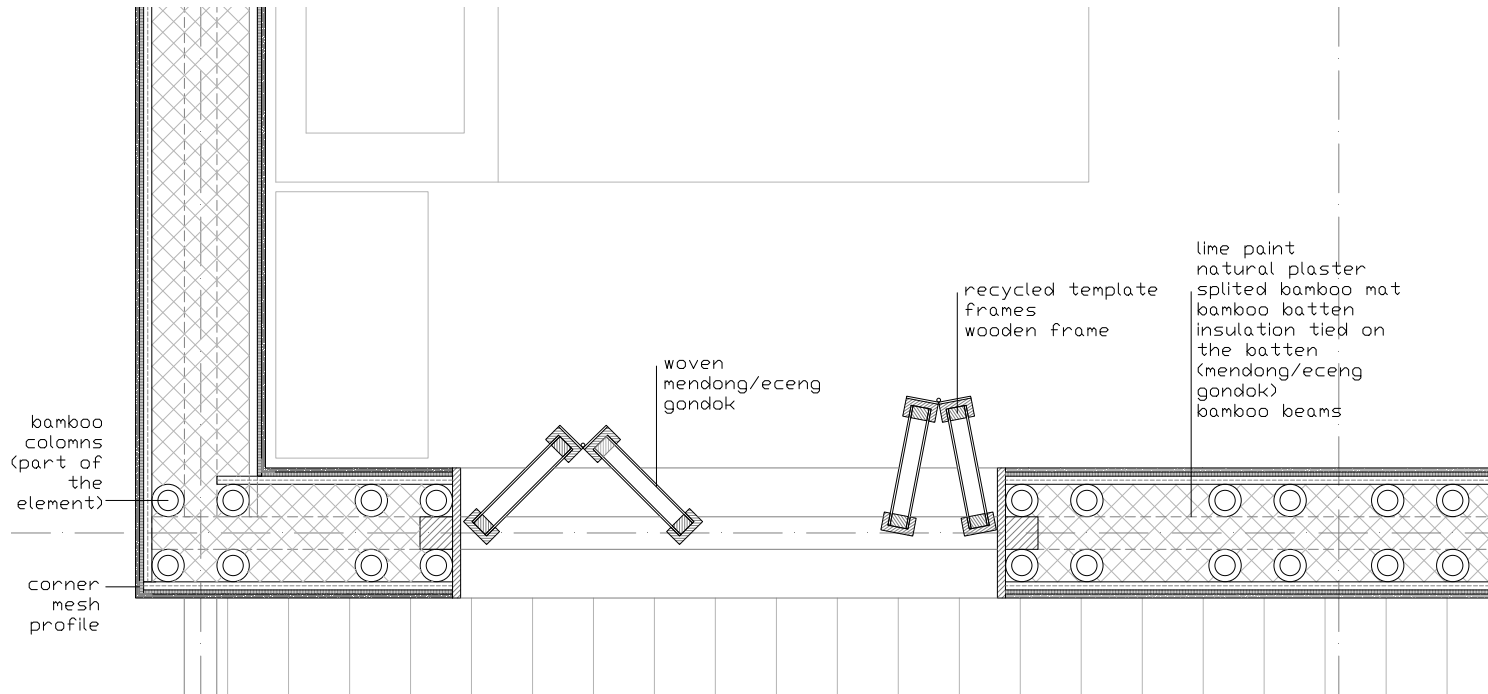


DESIGN

Building elements



Closed facade

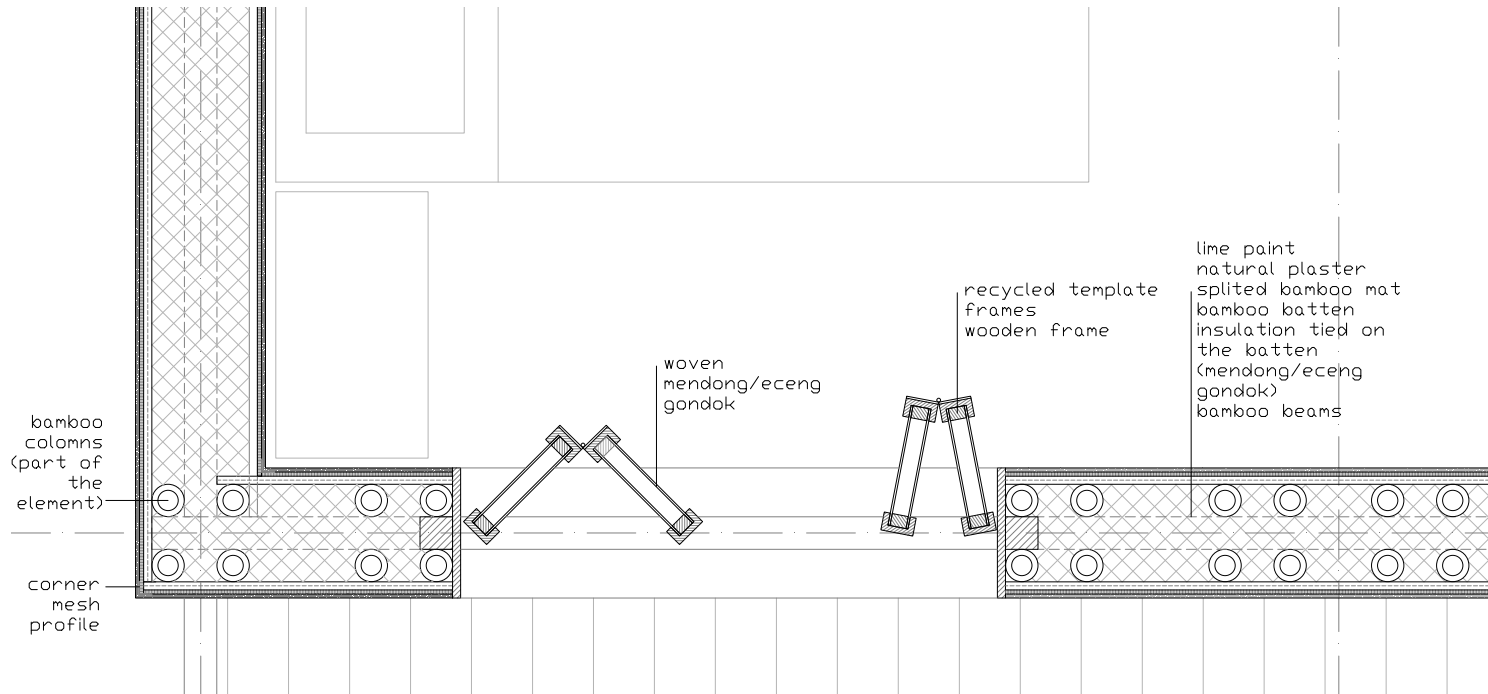


DESIGN

Building elements



Closed facade

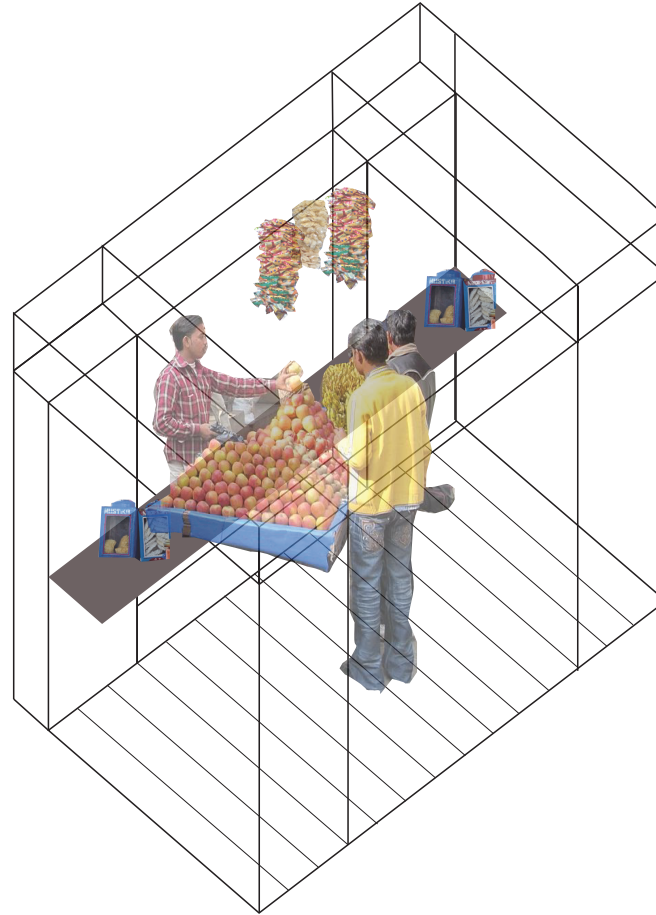
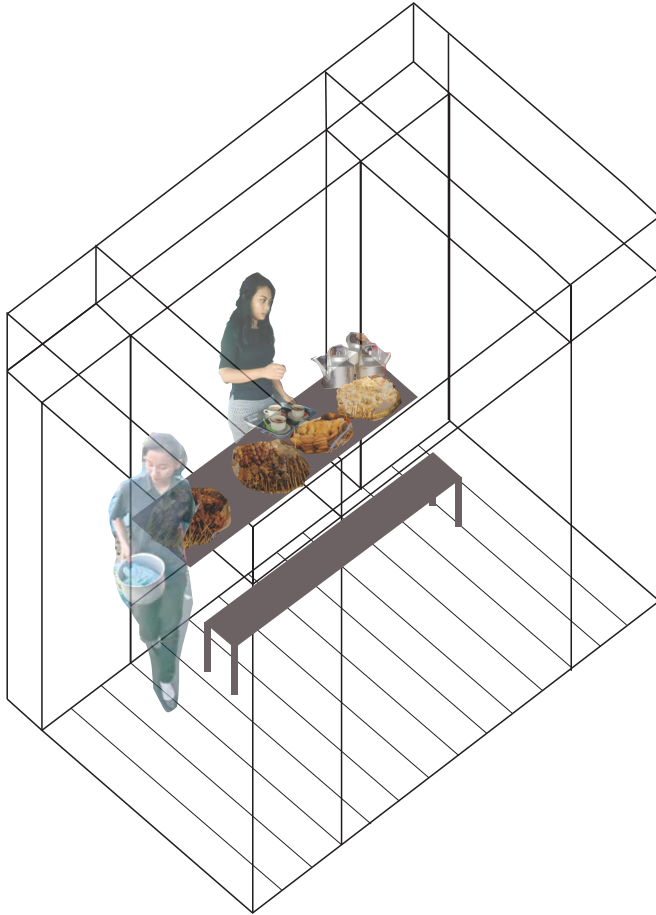




