SMALL CHANGE

A participatory pattern of inhabitation in Midden-Delfland

Johannes Henrik Weissenbruch, Landscape with windmills near Schiedam, 1873
Boymans Van Beuningen museum, Rotterdam

Unknown, part of exhibition The beauty of: Midden-Delfland, 2022
Haags Gemeentemuseum, Den Haag

source: https://www.statista.com/statistics/525804/netherlands-largest-groups-of-immigrants-by-nationality/

Average value of dwelling in Midden-Delfland 2013 - 2022

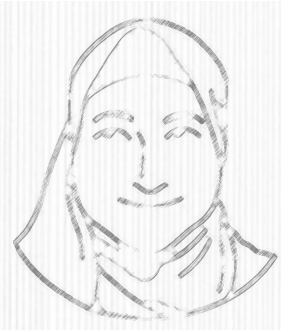
Boztas, S. 'How will I buy?': housing crisis grips the Netherlands as Dutch go to polls, The Guardian, (2023),
source: https://www.theguardian.com/world/2023/mar/15/netherlands-housing-crisis-dutch-elections

"All these next steps we're supposed to be taking at our age, as young professionals, they're just not possible. Everything's just … on hold. Relationships are being determined by the housing market, and that's obscene."

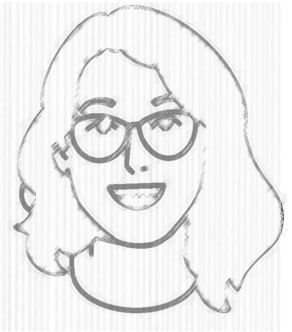
Lara, lives in Schiedam, 2023

Boztas, S. 'How will I buy?': housing crisis grips the Netherlands as Dutch go to polls, The Guardian, (2023), source: https://www.theguardian.com/world/2023/mar/15/netherlands-housing-crisis-dutch-elections

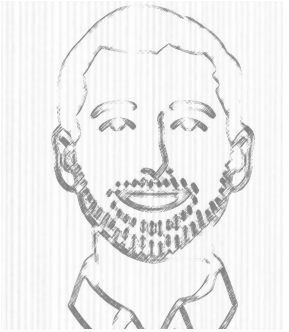
Ola, 16, Russia



Lara, 29, Indonesia



Laila, 19, Lebanon



Hassan, 37, Syria

Paweł, 33, Poland

Karolina, 33, Poland

Agnieszka, 26, Poland

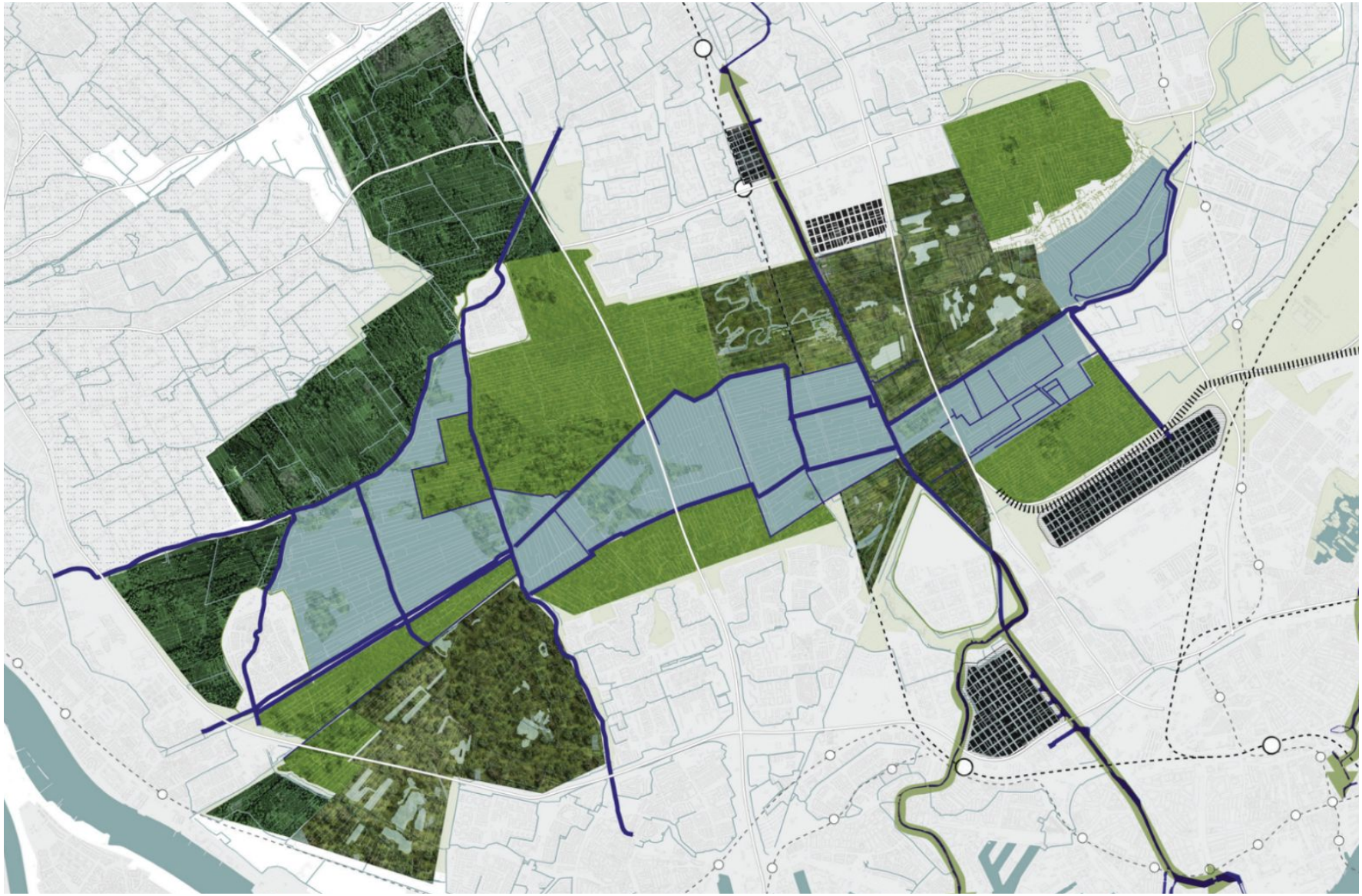
Angelina, 39, Italy

Lola, 21, Italy

New comers interviewed by the author

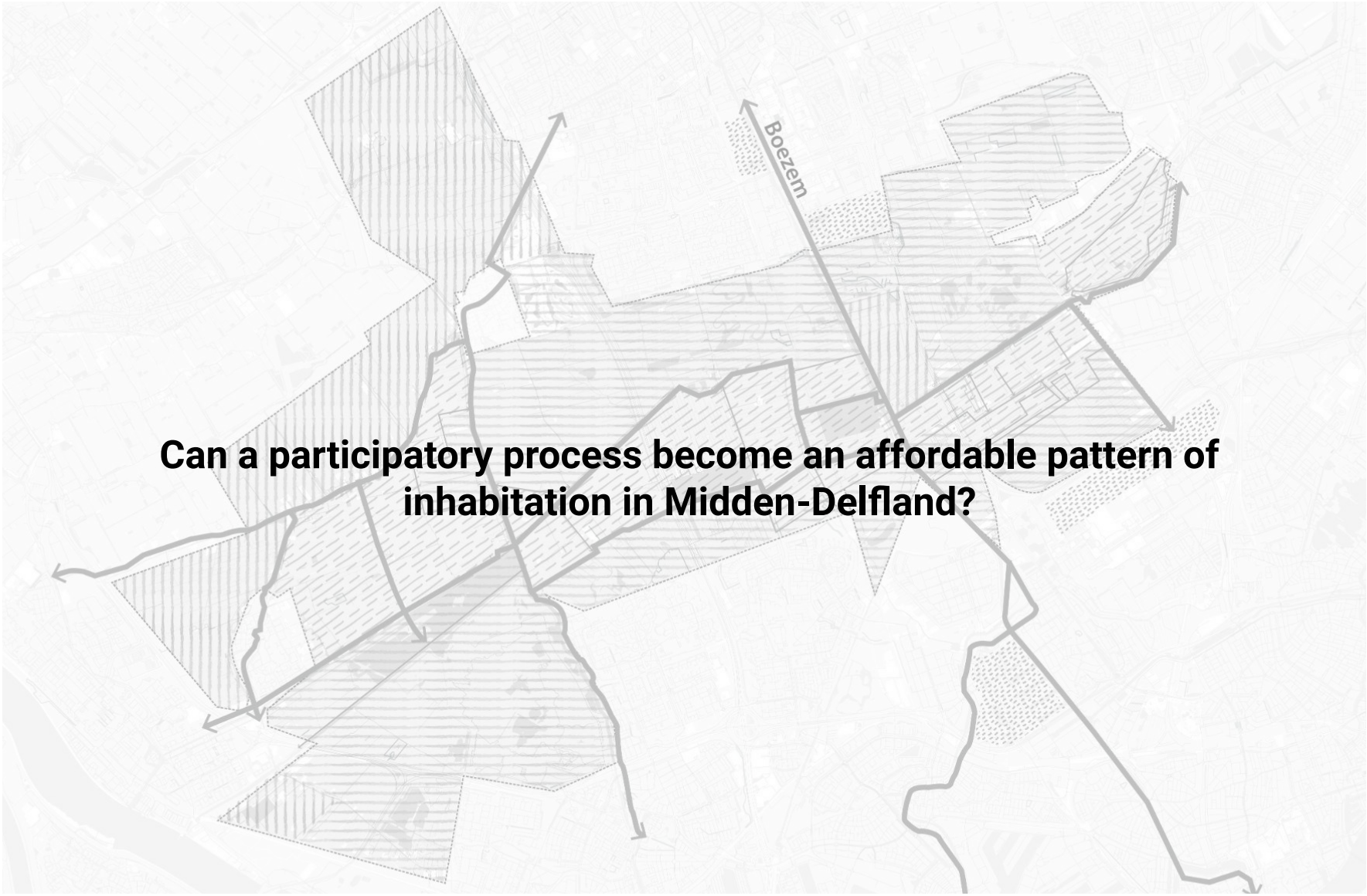
New comers.

Housing market in the Netherlands: Private market or Social housing

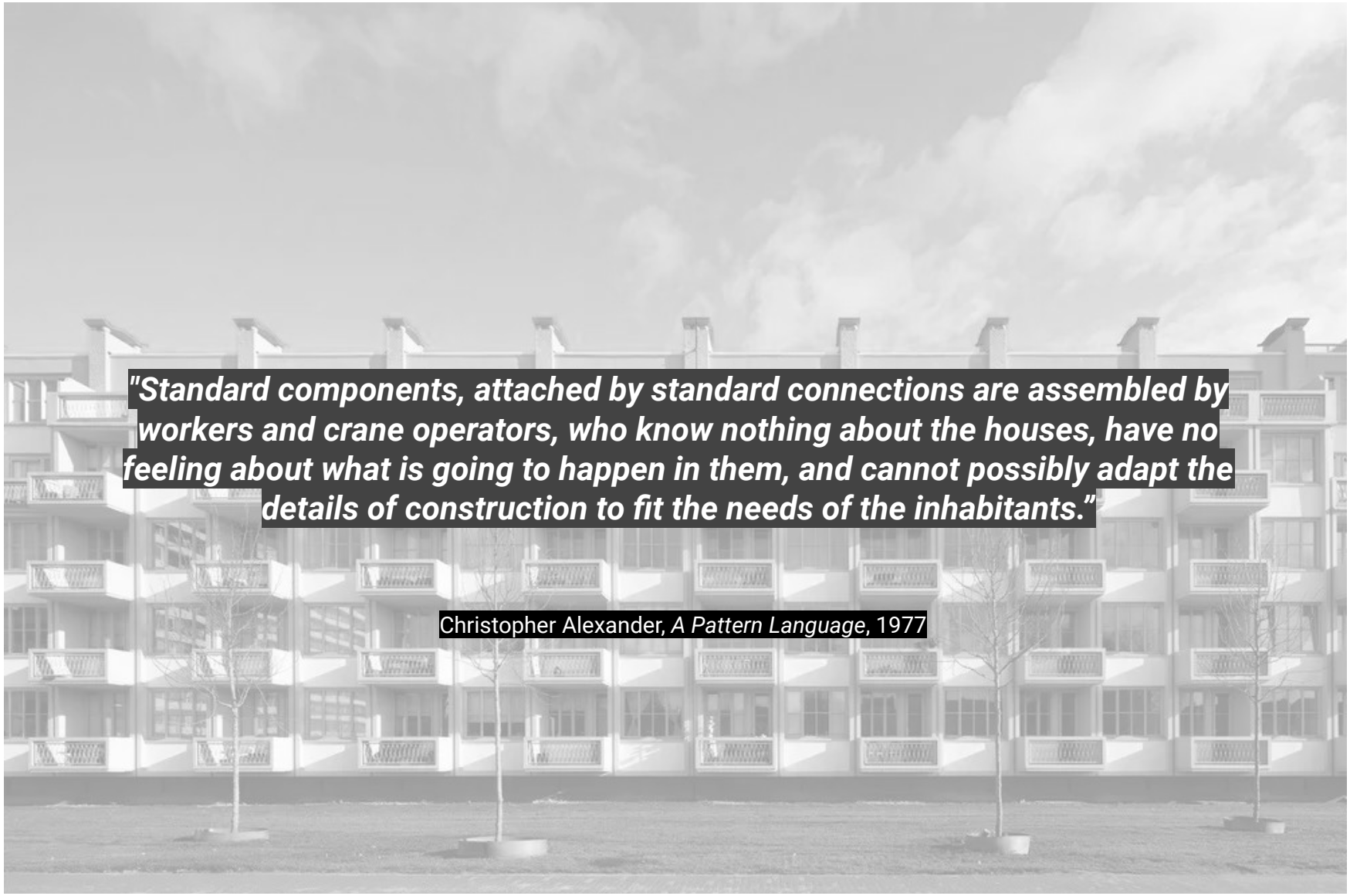


Zus Plan


Boezem
Legend
zone I (forest)
zone II (peat land/meadow)
zone III (boezem)
zone IV (urban densification)

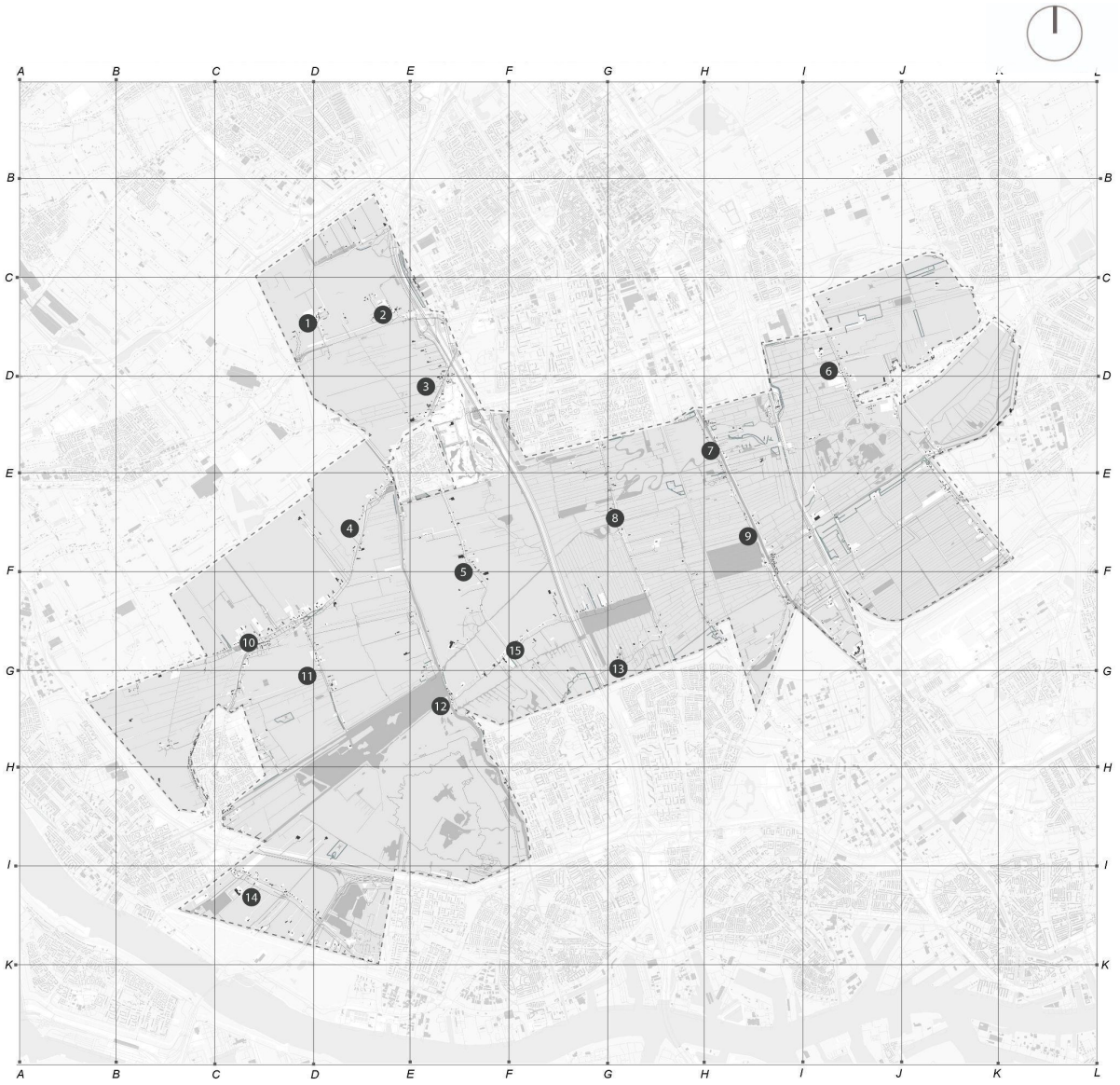


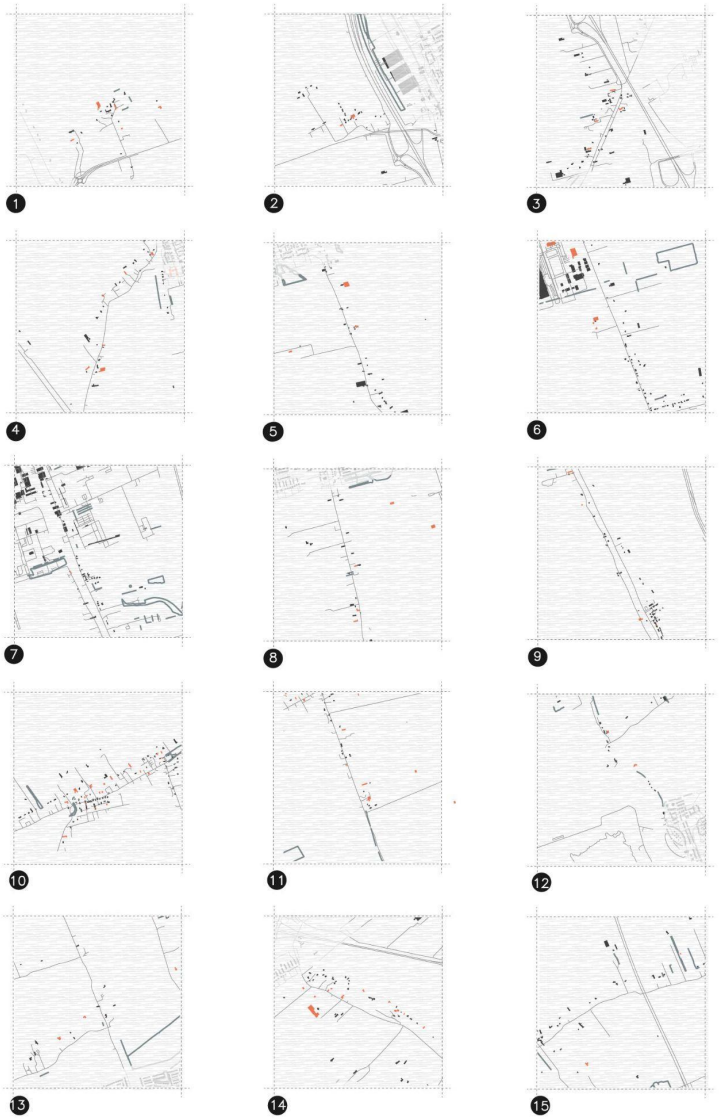
Can a participatory process become an affordable pattern of inhabitation in Midden-Delfland?



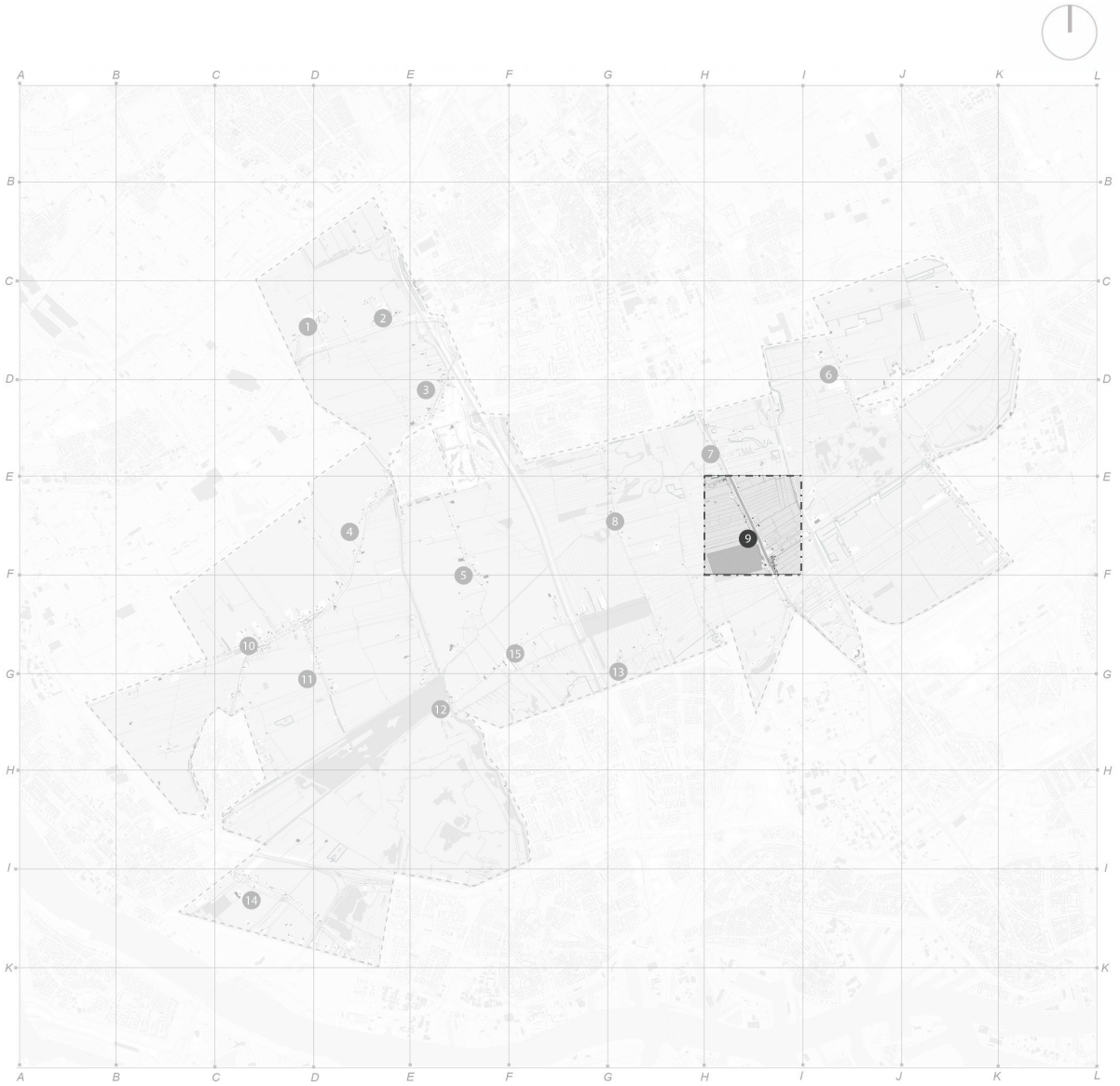
Boztas, S. 'Social housing estate, Eindhoven, (2023).
source: https://www.theguardian.com/world/2023/mar/15/netherlands-housing-crisis-dutch-elections


Affordably ≠ Cheapily



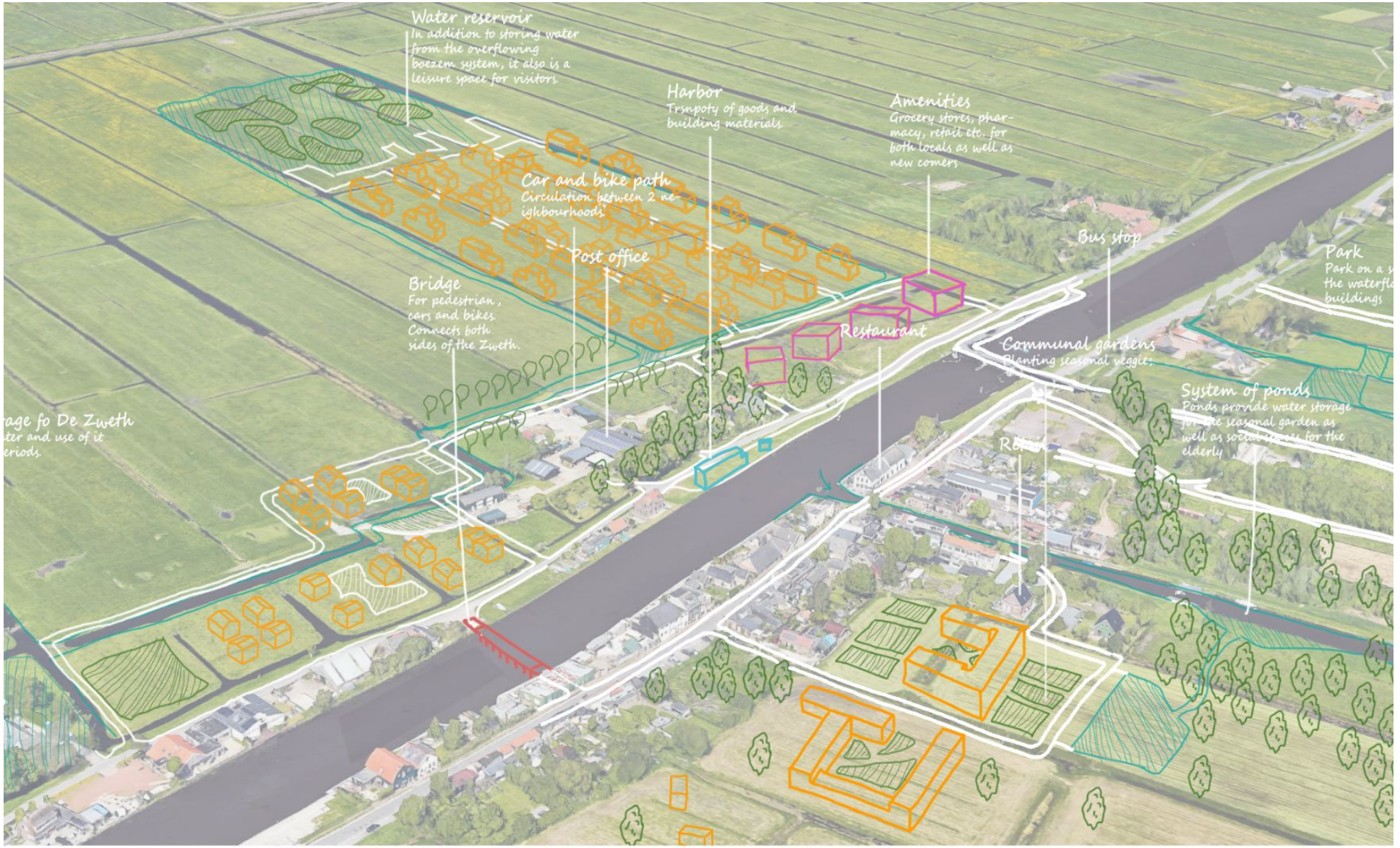


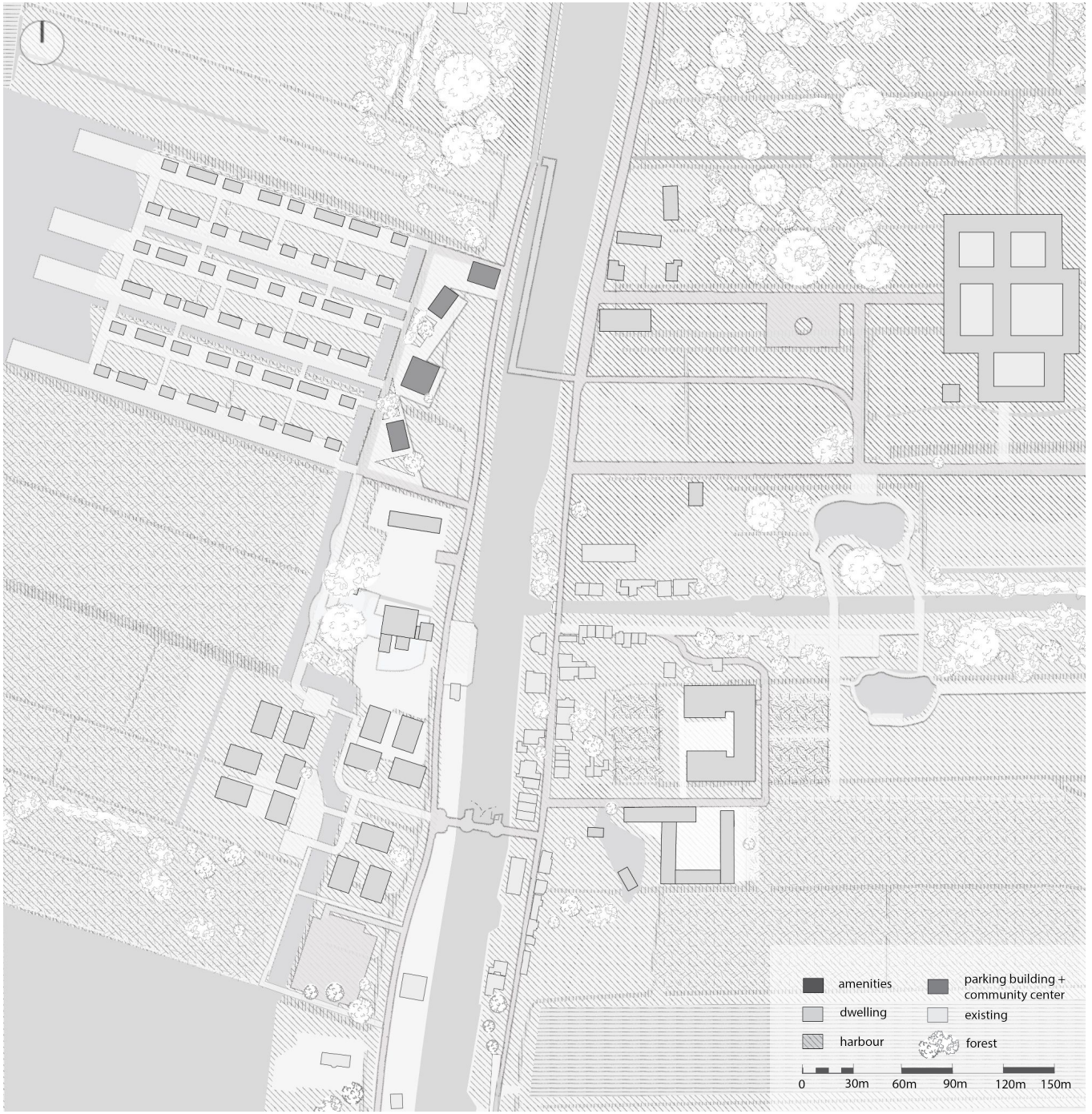
Site investigation. In the search for a prototype village



