

## **Rhythms to encounter**

Shaping social infrastructure to encourage synergies between working and living

## **Advanced housing**

Ecologies of inclusion

P5

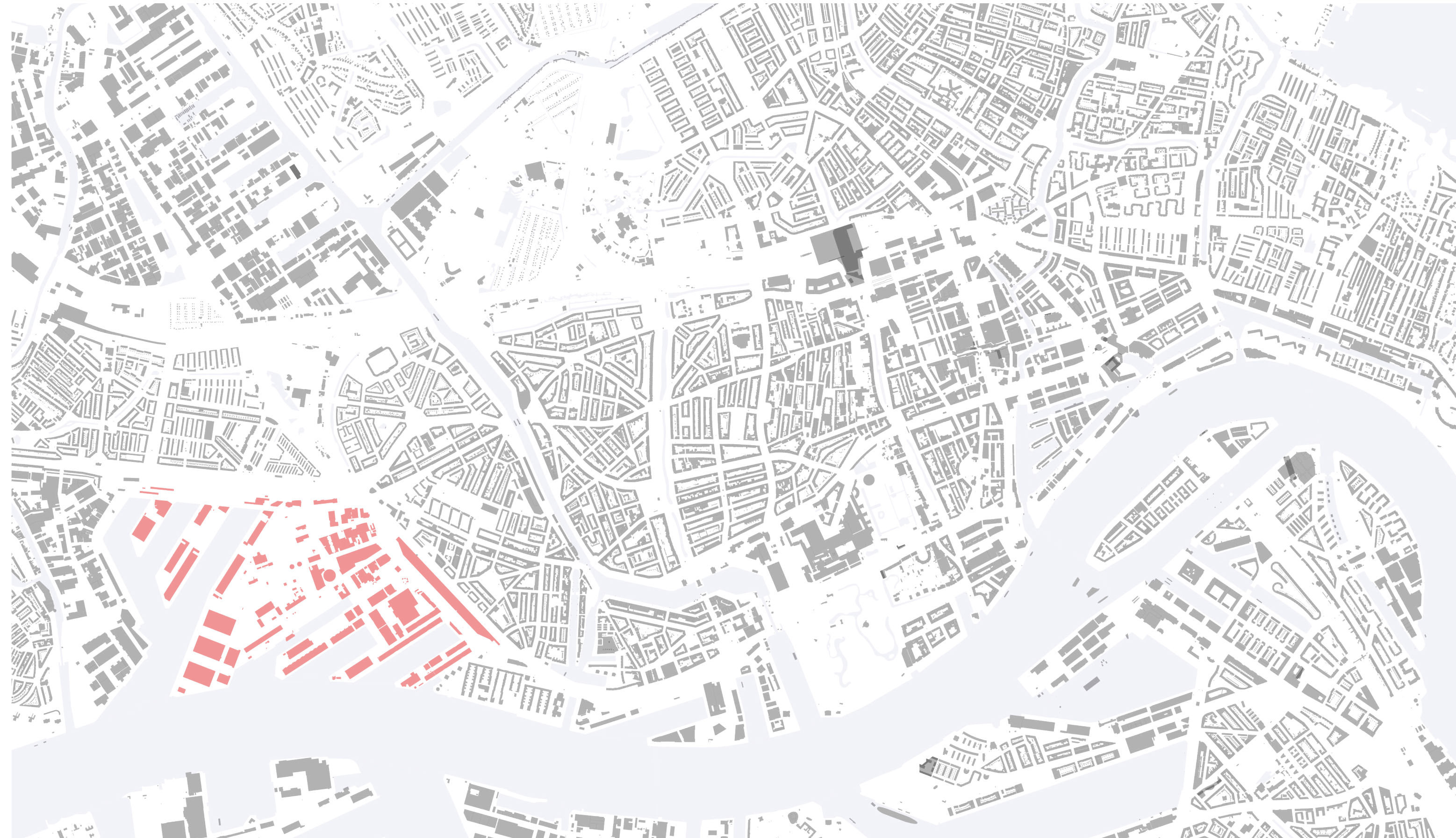
Siem Kos  
20 June 2023

Part 1

## **Context**



**Context**  
Rotterdam





## Context

# Masterplan Merwevierhavens



(Ruimtelijk Raamwerk M4H - M4H Rotterdam, 2020)



**Context**  
Urban Mix

**Spatial segregation**

segregation of labor markets in Western European cities

**Healthy urban fabric**

chrono-urbanism, daily life in a range of walking and cycling distance

Micro-mobility benefits public trust

Urban manufacturing can contribute to the local identity

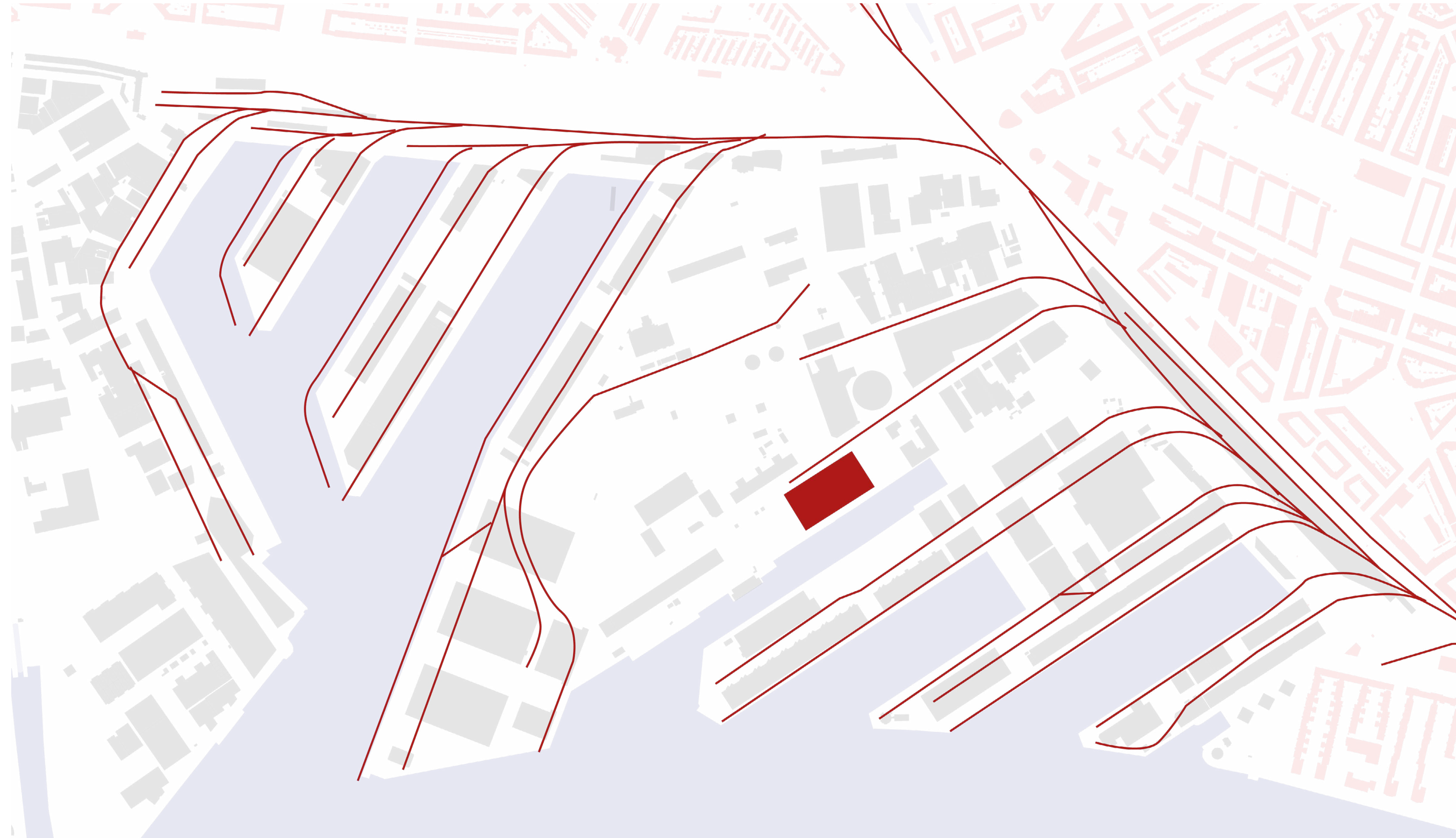
**Acceptance of residents**

Disbalanced mixes on an economic basis are a possible threat to urban manufacturing.

Transparency of the business is the foundation of the acceptance of residents.

# Context

Disconnected



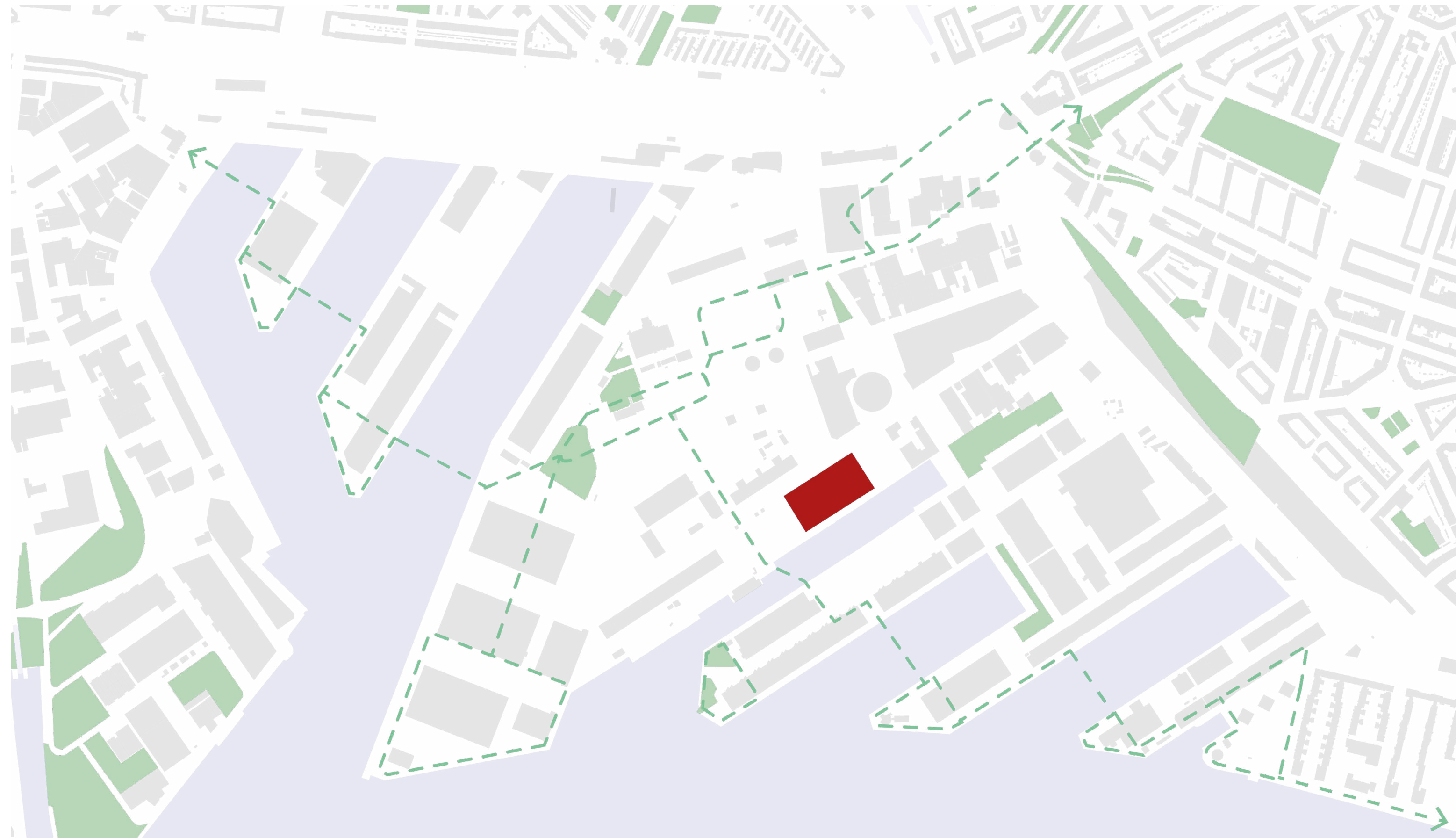
**Context**  
Accessibility





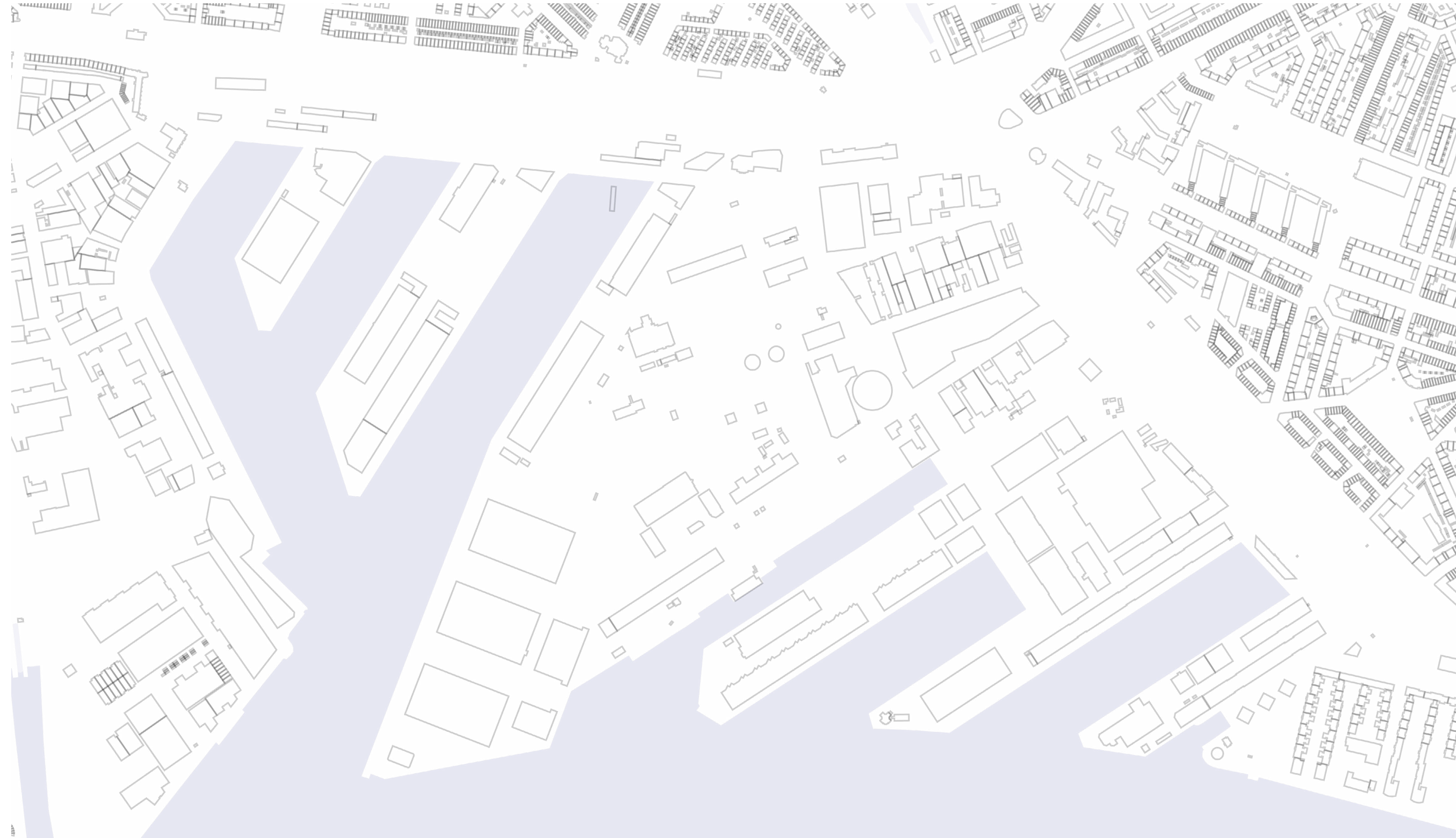
## Context

Green spaces



## Context

### Living environment



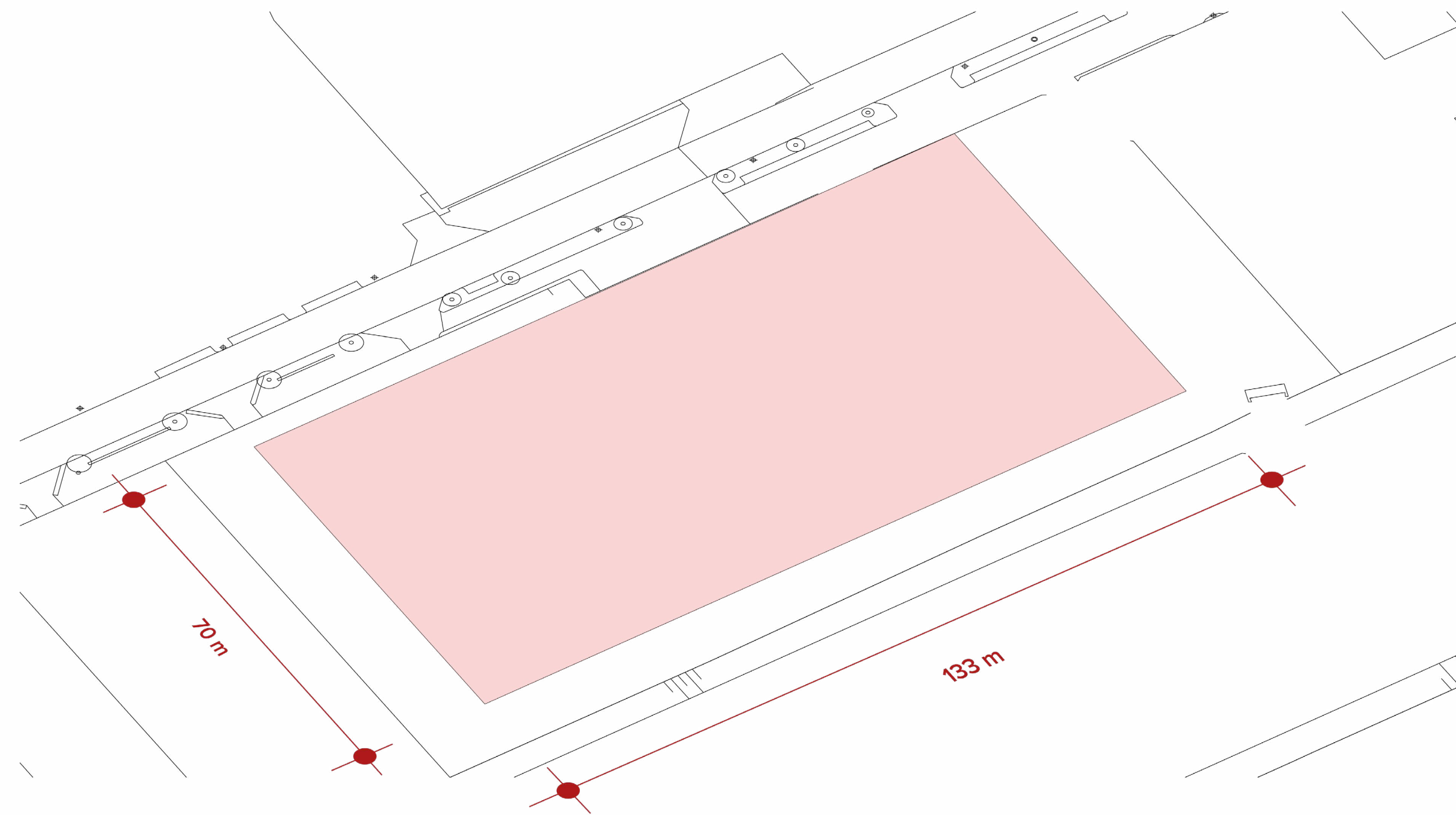
Part 2

## **Masterplan**



# Masterplan

## Design brief

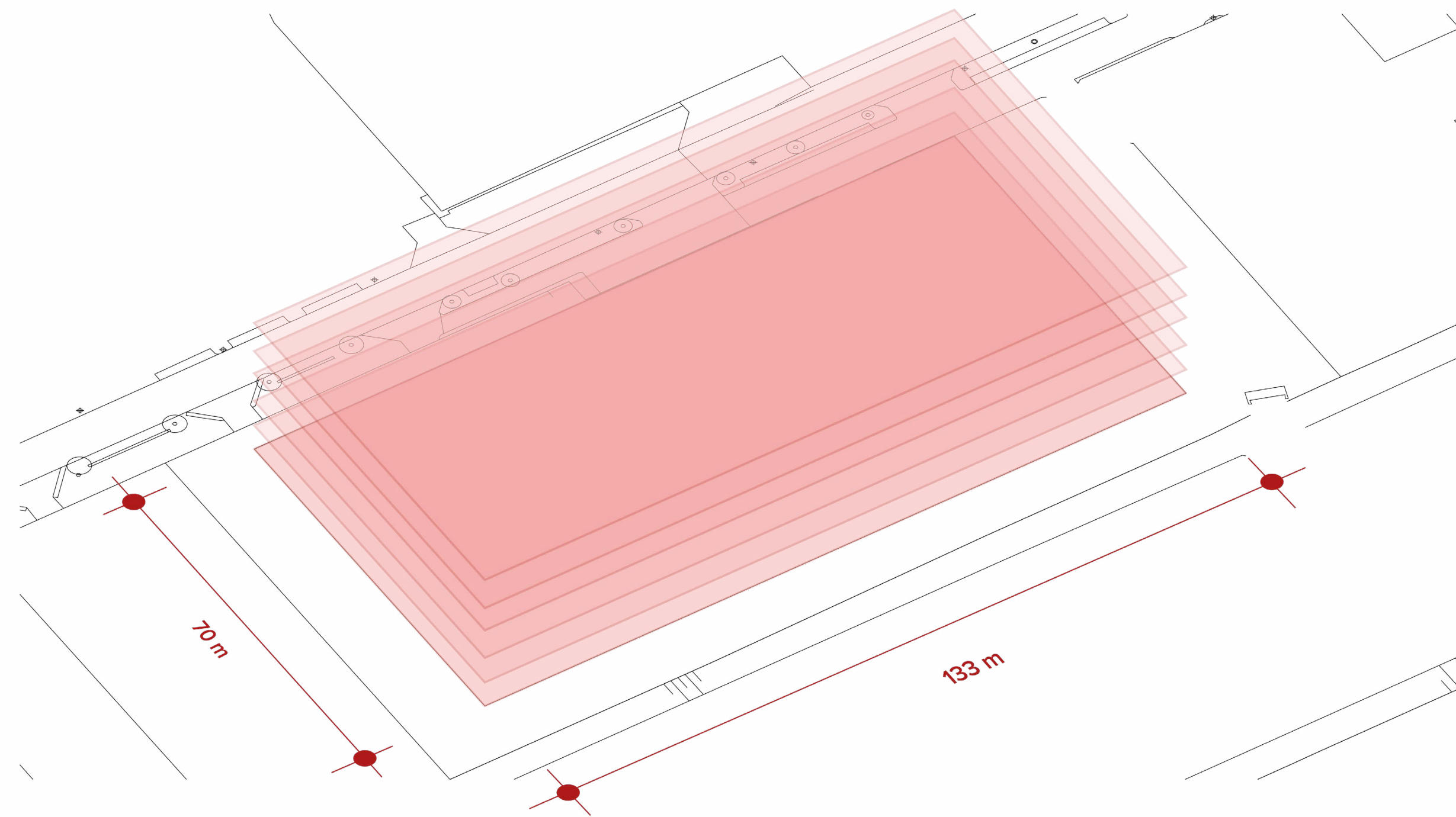


27.000 m<sup>2</sup> residential  
17.000 m<sup>2</sup> production  
3.500 m<sup>2</sup> facilities

47.500 m<sup>2</sup> total

# Masterplan

## Design brief

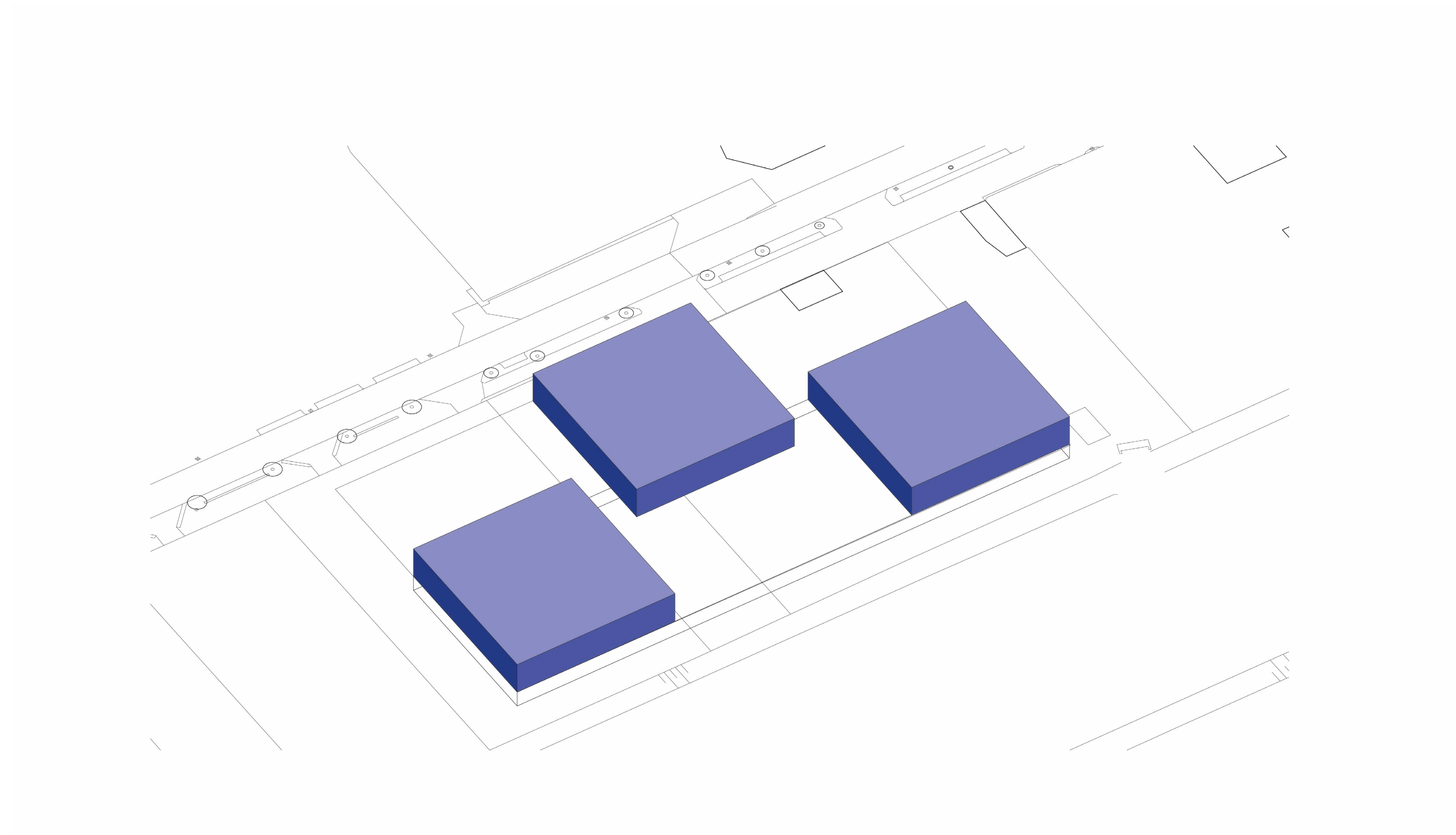


27.000 m<sup>2</sup> residential  
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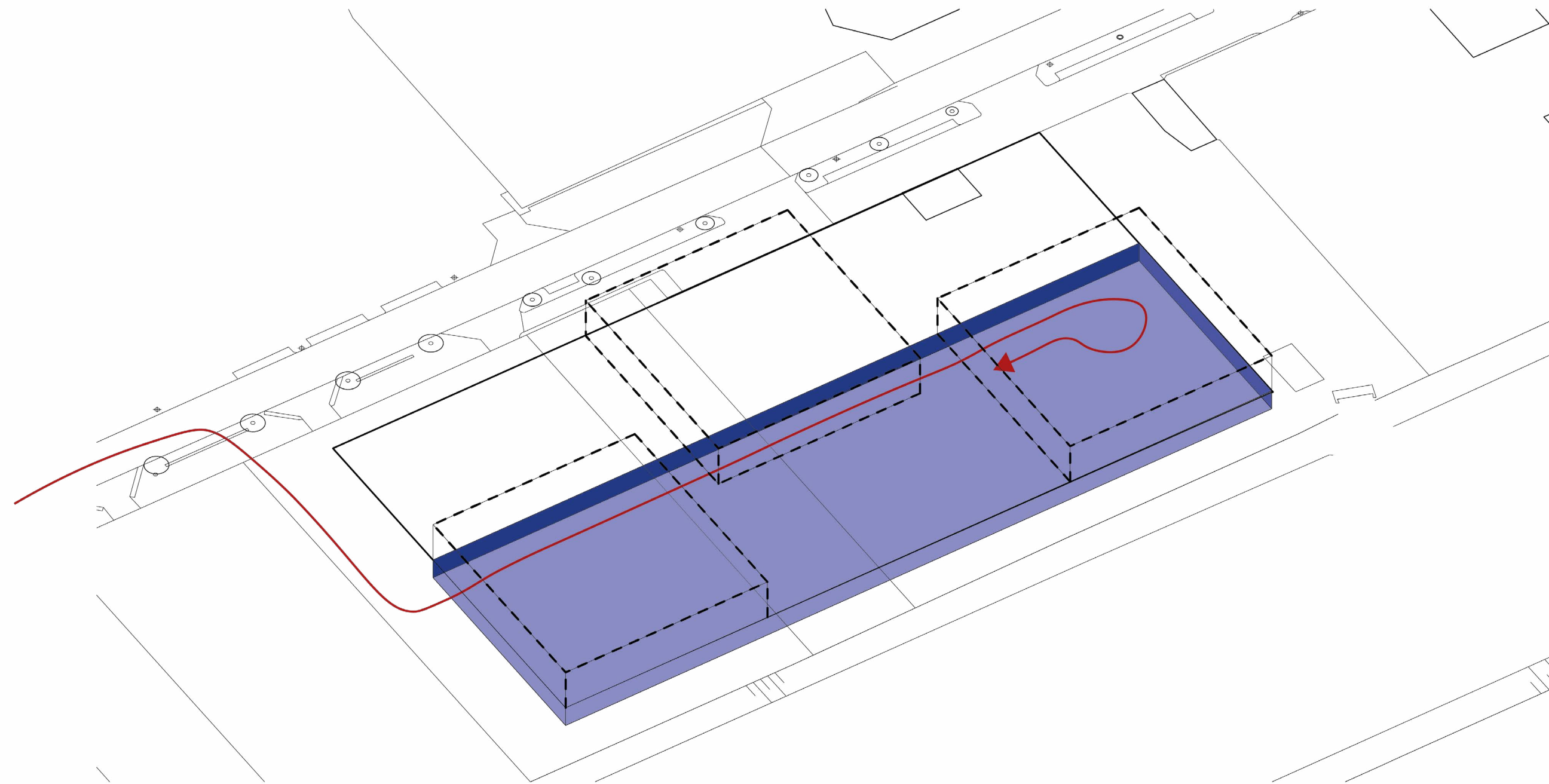
47.500 m<sup>2</sup> total

# Masterplan

## Production units



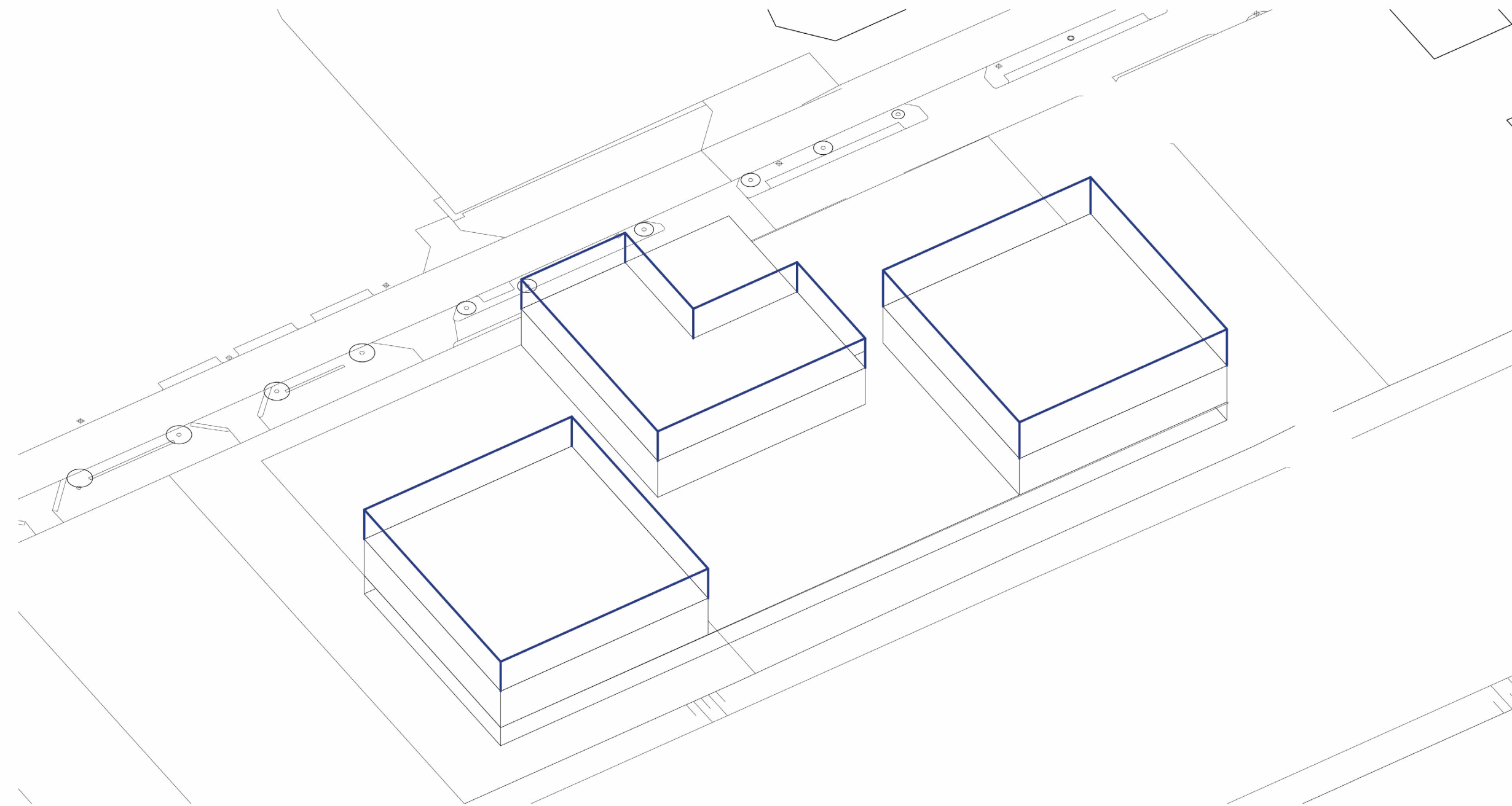
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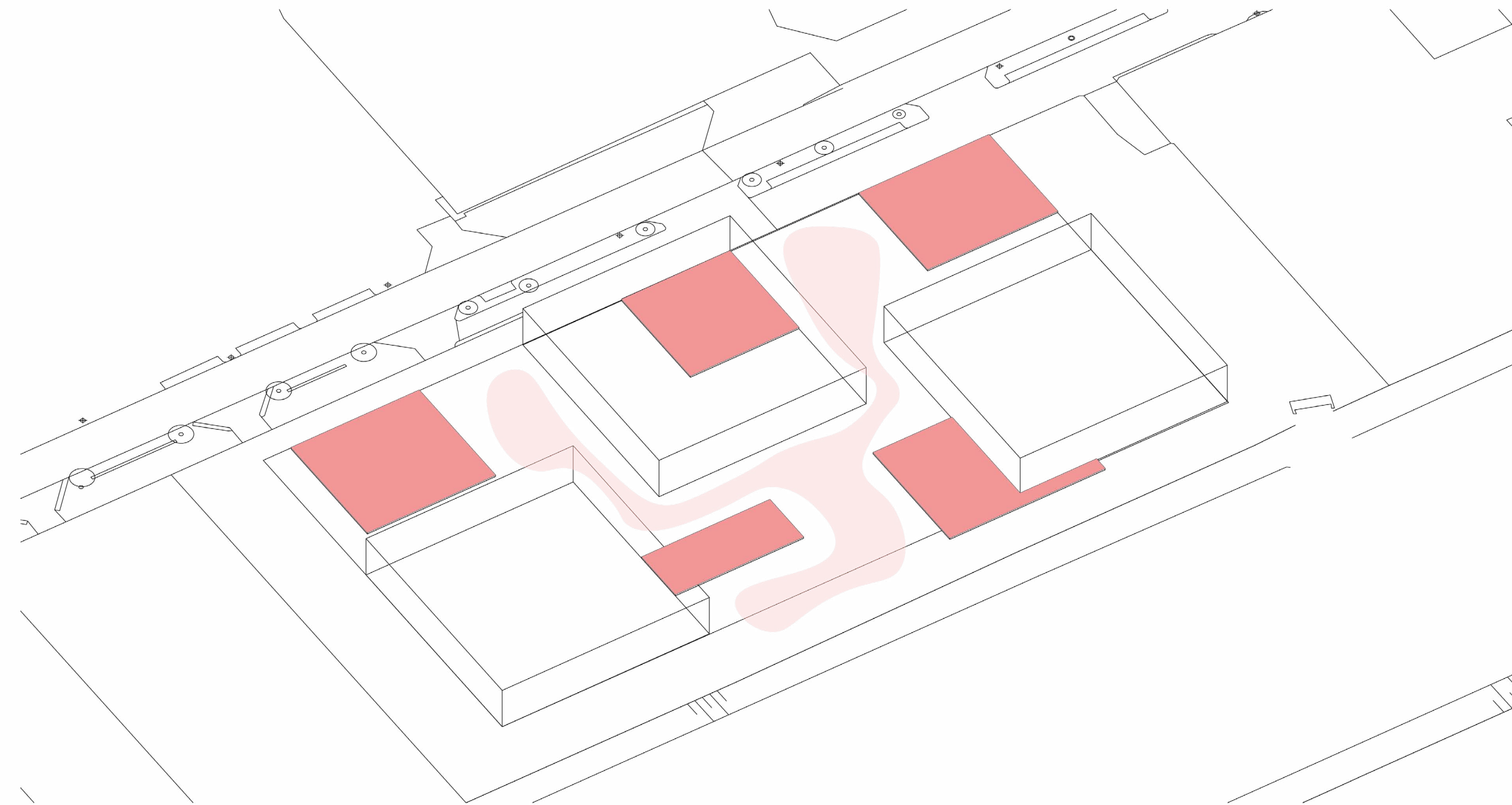


# Masterplan

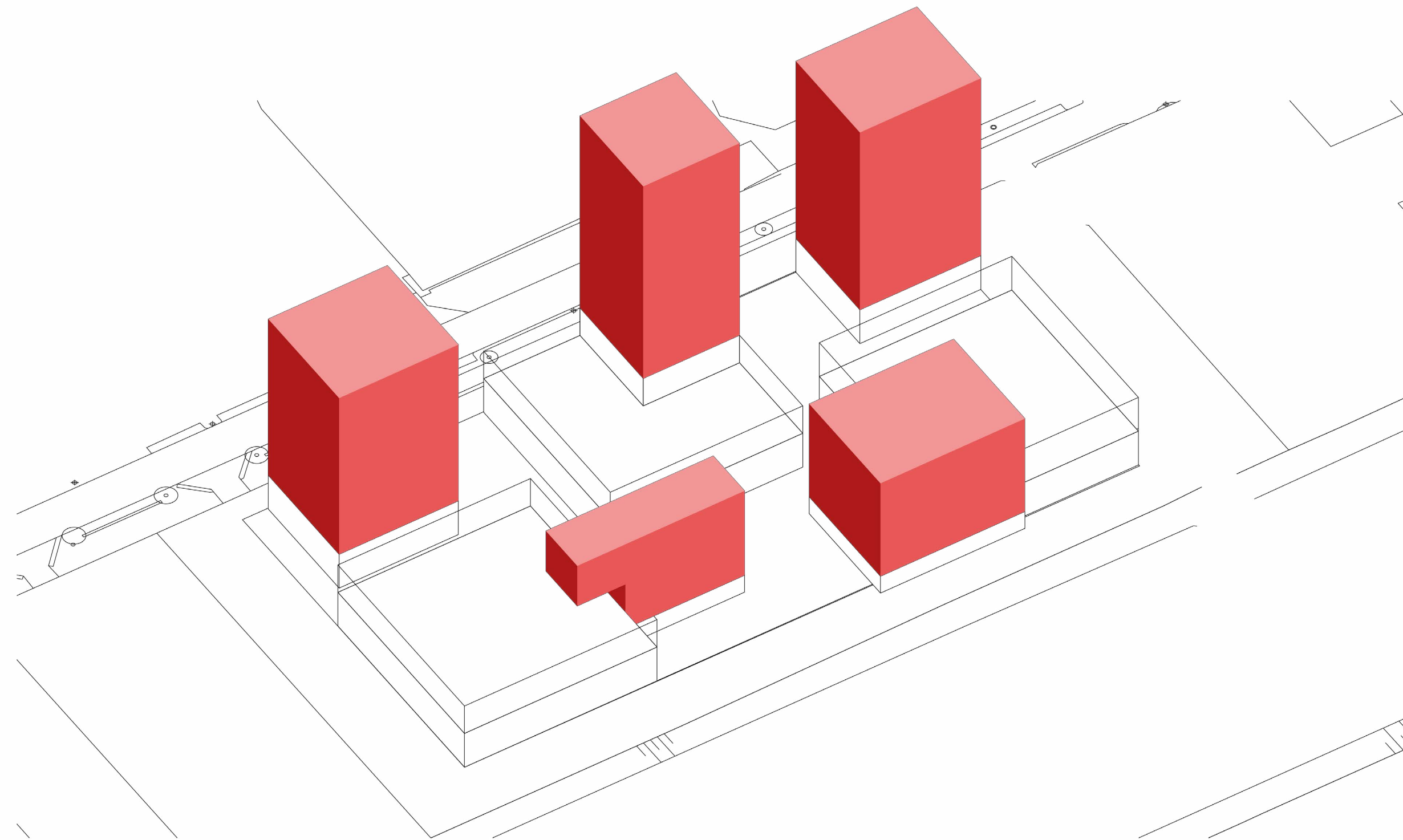
## Work-live



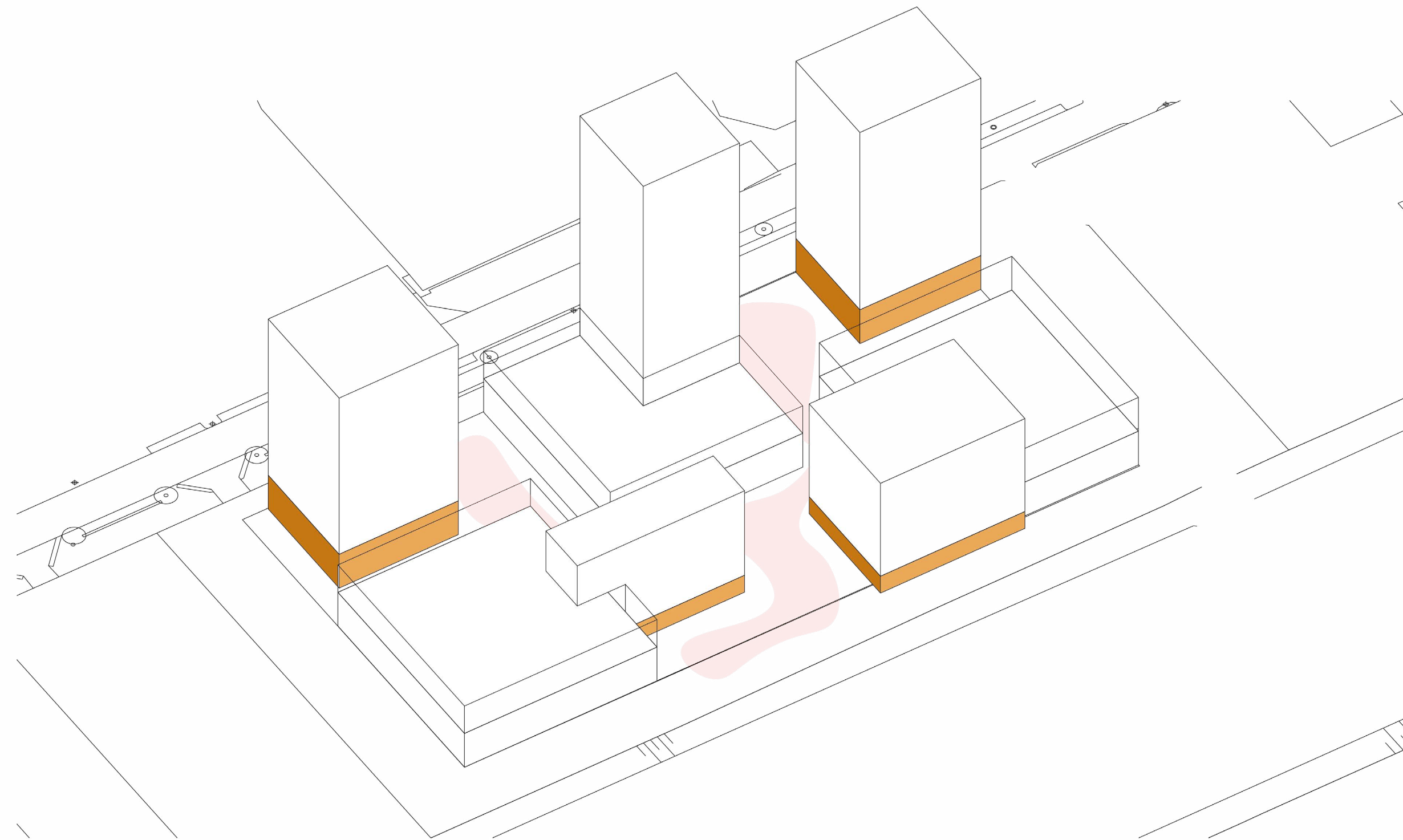
**Masterplan**  
Residential footprint



**Masterplan**  
Residential volumes

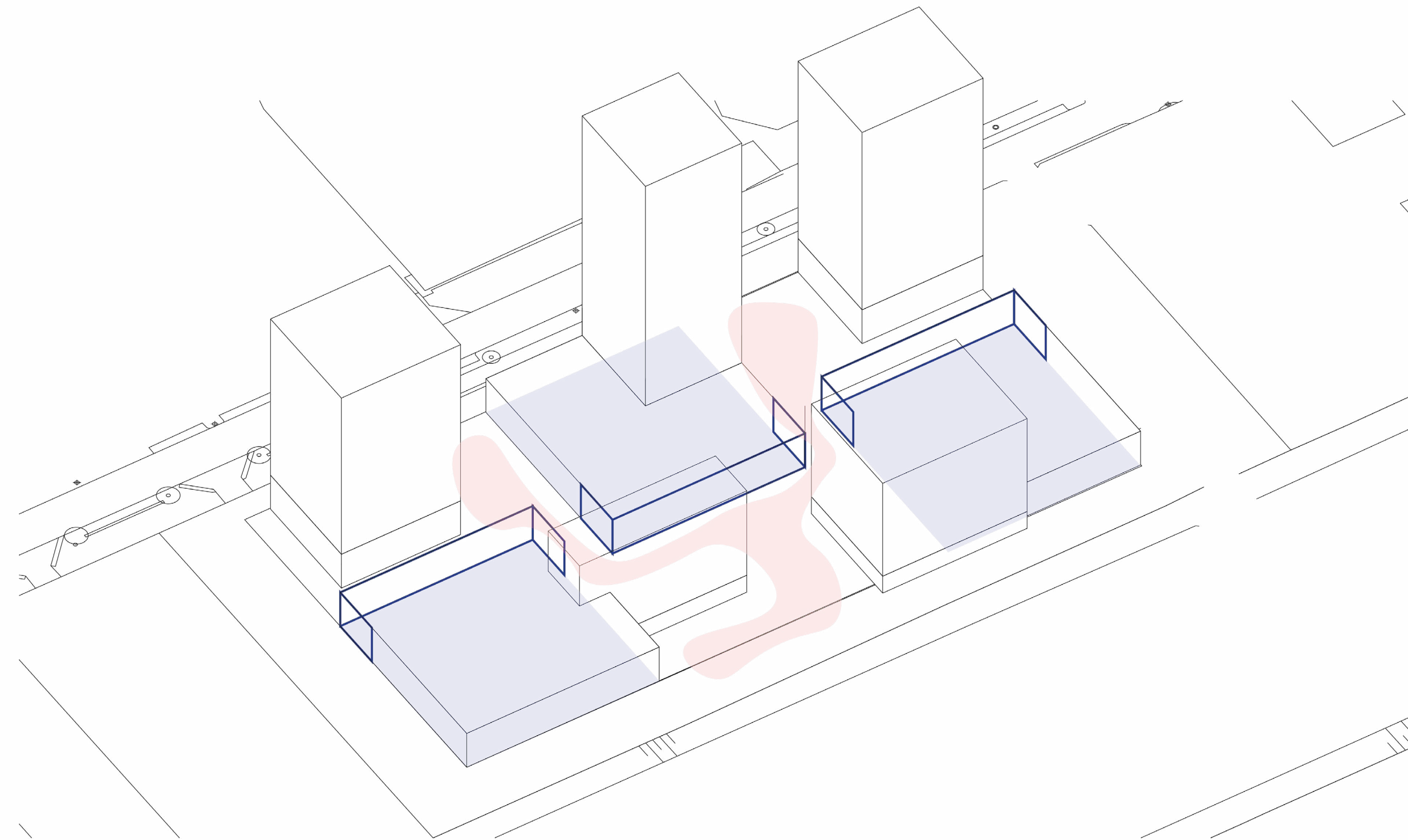


# Masterplan Facilities

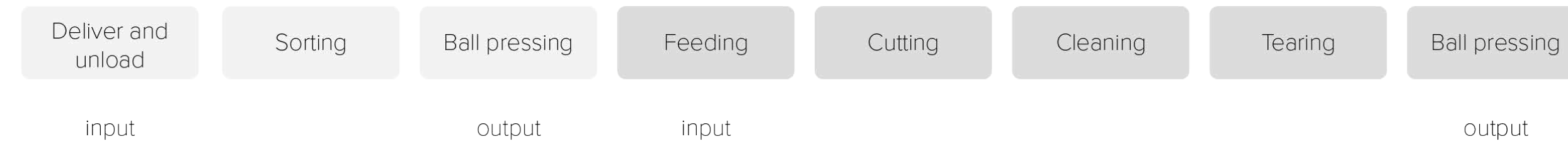




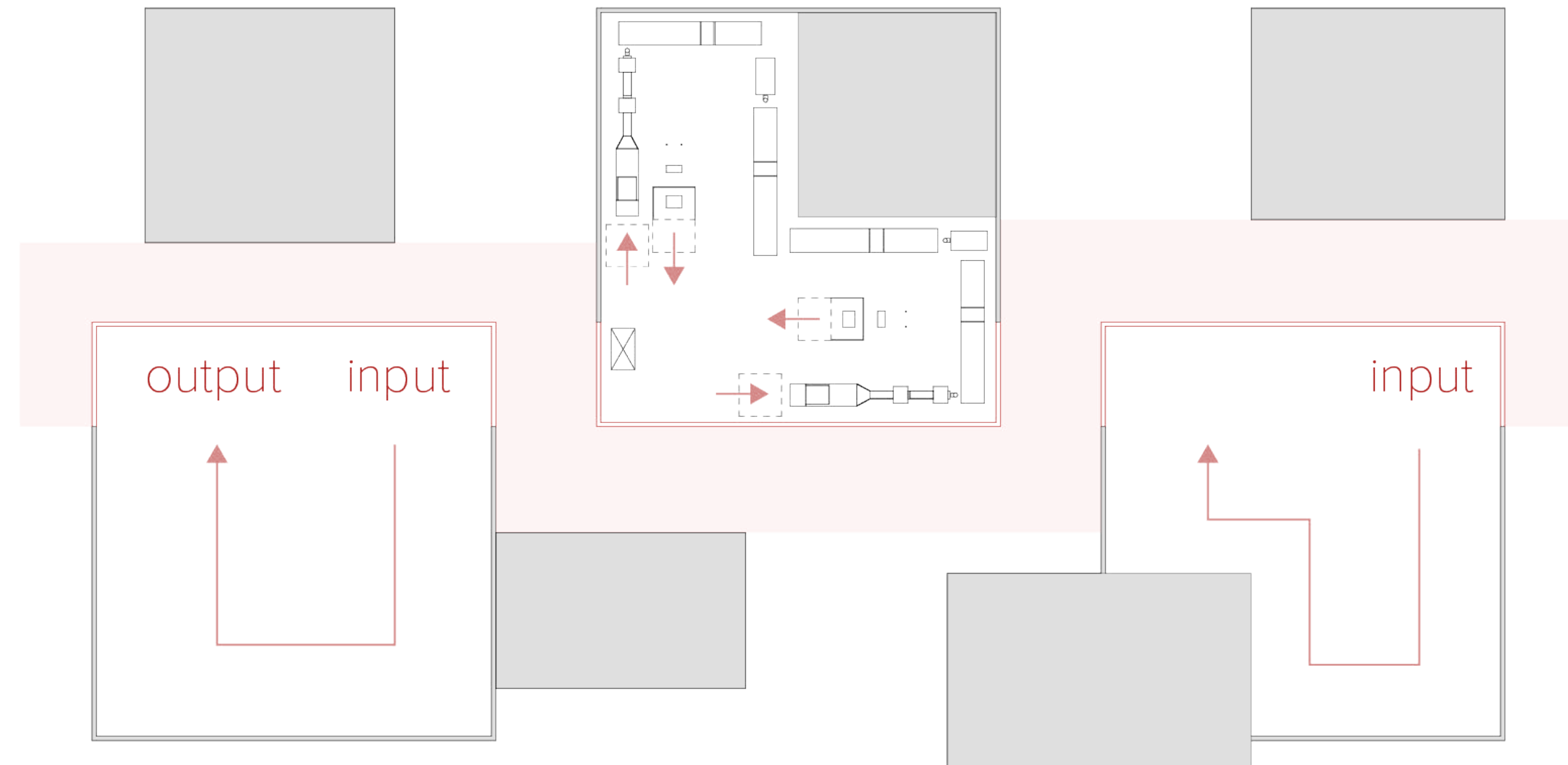
# Masterplan Transparency



# Masterplan Ground Floor



keileweg



Part 3

## **Research**

## Research

### Problem statement

Societies are becoming more fragmented, divided and conflicted. **Social infrastructure** is the missing piece of the puzzle, and **building places** where **all kinds of people can gather** is the best way to **repair** the **fractured societies** we live in today.

Klinenberg, 2018

## Fractured Societies

## Lack of social cohesion

## Social infrastructure

. By 2009, 46% of Rotterdam's residents were of immigrant background (Council of Europe, 2009).

Dutch policies pay little attention to **social cohesion** between **diverse social groups** (Tersteeg, 2014). Nor do policies focus on the encounter between people with different lifestyles. They rather **prevent a mix of lifestyles** by developing neighborhoods for specific lifestyles than to mix lifestyles. They do not promote positive interactions between different lifestyles.

**Research**  
Theme

## **Social infrastructure**

The sum of places where people encounter, interact and gather.

## Research

### Research question

How can **social infrastructure** between dwelling and productive space, and within housing, **foster community building** between different **user groups**?