DESIGN

Building elements

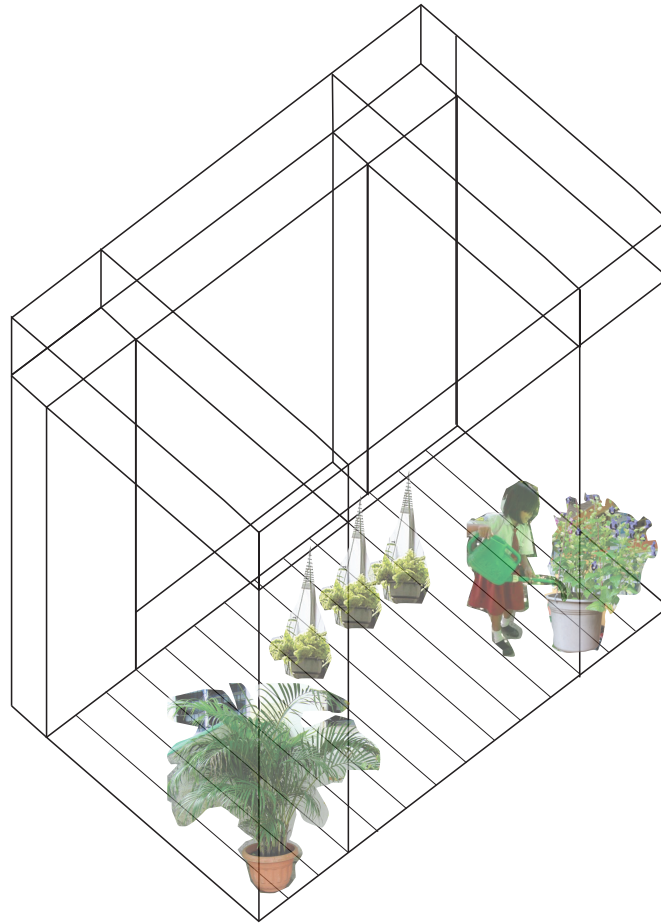
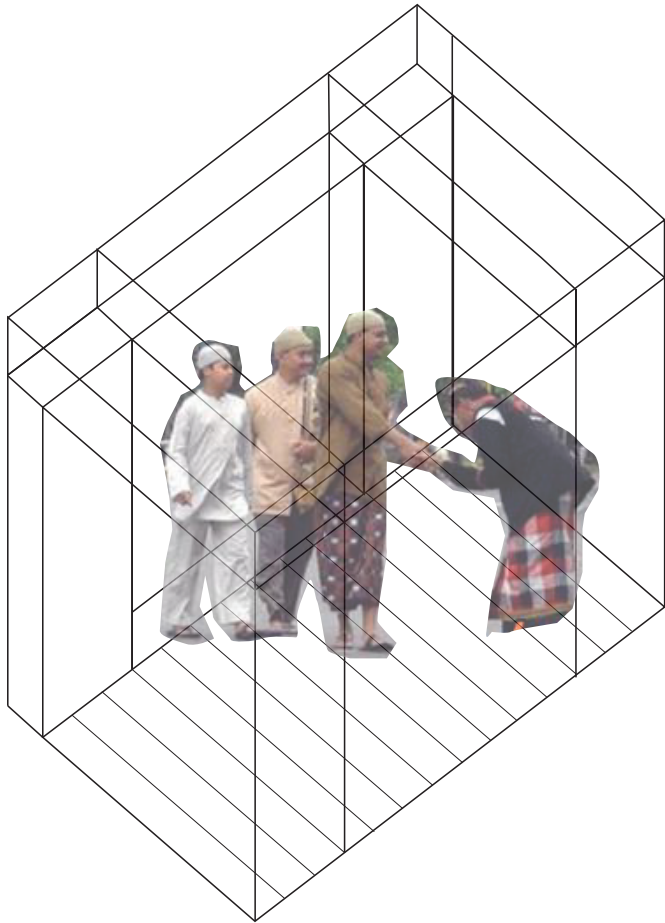
Ground floor - public



DESIGN

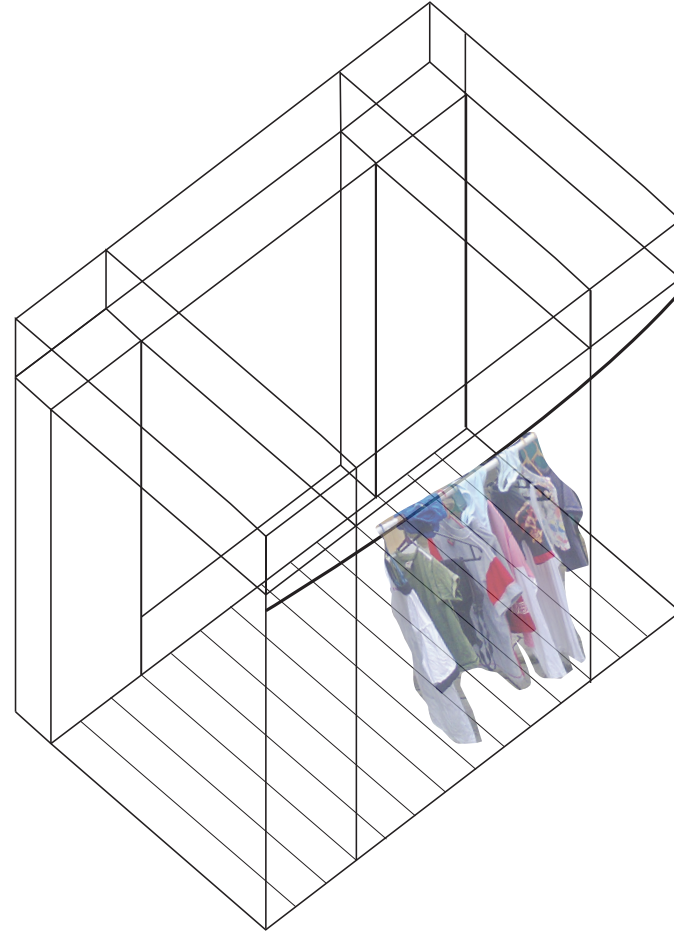
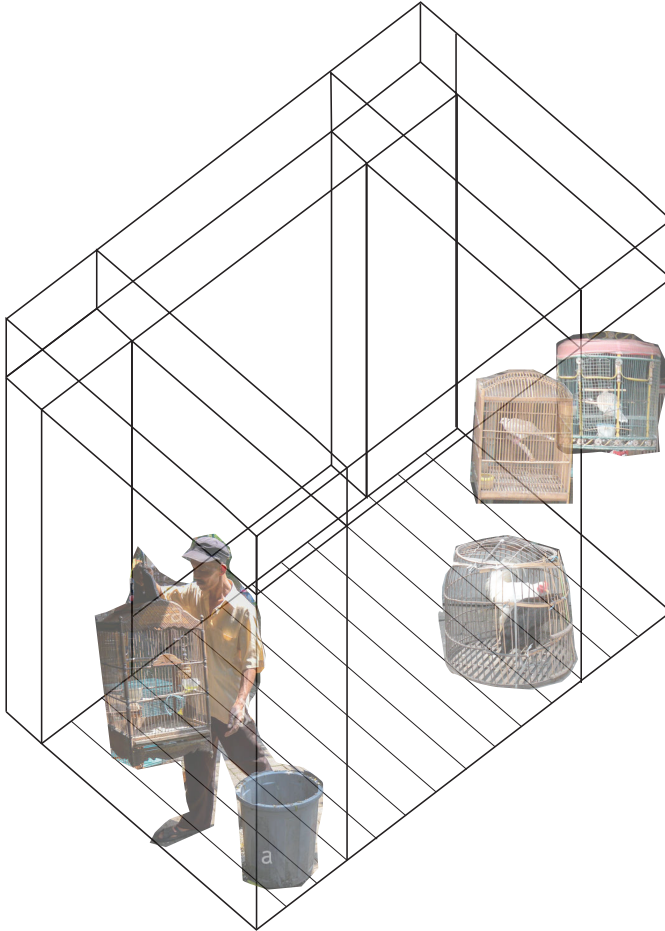
Building elements