Prototype village

Prototype village


Water reservoir
In addition to storing water from the overflowing boezem system, it also is a leisure space for visitors.
Harbor
Trsnpoty of goods and building materials.
Amenities
Grocery stores, pharmacy, retail etc. for both locals as well as new comers
Car and bike path
Circulation between 2 neighbourhoods.
Post office
Bridge
For pedestrian, cars and bikes. Connects both sides of the Zweth.
Restaurant
Bus stop
Park
Communal gardens
System of ponds
Ponds provide water storage



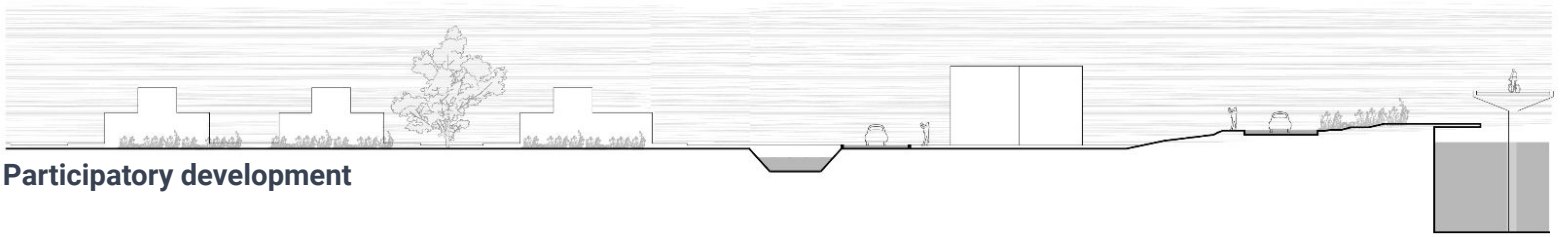
New Ecology

Participatory development

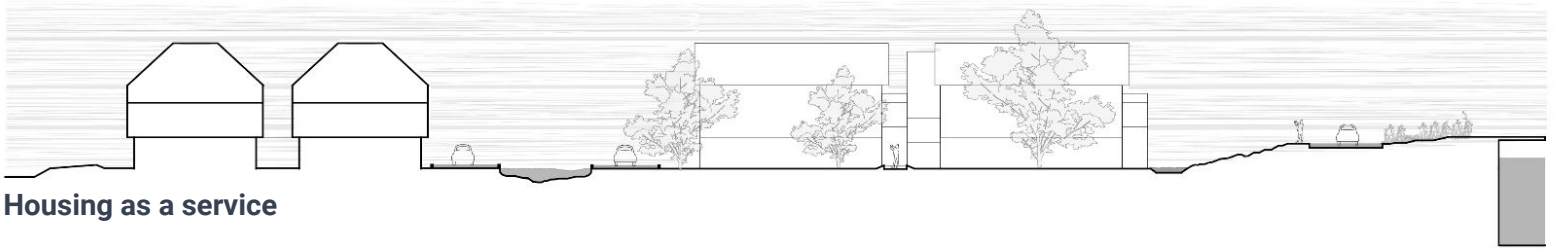
Housing as a service

Housing to bridge generations

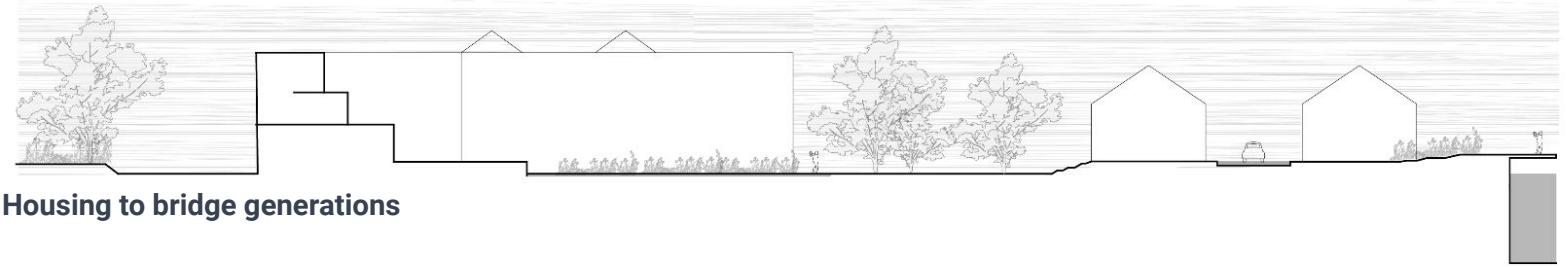
Permanent affordability in De Zweth



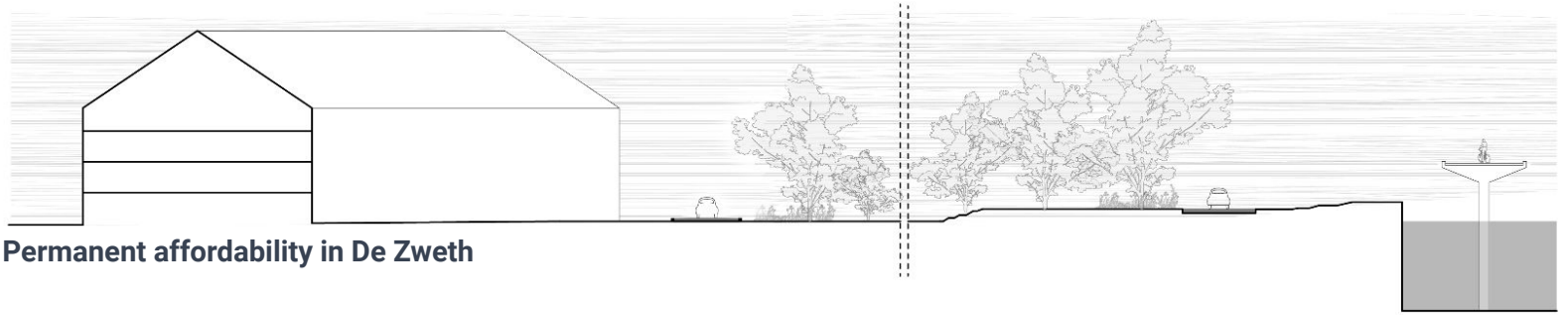
Participatory development



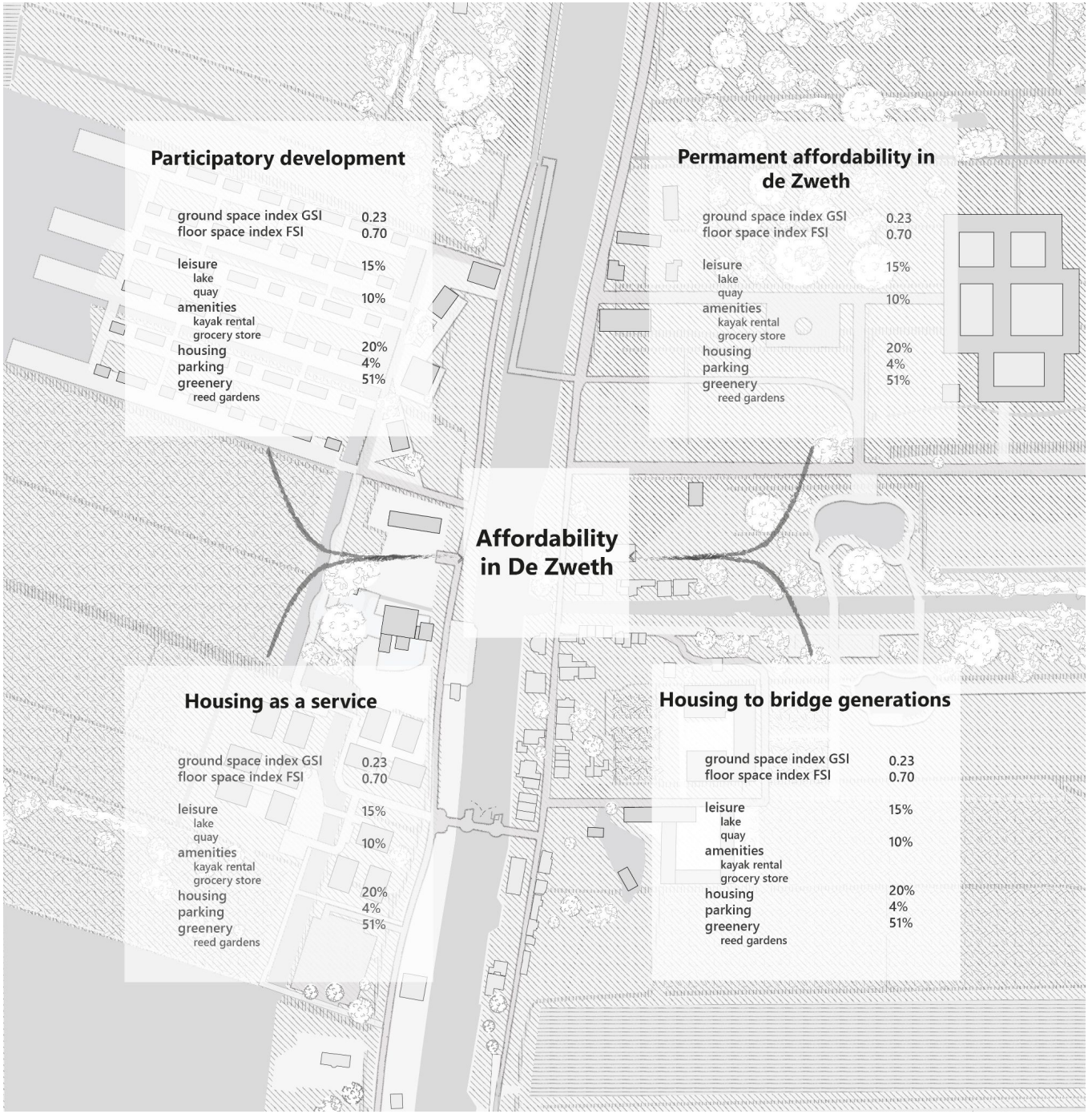
Housing as a service



Housing to bridge generations



Permanent affordability in De Zweth



Participatory development

Housing as a service

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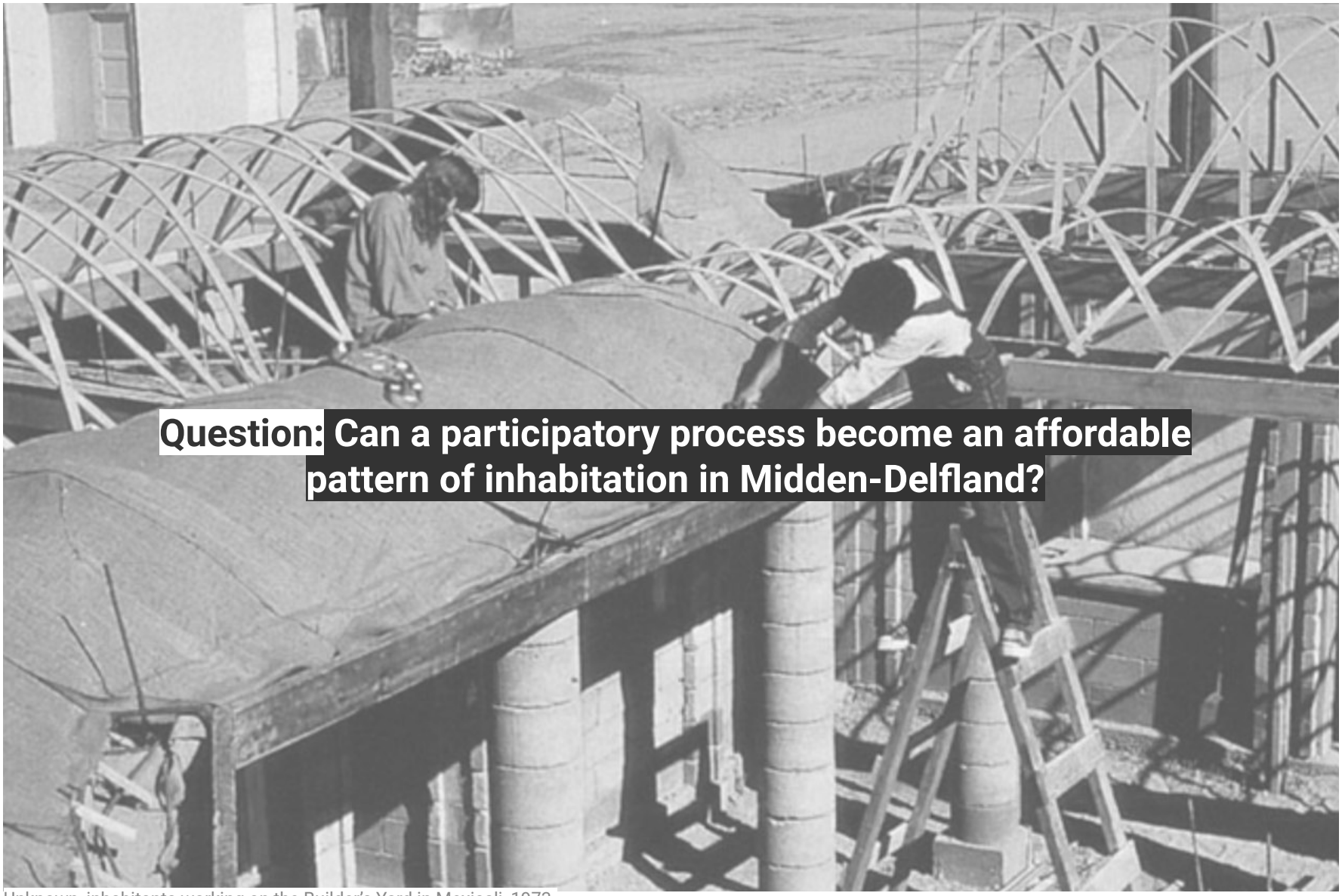
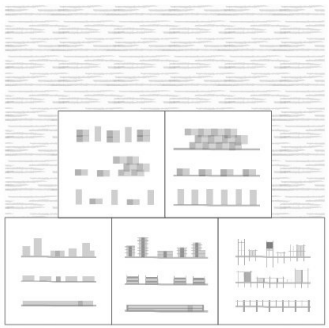
Permanent affordability in De Zweth

New Ecology

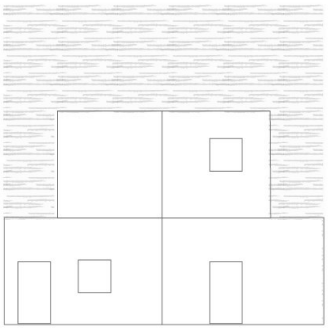


Unknown, inhabitants working on the Builder's Yard in Mexicali, 1973.

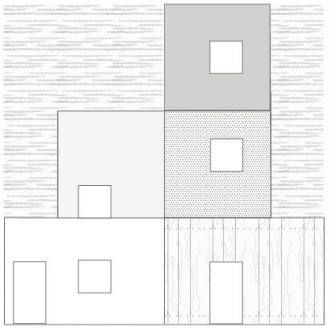
Unknown, inhabitants working on the Builder's Yard in Mexicali, 1973.



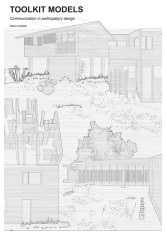
Tools

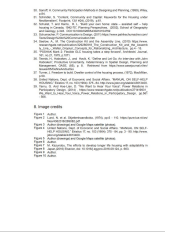


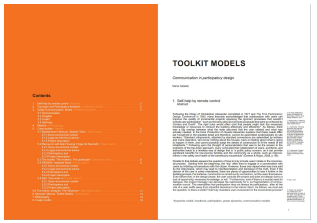
Agency

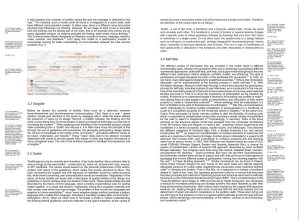


Development

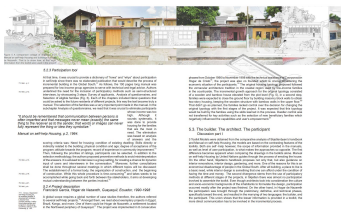

TOOLKIT MODELS
Communication in participatory design



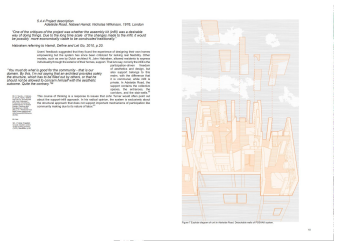

TOOLKIT MODELS
Communication in participatory design
Contents

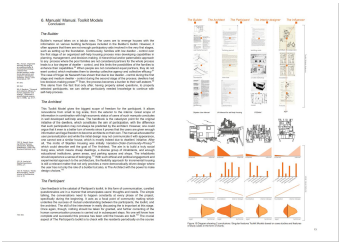


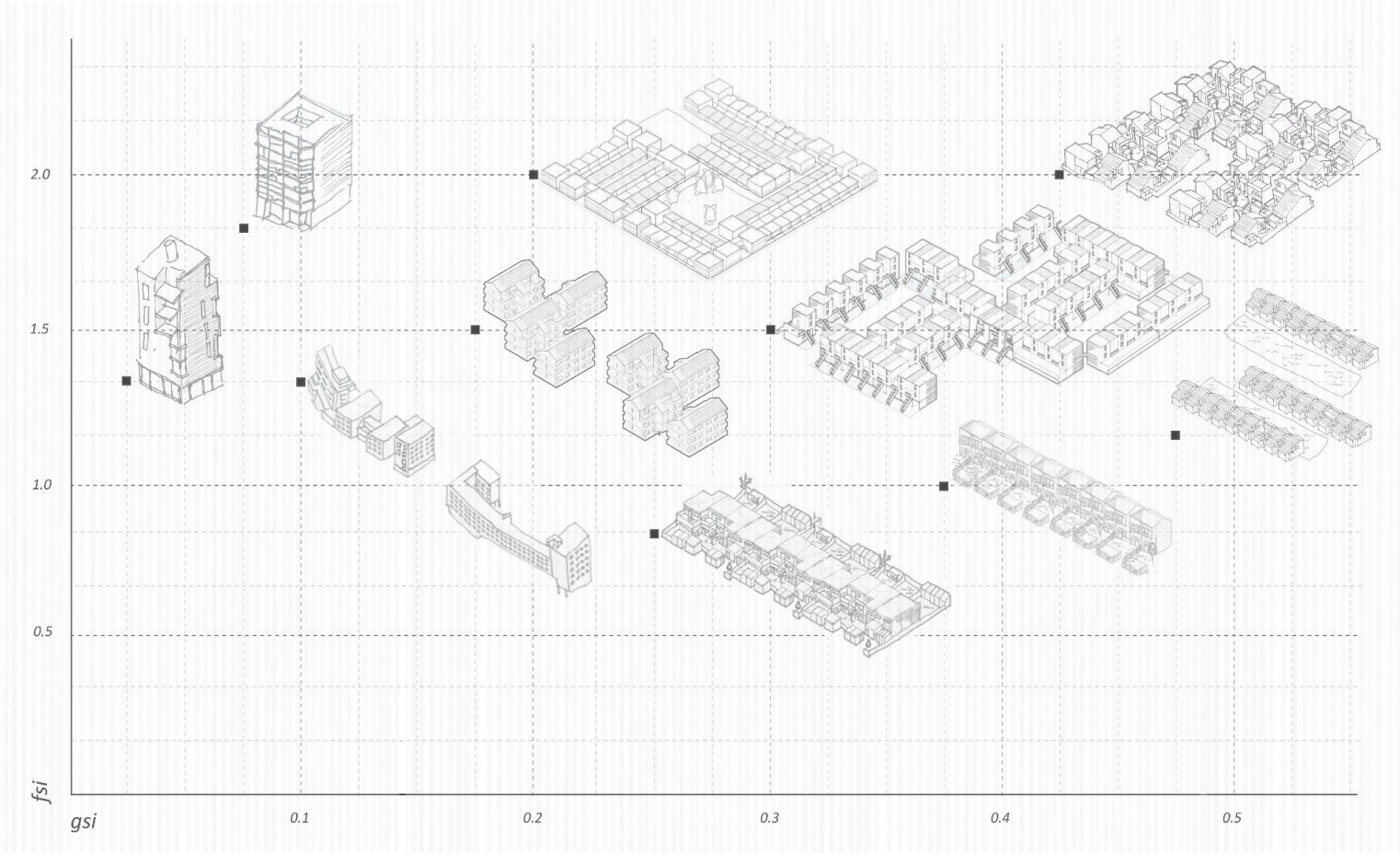

6. Case studies




PSSHAK

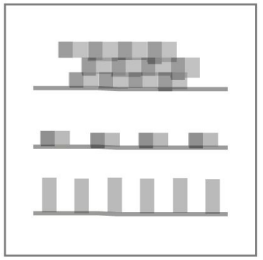




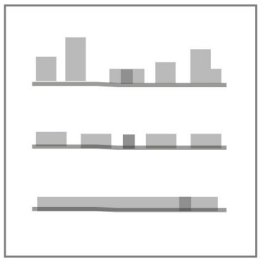


Case study analysis

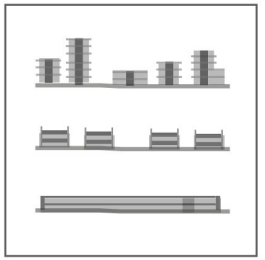
Typology Mix



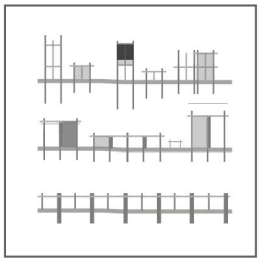
Aggregation



Community Core



Self-Development

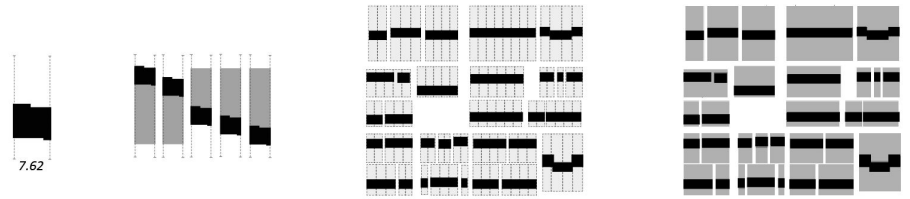


Support-Infill

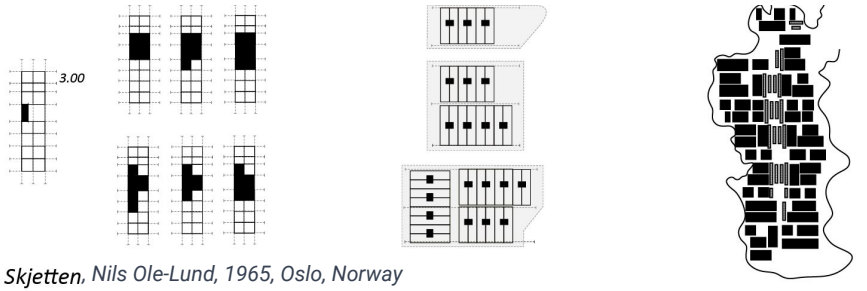
Chapter I: Typology Mix

Floorplan concept
Unit types

Typology Mix

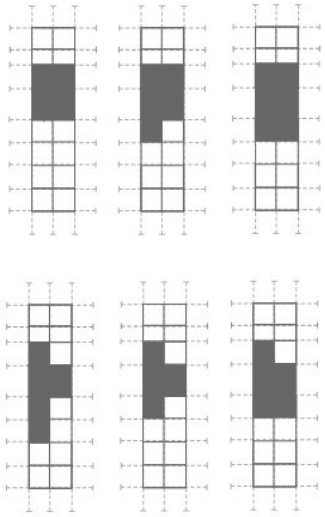


Tema 6, *Constantinos Doxiadis, 1960, Tema, Accra Ghana*

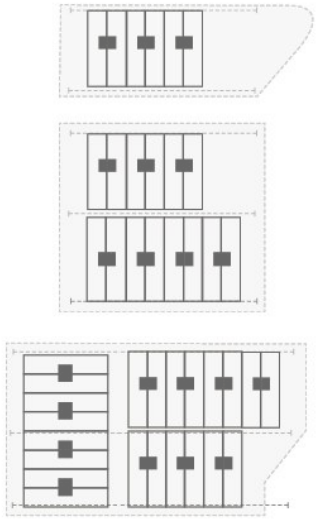


Skjetten, *Nils Ole-Lund, 1965, Oslo, Norway*

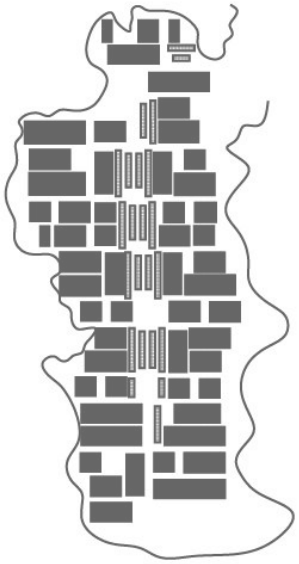
Tool diagram



Unit



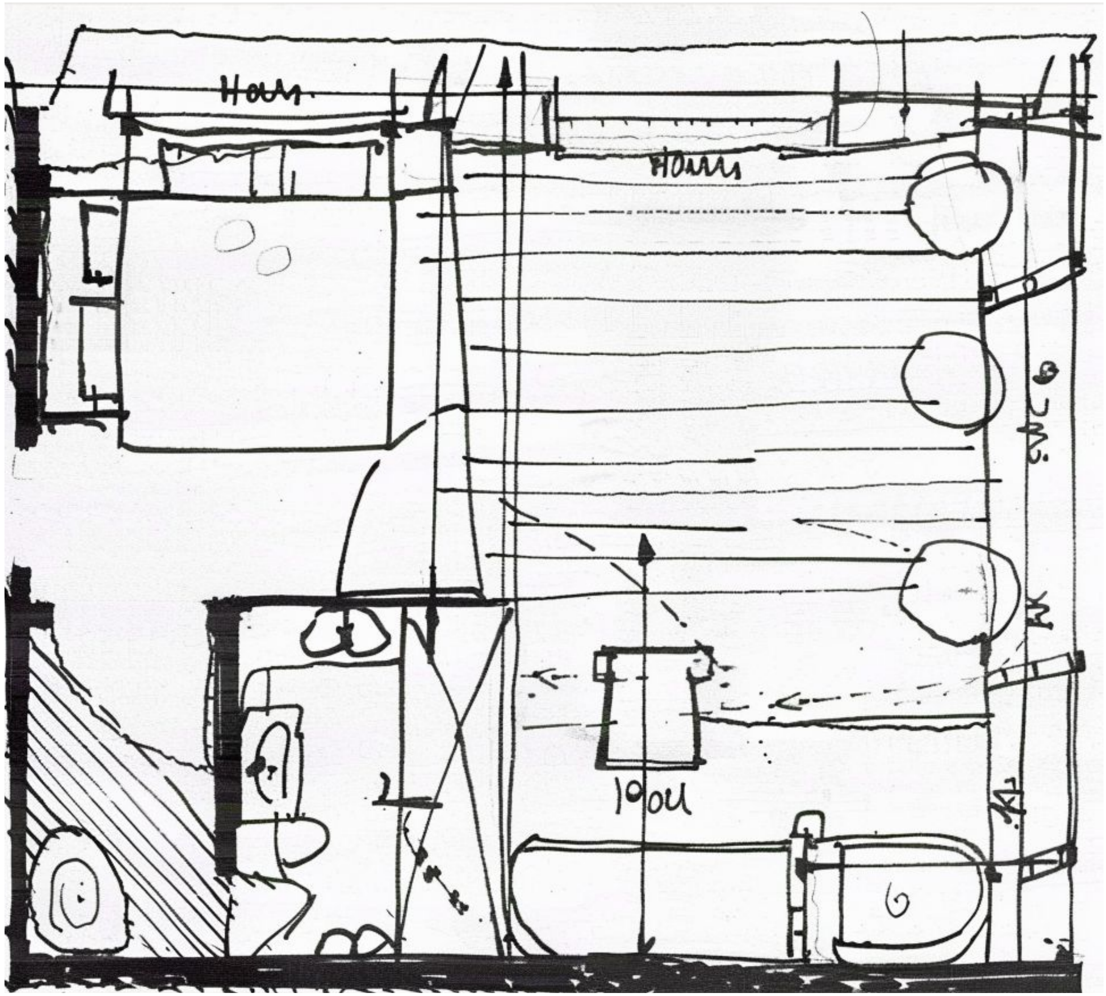
Cluster

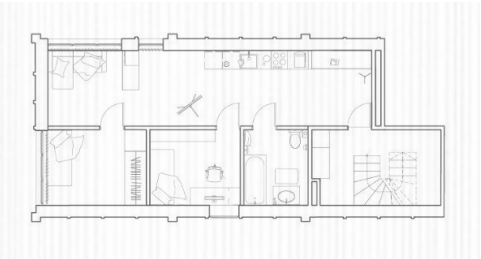
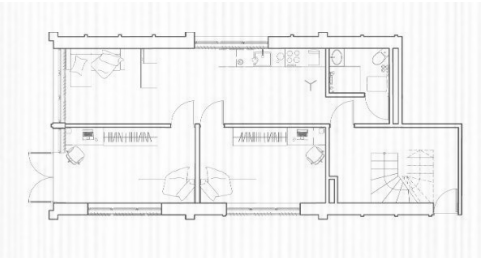
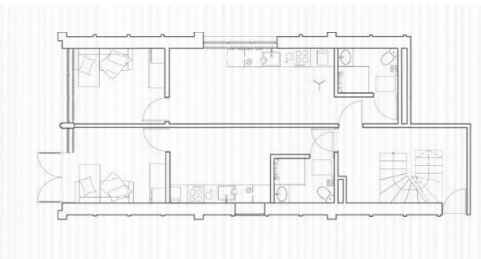
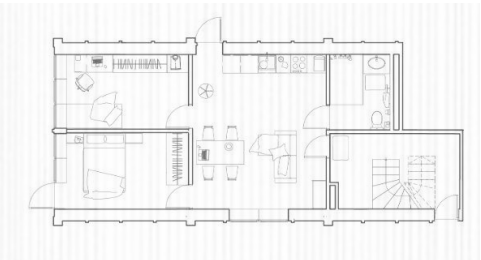
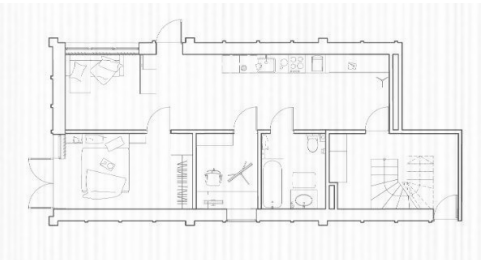
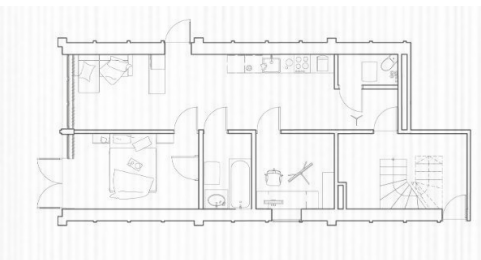
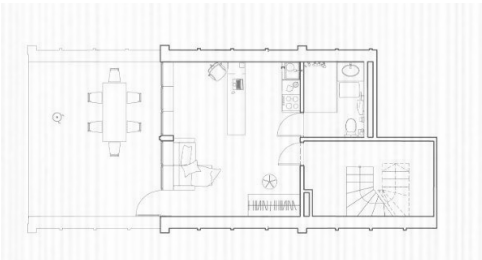
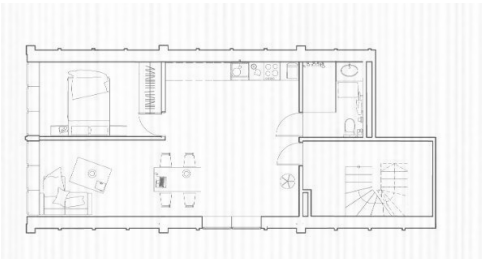
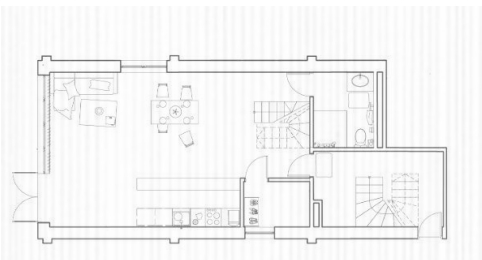
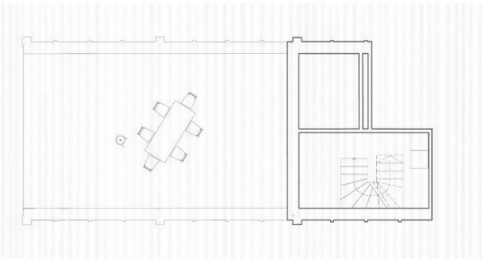
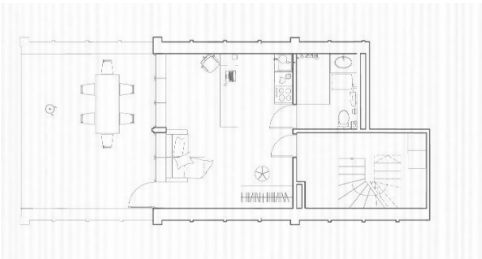
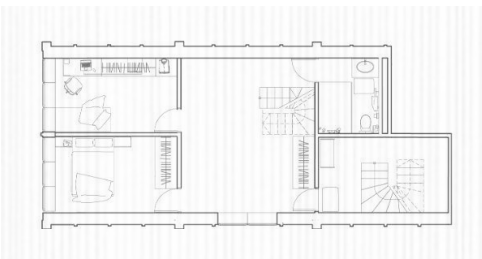