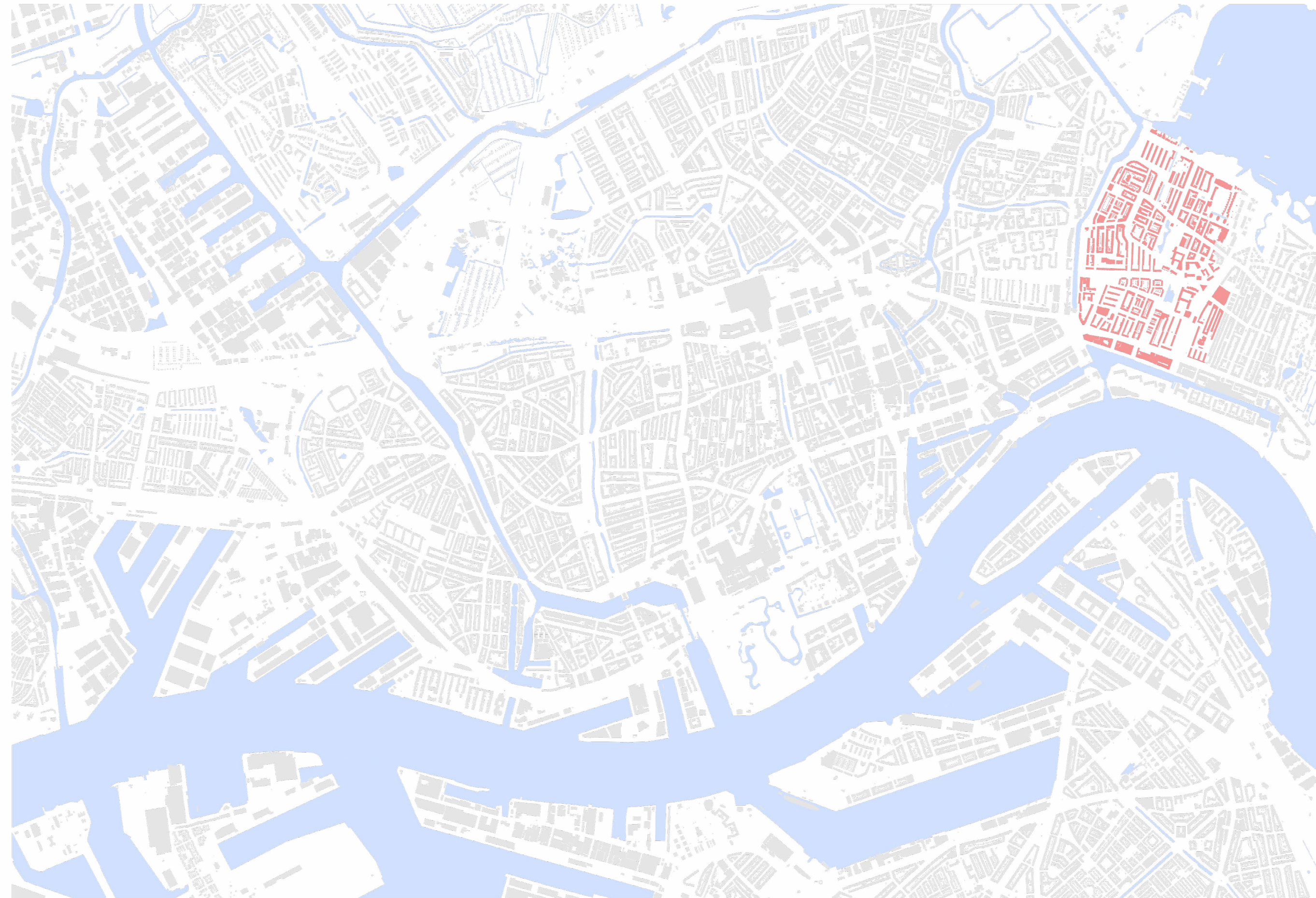
**Neighborhood investigation**

Casestudy analysis



## Research - neighborhood investigation

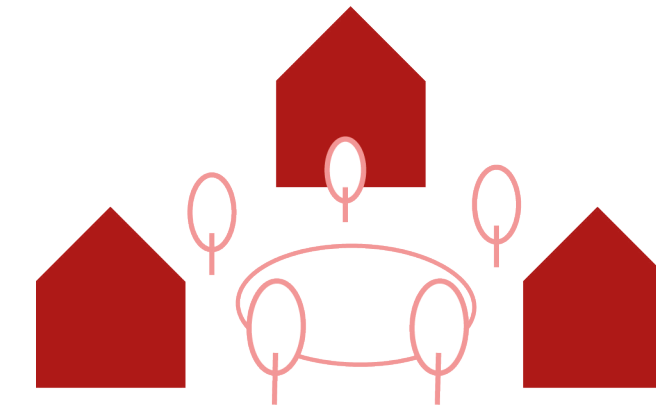
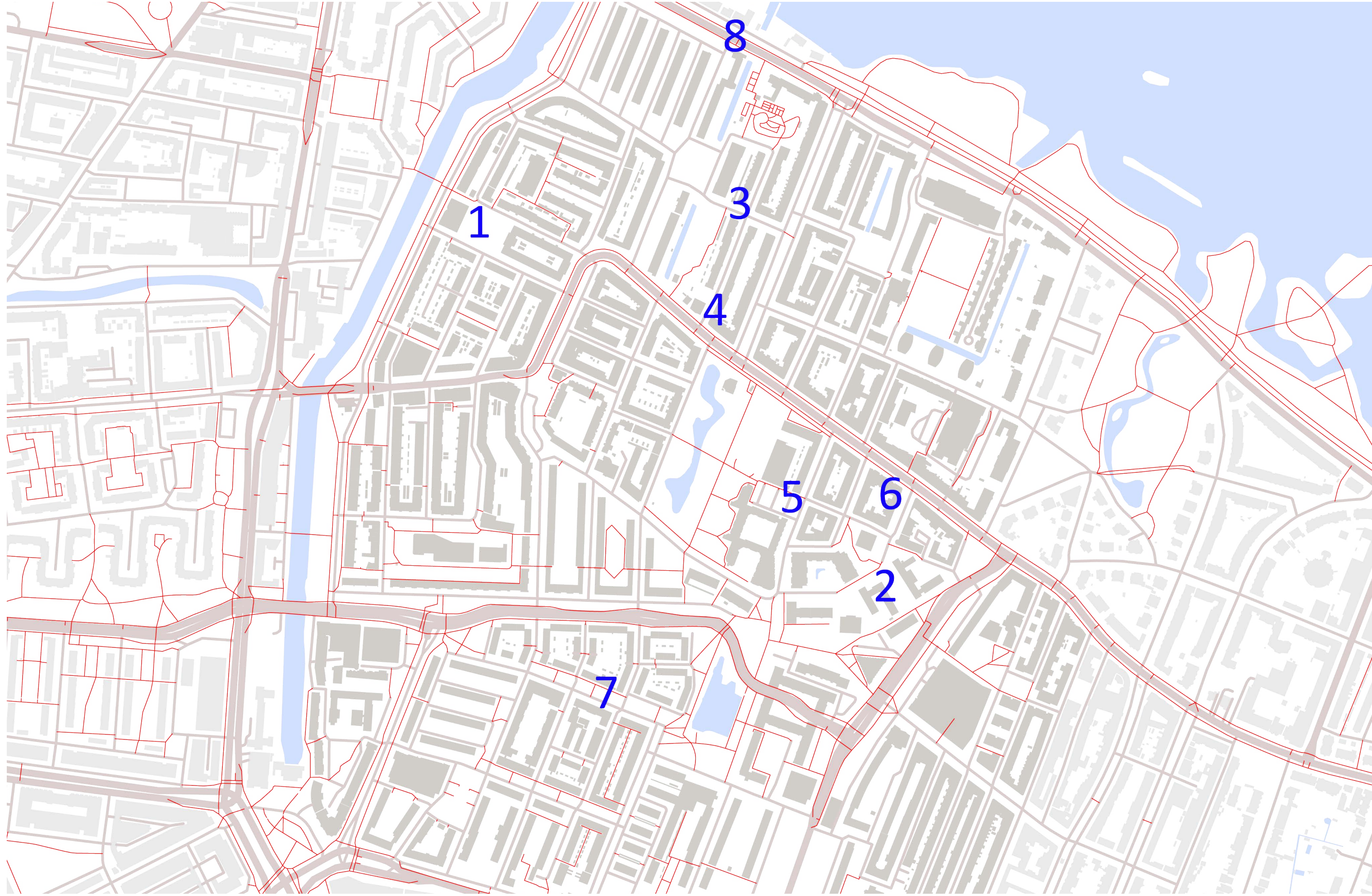
Participant observation



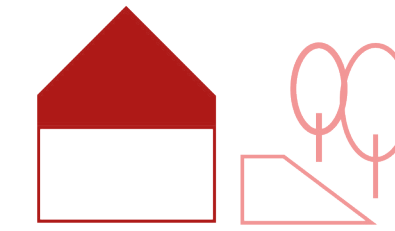


# Research - neighborhood investigation

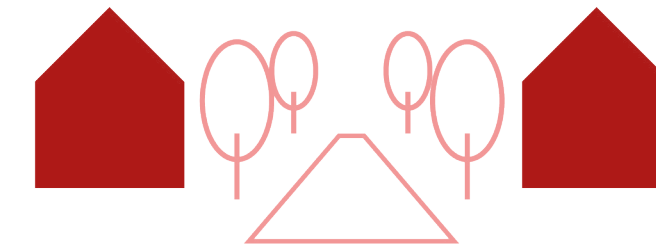
## Participant observation



Square



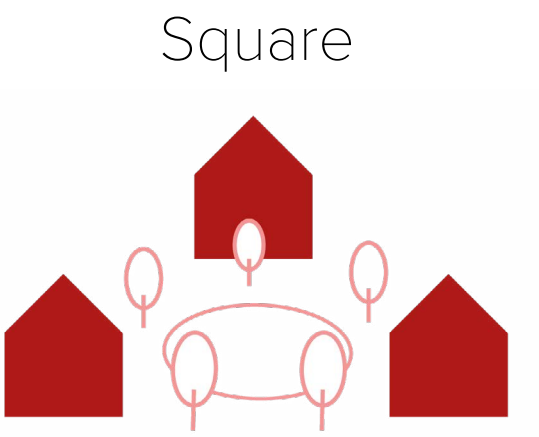
Public facility



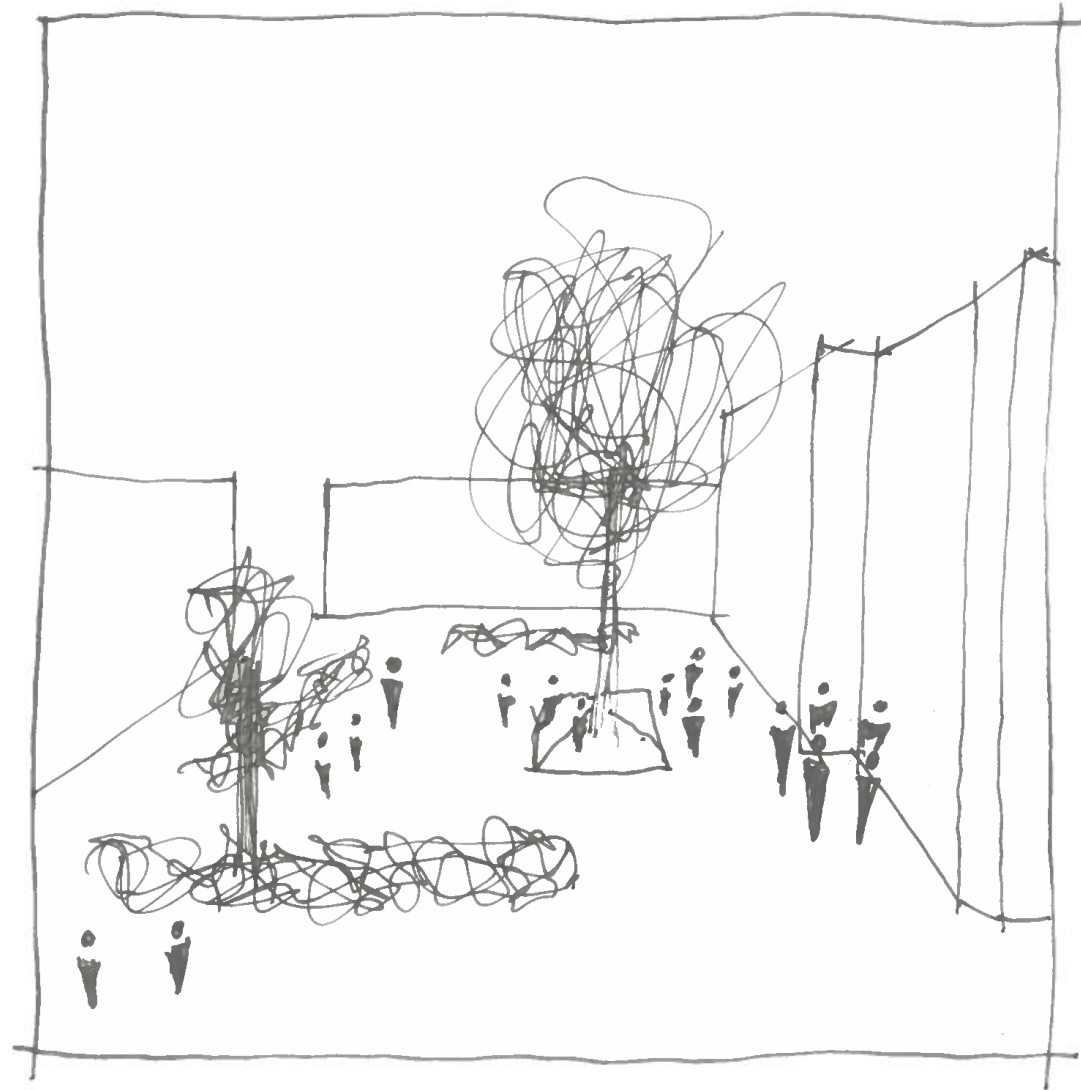
Street



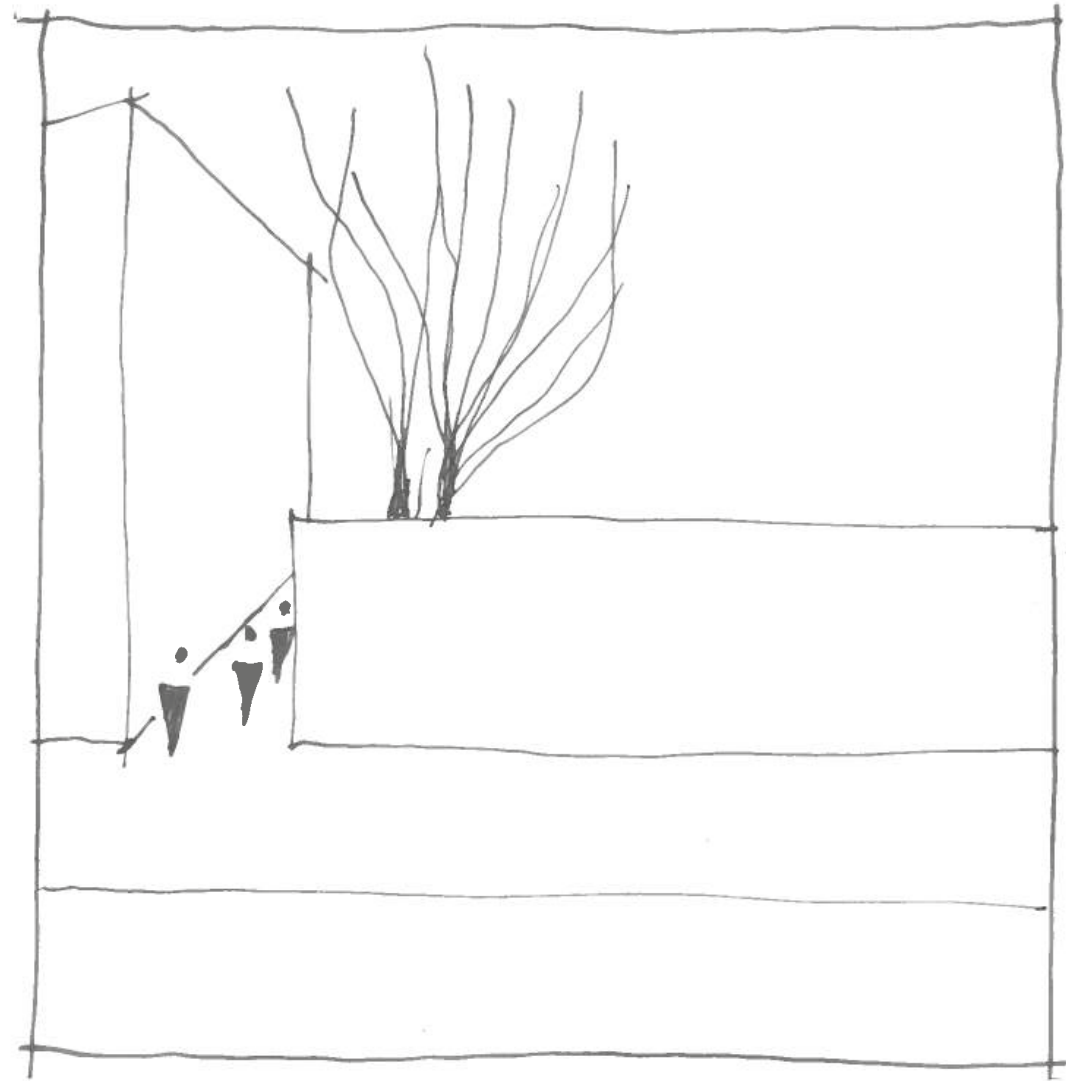
Research - neighborhood investigation  
Square



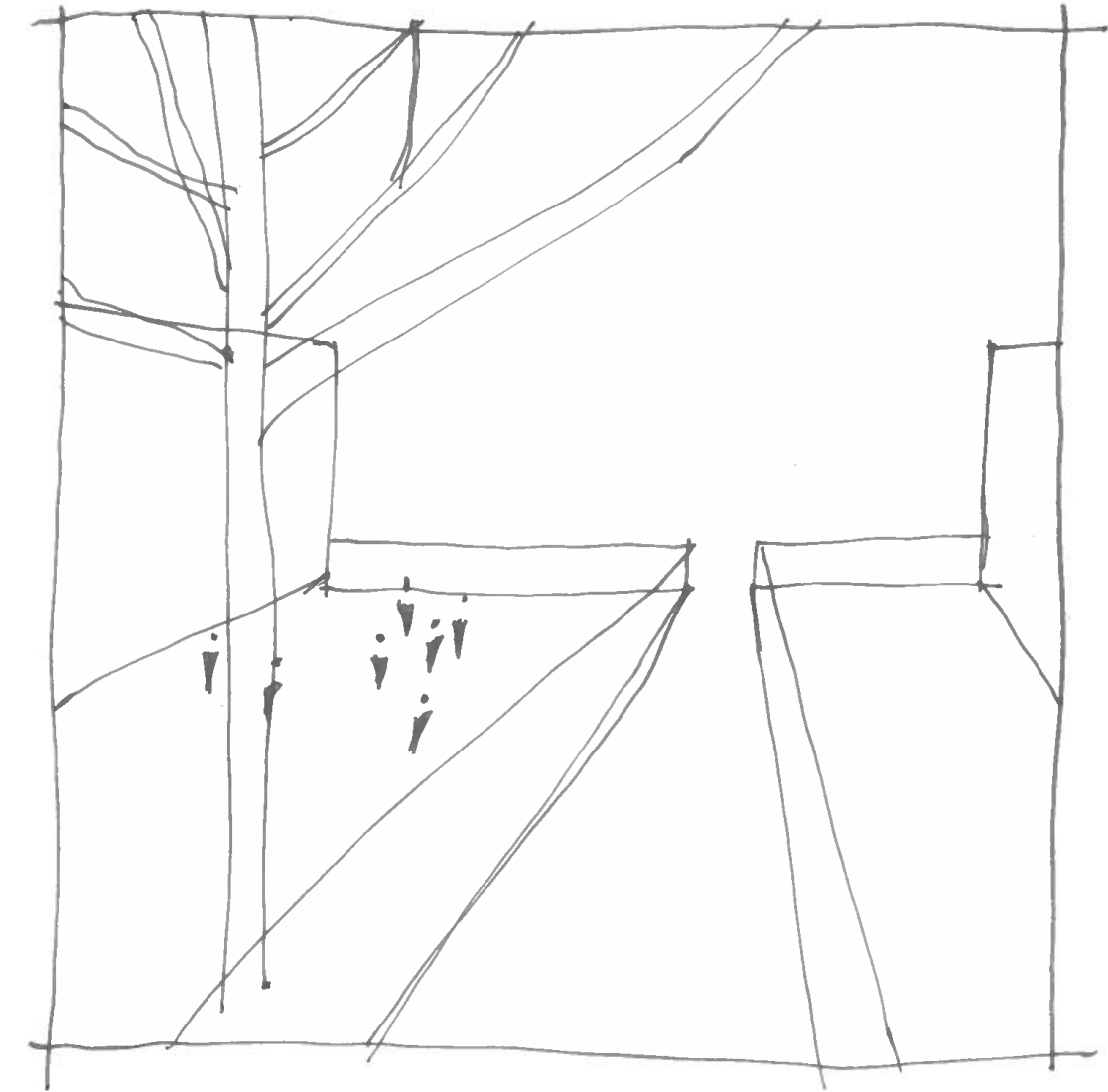
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2



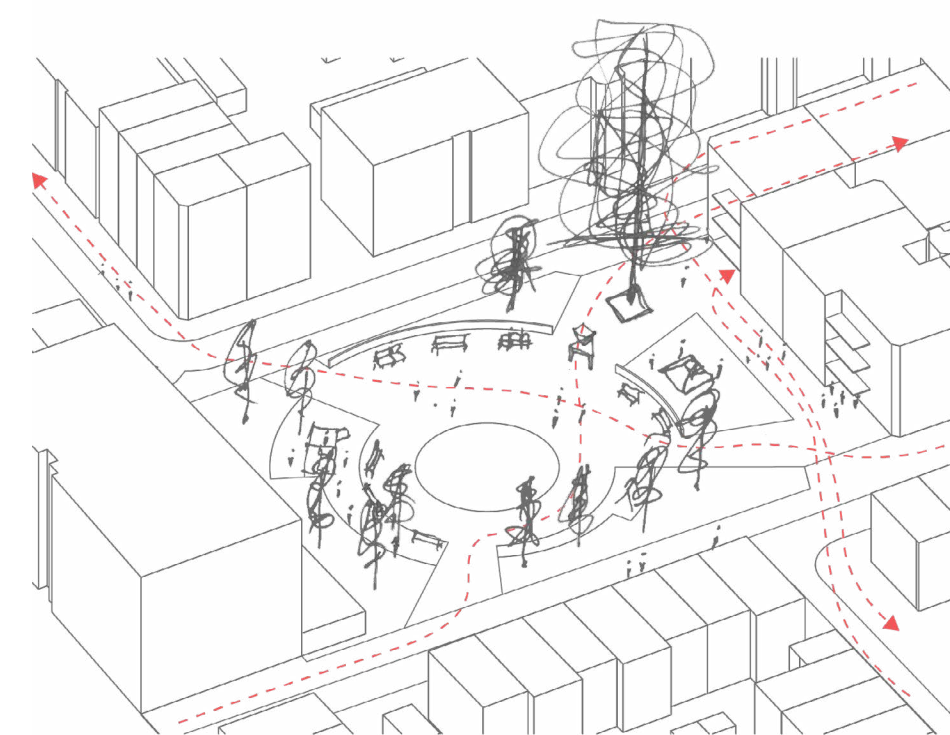
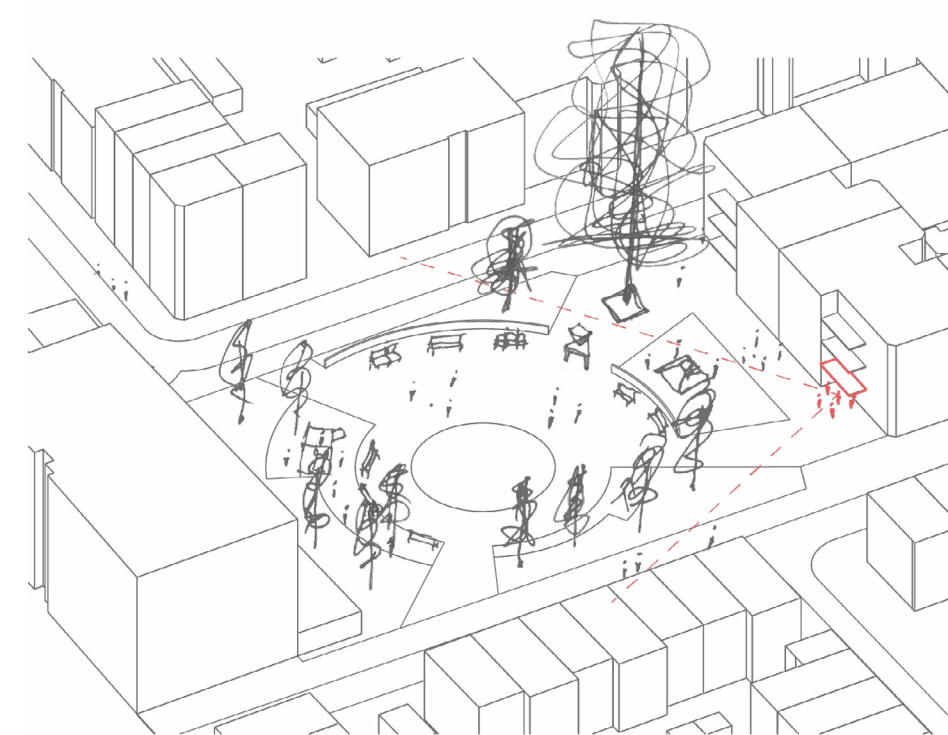
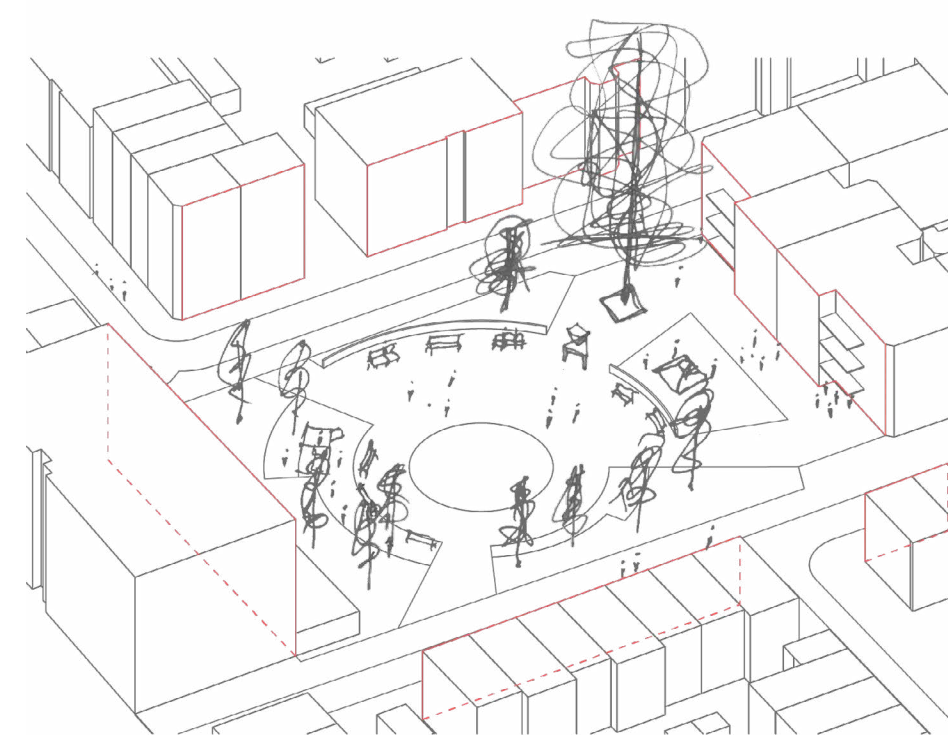
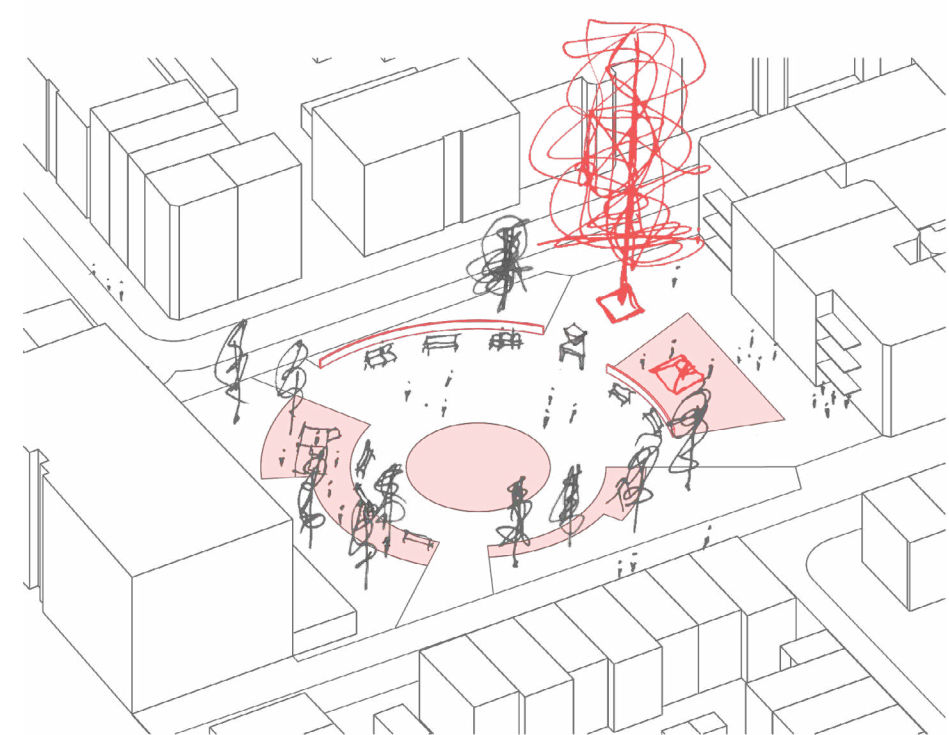
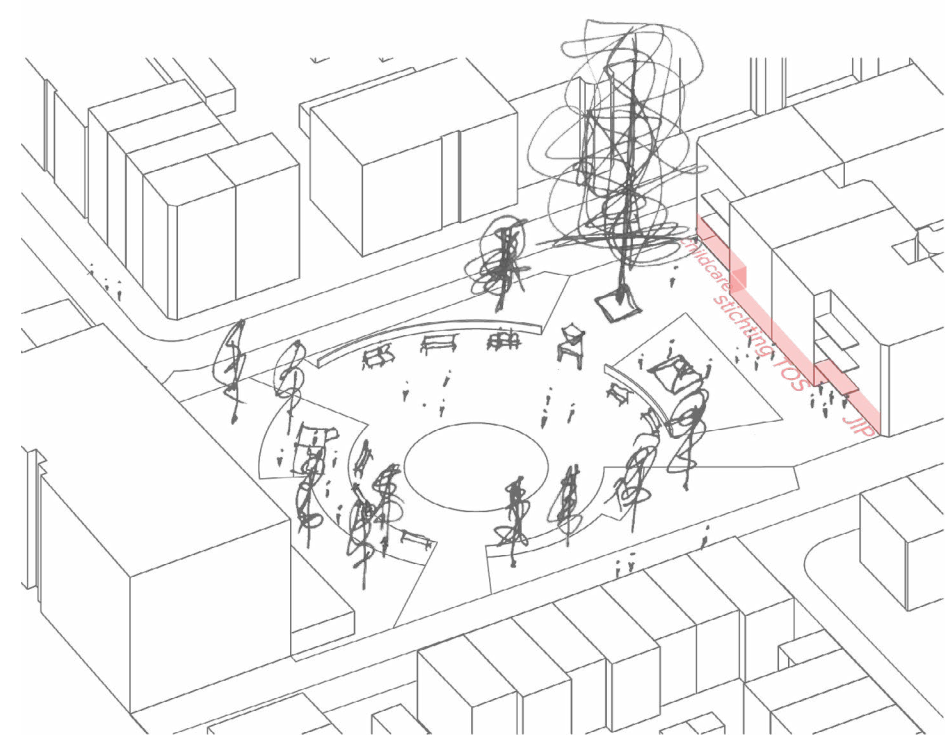
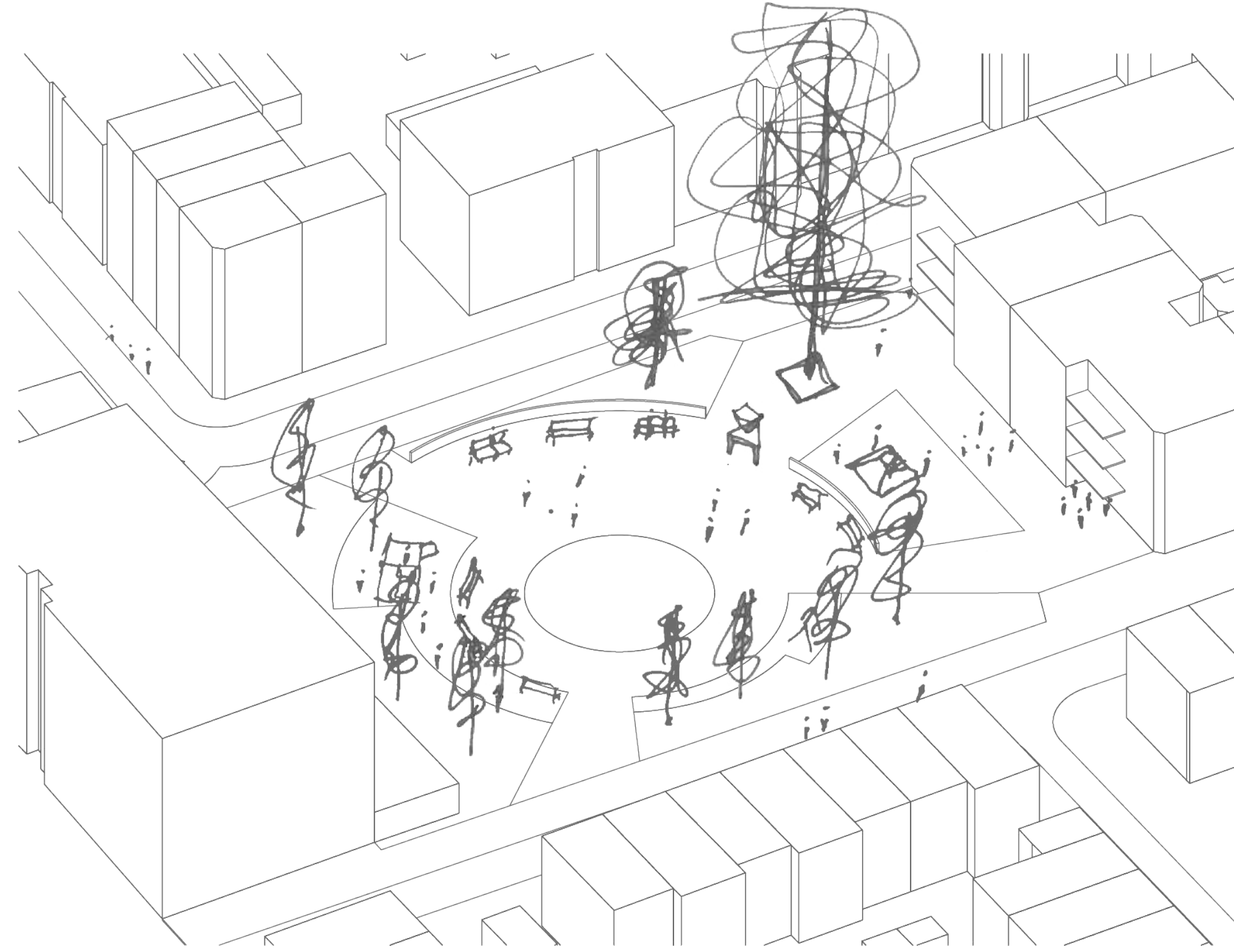
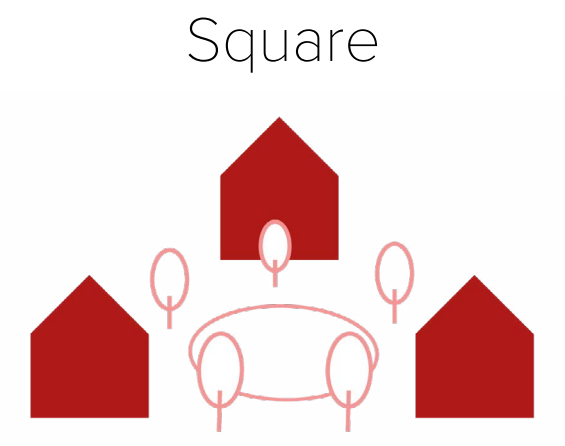
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# Research - neighborhood investigation

## Public Playground

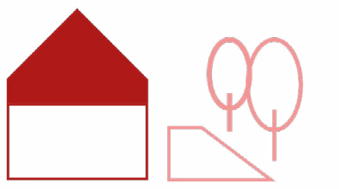




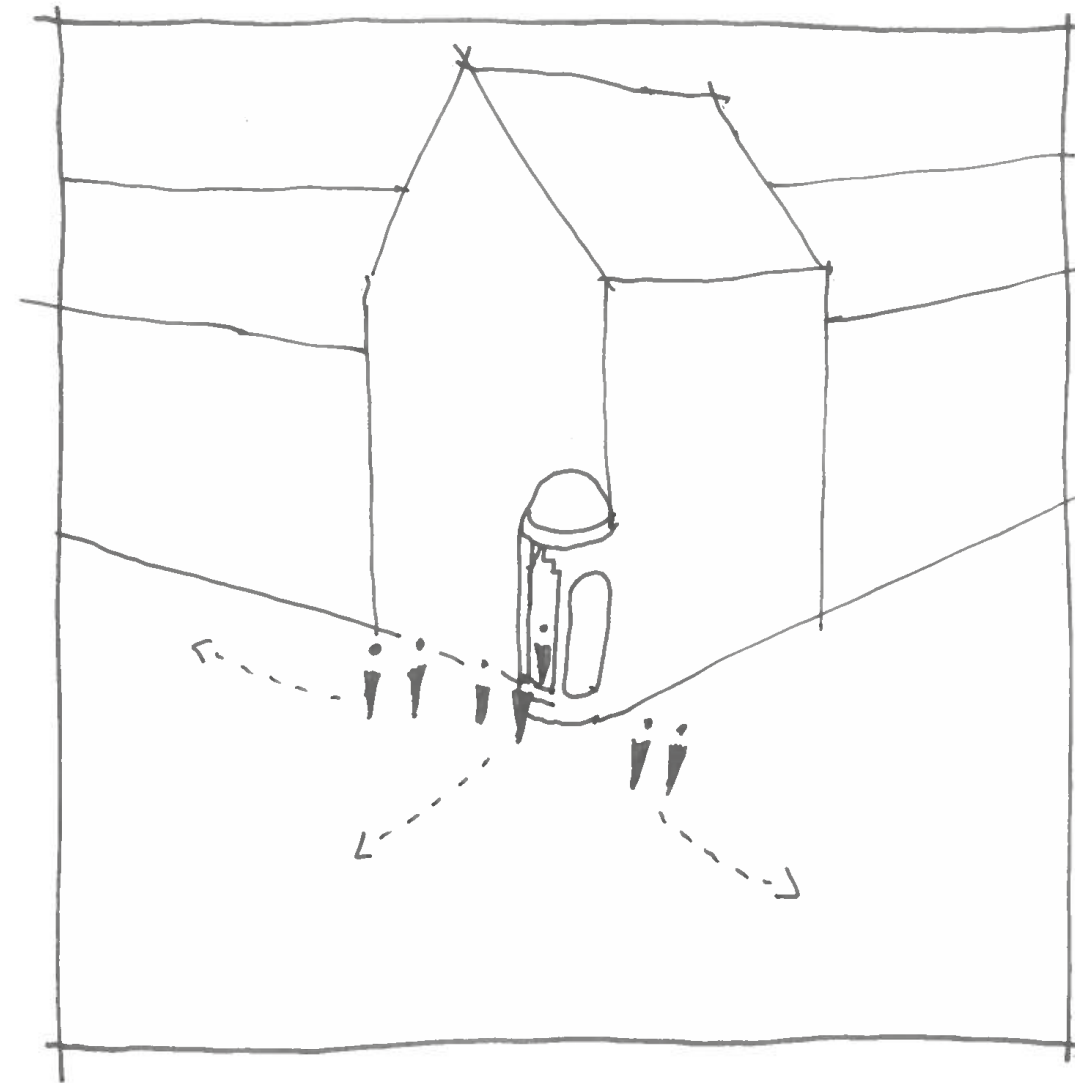
Research - neighborhood investigation

Public facility

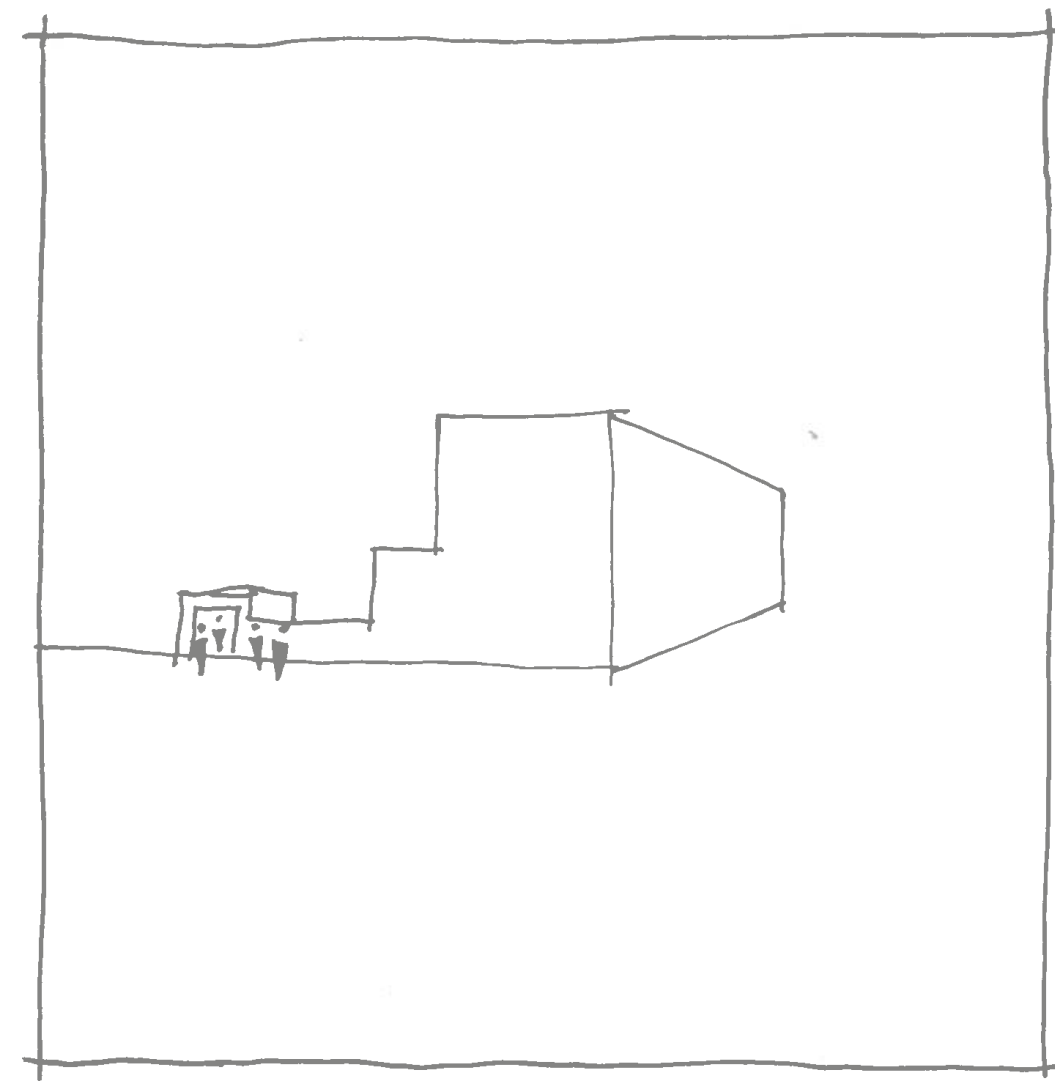
Public facility



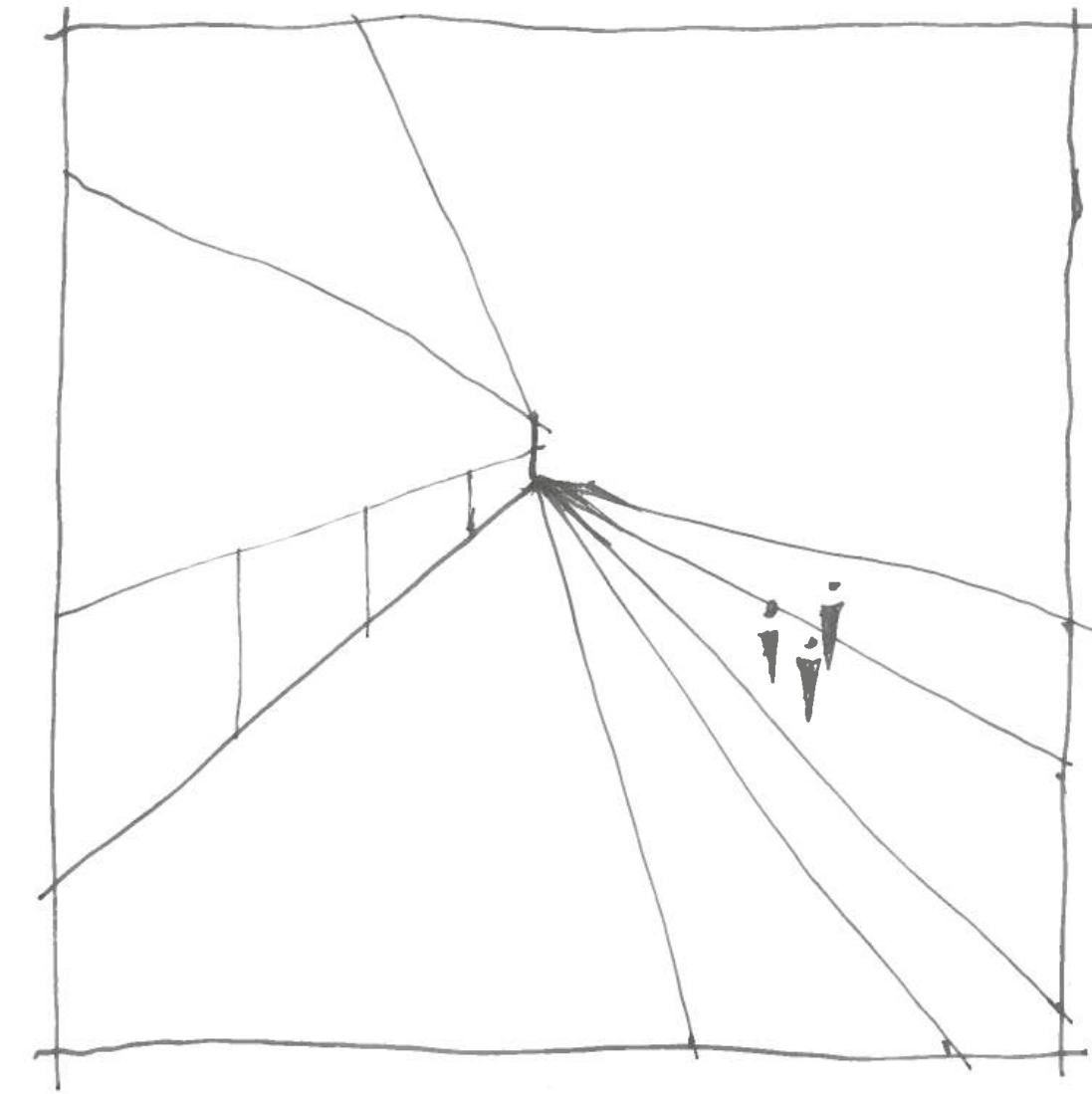
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5



6

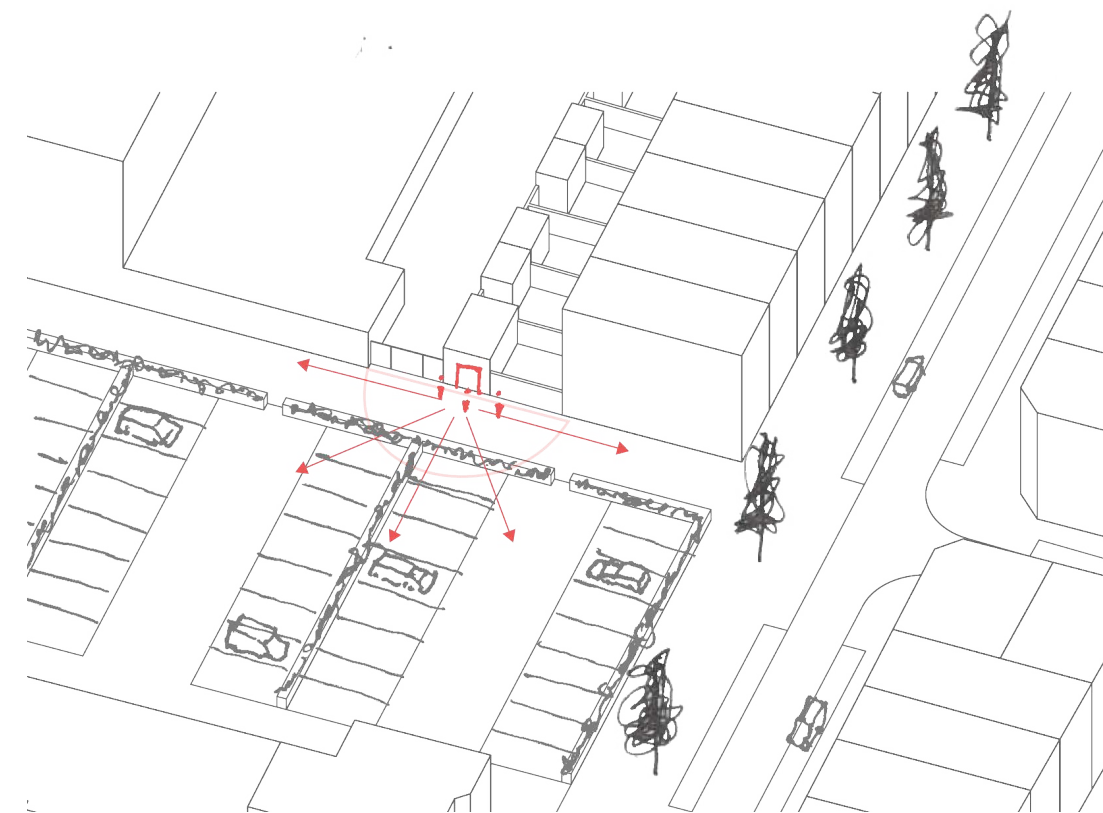
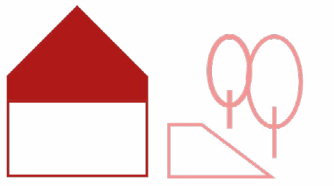




Research - neighborhood investigation

Food pick up location

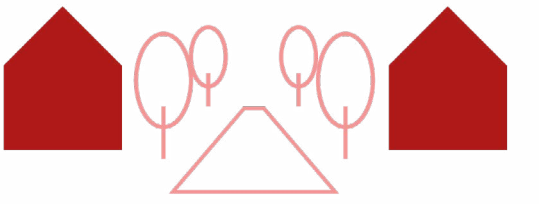
Public facility



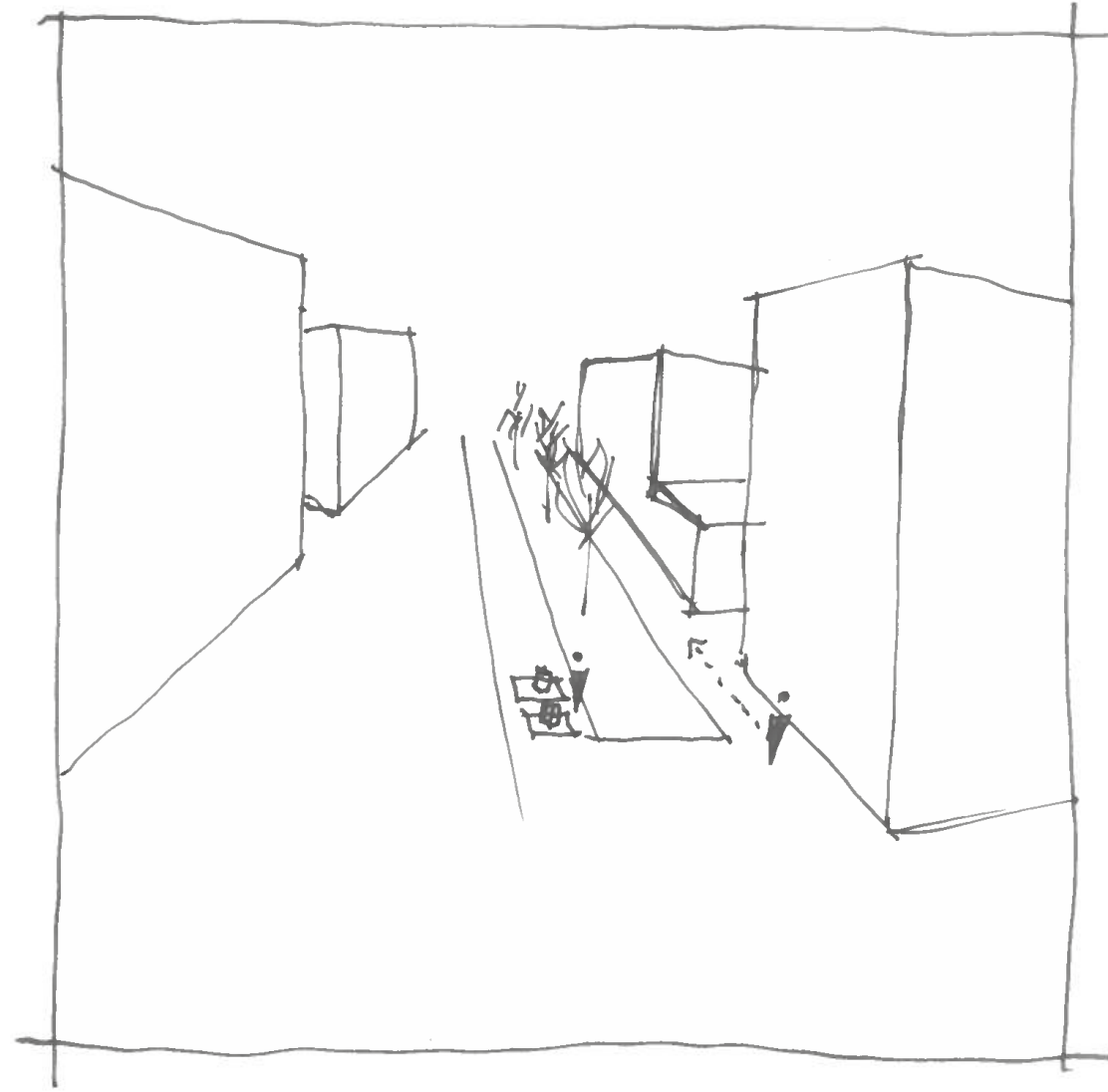
Research - neighborhood investigation

Street

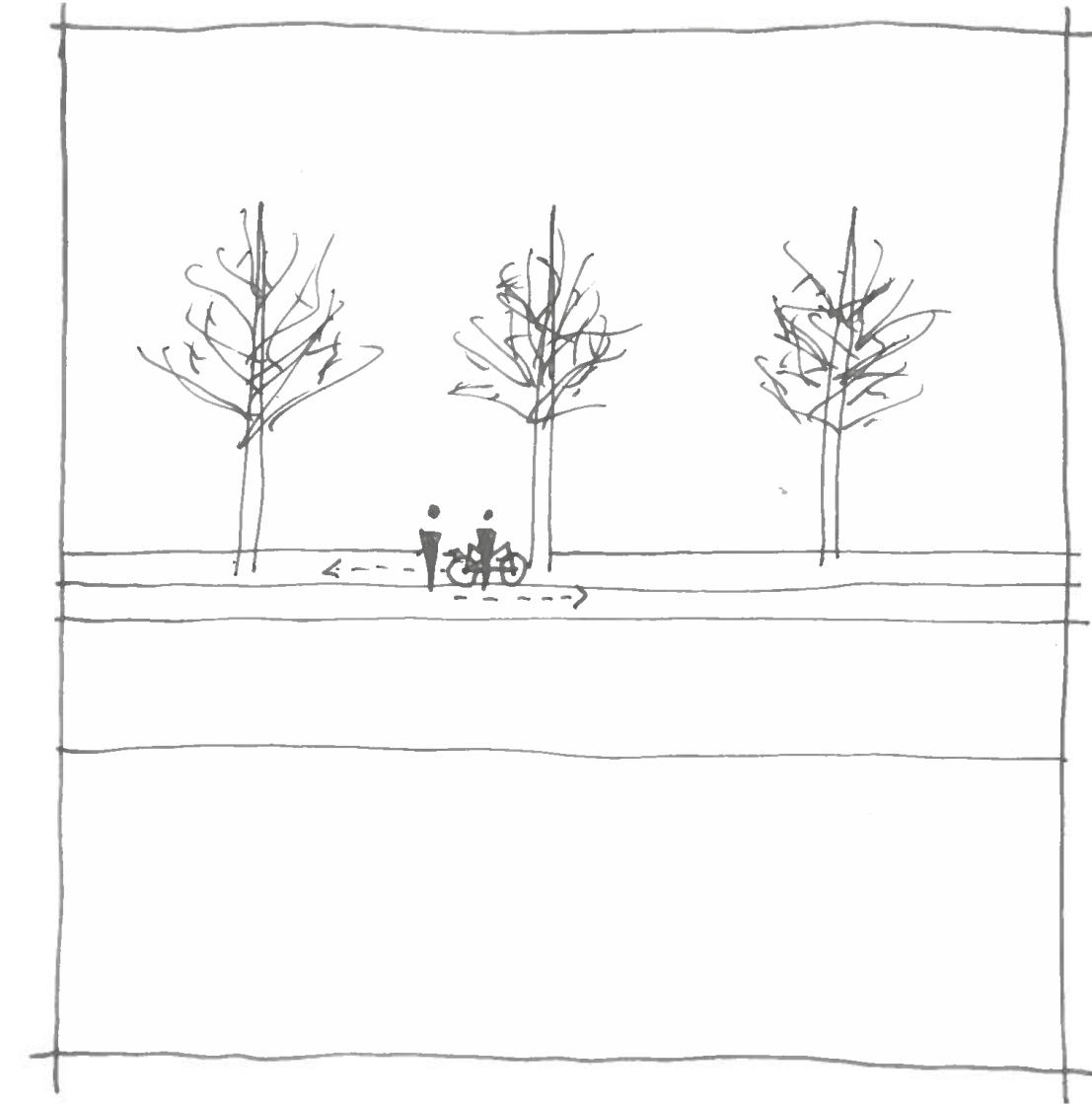
Street



7



8

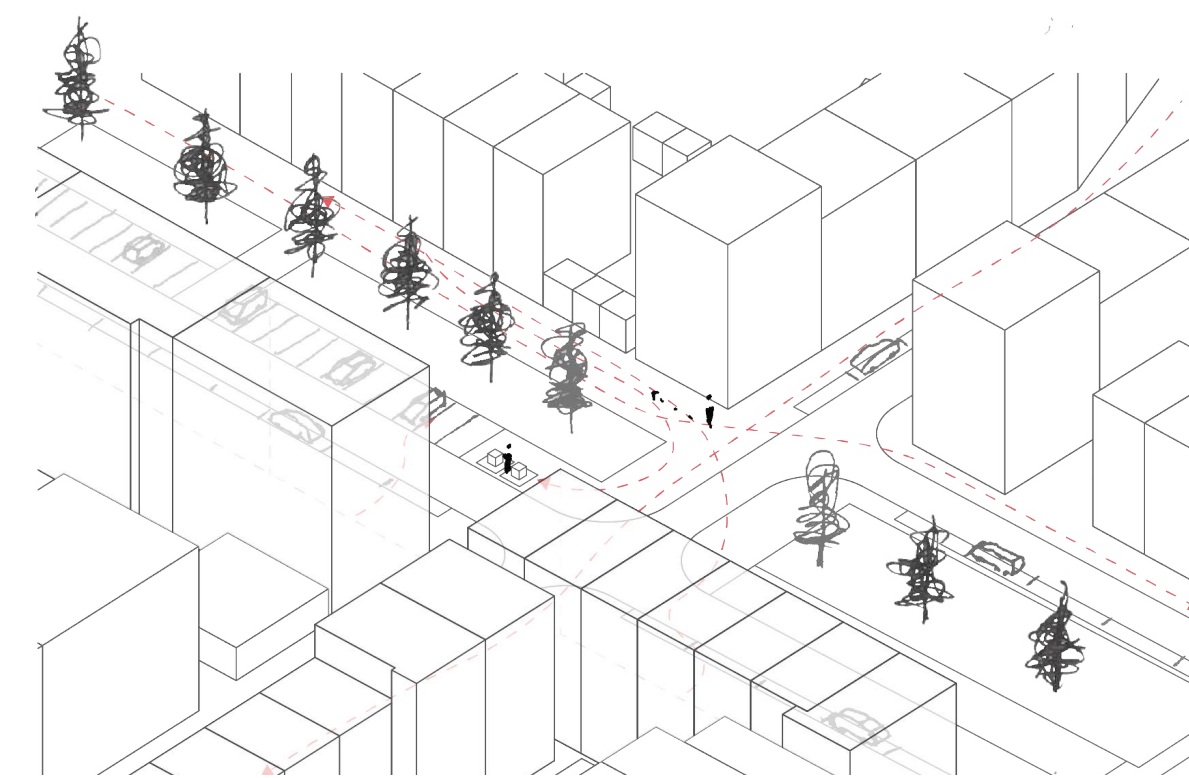
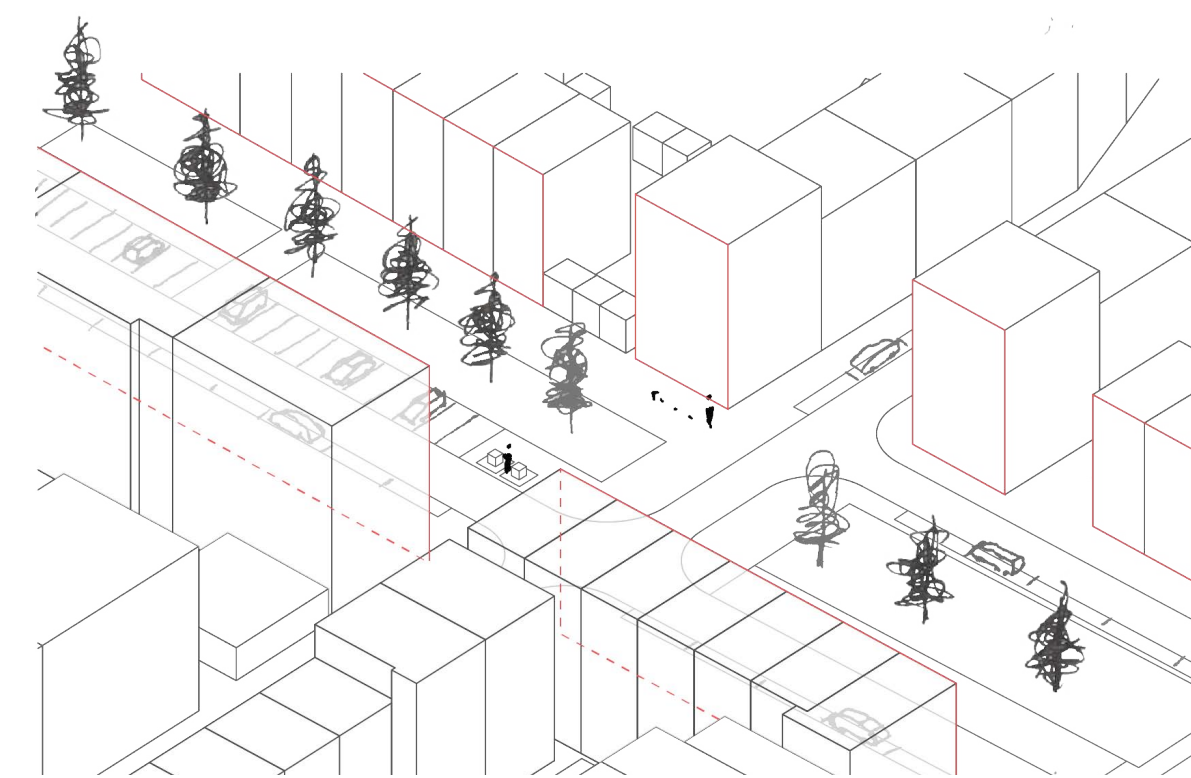
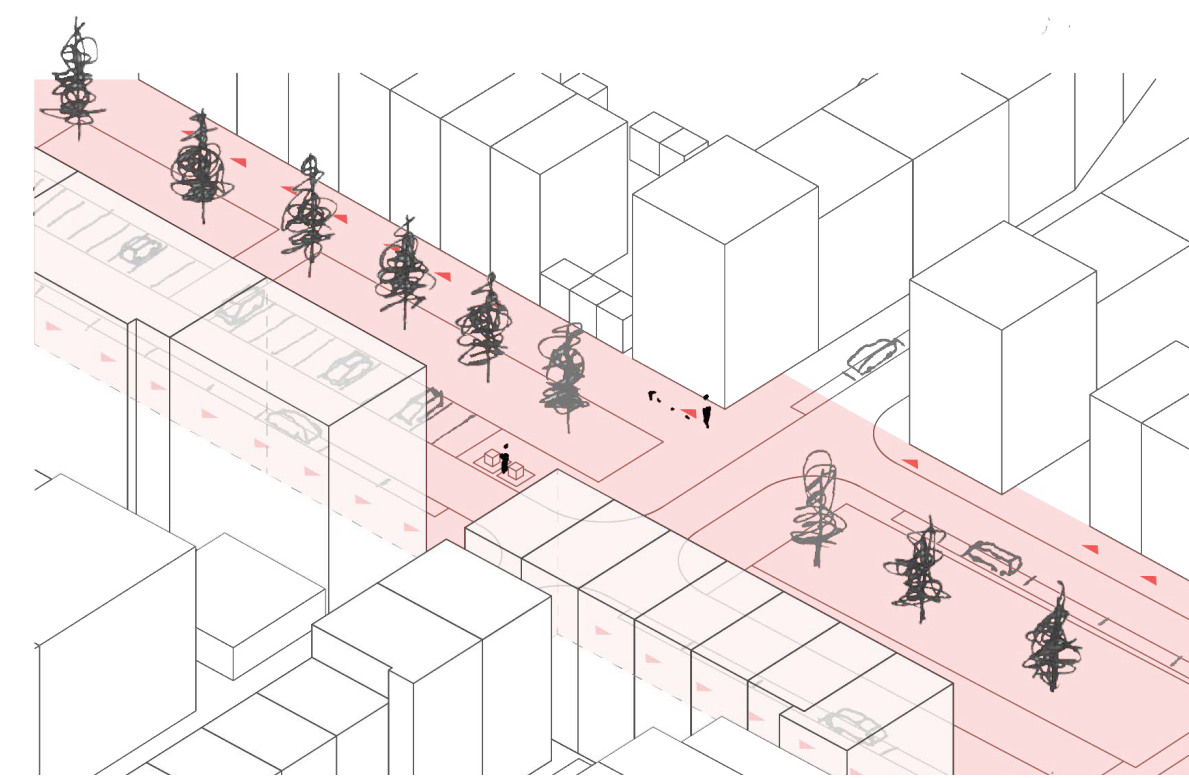
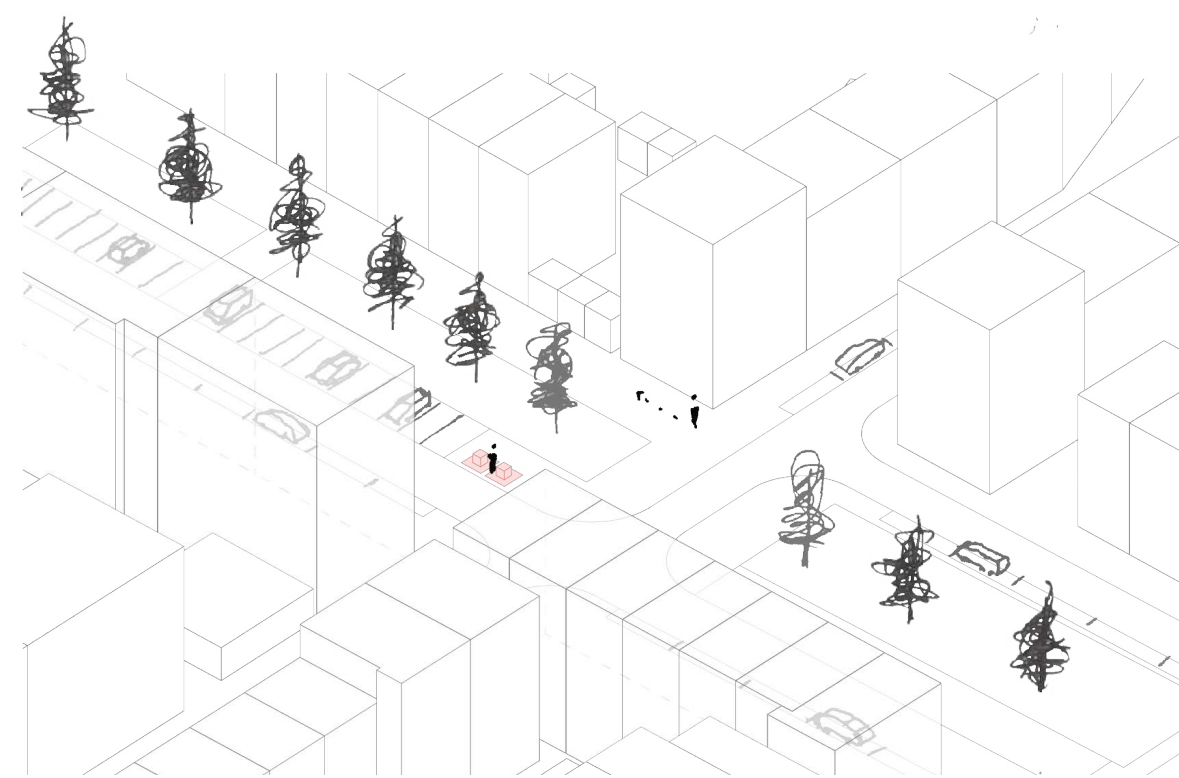
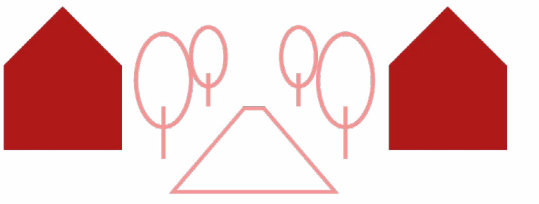




