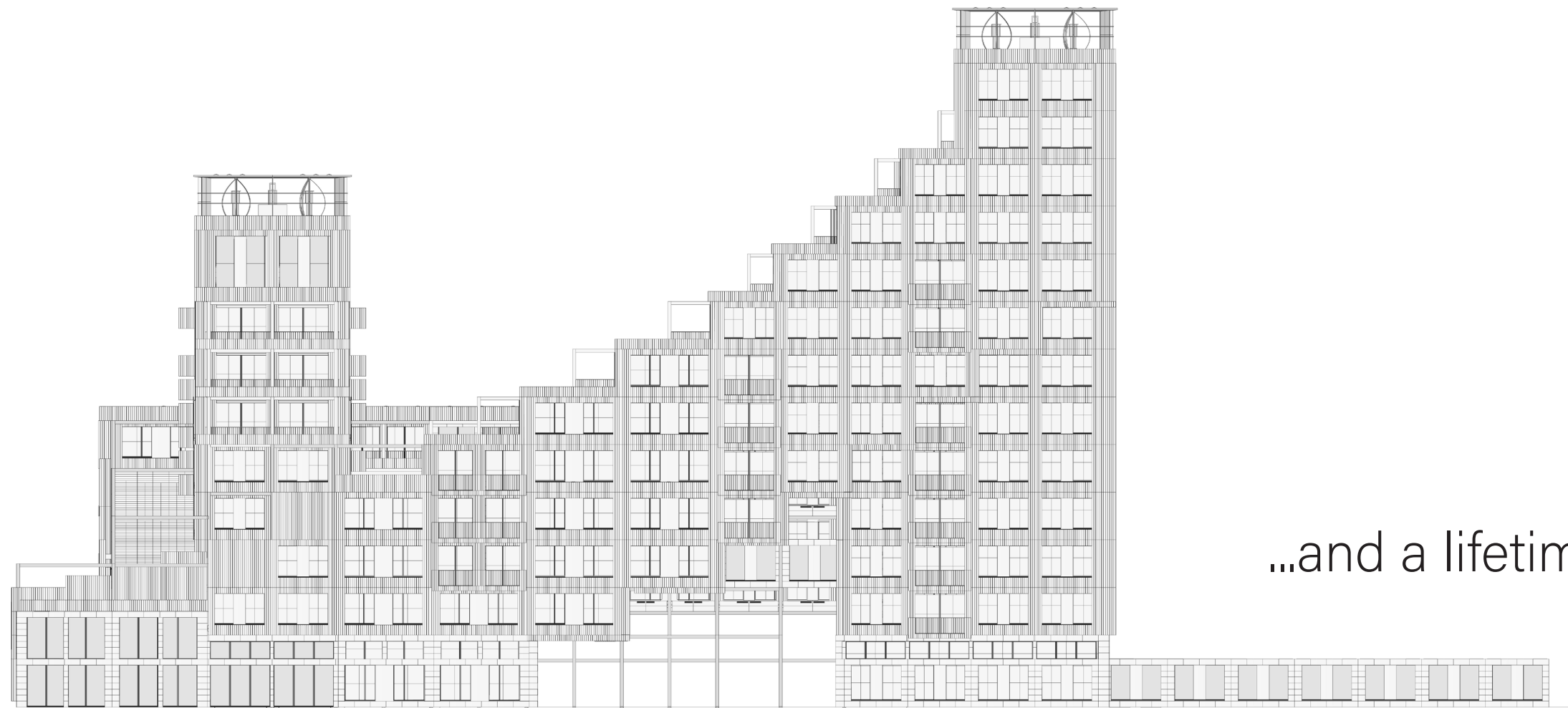


Between a day...



...and a lifetime

Integration of short-stay housing and the sharing economy in the post-war neighbourhood of Groot-IJsselmonde, Rotterdam

Tutors:
Harald Mooij
Robbert Guis
Florian Eckardt

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1.2 Problem Statement

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2.1 Sharing economy

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3. Vision

3.1 Site Analysis

3.2 Vision

3.3 Masterplan

4. Design

4.1 Mobility HUB

4.2 Neighbourhood densification

1. Introduction

Background



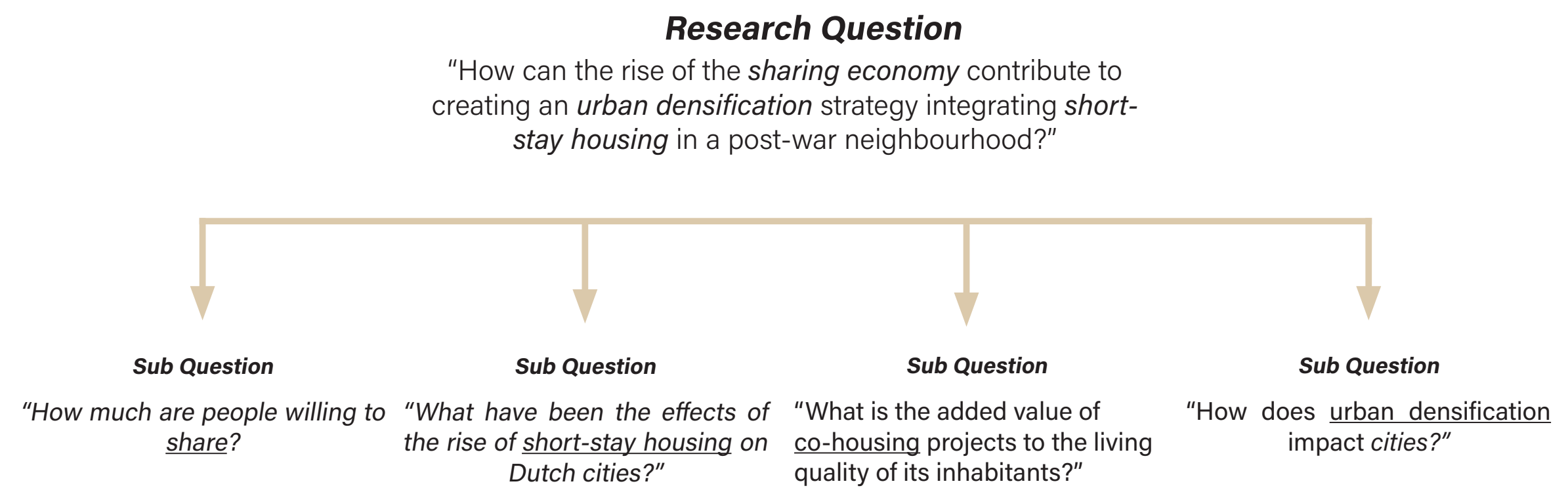
- Societies move in an ever increasing pace, with significant changes in the way we live
- Post-war neighbourhoods were the modernist response to a large housing shortage, efficiency of the 'stamps' quickly created housing with adequate living conditions
- Nearly all constructed dwellings were single-family apartments or rowhouses, which fitted the needs of the time but currently create several issues
- Short-stay platforms have revolutionized tourist accommodations in popular cities, but have attracted backlash due to increasing housing prices and nuisance

Problem statement

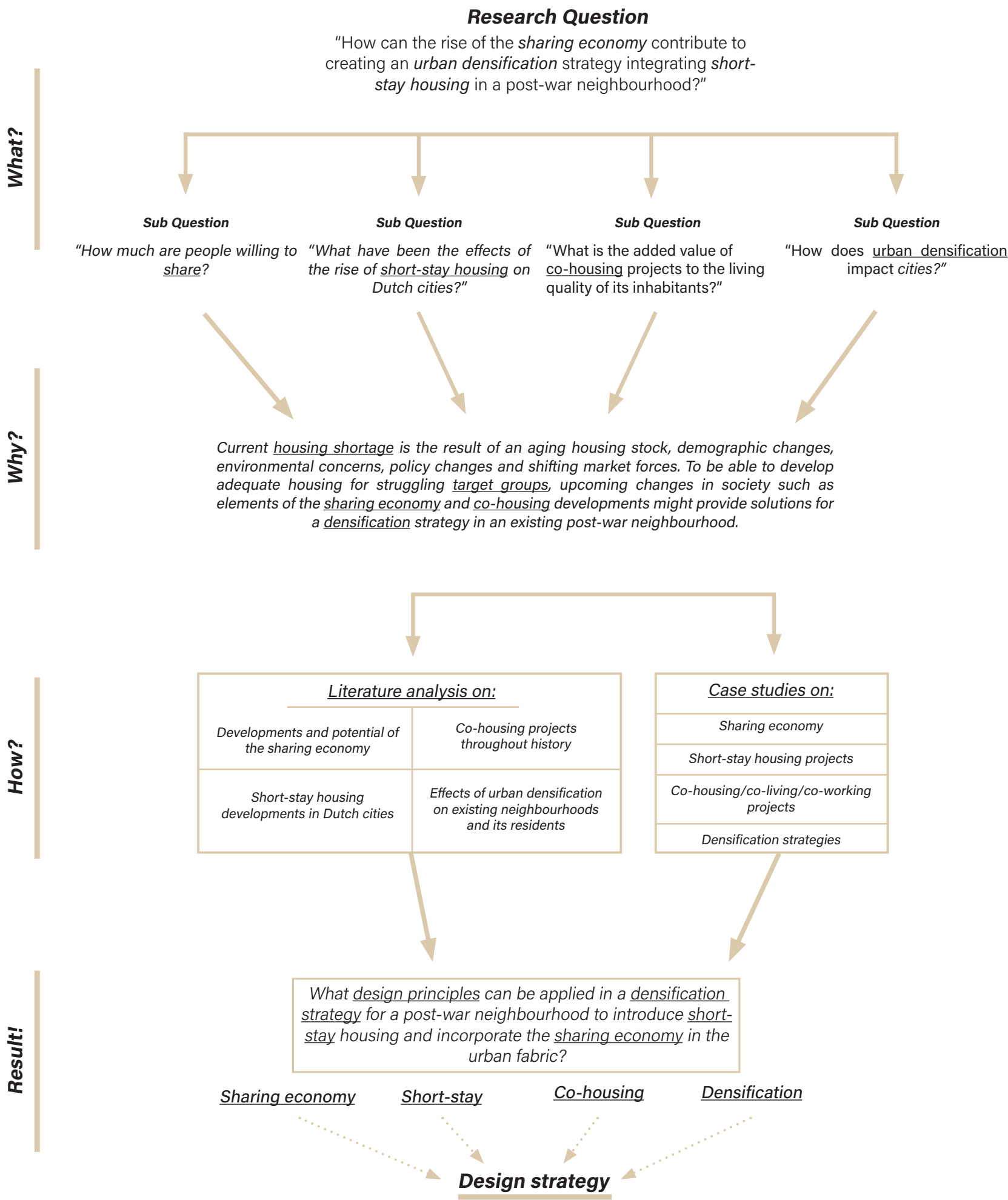
"Strong price increases are making urban housing affordability a pressing issue everywhere in the world."

- Nijskens et al., 2019

- Housing market in the Netherlands is slow and immovable, a construction sector which is lagging behind and the regulations not allowing for quick responses to changing wishes and needs in society
- Shifting market forces and digitalisation have caught up with the housing market, creating many issues on affordability and availability
- Leasing items for a short time can be a favourable option to owning because of its ease and possible cost advantage
- New ideas on ownership and sharing have yet to introduce themselves into the current housing market and architectural practises, leaving a significant potential untouched



Research structure



2. Results

Sharing economy

"Sometimes facilitating access to resources is better than facilitating ownership of resources."

- Hendrith Vanlon Smith Jr

Figure 4: Deelmobiliteit Zonder Overlast (n.d.)

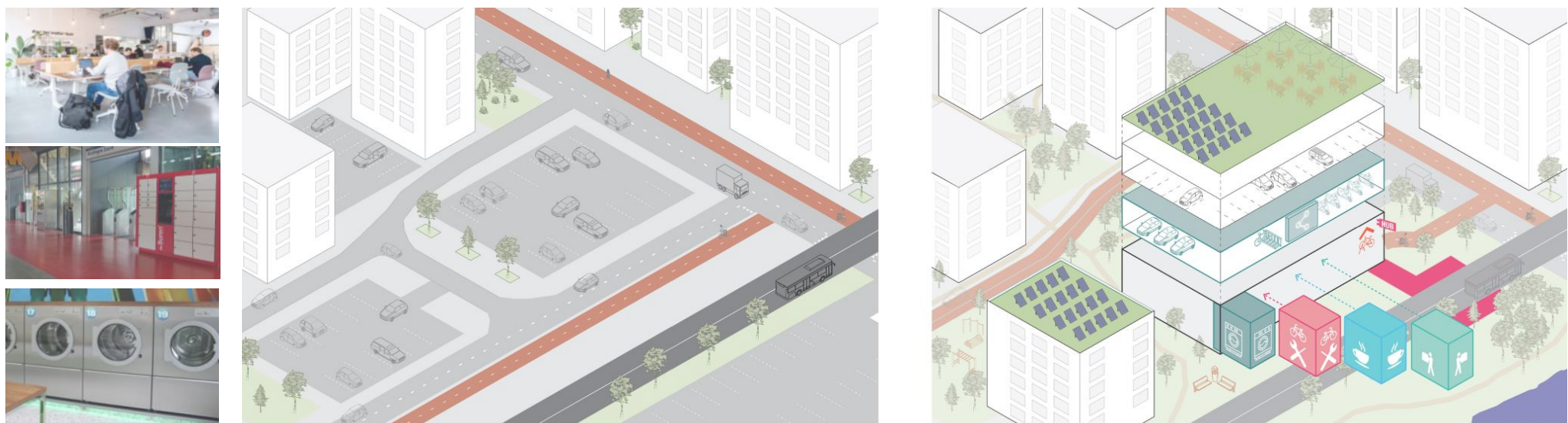
Definitions:

1. Recirculation of goods;
2. Increased utilization of durable assets ;
3. Exchange of services;
4. Sharing of productive assets.

Beneficial for several target groups by its potential to enable (short) social relationships

Sharing is based on trust and therefore works best if the group of people sharing remains small

5. MOBILITEITSHUBS: VAN P-GARAGES NAAR COMMUNITY HUBS



- Geclusterd autoparkeren uit het zicht
- Meer groen en verblijven in de wijk
- Minder autoverkeer
Meer lopen
- Multi modale hub (OV, MaaS)
- Community services
- Smart grid (schaalvoordelen)
- Flexibel transformeerbaar

Goudappel
MOBILITEIT BEWEGT ONS



ECORYS

Case studies

Project info

- completed in 2021
- 120 dwellings
- 7 buildings
- 100 parking spaces
- shared; garden, communal spaces, working spaces, cars, (cargo) bikes, commercial spaces

Figure 8: Facade of block 26 of Woon& (Cobouw.nl)

Project info

- to be completed in 2021
- 262 dwellings
- 7 buildings
- 100 parking spaces
- shared; common room, gym, parking garage, (cargo) bikes, commercial spaces, 'sharing wall' for tools etc.

Figure 15: Impression of SPOT (Architectenweb.nl)

Project info

- Published in 2022
- Aims at improving 'slow traffic' in cities
- 6 reports.
- Arguments for 'the 15 minute city'
- Case-studies on Rotterdam & Zwolle

Figure 19: Programma deelmobiliteit (Kwantes et al.)

Project info

- completed in 2019
- 51 dwellings
- 7 buildings
- 100 parking spaces
- shared; garden, tools, vegetable garden, bikes, experiences

Figure 24: (Delva Landscape Architectuur)



Many positives that tourism and short-stay housing can bring, but lessons can be learned from big cities overrun by tourists

Rotterdam aims at the 'do-rist', being an active participant of the Rotterdam way of life

Short-stay housing as a driver of gentrification

Short-stay target groups

<div>1 year</div> <div>Length of stay</div> <div>1 day</div>	Expats	<ul style="list-style-type: none">- Trend is short-stay- High income- English speaking	<ul style="list-style-type: none">- Want to integrate, but face cultural issues in the Netherlands- Creative expats seek cheap appartments ,technical expats seek affordable suburb housing- Social contacts with other expats, few local ties
	Recently divorced	<ul style="list-style-type: none">- Risk of homelessness- Releaving stress is found to be important- In need of new social contacts after a divorce	<ul style="list-style-type: none">- Single person household- Relatively low budget- Increasingly opt for co-parenting
	Refugees	<ul style="list-style-type: none">- Appointed housing within 10 weeks- Family's get appartments, singles get rooms- (very) low budget	<ul style="list-style-type: none">- Lack culture-specific skills and knowledge- Social interaction promotes integration- Create social-bonds through collaboration
	Seasonal migrant worker	<ul style="list-style-type: none">- Footloose migrants have a high risk of social issues and home-lessness- Often have (lower segment) jobs- Integration through social interaction would aleviate issues	<ul style="list-style-type: none">- Single person household- Middle-schooled, often work lower than their education- (very) low budget
	Economically homeless	<ul style="list-style-type: none">- Urgent need of housing- Often have (lower segment) jobs- Increase in homelessness among 20-30 year olds	<ul style="list-style-type: none">- Single person household- Middle-schooled- (very) low budget
	Tourists	<ul style="list-style-type: none">- Can be for as little as one night- Higher 'per night' budget compared to regular rent- Positive interaction between residents and tourists is crucial for sustainable tourism	<ul style="list-style-type: none">- Tourism encounters may improve social interactions but can lead to difficulties due to rules over social behaviour- Travelling to get a view on a different culture- Not only share their accomodation with the host, but also their presence with the community

Short-stay target groups

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	Refugees	<ul style="list-style-type: none">- Appointed housing within 10 weeks- <u>Family's get appartments, singles get rooms</u>- (very) low budget	<ul style="list-style-type: none">- Lack culture-specific skills and knowledge- <u>Social interaction promotes integration</u>- Create social-bonds through collaboration
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Case-studies

Project info

- completed in 2019
- 279 units, with up to 412 rooms
- 7 buildings
- connected to a large commercial centre
- shared; gym, communal lounges, kitchens, bathrooms, roof garden, working spaces, commercial spaces

Figure 47: Facade of lyf funan (Discoverasr)

Project info

- completed in 2016
- 546 bedrooms
- 2 building volumes
- crossover between student housing and hotel
- shared; gym, communal lounges, kitchens, bathrooms, roof garden, working spaces, commercial spaces

Figure 42: The Collective Old Oak (PLP Architects)

Project info

- completed in 2016
- 400 rooms
- Energy production by windmills on top
- A bike is included with the room
- shared; communal spaces, workshop spaces, café, gym

Figure 53: The social hub, eindhoven (The Social Hub)

Project info

- completed in 2020
- 340 rooms
- hybrid-hotel concept; high-end hotel functions combined with short- and long-stay student facilities
- shared; communal spaces, working spaces, classrooms, library, meeting rooms, commercial spaces

Figure 60: The Student Hotel, Delft (KCAP Architects)

Co-Housing

"Co-housing is the best future for many people, they just don't know it yet."

-Kindig, 2018

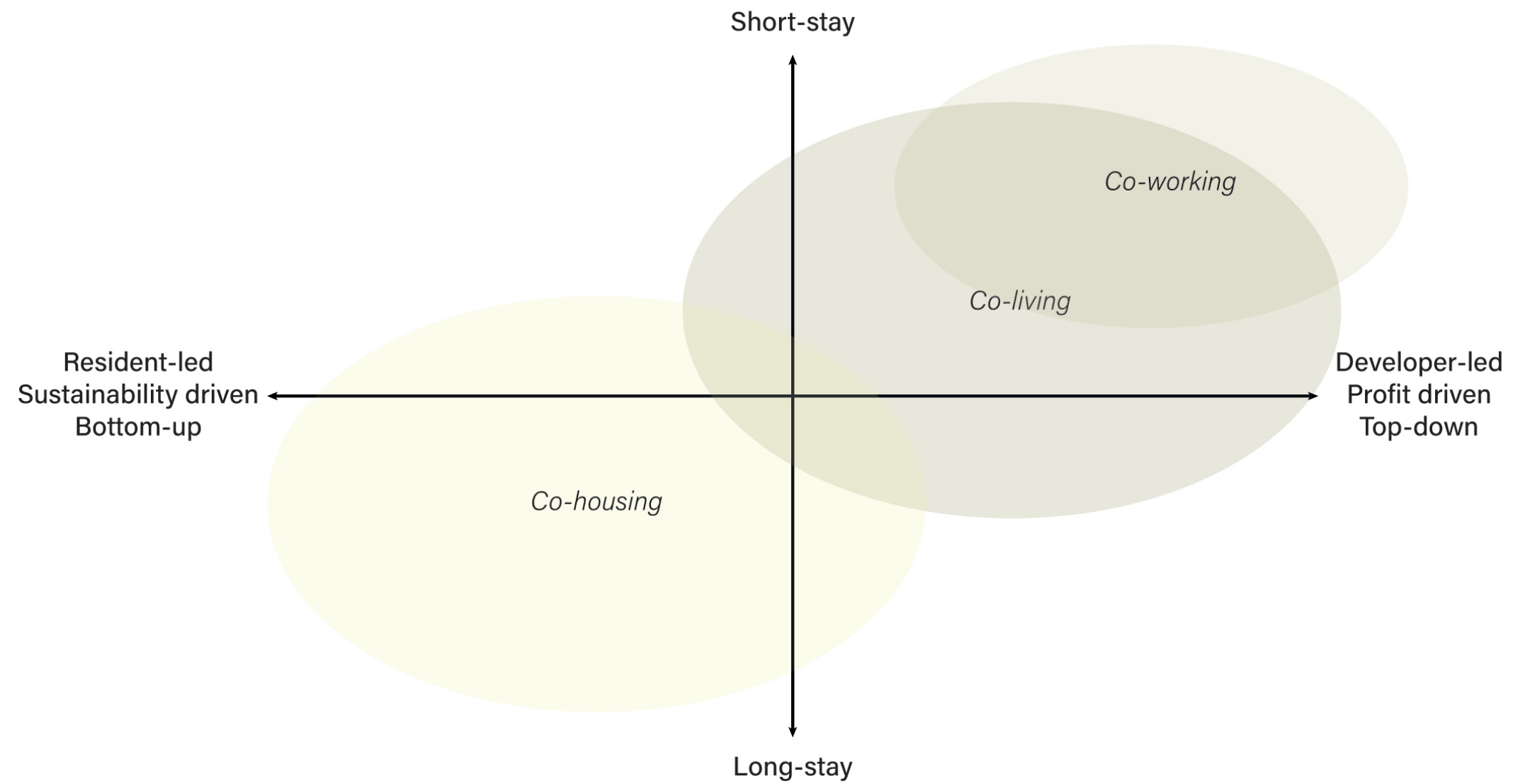
Creates many observed social, sustainable and economic benefits

Big rise in the last few decades, with the Dutch government looking into policies to support initiatives

Extended into the economic sphere through co-living and co-working, which share characteristics with co-housing

Figure 66: History of Cohousing (Milman, 1994)

Co-Housing



Case-studies



Project info

- completed in 2015
- 11 clusters with 10 to 12 dwellings
- 2 buildings
- shared; common room with living room, kitchen and working spaces, launderette, bikes.

Figure 71: Facade of one of the building blocks (mehr als wohnen)



Project info

- completed in 2013
- 64 unique dwellings
- 3 buildings
- Combination of standard appartments and cluster units
- shared; carpentry workshop, kitchen, studios, daycare center, co-working space, spaces for cultural project.

Figure 82: One of the blocks of Spreefeld (Archdaily)



Project info

- completed in 2015
- 138 dwellings
- 5 buildings
- Passive house concept
- shared; event room, restaurant by locals, workshop spaces, offices, guest apartments, laundry room

Figure 76: WagnisArt at night (Archdaily, Gonzaléz)



Project info

- completed in 2013
- 13 rooms
- 7,2 m2 per room
- shared; kitchen, bathroom, dining, living room, working spaces, laundry, storage

Figure 90: Facade of LT Josai Shared House (Archdaily, b)

Urban Densification

Urban densification is essential for the growth of cities and sprawl significantly reduces energy consumption

Soft urban densification is a slow process in which small interventions are done

Hard urban densification is a top-down, government led process, usually encompassing large areas

Case-studies

Soft urban densification



Project info

- completed in 2020
- changing housing needs; smaller households
- 4 strategies for post-war neighbourhoods
- Focusses on environmental, social and economically viable solutions

Figure 105: Example of urban densification (KAW architecten)

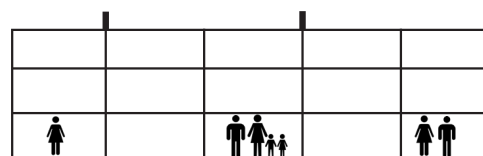
Hard urban densification



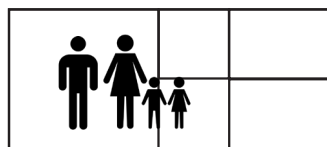
Project info

- Under construction
- > 16.000 residents
- shared; gardens, communal spaces, working spaces, cars, (cargo) bikes, commercial spaces