Masterplan

Skjetten Housing

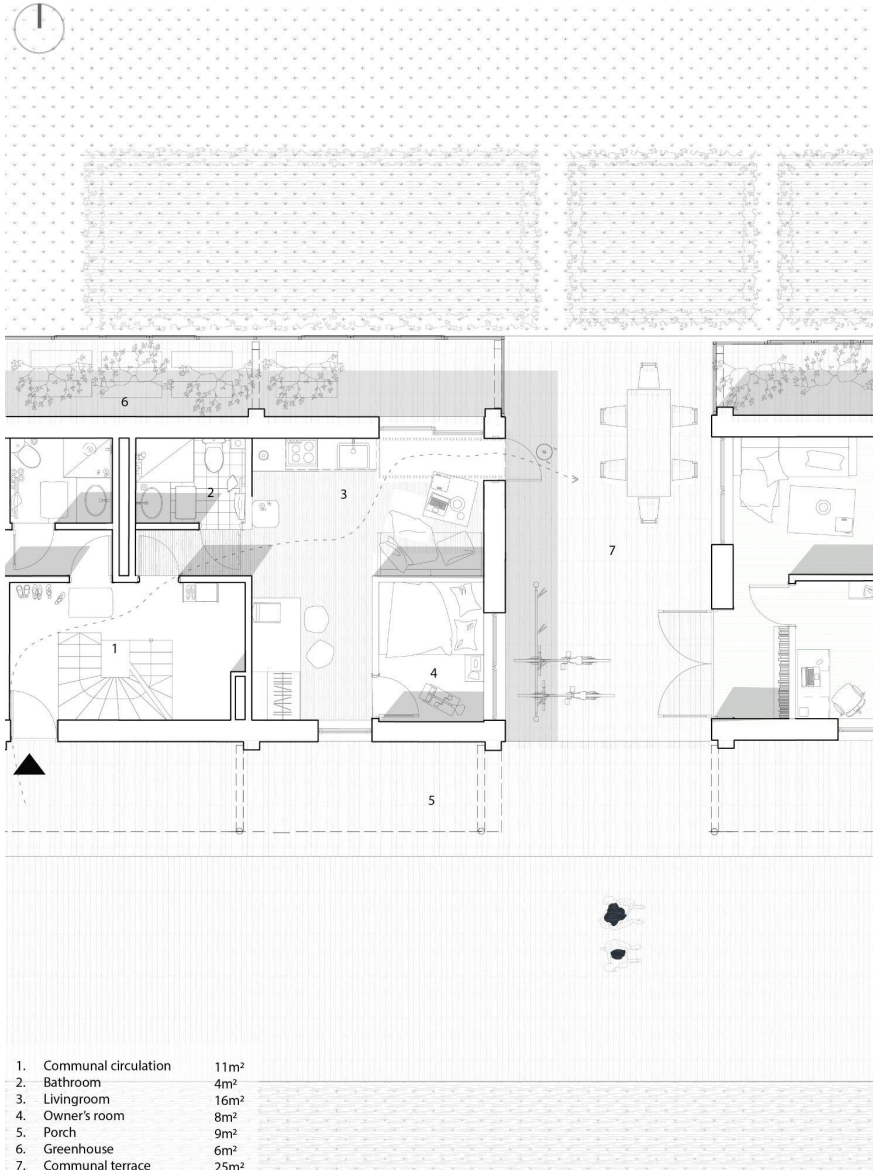
Niels Ole-Lund, Oslo, Norway, 1969



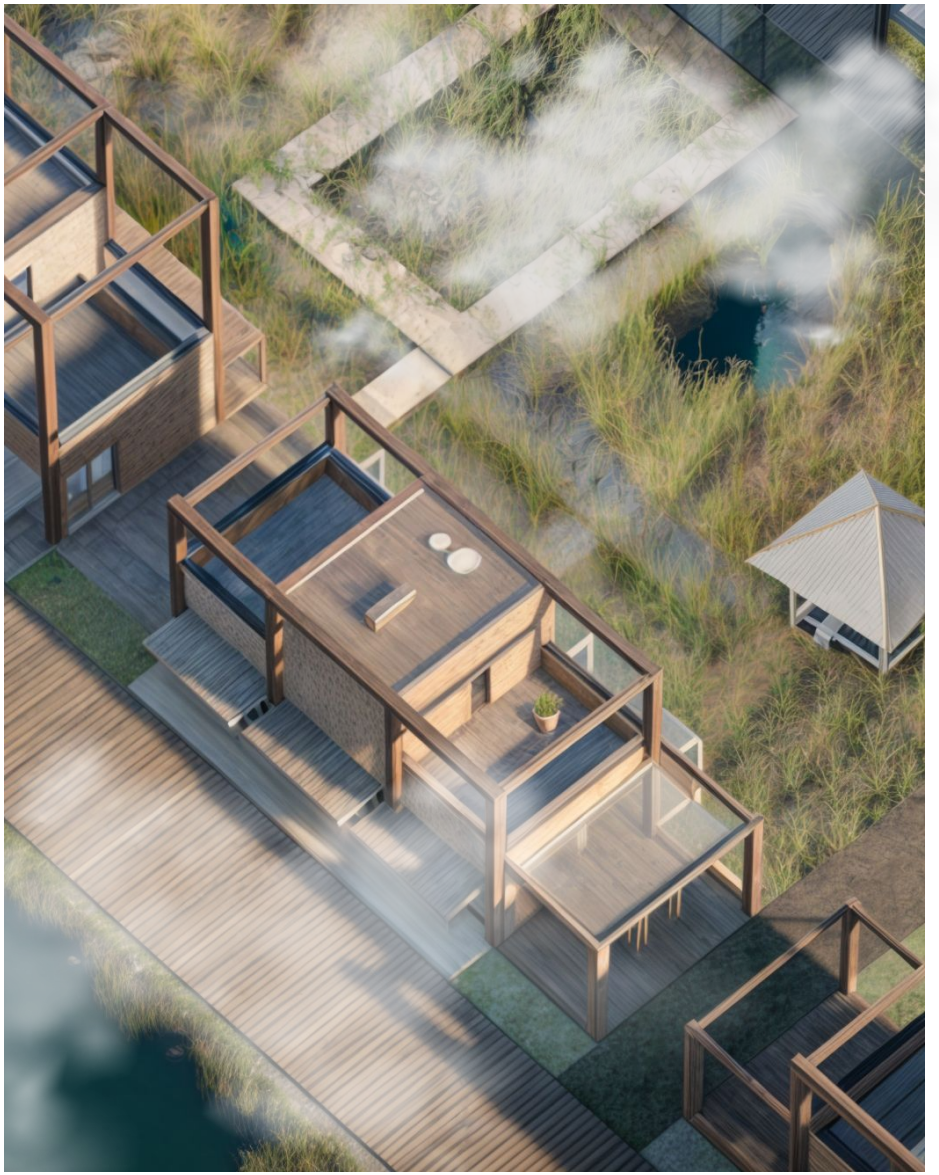













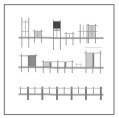
Support-Infill

Participatory aid - Plan catalogue

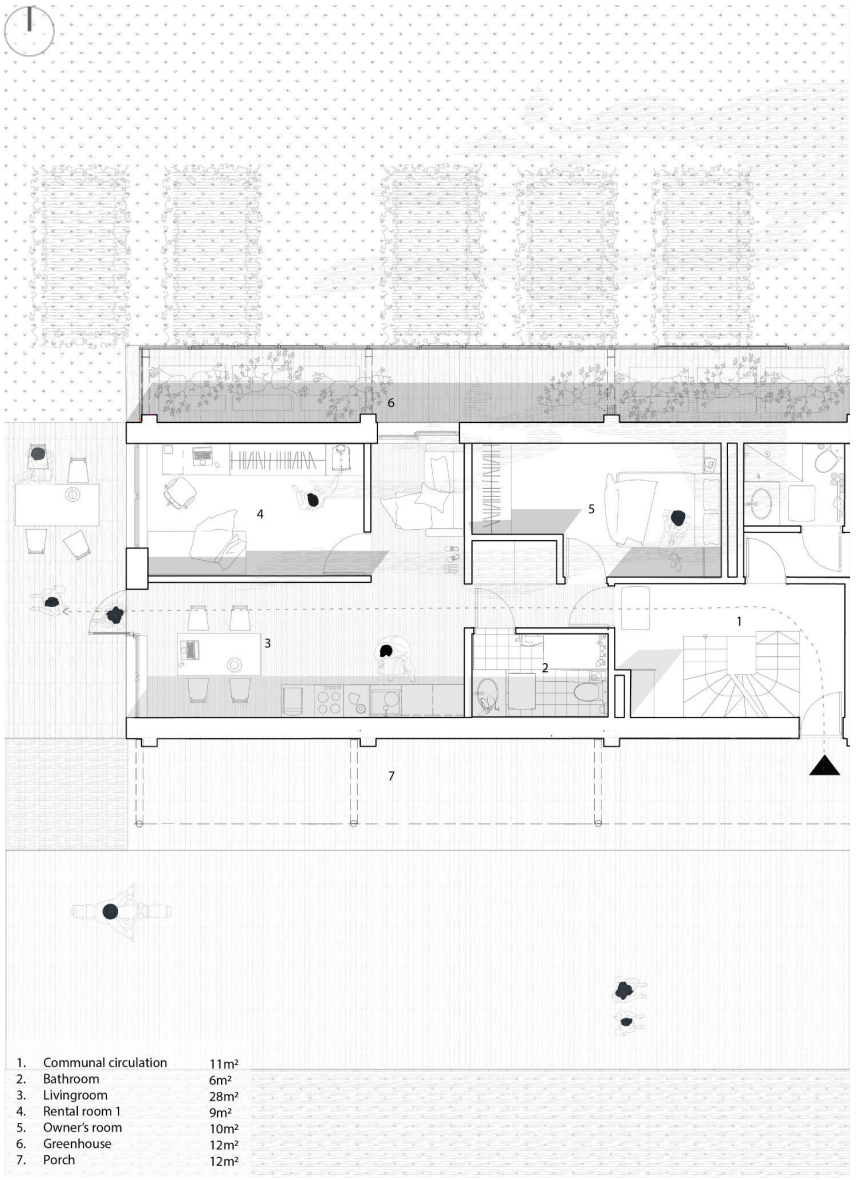


1.	Communal circulation	11m²
2.	Bathroom	4m²
3.	Livingroom	16m²
4.	Owner's room	8m²
5.	Porch	9m²
6.	Greenhouse	6m²
7.	Communal terrace	25m²

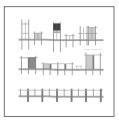




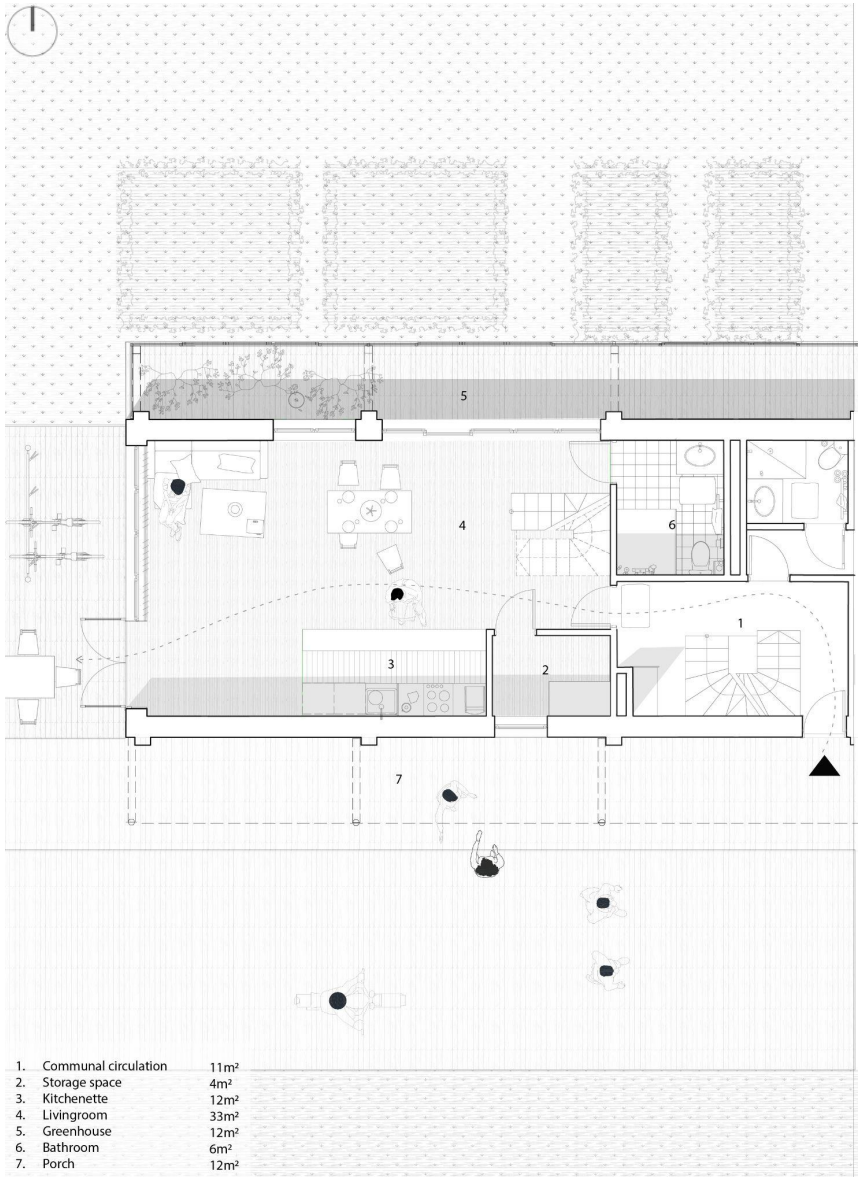
Semi-detached house I Single person unit I 32m²



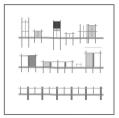
1.	Communal circulation	11m²
2.	Bathroom	6m²
3.	Livingroom	28m²
4.	Rental room 1	9m²
5.	Owner's room	10m²
6.	Greenhouse	12m²
7.	Porch	12m²



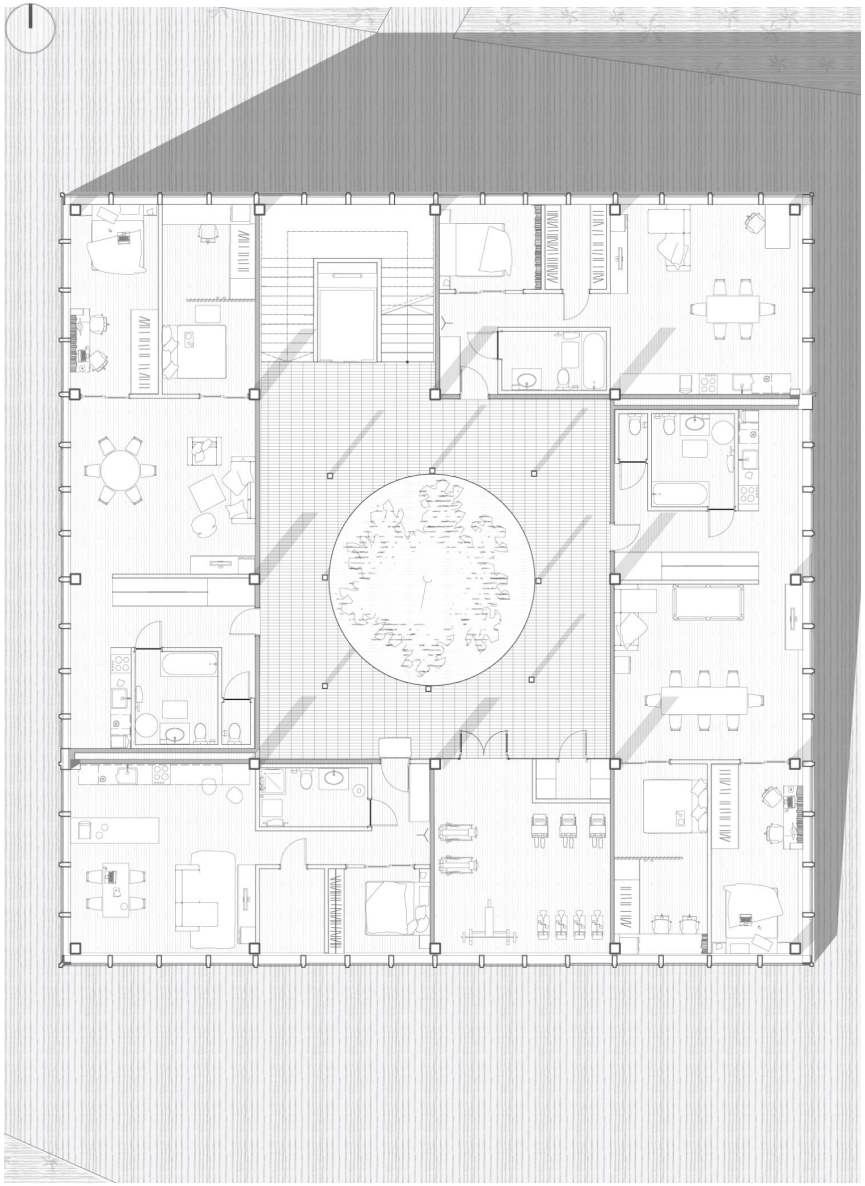
Semi-detached house I Two people unit I 52m²



1.	Communal circulation	11m²
2.	Storage space	4m²
3.	Kitchenette	12m²
4.	Livingroom	33m²
5.	Greenhouse	12m²
6.	Bathroom	6m²
7.	Porch	12m²

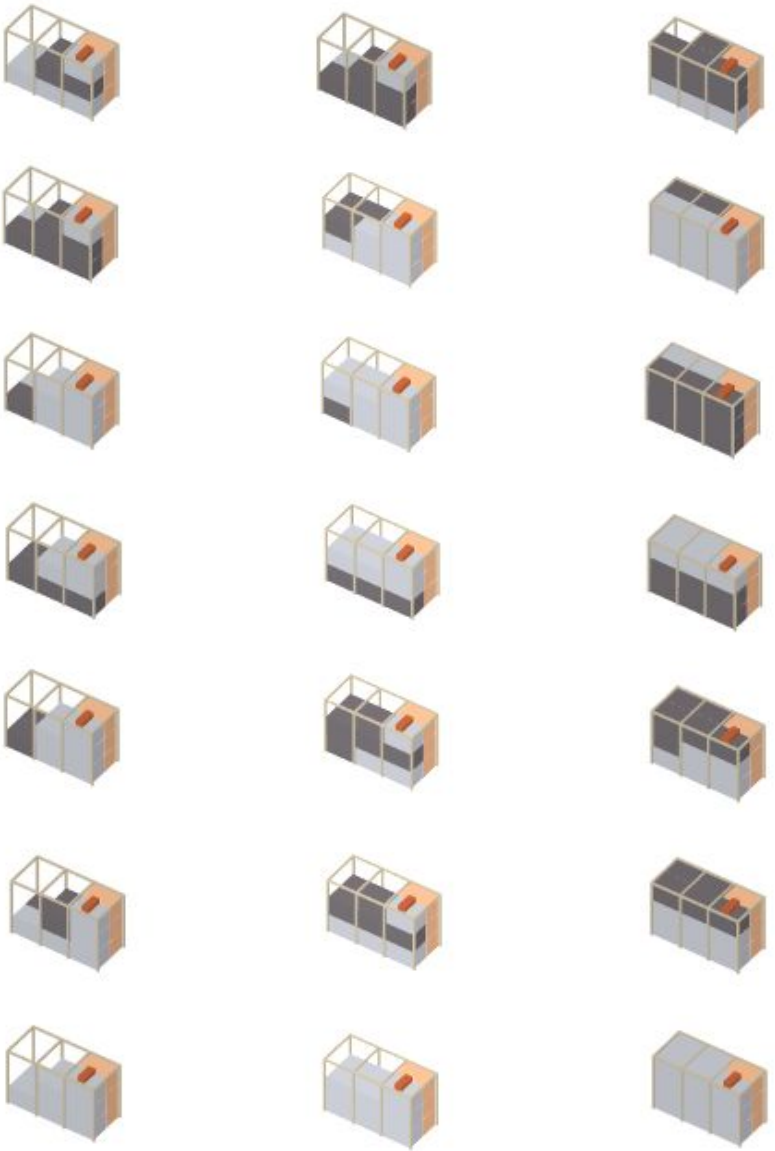


Semi-detached house I Family 2+1 unit I 82m²

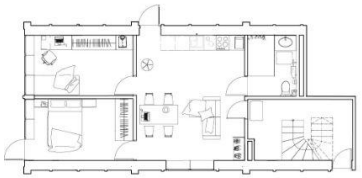


Support-Infill

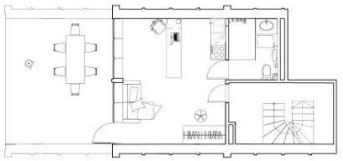
Block I amenities I 52m^2


Function
circulation
residential
rental
Stage 1
82 m2
Stage 2
114 m2
Stage 3
164 m2

Basic unit



GF



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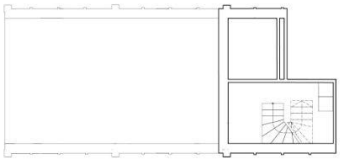

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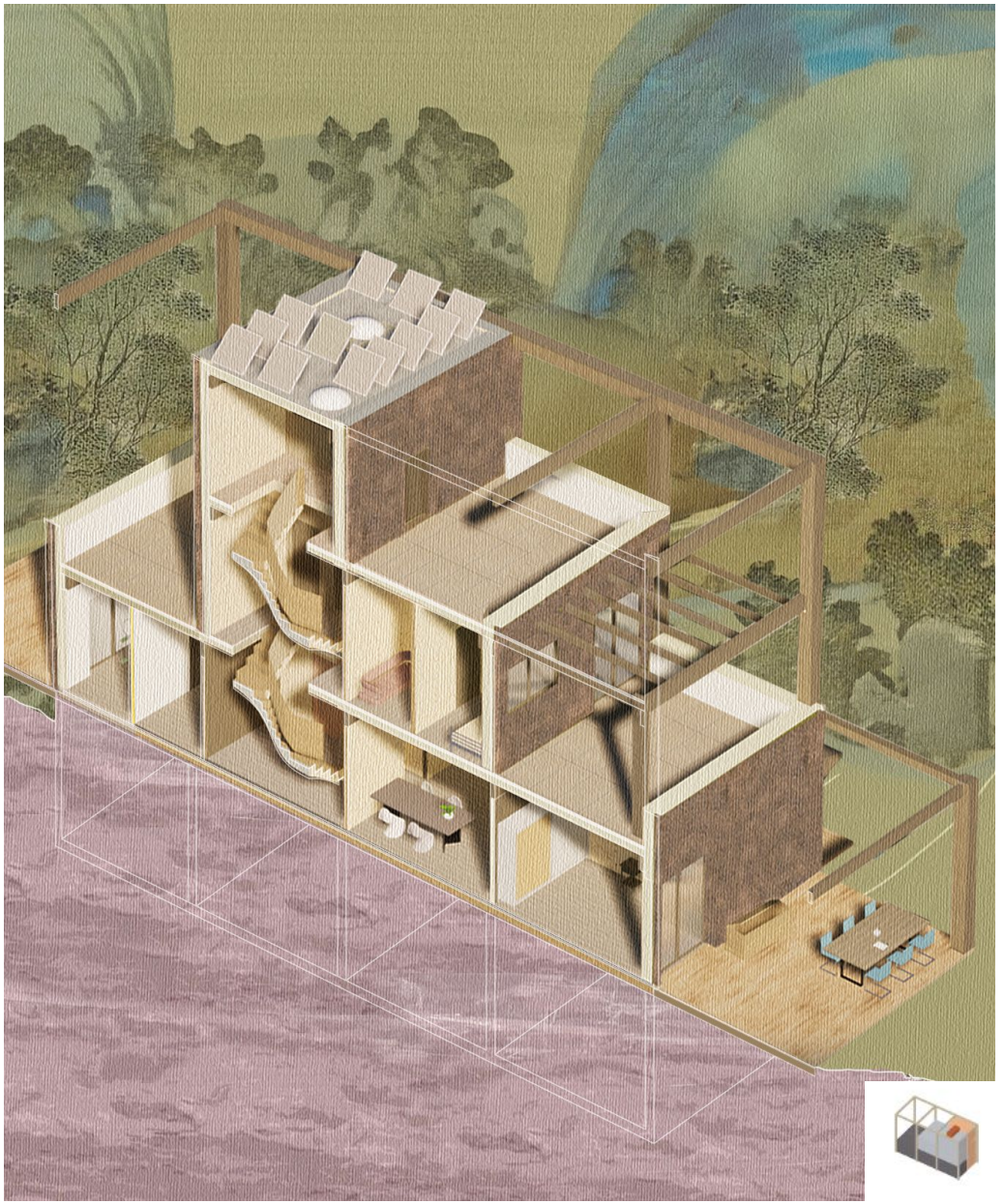
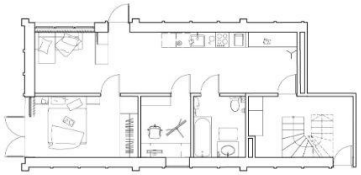


Support-Infill

Basic unit



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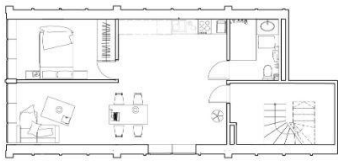

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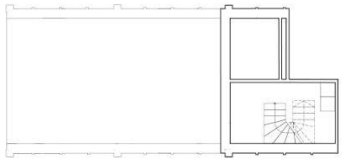

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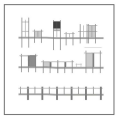
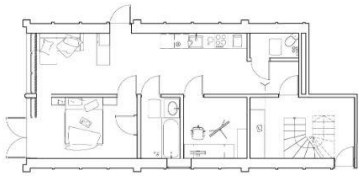


Support-Infill



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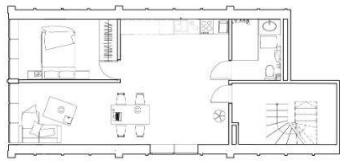

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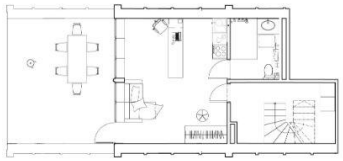

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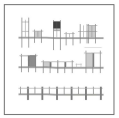
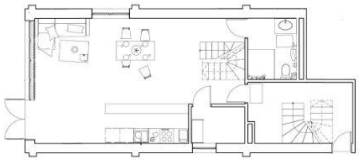


Support-Infill



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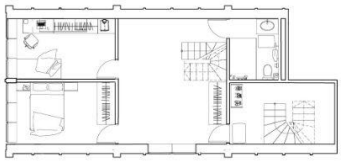

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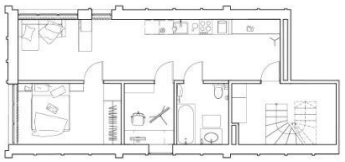

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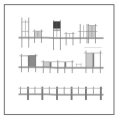
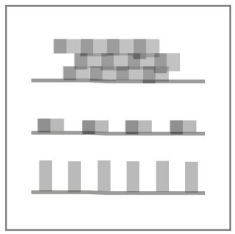


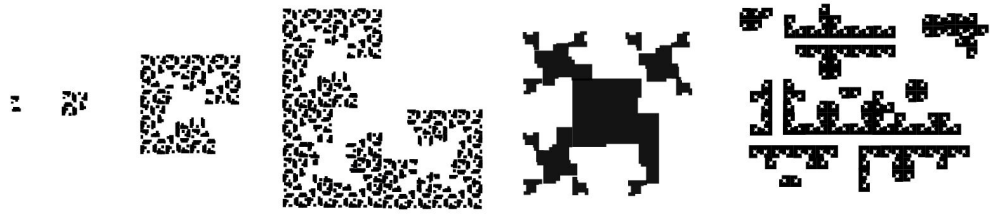
Support-Infill

Chapter II: Aggregation

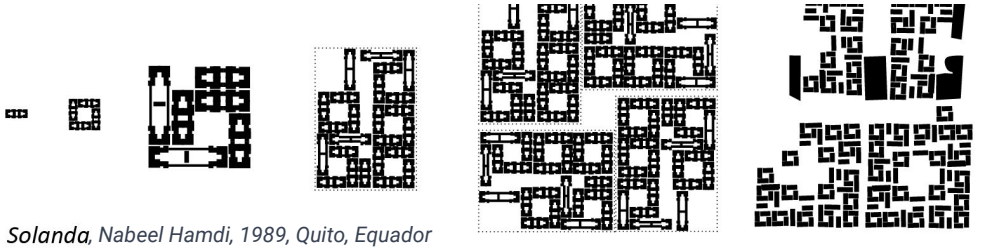
Cluster design
Distribution of common areas