# Research - neighborhood investigation

## Garbage point

Street



## Research

Neighborhood investigation

**Casestudy analysis**



# Research - urban mix

## Case studies

### Building block



Wick Lane  
Hackney Wick, London, 2022  
dRMM studio

### Residential building



Kalkbreite  
Zürich, Switzerland, 2014  
Müller Sigrüst Architekten

### Dwelling Unit

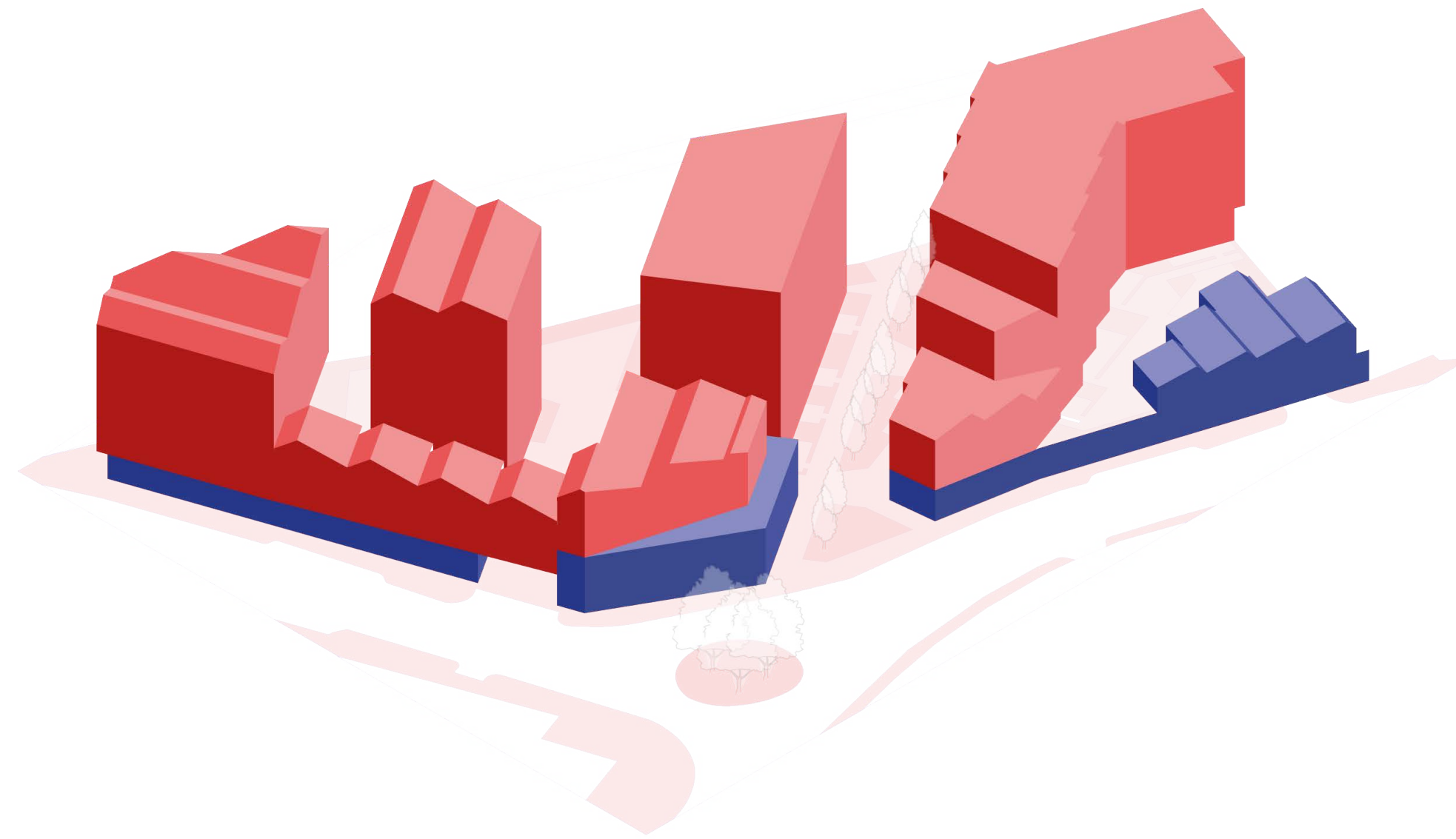


Unité(s)  
Dijon, France, 2018  
Sophie Delhay



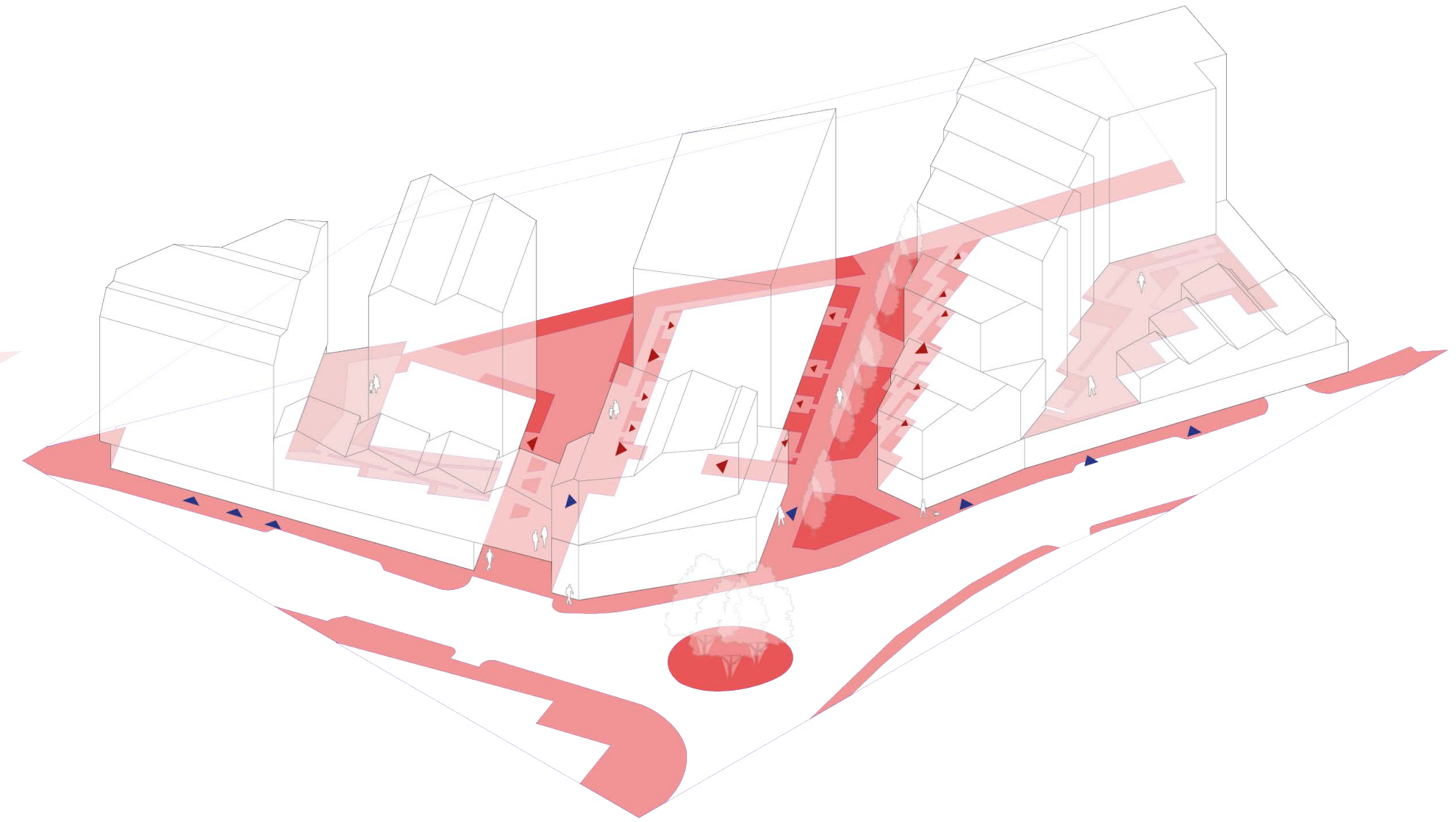
# Research - urban mix Wick Lane

## Programmatic mix

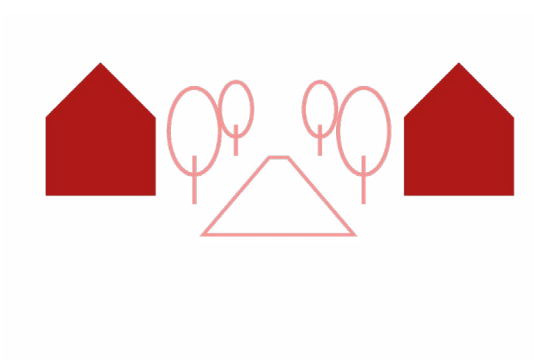


- light industrial
- residential

## Pedestrian zone



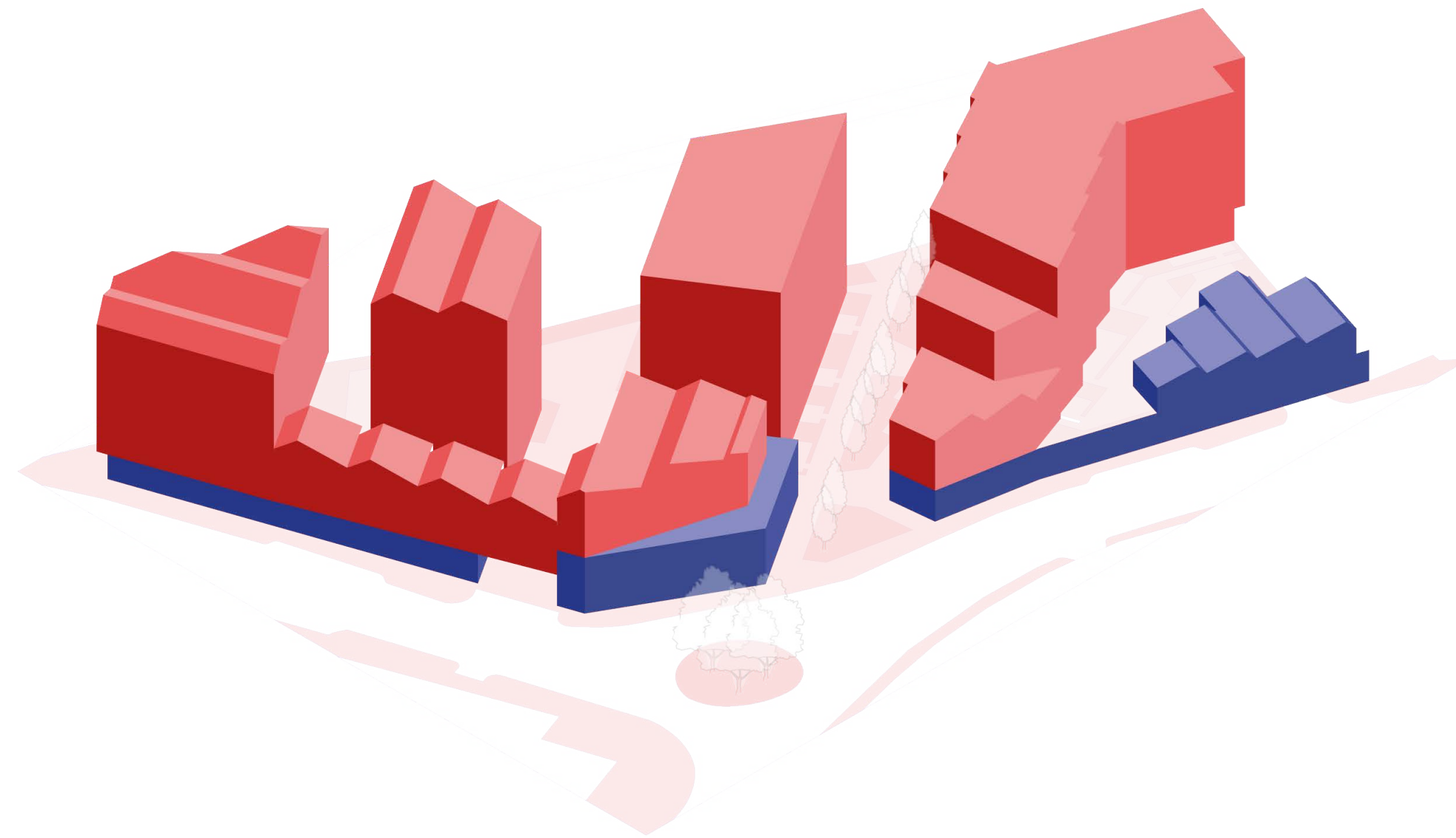
## Street





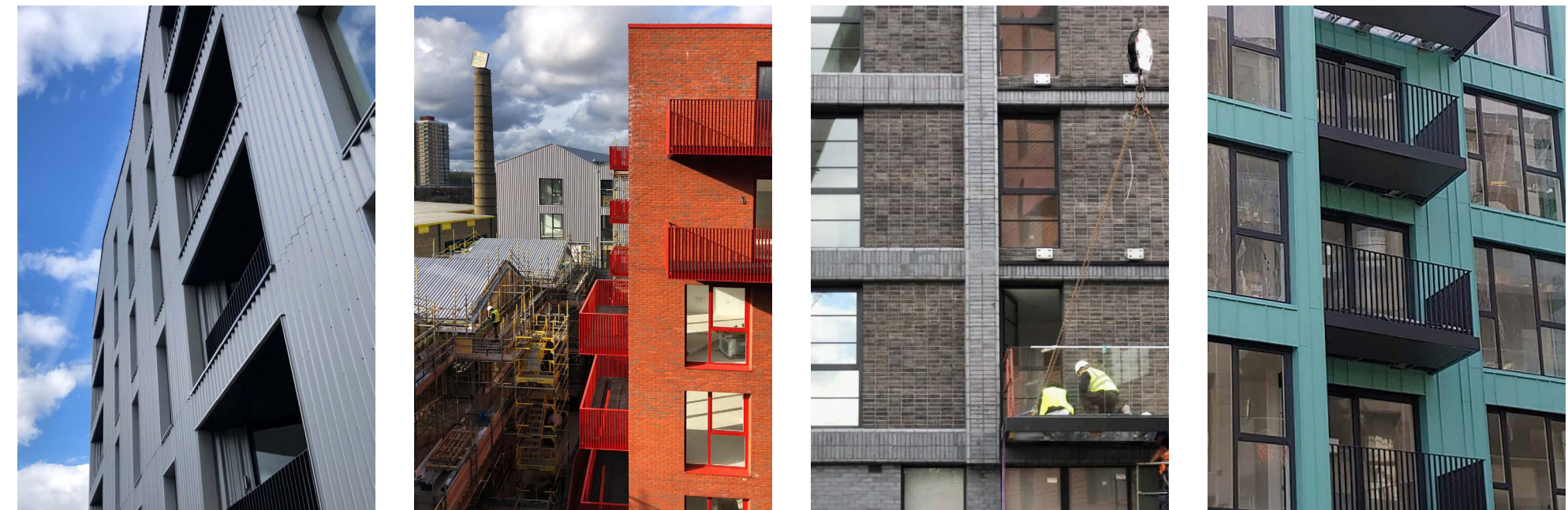
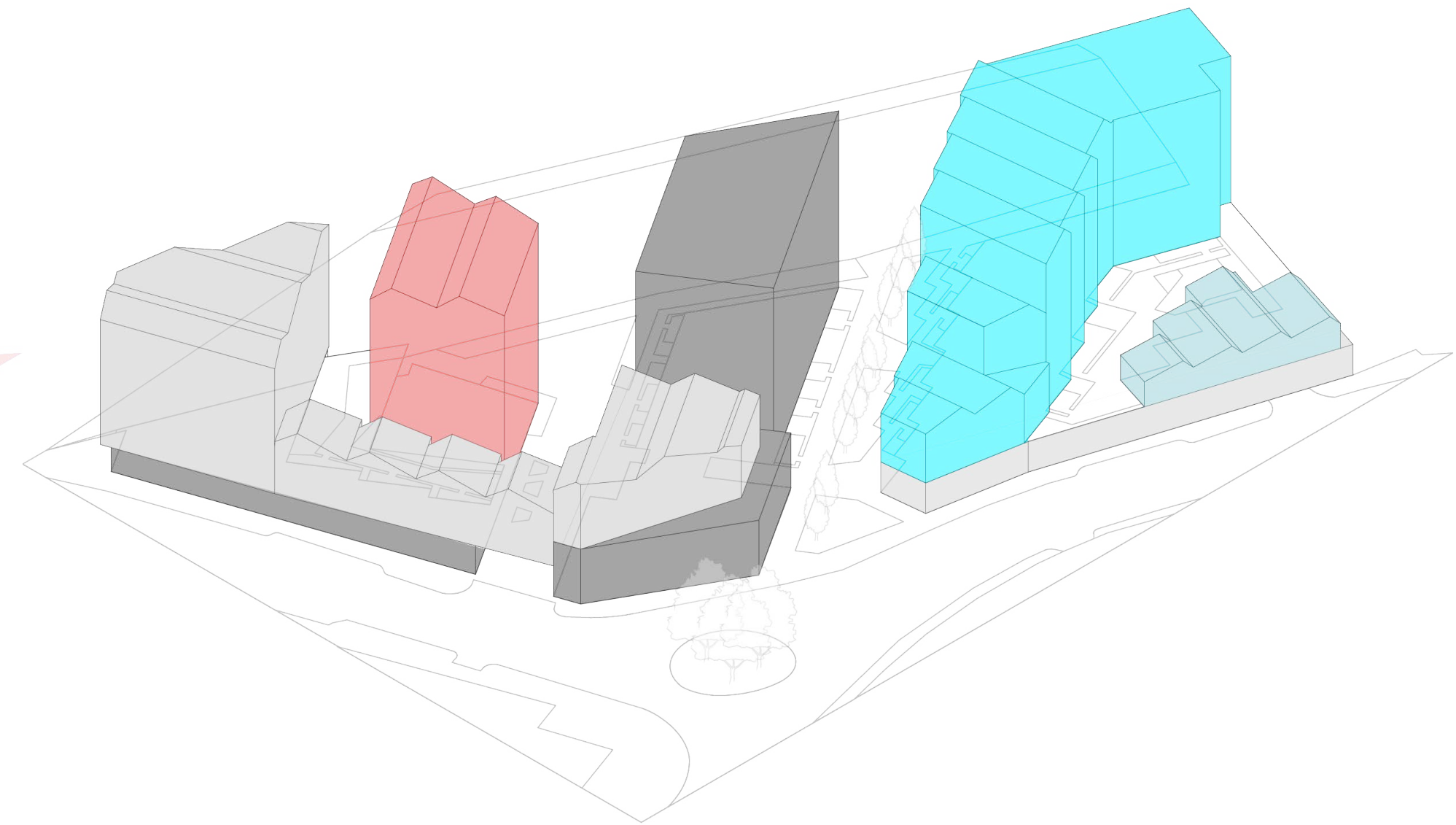
Research - urban mix  
Wick Lane

Programmatic mix



- light industrial
- residential

Materialization





Research - Residential building

Kalkbreite

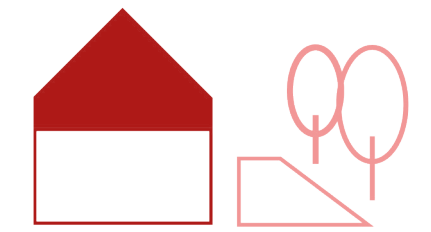
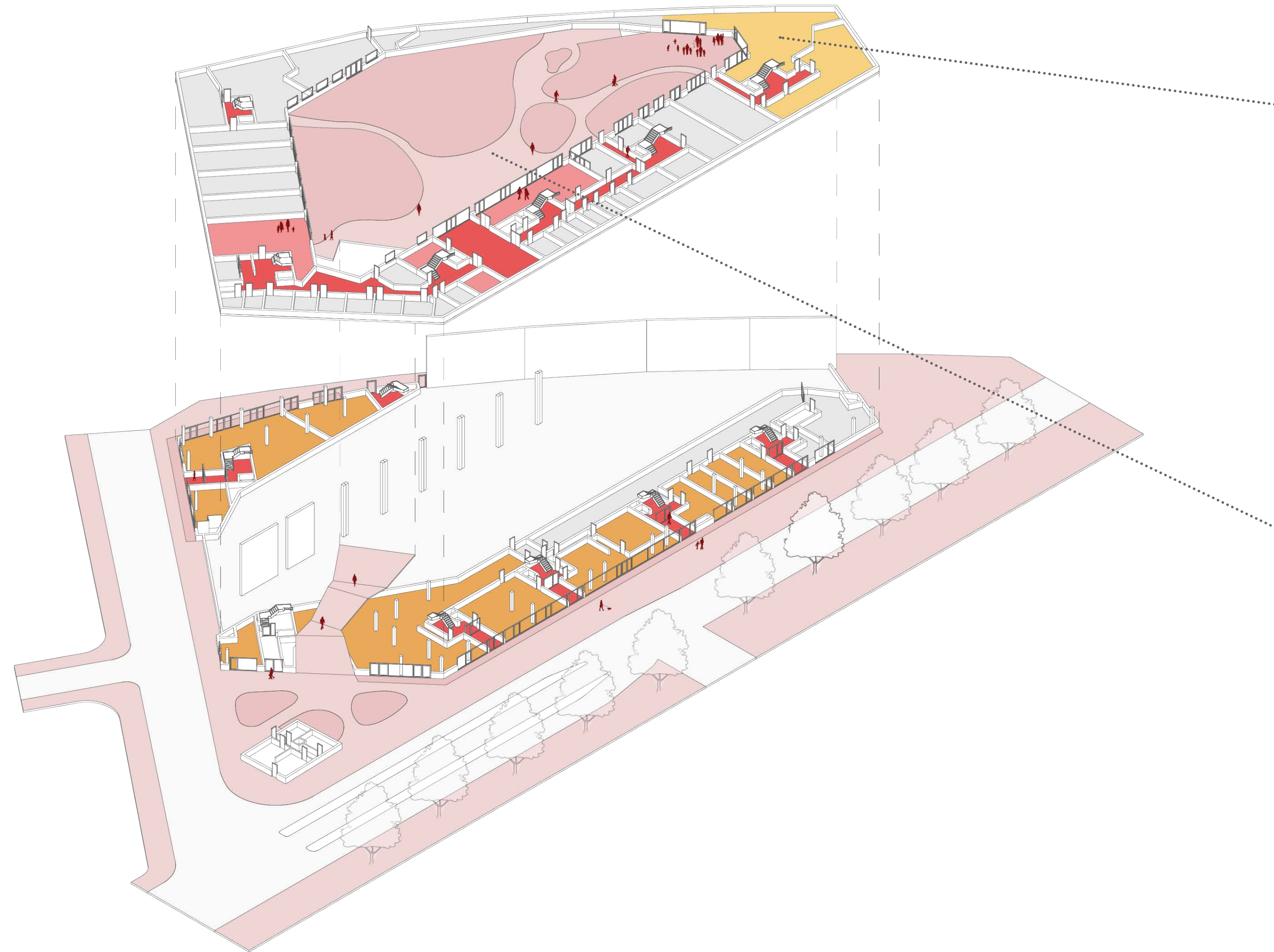




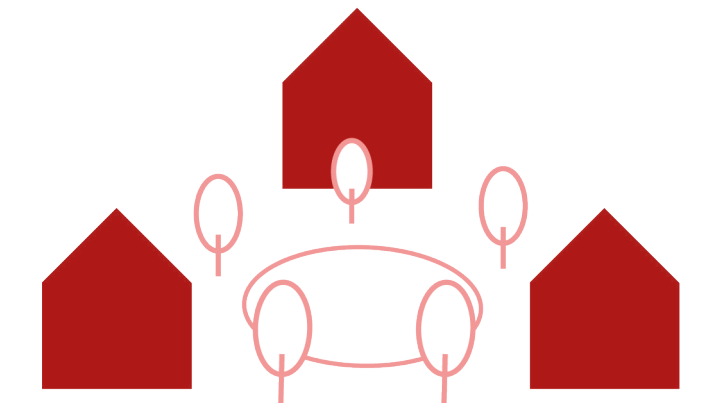
# Research - Residential building

## Kalkbreite relation to neighborhood

- public environment
- commercial spaces
- childcare
- shared spaces residential
- circulation spaces residential



Public facility  
**childcare**

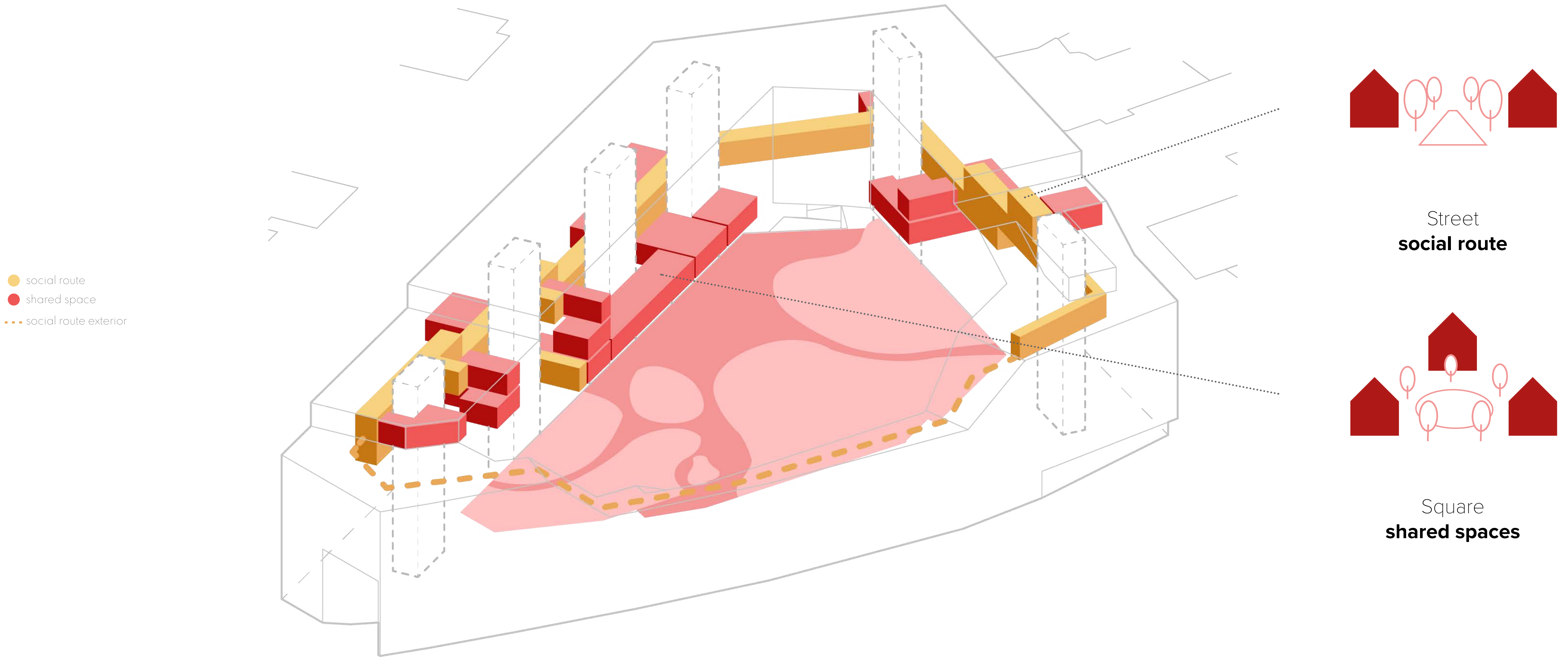


Square  
**courtyard**



# Research - Residential building

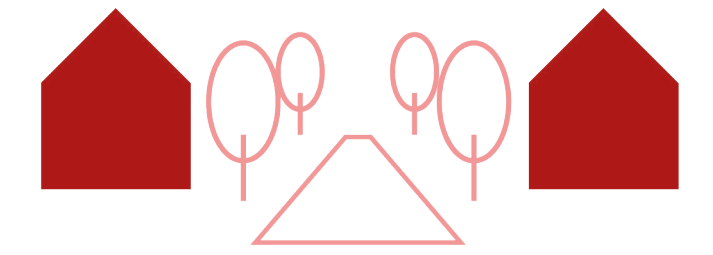
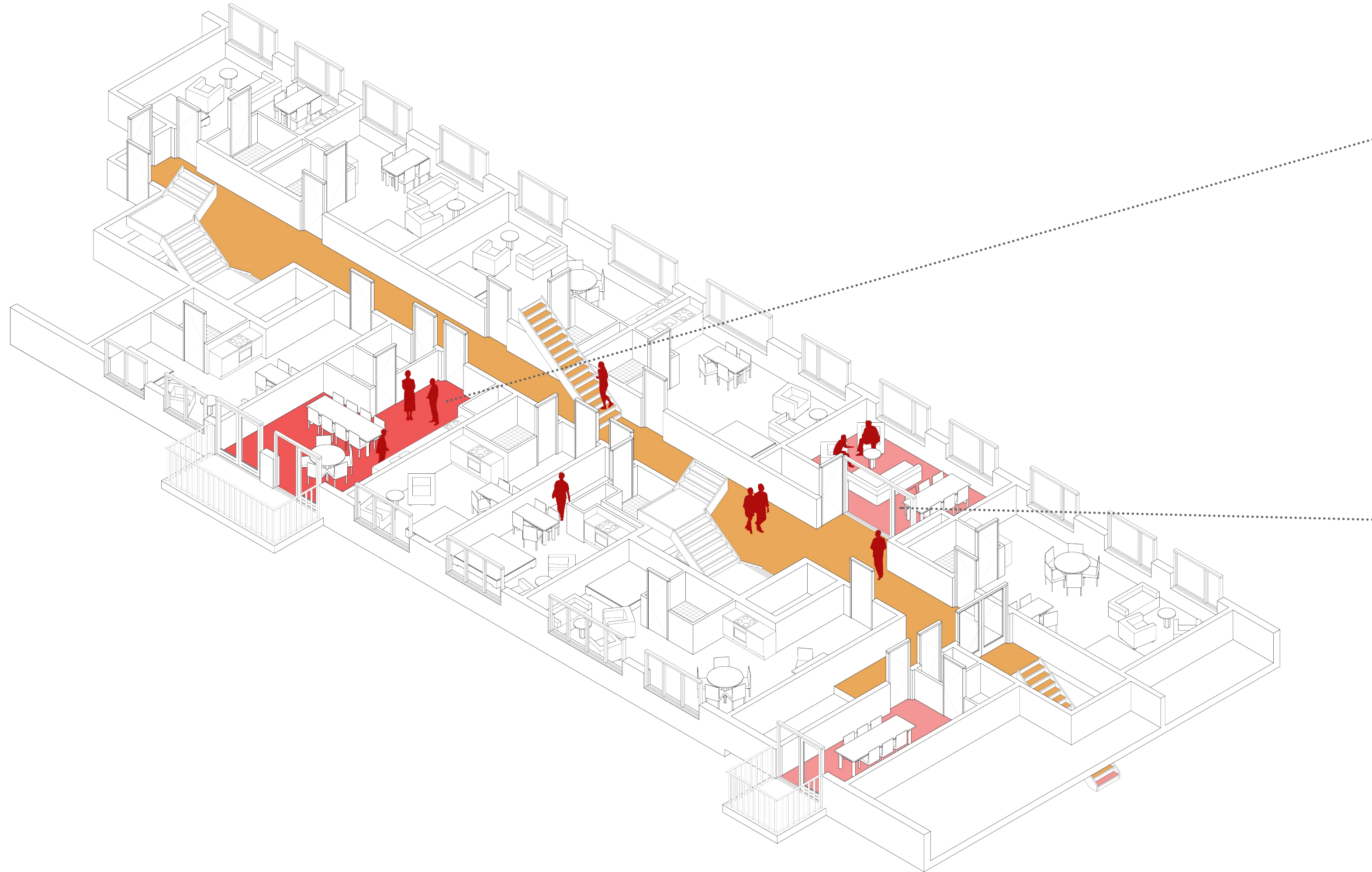
## Role of circulation system and shared spaces



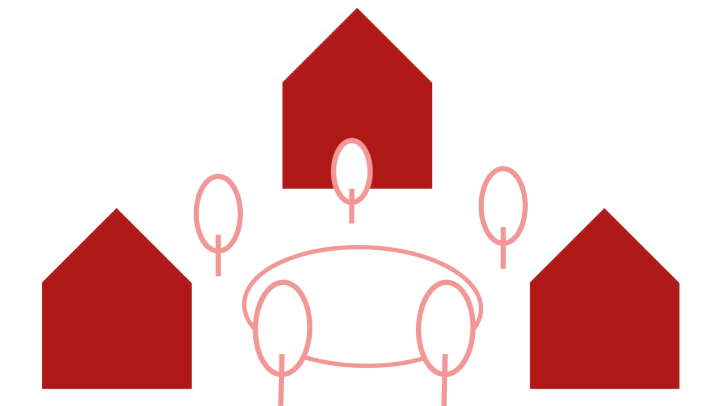
# Research - Residential building

## Cluster

- social route
- shared space building
- shared space cluster



Street  
**social route**



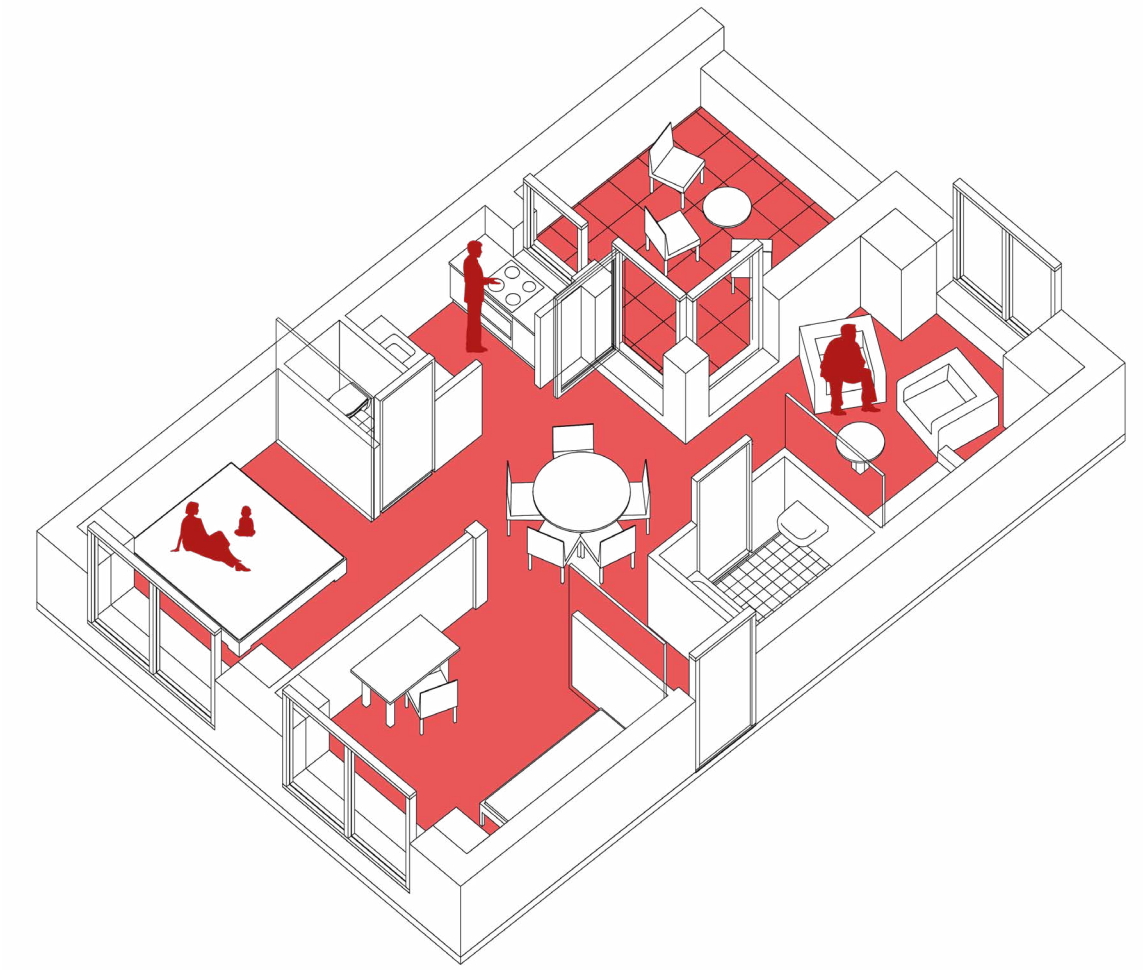
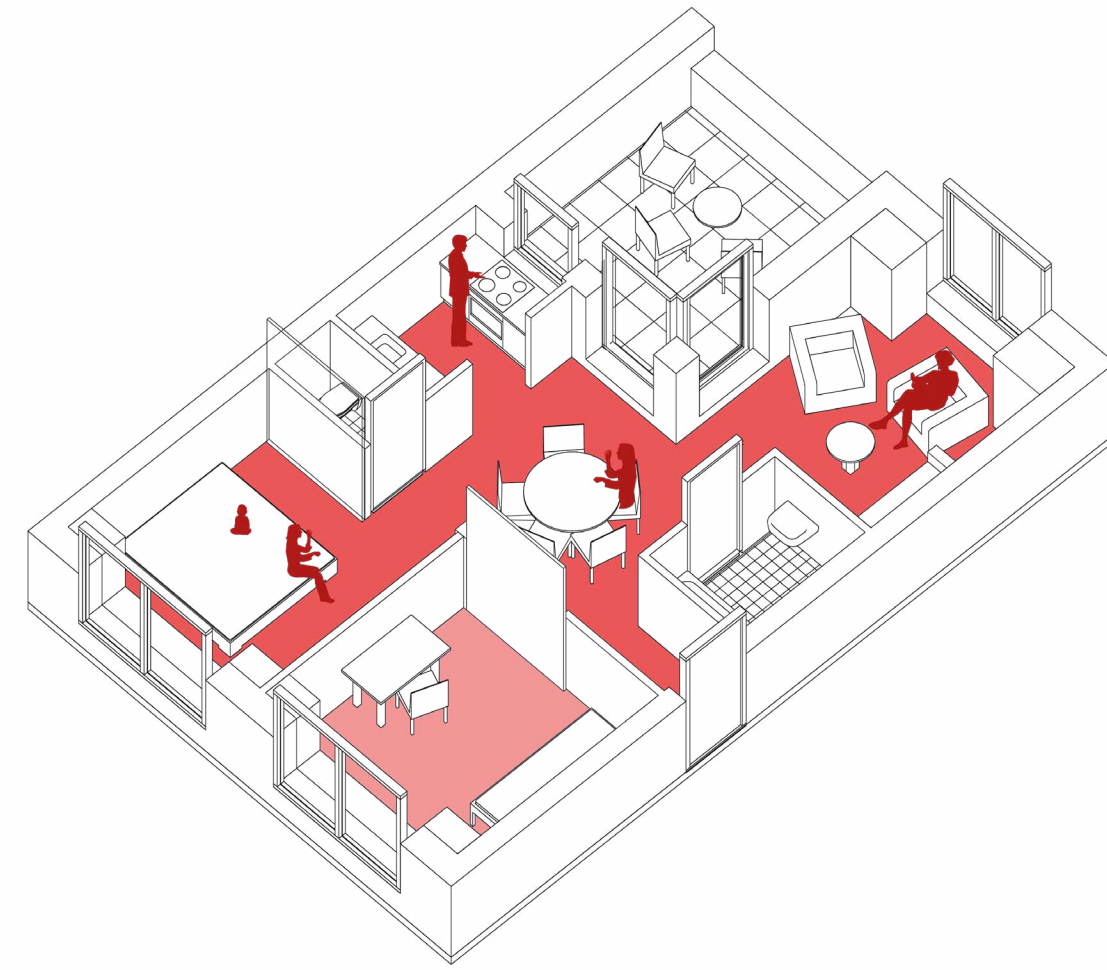
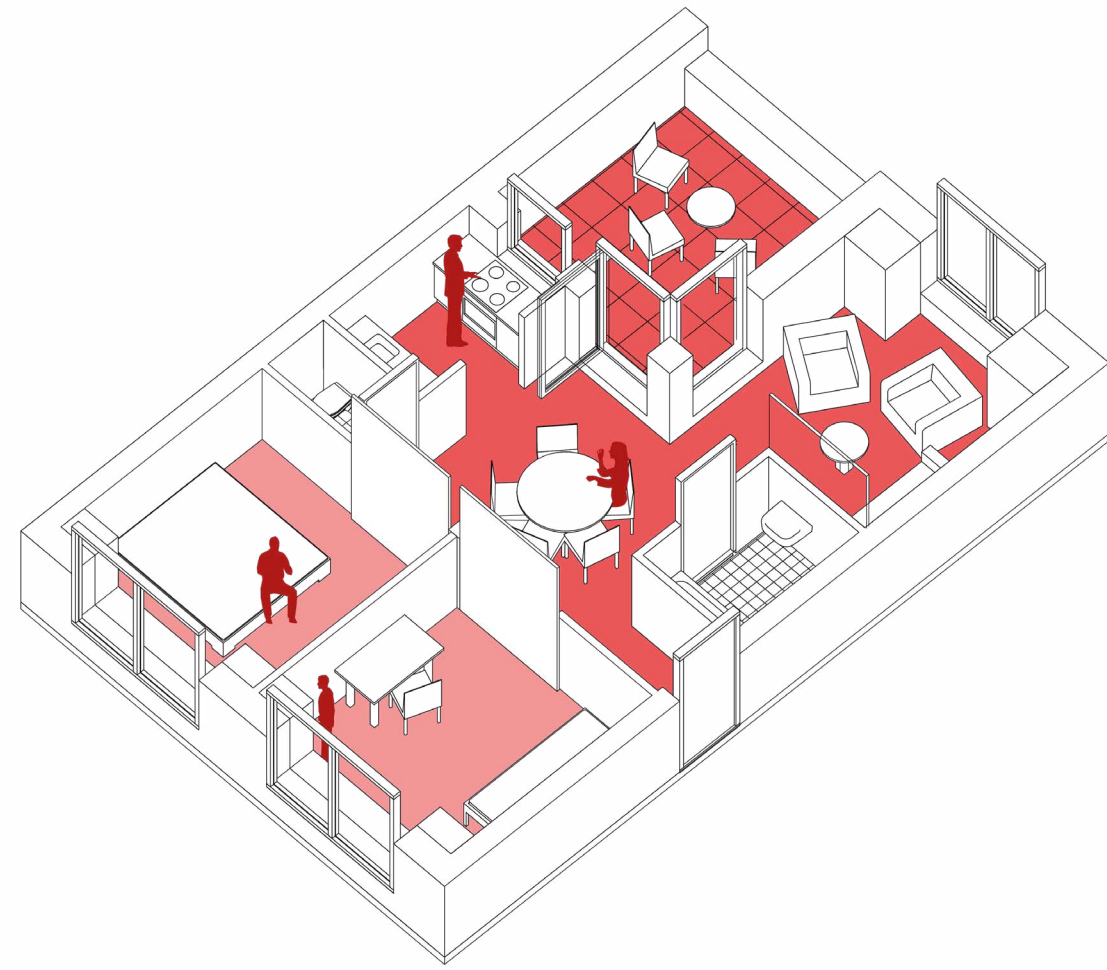
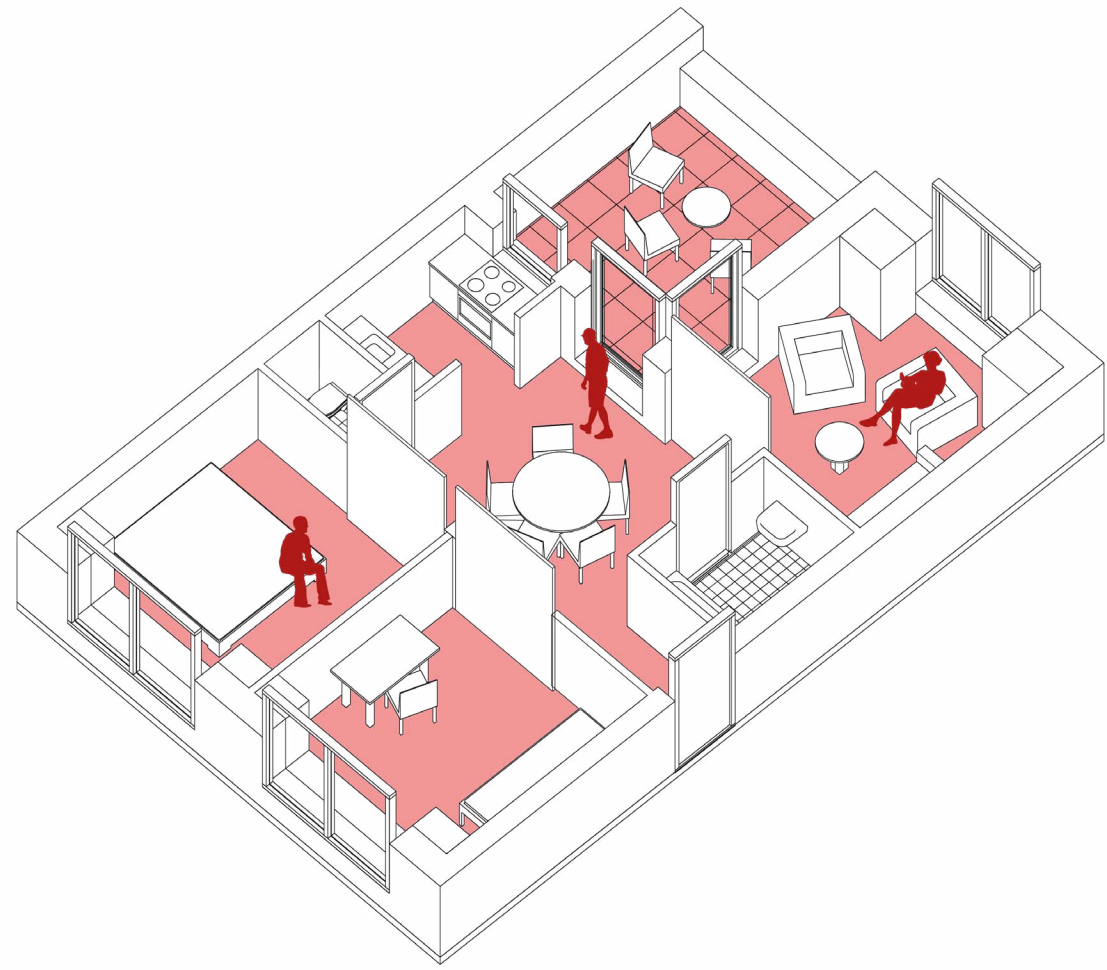
Square  
**shared spaces**



# Research - Residential building

## Social flexibility within a dwelling unit

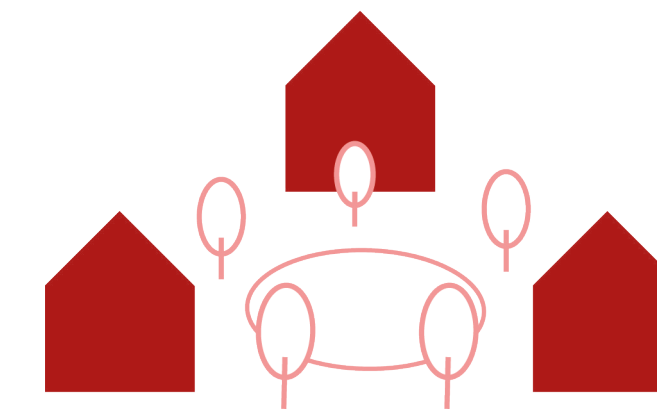
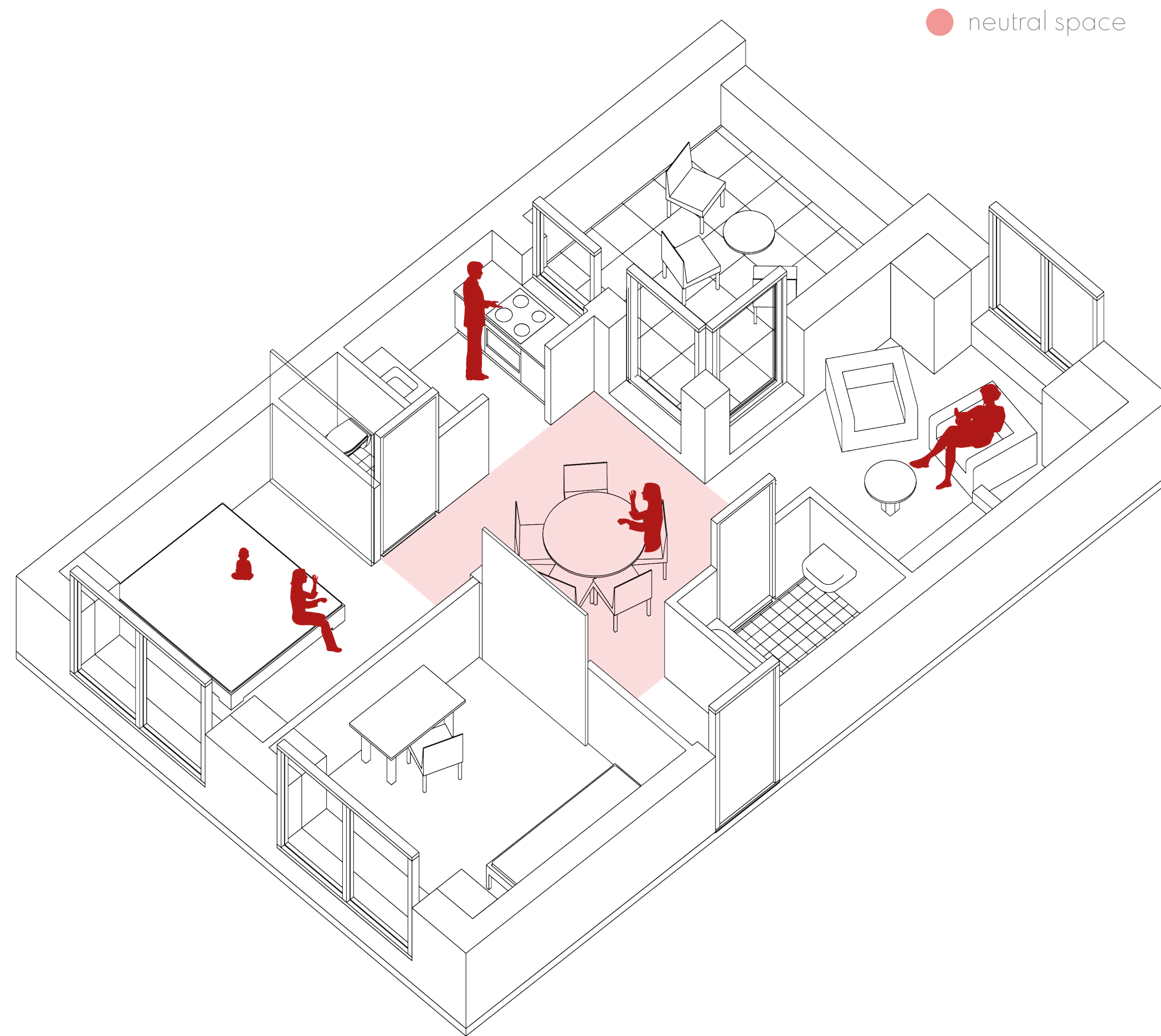
- isolated
- connected





## Research - Residential building

### Social flexibility within a dwelling unit



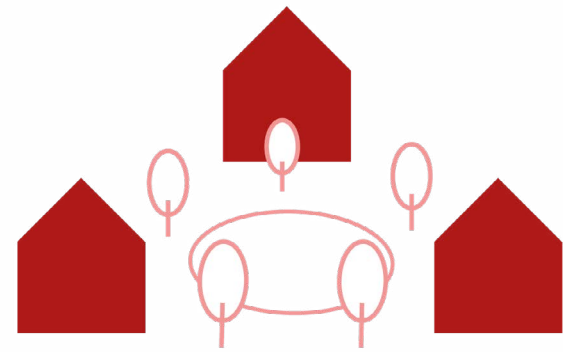
Square  
**'neutral space'**



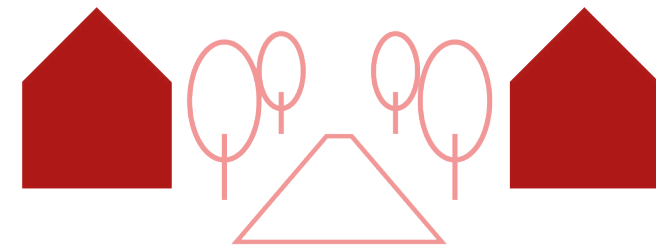
# Research - neighborhood investigation

Translation to design

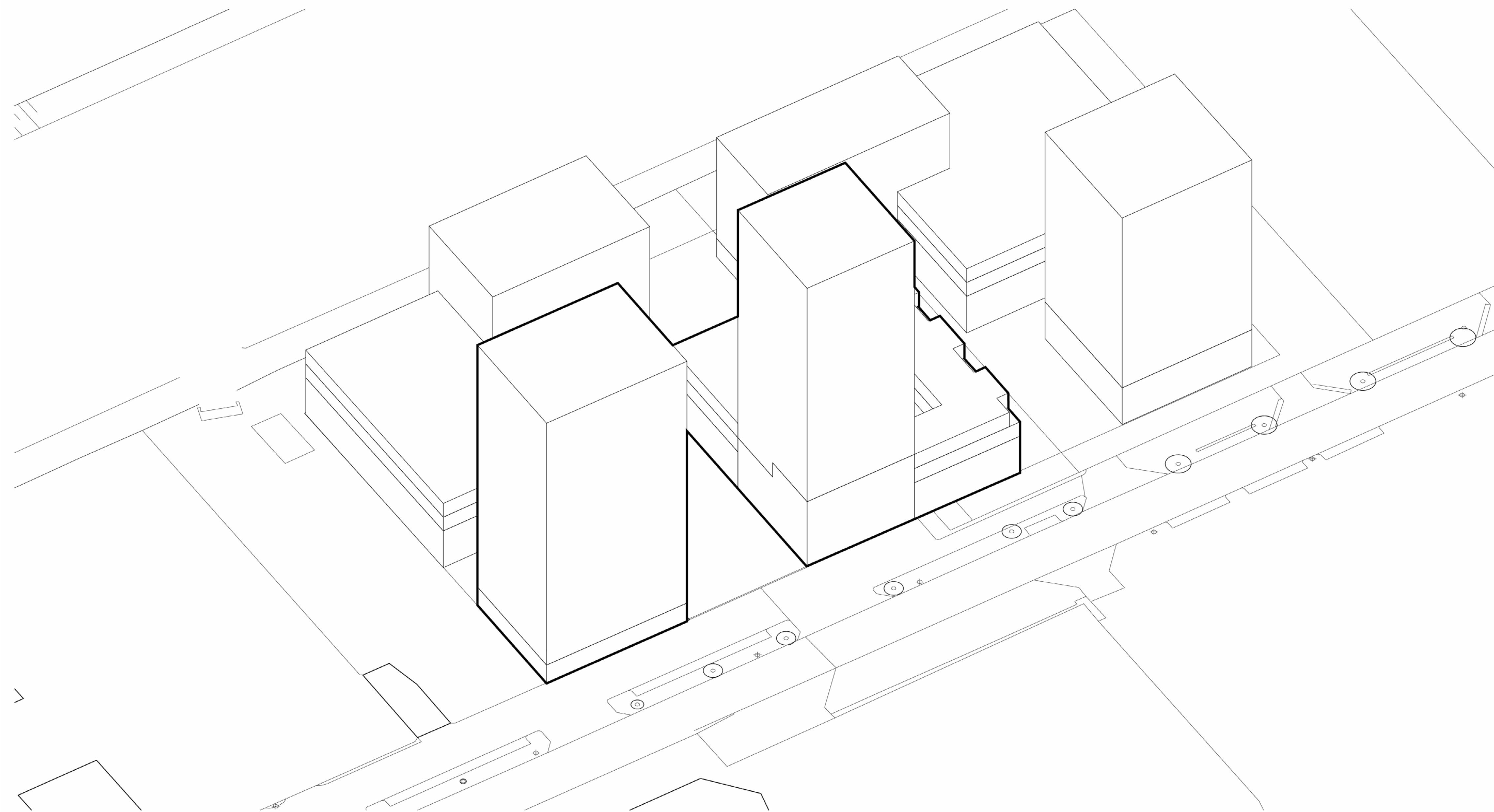
## Square



## Street

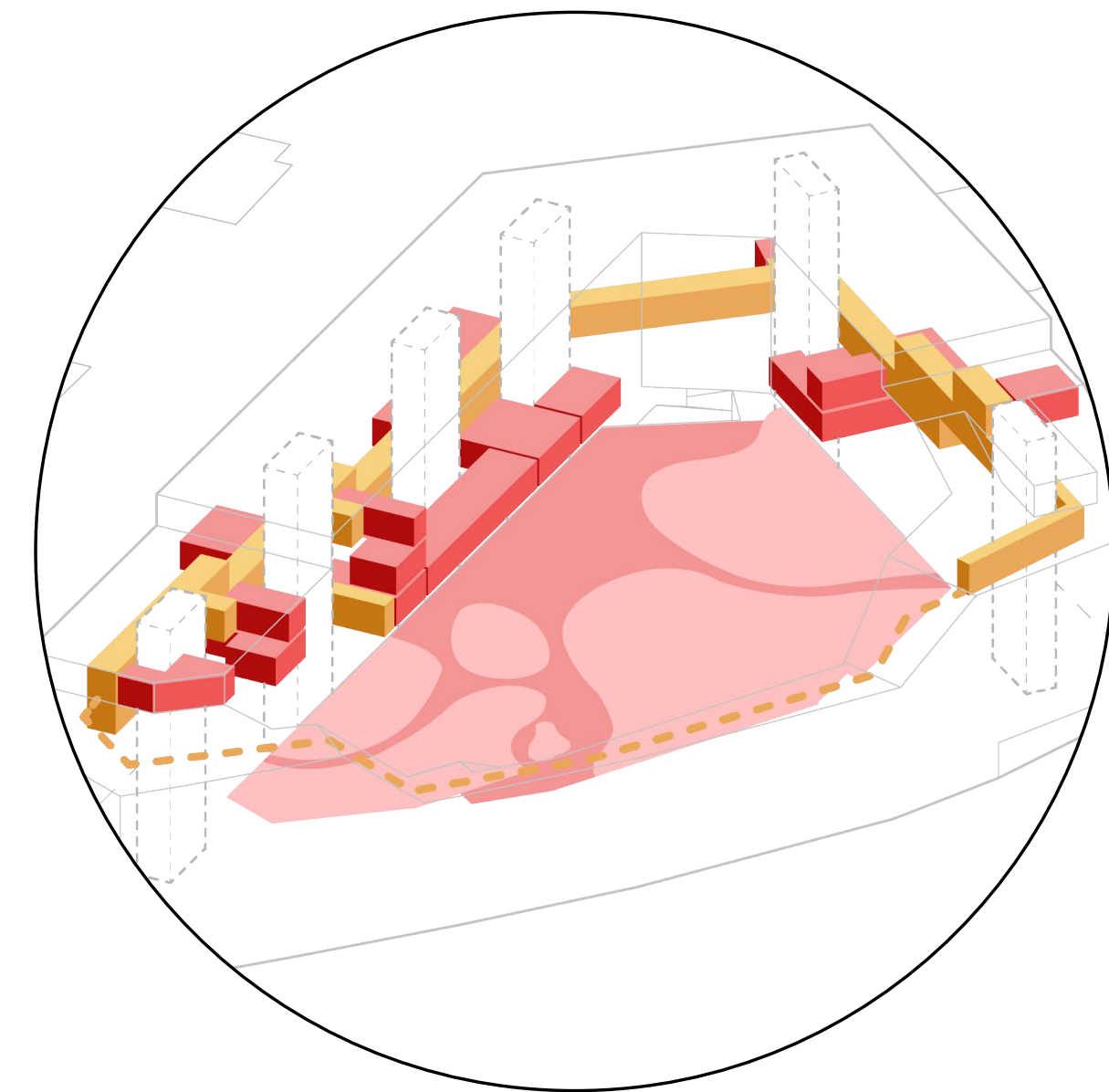
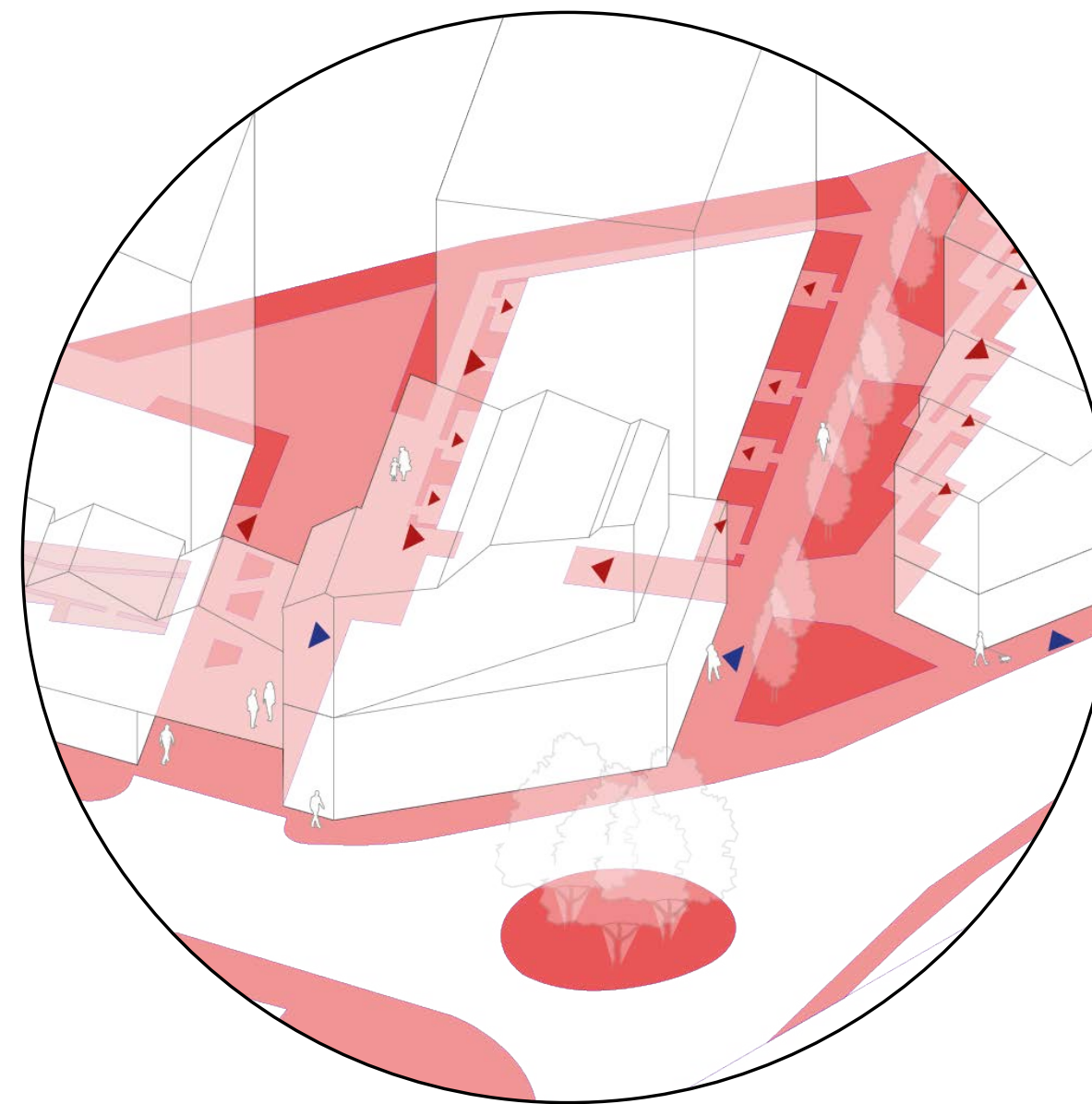
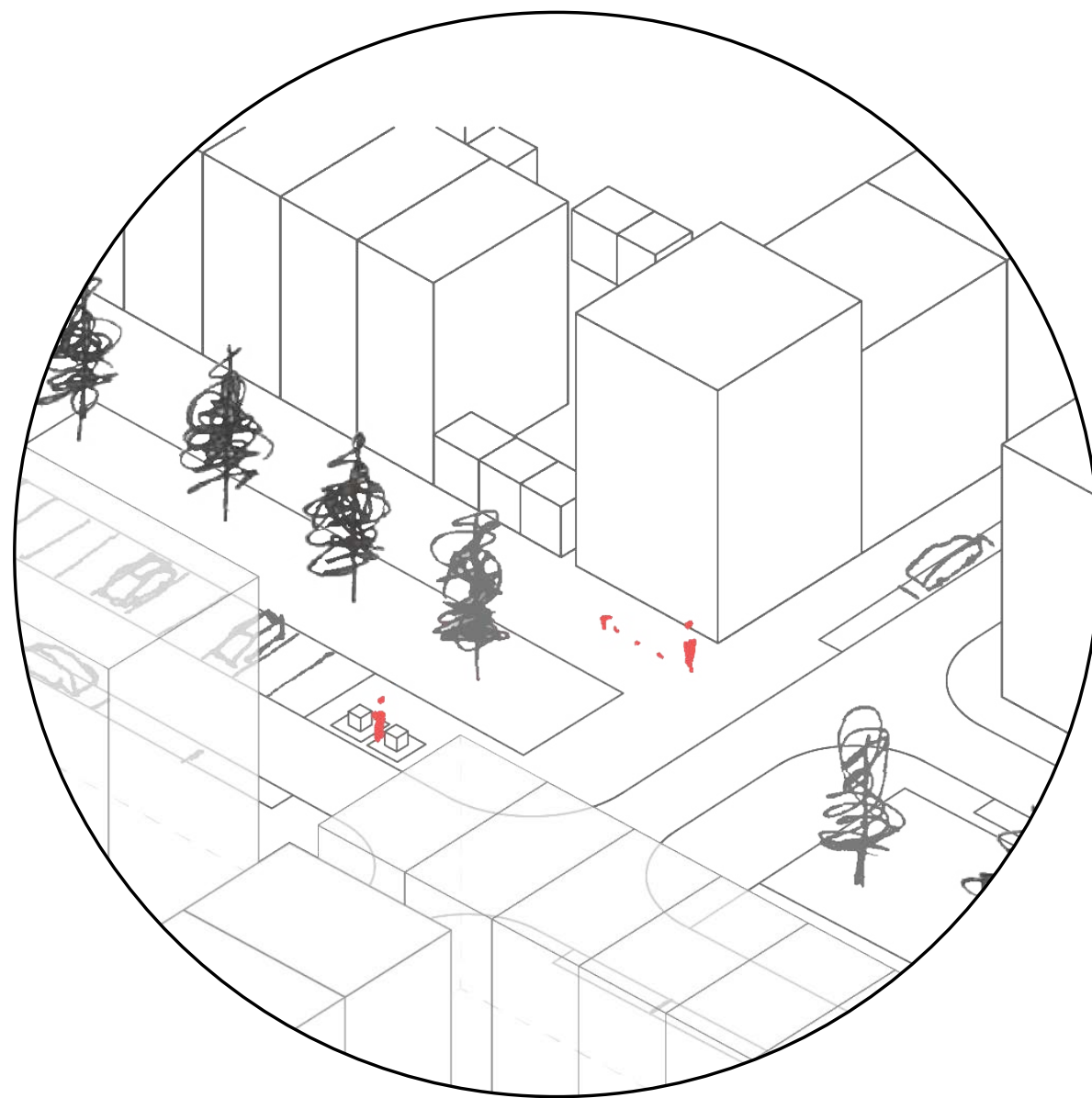
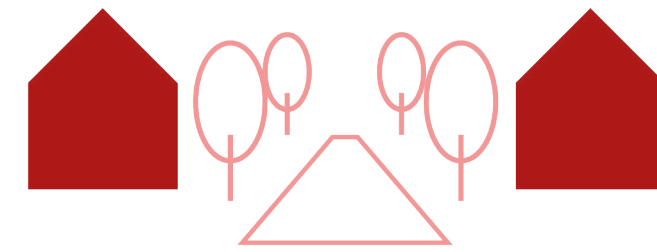