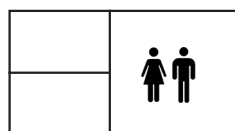
Dwelling types



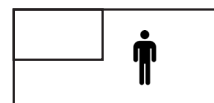
Terraced houses



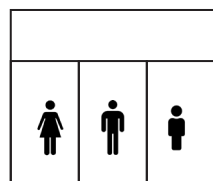
Single-family apartments



One-bedroom apartments



Studios

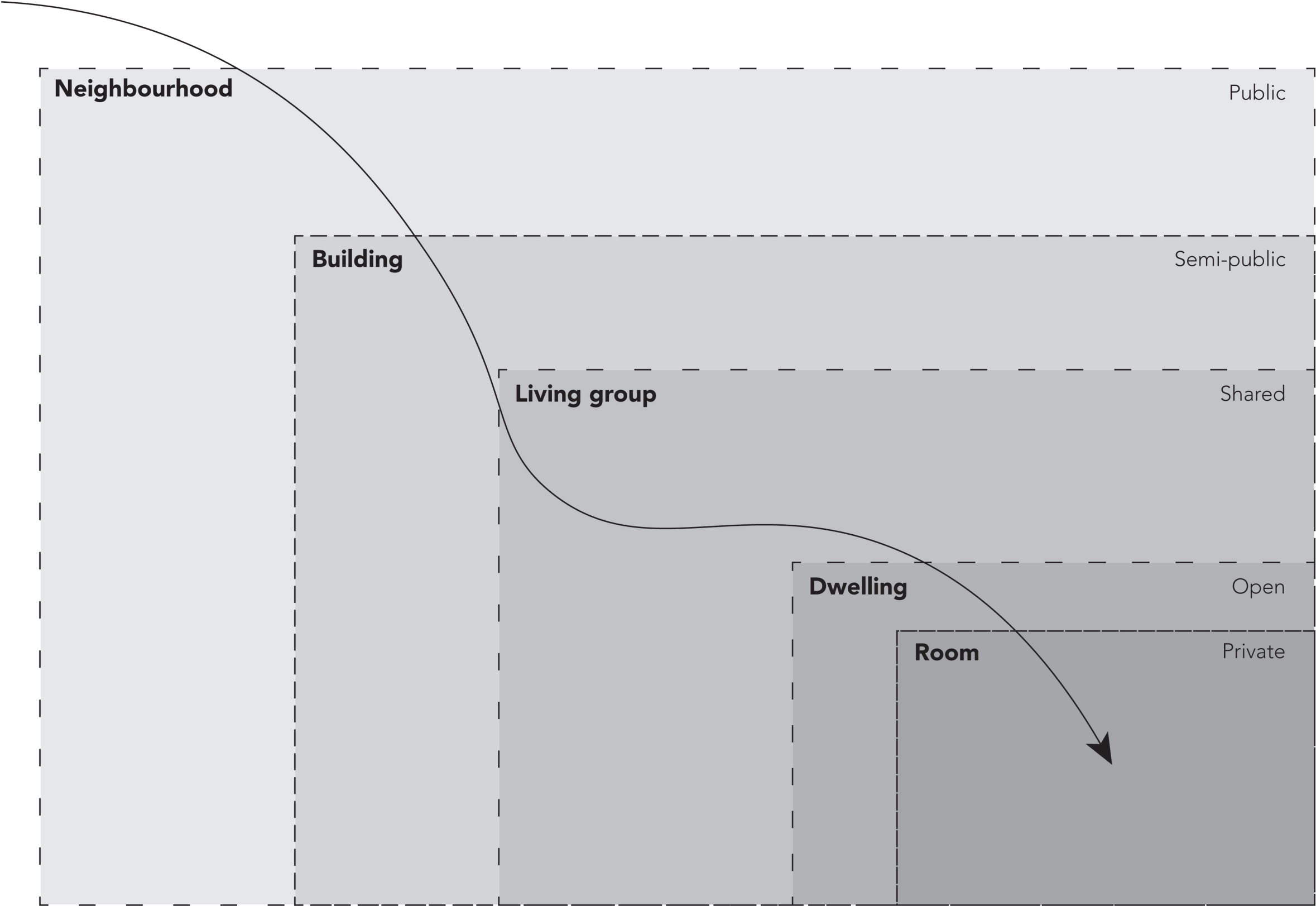


Shared living

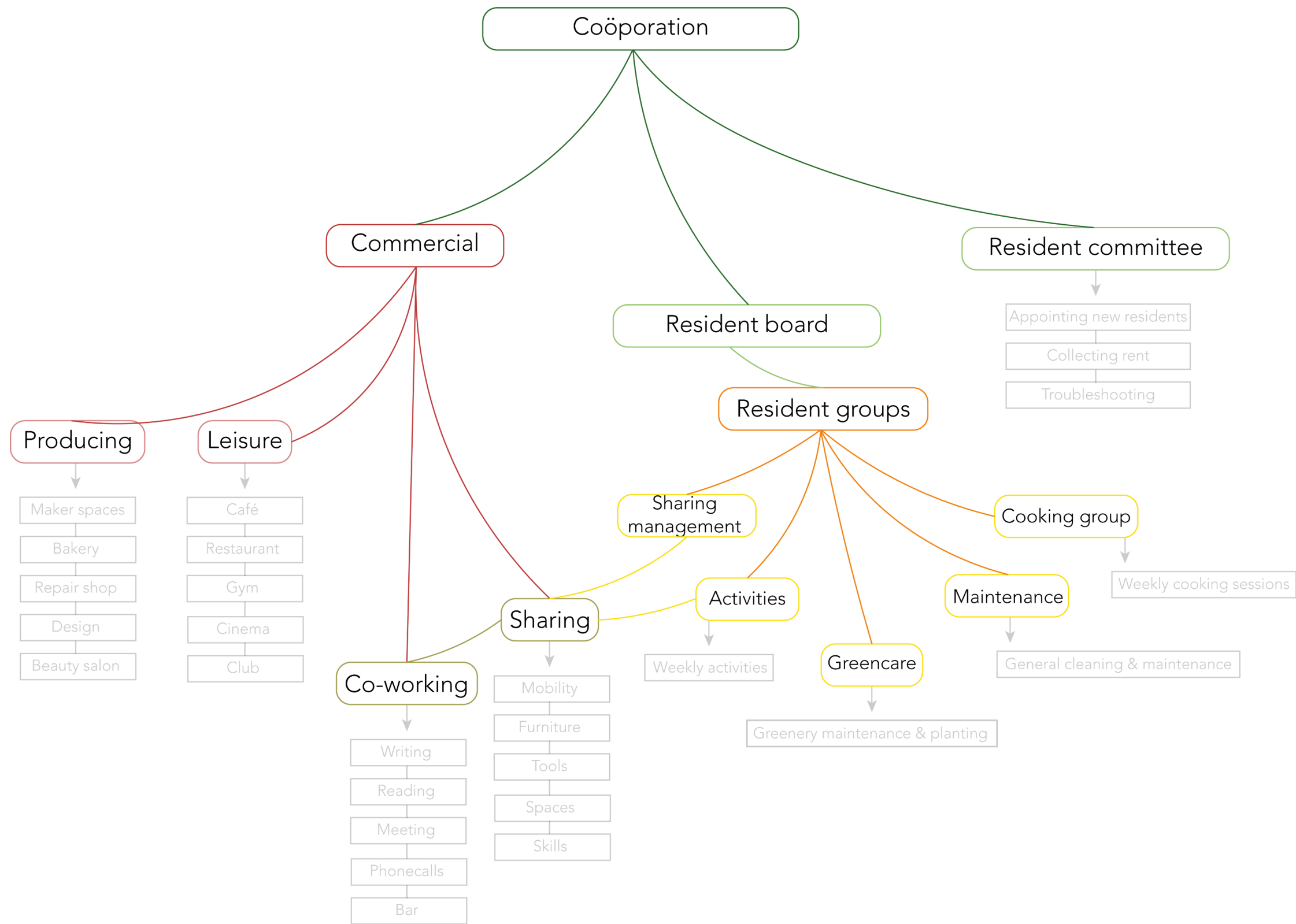
Existing typologies

Potential

Interaction through design



Management structure

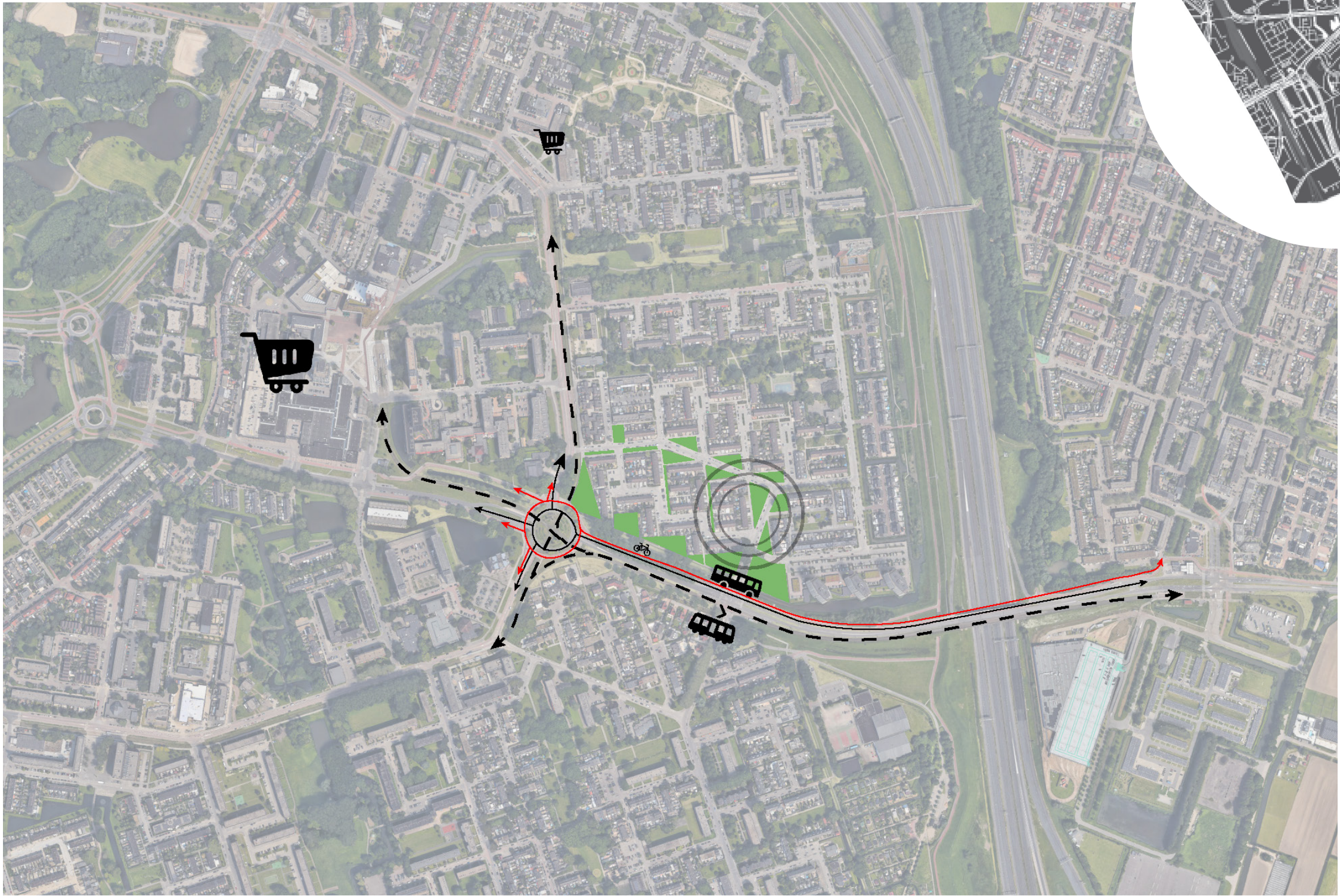


3. Site & vision

Groot-IJsselmonde



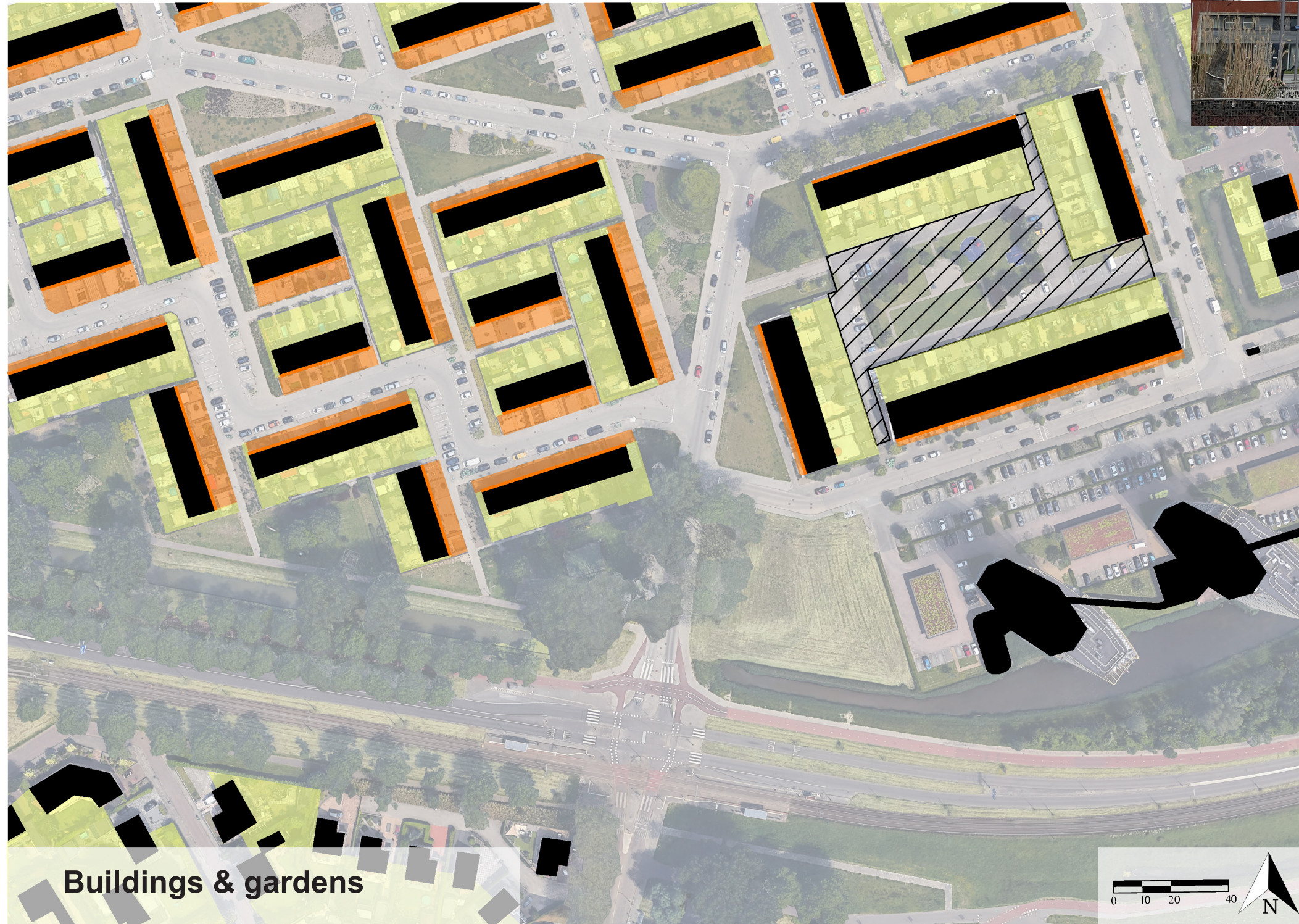
Location; Groenenhagen



Site Analysis



Mix of terraced housing & highrises



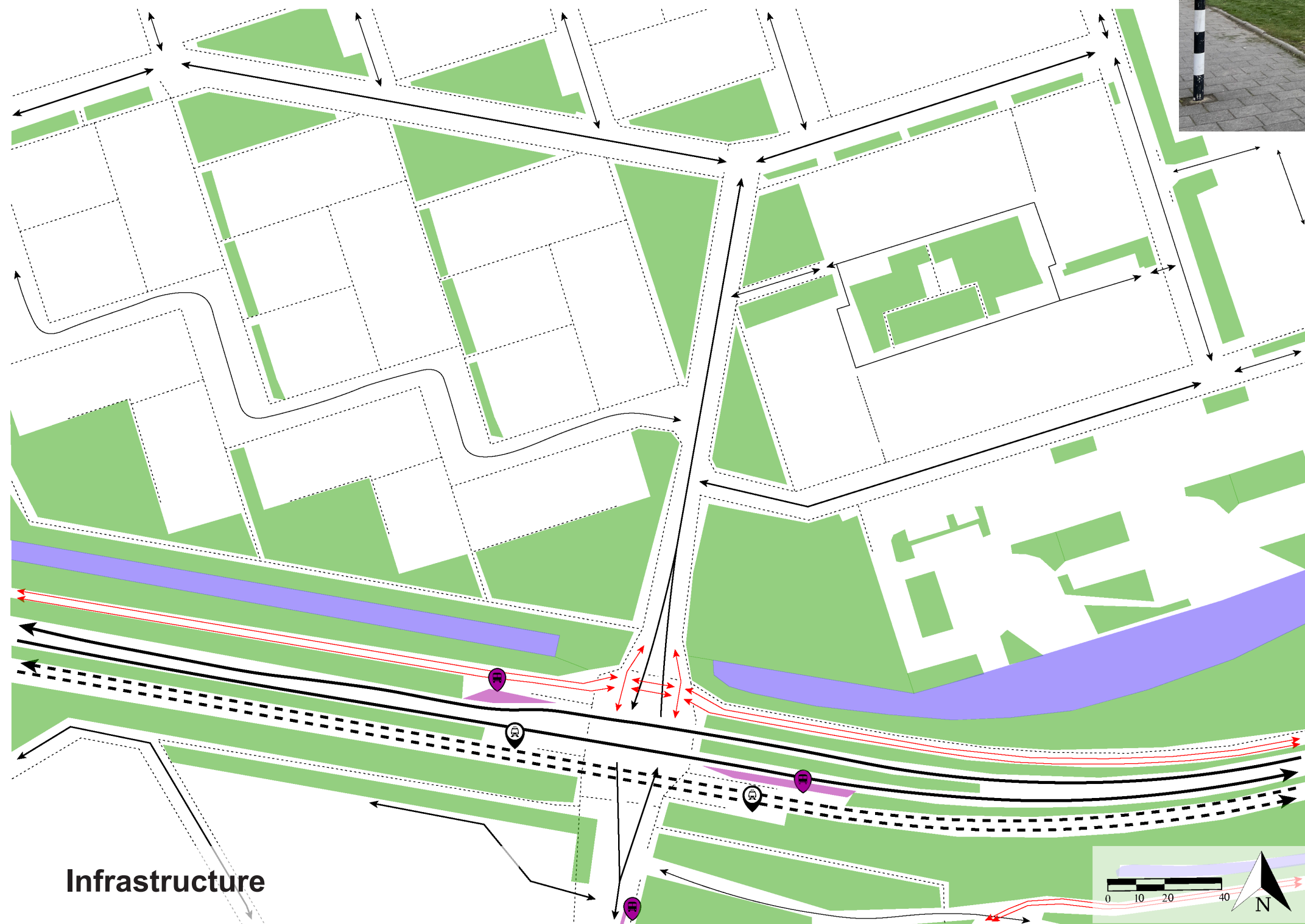
Legend

- Buildings
- Front facade
- Gardens
- Front gardens

Site Analysis



Underused green space & sidewalks

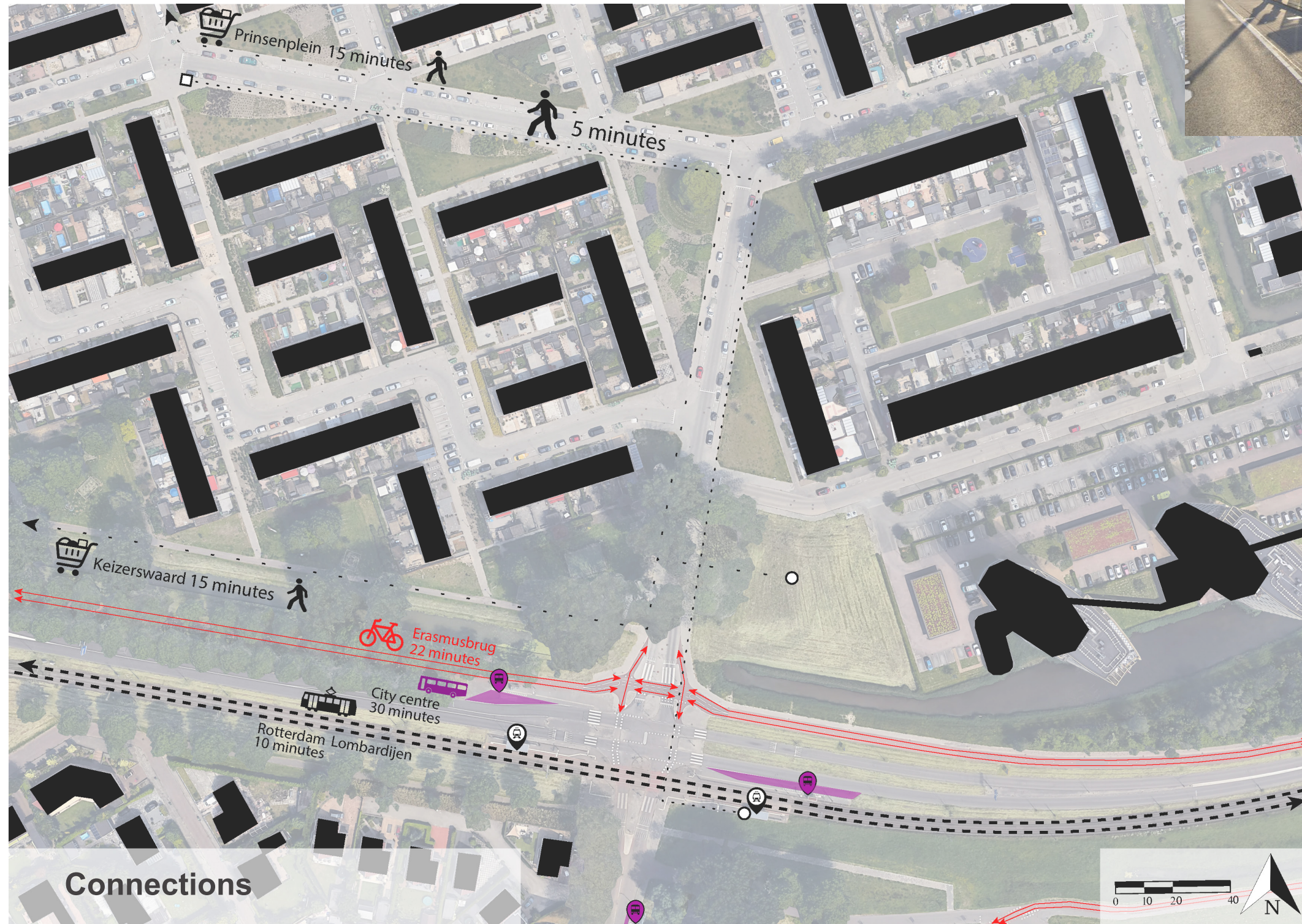


Legend

- Public green
- Car road
- Bike path
- Footpath
- Bus stop
- Tram stop

Infrastructure

Site Analysis

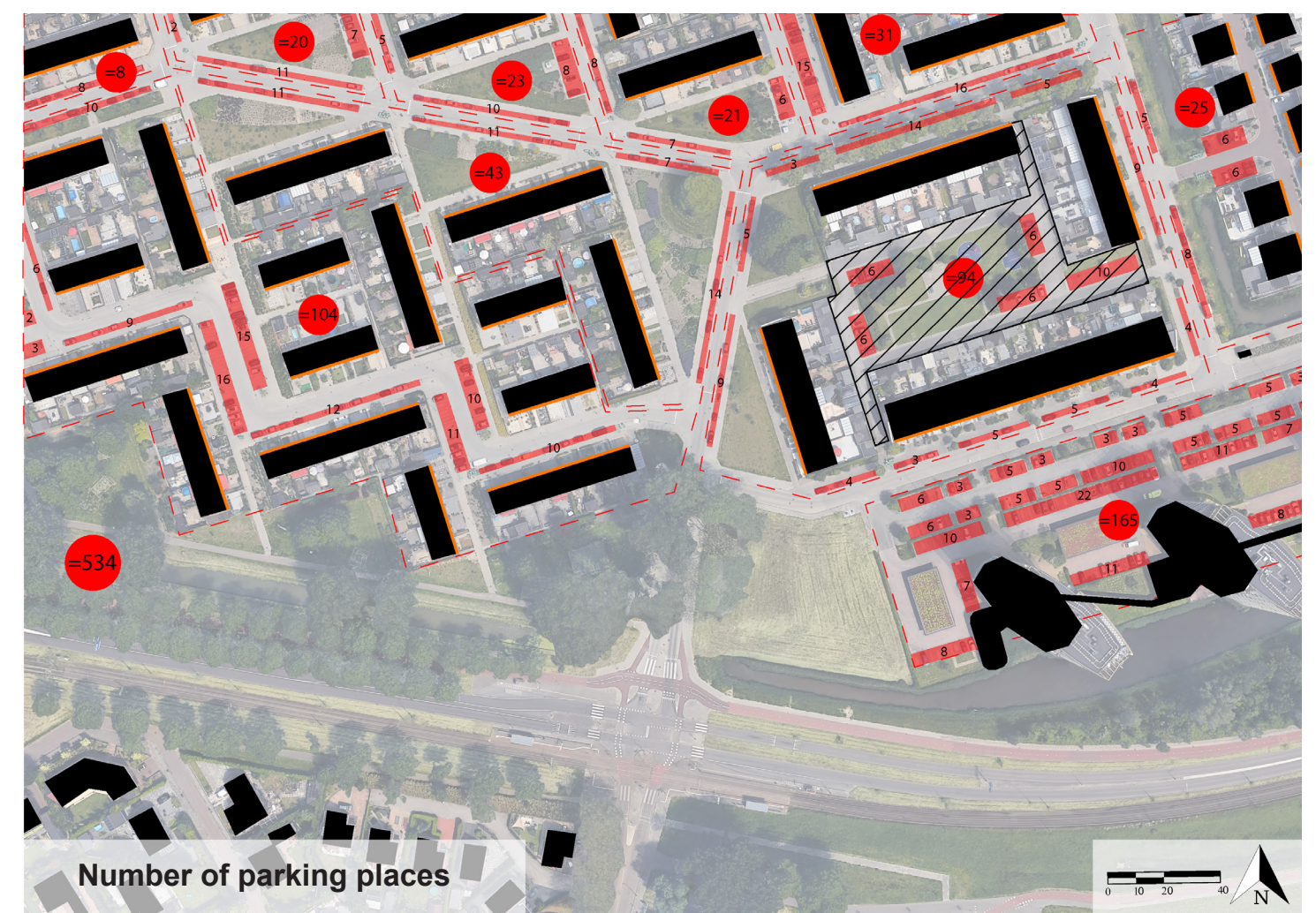
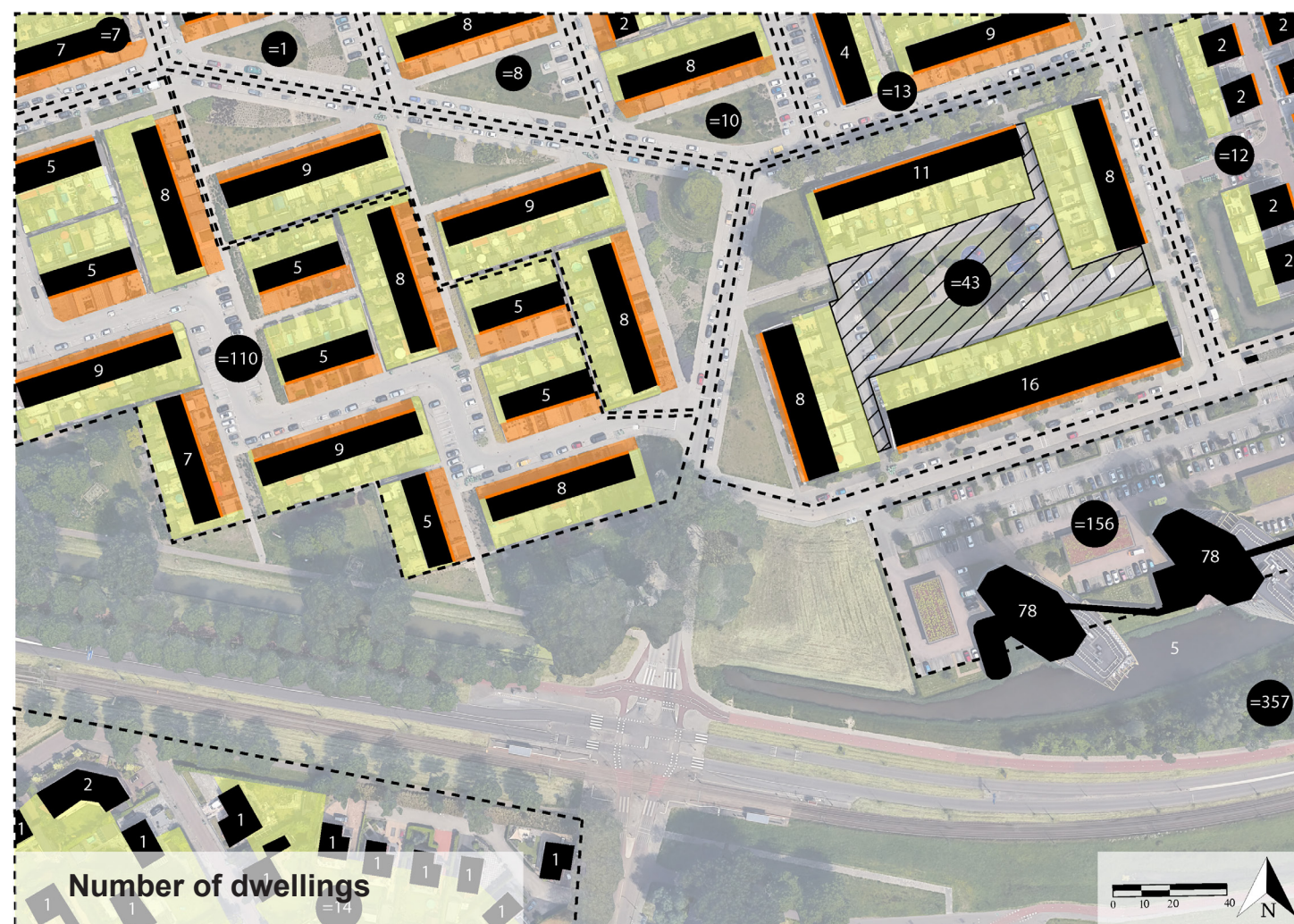