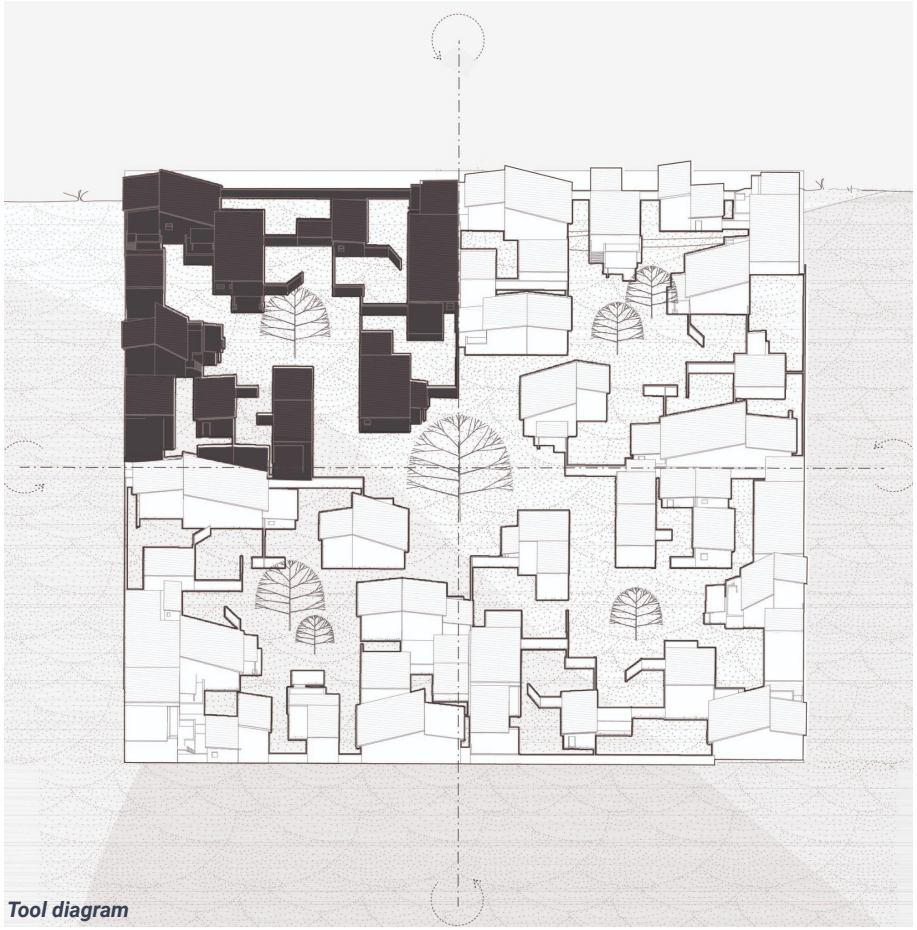
Aggregation



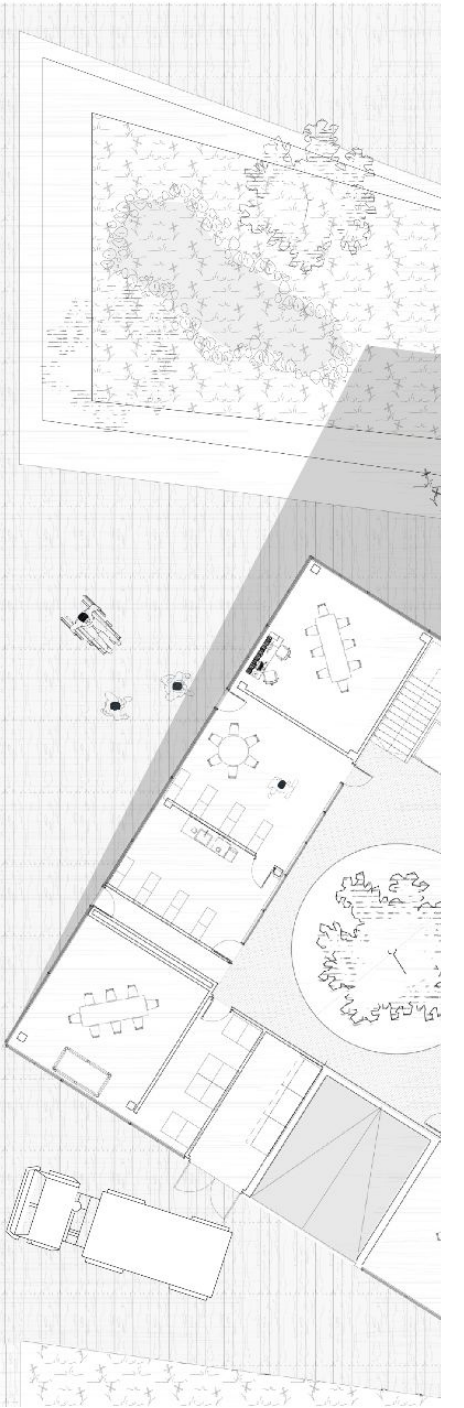
Belapur, Charles Correa, 1983, Navi Mumbai, India



Solanda, Nabeel Hamdi, 1989, Quito, Equador

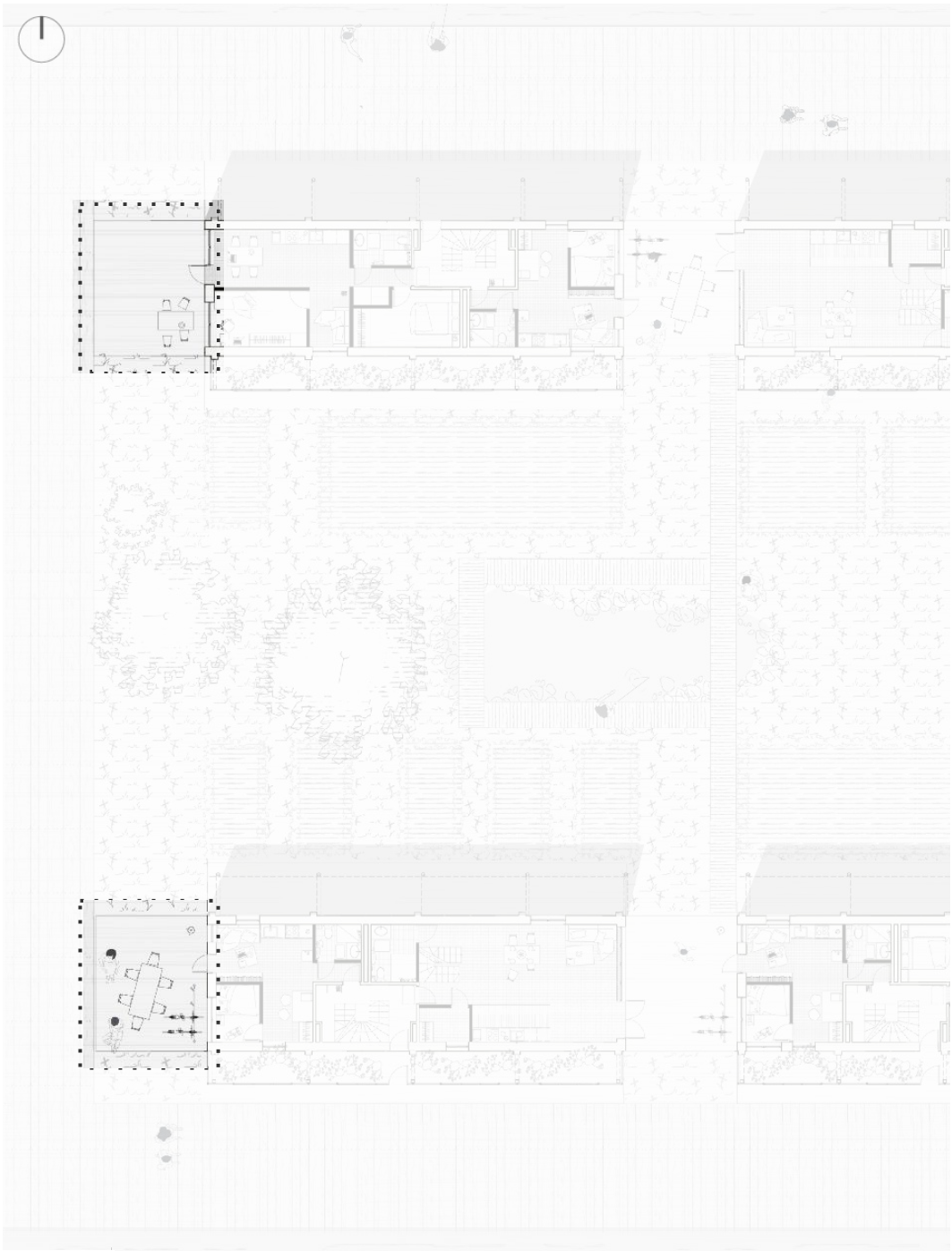


Tool diagram



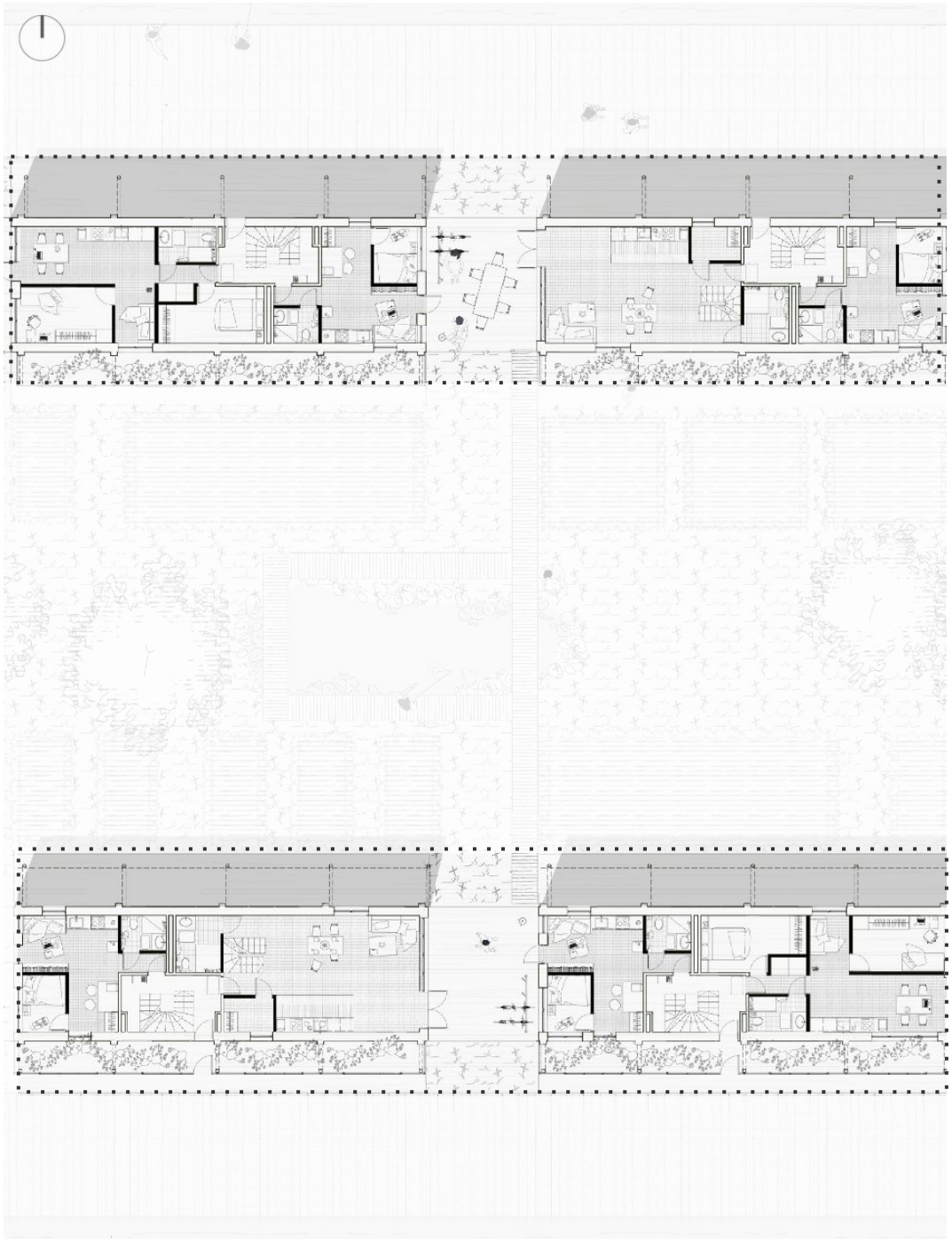
Aggregation

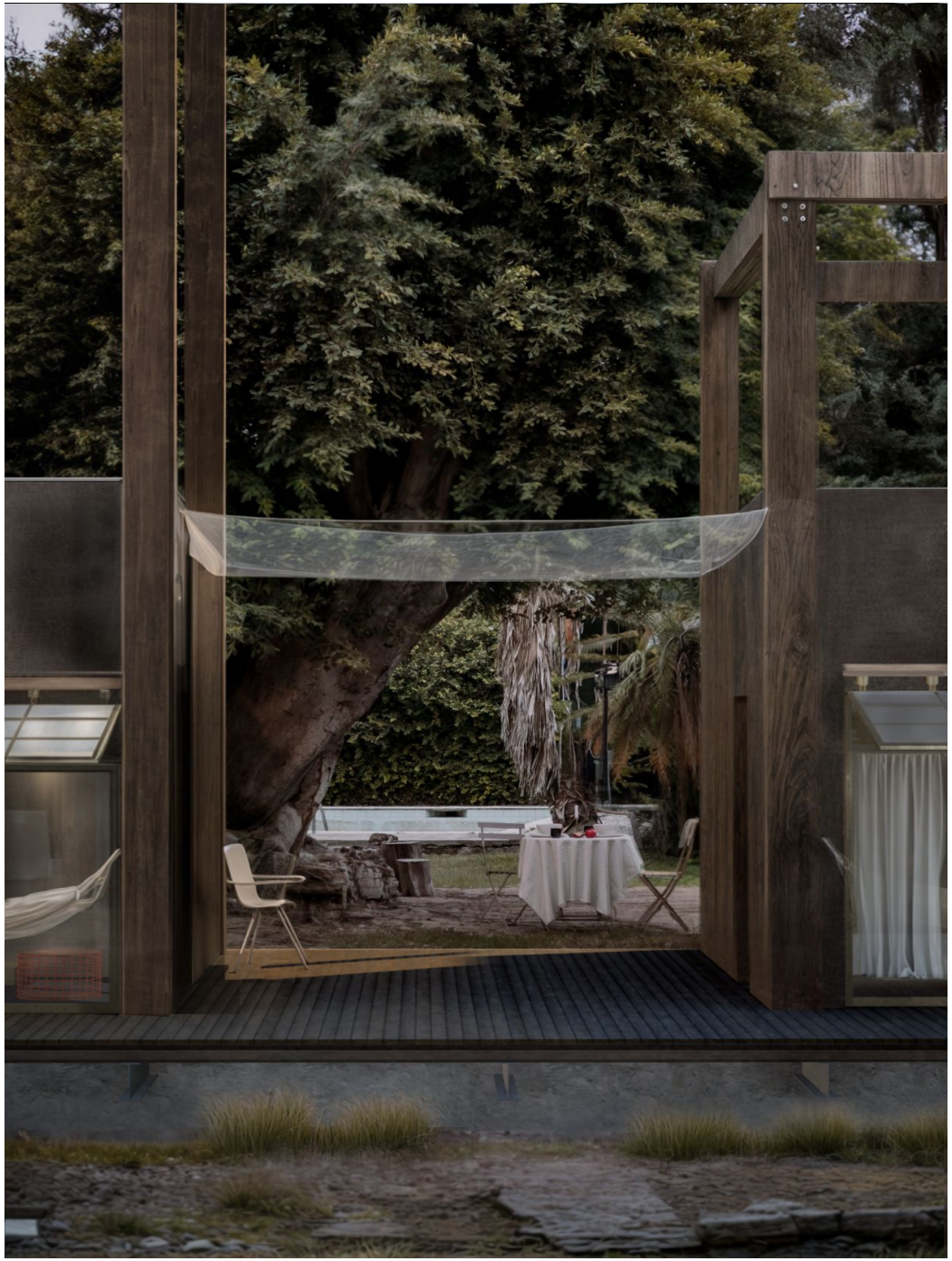
Semi-private



Aggregation

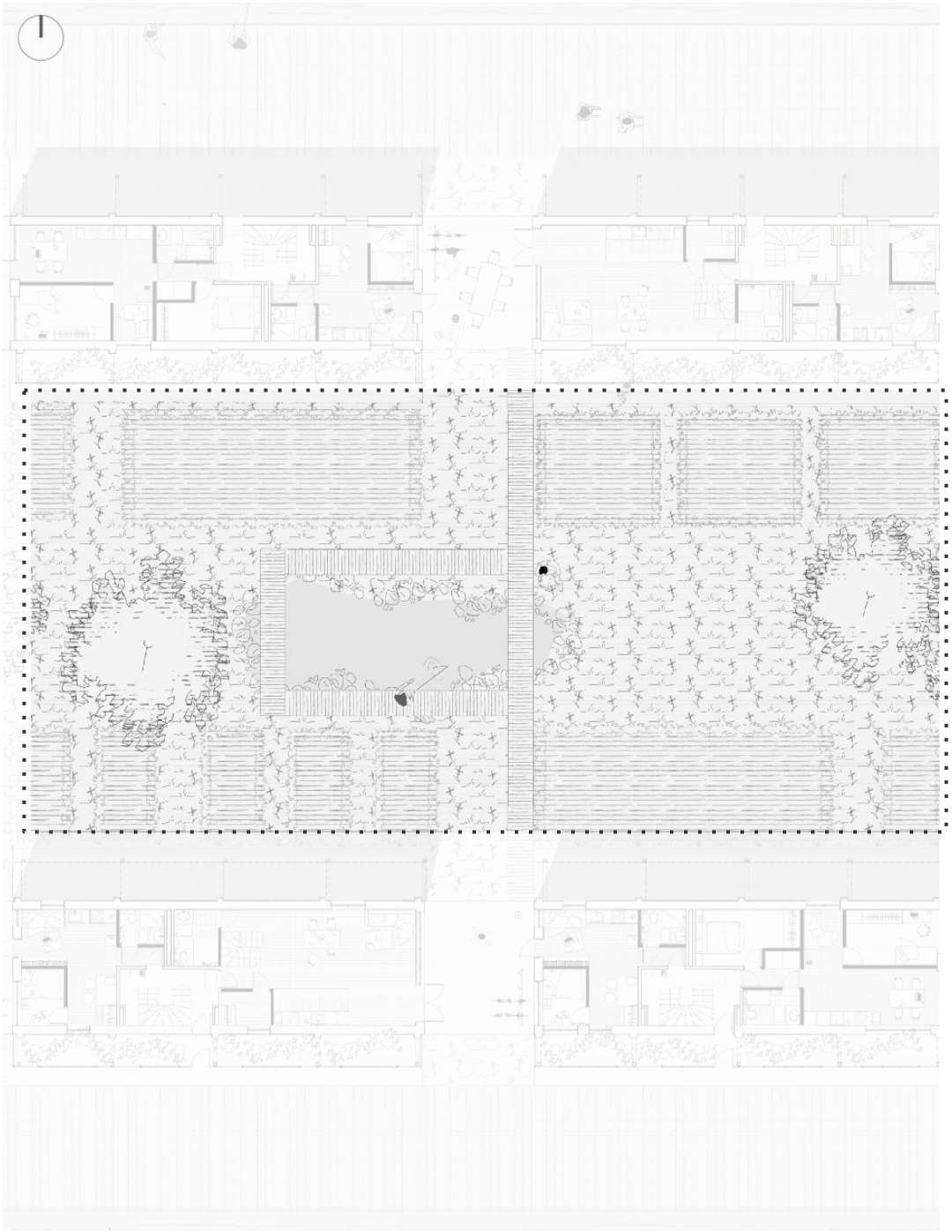
Private





Aggregation

Semi-private

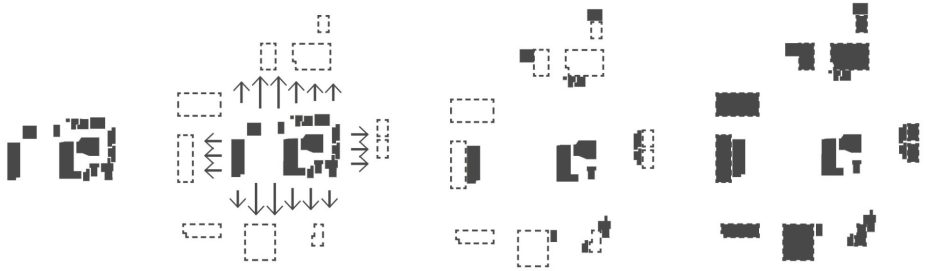


Aggregation

Public

Aggregation

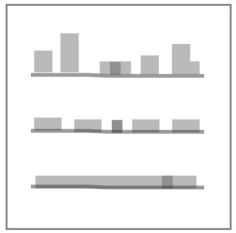
Aggregation catalogue



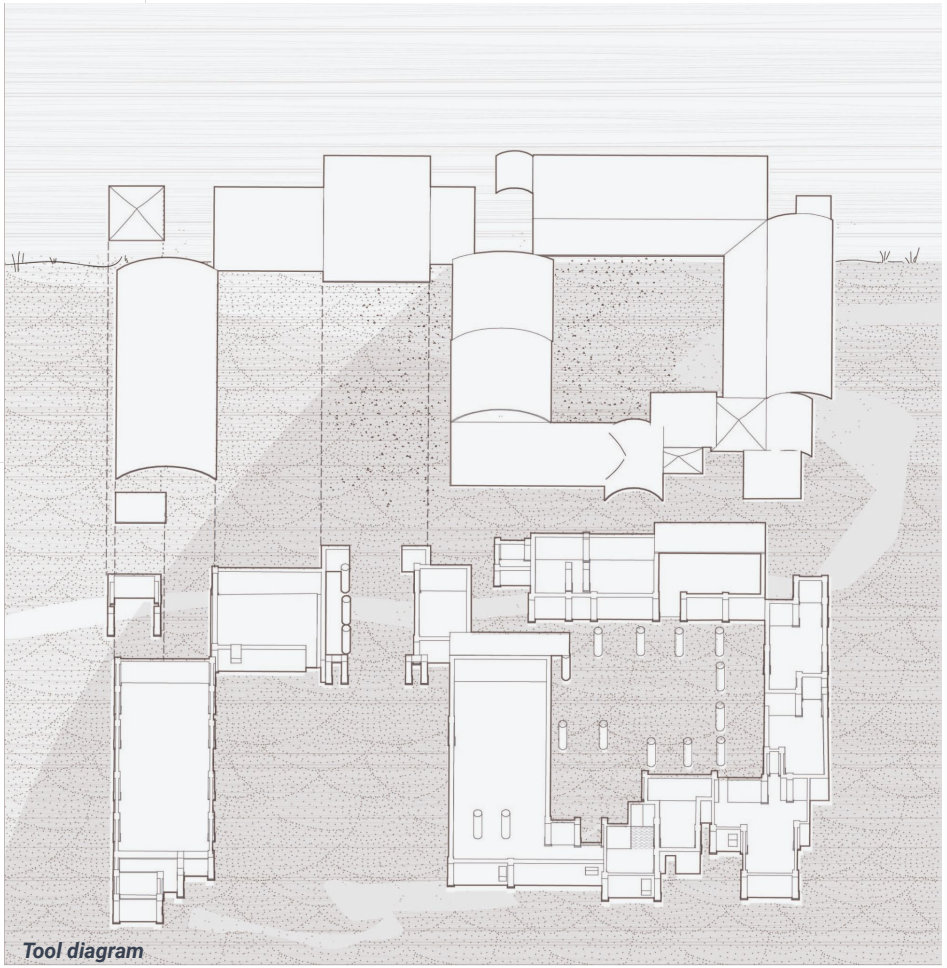
Mexicali, Christopher Alexander, 1975, Mexico