## Public facilities



Research - neighborhood investigation  
Translation to design

Street

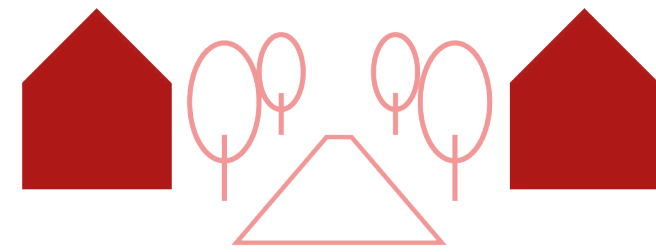




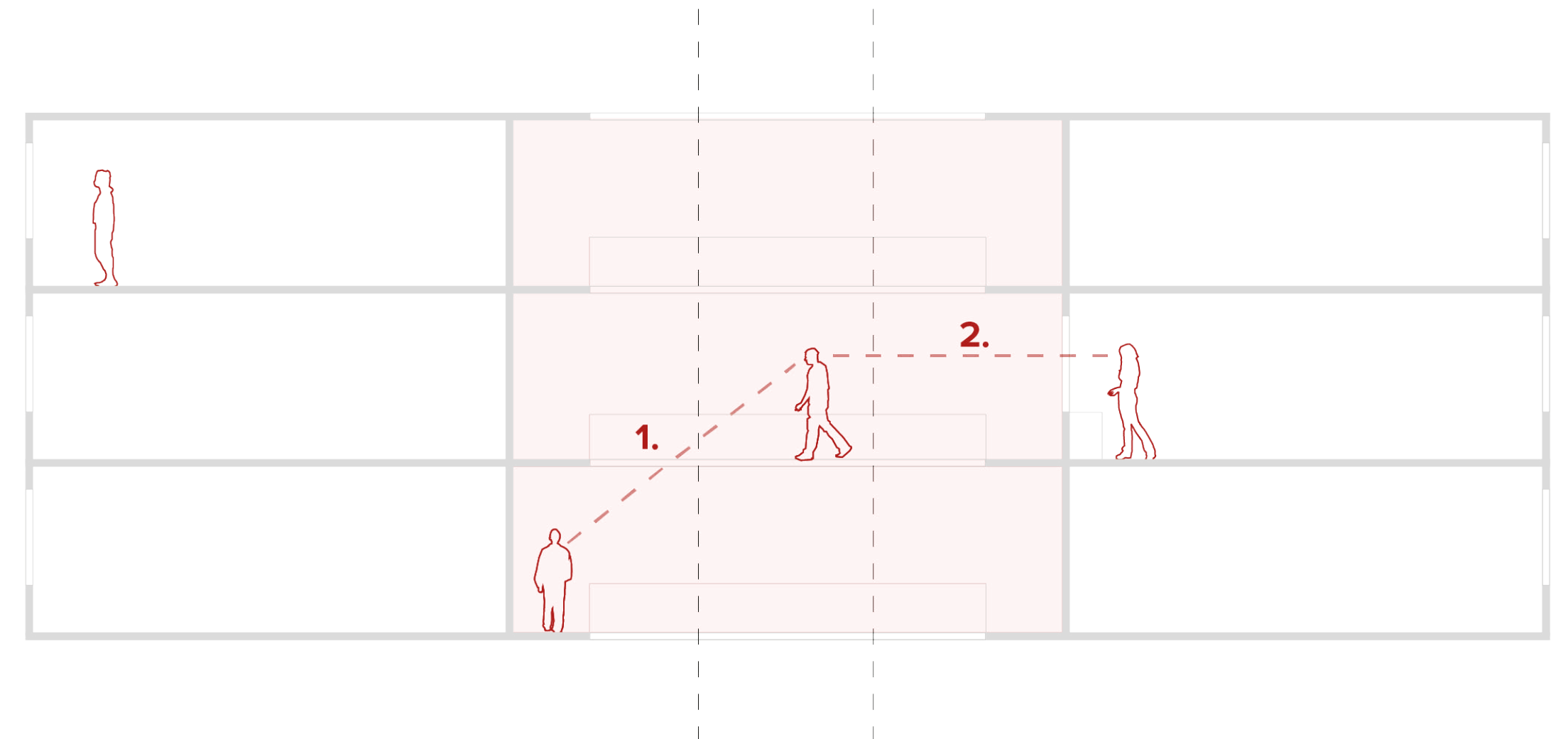
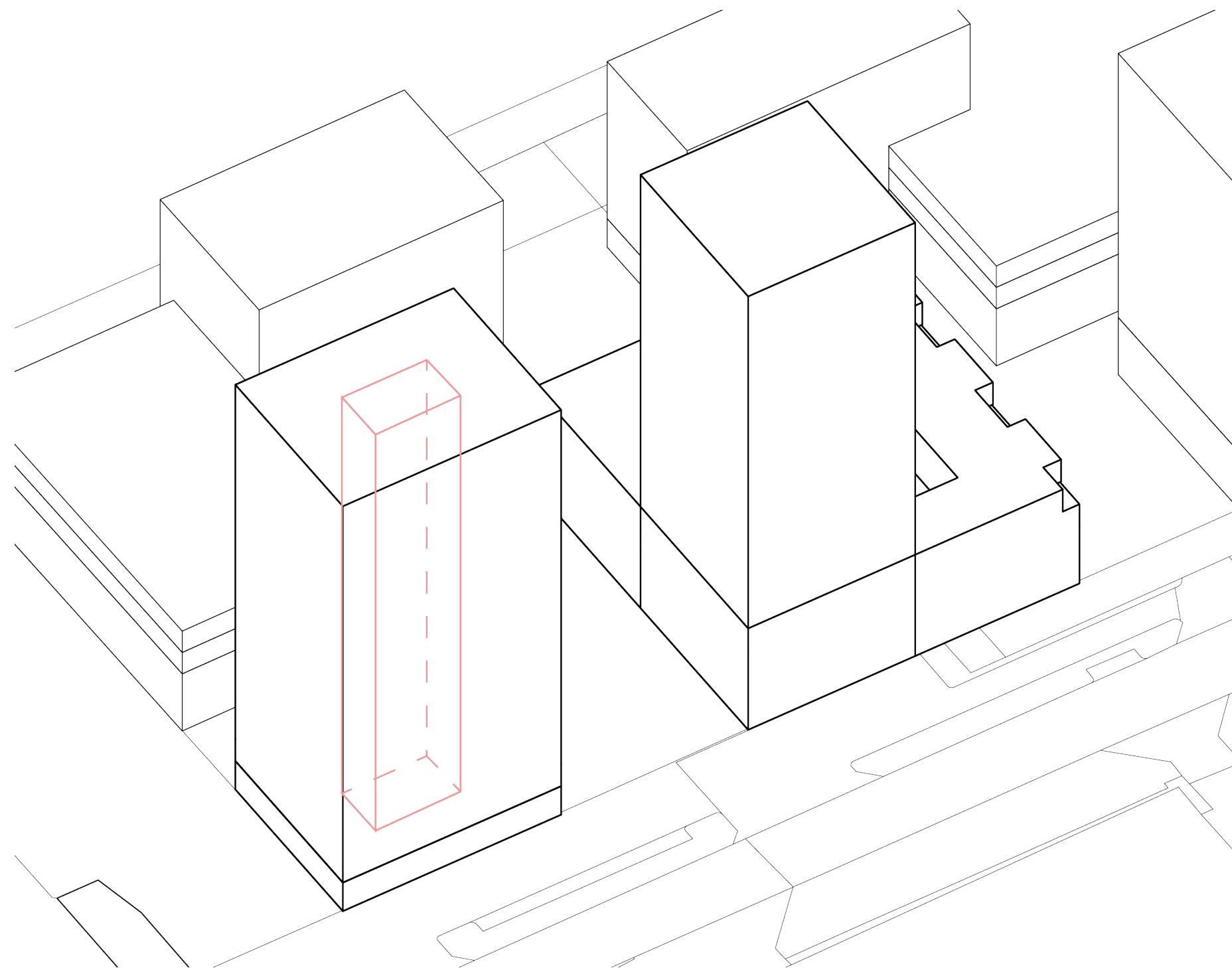
# Research - neighborhood investigation

Translation to design

## Street



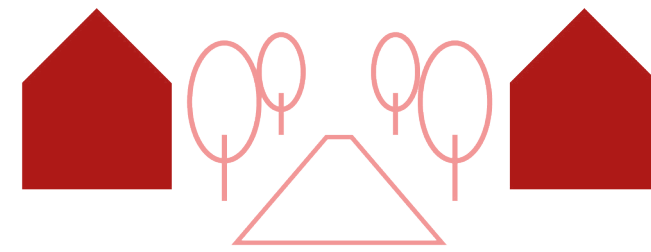
1. Open circulation system



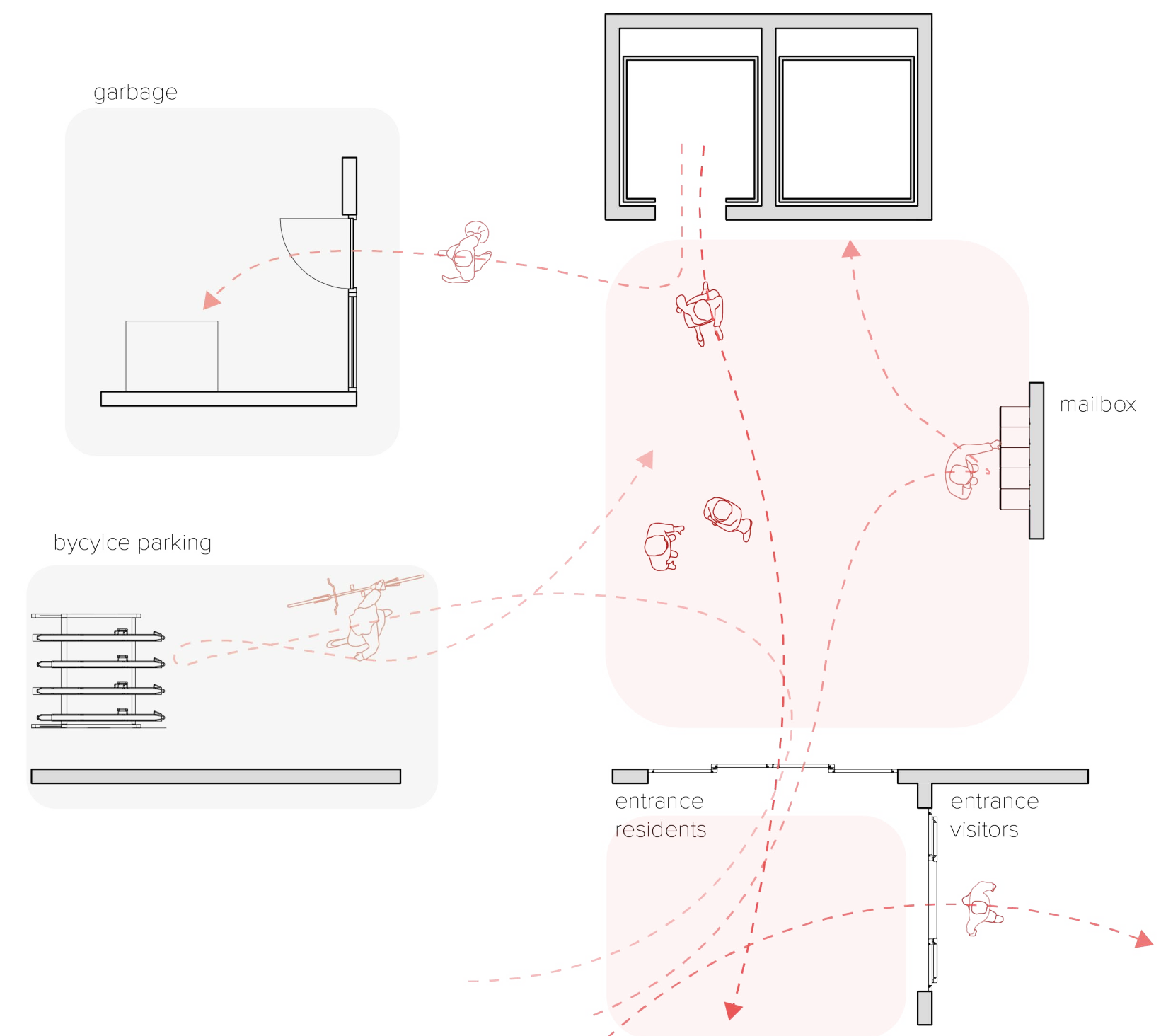
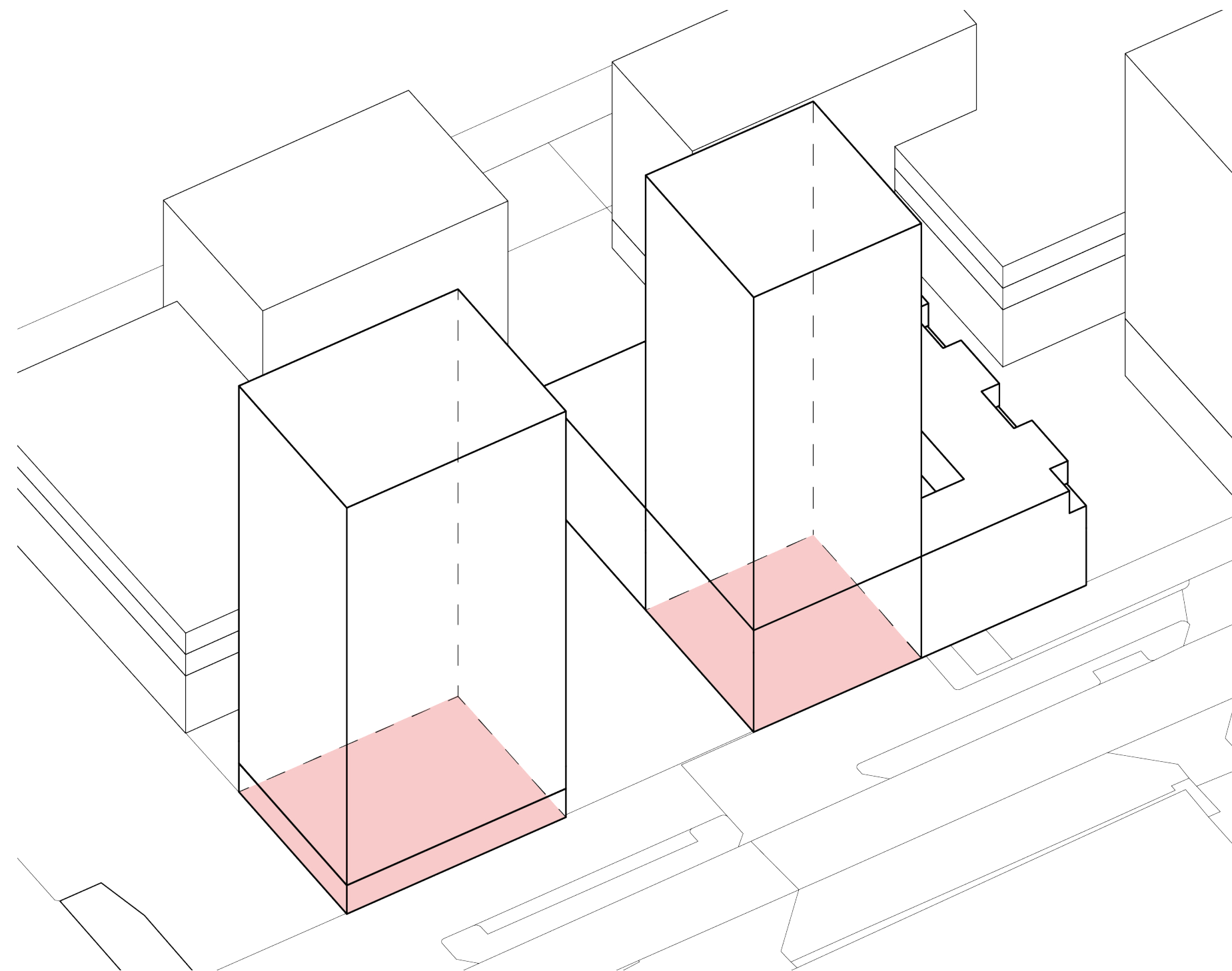
# Research - neighborhood investigation

## Translation to design

### Street



### 2. Concentrating daily life activities

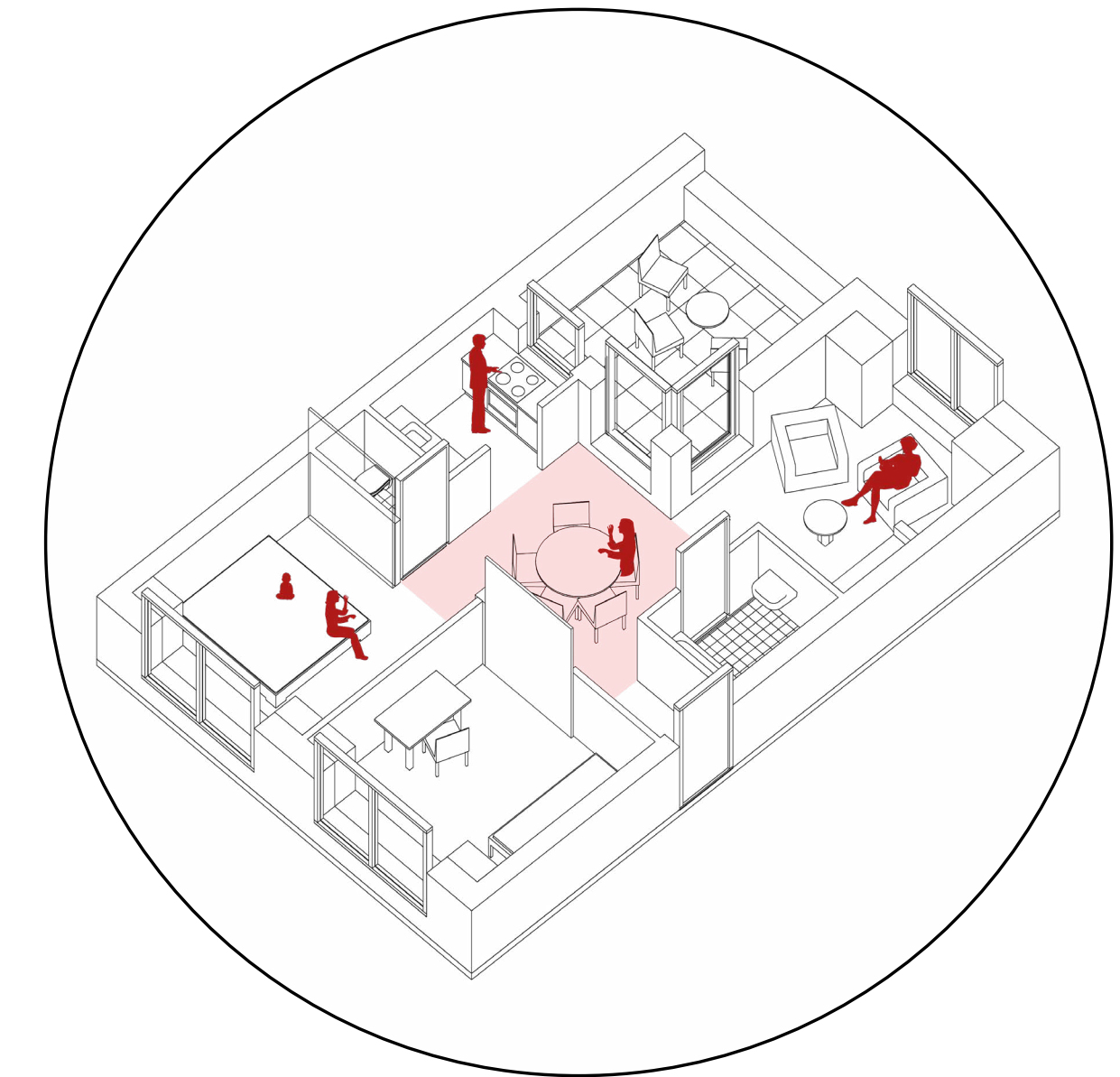
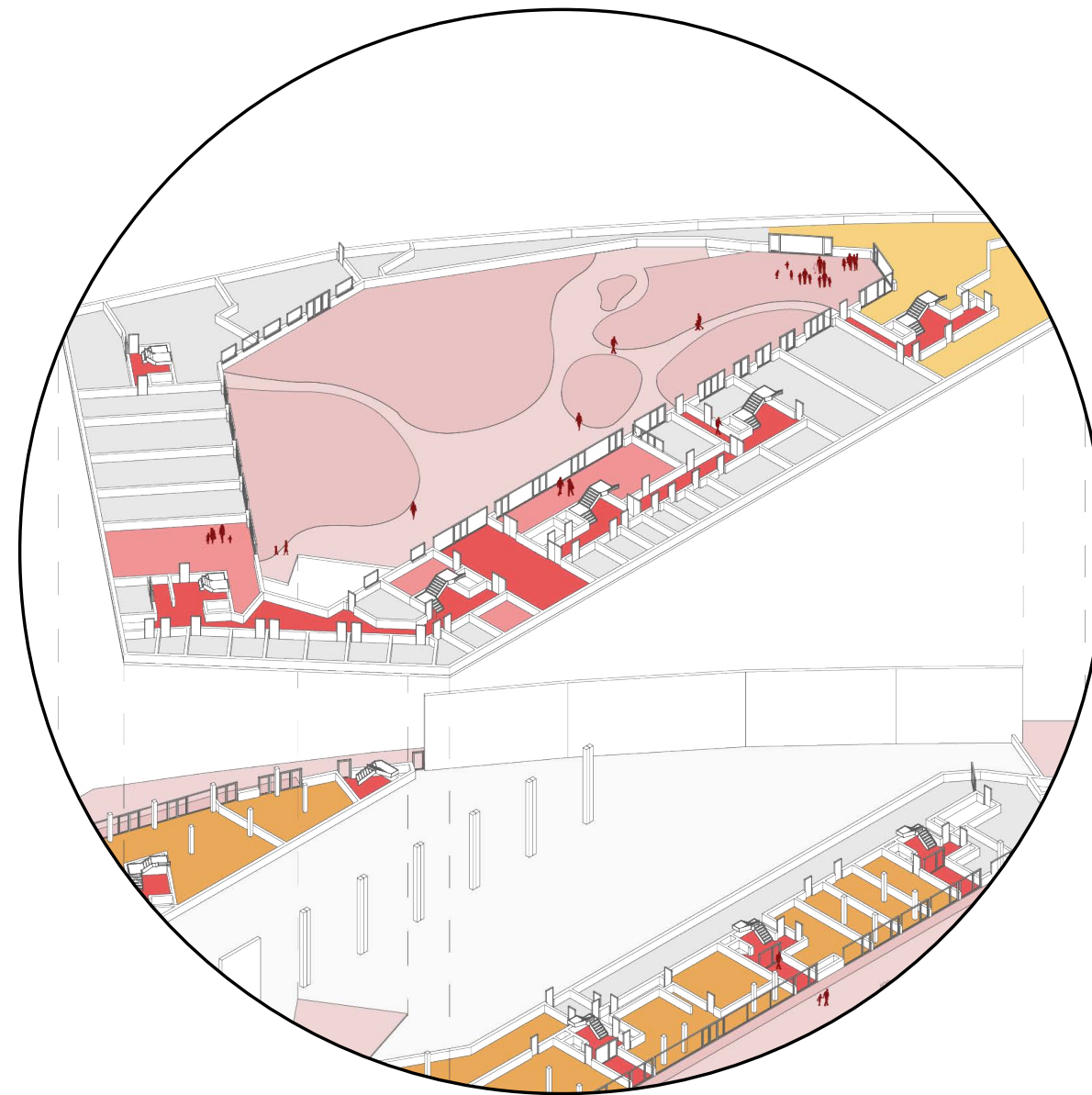
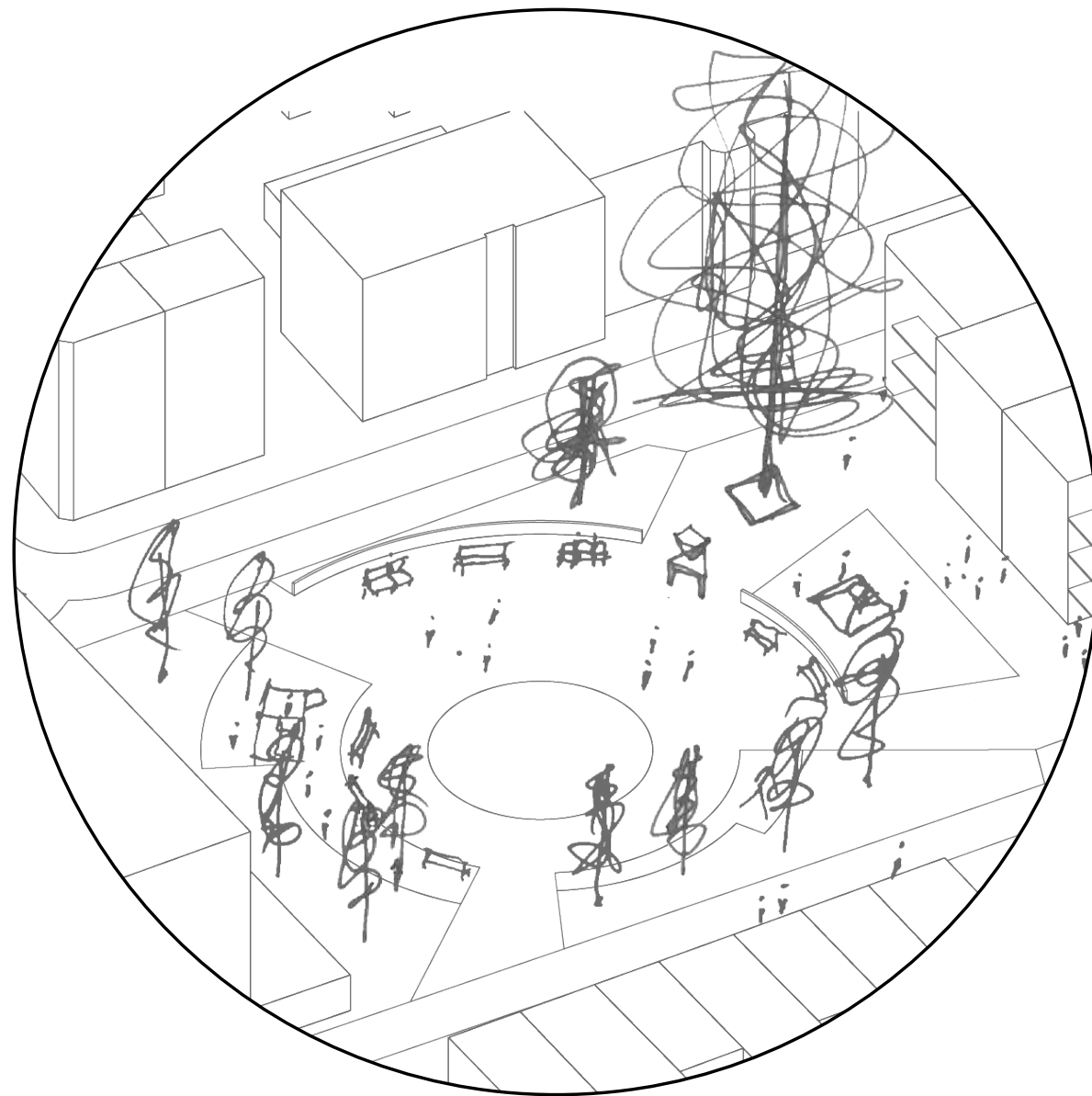
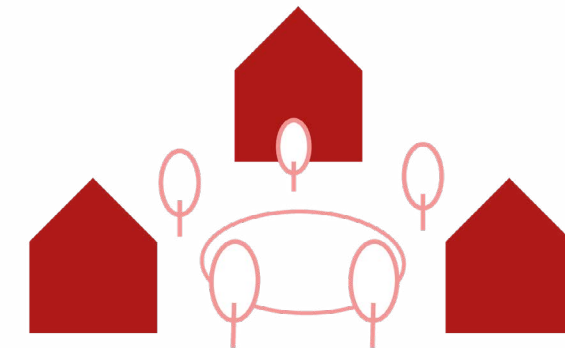




# Research - neighborhood investigation

Translation to design

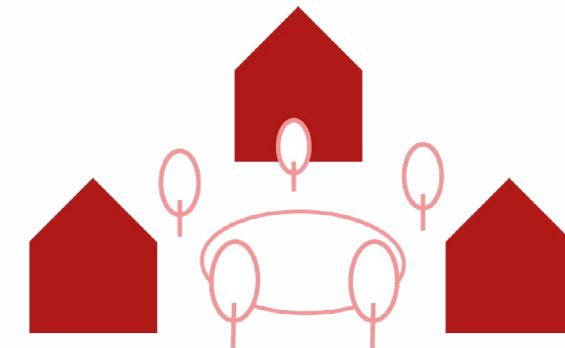
## Square



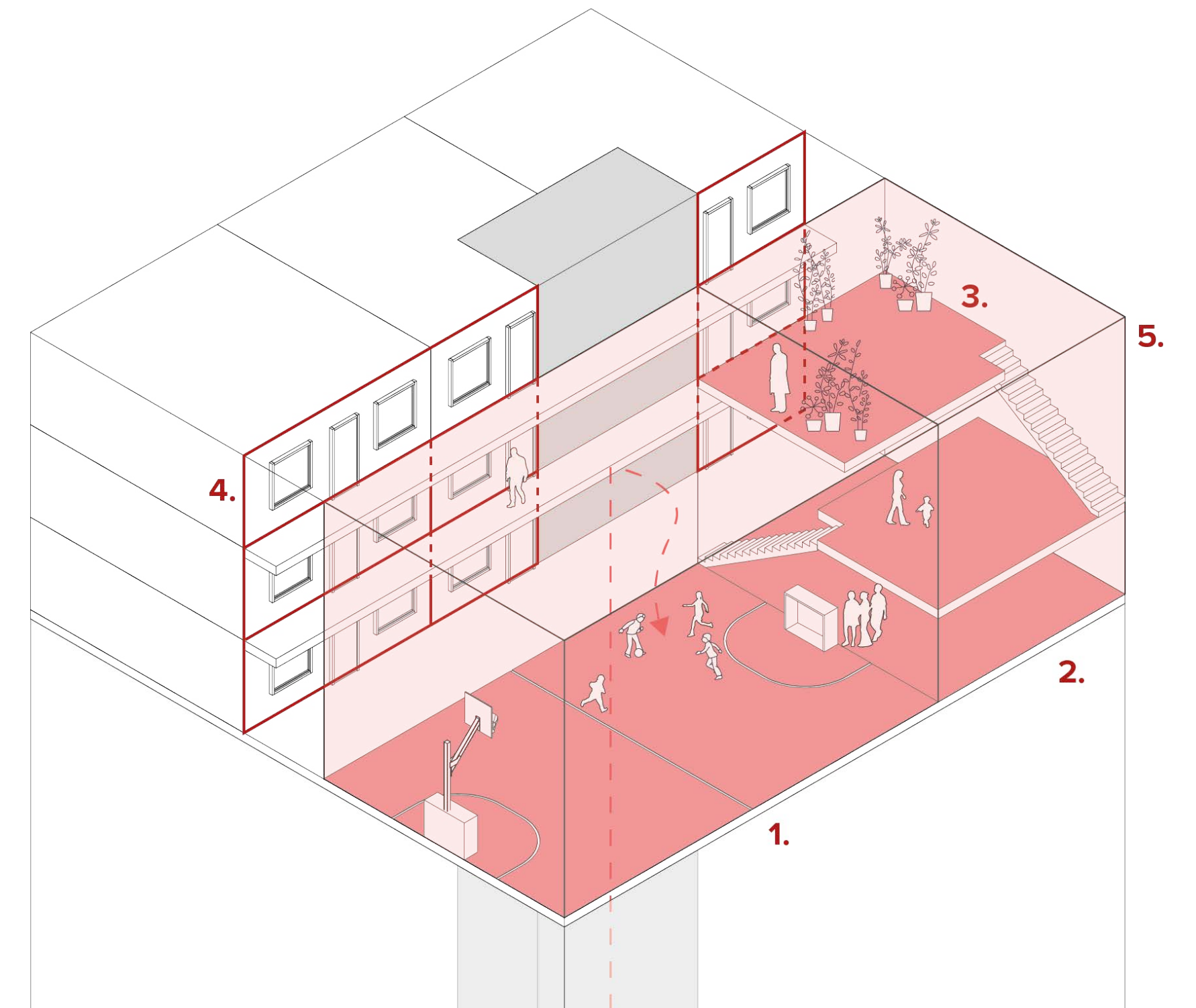
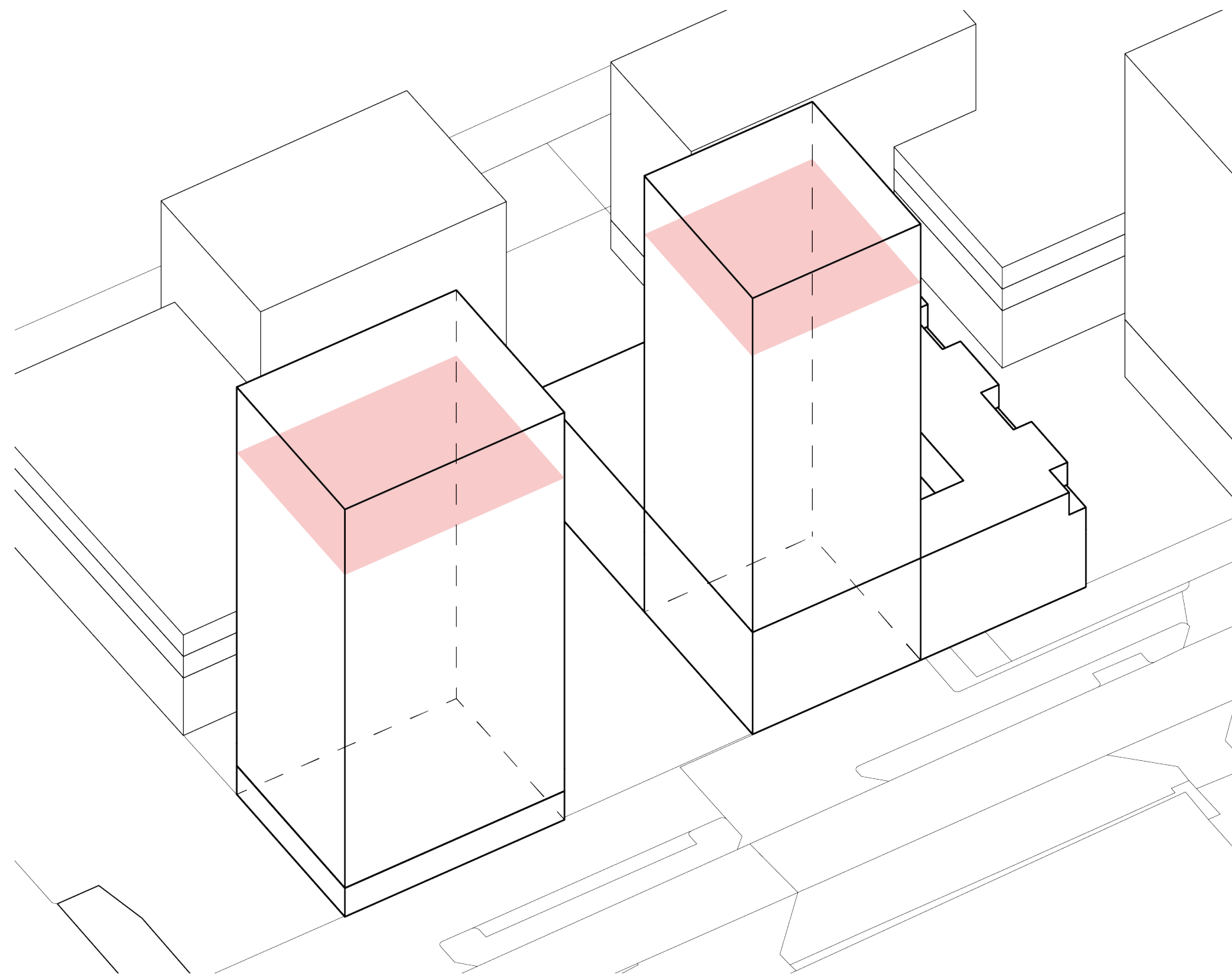
# Research - neighborhood investigation

Translation to design

## Square



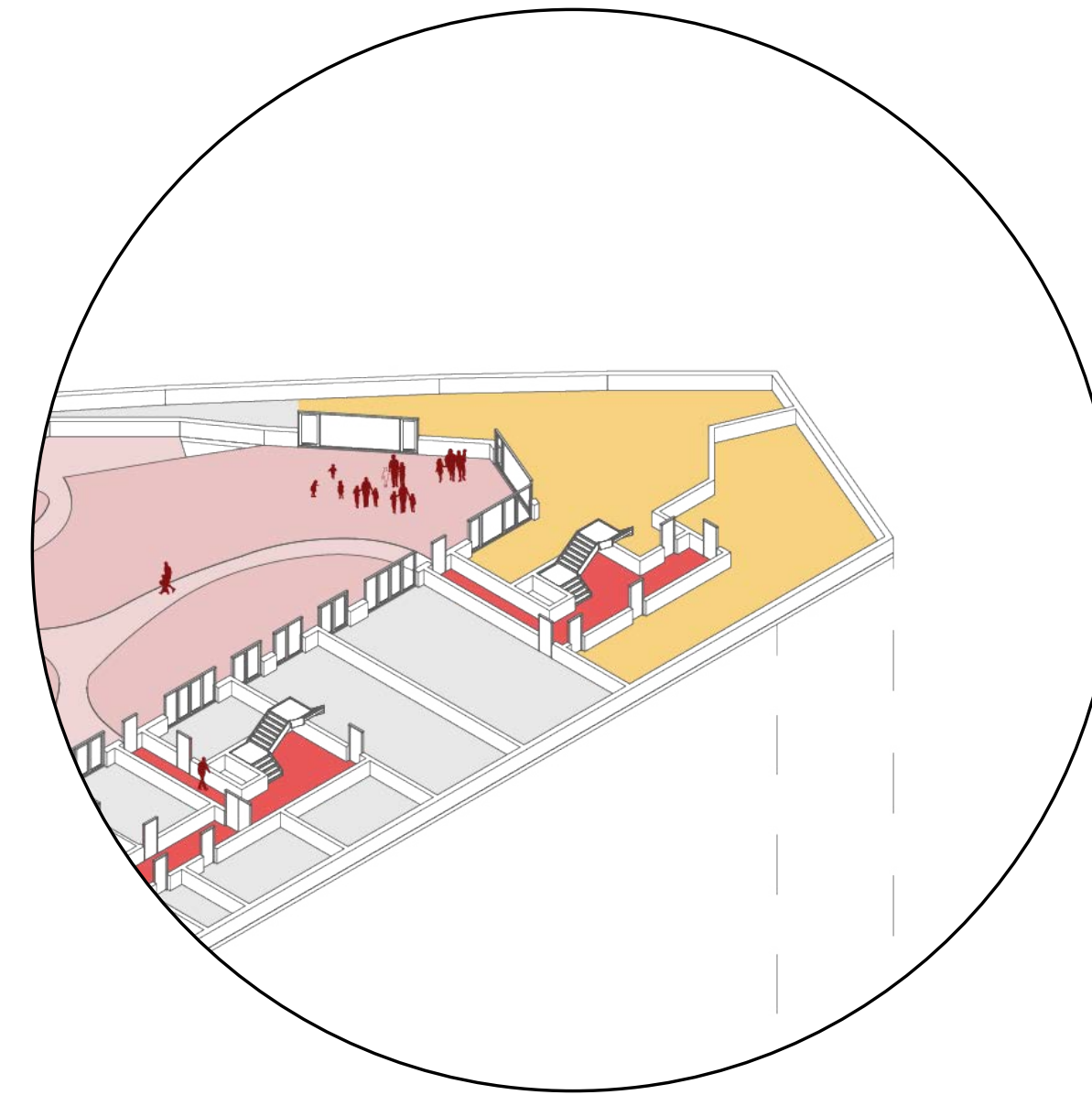
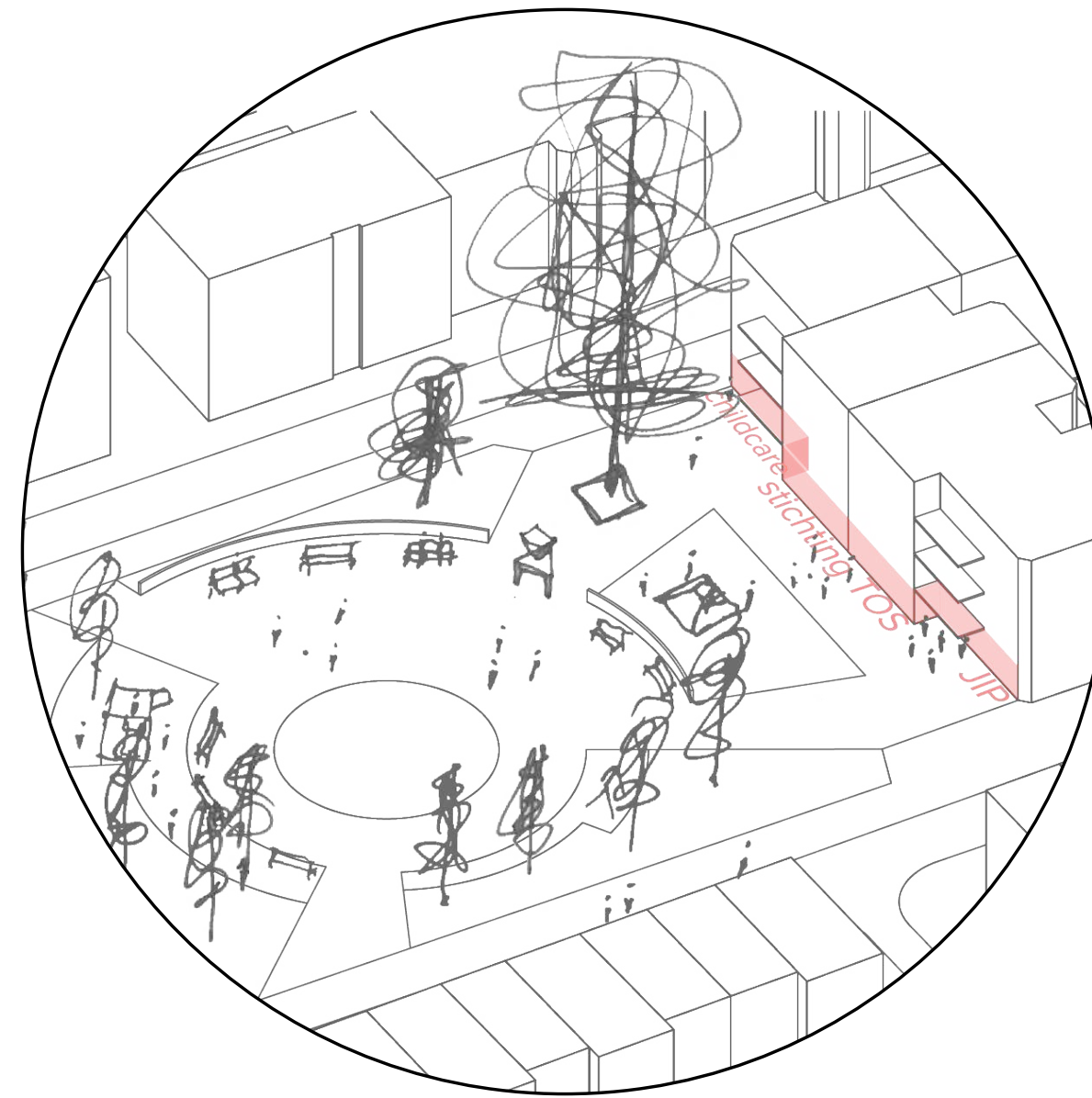
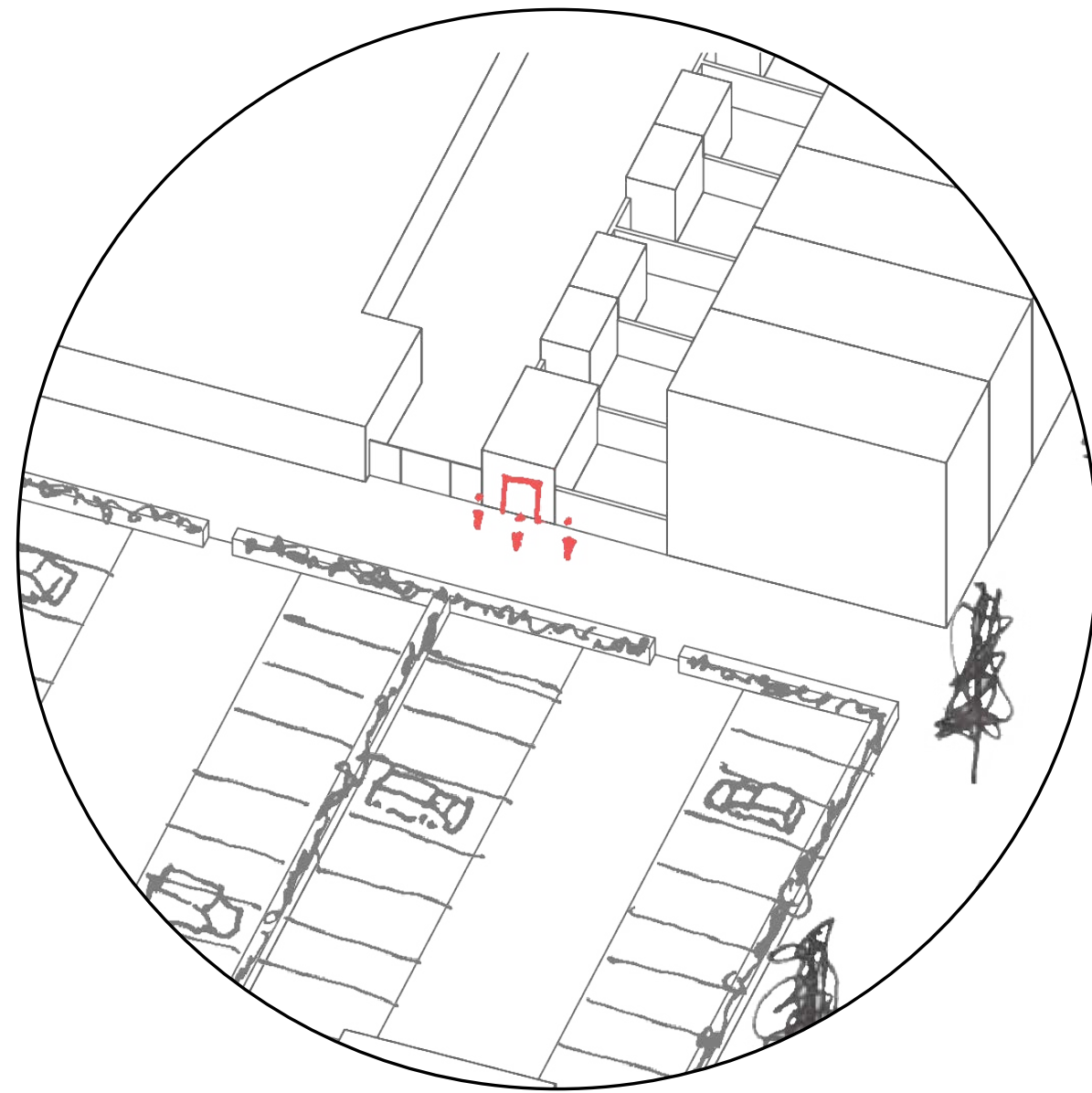
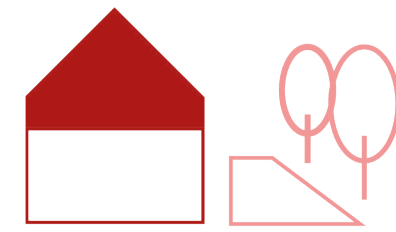
Elevated playground





Research - neighborhood investigation  
Translation to design

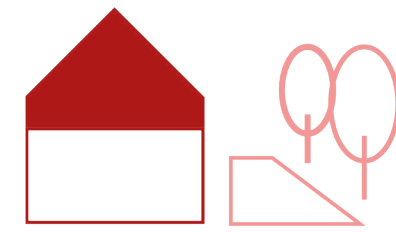
Public facilities



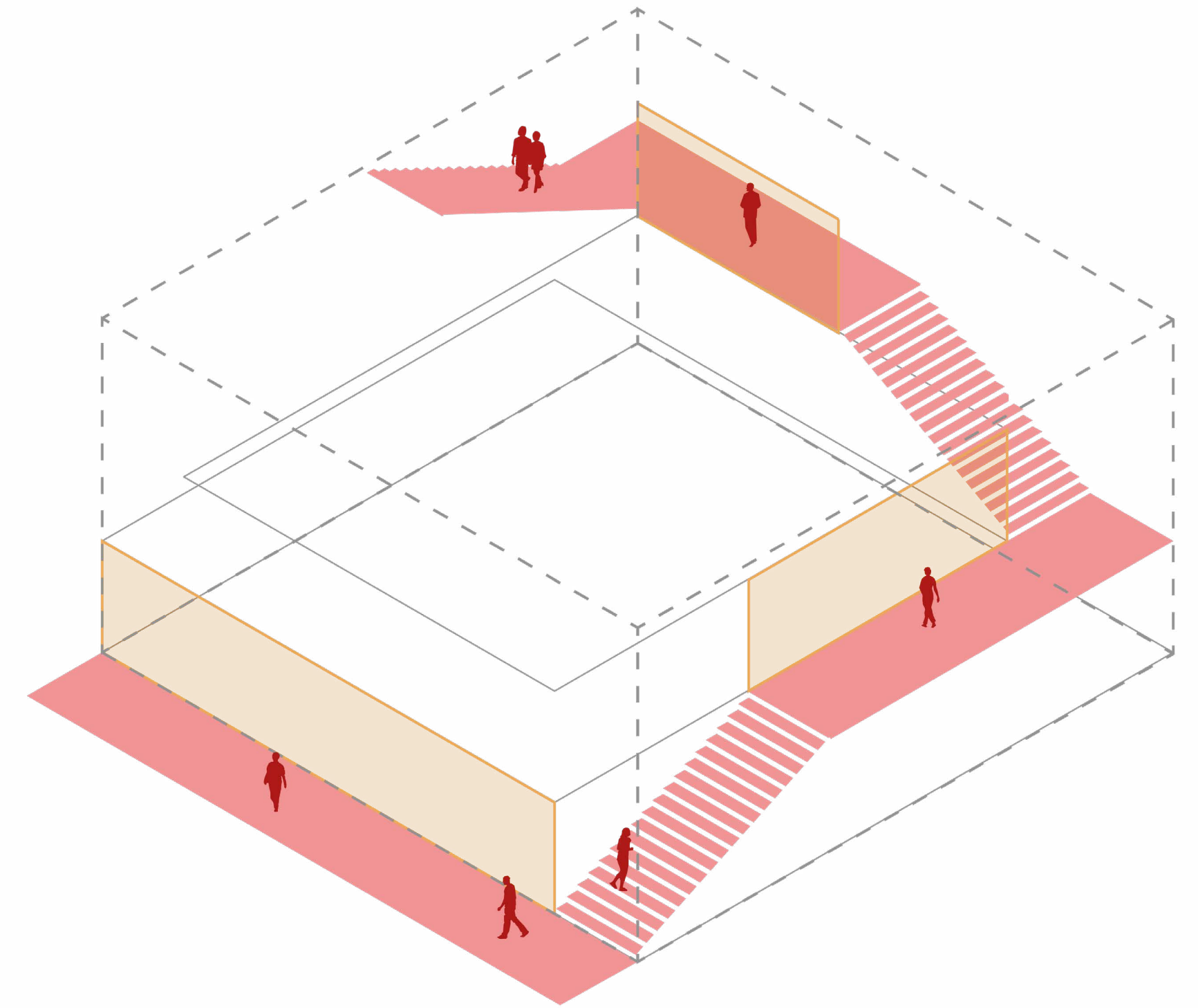
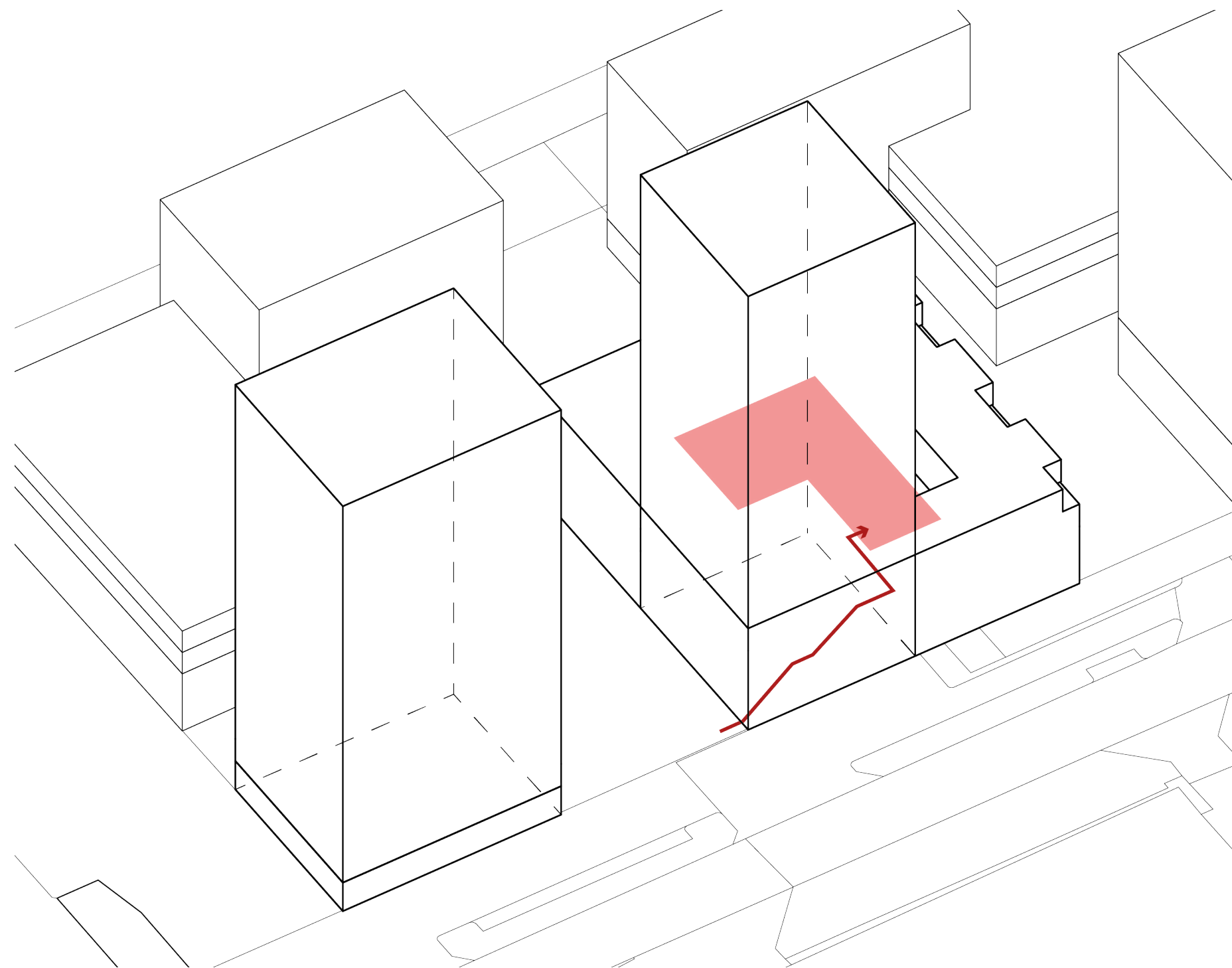
# Research - neighborhood investigation

Translation to design

## Public facilities

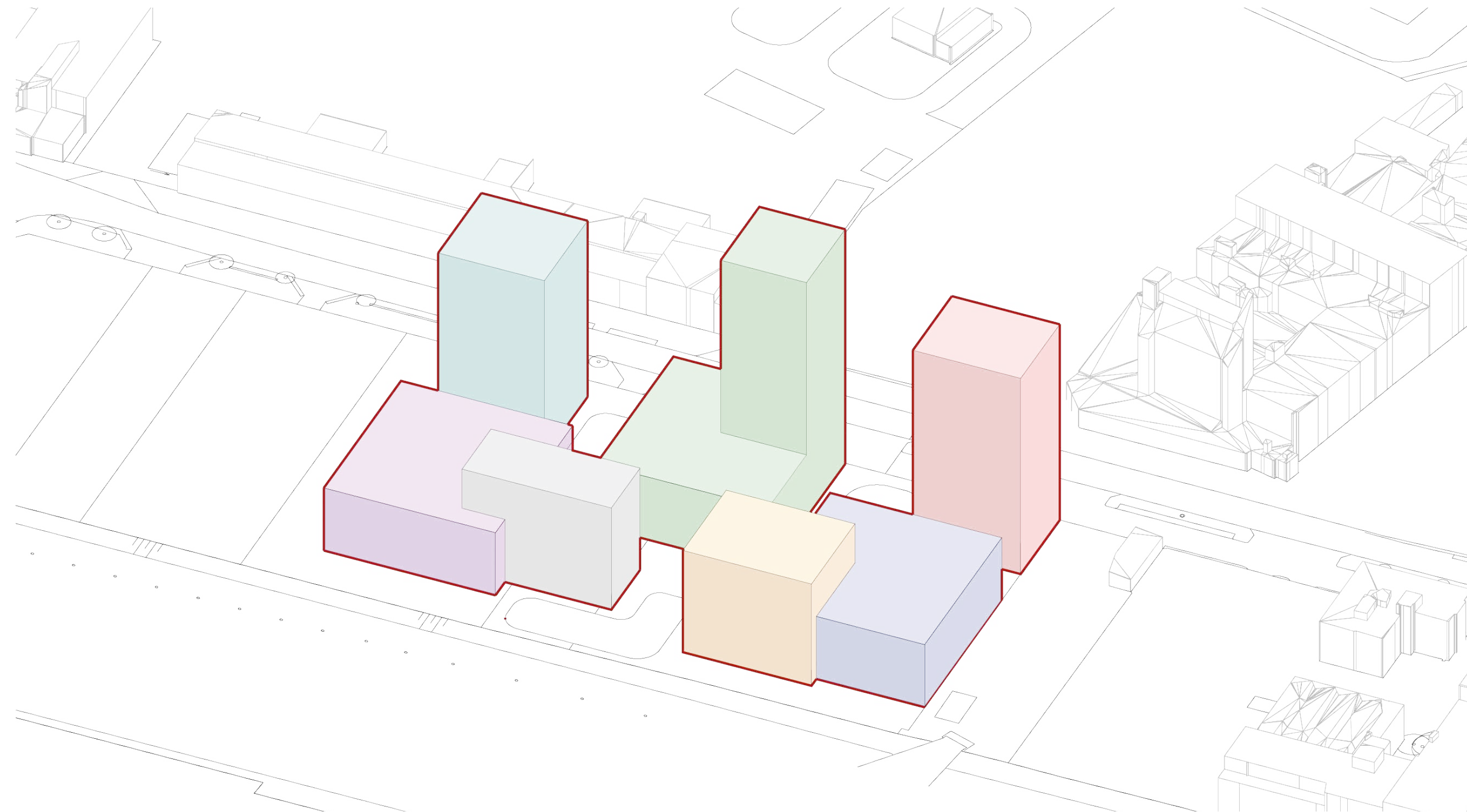


Public route





**Research - urban mix**  
Translation to design

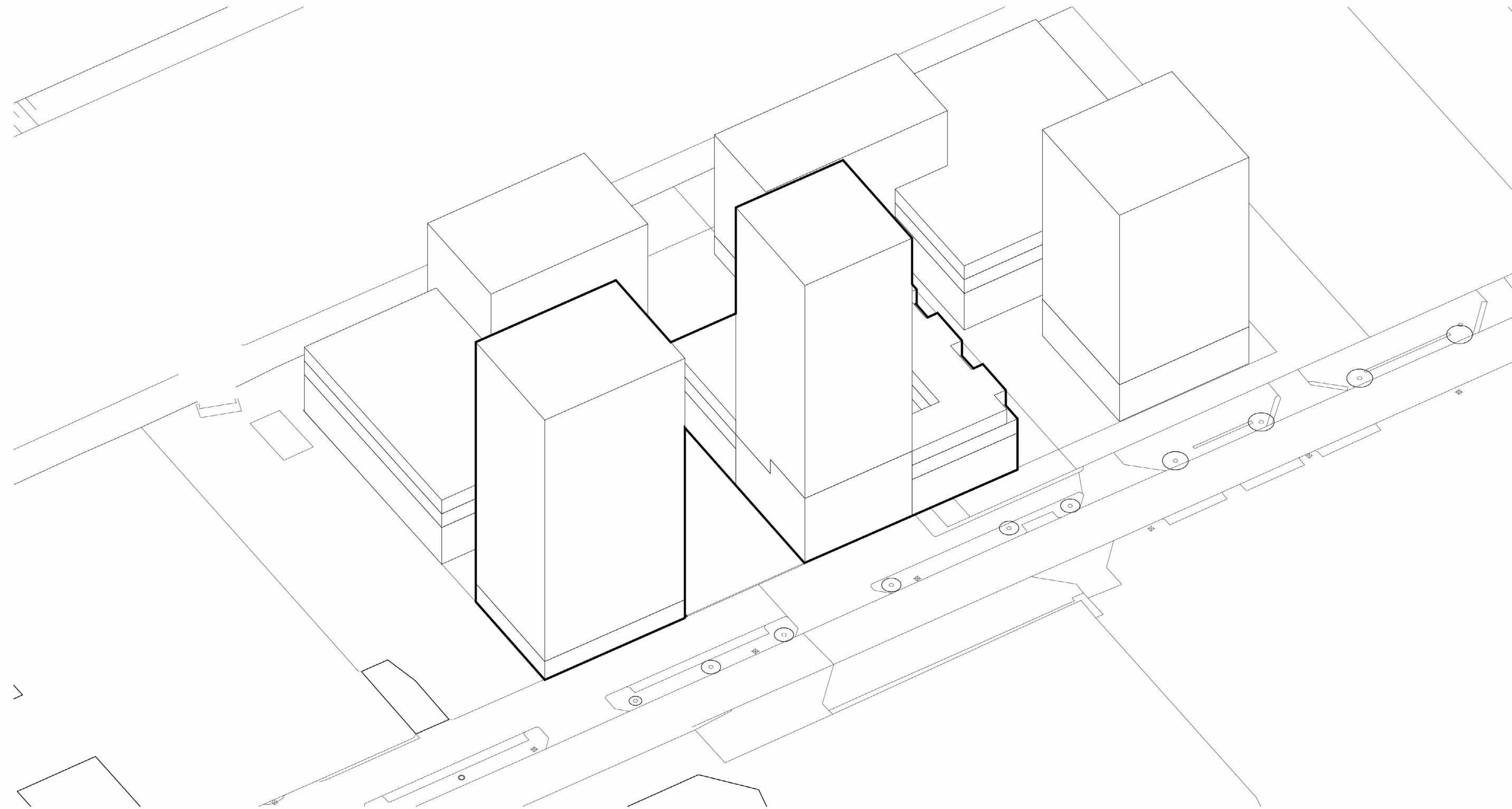


Part 4

**Design**



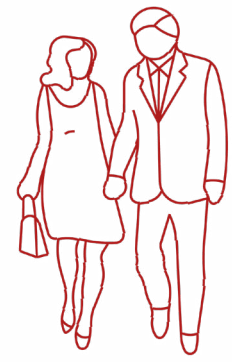
**Research**  
Part of masterplan



# Research

## User groups

Lower income households



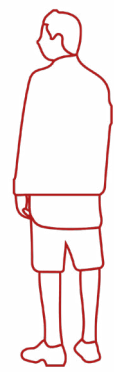
Lonely elderly



Single parent family

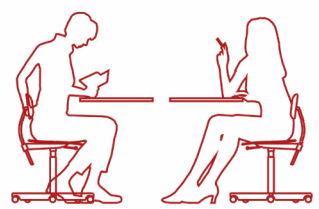


Individual dwellers



Variety of households

Work at home



Families



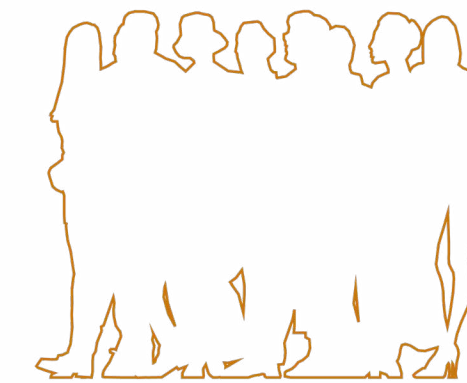
Starters



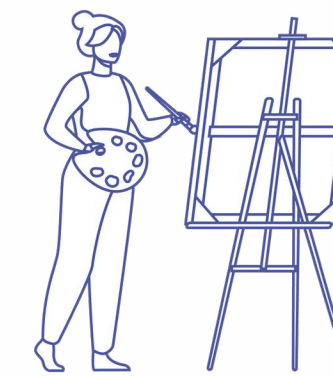
Retired couples



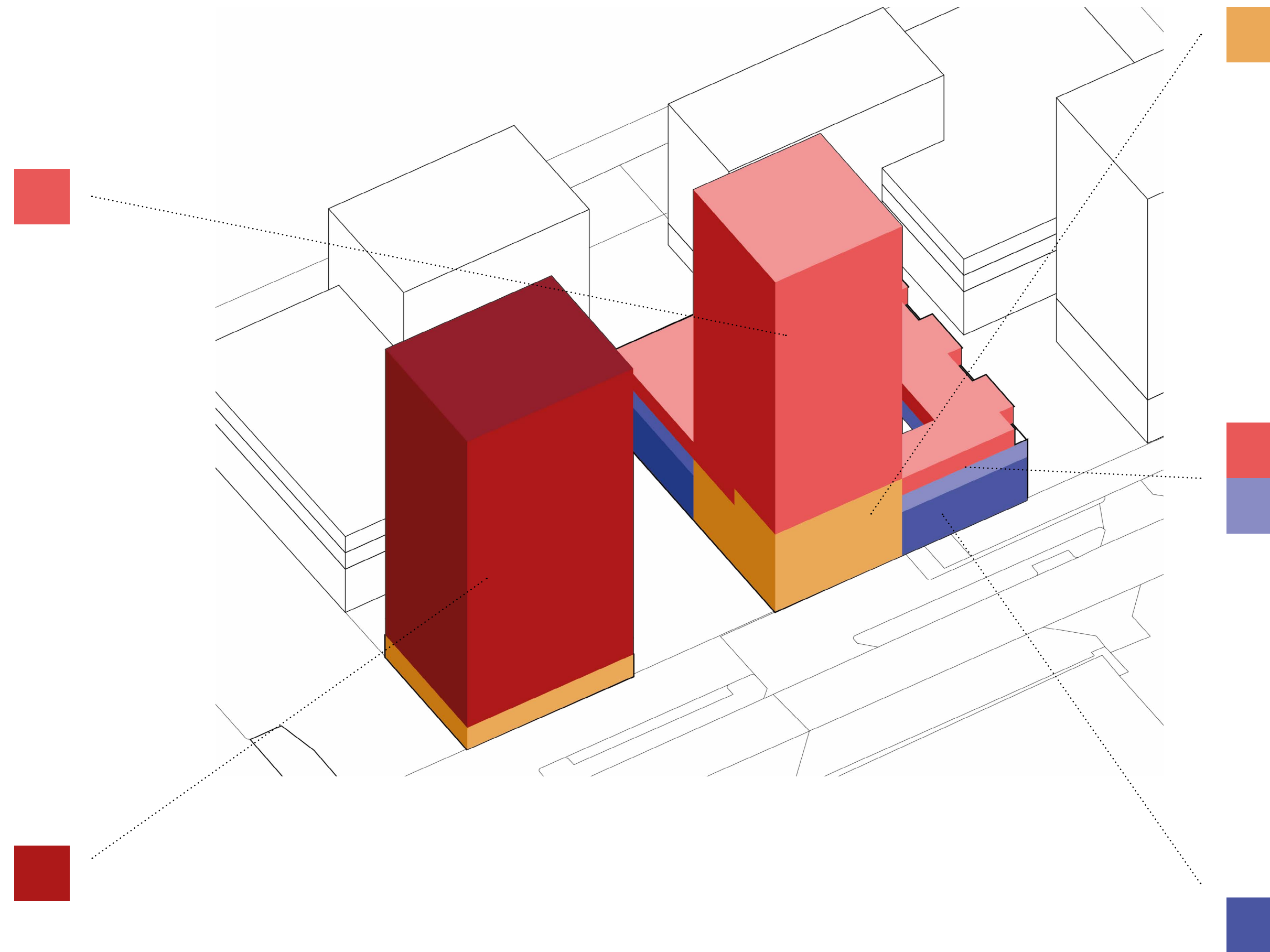
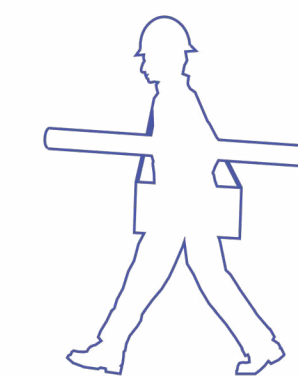
Neighbourhood