First, second and third floor - communal



DESIGN
Building elements

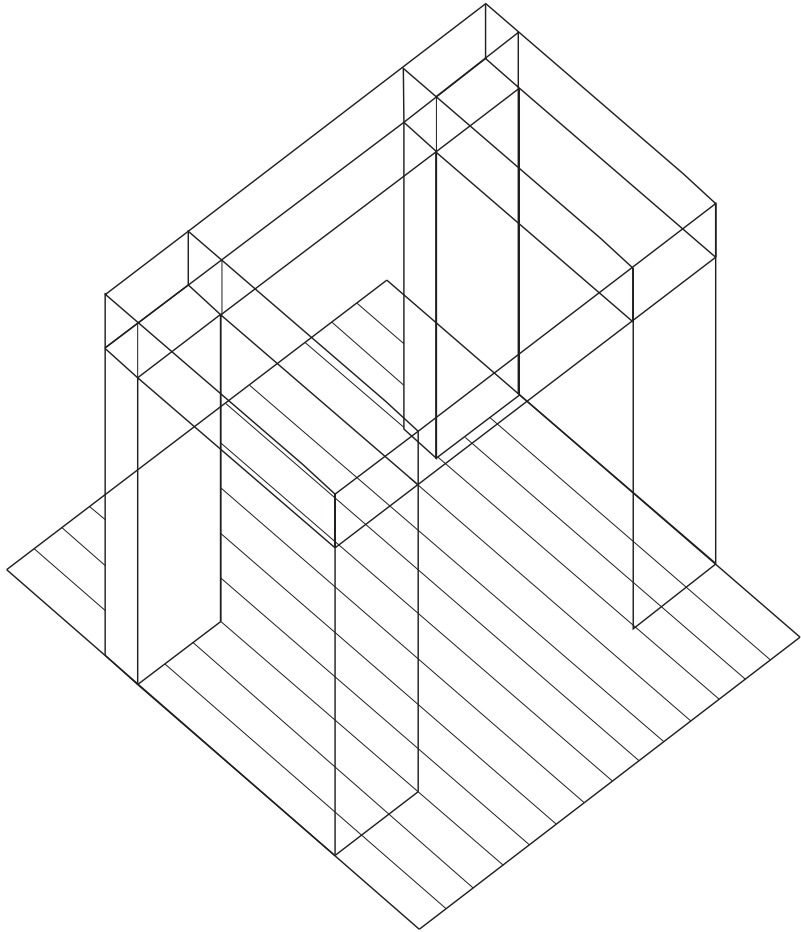
Balcony - private



DESIGN

Building elements

Part of a dwelling - private



Introduction

Context

Problem Research

Intervention Research

Research Conclusion

Objective

Design

Water System

Building elements

Working and living activities

Development strategy

Conclusion



For whom is this building designed?

And what kind of work takes place on the groundfloor?