Chapter III: Community Core

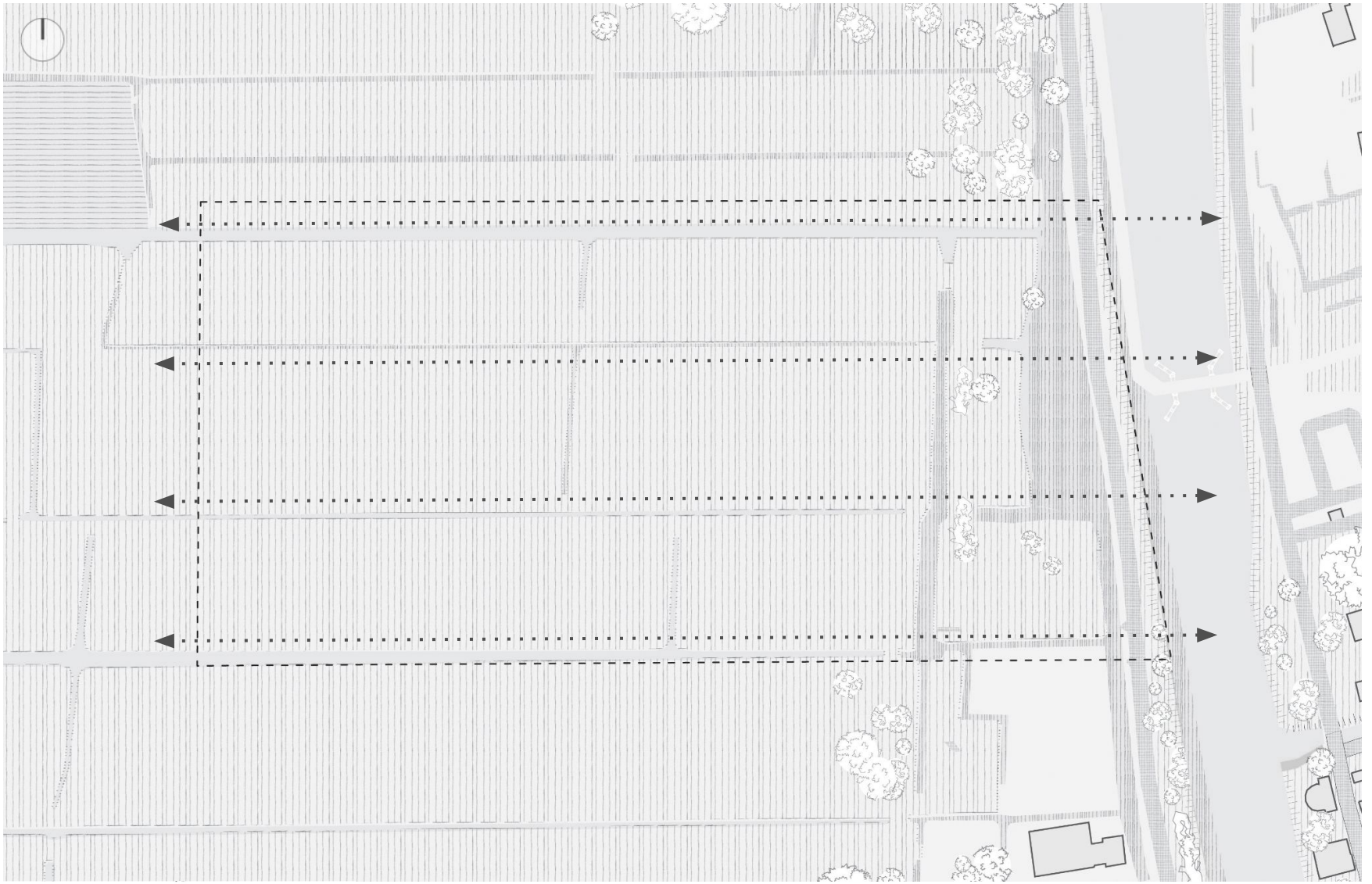
Masterplan
Growth strategy



Community Core



Tool diagram



Current state

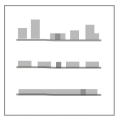
0 30m 60m 90m 120m 150m

Community Core


0
30m
60m
90m
120m
150m


Community Core


0
30m
60m
90m
120m
150m


Community Core

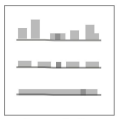
0 30m 60m 90m 120m 150m

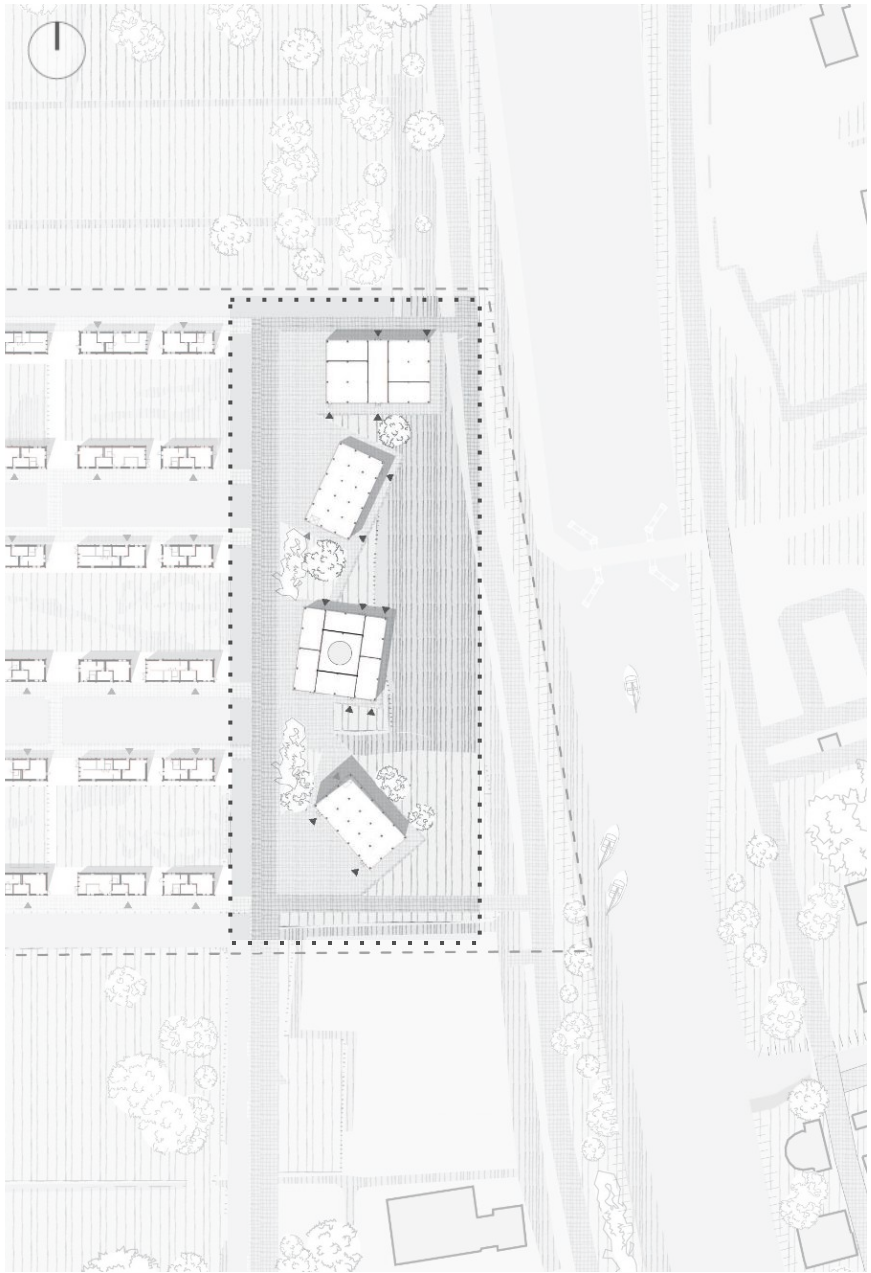
Community Core

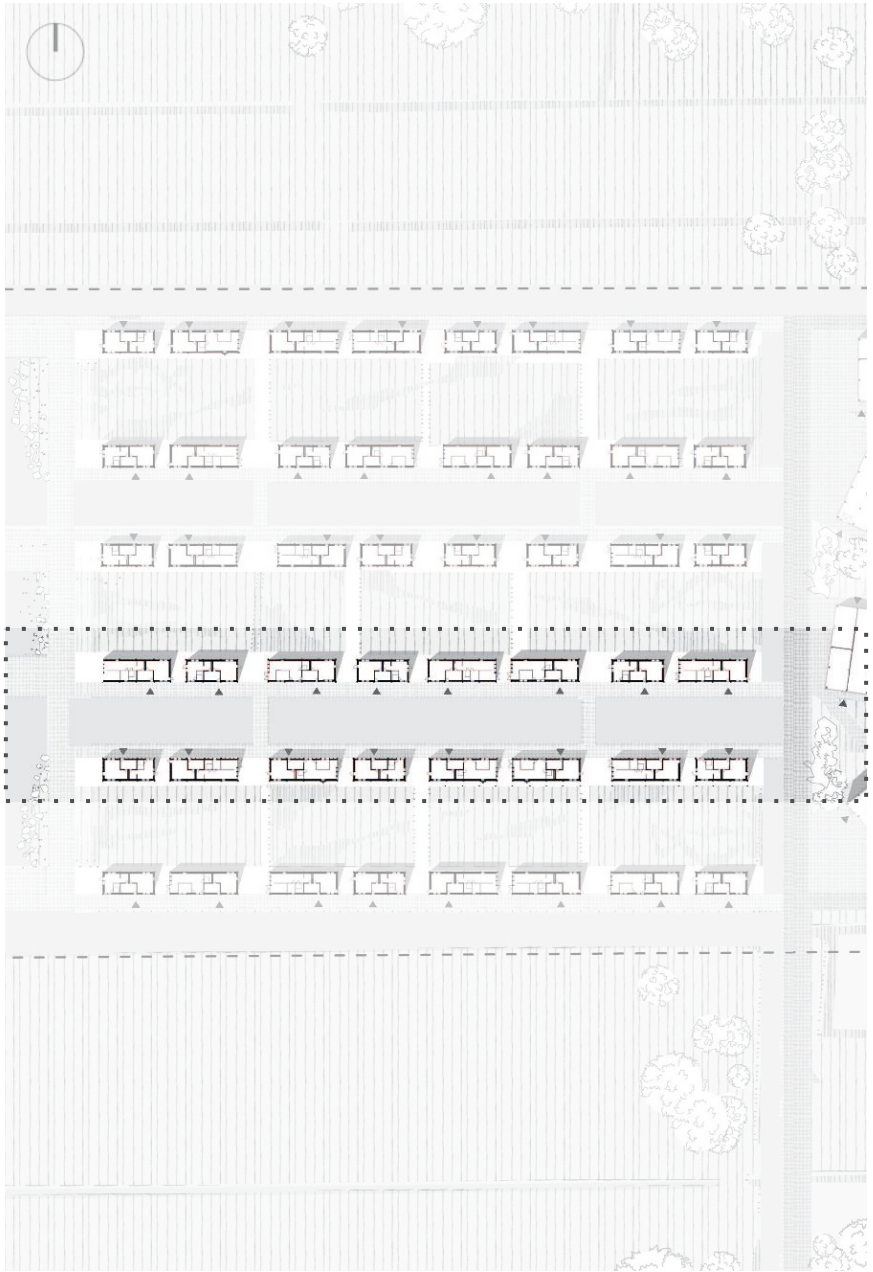

0
30m
60m
90m
120m
150m

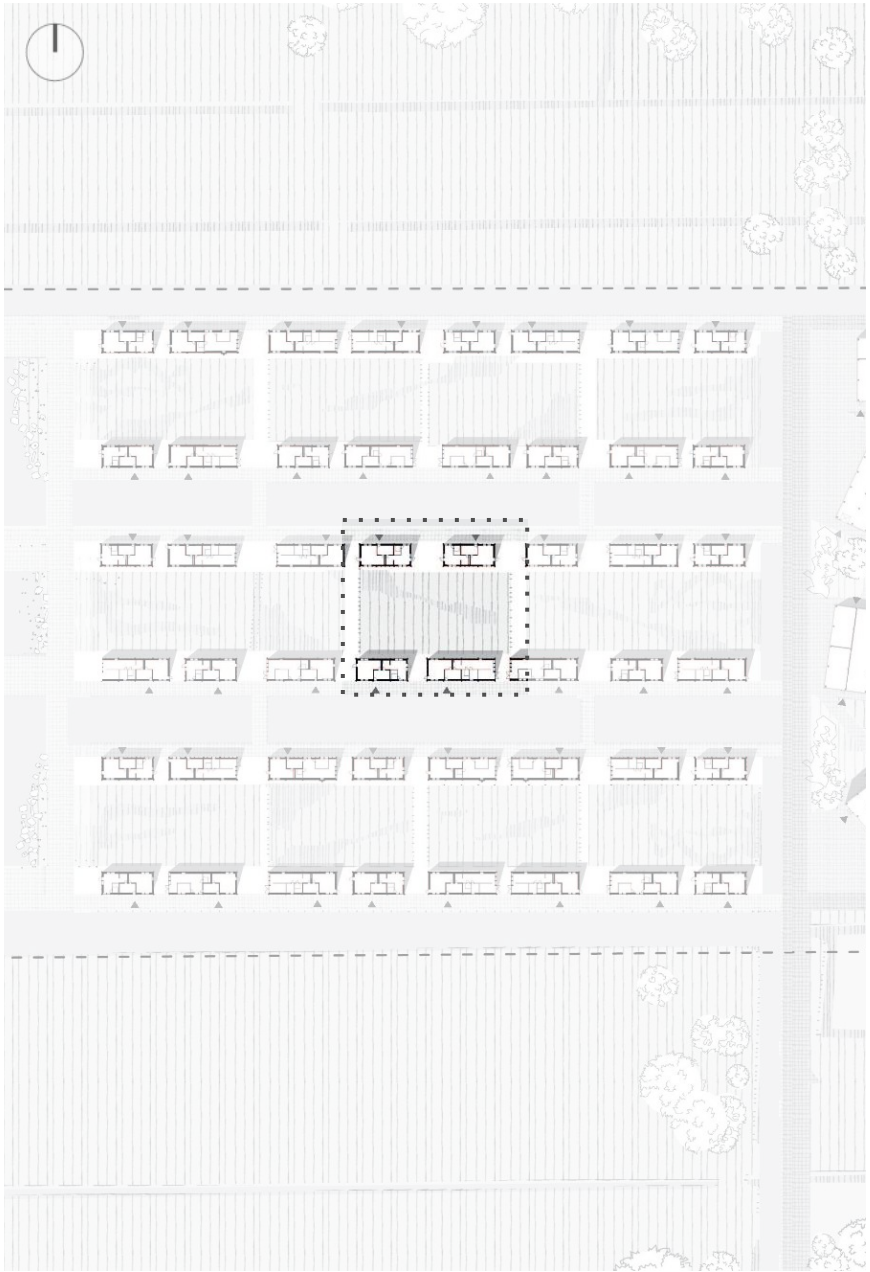

Community Core

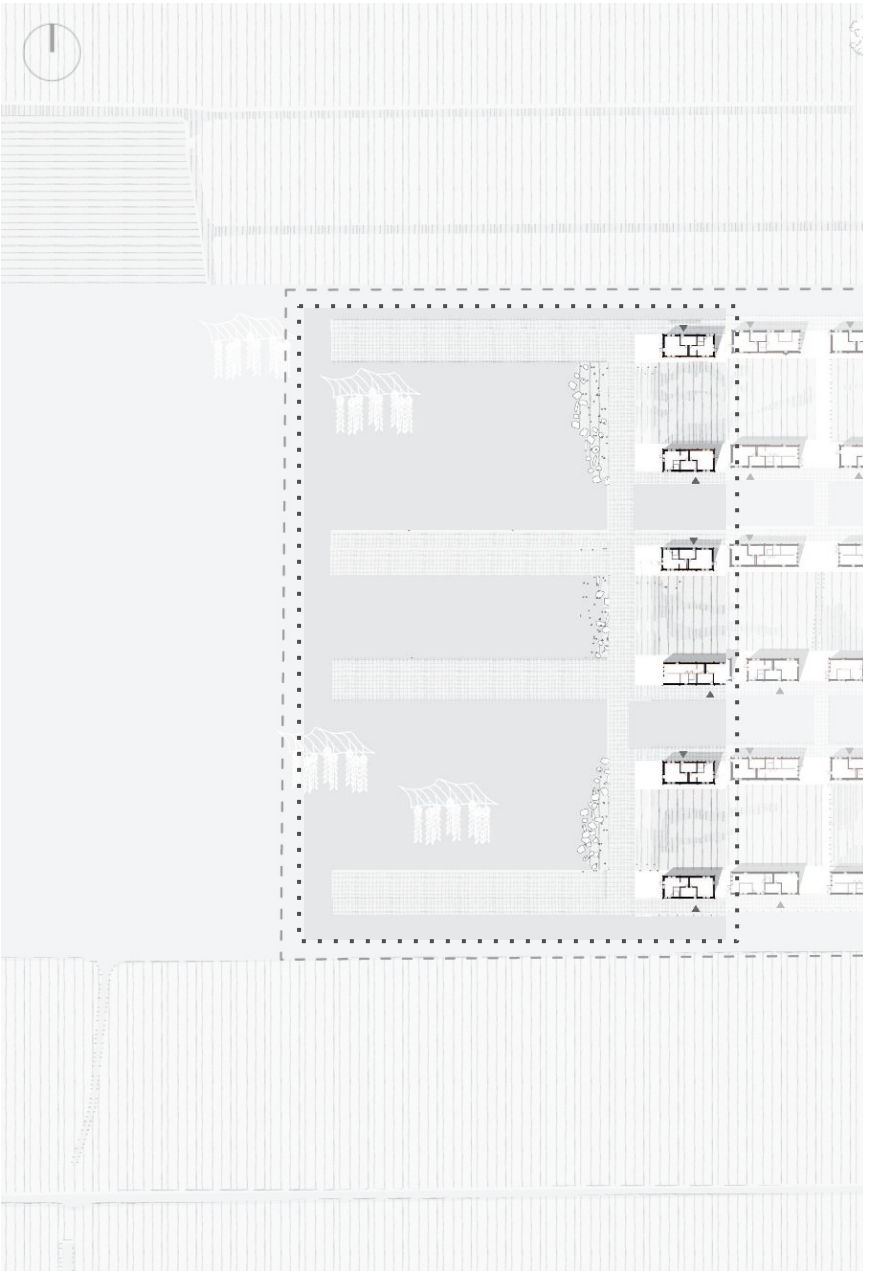

0
30m
60m
90m
120m
150m


Community Core









De Zweth before Small Change

As of January 2024, the current state of the occupation is based on Google Earth Pro satellite imagery. However, accurately mapping the state of housing is possible due municipality information found online.

Basic information about De Zweth according to my knowledge in 2023. Sources: own fieldwork, Google Earth aerial view, allchart.info, 2023.

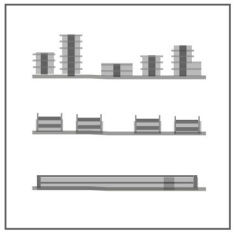
buildable area	**2500 m^2**
number of inhabitants	**150**
number of households	**52 units/km**
average age of an inhabitant	**40 years old**
average income	**2100 - 4300**
households with more than 2 members	**70%**
current density	**21 units/km**
average unit size	**100m^2**
current floor space index FSI	**0.75**
current ground space index GSI	**0.24**

De Zweth after Small Change

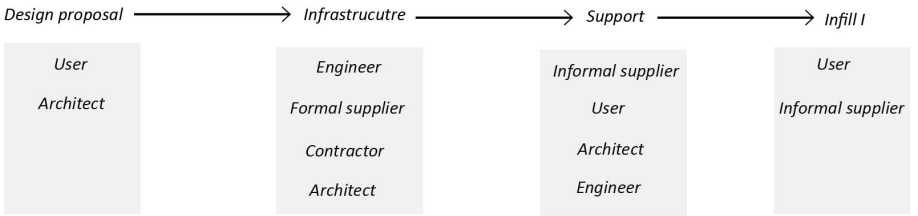
total area	**750 m^2**
buildable area	**60%**
possible number of inhabitants	
min.	**62**
max.	**350**
possible number of households	
min.	**40**
max.	**244**
average density	**35 units/km**
average unit size	**50m^2**
floor space index FSI	
min.	**0.75**
max.	**0.81**
ground space index GSI	**0.31**
number of housing types	**4**

Chapter IV: Self-Development

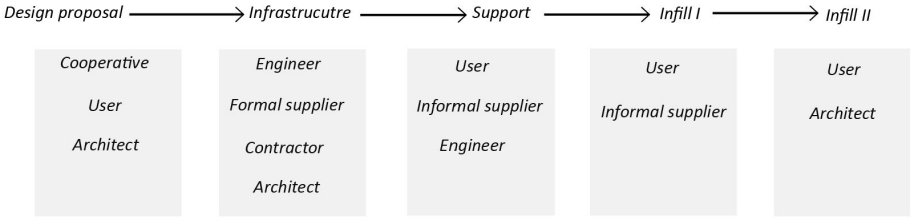
Single unit erection
Microfinancing strategy



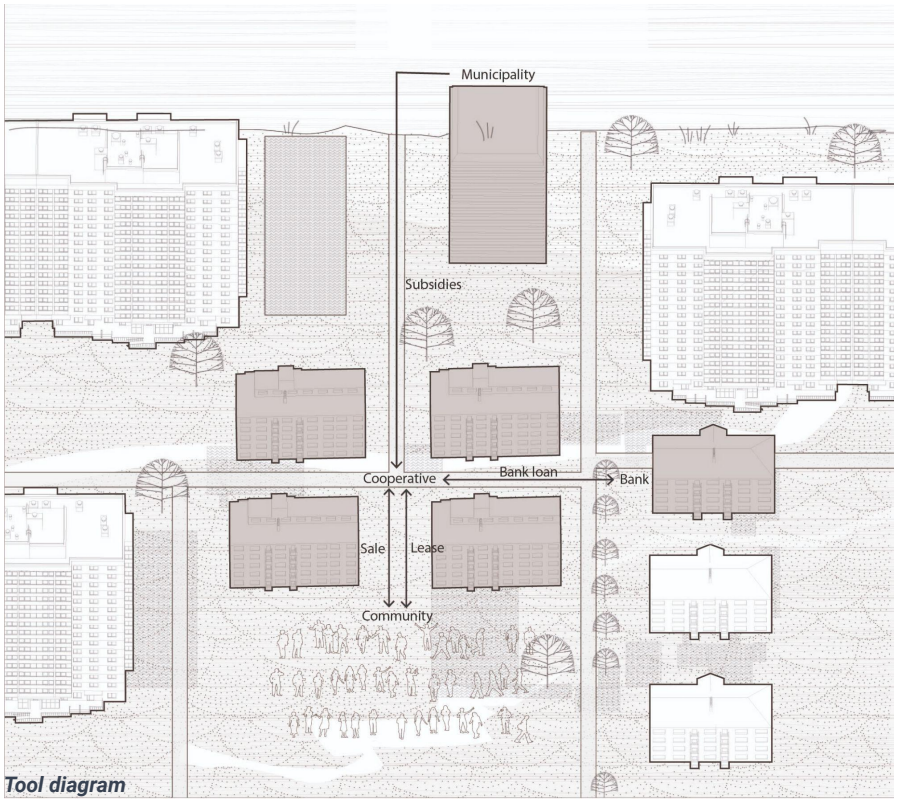
Self-Development



La Balma, LaBoqueria, Lacol, 2021, Barcelona, Spain



Tsurumaki Estate -3, Hideki Kobayashi, 1985, Tokyo, Japan



Tool diagram

1. FORMING COMMUNITY LAND TRUST COOPERATIVE

Future inhabitants become legal entity registered as a cooperative based on rules:

- The formation of Cooperative must happen on the basis of Community Land Trust organization to prevent from property cost increase associated with incremental growth based on the resale formula
- Most economically disadvantaged people get housing first
- Individual increments can be added only with properties of individual dwellings.

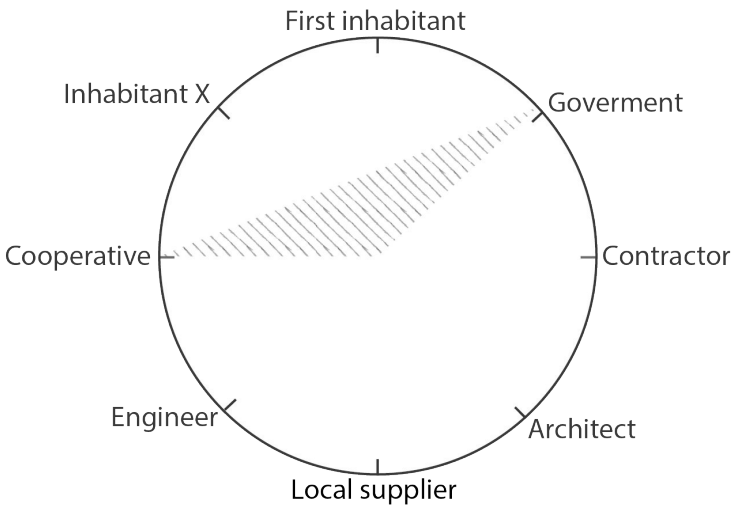
2. ORGANIZING FUNDS

The cooperative applies for loan in the bank, joined credit score allows for sufficient amount. The loan shall be spend on building materials as well as legal and technical advice.

3. LAND LEASE

The land is leased to the cooperative by the government. This way the rent per singular unit is decreased.

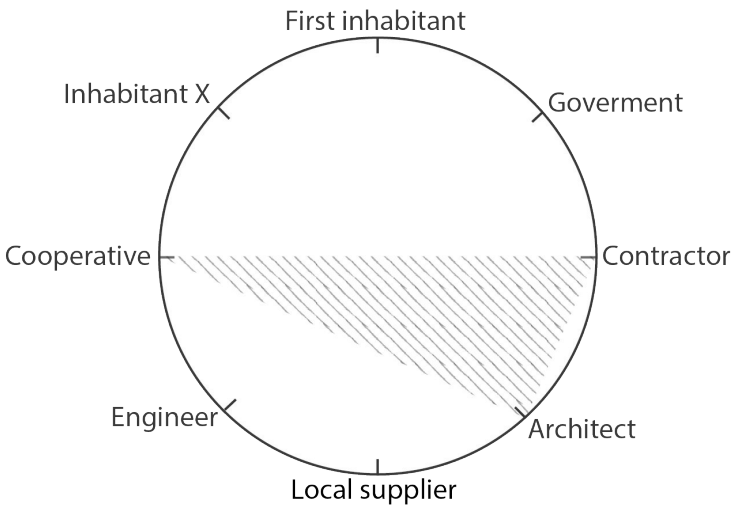
STAKEHOLDER ANALYSIS



4. PILOT UNIT DESIGN

Members of the community meet with architect and engineer to discuss design of 4 basic unit types. The users can decide upon number of units, clustering methods, and which units types should be first build based on the demand within the cooperative community.

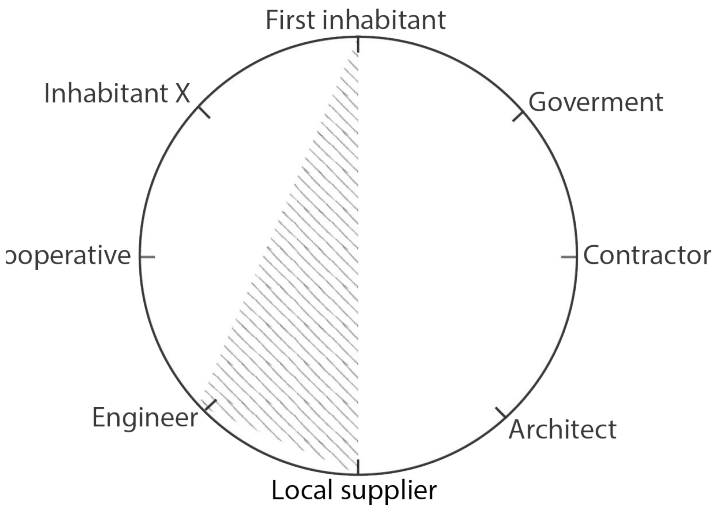
STAKEHOLDER ANALYSIS



5. ERECTING SUPPORT

The support is erected by experienced contractors. Due to repetitive nature of support it can be erected rapidly and efficiently. The cooperative community supervises the growth.

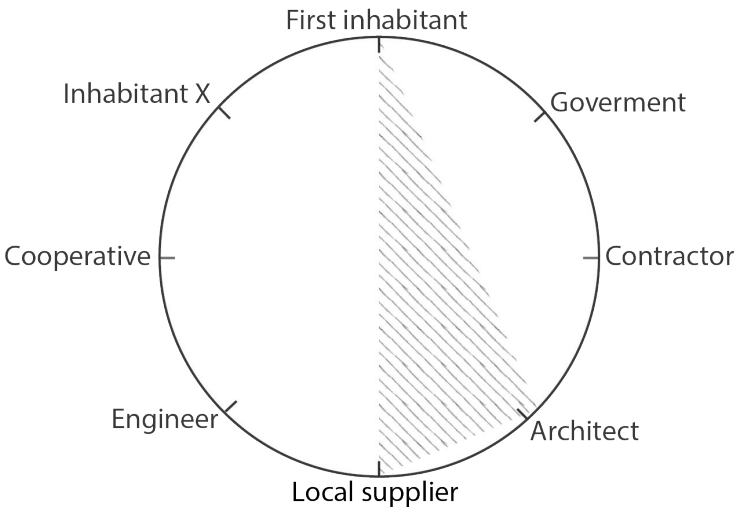
STAKEHOLDER ANALYSIS



6. **ERECTING INFILL** PHASE I

At this point users are welcome to engage in their own developments. They can design facade within predefined framework of support and panel options with assistance of an architect.

STAKEHOLDER ANALYSIS

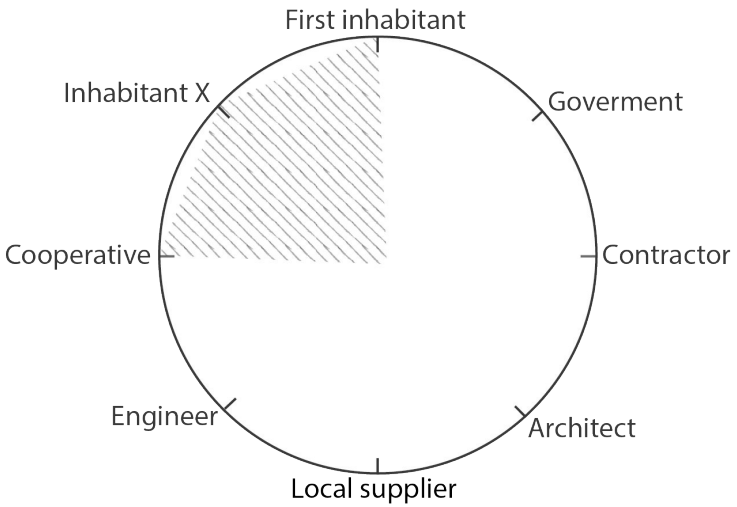


7. ERECTING INFILL PHASE II

Once inhabitants settle the infill, they can rent the newly divided spaces. **This way they can earn back any additional expenses such as materials purchase etc as the payment for infill falls onto individual inhabitants in order to prevent speculations.**

.

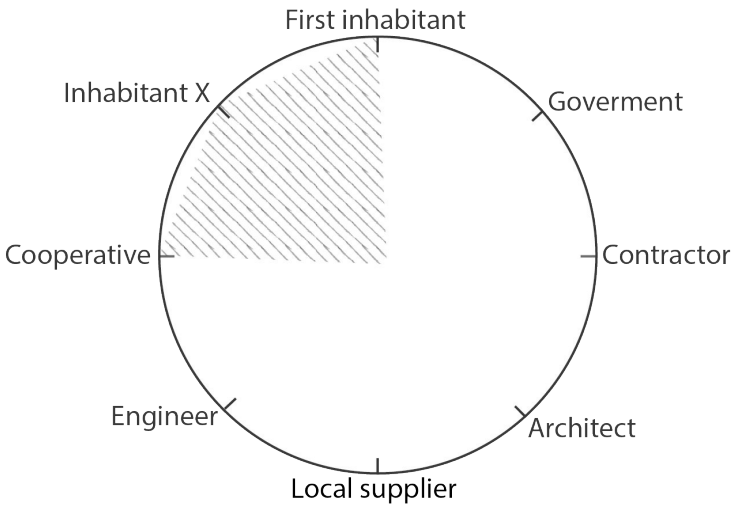
STAKEHOLDER ANALYSIS



8. EARNING BACK THE EXPENSES

Each inhabitant is obliged to share a part of the income with the cooperative to cover the expenses such as bank lease, materials for structure and skin or legal and technical advice. The amount should be low as, let's say, each inhabitant owes 2% of the total expense however, in case they decide to leave the cooperative before paying back then, the cooperative is going to rent the entire property of the ex-inhabitant to cover the expenses. If the inhabitant pays back the entire sum then the cooperative shall buy the property from the user. The price includes both shares of the basic unit as well as any cost of any improvements that were done by the inhabitants, which allows them to earn greater profit.
.

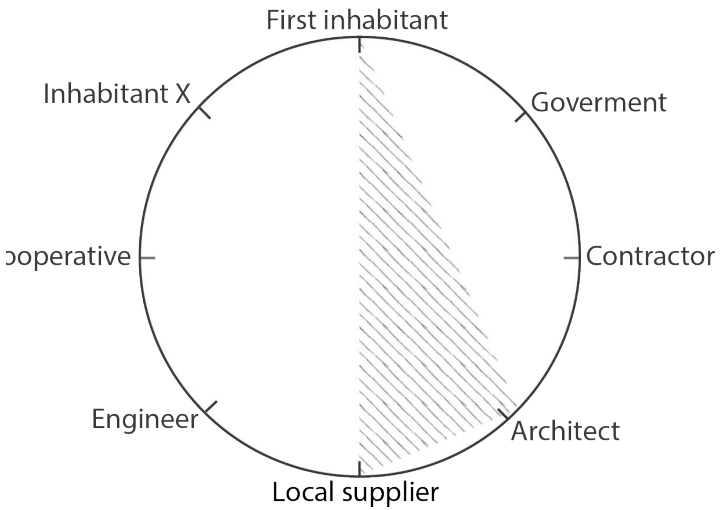
STAKEHOLDER ANALYSIS



9. ERECTING INCREMENTS

Once the resident earns money through renting the infill, they can extend the unit by 1 or 2 floors to rent or sell the increment further. The increments remain private property of the residents.