Makers

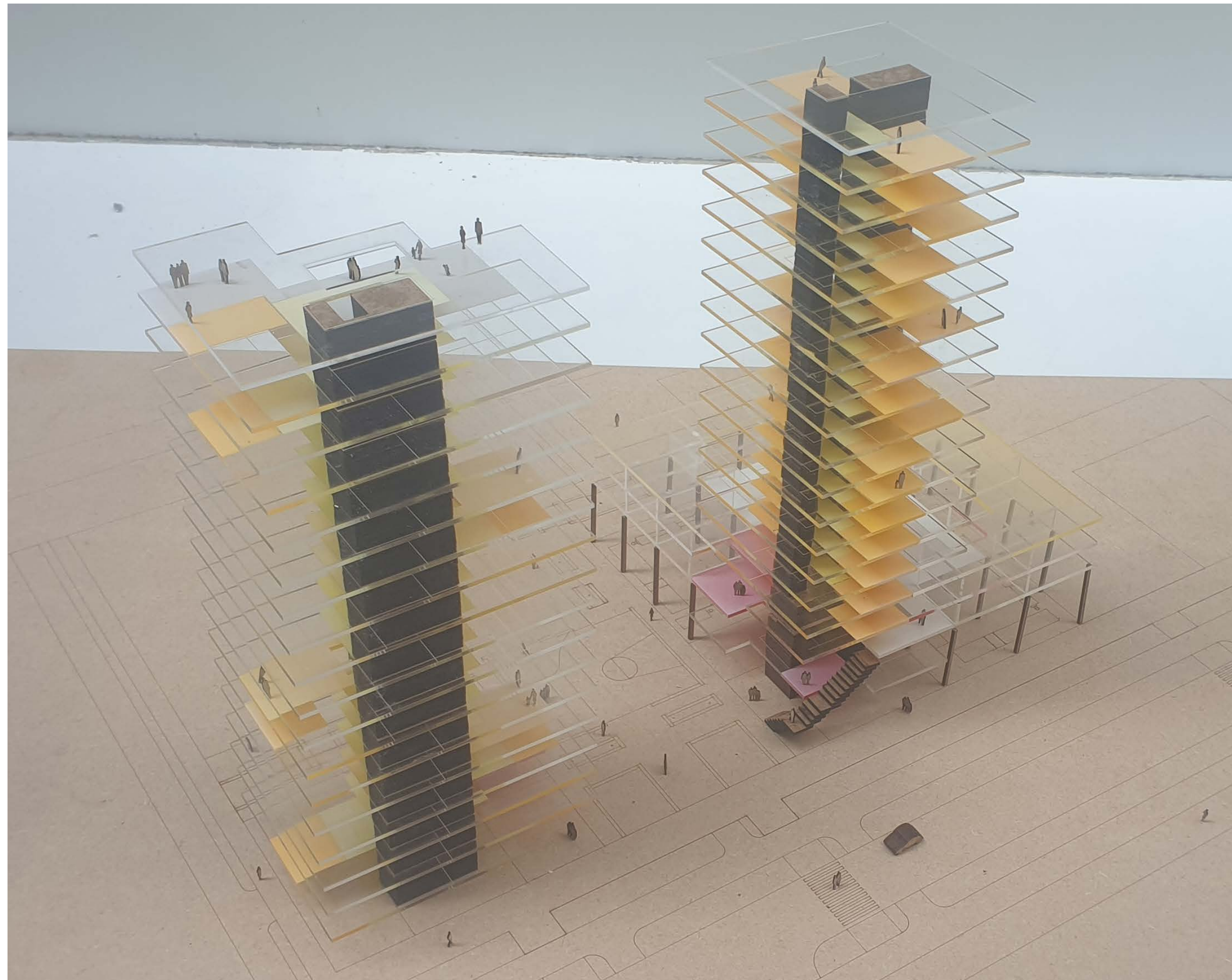


Production worker

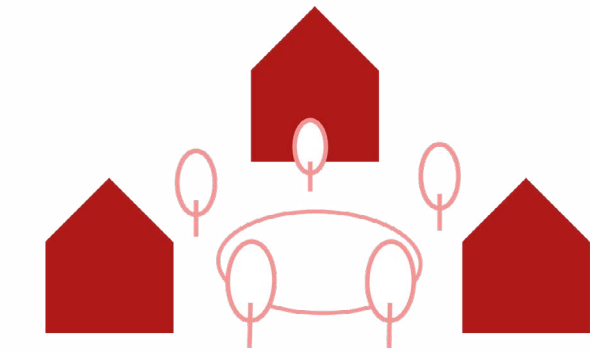




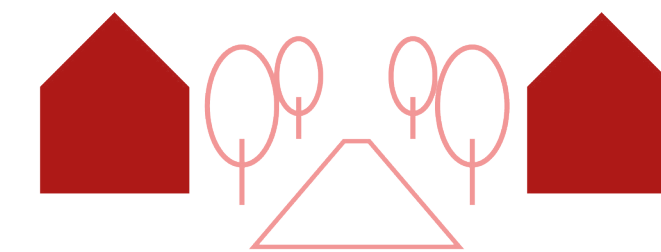
# Design Concept



Square



Street



Public facilities





# Design

## Ground level to courtyard

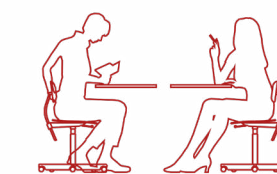


### Neighbourhood



### Variety of households

Work at home



Families



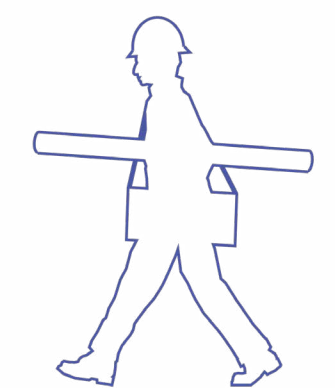
Starters



Retired couples



### Production worker





# Design

## Ground floor



- street
- square
- Facility























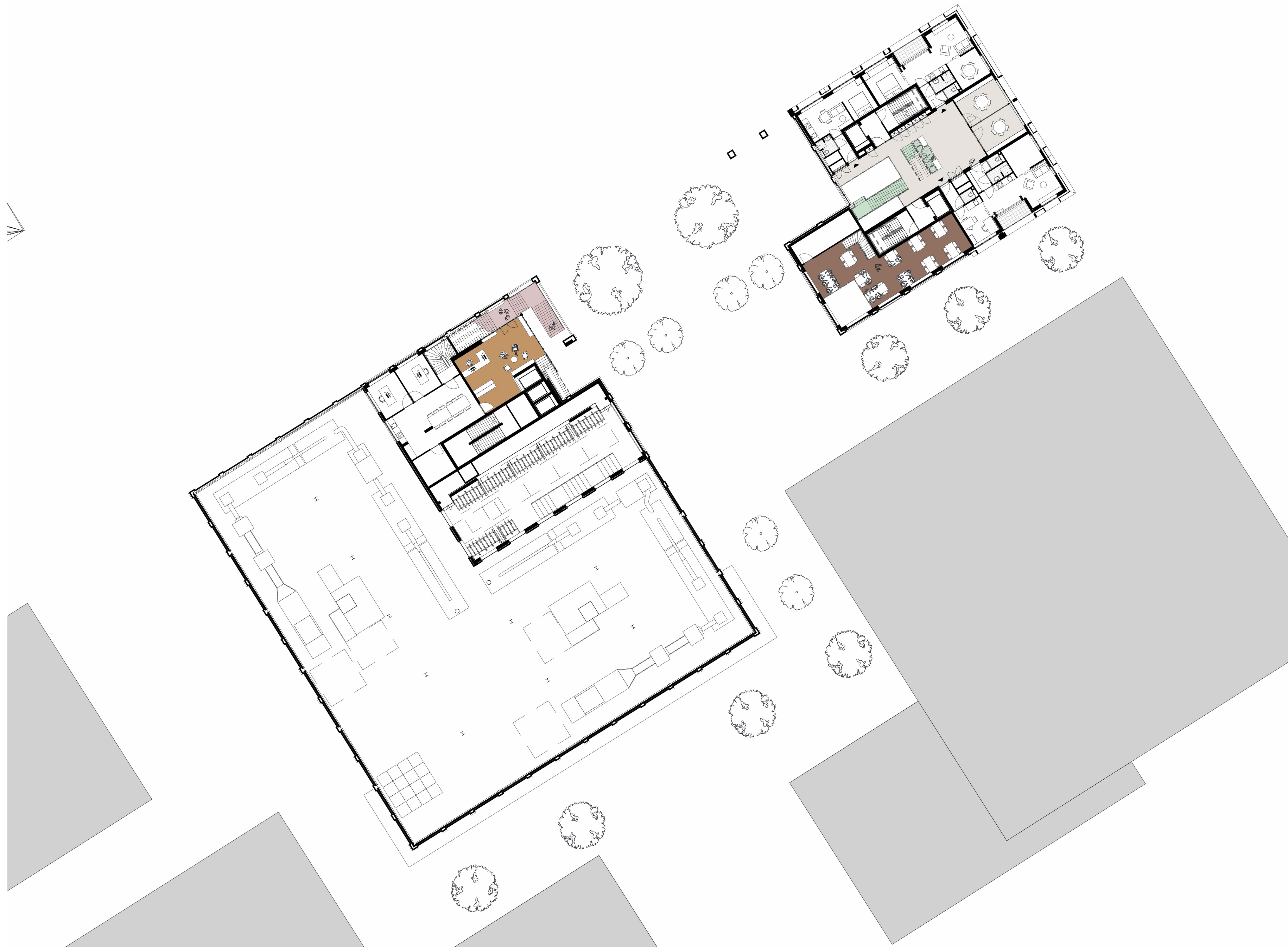




Design  
First floor



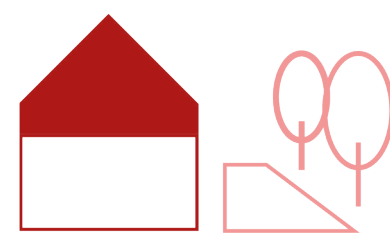








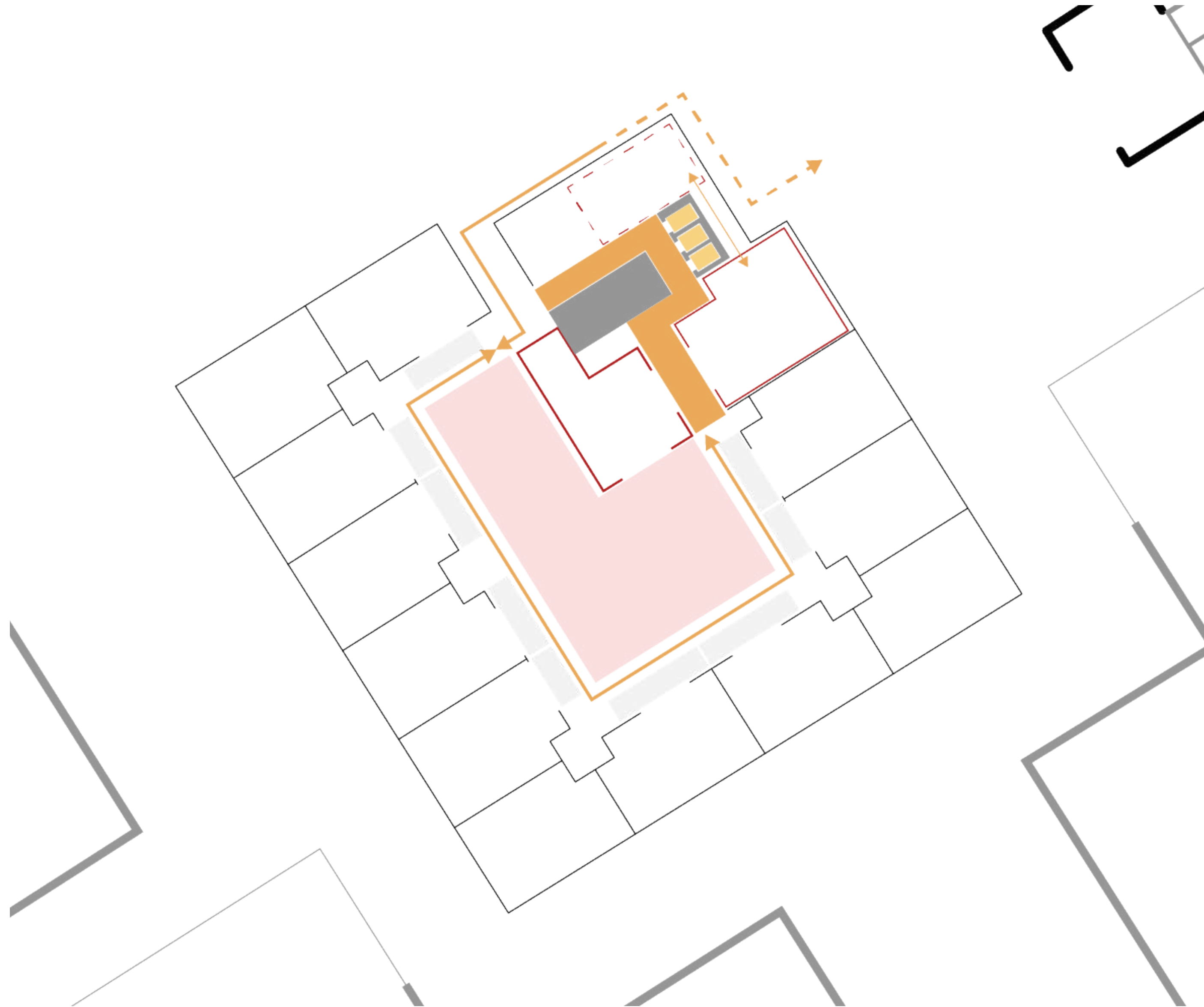
Public facilities





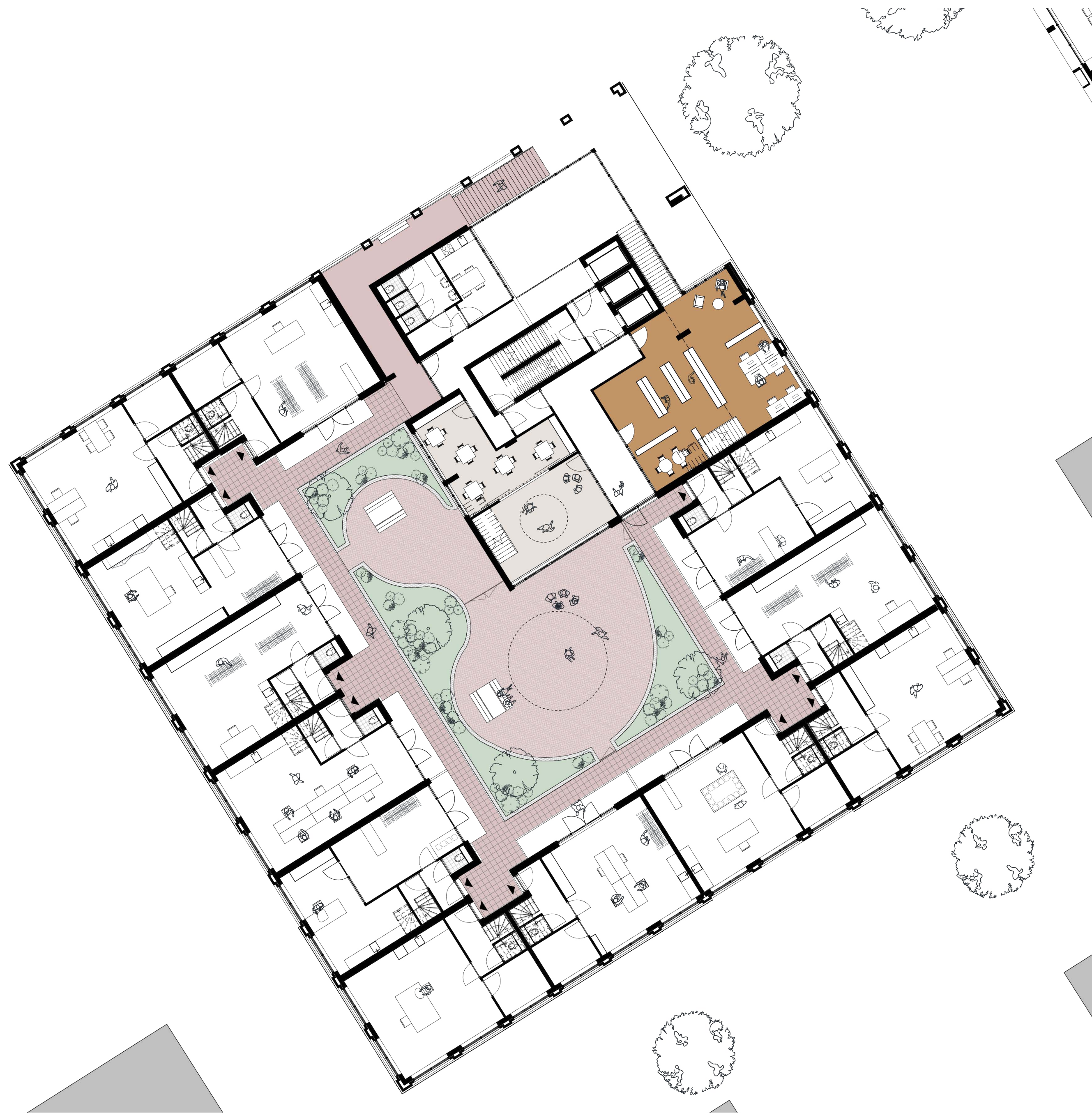
# Design

## Second Floor

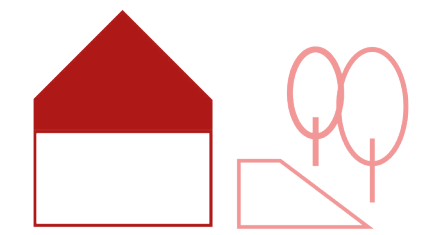


- street
- facility
- square

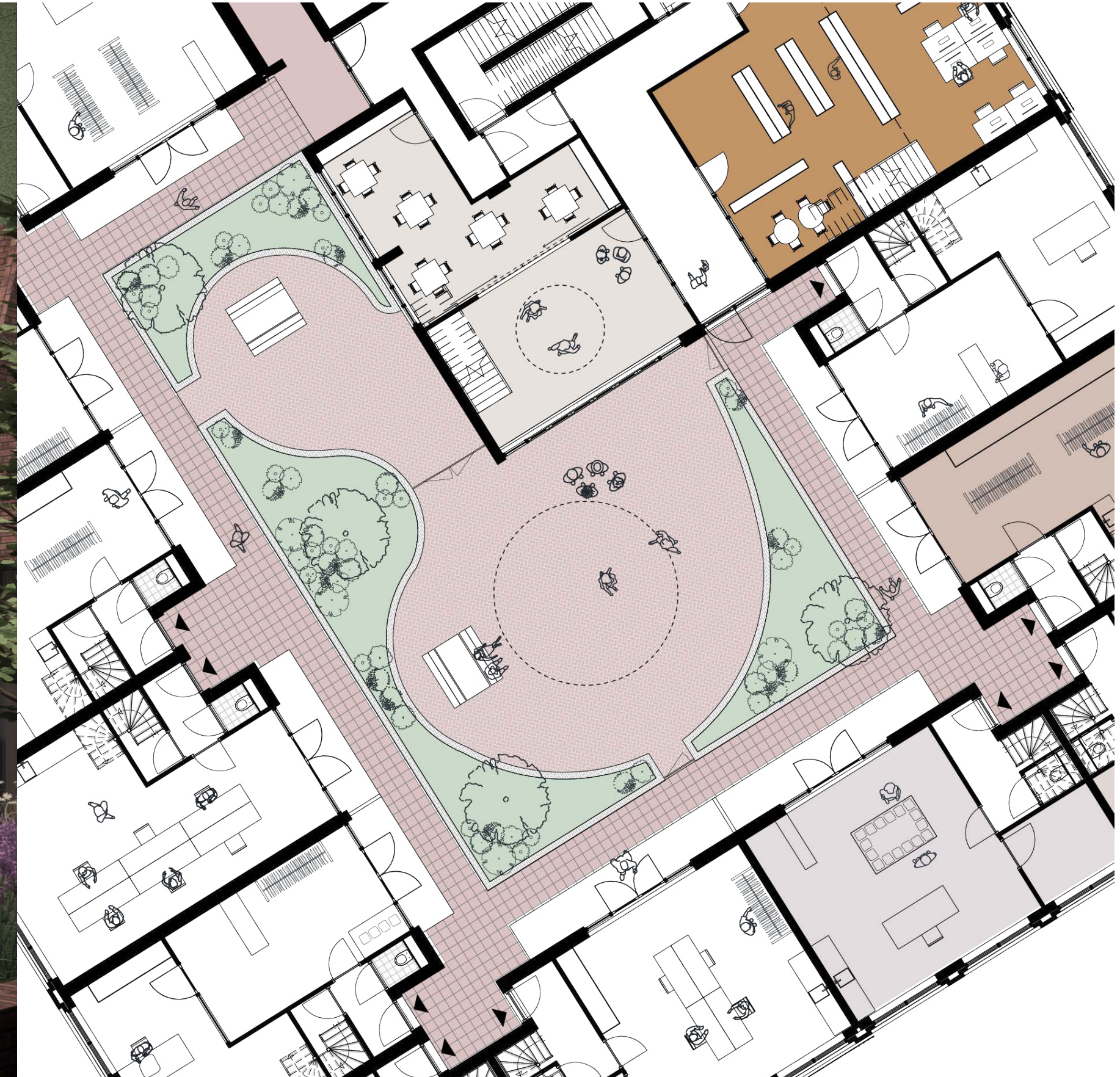




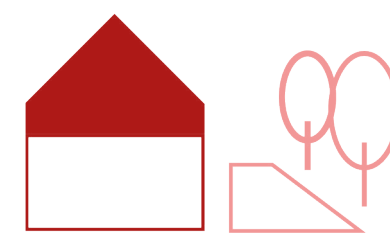
Public facilities







Public facilities





Design  
Thrid floor





# Design

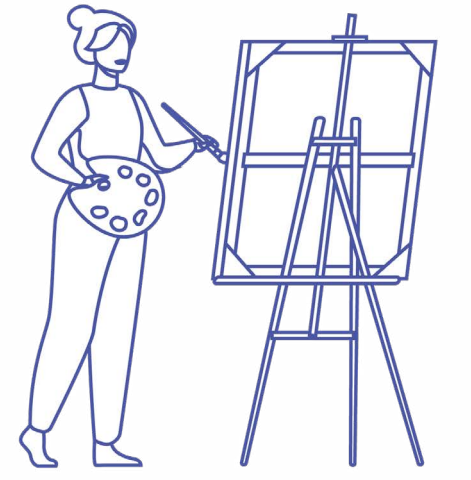
## Work - live dwellings

Makers

Second floor



Third floor





# Design

## Stacked Collaborative Clusters

### Households who benefit form close social relations

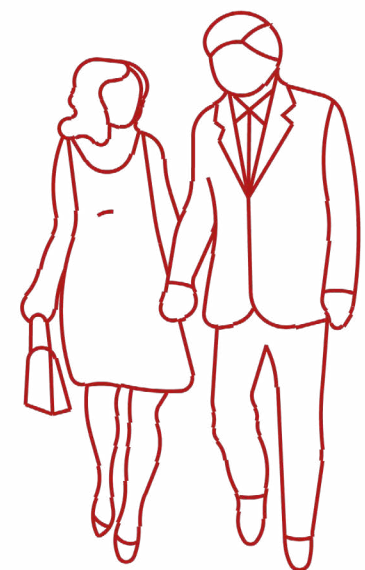
Single parent family



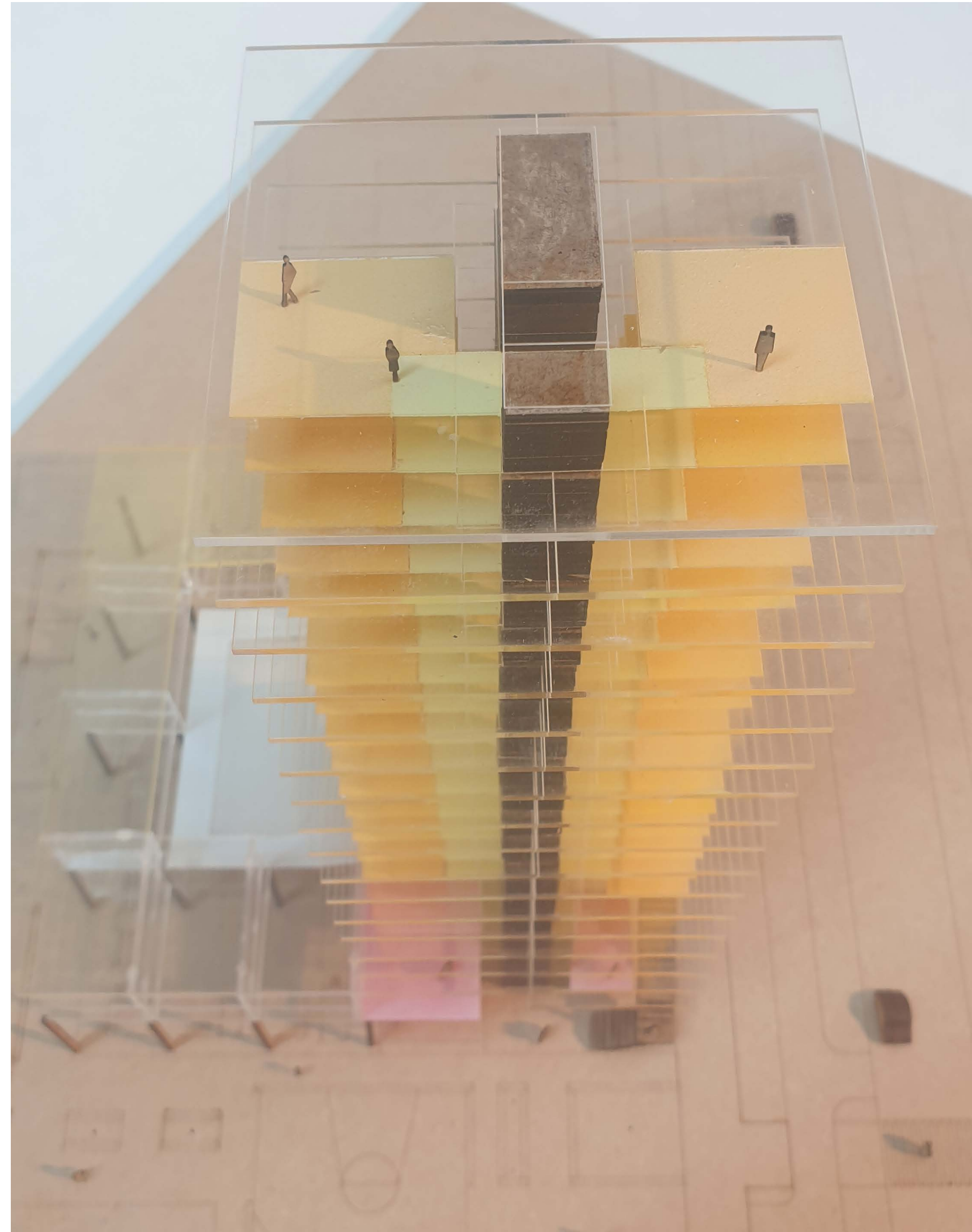
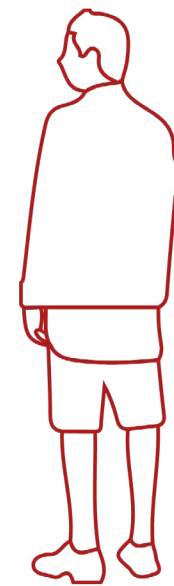
Lonely elderly



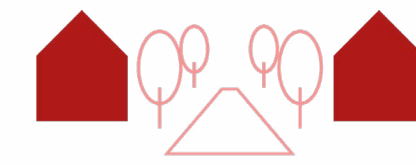
Lower income households



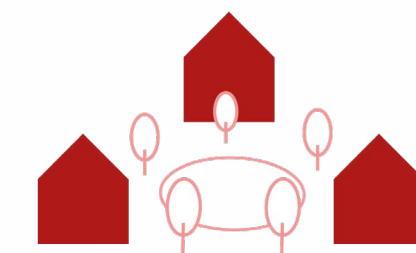
Individual dwellers



Street






Square

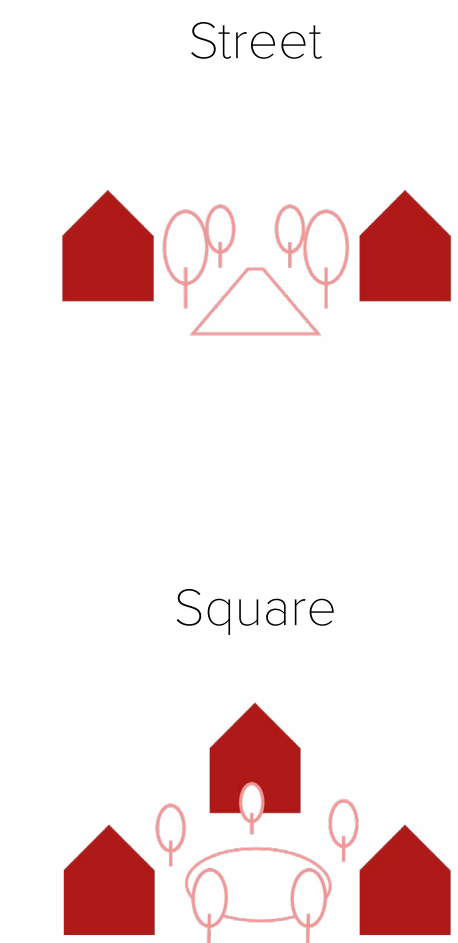
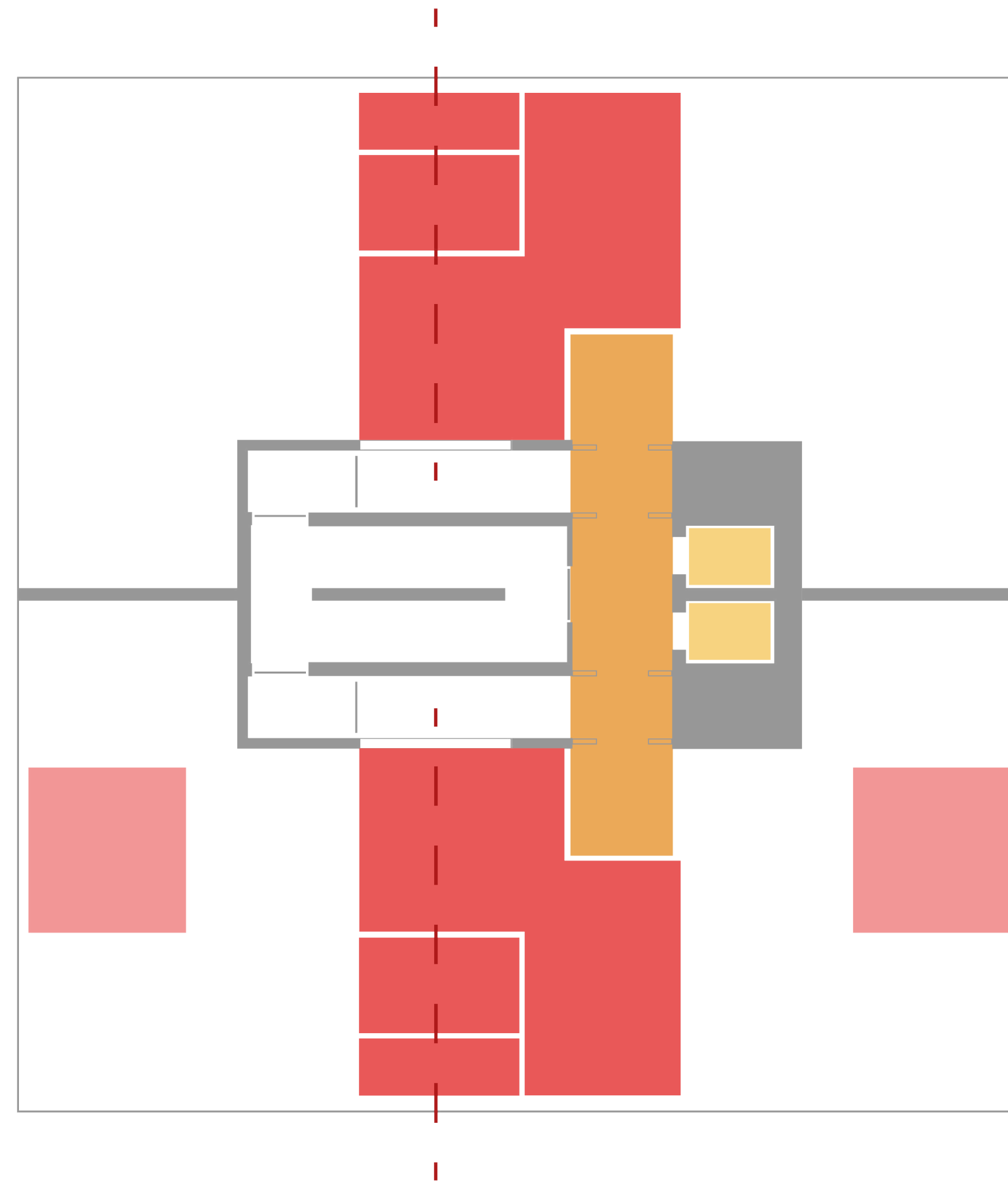




# Design

## Typical floor diagram

-  'Street' - connection between clusters
-  'Square' - shared kitchen and living area
-  'Square' - shared living room





43 m<sup>2</sup> shared



43 m<sup>2</sup> shared



26 m<sup>2</sup> dwelling  
1-2 persons

26 m<sup>2</sup> dwelling  
1-2 persons

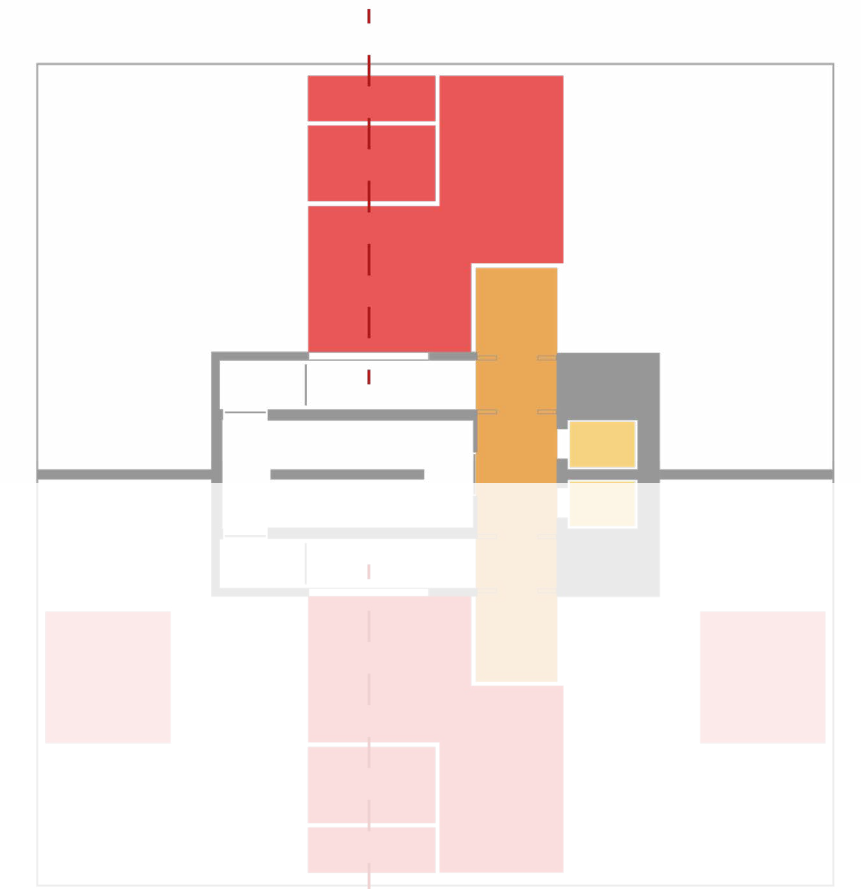
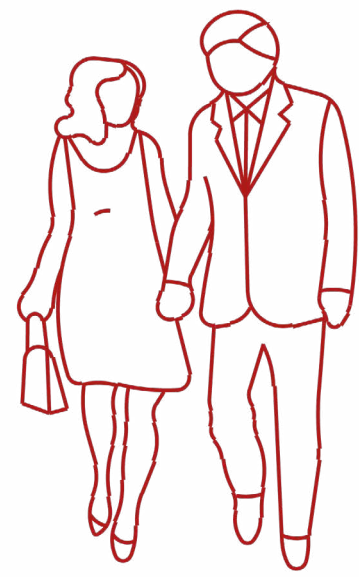
26 m<sup>2</sup> dwelling  
1-2 persons

26 m<sup>2</sup> dwelling  
1-2 persons



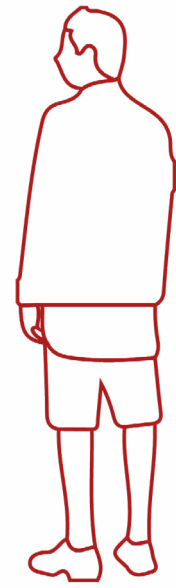
Lower income households

Lonely elderly

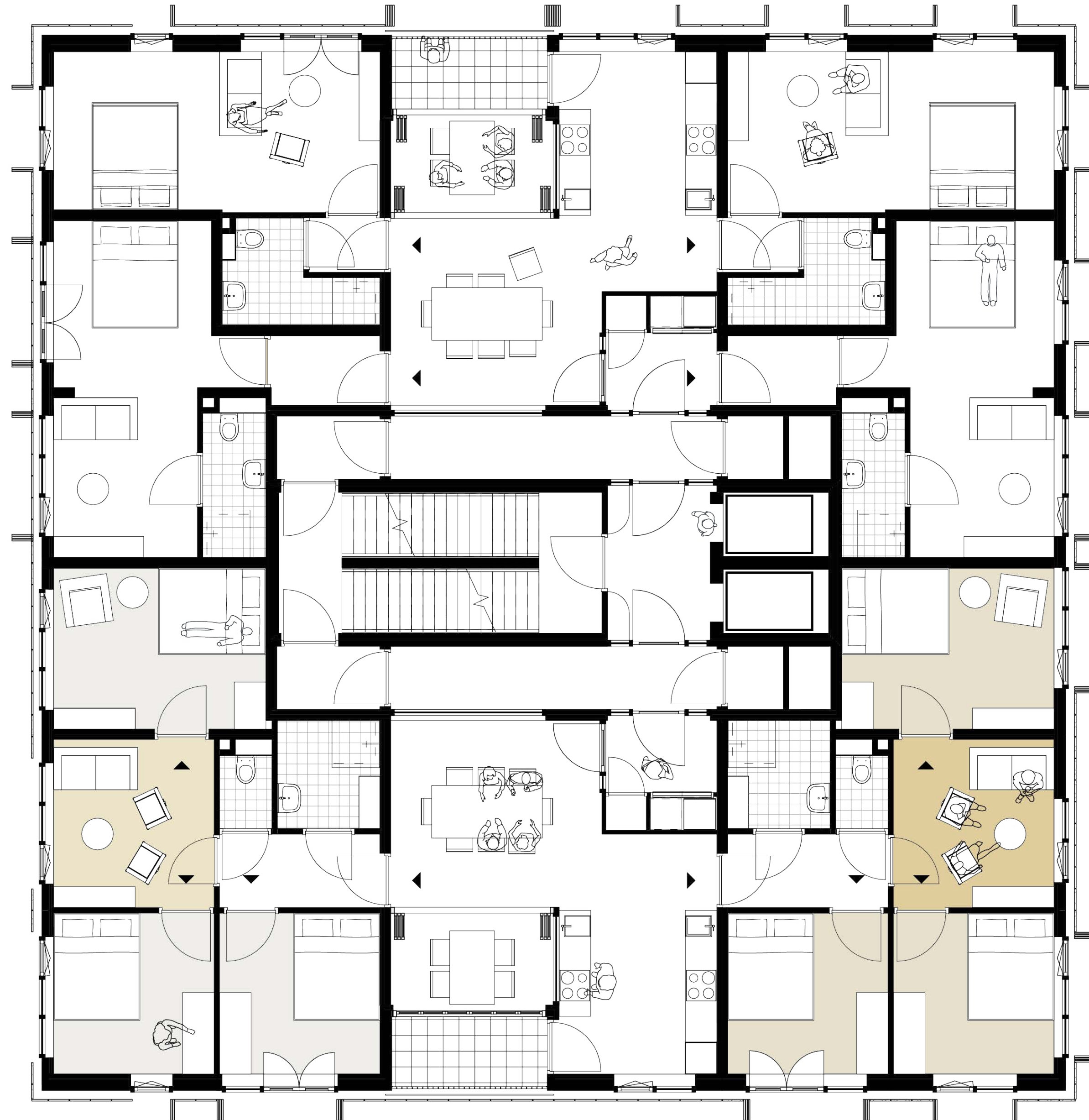




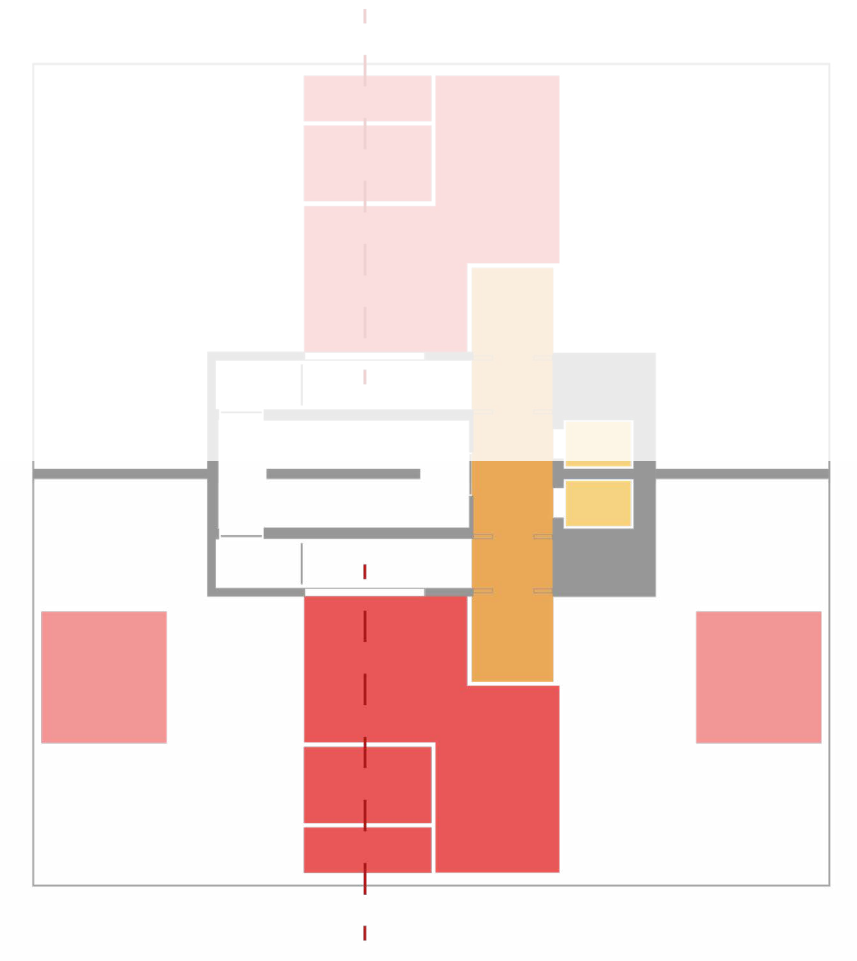
Individual dwellers



53 m<sup>2</sup> dwelling  
3 persons



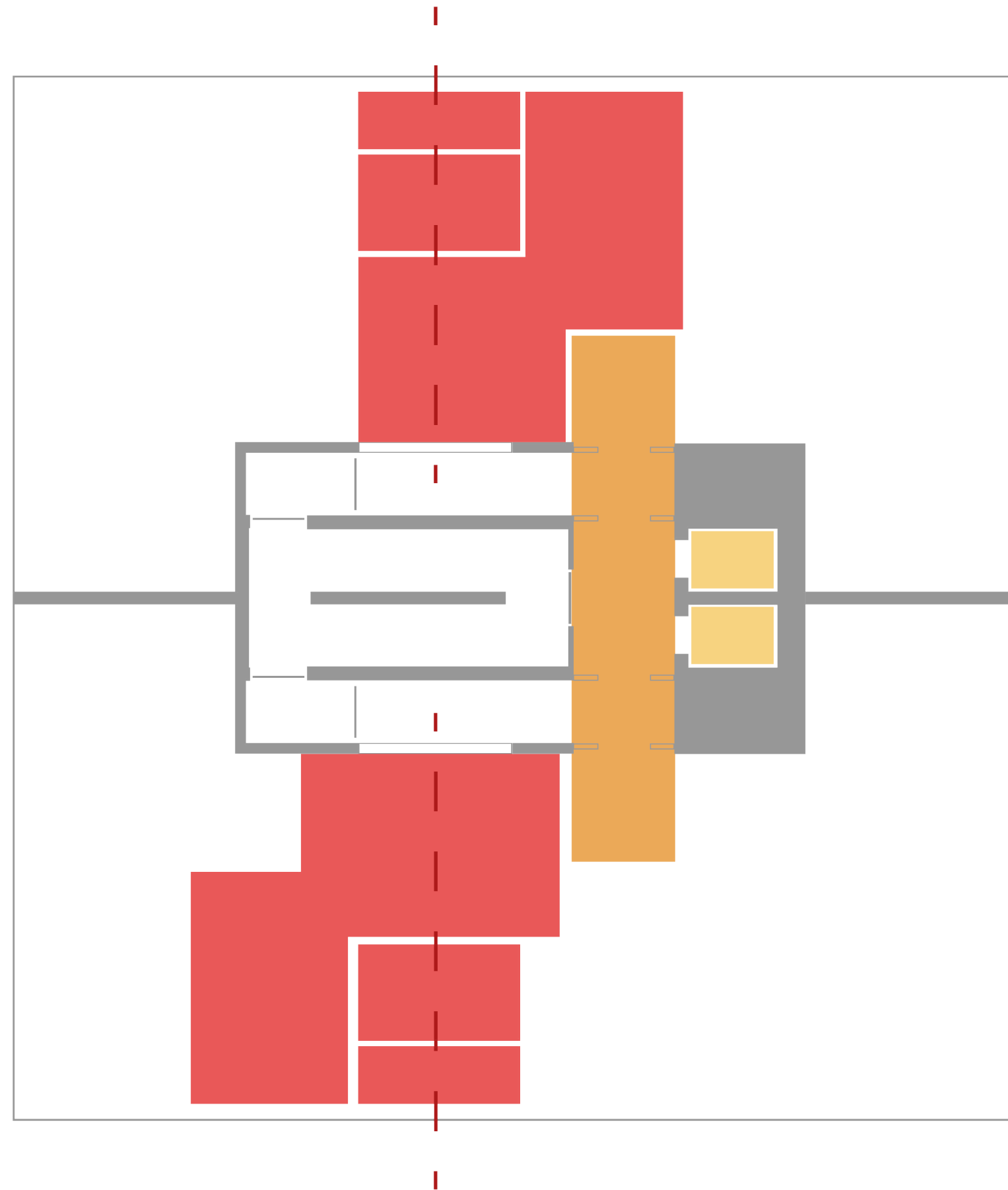
53 m<sup>2</sup> dwelling  
3 persons



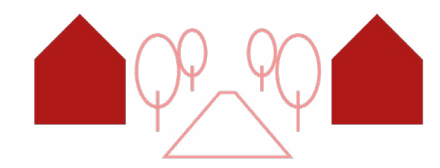


# Design Footprint

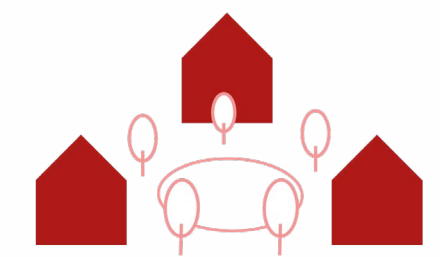
- 'Street' - connection between clusters
- 'Square' - shared kitchen and living area