DESIGN

Working and living activities

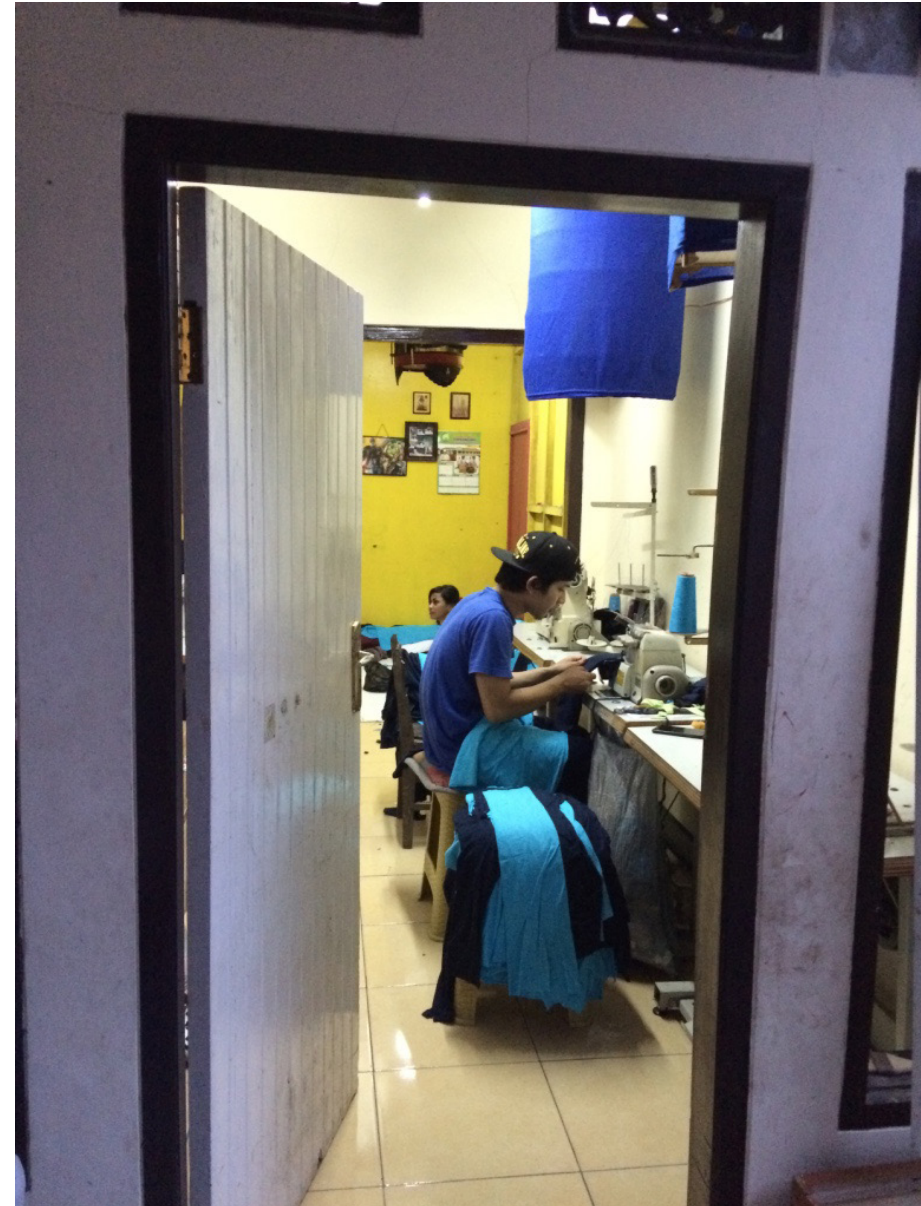
Migrants, working in the
big factories



DESIGN

Working and living activities

Home industry



DESIGN

Working and living activities

Local people of Cigondewah



DESIGN
Working and living activities

Farmers



DESIGN

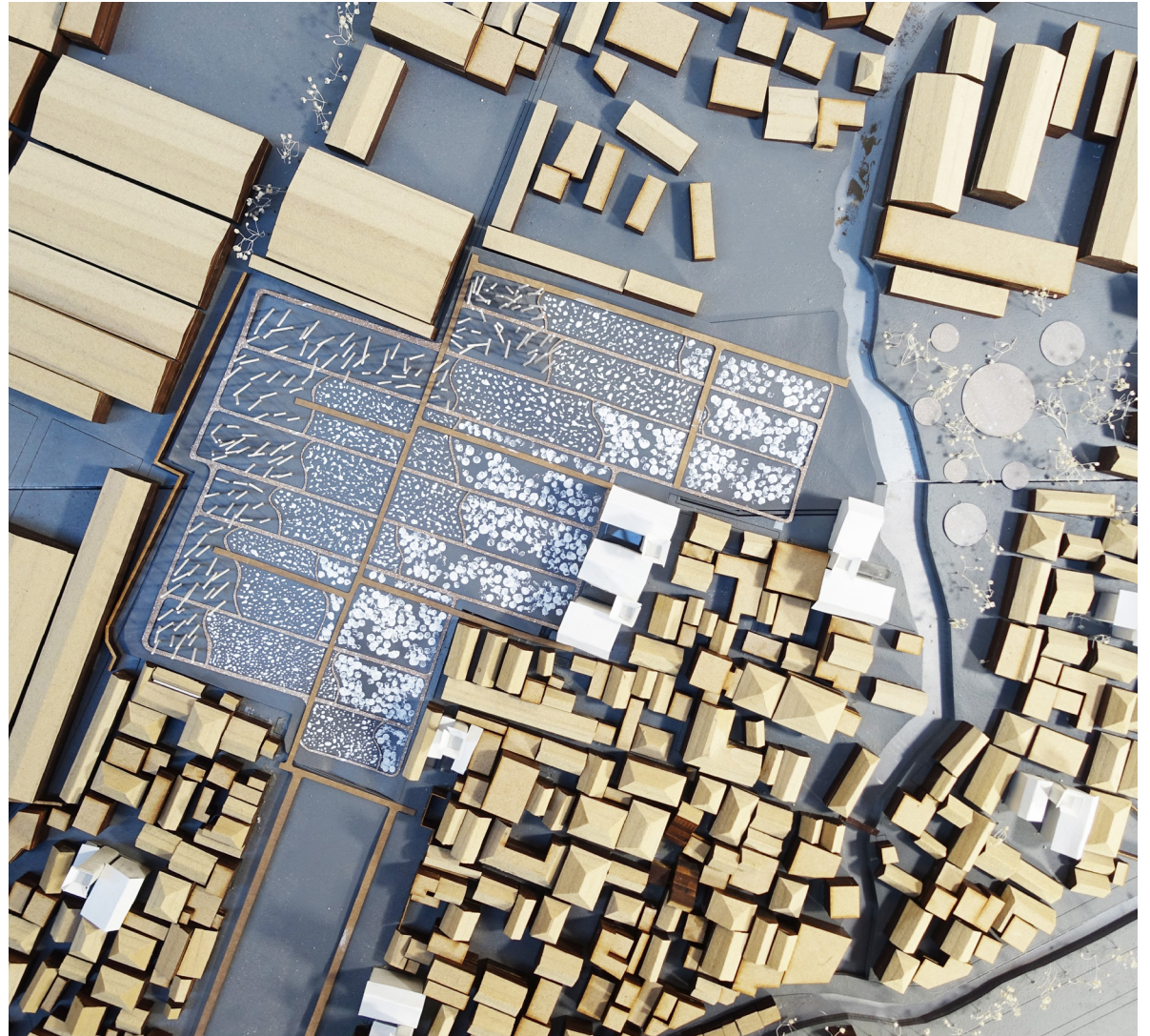
Working and living activities

Rebuilding the fields

Provide work for farmers

Provide work for local
woman of Cigondewah

Woman cooperative



DESIGN

Working and living activities

Filtering polluted water

Building material

Handcraft

Water reservoir

Peri-urban identity

Dry - bamboo



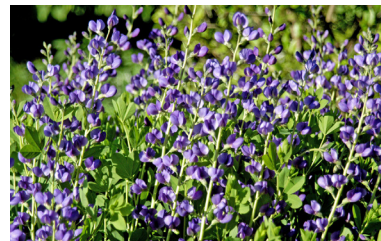
Semi dry - mendong



Wetland - eceng gondok