STAKEHOLDER ANALYSIS

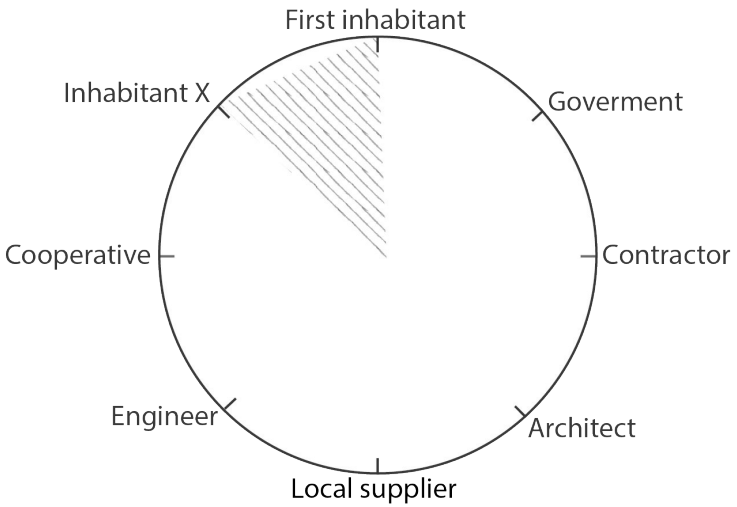


Community Core

10. PREVENTION OF PRICE INCREASE. COMMUNITY LUND TRUST SCHEME.

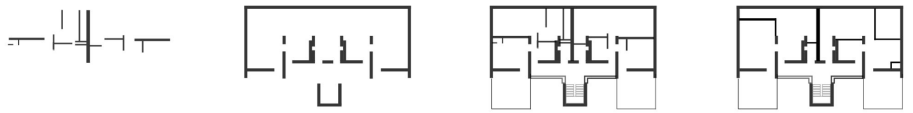
In case the cooperative wants to welcome new inhabitants, it must be provided that the price of property doesn't increase. Such increase could be motivated by 2 factors: 1. Market prices. 2. Extended property footprint as a result of incremental development. The basic part of the house is built and shared by the cooperative members, so for the new inhabitant to own it, they have to buy shares. **However, individual increments shall remain individual property to avoid speculations. In case an inhabitant moves out the part that was extended by them is sold to the cooperative based on market prices, the cooperative can keep on renting the extended part to gain income proportionally. However, if the new inhabitant wants to own the increments then they have 2 options to buy it from the cooperative: 1. Buy shares of the increment to maintain lower cost and shared ownership, 2. Buy based on the resale formula to obtain private ownership of the increment and sell it to the cooperative in the future to gain profit.**