Street



Square





43 m<sup>2</sup> shared



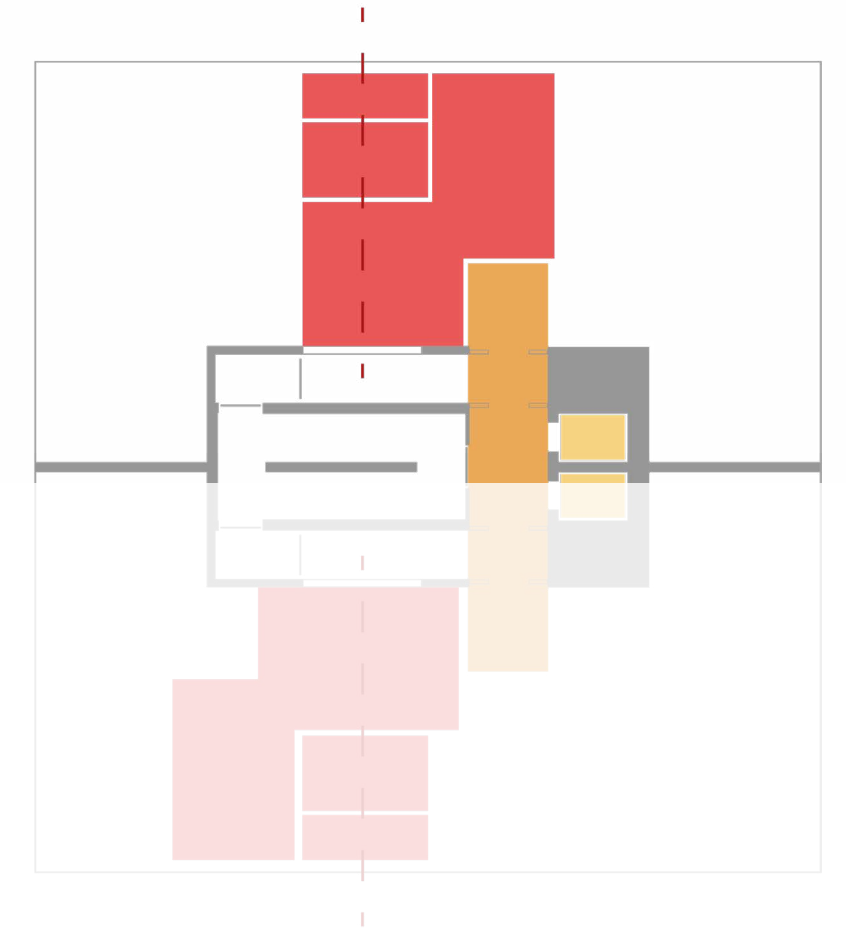
45 m<sup>2</sup> shared



53 m<sup>2</sup> dwelling  
3-4 persons



53 m<sup>2</sup> dwelling  
3-4 persons



Single parent family





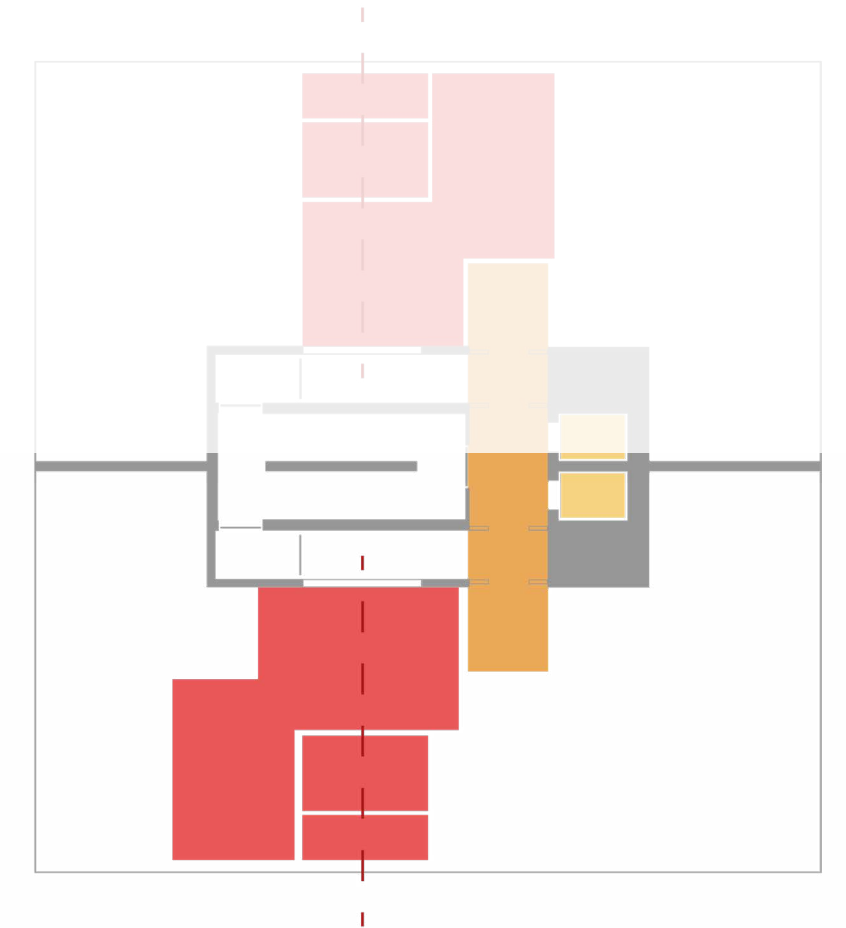
Single parent family



36 m<sup>2</sup> dwelling  
2-3 persons



66 m<sup>2</sup> dwelling  
4-5 persons







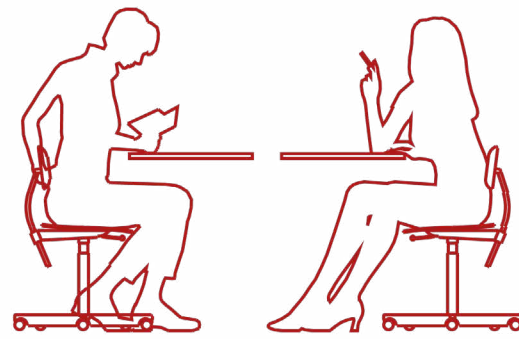


# Design

## Vertical neighbourhood

### Variety of households

Work at home



Families



Starters



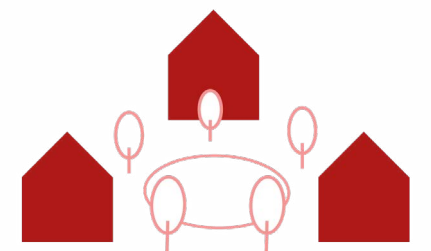
Retired couples



Street



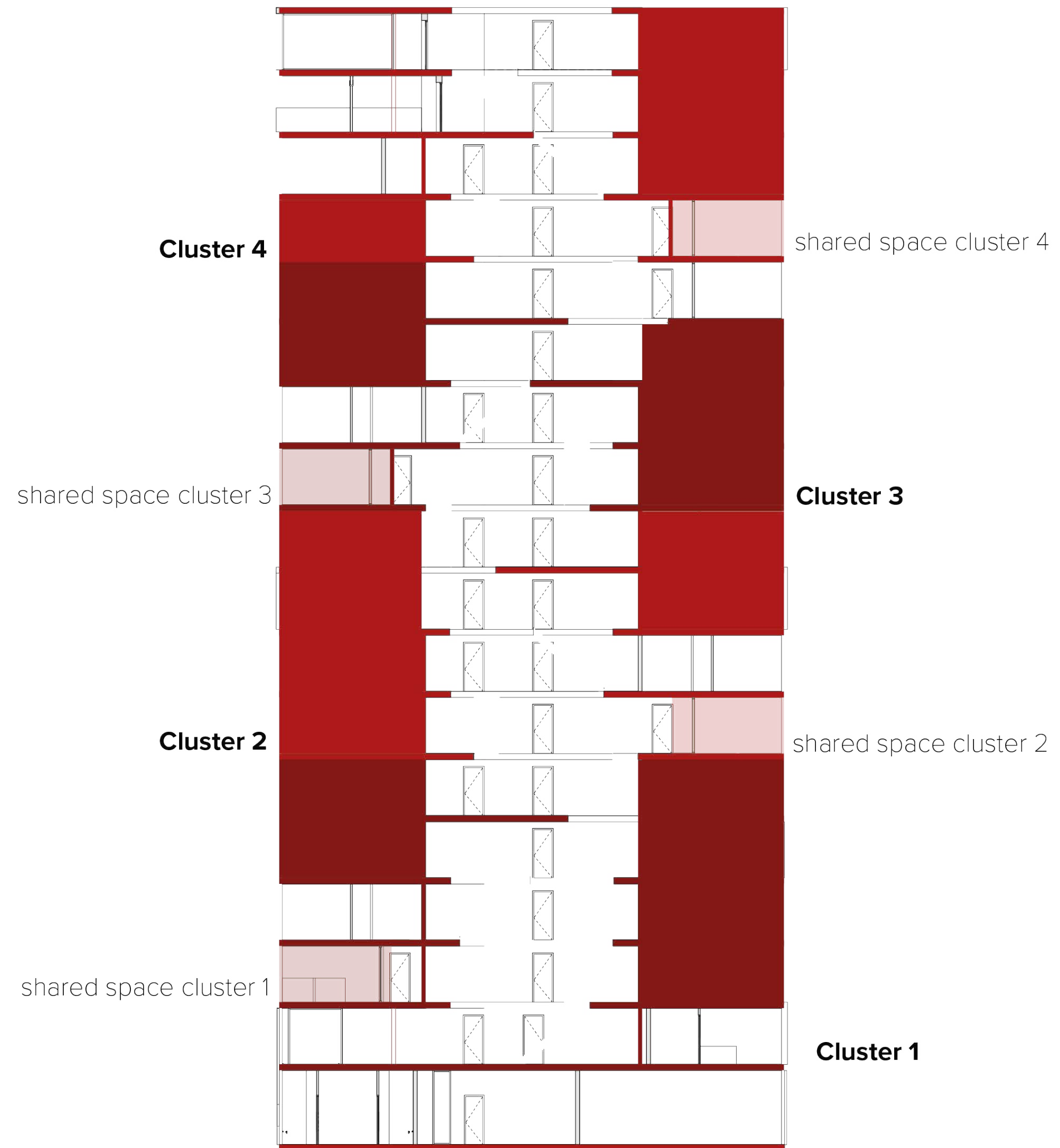
Square





# Design

## Vertical neighbourhood





# Design

## Vertical neighbourhood



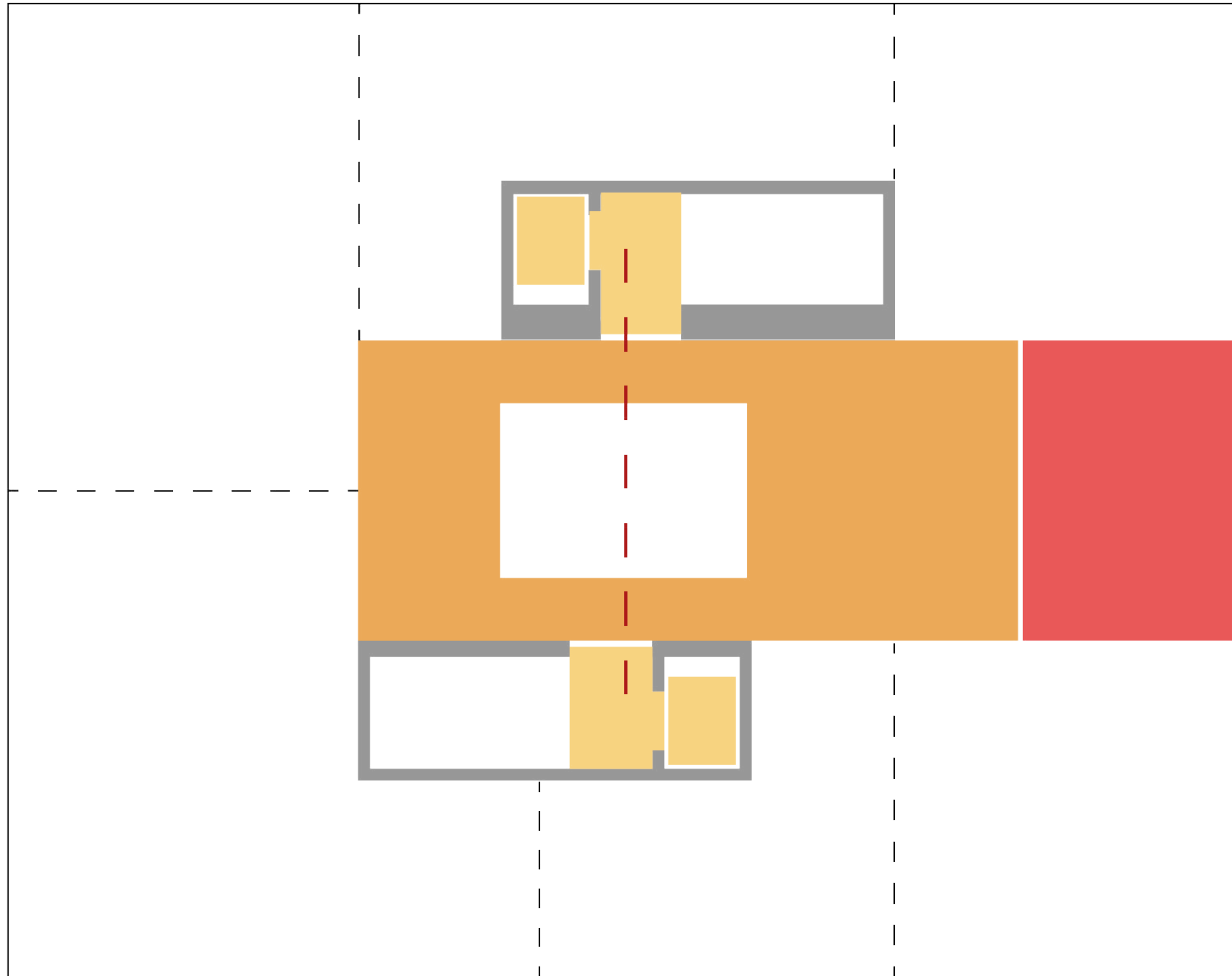


# Design

## Level with shared space

● 'Street' - open circulation system

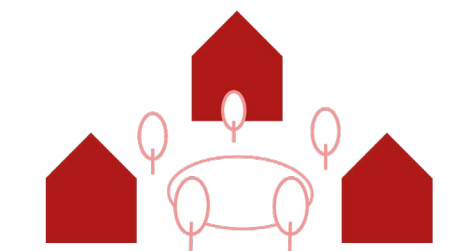
● 'Square' - shared space



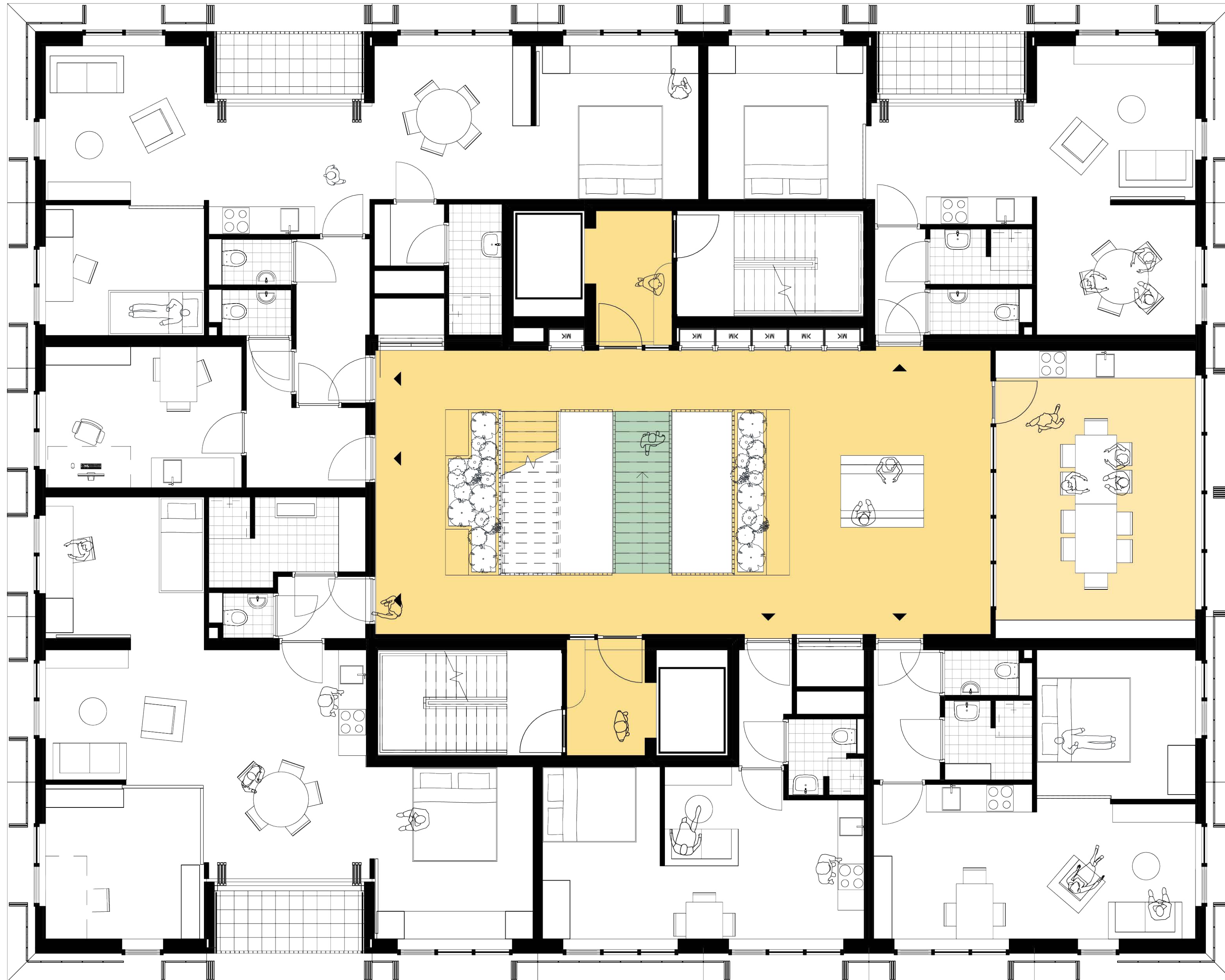
Street



Square









72 m<sup>2</sup> dwelling  
21 m<sup>2</sup> office  
3-4 persons

51 m<sup>2</sup> dwelling  
2-3 persons

76 m<sup>2</sup> dwelling  
3-4 persons

27 m<sup>2</sup> shared space

44 m<sup>2</sup> dwelling  
2 persons

31 m<sup>2</sup> dwelling  
1-2 persons  
88 / 135

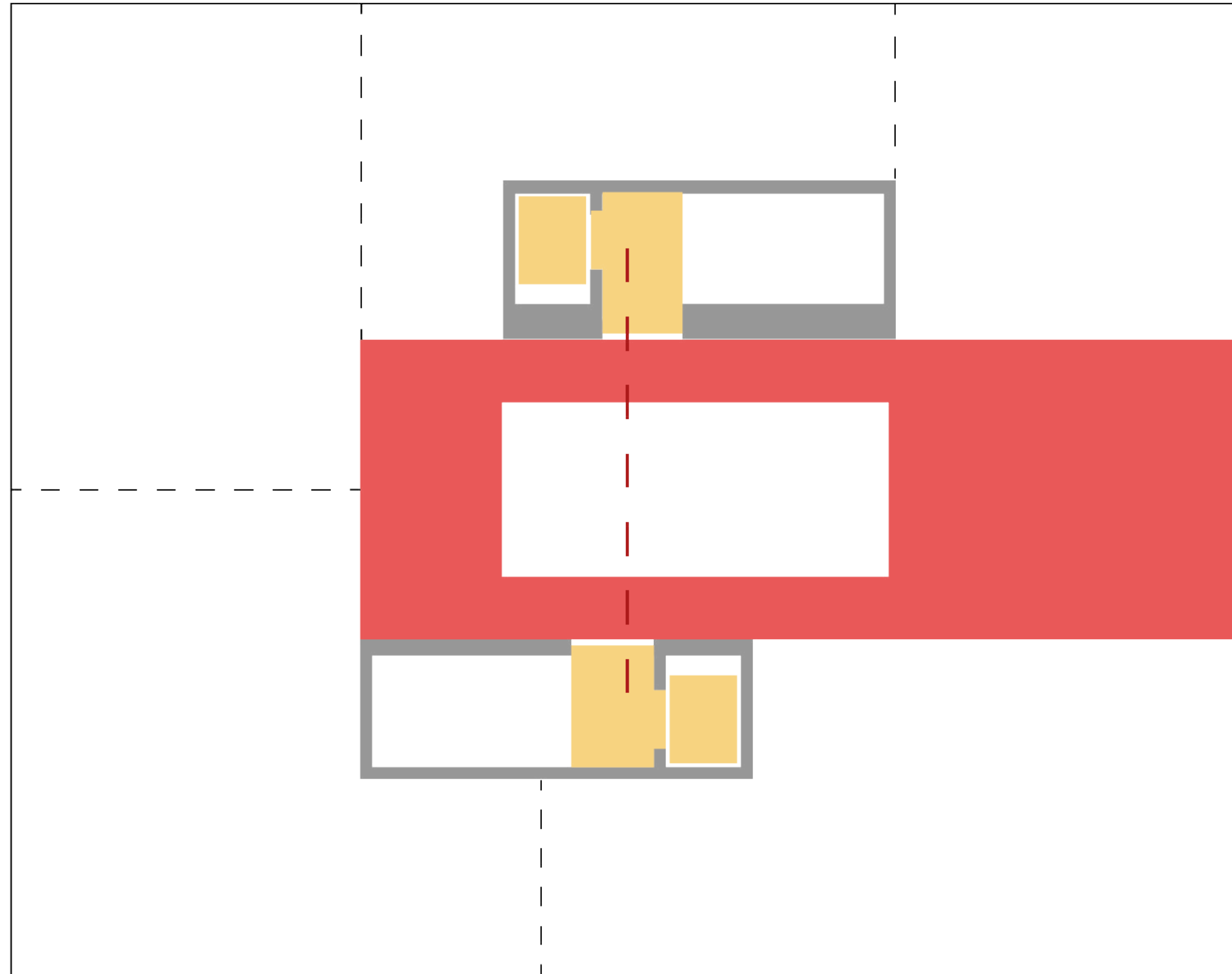




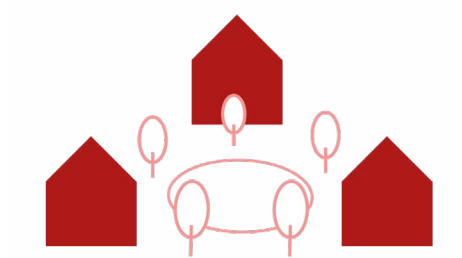
# Design

Level with shared laundry area

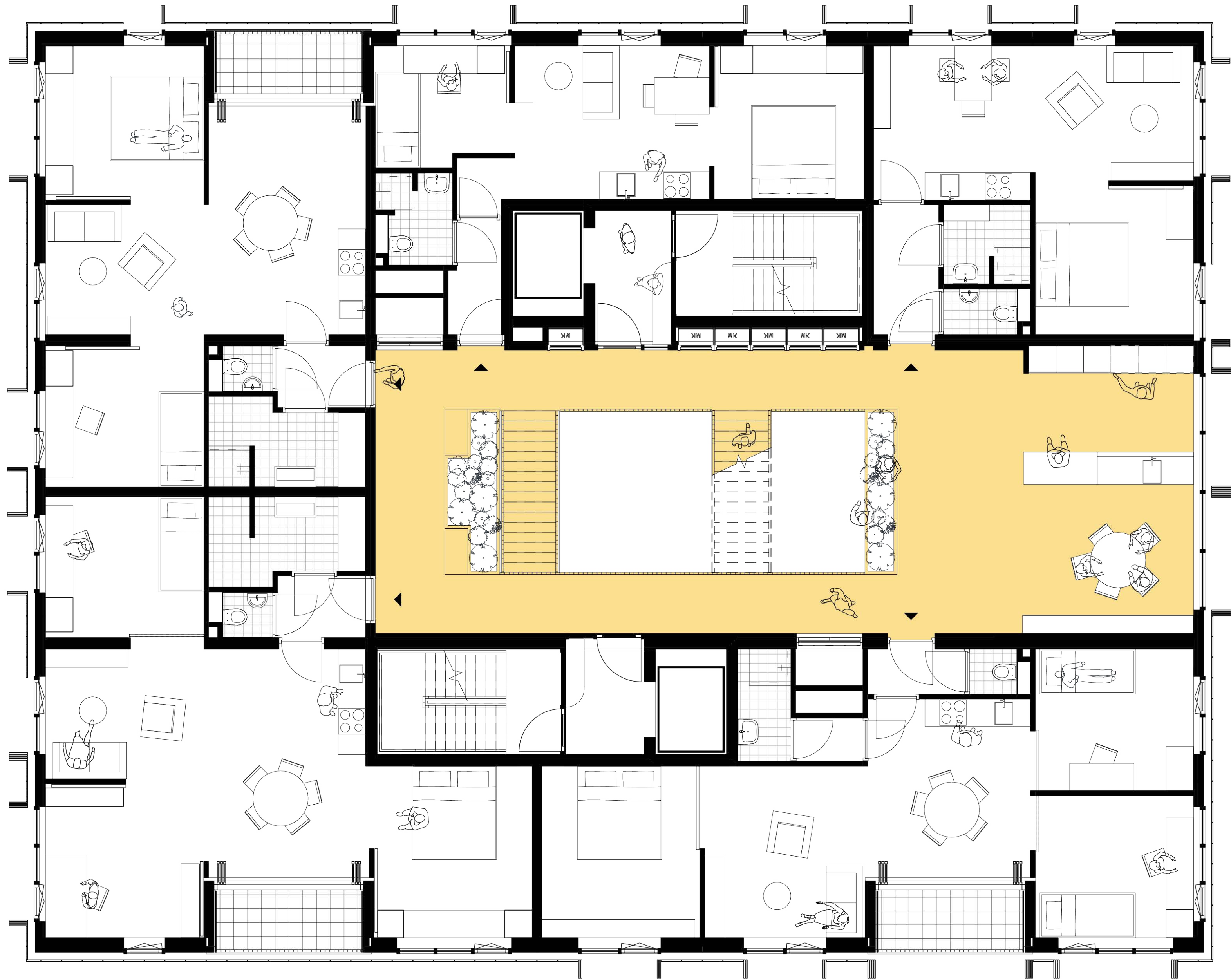
● 'Square' - central space



Square









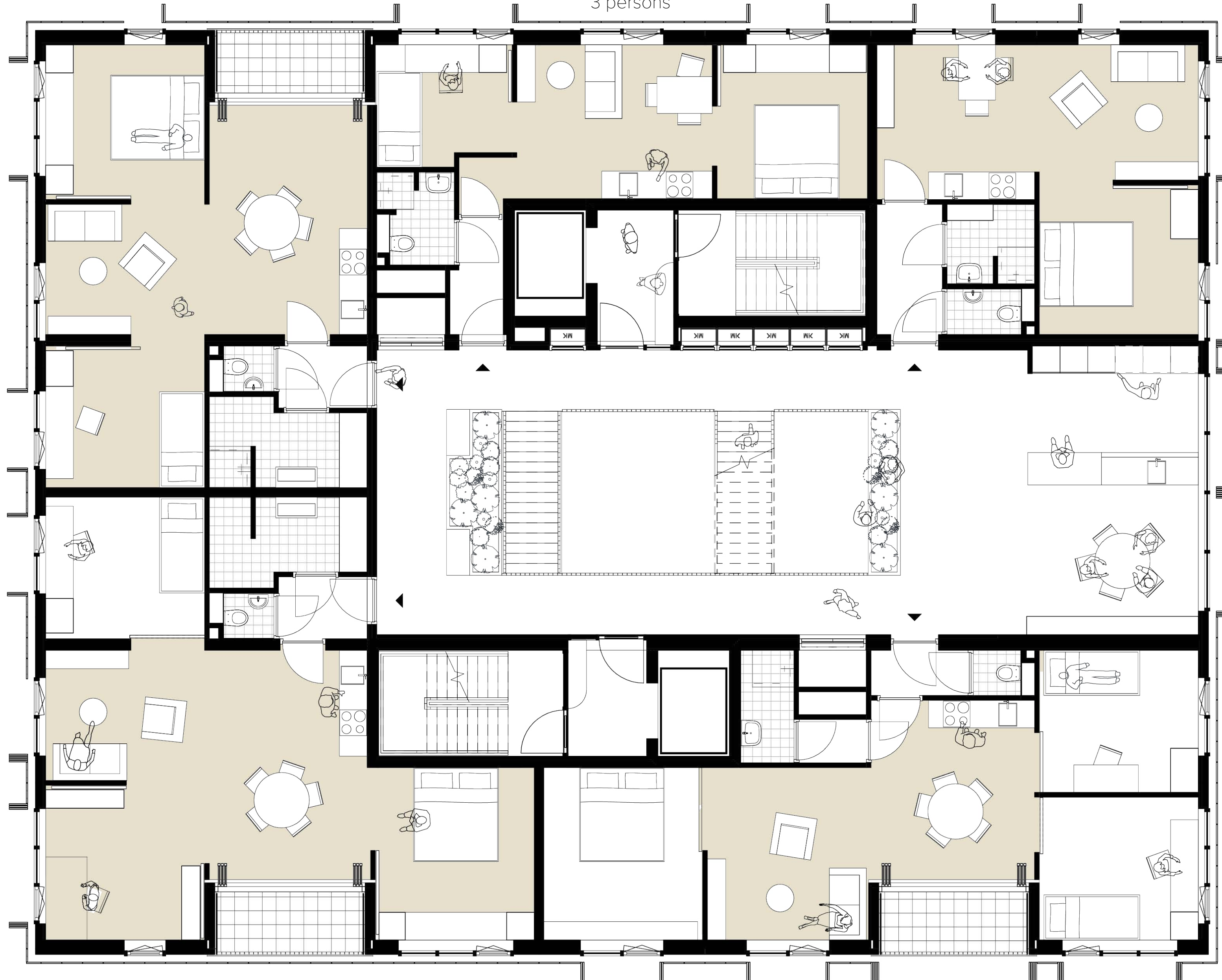
62,6 m<sup>2</sup> dwelling  
3-4 persons

42 m<sup>2</sup> dwelling  
3 persons

44 m<sup>2</sup> dwelling  
2 persons

76 m<sup>2</sup> dwelling  
4 persons


74 m<sup>2</sup> dwelling  
4 persons

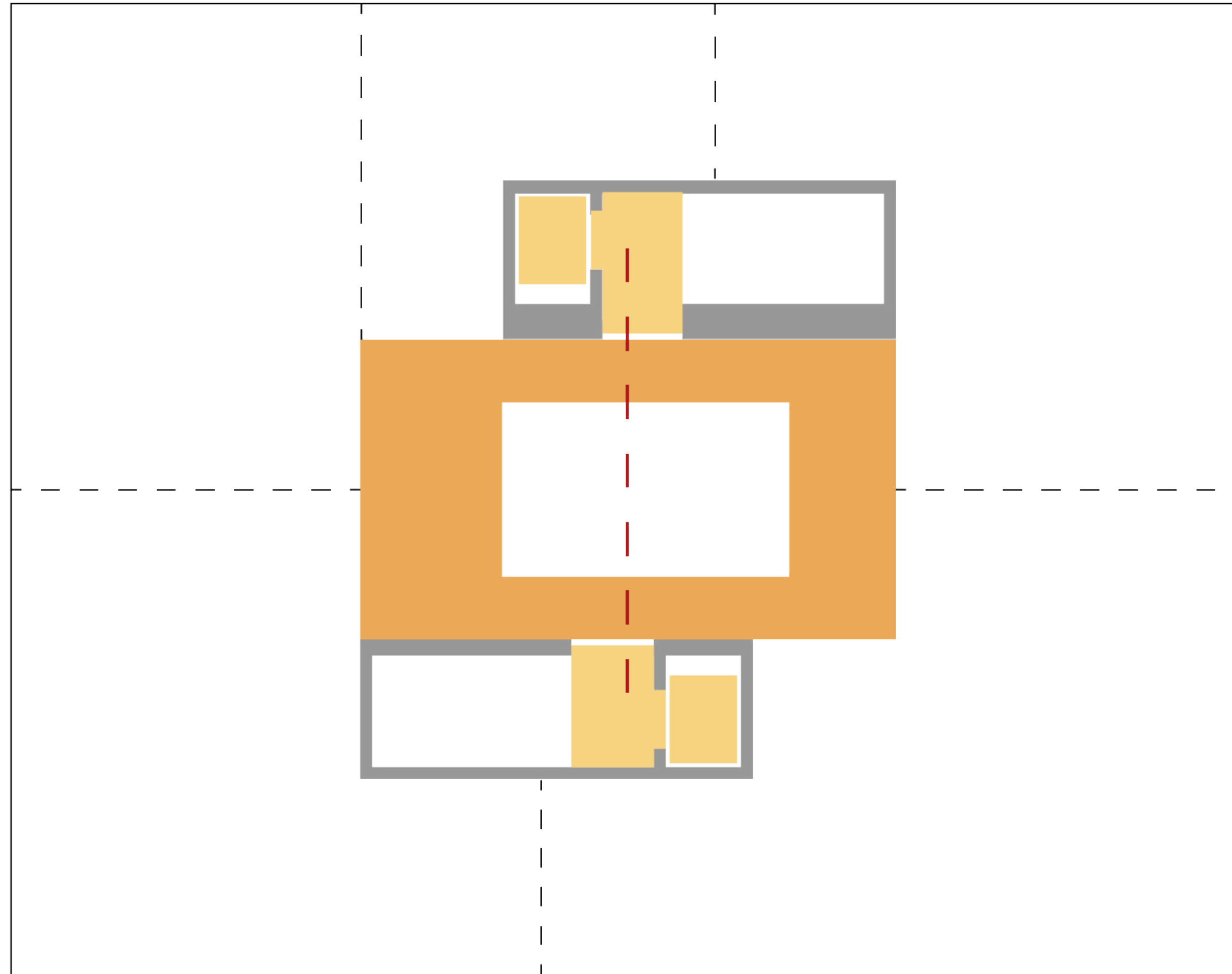




# Design

## Typical level

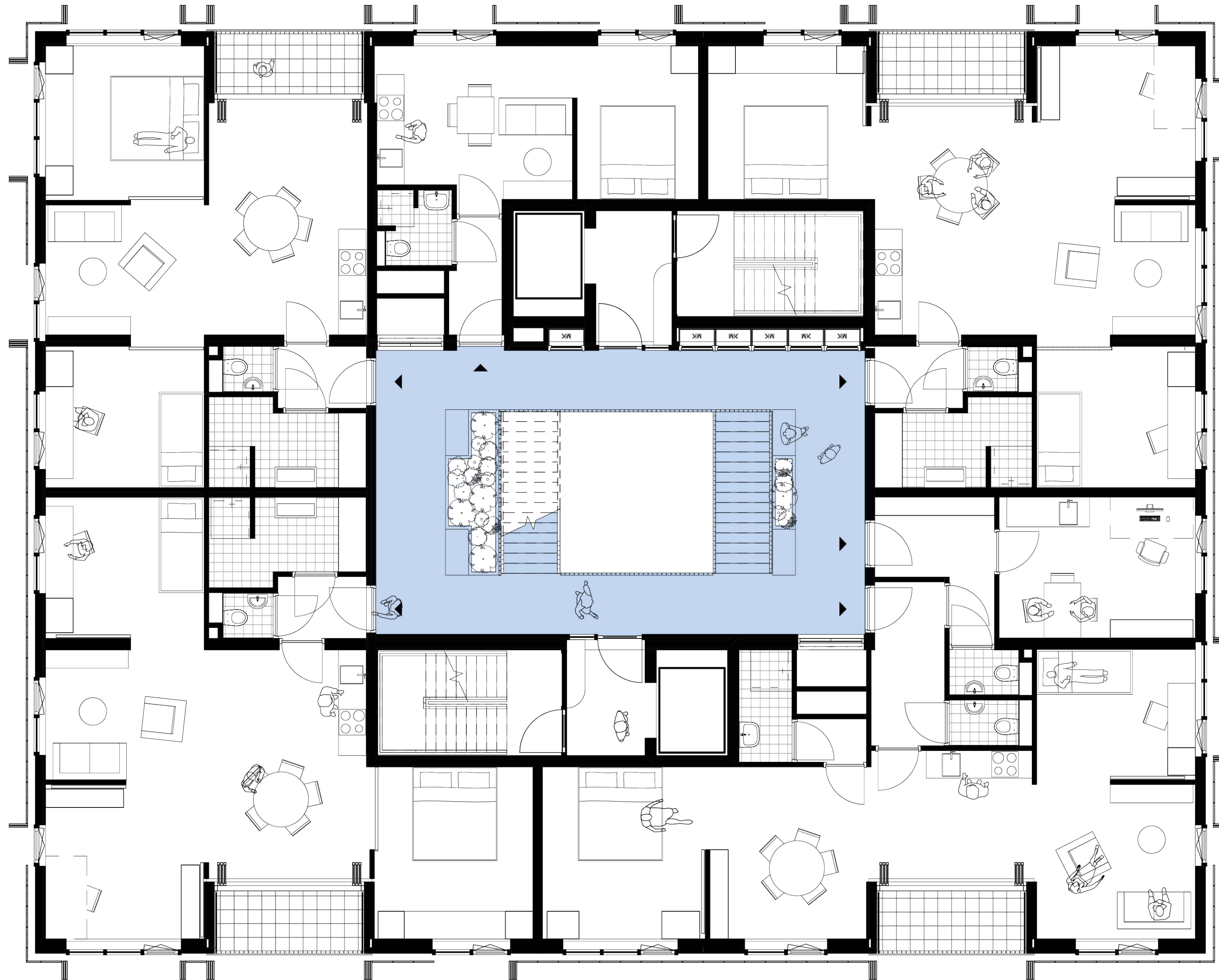
 'Street' - open circulation system



Street









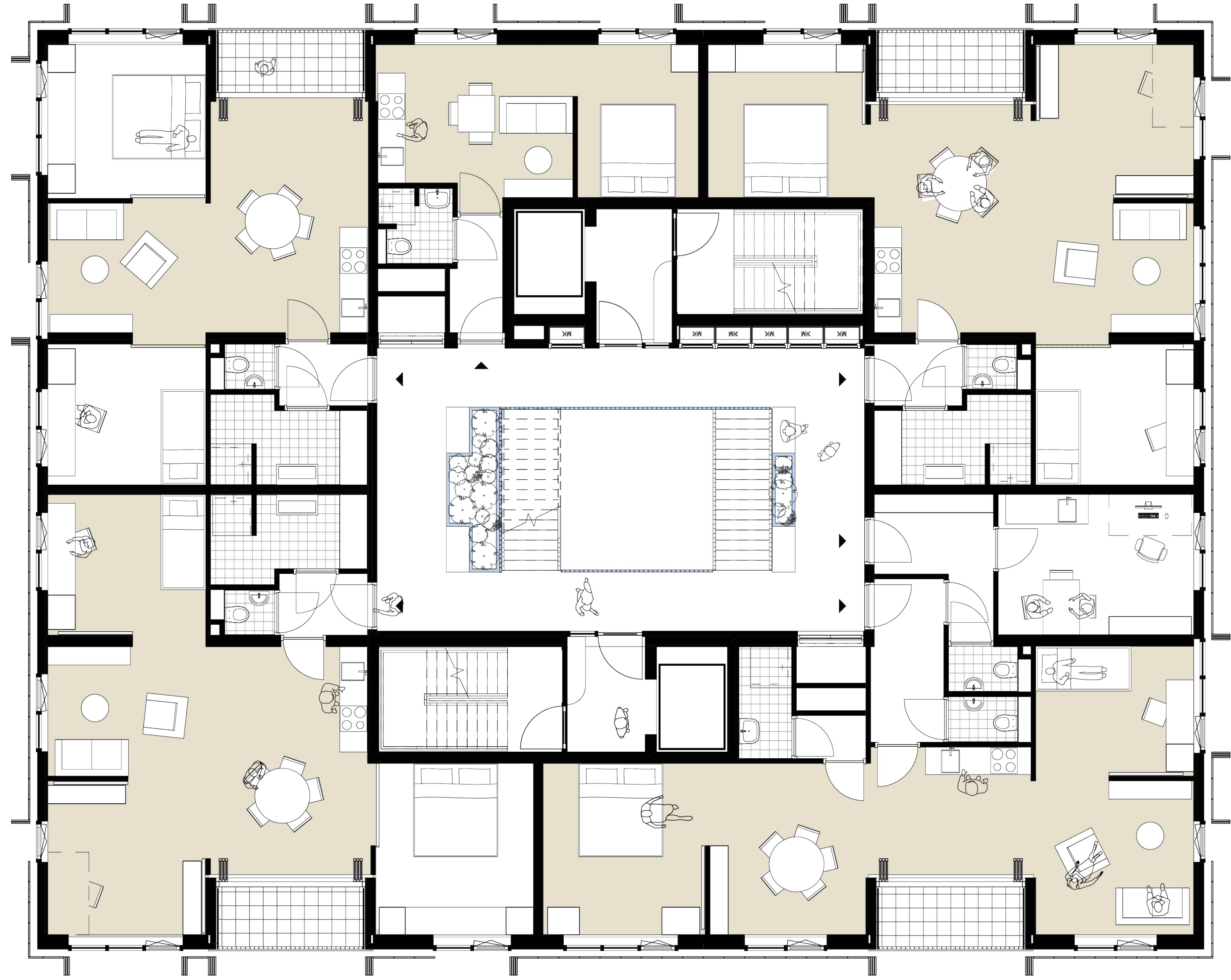
31 m<sup>2</sup> dwelling  
1-2 persons

62,6 m<sup>2</sup> dwelling  
3-4 persons

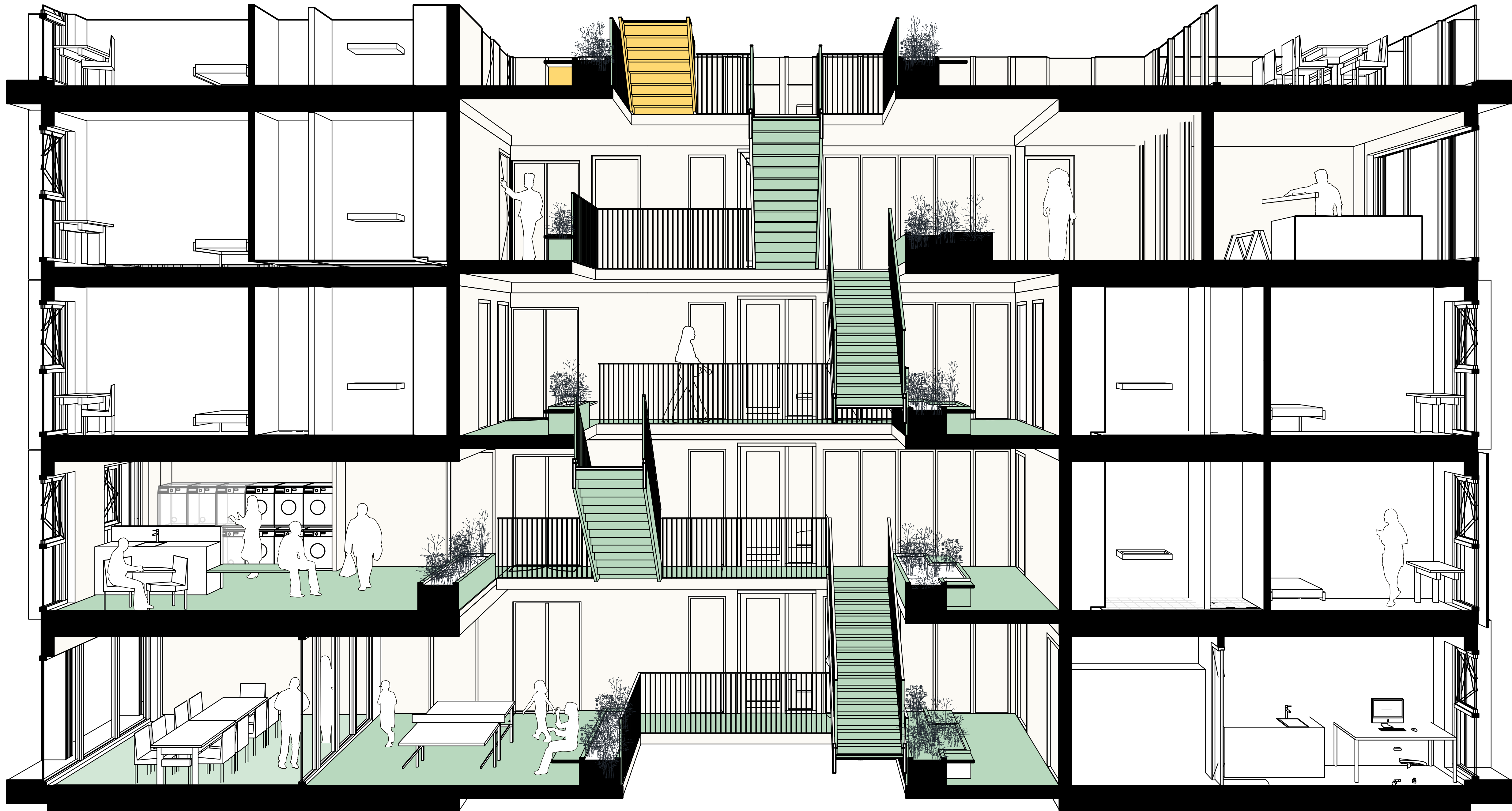
76 m<sup>2</sup> dwelling  
3-4 persons

76 m<sup>2</sup> dwelling  
3-4 persons

72 m<sup>2</sup> dwelling  
21 m<sup>2</sup> office  
3-4 persons







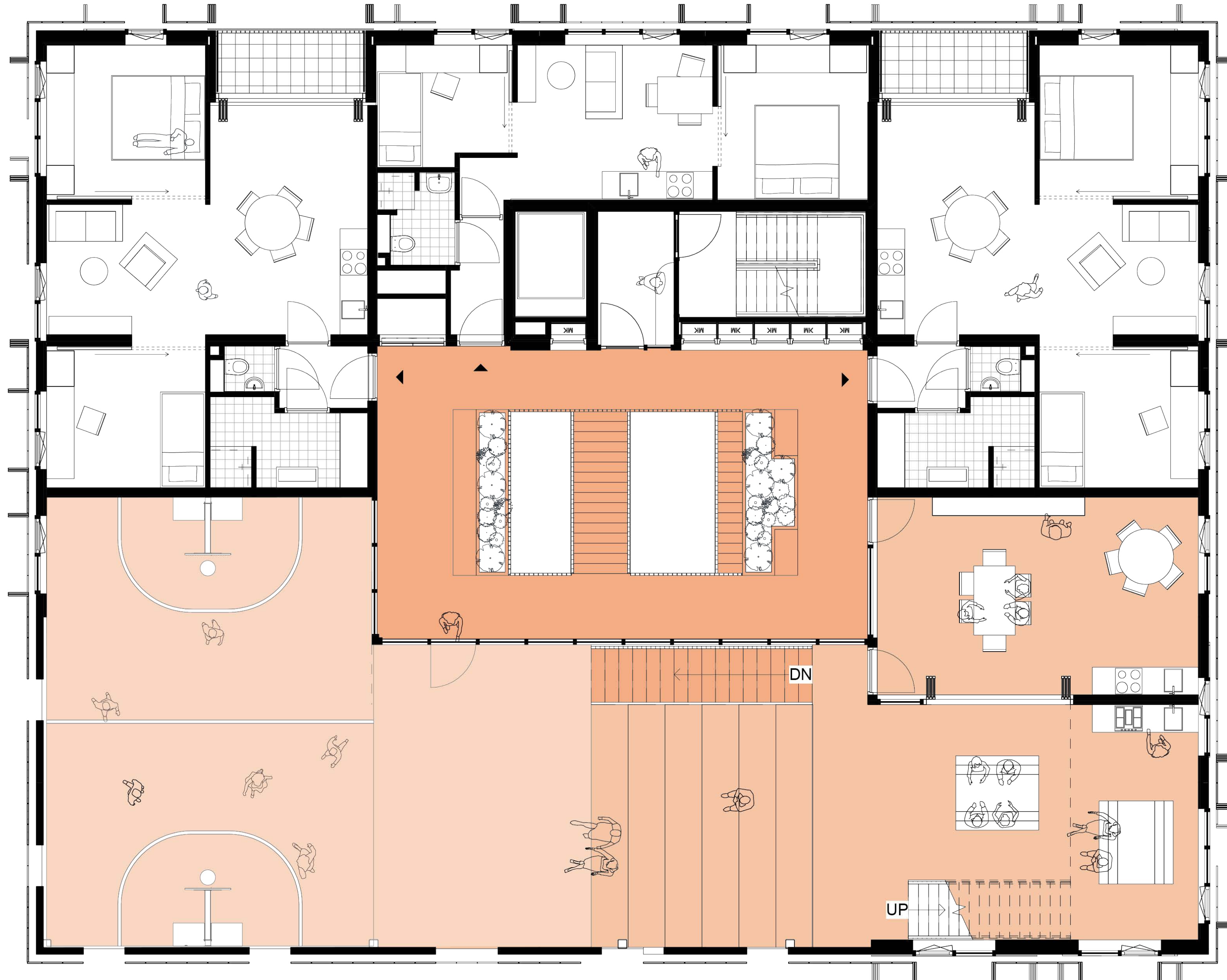




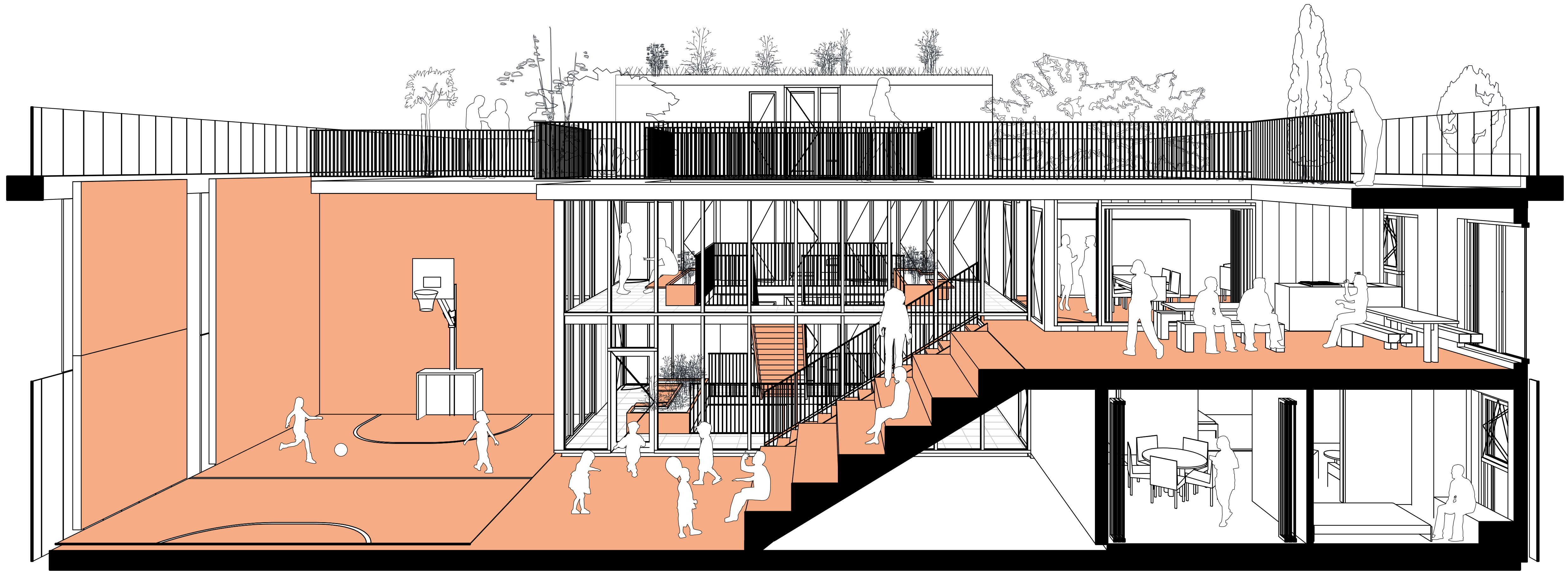


# Design

## Elevated playground

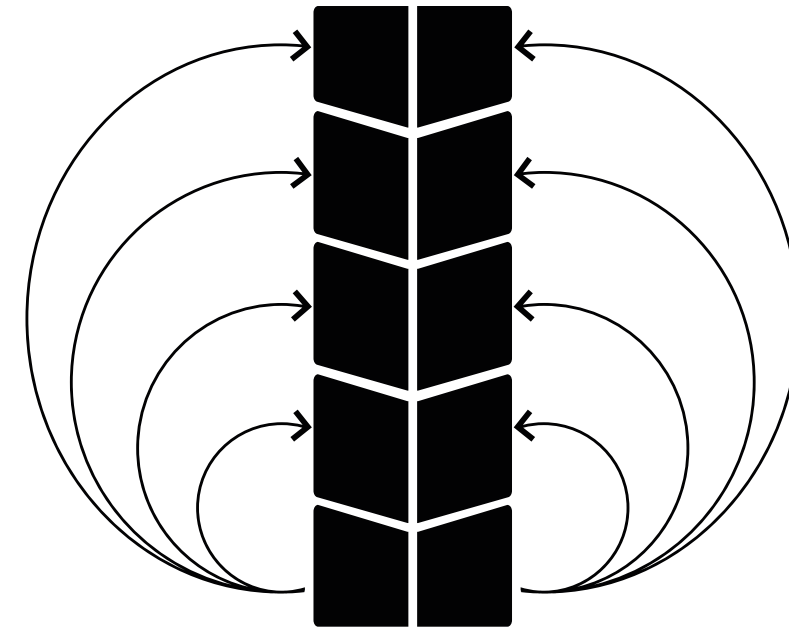




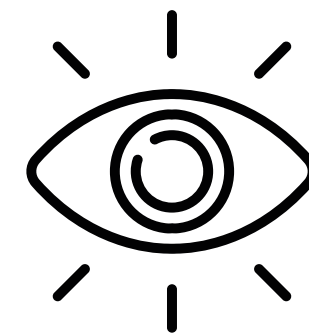
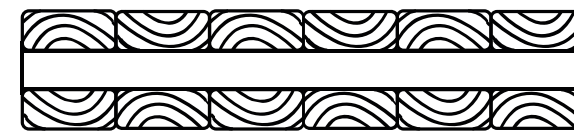
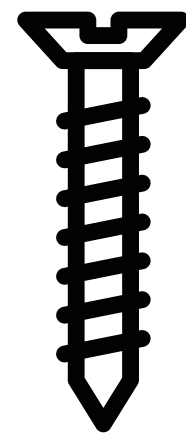