Bus & tram stop

Site Analysis

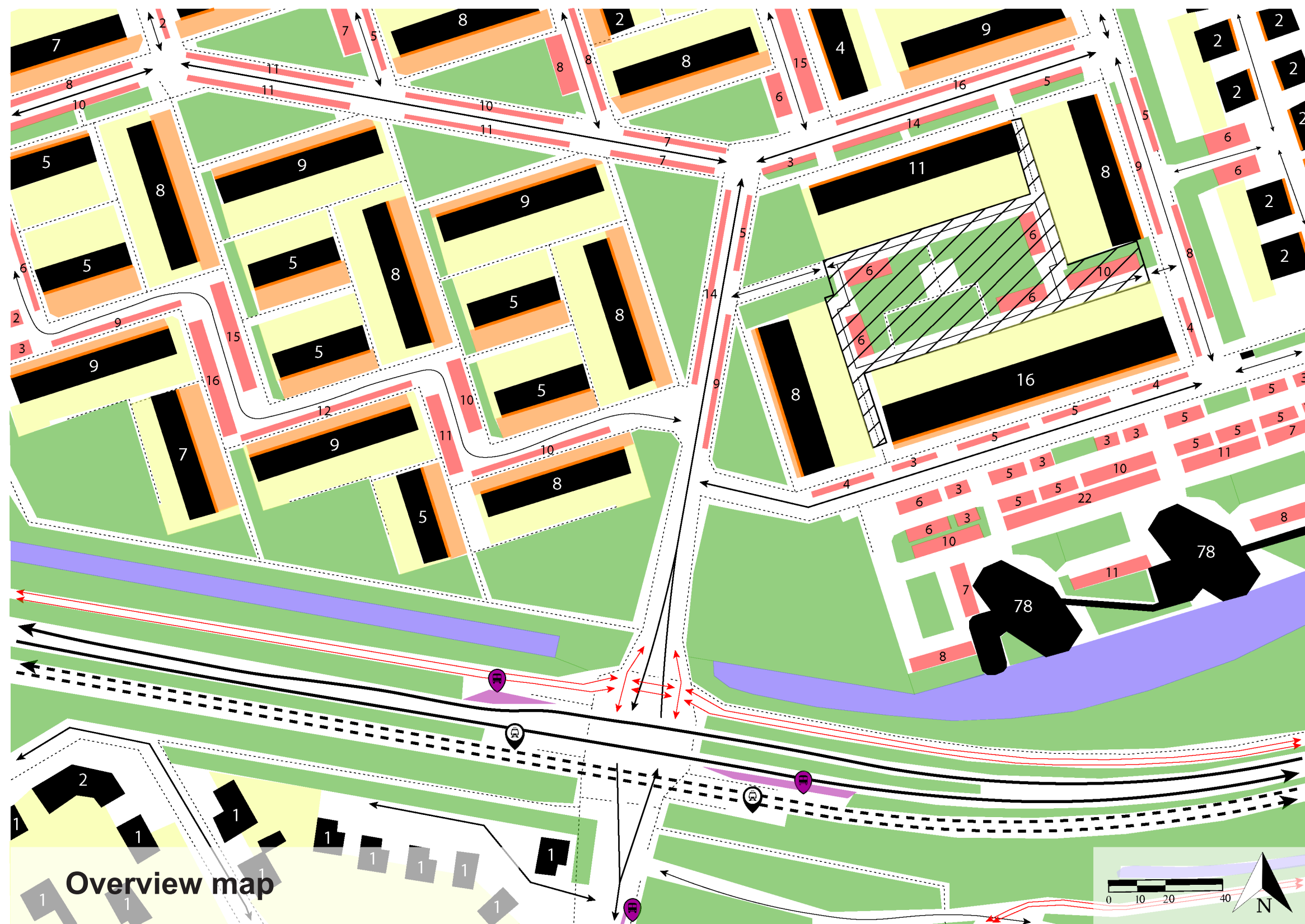


Extensive parking lots



= 1,5 parking spaces per dwelling

Site Analysis



Inbetween spaces

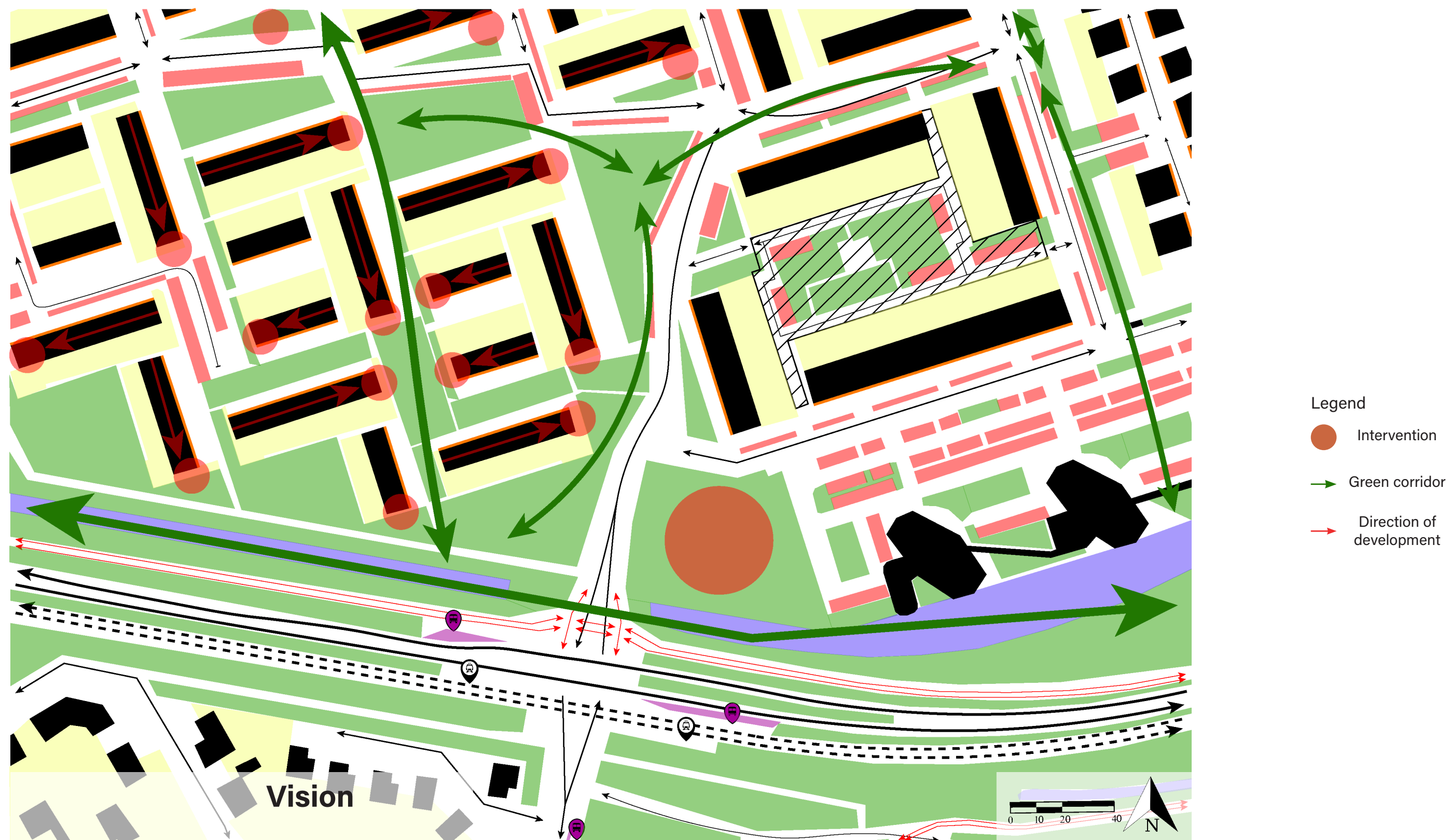


Parking & greenery

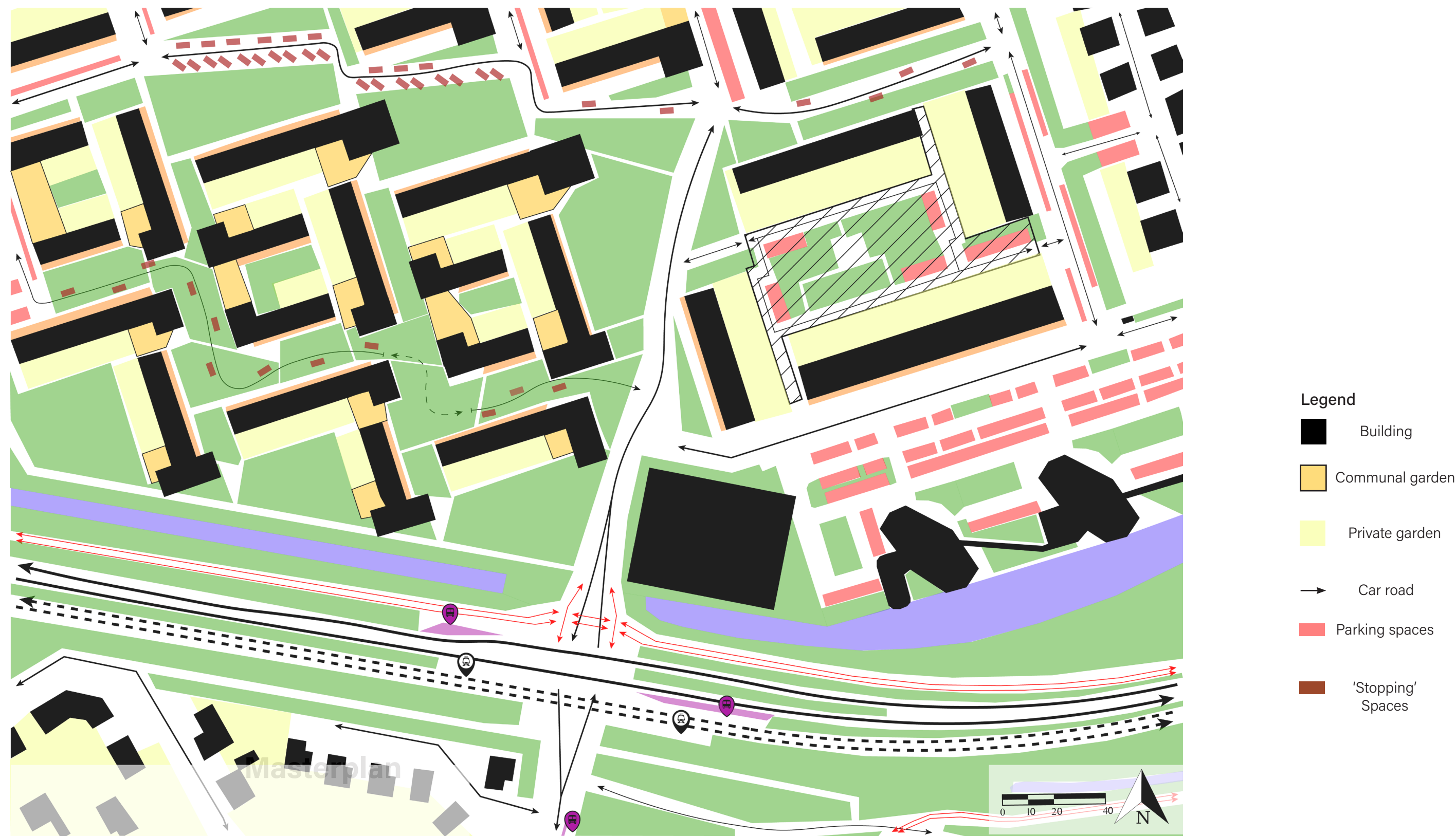


Streetscapes

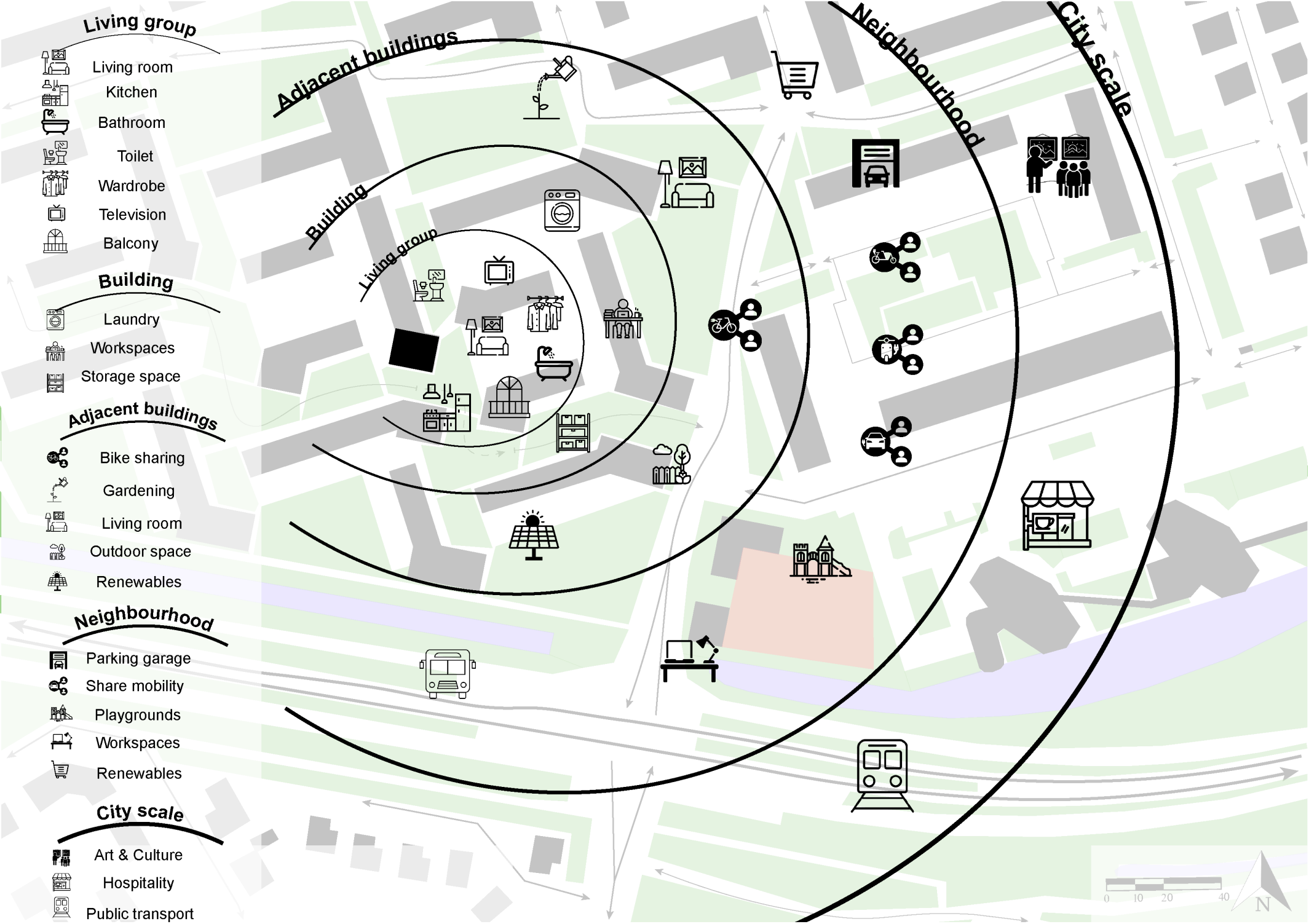
Vision; intentions



Masterplan



Vision; levels of sharing



4. Design

Current situation



1 Introduction

1.1 Introduction 1.2 Problem Statement
1.3 Research Plan

2 Results

2.1 Sharing
2.3 Co-housing

2.3 Short-stay
2.4 Urban densification

3 Site Vision

3.1 Site Analysis
3.3 Masterplan

3.2 Vision

4 Design

Detailed masterplan



Masterplan traffic



Masterplan densification



Masterplan



1 Introduction

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3 Site Vision

2.3 Short-stay
2.4 Urban densification

3.1 Site Analysis
3.3 Masterplan

3.2 Vision

4 Design

Site



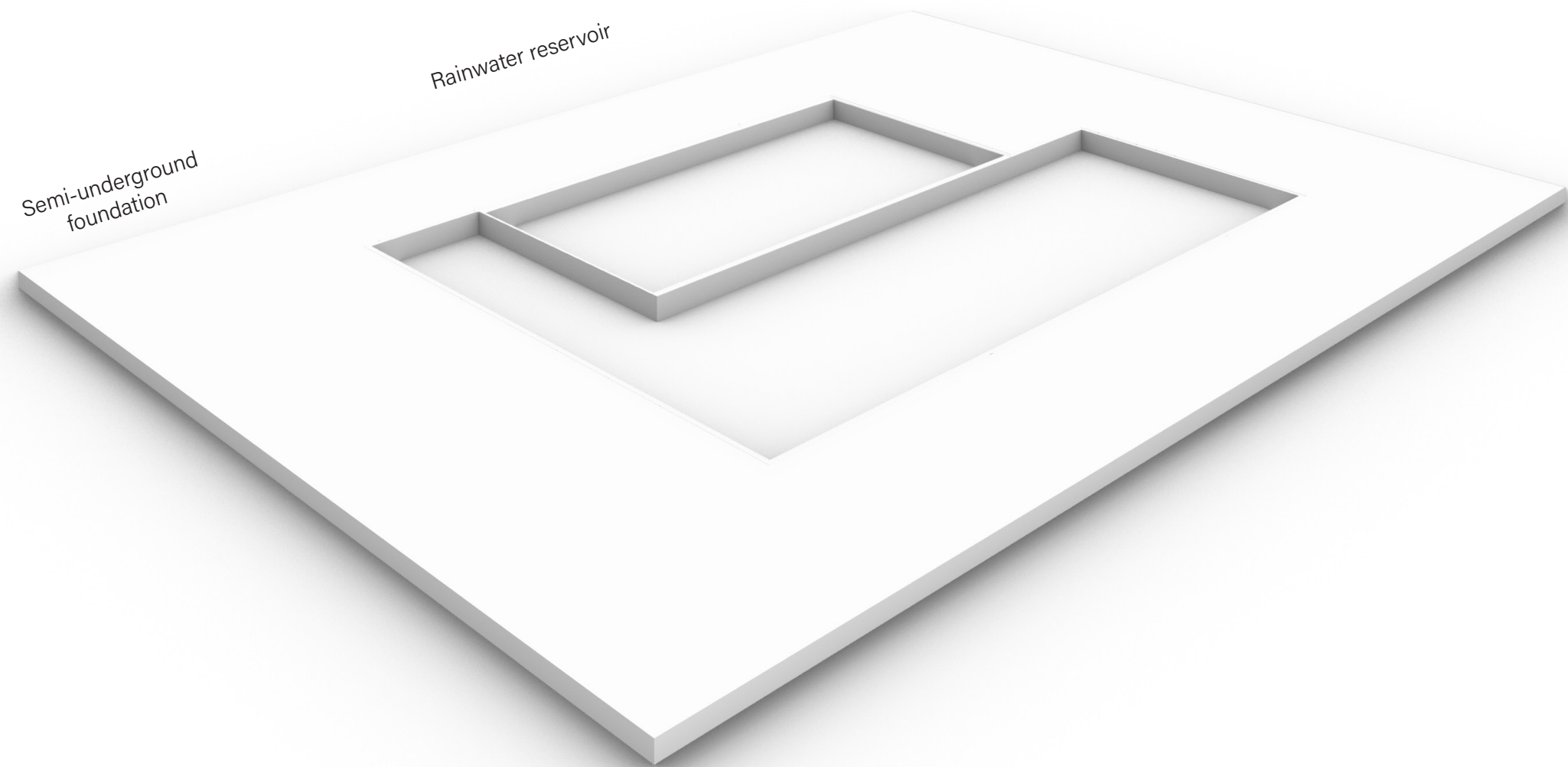
Structure



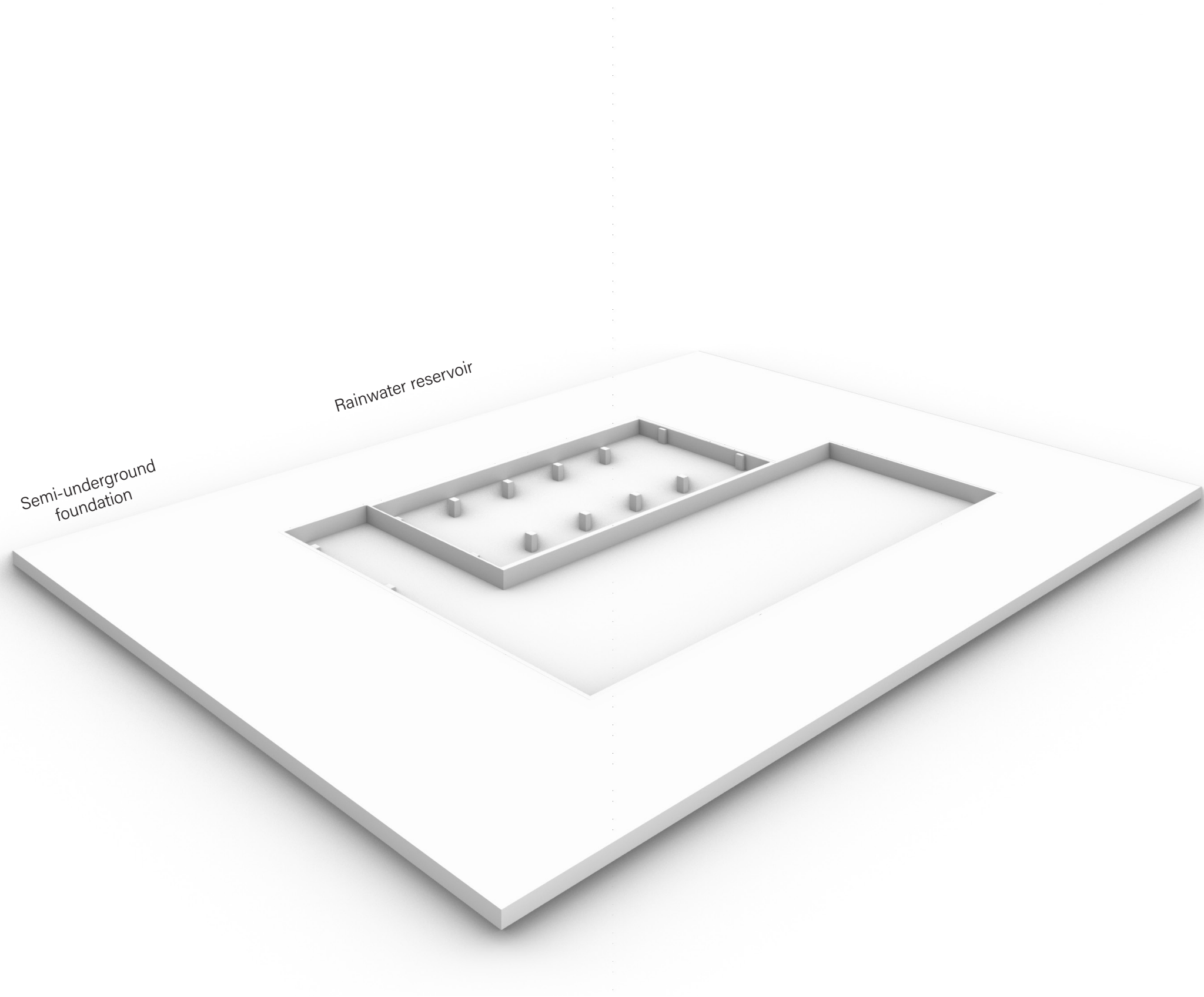
Structure

Semi-underground
foundation

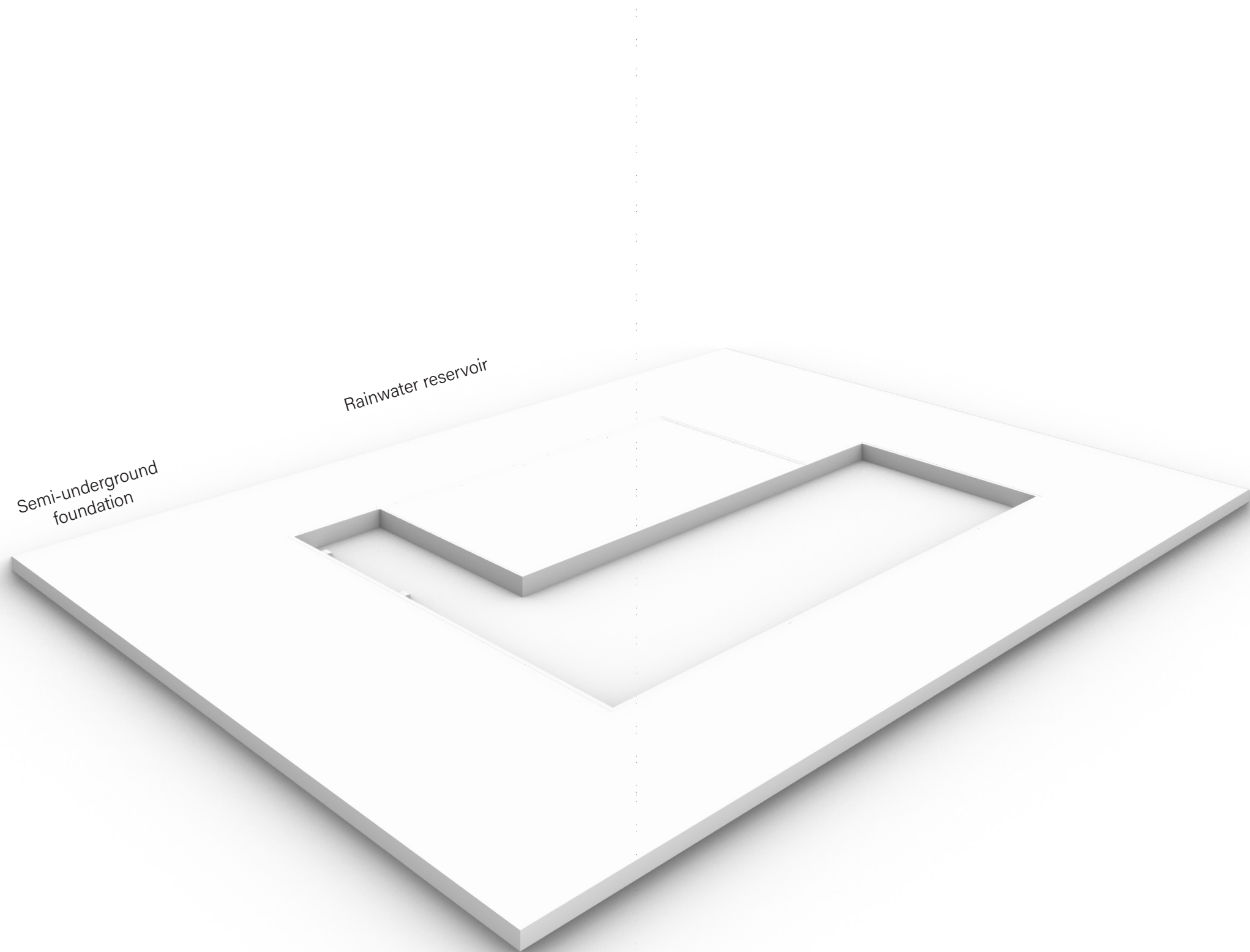
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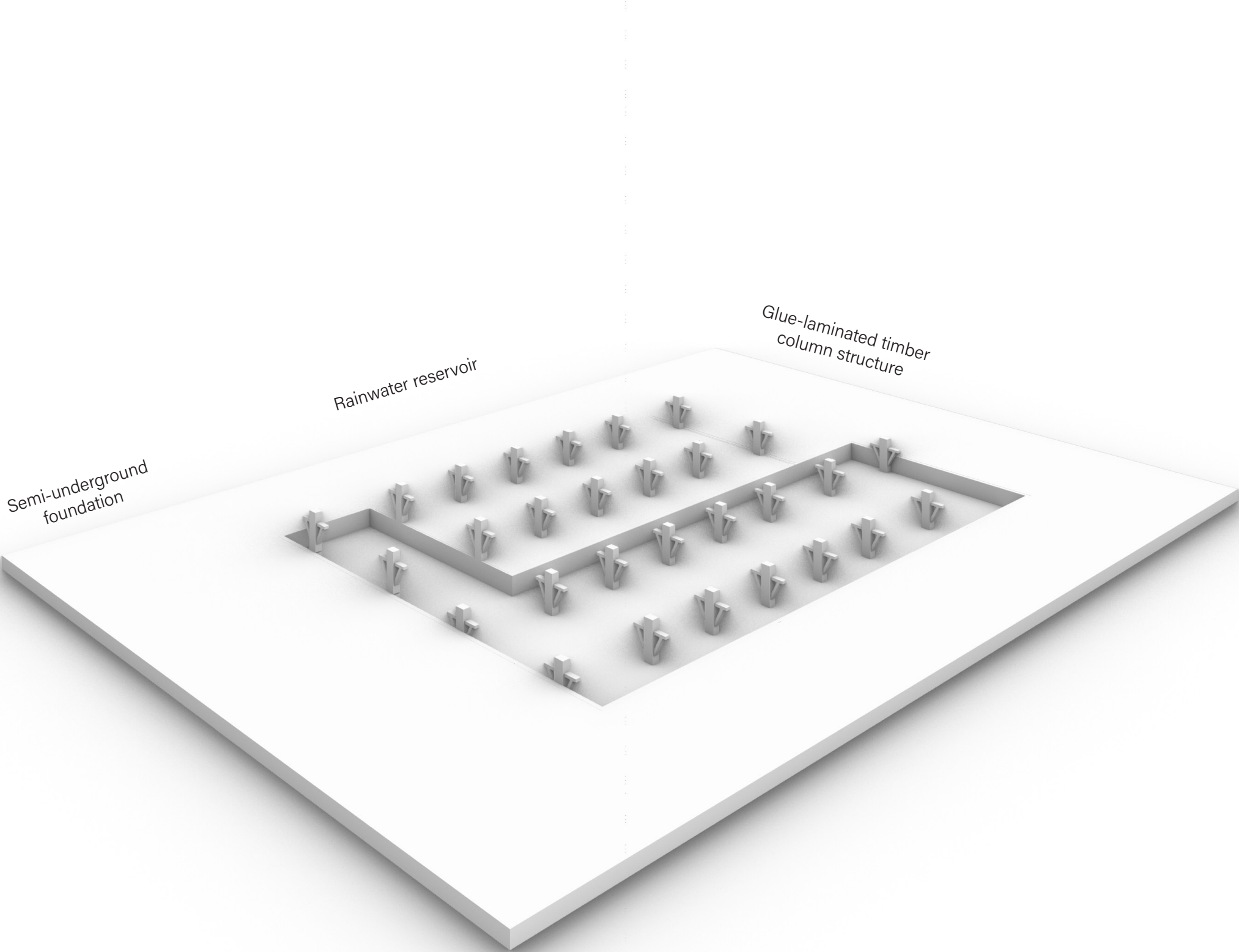
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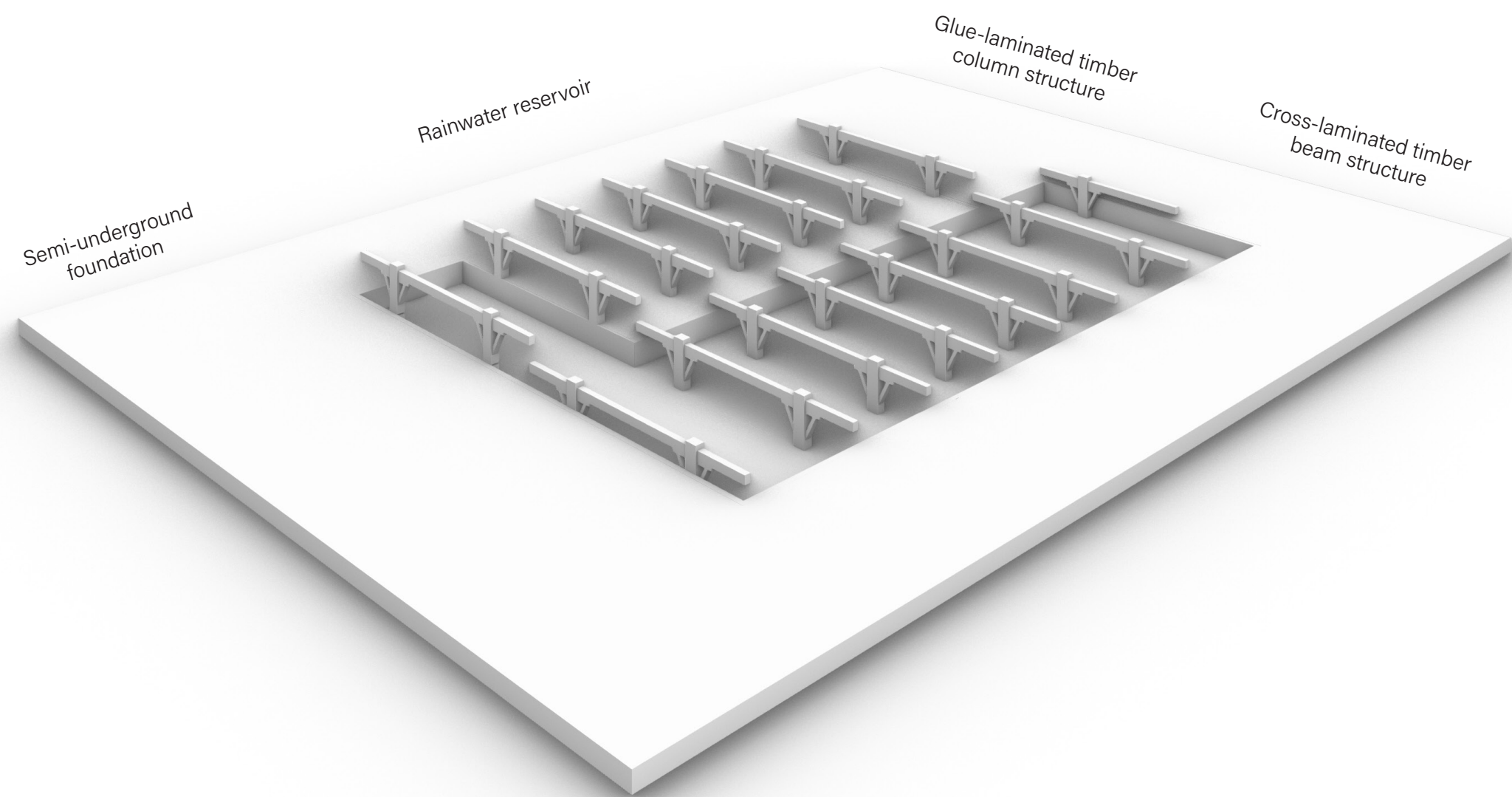
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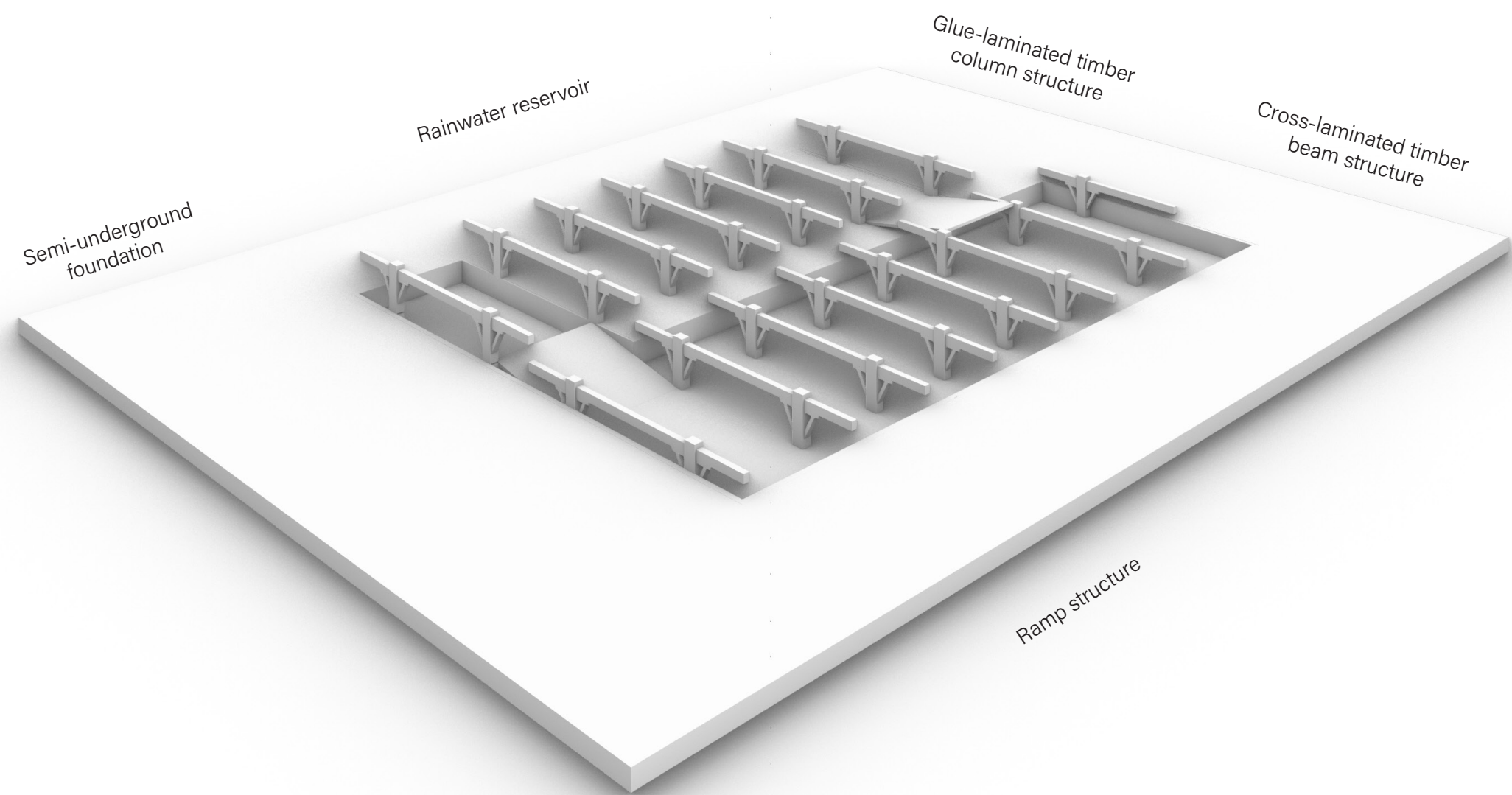
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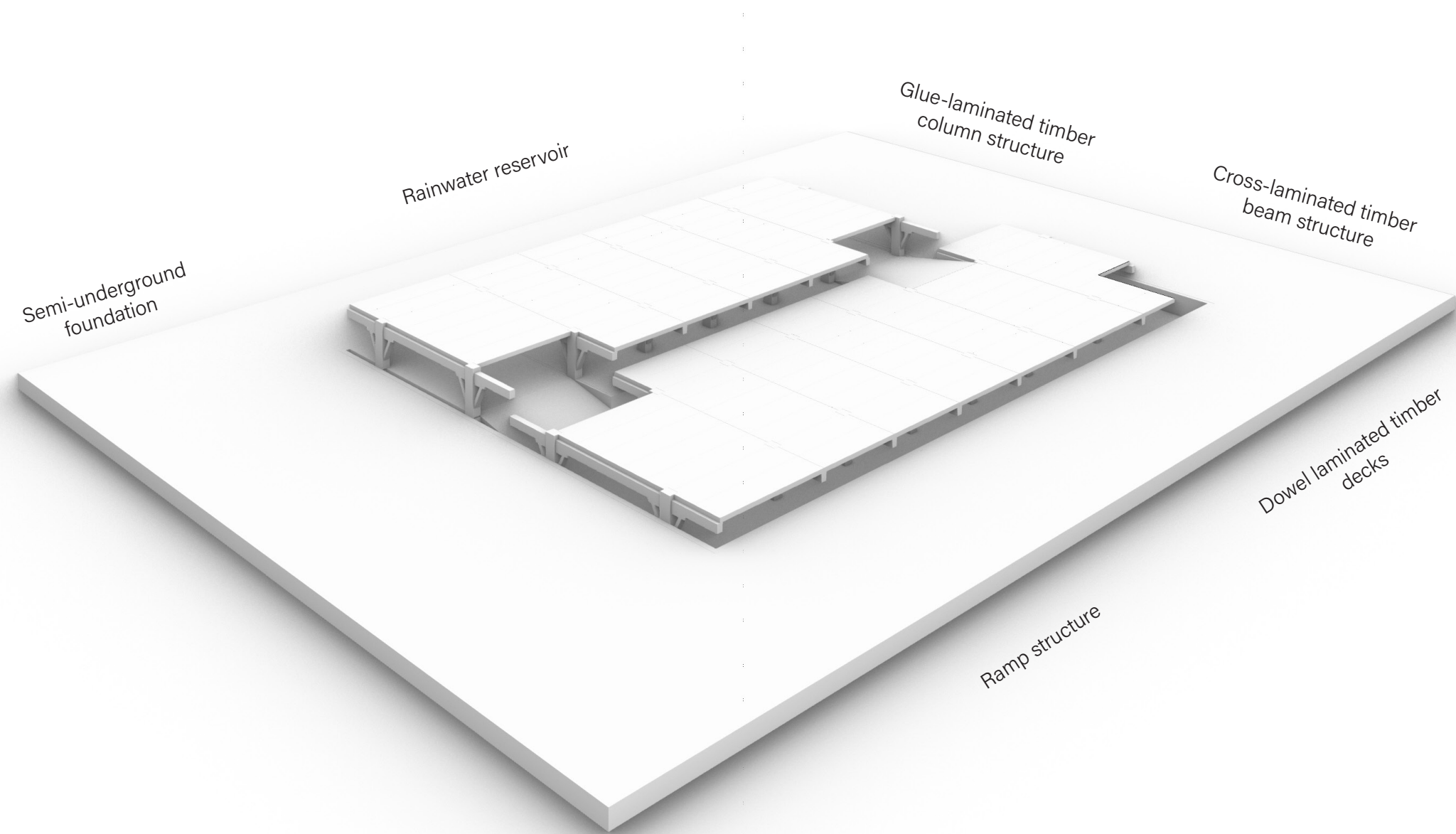
Structure



Structure

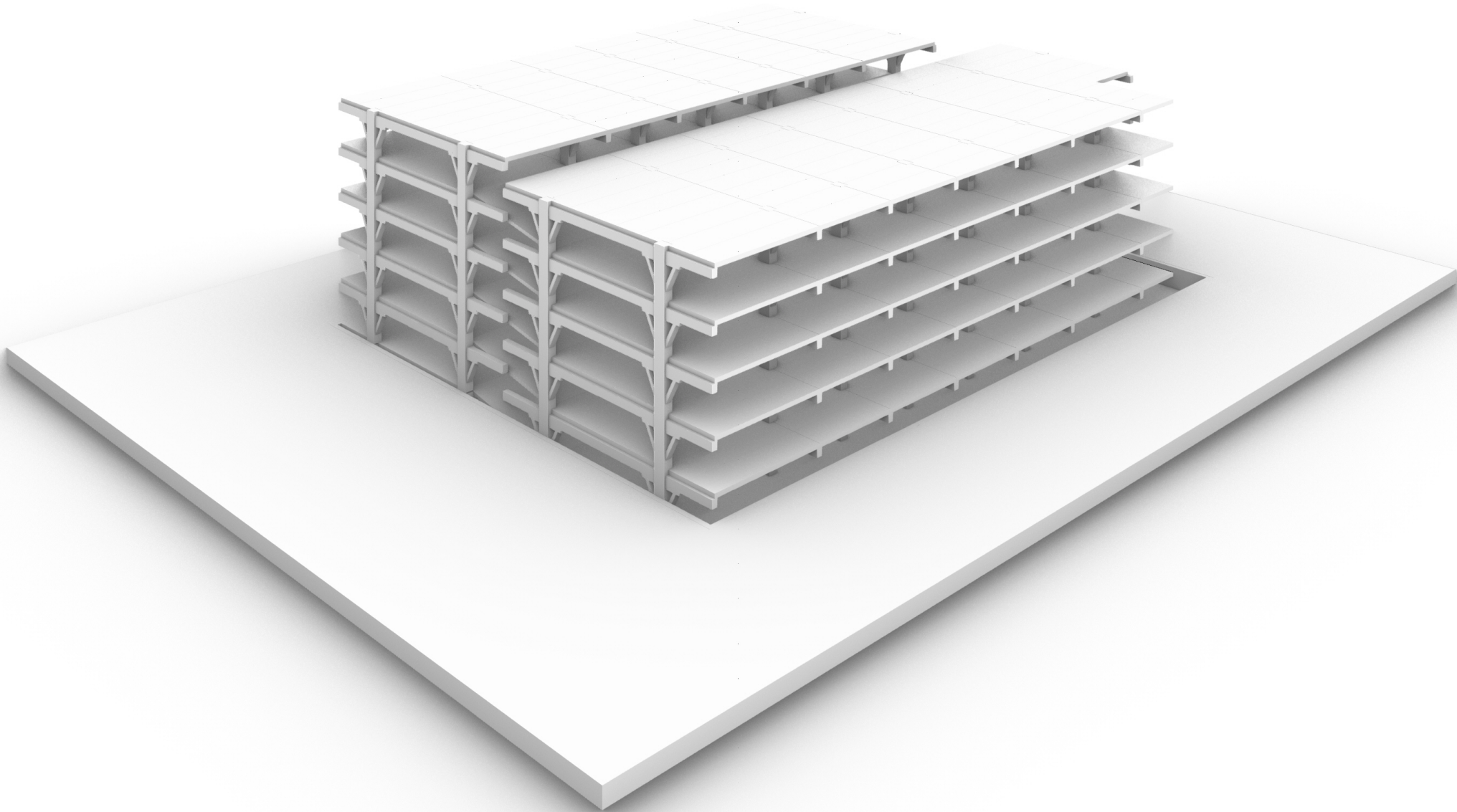


Structure

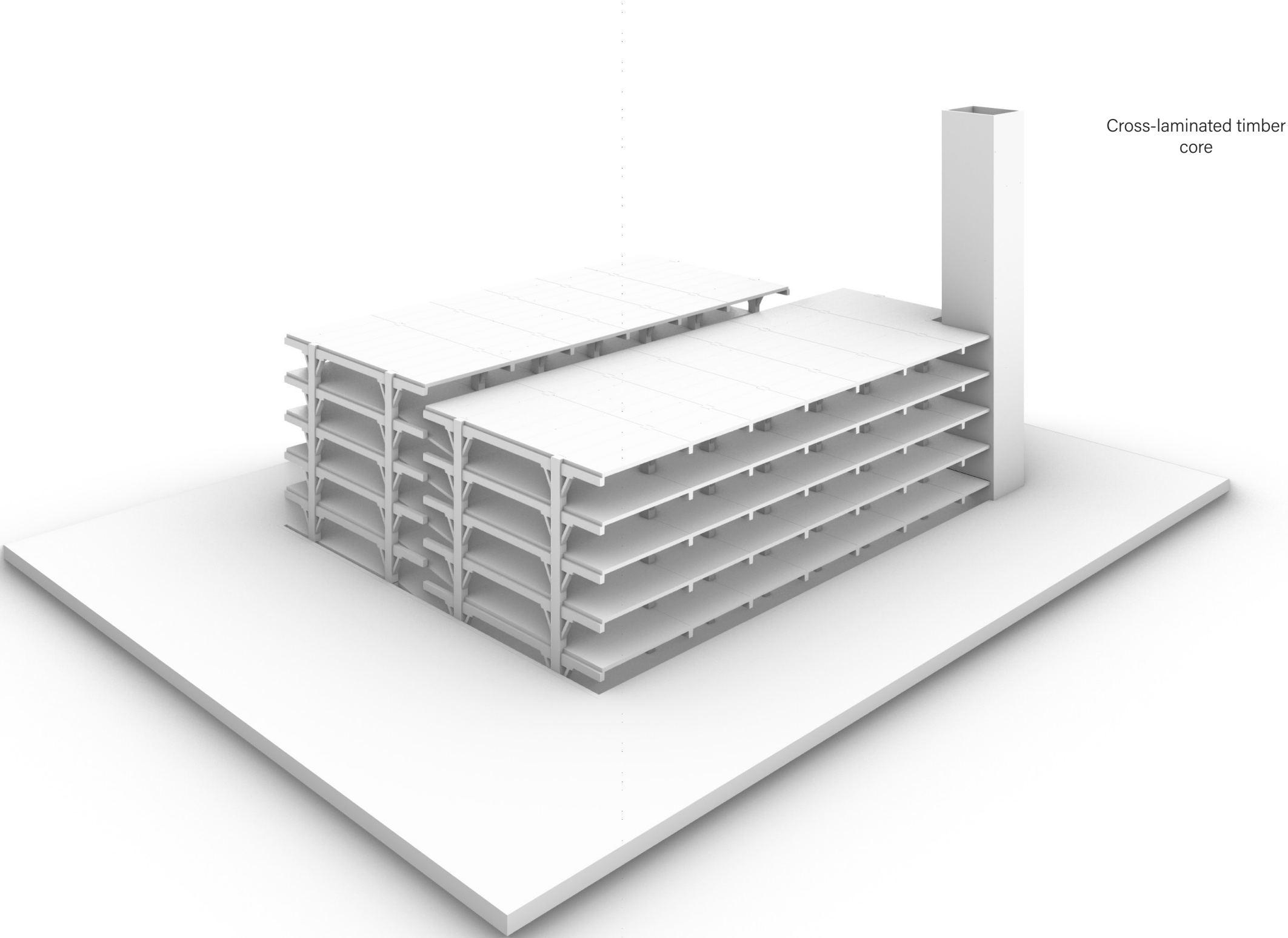


Structure

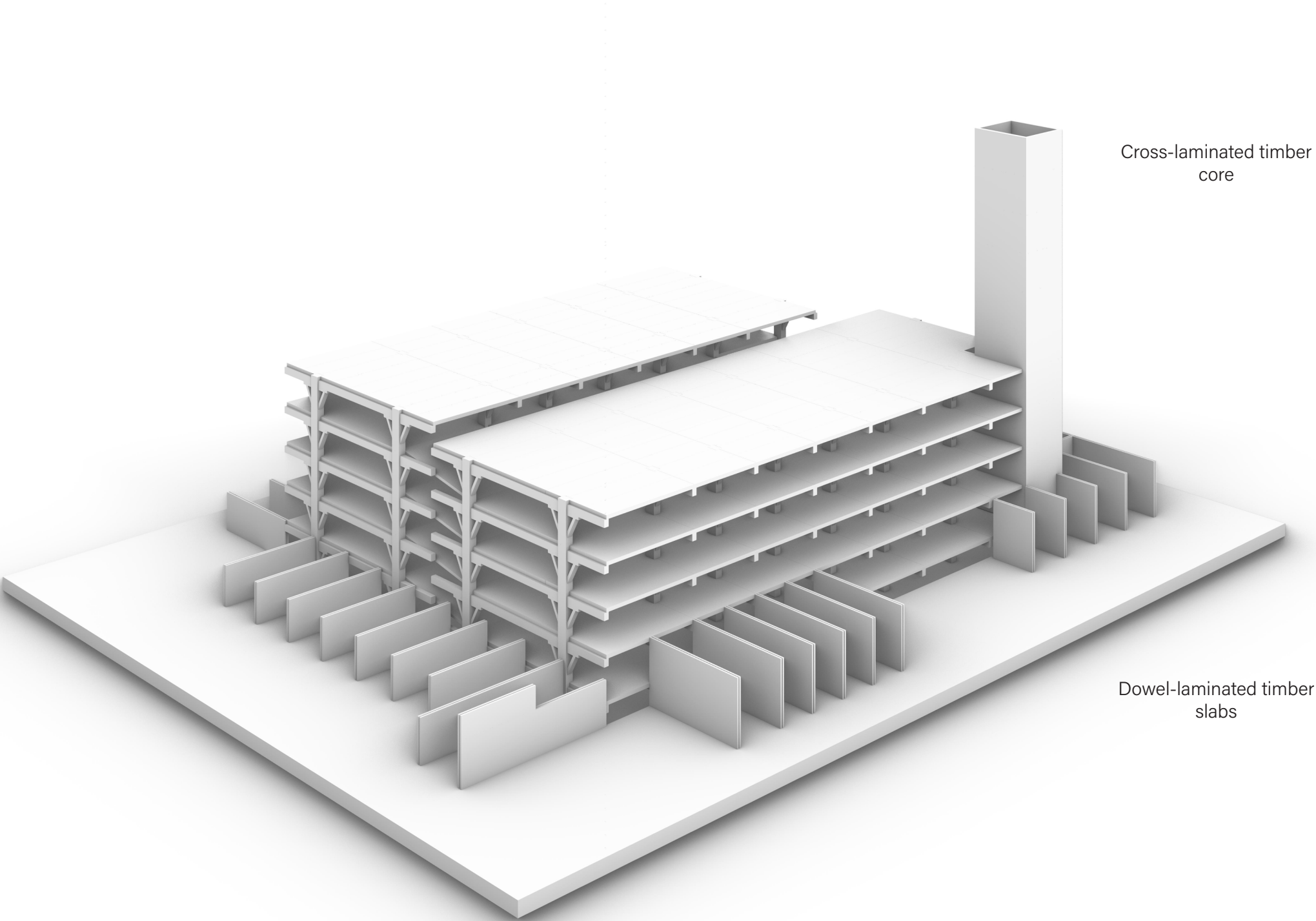
Timber structure parking garage



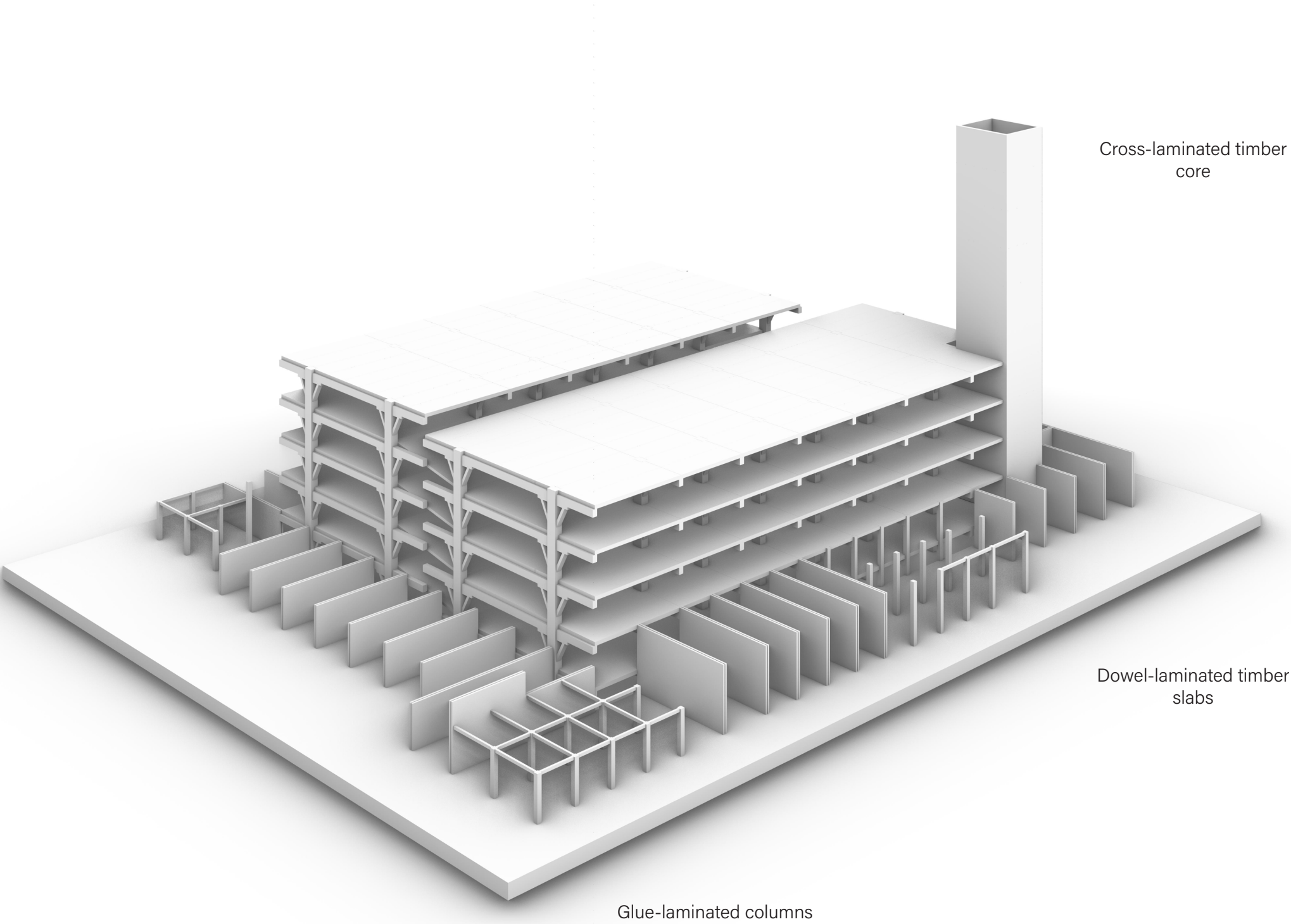
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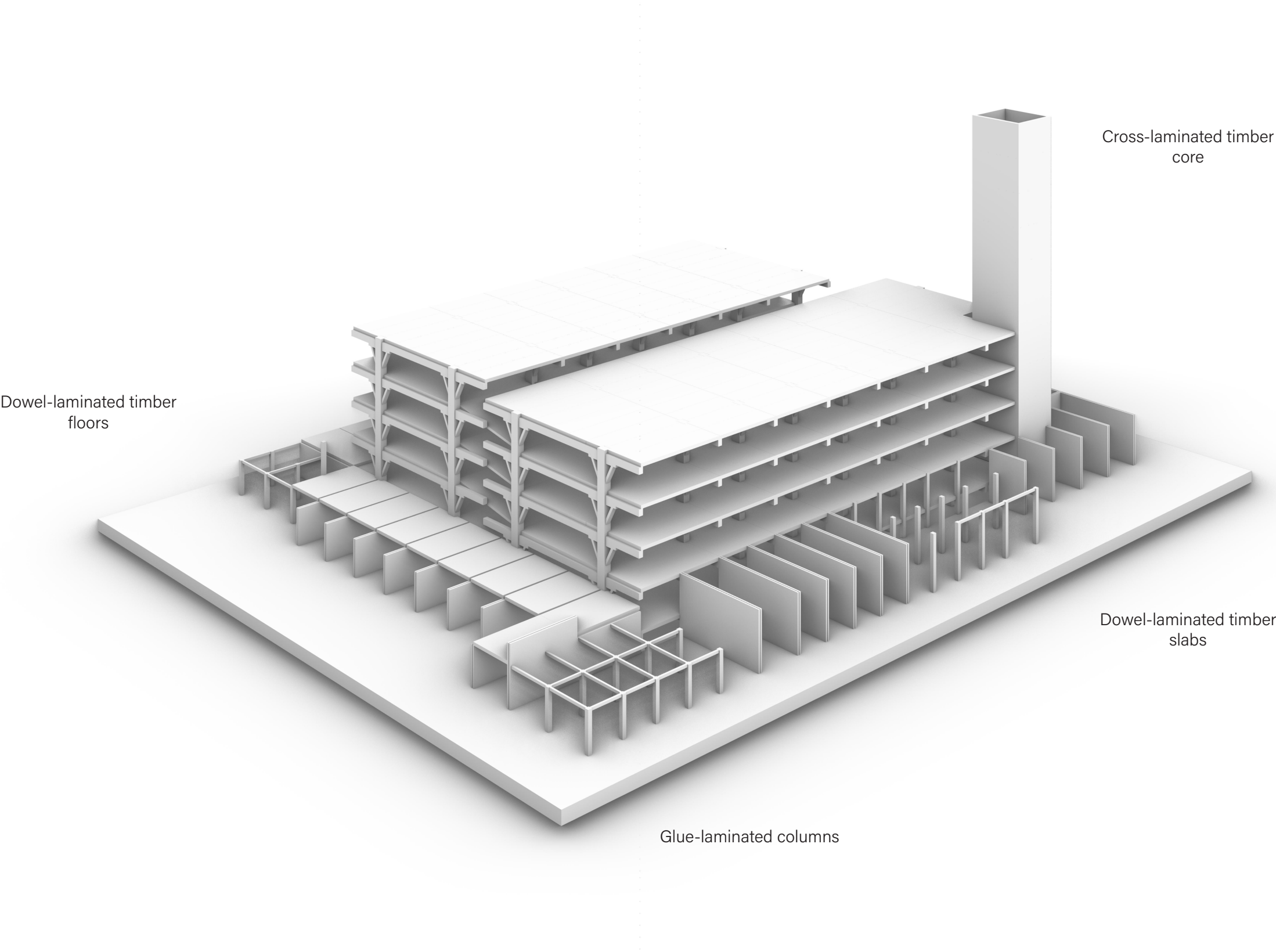
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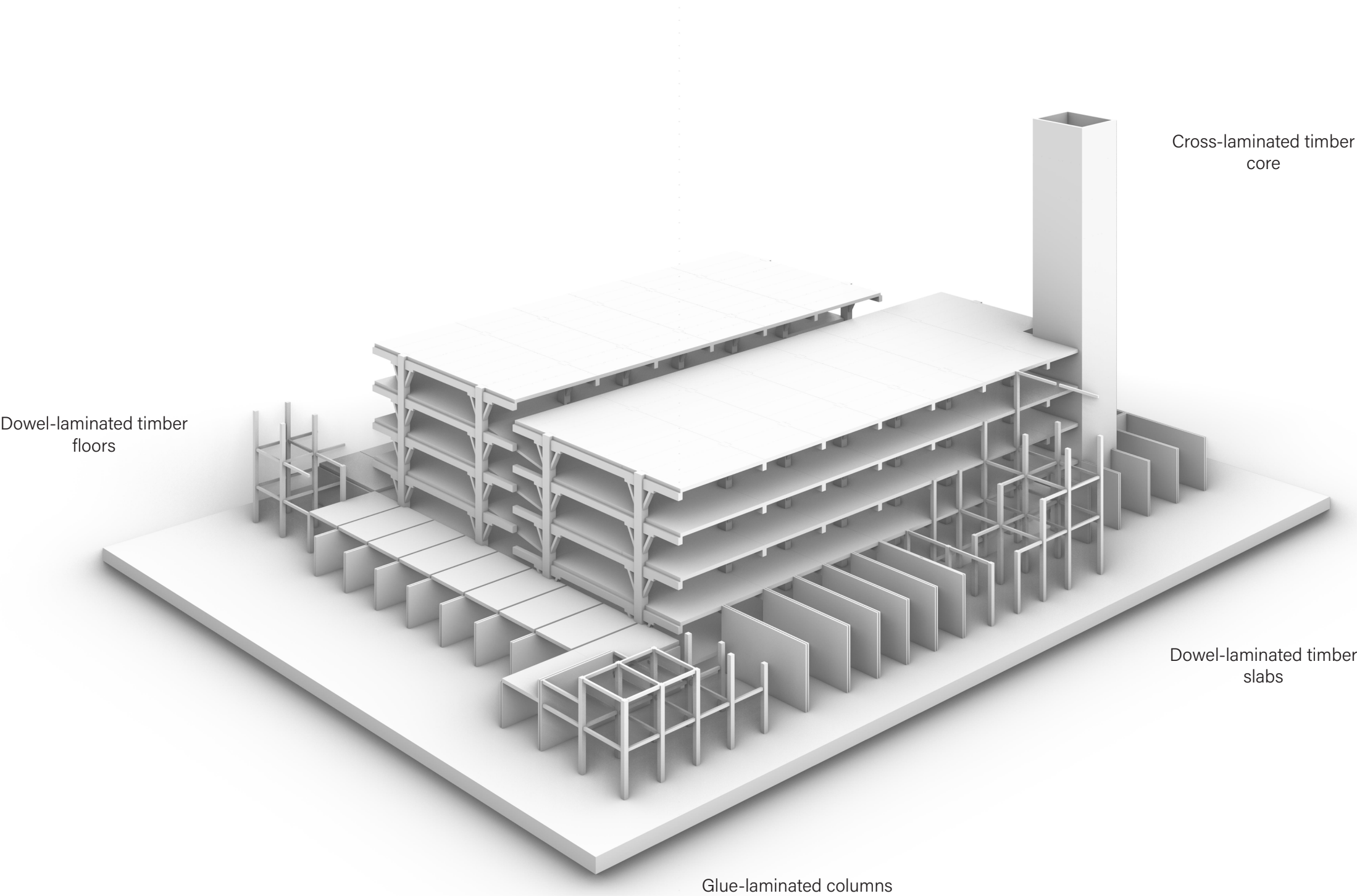
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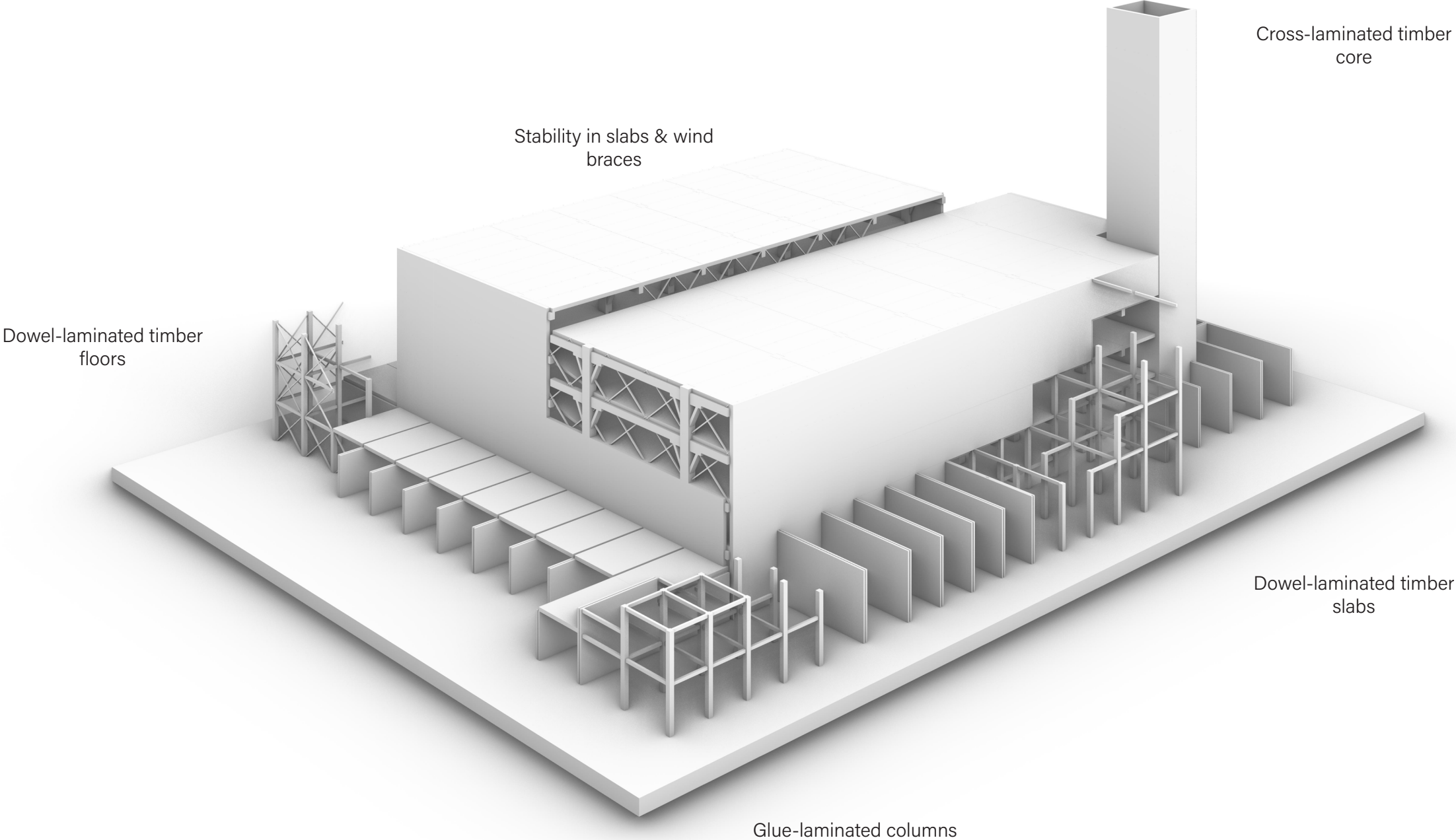
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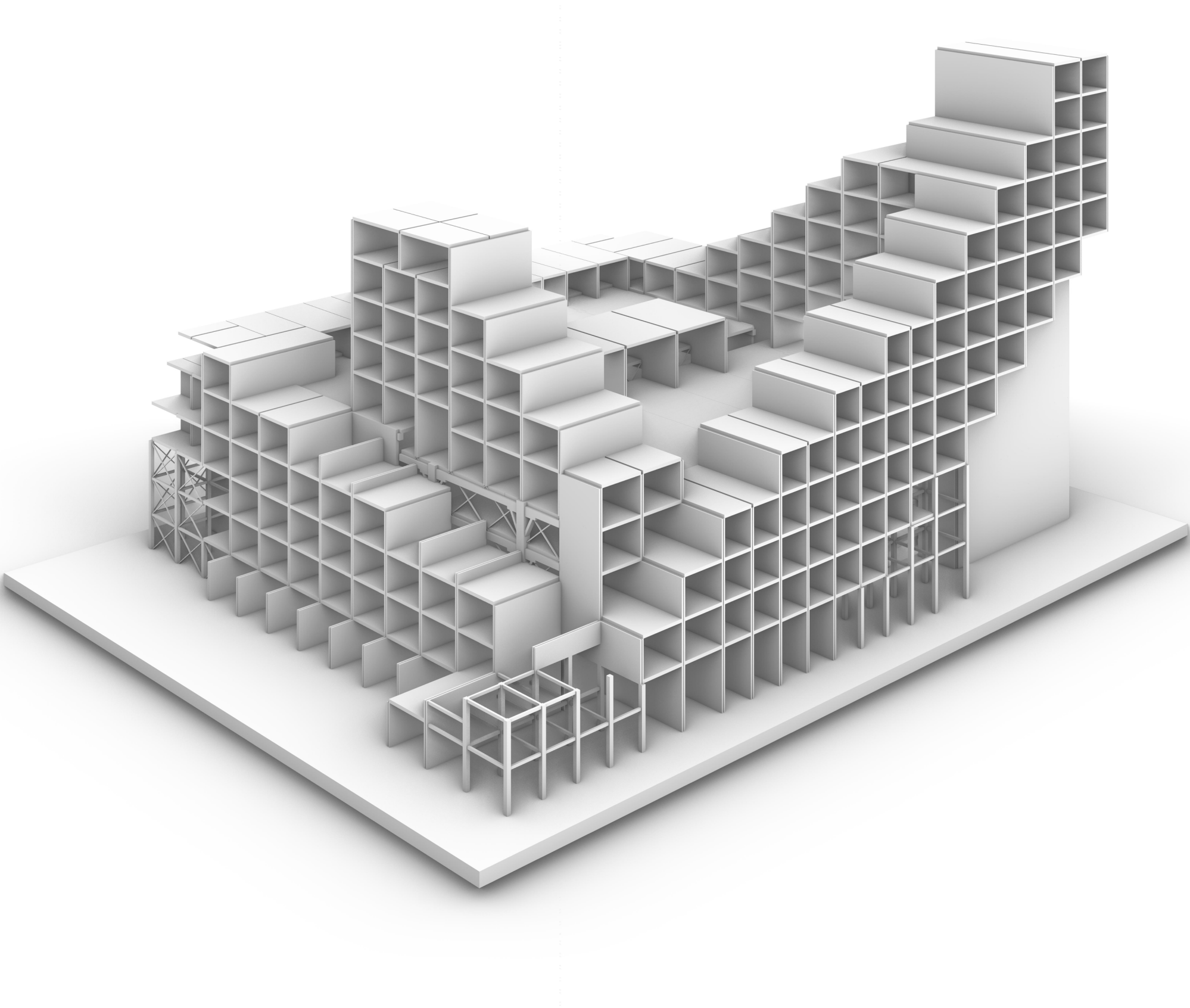
Structure