STAKEHOLDER ANALYSIS



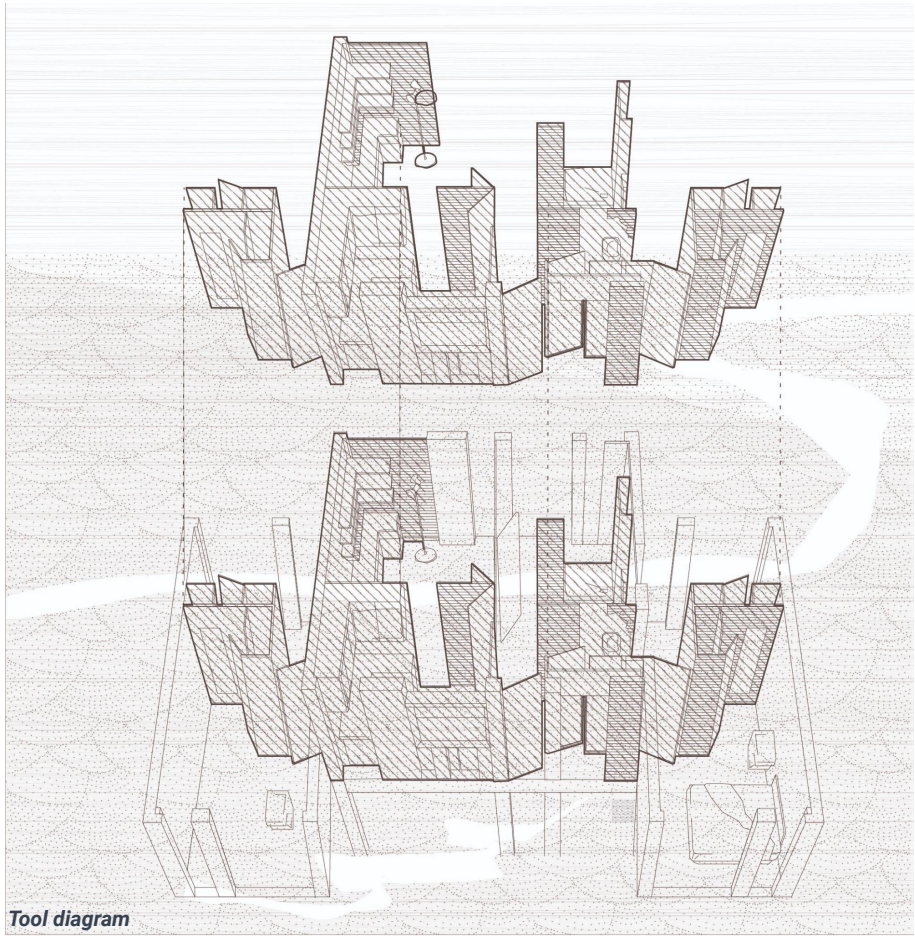
Chapter V: Support-infill

Building technology
Climate
Water strategy

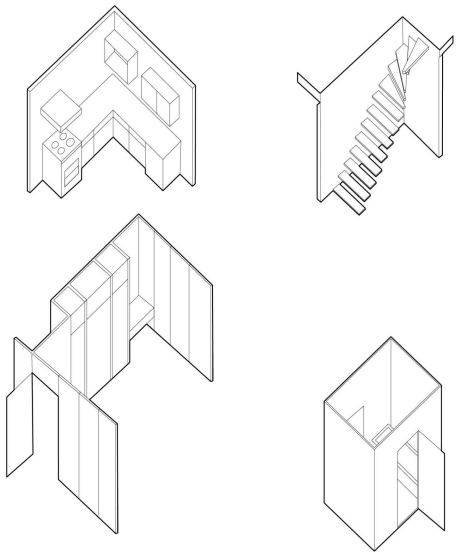


Quinta Monroy, Elemental, 2002, Iquique, Chile

Adelaide Road, Nabeel Hamdi, 1971, London, England



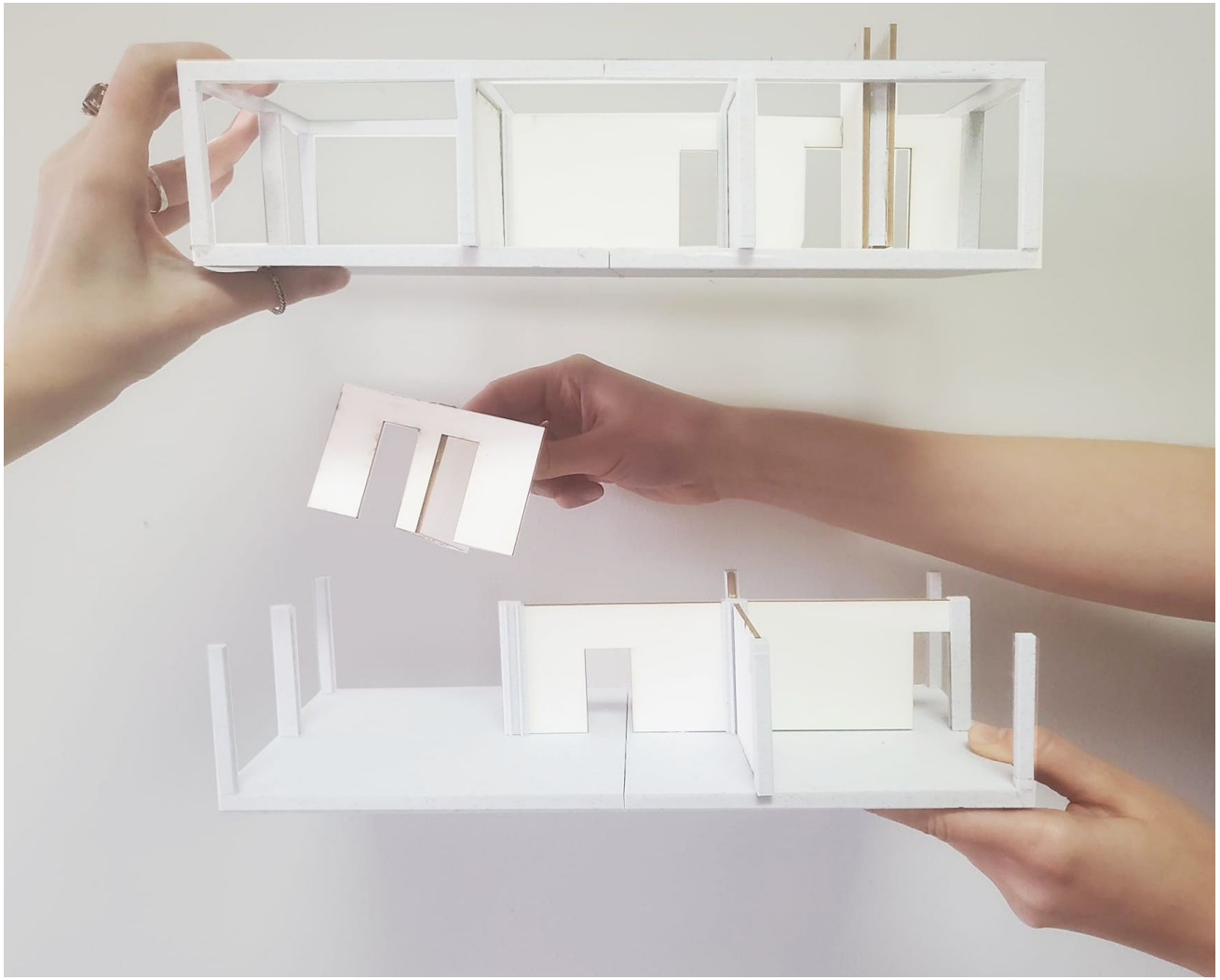
Tool diagram



Infills

Floorplan level 0

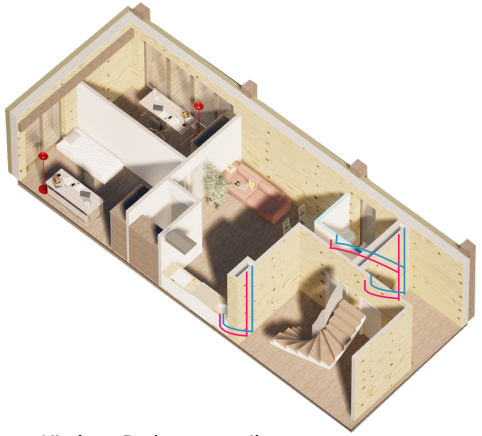
Infill
Support



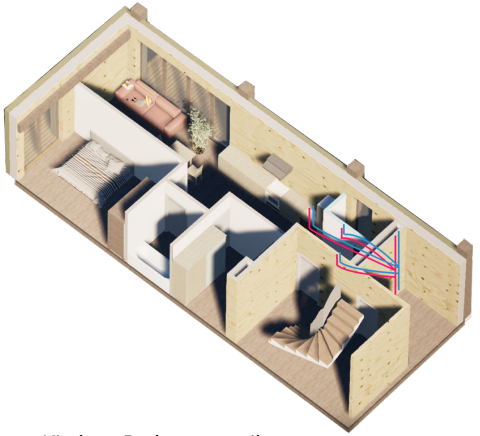
Support-Infill

Possible transformations

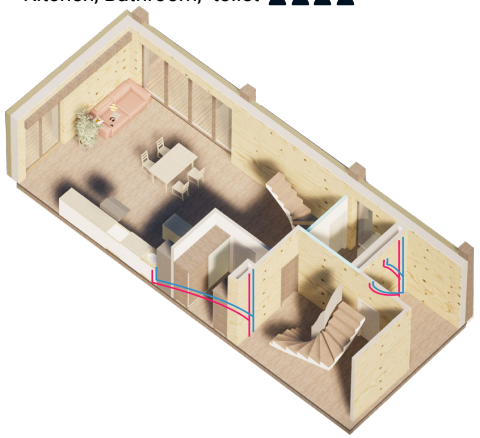
Kitchen, Bathroom + toilet



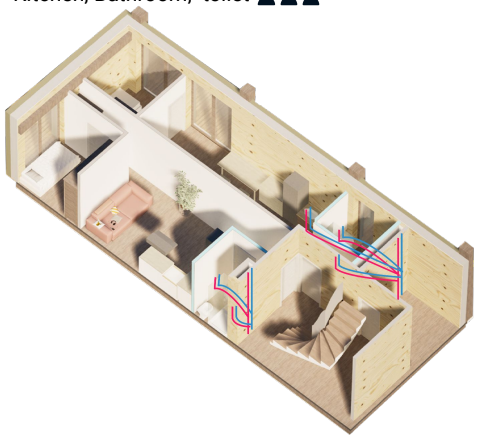
Kitchen, Bathroom, toilet



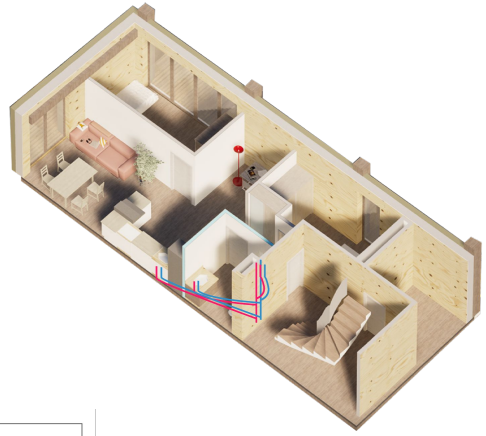
Kitchen, Bathroom, toilet



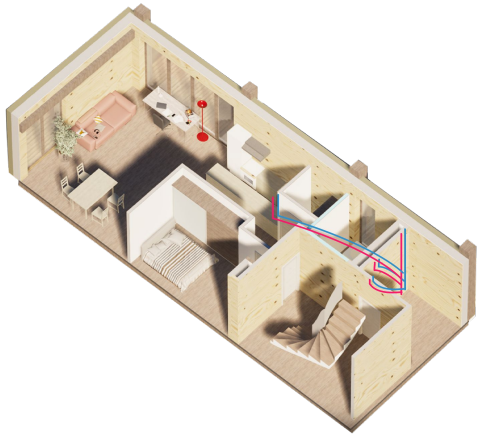
Kitchen, Bathroom, toilet

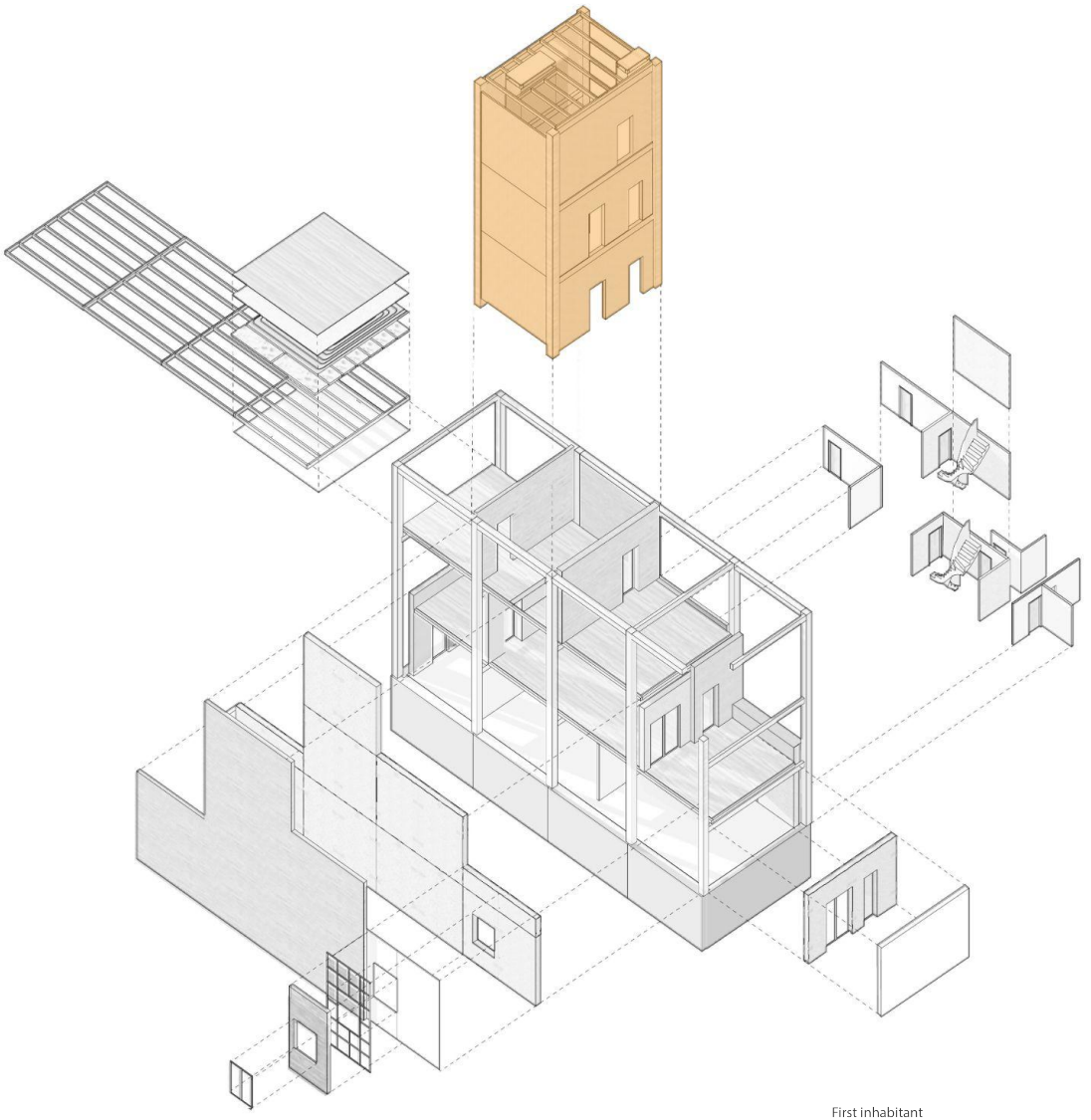


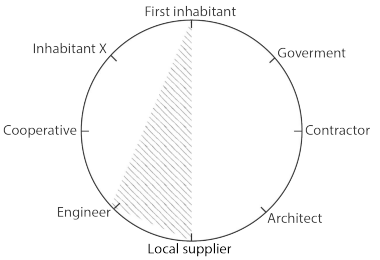
Kitchen, Bathroom + toilet

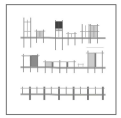


Kitchen, Bathroom + toilet

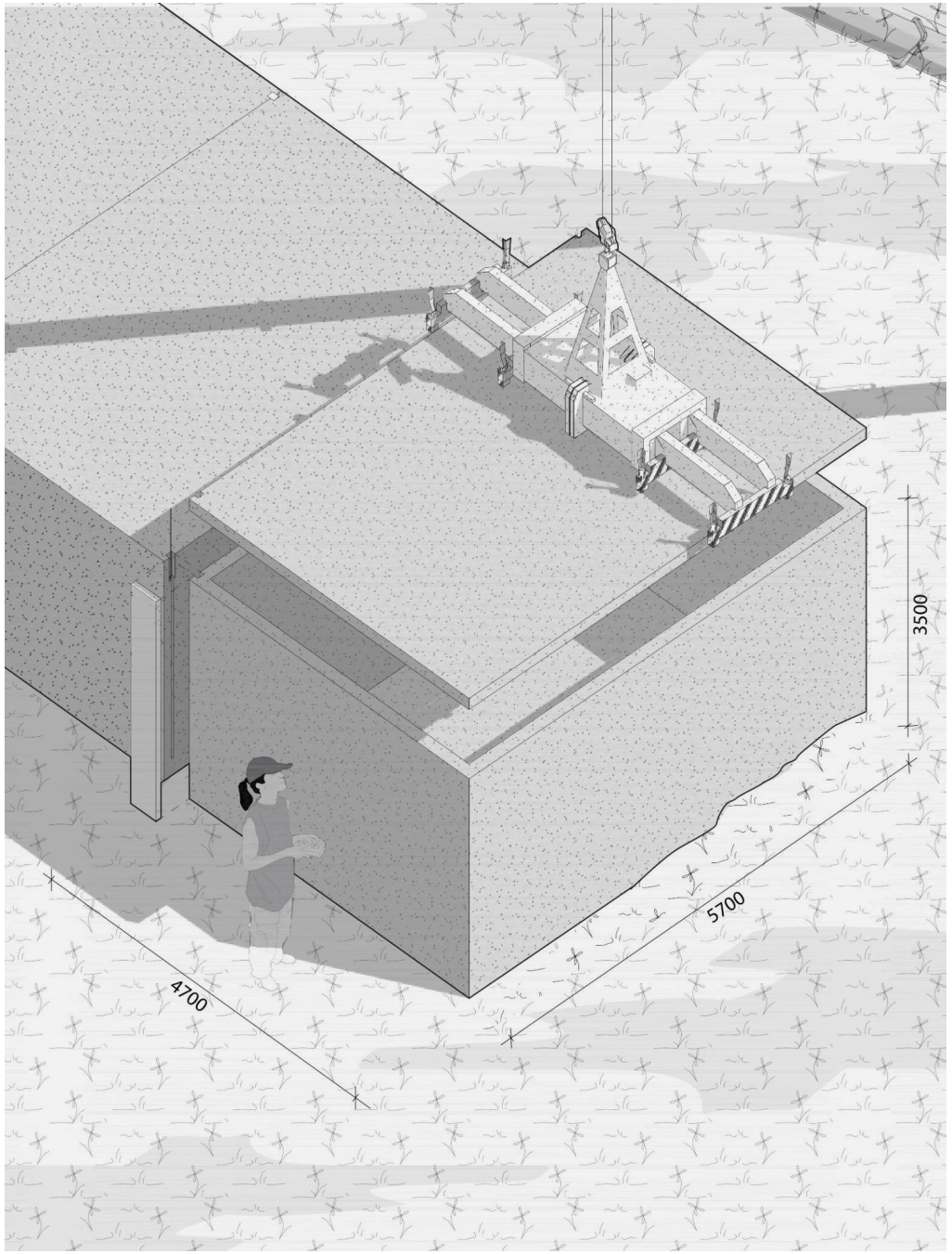


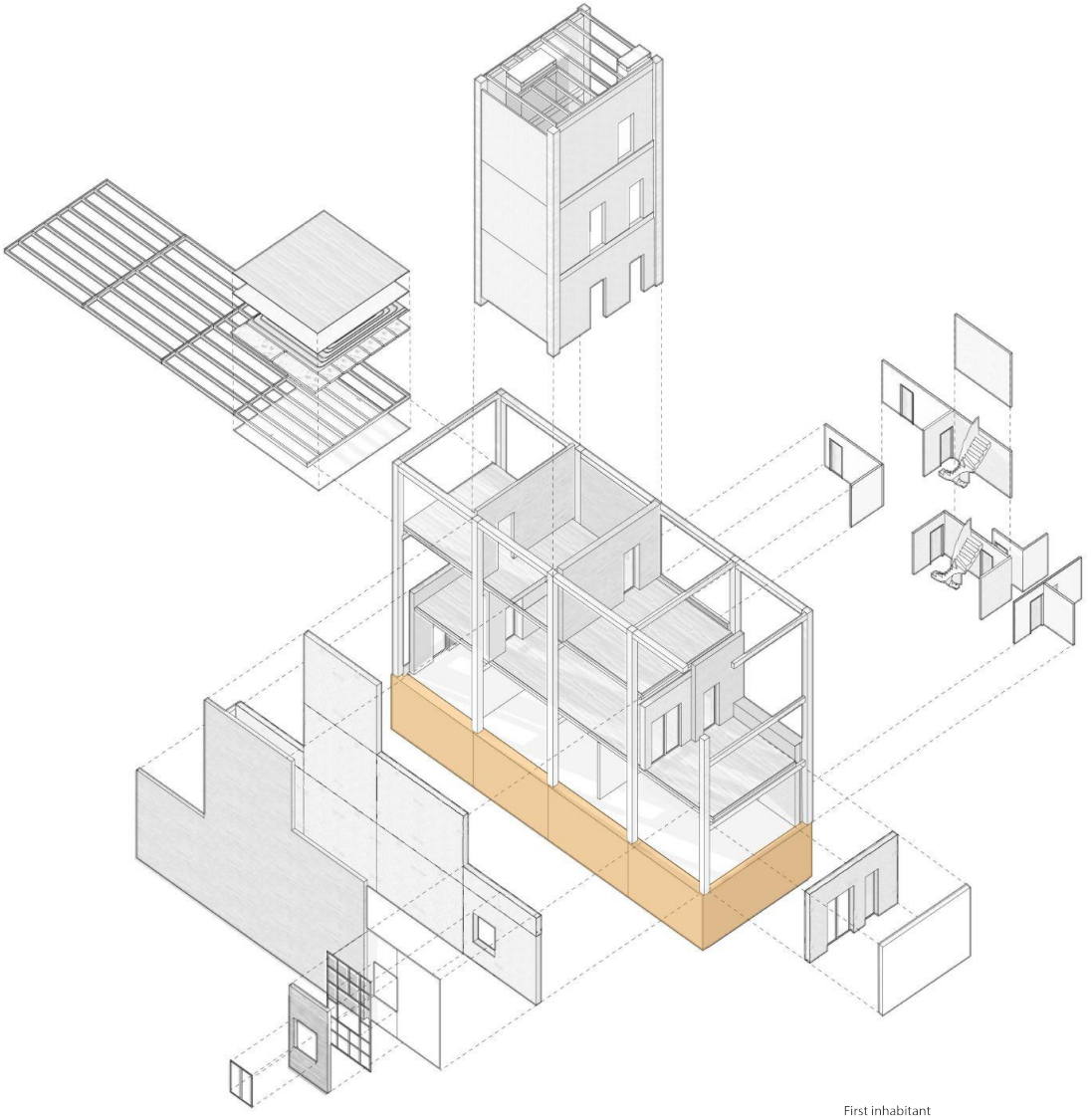


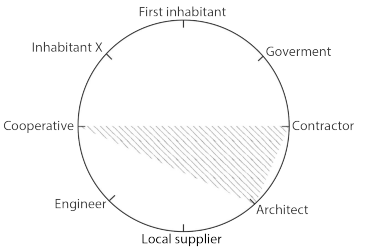



Support-Infill

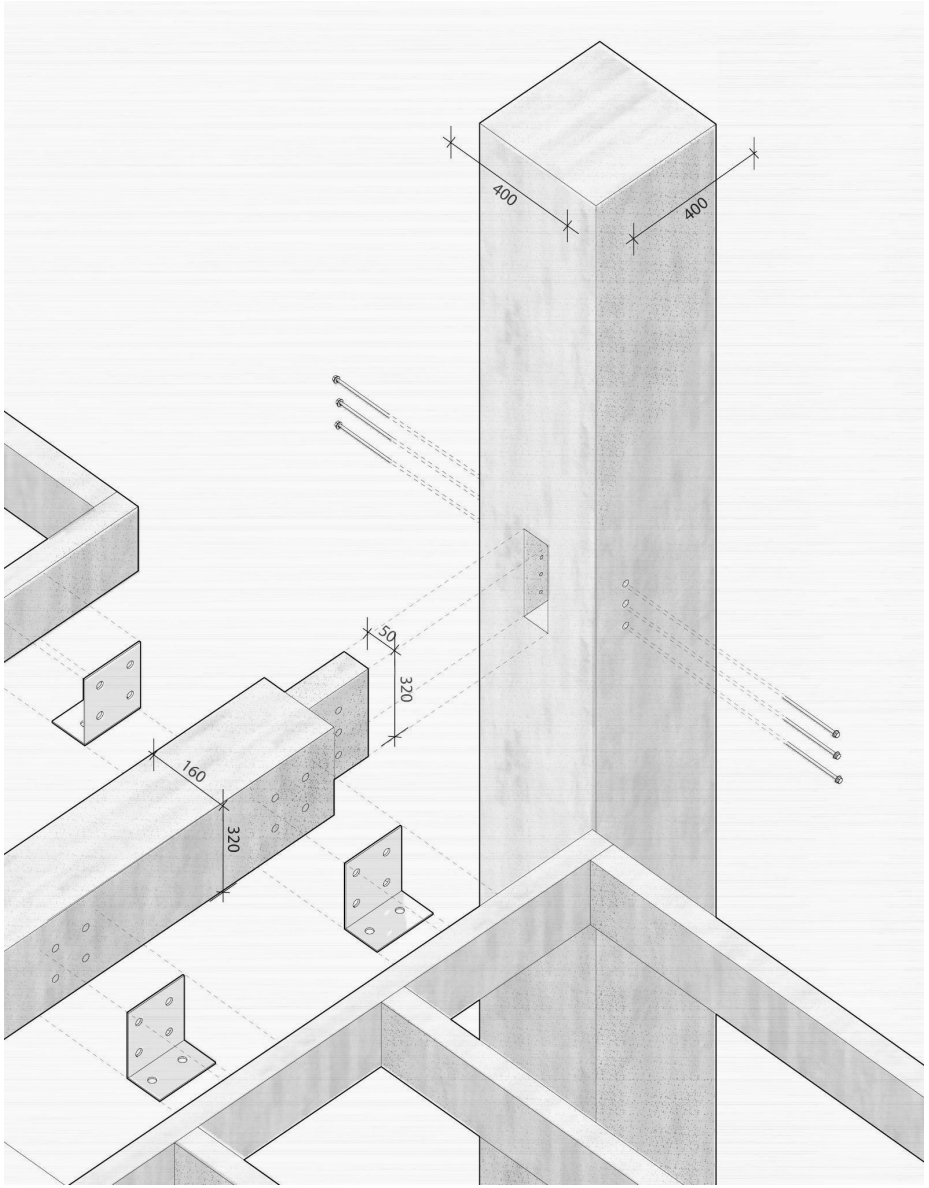
Infill

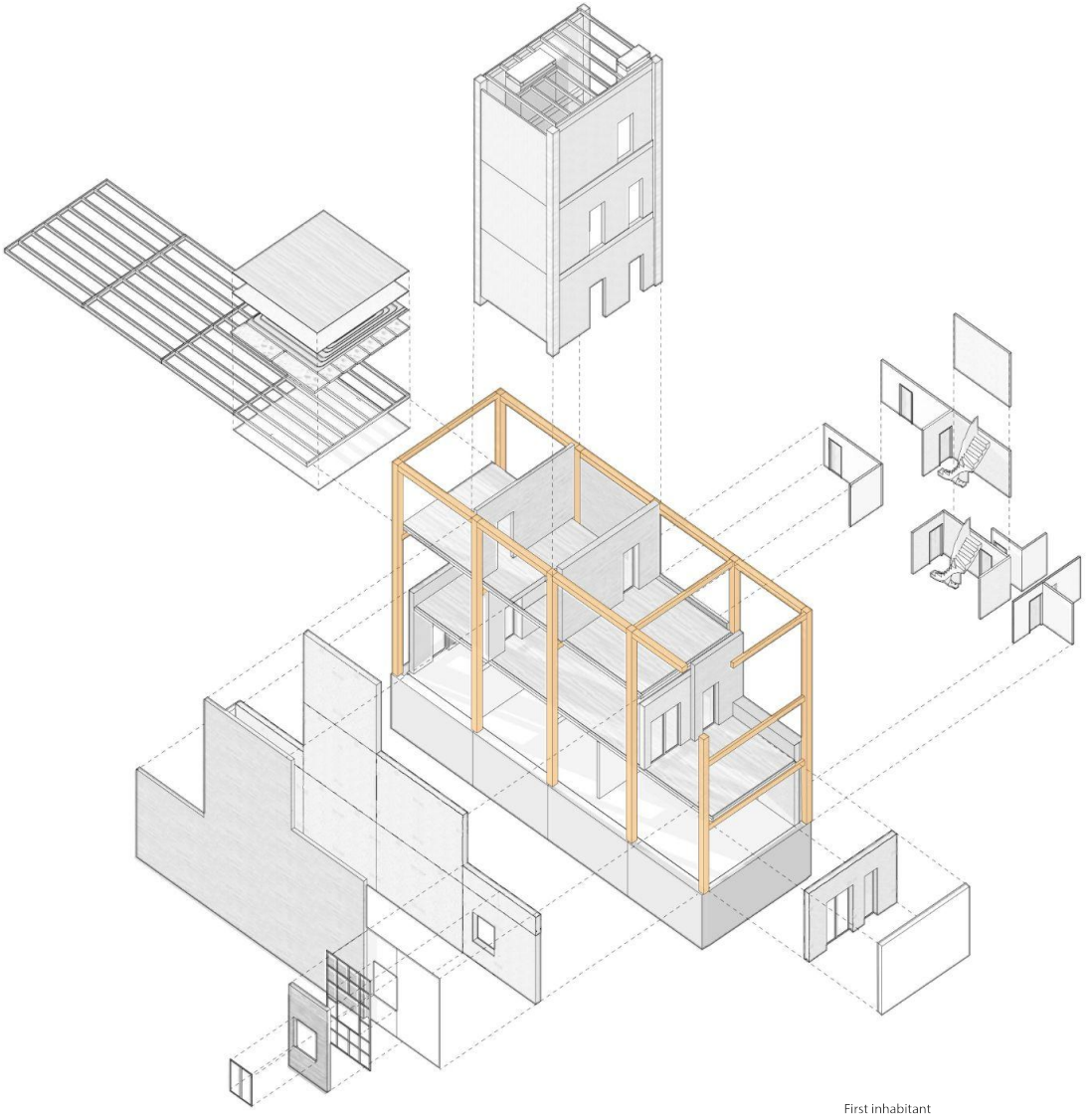


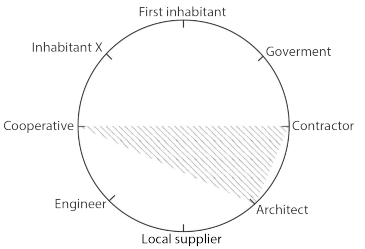


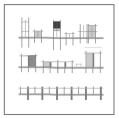


Raft foundation as high-tech support

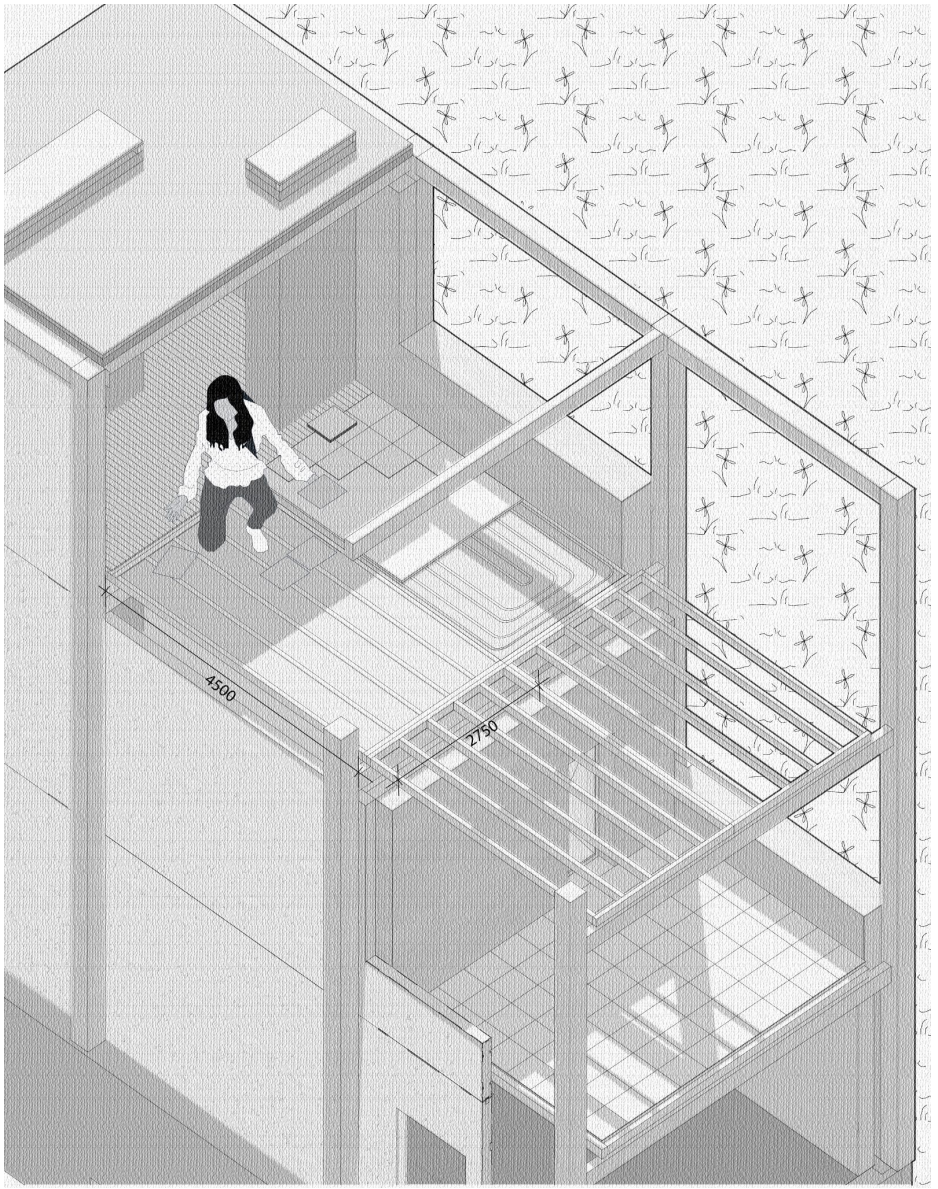


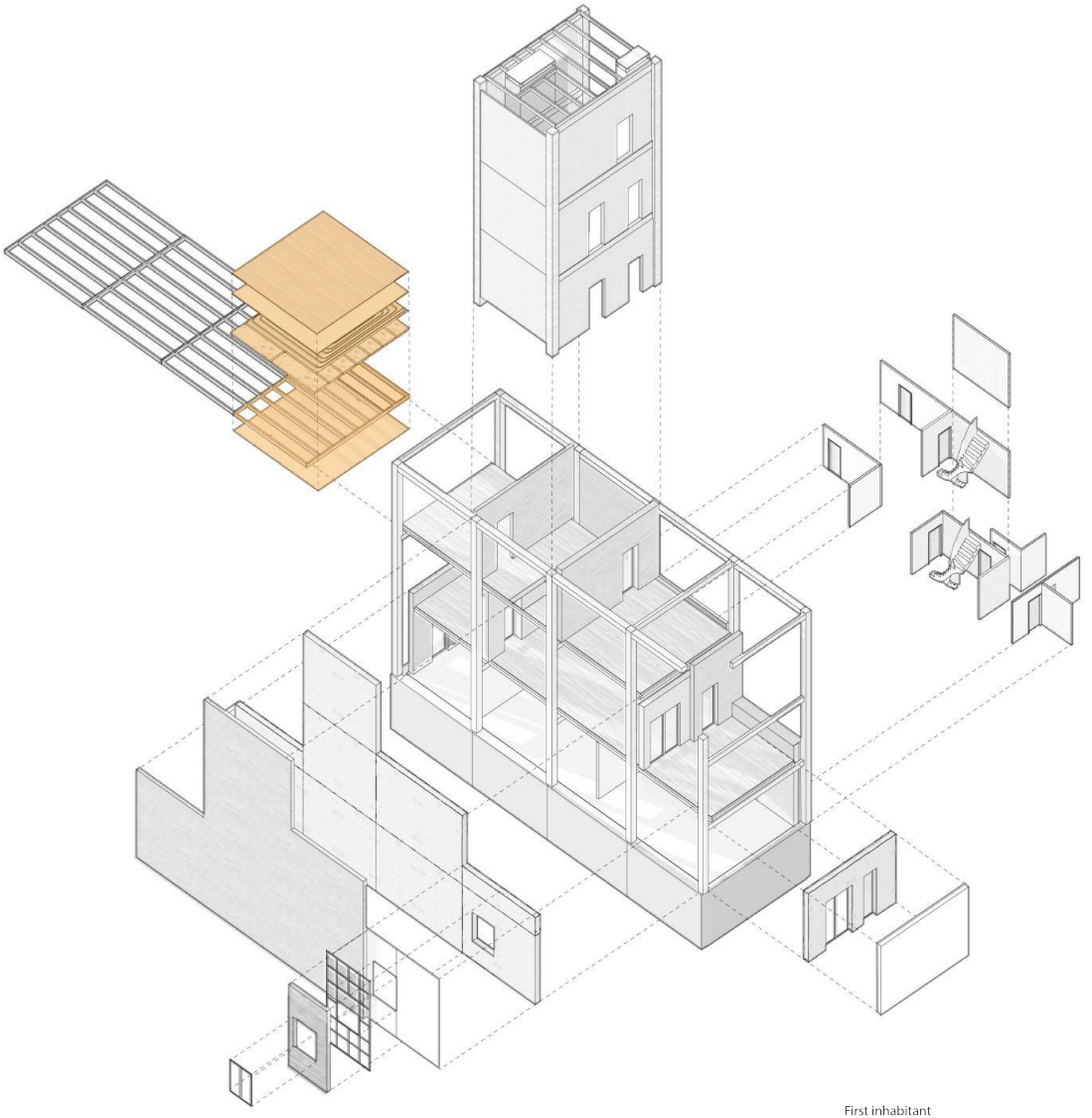


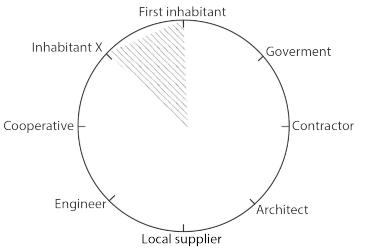


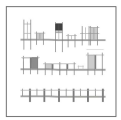


High-tech structure as a part of support

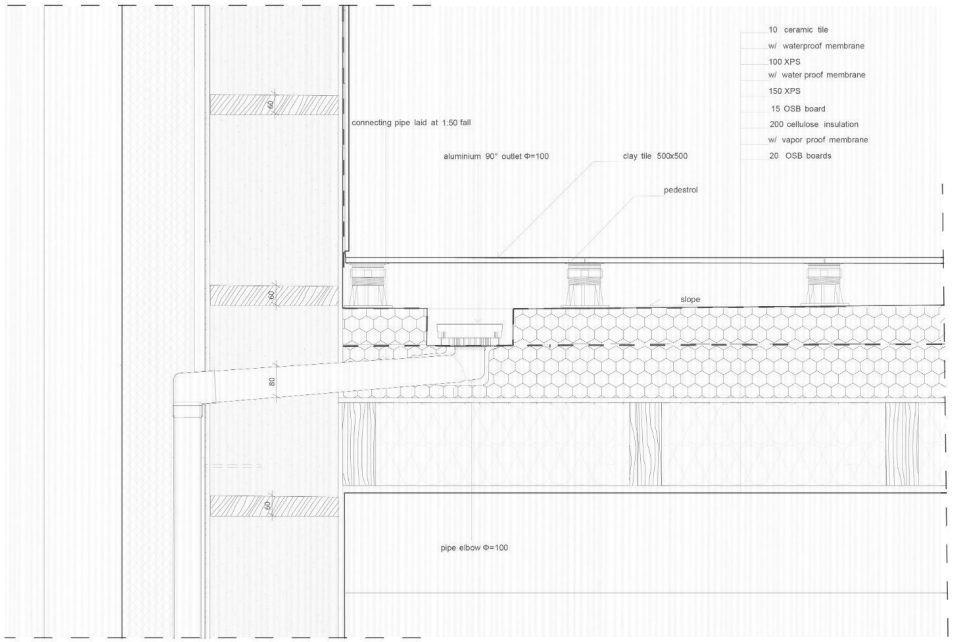


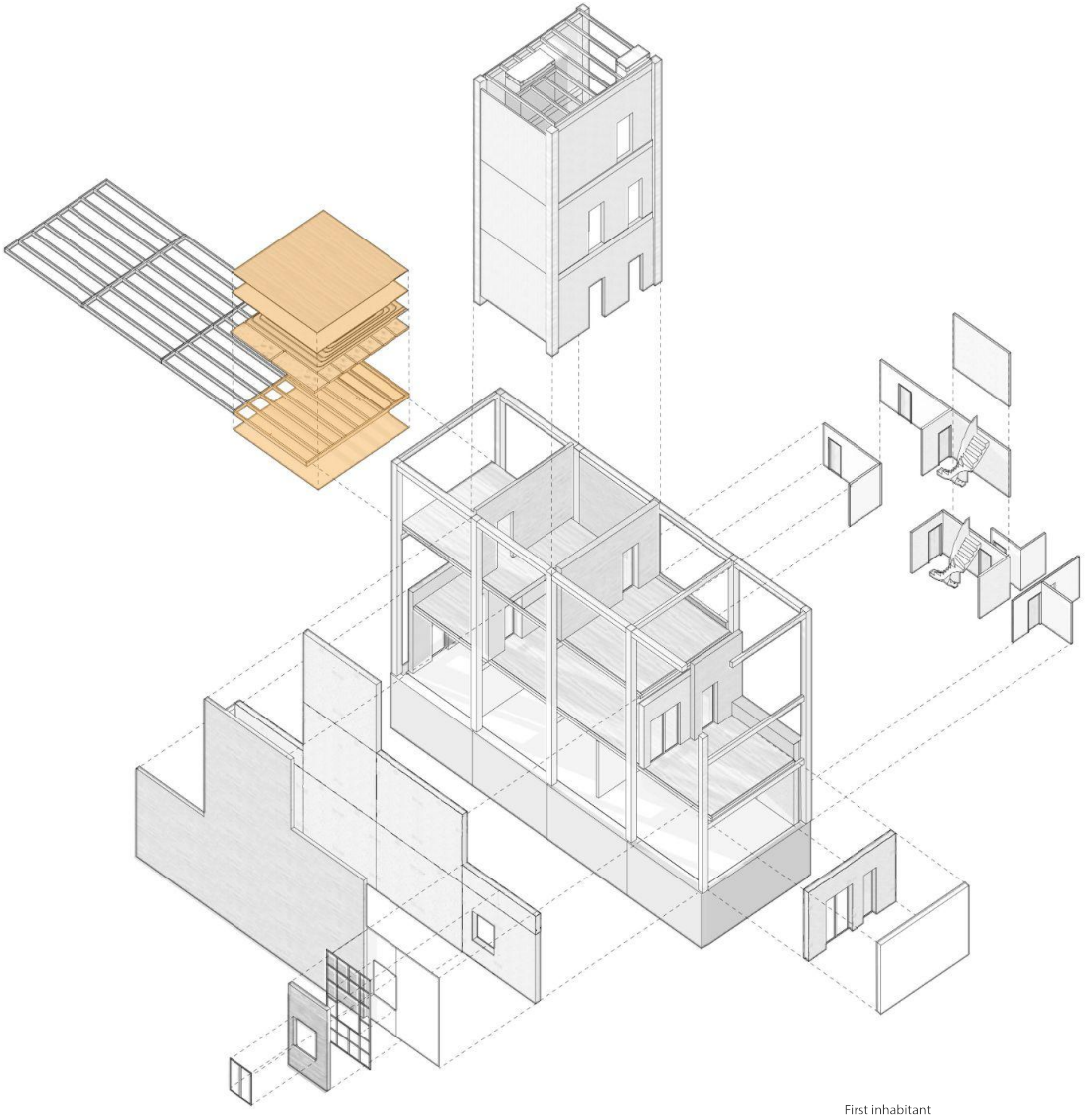


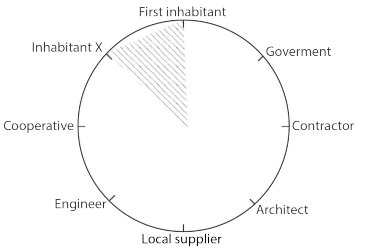


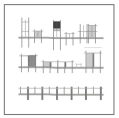


Modular slab frame as low-tech support

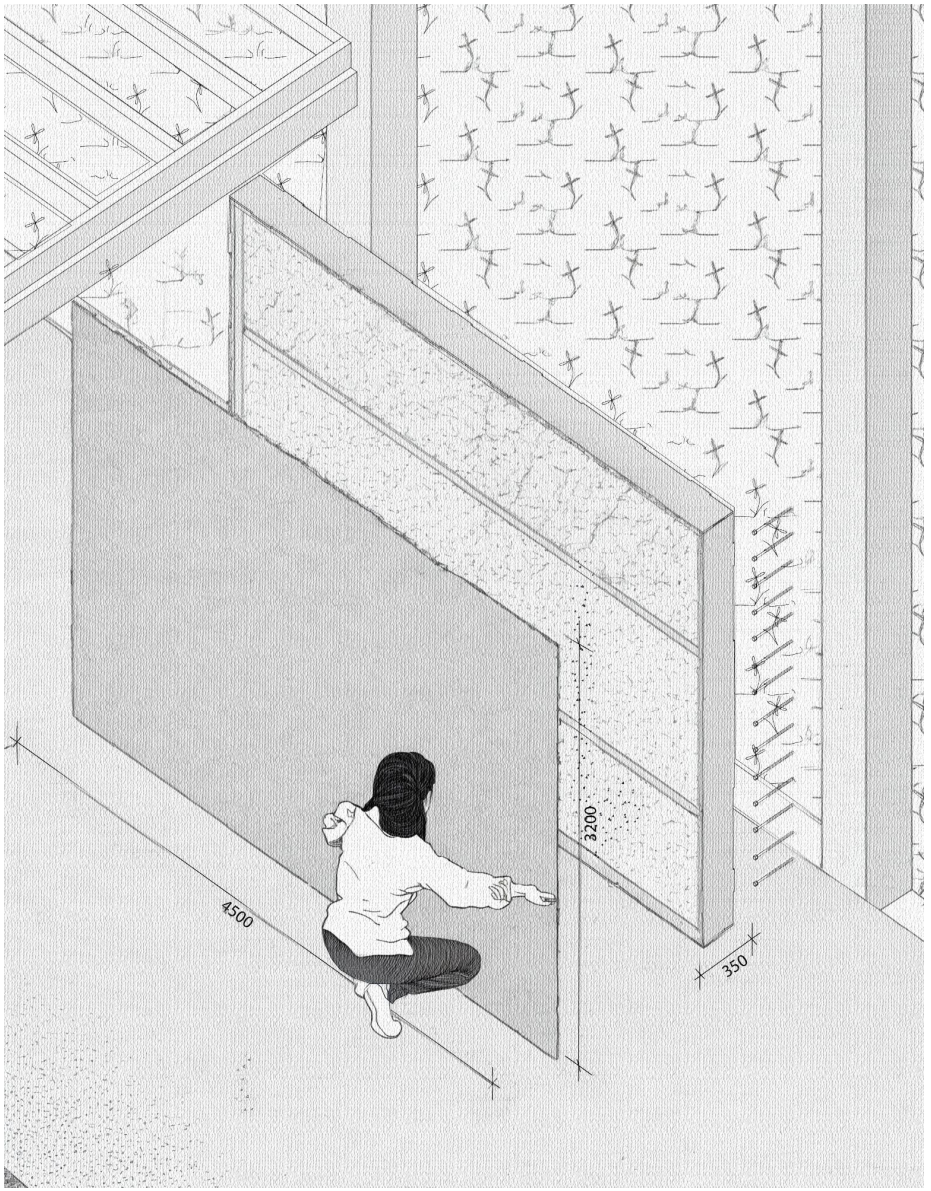


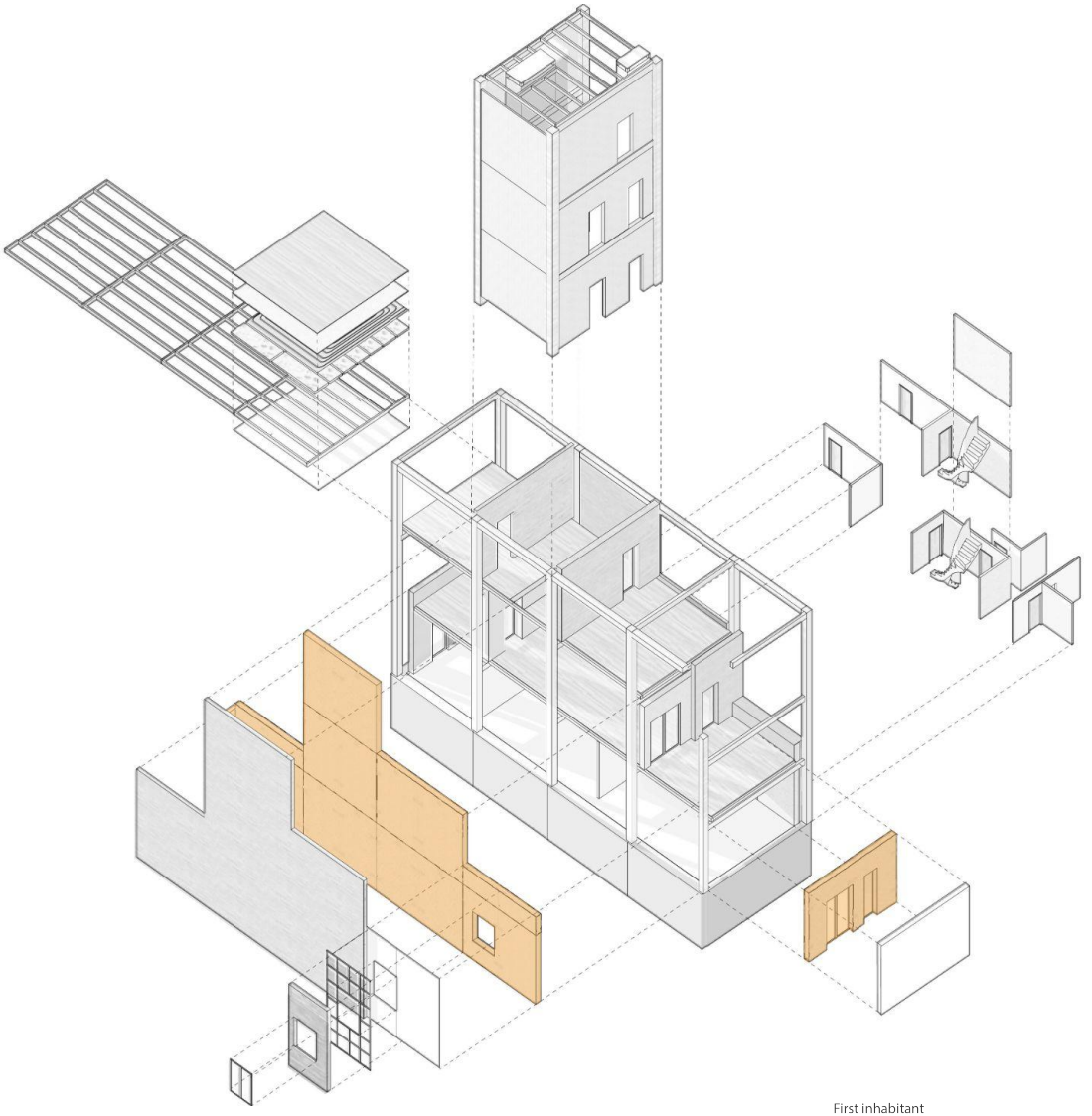


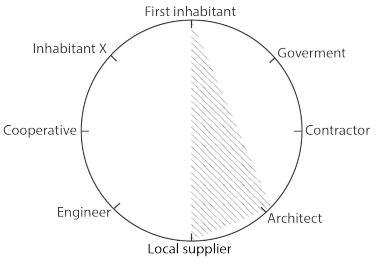


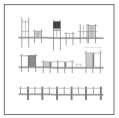


Modular slab frame as low-tech support

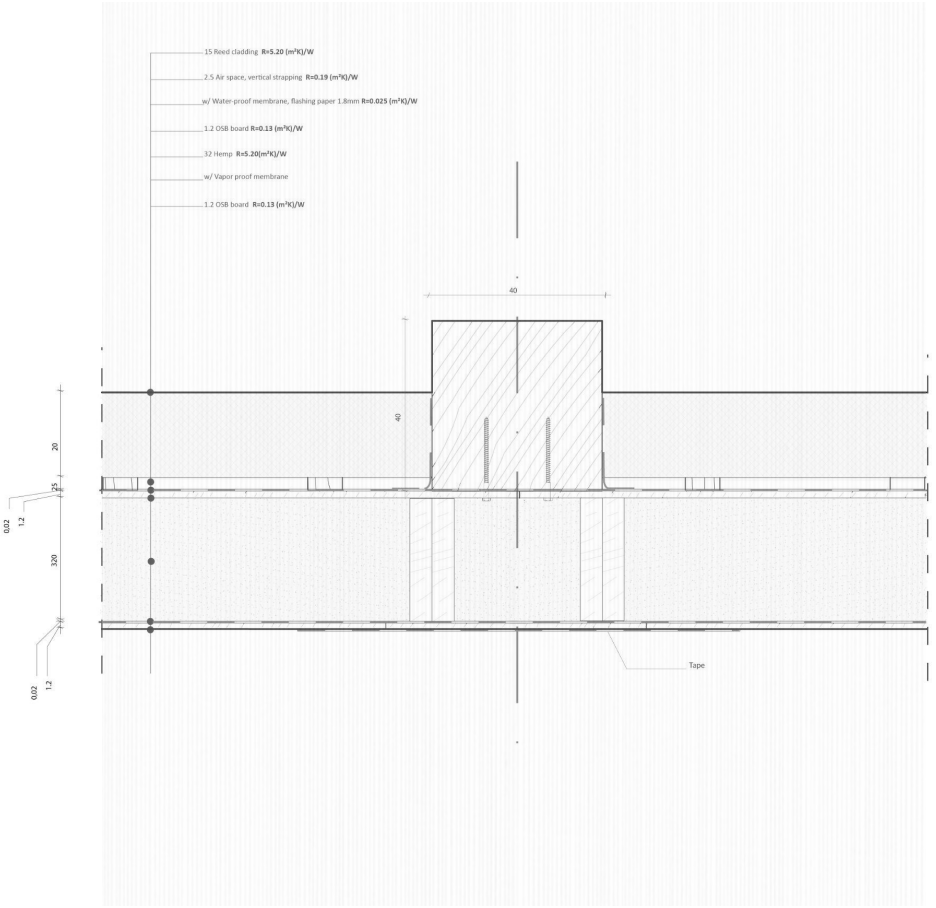


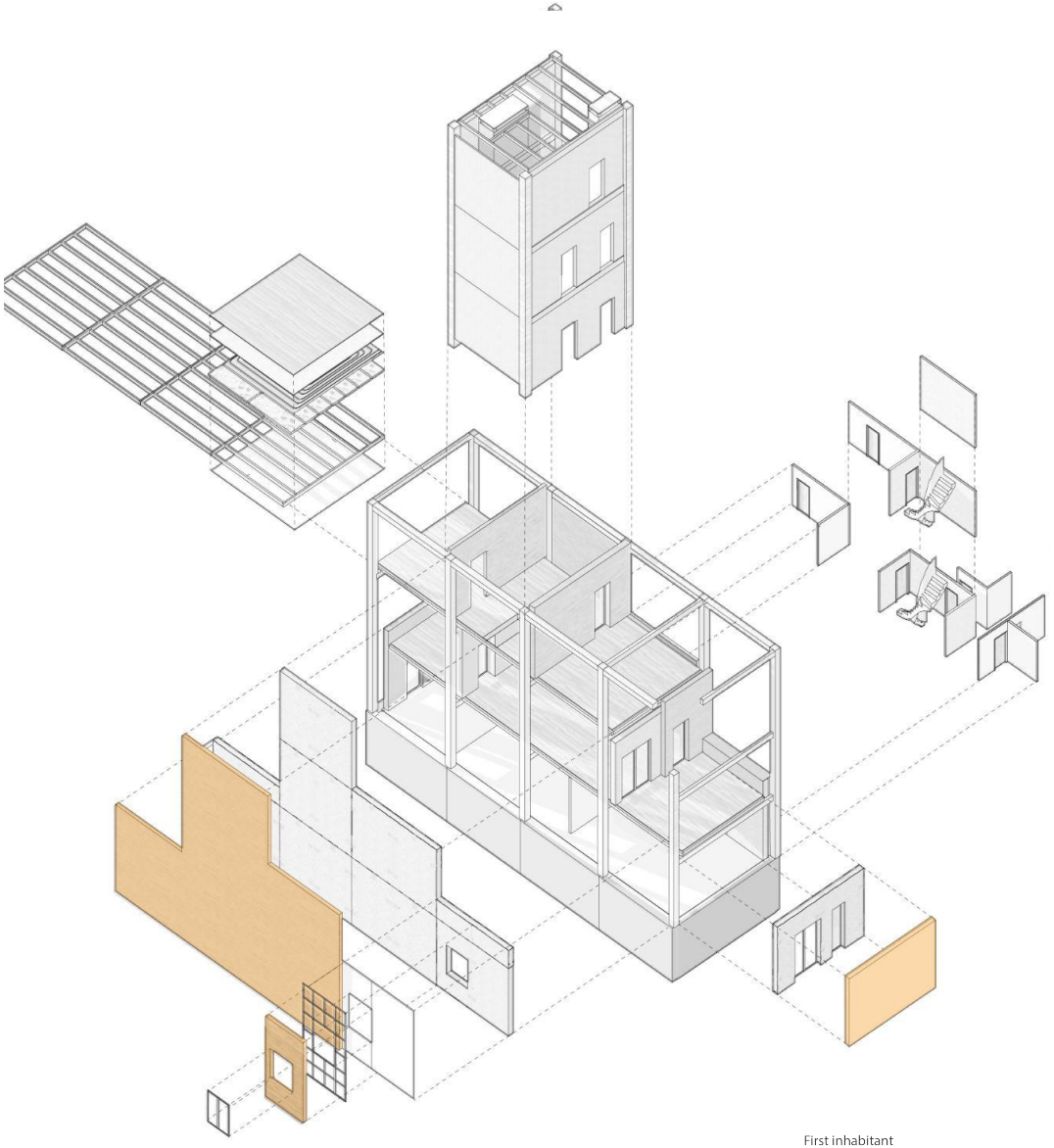


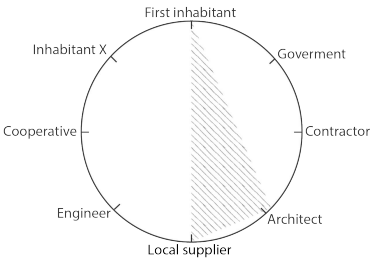


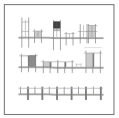


Prefab panels as low-tech support

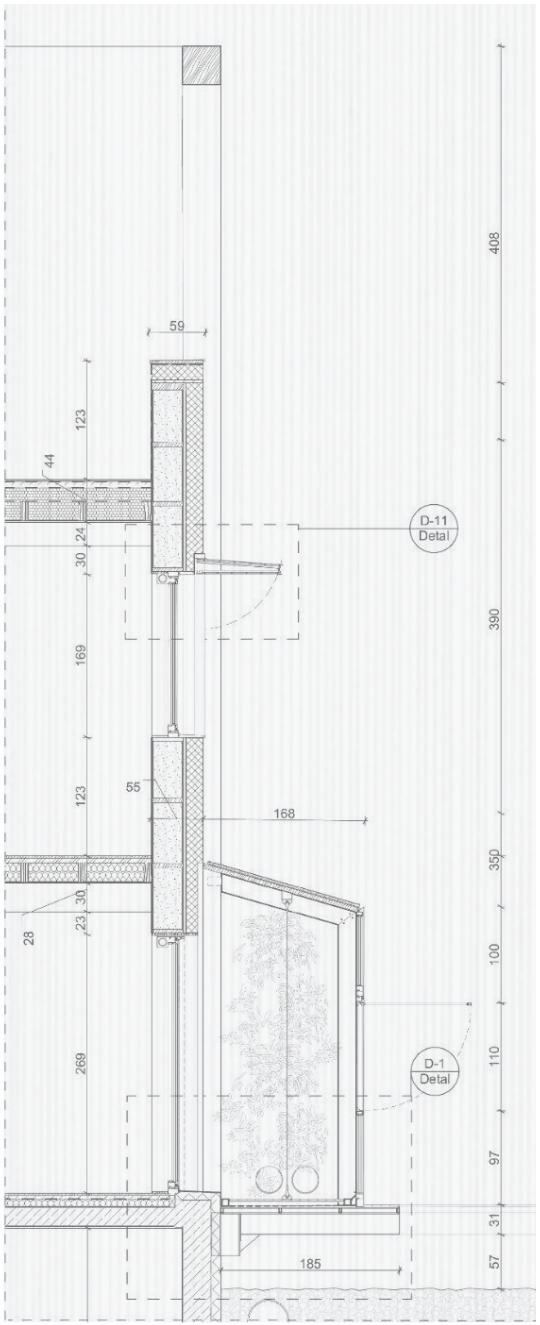







Support-Infill

Reed skin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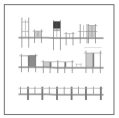
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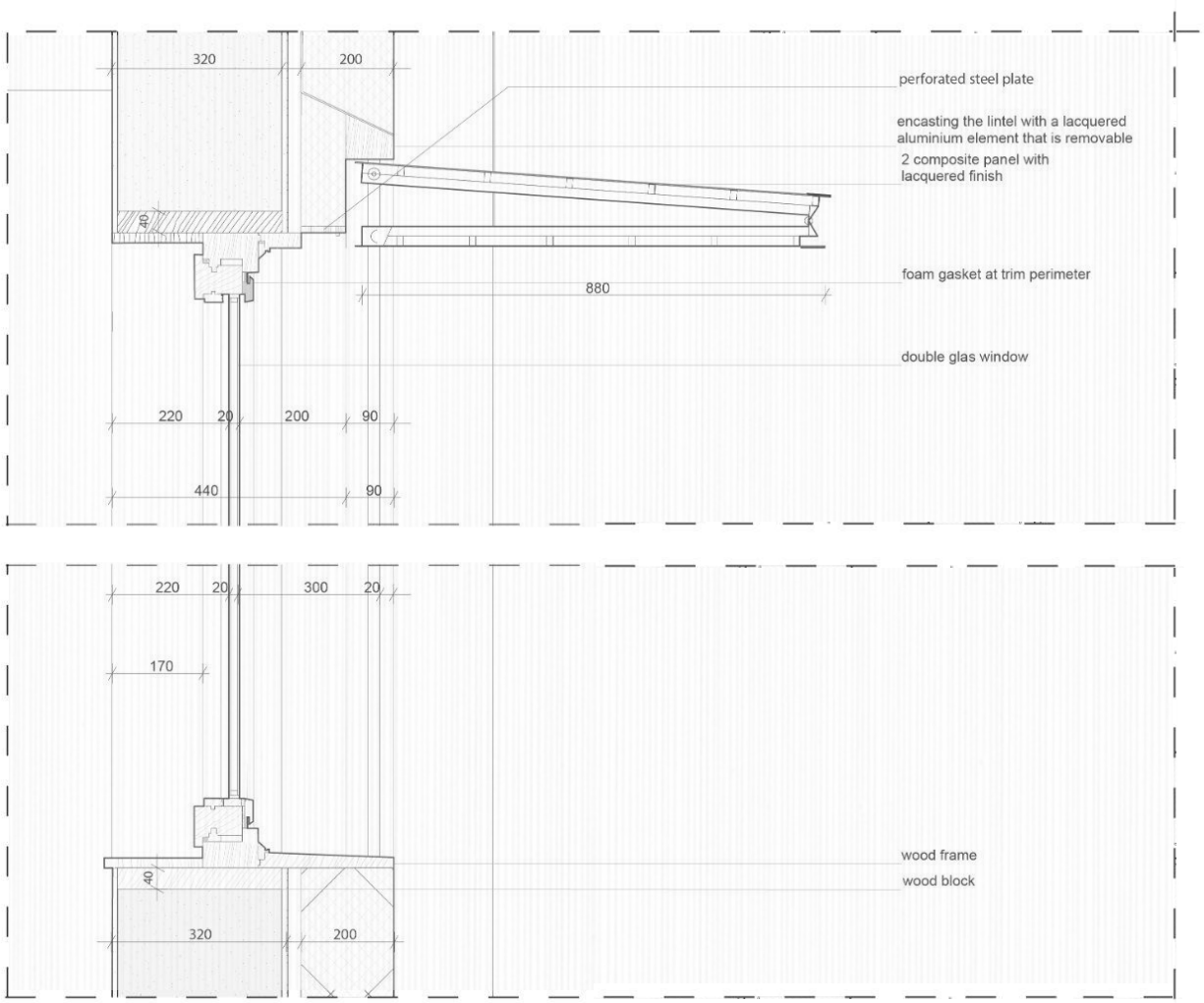