**Design**  
Structure

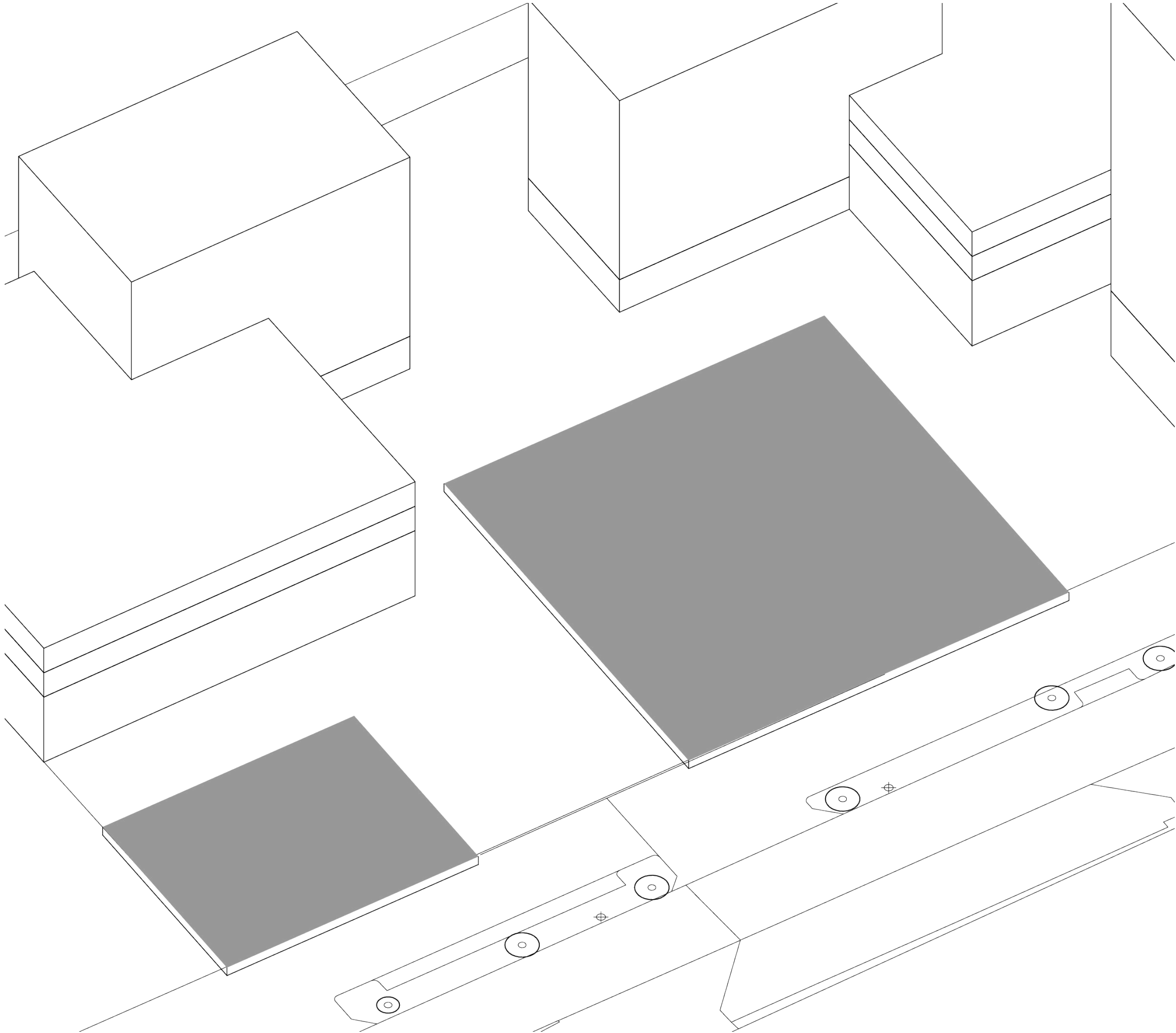


**circular economy**

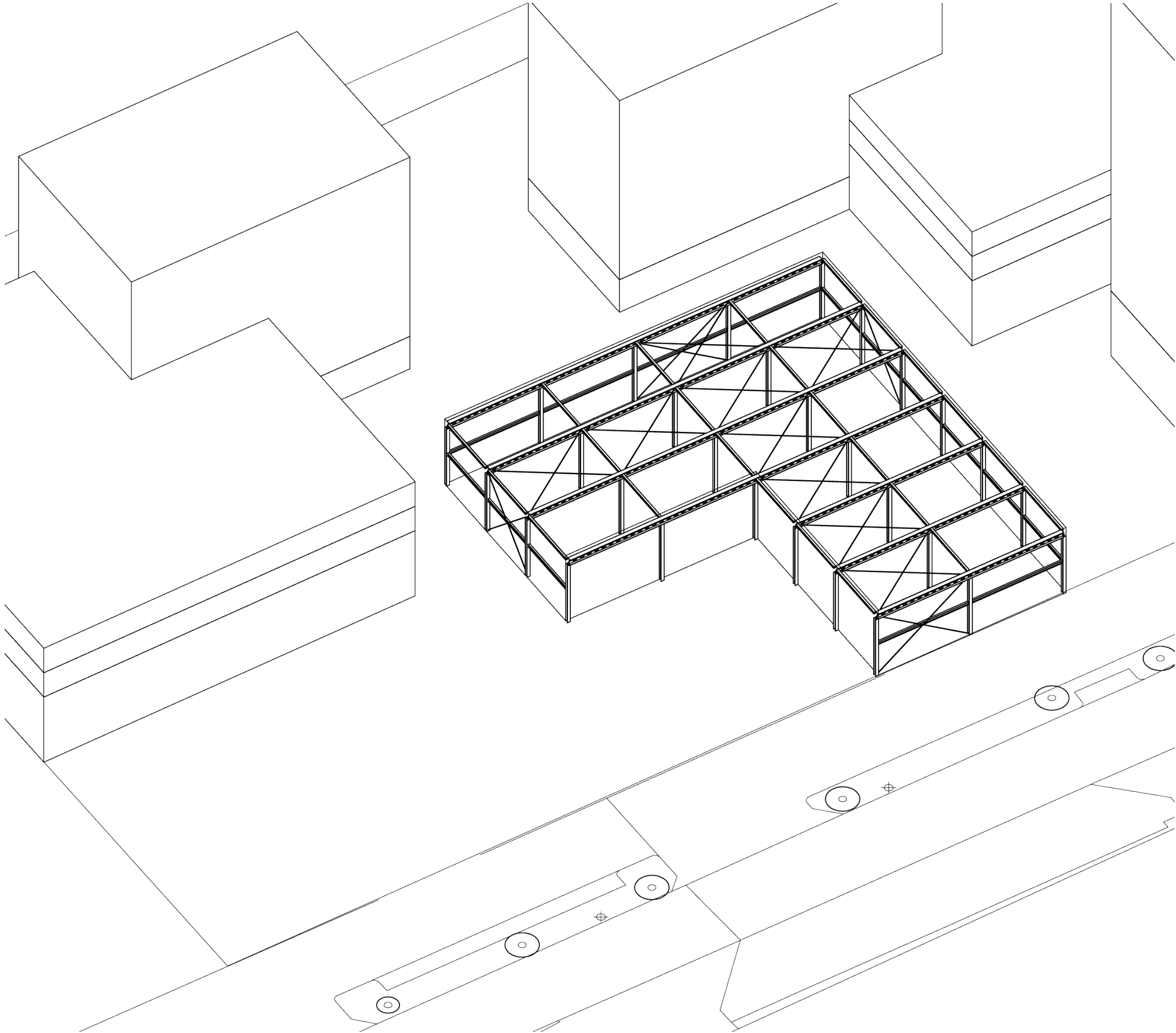




**Design**  
Structure

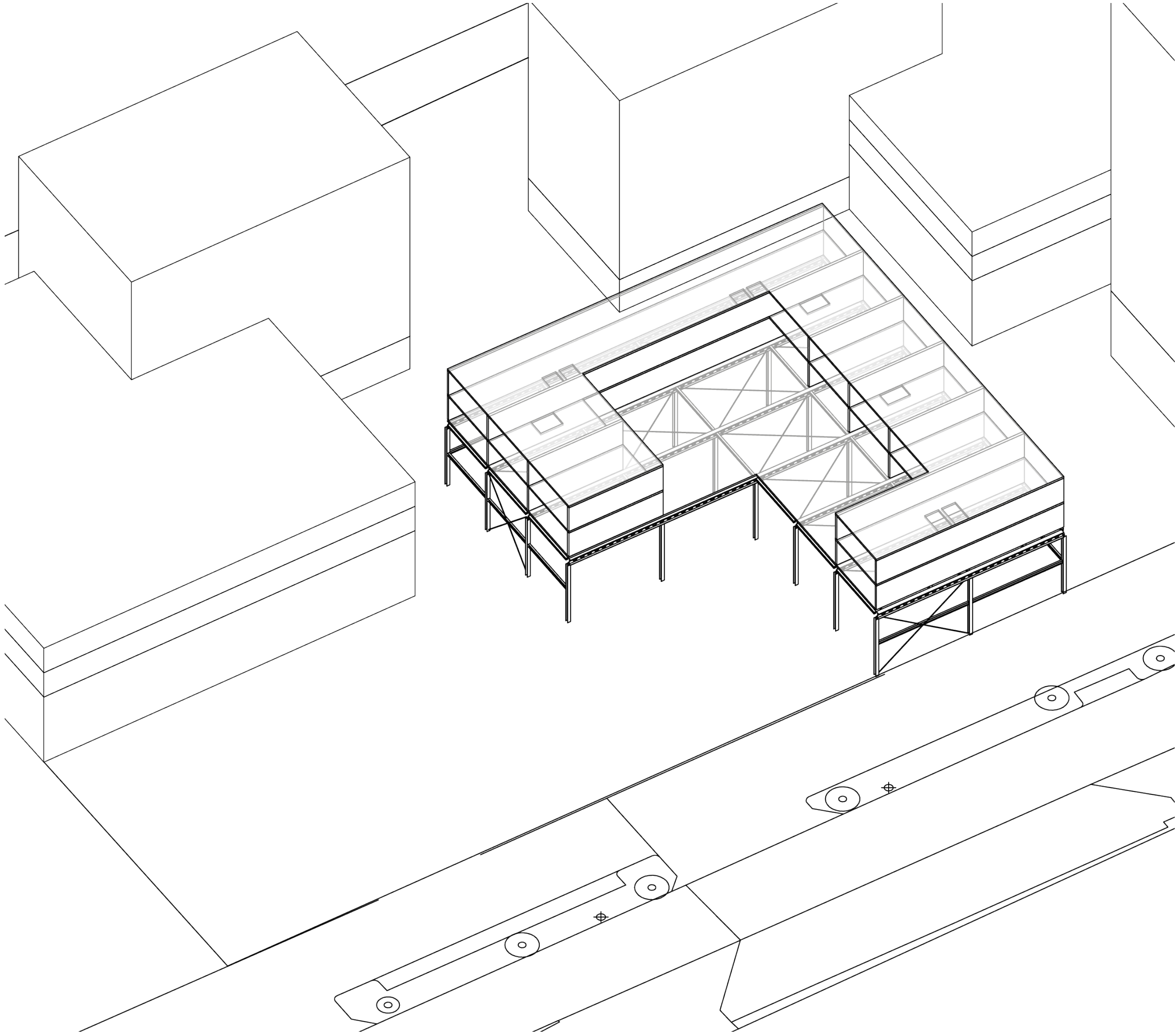


Design  
Structure



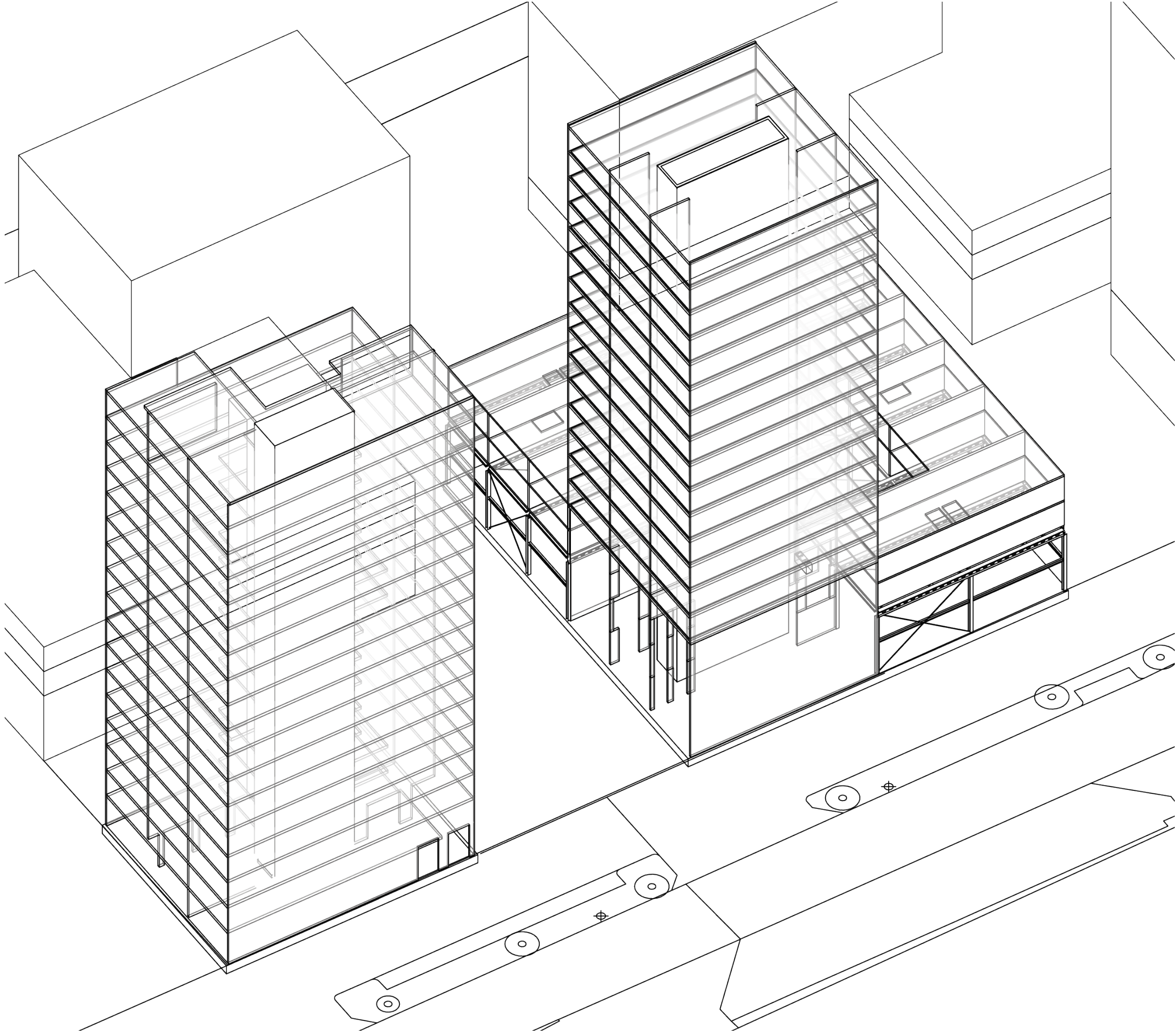


Design  
Structure



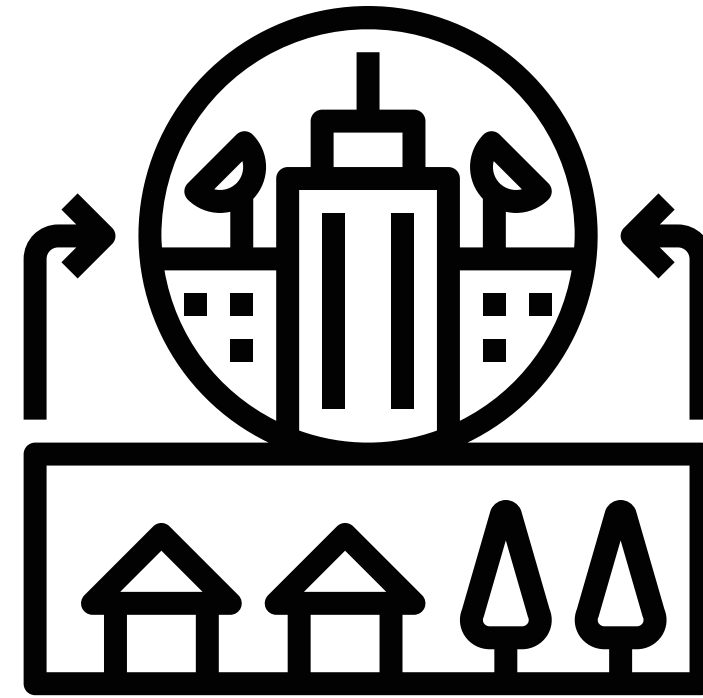


Design  
Structure





Design  
Facade



Urbanisation



Urban heat island



Water management

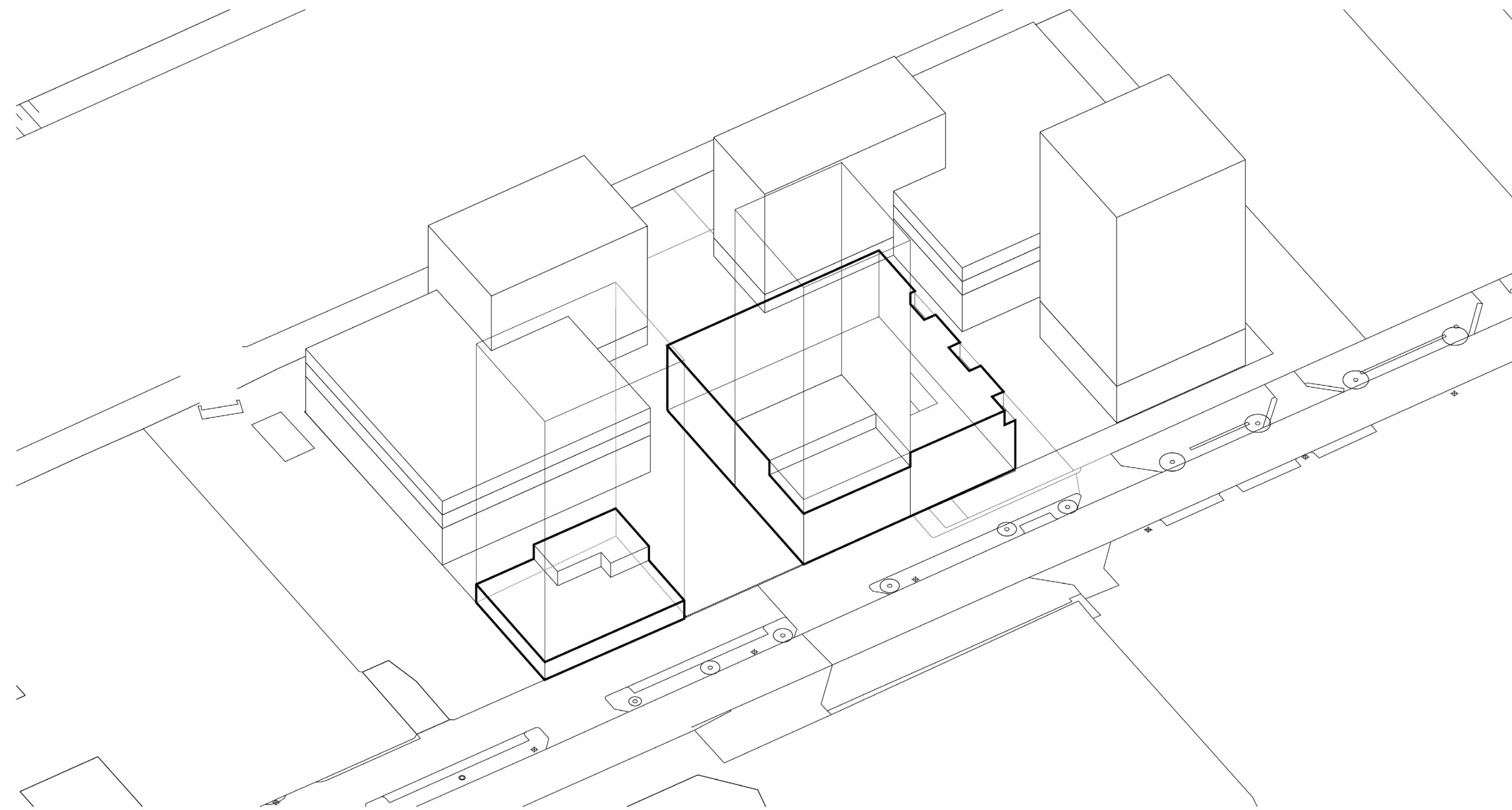


Biodiversity



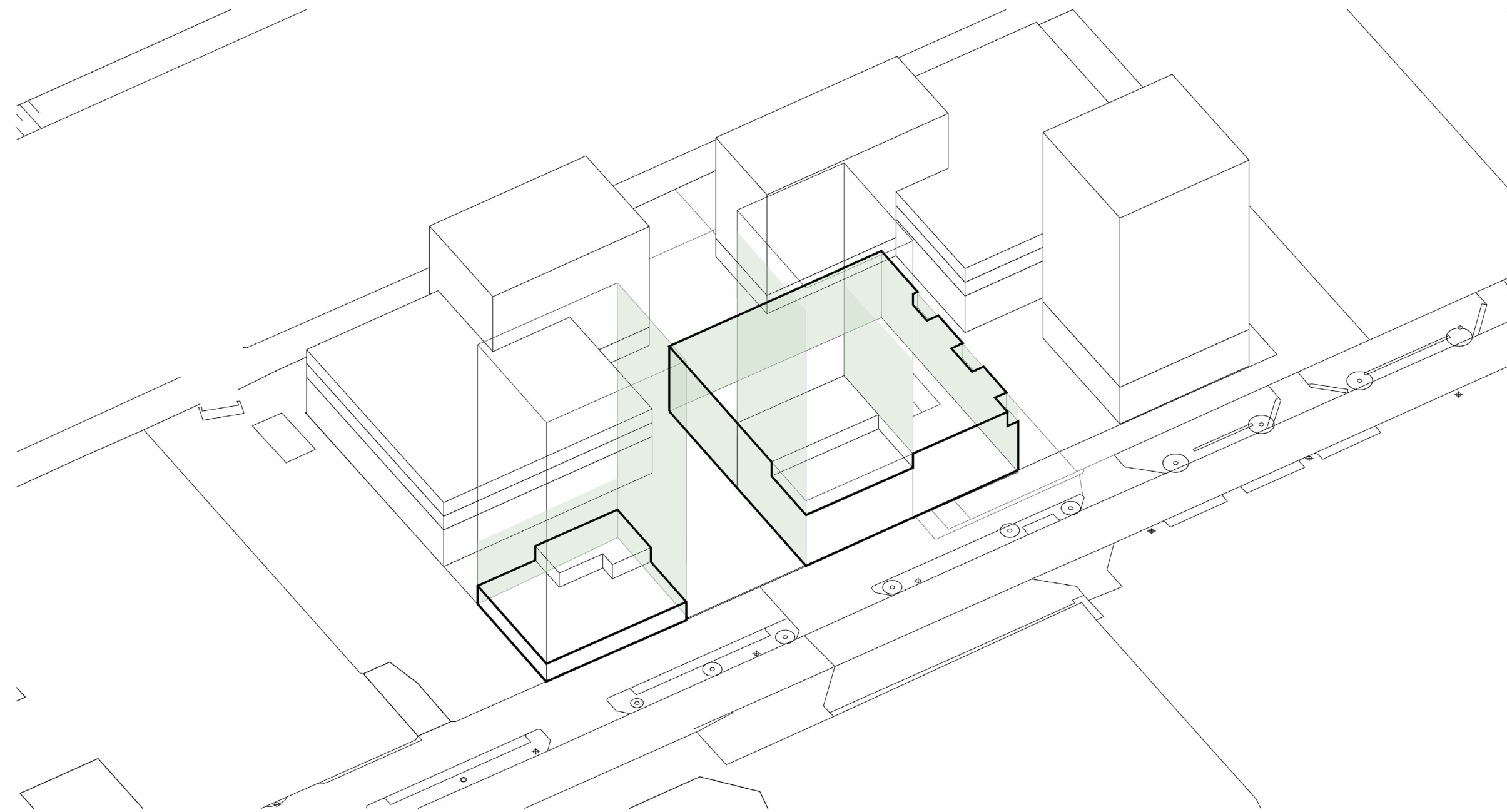
Harbour identity

# Design Facade

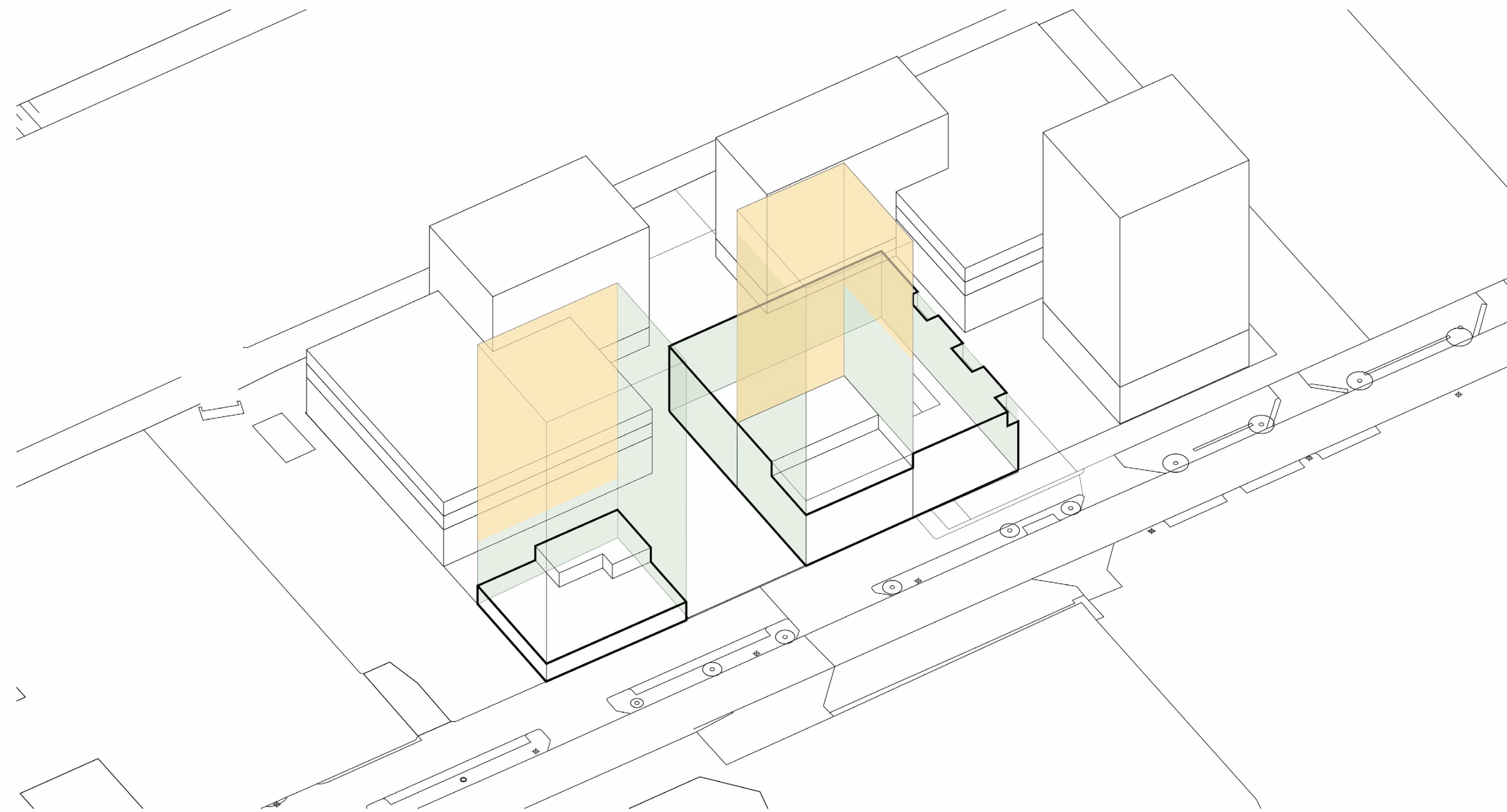




# Design Facade

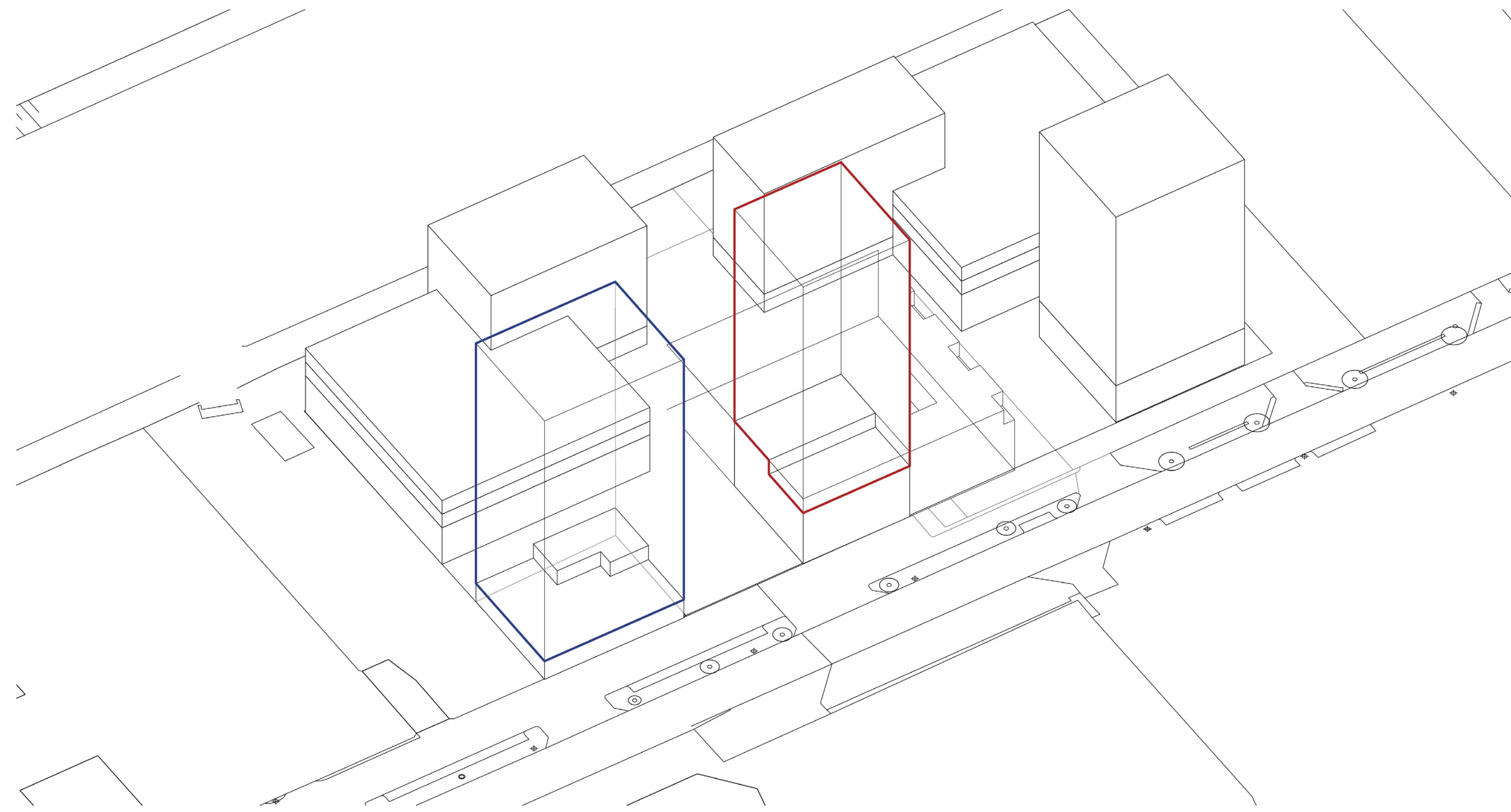
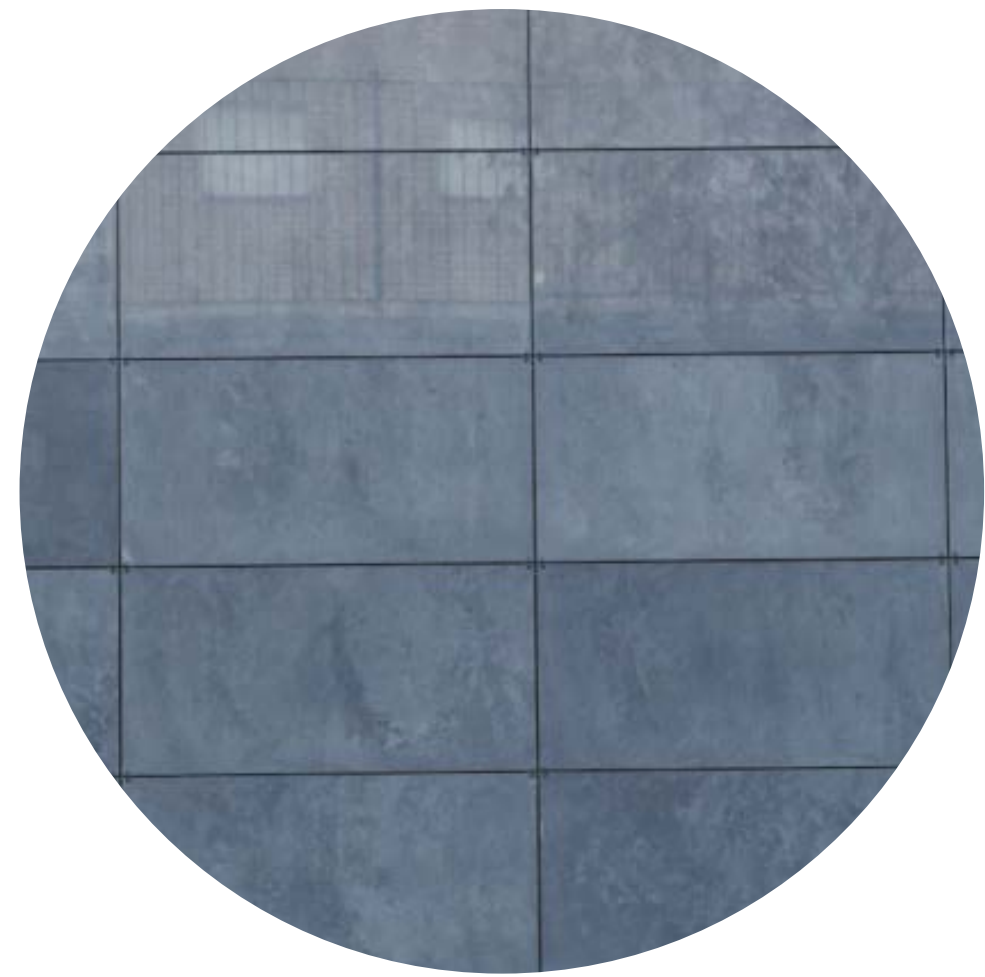


# Design Facade

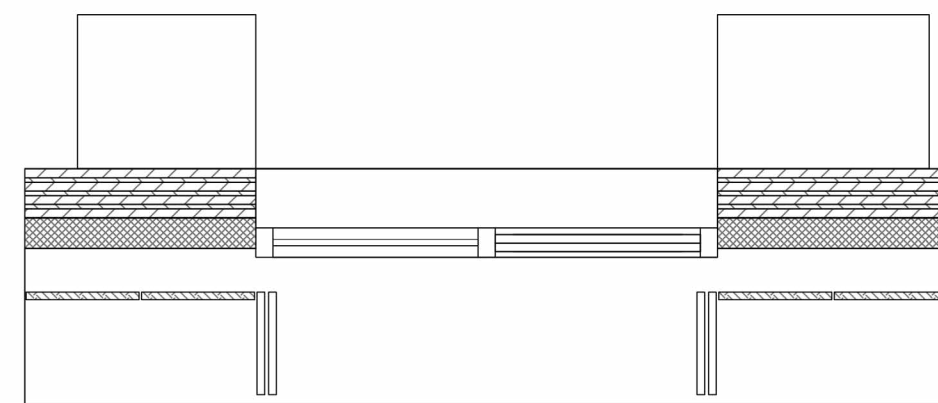
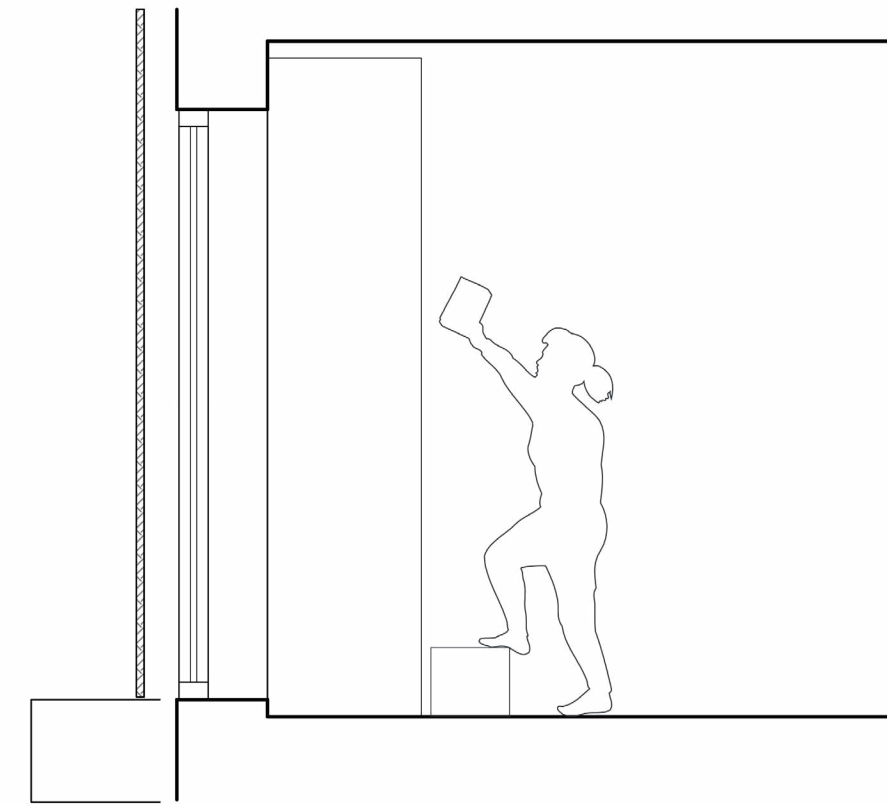
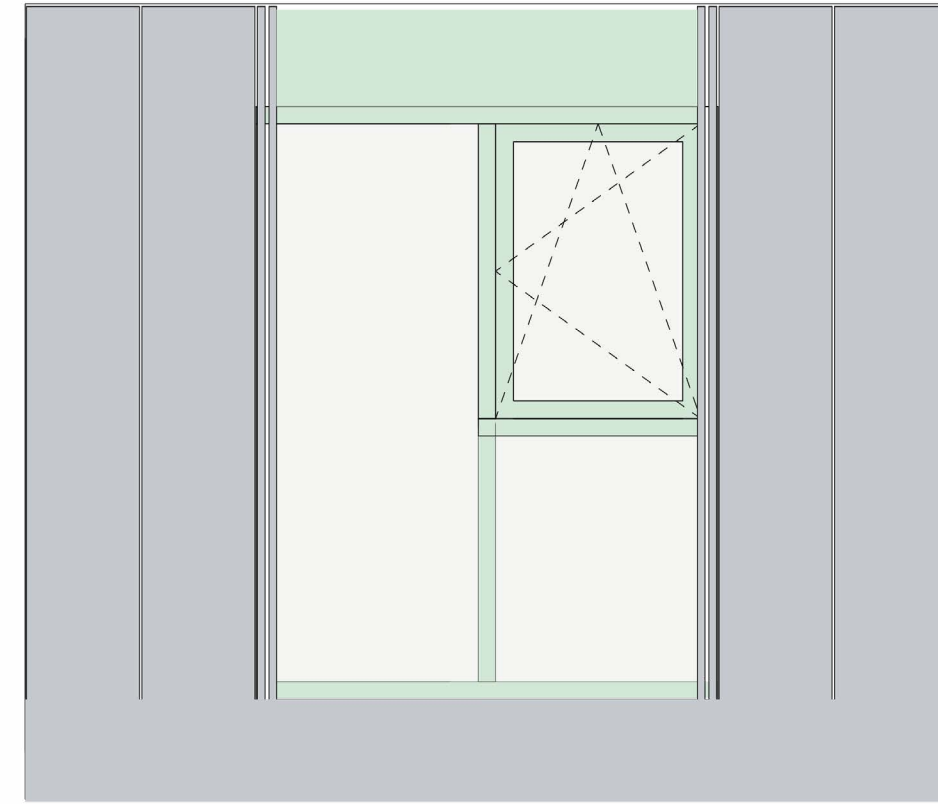




Design  
Facade

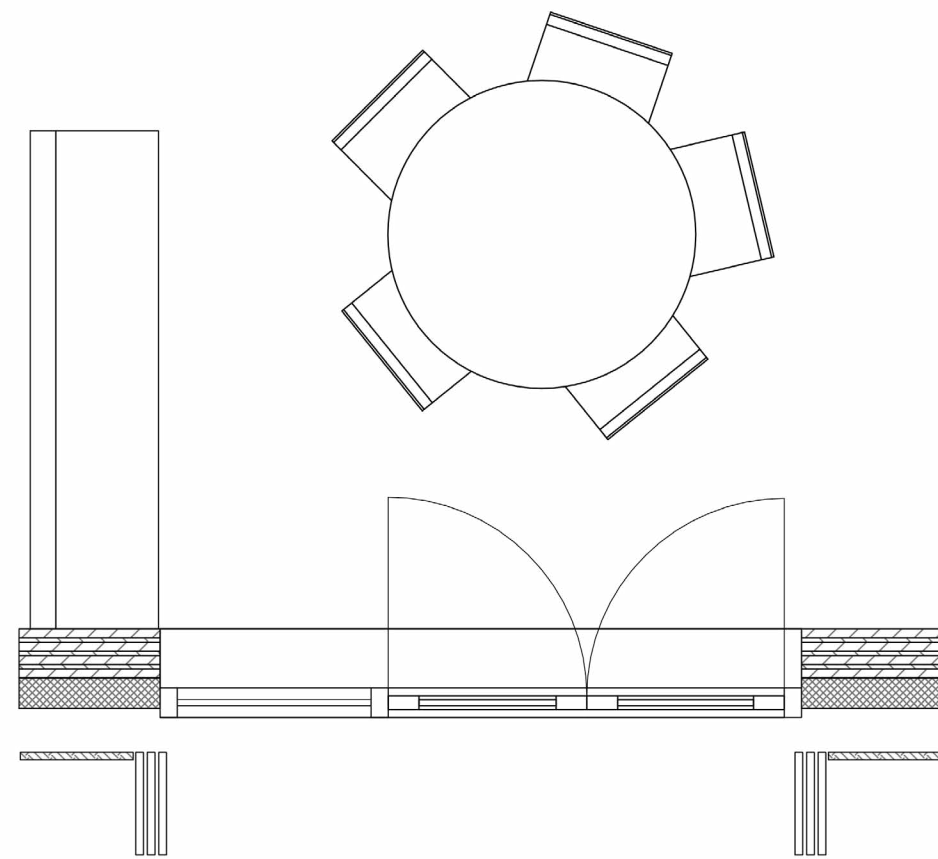
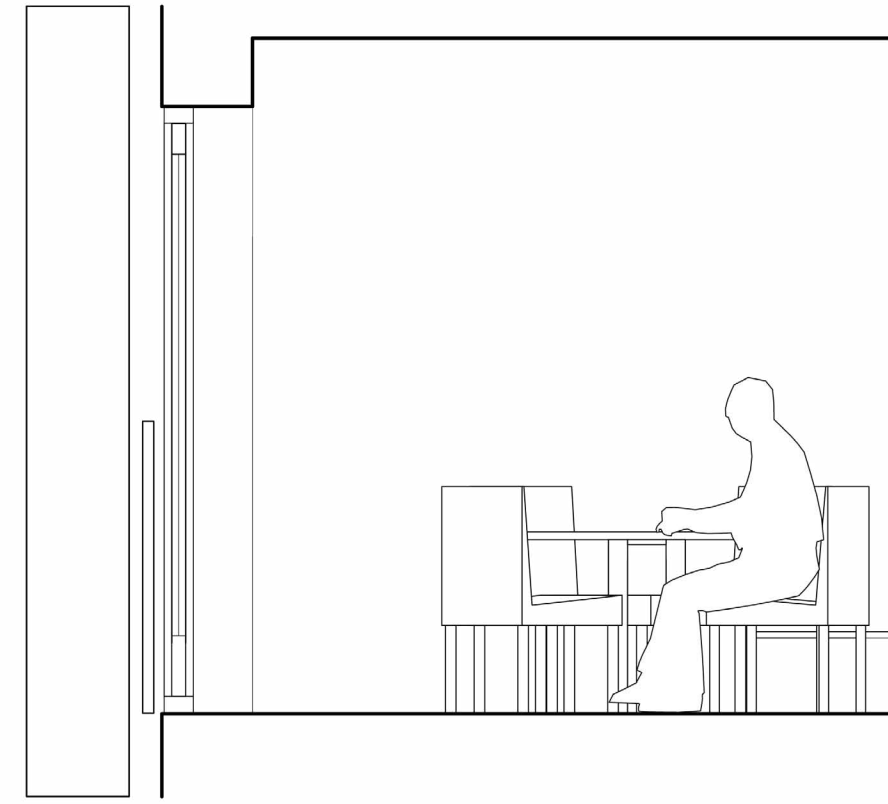
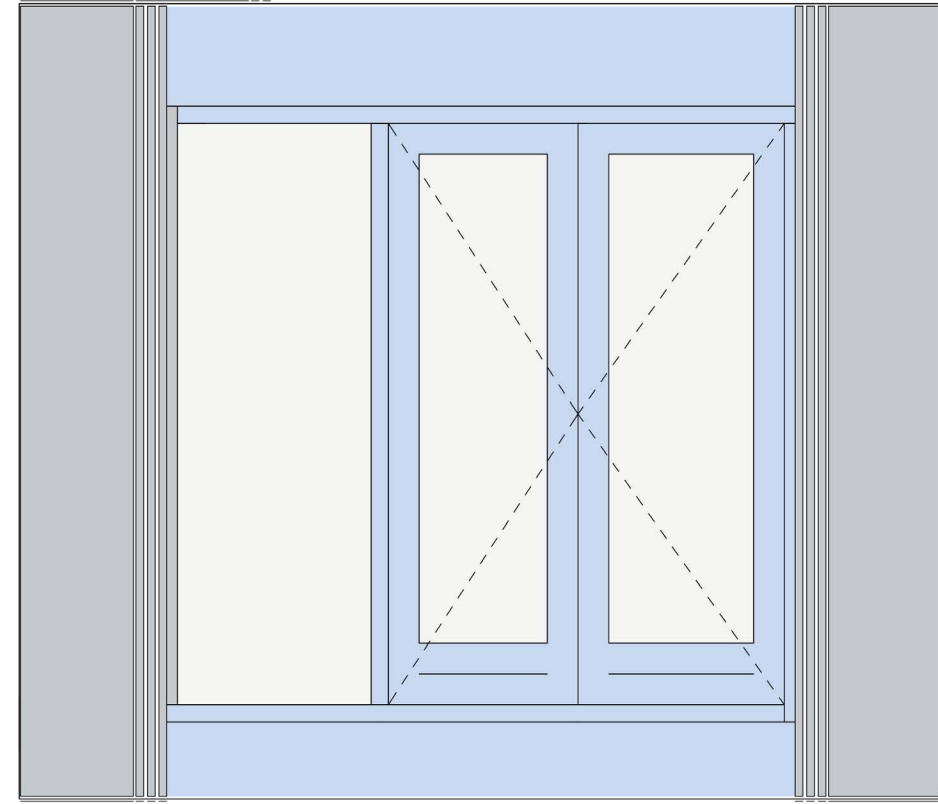


**Design**  
Facade principle



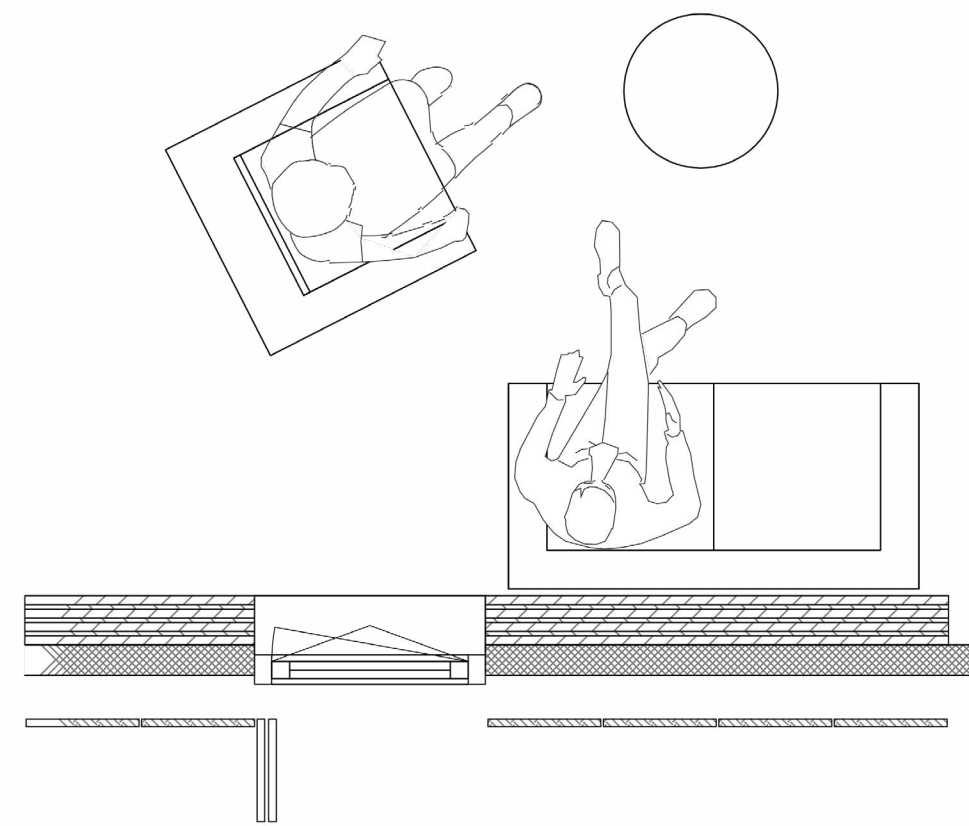
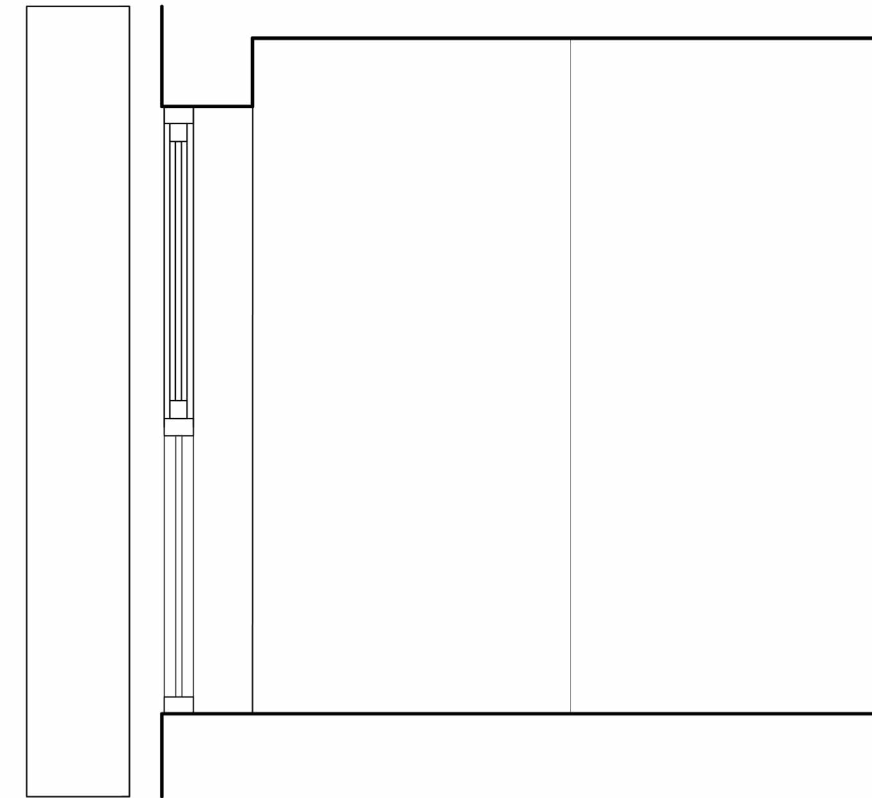
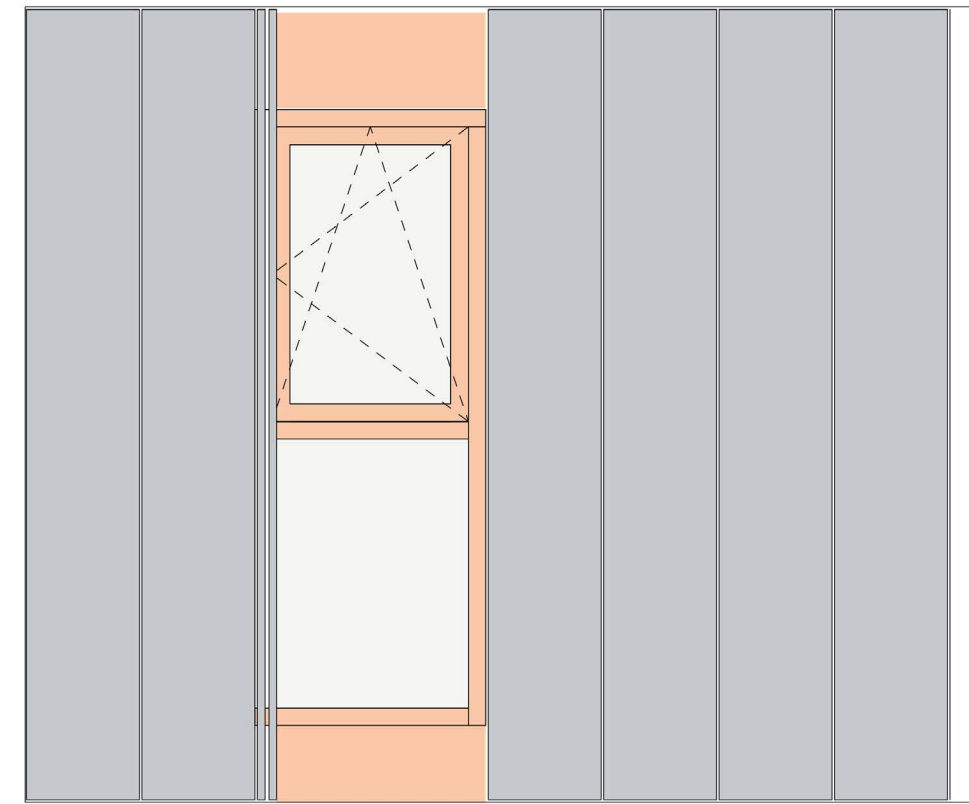


**Design**  
Facade principle



# Design

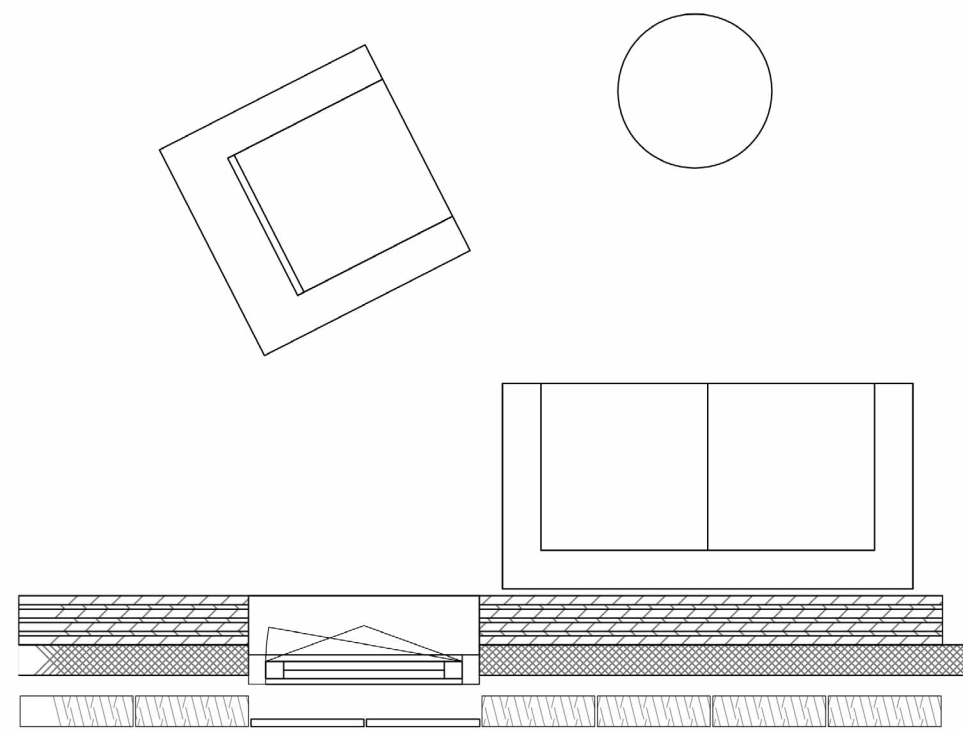
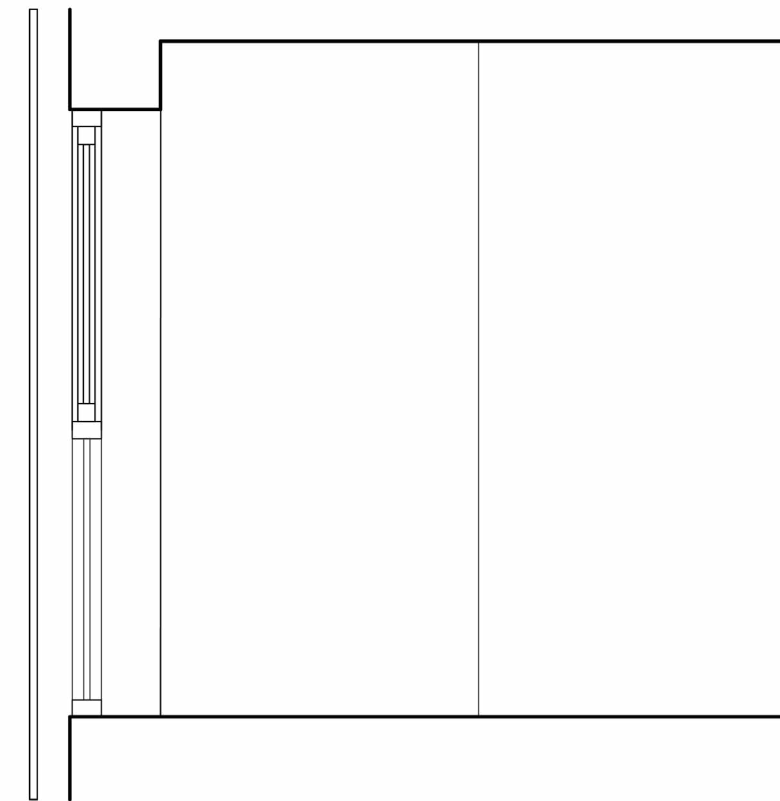
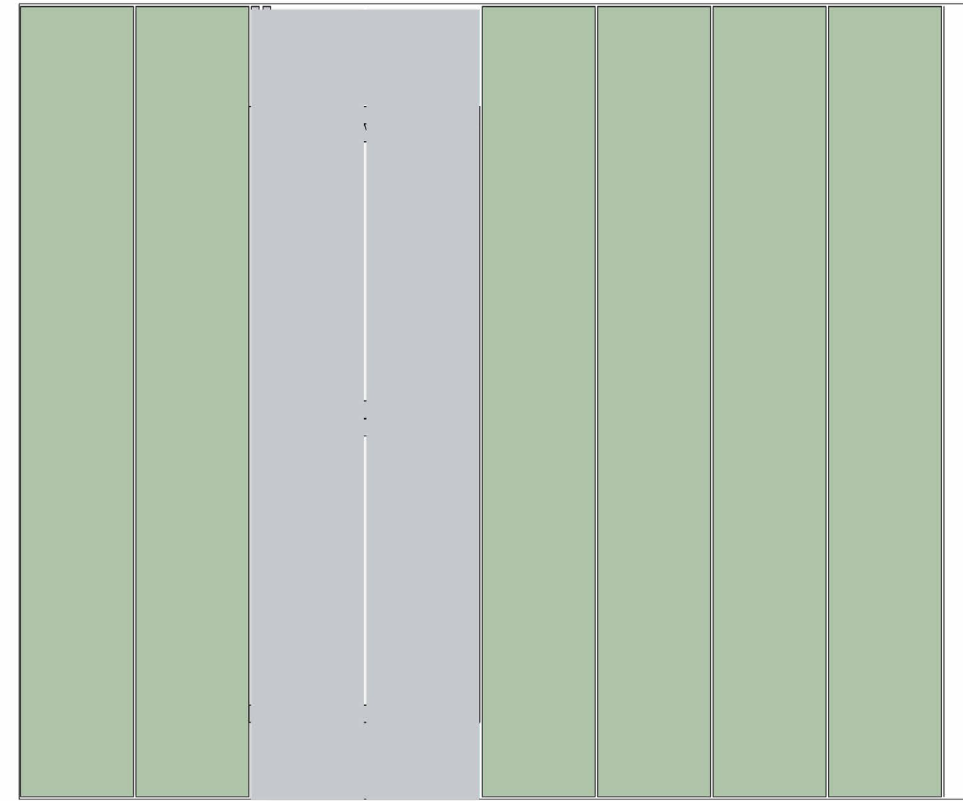
## Facade principle





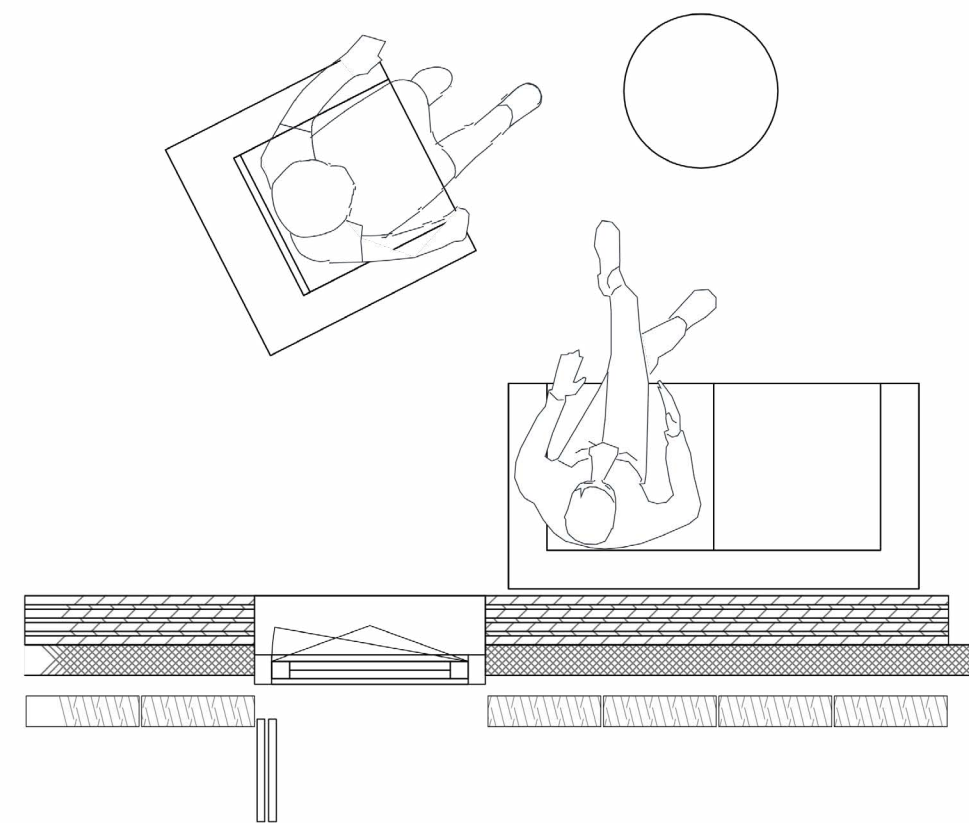
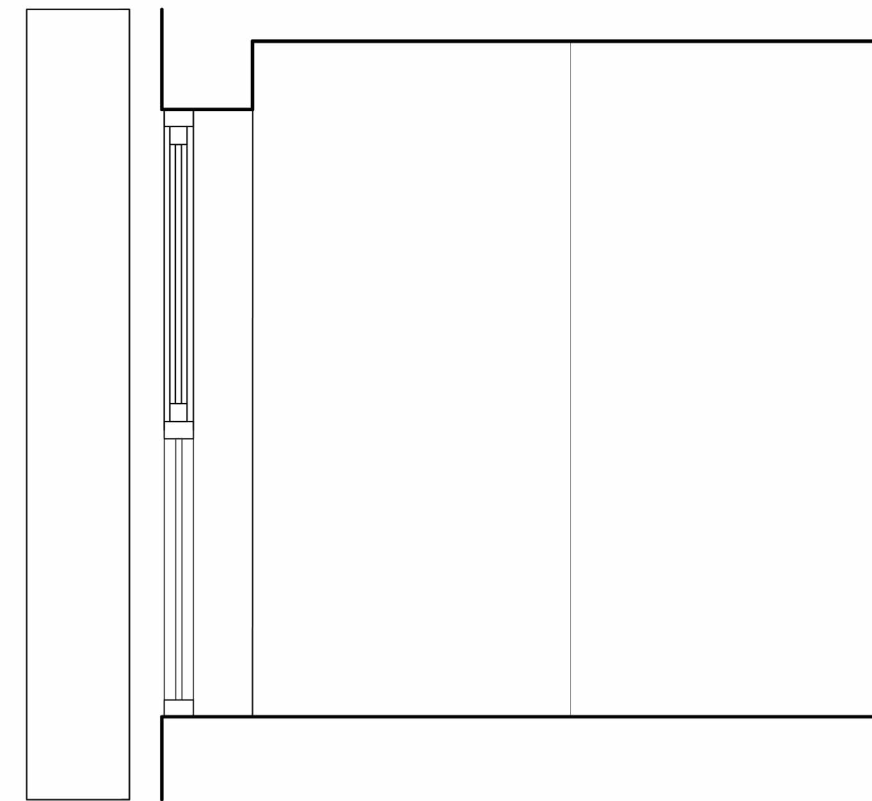
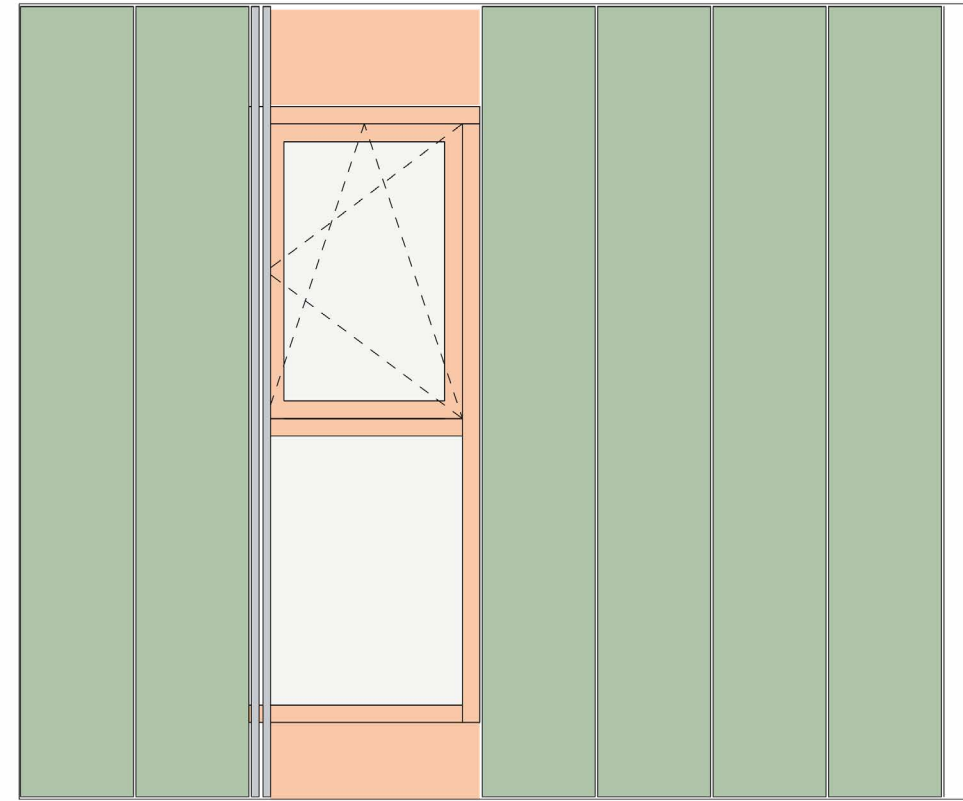
# Design

## Facade principle



# Design

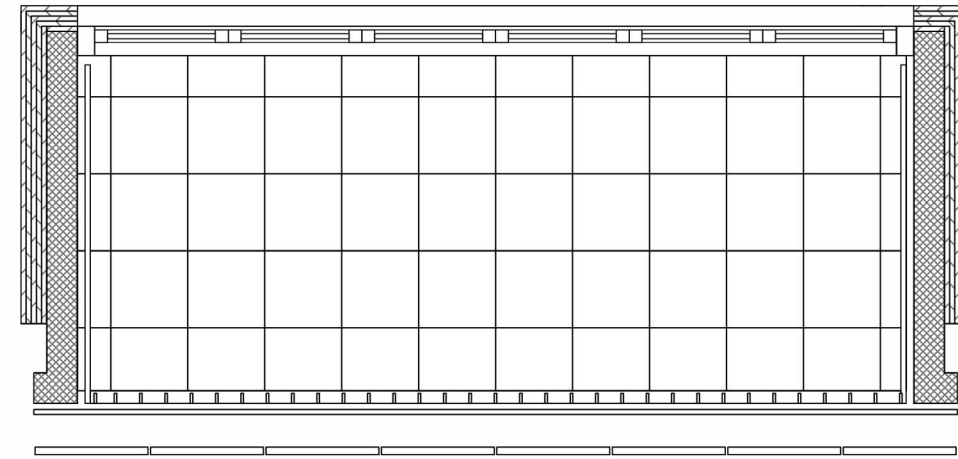
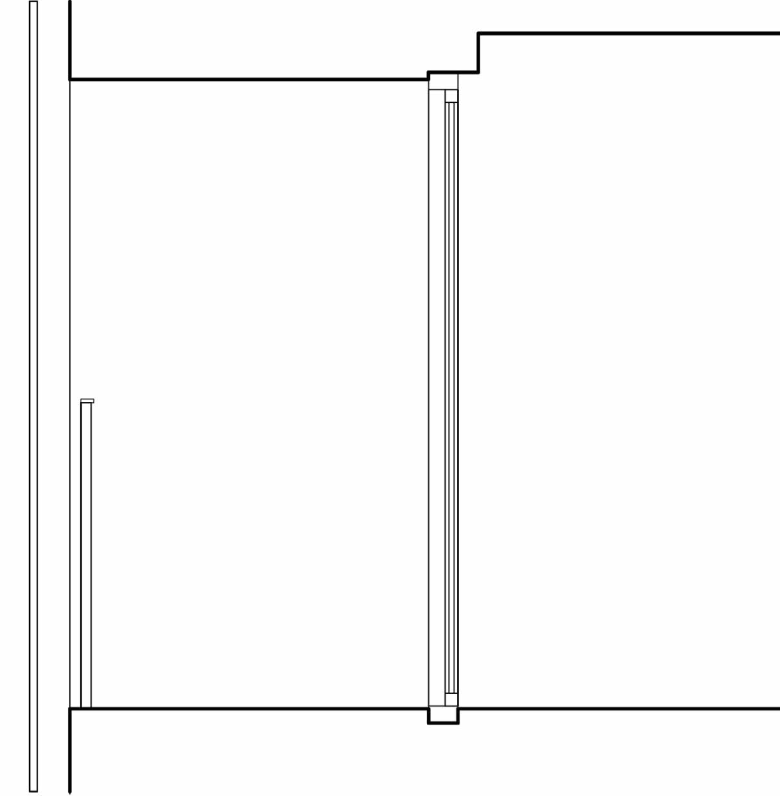
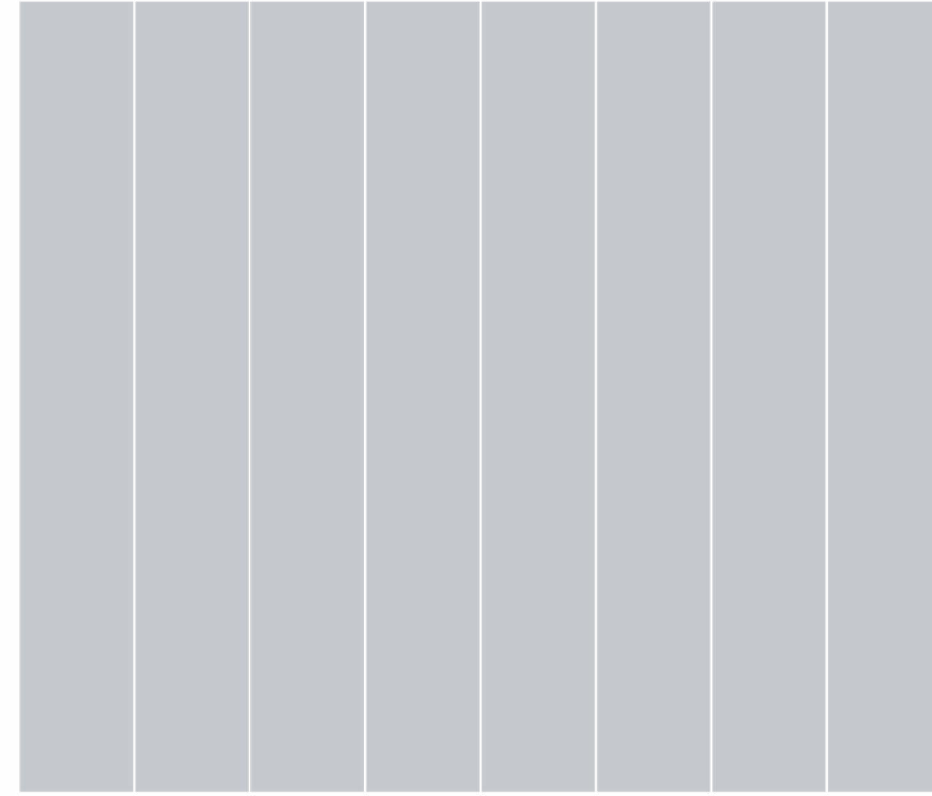
## Facade principle





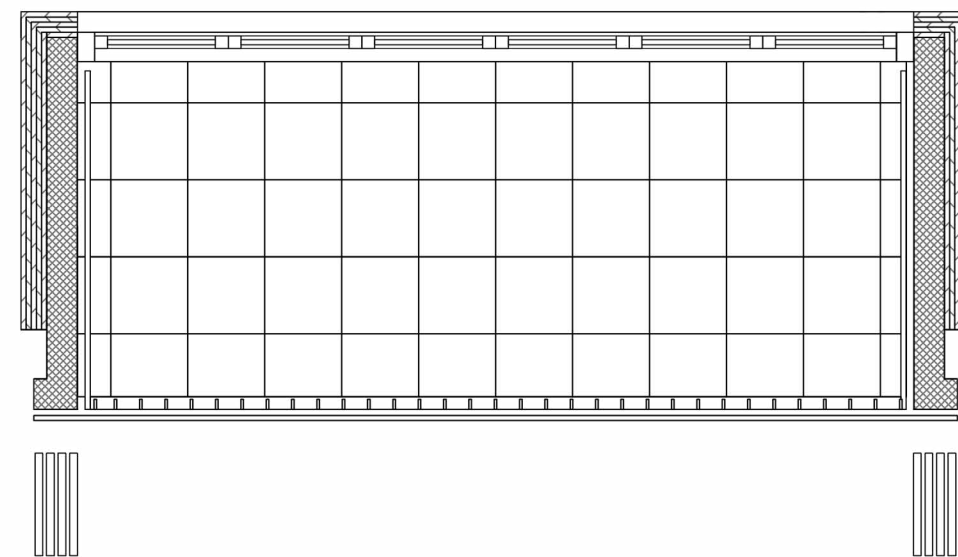
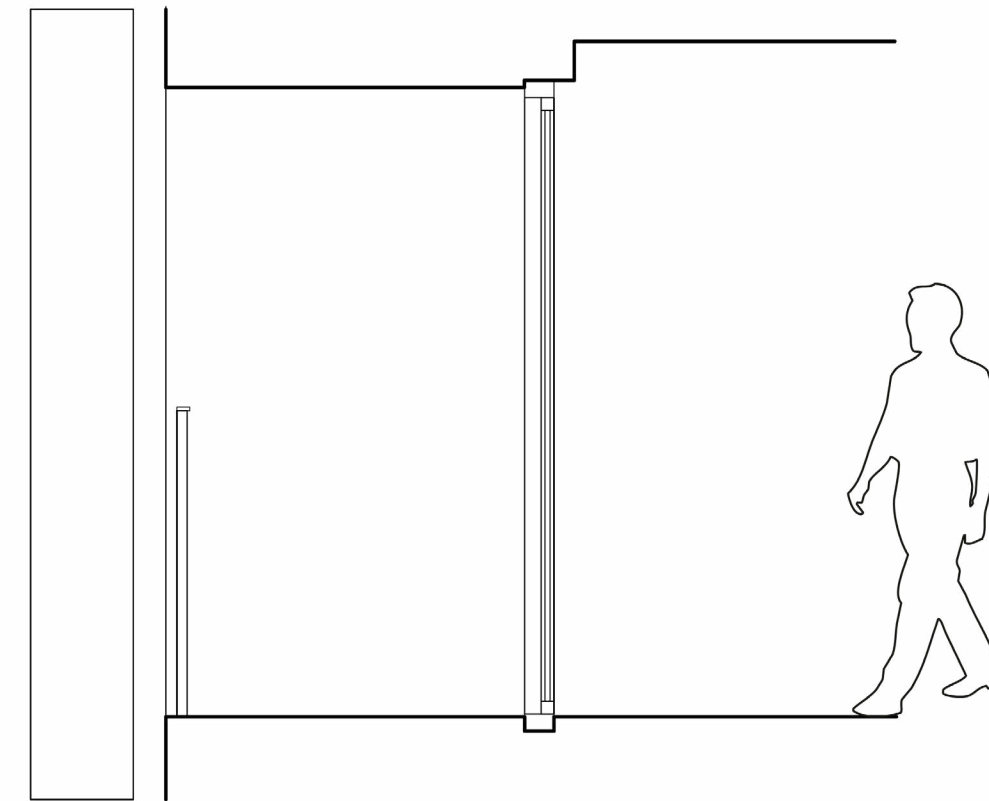
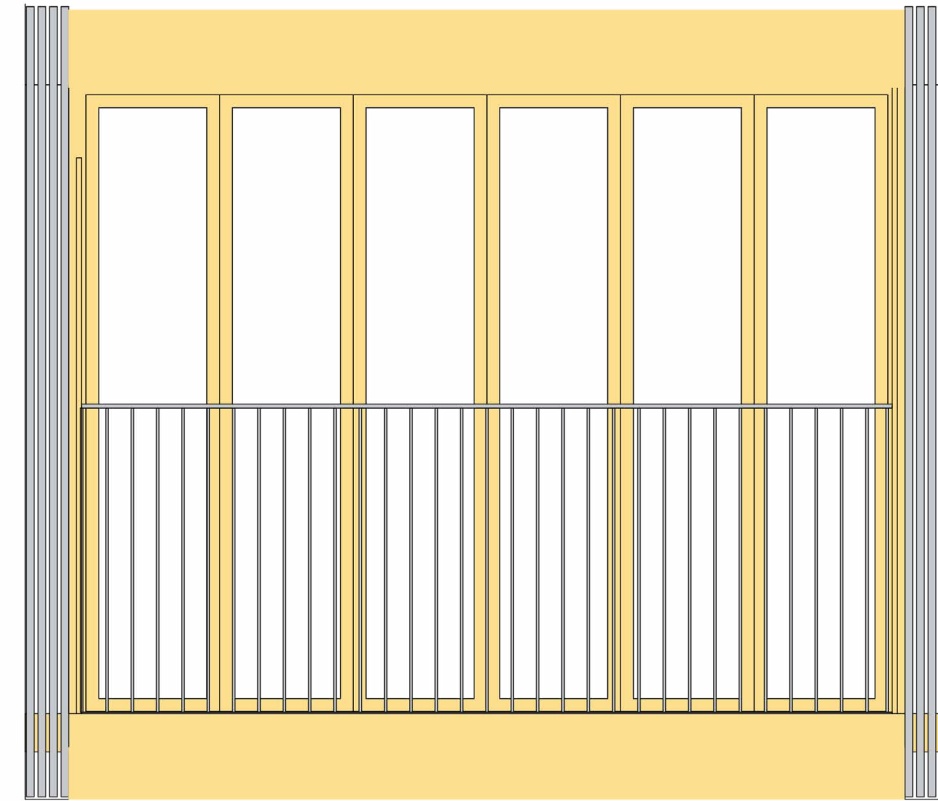
# Design

## Facade principle



# Design

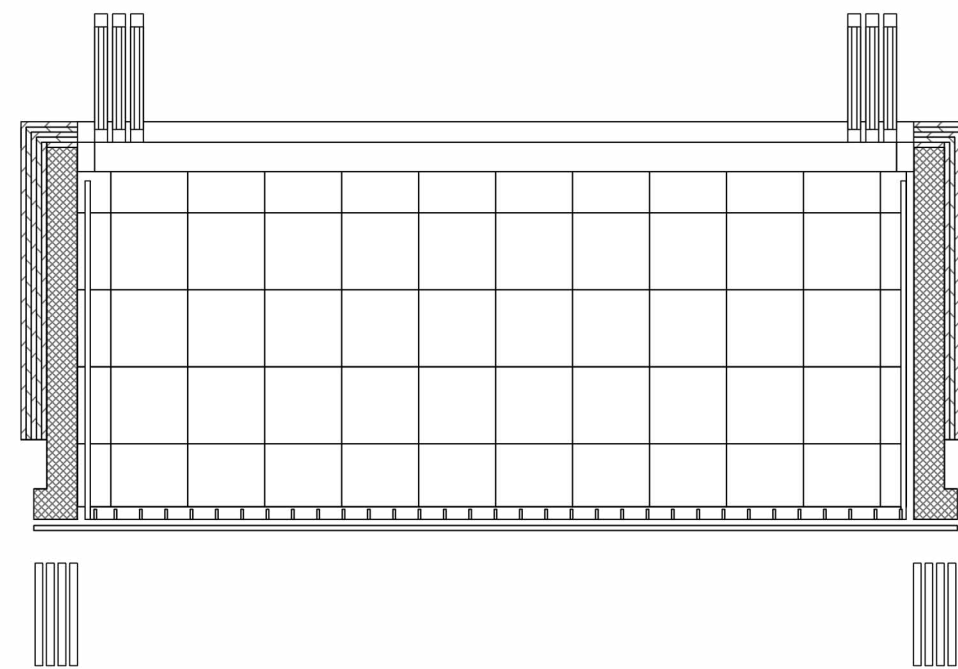
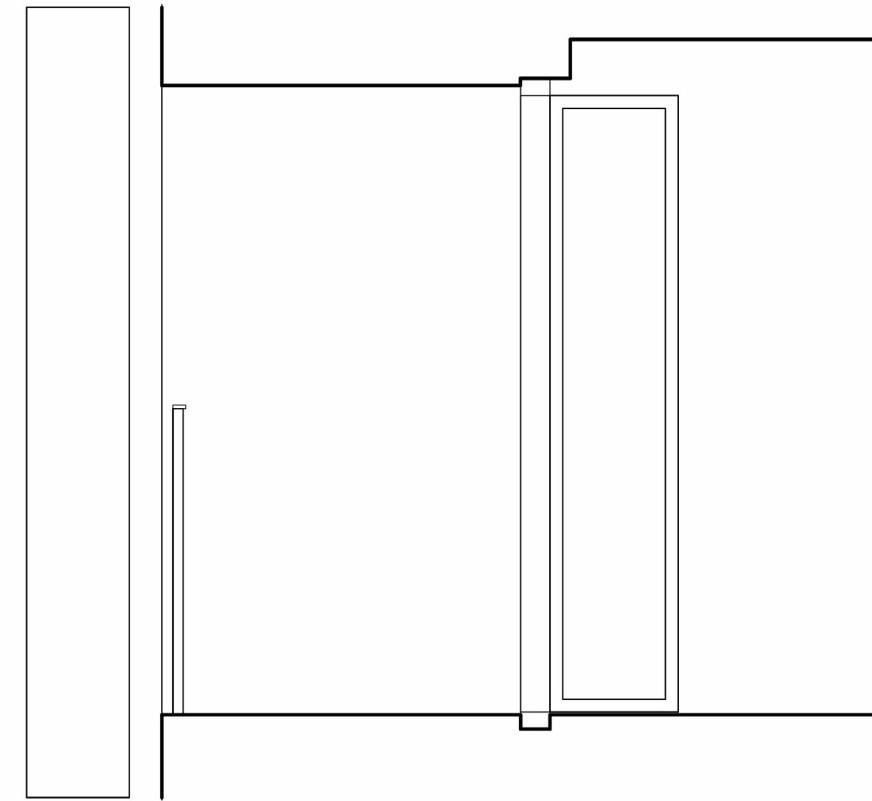
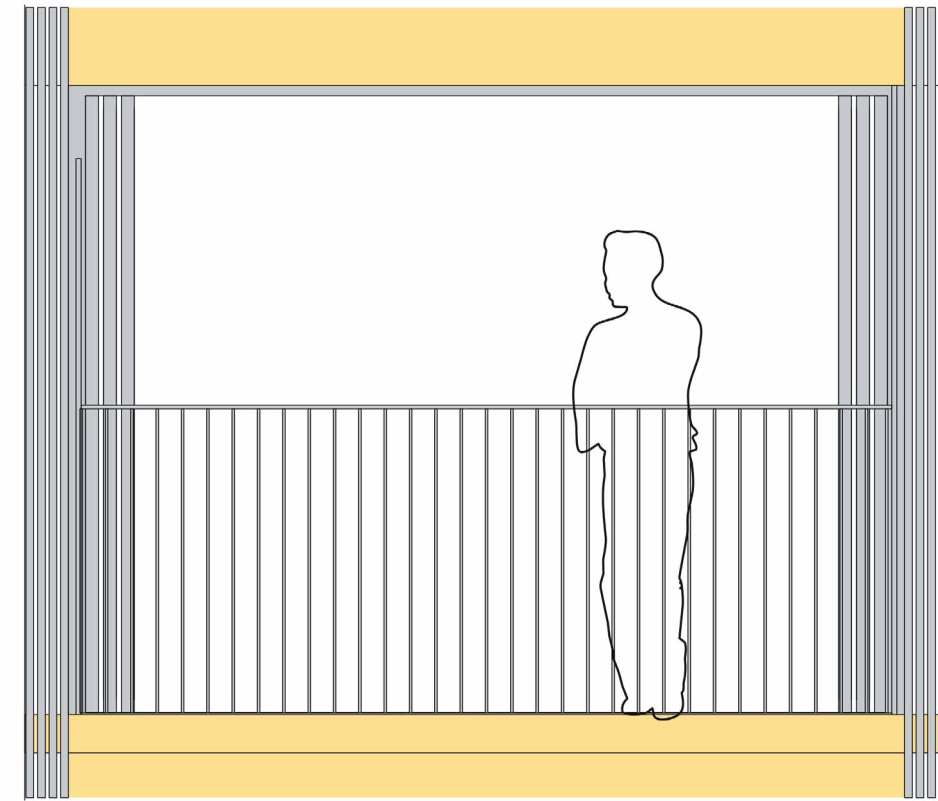
## Facade principle