Natural dye garden



DESIGN

Working and living activities

Guidelines

-In between fields and dwelling area

-Shop connected with the lifted path

-Workspaces on the dwelling area side

-Housing entrance and staircase on the housing area side

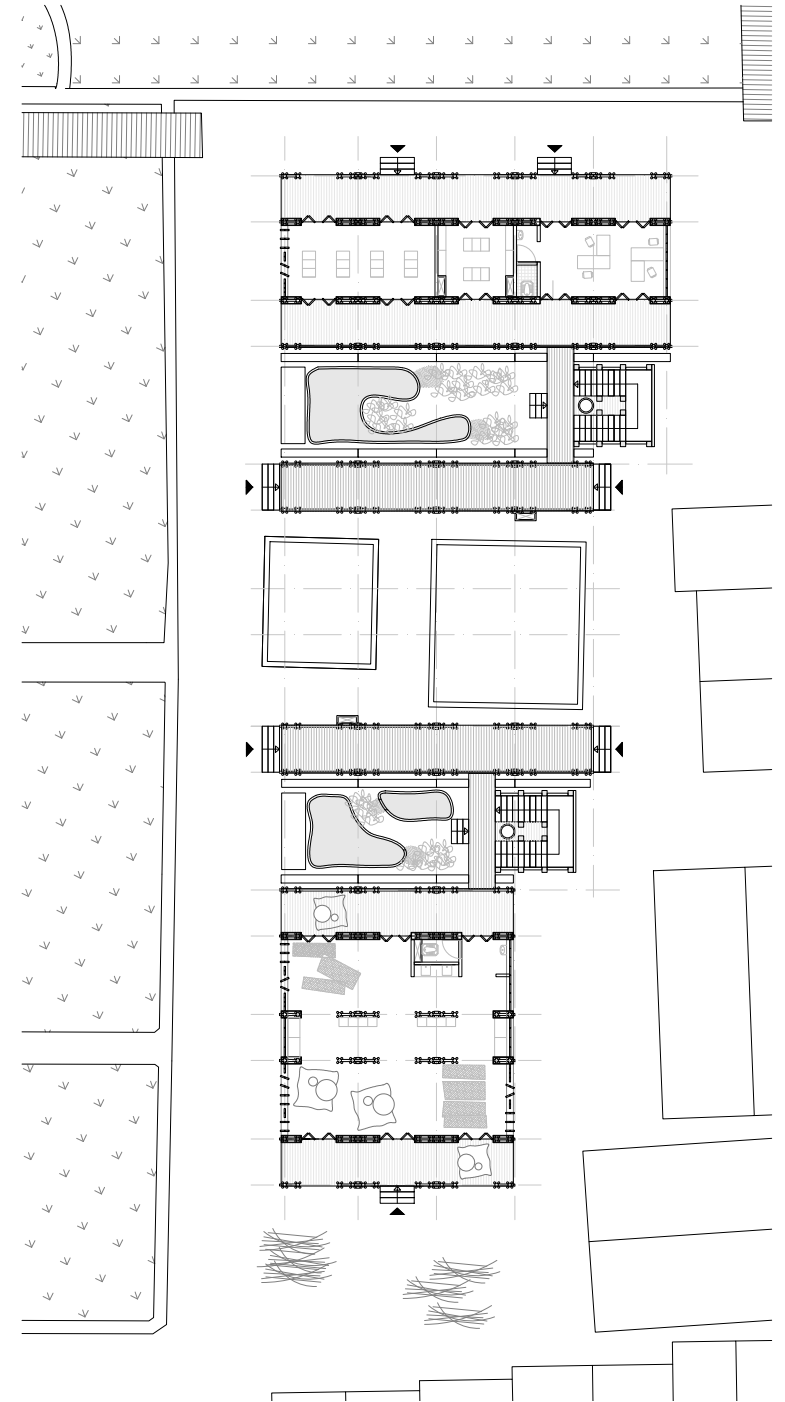


DESIGN

Working and living activities



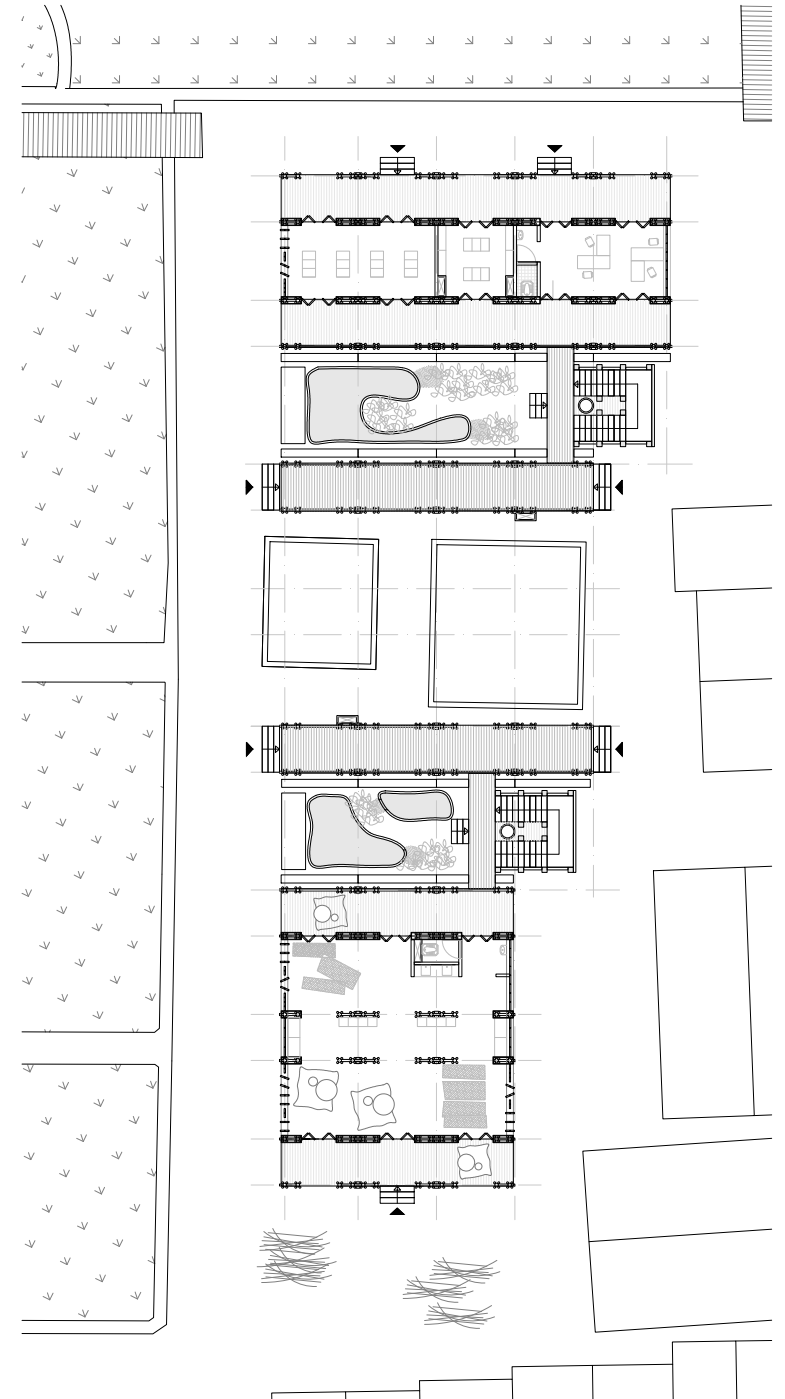
Drying space



DESIGN

Working and living activities

Working space
72 m²





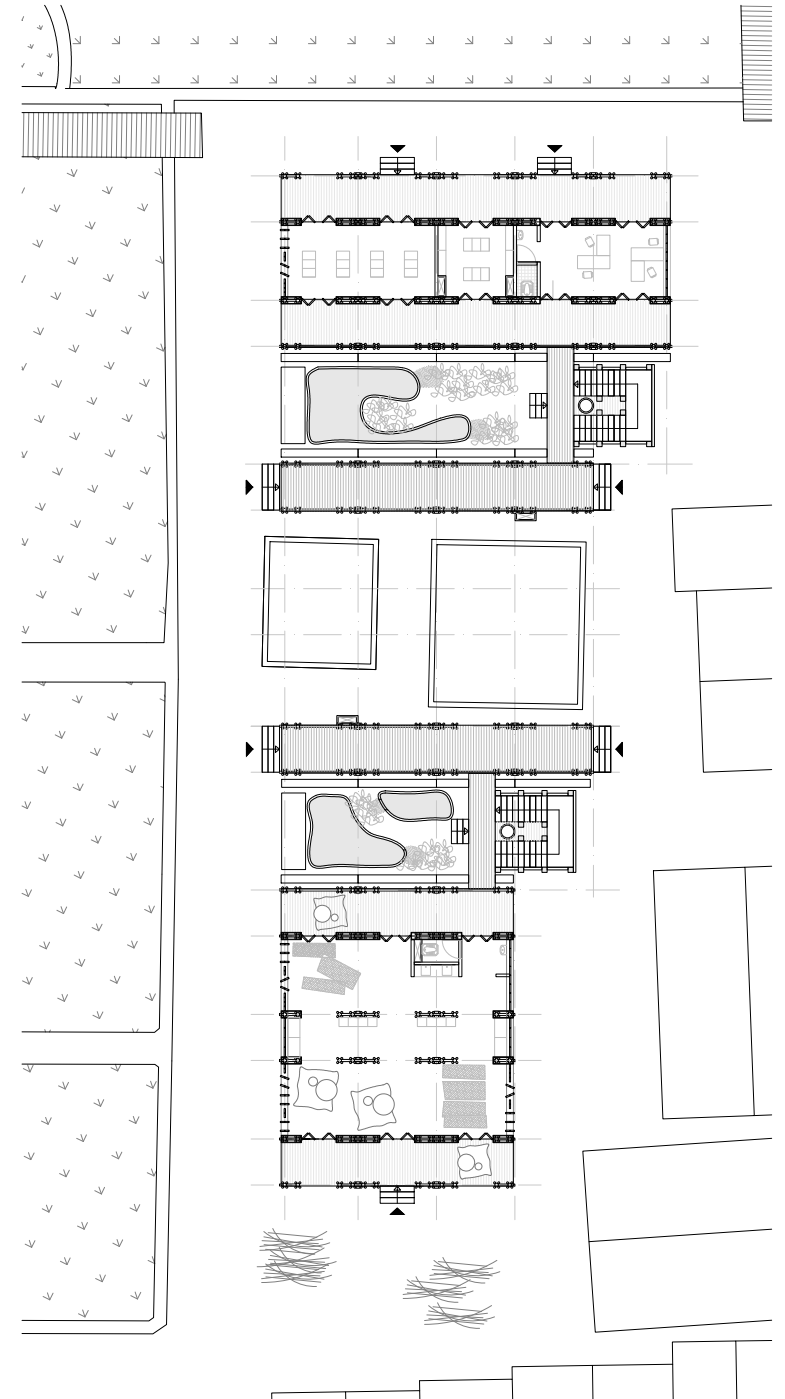


DESIGN

Working and living activities



Shop, storage and office
72 m2

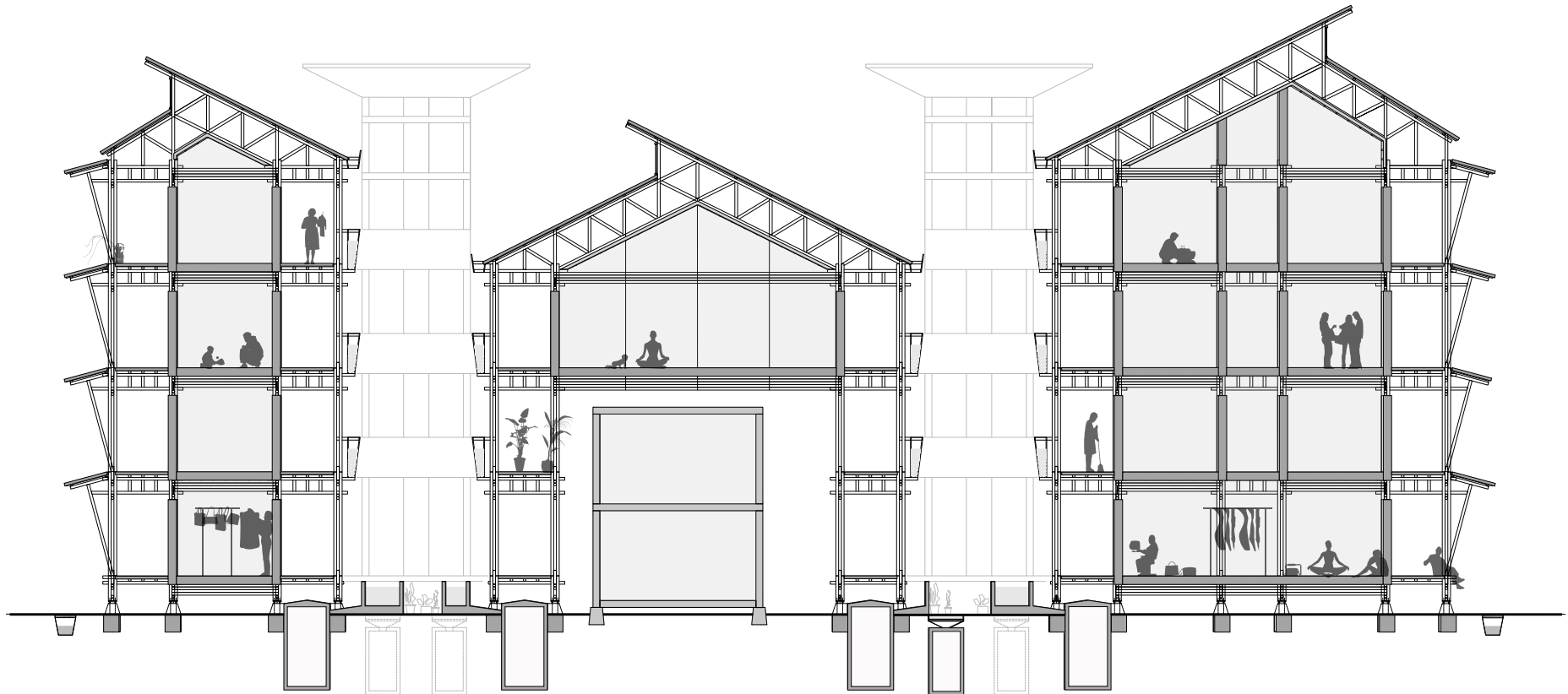




DESIGN

Working and living activities

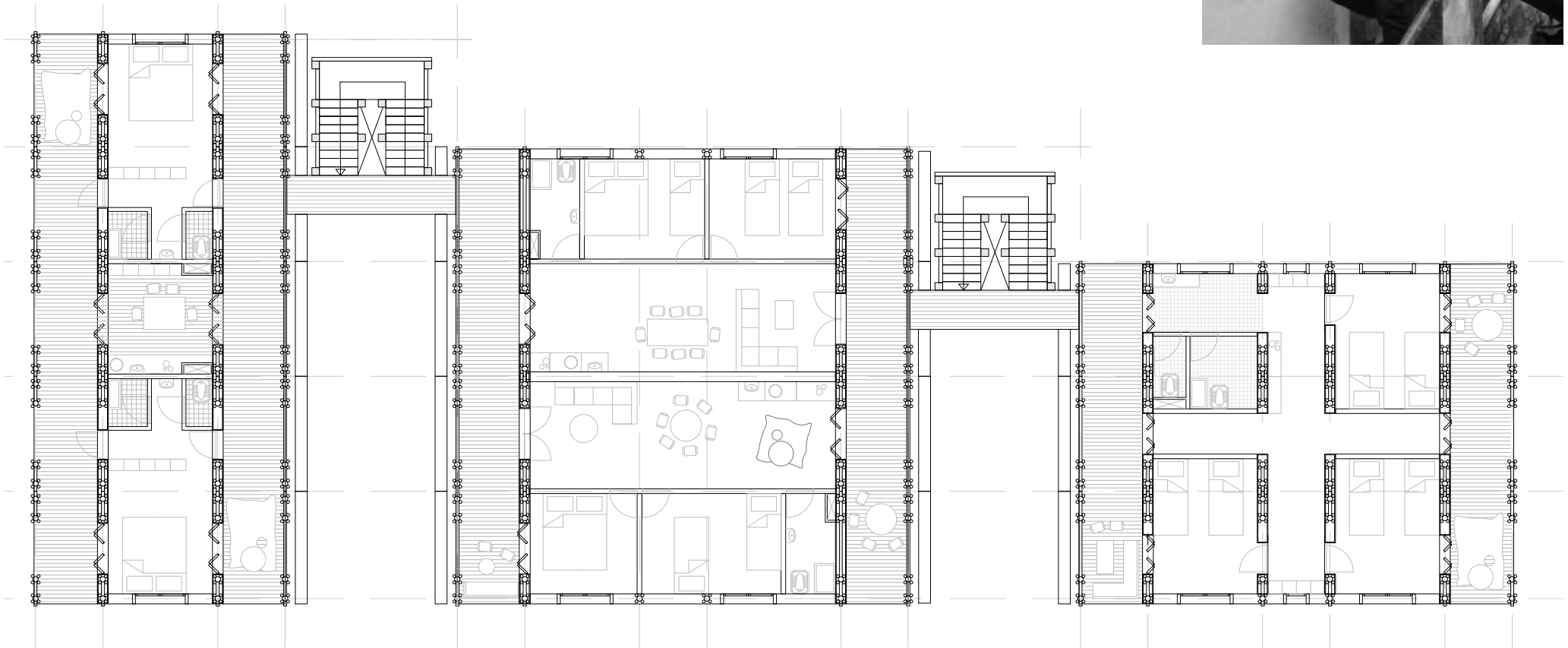