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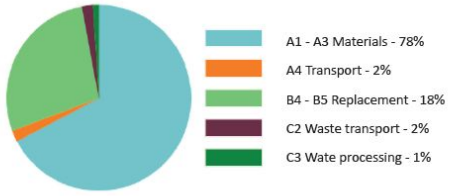
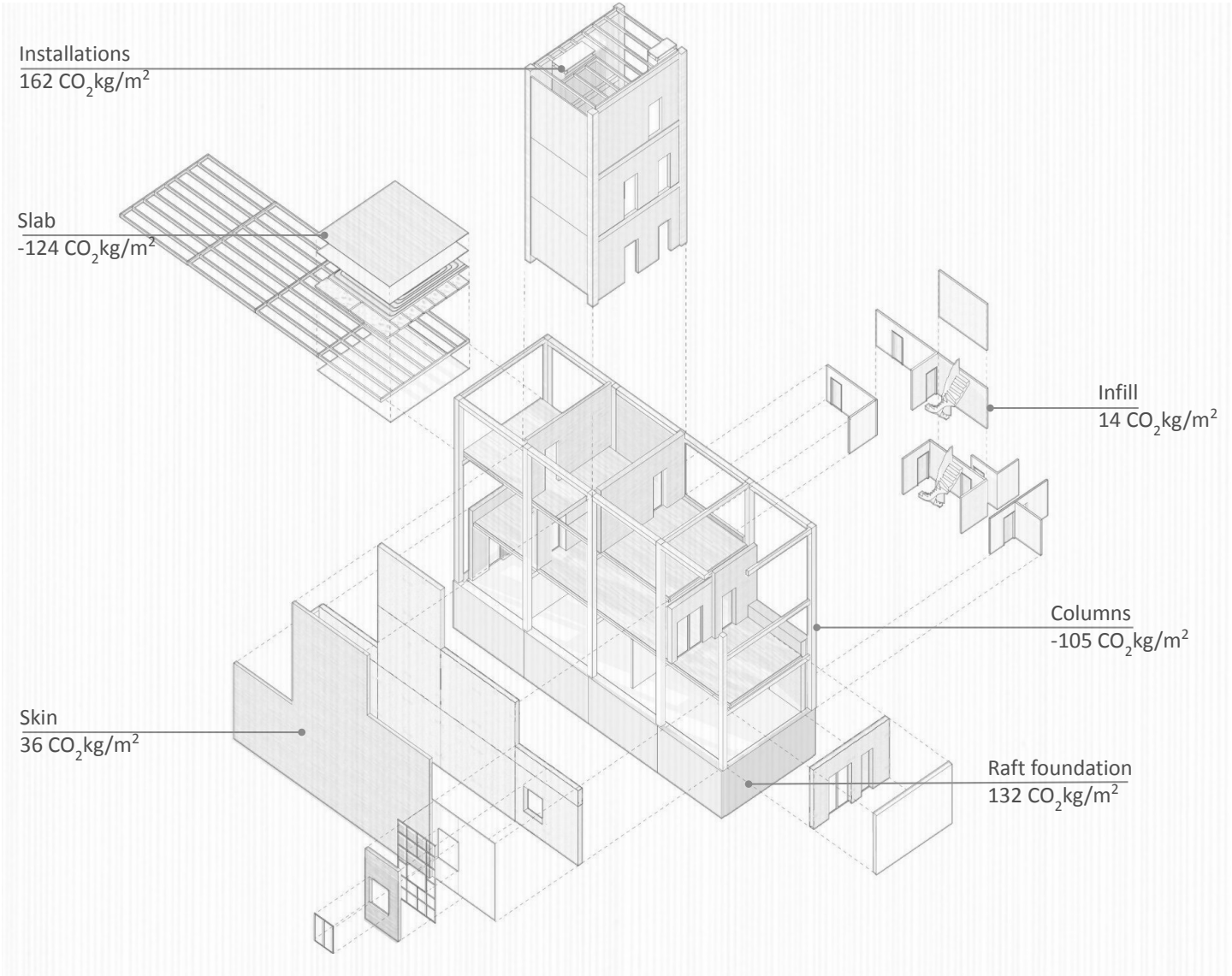
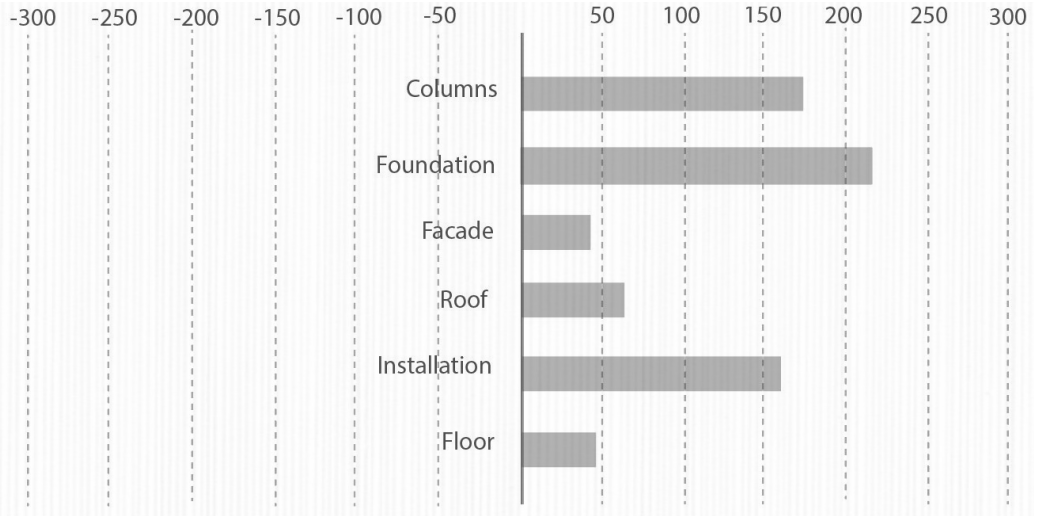


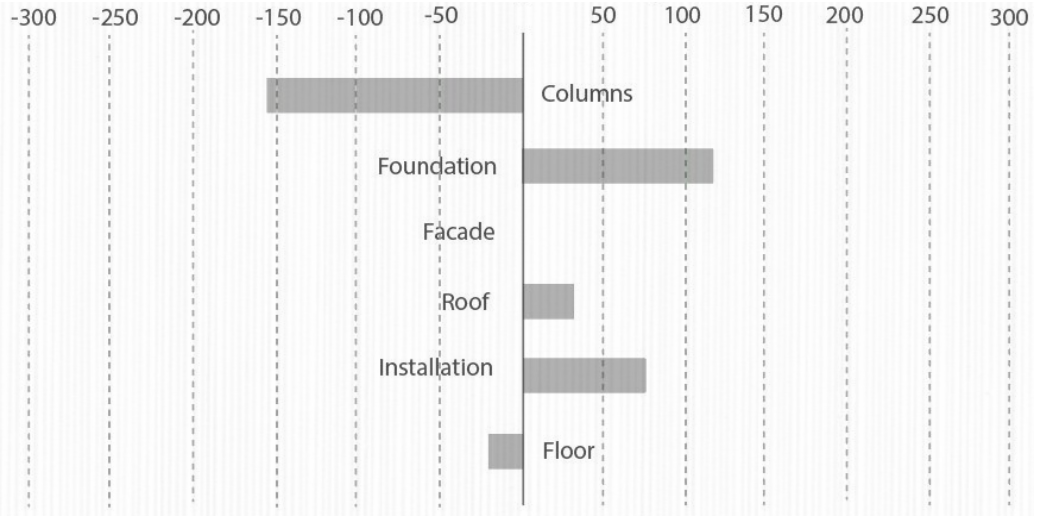
Carbon Emissions Life Cycle [CO_2kg/m^2]



+741 CO_2kg/m^2


-300
-250
-200
-150
-100
-50
50
100
150
200
250
300
Columns
Foundation
Facade
Roof
Installation
Floor

+50 CO_2kg/m^2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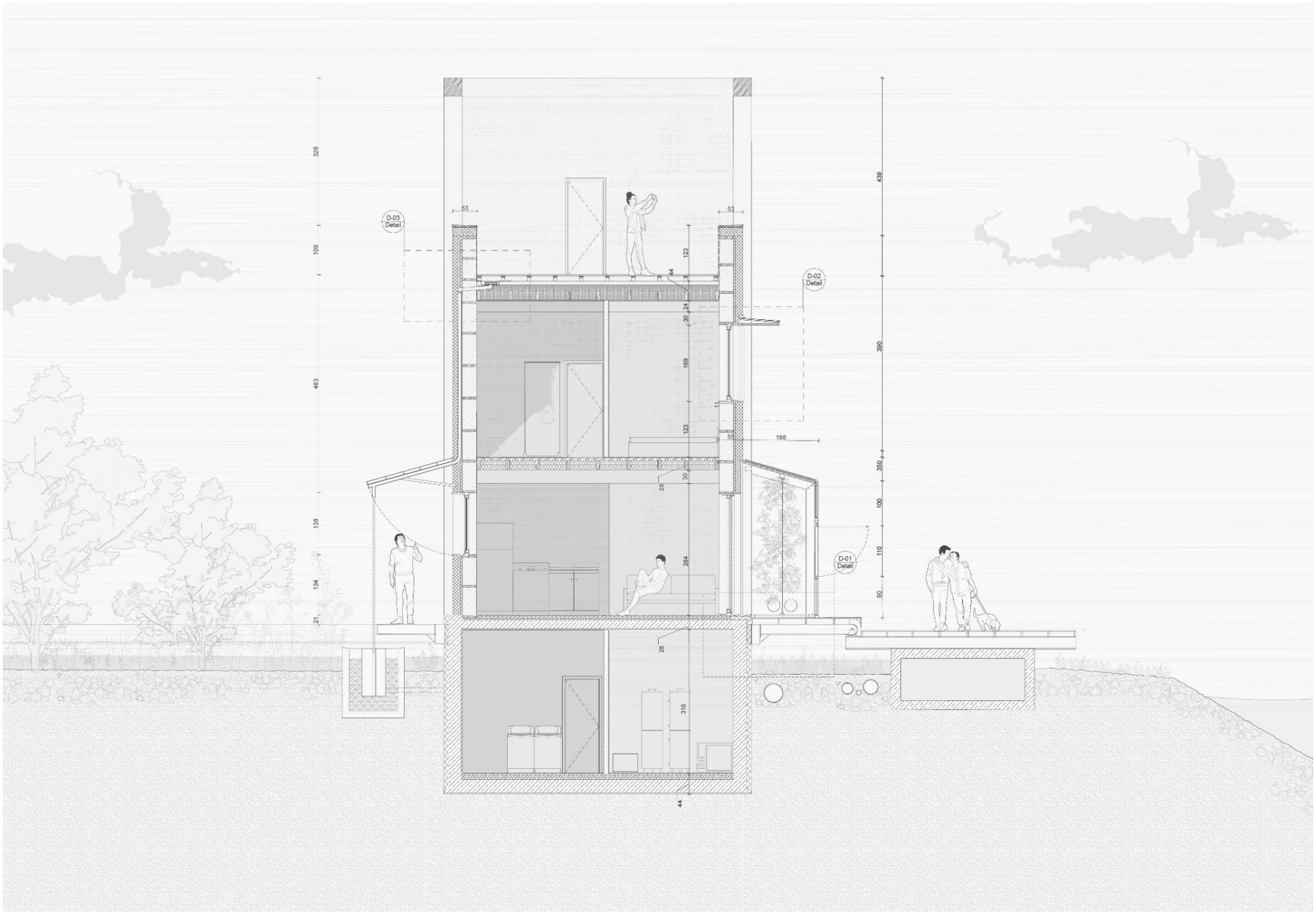
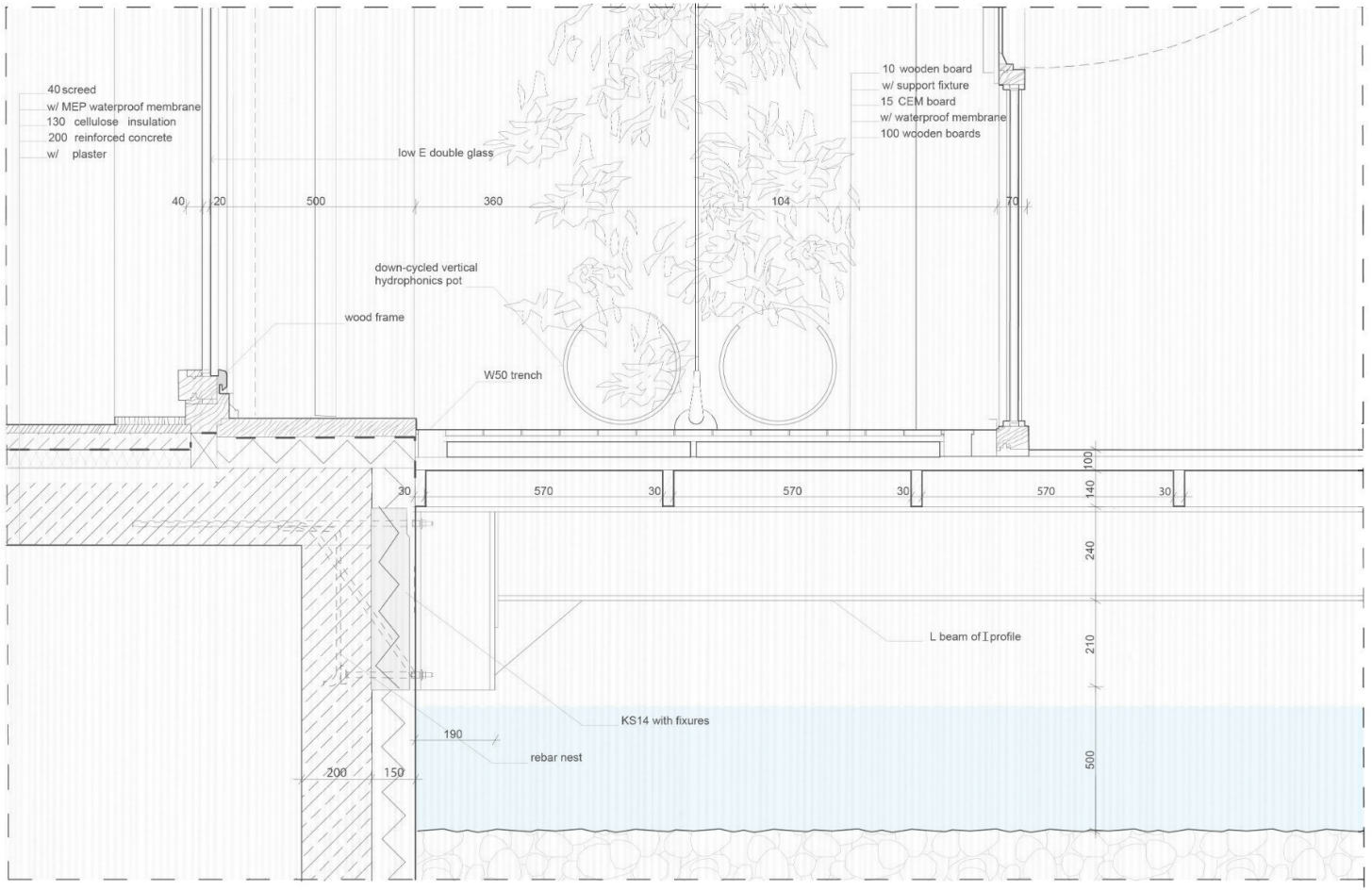


Support-Infill

Resilient design

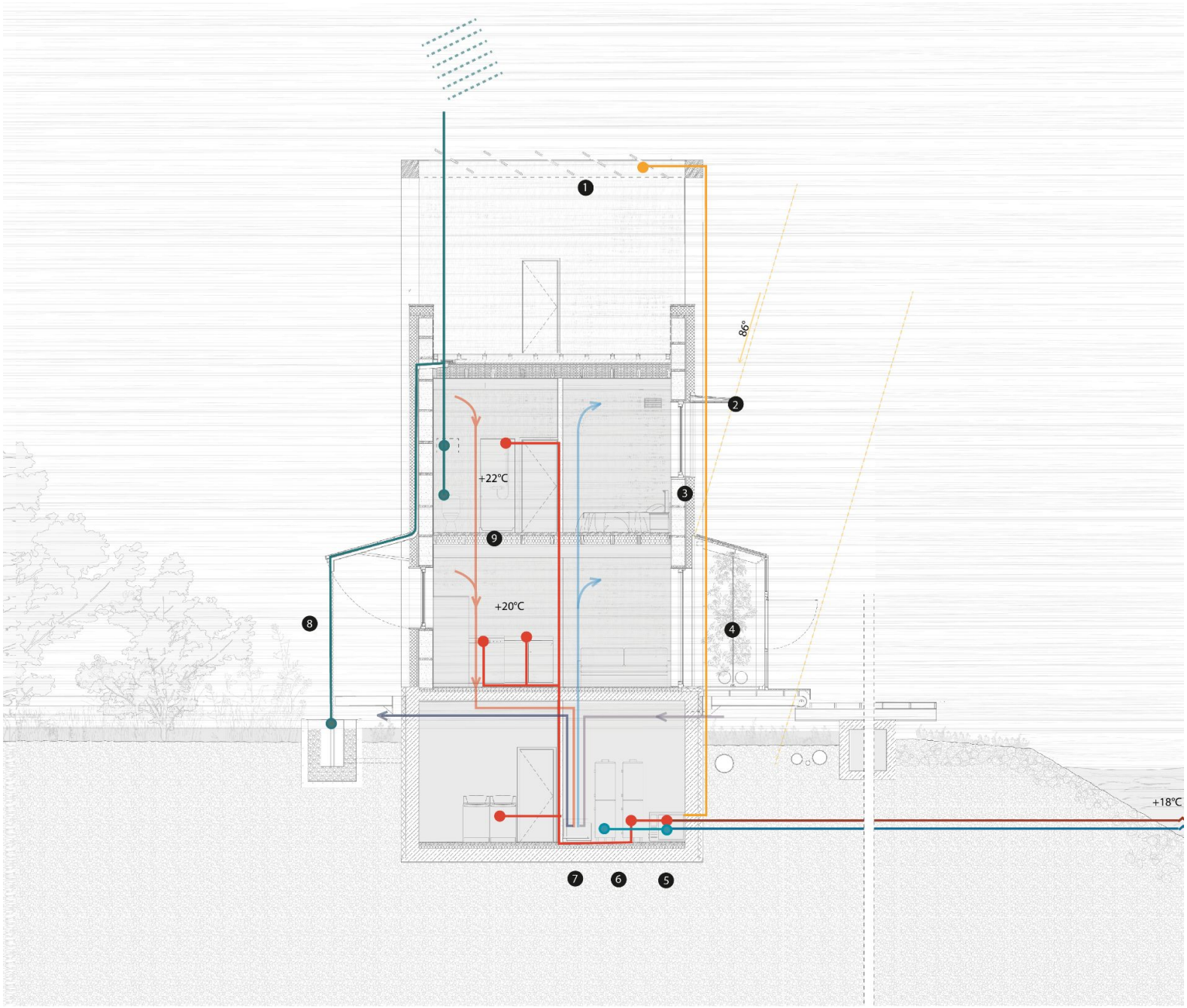


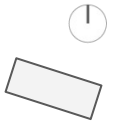
Support-Infill

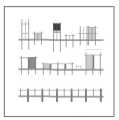
Resilient detail

1. 14 to 26PV panels with a day use of approx. 22kwh.
2. Blocking summer sunlight with shutters.
3. Thick insulation layer for heat transfer resistance.
4. Plants protecting from direct sunlight.
5. Heatpump for heating tap water sourced from central water supply.
6. Buffer vessels for hot and warm water.
7. Ventilation type D with heat recovery system to produce electricity power for the heatpump.
8. Collecting rainwater for watering the plants.
9. 5cm thick screed layers as thermal mass.

- cool stale air
- fresh air
- tempered purified
- airwarm stale air

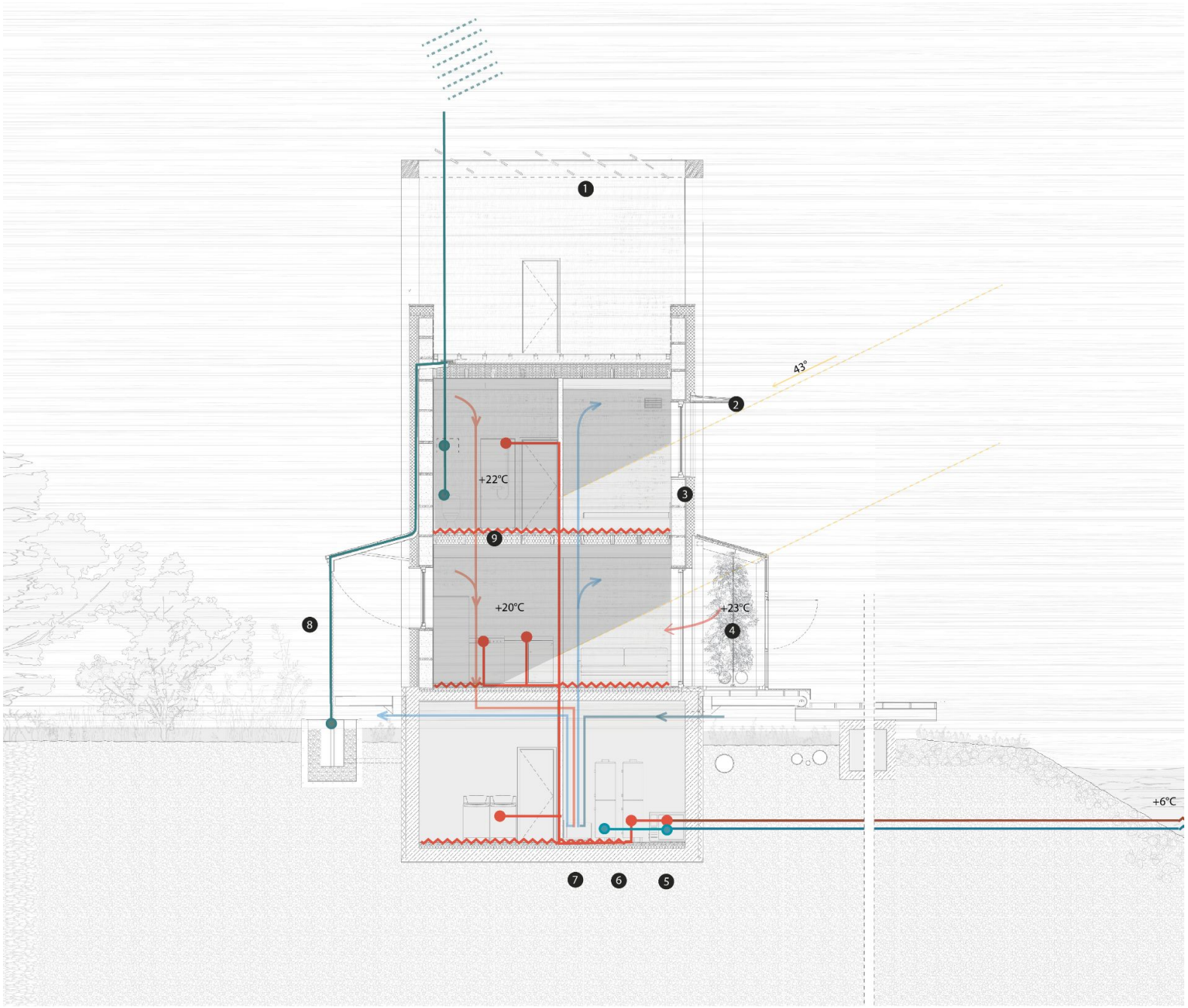


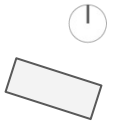


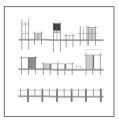

Support-Infill

Water for climate

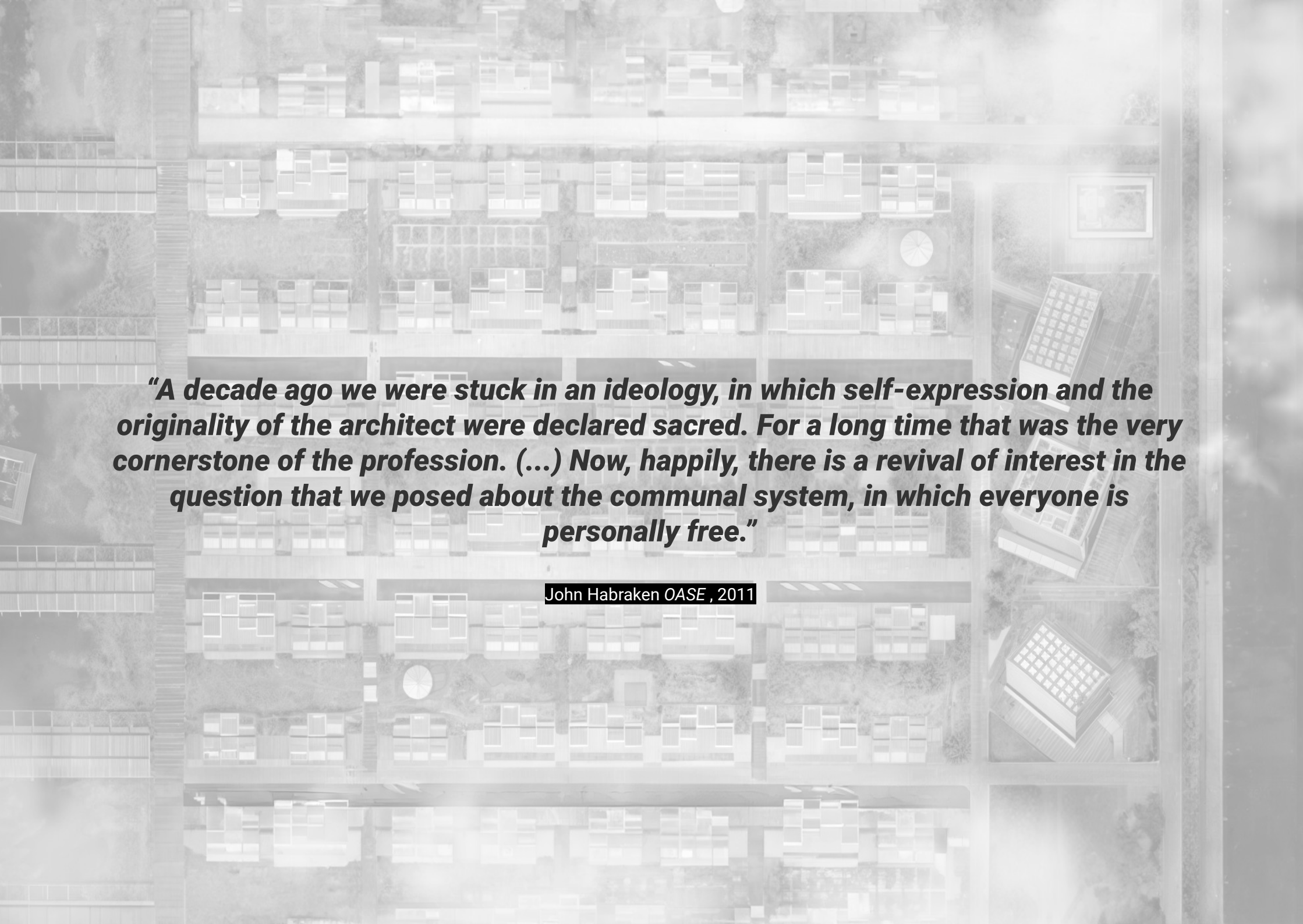
1. 14 to 26PV panels with a day use of approx. 22kwh.
2. Letting the winter light in.
3. Thick insulation of R = 60.
4. Plants protecting from direct sunlight.
5. Heatpump for heating tap water sourced from central water supply.
6. Buffer vessels for hot and warm water.
7. Ventilation type D with heat recovery system.
8. Collecting rainwater for watering the plants.
9. 5cm thick screed layer as thermal mass.







Water for climate



“A decade ago we were stuck in an ideology, in which self-expression and the originality of the architect were declared sacred. For a long time that was the very cornerstone of the profession. (...) Now, happily, there is a revival of interest in the question that we posed about the communal system, in which everyone is personally free.”

John Habraken *OASE* , 2011