# Design

## Facade principle



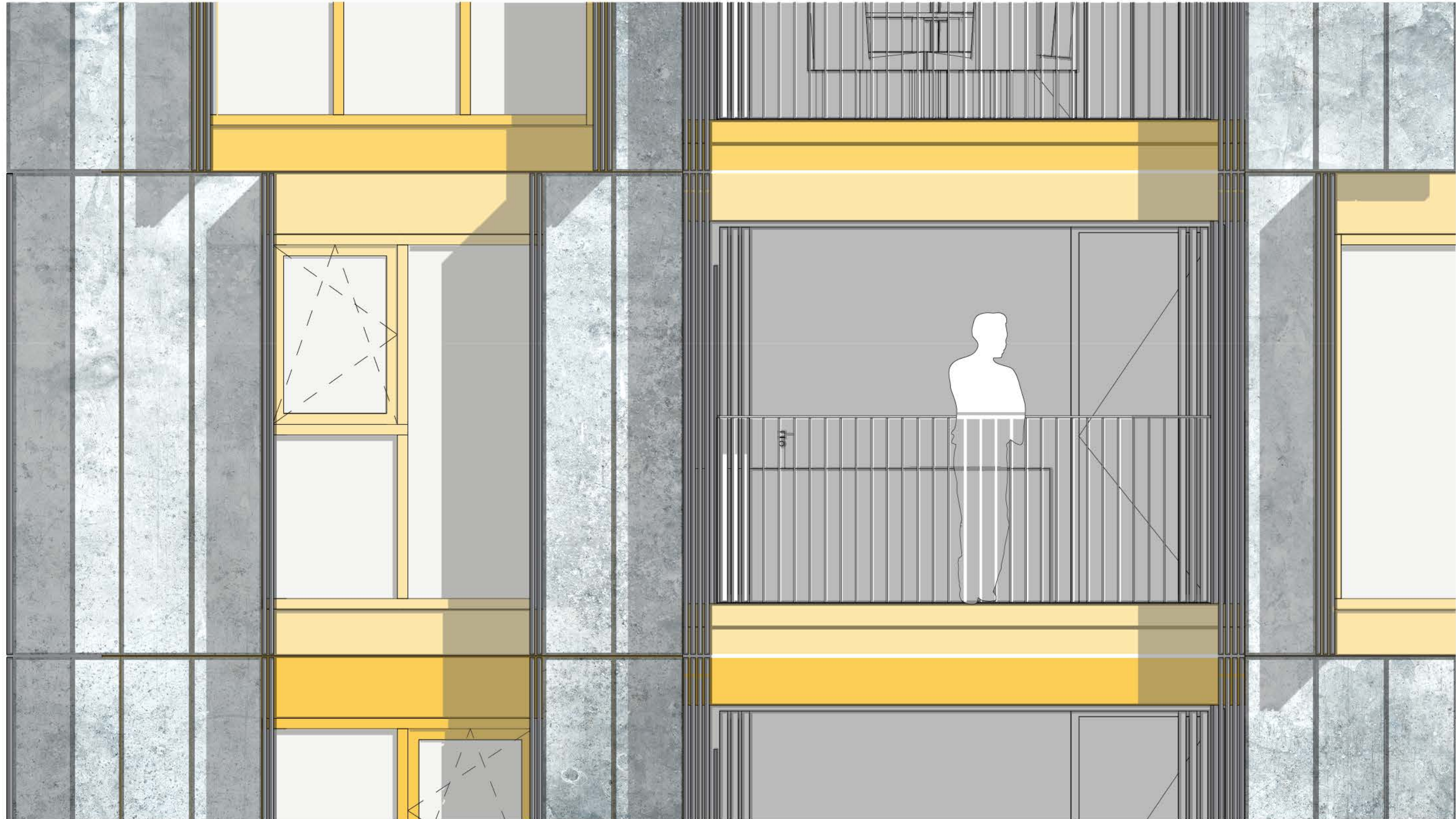


**Design**  
Facade Fragment



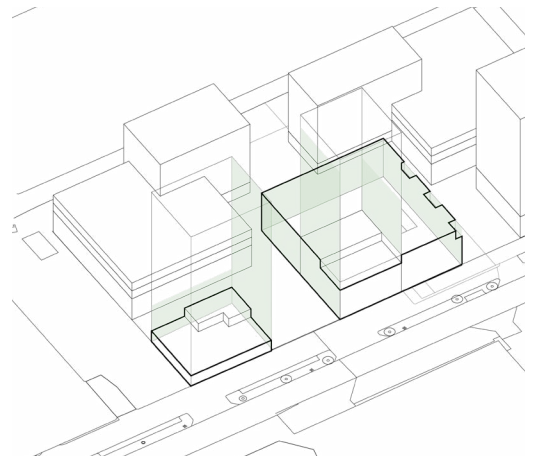


**Design**  
Facade Fragment





# Design Facade Fragment



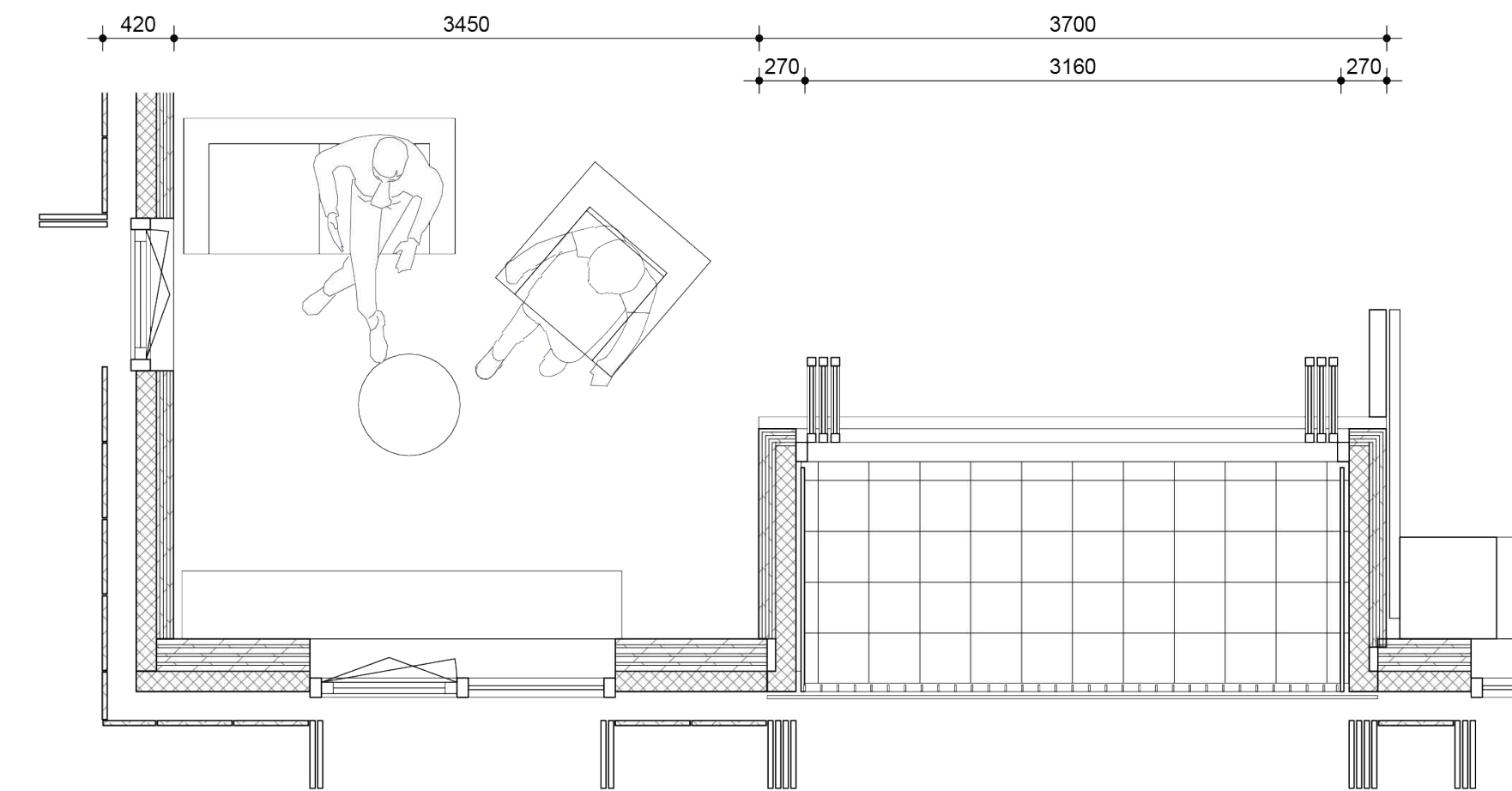
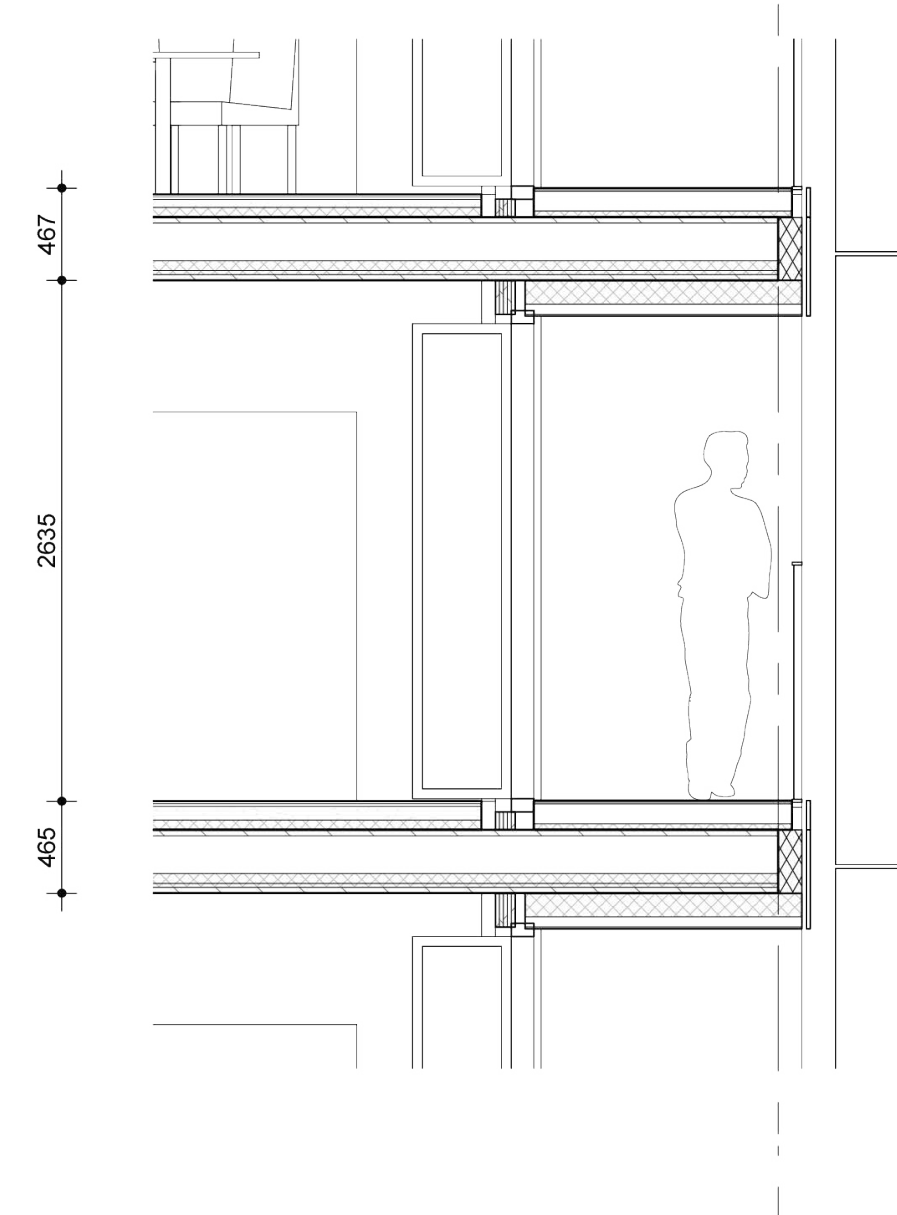
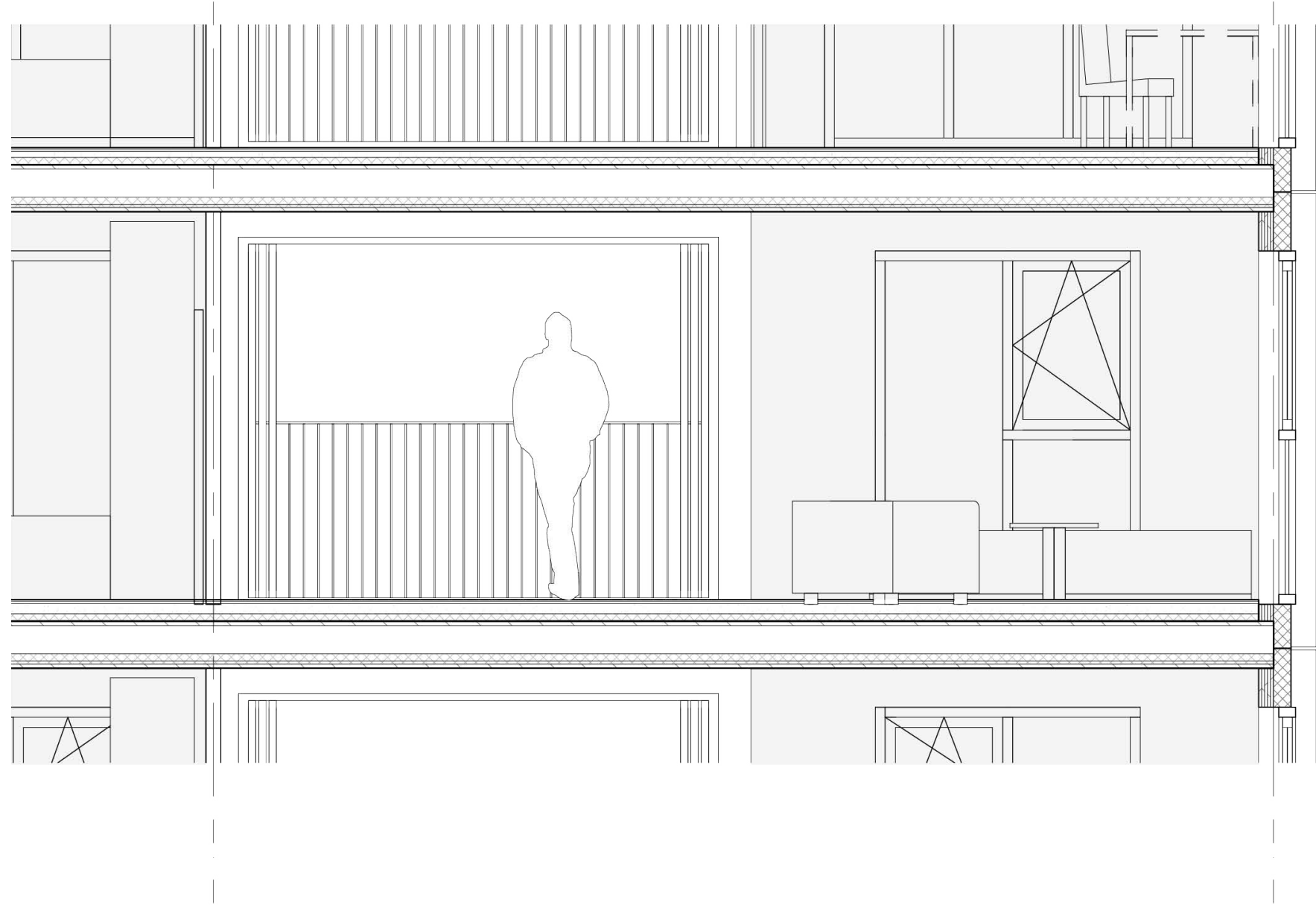


**Design**  
Facade Fragment



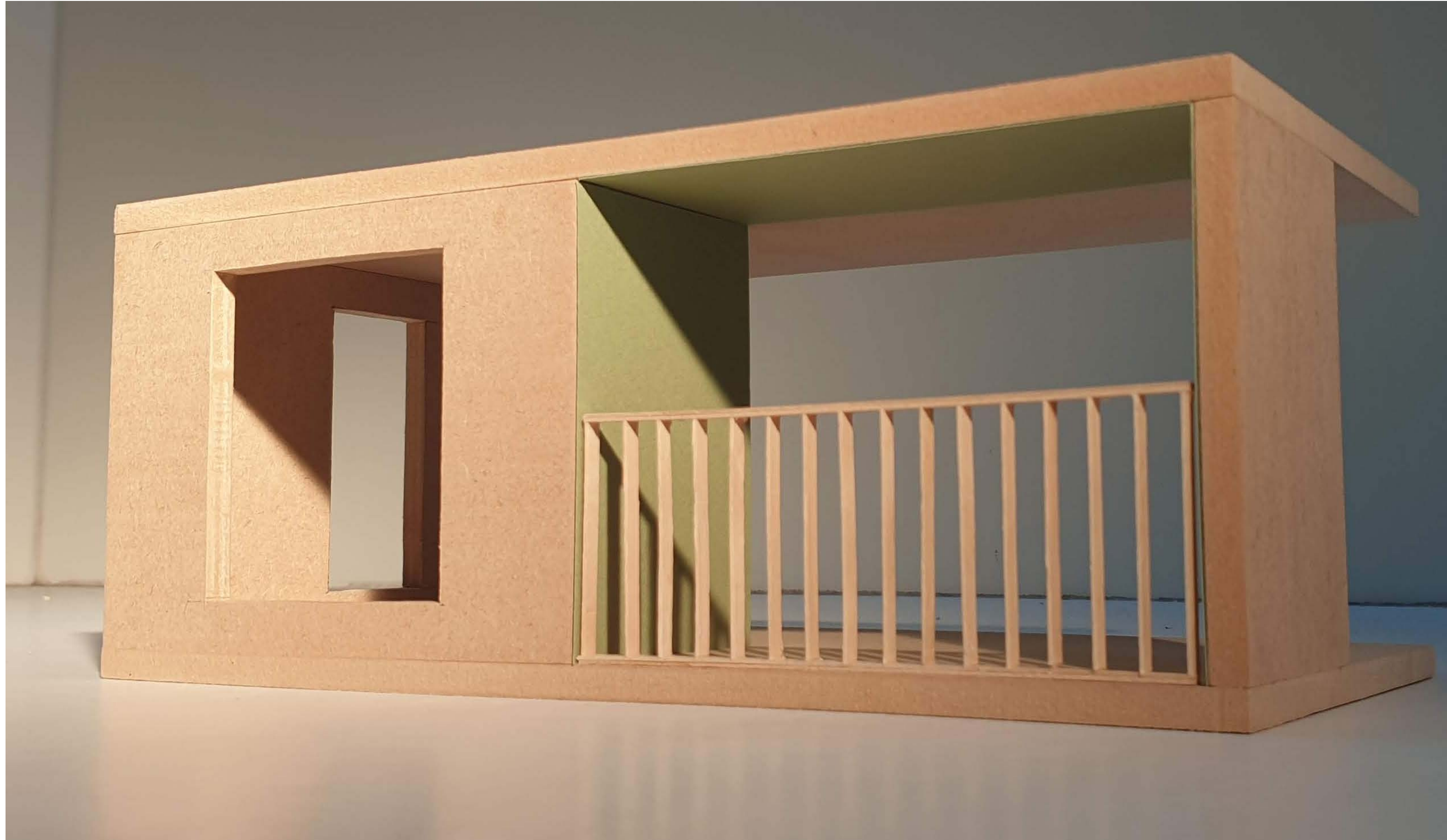


# Design Fragment



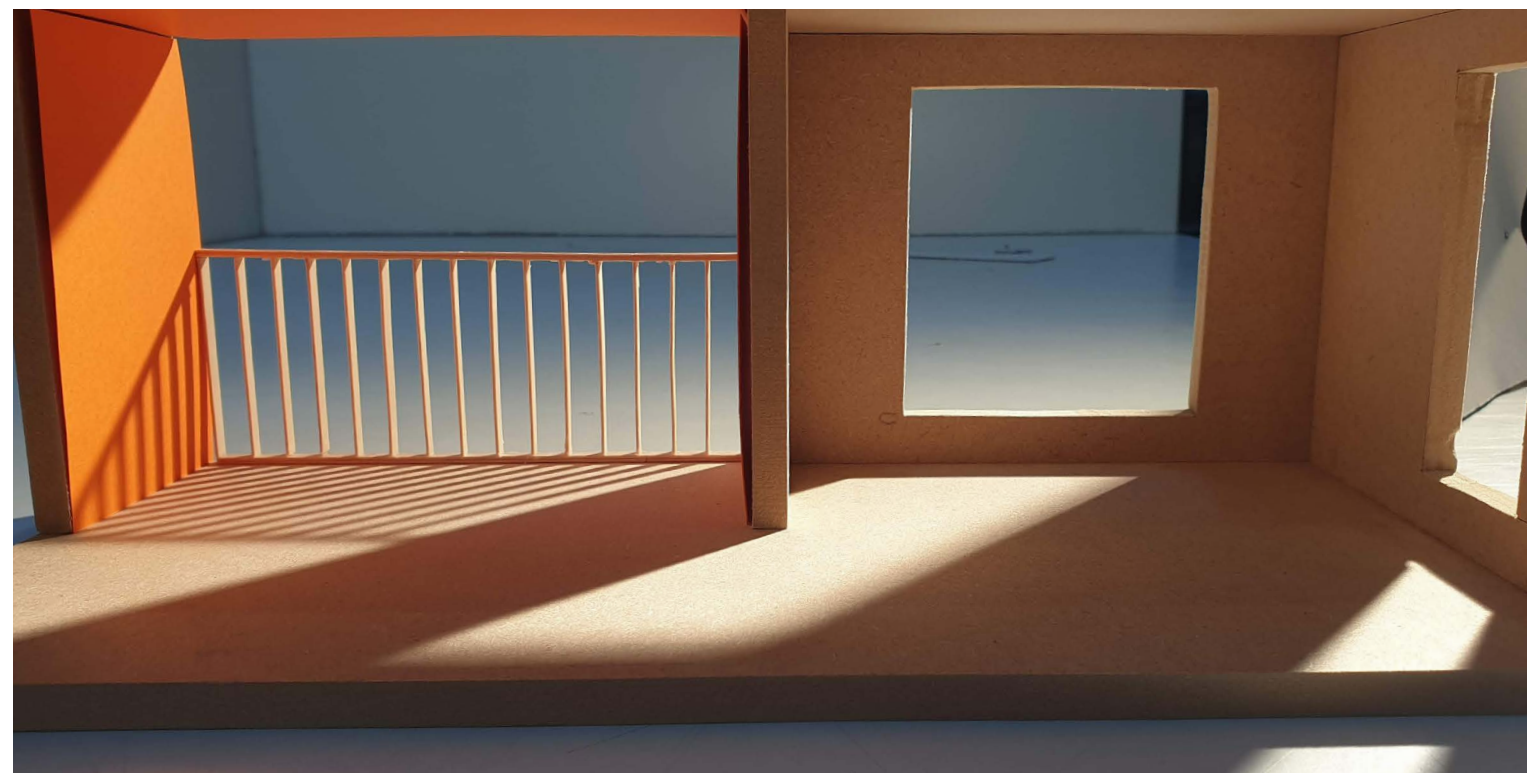
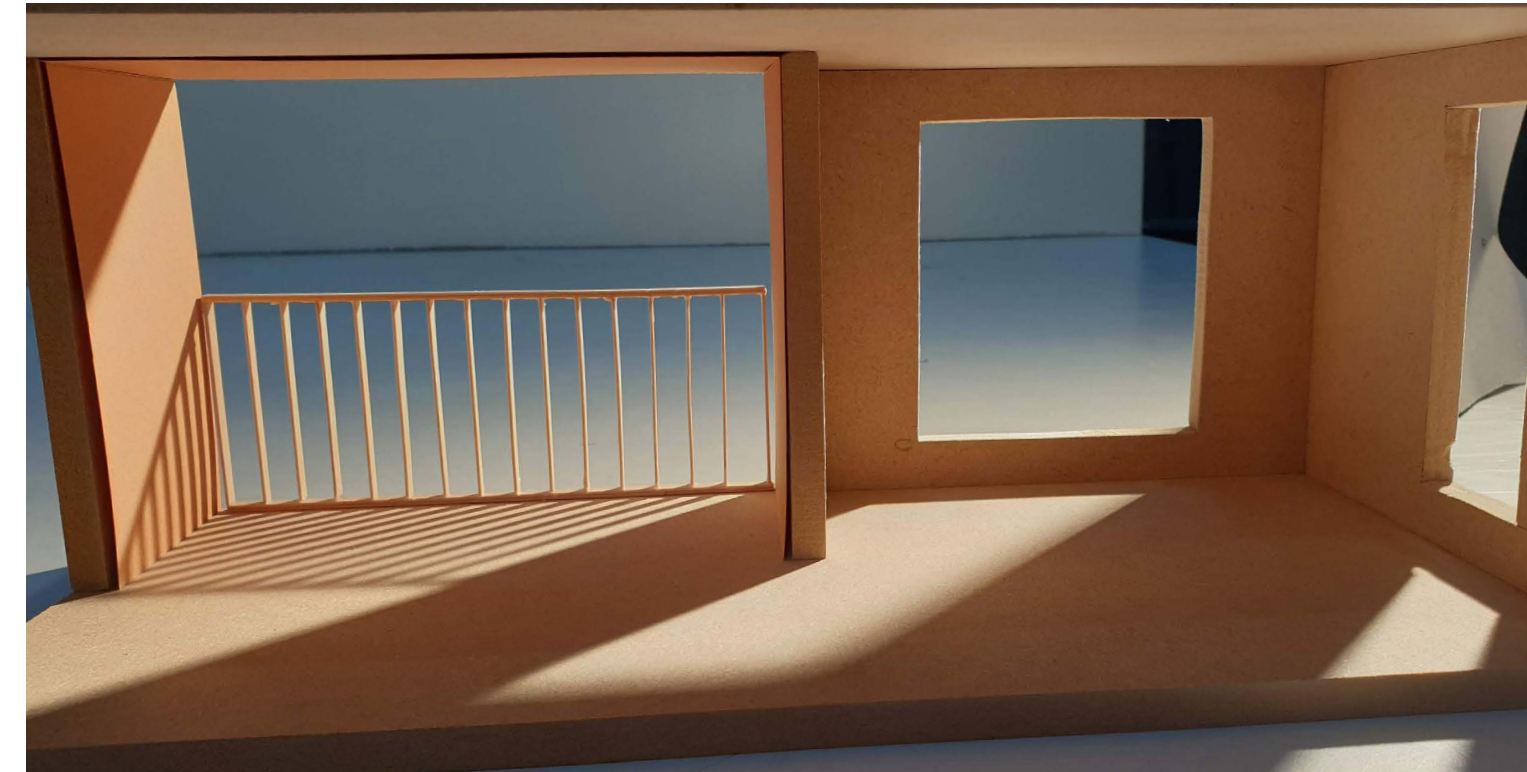


Design  
Loggia



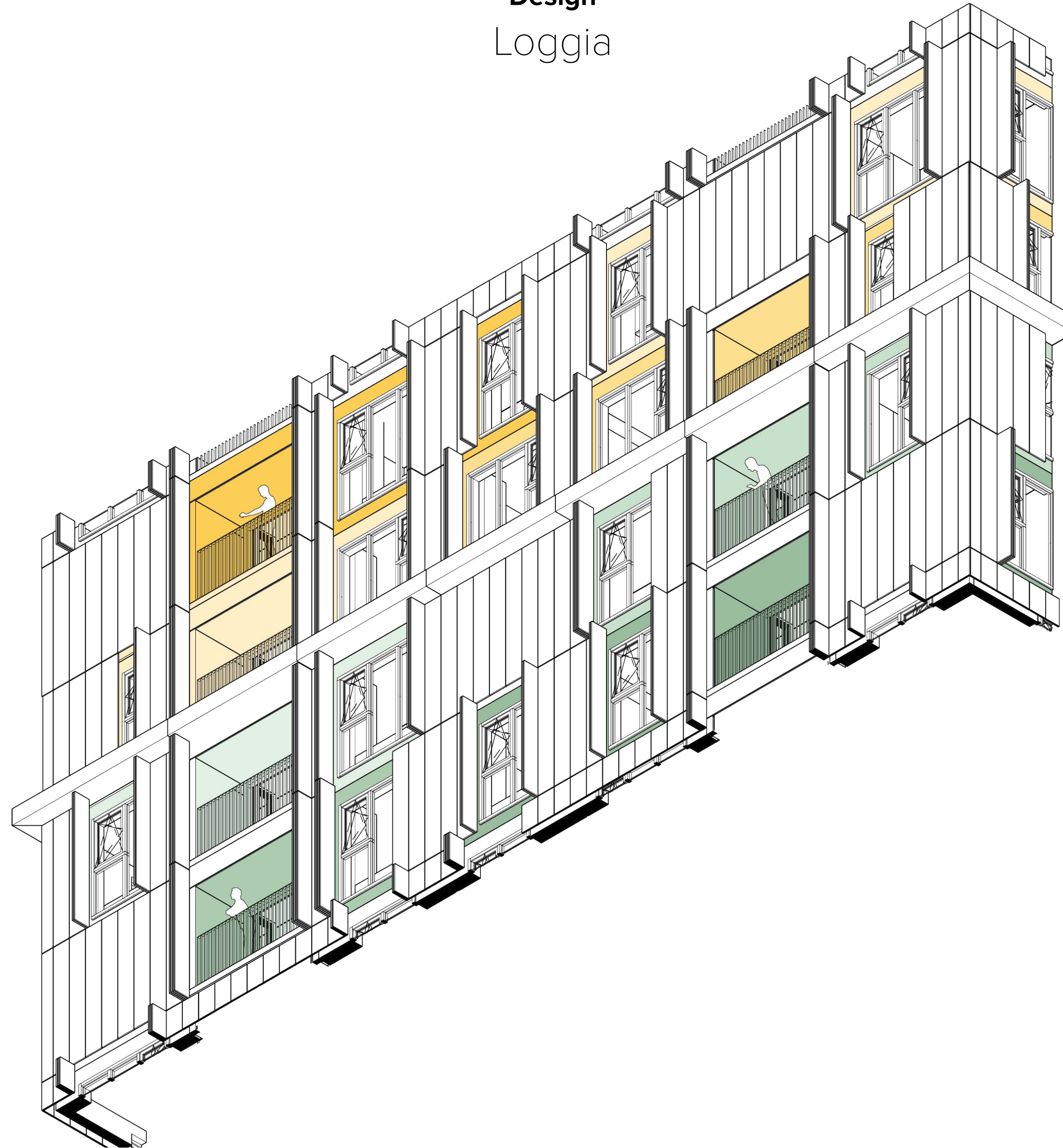


Design  
Loggia





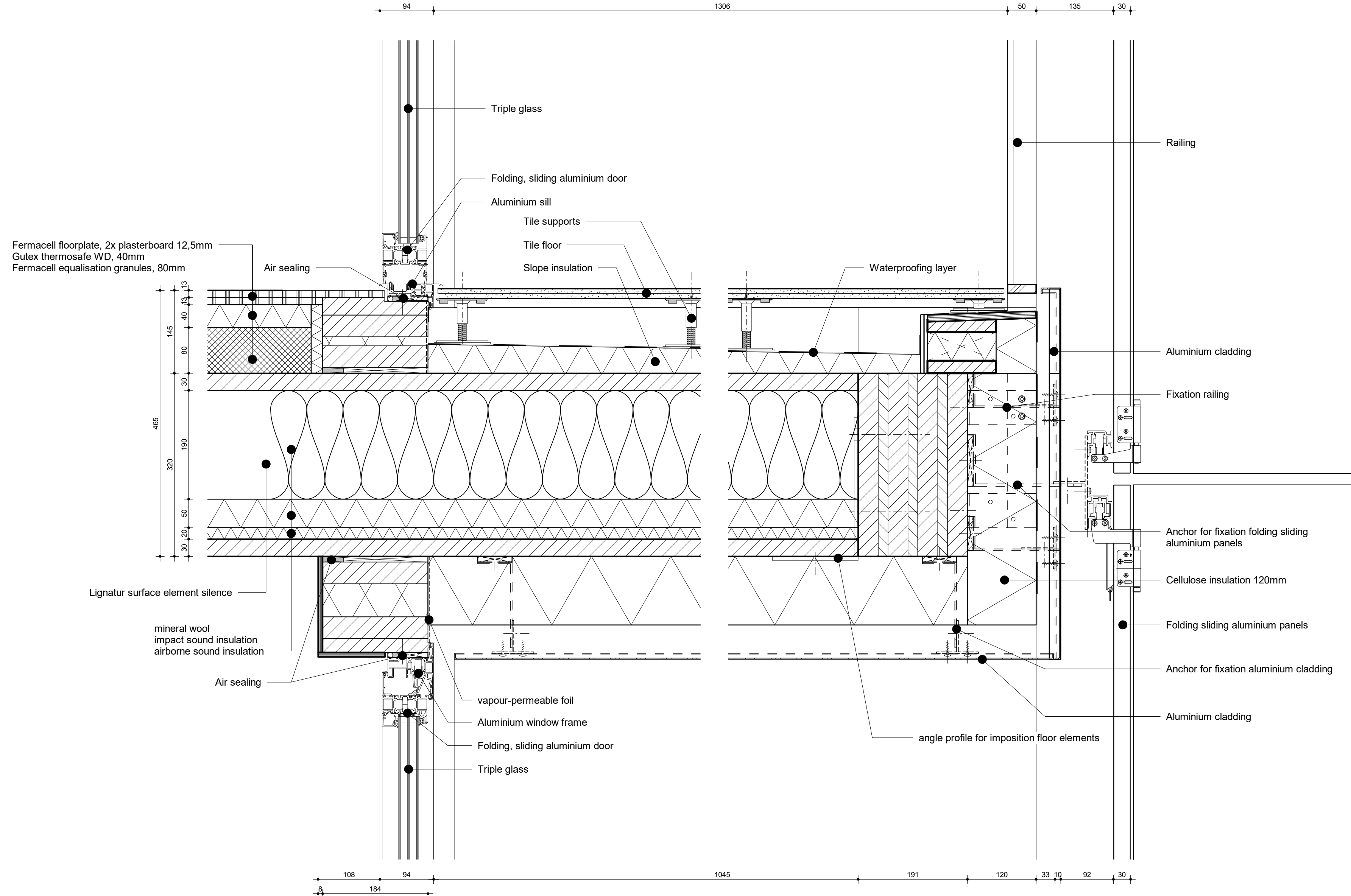
Design  
Loggia





# Design

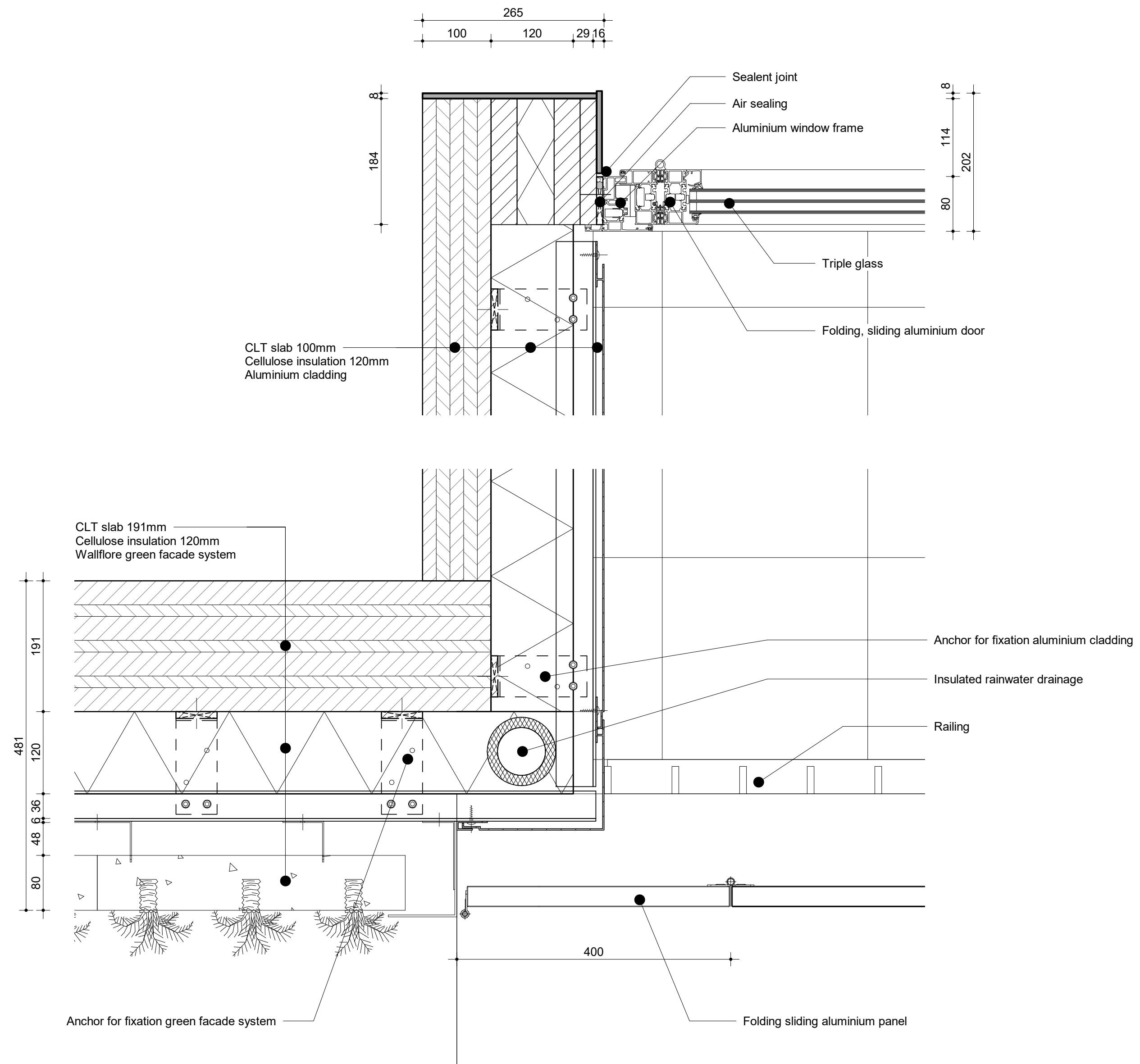
## Loggia detail





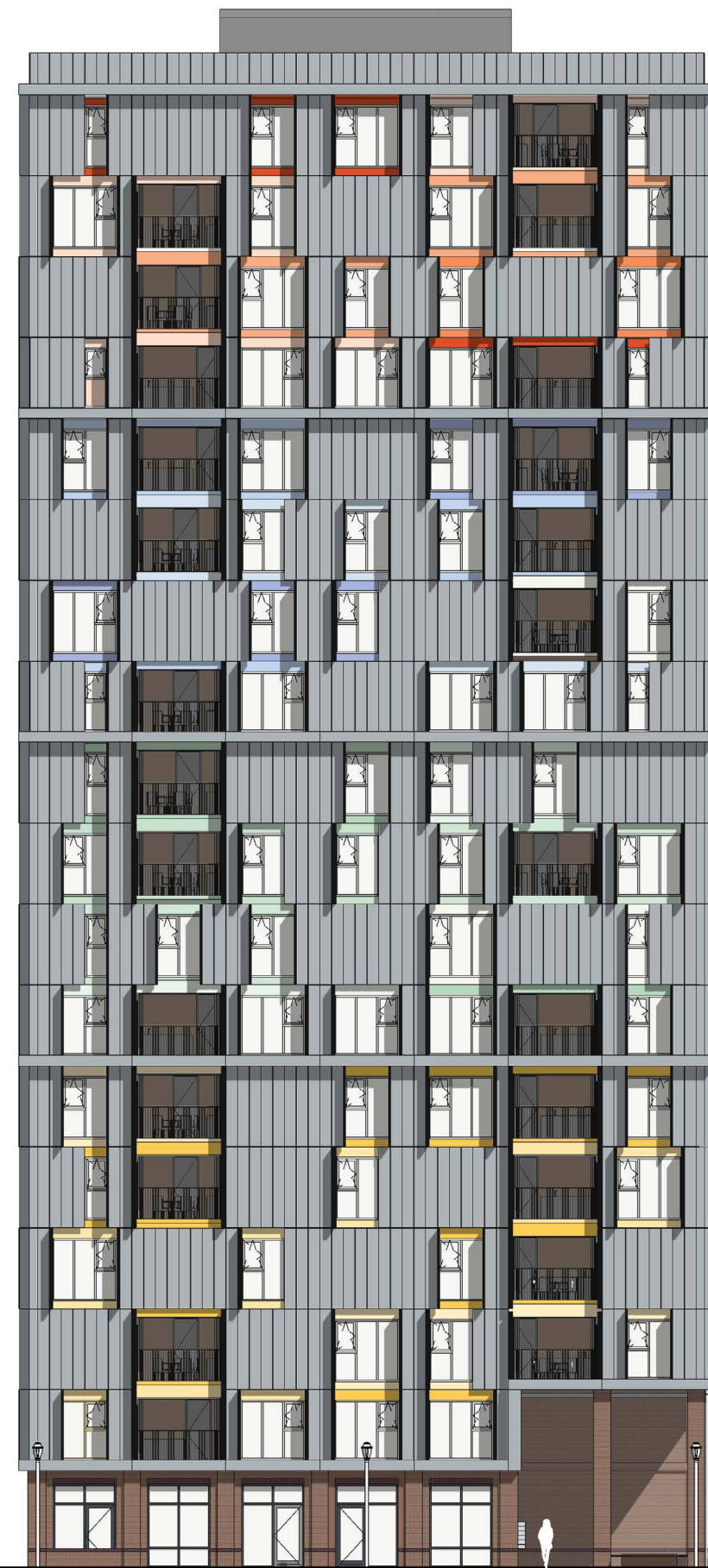
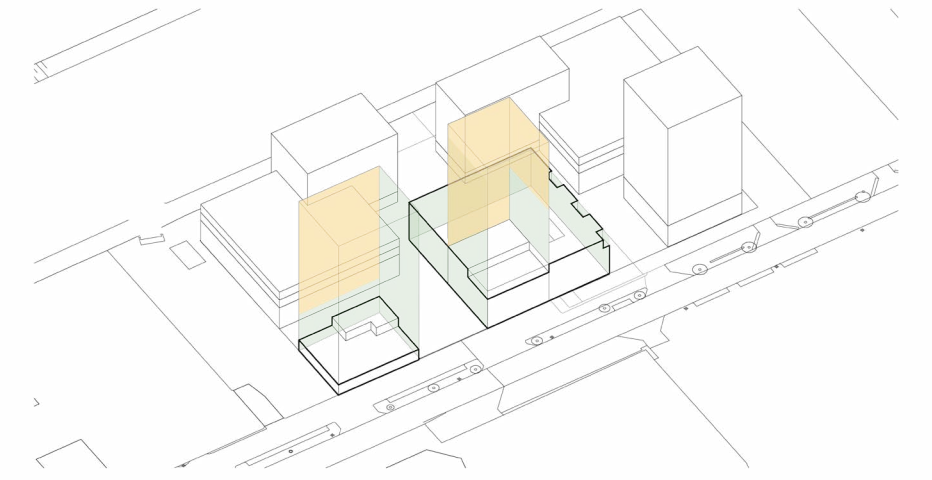
# Design

## Loggia detail





# Design Elevations



North

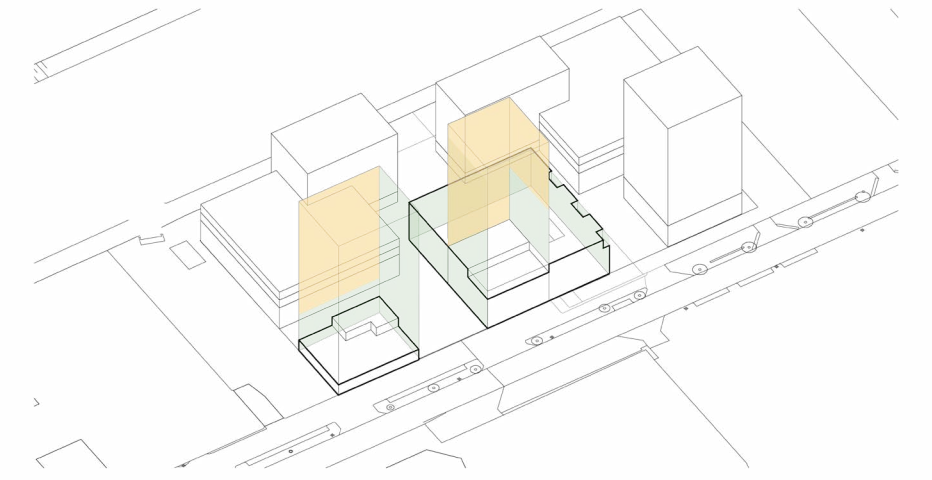


Design  
Section





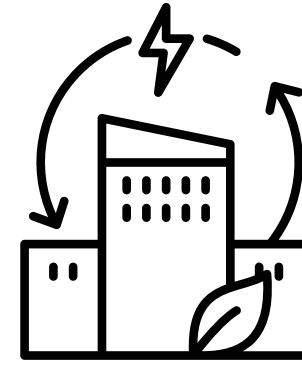
# Design Elevations



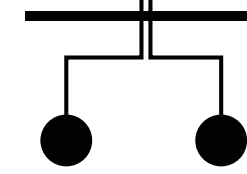
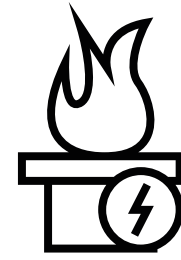
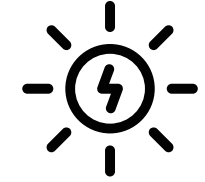
Interior facades



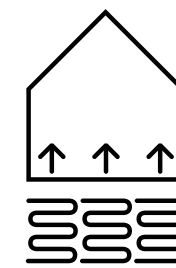
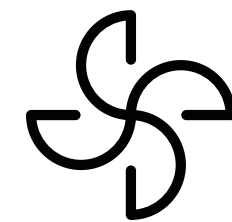
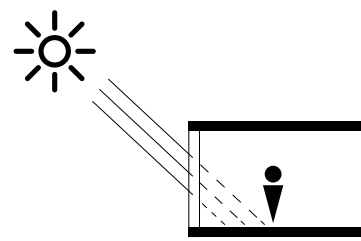
Design  
Climate



Energy neutral



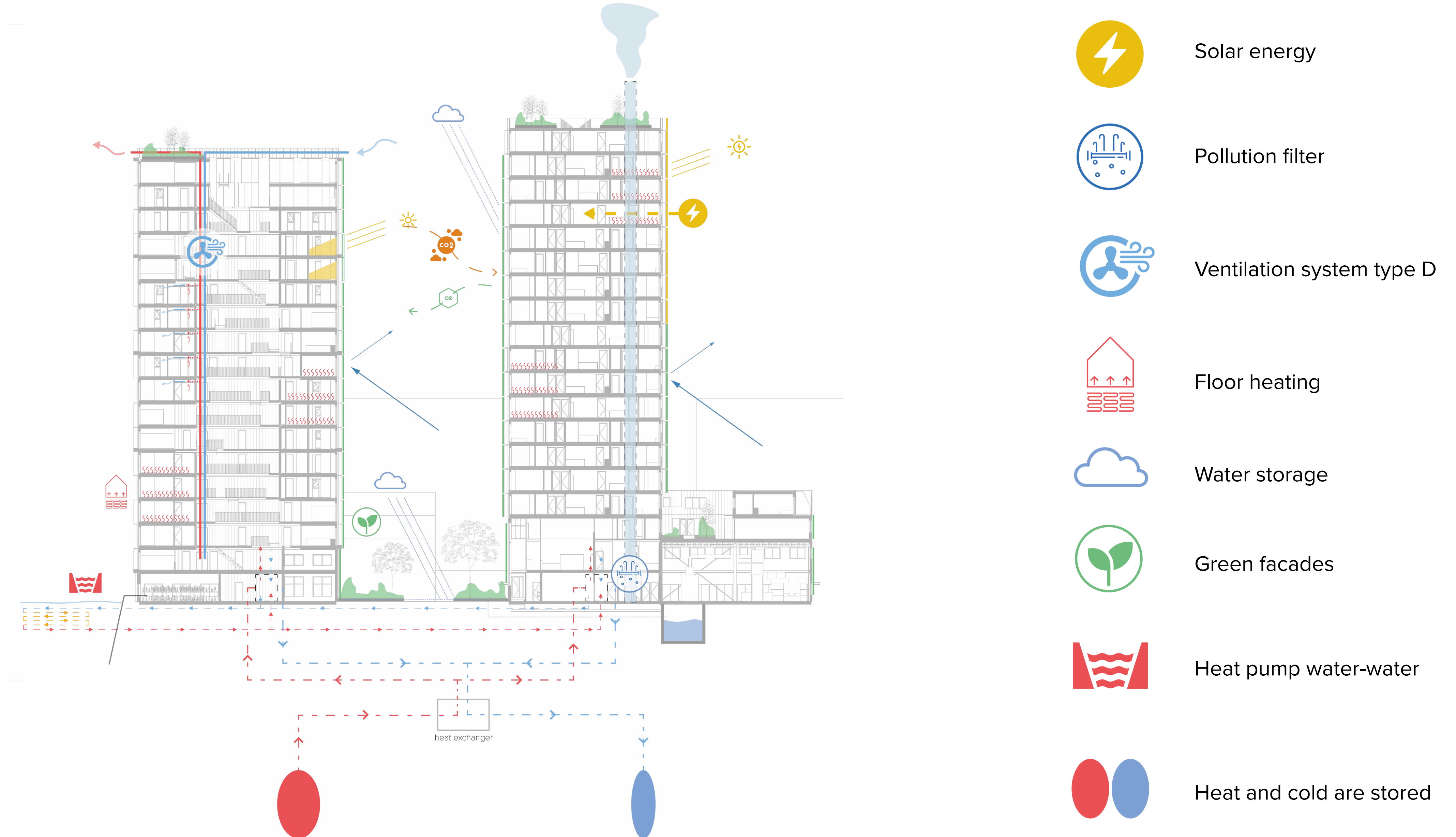
freedom for the user





# Design

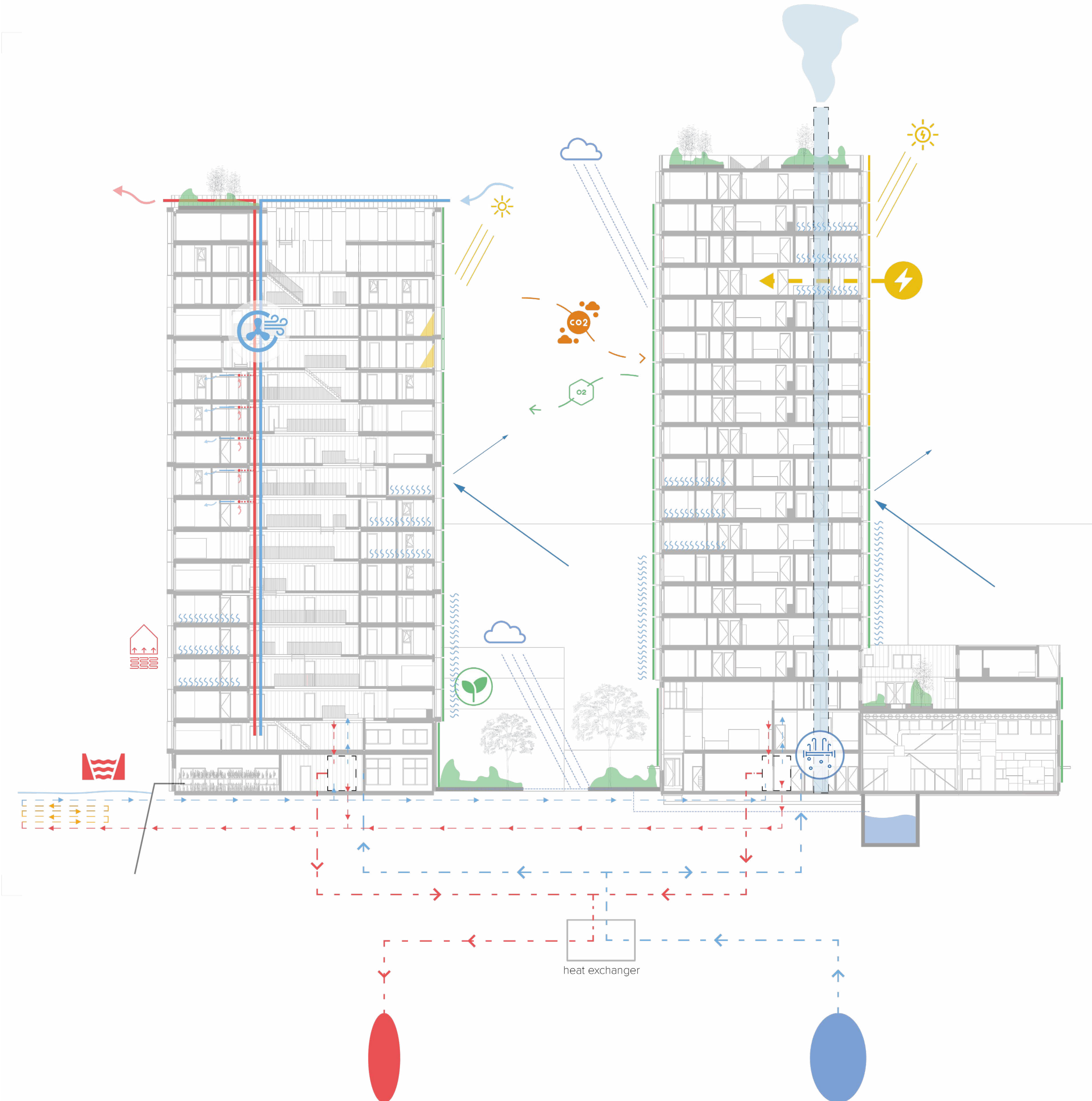
## Climate winter





# Design

## Climate summer



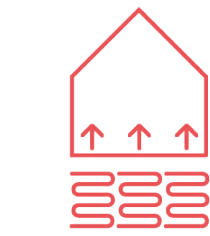
Solar energy



Pollution filter



Ventilation system type D



Floor heating



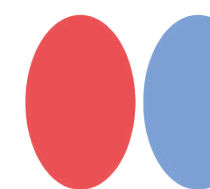
Water storage



Green facades



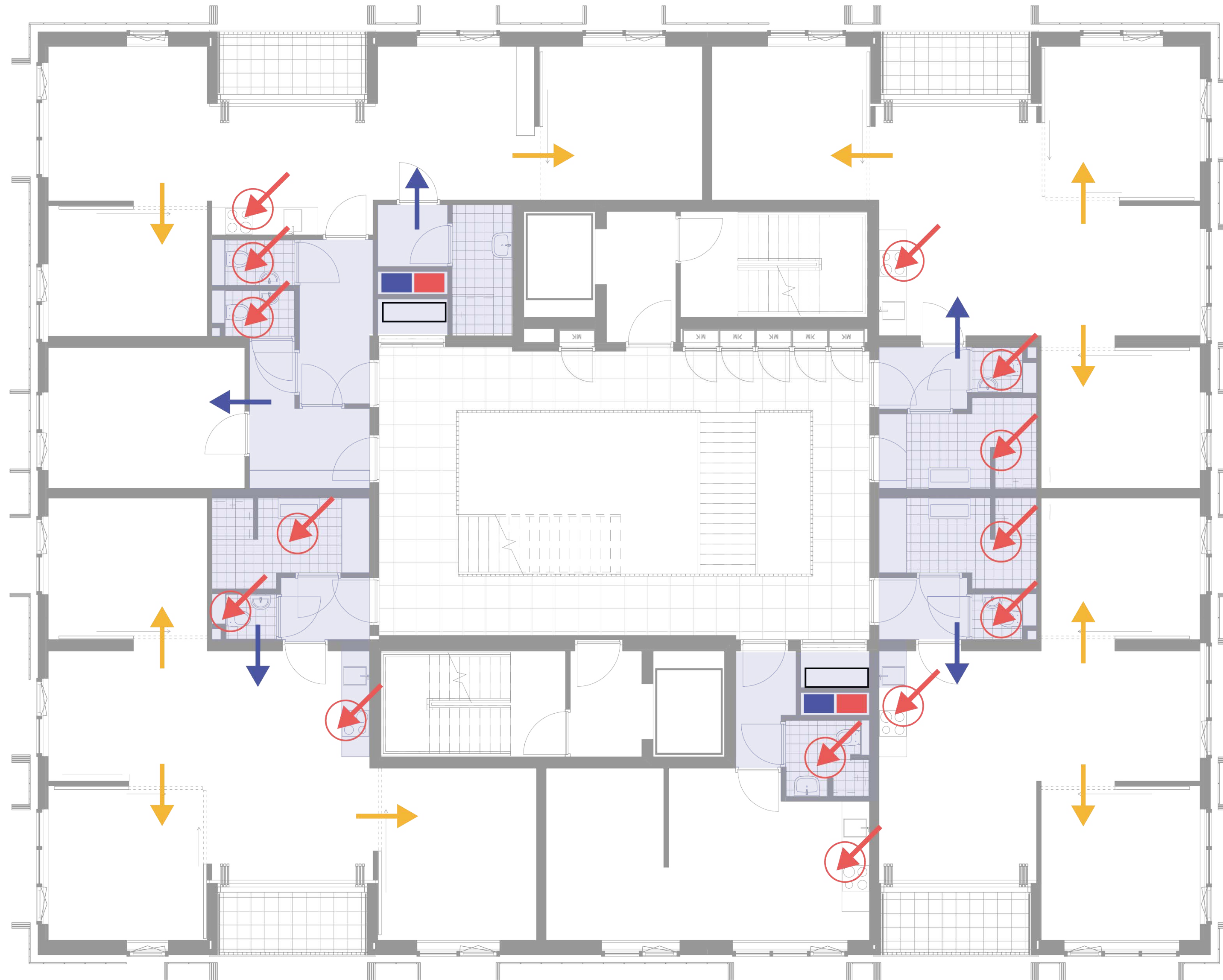
Heat pump water-water



Heat and cold are stored



# Design Ventilation type D

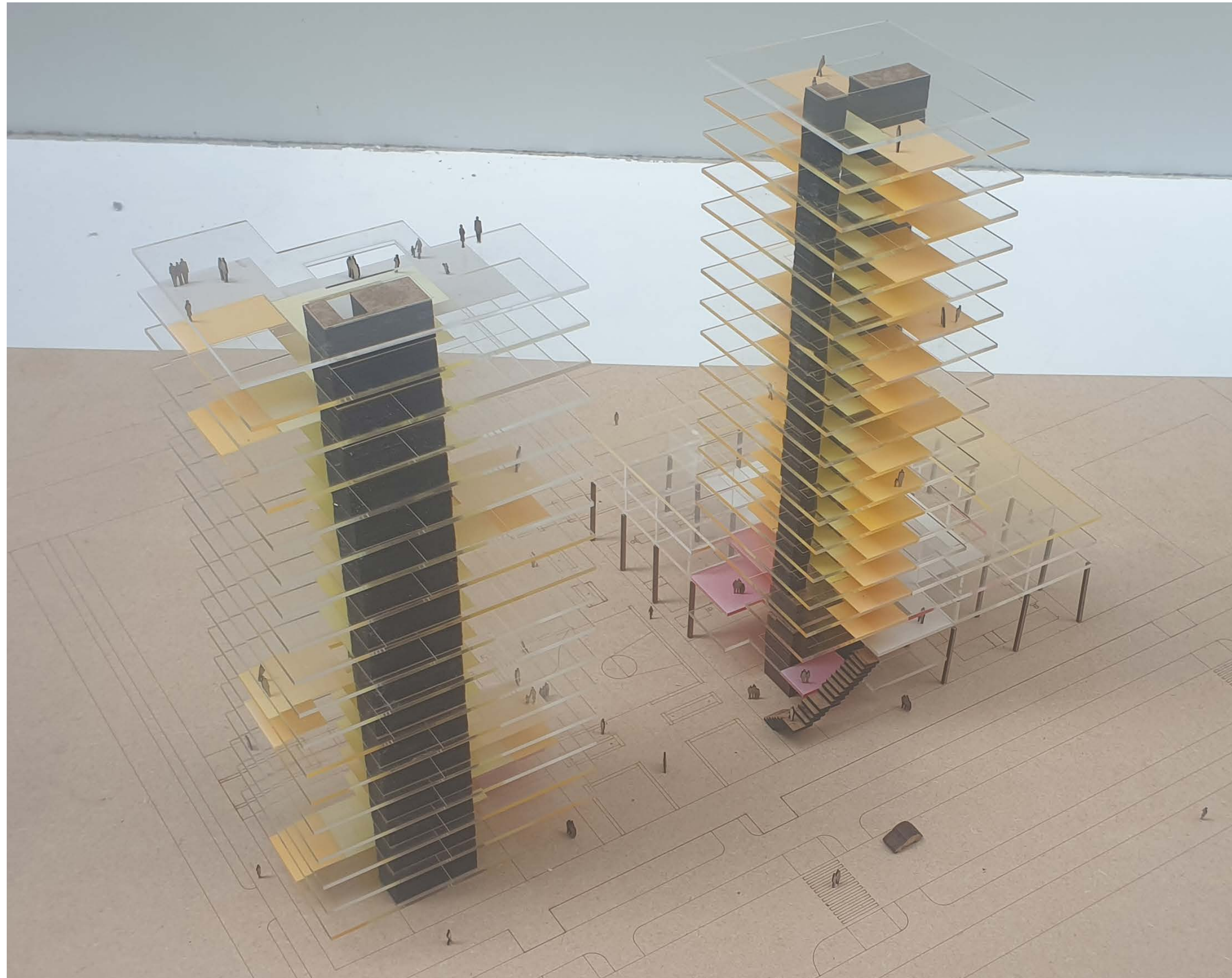


- Lowered ceiling
- Air extraction
- Air supply
- Multiflow





**Design**  
Ownership





# Rhythms to encounter