New dwellings in the upper part



DESIGN

Working and living activities

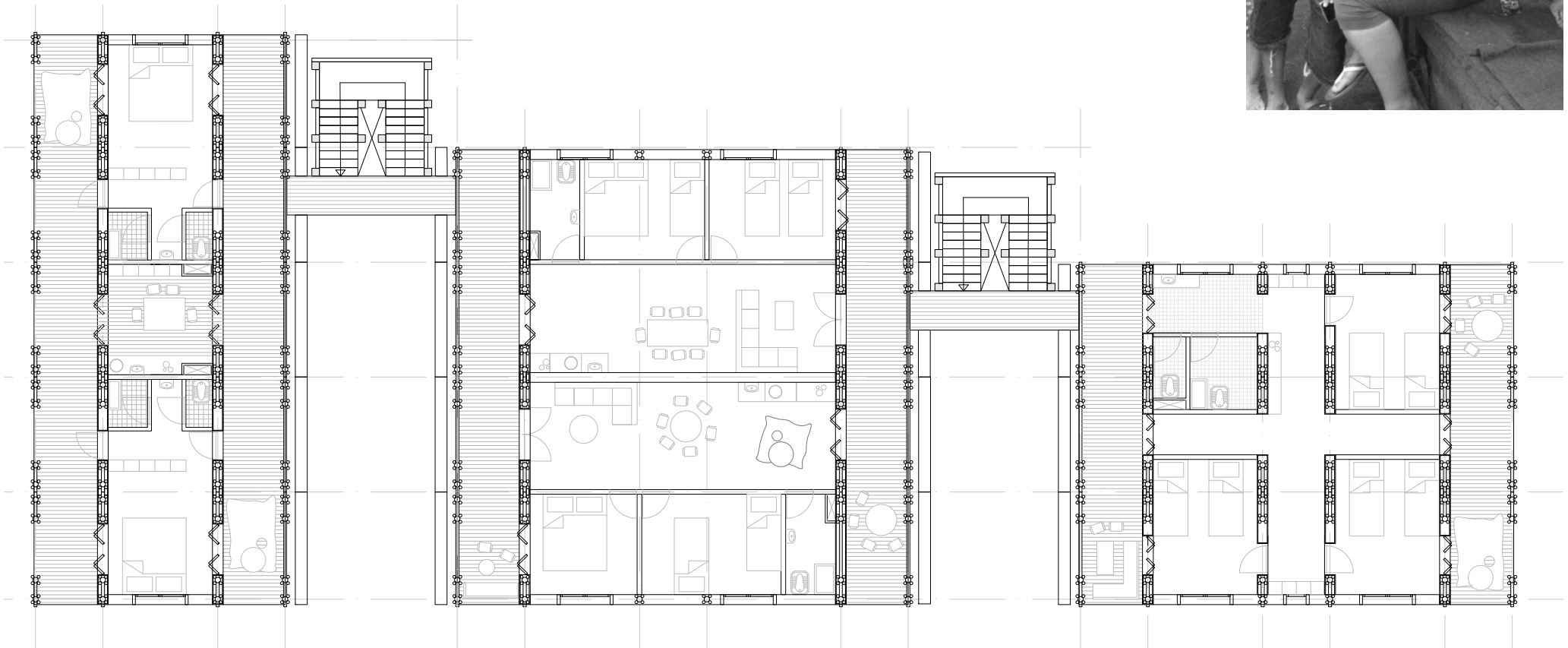
Shared rooms (kos-kosan)



DESIGN

Working and living activities

Studio with shared kitchen




DESIGN

Working and living activities

Family homes





Introduction

Context

Problem Research

Intervention Research

Research Conclusion

Objective

Design

Water System

Building elements

Working and living activities

Development strategy

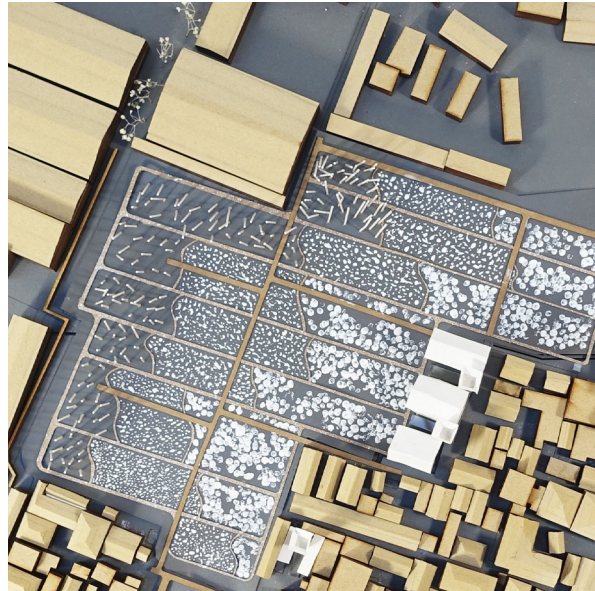
Conclusion

DESIGN

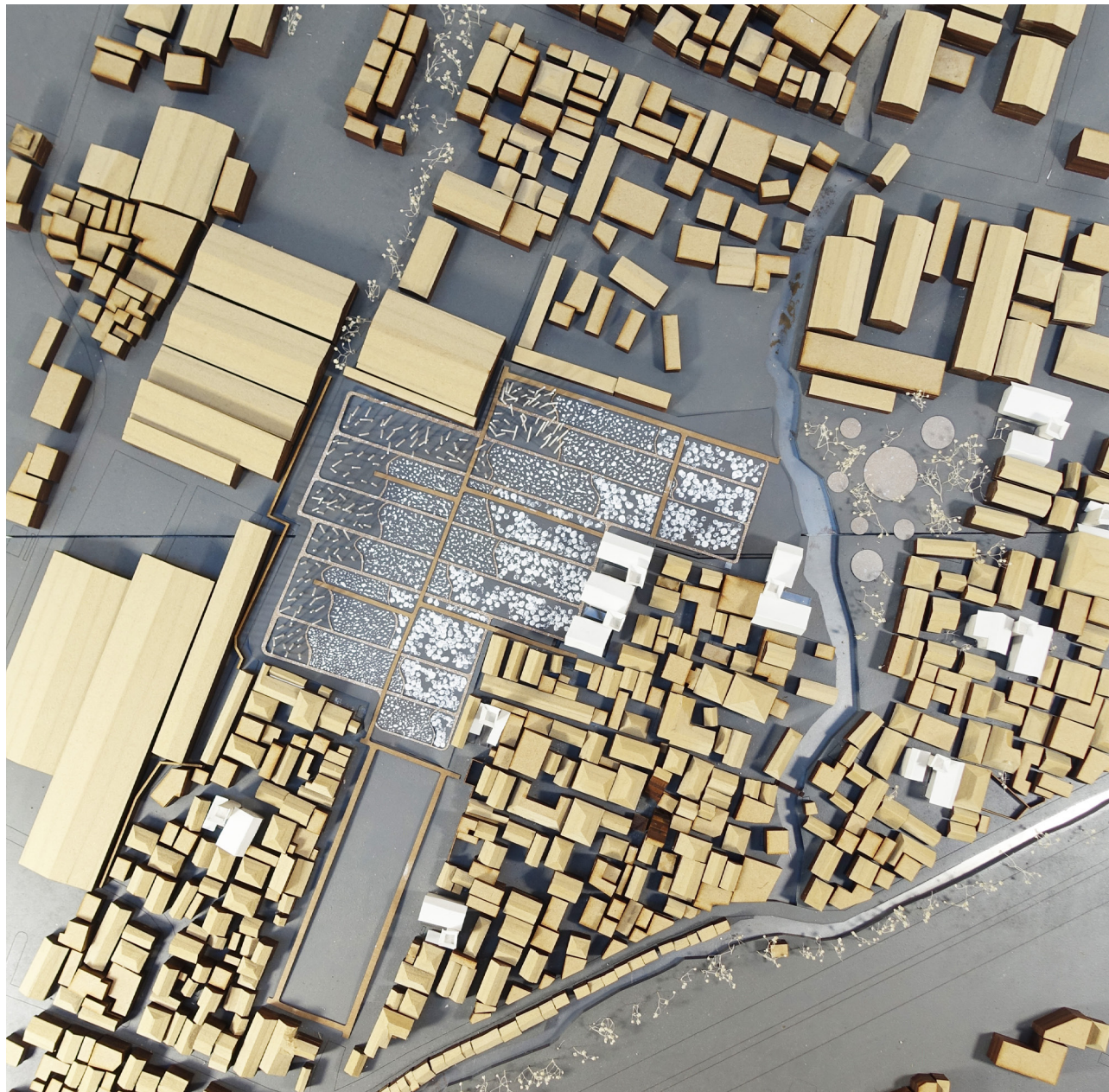
Development strategy

Need of new dwellings

Water challenges



DESIGN
Development strategy



DESIGN

Development startegy



Elements

Space (housing/working space)