Structure



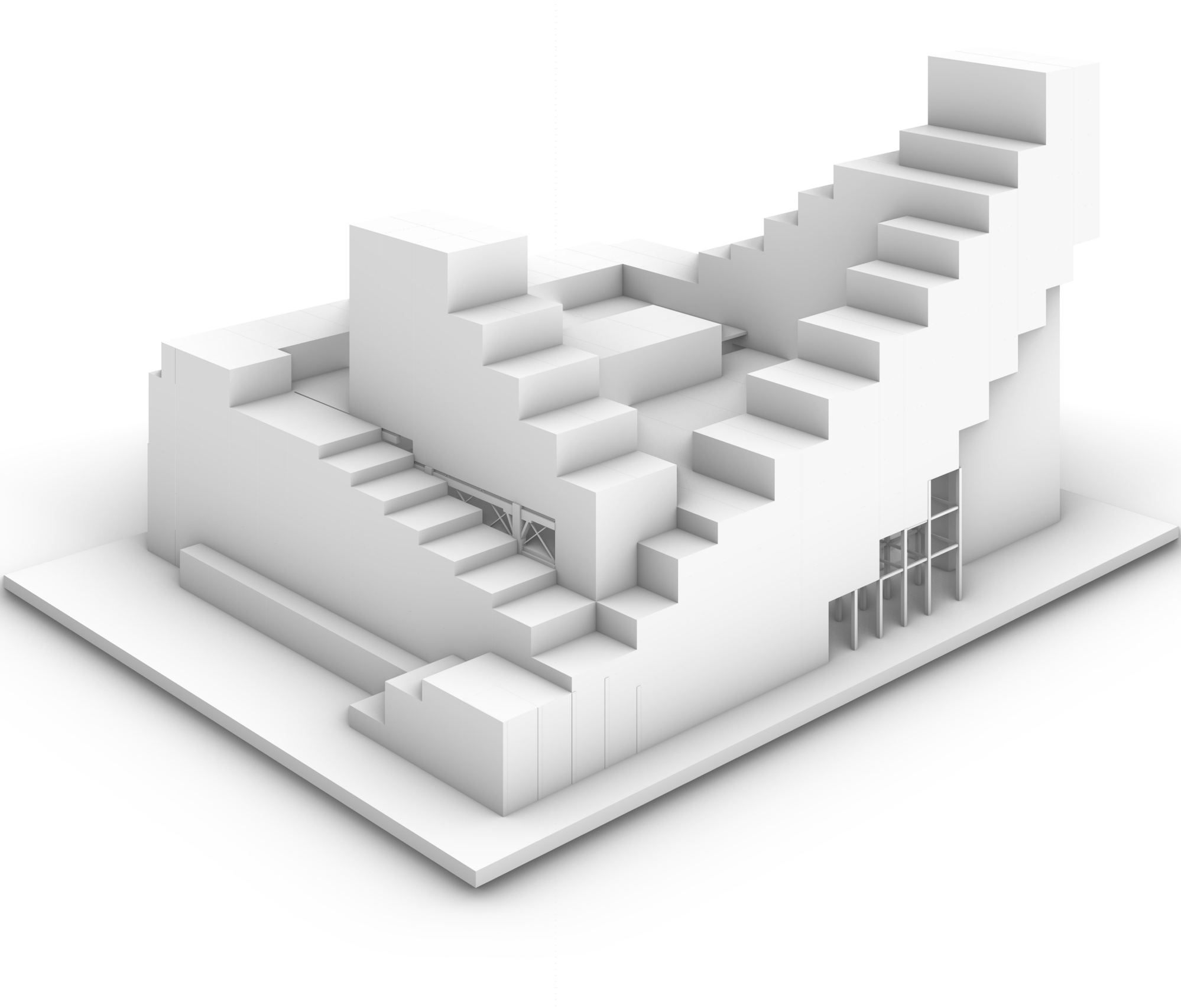
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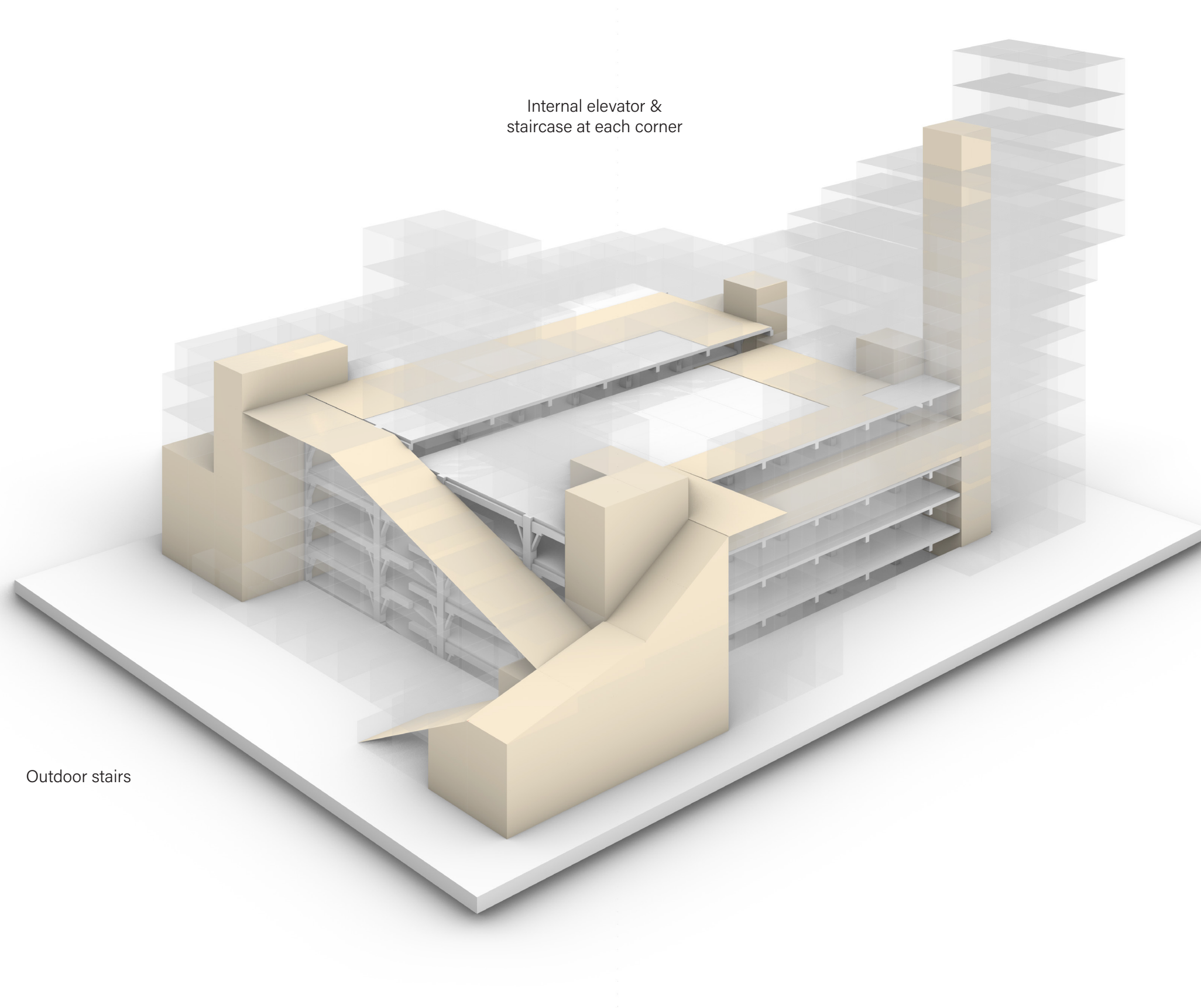
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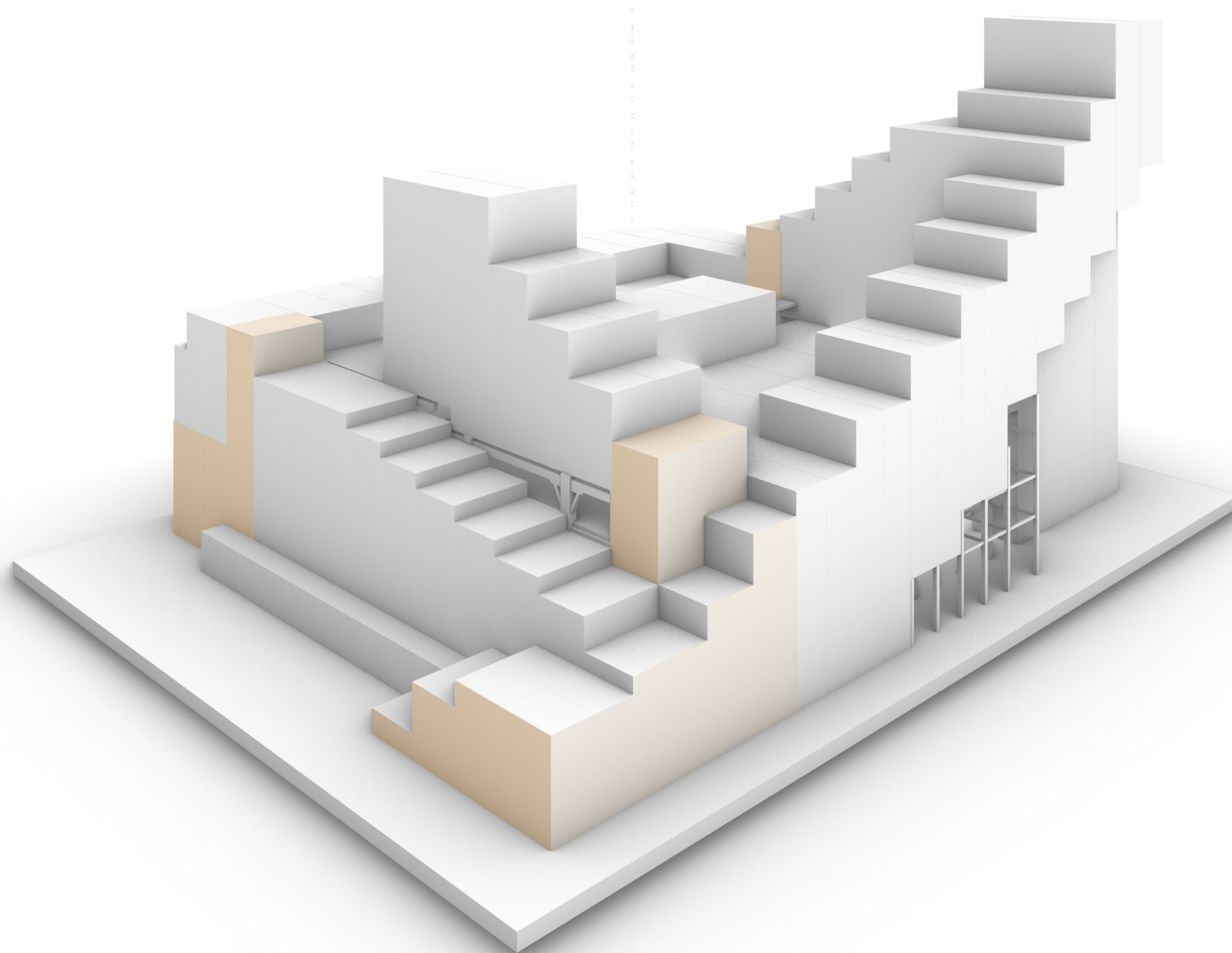
Structure



Circulation

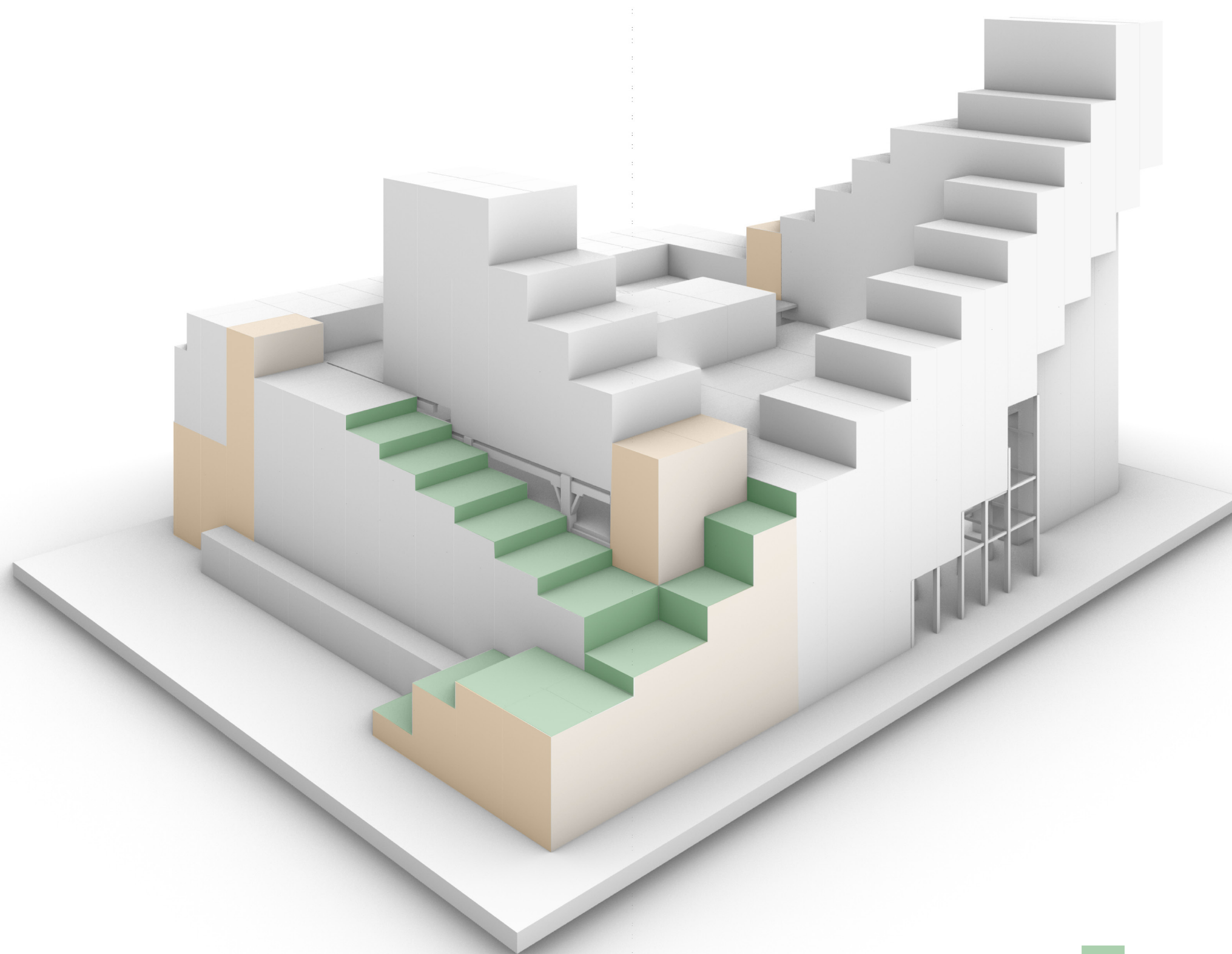


Mass & functions

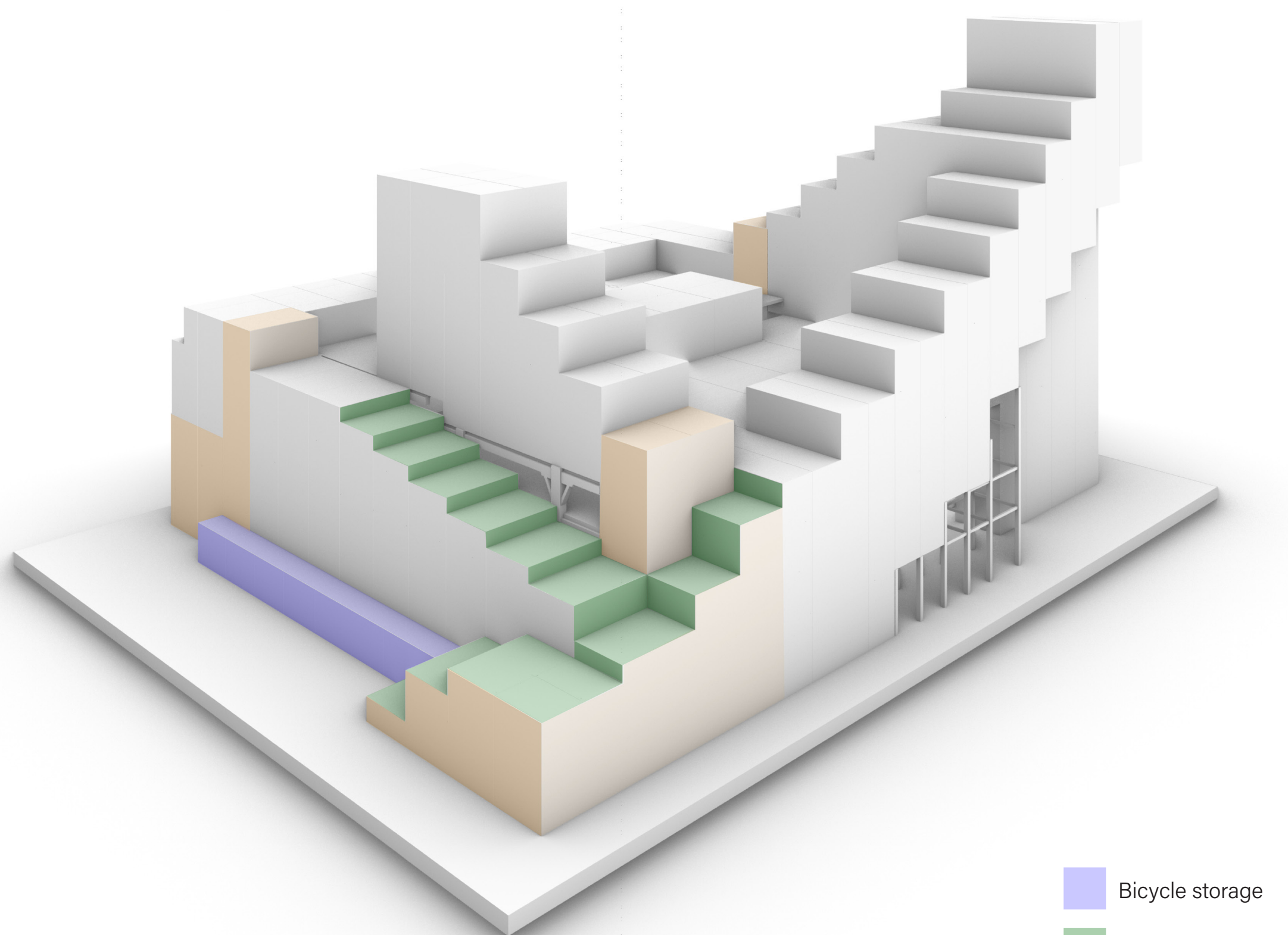


 Circulation

Mass & functions

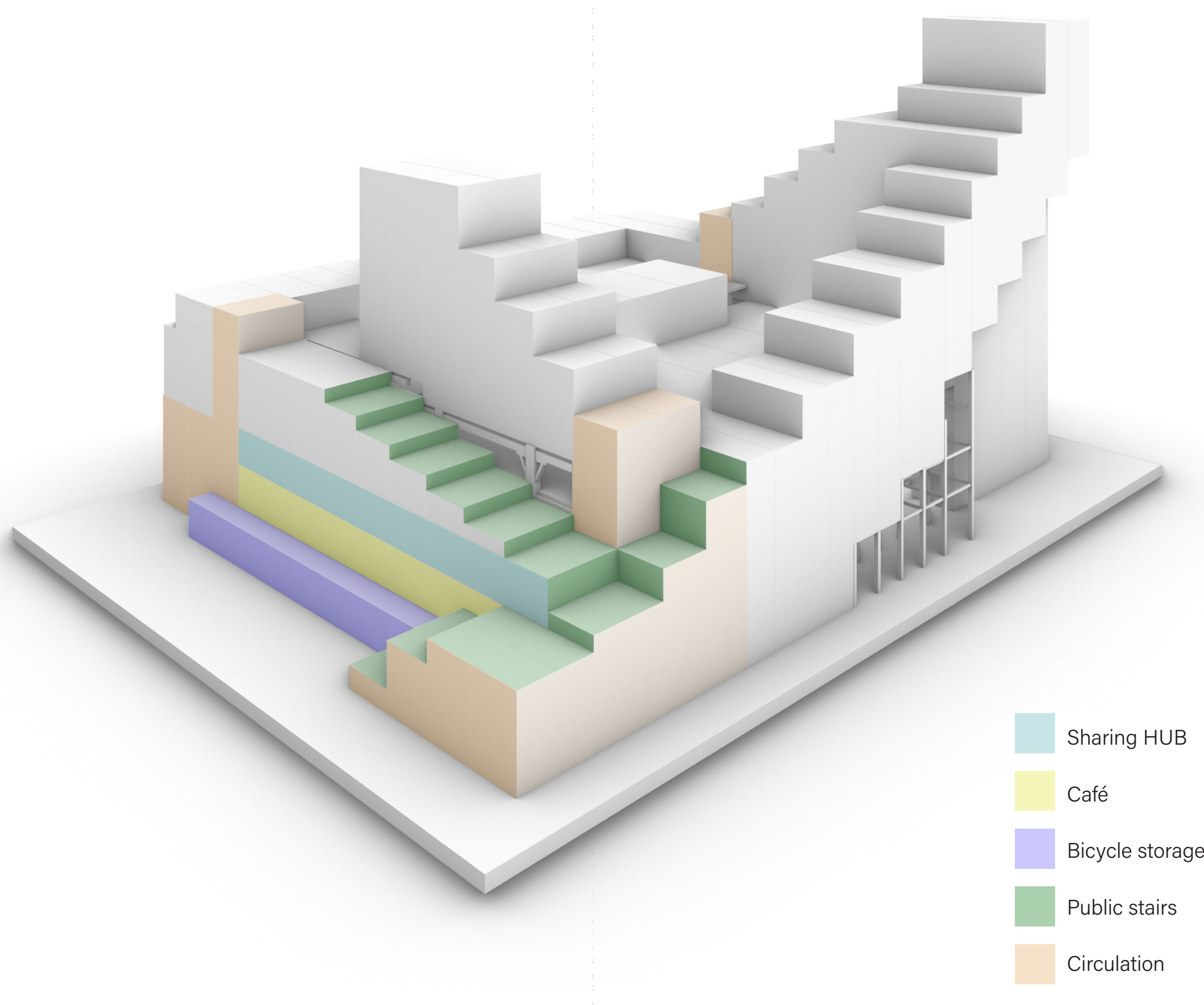


Mass & functions

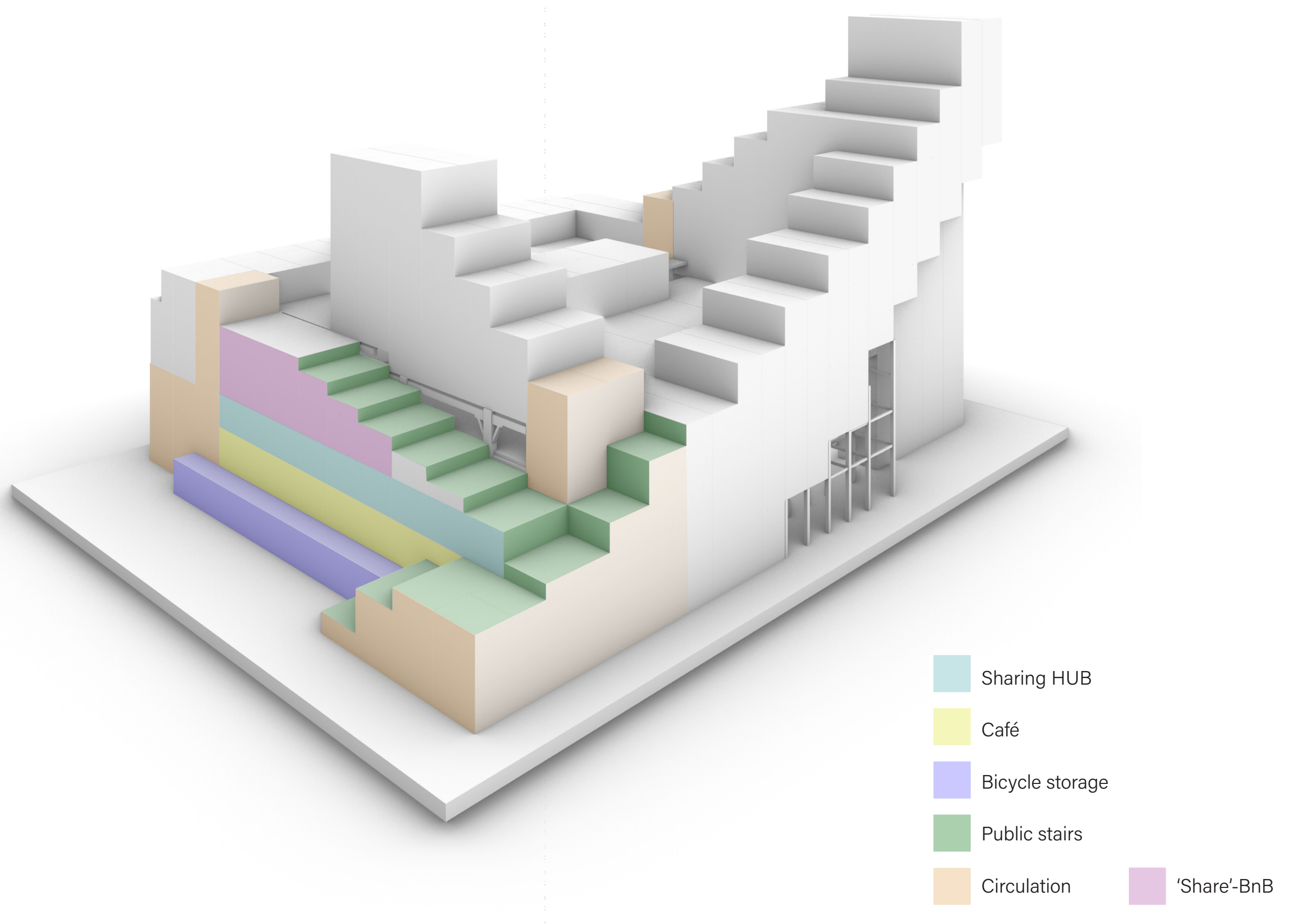


- Bicycle storage
- Public stairs
- Circulation

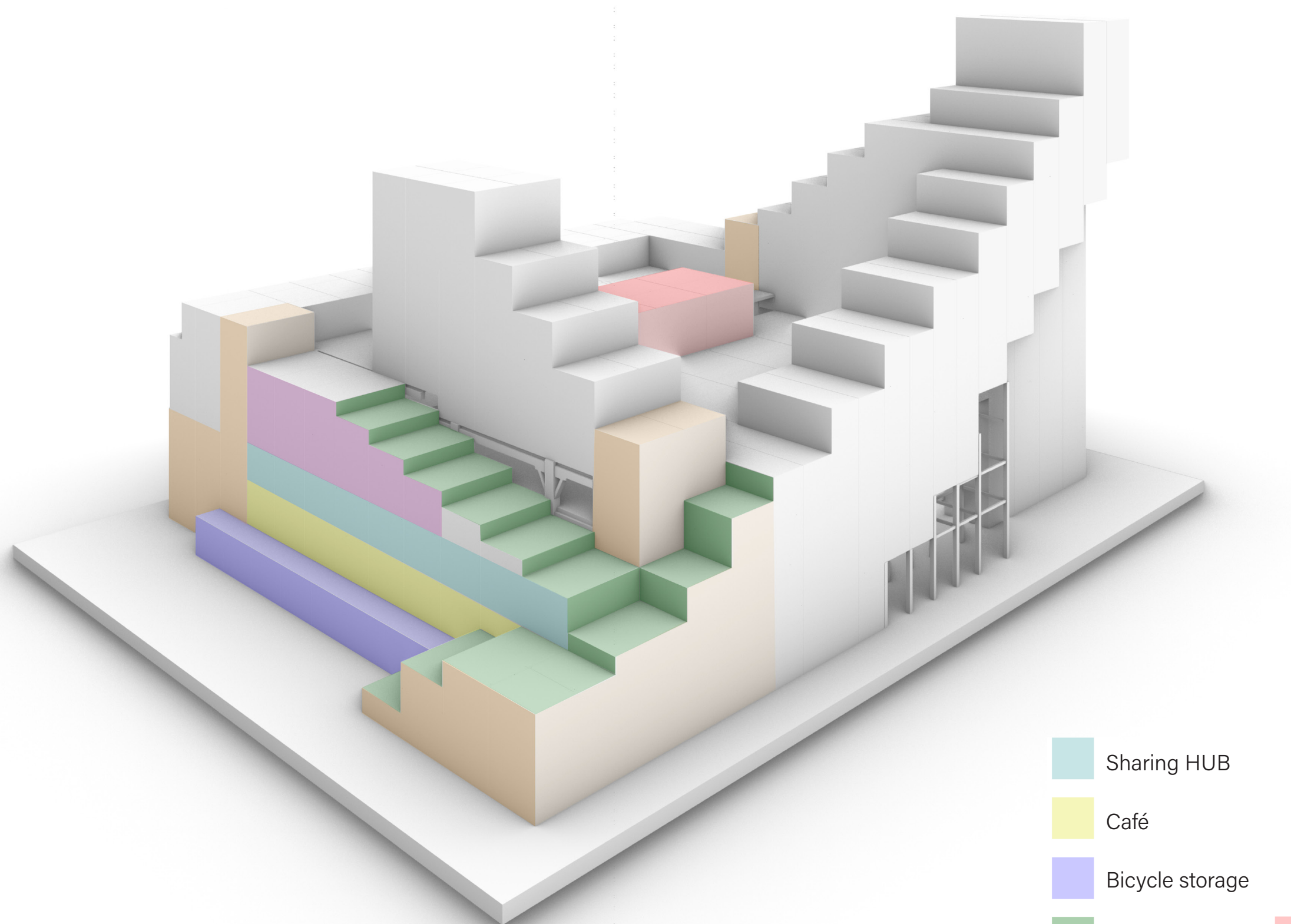
Mass & functions



Mass & functions

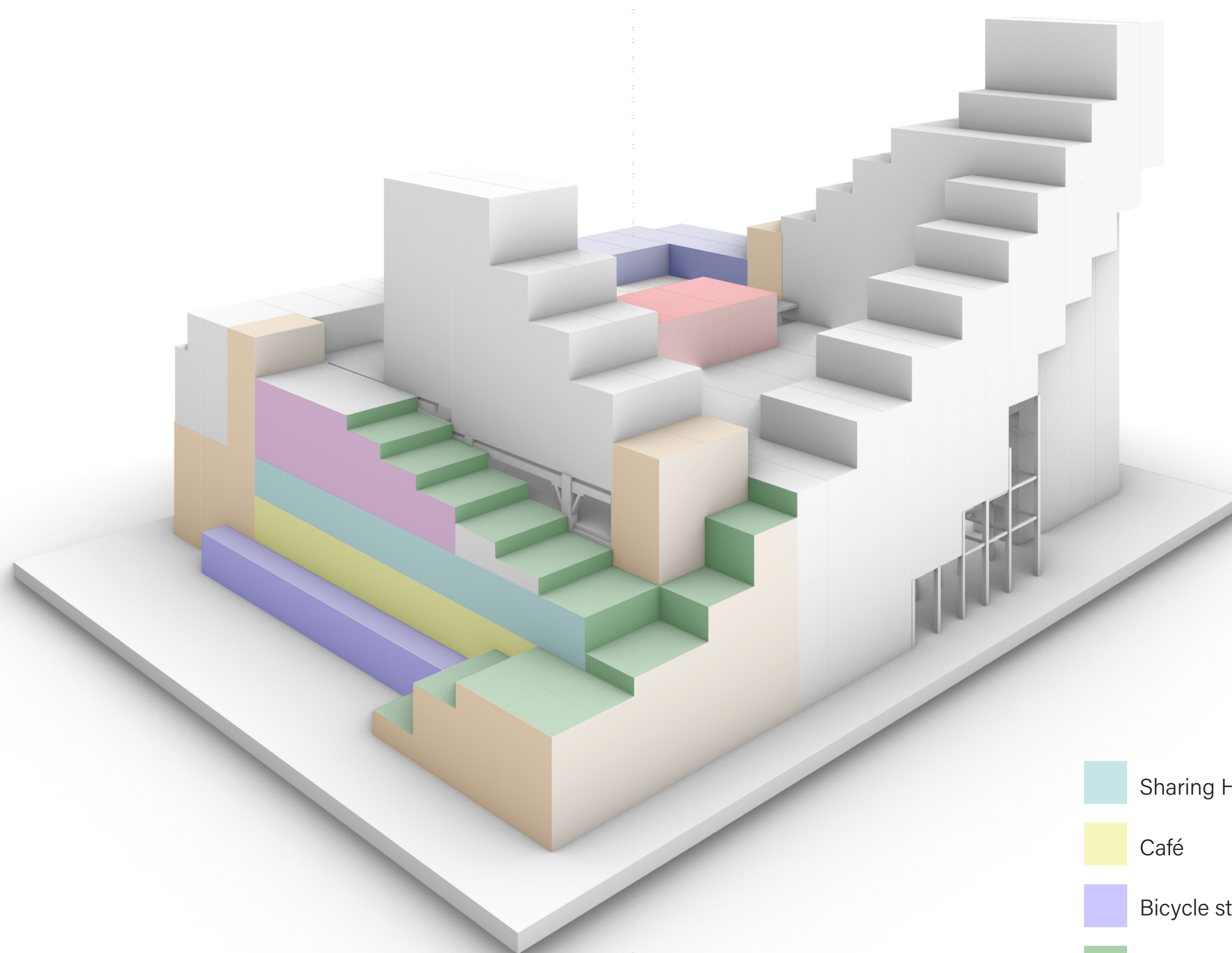


Mass & functions



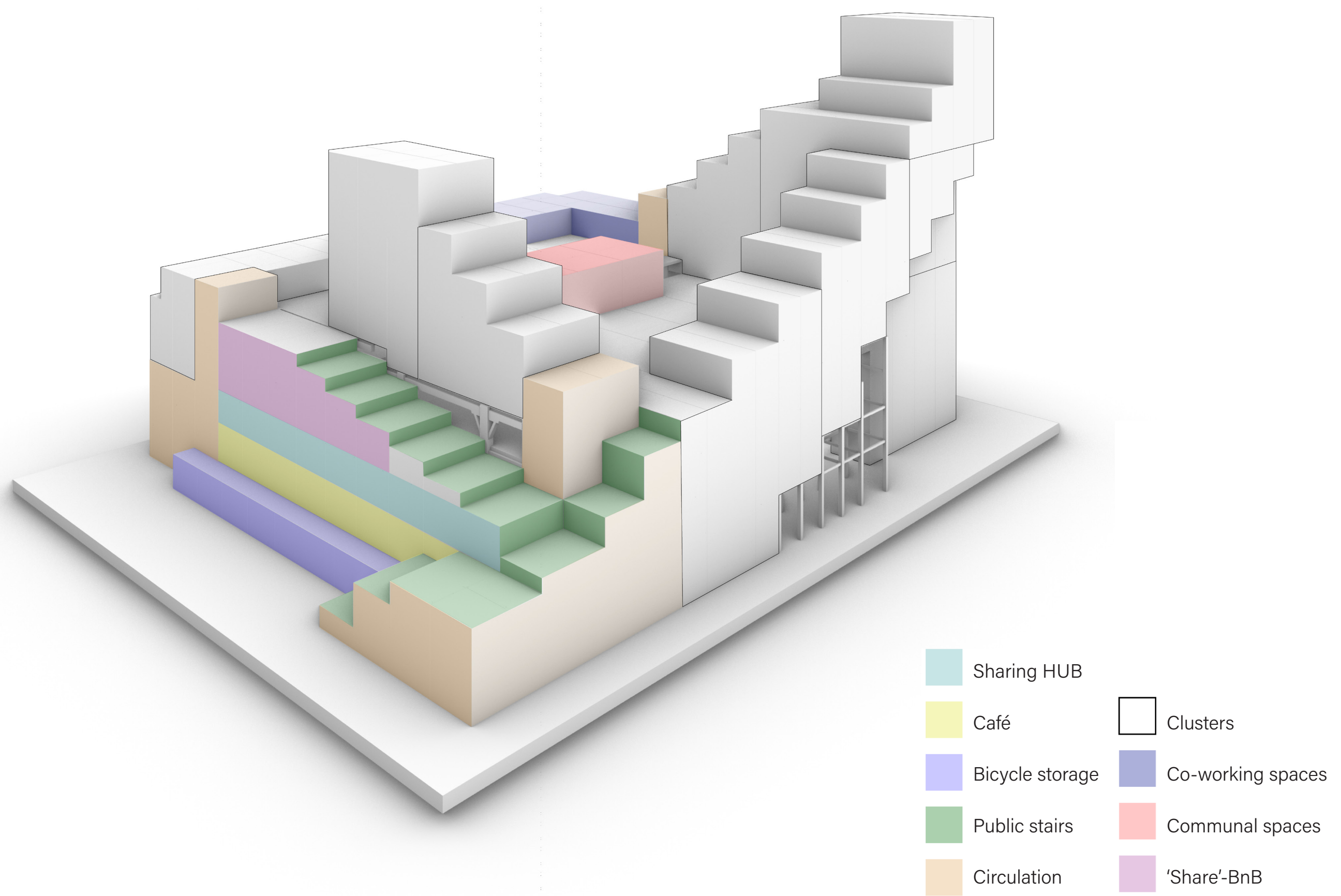
- Sharing HUB
- Café
- Bicycle storage
- Public stairs
- Circulation
- Communal spaces
- 'Share'-BnB

Mass & functions

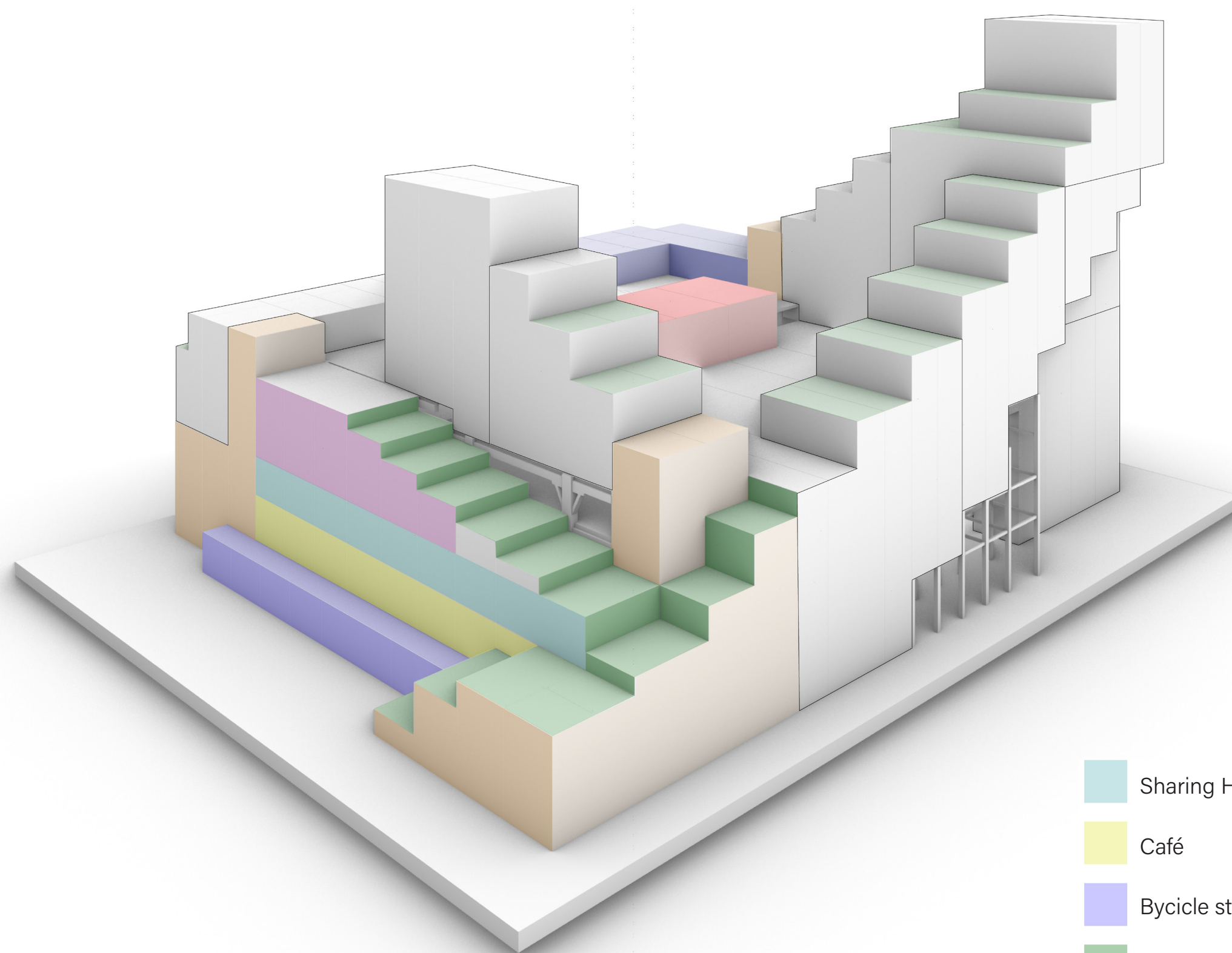












- Sharing HUB
- Café
- Bicycle storage
- Co-working spaces
- Public stairs
- Communal spaces
- Circulation
- 'Share'-BnB

Mass & functions

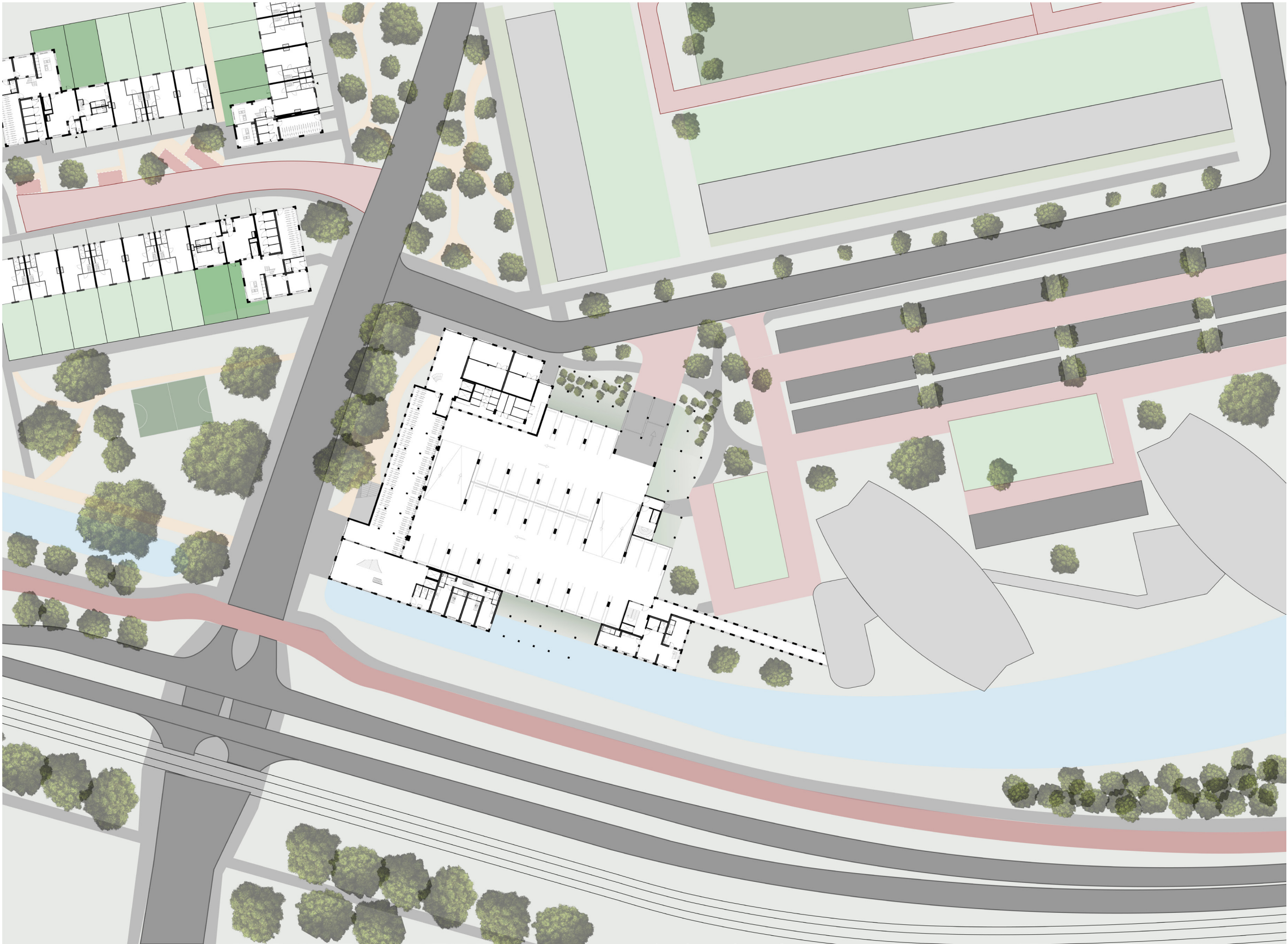


Mass & functions

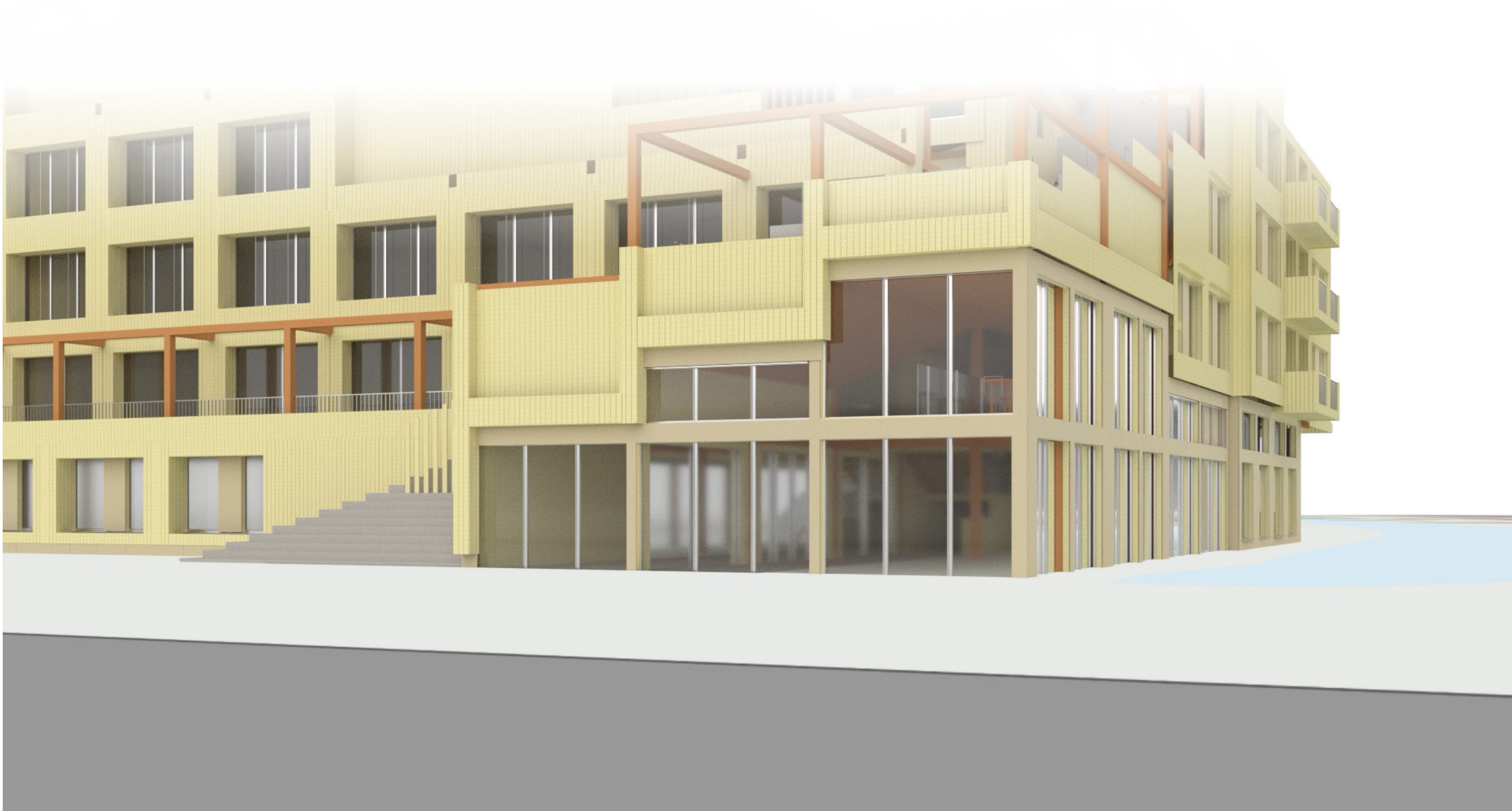


- | | |
|---|---|
|  Sharing HUB |  Roof balconies |
|  Café |  Clusters |
|  Bicycle storage |  Co-working spaces |
|  Public stairs |  Communal spaces |
|  Circulation |  'Share'-BnB |

Ground floor

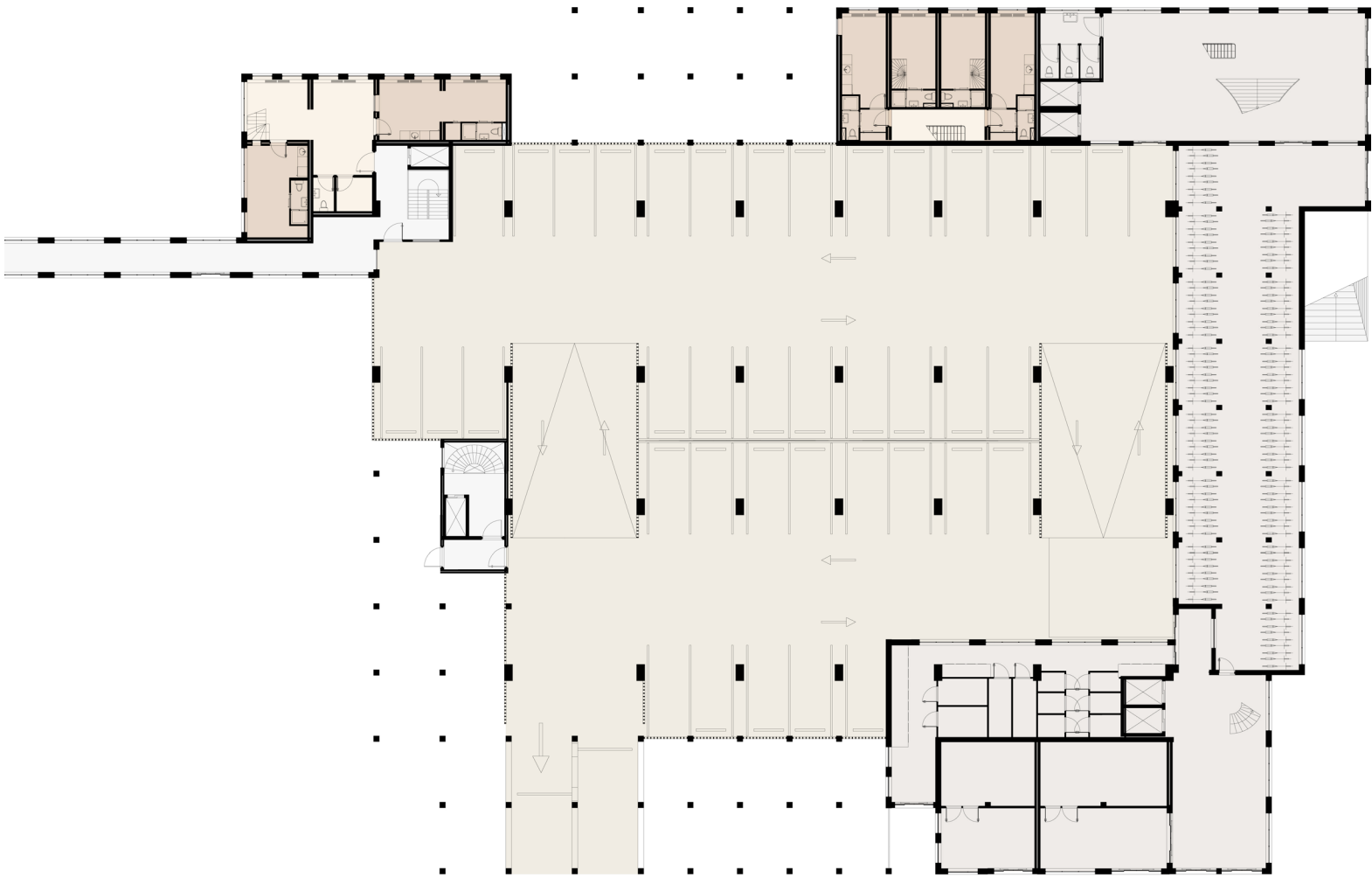


Entrance

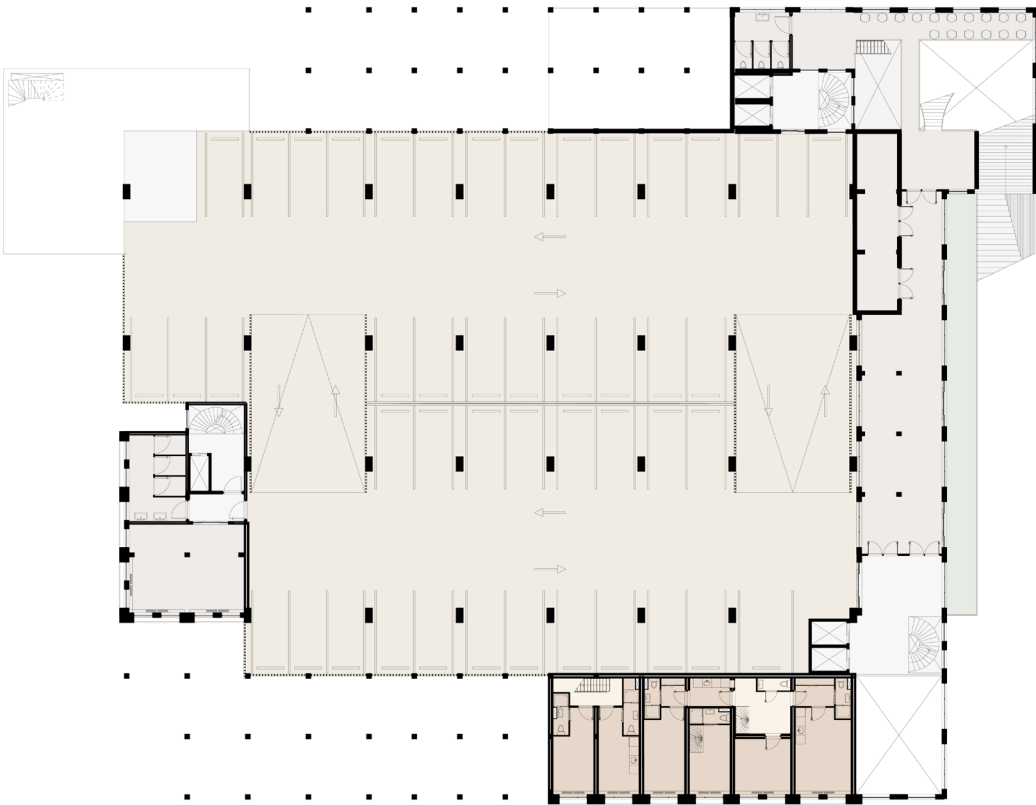


Floor plans

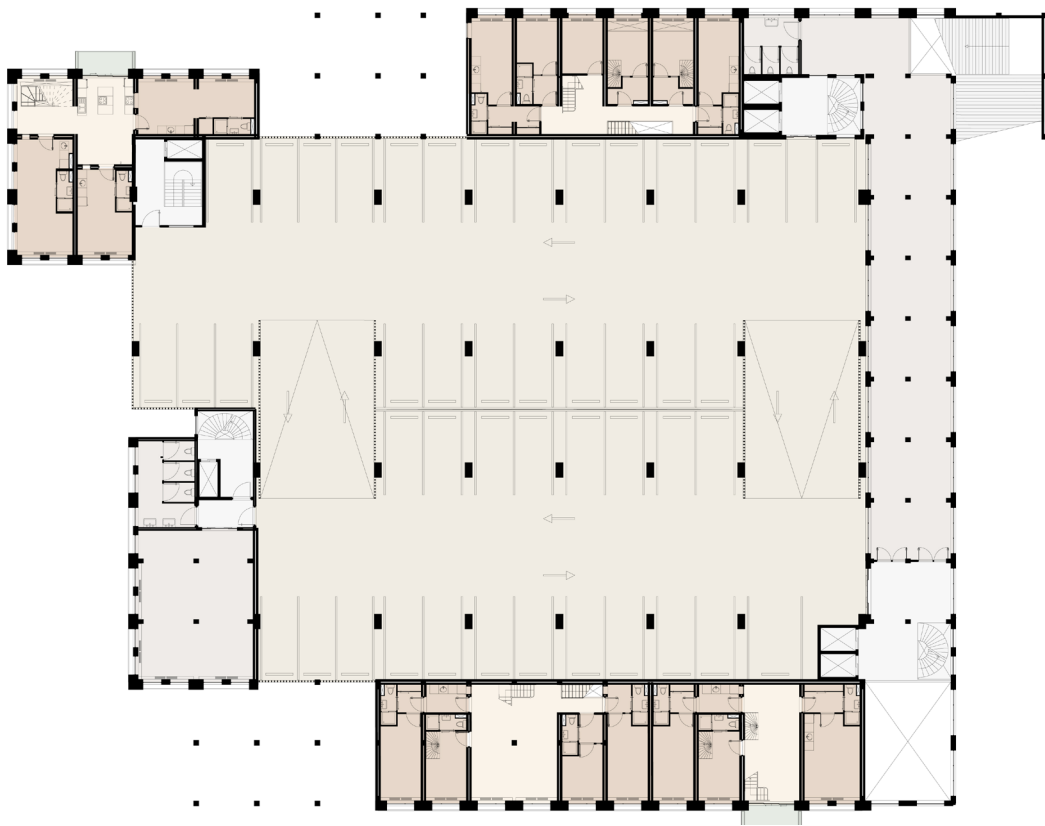
Ground floor



Floor +1



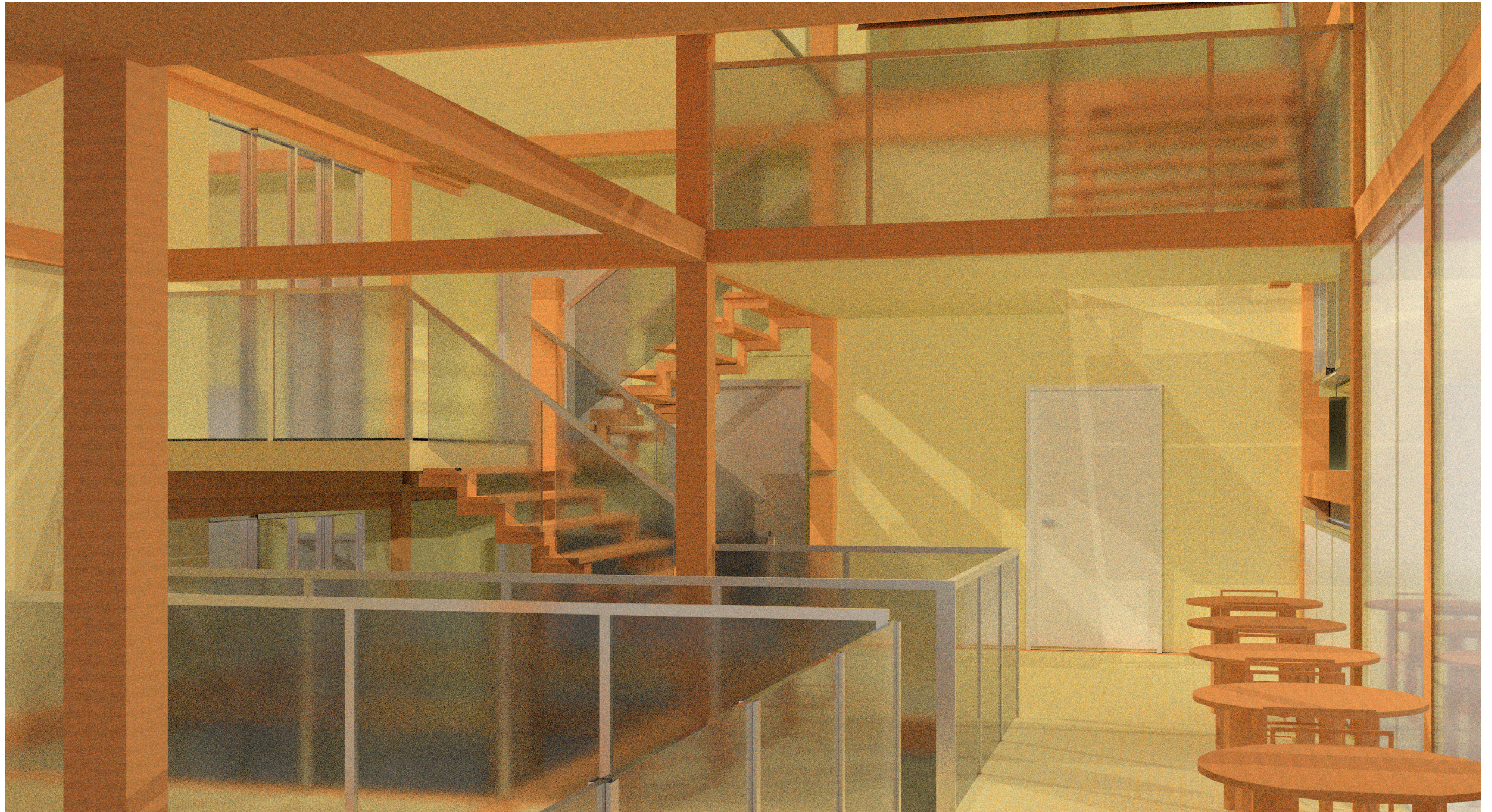
Floor +2



Entrance

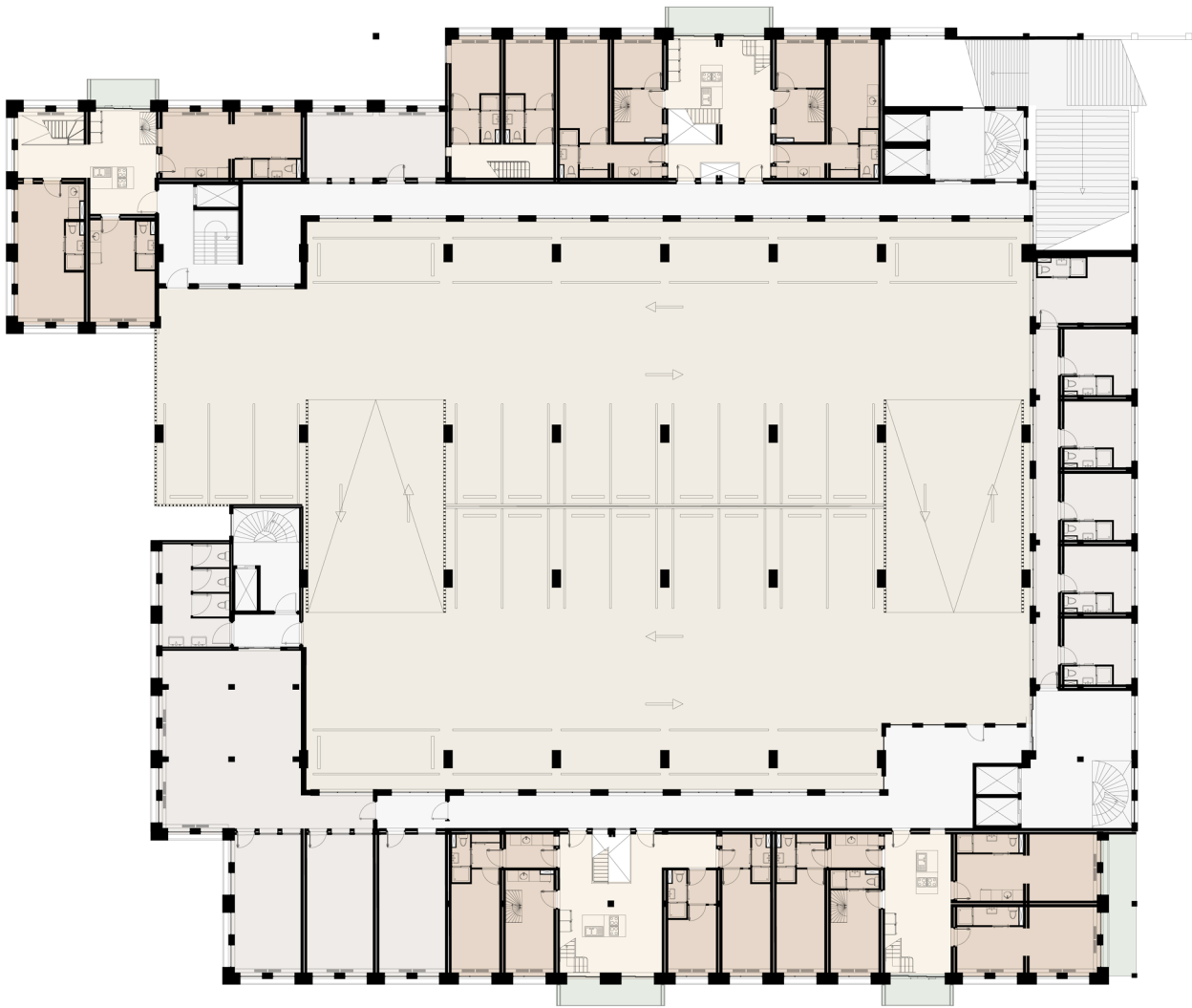


Entrance

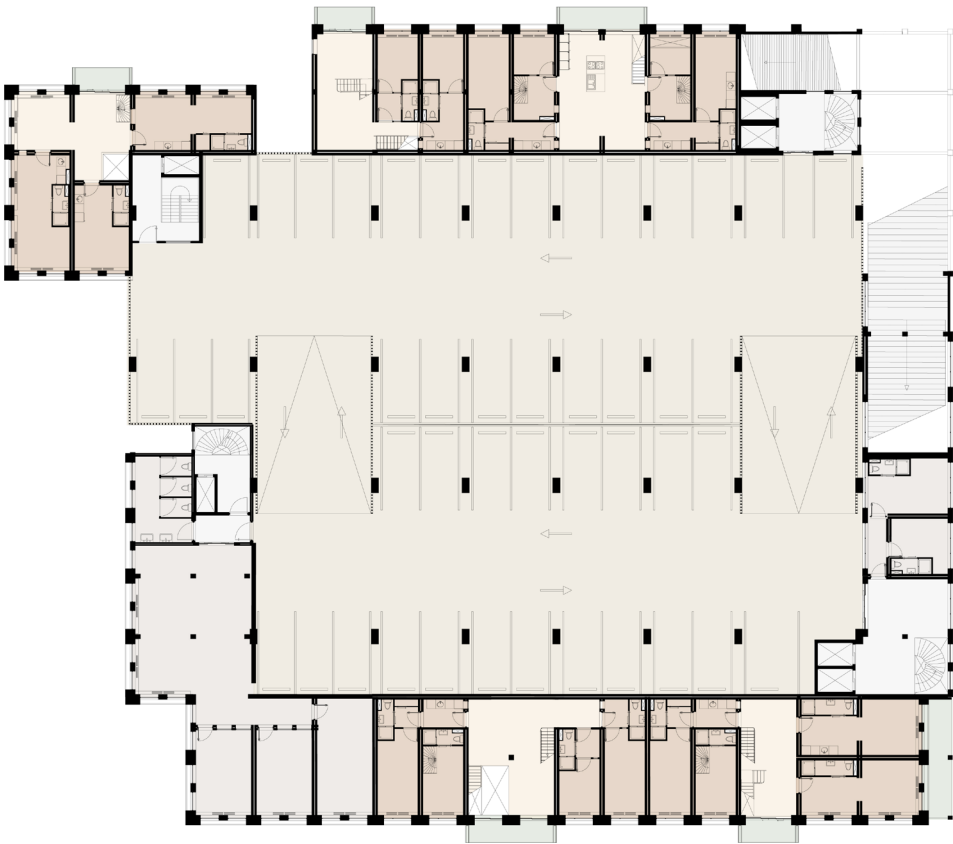


Floor plans

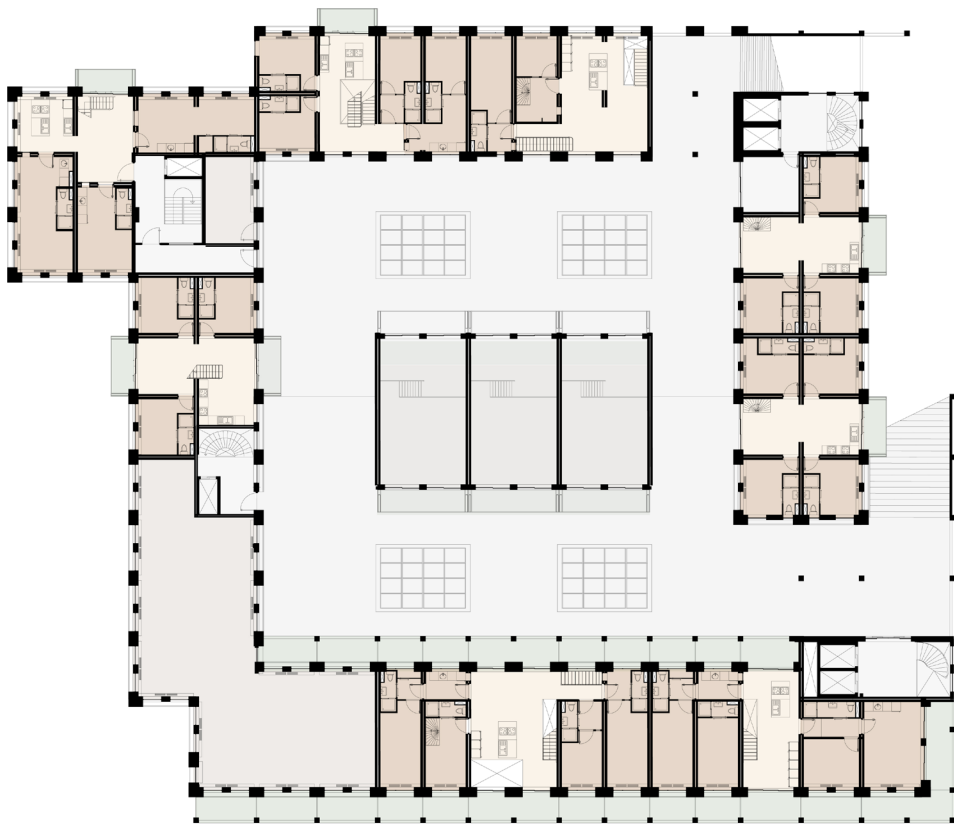
Floor +3



Floor +4



Floor +5

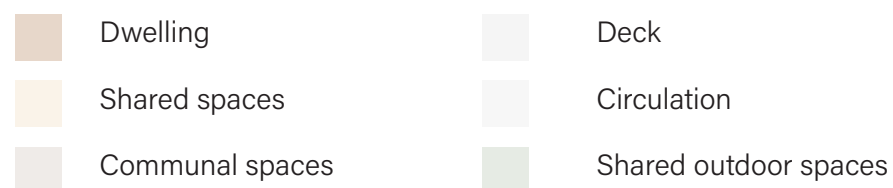
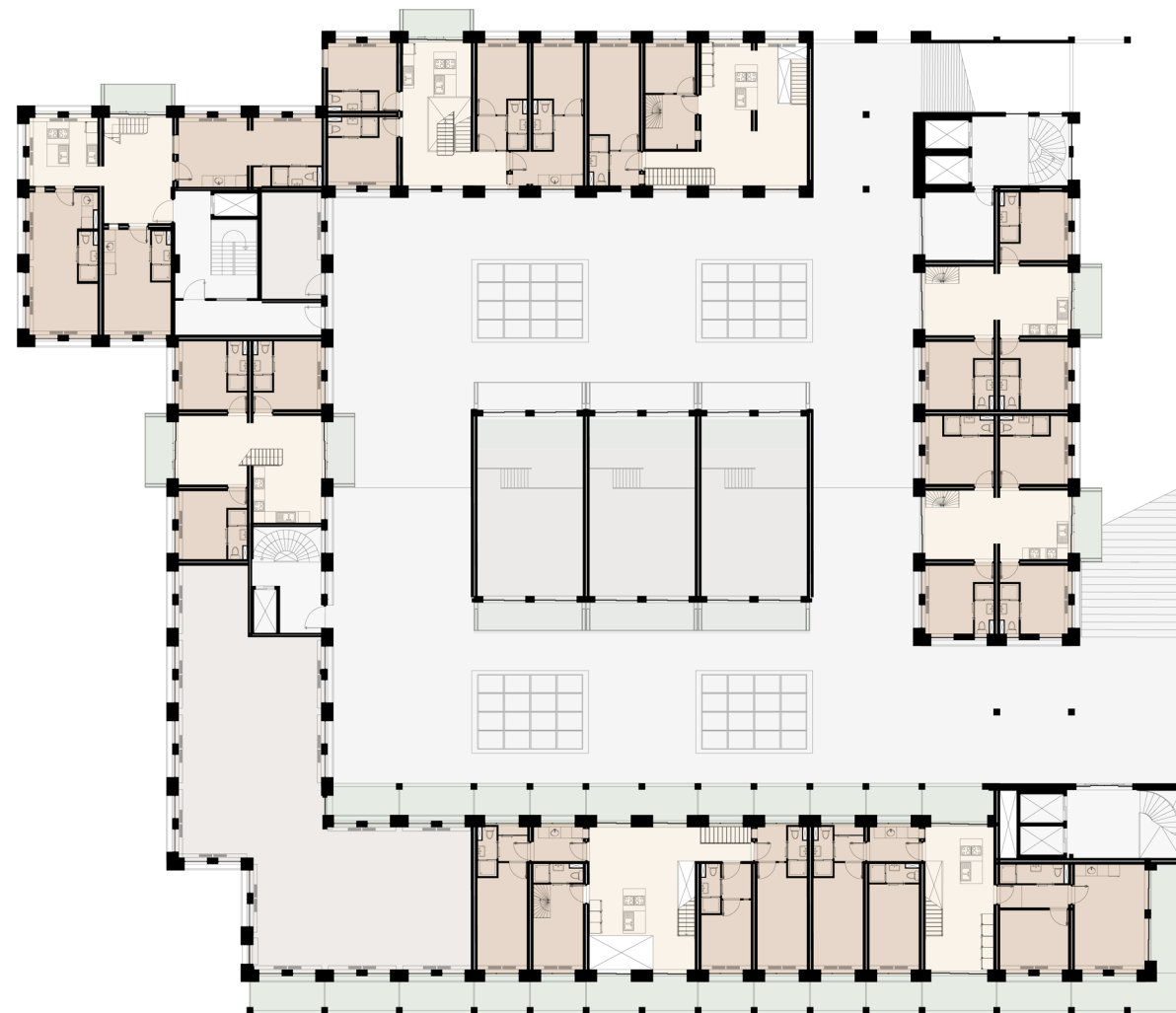


Hallway



Floor plans

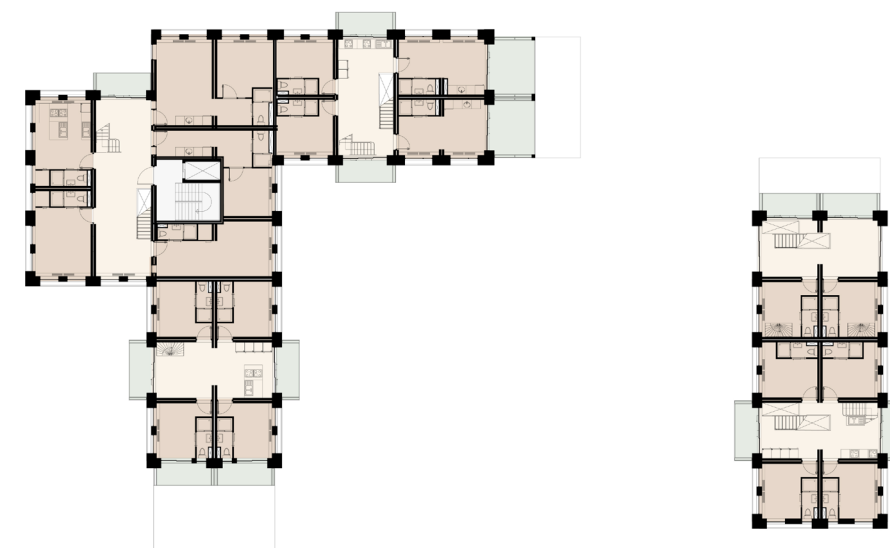
Floor +5



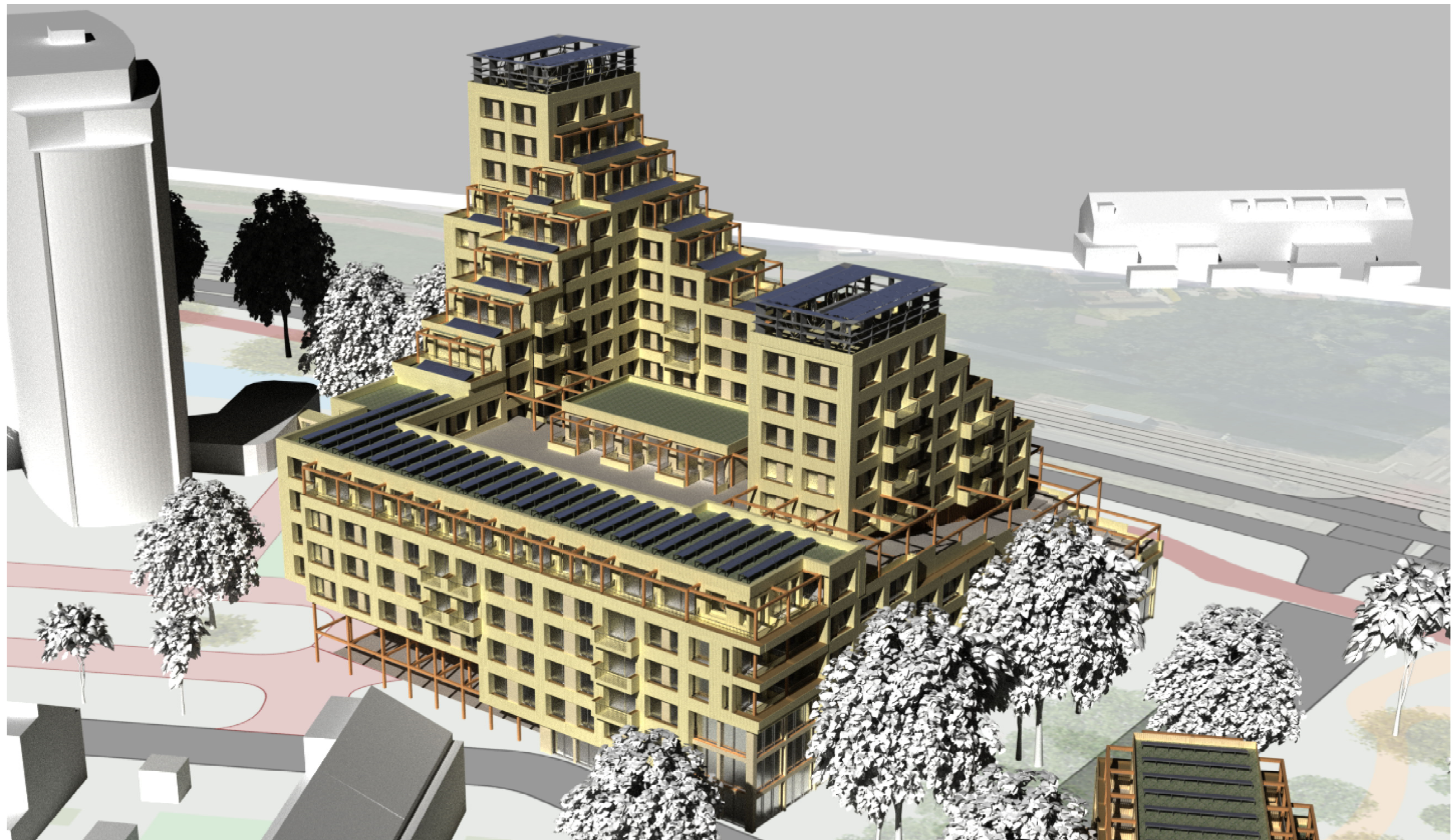
Floor +6



Floor +7

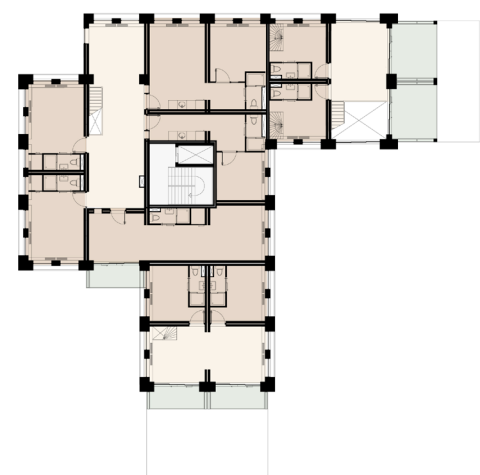


Deck

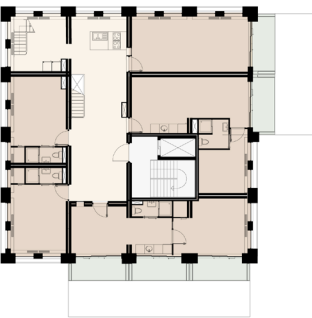


Floor plans

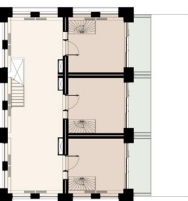
Floor +8



Floor +10



Floor +12



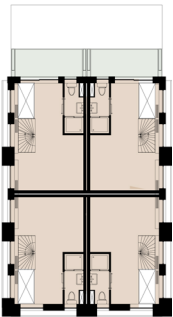
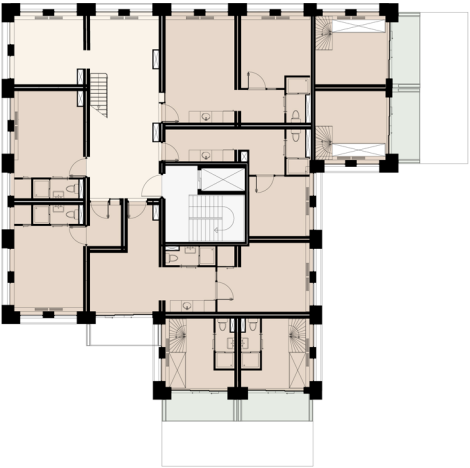
Floor +11