Elements



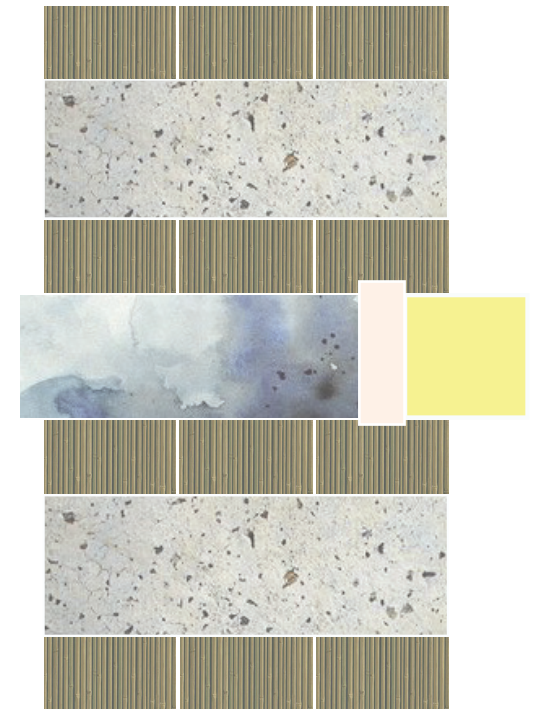
3m x 2m x 3m



Waterzone

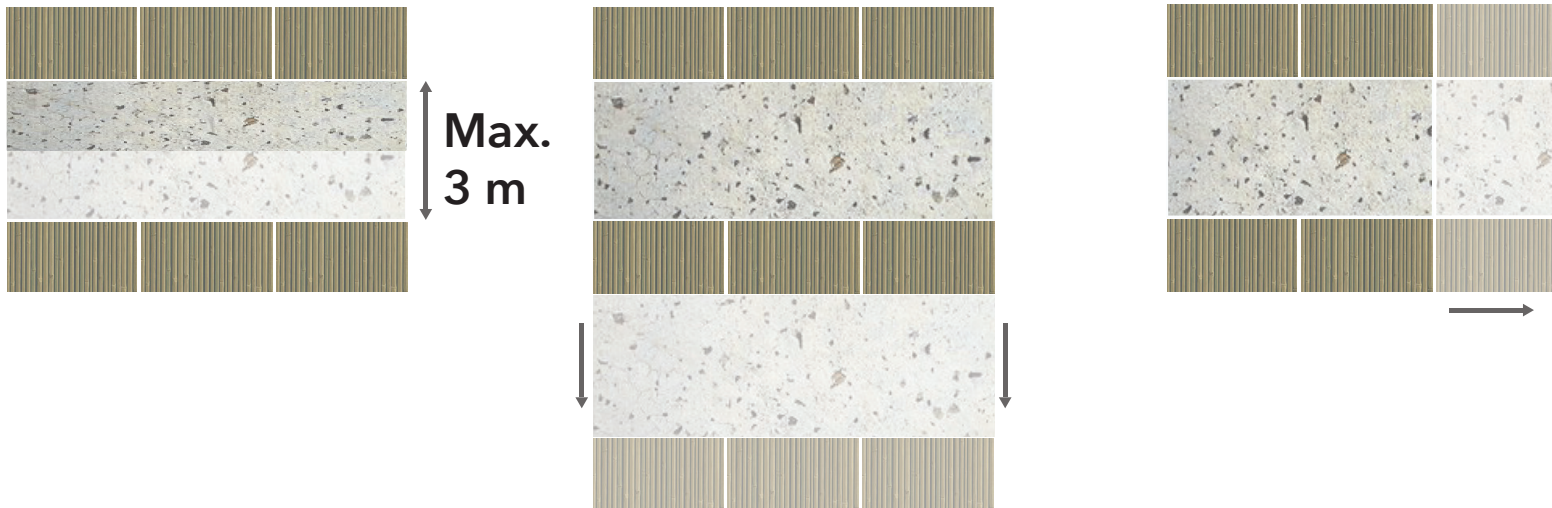
Walk path

Staircase



DESIGN

Development strategy



DESIGN

Development strategy

Free plot



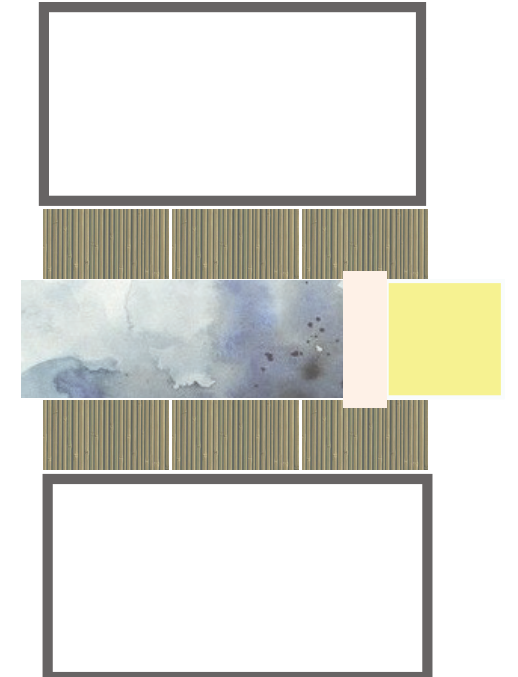
Over existing houses



On to existing houses

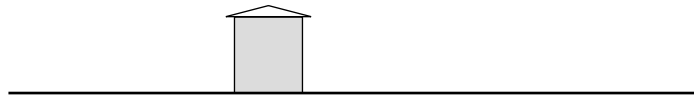


Between existing houses



DESIGN

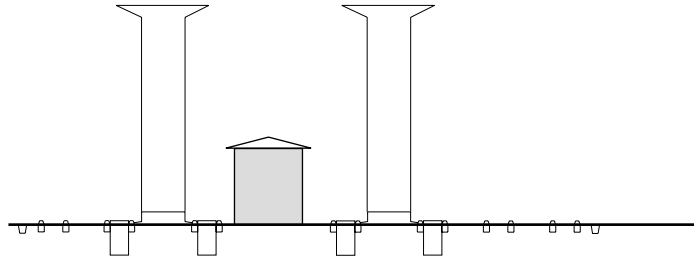
Work and live activities



year 0

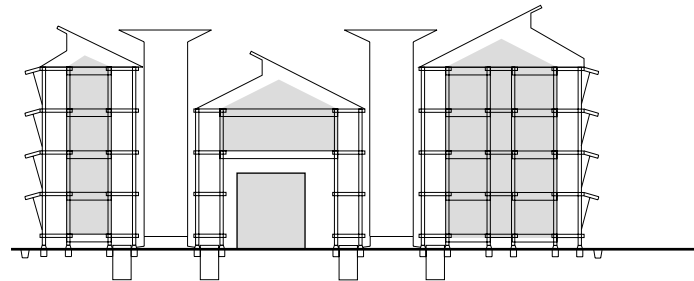
Existing house

Building phase



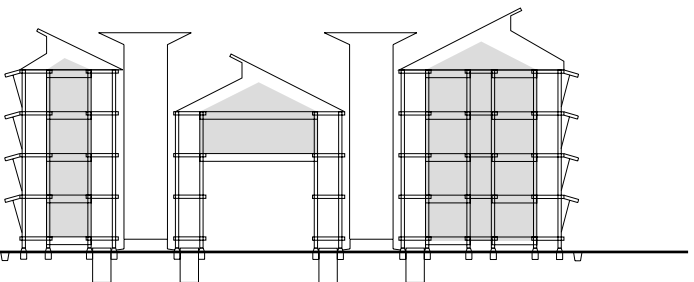
year 1

Existing house, water tower, water reservoir, founda-



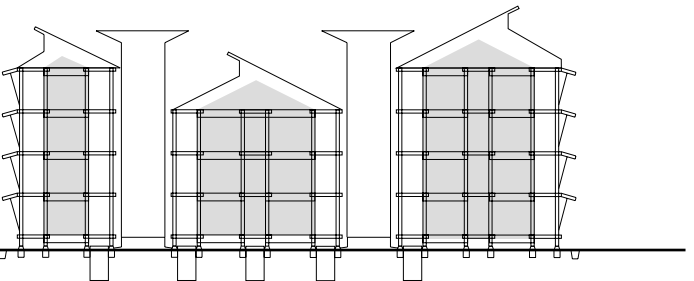
year 5

Existing house, water tower, water reservoir,



year 10

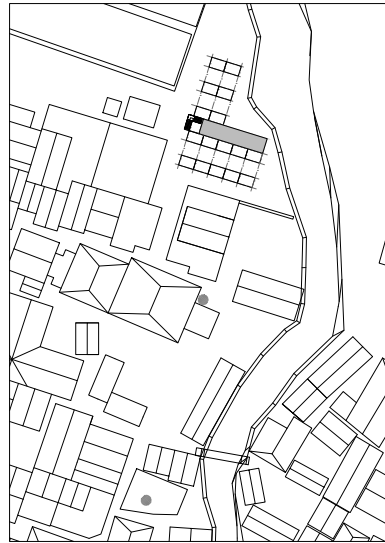
Existing house, water tower, water reservoir, foundation, new construction, new houses,



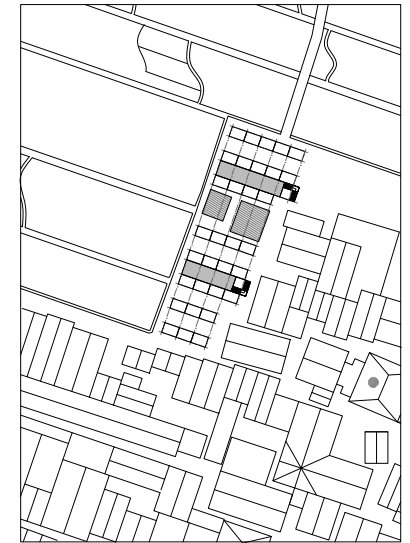
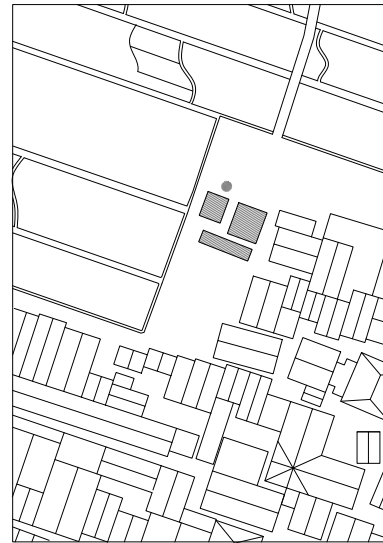
year 11

Existing house, water tower, water reservoir, foundation, new construction, new houses,

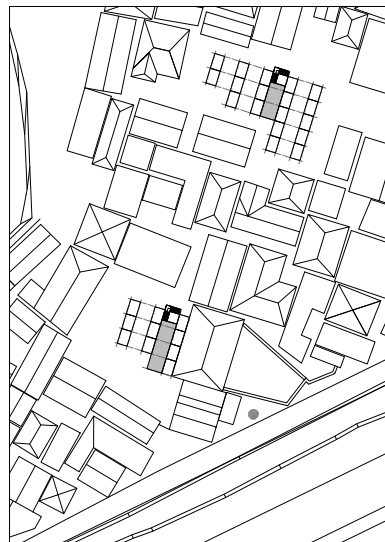
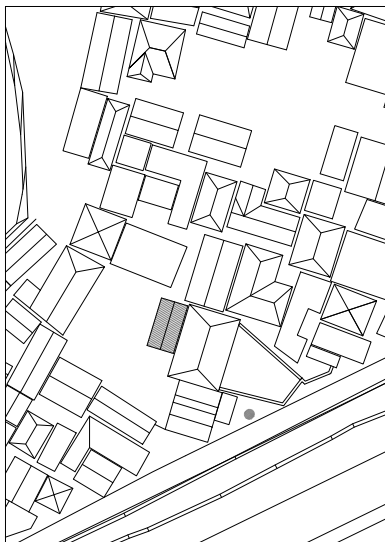
Free plot