Floor +13



Floor +9



Highrise

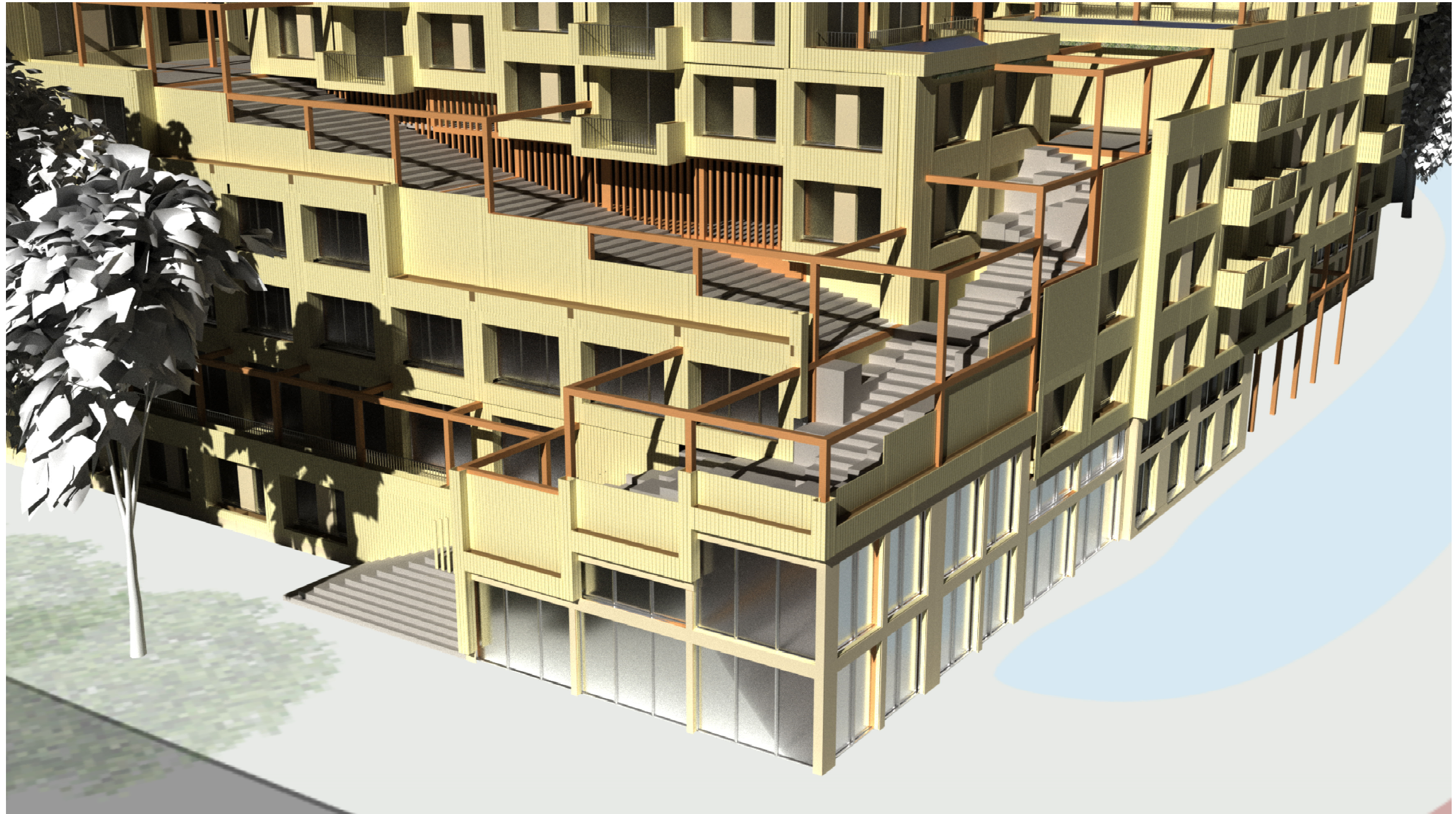


Elevations 1:500



South-east elevation

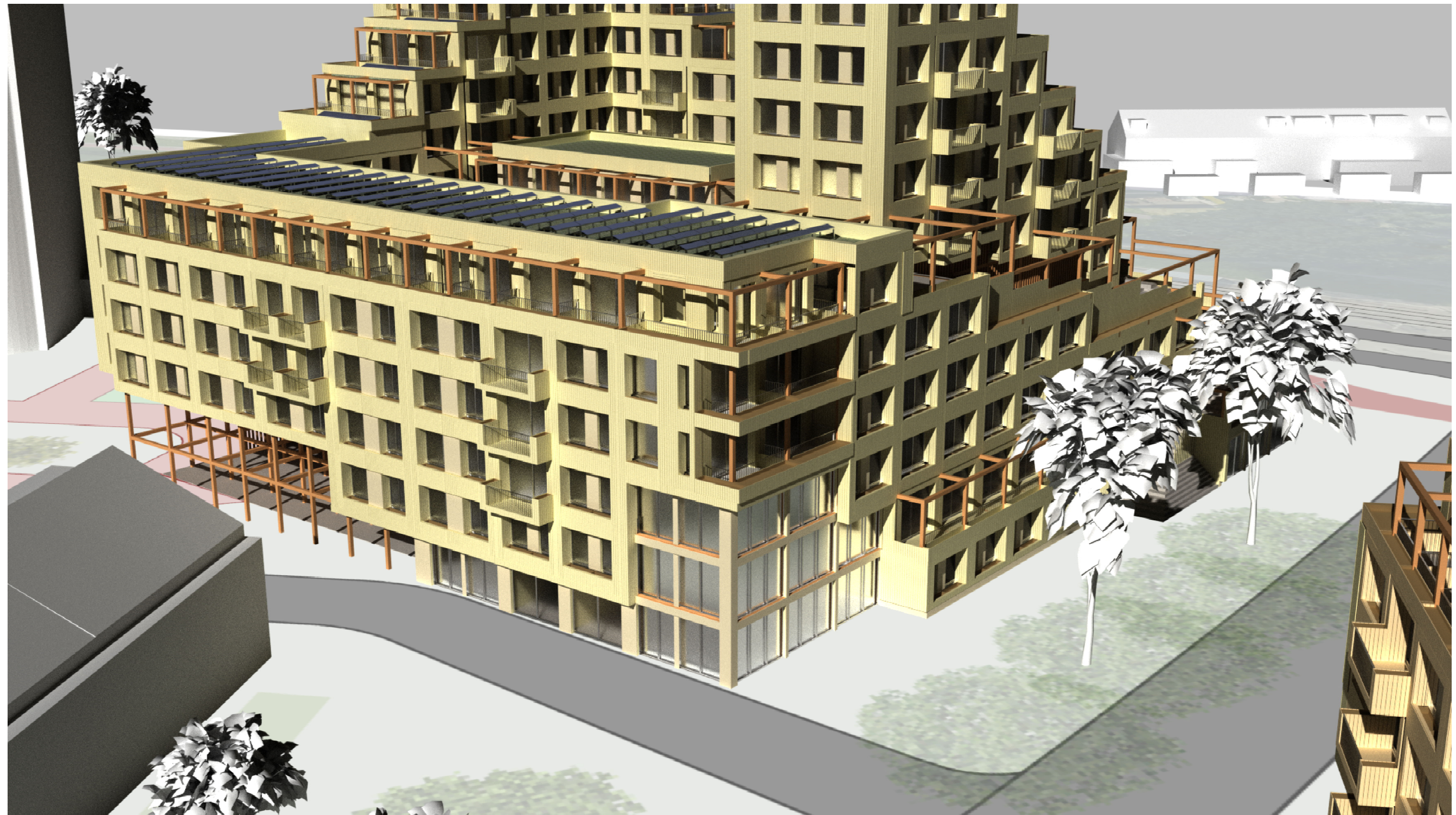
Impressions



Impressions

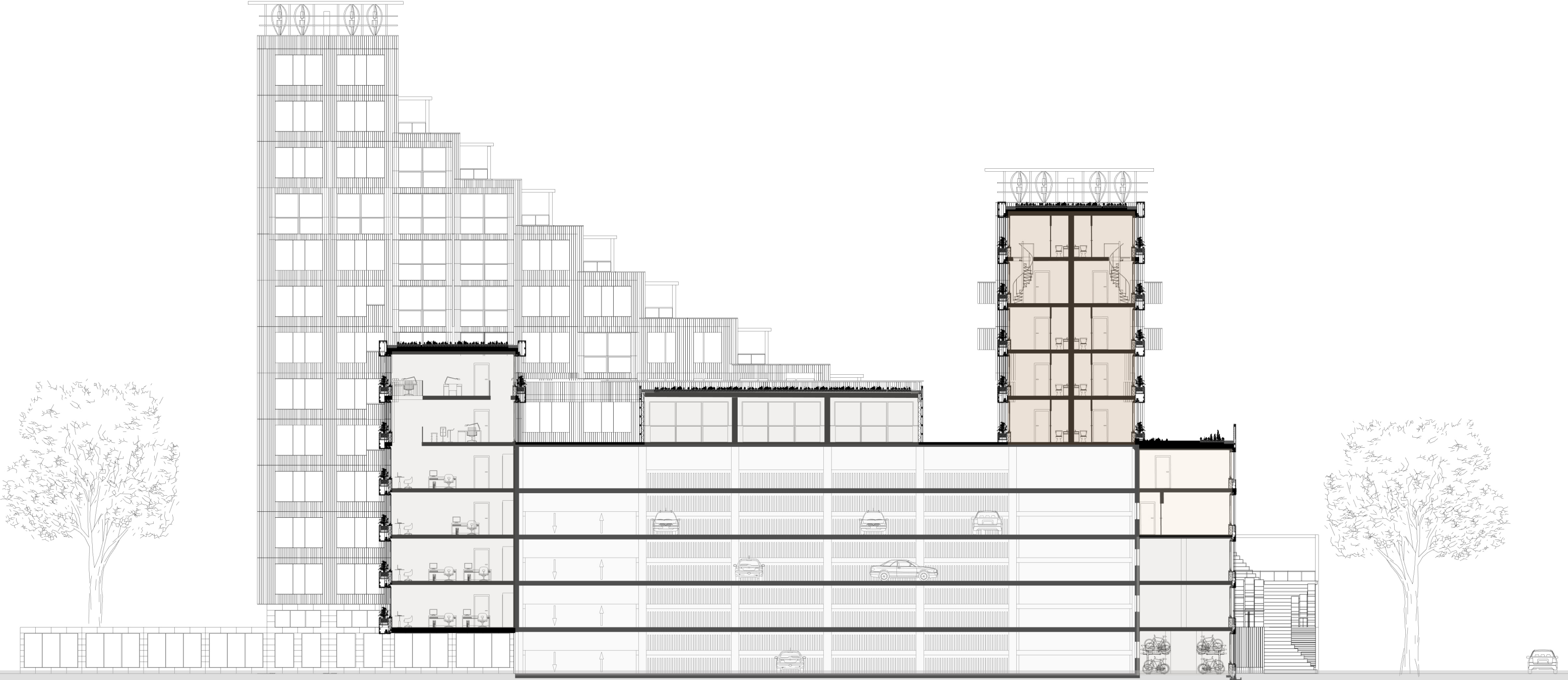


Impressions



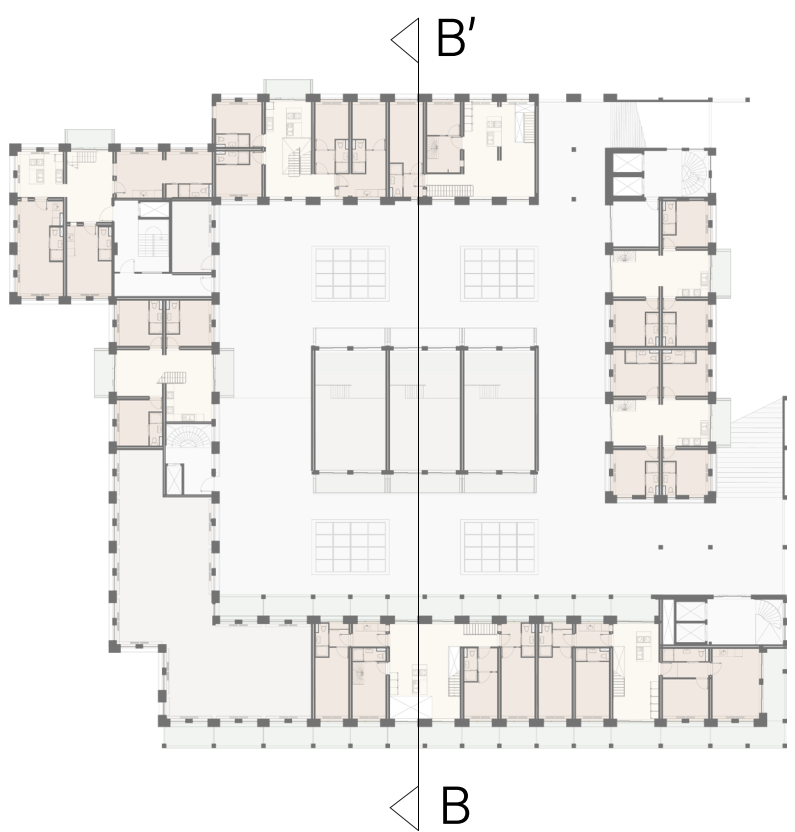
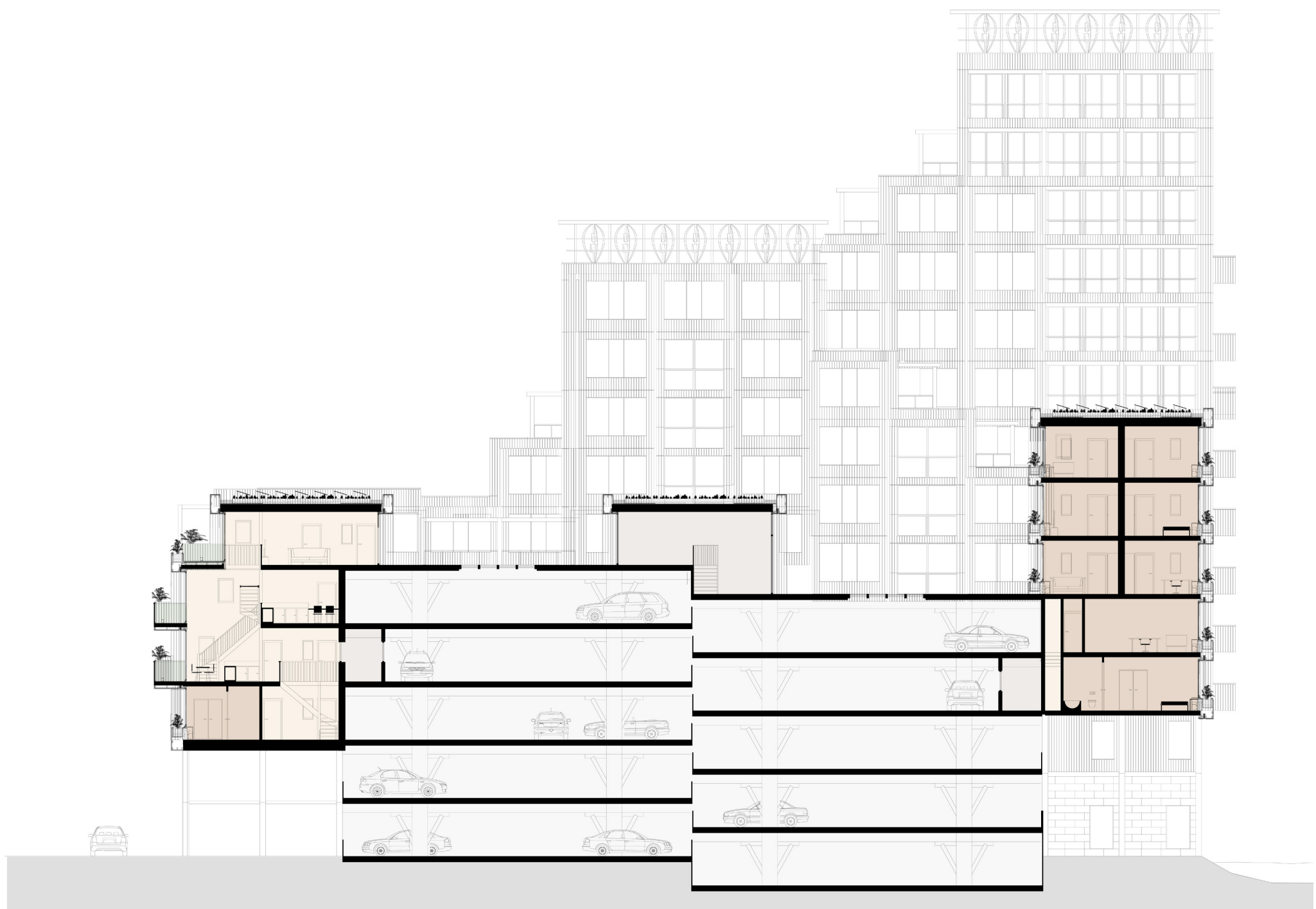
Sections 1:100

Section A - A'

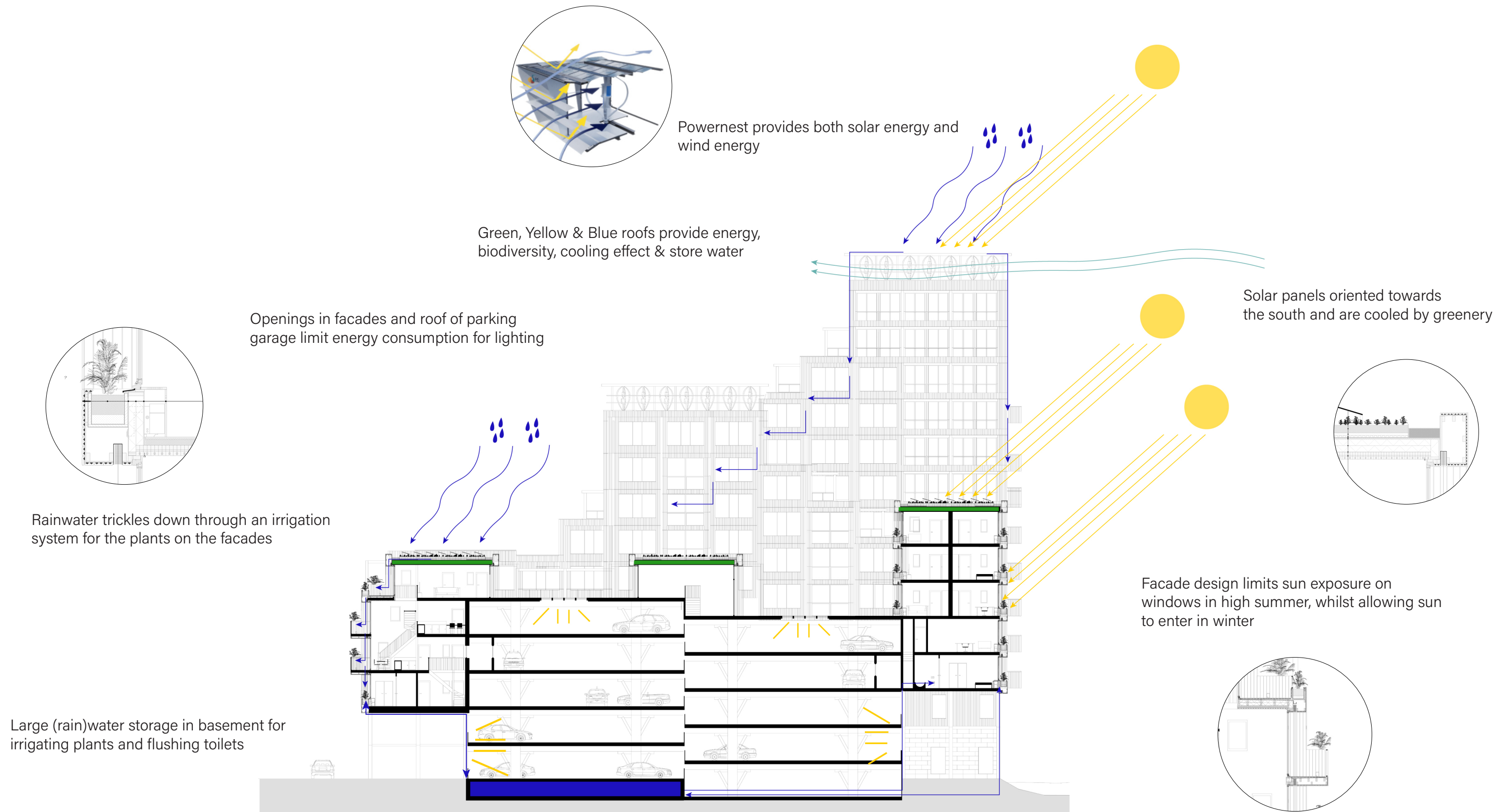


Sections 1:50

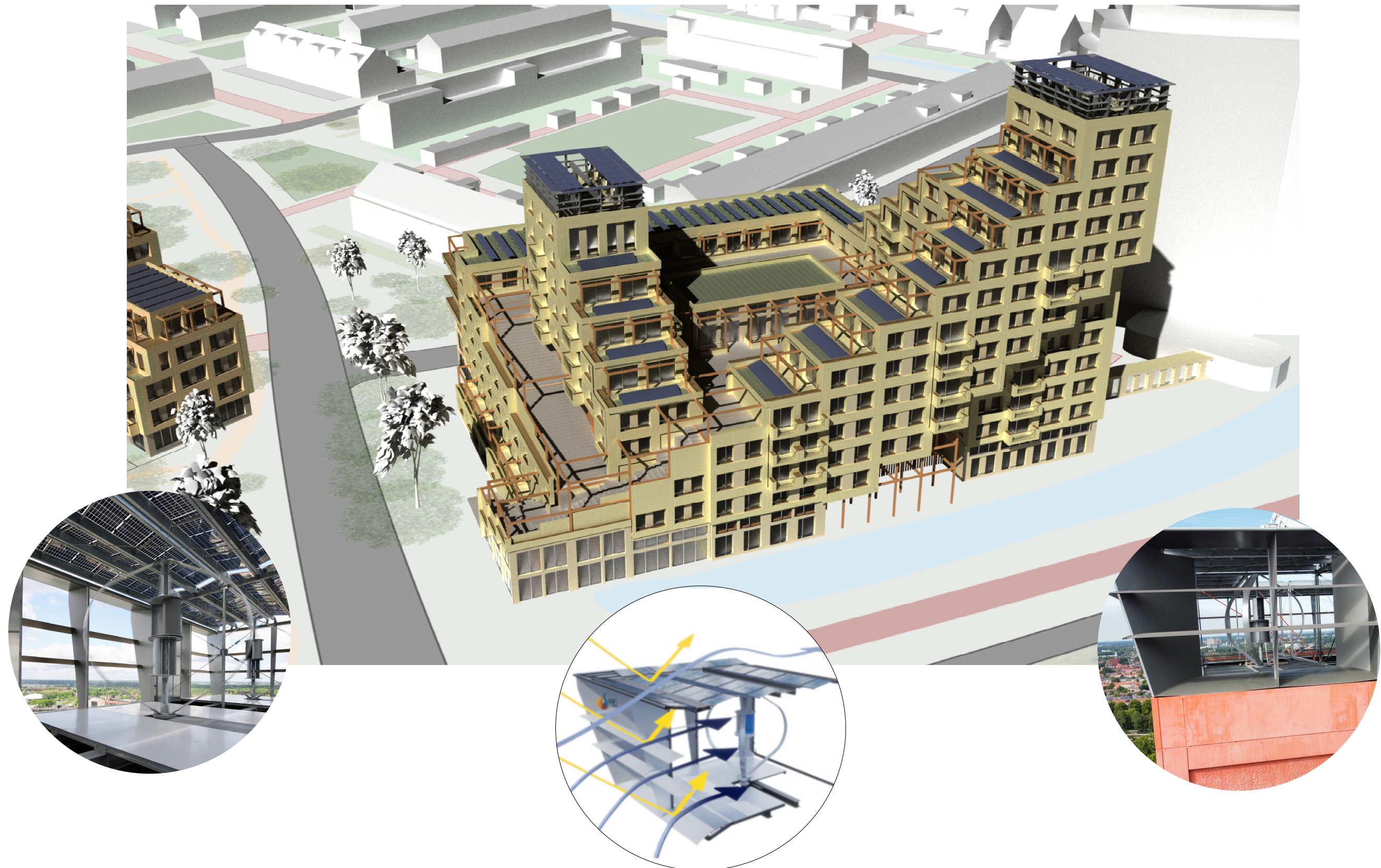
Section B - B'



Climate concept section



Powernest



1 Introduction

1.1 Introduction 1.2 Problem Statement
1.3 Research Plan

2 Results

2.1 Sharing
2.3 Co-housing

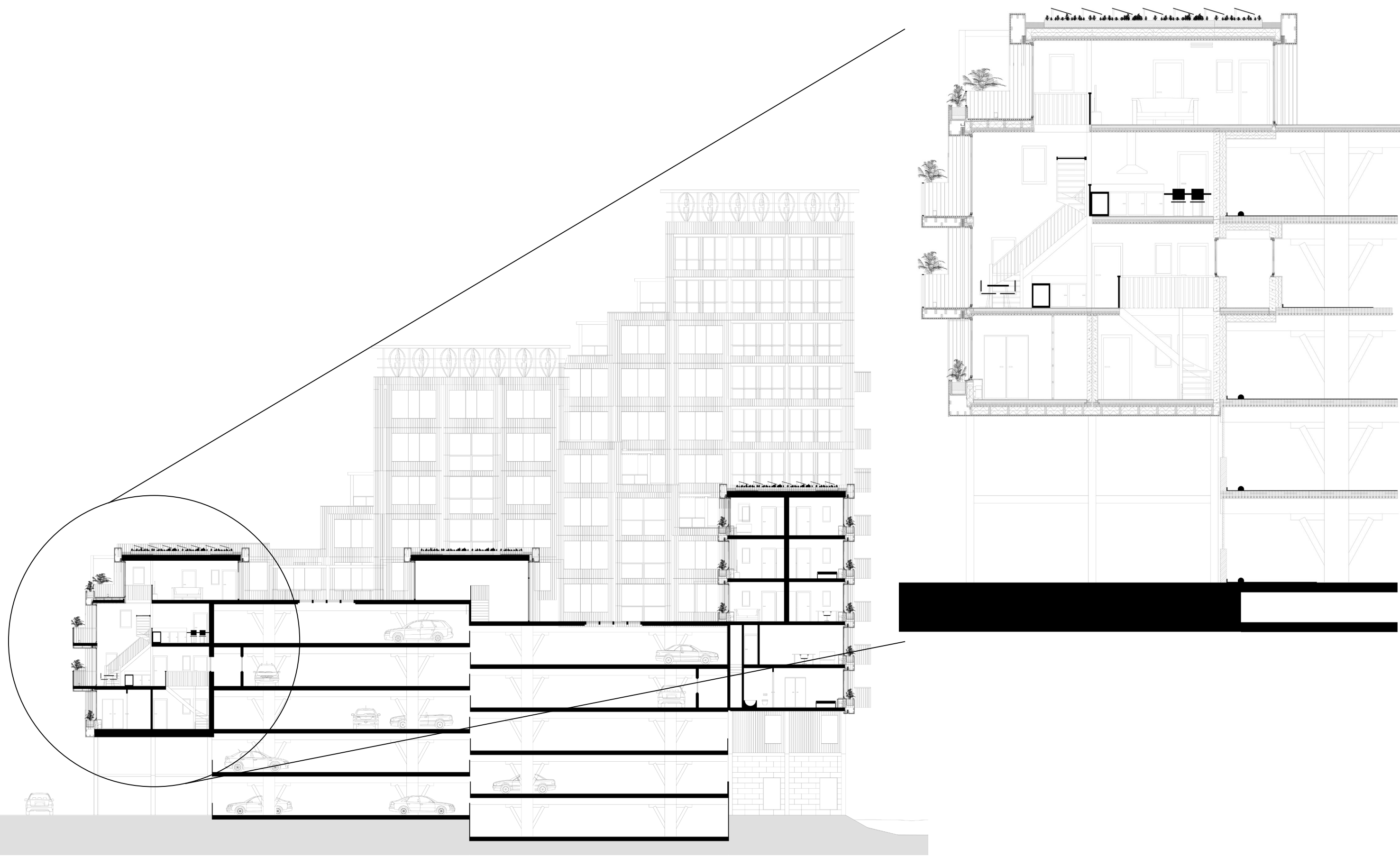
2.3 Short-stay
2.4 Urban densification

3 Site Vision

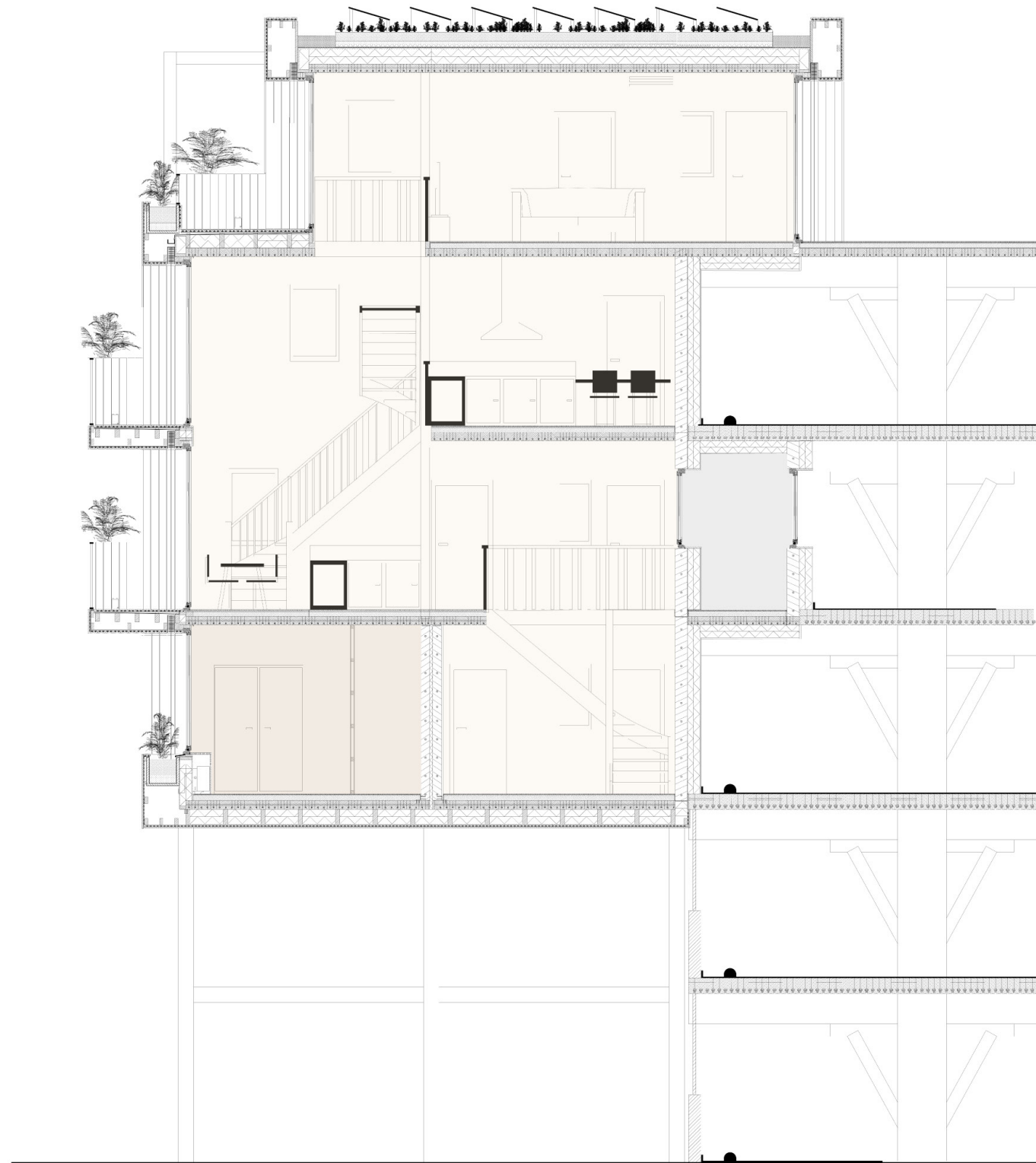
3.1 Site Analysis 3.2 Vision
3.3 Masterplan

4 Design

Sections 1:50

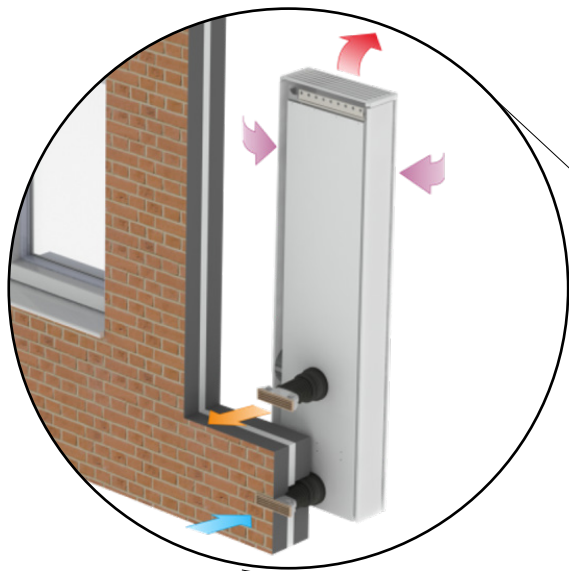


Section 1:50

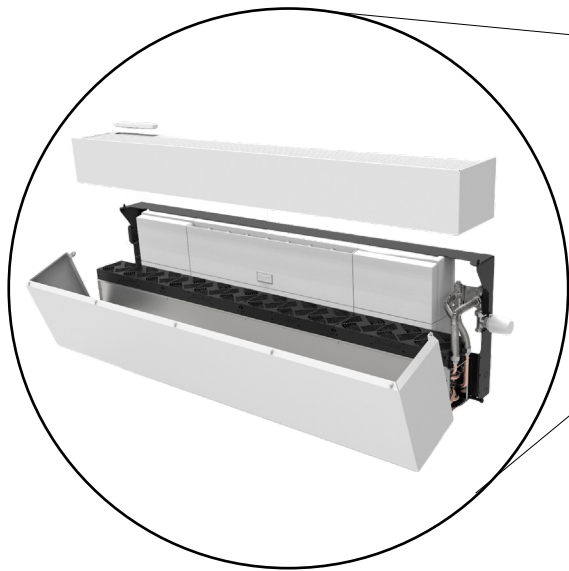


Heating & ventilation

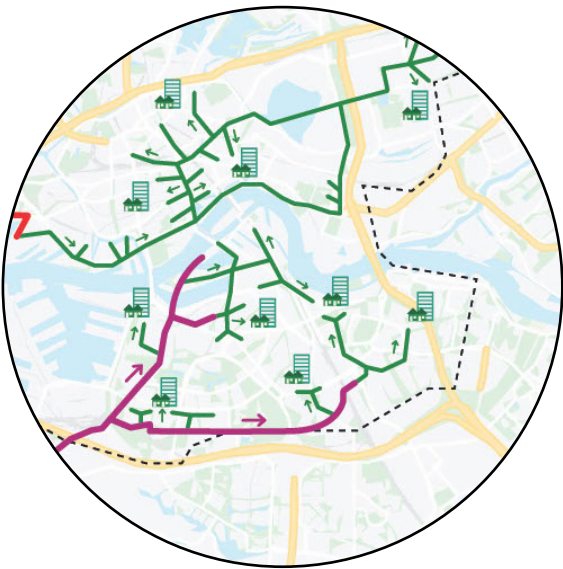
Climarad Ventura V1C-S
Decentralised heating, cooling & ventilation on low temperature heating, with heat recovery



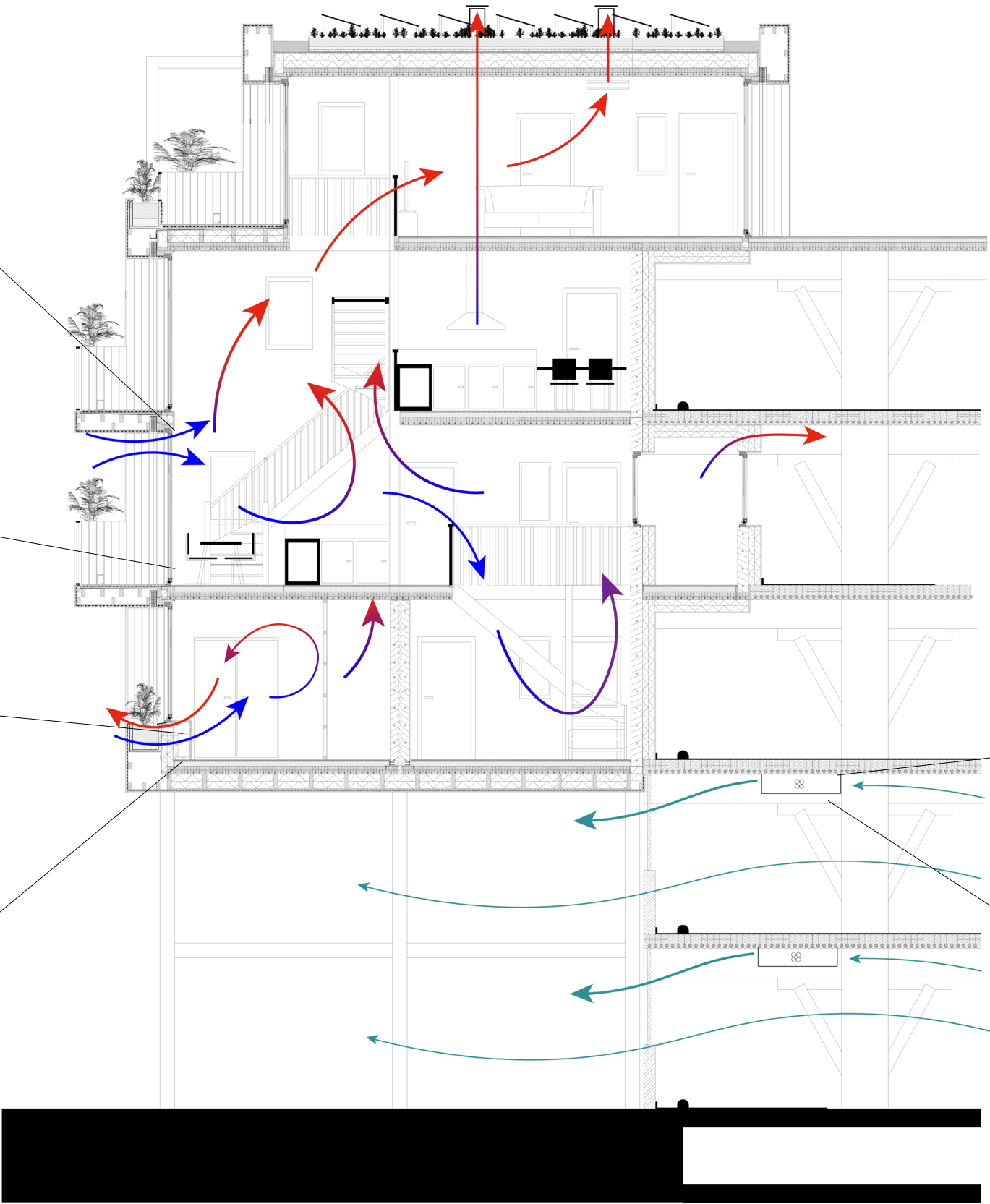
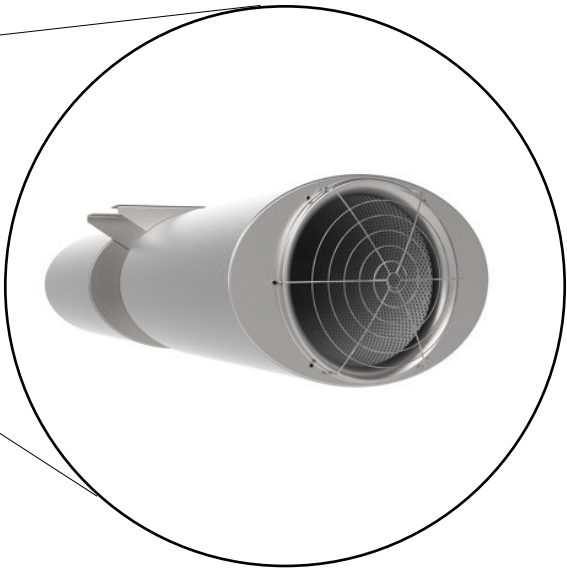
Climarad Vita H1C-S
Decentralised heating, cooling & ventilation on low temperature heating, with heat recovery



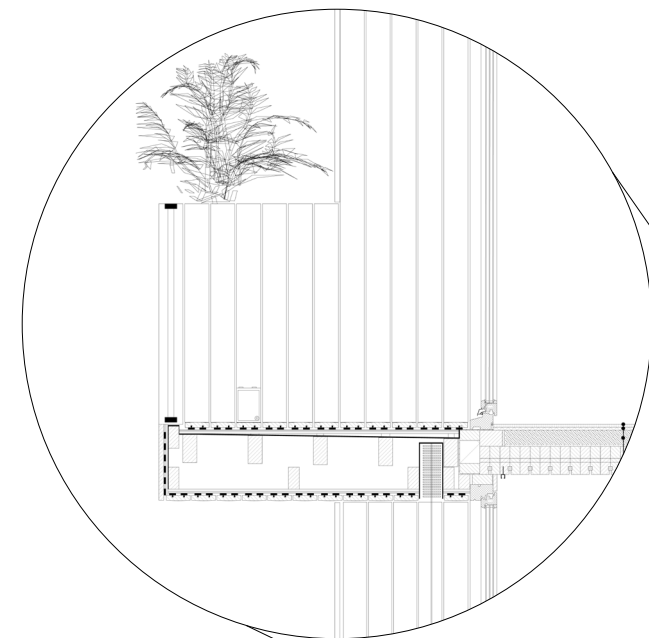
City heat network Rotterdam



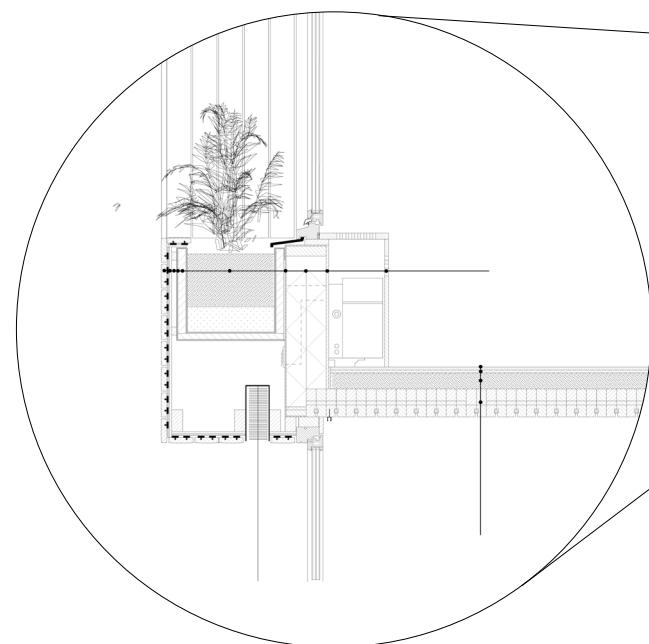
NOVENCO pressure ventilation for parking garages



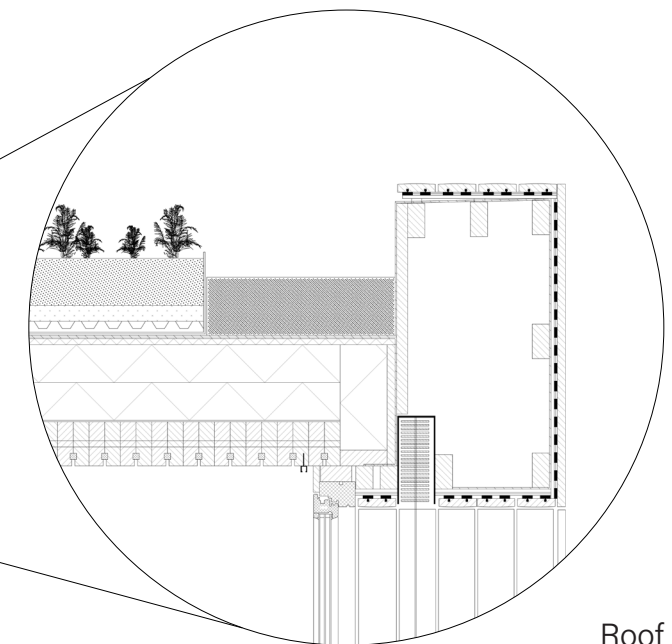
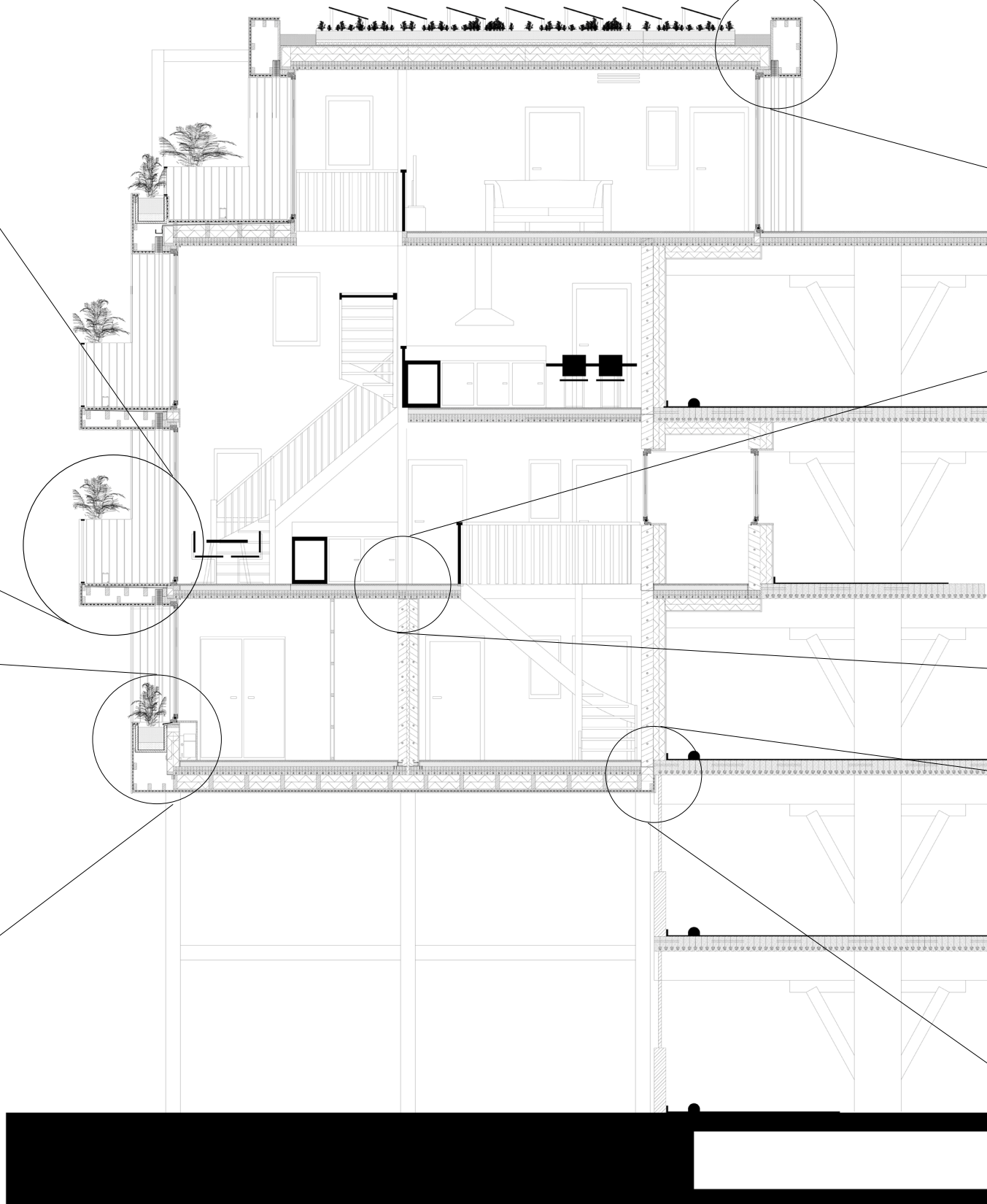
Section 1:50



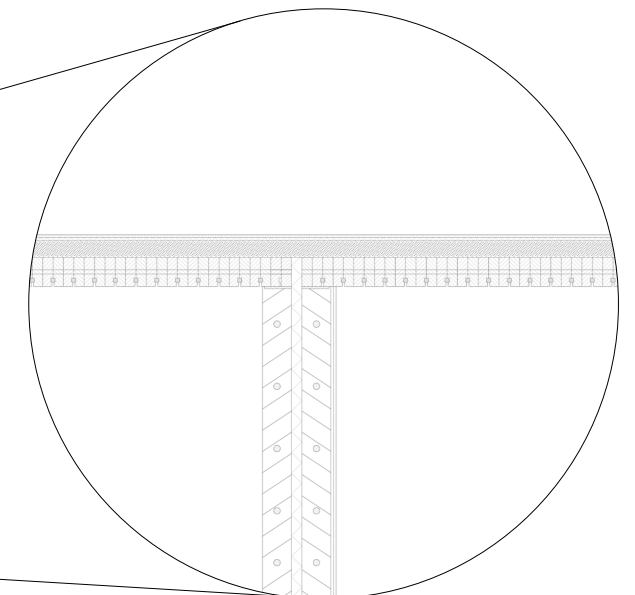
Balcony detail



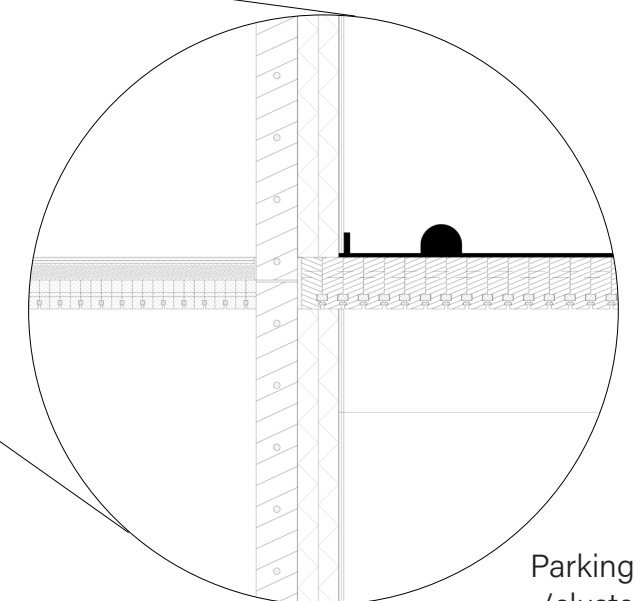
Window detail



Roof detail



Inner-cluster floor detail



Parking garage /cluster detail

1 Introduction

1.1 Introduction 1.2 Problem Statement
1.3 Research Plan

2 Results

2.1 Sharing
2.3 Co-housing

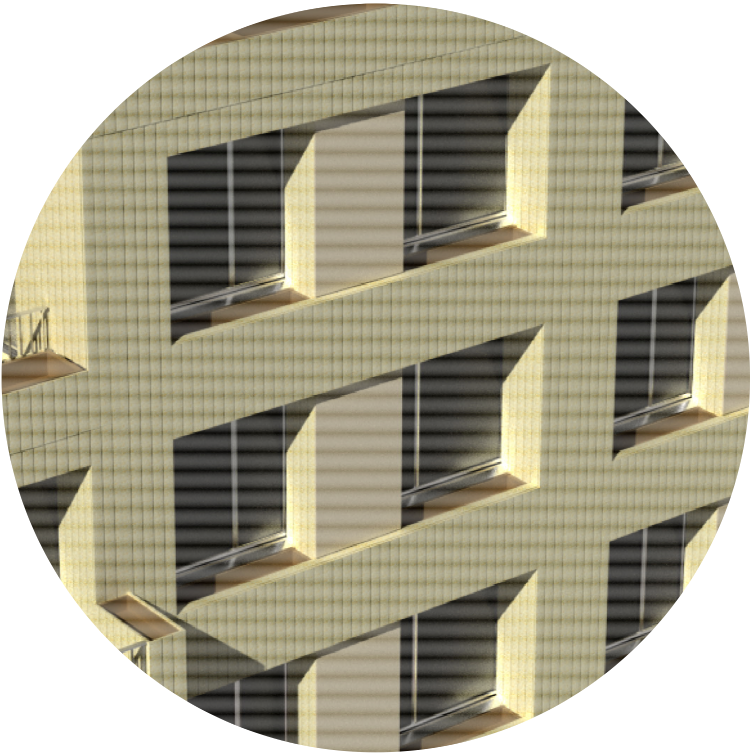
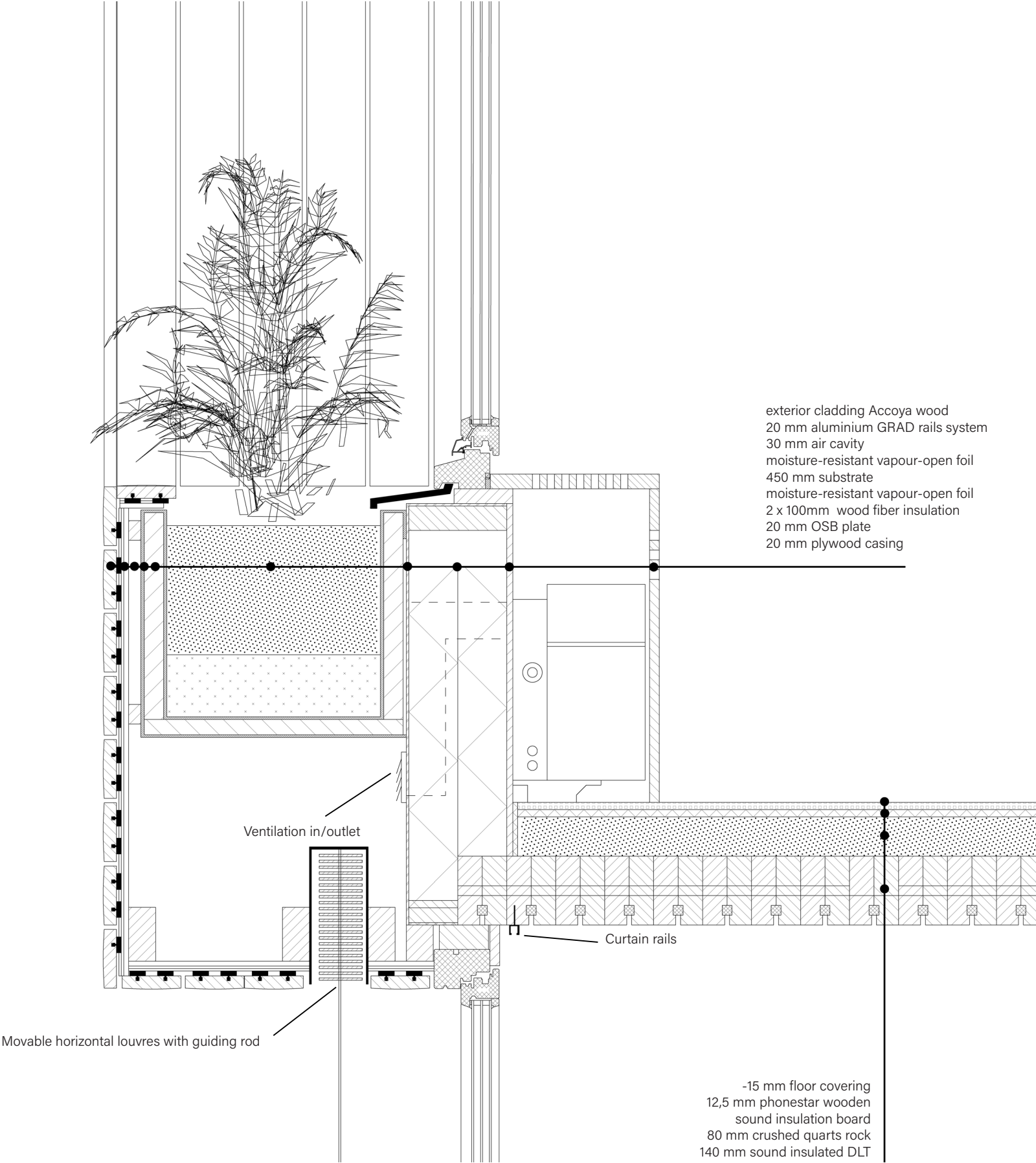
2.3 Short-stay
2.4 Urban densification

3 Site Vision

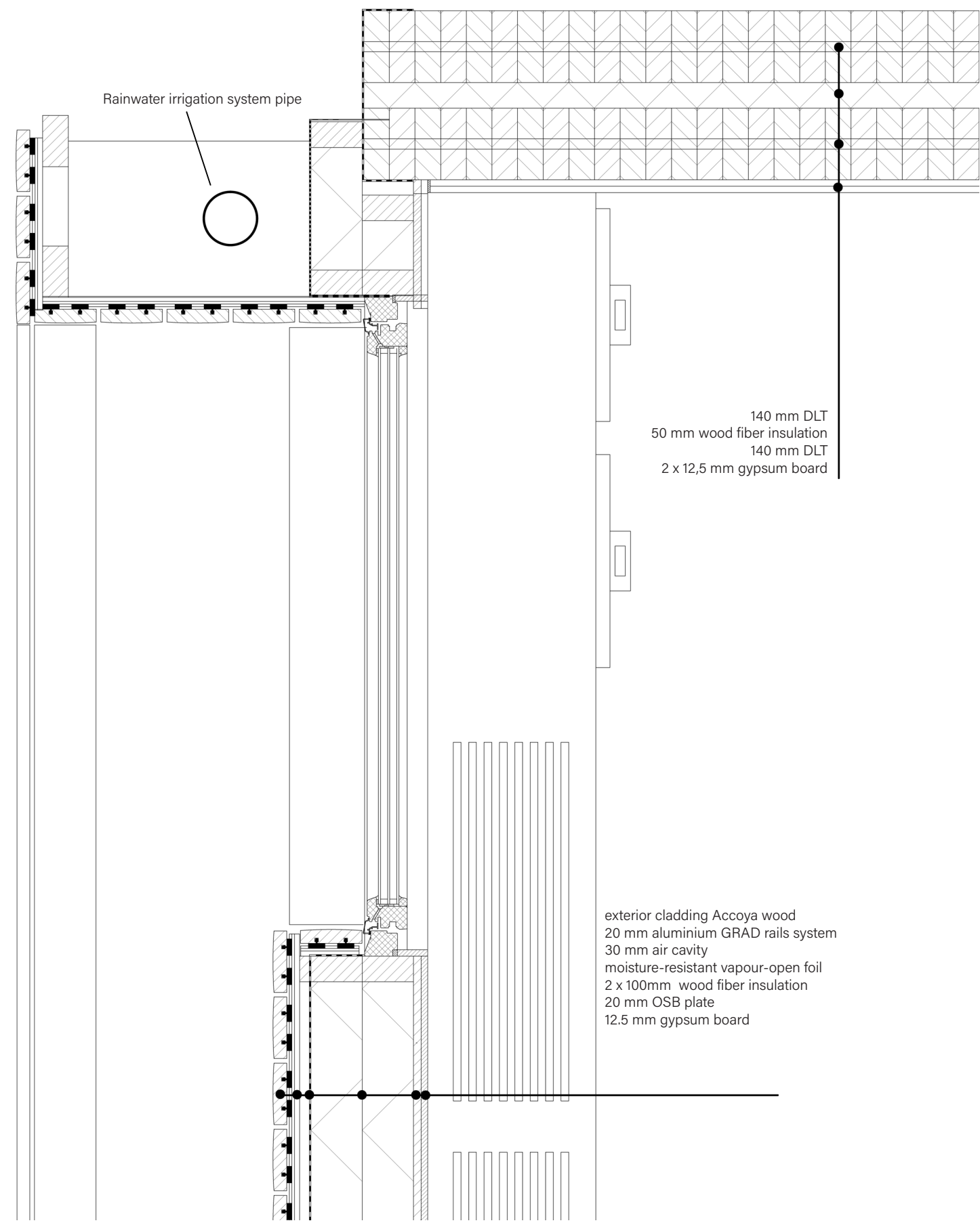
3.1 Site Analysis 3.2 Vision
3.3 Masterplan

4 Design

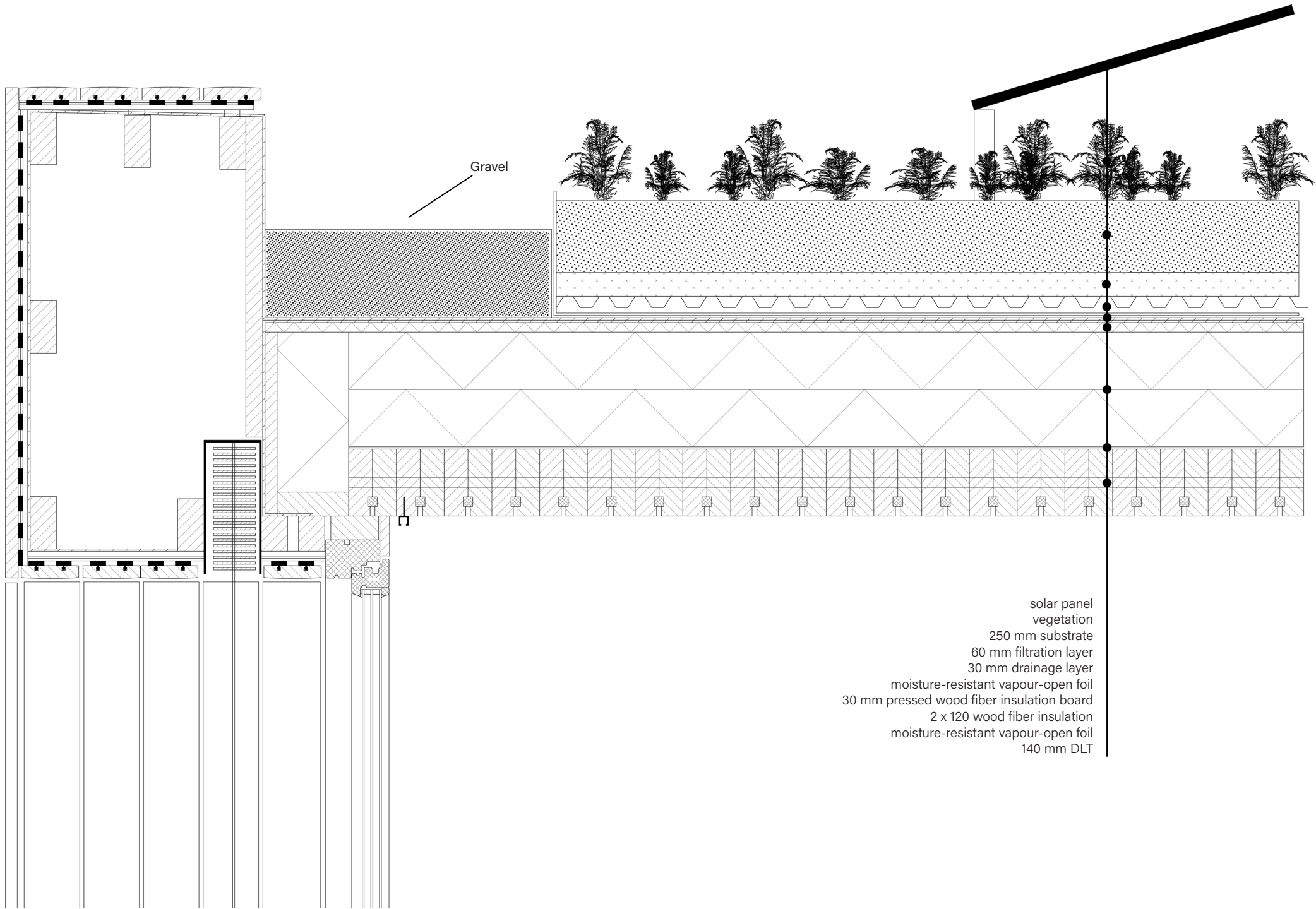
Vertical window detail scale 1:5



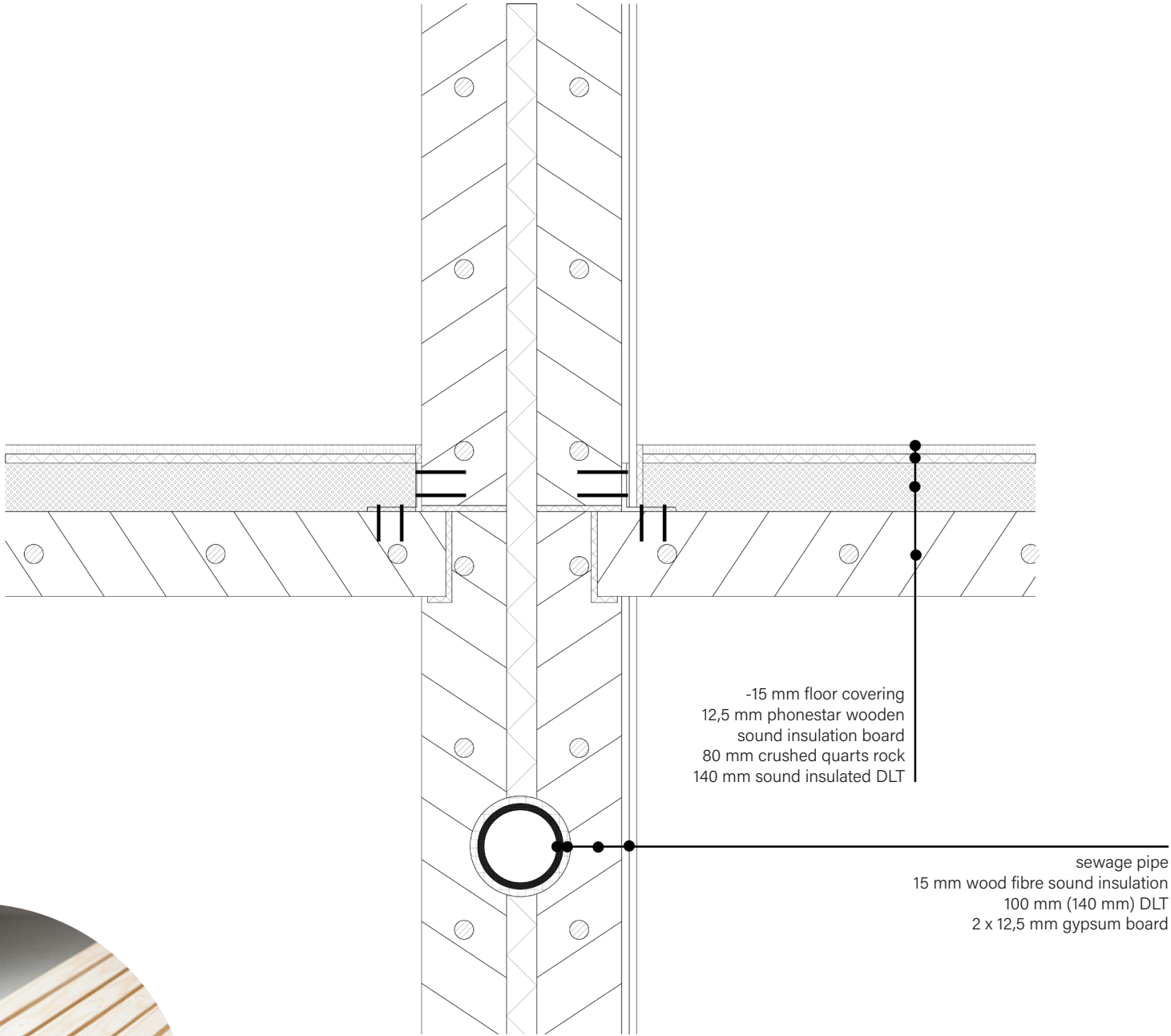
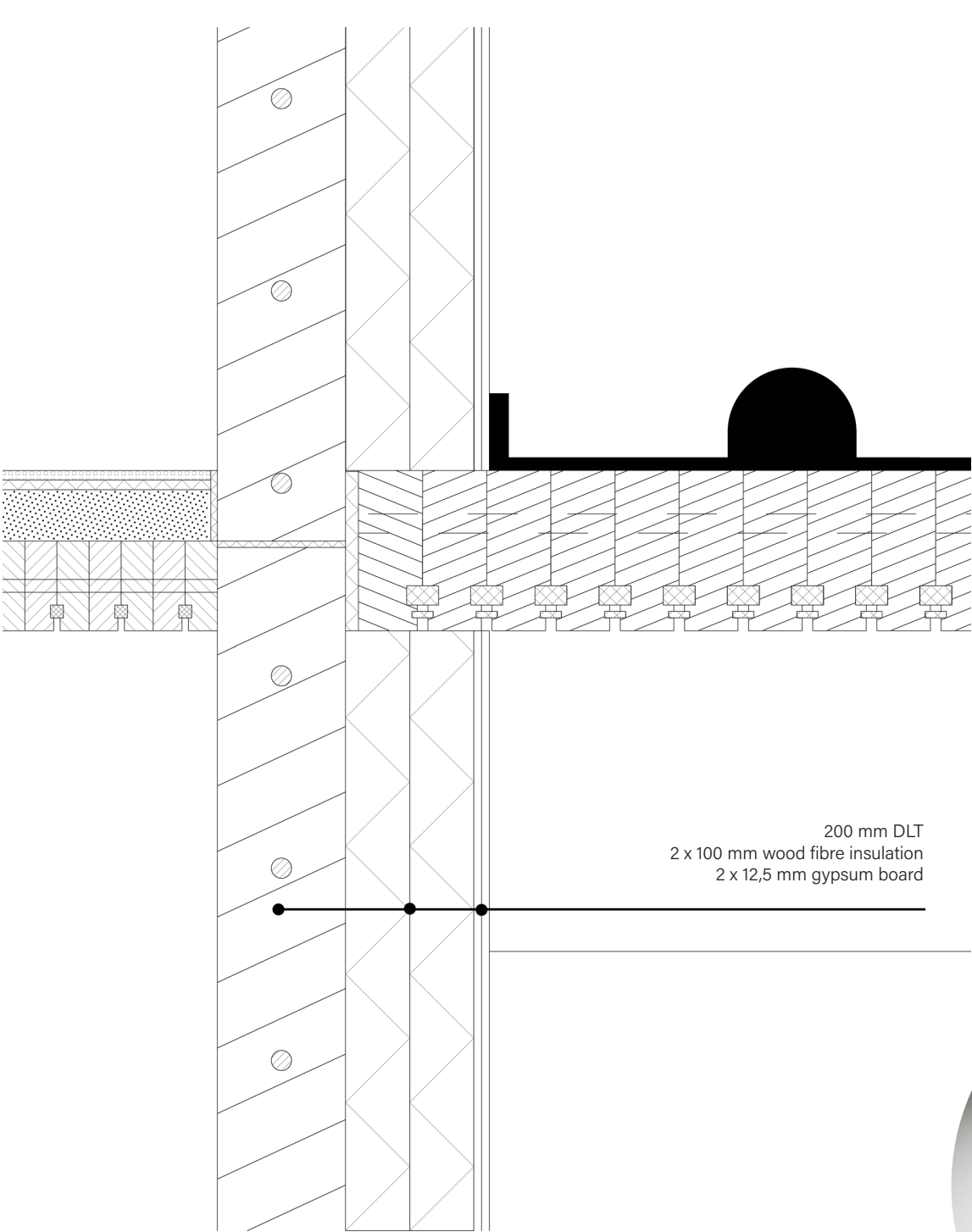
Horizontal window detail scale 1:5



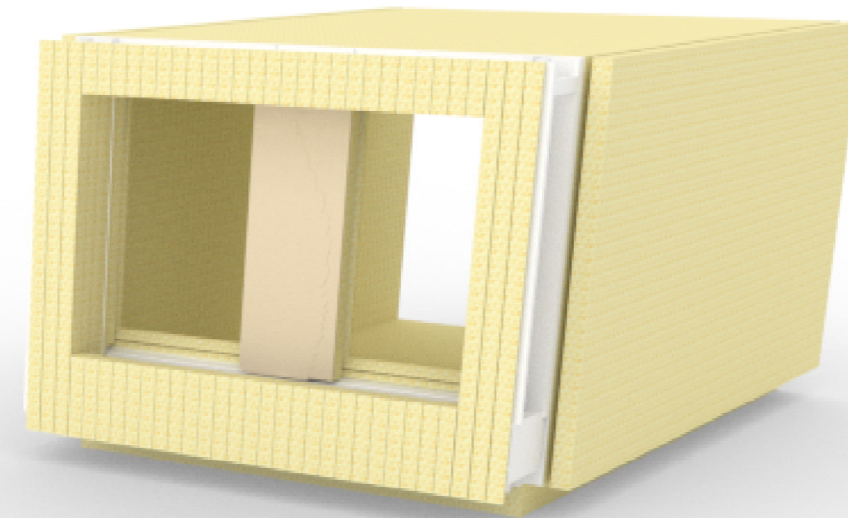
Vertical roof detail scale 1:5



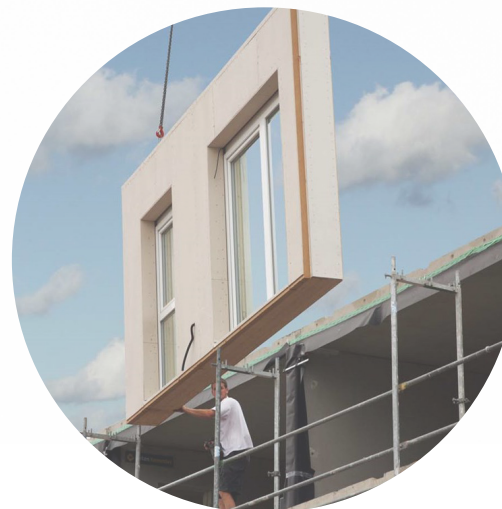
Vertical floor details scale 1:5



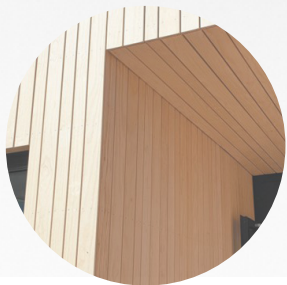
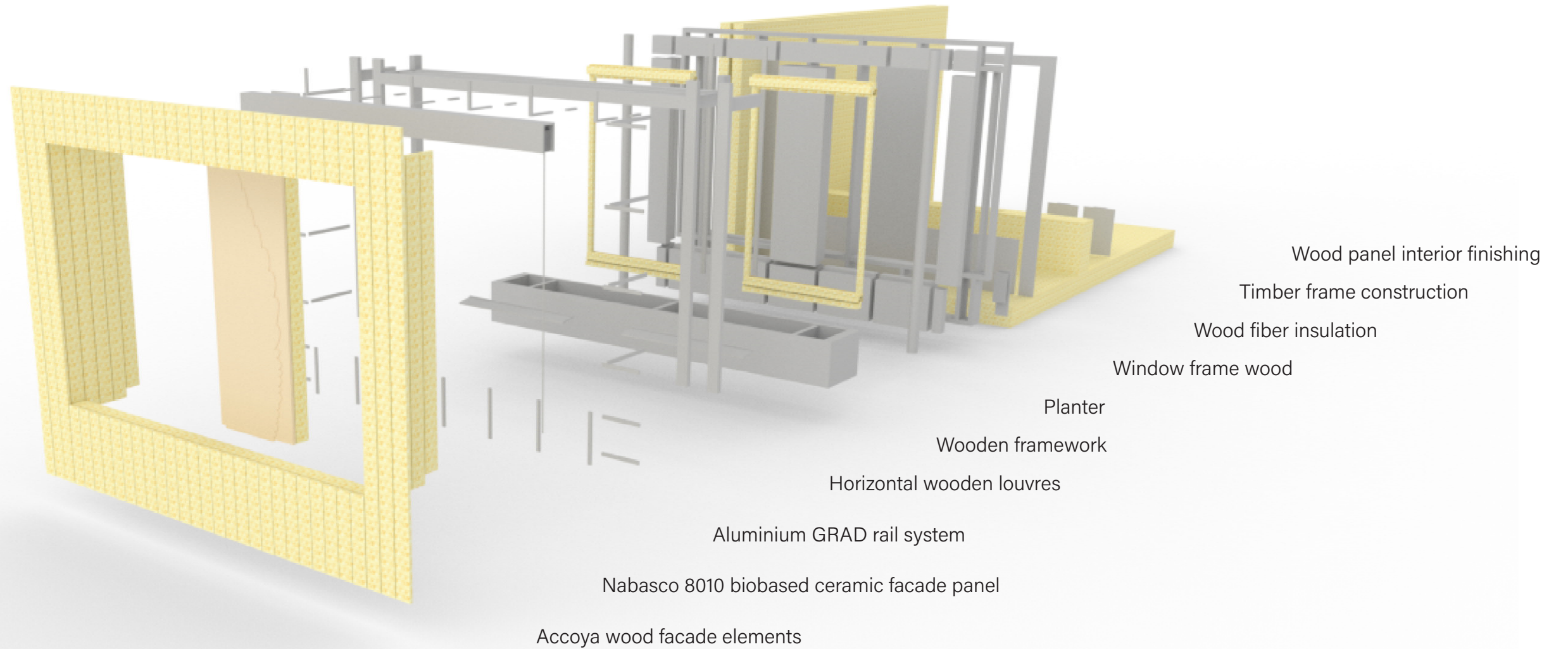
Facade



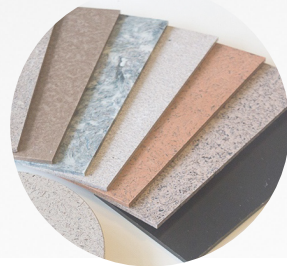
- Prefab facade elements
- 4 meters wide
- Integrated irrigation system for planter
- Horizontal external wooden louvres
- Double openable windows



Facade



Accoya wood facade elements



Nabasco 8010 biobased ceramic facade panel



Aluminium GRAD rail system



Planter



Wood fiber insulation

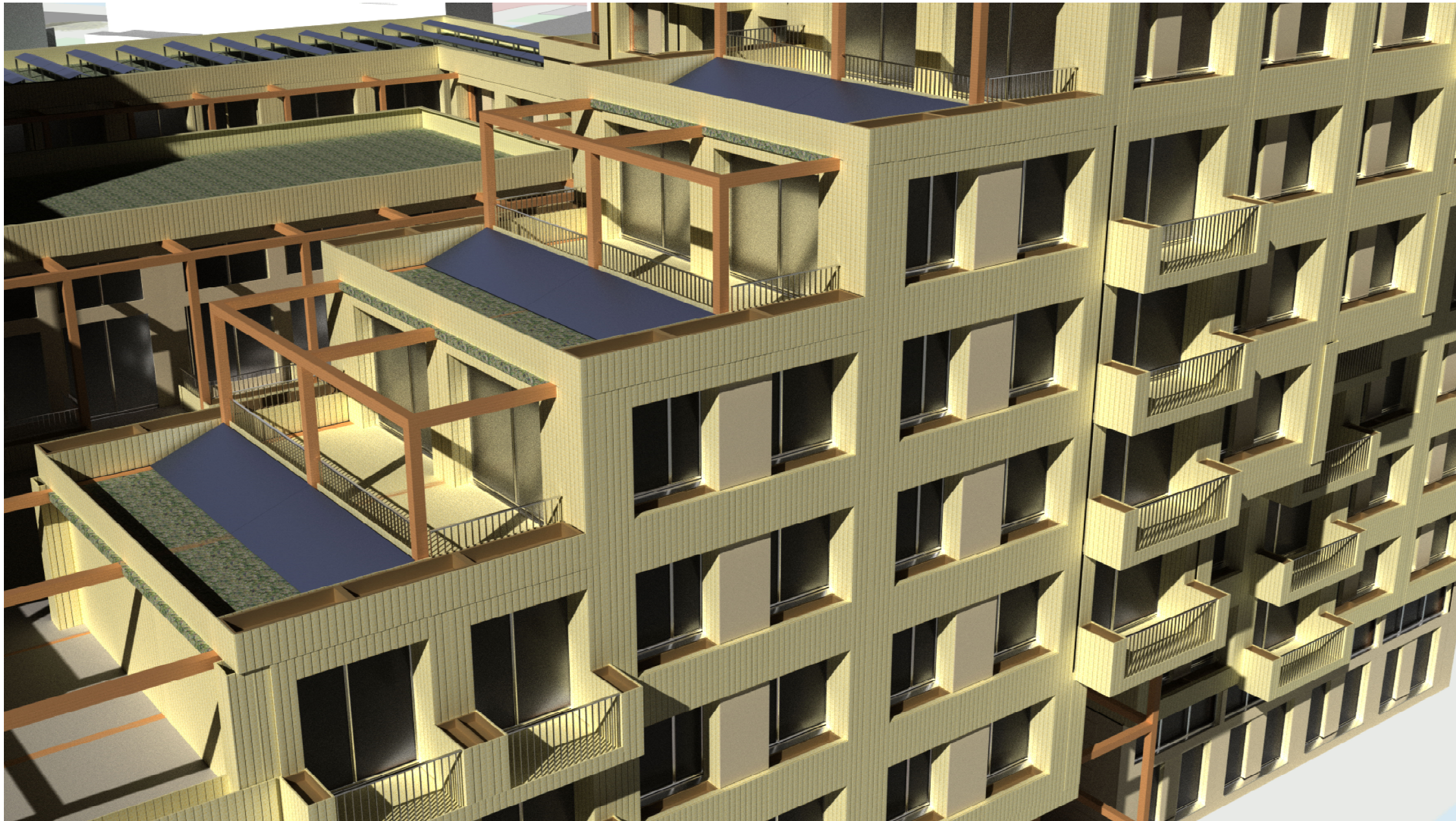
Facade



Usable window sill with storage cabinets and a depth of 350 mm

50% of floor, walls & ceiling is visible (constructive) DLT wood

Facade



Facade

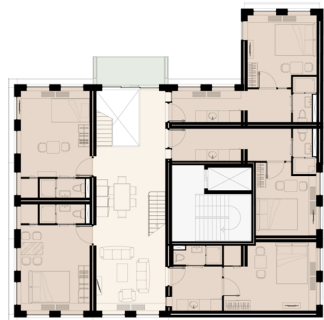


Clusters 1:500

Floor +5



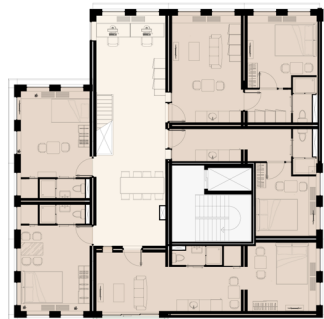
Floor +6



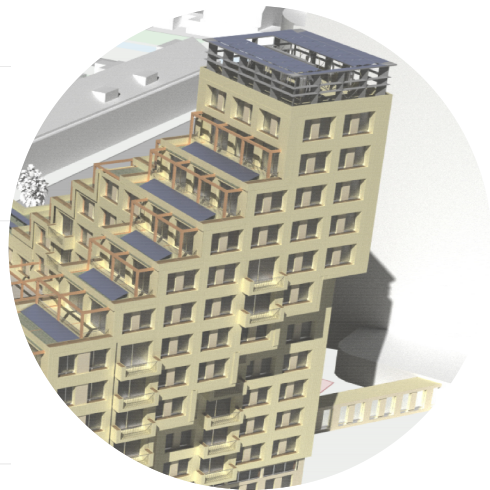
Floor +7



Floor +8

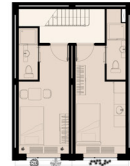


High-end cluster



- Higher incomes
- Spacious private and shared spaces
- For example:
Expats
Recently divorced
Tourists

Floor +1



Floor +2



Floor +3



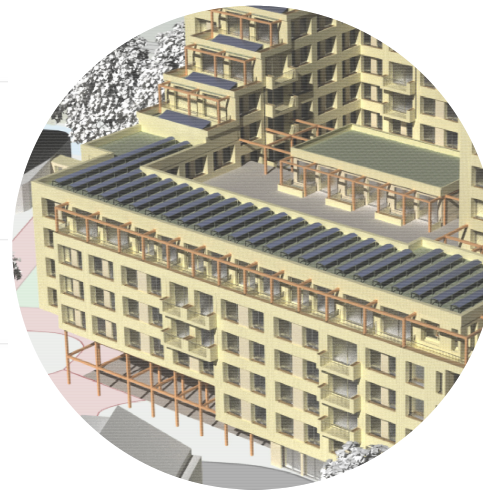
Floor +4



Floor +5



Regular cluster

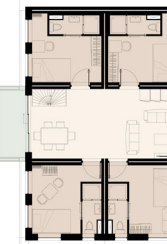


- Middle incomes
- Variety in spaces and dwellings
- For example:
Recently divorced
Tourists
Economically homeless