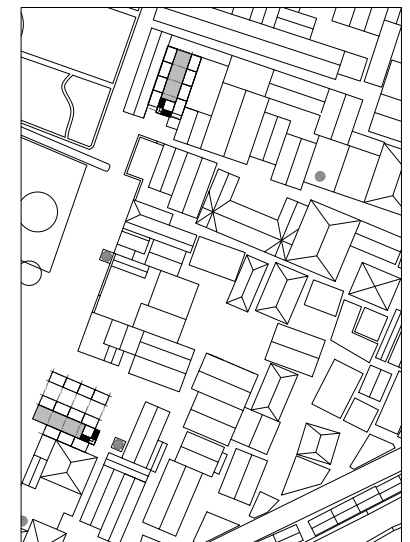
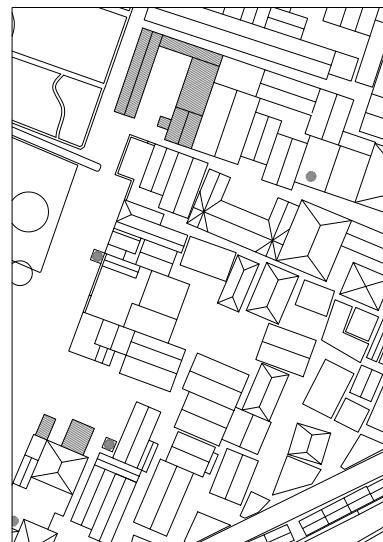
Over existing houses



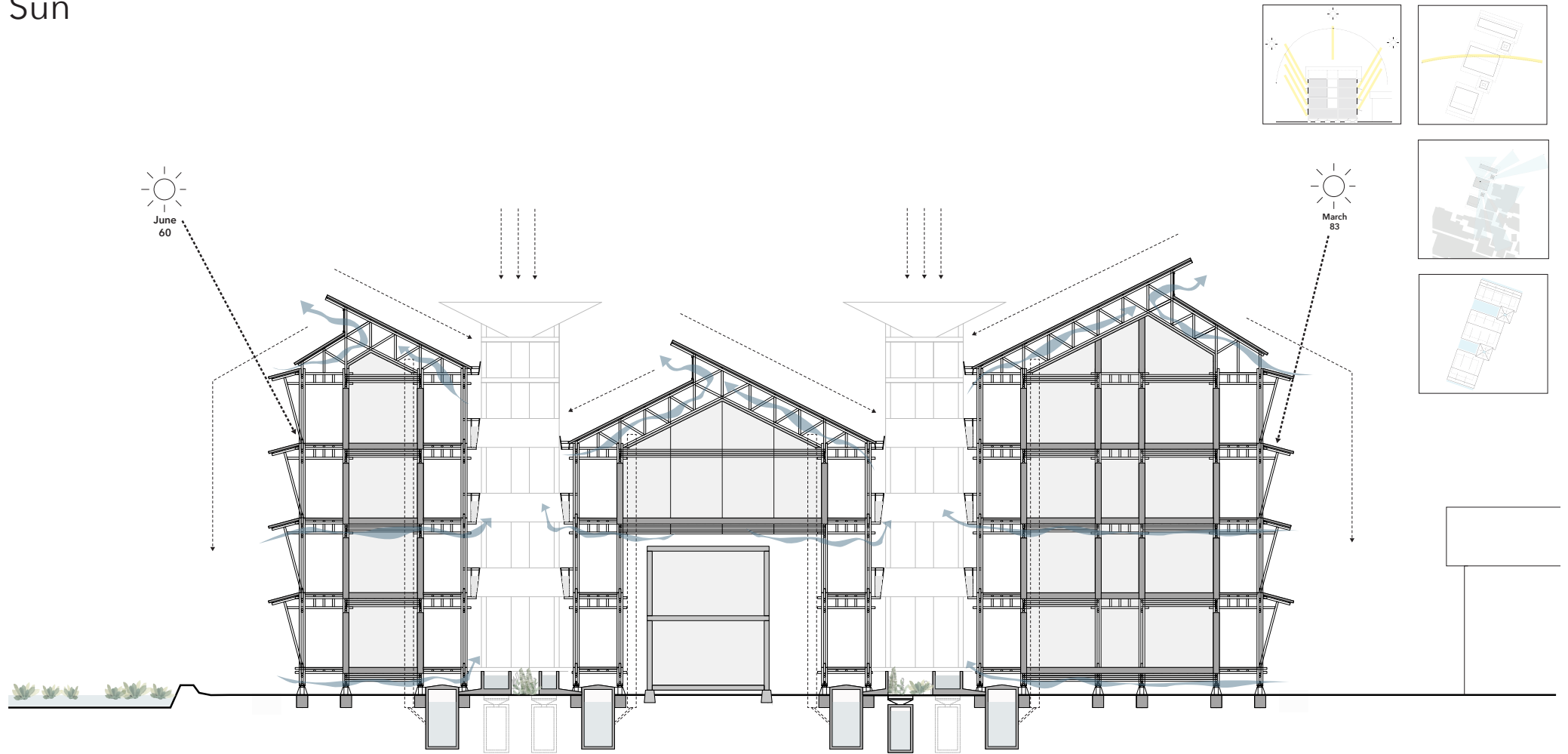
Next to an existing house



Between existing houses



DESIGN
Climate
Rain
Wind(ventilation)
Sun



Introduction

Context

Problem Research

Intervention Research

Research Conclusion

Objective

Design

Water System

Building elements

Working and living activities

Development strategy

Conclusion

REFLECTION/FURTHER DEVELOPMENTS

Testing the water system

Working together with water experts

CONCLUSION

-water system,
healthy living area, clean water, prevents flooding

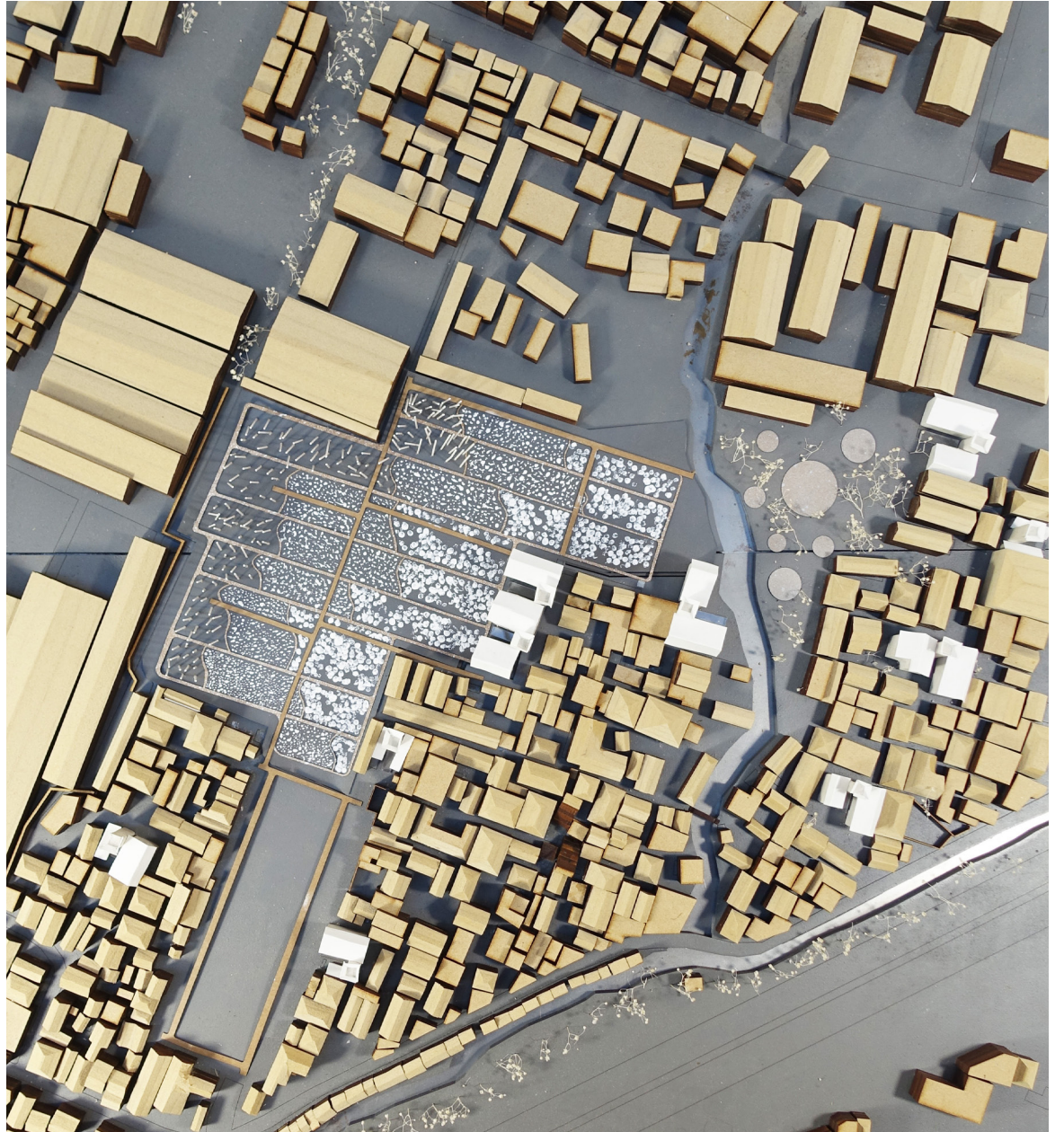
-building method
Sustainable, easy to assemble, applicable in different locations, strengthen the identity of the area

-social economy
independent, creating workfields, strengthen the communal living



Pray for rain!

reconnecting living with its ecology





THANK YOU