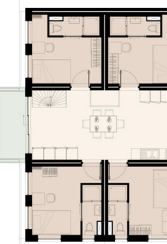
Floor +5



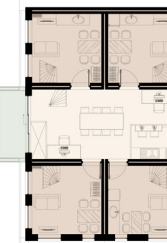
Floor +6



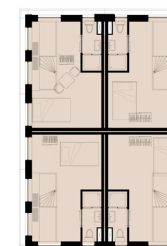
Floor +7



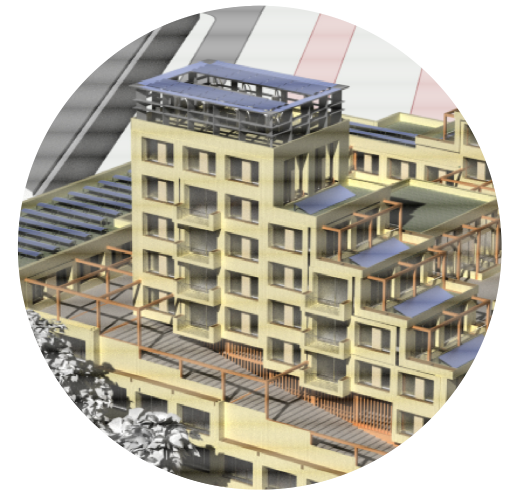
Floor +8



Floor +9



Budget cluster



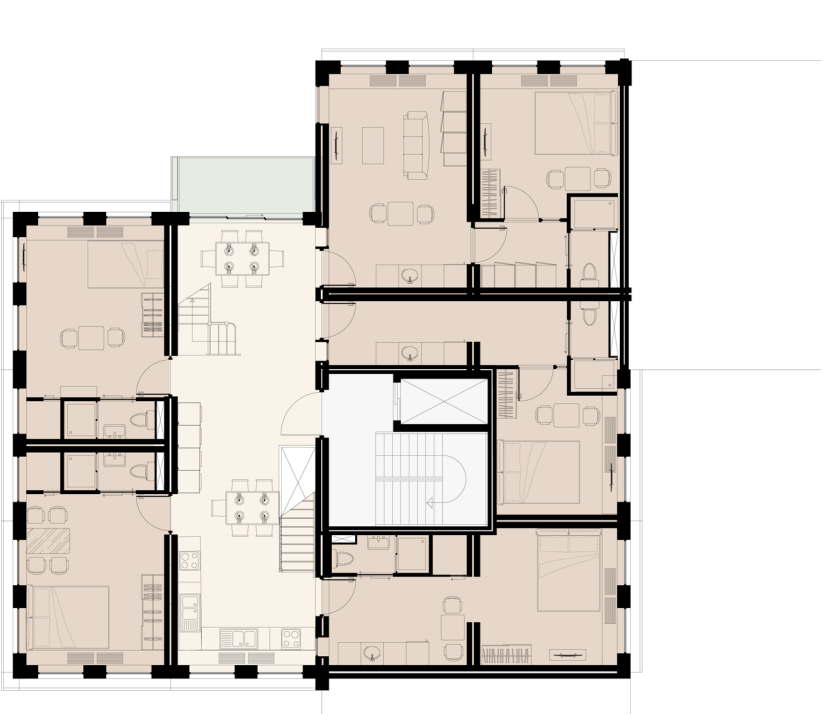
- Lower incomes
- Basic and minimalistic amenities and dwellings
- For example:
Refugees
Economically homeless
Seasonal migrant workers

High-end cluster

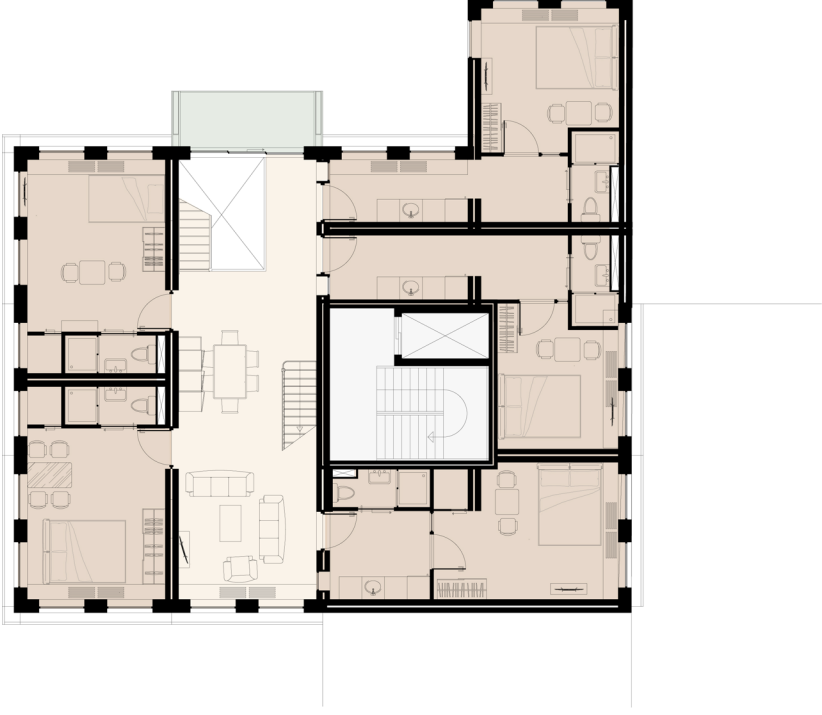
Floor +5



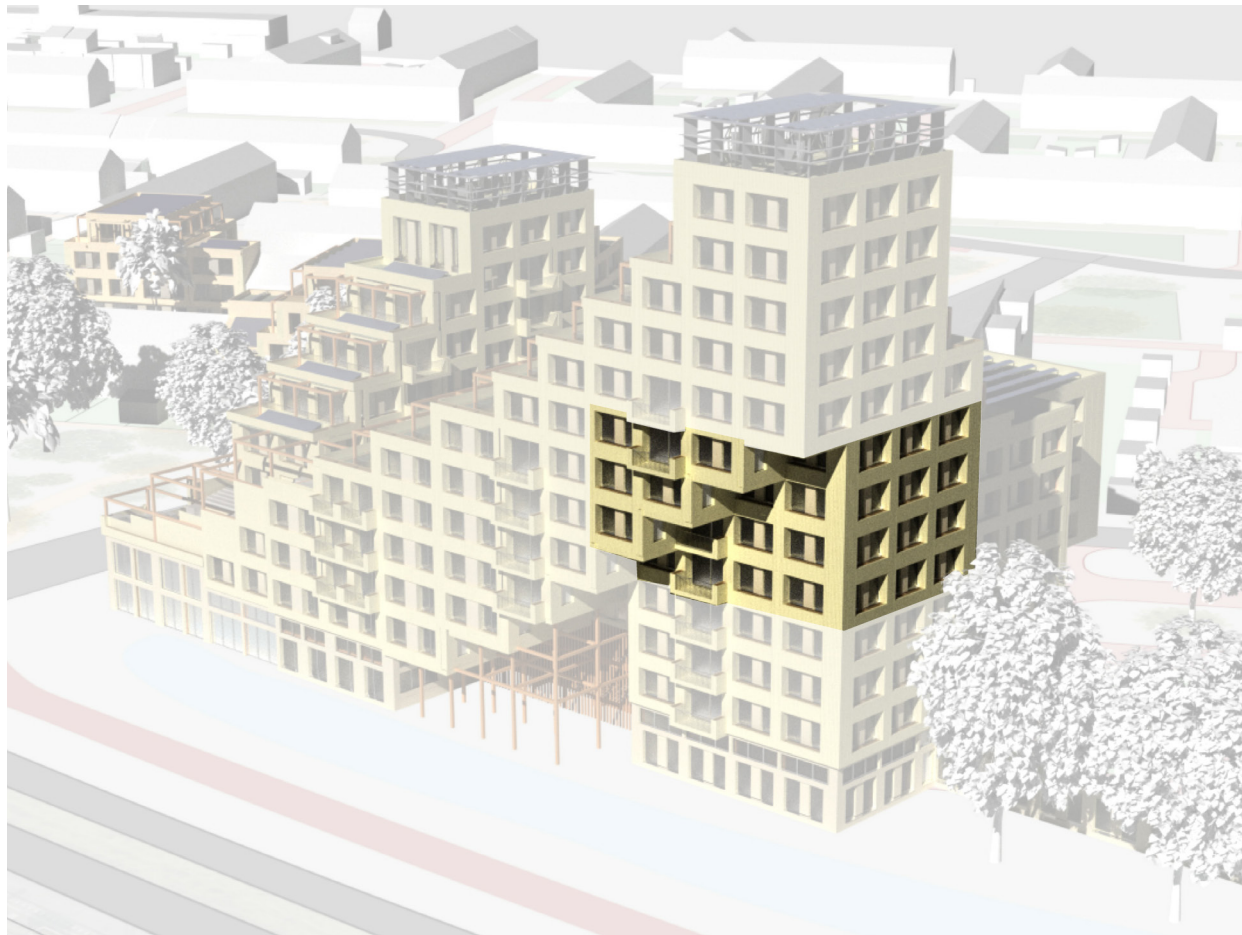
Floor +7



Floor +6

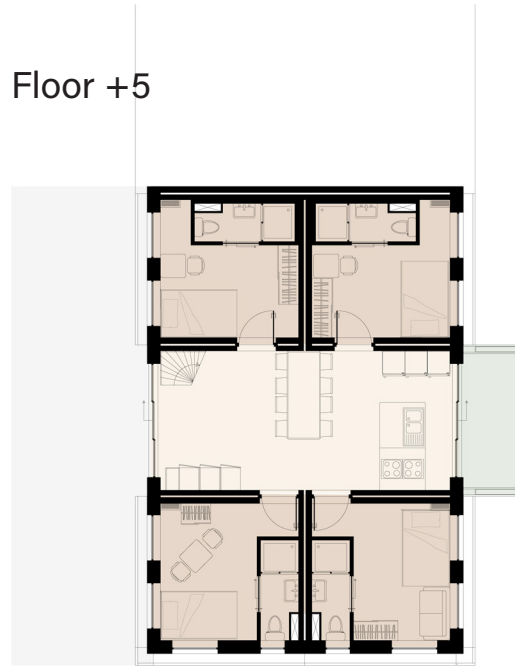


Floor +8

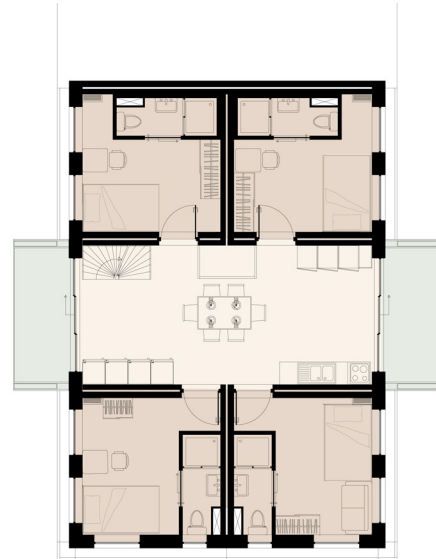


Budget cluster

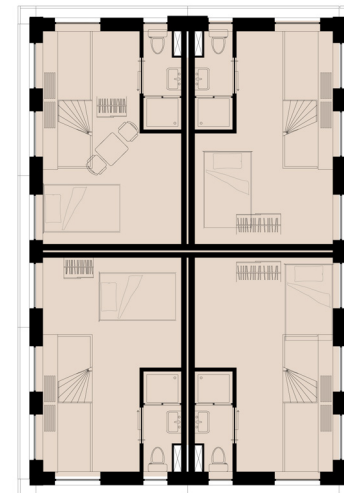
Floor +5



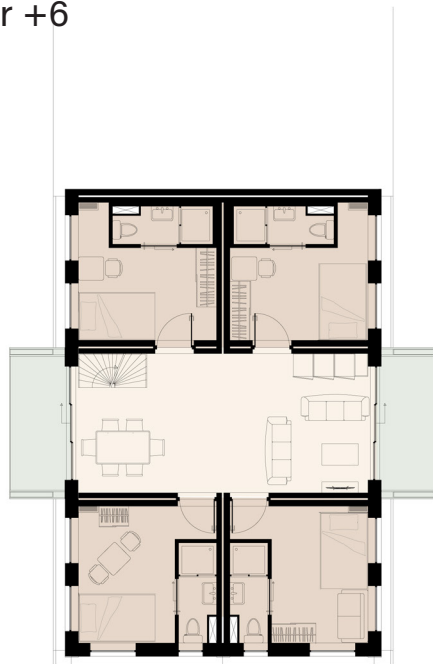
Floor +7



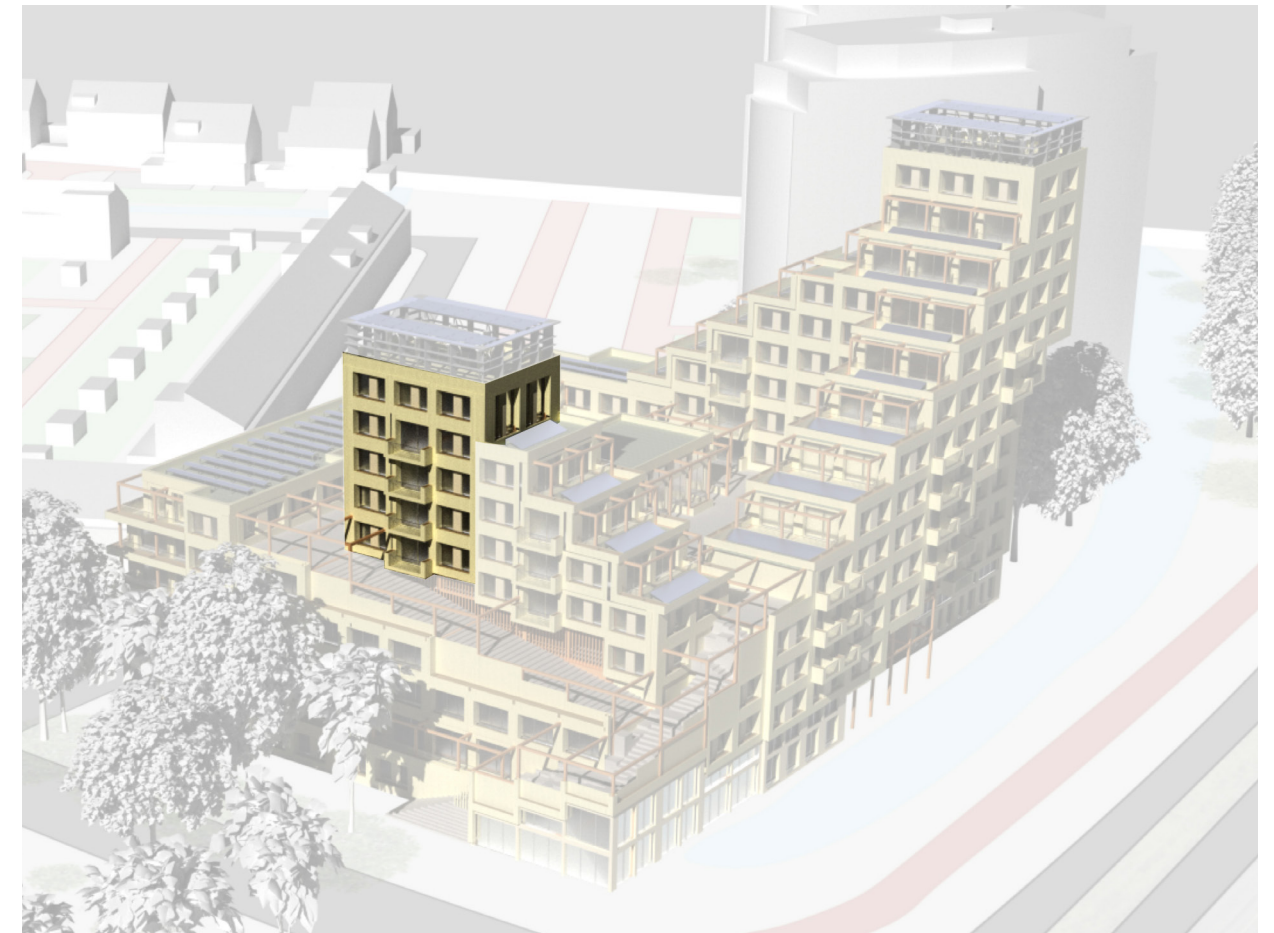
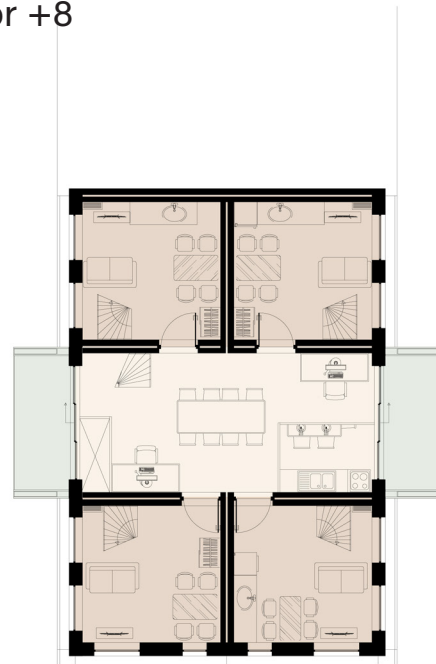
Floor +9



Floor +6

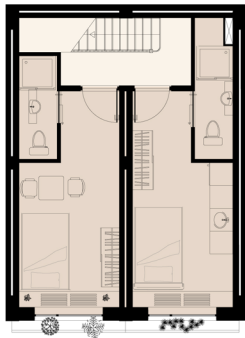


Floor +8

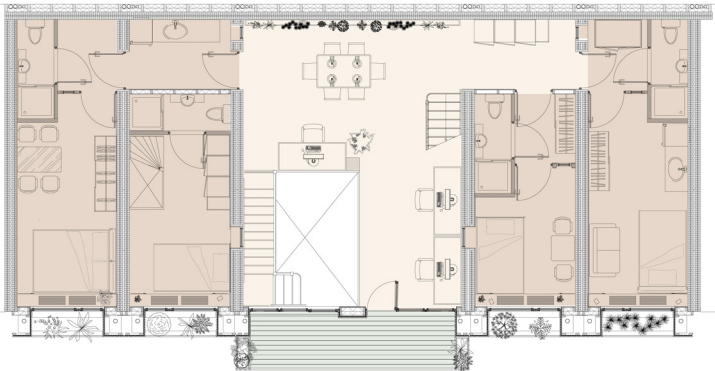


Regular cluster

Floor +1



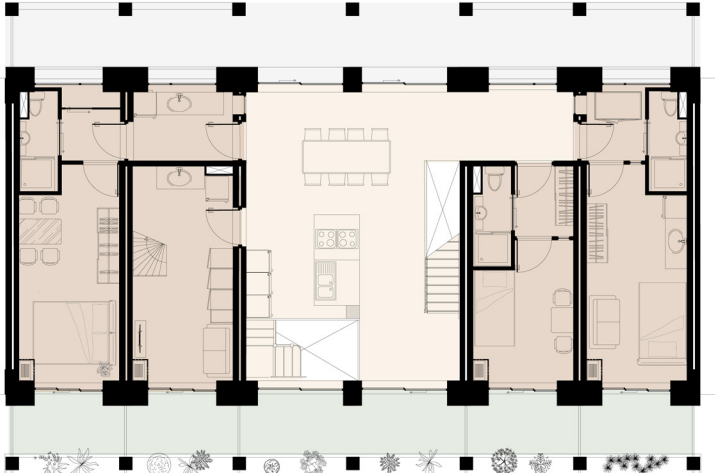
Floor +4



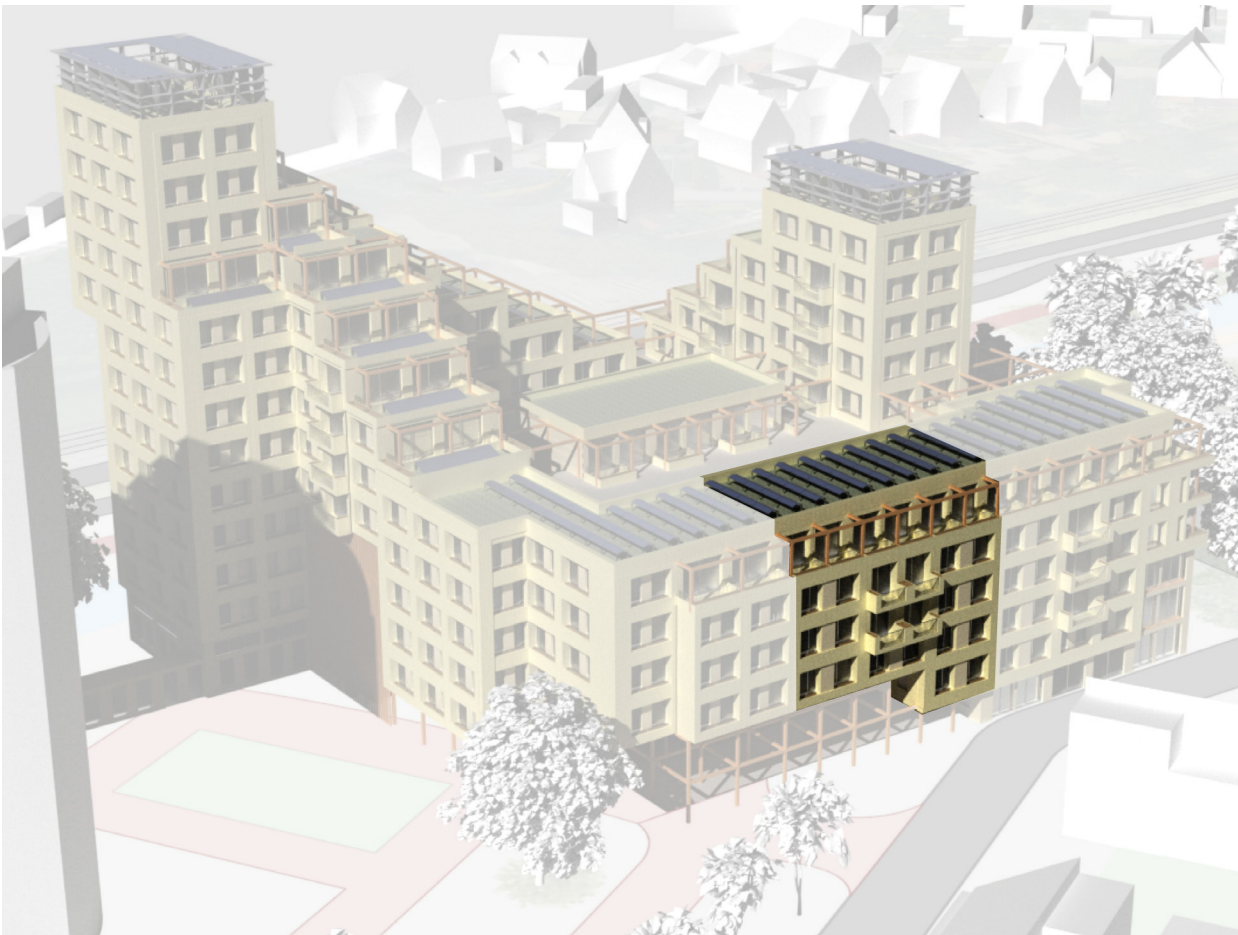
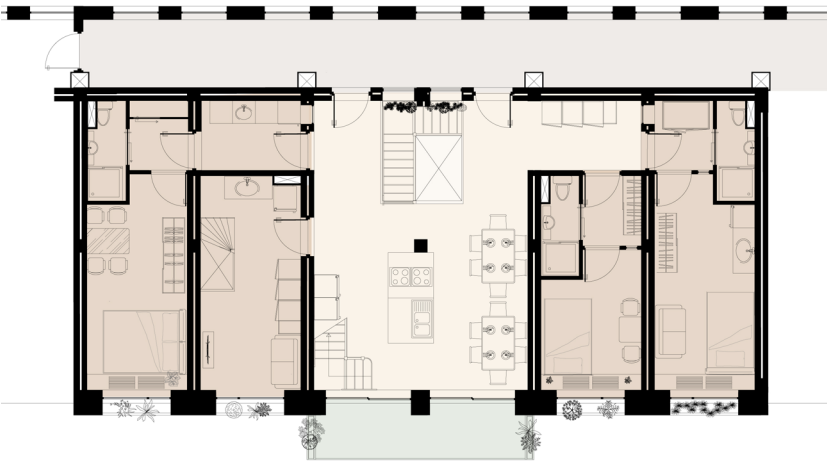
Floor +2



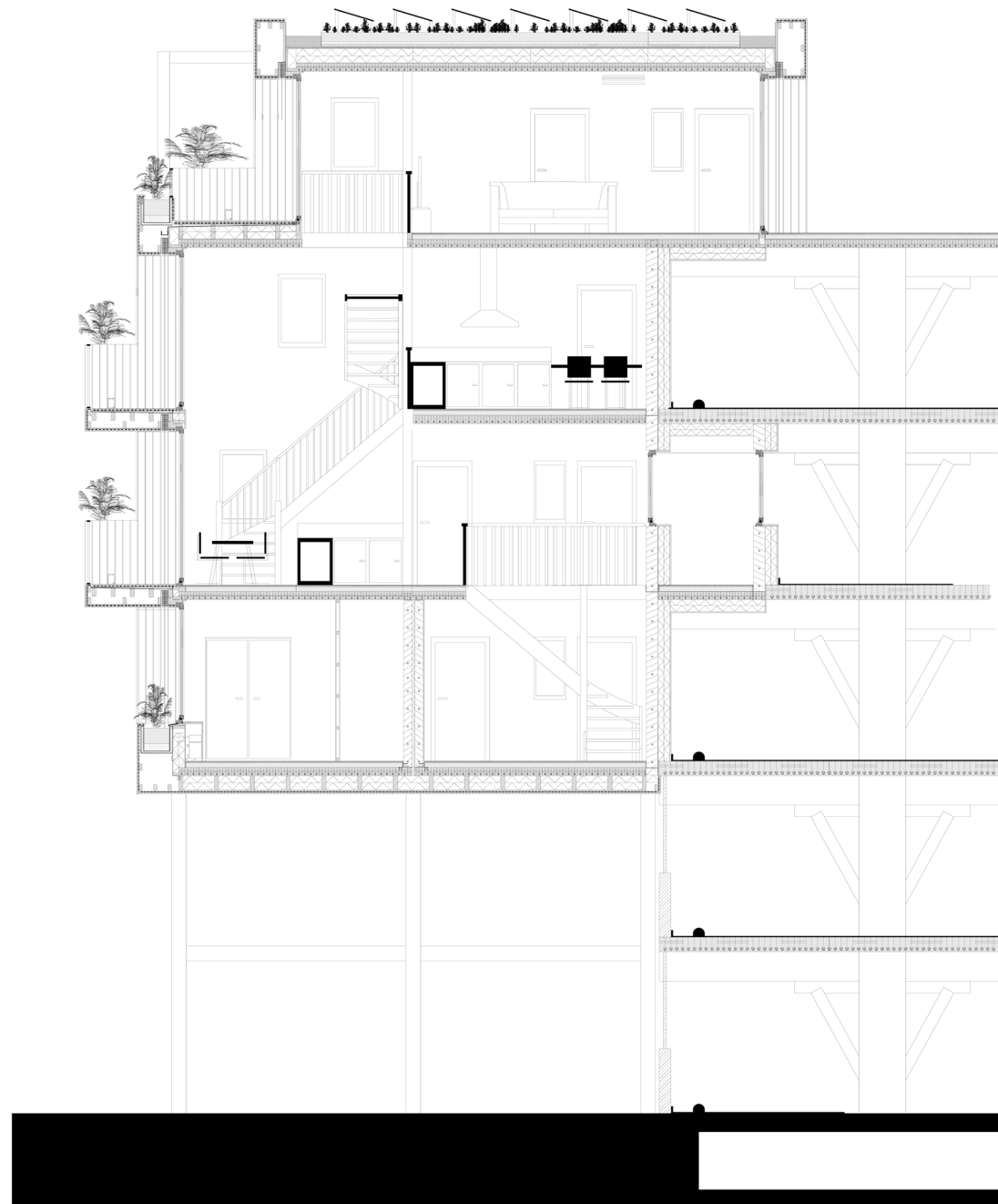
Floor +5



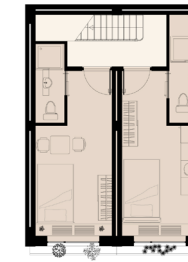
Floor +3



Cluster



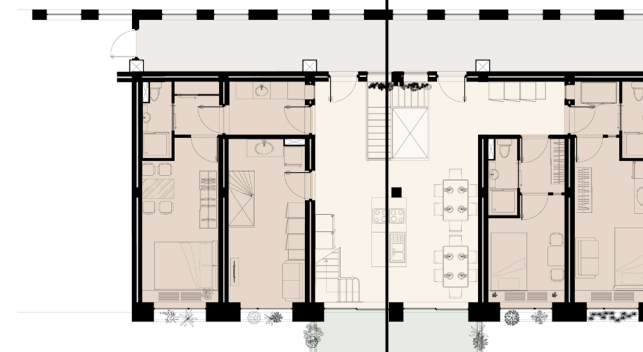
Floor +1



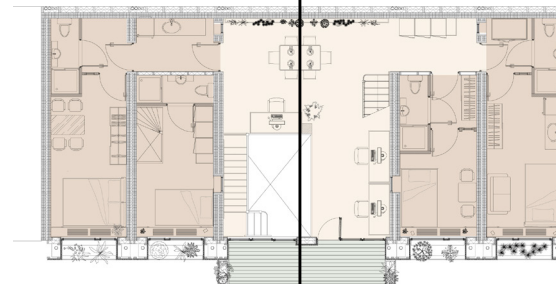
Floor +2



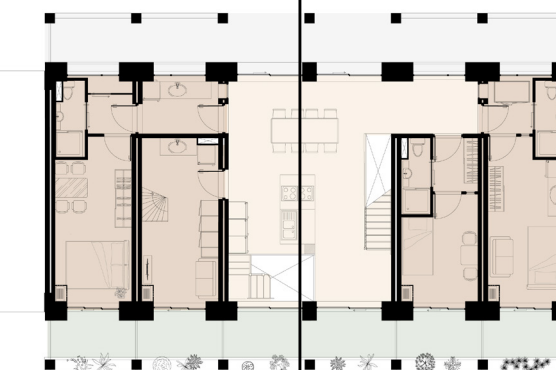
Floor +3



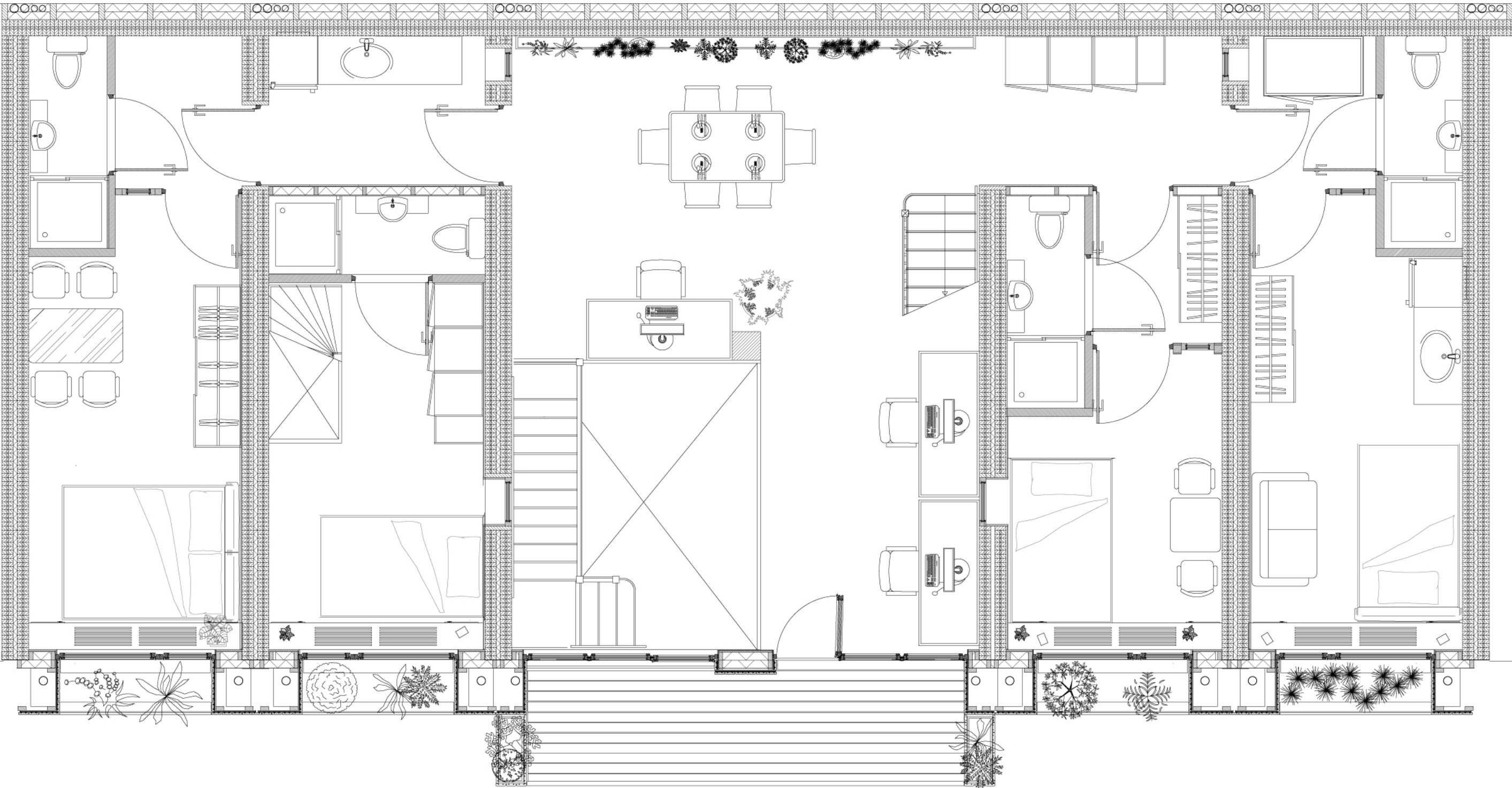
Floor +4



Floor +5

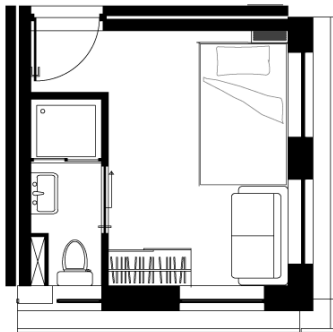


Regular cluster; floor 4

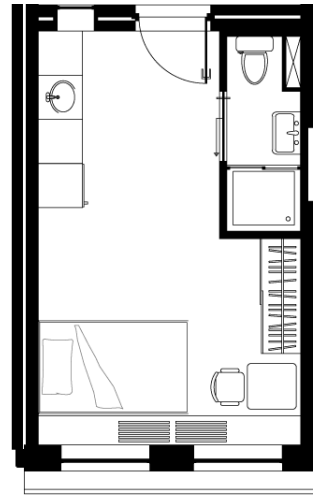


Types of dwellings

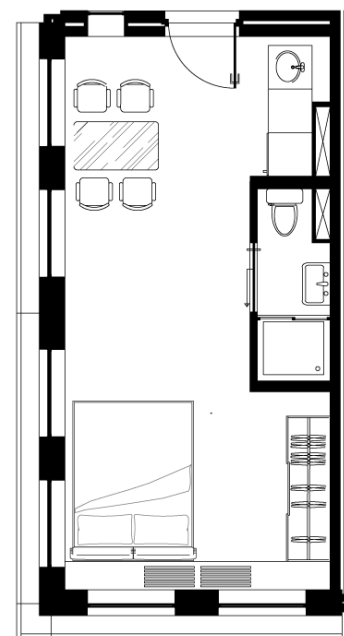
Room +
16 m²



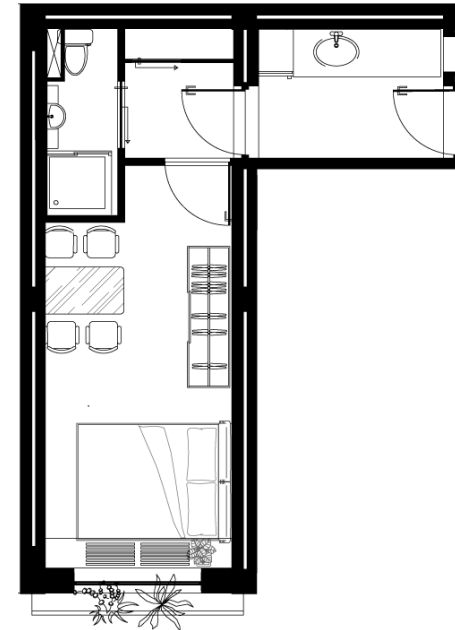
Studio
24 m²



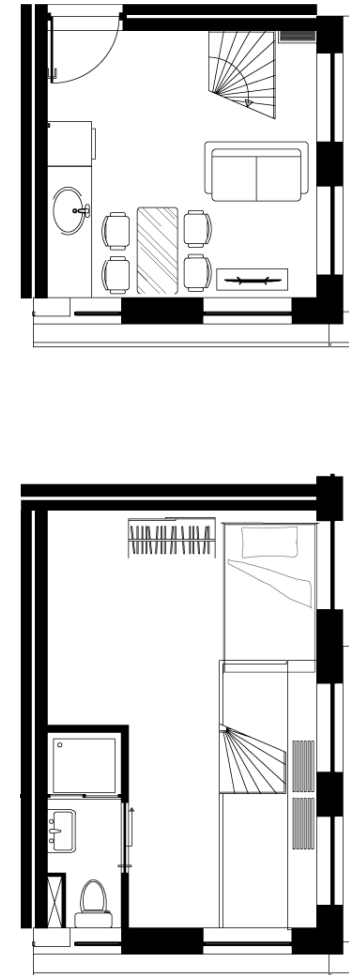
Studio +
32 m²



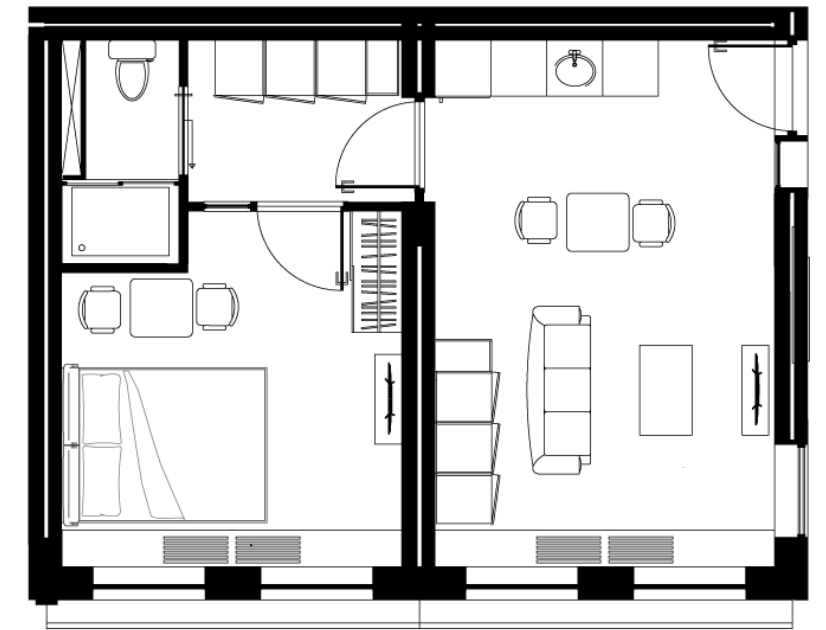
1.5 studio
40 m²



Duplex
40 m²



One-bedroom apartment
62 m²



Masterplan



Clusters



Clusters



Clusters



Ground floor plan



Floor plans

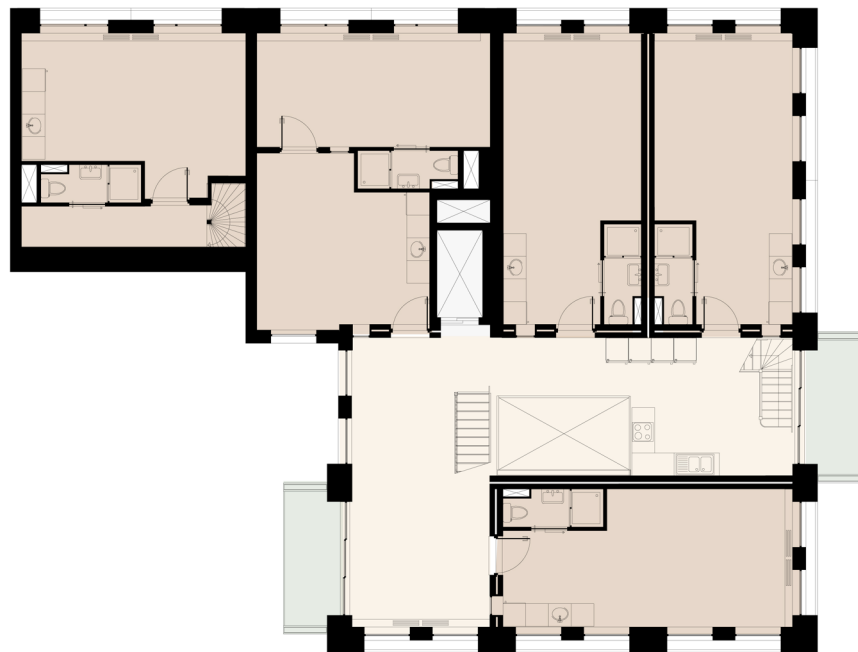
Ground floor



Floor +1



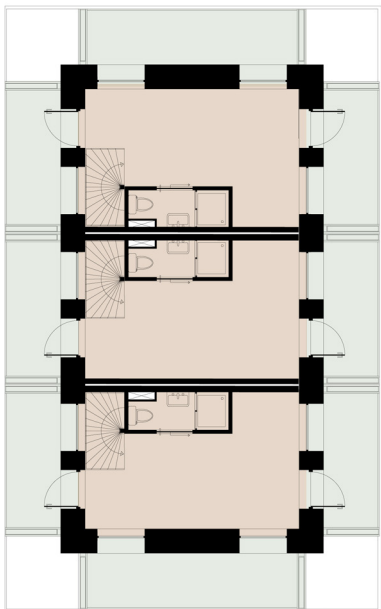
Floor +2



Floor +3



Floor +4



Impressions

Birds eye view north-east



Birds eye view south-east



Street view north-west



View from communal garden



Conclusion

17 neighbourhood blocks of +/-20 inhabitants

Densification without mass demolition

Design as a method of social interaction

Integrated network of shared spaces

Space for inhabitants and biodiversity

148 new dwellings in the mobility hub

Introduced functions for sustainable living

Improved streetscape

Parking spaces removed from sight

Sharing economy at the core